KYOCERA

2025-2026 | KYOCERA Precision Tools

GENERAL CATALOG

ADVANCING PRODUCTIVITY

v26.2

Advancing Productivity

Contributing to the betterment of world-wide manufacturing and our customers' productivity by providing efficient cutting tool products and high-precision machining solutions

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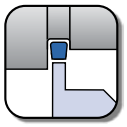
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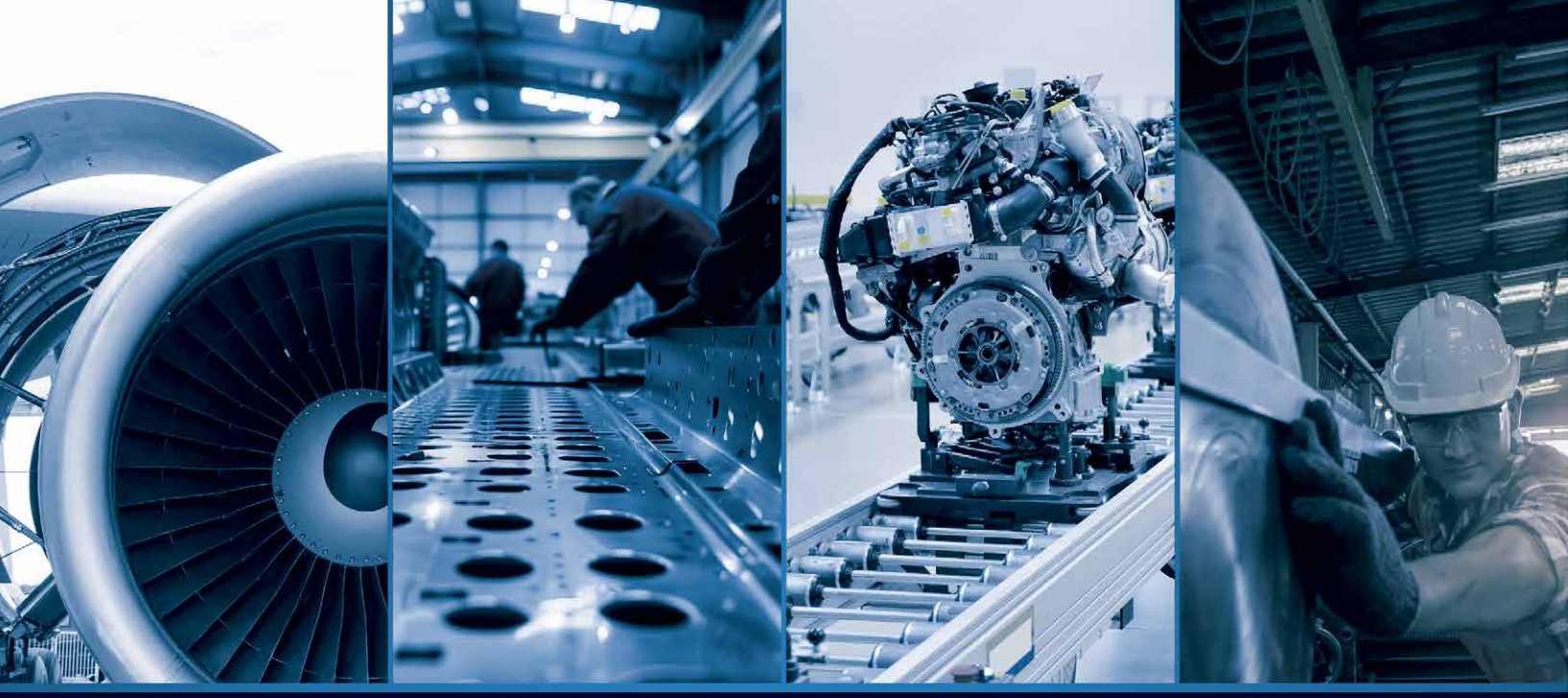

KYOCERA Precision Tools

KYOCERA Precision Tools, a division of the KYOCERA SGS Precision Tools group, provides indexable tooling solutions and service to a variety of industries, including aerospace, automotive, medical, dental, oil & gas, and power generation.

TRUSTED PRECISION
RELIABLE PERFORMANCE

At KYOCERA Precision Tools, we're passionate about revolutionary cutting tool technology. We design and develop advanced indexable cutting tools that not only meet but exceed quality expectations, all while delivering the cost-efficiency that today's metalworking professionals need to stay competitive.

Though ceramic technologies were the nucleus of the original business model, we've evolved over the years to become a global leader in the metal removal industry. Our expertise extends across a wide range of materials, including carbide, cermet, CBN, and PCD, allowing us to provide innovative solutions for every machining challenge.

For more than 40 years, we've been dedicated to creating some of the most reliable and cutting-edge indexable tooling solutions in the industry. From our **MEC Ultra-Hurricane 90° Milling Cutters** and **MFH-RAPTOR High-Feed Milling Cutters** to the groundbreaking **DRZ & DRV Magic Drills** and the industry-first **CCX CVD Coated Cermet**, we take pride in delivering tools that empower machinists to do more.

Turning & Boring

Holemaking

Indexable Milling

Small Tools for Swiss Lathes

Quick-Change Tooling & Specialty Tools

Grooving & Cut-Off Solutions

Visit us online at

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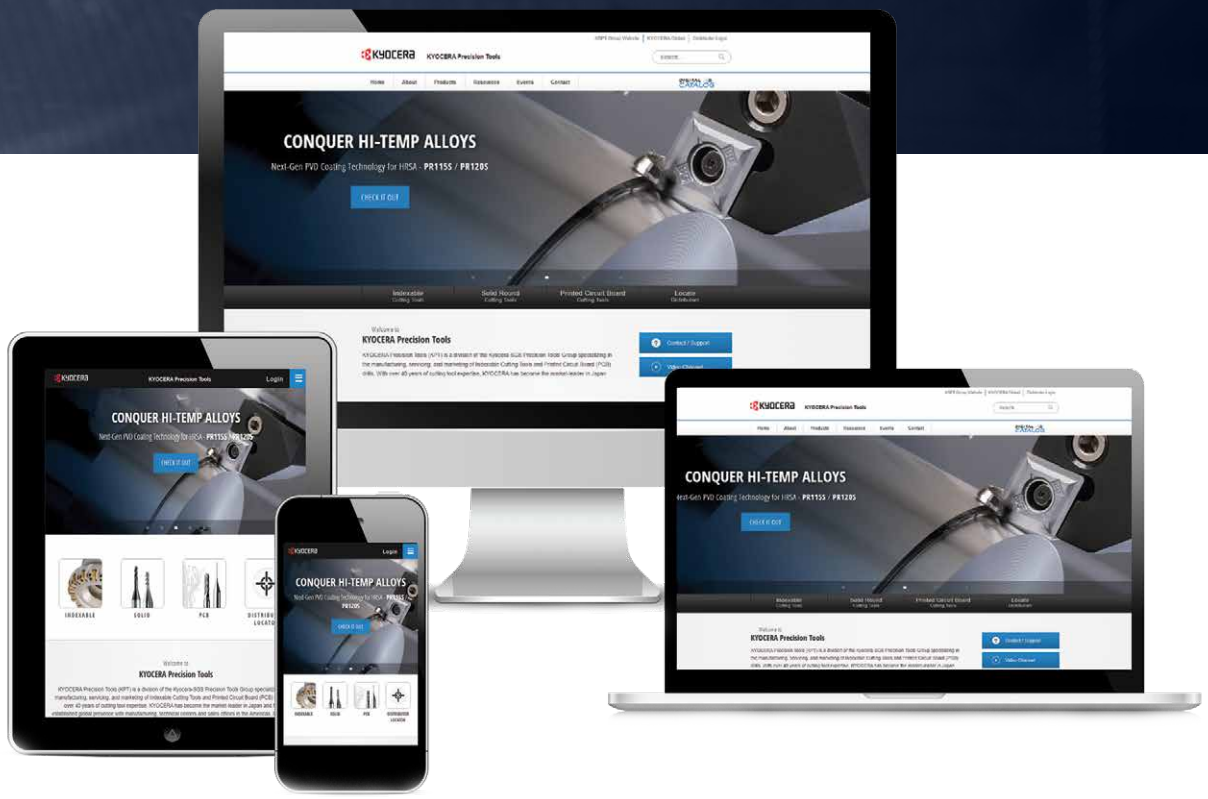

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In addition to placing orders, the distributor portal allows you to view real-time product availability, pricing, in-depth item attributes and dimensions, download product and promotional literature, and more.

Catalog Product Availability Symbols

● Indicates that an item is a **Standard Item** and is available to order.
If there is stock in the U.S., items will ship the same day if ordered by the following destination cut-offs:

- Shipments within the U.S. **3:30pm (EST)**
- Shipments to Canada: **2:00pm (EST)**
- Shipments to Mexico: **12:30pm (EST)**
- If there is no U.S. stock, please allow 7-10 business days for items to arrive

△ Indicates that an item is being phased out of production.
Please contact your local Kyocera sales engineer to determine a replacement solution.

□ Made to order or quoted item. Please contact **sales@kyocerapti.com**

*All **Standard Items** are subject to U.S. or International availability

FEATURED PRODUCT

Electric Torque Insert Driver

DTD500

Quick and easy insert replacements with precise torque control

View Online

2-in-1 electric driver and torque wrench

Quickly loosen and tighten insert screws with precise, adjustable torque settings. Clutch operates and idles when the set torque is reached, reducing operator over or under tightening.

Rechargeable with USB Type-C

Bright LED Light

Illuminate dark areas inside the machine

Li-ion
3.7v

Max Electric Torque
1 Nm

Manual Preset Torque
1-5 Nm

5 Bit Options

Compatible with a variety of screw types and sizes

Product Details and Parts, See Page P22

Insert Grades

A

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Insert Grades	A6-A21
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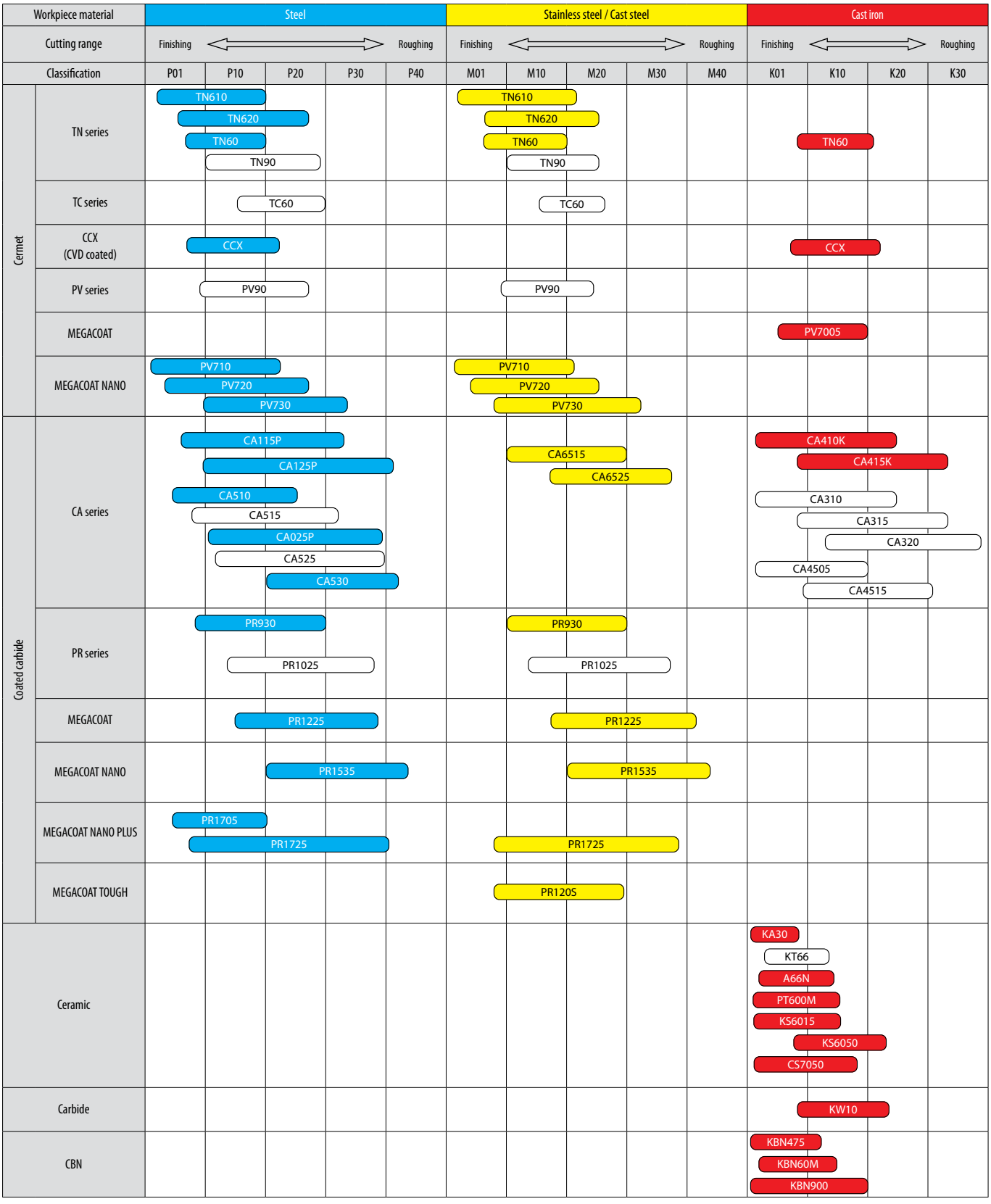
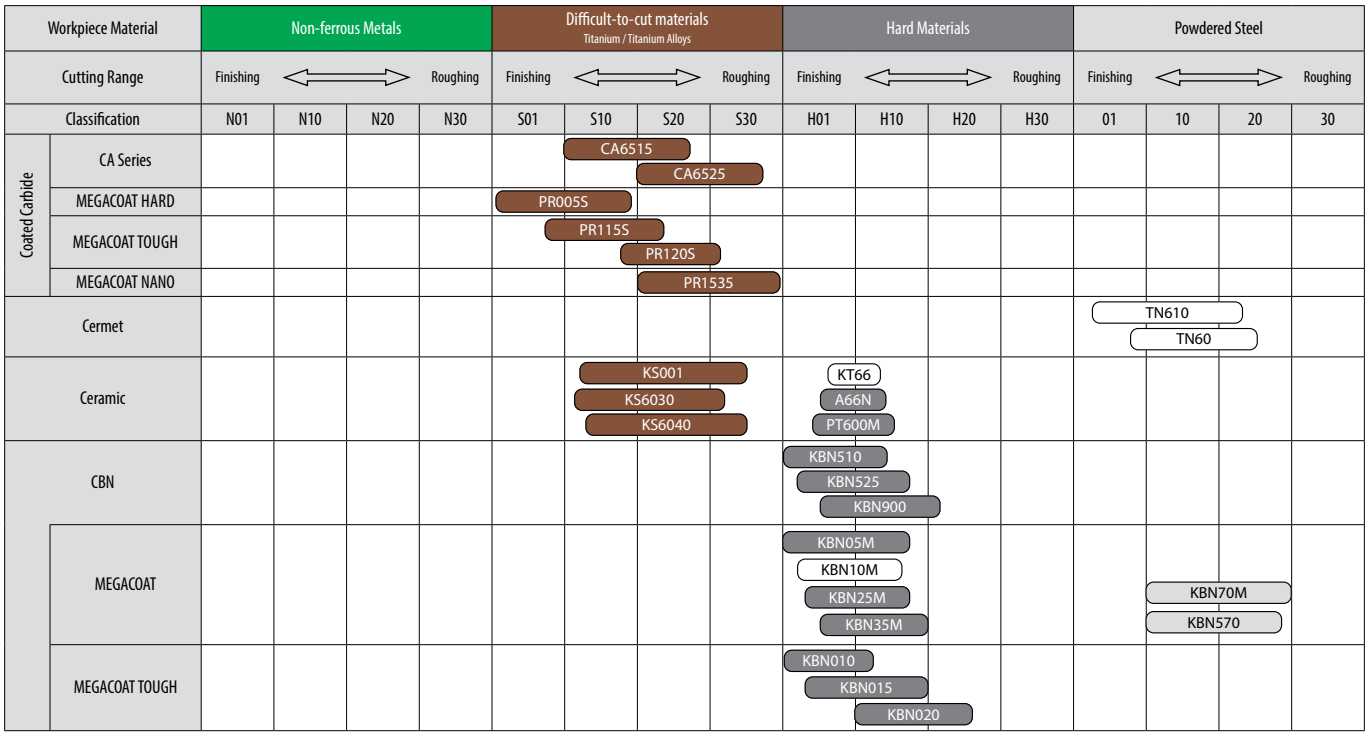
Kyocera promotes research and development to help improve customers' productivity and profitability. Kyocera provides high-quality inserts in various grades including cermet, coated carbide, coated super micro grain carbide, uncoated carbide, ceramic, PCD and CBN.

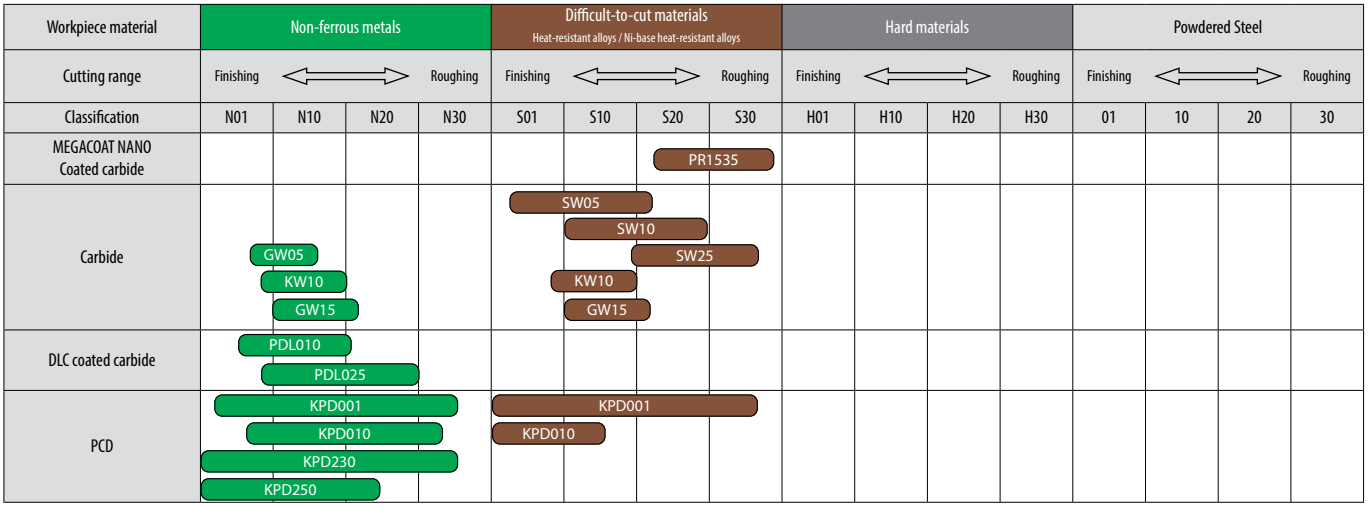
Turning



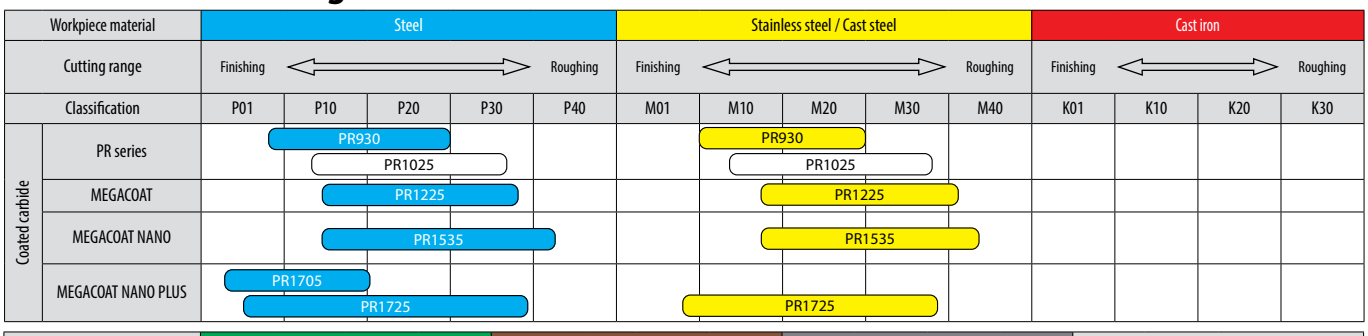
*White bars indicate older grades

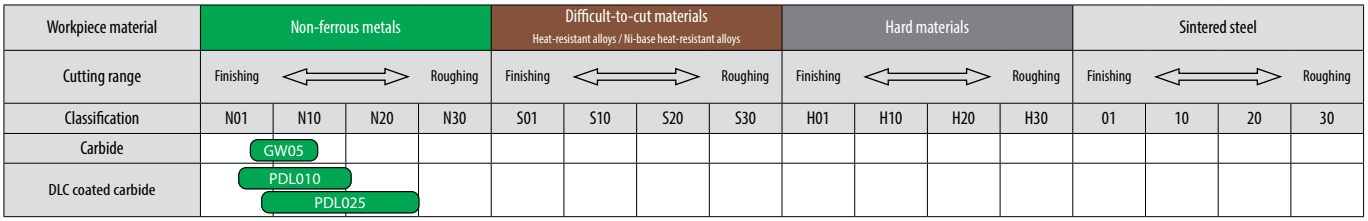
Turning





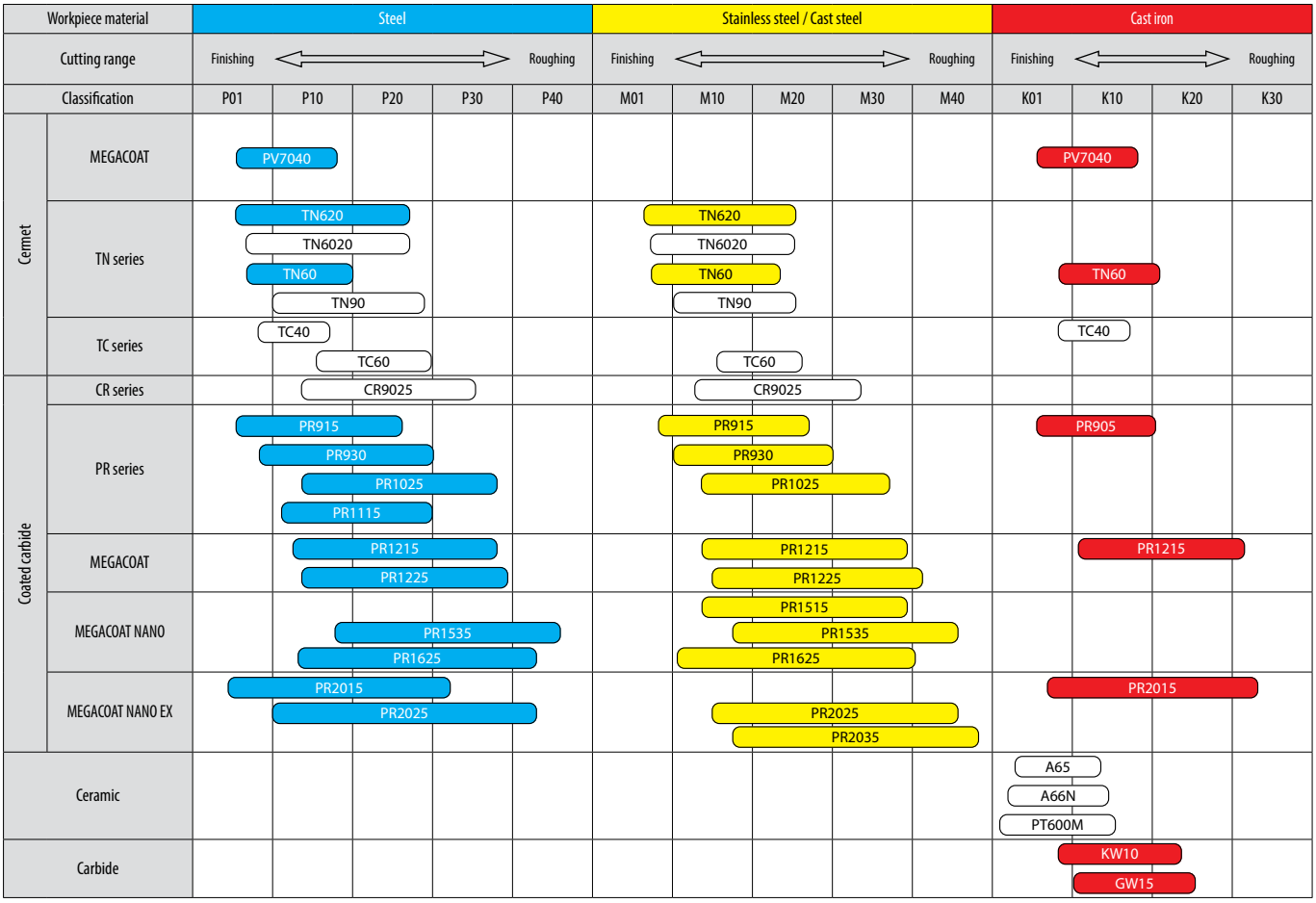
Small Parts Machining

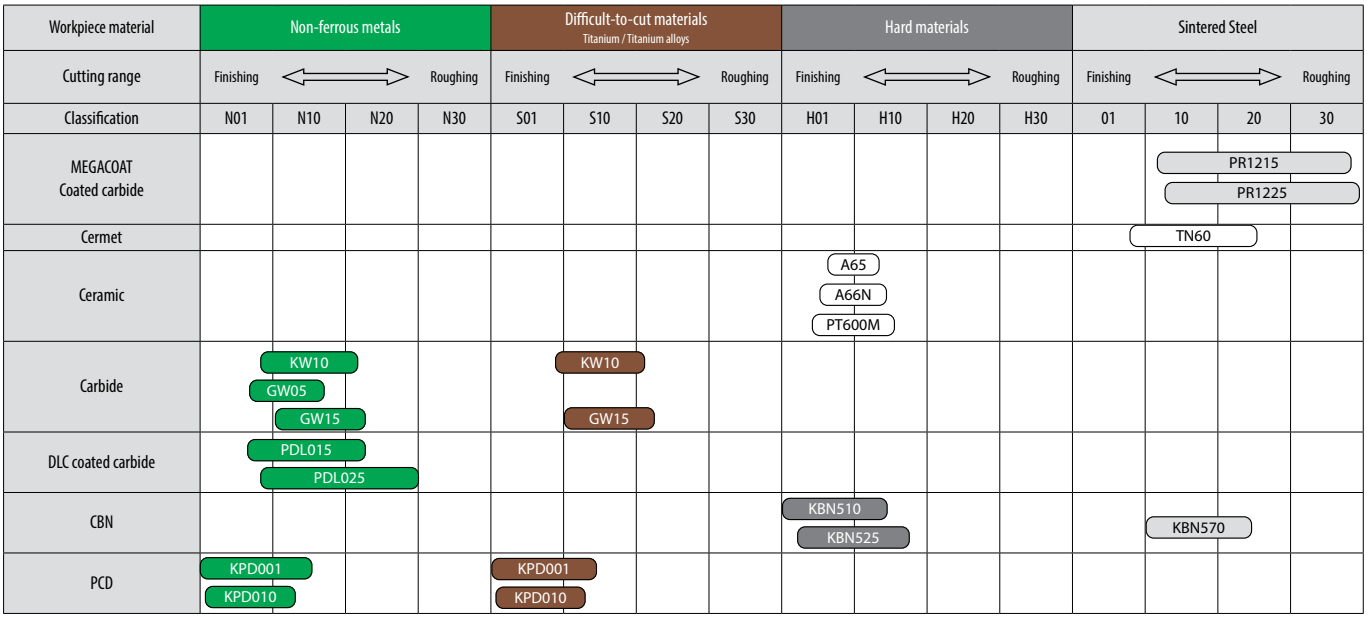




*White bars indicate older grades

Grooving / Cut-Off / Threading





*White bars indicate older grades

Drilling

Workpiece material	Steel					Stainless steel / Cast steel					Cast iron			
Cutting range	Finishing ⟷ Roughing					Finishing ⟷ Roughing					Finishing ⟷ Roughing			
Classification	P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Coated carbide – CA series		CA520D					CA6535					CA415D		
Coated carbide – MEGACOAT		PR1225					PR1225					PR1210		
		PR1230												
Coated carbide – MEGACOAT NANO		PR1535					PR1535							
Carbide												KW10		
												GW15		

Workpiece material	Non-ferrous metals				Difficult-to-cut materials Titanium / Titanium alloys				Hard materials			
Cutting range	Finishing ⟷ Roughing				Finishing ⟷ Roughing				Finishing ⟷ Roughing			
Classification	N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30
MEGACOAT Coated carbide									PR1230			
Carbide		KW10				KW10						
		GW15				GW15						

Milling

Workpiece material	Steel					Stainless steel / Cast steel					Cast iron			
Cutting range	Finishing ⟷ Roughing					Finishing ⟷ Roughing					Finishing ⟷ Roughing			
Classification	P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Cermet – TN series		TN620M												
		TN60					TN60							
		TN100M					TN100M							
Cermet – MEGACOAT NANO		PV60M												
Coated carbide – CA series							CA6535					CA420M		
Coated carbide – MEGACOAT		PR1225					PR1225					PR1210		
		PR1230												
Coated carbide – MEGACOAT NANO		PR1525					PR1525					PR1510		
							PR1535							
Coated carbide – MEGACOAT NANO EX		PR1825					PR1835					PR1810		
		PR1835												
Carbide												KW10		
												GW25		

Workpiece material	Non-ferrous metals				Difficult-to-cut materials Heat-resistant alloys / Ni-base heat-resistant alloys				Difficult-to-cut materials Titanium / Titanium alloys				Hard materials			
Cutting range	Finishing ⟷ Roughing				Finishing ⟷ Roughing				Finishing ⟷ Roughing				Finishing ⟷ Roughing			
Classification	N01	N10	N20	N30	S01	S10	S20	S30	S01	S10	S20	S30	H01	H10	H20	H30
Coated carbide – CA series						CA6535				CA6535						
Coated carbide – MEGACOAT										PR1210						
Coated carbide – MEGACOAT HARD														PR015S		
Coated carbide – MEGACOAT NANO						PR1535				PR1535						
Carbide		KW10								KW10						
		GW25								GW25						
DLC coated carbide		PDL025														
PCD		KPD001								KPD001						
		KPD010								KPD010						
		KPD230														
		KPD250														

*White bars indicate older grades

Cermet

Cermet

KYOCERA is known as one of the leading manufacturer of cermets. Cermets combine toughness with superior wear resistance, and provide longer tool life and excellent surface finishes. Typical materials used in cermets are TiC, TiN, TiCN and NbC.

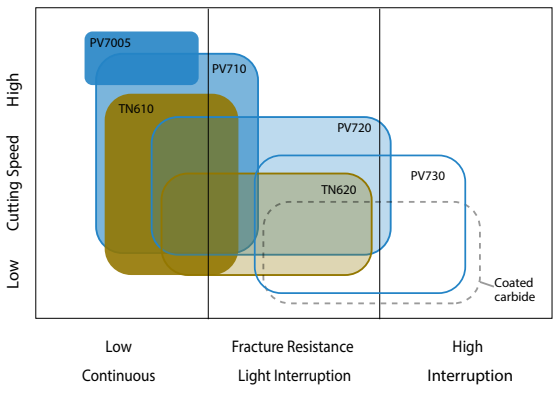
PVD Coated Cermet (MEGACOAT / MEGACOAT NANO Cermet)

PVD coated cermet is coated on cermet substrate with a thin layer of high wear resistance and high adhesion resistance by PVD (Physical Vapor Deposition) technology. Generally because of the low processing temperature of PVD compared with CVD, PVD coated cermet features less deterioration and more bending strength.

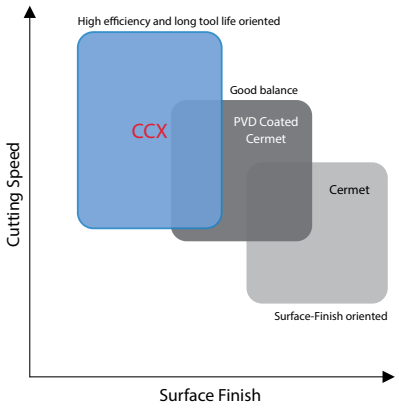
Features of cermet and PVD coated cermet

Classification	Grade		Color	Main Component (Coating Composition)	Advantages and Applications
P Steel	Cermet	TN610	Gray	TiCN	• High wear resistant cermet due to three types of special reinforcement technology • Application: Cermet for steel machining, long tool life in high speed and continuous
		TN620		TiCN	• Three types of special reinforcement technology realized the superior fracture resistance and wear resistance • Application: Stable machining of steel
		TN60		TiCN+NbC	• Application: Machining of steel, continuous to interruption
		TN6020		TiCN	• Application: Uncoated cermet for grooving of steel
		TN620M		TiCN	• Tough cermet for milling with excellent balance of wear resistance and toughness • Application: Millig of steel with high quality surface finish and long tool life
		TN100M		TiCN+NbC	• Tough cermet with improved oxidation resistance and thermal shock resistance • Application: Milling of steel at high speed
		TC40		TiC+TiN	• Good balance of wear resistance and toughness • Application: Grooving and threading of steel
	CVD Coated Cermet	CCX	Gold	TiCN ($TiCN+Al_2O_3+Tin$)	• Specialized high-strength micro grain cermet base material with superior wear-resistant thick CVD coating • Excellent wear resistance leads long tool life in high speed machining • Application: High speed finishing to light interrupted machining of steel
	MEGACOAT NANO Cermet	PV710	Gold	TiCN (MEGACOAT NANO)	• Superior wear and adhesion resistant MEGACOAT NANO on the high wear resistant cermet • Application: Long tool life and stability in high speed continuous machining of steel, excellent surface
		PV720			• Superior wear and adhesion resistant MEGACOAT NANO on the special reinforcement cermet • Application: First choice PVD coated cermet for steel machining, high efficient machining and high quality surface finish
		PV730			• Fracture resistant grade with MEGACOAT NANO on wear resistant, tough cermet • Application: Wear resistant PVD coated cermet for steel machining and high quality surface finish
		PV60M		TiCN+NbC (MEGACOAT NANO)	· Improved stable grade for milling by MEGACOAT NANO coating technology · Application: Milling of steel with high quality surface finish and stable machining
	MEGACOAT Cermet	PV7040	Blackish Red	TiC+TiN (MEGACOAT)	• MEGACOAT Cermet for Grooving • Application: Excellent surface finish and longer tool life in steel grooving
K Cast iron		PV7005		TiC+TiN MEGACOAT	• Heat-resistant MEGACOAT on cermet with excellent wear resistance • Application: High speed finishing of gray and nodular cast irona

Application Map



Coating Properties



Uncoated CERMET

TN610/TN620

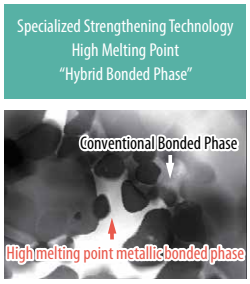
MEGACOAT NANO CERMET

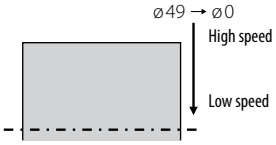
PV710/PV720/PV730

Special reinforcement technology (hybrid technology)
Superior surface finish and machining stability

1 Excellent surface finish

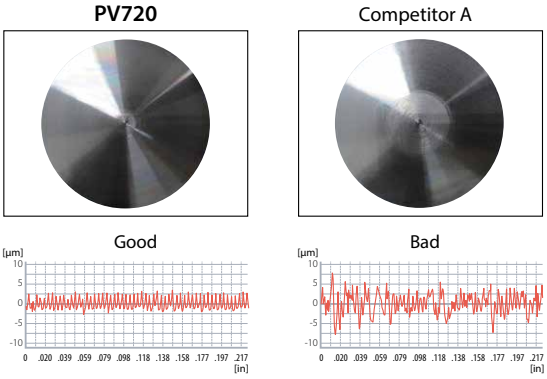
- **Combining the conventional cermet bonded phase (nickel, cobalt) and the special high melting point metallic bonded phase.**
- **Provides high adhesion resistance to eliminate galling of the work piece.**





Surface finish comparison (In-house evaluation)

Cutting Conditions: Vc = 590 ~ 0 sfm (Constant Rate), D.O.C. = 0.020"
f = 0.004 ipr, Wet, CNMG431 type Workpiece: 1010



CVD Coated Cermet for Finishing

CCX

Excellent high speed finishing leads to greater productivity
Applicable to a wide range of cutting conditions from general to high speed machining
Maintains long tool life in soft steel, general steel and cast iron machining

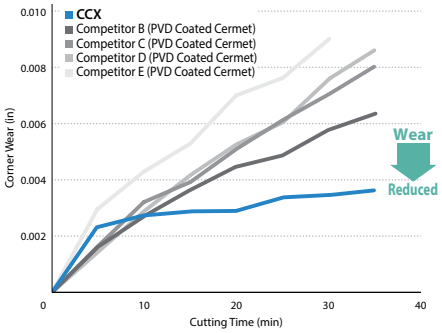
1 Superior wear resistance to PVD coated cermets

2 Unique cermet base material with thick CVD coating

Alloy Steel **High Speed Comparison: Vc = 1,310 sfm**

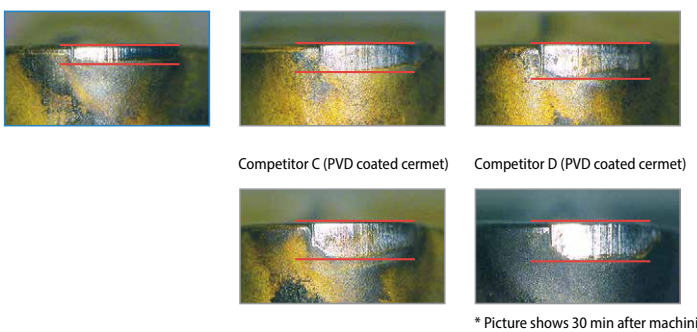
CCX provided better tool life than competitor's CVD cermets by greatly reducing the amount of wear

Wear Resistance Comparison (Internal evaluation)



Cutting Conditions : Vc = 1,310 sfm, D.O.C. = 0.012", f = 0.005 ipr, Wet
CNMG432 Type External Turning

Cutting Edge (After machining 35 min)

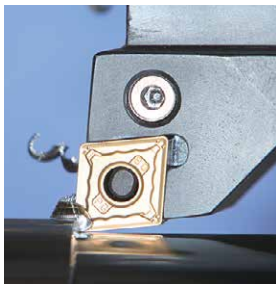


* Picture shows 30 min after machining due to a large amount of wear

CVD Coated Carbide (Turning)

CVD Coated Carbide

Using chemical vapor deposition coating technology, CVD coated carbide grades provide stable, efficient machining at high speeds or for heavy interrupted applications.



Features

- Applicable from low to high speed machining and from finishing to roughing
- Stable machining is achieved due to the superior toughness and crack resistance
- Cutting times are reduced due to good chip control from effective chipbreakers

Features of CVD coated carbide

Classification	Grade	Color	Coated Composition	Advantages and Applications
P Steel	CA115P	Black + Gold	TiCN+Al_2O_3+TiN	• Combination of a high-hardness + high-temperature, deformation-resistant and special base material and crystallization control technology enables a thick film with both wear resistance and chipping resistance • Application: Highly versatile and wide application range, the first recommendation for steel machining
	CA125P		TiCN+Al_2O_3+TiN	• High toughness + high temperature deformation resistance and special base material combined with crystallization control technology to achieve high toughness with both wear resistance and chipping resistance • Application: High speed and high efficiency steel machining
	CA510	Gold	TiCN+Al_2O_3+TiN	• Special substrate with thermal deformation resistance along with a thick and tough coating layer providing high wear resistance • Application: High speed and high efficiency steel machining
	CA515		TiCN+Al_2O_3+TiN	• Improved wear resistance and stability due to special substrate with heat deformation resistance and hard, tough coating layer • Application: Light interrupted machining of steel
	CA025P		TiCN+Al_2O_3+TiN	• CVD coating with improved wear resistance, adopted base material, excellent chipping resistance and resistance to wear • Application: Continuous to interrupted processing of steel
	CA525		TiCN+Al_2O_3+TiN	• Stable and long tool life machining due to special substrate with heat deformation resistance and tougher coating layer • Application: Interrupted to general machining of steel
	CA530		TiCN+Al_2O_3+TiN	• Special tough substrate and tough coating layer providing high stability and wear resistance • Application: General to heavy interrupted machining (stability oriented)
	CR9025		TiCN+TiN	• Improved toughness and stability due to specialized carbide substrate with plastic deformation resistance • Application: Cut-off, grooving and multi-function machining of steel
M Stainless Steel	CA6515		TiCN+Al_2O_3+TiN	• Specialized carbide substrate for machining stainless steel, excellent wear resistance • Application: Continuous machining of stainless steel
	CA6525		TiCN+Al_2O_3+TiN	• Specialized carbide substrate for machining stainless steel, excellent notching resistance and toughness • Application: First choice for general machining of stainless steel, from finishing to roughing, continuous to interruption
K Cast Iron	CA410K	Black + Gold	TiCN+Al_2O_3+TiN	• Thick alumina layer with excellent heat and wear resistance close to that of ceramics during high-speed and dry machining • Application: 1st recommendation for continuous, high-speed machining of gray and nodular cast iron
	CA415K		TiCN+Al_2O_3+TiN	• Thick, micro TiCN layer for stable machining with high wear and chipping resistance • Application: 1st recommendation for interrupted to heavily interrupted machining of gray and nodular cast iron
	CA310	Rose Gold	TiCN+Al_2O_3+Ti base	• Grade for high-speed continuous machining and improved tool life through the deposition of a thickened Al_2O_3 coating layer • Application: For finishing to roughing of gray cast iron
	CA315		TiCN+Al_2O_3+Ti base	• Both high abrasion resistance and stability are compatible, high efficiency and long life performance are demonstrated. • Application: Compatible with a wide processing area for cast iron and gray cast iron
	CA320		TiCN+Al_2O_3+Ti base	• Improved stability with CVD layer structure with high adhesion • Application: Heavily interrupted or High-speed machining for Nodular Cast Iron. 1st Recommendation for 70-50-05 cast iron or higher
	CA4505	Blackish Gray	TiCN+Al_2O_3	• Stable, longer tool life due to improved bonding strength of coating layers and special treatment of the surface of the top coating layer • Application: For gray cast iron and nodular cast iron at high speed in continuous to light interrupted machining
	CA4515		TiCN+Al_2O_3	• Stable, longer tool life due to improved bonding strength of coating layers and special treatment of the surface of the top coating layer • Application: First choice for gray cast iron and nodular cast iron in light to heavy interrupted machining

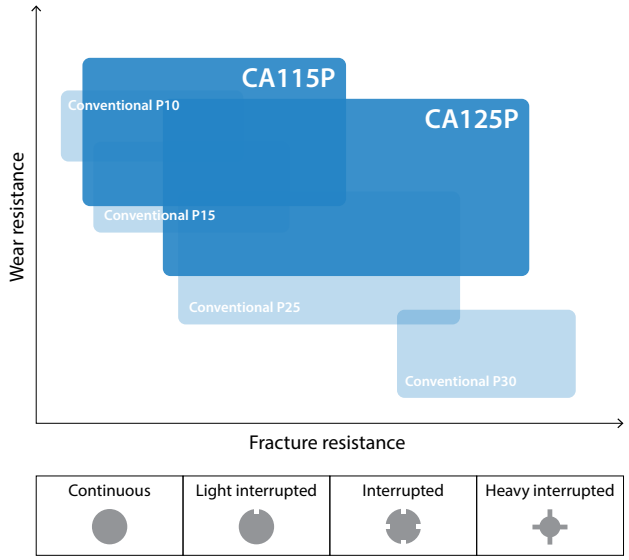
Next Generation CVD Coated Carbide Grade for Steel

CA115P / CA125P

The new standard for steel machining
Longer tool life in a wide range of machining environments
Expanded lineup of chipbreakers for steel machining in various applications

1 Extended tool life in a wide variety of applications

Application Map



CA115P

Continuous-light interrupted machining of steel

For high-efficiency machining
with wear and chipping resistance

CA125P

Continuous-heavy interrupted steel machining

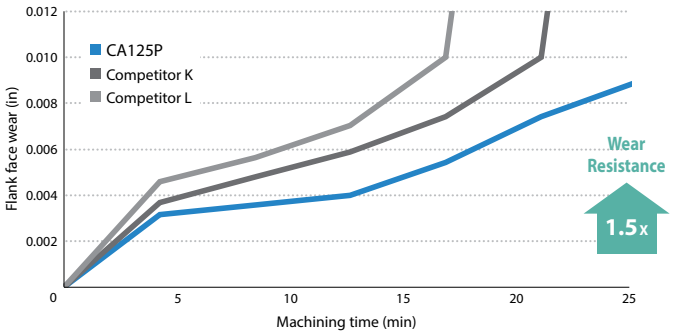
First recommendation for steel machining
High versatility

2 Newly developed proprietary coating and carbide substrate with superior wear and fracture resistance

Optimized coating properties on rake and flank faces provide wear resistance and fracture resistance

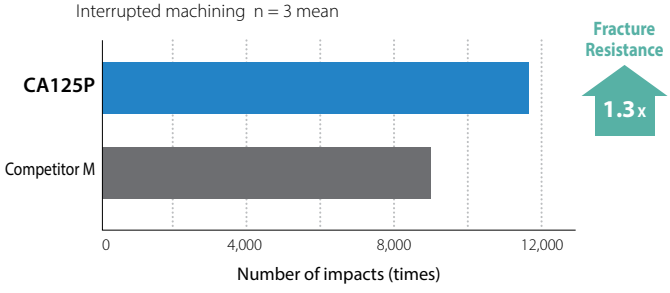
Ultra-uniform alumina film reduces crater wear

Wear resistance comparison (Internal evaluation)



Cutting Conditions : Vc = 980 sfm, D.O.C. = 0.059", f = 0.012 ipr, Wet Workpiece : 4137

Fracture resistance comparison (Internal evaluation)
Interrupted machining n = 3 mean



Cutting Conditions : Vc = 980 sfm, D.O.C. = 0.059", f = 0.014 ipr, Wet
Workpiece : 1045 (4 grooves)

3 A large variety of chipbreakers cover a wide range of machining applications and conditions

PVD Coated Carbide (Turning)

PVD Coated Carbide (MEGACOAT / MEGACOAT NANO)

Using a physical vapor deposition coating technology, generally because of the low processing temperature of PVD compared with CVD, PVD coated carbide features less deterioration and improved bending strength. PVD coated carbide grades are coated on a very tough carbide substrate and suitable for turning.

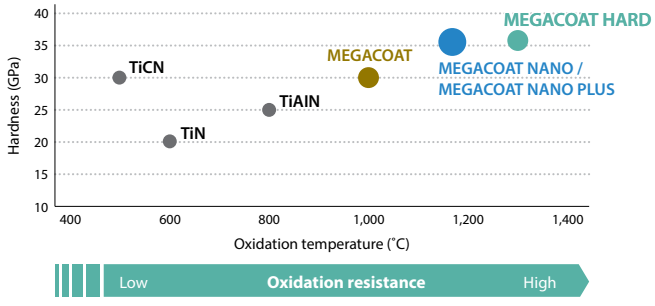
PVD Coated Super Micro-Grain Carbide

- Smooth fine surface of PVD coated carbide provides good surface finish and high precision machining
- Stable machining with excellent toughness

Features of PVD coated carbide

Classification	Grade	Color	Coated Composition	Advantages and Applications
P Steel	**PR915** Super Micro-Grain	Bluish Violet	TiAlN	• Application: Stable and reliable high precision machining of steel
	PR930 Super Micro-Grain	Reddish Gray	TiCN	• Application: Low machining speed, precise machining with sharp edge
	PR1025	Reddish Gray	TiCN	• Application: General machining of steel and stainless steel, stable and longer tool life
	PR1115	Purple Red	TiAlN	• Superior oxidation resistance with well balanced wear resistance and toughness • Application: Machining of steel and stainless steel, for grooving, cut-off and threading
	PR1215	Blackish Red	MEGACOAT	• Superior wear and oxidation-resistant MEGACOAT on micro-grain carbide substrate • Application: Superior adhesion resistance and longer tool life for steel and stainless steel machining
	PR1625	Blackish Red	MEGACOAT NANO	• Adopted special nano multi-layer coating "MEGACOAT NANO" excellent in wear resistance and lubricity • Stable processing with steel and stainless steel grooving - Long tool life
	PR1705	Silver	MEGACOAT NANO PLUS	• High-hardness ultrafine particle carbide substrates with special multilayer nano coating MEGACOAT NANO PLUS offer excellent wear resistance and high precision machining • Application: For free-cutting steel turning. Long tool life with excellent wear resistance and high-precision machining
	PR1725	Silver	MEGACOAT NANO PLUS	• New coating technology [MEGACOAT NANO PLUS] with superior wear resistance and adhesion resistance • Application: General grade for steel and stainless steel machining provides stablity and longer tool life
	PR2025	Blackish Red	MEGACOAT NANO EX	• Long tool life and high stability with the combination of high content aluminum nano coating layer for excellent wear and fracture resistance • Application: Grooving and cut-off operations in carbon steels and alloy steels
M Stainless Steel	**PR1225**	Blackish Red	MEGACOAT	• Superior wear and oxidation-resistant MEGACOAT on micro-grain carbide substrate • Application: Light interrupted to interrupted machining of stainless steel
	PR1515	Blackish Red	MEGACOAT NANO	• Improved wear resistance and stability by using fine granite carbide base metal and special nano multi-layer coating "MEGACOAT NANO" • Application: For thread cutting of stainless steel
	PR1535			• Nano thin multi-layer coating (MEGACOAT NANO) improved wear resistance and stability • Application: Medium to roughing of stainless steel and heat-resistant alloys, cut-off of stainless steel
	PR2035	Blackish Red	MEGACOAT NANO EX	• Long tool life and high stability with the combination of high content aluminum nano coating layer with high fracture resistance • Application: Grooving and cut-off operations in stainless steel (
K Cast Iron	**PR905**	Bluish Violet	TiAlN	• Smooth fine surface PVD coated hard carbide with plastic deformation resistance • Application: Suitable for machining gray and nodular cast iron
	PR2015	Blackish Red	MEGACOAT NANO EX	• Long tool life and high stability with the combination of high content aluminum nano coating layer for high wear resistance • Application: Grooving and cut-off operations in gray and nodular cast iron
S Heat-Resistant Alloys	**PR005S**	Dark Gray	MEGACOAT HARD	• Superior high temperature properties of special carbide substrate and excellent heat-resistance of MEGACOAT HARD enables high wear resistance • Application: Finish processing of heat-resistant alloys, also for high speed machining
	PR115S	Dark Gray	MEGACOAT TOUGH	• Special carbide substrate with excellent heat resistance and "MEGACOAT TOUGH" coating technology with excellent adhesion enables high wear resistance • Application: Continuous, finishing of heat-resistant alloys
	PR120S			• Special carbide substrate with excellent heat resistance and stability "MEGACOAT TOUGH" coating with excellent adhesion for improved wear resistance • Application: Continuous finishing of stainless steel, continuous to light interrupted machining of heat-resistant alloys

PVD Coating Properties



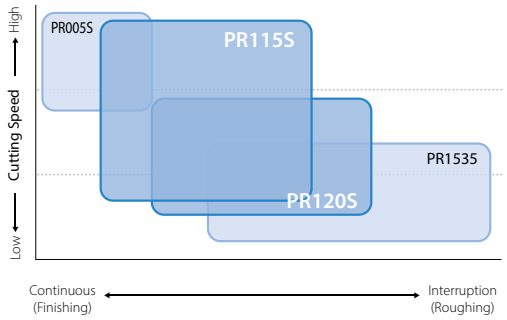
PVD Coating for Heat-Resistant Alloy

PR115S/PR120S

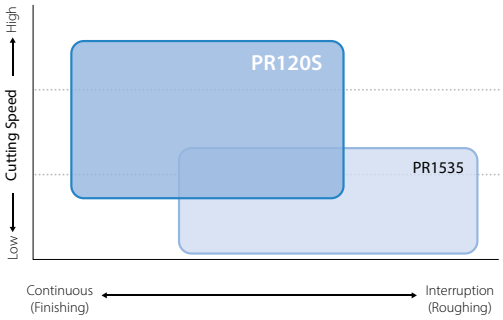
Unique carbide substrate with excellent heat-resistant properties and new coating technology "MEGACOAT TOUGH" provides longer tool life for heat-resistant alloy machining

Low cutting force and stable machining with specialized chipbreakers (SQ/SG/SX)

S Heat-Resistant Alloys Application map



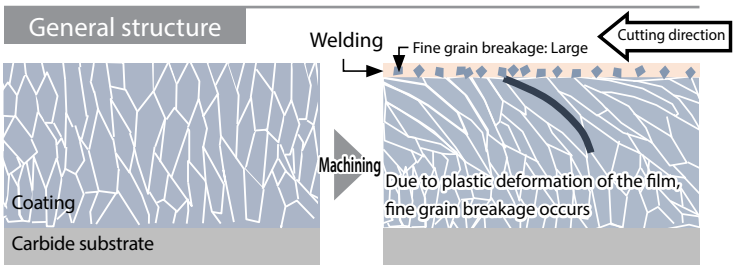
M Stainless Steel Application map



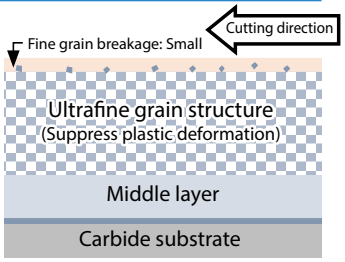
1. Wear Resistant Layer

Thick-film PVD suppresses abrasive wear
Reduces notch damage with ultra-fine grain structure

Damage to the coating during machining of heat-resistant alloys (Image)



PR115S/PR120S



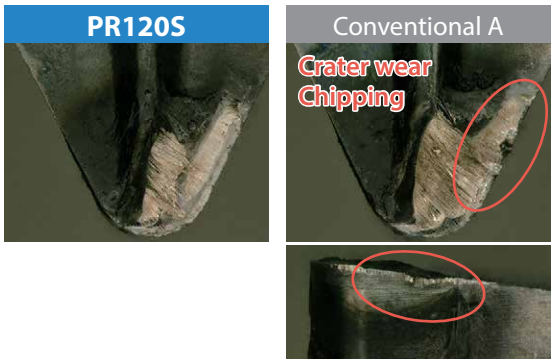
Due to ultrafine structure of the membrane, controls fine grain breakage

Due to grain breakage and dropping of welding, controls wear and tear

2. Middle Layer

TiAlN layer provides superior oxidation resistance
Controls crater wear

Crater wear comparison (Internal evaluation) After machining for 50 min

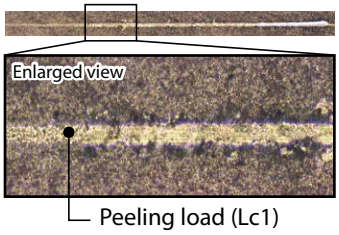


Cutting conditions : Vc = 490 sfm, D.O.C. = 0.039", f = 0.003 ipt,
Wet 316L DCGT3251 Type

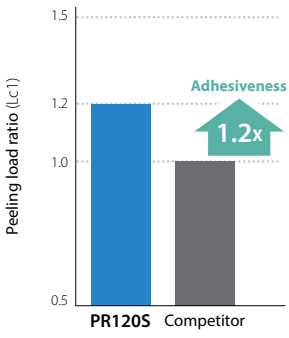
3. Special Adhesive Layer

Adhesion layer at carbide substrate/ main layer interface, high affinity and improved adhesion

Scratch test results

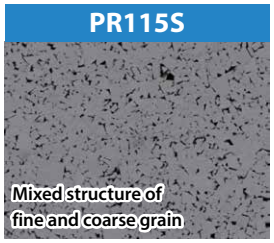


Peeling load (Lc1)
(Internal evaluation)

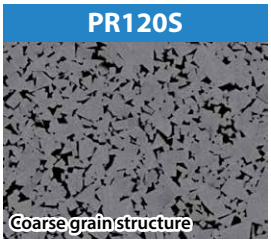


4. Unique Carbide Substrate

Carbide substrate for heat-resistant alloy machining
Excellent thermal properties with high thermal conductivity



Excellent heat resistance

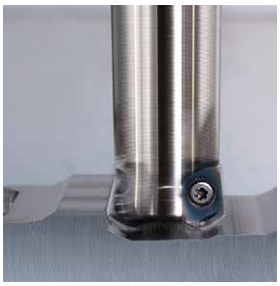


Excellent heat resistance and stability

PVD / CVD Coated Carbide (Milling / Drilling)

PVD Coated Carbide (MEGACOAT / MEGACOAT NANO)

KYOCERA's PVD coated carbides for milling and drilling utilize very tough carbide substrates. The low processing temperature, compared with CVD, leads to improved bending strength, less deterioration of the coating and superior tool life with stable machining.



CVD Coated Carbide

CVD coated carbide grades provide stable, efficient machining at high speeds or for heavy interrupted applications. Ti-base (TiN, TiCN) coating with superior hardness and wear resistance or ceramic-base (Al_2O_3) coating with high-thermal stability is applied on a tough carbide substrate. Superior fracture resistance and wear resistance.

Features of PVD / CVD Coated Carbide for Milling and Drilling

Classification	Grade	Color	Coated Composition	Advantages and Applications
P Steel	**PR1230**	Blackish Red	MEGACOAT	• Superior wear and oxidation-resistant MEGACOAT on a special tough carbide substrate • Application: Stable and high feed milling and drilling of steel
	PR1525	Blackish Red	MEGACOAT NANO	• MEGACOAT NANO Nano thin multi-layer coating performs superior wear resistance and high oxidation resistance • Application: Stable and longer tool life for milling of steel and stainless steel
	PR1825	Blackish Gray	MEGACOAT NANO EX	• Special nano layer + multi-layer lamination technology for excellent abrasion resistant, oxidation resistant, and fracture resistance • Application: Next-generation wear resistant grade for steel milling
	CA520D	Gold	TiCN+Al_2O_3+TiN (CVD)	• Improved abrasion resistance and fracture resistance by improving high toughness • Combination of high toughness substrate, toughened coating and enhanced interface allow both wear and fracture resistance • Application: Drilling of steel - first recommended grade (for high speed machining)
M Stainless Steel	**PR1225**	Blackish Red	MEGACOAT	• Superior wear and oxidation-resistant MEGACOAT on micro-grain carbide substrate • Application: General machining and high feed milling and drilling of steel and stainless steel
	PR1835	Blackish Gray	MEGACOAT NANO EX	• Special nano layer + multi-layer lamination technology for excellent abrasion resistant, oxidation resistant, and fracture resistance • Application: Next-generation grade for stainless steel and stable steel milling
K Cast Iron	**PR1210**	Blackish Red	MEGACOAT	• Superior wear and oxidation-resistant MEGACOAT coated on special carbide substrate • Application: Highly efficient stable milling and drilling of gray and nodular cast iron
	PR1510	Blackish Red	MEGACOAT NANO	• MEGACOAT NANO Nano thin multi-layer coating performs superior wear resistance and high oxidation resistance • Application: Highly fracture resistance and wear resistance for gray and nodular cast iron
	PR1810	Blackish Gray	MEGACOAT NANO EX	• Special nano layer + multi-layer lamination technology for excellent abrasion resistant, oxidation resistant, and fracture resistance • Application: Next-generation grade for cast iron milling
	CA415D	Gold	TiCN+Al_2O_3+TiN	• Special carbide substrate for cast iron, toughened coating and enhanced interface allow both wear and fracture resistance • Application: Drilling of cast iron - 1st recommended material for high speed processing
	CA420M		TiCN+Al_2O_3+TiN (CVD)	• Kyocera's unique crystal control technology and advanced layer adhesion CVD coating with superior wear resistance and toughness • Application: Milling of gray and nodular cast iron
S Heat-Resistant Alloys Titanium Alloys	**PR1535**	Blackish Red	MEGACOAT NANO	• Nano thin multi-layer coating (MEGACOAT NANO) improved wear resistance and stability • Application: For milling of Ni-base heat-resistant alloys, titanium alloys and precipitation hardened stainless steel
S Heat-Resistant Alloys	**CA6535**	Gold	TiCN+Al_2O_3+TiN (CVD)	• High heat-resistance and wear resistance with CVD coating • Application: For milling of Ni-base heat-resistant alloys and martensitic stainless steel
H Hard Material	**PR015S**	Blackish Gray	MEGACOAT HARD	•Substrate with improved thermal properties reduces sudden fracture and decrease edge wear with MEGACOAT HARD coating technology to deliver high hardness and superior wear resistance •Excellent wear and chipping resistance maintains stable machining for high hard materials •Application: Difficult-to-cut materials and high hardness (less than 60HRC) machining

Next-Generation PVD Coating for Milling

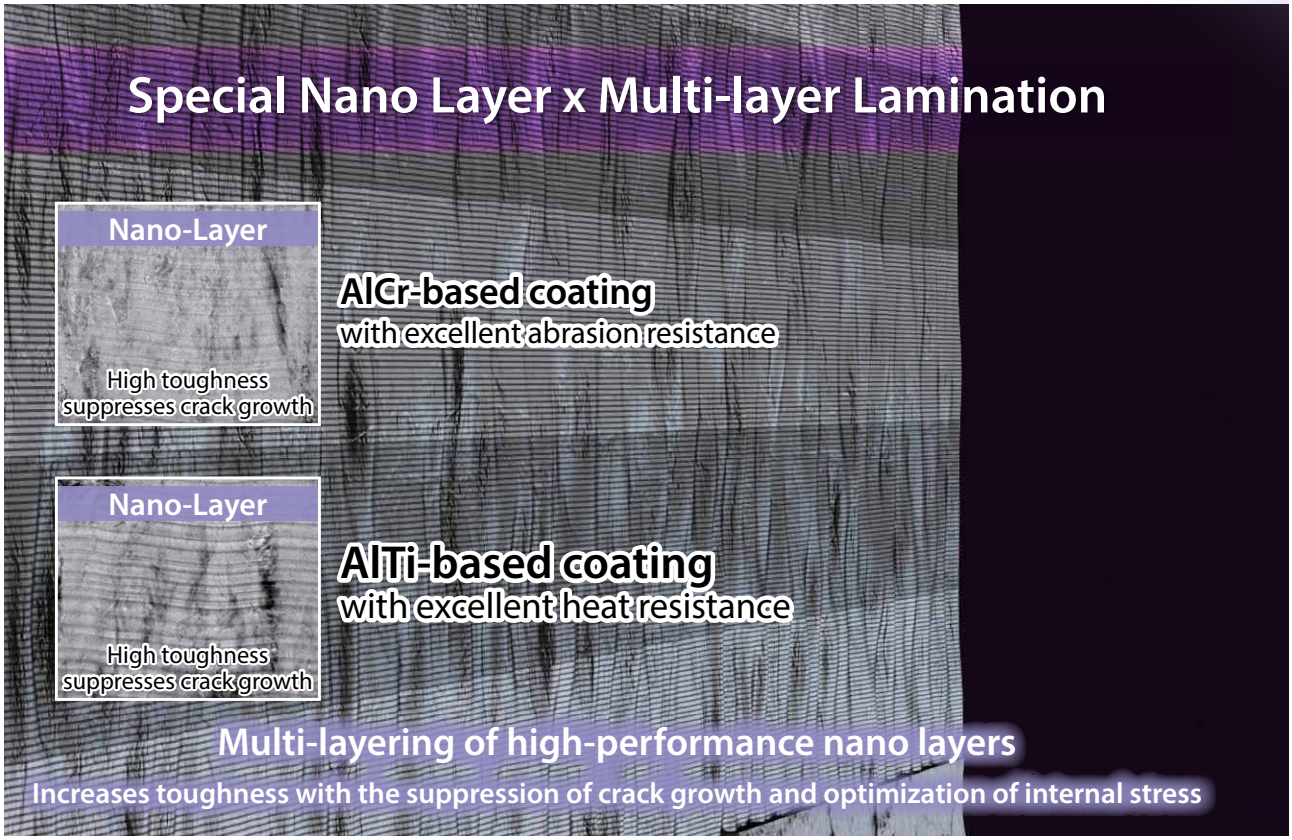
PR18 Series

Double lamination technology with special nano layer MEGACOAT NANO EX provides longer tool life
Features 3 grades: PR1825/PR1835/PR1810 Available for various machining environments

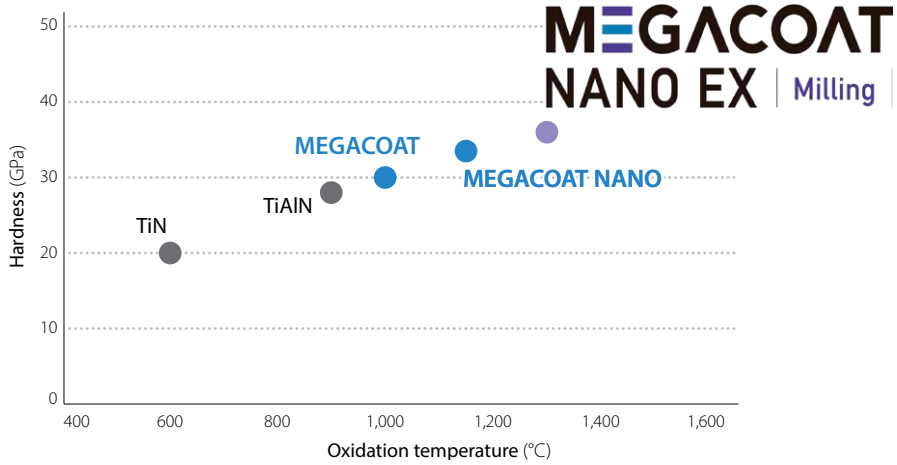
MEGACOAT NANO EX | Milling

Double Lamination Technology Maintains Longer Tool Life

Multi-layer structure with two unique nano layers
Superior abrasion resistance and fracture resistance



Coating Characteristics (Internal Evaluation)



Carbide

Carbide

Uncoated tungsten carbide grade is used in a variety of applications due to its superior mechanical properties.

Features

- KW10: Suitable for machining cast iron with high hardness and toughness
- GW05, GW15, GW25: Suitable for machining cast iron, non-ferrous metals and non-metals
- SW series: Suitable for machining of titanium and titanium alloy

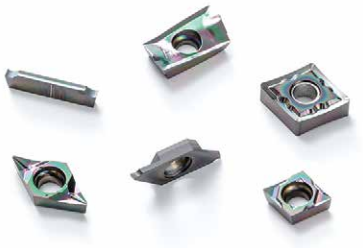
Features of carbide

Classification	Grade	Color	Main Component	Advantages and Applications
N Non-Ferrous Metals	**KW10**	Gray	WC+Co	• ISO identification symbol K carbide (K10 class) • Application: Machining cast iron, non-ferrous materials and non-metals
	GW05			• ISO identification symbol K carbide (K05 class) • Application: Excellent wear resistance for machining of cast iron and non-ferrous metal
	GW15			• ISO identification symbol K carbide (K10 class), tough micro-grain carbide • Application: Machining cast iron, non-ferrous materials and non-metals
	GW25			• ISO identification symbol K carbide (K30 class) • Application: Milling operations of aluminum
S Heat-Resistant Alloys Titanium Alloys	**SW05**			• ISO identification symbol K carbide (K05 class) • Application: Titanium alloys for continuous machining and finishing
	SW10 (Made to Order)			• ISO identification symbol K carbide (K10 class) • Application: Titanium alloys for continuous and light interrupted machining
	SW25 (Made to Order)			• ISO identification symbol K carbide (K25 class) • Application: Titanium alloys for interrupted and light interrupted machining

DLC Coated Carbide

DLC Coated Carbide

DLC (Diamond-Like Carbon) Coated carbide is coated on carbide substrate with a thin layer of amorphous carbon.



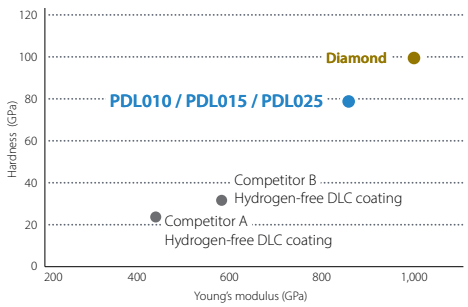
Features

- High Hardness with Kyocera's proprietary hydrogen-free DLC coating
- Exellent surface finish achieved through anti-adhesion performance

Features of DLC coated carbide

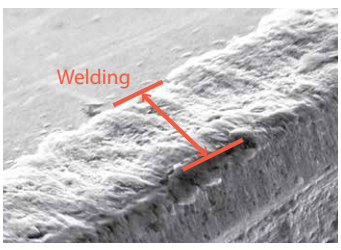
Classification	Grade	Color	Main Component	Advantages and Applications
N Non-Ferrous Metals	**PDL010**	Iridescent	C	• DLC coating of original technology has high hardness, excellent adhesion resistance and film peeling resistance • Application: Excellent surface finish and long tool life machining of aluminum alloys
	PDL015			• DLC coating of original technology has high hardness, excellent adhesion resistance and film peeling resistance • Application: Grooving of aluminum alloy
	PDL025			• DLC coating of original technology has high hardness, excellent adhesion resistance and film peeling resistance • Application: General purpose long tool life and stable machining of aluminum alloys

Coating Properties



Welding Resistance Comparison

PDL025



Competitor A

Cutting Conditions: Vc = 2,630 sfm, fz = 0.004 ipt, D.O.C. × ae = 0.118" × 0.197", Dry
Cutter Dia. Ø1.000" Workpiece: 5052 Cutting Length: 187ft

Ceramic

Ceramic

Ceramics inserts are capable of machining at high speeds. Recommended for hard turning of hardened steel or rough to finish turning of cast iron and heat-resistant alloys.

Features

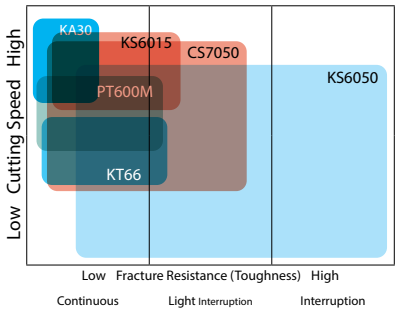
- Excellent wear resistance enables high speeds machining of cast iron
- Ceramic maintains good surface finishes due to the low affinity to workpiece materials
- Silicon nitride ceramic can machine cast iron with coolant due to its superior thermal shock resistance

Features of Ceramic

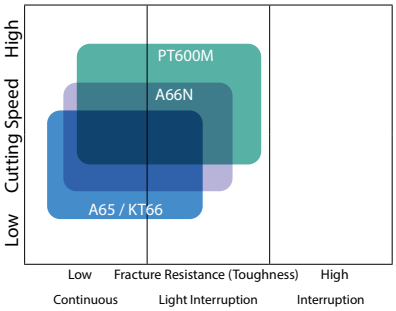
Classification	Grade	Color	Main Component (Coating Composition)	Coating Layer	Substrate Hardness (GPa)	Fracture Toughness ($MPa \cdot m^{1/2}$)	Transverse Strength (MPa)	Advantages and Applications
K Cast Iron	**KA30**	White	Al_2O_3	-	17.5	4.0	750	• Aluminum oxide ceramic (Al_2O_3) • Application: Finishing of cast iron at high cutting speeds without coolant
	KS6015	Gray	Si_3N_4		15.2	7.8	1,000	• Silicon nitride ceramic with superior wear resistance reduces heat at the cutting edge • Application : Roughing and high speed machining of cast iron (with or without coolant)
	KS6050	Gray	Si_3N_4		15.6	8.0	1,200	• Silicon nitride ceramic (Si_3N_4) • Application: Roughing and interrupted machining of cast iron. Focusing on stability (with or without coolant)
	CS7050	Grayish White	Si_3N_4 (Special Al_2O_3 COAT)	Thin Coating				• Silicon nitride ceramic (Si_3N_4) + CVD Coating (Special Al_2O_3 COAT) • Application: Finishing and continuous machining, and high speed and high efficient machining (with or without coolant)
K Cast Iron H Hard Material	**KT66**	Black	Al_2O_3+TiC	-	20.1	4.1	980	• Aluminum oxide and titanium carbide ceramic (Al_2O_3+TiC) • Application: Semi-roughing to finishing of cast iron, hard materials and hardened roll materials
	A65	Black	Al_2O_3+TiC					• Aluminum oxide and titanium carbide ceramic (Al_2O_3+TiC) • Application: Semi-roughing to finishing of cast iron and hard materials
	A66N	Gold	Al_2O_3+TiC (TiN COAT)	Thin Coating				• TiN PVD coated aluminum oxide and titanium carbide ceramic (TiN coated Al_2O_3+TiN) • Application: Semi-roughing to finishing of hard materials
	PT600M	Blackish Red	Al_2O_3+TiC (MEGACOAT)					• Heat-resistant MEGACOAT on aluminum oxide and titanium carbide ceramic (MEGACOAT Al_2O_3+TiC) • Application: Semi-roughing to finishing of cast iron, hard materials and hardened roll materials
S Heat-Resistant Alloys	**KS001**	Gray	Al_2O_3+SiC	-	20.6	7.0	-	• Silicon-carbide ceramic inserts with ultra-strong whiskers for excellent wear and fracture resistance • Application: High-speed machining of HRSA, roughing-finishing with continuous to light interruption
	KS6030	Gray	SiAlON		15.2	6.0	600	• SiAlON Ceramic with superior wear resistance and high resistance against boundary wear • Application: Finishing to medium machining of heat-resistant alloys
	KS6040	Brown			16.7	7.0	900	• High stability SiAlON ceramic with wear resistance and fracture resistance • Application: Roughing of heat-resistant alloys

Application Maps

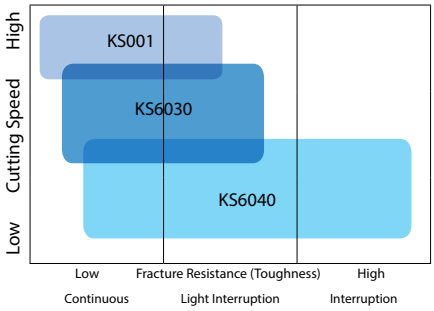
Cast Iron



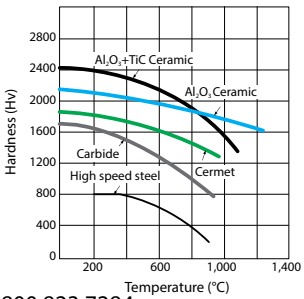
Hard Materials



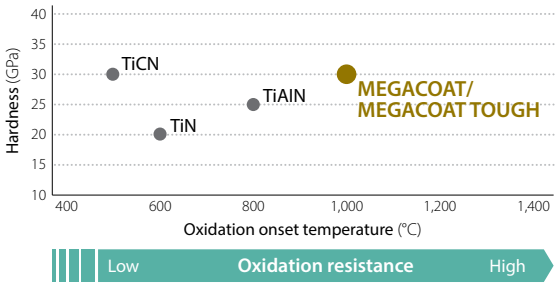
Heat-Resistant Alloys



High-Temperature Hardness



PVD Coating Properties



CBN (Cubic Boron Nitride)

CBN

CBN (Cubic Boron Nitride) is second only to diamond in hardness, and is a synthetically produced material with high thermal conductivity.

Features

- Superior wear resistance when machining hard materials
- Suitable for high speed machining of hard materials, sintered steel and cast iron
- High thermal conductivity provides stable machining

Features of CBN

Classification	Grade	Color	Ave. Grain Size (μm)	Substrate Hardness (GPa)	Transverse Strength (MPa)	Advantages and Applications
H Hard Material	**KBN510**	Black	2	28	1,000	• Excellent wear resistance and crack resistance, uncoated CBN • Application: Finishing and continuous machining of hardened die steel
	KBN525		1 and under	25	1,250	• Application: General purpose for hardened steel
	KBN05M (MEGACOAT)	Blackish Red	0.5-1.5	27	1,000	• Heat-resistant MEGACOAT on highly heat-resistant CBN substrate • Application: High speed finishing of hardened steel
	KBN10M (MEGACOAT)		2	28		• Application: High speed finishing of hardened die steel
	KBN25M (MEGACOAT)		1 and under	25	1,250	• Heat-resistant MEGACOAT on micro-grain CBN with heat-resistant binder phase • Application: Stable machining of hardened steel at high cutting speeds
	KBN010 (MEGACOAT TOUGH)	Gray	0.5-1.5	27	1,000	• Mixed structure of micro grain CBN and coarse grain CBN for excellent heat resistance and surface quality • Application: Continuous finishing of hardened steel
	KBN015 (MEGACOAT TOUGH)	Grayish Red	3	27-29	1,150	• High toughness CBN maintains heat resistance and fracture resistance • Application: Continuous to interrupted maching of hardened steel
	KBN020 (MEGACOAT TOUGH)	Gray	3	31-32	1,300	• High content CBN with high purity TiN binder and high fracture resistance • Application: Continuous to heavy interrupted maching of hardened steel
Sintered Steel	**KBN570**	Black	2-4	34	1,350	• High content CBN • Application: Processing of Sintered steel (burr suppression)
	KBN70M (MEGACOAT)	Blackish Red				• Heat-resistant MEGACOAT on CBN rich substrate • Application: Stable machining of sintered steel (ferrous Sintered alloys)
K Cast Iron	**KBN475**	Black	2	39	1,400	• Excellent wear resistance due to high CBN content and special binder • Application: High speed machining of gray cast iron
	KBN60M (MEGACOAT)	Blackish Red	0.5-6	33	1,250	• Heat-resistant MEGACOAT on CBN rich substrate with hard binder phase • Application: High speed finishing of gray cast iron
	KBN900 (TiN COAT)	Gold	9	31	630	• TiN coated solid CBN • Application: Heavy duty, interrupted machining and finishing of hardened steel, hardened roll steel and cast iron

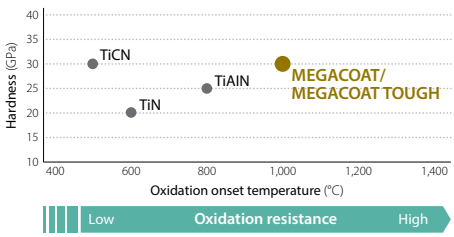
For KBN35M, see page **A18**.

MEGACOAT TOUGH CBN

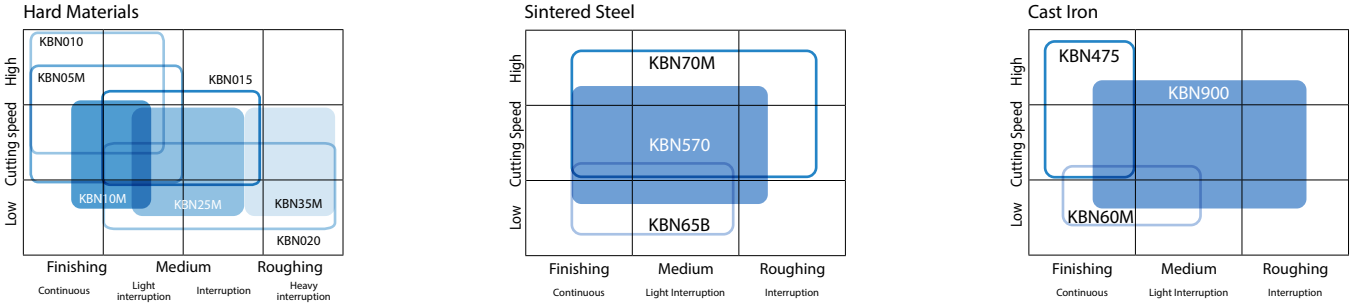
An adhesion layer is laminated between the high wear resistance layer and the CBN. This reduces layer peeling to achieve long tool life and stable machining.

MEGACOAT TOUGH | CBN

PVD Coating Properties



Application Map



PCD (Polycrystalline Diamond)

PCD

PCD is a synthetic diamond sintered under high temperatures and pressures.

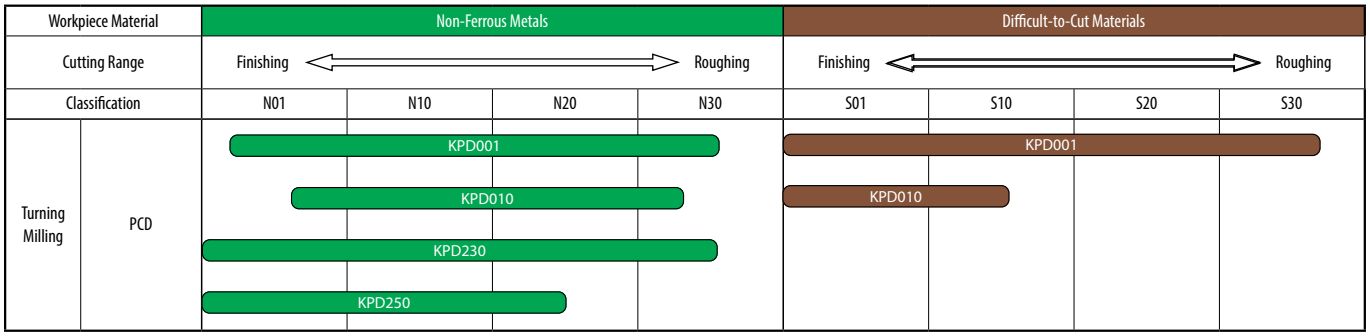
Features

- Applicable for milling of non-ferrous metals and non-metals
- Reduced edge build-up allows for high precision machining
- Diversified applications for machining of non-ferrous metals and non-metals
- Finished surface will be rainbow colored (A mirror-like finished surface will not be obtained)

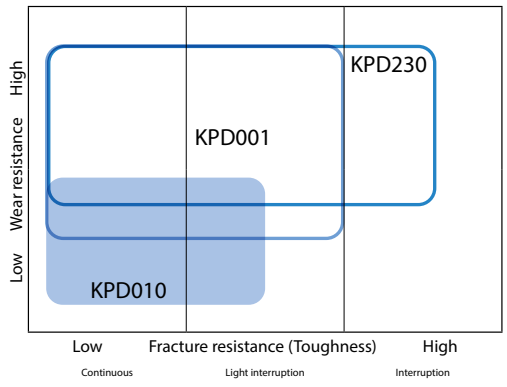
Features of PCD

Classification	Grade	Ave. Grain Size (μm)	Advantages and Applications
N Non-Ferrous Metals	**KPD001**	0.5	• Super Micro-Grain PCD features cutting edge strength, wear resistance, fracture resistance, good edge-sharpening performance and longer, stable tool life • Application: High speed machining of aluminum alloys, brass, non-ferrous metals and non-metals including plastics, and carbide.
	KPD010	10	• Good wear resistance and toughness, good grindability • Application: High speed machining of aluminum alloys, brass, non-ferrous metals and non-metals including plastics, and carbide.
	KPD230	2-30	• Superior abrasive wear resistance and toughness due to high density PCD with mixed rough and fine grains • Application: High speed machining of aluminum alloys, brass, non-ferrous metals and non-metals including plastics.
	KPD250 (Made to Order)	25	• Superior wear resistance due to rough grain PCD (25μm) • Application: High speed machining of high silicon aluminum alloy and machining of carbide

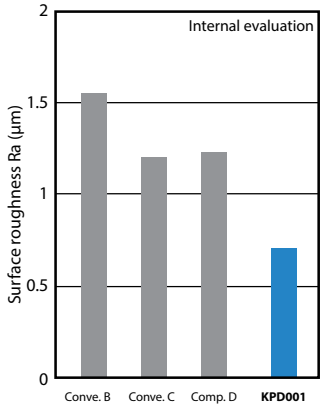
Applications



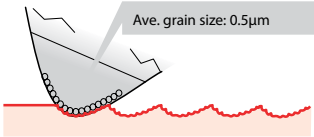
Application Map



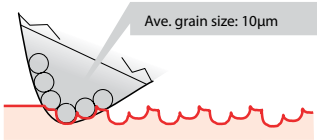
Surface finish roughness comparison of aluminum machining



Excellent surface finish provided by super micro-grain KPD001



Surface finish of conventional PCD

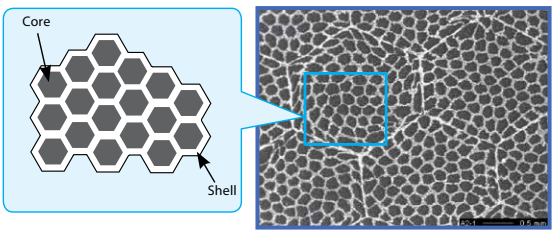


(Grain size affects surface finish quality)

Honeycomb Structure CBN

Honeycomb Structure CBN

Honeycomb structure is the high structural controlled composite material consisting of a hard and superior wear-resistant core (gray portion) and a tough shell (white portion).



Features

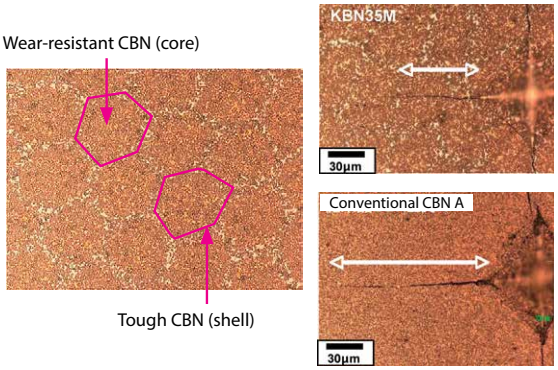
- Honeycomb structure CBN combine a hard, wear-resistant core and a tough shell into one insert.
- The tough shell stops cracks that form in the core.
- CBN is suitable for interrupted machining of exceptionally hard material

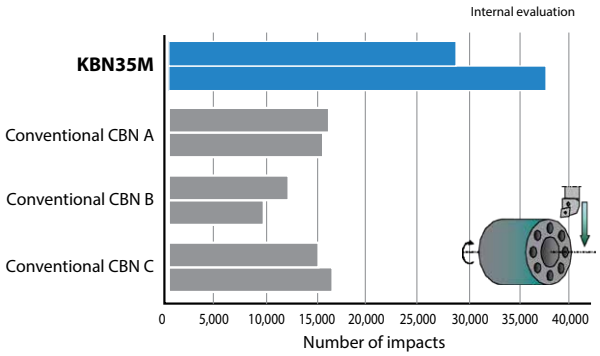
Features of Honeycomb Structure CBN

Classification	Grade	Color	Main Component	Advantages and Applications
H Hard Material	**KBN35M** (MEGACOAT)	Blackish Red	CBN	• Honeycomb structure CBN composite material consisting of wear resistant CBN (core) and tough CBN (shell) with heat-resistant MEGACOAT • Application: Stable machining of hardened steel with interrupted machining

KBN35M (MEGACOAT honeycomb structure CBN)

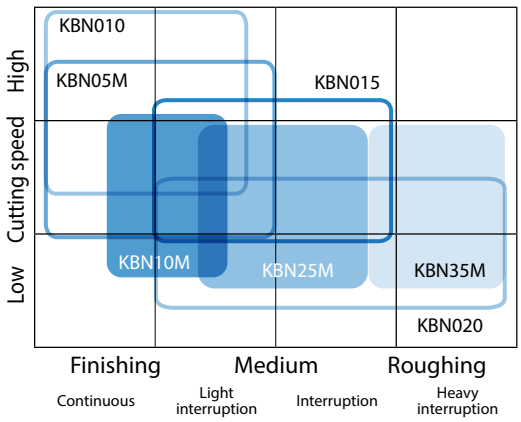
Tough CBN (shell) prevents crack growth





Application Map

Hard Materials



Insert Material Selection Table

Highlighted items are recommended choices.

Applications		Cutting Range	Steel	Stainless Steel	Gray Cast Iron	Nodular Cast Iron	Non-ferrous Metals	Heat-Resistant Alloys	Titanium Alloys	Hard Materials	Sintered Steel
Turning		Finishing ↕ Roughing	TN610 CCX TN620 TN60 PV710 PV720 PV730 CA510 CA115P CA125P CA530	 TN610 TN620 TN60 PV720 CA6515 CA6525 PR1535	 KBN475 KBN60M KA30 PV7005 CA5505 CA410K CA415K	 TN60 PV7005 CA5505 CA410K CA415K	 KPD001 KPD010 PDL010 PDL025 KW10	 KS6040 KW10 CA6515 CA6525 PR005S PR115S PR120S PR1535	 KPD001 KPD010 SW05 SW10 SW25	KT66 A66N PT600M KBN010 KBN05M KBN015 KBN020 KBN25M KBN35M KBN900	 TN610 TN60 KBN570 KBN70M
Small Tools		Finishing ↕ Roughing	TN610 TN620 PV710 PV720 PR1705 PR1725 PR930 PR1025 PR1535	TN610 TN620 PV720 PR1725 PR930 PR1025 PR1225 PR1535	 CA410K CA415K KW10	 CA410K CA415K KW10	 KPD001 KPD010 PDL010 PDL025 GW05 KW10	 CA6515 PR1125 PR1225 PR1535	 KPD001 KPD010 KW10 PR1535	 KBN010 KBN05M KBN015 KBN020 KBN25M	 TN610 TN60 KBN570 KBN70M
Boring		Large ↕ Small (Bore Dia.)	TN610 TN620 PV710 PV720 PV730 CA115P CA125P CA530 PR1705 PR1725 PR1025 PR930 PR1535	 TN60 CA6515 CA6525 PR1725 PR1025 PR1225 PR930 PR1535	 KBN475 KBN60M PV7005 CA410K CA415K KW10	 PV7005 CA410K CA415K KW10	 KPD001 KPD010 PDL010 PDL025 GW05 KW10	 CA6515 CA6525 PR1125 PR1535	 KPD001 KPD010 KW10 PR1535	PT600M KBN010 KBN05M KBN015 KBN020 KBN25M	 TN610 TN60 KBN570 KBN70M
Cut-Off		Large ↕ Small (Cutting Dia.)	CR9025 PR930 PR915 PR1215 PR1225 PR1535	CR9025 PR930 PR915 PR1215 PR1225 PR1535	 KW10 PR1215	 KW10 PR1215	 PDL025 KW10	 KW10 PR1225 PR660	 KW10	-	-
Cut-Off	(Small Diameter)	Depends on the workpiece material	PR1025 PR2025 PR1535	PR1025 PR1535 PR2035	KW10 PR2015	KW10 PR2015	PDL025 KW10	KW10 PR1025 PR1225	KW10	-	-
Grooving		Glossy Finish ↕ Stable	TC40 TN620 TN90 PV7040 PR930 PR1115 PR1215 PR1225 PR2025	TC40 TN620 TN90 PV7040 PR930 PR1115 PR1215 PR1225 PR2025	 KW10 GW15 PR905 PR2015 PR1215	 KW10 GW15 PR905 PR2015 PR1215	 KPD001 PDL025 KW10 GW15	 PR915 KW10 PR1215 PR1225 PR1535	 KPD001 KW10 PR1535	 KBN510 KBN525 PT600M	 TC40 KBN570
Threading		Glossy Finish ↕ Stable	TC60 PR1215 PR1115 PR930	TC60 PR1515 PR1115 PR930	KW10 GW15	KW10 GW15	KW10 GW15	KW10 GW15	KW10 GW15	-	PR1515 PR1115
Drilling		Wear Resistance ↕ Toughness	CA520D PR1225 PR1230 PR1535	 PR1225 PR1535	CA415D PR1210 KW10	 PR1210 KW10	 KW10 GW15	 PR1225 KW10 GW15	 KW10	-	-
Milling		Finishing ↕ Roughing	TN100M TN620M PV60M PR1825 PR1835	CA6535 PR1525 PR1835 PR1535	 PR1810 PR1510 KW10	 PR1810 PR1510 KW10	KPD230 KPD001 KPD010 PDL025 KW10 GW25	CA6535 PR1225 PR1535	KPD230 KPD001 KW10 PR905 PR1210 PR1535	 PR015S	 -

Grade Properties

Cermet

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness ($MPa•m^{1/2}$)	Transverse Strength (MPa)
					(HV)	(GPa)		
TN610	Gray	TiCN	-	6.6	1,750	17.2	6.0	2,100
TN620				6.9	1,550	15.2	9.0	2,500
TN620M				6.9	1,550	15.2	9.0	2,500
TN6020				6.4	1,500	14.7	10.0	2,500
TN60		TiCN+NbC		6.6	1,600	15.7	9.0	1,760
TN90				6.4	1,450	14.2	10.0	1,960
TN100M				6.7	1,520	14.9	10.5	1,860
TC40		TiC+TiN		6.0	1,650	16.2	9.0	1,570
TC60		NbC		8.1	1,500	14.7	10.5	1,670

CVD Coated Cermet

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness ($MPa•m^{1/2}$)	Transverse Strength (MPa)
					(HV)	(GPa)		
CCX	Gold	$TiCN+Al_2O_3+TiN$	Thin Coating	7.0	1,500	14.7	10.0	2,600

PVD Coated Cermet

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness ($MPa•m^{1/2}$)	Transverse Strength (MPa)
					(HV)	(GPa)		
PV710	Gold	MEGACOAT NANO	Thin Coating	6.6	1,750	17.2	6.0	2,100
PV720				6.9	1,550	15.2	9.0	2,500
PV730				7.0	1,550	14.2	10.0	2,500
PV7005	Blackish Red	MEGACOAT		6.0	1,650	16.2	8.5	1,470
PV7040				6.0	1,650	16.2	9.0	1,570
PV60M	Gold	MEGACOAT NANO		6.6	1,600	15.7	9.0	1,760

CVD Coated Carbide

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness ($MPa•m^{1/2}$)	Transverse Strength (MPa)
					(HV)	(GPa)		
CA025P	Gold	$TiCN+Al_2O_3+TiN$	Thick Coating	14.2	1,400	13.7	13.5	2,800
CA115P	Gold + Black	$TiCN+Al_2O_3+TiN$		13.9	1,440	14.1	13.0	2,250
CA125P				13.8	1,400	13.7	14.5	2,300
CA310	Rose Gold	$TiCN+Al_2O_3+Ti$ Base		15	1,570	15.4	12.0	2,780
CA315				15	1,570	15.4	12.0	2,780
CA320				15	1,570	15.4	12.0	2,780
CA410K	Gold + Black	$TiCN+Al_2O_3+TiN$		15	1,570	15.4	12.0	2,780
CA415K				15	1,570	15.4	12.0	2,780
CA415D	Gold	$TiCN+Al_2O_3+TiN$		15	1,570	15.4	12.0	2,780
CA420M				14.5	1,600	15.8	13.0	3,400
CA4505	Blackish Gray	$TiCN+Al_2O_3$		15.0	1,790	17.5	9.5	2,350
CA4515				15.0	1,570	15.4	12.0	2,780
CA510	Gold	$TiCN+Al_2O_3+TiN$		14.5	1,470	14.4	11.5	2,500
CA515				14.4	1,440	14.1	12.5	2,650
CA520D				14.7	1,370	13.4	16.0	3,100
CA525				14.2	1,360	13.3	13.5	2,750
CA530				13.9	1,340	13.1	14.5	2,850
CA6515			Thin Coating	14.7	1,530	15.0	12.0	2,780
CA6525				14.7	1,370	13.4	16.0	3,100
CA6535				14.3	1,320	12.9	16.0	3,700
CR9025		TiCN+TiN	Thick Coating	14.5	1,400	13.7	12.0	2,780

Grade Properties

PVD Coated Carbide

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness ($MPa•m^{1/2}$)	Transverse Strength (MPa)
					(HV)	(GPa)		
PR005S	Gray Black	MEGACOAT HARD	Thin Coating	15.0	1,750	17.2	8.0	2,000
PR015S				14.9	1,680	16.5	9.0	2,400
PR115S		MEGACOAT TOUGH		14.9	1,680	16.5	9.0	2,400
PR120S				14.6	1,500	14.7	14.0	2,700
PR905	Bluish violet	TiAlN		14.8	1,720	16.8	9.0	2,450
PR915				14.1	1,700	16.7	11.0	4,140
PR930	Reddish Gray	TiCN		14.1	1,700	16.7	11.0	4,140
PR1025				14.5	1,600	15.8	13.0	3,400
PR1115	Purple Red	TiAlN		14.7	1,700	16.7	11.0	3,000
PR1210	Blackish Red	MEGACOAT		14.8	1,720	16.8	9.0	2,450
PR1215				14.7	1,700	16.7	11.0	3,000
PR1225				14.5	1,600	15.8	13.0	3,400
PR1230				13.7	1,450	14.2	13.0	2,250
PR1510	Redish Gray	MEGACOAT NANO		14.8	1,720	16.8	9.0	2,450
PR1515				14.7	1,700	16.7	11.0	3,000
PR1525				14.5	1,600	15.8	13.0	3,400
PR1535				14.3	1,320	12.9	16.0	3,700
PR1625				14.5	1,600	15.8	13.0	3,400
PR1705	Silver	MEGACOAT NANO PLUS		14.9	1,800	17.6	10.0	3,300
PR1725				14.5	1,600	15.8	13.0	3,400
PR1810	Redish Gray	MEGACOAT NANO EX		14.9	1,680	16.5	9.0	2,400
PR1825				14.5	1,600	15.8	13.0	3,400
PR1835				14.3	1,320	12.9	16.0	3,700
PR2015	Blackish Red			14.7	1,700	16.7	11.0	3,000
PR2025				14.5	1,600	15.8	13.0	3,400
PR2035				14.3	1,320	12.9	16.0	3,700

Carbide

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness ($MPa•m^{1/2}$)	Transverse Strength (MPa)
					(HV)	(GPa)		
KW10	Gray	WC+Co	-	15.0	1,650	16.2	10.0	1,470
GW05				14.9	1,800	17.6	10.0	3,300
GW15				14.7	1,700	16.7	11.0	3,000
GW25				14.5	1,600	15.8	13.0	3,400
SW05				15.0	1,790	17.5	9.5	2,350
SW10				14.8	1,720	16.8	9.0	2,450
SW25				14.7	1,370	13.4	16.0	3,100

DLC Coated Carbide

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness ($MPa•m^{1/2}$)	Transverse Strength (MPa)
					(HV)	(GPa)		
PDL010	Iridescent	C	Thin Coating	15.0	1,650	16.2	10.0	1,470
PDL015				14.7	1,700	16.7	11.0	3,000
PDL025				14.5	1,600	15.8	13.0	3,400

Turning Inserts

B

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Negative Chipbreaker Selection		B4
Positive Chipbreaker Selection		B12
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	DN Type	B24
	RN Type	B33
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	EN Type	B115
	RN Type	B116
	SN Type	B117
	TN Type	B118
	VN / WN Type	B119
Positive Turning Inserts	RP Type	B120
	SP Type	B121
	TB / TP Type	B122
Roll Machining Inserts	RBG / RCGX / RPGX	B123
Grooving Inserts	GH	B124

Turning Indexable Inserts Identification System

Symbol	Insert
H	Hexagon
O	Octagon
P	Pentagon
S	Square
T	Triangle
C	80° Diamond
D	55° Diamond
E	75° Diamond
F	50° Diamond
M	86° Diamond
J	70° Diamond
V	35° Diamond
Z	25°/15° Diamond
W	80° Trigon
L	Rectangle
A	85° Parallelogram
B	82° Parallelogram
K	55° Parallelogram
R	Round

Shown angle stands for acute angle for diamond and parallelogram inserts.

① Shape Symbol

Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°

② Relief Angle Symbol

Symbol Class	Tolerance					
	Corner Height		Thickness		I.C. Size	
	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)
A	0.0002	0.005	0.0010	0.025	0.0010	0.025
F	0.0002	0.005	0.0010	0.025	0.0005	0.013
C	0.0005	0.013	0.0010	0.025	0.0010	0.025
H	0.0005	0.013	0.0010	0.025	0.0005	0.013
E	0.0010	0.025	0.0010	0.025	0.0010	0.025
G	0.0010	0.025	0.0050	0.130	0.0010	0.025
J	0.0002	0.005	0.0010	0.025	0.002~0.006	0.05~0.15
K*	0.0005	0.013	0.0010	0.025	0.002~0.006	0.05~0.15
L*	0.0010	0.025	0.0010	0.025	0.002~0.006	0.05~0.15
M*	0.003~0.007	0.080~0.180	0.0050	0.130	0.002~0.006	0.05~0.15
N*	0.003~0.007	0.080~0.180	0.0010	0.025	0.002~0.006	0.05~0.15
U*	0.005~0.015	0.130~0.380	0.0050	0.130	0.003~0.009	0.08~0.25

*Insert's periphery is as fired.
Tolerance difference depends on size and shape of insert

③ Tolerance Symbol

Symbol	Hole	Hole Shape	Chipbreaker	Insert
N	No	-	No	
R			One Side	
F			Two Sides	
A	Yes	With Hole	No	
M			One Side	
G			Two Sides	
W		With Hole and One Countersink 40°~60°	No	
T			One Side	
Q		With Hole and Two Countersink 40°~60°	No	
U			Two Sides	
B		With Hole and One Countersink 70°~90°	No	
H			One Side	
C		With Hole and Two Countersink 70°~90°	No	
J			Two Sides	
X	-	-	-	-

④ Hole / Chipbreaker Symbol

	①	②	③	④	⑤	⑥	⑦	⑧
ISO Metric	C	N	M	G	12	04	08	PG
ANSI Inch	C	N	M	G	4	3	2	PG

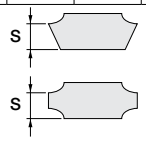
⑤ Edge Length Symbol (ISO)

C	D	S	R	T	V	W	I.C. Size (mm)	⑤ I.C. Size (ANSI) I.C. Size (inch)	Symbol
03	04		03	06			3.97	5/32	1.2
04	05		04	08	08		4.76	3/16	1.5
		05					5		
05	06		05	09		03	5.56	7/32	1.8
		06					6		
06	07		06	11	11	04	6.35	1/4	2
08	09		07	13		05	7.94	5/16	2.5
		08					8		
09	11	09	09	16	16	06	9.525	3/8	3
	12	10					10		
		12					12		
12	15	12	12	22	22	08	12.7	1/2	4
16	19	15	15	27	27	10	15.875	5/8	5
		16					16		
19	23	19	19	33	33	13	19.05	3/4	6
		20					20		
22	27		22	38			22.225	7/8	7
		25					25		
25	31	25	25	44	44	17	25.4	1	8
32	38	31	31	54	54	21	31.75	1-1/4	10
		32					32		

· Expressed as edge length for ISO.
· ANSI expresses the inscribed circle diameter in inches.

⑥ Thickness Symbol

ISO Thickness (mm)	ISO Symbol	ANSI Thickness (inch)	ANSI Symbol
1.59	01	1/16	1
1.98	T1	5/64	1.2
2.38	02	3/32	1.5
2.78	T2	-	-
3.18	03	1/8	2
3.97	T3	5/32	2.5
4.76	04	3/16	3
5.56	05	7/32	3.5
6.35	06	1/4	4
7.94	07	5/16	5
9.525	09	3/8	6



Thickness displayed as the distance between bottom surface and highest point on cutting edge.

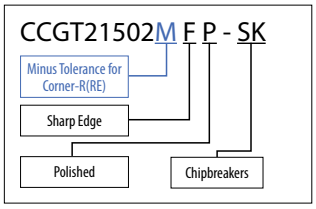
⑦ Corner-R (RE) Symbol

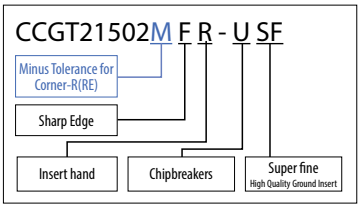
ISO Corner-RE (mm)	ISO Symbol	ANSI Corner-RE (inch)	ANSI Symbol
Sharp Edge	00	0.000	00
0.03	003	0.001	0.1
0.05	005	0.002	0.13
0.10	01	0.004	0.2
0.20	02	0.008	0.5
0.40	04	1/64	1
0.80	08	1/32	2
1.20	12	3/64	3
1.60	16	1/16	4
2.00	20	5/64	5
2.40	24	3/32	6
2.80	28	7/64	7
3.20	32	1/8	8
Round Insert	00 (Inch) or M0 (Metric)	Round Insert	

⑧ Manufacturer's Option

Hand Symbol, Chipbreaker, Symbol, Etc.

Positive Inserts Identification System





When a minus tolerance is specified for the corner-R(RE)

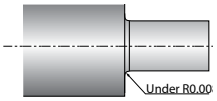


Fig. 1 Example of a specified corner-R in the drawing

If a minus tolerance is specified for the corner-R as shown in the figure, using an insert with corner-R(RE) = 0.2 mm may result in larger radius than specified.

Use an insert with a corner R(RE) that has a minus tolerance.

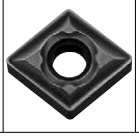
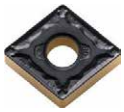
Insert Color

*Newer grades in red are recommended

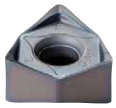
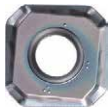
Cermet

Grades	Cermet									CVD Coated Cermet	MEGACOAT NANO cermet				MEGACOAT Cermet		PVD coated cermet
	TN610	TN620	TN620M	TN6020	TN60	TN90	TN100M	TC40N	TG60M	CCX	PV710	PV720	PV730	PV60M	PV7005	PV7040	PV90
Insert Color																	

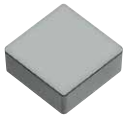
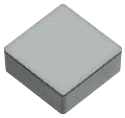
CVD Coated Carbide

Grades	CVD Coated Carbide																	
	CA310	CA315	CA320	CA410K	CA415K	CA415D	CA520D	CA420M	CA45 Series	CA510	CA515	CA025P	CA525	CA530	CA55 Series	CA65 Series	CR9025	CA115P	CA125P
Insert Color																			

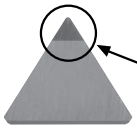
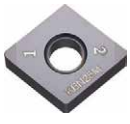
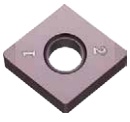
PVD Coated Carbide

Grades	MEGACOAT NANO					MEGACOAT NANO PLUS		MEGACOAT HARD		MEGACOAT				PVD Coated Carbide					MEGACOAT TOUGH		MEGACOAT NANO EX		
	PR1510	PR1515	PR1525	PR1535	PR1625	PR1705	PR1725	PR005S	PR015S	PR1210	PR1215	PR1225	PR1230	PR905	PR915	PR930	PR1025	PR1115	PR115S	PR120S	PR1810	PR1825	PR1835
Insert Color																							

Ceramic

Grades	Aluminum Oxide Ceramic			PVD Coated Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic		CVD Coated Silicon Nitride Ceramic	SiAlON Ceramic		Whisker Reinforced Ceramic
	KA30	A65	KT66	A66N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	KS001
Insert Color											

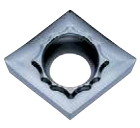
CBN & PCD

Grades	CBN				PCD			MEGACOAT TOUGH CBN / MEGACOAT CBN		PVD Coated CBN
	KBN475	KBN510	KBN525	KBN570	KPD001	KPD010	KPD230	KBN010 KBN020 KBN..M	KBN015	KBN900
Insert Color	 CBN and PCD									

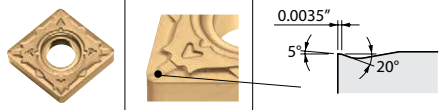
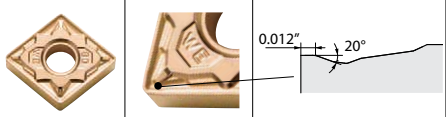
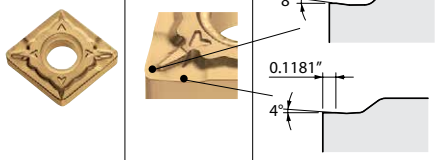
DLC Coated Carbide

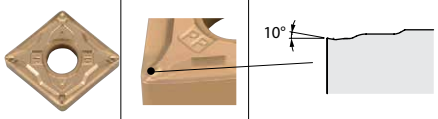
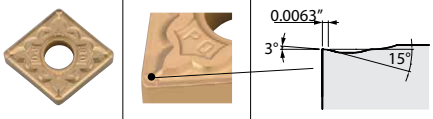
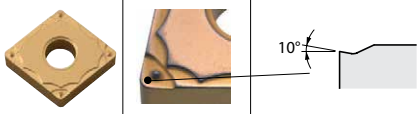
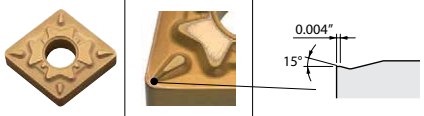
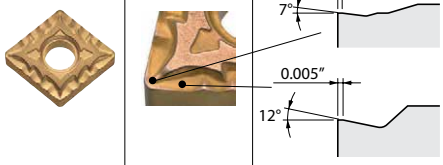
Grades	DLC Coated Carbide		
	PDL010	PDL015	PDL025
Insert colour			

Uncoated Carbide

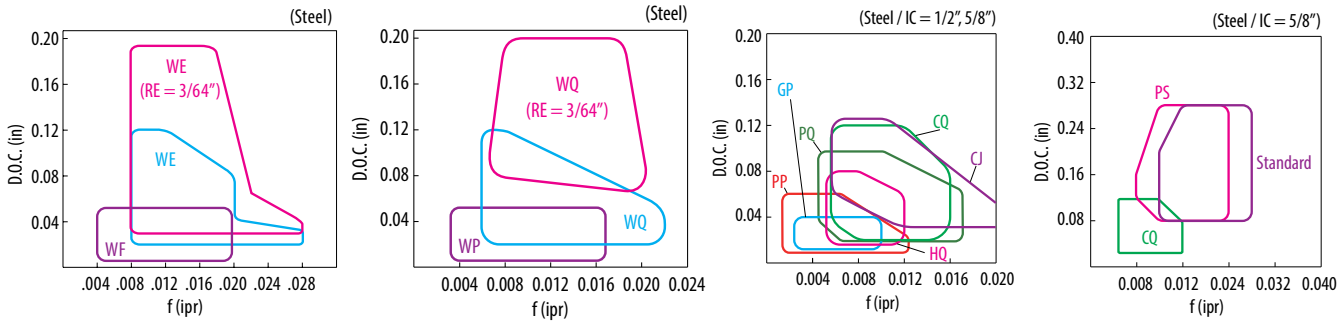
Grades	Carbide				
	GW05	GW15	GW25	KW10	SW05
Insert colour					

Steel (Molded Chipbreaker)

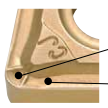
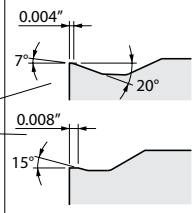
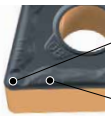
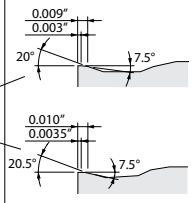
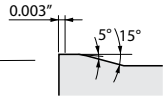
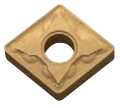
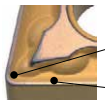
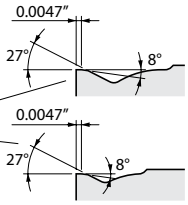
Cutting Range	Name	Design	Advantages
Finishing	**WF**		• **Wiper insert** • Good chip control in finishing operations • Excellent surface finish by controlling adhesion • Less cutting force due to sharp cutting edge
Finishing	**WP**		• **Wiper insert** • Good chip control at small depths of cut
Finishing - Medium	**WE**		• **Wiper insert** • Good surface finish at high feed rates • High productivity with smooth chip control in a wide range of applications
Finishing - Medium	**WQ**		• **Wiper insert** • Double feed rate possible while maintaining a smooth finish • High efficiency and good chip control

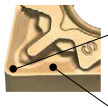
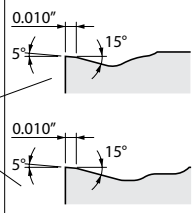
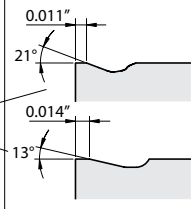
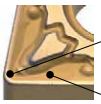
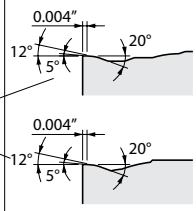
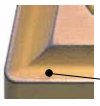
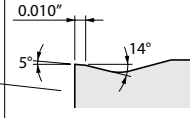
Cutting Range	Name	Design	Advantages
Finishing	**PP**		• 3-step dot structure creates stable chip control in a wide range of feed rates • Less cutting force due to sharp cutting edge and smooth rake face
Finishing - Medium	**PQ**		• Stable chip control in a wide feed rate range by breaking chips effectively • Well-balanced edge sharpness and toughness
Finishing	**GP**		• Finishing to light machining • Good chip control
Finishing - Medium	**HQ**		• Sharp cutting performance with 3-D rake angle and double projection design
Finishing - Medium	**CQ**		• Good chip control for varying depths of cut such as copying • Applicable for up facing

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

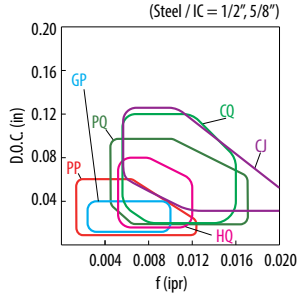


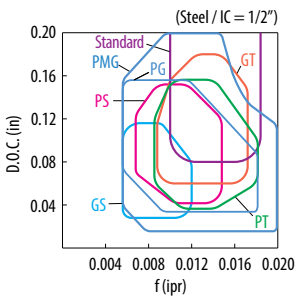
Steel (Molded Chipbreaker)

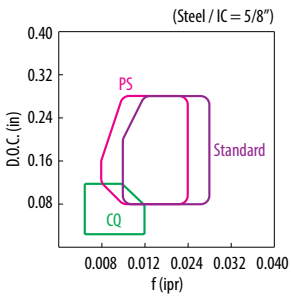
Cutting Range	Name	Design	Advantages
Finishing - Medium / up facing	**CJ**	 	• Improved chip curling in small depth and high feed rate machining • Improved chip evacuation when copying and up facing
Medium - Roughing	**PMG**	 	• Covers a wide range of machining applications from medium machining to roughing • Excellent wear resistance with low cutting force design • Reduces chip shape inconsistencies and improves tool life
Medium - Roughing	**PG**		• Stable machining with good balance of edge sharpness and strength • Prevents chip clogging at high feed rate • Good chip control at low feed rates • Stable machining with wide chip control range
Medium - Roughing	**GS**	  	• Strong edge chipbreaker • Stable for continuous machining and light interrupted machining

Cutting Range	Name	Design	Advantages
Medium - Roughing	**PS**	 	• General purpose chipbreaker • More stable due to large contact surface
Medium - Roughing / High Feed Rate	**PT**		• Low cutting force during high feed machining • Land support structure
Medium - Roughing / High Feed Rate	**GT**	 	• Strong edge chipbreaker • Wide land design and smooth chip control even at high feed rate machining
Roughing	**Standard** (No Callout)	 	• Low cutting force and suitable for large D.O.C. roughing

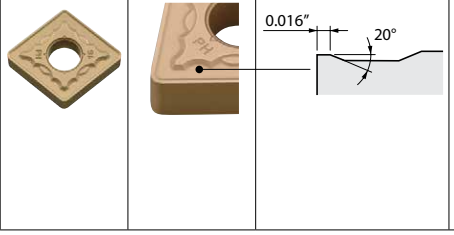
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

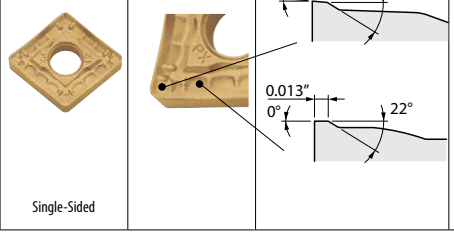




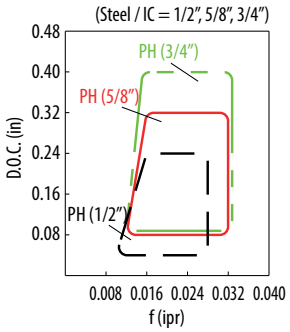


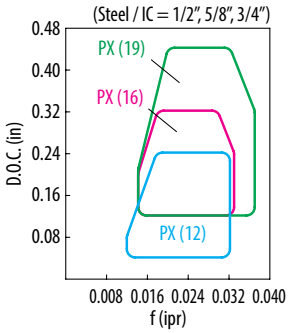
Steel (Molded Chipbreaker)

Cutting Range	Name	Design	Advantages
Roughing	**PH**		• Suitable for heavily interrupted machining and for workpieces with scale due to strong cutting edge

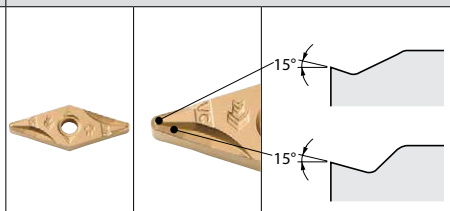
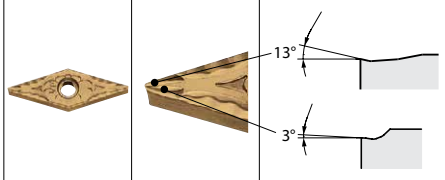
Cutting Range	Name	Design	Advantages
Roughing (High Feed Rate)	**PX**	 Single-Sided	• Roughing and high feed rate operation • Low cutting force chipbreaker

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

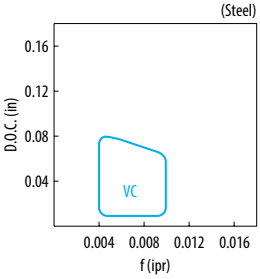


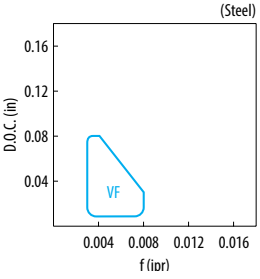


Steel (Copying / Undercutting, Varied D.O.C.)

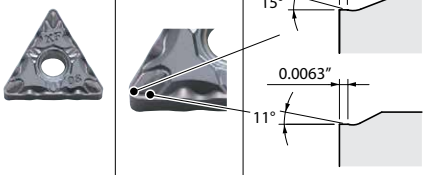
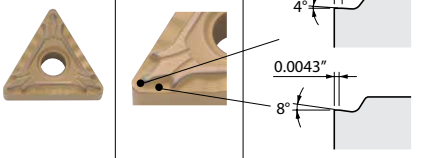
Cutting Range	Name	Design	Advantages
Finishing - Medium	**VC**		• Handed chipbreaker for copying • Good chip control at varied D.O.C. because of the large space on the main cutting edge side
Finishing - Medium	**VF**		• Good chip control at varied D.O.C. such as copying and undercutting

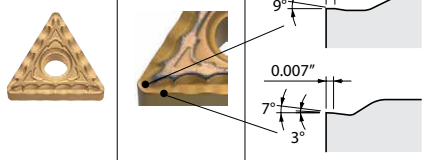
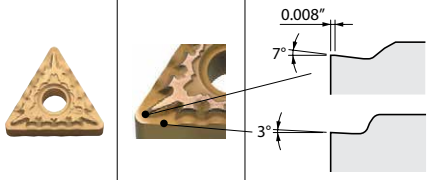
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



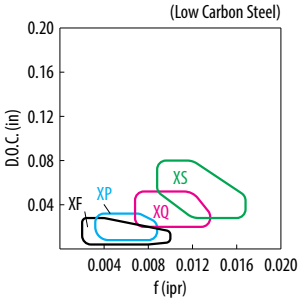


Low Carbon Steel (Pipe, Rolled Plate, Rolled Steel)

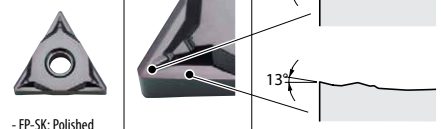
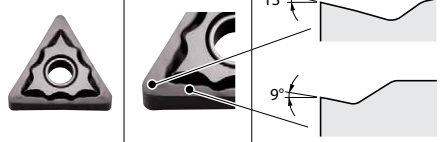
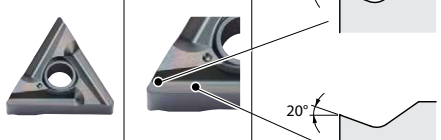
Cutting Range	Name	Design	Advantages
Finishing	XF		• Excellent chip control at high speed and small D.O.C. machining of low carbon steel
Finishing	XP		• Short chips due to sharp cutting and special design

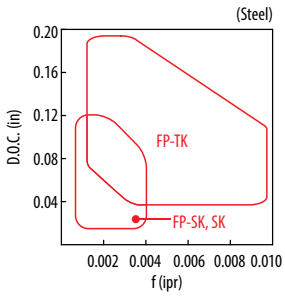
Cutting Range	Name	Design	Advantages
Medium	XQ		• Consistent chip breaking due to moderate rake face and special design
Roughing	XS		• Consistent chip breaking due to special rake face and rake angle design

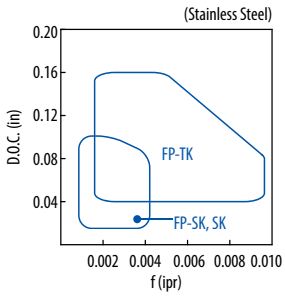
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

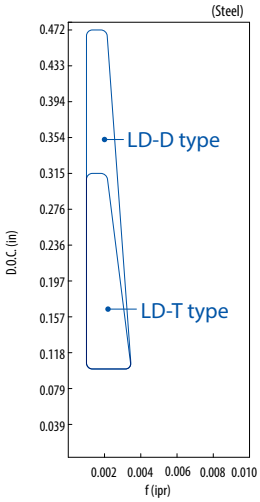


Steel / Stainless Steel (Small Parts Machining)

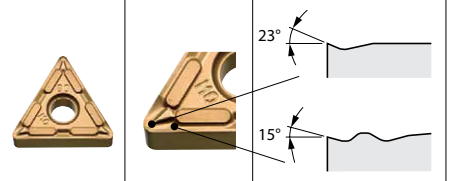
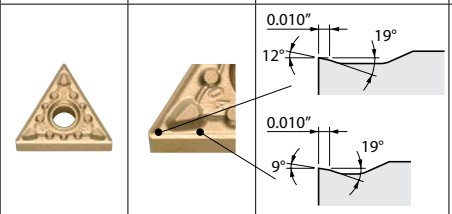
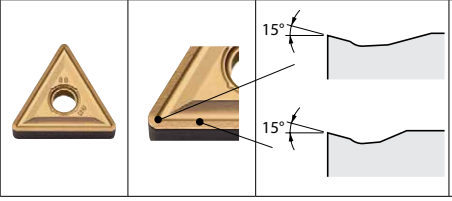
Cutting Range	Name	Design	Advantages
Finishing - Medium	SK	 - FP-SK: Polished Sharp Edge -SK: Honed	• Machining in automatic lathes • Sharp cutting performance equivalent to positive inserts • 2-step dot design provides reliable chip control at various ap
Medium - Roughing	FP-TK		• Good in automatic lathes (When machining workpieces of medium to large diameter) • Superior cutting performance achieved by sharp edge and polished surface • Smooth chipbreaker geometry improves chip flow with less adhesion ·Large curled chips
Large D.O.C.	LD		• Available for greater depths of cut than many conventional chipbreakers • Achieves high-precision machining in a single pass • Chipbreaker shape optimized for various depths of cut • Stable chip control in a wide range of machining applications

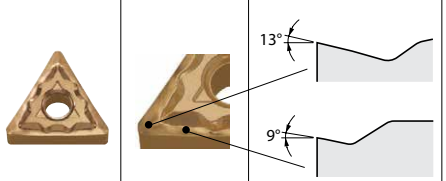
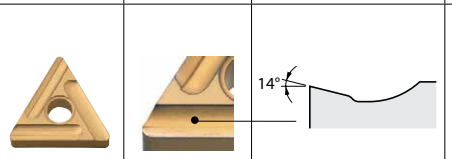




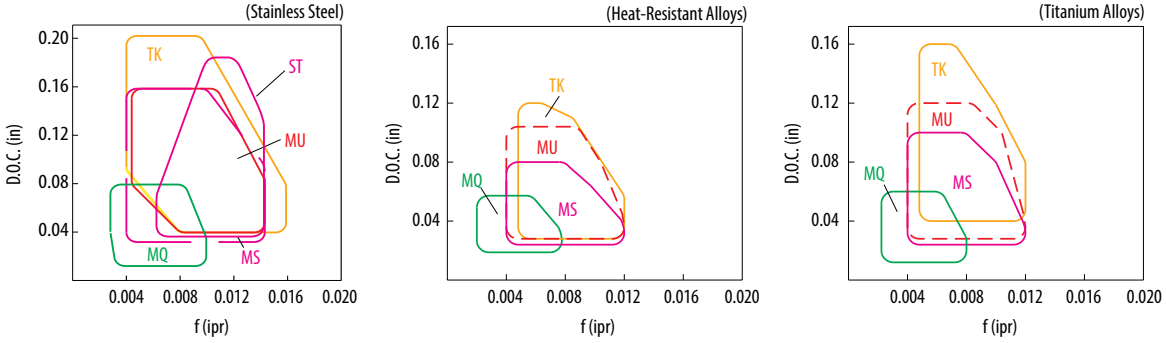


Stainless Steel / Heat-Resistant Alloy / Titanium Alloy

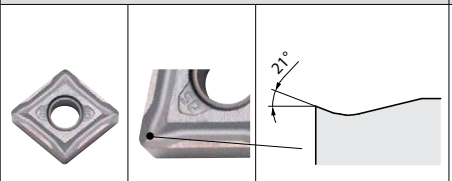
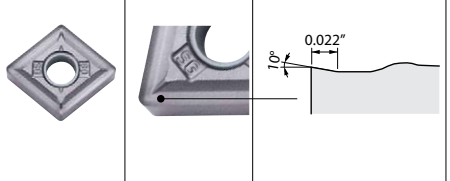
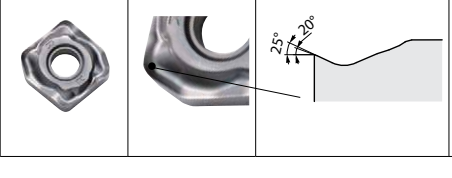
Cutting Range	Name	Design	Advantages
Finishing	MQ		• Large rake angle • Low cutting force and good chip control
Medium - Roughing	MS		• Superior cutting edge sharpness and strength achieved by a positive land • Extra strength of cutting edge inhibits damage from wall shouldering
Medium - Roughing	MU		• Large rake angle reduces cutting force • Less burring achieved by diminishing damage from notching

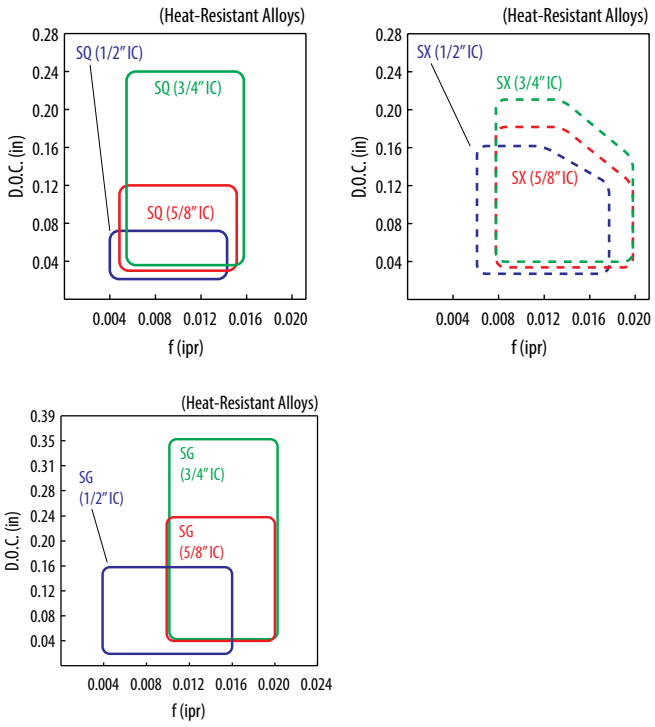
Cutting Range	Name	Design	Advantages
Medium - Roughing	TK		• Smooth chipbreaker geometry improves chip flow with less adhesion • Large curled chips
Medium - Roughing	ST		• Less cutting force due to large rake angle • Less notching with special design

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

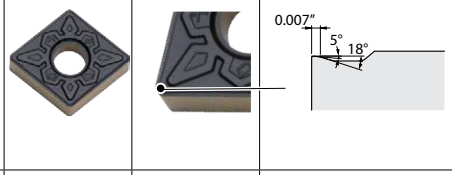
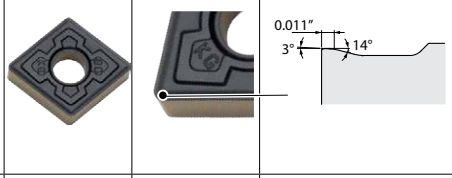
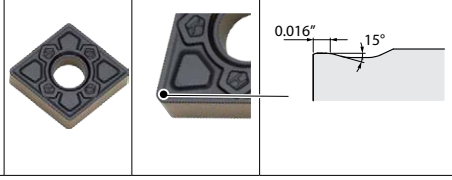


Heat-Resistant Alloys

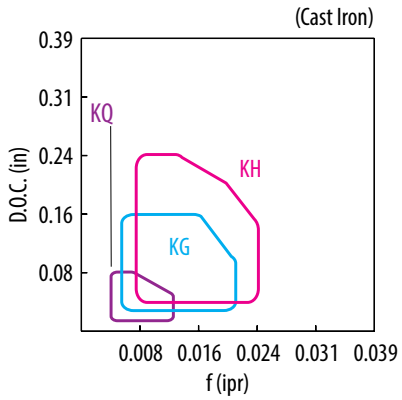
Cutting Range	Name	Design	Advantages
Finishing - Medium	SQ		• Effective for burr suppression and reducing notching by slant cutting edge (inclined in (-) direction)
Roughing	SG		• Well-balanced edge strength • Cutting force reduction for stable machining at high-load cutting • Shallow and gently curved breaker controls chips smoothly
Roughing	SX		• Slant cutting edge reduces cutting force • Less burring achieved by unique cutting edge design



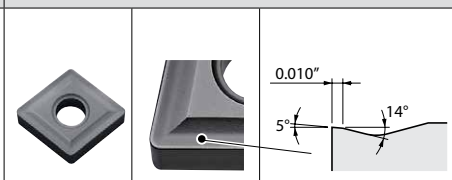
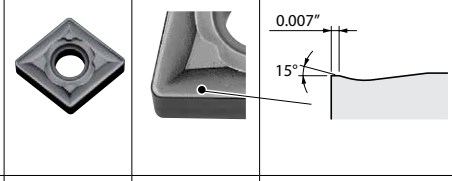
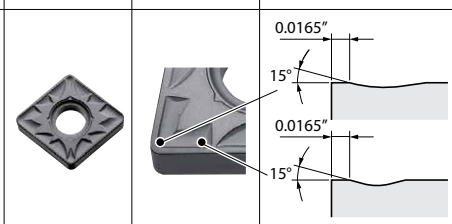
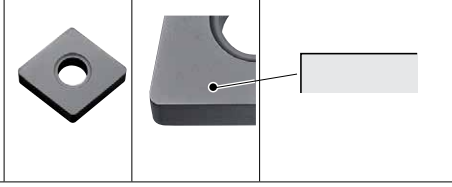
Cast Iron (K Series)

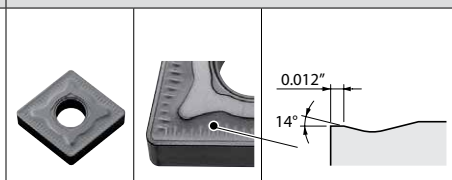
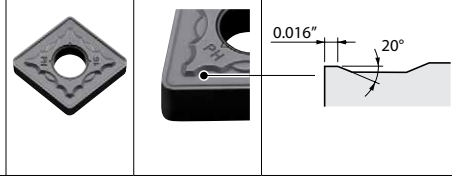
Cutting Range	Name	Design	Advantages
Sharp Cutting Oriented	KQ		• Sharp cutting chipbreaker • Edge geometry is suitable for workpieces that require sharpness such as thin-walled
Roughing	KG		• Excellent balance of sharpness and strength • Excellent stability in continuous machining
Roughing	KH		• Good for heavily interrupted machining • Strong edge chipbreaker • Improved locating / seating in the toolholder pocket with high reliability

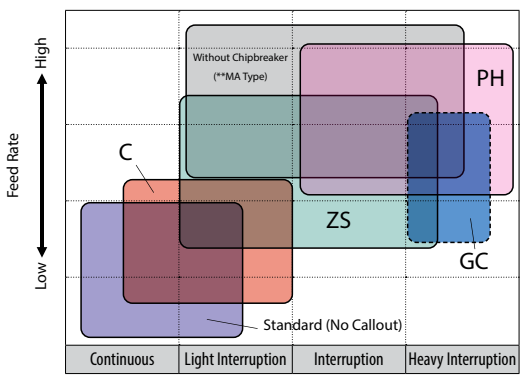
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



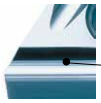
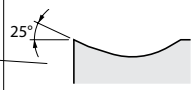
Cast Iron

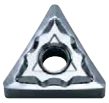
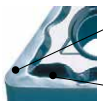
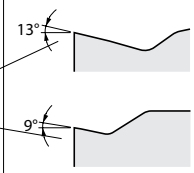
Cutting Range	Name	Design	Advantages
Sharp Cutting Oriented	**Standard** (No Callout)		• Standard type for continuous to light interrupted cuts (Low cutting force)
	C		• High feed rate chipbreaker for continuous to light interrupted cuts
	ZS		• Standard type for light interrupted to interrupted cuts (Stability oriented)
	Without Chipbreaker		• High feed rate chipbreaker for light interrupted to interrupted cuts

Cutting Range	Name	Design	Advantages
Stability Oriented	GC		• For heavy interrupted machining of cast iron (Tough edge chipbreaker)
	PH		• For roughing • Suitable for heavy interrupted cuts and for workpieces with scale due to strong cutting edge

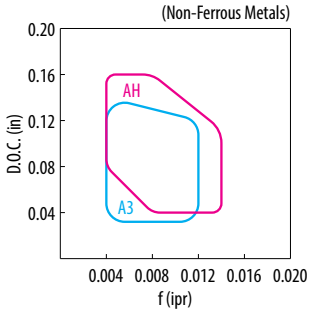


Non-Ferrous Metals

Cutting Range	Name	Design	Advantages
Finishing - Medium	**A3**	 	• Large rake angle and smooth surface •Good chip control and less adhesion

Cutting Range	Name	Design	Advantages
Medium - Roughing	**AH**	   **G** Class: Sharp Edge **M** Class: Honed Edge Prep	• Polished chipbreaker • Smooth chip control and less adhesion

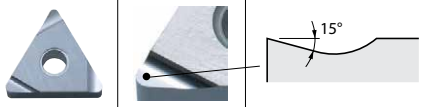
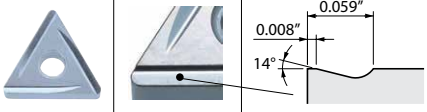
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

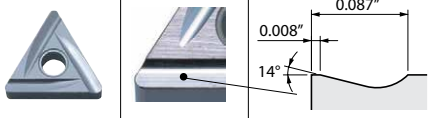
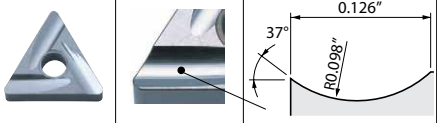


A3 Chipbreaker	
	D.O.C. = 0.079″ f = 0.008 ipr
	D.O.C. = 0.079″ f = 0.012 ipr

AH Chipbreaker	
	D.O.C. = 0.079″ f = 0.008 ipr
	D.O.C. = 0.079″ f = 0.012 ipr

Steel (Ground Chipbreaker)

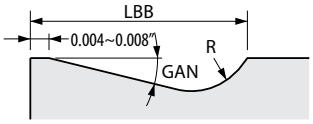
Cutting Range	Name	Design	Advantages
Finishing	S		• Sharp edge and less cutting force • Good chip control and smooth chip evacuation
Finishing - Medium	B		• Suitable for general purpose machining at feed rate 0.15 to 0.25mm/rev

Cutting Range	Name	Design	Advantages
Medium - Roughing	C		• Suitable for general purpose machining at feed rate 0.20 to 0.35 mm/rev
Medium - Roughing / Low Cutting Force	25R		• Applicable to sticky material such as low carbon steel • Large rake angle and suitable for stainless steel

Effectiveness of a Ground Chipbreaker

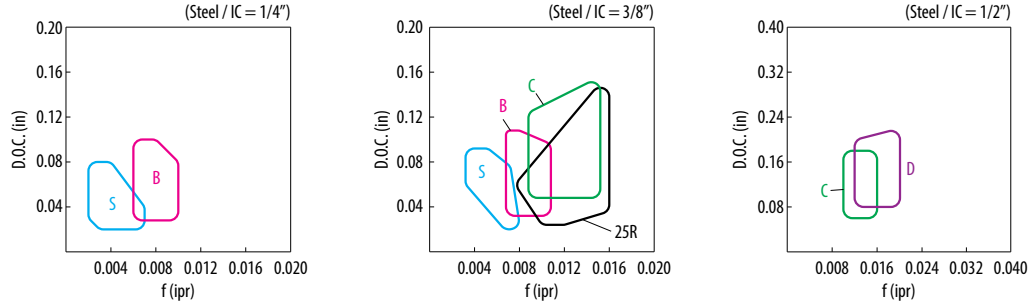
1. Lower cutting force and sharper cutting edge
2. Improved adhesion resistance
3. Improved dimensional accuracy and surface finish
4. Controlled chip evacuation flow

Specification of B, C and Parallel Ground Chipbreaker

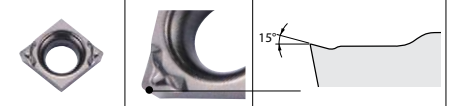
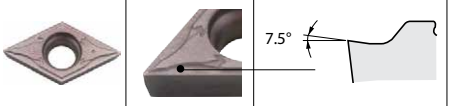
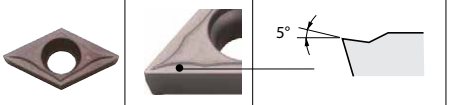
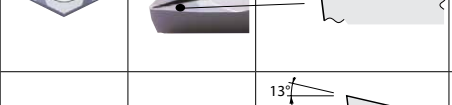
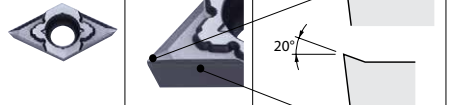


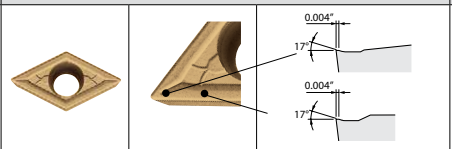
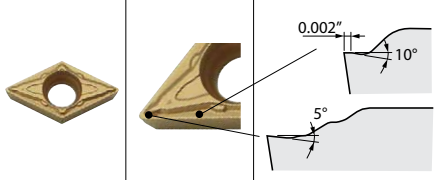
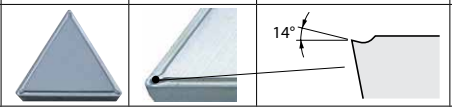
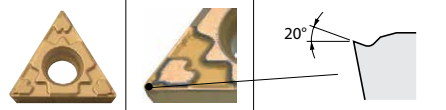
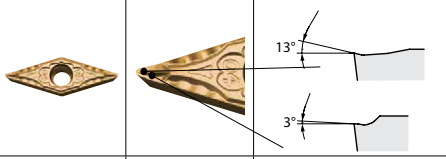
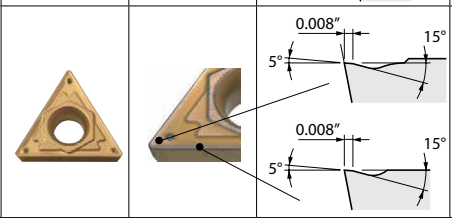
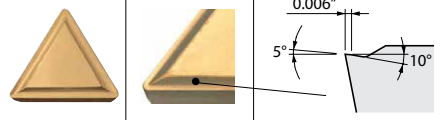
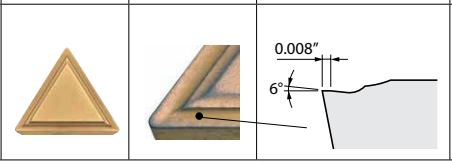
Insert Type	IC Size (in)	Chipbreaker Name	LBB	GAN	R
CNGG	3/8,1/2	No Callout (Similar to C)	0.087″	14°	0.039″
WNGG	3/8	No Callout (Similar to C)	0.087″	14°	0.039″
TNGG	1/4, 3/8	B	0.059″	14°	0.020″
	3/8, 1/2	C	0.087″	14°	0.039″
DNGG	3/8, 1/2	No Callout (Similar to C)	0.098″	14°	0.079″
VNGG	3/8	No Callout (Similar to B)	0.059″	14°	0.020″
SNGG	3/8, 1/2	B	0.059″	14°	0.020″
	1/2	C	0.087″	14°	0.039″

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

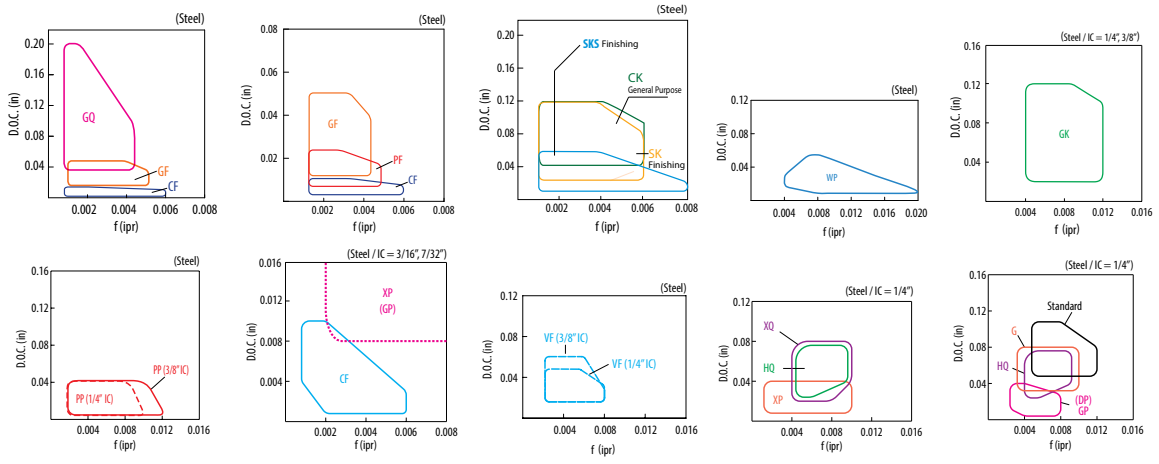


Steel (Molded Chipbreaker)

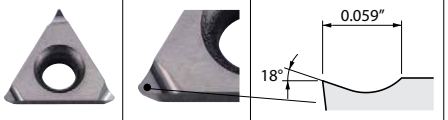
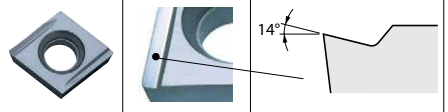
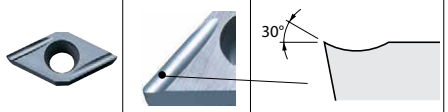
Name		Design	Advantages
Minute D.O.C.	CF		• Available for minute D.O.C. (0.0008″ to 0.008″) finishing
Finishing	PF		• Chipbreaker for finishing boring available from D.O.C. 0.006″~0.024″
Finishing	GF		• Breaks chips into small pieces at small D.O.C.
Finishing - Medium	GQ		• Wide range of conditions by using an optimum chipbreaker width according to the cutting depth
Finishing	SKS		• Finishing chipbreaker for 0.008-0.059″ D.O.C. • Rake face, bottom face and chipbreaker face provide stable chip control
Finishing	SK		• Sharp cutting performance due to large rake angle • Large dot to the corner edge for improved chip control in a wide feed rate range
Finishing	CK		• Good cutting performance • Applicable without hand for two-direction machining on automatic lathe
Finishing	WP		• **Wiper insert** • Good surface finish and good chip control at high feed rates • Reduces surface finish galling

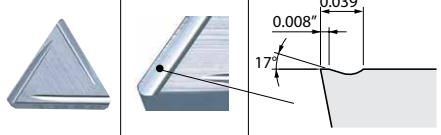
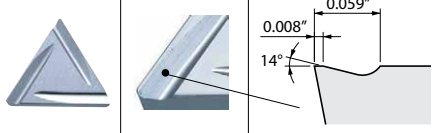
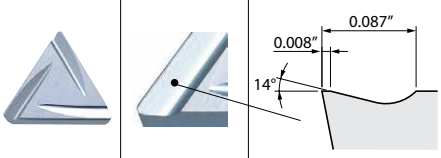
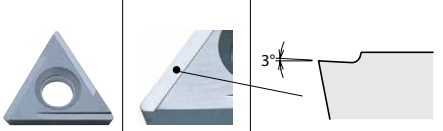
Name		Design	Advantages
Finishing - Medium	GK		• Good chip evacuation in a wide machining range with breaker dot and wide chip pocket
Finishing	PP		• **1st Recommendation** • Stable chip control in a wide feed rate range •Stable tool life due to special edge design with sharpness and improved strength
Finishing	DP		• Consistent chip breaking performance for finishing
Finishing	GP		• Good chip control
Finishing	VF		• Good chip control for varied D.O.C. such as copying and undercutting
Finishing - Medium	HQ		• General purpose chipbreaker for medium machining
Medium	G		• Chipbreaker for short chips
Medium	**Standard** (No Callout)		• Strong edge chipbreaker

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

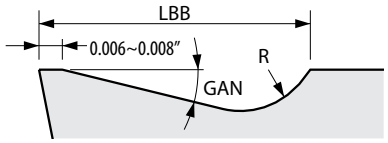


Steel (Ground Chipbreaker)

Cutting Range	Name	Design	Advantages
Finishing	No Callout		• Good chip control at finishing to light machining with low cutting force
Finishing	F		• Good chip control at finishing to light machining with low cutting force
Finishing	P		• Smoothly breaks chips and directs them towards the outside of the workpiece when boring • Sharp edge
Medium	Y		• Sharp cutting performance and good surface finish
Low Feed	J		• Slant chipbreaker width and chip control at various D.O.C. • Applicable to automatic lathes
Low Feed	U		• Good chip control at low feed rates and varied D.O.C. with low cutting force

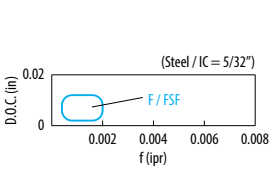
Cutting Range	Name	Design	Advantages
Finishing	A		• Large rake angle and low cutting force • Narrow chipbreaker width and consistent chip control
Finishing - Medium	B		• General purpose chipbreaker for medium machining • Good balance between chip control and sharp cutting
Medium	C		• Applicable to high load machining • Good chip flow and less resistance
Medium	H		• Sharp cutting performance and small curled chips

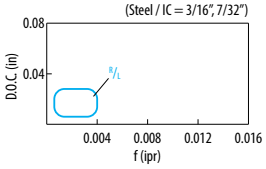
Specification of A, B, C and Parallel Ground Chipbreaker

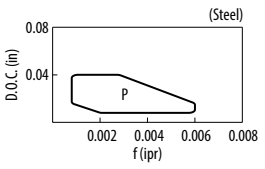


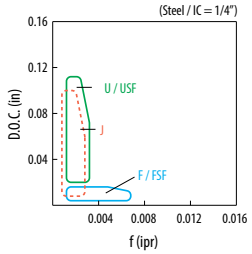
Insert Type	IC Size (in)	Chipbreaker name	LBB	GAN	R
TPGR	1/4	A	0.039″	17°	0.020″
	1/4, 3/8	B	0.059″	14°	0.020″
	3/8	C	0.087″	14°	0.039″
SPGR	3/8	No Callout (Similar to B)	0.059″	14°	0.020″
	1/2	No Callout (Similar to C)	0.087″	14°	0.039″

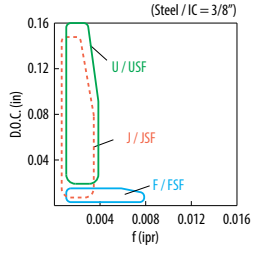
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

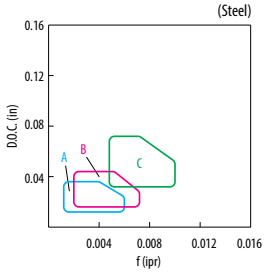


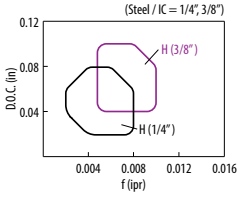




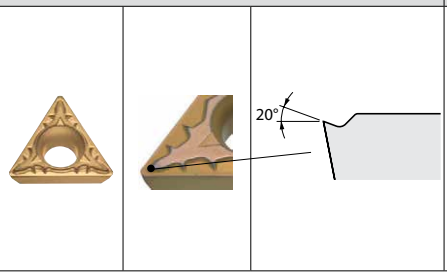


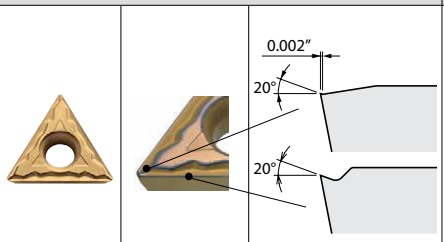




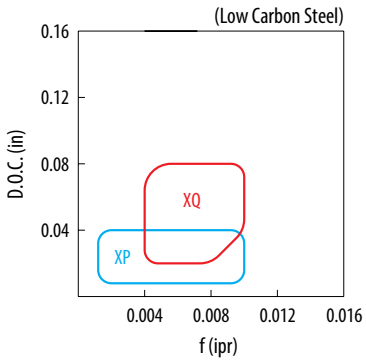


Low Carbon Steel (Pipe, Rolled Plate, Rolled Steel)

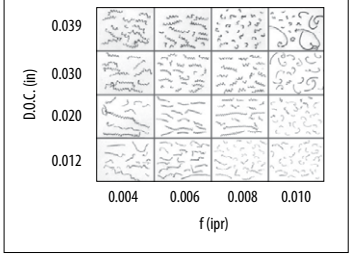
Cutting Range	Name	Design	Advantages
Finishing	XP		• Consistent chip breaking performance even for low carbon steel and sticky material

Cutting Range	Name	Design	Advantages
Finishing - Medium	XQ		• Wide chip control range and sharp cutting performance • Suitable for low carbon steel and sticky material

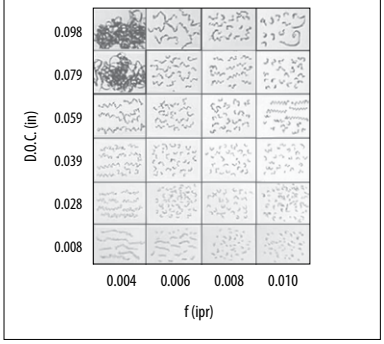
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



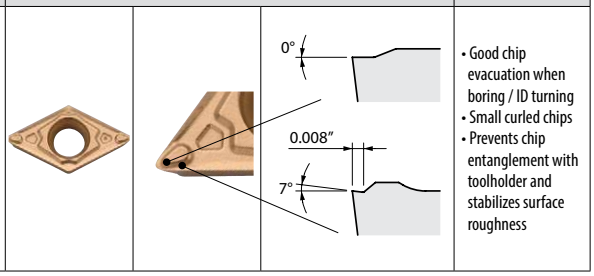
XP Chipbreaker



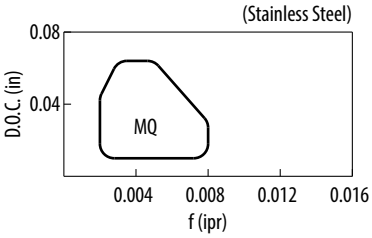
XQ Chipbreaker



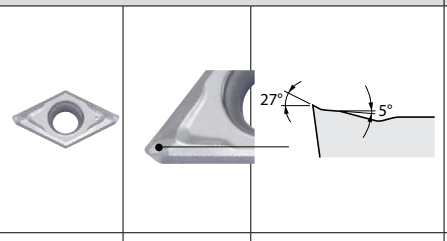
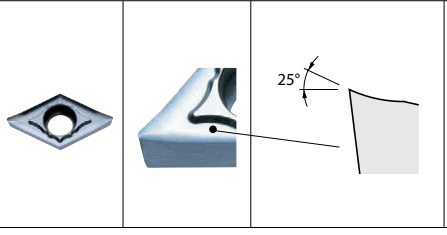
Stainless Steel

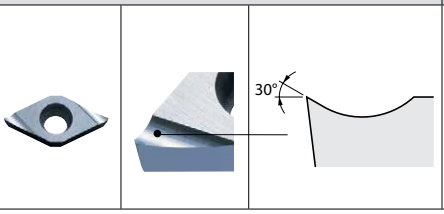
Cutting Range	Name	Design	Advantages
Finishing	MQ		• Good chip evacuation when boring / ID turning • Small curled chips • Prevents chip entanglement with toolholder and stabilizes surface roughness

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

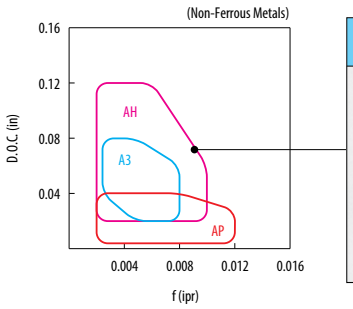


Non-Ferrous Metals

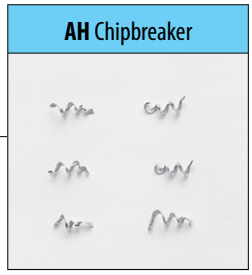
Cutting Range	Name	Design	Advantages
Finishing	AP		• Curved edge and shape of chipbreaker create good chip control • Sharp cutting edge provides excellent surface finish • Polished chipbreaker
Finishing - Medium	AH		• Positive chip groove and good chip control with low cutting force • Polished surface reduces adhesion

Cutting Range	Name	Design	Advantages
Finishing - Medium	A3		• Large rake angle, smooth chip flow and less adhesion • Superior cutting performance achieved by sharp edge

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



AH Chipbreaker

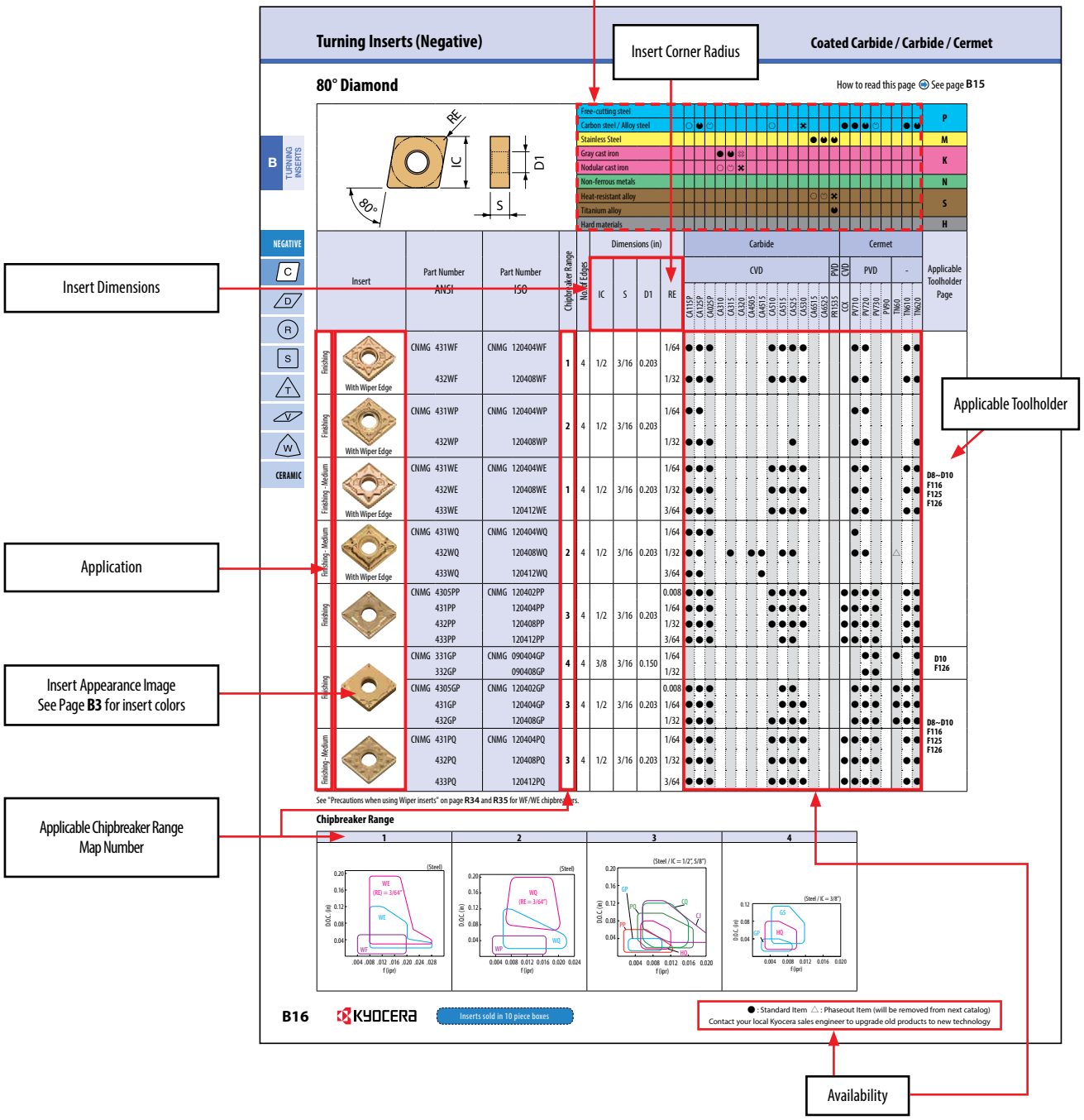


How to Read Turning Insert Table Pages

· Refer to below on how to read the "Turning Inserts" tables
· Section C contains similar content

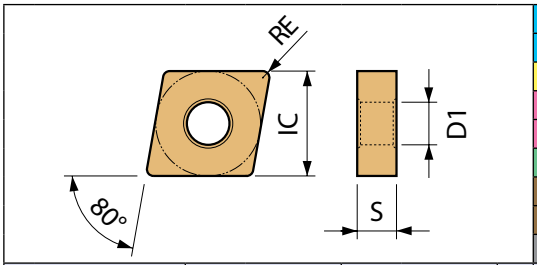
Usage Classification
✖ : Interruption / 1st Choice
✲ : Interruption / 2nd Choice
● : Light interruption / 1st Choice
◔ : Light interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice
(Hardness 45HRC or under)

Recommended grades for each application and workpiece materials are shown here.



80° Diamond

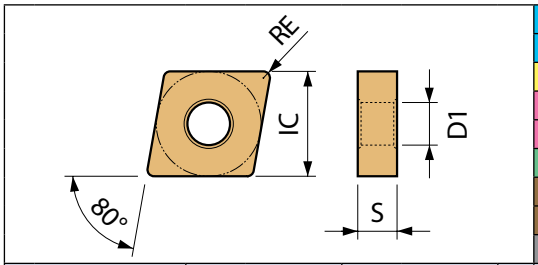
How to read this page See page B15



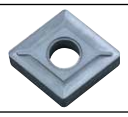
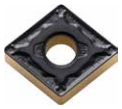
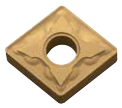
| | | |

80° Diamond

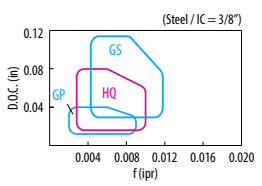
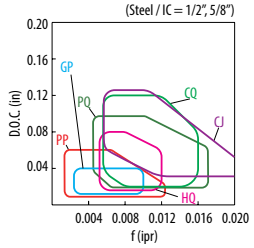
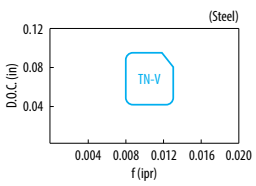
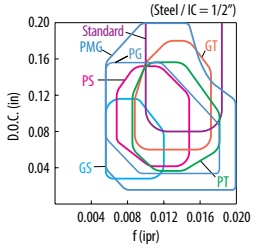
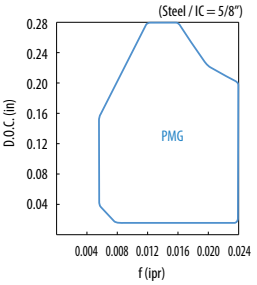
How to read this page See page B15



Free-cutting steel																				P
Carbon steel / Alloy steel	○	○	●	●		✖					●	●	●	○		●	●			P
Stainless Steel							●	●	●											M
Gray cast iron																				K
Nodular cast iron																				K
Non-ferrous metals																				N
Heat-resistant alloy							○	○	✖											S
Titanium alloy									●											S
Hard materials																				H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD PR1535	Carbide CVD CCX	Cermet PVD PV710	PV720	PV730	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing - Medium		CNMG 331HQ 332HQ	CNMG 090404HQ 090408HQ	1	4	3/8	3/16	0.150	1/64 1/32	● ●	● ●	● ●	 ●	● ●	● ●	● ●	 	 	 	● ●	 	● ●	● ●	 	● ●	D11 F148
Finishing - Medium		CNMG 431HQ 432HQ 433HQ	CNMG 120404HQ 120408HQ 120412HQ	2	4	1/2	3/16	0.203	1/64 1/32 3/64	● ● ●	● ● ●	● ● ●	● ● 	● ● ●	● ● ●	● ● ●	● ● 	● ● 	● ● ●	● ● ●	● ● 	● ● ●	● ● ●	● ● ●	● ● 	● ● ●	D8~D11 F138 F147 F148
Finishing - Medium	Up Facing	CNMG 431CQ 432CQ 433CQ	CNMG 120404CQ 120408CQ 120412CQ	2	4	1/2	3/16	0.203	1/64 1/32 3/64	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	 	 	 	 	● ● 	● ● ●	● ● ●	 	● ● ●	● ● ●	D8~D11 F138 F147 F148
		CNMG 542CQ 543CQ	CNMG 160608CQ 160612CQ	2	4	5/8	1/4	0.250	1/32 3/64	● ●	● ●	● ●	● ●	● ●	● ●	● 	 	 	 	 	 	 	 	 	 	 	D10~D11
Finishing - Medium	Up facing	CNMG 432CJ 433CJ	CNMG 120408CJ 120412CJ	2	4	1/2	3/16	0.203	1/32 3/64	● ●	● ●	● ●	● ●	● ●	● ●	● ●	 	 	 	 	 	 	 	 	 	 	D8~D11 F138 F147 F148
		CNMG 543CJ 544CJ	CNMG 160612CJ 160616CJ	2	4	5/8	1/4	0.250	3/64 1/16	● ●	● ●	● ●	 	● ●	 ●	● ●	 	 	 	 	 	 	 	 	 	 	D10~D11
Medium		CNMG 431TN-V 432TN-V	CNMG 120404TN-V 120408TN-V	3	4	1/2	3/16	0.203	1/64 1/32	 	 	 	 	 	 	 	 	 	 	 	 	 	● ●	 	 	D8~D11 F138 F147 F148
Medium - Roughing		CNMG 431PMG 432PMG 433PMG 434PMG	CNMG 120404PMG 120408PMG 120412PMG 120416PMG	4	4	1/2	3/16	0.203	1/64 1/32 3/64 1/16	 	● ●	● ●	 	 	 	 	 	 	 	 	 	 	 	 	 	 	D8~D11 F138 F147 F148
		CNMG 542PMG 543PMG 544PMG	CNMG 160608PMG 160612PMG 160616PMG	5	4	5/8	1/4	0.250	1/32 3/64 1/16	 	● ●	● ●	 	 	 	 	 	 	 	 	 	 	 	 	 	 	D10~D11
Medium - Roughing		CNMG 331GS 332GS	CNMG 090404GS 090408GS	1	4	3/8	3/16	0.150	1/64 1/32	● ●	● ●	● ●	 ●	● ●	● ●	● ●	 	 	 	 	 	● ●	● ●	 ●	 	● ●	D11 F148
Medium - Roughing		CNMG 431GS 432GS 433GS	CNMG 120404GS 120408GS 120412GS	4	4	1/2	3/16	0.203	1/64 1/32 3/64	● ●	 	 	 ●	● ●	● ●	● ●	 	 	 	 	 	● ●	● ●	 	 	● ●	D8~D11 F138 F147 F148
Medium - Roughing		CNMG 431PG 432PG 433PG 434PG	CNMG 120404PG 120408PG 120412PG 120416PG	4	4	1/2	3/16	0.203	1/64 1/32 3/64 1/16	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● 	● ● ● ●	● ● ● ●	● ● ● ●	 	 	● ● ● 	 	● ● 	● ● ●	● ● ●	 	● ● 	● ● ●	D8~D11 F138 F147 F148

Chipbreaker Range

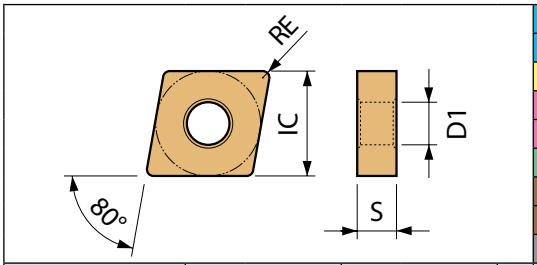
1	2	3	4	5
				

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

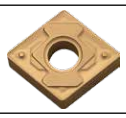
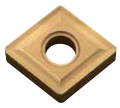
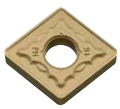
Inserts sold in 10 piece boxes

80° Diamond

How to read this page See page B15

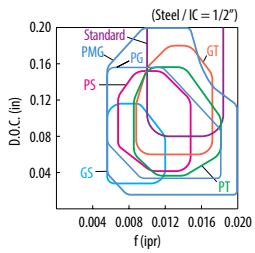


Free-cutting steel																																P
Carbon steel / Alloy steel	○	○	◕								●			✖				●		●	◕	◔			●	◕						P
Stainless Steel															●	◕	◕															M
Gray cast iron				○	◔	❄	●	◕										●	●													K
Nodular cast iron					◔	✖	○	◕										○	○													K
Non-ferrous metals																																N
Heat-resistant alloy															○	◔	✖															S
Titanium alloy																	◕															S
Hard materials																																H

	Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA410K	CA415K	CA4515	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD PR1535	Cermet CVD CCX	Cermet PVD PV7005	PV710	PV720	PV730	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Medium - Roughing		CNMG 431PS 432PS 433PS 434PS	CNMG 120404PS 120408PS 120412PS 120416PS	1	4	1/2	3/16	0.203	1/64 1/32 3/64 1/16	●									●	●	●	●	●	●					●	●			●	D8~D11 F138 F147 F148
		CNMG 543PS 544PS	CNMG 160612PS 160616PS	2	4	5/8	1/4	0.250	3/64 1/16	●									●	●	●	●	●	●										D10~D11
Medium - Roughing		CNMG 643HS	CNMG 190612HS	2	4	3/4	1/4	0.313	3/64			●																						D10
Medium - Roughing	High Feed	CNMG 432PT 433PT	CNMG 120408PT 120412PT	1	4	1/2	3/16	0.203	1/32 3/64	●									●	●	●	●	●	●										D8~D11 F138, F147 F148
		CNMG 542PT 543PT 544PT	CNMG 160608PT 160612PT 160616PT	2	4	5/8	1/4	0.250	1/32 3/64 1/16	●									●	●	●	●	●	●										D10~D11
Medium - Roughing	High Feed	CNMG 432GT 433GT	CNMG 120408GT 120412GT	1	4	1/2	3/16	0.203	1/32 3/64	●									●	●	●	●												D8~D11 F138 F147 F148
		CNMG 643GT	CNMG 190612GT	1	4	3/4	1/4	0.313	3/64			●																						D10
Roughing		CNMG 431 432 433 434	CNMG 120404 120408 120412 120416	1	4	1/2	3/16	0.203	1/64 1/32 3/64 1/16	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D8~D11 F138 F147 F148
		CNMG 542 543 544	CNMG 160608 160612 160616	2	4	5/8	1/4	0.250	1/32 3/64 1/16	●	●	●	●	●	●	●	●	●			●														D10~D11
		CNMG 642 643 644	CNMG 190608 190612 190616	3	4	3/4	1/4	0.313	1/32 3/64 1/16				●	●	●	●	●	●	●	●	●	●													
Roughing		CNMG 432PH 433PH 434PH	CNMG 120408PH 120412PH 120416PH	4	4	1/2	3/16	0.203	1/32 3/64 1/16	●	●	●	●	●	●				●	●	●	●													D8~D11 F138, F147 F148
		CNMG 542PH 543PH 544PH	CNMG 160608PH 160612PH 160616PH	4	4	5/8	1/4	0.250	1/32 3/64 1/16	●	●	●	●	●	●				●	●	●	●													
		CNMG 642PH 643PH 644PH 646PH	CNMG 190608PH 190612PH 190616PH 190624PH	4	4	3/4	1/4	0.313	1/32 3/64 1/16 3/32	●	●	●							●	●	●	●													D10~D11

Chipbreaker Range

1



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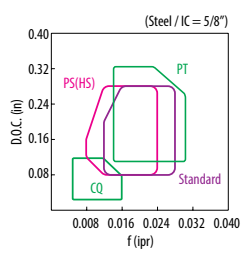

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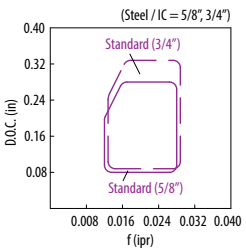

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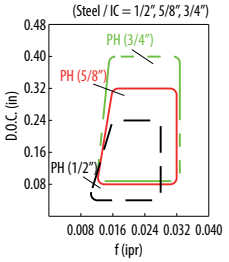
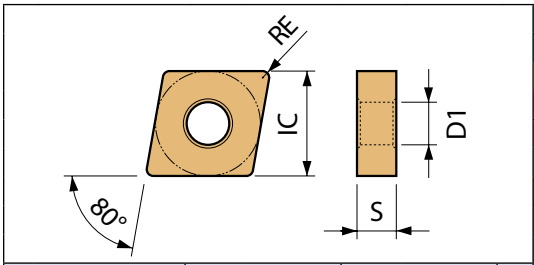


Inserts sold in 10 piece boxes

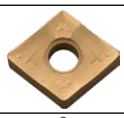
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

80° Diamond

How to read this page See page B15



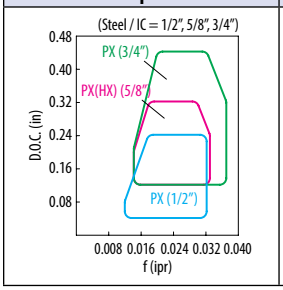
Free-cutting steel																													P
Carbon steel / Alloy steel	○	○	●	●			✖			○			●	●	●	●	●	○			●	●							P
Stainless Steel								○	○	○	○	●	○																M
Gray cast iron																													K
Nodular cast iron																													K
Non-ferrous metals																													N
Heat-resistant alloy								●	●			✖																	S
Titanium alloy												●																	S
Hard materials																													H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	Carbide PVD PR115S	PR120S	PR1225	PR1535	PR1725	Cermet CVD CCX	Cermet PVD PV710	PV720	PV730	PV90	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Roughing	High Feed / Single-Sided	CNMM 432PX 433PX 434PX	CNMM 120408PX 120412PX 120416PX	1	2	1/2	3/16	0.203	1/32 3/64 1/16	●	●	●	●	●	●	●													D8~D11 F138, F147 F148
		CNMM 542PX 543PX 544PX	CNMM 160608PX 160612PX 160616PX	1	2	5/8	1/4	0.250	1/32 3/64 1/16	●	●	●			●	●													D10~D11
		CNMM 642PX 643PX 644PX 646PX	CNMM 190608PX 190612PX 190616PX 190624PX	1	2	3/4	1/4	0.313	1/32 3/64 1/16 3/32	●	●	●			●	●													D10
Roughing		CNMM 544HX	CNMG 160616HX	1	2	5/8	1/4	0.250	1/16			●																	D10~D11
Low Carbon Steel	Finishing / Minute D.O.C.	CNMG 431XF 432XF	CNMG 120404XF 120408XF	2	4	1/2	3/16	0.203	1/64 1/32												●	●	●	●		●	●	D8~D11 F138 F147 F148
Low Carbon Steel	Finishing	CNMG 431XP 432XP	CNMG 120404XP 120408XP	2	4	1/2	3/16	0.203	1/64 1/32	●	●	●		●	●						●	●	●	●	△	●	●	●	
Low Carbon Steel	Medium	CNMG 431XQ 432XQ	CNMG 120404XQ 120408XQ	2	4	1/2	3/16	0.203	1/64 1/32	●	●	●	●	●	●	●					●	●	●	●		●	●	●	
Low Carbon Steel	Roughing	CNMG 432XS	CNMG 120408XS	2	4	1/2	3/16	0.203	1/32	●	●	●	●	●	●	●						●	●	●		●	●	●	
Finishing - Medium	Polished / Sharp Edge	CNGG 4305MFP-SK 431MFP-SK	CNGG 120402MFP-SK 120404MFP-SK	3	4	1/2	3/16	0.203	<0.008 <1/64								●	●	●	●	●				●				D8~D11 E67 F138 F147 F148
Medium - Roughing	Polished / Sharp Edge	CNGG 431FP-TK 432FP-TK	CNGG 120404FP-TK 120408FP-TK	3	4	1/2	3/16	0.203	1/64 1/32										●	●	●								

Insert with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

1



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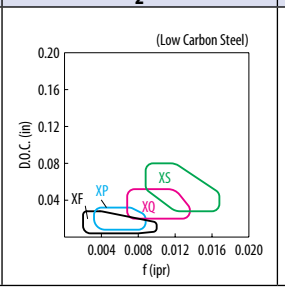
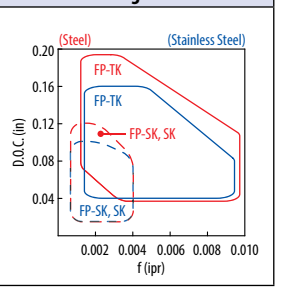


3



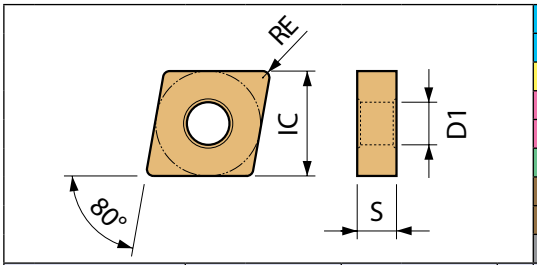
● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

80° Diamond

How to read this page See page B15

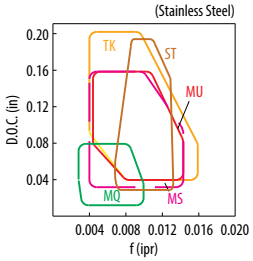


Free-cutting steel																				P
Carbon steel / Alloy steel																				P
Stainless Steel	●	◕			○	◔	◕													M
Gray cast iron																				K
Nodular cast iron																				K
Non-ferrous metals																				N
Heat-resistant alloy	○	◔	●	◔	○	◕	✱													S
Titanium alloy							◕	◔												S
Hard materials																				H

	Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA6515	CVD CA6525	PVD PR005S	PVD PR015S	PVD PR115S	PVD PR120S	PVD PR1535	- SW05	Applicable Toolholder Page
Stainless Steel / Heat-Resistant Alloys	Medium - Roughing / Sharp Edge	CNGG 431TK	CNGG 120404TK	1	4	1/2	3/16	0.203	1/64								●	D8~D11 F138 F147 F148
		432TK	120408TK						1/32								●	
	Medium - Roughing	CNMG 431TK	CNMG 120404TK	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●		
		432TK	120408TK						1/32	●	●	●	●	●	●	●		
	Finishing - Medium	CNMG 431MQ	CNMG 120404MQ	1	4	1/2	3/16	0.203	1/64	●	●	●		●	●	●	●	
		432MQ	120408MQ						1/32	●	●	●		●	●	●	●	
Heat-Resistant Alloys	Finishing - Medium	CNMG 431SQ	CNMG 120404SQ	3	4	1/2	3/16	0.203	1/64			●		●	●			
		432SQ	120408SQ						1/32			●		●	●			
		433SQ	120412SQ						3/64			●		●	●			
		CNMG 543SQ	CNMG 160612SQ	3	4	5/8	1/4	0.250	3/64			●		●	●			
		544SQ	160616SQ						1/16			●		●	●			D10~D11
		CNMG 643SQ	CNMG 190612SQ	3	4	3/4	1/4	0.313	3/64			●		●	●			
		644SQ	190616SQ						1/16			●		●	●			
Stainless Steel / Heat-Resistant Alloys	Medium - Roughing	CNMG 431MS	CNMG 120404MS	1	4	1/2	3/16	0.203	1/64	●	●	●		●	●	●	●	D8~D11 F138 F147 F148
		432MS	120408MS						1/32	●	●	●		●	●	●	●	
		433MS	120412MS						3/64	●	●	●		●	●	●	●	
		434MS	120416MS						1/16		●	●		●	●	●		
	Medium - Roughing	CNMG 431MU	CNMG 120404MU	1	4	1/2	3/16	0.203	1/64	●	●	●		●	●	●	●	
		432MU	120408MU						1/32	●	●	●		●	●	●	●	
		433MU	120412MU						3/64	●	●	●		●	●	●		
		CNMG 542MU	CNMG 160608MU	1	4	5/8	1/4	0.250	1/32	●	●	●		●	●	●		
		543MU	160612MU						3/64	●	●	●		●	●	●		
		544MU	160616MU						1/16		●	●		●	●	●		D10~D11
		CNMG 643MU	CNMG 190612MU	2	4	3/4	1/4	0.313	3/64			●		●	●	●		
		644MU	190616MU						1/16			●		●	●	●		

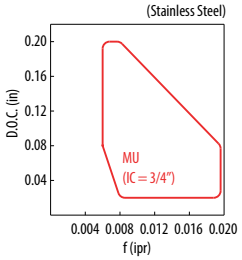
Chipbreaker Range

1



Heat-Resistant Alloys
Titanium Alloys
See page B8

2



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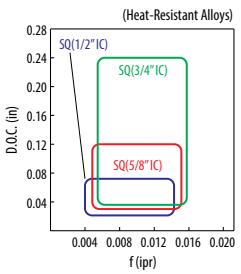

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

80° Diamond

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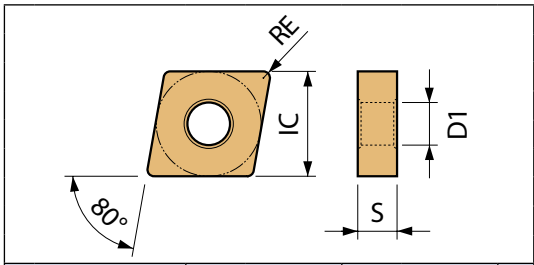
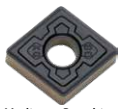
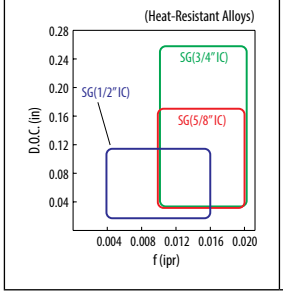
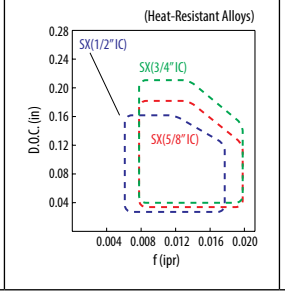
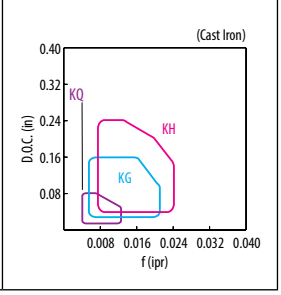


Free-cutting steel																				P
Carbon steel / Alloy steel																				P
Stainless Steel												○	◔	◕						M
Gray cast iron	○	◔	❀	●	◕															K
Nodular cast iron		◔	✖	○	◕															K
Non-ferrous metals																				N
Heat-resistant alloy										●	○	◕	✖							S
Titanium alloy													◕	◔						S
Hard materials																				H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA310	CA315	CA320	CA410K	CA415K	PVD PR005S	PR115S	PR120S	PR1535	- SW05	Applicable Toolholder Page
Heat-Resistant Alloys	Roughing	CNMG 432SG	CNMG 120408SG	1	4	1/2	3/16	0.203	1/32						●	●	●	●	●	D8~D11 F138 F147 F148
		433SG	120412SG						3/64						●	●	●	●	●	
		CNMG 543SG	CNMG 160612SG	1	4	5/8	1/4	0.250	3/64						●	●	●	●	●	D10~D11
		544SG	160616SG						1/16						●	●	●	●	●	
		CNMG 643SG	CNMG 190612SG	1	4	3/4	1/4	0.313	3/64						●	●	●	●	●	
		644SG	190616SG						1/16						●	●	●	●	●	
Heat-Resistant Alloys	Roughing / Single-Sided	CNMM 43XR-SX	CNMM 1204XR-SX	2	2	1/2	3/16	0.203	-						●	●	●			D8~D11
		43XL-SX	1204XL-SX												●	●	●			
		CNMM 54XR-SX	CNMM 1606XR-SX	2	2	5/8	1/4	0.250	-						●	●	●			D10~D11
		54XL-SX	1606XL-SX												●	●	●			
		CNMM 64XR-SX	CNMM 1906XR-SX	2	2	3/4	1/4	0.313	-						●	●	●			
		64XL-SX	1906XL-SX												●	●	●			
Cast Iron	Sharp Cutting Oriented	CNMG 431KQ	CNMG 120404KQ	3	4	1/2	3/16	0.203	1/64	●	●	●	●	●						D8~D11 F138 F147 F148
		432KQ	120408KQ						1/32	●	●	●	●	●						
		433KQ	120412KQ						3/64	●	●	●	●	●						
Cast Iron	 Medium - Roughing	CNMG 431KG	CNMG 120404KG	3	4	1/2	3/16	0.203	1/64	●	●	●	●	●						
		432KG	120408KG						1/32	●	●	●	●	●						
		433KG	120412KG						3/64	●	●	●	●	●						
Cast Iron	Roughing	CNMG 432KH	CNMG 120408KH	3	4	1/2	3/16	0.203	1/32	●	●	●	●	●						
		433KH	120412KH						3/64	●	●	●	●	●						
		434KH	120416KH						1/16	●	●	●	●	●						

Chipbreaker Range

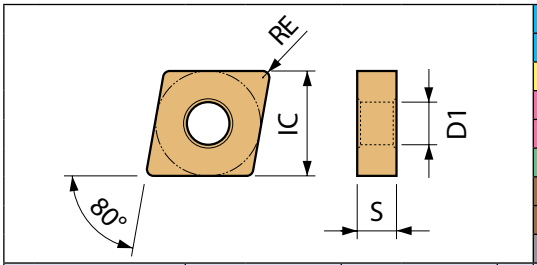
1	2	3
		

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

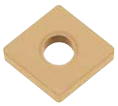
Inserts sold in 10 piece boxes

80° Diamond

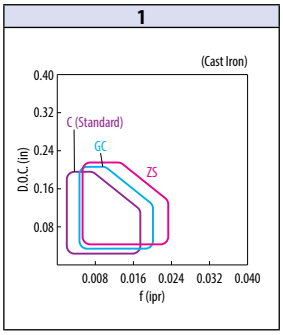
How to read this page See page B15



Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA115P	CA310	CA315	CA320	CA410K	CA415K	CA4515	- KW10	Cermet CVD CCX	PVD PV7005	Applicable Toolholder Page
Cast Iron	Roughing	CNMG 431C	CNMG 120404C	1	4	1/2	3/16	0.203	1/64	●	●	●			●					D8~D11 F138 F147 F148
		432C	120408C						1/32	●	●	●			●					
		433C	120412C						3/64	●	●	●			●					
		434C	120416C						1/16	●	●	●			●					
		CNMG 543C	CNMG 160612C	1	4	5/8	1/4	0.250	3/64	●	●	●			●					D10~D11
Cast Iron	Roughing	CNMG 432ZS	CNMG 120408ZS	1	4	1/2	3/16	0.203	1/32	●	●	●	●	●	●					D8~D11 F138 F147 F148
		433ZS	120412ZS						3/64	●	●	●	●	●	●					
Cast Iron	Roughing	CNMG 432GC	CNMG 120408GC	1	4	1/2	3/16	0.203	1/32	●	●	●	●			●				
		433GC	120412GC						3/64		●	●	●			●				
Cast Iron	 Without Chipbreaker	CNGA 431	CNGA 120404	-	4	1/2	3/16	0.203	1/64								●		●	
		432	120408						1/32								●		●	
		CNMA 431	CNMA 120404	-	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●	●	
		432	120408						1/32	●	●	●	●	●	●	●	●	●	●	
		433	120412						3/64	●	●	●	●	●	●	●				
		434	120416						1/16	●	●	●	●	●	●					

Chipbreaker Range



Inserts sold in 10 piece boxes

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Contact your local Kyocera sales engineer to upgrade old products to new technology

80° Diamond

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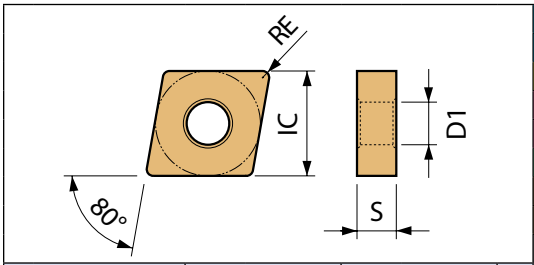
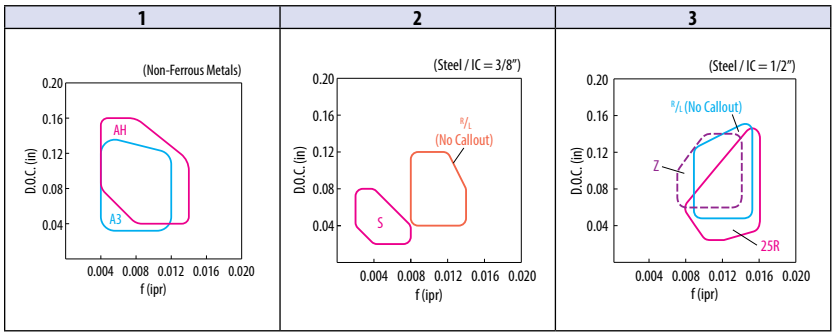


Free-cutting steel																										P
Carbon steel / Alloy steel												●	●	◒				●	●							P
Stainless Steel																										M
Gray cast iron																										K
Nodular cast iron																										K
Non-ferrous metals	●	●	✖																							N
Heat-resistant alloy																										S
Titanium alloy																										S
Hard materials																										H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide DLC PDL010	DLC PDL025	Carbide - KW10	Cermet PVD PV710	PVD PV720	PVD PV730	Cermet - TN60	- TN610	- TN620	Applicable Toolholder Page
Non-Ferrous Metals	Finishing - Medium / Sharp Edge	CNGG 431R-A3	CNGG 120404R-A3	1	4	1/2	3/16	0.203	1/64	●	●	●							D8~D11 F138 F147 F148
		431L-A3	120404L-A3						1/64	●	●	●							
		432R-A3	120408R-A3						1/32	●	●	●							
		432L-A3	120408L-A3						1/32	●	●	●							
Non-Ferrous Metals	Finishing - Medium / Sharp Edge	CNGG 431AH	CNGG 120404AH	1	4	1/2	3/16	0.203	1/64	●	●	●							
		432AH	120408AH						1/32	●	●	●							
Non-Ferrous Metals	Medium - Roughing	CNMG 431AH	CNMG 120404AH	1	4	1/2	3/16	0.203	1/64	●	●	●							
		432AH	120408AH						1/32	●	●	●							
Finishing	Sharp Edge / Surface finish oriented	CNGG 3305R-S	CNGG 090402R-S	2	4	3/8	3/16	0.150	0.008				●	●		●	●	●	D11 F148
		3305L-S	090402L-S						0.008				●	●		●	●	●	
		331R-S	090404R-S						1/64				●	●		●	●	●	
		331L-S	090404L-S						1/64			●	●	●		●	●	●	
		332R-S	090408R-S						1/32				●				●		
		332L-S	090408L-S						1/32				●				●		
Medium		CNGG 331L	CNGG 090404L	2	4	3/8	3/16	0.150	1/64			●							
		332L	090408L						1/32			●							
Medium		CNGG 4302FR	CNGG 120401FR	3	4	1/2	3/16	0.203	0.004							●			D8~D11 F138 F147 F148
		4302FL	120401FL						0.004							●			
		CNGG 431R	CNGG 120404R	3	4	1/2	3/16	0.203	1/64				●	●	●	●	●	●	
		431L	120404L						1/64				●	●	●	●	●	●	
		432R	120408R						1/32				●	●	●	●	●	●	
		432L	120408L						1/32				●	●	●		●	●	
Medium - Roughing	Low Cutting Force	CNGG 431R-25R	CNGG 120404R-25R	3	4	1/2	3/16	0.203	1/64			●	●	●		●	●	●	
		431L-25R	120404L-25R						1/64			●	●	●		●	●	●	
		432R-25R	120408R-25R						1/32			●	●	●			●	●	
		432L-25R	120408L-25R						1/32			●	●	●			●	●	
Medium - Roughing		CNGG 431Z	CNGG 120404Z	3	4	1/2	3/16	0.203	1/64							●			

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

55° Diamond

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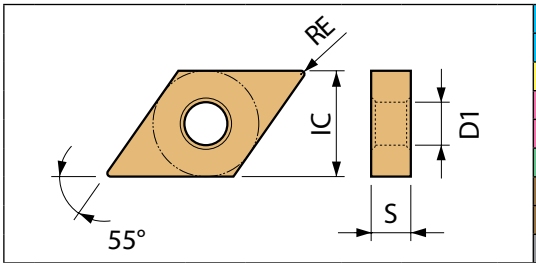
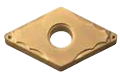
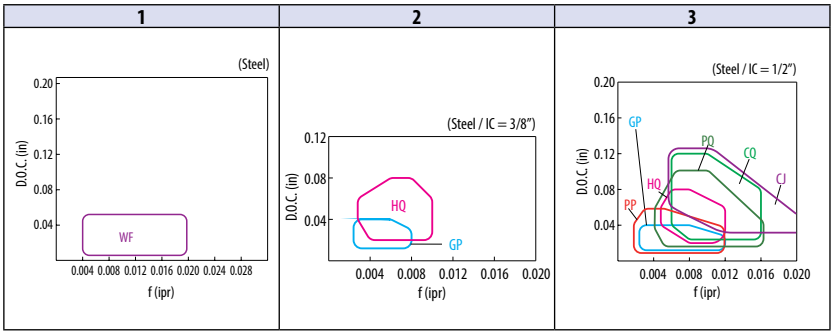


Free-cutting steel		P
Carbon steel / Alloy steel	○ ○ ◕ ● ✖ ● ● ◕ ○ ● ◕	P
Stainless Steel		M
Gray cast iron		K
Nodular cast iron		K
Non-ferrous metals		N
Heat-resistant alloy		S
Titanium alloy		S
Hard materials		H

Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	Cermet CVD CCX	PVD PV710	PV720	PV730	PV90	- TN60	TN610	TN620	Applicable Toolholder Page
Finishing	With Wiper Edge	DNMX 431WF	DNMX 150404WF	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●		●	●				●	●	D14~D15 D17~D18 F140, F152 F154, F156
		432WF	150408WF						1/32	●	●	●	●	●	●	●		●	●				●	●	
		433WF	150412WF						3/64	●	●	●	●	●	●	●		●	●				●	●	
		DNMX 441WF	DNMX 150604WF	1	4	1/2	1/4	0.203	1/64	●	●	●	●	●	●	●		●	●				●	●	D14, D18
		442WF	150608WF						1/32	●	●	●	●	●	●	●		●	●				●	●	
		443WF	150612WF						3/64	●	●	●	●	●	●	●		●	●				●	●	
Finishing		DNMG 4305PP	DNMG 150402PP	3	4	1/2	3/16	0.203	0.008	●	●	●		●	●	●	●	●	●	●			●	●	D14~D19 F140, F152 F154~F156
		431PP	150404PP						1/64	●	●	●	●	●	●	●	●	●	●	●			●	●	
		432PP	150408PP						1/32	●	●	●	●	●	●	●	●	●	●	●			●	●	
		433PP	150412PP						3/64	●	●	●	●	●	●	●	●	●	●	●			●	●	
		DNMG 4405PP	DNMG 150602PP	3	4	1/2	1/4	0.203	0.008	●	●	●		●	●		●	●	●	●			●	●	D14, D16 D18
		441PP	150604PP						1/64	●	●	●	●	●	●		●	●	●	●			●	●	
		442PP	150608PP						1/32	●	●	●	●	●	●		●	●	●	●			●	●	
		443PP	150612PP						3/64	●	●	●			●		●	●	●	●			●	●	
Finishing		DNMG 331GP	DNMG 110404GP	2	4	3/8	3/16	0.150	1/64	●	●	●		●	●	●			●	●	●			●	D18 F150
		332GP	110408GP						1/32	●	●	●	●	●	●				●	●	△	●		●	
		DNMG 4305GP	DNMG 150402GP	3	4	1/2	3/16	0.203	0.008	●	●	●	●	●	●			●	●	●		●	●	●	D14~D19 F140, F152 F154~F156
		431GP	150404GP						1/64	●	●	●	●	●	●	●		●	●	●		●	●	●	
		432GP	150408GP						1/32	●	●	●	●	●	●	●		●	●	●		●	●	●	
		DNMG 4405GP	DNMG 150602GP	3	4	1/2	1/4	0.203	0.008									●					●		D14, D16 D18
		441GP	150604GP						1/64									●					●		
		442GP	150608GP						1/32									●					●		
Finishing - Medium		DNMG 431PQ	DNMG 150404PQ	3	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●	●	●			●	●	D14~D19 F140, F152 F154~F156
		432PQ	150408PQ						1/32	●	●	●	●	●	●	●	●	●	●	●			●	●	
		433PQ	150412PQ						3/64	●	●	●	●	●	●	●	●	●	●	●			●	●	
		DNMG 441PQ	DNMG 150604PQ	3	4	1/2	1/4	0.203	1/64	●	●	●	●	●	●	●	●	●	●	●			●	●	D14, D16 D18
		442PQ	150608PQ						1/32	●	●	●	●	●	●	●	●	●	●	●			●	●	
		443PQ	150612PQ						3/64	●	●	●		●	●		●	●	●	●			●	●	

See "Precautions when using Wiper inserts" on page R40 and R41 for WF/WE chipbreakers.

Chipbreaker Range

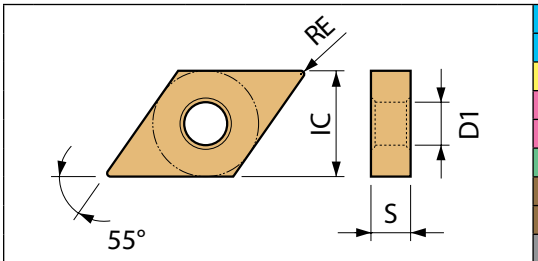


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

55° Diamond

How to read this page See page B15

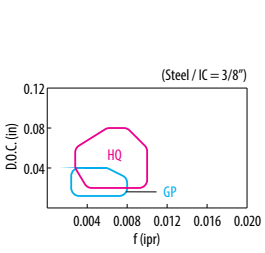


Free-cutting steel		P
Carbon steel / Alloy steel	○ ○ ● ● ✖ ● ● ● ●	P
Stainless Steel	● ● ●	M
Gray cast iron		K
Nodular cast iron		K
Non-ferrous metals		N
Heat-resistant alloy	○ ○ ✖	S
Titanium alloy	●	S
Hard materials		H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD CVD PR1535	Cermet CVD CCX	Cermet PVD PV710	PV720	PV730	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing - Medium		DNMG 3305HQ 331HQ	DNMG 110402HQ 110404HQ	1	4	3/8	3/16	0.150	0.008 1/64	● ●	● ●	● ●	 ●	● ●	● ●	● 	 	 		● ●	 	● ●	● ●	● ●	 	● ●	D18 F150
		DNMG 431HQ 432HQ 433HQ	DNMG 150404HQ 150408HQ 150412HQ	2	4	1/2	3/16	0.203	1/64 1/32 3/64	● ● ●	● ● ●	● ● ●	● ● 	● ● ●	● ● ●	● ● ●	● ● 	● ● 	● ● 		● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	D14~D19 F140, F152 F154~F156
		DNMG 441HQ 442HQ 443HQ	DNMG 150604HQ 150608HQ 150612HQ	2	4	1/2	1/4	0.203	1/64 1/32 3/64	● ● ●	● ● ●	● ● 	● 	● ● ●	● ● ●	● ● ●	● ● 	● ● 	● ● 		● ● ●	● ● ●	 	 	● ● 	● ● ●	 	D14, D16 D18
Finishing - Medium	Up Facing	DNMG 431CQ 432CQ 433CQ	DNMG 150404CQ 150408CQ 150412CQ	2	4	1/2	3/16	0.203	1/64 1/32 3/64	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	 	 		 	● ● ●	● ● ●	● ● ●	● 	● ● ●	● ● ●	D14~D19 F140, F152 F154~F156
		DNMG 441CQ 442CQ 443CQ	DNMG 150604CQ 150608CQ 150612CQ	2	4	1/2	1/4	0.203	1/64 1/32 3/64	● ● ●	● ● ●	● ● ●	 ● ●	● ● ●	● ● ●	 ● ●	 	 	 		 	● 	 	 	 	● 	 	D14, D16 D18
Finishing - Medium	Up Facing	DNMG 432CJ 433CJ	DNMG 150408CJ 150412CJ	2	4	1/2	3/16	0.203	1/32 3/64	● ●	● ●	● ●	 	● ●	● ●	 	 	 		 	 	 	 	 	 	 	D14~D19 F140, F152 F154~F156
		DNMG 442CJ 443CJ	DNMG 150608CJ 150612CJ	2	4	1/2	1/4	0.203	1/32 3/64	● ●	● ●	● ●	 ●	● ●	● ●	 	 	 		 	 	 	 	 	 	 	D14, D16 D18
Medium		DNMG 431TN-V 432TN-V	DNMG 150404TN-V 150408TN-V	3	4	1/2	3/16	0.203	1/64 1/32	 	 	 	 	 	 	 	 	 		 	 	 	 	● ●	 	 	D14~D19 F140, F152 F154~F156
Medium - Roughing		DNMG 431PMG 432PMG 433PMG 434PMG	DNMG 150404PMG 150408PMG 150412PMG 150416PMG	4	4	1/2	3/16	0.203	1/64 1/32 3/64 1/16	 ● ● ●	 ● ● ●	 	 	 	 	 	 	 		 	 	 	 	 	 	 	D14~D19 F140, F152 F154~F156
		DNMG 441PMG 442PMG 443PMG 444PMG	DNMG 150604PMG 150608PMG 150612PMG 150616PMG	4	4	1/2	1/4	0.203	1/64 1/32 3/64 1/16	 ● ● ●	 ● ● ●	 	 	 	 	 	 	 		 	 	 	 	 	 	 	D14, D16 D18
Medium - Roughing		DNMG 331GS 332GS	DNMG 110404GS 110408GS	4	4	3/8	3/16	0.150	1/64 1/32	● ●	● ●	● ●	 ●	● ●	● ●	● ●	 	 		 	 	● ●	● ●	● ●	 	● ●	D18 F150
		DNMG 431GS 432GS 433GS	DNMG 150404GS 150408GS 150412GS	4	4	1/2	3/16	0.203	1/64 1/32 3/64	● ● ●	 	 	 	● ● ●	● ● ●	● 	 	 		 	 	● ● 	● ● 	 	 	● ● ●	D14~D19 F140, F152 F154~F156
		DNMG 441GS 442GS	DNMG 150604GS 150608GS	4	4	1/2	1/4	0.203	1/64 1/32	● ●	 	 	 	● ●	 	 	 	 		 	 	 	 	 	 	 	D14, D16 D18

Chipbreaker Range

1



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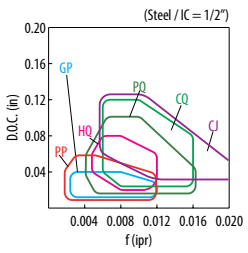

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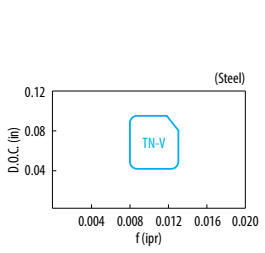

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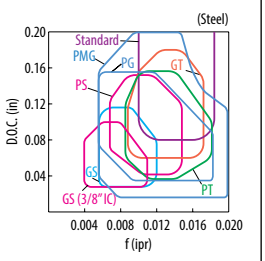

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

55° Diamond

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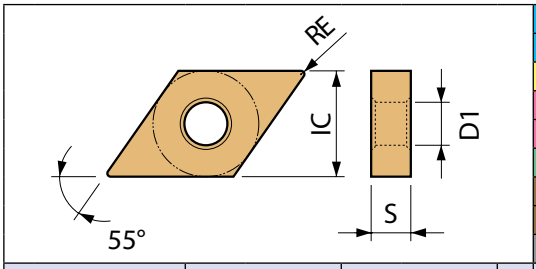
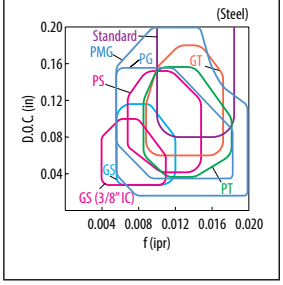


Workpiece	
Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD PR1535	Cermet PVD PV710	PV720	PV730	Cermet - TN610	TN620	Applicable Toolholder Page
Medium - Roughing		DNMG 431PG	DNMG 150404PG	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●				●	●	●	●	●	●	D14~D19 F140, F152 F154~F156
		432PG	150408PG						1/32	●	●	●	●	●	●	●			●	●	●	●	●	●	
		433PG	150412PG						3/64	●	●	●	●	●	●	●			●		●	●		●	
		434PG	150416PG						1/16	●	●	●			●										
		DNMG 441PG	DNMG 150604PG	1	4	1/2	1/4	0.203	1/64	●	●	●	●	●	●	●			●	●	●	●	●	●	D14, D16 D18
		442PG	150608PG						1/32	●	●	●	●	●	●	●			●	●	●	●	●	●	
		443PG	150612PG						3/64	●	●	●	●	●	●				●		●	●		●	
		444PG	150616PG						1/16	●	●	●													
Medium - Roughing		DNMG 431PS	DNMG 150404PS	1	4	1/2	3/16	0.203	1/64	●			●	●	●	●	●	●				●	●		●	D14~D19 F140, F152 F154~F156
		432PS	150408PS						1/32	●			●	●	●	●	●	●				●	●		●	
		433PS	150412PS						3/64	●				●	●	●		●							
		DNMG 441PS	DNMG 150604PS	1	4	1/2	1/4	0.203	1/64	●			●	●	●	●	●	●								D14, D16 D18
		442PS	150608PS						1/32	●			●	●	●	●	●	●								
		443PS	150612PS						3/64	●			●	●	●	●		●								
		444PS	150616PS						1/16	●					●	●	●									
Medium - Roughing		DNMG 432PT	DNMG 150408PT	1	4	1/2	3/16	0.203	1/32	●			●	●	●	●		●								D14~D19 F140, F152 F154~F156
		433PT	150412PT						3/64	●				●		●		●							
	High Feed	DNMG 442PT	DNMG 150608PT	1	4	1/2	1/4	0.203	1/32	●			●	●	●	●		●								D14, D16 D18
		443PT	150612PT						3/64	●			●	●	●	●	●									
Medium - Roughing		DNMG 432GT	DNMG 150408GT	1	4	1/2	3/16	0.203	1/32	●				●	●	●										D14~D19 F140, F152 F154~F156
		433GT	150412GT						3/64	●				●	●											
	High Feed	DNMG 442GT	DNMG 150608GT	1	4	1/2	1/4	0.203	1/32	●			●	●	●	●										D14, D16 D18
		443GT	150612GT						3/64	●				●	●	●										

Chipbreaker Range

1



Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

55° Diamond

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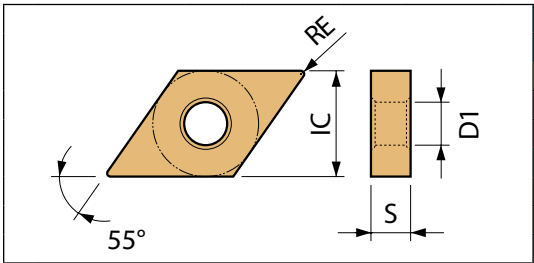
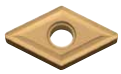
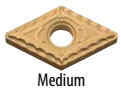
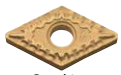
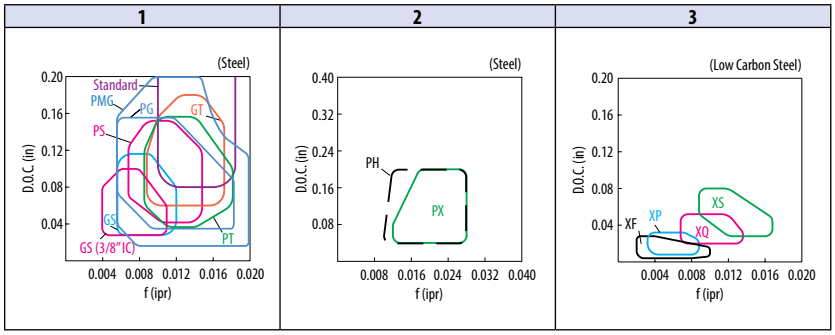


Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA410K	CA415K	CA4515	CA510	CA515	CA525	CA530	Cermet CVD CCX	PVD PV7005	PV710	PV720	PV730	PV90	- TN60	TN610	TN620	Applicable Toolholder Page
Roughing		DNMG 431	DNMG 150404	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●	●	●	●			●	●	●	●		●	●	D14~D19 F140, F152 F154~F156
		432	150408						1/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	
		433	150412						3/64				●	●	●	●	●														
		DNMG 441	DNMG 150604	1	4	1/2	1/4	0.203	1/64				●	●	●	●	●														D14, D16 D18
		442	150608						1/32	●	●	●	●	●	●	●	●	●	●	●	●	●									
		443	150612						3/64	●	●	●	●	●	●	●	●	●	●	●	●	●									
Roughing		DNMG 432PH	DNMG 150408PH	2	4	1/2	3/16	0.203	1/32	●	●	●	●	●	●				●	●	●										D14~D19 F140, F152 F154~F156
		433PH	150412PH						3/64	●	●	●	●	●	●				●	●	●										
		434PH	150416PH						1/16	●	●	●								●	●										
		DNMG 442PH	DNMG 150608PH	2	4	1/2	1/4	0.203	1/32	●	●	●	●	●	●					●	●	●								D14, D16 D18
		443PH	150612PH						3/64	●	●	●	●	●	●					●	●	●									
		444PH	150616PH						1/16	●	●	●								●	●	●									
Roughing	High Feed / Single-Sided	DNMM 432PX	DNMM 150408PX	2	2	1/2	3/16	0.203	1/32	●	●	●								●										D14~D19 F140, F152 F154~F156
		433PX	150412PX						3/64	●	●	●								●	●										
		434PX	150416PX						1/16	●	●	●																			
		DNMM 442PX	DNMM 150608PX	2	2	1/2	1/4	0.203	1/32	●	●	●								●	●									D14, D16 D18
		443PX	150612PX						3/64	●	●	●								●	●	●									
		444PX	150616PX						1/16	●	●	●									●										
Low Carbon Steel	Finishing / Minute D.O.C.	DNMG 431XF	DNMG 150404XF	3	4	1/2	3/16	0.203	1/64														●		●	●	●		●	●	D14~D19 F140, F152 F154~F156
		432XF	150408XF						1/32														●		●	●	●		●	●	
Low Carbon Steel	Finishing	DNMG 431XP	DNMG 150404XP	3	4	1/2	3/16	0.203	1/64	●	●	●							●	●	●		●		●	●	●		●	●	D14~D19 F140, F152 F154~F156
		432XP	150408XP						1/32	●	●	●							●	●	●	●	●		●	●	●	△	●	●	
		DNMG 441XP	DNMG 150604XP	3	4	1/2	1/4	0.203	1/64														●		●				●	●	D14, D16 D18
		442XP	150608XP						1/32														●		●				●	●	
Low Carbon Steel	 Medium	DNMG 431XQ	DNMG 150404XQ	3	4	1/2	3/16	0.203	1/64	●	●	●								●	●	●	●		●	●	●		●	●	D14~D19 F140, F152 F154~F156
		432XQ	150408XQ						1/32	●	●	●								●	●	●	●		●	●	●	△		●	●	
Low Carbon Steel	 Roughing	DNMG 432XS	DNMG 150408XS	3	4	1/2	3/16	0.203	1/32	●	●	●								●	●	●			●	●	●			●	●	

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

55° Diamond

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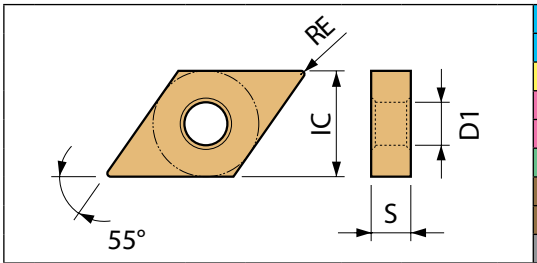
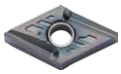


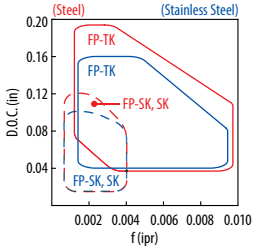
Free-cutting steel												P
Carbon steel / Alloy steel						○		●			○	P
Stainless Steel	●	◕		○	○	○	◕	○				M
Gray cast iron												K
Nodular cast iron												K
Non-ferrous metals												N
Heat-resistant alloy	○	○	●	○	◕		✱					S
Titanium alloy							◕			○		S
Hard materials												H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA6515	CA6525	PVD PR005S	PR115S	PR1205	PR1225	PR1535	PR1725	PR930	- SW05	Cermet PVD PV730	Applicable Toolholder Page
Finishing - Medium	Polished / Sharp Edge	DNGG 4305MFP-SK	DNGG 150402MFP-SK	1	4	1/2	3/16	0.203	< 0.008				●	●	●	●	●			●	D14~D19 F140, F152 F154~F156
		431MFP-SK	150404MFP-SK						< 1/64				●	●	●	●	●			●	
Large D.O.C.		DNMG 4305R-LD	DNMG 150402R-LD	2	4	1/2	3/16	0.203	0.008							●	●				
		431R-LD	150404R-LD						1/64							●	●				
Medium - Roughing	Polished / Sharp Edge	DNGG 431FP-TK	DNGG 150404FP-TK	1	4	1/2	3/16	0.203	1/64						●	●	●				
		432FP-TK	150408FP-TK						1/32						●	●	●				
Stainless Steel / Heat-Resistant Alloys	Medium - Roughing / Sharp Edge	DNGG 431TK	DNGG 150404TK	3	4	1/2	3/16	0.203	1/64										●		
		432TK	150408TK						1/32										●		
	Medium - Roughing	DNMG 431TK	DNMG 150404TK	3	4	1/2	3/16	0.203	1/64	●	●					●					
		432TK	150408TK						1/32	●	●					●					
		DNMG 441TK	DNMG 150604TK	3	4	1/2	1/4	0.203	1/64	●	●					●					D14, D16 D18
		442TK	150608TK						1/32	●	●					●					
	Finishing - Medium	DNMP 442TK	DNMP 150608TK	3	4	1/2	1/4	0.203	1/32								●				D14, D16 D18
		DNMG 431MQ	DNMG 150404MQ	3	4	1/2	3/16	0.203	1/64	●	●	●	●	●		●			●		D14~D19 F140, F152 F154~F156
		432MQ	150408MQ						1/32	●	●	●	●	●		●			●		
	Finishing - Medium	DNMG 441MQ	DNMG 150604MQ	3	4	1/2	1/4	0.203	1/64	●	●	●	●	●		●			●		D14, D16 D18
		442MQ	150608MQ						1/32	●	●	●	●	●		●			●		

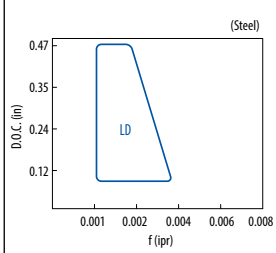
Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

1

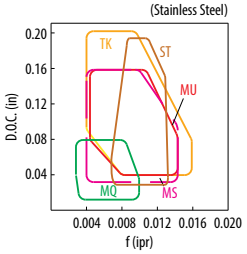


2



3

Heat-Resistant Alloys
Titanium Alloys
See page B8



Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

55° Diamond

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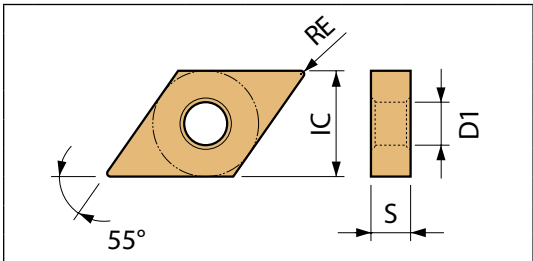
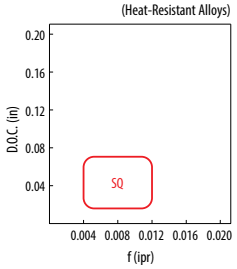
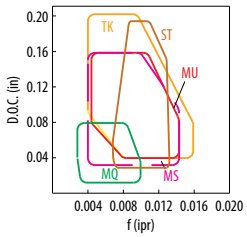
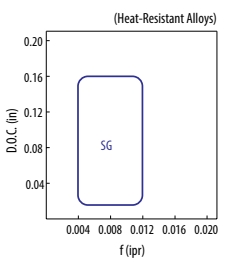


Free-cutting steel																							P
Carbon steel / Alloy steel																							P
Stainless Steel				●	●		○	◔	●														M
Gray cast iron																							K
Nodular cast iron																							K
Non-ferrous metals																							N
Heat-resistant alloy				○	◔	●	○	●	◔	✖													S
Titanium alloy									●	◔													S
Hard materials																							H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA115P	CA125P	CA6515	CA6525	PVD PR005S	PR115S	PR120S	PR153S	- SW05	Applicable Toolholder Page
Heat-Resistant Alloys	Finishing - Medium	DNMG 431SQ	DNMG 150404SQ	1	4	1/2	3/16	0.203	1/64					●	●	●			D14~D19 F140, F152 F154~F156
		432SQ	150408SQ						1/32					●	●	●			
		433SQ	150412SQ						3/64					●	●	●			
		DNMG 441SQ	DNMG 150604SQ	1	4	1/2	1/4	0.203	1/64					●	●	●			D14, D16 D18
		442SQ	150608SQ						1/32					●	●	●			
		443SQ	150612SQ						3/64					●	●	●			
Stainless Steel / Heat-Resistant Alloys	Medium - Roughing	DNMG 431MS	DNMG 150404MS	2	4	1/2	3/16	0.203	1/64			●	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156
		432MS	150408MS						1/32			●	●	●	●	●	●	●	
		433MS	150412MS						3/64			●	●	●	●	●	●	●	
		DNMG 441MS	DNMG 150604MS	2	4	1/2	1/4	0.203	1/64			●	●	●	●	●	●		D14, D16 D18
		442MS	150608MS						1/32			●	●	●	●	●	●		
		443MS	150612MS						3/64			●	●	●	●	●	●		
	Medium - Roughing	DNMG 431MU	DNMG 150404MU	2	4	1/2	3/16	0.203	1/64			●	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156
		432MU	150408MU						1/32			●	●	●	●	●	●	●	
		DNMG 441MU	DNMG 150604MU	2	4	1/2	1/4	0.203	1/64			●	●	●	●	●	●	●	D14, D16 D18
		442MU	150608MU						1/32			●	●	●	●	●	●	●	
Heat-Resistant Alloys	Roughing	DNMG 432SG	DNMG 150408SG	3	4	1/2	3/16	0.203	1/32					●	●	●	●	●	D14~D19 F140, F152 F154~F156
		433SG	150412SG						3/64					●	●	●	●	●	
		DNMG 442SG	DNMG 150608SG	3	4	1/2	1/4	0.203	1/32					●	●	●	●	●	D14, D16 D18
		443SG	150612SG						3/64					●	●	●	●	●	
Stainless Steel	Medium - Roughing	DNMG 441R-ST	DNMG 150604R-ST	2	4	1/2	1/4	0.203	1/64		●								D14, D16 D18
		441L-ST	150604L-ST						1/64		●								
		442R-ST	150608R-ST						1/32	●	●								
		442L-ST	150608L-ST						1/32		●								

Chipbreaker Range

1	2	3
	Heat-Resistant Alloys Titanium Alloys See page B8 	

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

55° Diamond

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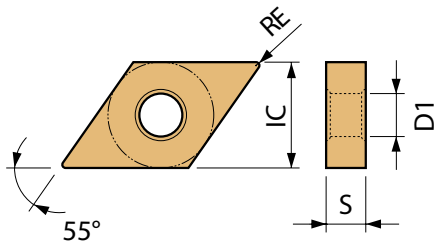
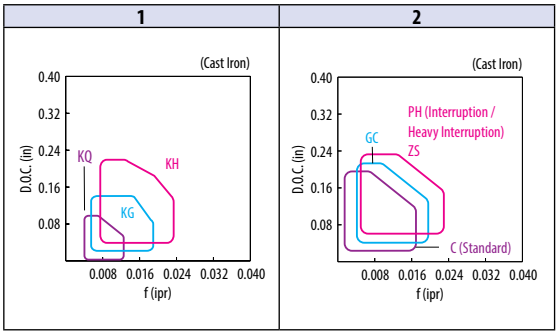


Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA310	CA315	CA320	CA410K	CA415K	CA4515	Applicable Toolholder Page
Cast Iron	Sharp Cutting Oriented	DNMG 431KQ	DNMG 150404KQ	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●		D14~D19 F140, F152 F154~F156
		432KQ	150408KQ						1/32	●	●	●	●	●		
		DNMG 441KQ	DNMG 150604KQ	1	4	1/2	1/4	0.203	1/64	●	●	●	●	●		D14, D16 D18
		442KQ	150608KQ						1/32	●	●	●	●	●		
Cast Iron	Medium-Roughing	DNMG 431KG	DNMG 150404KG	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●		D14~D19 F140, F152 F154~F156
		432KG	150408KG						1/32	●	●	●	●	●		
		433KG	150412KG						3/64	●	●	●	●	●		
		DNMG 441KG	DNMG 150604KG	1	4	1/2	1/4	0.203	1/64	●	●	●	●	●		D14, D16 D18
		442KG	150608KG						1/32	●	●	●	●	●		
		443KG	150612KG						3/64	●	●	●	●	●		
Cast Iron	Roughing	DNMG 432KH	DNMG 150408KH	1	4	1/2	3/16	0.203	1/32	●	●	●	●	●		D14~D19 F140, F152 F154~F156
		433KH	150412KH						3/64	●	●	●	●	●		
		DNMG 442KH	DNMG 150608KH	1	4	1/2	1/4	0.203	1/32	●	●	●	●	●		D14, D16 D18
		443KH	150612KH						3/64	●	●	●	●	●		
Cast Iron	Roughing	DNMG 431C	DNMG 150404C	2	4	1/2	3/16	0.203	1/64	●	●	●			●	D14~D19 F140, F152 F154~F156
		432C	150408C						1/32	●	●	●			●	
		433C	150412C						3/64	●	●	●			●	
		DNMG 441C	DNMG 150604C	2	4	1/2	1/4	0.203	1/64	●	●	●			●	D14, D16 D18
		442C	150608C						1/32	●	●	●			●	
		443C	150612C						3/64	●	●	●				
Cast Iron	Roughing	DNMG 432ZS	DNMG 150408ZS	2	4	1/2	3/16	0.203	1/32	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156
		433ZS	150412ZS						3/64	●	●	●	●	●	●	
		DNMG 442ZS	DNMG 150608ZS	2	4	1/2	1/4	0.203	1/32	●	●	●	●	●	●	D14, D16 D18
		443ZS	150612ZS						3/64	●	●	●	●	●	●	
Cast Iron	Roughing	DNMG 432GC	DNMG 150408GC	2	4	1/2	3/16	0.203	1/32	●	●	●			●	D14~D19 F140, F152 F154~F156
		433GC	150412GC						3/64	●	●	●			●	
		DNMG 442GC	DNMG 150608GC	2	4	1/2	1/4	0.203	1/32	●	●	●			●	D14, D16 D18
		443GC	150612GC						3/64	●	●	●				

Chipbreaker Range

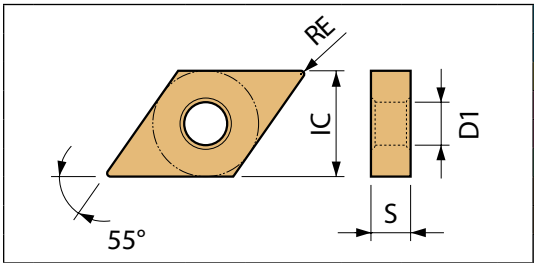


Inserts sold in 10 piece boxes

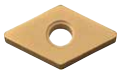
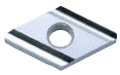
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

55° Diamond

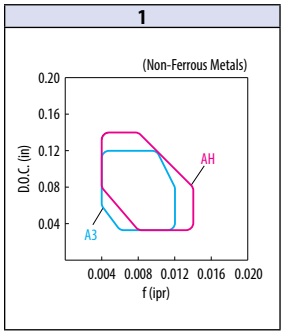
How to read this page See page B15



Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA310	CA315	CA320	CA410K	CA415K	CA4515	DLC PDL010	PDL025	- KW10	Cermet CVD CCX	PVD PV7005	Applicable Toolholder Page
Cast Iron	 Without Chipbreaker	DNMA 431	DNMA 150404	-	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●			●			D14~D19 F140, F152 F154~F156
		432	150408						1/32	●	●	●	●	●	●			●	●	●	
		DNMA 441	DNMA 150604	-	4	1/2	1/4	0.203	1/64	●	●	●	●	●							D14, D16 D18
		442	150608						1/32	●	●	●	●	●	●						
Non-Ferrous Metals	 Finishing - Medium / Sharp Edge	DNGG 431R-A3	DNGG 150404R-A3	1	4	1/2	3/16	0.203	1/64							●	●	●			D14~D19 F140, F152 F154~F156
		431L-A3	150404L-A3						1/64							●	●	●			
		432R-A3	150408R-A3						1/32							●	●	●			
		432L-A3	150408L-A3						1/32							●	●	●			
Non-Ferrous Metals	Medium - Roughing / Sharp Edge	DNGG 431AH	DNGG 150404AH	1	4	1/2	3/16	0.203	1/64							●	●	●			
		432AH	150408AH						1/32							●	●	●			
		DNGG 441AH	DNGG 150604AH	1	4	1/2	1/4	0.203	1/64									●			D14, D16 D18
		442AH	150608AH						1/32									●			
Non-Ferrous Metals	Medium - Roughing	DNMG 431AH	DNMG 150404AH	1	4	1/2	3/16	0.203	1/64							●	●	●			D14~D19 F140, F152 F154~F156
		432AH	150408AH						1/32							●	●	●			
		DNMG 441AH	DNMG 150604AH	1	4	1/2	1/4	0.203	1/64									●			D14, D16 D18
		442AH	150608AH						1/32									●			

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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Inserts sold in 10 piece boxes

55° Diamond

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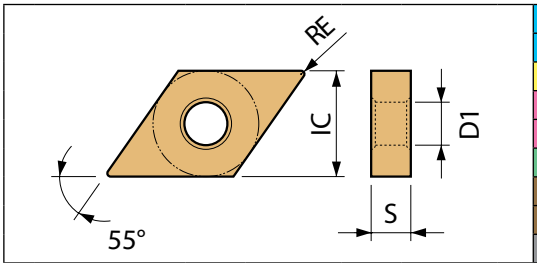
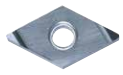
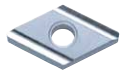
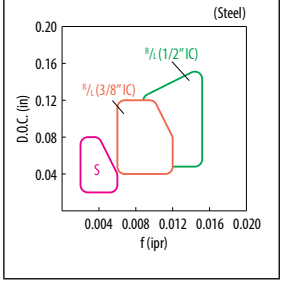


Workpiece	
Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide PVD PR930	Carbide - KW10	Cermet PVD PV7005	PV710	PV720	PV730	PV90	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing	 Sharp Edge / Surface Finish Oriented	DNGG 3305R-S	DNGG 110402R-S	1	4	3/8	3/16	0.150	0.008		●						●			D18 F150
		3305L-S	110402L-S						0.008		●						●			
		331R-S	110404R-S						1/64		●						●			
		331L-S	110404L-S						1/64		●						●			
		332R-S	110408R-S						1/32							△	●			
		332L-S	110408L-S						1/32							△				
Medium		DNGG 331R	DNGG 110404R	1	4	3/8	3/16	0.150	1/64		●						●			D18 F150
		331L	110404L						1/64		●						●			
		DNGG 431R	DNGG 150404R	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●		●	●	●	D14~D19 F140, F152 F154~F156
		431L	150404L						1/64	●	●	●	●	●	●		●	●	●	
		432R	150408R						1/32	●	●		●	●	●		●	●	●	
		432L	150408L						1/32	●	●		●	●	●		●	●	●	

Chipbreaker Range

1

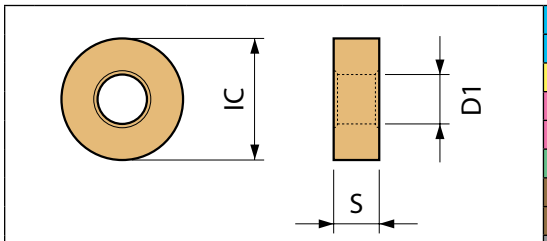


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Round

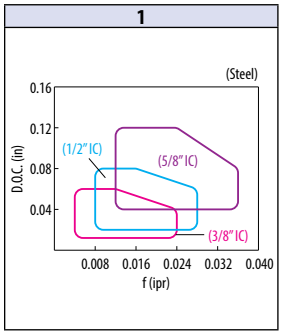
How to read this page See page B15



Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in) IC	S	D1	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA410K	CA415K	CA515	CA525	CA530	Cermet PVD PV7005	PV720	- TN60	TN620	Applicable Toolholder Page
Medium - Roughing	RNMG 32	RNMG 090300	1	3/8	1/8	0.150	●	●	●						●	●				●	●	●	D47
	RNMG 43	RNMG 120400	1	1/2	3/16	0.203	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D47
	RNMG 54	RNMG 150600	1	5/8	1/4	0.250	●	●	●	●	●	●	●	●		●						-

Chipbreaker Range

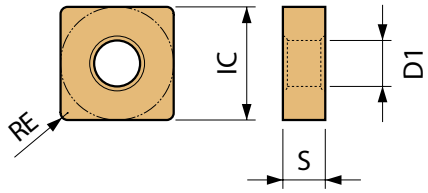


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

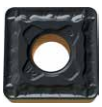
Inserts sold in 10 piece boxes

90° Square

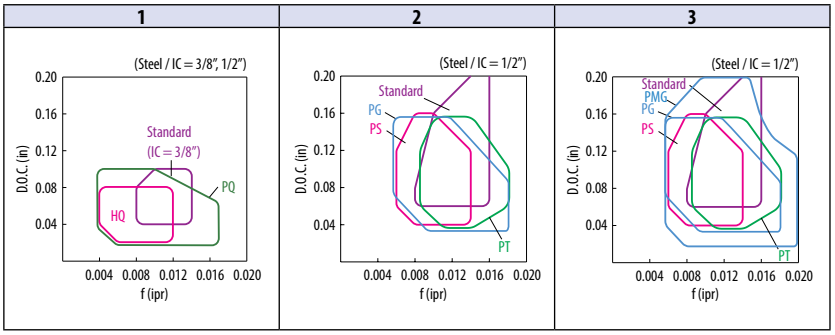
How to read this page See page B15



Work material	
Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA410K	CA415K	CA4515	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD PR1535	Cermet CVD CCX	Cermet PVD PV710	PV720	PV730	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing - Medium		SNMG 431PQ	SNMG 120404PQ	1	8	1/2	3/16	0.203	1/64	●	●	●							●	●	●					●	●	●	●		●	●	D21~D23 F158
		432PQ	120408PQ						1/32	●	●	●							●	●	●	●				●	●	●	●		●	●	
		433PQ	120412PQ						3/64	●	●	●								●	●	●											
Finishing - Medium		SNMG 431HQ	SNMG 120404HQ	1	8	1/2	3/16	0.203	1/64	●	●	●								●	●	●				●	●	●	●	●	●	●	
		432HQ	120408HQ						1/32	●	●	●							●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		433HQ	120412HQ						3/64	●	●	●								●	●					●	●	●	●	●	●	●	
Medium - Roughing		SNMG 432PMG	SNMG 120408PMG	3	8	1/2	3/16	0.203	1/32		●	●																				
		433PMG	120412PMG						3/64		●	●																				
		434PMG	120416PMG						1/16		●	●																				
Medium - Roughing		SNMG 432PG	SNMG 120408PG	2	8	1/2	3/16	0.203	1/32	●	●	●							●	●	●	●			●		●	●	●		●	●	
		433PG	120412PG						3/64	●	●	●							●	●	●	●			●			●	●			●	
		434PG	120416PG						1/16	●	●	●																●	●			●	
Medium - Roughing		SNMG 432PS	SNMG 120408PS	2	8	1/2	3/16	0.203	1/32	●									●	●	●	●	●	●									
		433PS	120412PS						3/64	●									●	●	●	●		●									
		434PS	120416PS						1/16	●										●	●	●											
Medium - Roughing	High Feed	SNMG 432PT	SNMG 120408PT	2	8	1/2	3/16	0.203	1/32	●									●	●	●	●		●									
		433PT	120412PT						3/64	●										●	●	●		●									
Roughing		SNMG 321	SNMG 090304	1	8	3/8	1/8	0.150	1/64	●	●	●									●						●	●	●	●	●	●	D22 D23
		322	090308						1/32	●	●	●	●	●	●	●	●	●			●						●	●	●	●	●	●	
		SNMG 431	SNMG 120404	2	8	1/2	3/16	0.203	1/64				●	●	●	●	●	●									●	●	●	●	●	●	D21~D23 F158
		432	120408						1/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		433	120412						3/64	●	●	●	●	●	●	●	●	●	●	●	●				●			●		●		●	
		434	120416						1/16	●	●	●	●	●	●	●	●	●			●	●						●		●		●	
		435	120420						5/64				●	●	●	●	●	●										●		●		●	

Chipbreaker Range

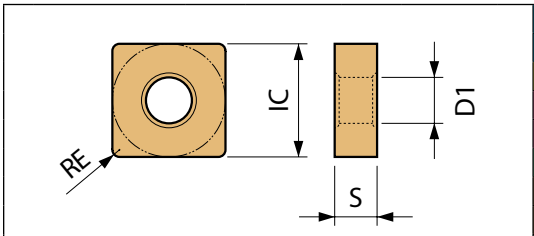


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

90° Square

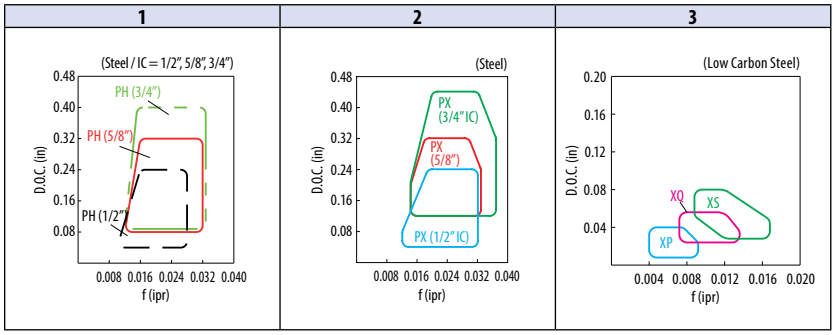
How to read this page See page B15



Free-cutting steel																						P
Carbon steel / Alloy steel	○	○	●					●			●			●	●	●	○	●	●			P
Stainless Steel											●											M
Gray cast iron				●	●	❄																K
Nodular cast iron				○	●	✖																K
Non-ferrous metals																						N
Heat-resistant alloy											✖											S
Titanium alloy											●											S
Hard materials																						H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA4515	CA510	CA515	CA525	CA530	Carbide PVD PR1535	Cermet CVD CCX	Cermet PVD PV710	PV720	PV730	Cermet - TN610	TN620	Applicable Toolholder Page
Roughing		SNMG 432PH	SNMG 120408PH	1	8	1/2	3/16	0.203	1/32	●	●	●	●	●	●		●	●	●								D21~D23 F158
		433PH	120412PH						3/64	●	●	●	●	●	●	●	●	●	●								
		434PH	120416PH						1/16	●	●	●	●	●	●			●	●								
		SNMG 543PH	SNMG 150612PH	1	8	5/8	1/4	0.250	3/64	●	●	●	●	●	●	●		●	●	●							-
		544PH	150616PH						1/16	●	●	●	●	●	●			●		●							
		SNMG 643PH	SNMG 190612PH	1	8	3/4	1/4	0.313	3/64	●	●	●							●	●							
		644PH	190616PH						1/16	●	●	●							●	●							
		SNMG 866PH	SNMG 250924PH	1	8	1	3/8	0.359	3/32	●											●						
Roughing	High Feed / Single-Sided	SNMM 432PX	SNMM 120408PX	2	4	1/2	3/16	0.203	1/32	●	●	●						●	●	●							D21~D23 F158
		433PX	120412PX						3/64	●	●	●						●	●	●							
		434PX	120416PX						1/16	●	●	●															
		SNMM 543PX	SNMM 150612PX	2	4	5/8	1/4	0.250	3/64	●	●	●							●	●							-
		544PX	150616PX						1/16	●	●	●															
		SNMM 643PX	SNMM 190612PX	2	4	3/4	1/4	0.313	3/64	●	●	●							●	●							
		644PX	190616PX						1/16	●	●	●						●	●	●							
		646PX	190624PX						3/32	●	●	●							●	●							
Low Carbon Steel	Finishing	SNMG 432XP	SNMG 120408XP	3	8	1/2	3/16	0.203	1/32	●	●	●						●	●			●	●	●	●	●	●	D21~D23 F158
Low Carbon Steel	Medium	SNMG 432XQ	SNMG 120408XQ	3	8	1/2	3/16	0.203	1/32	●	●	●						●	●			●	●	●	●	●	●	
Low Carbon Steel	Roughing	SNMG 432XS	SNMG 120408XS	3	8	1/2	3/16	0.203	1/32	●	●	●						●	●	●		●	●	●	●	●	●	

Chipbreaker Range

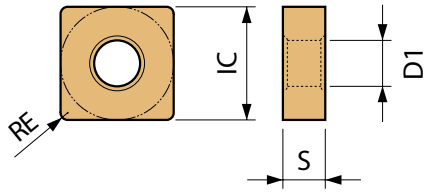


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

90° Square

How to read this page See page B15

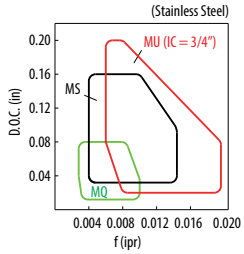


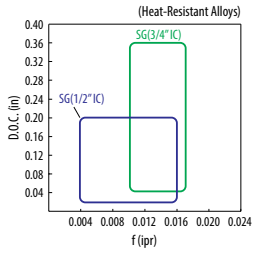
Free-cutting steel																											P
Carbon steel / Alloy steel																											P
Stainless Steel											●	●		○	◔	◕											M
Gray cast iron	○	◔	❄	●	◕																						K
Nodular cast iron		◔	✖	○	◕																						K
Non-ferrous metals																											N
Heat-resistant alloy											○	◔	●	○	◕	✖											S
Titanium alloy																◕	◔										S
Hard materials																											H

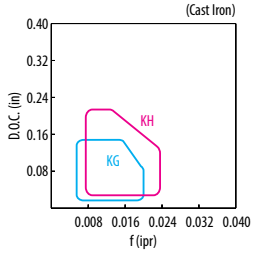
	Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA310	CA315	CA320	CA410K	CA415K	CA4515	CA6515	CA6525	PVD PR005S	PR115S	PR120S	PR153S	- SW05	Applicable Toolholder Page
Stainless Steel / Heat-Resistant Alloys	Finishing - Medium	SNMG 431MQ	SNMG 120404MQ	1	8	1/2	3/16	0.203	1/64							●	●	●	●	●	●	●	
		432MQ	120408MQ						1/32							●	●	●	●	●	●	●	D21~D23 F158
	Medium - Roughing	SNMG 431MS	SNMG 120404MS	1	8	1/2	3/16	0.203	1/64							●	●	●	●	●	●	●	
		432MS	120408MS						1/32							●	●	●	●	●	●	●	
		433MS	120412MS						3/64							●	●	●	●	●	●	●	
		434MS	120416MS						1/16							●	●	●	●	●			
	Medium - Roughing	SNMG 643MU	SNMG 190612MU	1	8	3/4	1/4	0.313	3/64									●	●	●	●		-
		644MU	190616MU						1/16									●	●	●	●		
Heat-Resistant Alloys	Roughing	SNMG 432SG	SNMG 120408SG	2	8	1/2	3/16	0.203	1/32									●	●	●	●	●	D21~D23 F158
		433SG	120412SG						3/64									●	●	●	●	●	
		SNMG 543SG	SNMG 150612SG	2	8	5/8	1/4	0.250	3/64									●	●	●	●	●	-
		544SG	150616SG						1/16									●	●	●	●	●	
		SNMG 643SG	SNMG 190612SG	2	8	3/4	1/4	0.313	3/64									●	●	●	●	●	-
		644SG	190616SG						1/16									●	●	●	●	●	
Cast Iron	Medium - Roughing	SNMG 432KG	SNMG 120408KG	3	8	1/2	3/16	0.203	1/32	●	●	●	●	●									D21~D23 F158
		433KG	120412KG						3/64	●	●	●	●	●									
Cast Iron	Roughing	SNMG 432KH	SNMG 120408KH	3	8	1/2	3/16	0.203	1/32	●	●	●	●	●									
		433KH	120412KH						3/64	●	●	●	●	●									
		434KH	120416KH						1/16	●	●	●	●	●									
Cast Iron	Roughing	SNMG 432C	SNMG 120408C	4	8	1/2	3/16	0.203	1/32	●	●	●			●								
		433C	120412C						3/64	●	●	●			●								

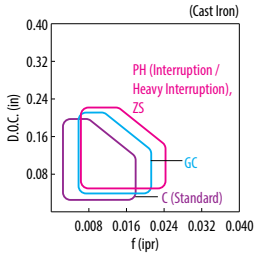
Chipbreaker Range

1	2	3	4
Heat-Resistant Alloys Titanium Alloys See page B8			







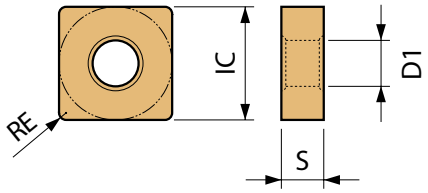


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

90° Square

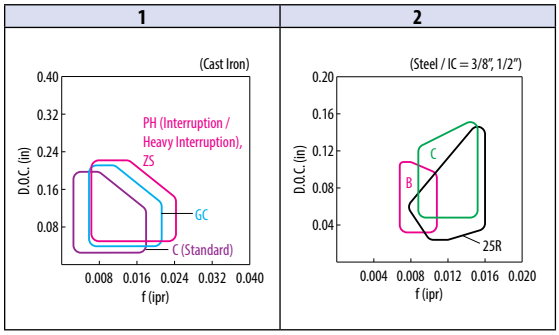
How to read this page See page B15



Free-cutting steel										●	●	◕		●	◕	P
Carbon steel / Alloy steel																
Stainless Steel																M
Gray cast iron	○	◔	❀	●	◕			❀	●							K
Nodular cast iron		◔	✖	○	◕				○							
Non-ferrous metals								✖								N
Heat-resistant alloy																S
Titanium alloy								❀								
Hard materials																H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA310	CA315	CA320	CA410K	CA415K	CA4505	CA4515	Carbide - KW10	Cermet PVD PV7005	PV710	PV720	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Cast Iron	Roughing	SNMG 432ZS	SNMG 120408ZS	1	8	1/2	3/16	0.203	1/32	●	●	●	●	●		●								D21~D23 F158
		433ZS	120412ZS						3/64	●	●	●	●	●		●								
Cast Iron	Roughing	SNMG 432GC	SNMG 120408GC	1	8	1/2	3/16	0.203	1/32	●	●	●				●								
		433GC	120412GC						3/64	●	●	●				●								
Cast Iron	Without Chipbreaker	SNGA 431	SNGA 120404	-	8	1/2	3/16	0.203	1/64								●							
		432	120408						1/32								●	●						
		SNMA 431	SNMA 120404	-	8	1/2	3/16	0.203	1/64	●	●	●	●	●		●								
		432	120408						1/32	●	●	●	●	●		●								
		433	120412						3/64	●	●	●	●	●		●					●			
		434	120416						1/16	●	●	●	●	●		●								
		435	120420						5/64	●	●	●	●	●		●								
Finishing - Medium		SNGG 321R-B	SNGG 090304R-B	2	8	3/8	1/8	0.150	1/64									●	●	●	●	●	●	D22 D23
		321L-B	090304L-B						1/64									●	●	●	●	●	●	
		322R-B	090308R-B						1/32										●	●	●	●	●	
		322L-B	090308L-B						1/32										●	●	●	●	●	
Medium - Roughing		SNGG 431R-C	SNGG 120404R-C	2	8	1/2	3/16	0.203	1/64								●		●	●	●	●	●	D21~D23 F158
		431L-C	120404L-C						1/64								●		●	●	●	●	●	
		432R-C	120408R-C						1/32								●	●	●	●	●	●	●	
		432L-C	120408L-C						1/32								●		●	●	●	●	●	
Medium - Roughing		SNMG 431R-C	SNMG 120404R-C	2	8	1/2	3/16	0.203	1/64										●	●	●	●	●	
		431L-C	120404L-C						1/64										●	●	●	●	●	
		432R-C	120408R-C						1/32										●	●	●	●	●	
		432L-C	120408L-C						1/32										●	●	●	●	●	
Medium - Roughing	Low Cutting Force	SNGG 431R-25R	SNGG 120404R-25R	2	8	1/2	3/16	0.203	1/64										●	●	●	●	●	
		431L-25R	120404L-25R						1/64										●	●	●	●	●	
		432R-25R	120408R-25R						1/32										●	●	●	●	●	
		432L-25R	120408L-25R						1/32										●	●	●	●	●	

Chipbreaker Range

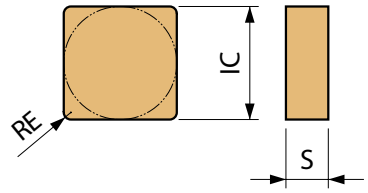


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

90° Square

How to read this page See page B15



Free-cutting steel		P
Carbon steel / Alloy steel		
Stainless Steel		M
Gray cast iron	○ ◔ ❄ ● ◕	K
Nodular cast iron	◔ ✖ ○ ◕	
Non-ferrous metals		N
Heat-resistant alloy		S
Titanium alloy		
Hard materials		H

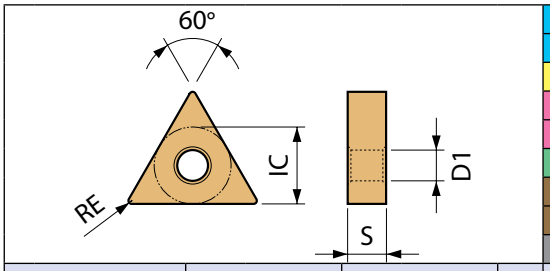
Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	RE	Carbide CVD CA310	CA315	CA320	CA410K	CA415K	Applicable Toolholder Page
Cast Iron Without Chipbreaker	SNMN 432	SNMN 120408	-	8	1/2	3/16	1/32	●	●	●	●	●	D56~D60 D69 D70
	433	120412					3/64	●	●	●	●	●	

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

60° Triangle

How to read this page See page B15

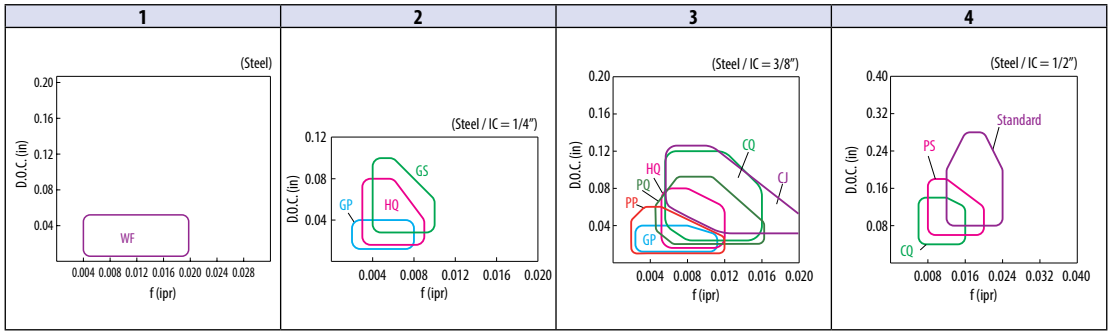


	P	M	K	N	S	H
Free-cutting steel	○					
Carbon steel / Alloy steel	○ ◐ ●					
Stainless Steel		● ◐ ●				
Gray cast iron			○ ◐ ●			
Nodular cast iron			○ ◐ ●			
Non-ferrous metals				○ ◐ ●		
Heat-resistant alloy					○ ◐ ●	
Titanium alloy					●	
Hard materials						●

Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD PR1535	Cermet CVD CCX	Cermet PVD PV710	PV720	PV730	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing	With Wiper Edge	TNMX 331WF	TNMX 160404WF	1	6	3/8	3/16	0.150	1/64	●	●	●	●	●	●	●					●	●		●	●	D25~D29 F142 F159
		332WF	160408WF						1/32	●	●	●	●	●	●	●					●	●		●	●	
		333WF	160412WF						3/64	●	●	●	●	●	●	●					●	●		●	●	
Finishing		TNMG 3305PP	TNMG 160402PP	3	6	3/8	3/16	0.150	0.008	●	●	●	●	●	●	●				●	●	●	●		●	●	D25~D32 F142 F159 F160
		331PP	160404PP						1/64	●	●	●	●	●	●	●				●	●	●	●		●	●	
		332PP	160408PP						1/32	●	●	●	●	●	●	●				●	●	●	●		●	●	
		333PP	160412PP						3/64	●	●	●		●	●	●				●	●	●	●		●	●	
Finishing		TNMG 231GP	TNMG 110404GP	2	6	1/4	3/16	0.089	1/64												●	●	●		●	D28, D29 F160
		232GP	110408GP						1/32												●	●	●		●	
		TNMG 3305GP	TNMG 160402GP	3	6	3/8	3/16	0.150	0.008	●	●	●	●	●	●	●					●	●	●	●	●	●	D25~D32 F142 F159 F160
		331GP	160404GP						1/64	●	●	●	●	●	●	●					●	●	●	●	●	●	
		332GP	160408GP						1/32	●	●	●	●	●	●	●					●	●	●	●	●	●	
Finishing - Medium		TNMG 331PQ	TNMG 160404PQ	3	6	3/8	3/16	0.150	1/64	●	●	●	●	●	●	●				●	●	●	●		●	●	D25~D32 F142 F159 F160
		332PQ	160408PQ						1/32	●	●	●	●	●	●	●				●	●	●	●		●	●	
		333PQ	160412PQ						3/64	●	●	●		●	●					●	●	●	●		●	●	
Finishing - Medium		TNMG 231HQ	TNMG 110404HQ	2	6	1/4	3/16	0.089	1/64	●	●	●		●	●					●		●	●	●	●	D28, D29 F160
		232HQ	110408HQ						1/32	●	●	●	●	●	●	●				●		●	●	●	●	
		TNMG 331HQ	TNMG 160404HQ	3	6	3/8	3/16	0.150	1/64	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	D25~D32 F142 F159 F160
		332HQ	160408HQ						1/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		333HQ	160412HQ						3/64	●	●	●	●	●	●	●			●	●	●	●	●	●	●	●	
Finishing - Medium	Up facing	TNMG 331CQ	TNMG 160404CQ	3	6	3/8	3/16	0.150	1/64	●	●	●	●	●	●	●					●	●	●	●	●	●	D25~D32 F142 F159 F160
		332CQ	160408CQ						1/32	●	●	●	●	●	●	●					●	●	●	●	●	●	
		333CQ	160412CQ						3/64	●	●	●	●	●	●	●						●	●	●		●	
		TNMG 432CQ	TNMG 220408CQ	4	6	1/2	3/16	0.203	1/32	●	●	●	●	●	●	●											D27~D29 F159
		433CQ	220412CQ						3/64	●	●	●		●	●												

See "Precautions when using Wiper inserts" on page **R40** and **R41** for WF/WE chipbreakers.

Chipbreaker Range

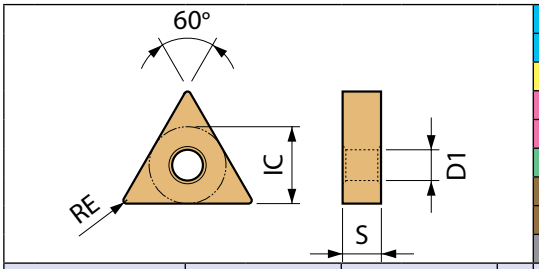


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

60° Triangle

How to read this page See page B15

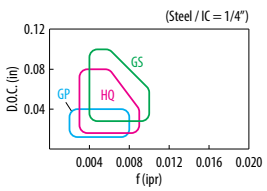


Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA410K	CA415K	CA4515	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD PR1535	Cermet CVD CCX	Cermet PVD PV7005	PV710	PV720	PV730	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Medium - Roughing		TNMG 331PMG	TNMG 160404PMG	2	6	3/8	3/16	0.150	1/64	●	●																						D25~D32 F142, F159 F160
		332PMG	160408PMG						1/32	●	●																						
		333PMG	160412PMG						3/64	●	●																						
		TNMG 431PMG	TNMG 220404PMG	4	6	1/2	3/16	0.203	1/64	●	●																						D27~D29 F159
		432PMG	220408PMG						1/32	●	●																						
		433PMG	220412PMG						3/64	●	●																						
		434PMG	220416PMG						1/16	●	●																						
Medium - Roughing		TNMG 231GS	TNMG 110404GS	1	6	1/4	3/16	0.089	1/64	●	●	●									●									●		●	D28, D29 F160
		232GS	110408GS						1/32	●	●	●									●												
Medium - Roughing		TNMG 331GS	TNMG 160404GS	2	6	3/8	3/16	0.150	1/64	●									●	●	●	●							●	●		●	
		332GS	160408GS						1/32	●									●	●	●	●							●	●		●	
Medium - Roughing		TNMG 331PG	TNMG 160404PG	2	6	3/8	3/16	0.150	1/64	●	●	●							●	●	●	●			●				●	●		●	●
		332PG	160408PG						1/32	●	●	●							●	●	●	●			●				●	●		●	●
		333PG	160412PG						3/64	●	●	●							●	●	●	●			●				●	●		●	●
Medium - Roughing		TNMG 331PS	TNMG 160404PS	2	6	3/8	3/16	0.150	1/64	●									●	●	●	●	●	●					●	●		●	
		332PS	160408PS						1/32	●									●	●	●	●	●	●					●	●		●	
		333PS	160412PS						3/64	●										●	●	●		●									
Medium - Roughing		TNMG 431PS	TNMG 220404PS	3	6	1/2	3/16	0.203	1/64	●									●	●	●	●										●	
		432PS	220408PS						1/32	●									●	●	●	●	●	●									
		433PS	220412PS						3/64	●									●	●	●	●		●									
		434PS	220416PS						1/16	●										●	●												
Medium - Roughing	High Feed	TNMG 332PT	TNMG 160408PT	2	6	3/8	3/16	0.150	1/32	●									●	●	●	●		●									D25~D32 F142, F159 F160
		333PT	160412PT						3/64	●										●	●	●											
Medium - Roughing	High Feed	TNMG 332GT	TNMG 160408GT	2	6	3/8	3/16	0.150	1/32	●										●	●	●											
		333GT	160412GT						3/64	●											●												
Roughing		TNMG 331	TNMG 160404	2	6	3/8	3/16	0.150	1/64	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●
		332	160408						1/32	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●
		333	160412						3/64	●	●	●	●	●	●	●	●	●		●	●		●	●			●			●		●	
		334	160416						1/16				●	●	●	●	●	●															
		335	160420						5/64				●	●	●	●	●	●															
		TNMG 431	TNMG 220404	3	6	1/2	3/16	0.203	1/64				●	●	●	●	●	●													●		
		432	220408						1/32	●	●	●	●	●	●	●	●	●	●	●	●	●											●	
		433	220412						3/64	●	●	●	●	●	●	●	●	●		●	●	●											●	

Chipbreaker Range

1



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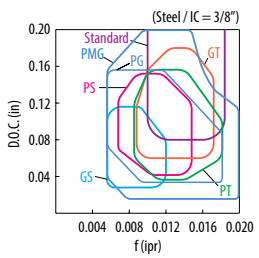

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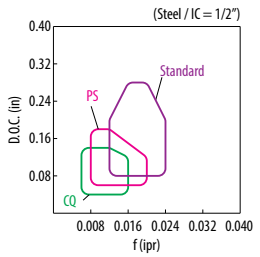

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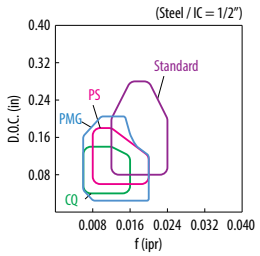
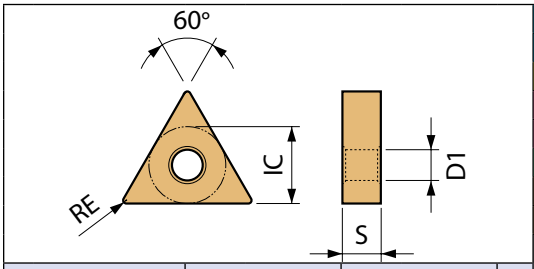


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

60° Triangle

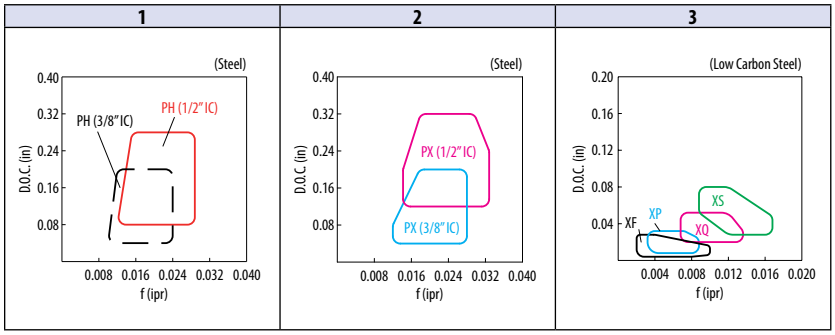
How to read this page See page B15



Free-cutting steel																									P
Carbon steel / Alloy steel	○	○	●					●			●	●	●	●	○		●	●							P
Stainless Steel																									M
Gray cast iron				○	○	❄																			K
Nodular cast iron					○	✖																			K
Non-ferrous metals																									N
Heat-resistant alloy																									S
Titanium alloy																									S
Hard materials																									H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA4515	CA510	CA515	CA525	CA530	Cermet CVD CCX	PVD PV710	PV720	PV730	- TN60	TN610	TN620	Applicable Toolholder Page
Roughing		TNMG 332PH	TNMG 160408PH	1	6	3/8	3/16	0.150	1/32	●	●	●	●	●	●	●	●	●	●								D25~D32 F142 F159 F160
		333PH	160412PH						3/64	●	●	●	●	●	●	●	●	●	●								
Roughing		TNMG 432PH	TNMG 220408PH	1	6	1/2	3/16	0.203	1/32	●	●	●					●	●	●								D27~D29 F159
		433PH	220412PH						3/64	●	●	●					●	●	●								
		434PH	220416PH						1/16	●	●	●							●								
Roughing	High feed / Single-sided	TNMM 332PX	TNMM 160408PX	2	3	3/8	3/16	0.150	1/32	●	●	●							●								D25~D32 F142 F159 F160
		333PX	160412PX						3/64	●	●	●							●								
		TNMM 432PX	TNMM 220408PX	2	3	1/2	3/16	0.203	1/32	●	●	●							●								D27~D29 F159
		433PX	220412PX						3/64	●	●	●							●								
		434PX	220416PX						1/16	●	●	●							●	●							
Low Carbon Steel	Finishing / Minute D.O.C.	TNMG 331XF	TNMG 160404XF	3	6	3/8	3/16	0.150	1/64											●	●	●	●		●	●	D25~D32 F142 F159 F160
		332XF	160408XF						1/32											●	●	●	●		●	●	
Low Carbon Steel	Finishing	TNMG 331XP	TNMG 160404XP	3	6	3/8	3/16	0.150	1/64	●	●	●					●	●		●	●	●	●	●	●	●	
		332XP	160408XP						1/32	●	●	●					●	●	●	●	●	●	●		●	●	
Low Carbon Steel	Medium	TNMG 331XQ	TNMG 160404XQ	3	6	3/8	3/16	0.150	1/64	●	●	●					●	●	●	●	●	●	●	●	●	●	
		332XQ	160408XQ						1/32	●	●	●					●	●	●	●	●	●	●	●	●	●	
Low Carbon Steel	Roughing	TNMG 332XS	TNMG 160408XS	3	6	3/8	3/16	0.150	1/32	●	●	●					●	●	●		●	●	●	●		●	

Chipbreaker Range

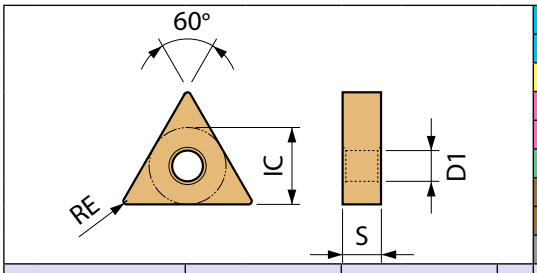


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

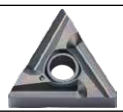
Inserts sold in 10 piece boxes

60° Triangle

How to read this page See page B15



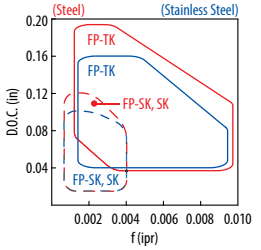
Workpiece	
Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide: CVD CA6515	CVD CA6525	PVD PR005S	PVD PR015S	PVD PR115S	PVD PR120S	PVD PR1225	PVD PR1535	PVD PR1725	- SW05	Cermet PVD PV720	Cermet PVD PV730	Applicable Toolholder Page
Finishing - Medium	Polished / Sharp Edge	TNGG 3302MFP-SK	TNGG 160401MFP-SK	1	6	3/8	3/16	0.150	< 0.004					●	●	●	●	●			●	D25~D32 E68 F142 F159 F160
		3305MFP-SK	160402MFP-SK						< 0.008					●	●	●	●	●			●	
		331MFP-SK	160404MFP-SK						< 1/64					●	●	●	●	●			●	
		TNGG 3305M-SK	TNGG 160402M-SK	1	6	3/8	3/16	0.150	< 0.008												●	
		331M-SK	160404M-SK						< 1/64												●	
Large D.O.C.		TNMG 3305R-LD	TNMG 160402R-LD	2	6	3/8	3/16	0.150	0.008								●	●				
		331R-LD	160404R-LD						1/64								●	●				
Medium - Roughing	Polished / Sharp Edge	TNGG 331FP-TK	TNGG 160404FP-TK	2	6	3/8	3/16	0.150	1/64							●	●	●				
		332FP-TK	160408FP-TK						1/32							●	●	●				
Stainless Steel / Heat-Resistant Alloys	Medium - Roughing / Sharp Edge	TNGG 331TK	TNGG 160404TK	3	6	3/8	3/16	0.150	1/64										●			D25~D32 F142 F159 F160
		332TK	160408TK						1/32										●			
		TNMG 331TK	TNMG 160404TK	3	6	3/8	3/16	0.150	1/64	●	●						●					
		332TK	160408TK						1/32	●	●						●					
Stainless Steel / Heat-Resistant Alloys	Finishing - Medium	TNMG 331MQ	TNMG 160404MQ	3	6	3/8	3/16	0.150	1/64	●	●	●		●	●		●		●			
		332MQ	160408MQ						1/32	●	●	●		●	●		●		●			
	Medium - Roughing	TNMG 331MS	TNMG 160404MS	3	6	3/8	3/16	0.150	1/64	●	●	●	△	●	●		●		●			
		332MS	160408MS						1/32	●	●	●		●	●		●		●			
		333MS	160412MS						3/64	●	●	●		●	●		●					
	Medium - Roughing	TNMG 331MU	TNMG 160404MU	3	6	3/8	3/16	0.150	1/64	●	●	●		●	●		●		●			
		332MU	160408MU						1/32	●	●	●		●	●		●		●			

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

1



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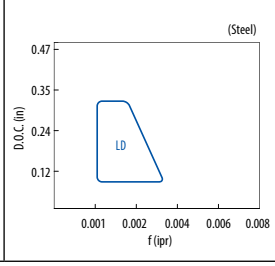
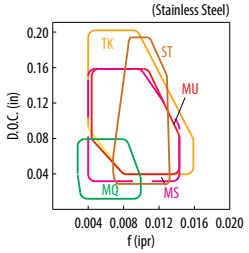


3

Heat-Resistant Alloys
Titanium Alloys
See page B8

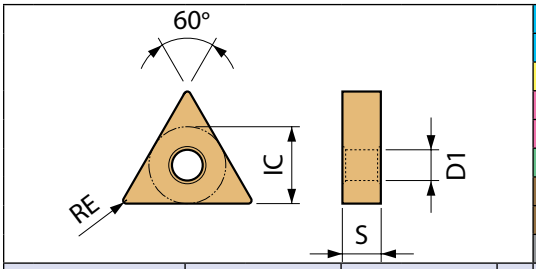


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

60° Triangle

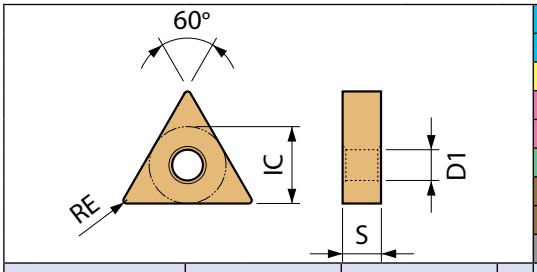
How to read this page See page B15



| | | |

60° Triangle

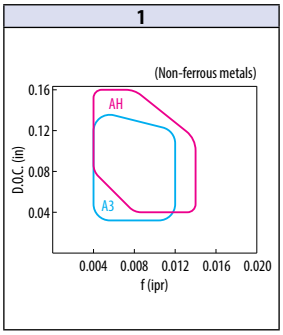
How to read this page See page B15



Free-cutting steel																											P
Carbon steel / Alloy steel																				●		●					P
Stainless Steel																											M
Gray cast iron	○	◔	❄	●	◕							❄	●	●													K
Nodular cast iron		◔	✖	○	◕								○	○													K
Non-ferrous metals								●	◕	✖																	N
Heat-resistant alloy																											S
Titanium alloy												❄															S
Hard materials																											H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA310	CA315	CA320	CA410K	CA415K	CA4505	CA4515	Carbide DLC PDL010	PDL025	Carbide - KW10	Cermet CVD CCX	Cermet PVD PV7005	PV720	Cermet - TN60	TN620	Applicable Toolholder Page
Cast Iron	Without Chipbreaker	TNGA 221	TNGA 110304	-	6	1/4	1/8	0.089	1/64										●						D28 D29
		TNGA 331	TNGA 160404	-	6	3/8	3/16	0.150	1/64										●		●				
		332	160408						1/32										●		●				
		TNMA 331	TNMA 160404						1/64	●	●	●	●	●	●					●	●	●	●	●	
		332	160408						1/32	●	●	●	●	●	●					●	●	●	●	●	
		333	160412	-	6	3/8	3/16	0.150	3/64	●	●	●	●	●	●										
		334	160416						1/16	●	●	●	●	●	●										
		335	160420						5/64	●	●	●	●	●	●										
Non-Ferrous Metals	Finishing - Medium / Sharp Edge	TNGG 331R-A3	TNGG 160404R-A3	1	6	3/8	3/16	0.150	1/64								●	●	●						D25~D32 F142 F159 F160
		331L-A3	160404L-A3						1/64								●	●	●						
		332R-A3	160408R-A3						1/32								●	●	●						
		332L-A3	160408L-A3						1/32								●	●	●						
Non-Ferrous Metals	Medium - Roughing / Sharp Edge	TNGG 331AH	TNGG 160404AH	1	6	3/8	3/16	0.150	1/64								●	●	●						
		332AH	160408AH						1/32								●	●	●						
Non-Ferrous Metals	Medium - Roughing	TNMG 331AH	TNMG 160404AH	1	6	3/8	3/16	0.150	1/64								●	●	●						
		332AH	160408AH						1/32								●	●	●						

Chipbreaker Range

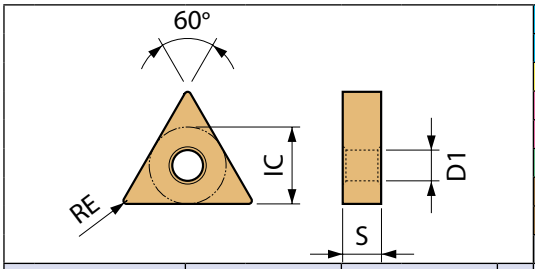


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

60° Triangle

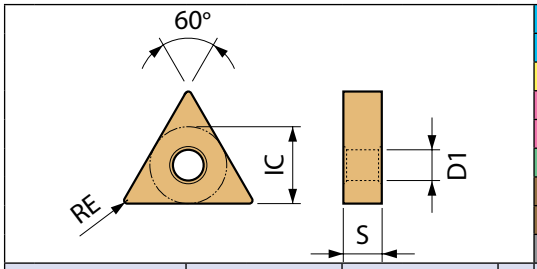
How to read this page See page B15



| | | |

60° Triangle

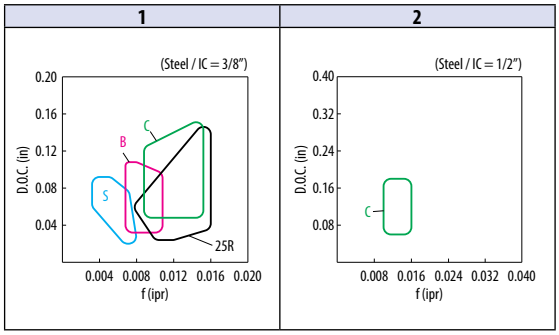
How to read this page See page B15



Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide PVD PR1535	Carbide PVD PR930	Carbide - KW10	Cermet PVD PV7005	Cermet PVD PV710	Cermet PVD PV720	Cermet PVD PV730	Cermet PVD PR930	Cermet - TN60	Cermet - TN610	Cermet - TN620	Applicable Toolholder Page
Medium - Roughing	TNGG 3305R-C	TNGG 160402R-C	1	6	3/8	3/16	0.150	0.008						●	●				●	D25~D32 F142 F159 F160
	3305L-C	160402L-C						0.008						●	●				●	
	331R-C	160404R-C						1/64		●	●	●	●	●	●	●	●	●	●	
	331L-C	160404L-C						1/64		●	●	●	●	●	●	●	●	●	●	
	332R-C	160408R-C						1/32		●	●	●	●	●	●	●	●	●	●	
	332L-C	160408L-C						1/32		●	●	●	●	●	●	●		●	●	
	333R-C	160412R-C						3/64				●	●	●	●		●	●	●	
	333L-C	160412L-C						3/64				●	●	●	●		●	●	●	
	TNGG 431R-C	TNGG 220404R-C	2	6	1/2	3/16	0.203	1/64						●			●	●	●	D27~D29 F159
	431L-C	220404L-C						1/64						●			●	●	●	
	432R-C	220408R-C						1/32						●			●		●	
	432L-C	220408L-C						1/32						●			●		●	
	TNMG 331R-C	TNMG 160404R-C	1	6	3/8	3/16	0.150	1/64					●	●	●		●	●	●	D25~D32 F142 F159 F160
	331L-C	160404L-C						1/64					●	●	●		●	●	●	
	332R-C	160408R-C						1/32					●	●	●		●	●	●	
	332L-C	160408L-C						1/32					●	●	●		●	●	●	
	333R-C	160412R-C						3/64									●			
Medium - Roughing	TNGG 2305R	TNGG 110402R	1	6	1/4	3/16	0.089	0.008									●			D28, D29 F160
	231R	110404R						1/64									●			
	231L	110404L						1/64									●			
	232R	110408R						1/32									●			
Medium - Roughing Low cutting force	TNGG 331R-25R	TNGG 160404R-25R	1	6	3/8	3/16	0.150	1/64	●	●	●		●	●	●	●	●	●	●	D25~D32 F142 F159 F160
	331L-25R	160404L-25R						1/64	●	●	●		●	●	●	●	●	●	●	
	332R-25R	160408R-25R						1/32	●	●	●		●	●	●	●	●	●	●	
	332L-25R	160408L-25R						1/32	●	●	●		●	●	●	●	●	●	●	

Chipbreaker Range

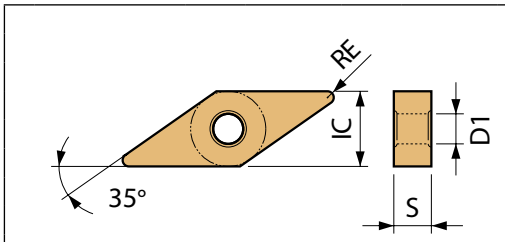


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

35° Diamond

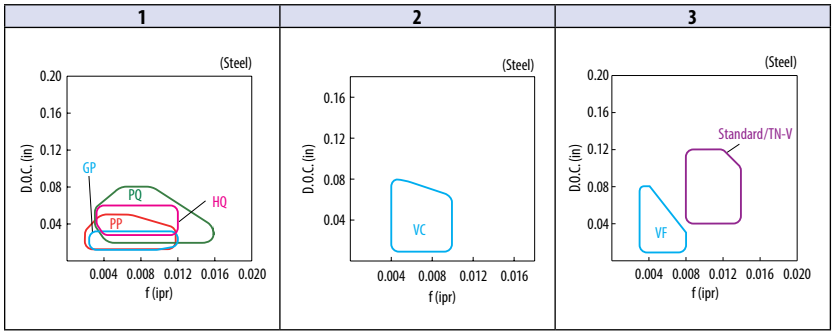
How to read this page See page B15



Free-cutting steel																										P
Carbon steel / Alloy steel	○	○	●							●			✖			●		●	●	○		●	●		P
Stainless Steel														●	●											M
Gray cast iron				○	○	✱	●	●								●	●									K
Nodular cast iron					○	✖	○	●								○	○									K
Non-ferrous metals																										N
Heat-resistant alloy														○	○											S
Titanium alloy																										S
Hard materials																										H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA410K	CA415K	CA4515	CA510	CA515	CA525	CA530	CA6515	CA6525	Cermet CVD CCX	PVD PV7005	PV710	PV720	PV730	- TN60	TN610	TN620	Applicable Toolholder Page
Finishing		VNMG 3305PP	VNMG 160402PP	1	4	3/8	3/16	0.150	0.008	●	●	●							●	●	●	●			●		●	●	●		●	●	D34~D44
		331PP	160404PP						1/64	●	●	●							●	●	●	●			●		●	●	●		●	●	
		332PP	160408PP						1/32	●	●	●							●	●	●	●			●		●	●	●		●	●	
		333PP	160412PP						3/64	●	●	●									●				●		●	●	●		●	●	
Finishing		VNMG 3305GP	VNMG 160402GP	1	4	3/8	3/16	0.150	0.008	●	●	●								●	●	●						●	●	●	●	●	
		331GP	160404GP						1/64	●	●	●							●	●	●	●					●	●	●	●	●	●	
		332GP	160408GP						1/32	●	●	●							●	●	●	●					●	●	●	●	●	●	
Finishing - Medium		VNMG 331R-VC	VNMG 160404R-VC	2	4	3/8	3/16	0.150	1/64	●	●	●							●	●	●	●			●		●	●	●		●	●	
		331L-VC	160404L-VC						1/64	●	●	●							●	●	●	●			●		●	●	●		●	●	
		332R-VC	160408R-VC						1/32	●	●	●							●	●	●	●			●		●	●	●		●	●	
		332L-VC	160408L-VC						1/32	●	●	●							●	●	●	●			●		●	●	●		●	●	
		333R-VC	160412R-VC						3/64	●	●	●							●	●	●	●			●		●	●	●		●	●	
		333L-VC	160412L-VC						3/64	●	●	●							●	●	●	●			●		●	●	●		●	●	
Finishing - Medium		VNMG 331VF	VNMG 160404VF	3	4	3/8	3/16	0.150	1/64	●	●	●							●	●	●	●			●		●	●	●		●	●	
		332VF	160408VF						1/32	●	●	●							●	●	●	●			●		●	●	●		●	●	
		333VF	160412VF						3/64	●	●	●									●	●	●					●	●				●	
Finishing - Medium		VNMG 331PQ	VNMG 160404PQ	1	4	3/8	3/16	0.150	1/64	●	●	●							●	●	●	●			●		●	●	●		●	●	
		332PQ	160408PQ						1/32	●	●	●							●	●	●	●			●		●	●	●		●	●	
		333PQ	160412PQ						3/64	●	●	●							●	●	●	●			●		●	●	●		●	●	
Finishing - Medium		VNMG 331HQ	VNMG 160404HQ	1	4	3/8	3/16	0.150	1/64	●	●	●							●	●	●	●			●		●	●	●	●	●	●	
		332HQ	160408HQ						1/32	●	●	●							●	●	●	●			●		●	●	●	●	●	●	
		333HQ	160412HQ						3/64	●	●	●							●	●	●	●			●		●	●	●		●	●	
Medium		VNMG 331TN-V	VNMG 160404TN-V	3	4	3/8	3/16	0.150	1/64																					●			
		332TN-V	160408TN-V						1/32																					●			
		333TN-V	160412TN-V						3/64																					●			
Roughing		VNMG 331	VNMG 160404	3	4	3/8	3/16	0.150	1/64	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●	●	●	●	●	
		332	160408						1/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

Chipbreaker Range

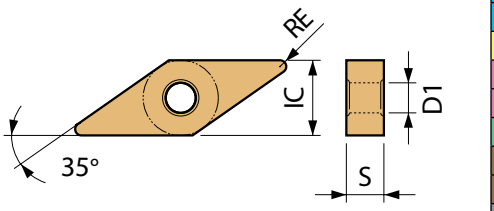


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

35° Diamond

How to read this page See page B15

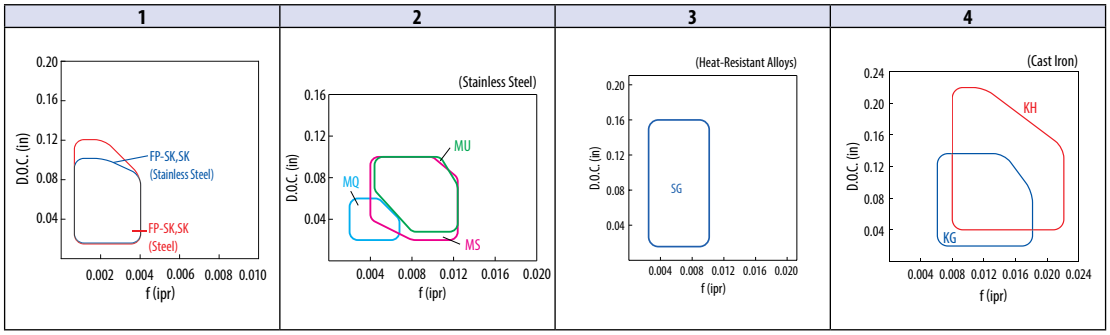


Workpiece	
Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA310	CA315	CA320	CA410K	CA415K	CA6515	CA6525	Carbide PVD PR005S	PR115S	PR120S	PR1225	PR1535	PR1725	Carbide - SW05	Cermet PVD PV710	PV720	PV730	Cermet - TN610	TN620	Applicable Toolholder Page
Finishing - Medium	Polished / Sharp Edge	VNGG 3305MFP-SK 331MFP-SK	VNGG 160402MFP-SK 160404MFP-SK	1	4	3/8	3/16	0.150	< 0.008 < 1/64									●	●	●	●				●				D34~D44
		VNGG 3305M-SK 331M-SK	VNGG 160402M-SK 160404M-SK	1	4	3/8	3/16	0.150	< 0.008 < 1/64														●	●	●	●	●	●	
Stainless Steel / Heat-Resistant Alloys	Finishing - Medium	VNMG 331MQ 332MQ	VNMG 160404MQ 160408MQ	2	4	3/8	3/16	0.150	1/64 1/32						●	●	●	●	●	●		●							
	Medium - Roughing	VNMG 331MS 332MS 333MS	VNMG 160404MS 160408MS 160412MS	2	4	3/8	3/16	0.150	1/64 1/32 3/64						●	●	●	●	●	●		●							
	Medium - Roughing	VNMG 331MU 332MU	VNMG 160404MU 160408MU	2	4	3/8	3/16	0.150	1/64 1/32						●	●	●	●	●	●		●							
Heat-Resistant Alloys	Roughing	VNMG 331SG 332SG	VNMG 160404SG 160408SG	3	4	3/8	3/16	0.150	1/64 1/32								●	●	●	●	●	●							
Cast Iron	Medium - Roughing	VNMG 332KG 333KG	VNMG 160408KG 160412KG	4	4	3/8	3/16	0.150	1/32 3/64	●	●	●	●	●															
Cast Iron	Roughing	VNMG 332KH 333KH	VNMG 160408KH 160412KH	4	4	3/8	3/16	0.150	1/32 3/64	●	●	●	●	●															

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

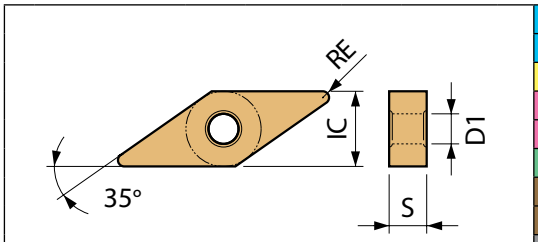


Inserts sold in 10 piece boxes

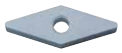
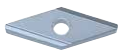
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

35° Diamond

How to read this page See page B15

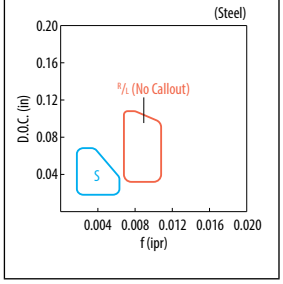


Free-cutting steel		P
Carbon steel / Alloy steel	○ ● ◕ ◔ ◕	P
Stainless Steel	○	M
Gray cast iron	❄ ●	K
Nodular cast iron	○	K
Non-ferrous metals	✖	N
Heat-resistant alloy		S
Titanium alloy	❄	S
Hard materials		H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide PVD PR930	Carbide - KW10	Cermet PVD PV7005	Cermet PVD PV710	Cermet PVD PV720	Cermet PVD PV730	Cermet - TN60	Cermet - TN610	Cermet - TN620	Applicable Toolholder Page
Cast Iron	 Without Chipbreaker	VNGA 331	VNGA 160404	-	4	3/8	3/16	0.150	1/64		●	●							D34~D44
		332	160408						1/32		●	●							
Finishing	Sharp Edge / Surface Finish Oriented	VNGG 3305R-S	VNGG 160402R-S	1	4	3/8	3/16	0.150	0.008						●				
		3305L-S	160402L-S						0.008						●				
		331R-S	160404R-S						1/64						●				
		331L-S	160404L-S						1/64						●				
Medium		VNGG 3305R	VNGG 160402R	1	4	3/8	3/16	0.150	0.008	●			●	●	●	●	●	●	
		3305L	160402L						0.008	●			●	●	●	●	●	●	
		331R	160404R						1/64	●	●		●	●	●	●	●	●	
		331L	160404L						1/64	●	●		●	●	●	●	●	●	
		332R	160408R						1/32	●	●		●	●	●	●	●	●	
		332L	160408L						1/32		●		●	●	●	●	●	●	

Chipbreaker Range

1

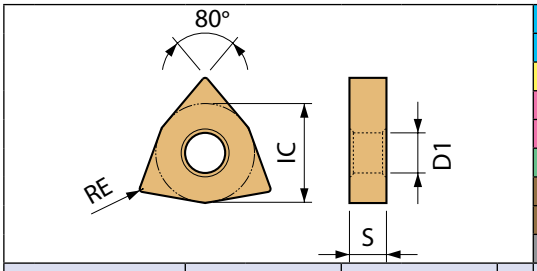


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

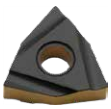
Inserts sold in 10 piece boxes

80° Trigon

How to read this page See page B15

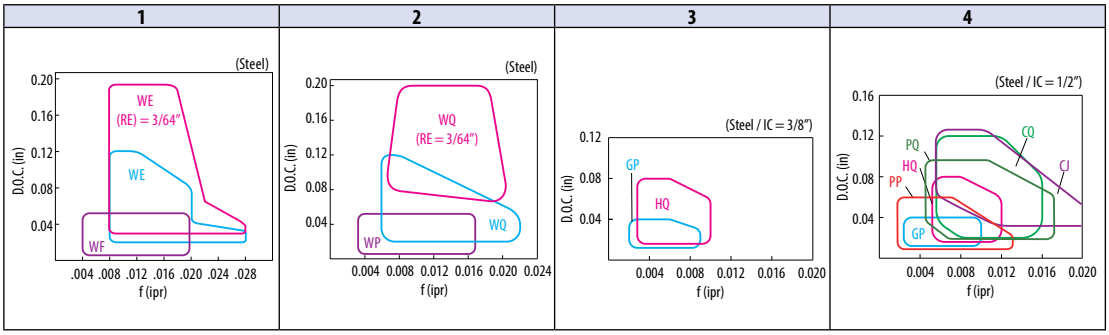


Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	Cermet CVD CCX	PVD PV710	PV720	PV730	- TN60	TN610	TN620	Applicable Toolholder Page
Finishing	With Wiper Edge	WNMG 431WF	WNMG 080404WF	1	6	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●		●	●			●	●	D48~D51 F162 F164 F165
		432WF	080408WF						1/32	●	●	●	●	●	●	●		●	●			●	●	
Finishing	With Wiper Edge	WNMG 431WP	WNMG 080404WP	2	6	1/2	3/16	0.203	1/64		●	●		●				●	●					
		432WP	080408WP						1/32	●	●	●	●	●	●			●	●				●	
Finishing - Medium	With Wiper Edge	WNMG 431WE	WNMG 080404WE	1	6	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●		●	●			●	●	
		432WE	080408WE						1/32	●	●	●	●	●	●	●		●	●			●	●	
		433WE	080412WE						3/64	●	●	●	●	●	●	●		●	●			●	●	
Finishing - Medium	With Wiper Edge	WNMG 431WQ	WNMG 080404WQ	2	6	1/2	3/16	0.203	1/64		●	●						●						
		432WQ	080408WQ						1/32		●	●		●	●	●			●					
		433WQ	080412WQ						3/64		●	●		●	●	●			●					
Finishing		WNMG 4305PP	WNMG 080402PP	4	6	1/2	3/16	0.203	0.008	●	●	●	●	●	●	●	●	●	●			●	●	
		431PP	080404PP						1/64	●	●	●	●	●	●	●	●	●	●			●	●	
		432PP	080408PP						1/32	●	●	●	●	●	●	●	●	●	●			●	●	
		433PP	080412PP						3/64	●	●	●		●	●	●	●	●	●			●	●	
Finishing		WNMG 331GP	WNMG 060404GP	3	6	3/8	3/16	0.150	1/64										●	●	●		●	D50 F162
		332GP	060408GP						1/32										●	●	●		●	
		WNMG 431GP	WNMG 080404GP	4	6	1/2	3/16	0.203	1/64									●	●	●	●	●	●	
		432GP	080408GP						1/32									●	●	●	●	●	●	
Finishing - Medium		WNMG 431PQ	WNMG 080404PQ	4	6	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●	●			●	●	D48~D51 F162 F164 F165
		432PQ	080408PQ						1/32	●	●	●	●	●	●	●	●	●	●			●	●	
		433PQ	080412PQ						3/64	●	●	●	●	●	●	●								
Finishing - Medium		WNMX 431ER	WNMX 080404GER	-	6	1/2	3/16	0.203	1/64			●												
		431EL	080404GEL						1/64			●												
		432ER	080408GER						1/32			●												
		432EL	080408GEL						1/32			●												

See "Precautions when using Wiper inserts" on page R40 and R41 for WF/WE chipbreakers.

Chipbreaker Range

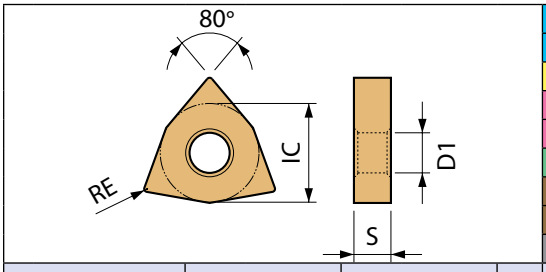


Inserts sold in 10 piece boxes

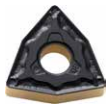
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

80° Trigon

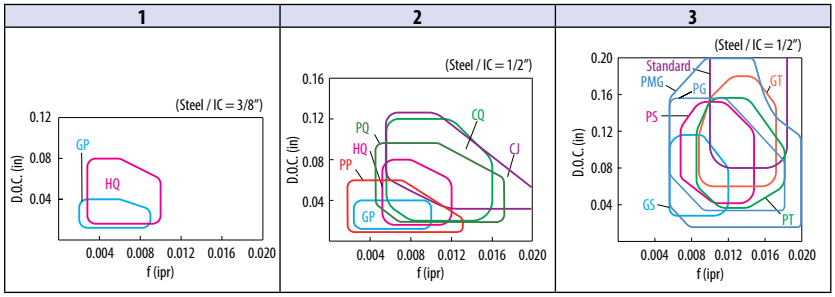
How to read this page See page B15



Workpiece	P	M	K	N	S	H
Free-cutting steel	○					
Carbon steel / Alloy steel	○					
Stainless Steel		●				
Gray cast iron			●			
Nodular cast iron			●			
Non-ferrous metals				●		
Heat-resistant alloy					●	
Titanium alloy					●	
Hard materials						●

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD PR1535	Cermet CVD CCX	Cermet PVD PV710	PV720	PV730	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing - Medium		WNMG 3251HQ 3252HQ	WNMG 06T304HQ 06T308HQ	1	6	3/8	5/32	0.150	1/64 1/32	● ●	● ●	● ●			● ●	● ●						●	●	●		●	-
Finishing - Medium		WNMG 331HQ 332HQ	WNMG 060404HQ 060408HQ	1	6	3/8	3/16	0.150	1/64 1/32	● ●	● ●	● ●	● ●	● ●	● ●	● ●				● ●		●	●	●		●	D50 F162
Finishing - Medium		WNMG 431HQ 432HQ 433HQ	WNMG 080404HQ 080408HQ 080412HQ	2	6	1/2	3/16	0.203	1/64 1/32 3/64	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	
Finishing - Medium	Up Facing	WNMG 431CQ 432CQ 433CQ	WNMG 080404CQ 080408CQ 080412CQ	2	6	1/2	3/16	0.203	1/64 1/32 3/64	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●						●	●	●		●	●	D48~D51 F162 F164 F165
Finishing - Medium	Up Facing	WNMG 432CJ 433CJ	WNMG 080408CJ 080412CJ	2	6	1/2	3/16	0.203	1/32 3/64	● ●	● ●	● ●		● ●	● ●	● ●											
Medium - Roughing		WNMG 431PMG 432PMG 433PMG 434PMG	WNMG 080404PMG 080408PMG 080412PMG 080416PMG	3	6	1/2	3/16	0.203	1/64 1/32 3/64 1/16		● ● ● ●	● ● ● ●														
Medium - Roughing		WNMG 331GS 332GS	WNMG 060404GS 060408GS		6	3/8	3/16	0.150	1/64 1/32	● ●	● ●	● ●		● ●	● ●	● ●						●	●	●		●	D50 F162
Medium - Roughing		WNMG 431GS 432GS 433GS	WNMG 080404GS 080408GS 080412GS	3	6	1/2	3/16	0.203	1/64 1/32 3/64	●			● ●	● ●	● ●	● ●						●	●		●	●	
Medium - Roughing		WNMG 431PG 432PG 433PG 434PG	WNMG 080404PG 080408PG 080412PG 080416PG	3	6	1/2	3/16	0.203	1/64 1/32 3/64 1/16	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●			● ● ●		●	● ● ●	● ● ●		●	● ● ●	
Medium - Roughing		WNMG 431PS 432PS 433PS 434PS	WNMG 080404PS 080408PS 080412PS 080416PS	3	6	1/2	3/16	0.203	1/64 1/32 3/64 1/16	● ●			● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ●	● ● ●			●	● ● ●		●	● ● ●	D48~D51 F162 F164 F165
Medium - Roughing	High feed	WNMG 432PT 433PT	WNMG 080408PT 080412PT	3	6	1/2	3/16	0.203	1/32 3/64	● ●			● ●	● ●	● ●	● ●	● ●	● ●									

Chipbreaker Range

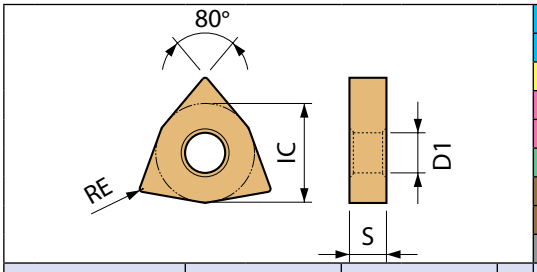


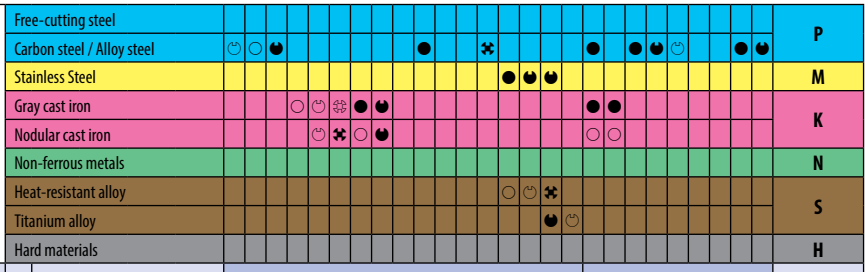
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

80° Trigon

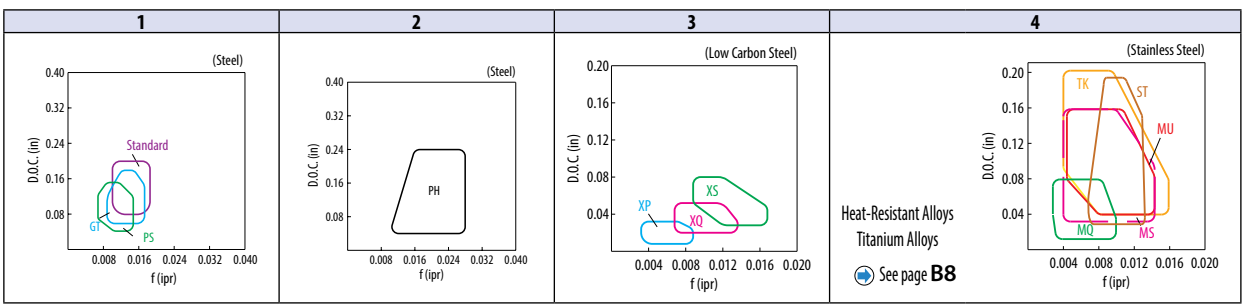
How to read this page See page B15





Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA410K	CA415K	CA4515	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD PR1535	Carbide - SW05	Cermet CVD CCX	Cermet PVD PV7005	PV710	PV720	PV730	PV90	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Medium - Roughing	High Feed	WNMG 432GT	WNMG 080408GT	1	6	1/2	3/16	0.203	1/32	●									●	●	●	●														D48~D51 F162 F164 F165
		433GT	080412GT						3/64	●									●	●	●	●													
Roughing		WNMG 431	WNMG 080404	1	6	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●		●	●			●	●				●	●	●		●	●	●	
		432	080408						1/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	
		433	080412						3/64	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●										
Roughing		WNMG 432PH	WNMG 080408PH	2	6	1/2	3/16	0.203	1/32	●	●	●	●	●	●			●	●	●	●	●													
		433PH	080412PH						3/64	●	●	●	●	●	●			●	●	●	●	●													
Low Carbon Steel	Finishing	WNMG 431XP	WNMG 080404XP	3	6	1/2	3/16	0.203	1/64	●	●	●							●	●	●					●			●	●	●		●	●	●	
		432XP	080408XP						1/32	●	●	●							●	●	●					●			●	●	●		●	●	●	
Low Carbon Steel	Medium	WNMG 431XQ	WNMG 080404XQ	3	6	1/2	3/16	0.203	1/64	●	●	●								●	●	●				●			●	●	●		●	●	●	
		432XQ	080408XQ						1/32	●	●	●								●	●	●				●			●	●	●		●	●	●	
Low Carbon Steel	Roughing	WNMG 432XS	WNMG 080408XS	3	6	1/2	3/16	0.203	1/32	●	●	●								●	●	●								●	●	△			●	
Stainless Steel / Heat-Resistant Alloys	Medium - Roughing / Sharp Edge	WNGG 431TK	WNGG 080404TK	4	6	1/2	3/16	0.203	1/64																●										
		432TK	080408TK						1/32																●										
	Medium - Roughing	WNMG 431TK	WNMG 080404TK	4	6	1/2	3/16	0.203	1/64													●	●	●											
		432TK	080408TK						1/32													●	●	●											

Chipbreaker Range

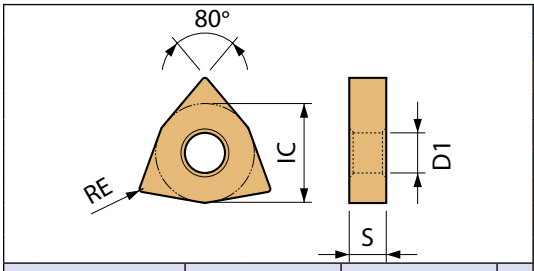


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

80° Trigon

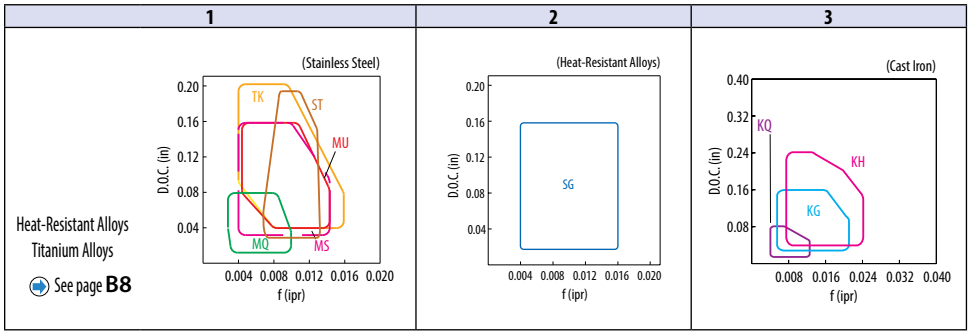
How to read this page See page B15



Free-cutting steel															P
Carbon steel / Alloy steel															P
Stainless Steel						●	◒		○	◔	◒				M
Gray cast iron	○	◔	❀	●	◒										K
Nodular cast iron		◔	✖	○	◒										K
Non-ferrous metals															N
Heat-resistant alloy						○	◔	●	○	◒	✖				S
Titanium alloy											◒	◔			S
Hard materials															H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA310	CA315	CA320	CA410K	CA415K	CA6515	CA6525	PVD PR005S	PR115S	PR120S	PR1535	- SW05	Applicable Toolholder Page
Stainless Steel / Heat-Resistant Alloys	Finishing - Medium	WNMG 431MQ	WNMG 080404MQ	1	6	1/2	3/16	0.203	1/64						●	●	●	●	●	●	●	D48~D51 F162 F164 F165
		432MQ	080408MQ						1/32						●	●	●	●	●	●	●	
	Medium - Roughing	WNMG 431MS	WNMG 080404MS	1	6	1/2	3/16	0.203	1/64						●	●	●	●	●	●	●	
		432MS	080408MS						1/32						●	●	●	●	●	●	●	
		433MS	080412MS						3/64						●	●	●	●	●	●		
	Medium - Roughing	WNMG 431MU	WNMG 080404MU	1	6	1/2	3/16	0.203	1/64						●	●	●	●	●	●	●	
		432MU	080408MU						1/32						●	●	●	●	●	●	●	
Heat-Resistant Alloys	Roughing	WNMG 432SG	WNMG 080408SG	2	6	1/2	3/16	0.203	1/32								●	●	●	●	●	
		433SG	080412SG						3/64								●	●	●	●	●	
Cast Iron	Sharp Cutting Oriented	WNMG 431KQ	WNMG 080404KQ	3	6	1/2	3/16	0.203	1/64	●	●	●	●	●								
		432KQ	080408KQ						1/32	●	●	●	●	●								
		433KQ	080412KQ						3/64	●	●	●	●	●								
Cast Iron	Medium - Roughing	WNMG 431KG	WNMG 080404KG	3	6	1/2	3/16	0.203	1/64	●	●	●	●	●								
		432KG	080408KG						1/32	●	●	●	●	●								
		433KG	080412KG						3/64	●	●	●	●	●								
Cast Iron	Roughing	WNMG 432KH	WNMG 080408KH	3	6	1/2	3/16	0.203	1/32	●	●	●	●	●								
		433KH	080412KH						3/64	●	●	●	●	●								
		434KH	080416KH						1/16	●	●	●	●	●								

Chipbreaker Range

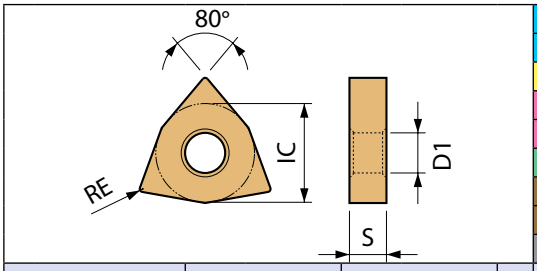


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

80° Trigon

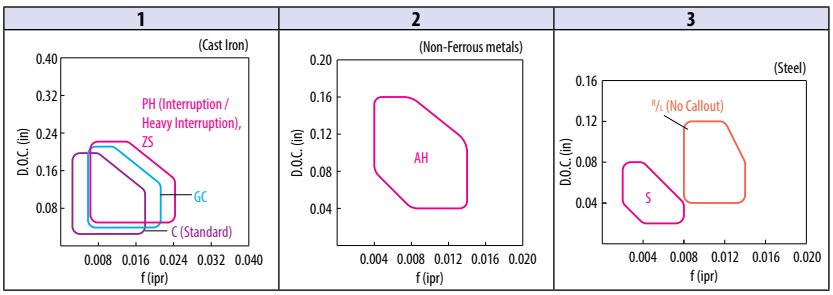
How to read this page See page B15



Free-cutting steel																										P
Carbon steel / Alloy steel																										P
Stainless Steel																										M
Gray cast iron	○	◔	❁	●	◕									❁	●											K
Nodular cast iron		◔	✖	○	◕										○											K
Non-ferrous metals											●	◕	✖													N
Heat-resistant alloy																										S
Titanium alloy														❁												S
Hard materials																										H

	Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA310	CA315	CA320	CA410K	CA415K	CA4515	DLC PDL010	PDL025	- KW10	Cermet CVD CCX	- TN60	Applicable Toolholder Page
Cast Iron	Roughing	WNMG 431C	WNMG 080404C	1	6	1/2	3/16	0.203	1/64	●	●	●			●						D48~D51 F162 F164 F165
		432C	080408C						1/32	●	●	●			●						
		433C	080412C						3/64	●	●	●			●						
Cast Iron	Roughing	WNMG 432ZS	WNMG 080408ZS	1	6	1/2	3/16	0.203	1/32	●	●	●	●	●	●						
		433ZS	080412ZS						3/64	●	●	●	●	●	●						
Cast Iron	Roughing	WNMG 432GC	WNMG 080408GC	1	6	1/2	3/16	0.203	1/32	●	●	●			●						
		433GC	080412GC						3/64	●	●	●			●						
Cast Iron	Without Chipbreaker	WNMA 432	WNMA 080408	-	6	1/2	3/16	0.203	1/32	●	●	●	●	●	●				●		
		433	080412						3/64	●	●	●	●	●	●						
Non-Ferrous Metals	Medium - Roughing / Sharp Edge	WNGG 431AH	WNGG 080404AH	2	6	1/2	3/16	0.203	1/64							●	●	●			
		432AH	080408AH						1/32							●	●	●			
Finishing	Sharp Edge / Surface Finish Oriented	WNGG 3305R-S	WNGG 060402R-S	3	6	3/8	3/16	0.150	0.008									●		●	D50 F162
		3305L-S	060402L-S						0.008									●		●	
		331R-S	060404R-S						1/64									●		●	
		331L-S	060404L-S						1/64									●		●	
		332R-S	060408R-S						1/32											●	
Medium		WNGG 331R	WNGG 060404R	3	6	3/8	3/16	0.150	1/64									●		●	
		331L	060404L						1/64									●		●	

Chipbreaker Range

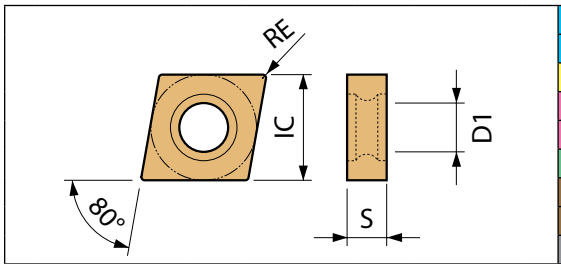


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Small Double-Sided / 80° Diamond

How to read this page See page B15



Free-cutting steel		P
Carbon steel / Alloy steel		P
Stainless Steel		M
Gray cast iron		K
Nodular cast iron		K
Non-ferrous metals		N
Heat-resistant alloy		S
Titanium alloy		S
Hard materials		H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide PVD PR1225	PR1535	PR1705	PR1725	Applicable Toolholder Page
Finishing - Medium	Polished / Sharp Edge	CNGU 24202MFP-SK	CNGU 070301MFP-SK	1	4	0.295	1/8	0.124	< 0.004	●	●		●	E64
		24205MFP-SK	070302MFP-SK						< 0.008	●	●		●	
Medium - Roughing	Honed Edge	CNMU 24205E-GK	CNMU 070302E-GK	1	4	0.295	1/8	0.124	0.008	●	●		●	
		2421E-GK	070304E-GK						1/64	●	●		●	
Finishing	Sharp Edge	CNGU 242013MFR-F	CNGU 0703005MFR-F	1	4	0.295	1/8	0.124	< 0.002	△		●		
		24202MFR-F	070301MFR-F						< 0.004		●	●	●	
		24205MFR-F	070302MFR-F						< 0.008	●	●	●	●	
		2421MFR-F	070304MFR-F						< 1/64		●	●	●	
Low Feed	Sharp Edge	CNGU 242013MFR-U	CNGU 0703005MFR-U	1	4	0.295	1/8	0.124	< 0.002	●		●		
		24202MFR-U	070301MFR-U						< 0.004	●	●	●	●	
		24205MFR-U	070302MFR-U						< 0.008	●	●	●	●	
		2421MFR-U	070304MFR-U						< 1/64		●	●	●	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Small Double-Sided Tools Identification System

CNGU24202M F P - SK

- Minus Tolerance on Corner-R(RE)
- Sharp Edge
- Polished
- Chipbreakers

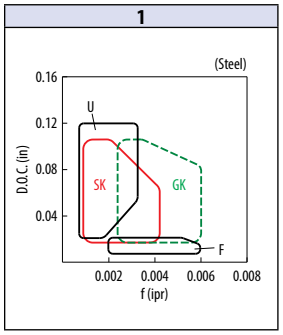
CNGU24202M F R - U

- Minus Tolerance on Corner-R(RE)
- Sharp Edge
- Insert Hand
- Chipbreakers

DNGU22202M E R - U

- Minus Tolerance on Corner-R(RE)
- Honed Edge
- Insert Hand
- Chipbreakers

Chipbreaker Range



When a minus tolerance is specified for the corner-R(RE)

If a minus tolerance is specified for the corner-R(RE) as shown in the Fig.1, using an insert with corner-R(RE) = 0.008" may result in larger radius than specified.
Use an insert with corner-R(RE) that has a minus tolerance.

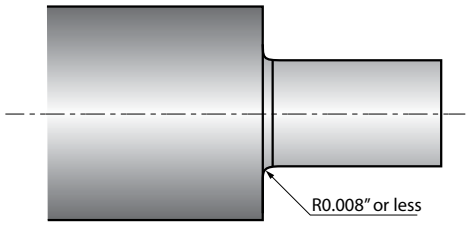


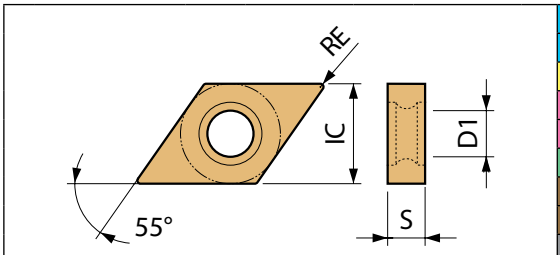
Fig.1 Example of a specified corner-R in drawing

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

Small Double-Sided / 55° Diamond

How to read this page See page B15

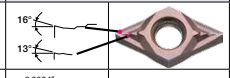
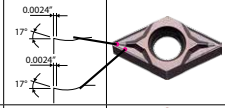
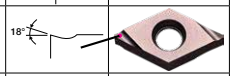
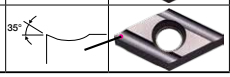


Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

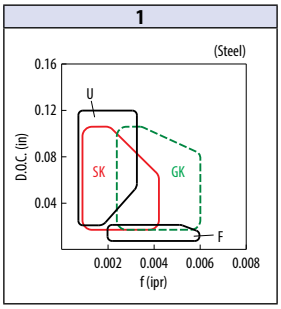
Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide PVD PR1225	PR1535	PR1705	PR1725	Applicable Toolholder Page
Finishing - Medium, Polished / Sharp Edge	DNGU 22202MFP-SK	DNGU 080301MFP-SK	1	4	0.276	1/8	0.142	< 0.004	●	●		●	E65
	22205MFP-SK	080302MFP-SK						< 0.008	●	●		●	
	2221MFP-SK	080304MFP-SK						< 1/64	●	●		●	
Medium - Roughing, Honed Edge	DNMU 22205E-GK	DNMU 080302E-GK	1	4	0.276	1/8	0.142	0.008	●	●		●	
	2221E-GK	080304E-GK						1/64	●	●		●	
Finishing, Sharp Edge	DNGU 22202MFR-F	DNGU 080301MFR-F	1	4	0.276	1/8	0.142	< 0.004		●		●	
	22205MFR-F	080302MFR-F						< 0.008	●	●	●	●	
	2221MFR-F	080304MFR-F						< 1/64		●		●	
Low Feed, Sharp Edge	DNGU 22202MFR-U	DNGU 080301MFR-U	1	4	0.276	1/8	0.142	< 0.004		●	●	●	
	22205MFR-U	080302MFR-U						< 0.008	●	●	●	●	
	2221MFR-U	080304MFR-U						< 1/64	●	●		●	
Low Feed, Honed Edge	DNGU 22202MER-U	DNGU 080301MER-U	1	4	0.276	1/8	0.142	< 0.004			●	●	
	22205MER-U	080302MER-U						< 0.008			●	●	
	2221MER-U	080304MER-U						< 1/64			●	●	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Selection (Negative Inserts)

Cutting Range	Name	Cross-Section	Advantages
Finishing - Medium	SK		A low cutting force chipbreaker designed for chip control in steel and stainless steel. Cutting performance is similar to comparably sized positive inserts.
Medium - Roughing	GK		Chipbreaker "dot" and pocket design provide chip control at multiple depths of cut and feed rates.
Finishing	F		Controlled chip evacuation direction with low cutting forces.
Low Feed	U		Good chip control at low feed rates and varied depths of cut with low cutting forces.

Chipbreaker Range

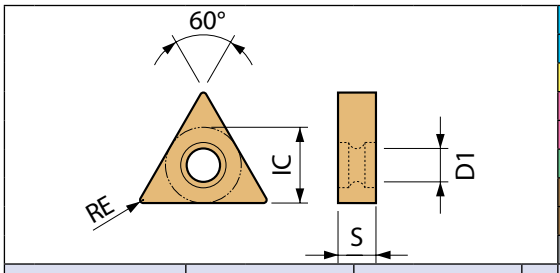


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Small Double-Sided / 60° Triangle

How to read this page See page B15



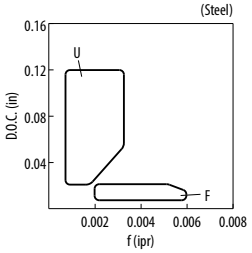
Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide PVD PR1225	PR1535	PR1705	PR1725	Applicable Toolholder Page
Finishing	Sharp Edge	TNGU 182013MFR-F	TNGU 0903005MFR-F	1	6	7/32	1/8	0.118	< 0.002	●				E66
		18202MFR-F	090301MFR-F						< 0.004	●	●	●	●	
		18205MFR-F	090302MFR-F						< 0.008	●	●	●	●	
		1821MFR-F	090304MFR-F						< 1/64	●	●	●	●	
Low Feed	Sharp Edge	TNGU 18202MFR-U	TNGU 090301MFR-U	1	6	7/32	1/8	0.118	< 0.004		●		●	
		18205MFR-U	090302MFR-U						< 0.008	●	●	●	●	
		1821MFR-U	090304MFR-U						< 1/64	●	●	●	●	
Low Feed	Honed Edge	TNGU 1821MER-U	TNGU 090304MER-U	1	6	7/32	1/8	0.118	< 1/64			●	●	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

1

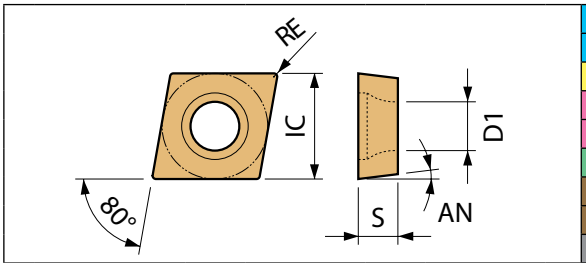


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

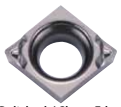
Inserts sold in 10 piece boxes

80° Diamond

How to read this page See page B15

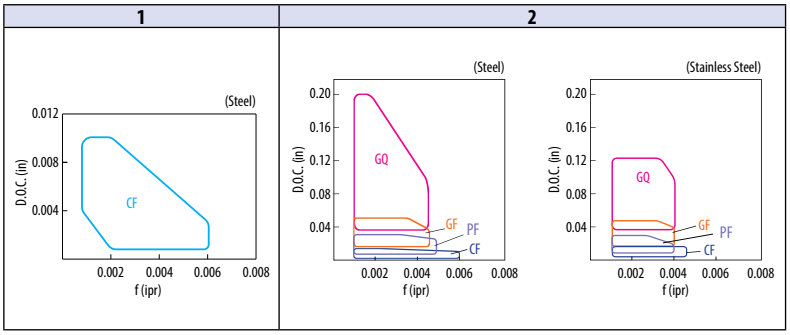


Free-cutting steel	●	P
Carbon steel / Alloy steel	○ ●	P
Stainless Steel	○ ● ○	M
Gray cast iron	●	K
Nodular cast iron	●	K
Non-ferrous metals	● ●	N
Heat-resistant alloy	✕	S
Titanium alloy	●	S
Hard materials		H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide DLC PDL010	DLC PDL025	PVD PR1225	PVD PR1535	PVD PR1705	PVD PR1725	Applicable Toolholder Page
Minute D.O.C.	Polished / Sharp Edge	CCGT 110902MP-CF	CCGT 030101MP-CF	1	2	0.138	0.055	0.079	< 0.004	7	●	●	●	●	●	●	F33~F34 F62, F64 F66
		110905MP-CF	030102MP-CF						< 0.008		●	●	●	●	●	●	
		CCGT 141102MP-CF	CCGT 040101MP-CF	1	2	0.169	0.071	0.094	< 0.004	7	●	●	●	●	●	●	F33~F34 F62, F64
		141105MP-CF	040102MP-CF						< 0.008		●	●	●	●	●	●	
Finishing	 Polished / Sharp Edge	CCGT 110902MFP-PF	CCGT 030101MFP-PF	2	2	0.138	0.055	0.079	< 0.004	7				●		●	F33~F34 F62, F64 F66
		110905MFP-PF	030102MFP-PF						< 0.008					●		●	
		CCGT 141102MFP-PF	CCGT 040101MFP-PF	2	2	0.169	0.071	0.094	< 0.004	7				●		●	F33~F34 F62, F64
		141105MFP-PF	040102MFP-PF						< 0.008					●		●	
		CCGT 21502MFP-PF	CCGT 060201MFP-PF						< 0.004					●		●	E26~E27 E58, E72 F33~F34 F64 F67~F68 F134
		21505MFP-PF	060202MFP-PF	2	2	1/4	3/32	0.118	< 0.008	7				●		●	
		2151MFP-PF	060204MFP-PF						< 1/64					●		●	
Finishing	Polished / Sharp Edge	CCGT 21502MFP-GF	CCGT 060201MFP-GF						< 0.004				●	●	●	●	
		21505MFP-GF	060202MFP-GF	2	2	1/4	3/32	0.118	< 0.008	7			●	●	●	●	
		2151MFP-GF	060204MFP-GF						< 1/64				●	●	●	●	
		CCGT 32502MFP-GF	CCGT 09T301MFP-GF						< 0.004				●	●	●	●	E26~E29 E58, E72 F62~F64 F134
		32505MFP-GF	09T302MFP-GF	2	2	3/8	5/32	0.185	< 0.008	7			●	●	●	●	
		3251MFP-GF	09T304MFP-GF						< 1/64				●	●	●	●	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

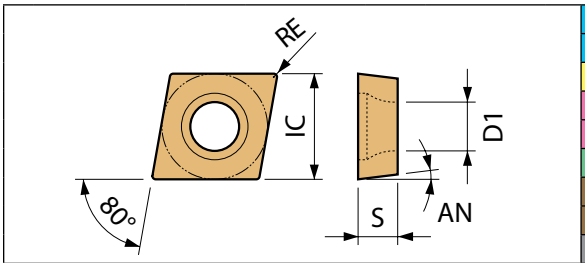


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

80° Diamond

How to read this page See page B15

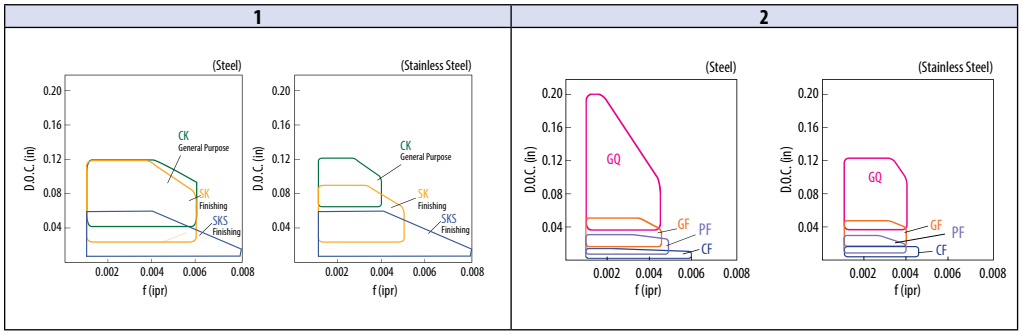


Free-cutting steel		P
Carbon steel / Alloy steel		P
Stainless Steel		M
Gray cast iron		K
Nodular cast iron		K
Non-ferrous metals		N
Heat-resistant alloy		S
Titanium alloy		S
Hard materials		H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide DLC PD1010	DLC PD1025	PVD PR115S	PVD PR120S	PVD PR122S	PVD PR153S	PVD PR170S	PVD PR172S	Cermet PVD PV730	Applicable Toolholder Page
Finishing	Polished / Sharp Edge	CCGT 215013MFP-SKS	CCGT 0602005MFP-SKS	1	2	1/4	3/32	0.118	< 0.002	7			●	●		●	●	●	●	E26~E27 E58, E72 F33~F34 F64, F67~F68 F134
		21502MFP-SKS	060201MFP-SKS						< 0.004				●	●		●	●	●	●	
		21505MFP-SKS	060202MFP-SKS						< 0.008				●	●		●	●	●	●	
		CCGT 325013MFP-SKS	CCGT 09T3005MFP-SKS	1	2	3/8	5/32	0.185	< 0.002	7			●	●		●	●	●	●	E26~E29 E58, E72 F62~F64 F134
		32502MFP-SKS	09T301MFP-SKS						< 0.004				●	●		●	●	●	●	
		32505MFP-SKS	09T302MFP-SKS						< 0.008				●	●		●	●	●	●	
		3251MFP-SKS	09T304MFP-SKS						< 1/64				●	●		●	●	●	●	
Finishing	Polished / Sharp Edge	CCGT 21502MFP-SK	CCGT 060201MFP-SK	1	2	1/4	3/32	0.118	< 0.004	7	●	●	●	●	●	●	●	●	●	E26~E27 E58, E72 F33~F34 F64, F67~F68 F134
		21505MFP-SK	060202MFP-SK						< 0.008		●	●	●	●	●	●	●	●	●	
		2151MFP-SK	060204MFP-SK						< 1/64		●	●	●	●	●	●	●	●	●	
		CCGT 32502MFP-SK	CCGT 09T301MFP-SK	1	2	3/8	5/32	0.185	< 0.004	7	●	●	●	●	●	●	●	●	●	E26~E29 E58, E72 F62~F64 F134
		32505MFP-SK	09T302MFP-SK						< 0.008		●	●	●	●	●	●	●	●	●	
		3251MFP-SK	09T304MFP-SK						< 1/64		●	●	●	●	●	●	●	●	●	
Finishing	Polished / Sharp Edge	CCGT 21502MP-CK	CCGT 060201MP-CK	1	2	1/4	3/32	0.118	< 0.004	7	●	●			●	●		●		E26~E27 E58, E72 F33~F34 F64, F67~F68 F134
		21505MP-CK	060202MP-CK						< 0.008		●	●			●	●		●		
		CCGT 32502MP-CK	CCGT 09T301MP-CK	1	2	3/8	5/32	0.185	< 0.004	7	●	●			●	●		●		E26~E29 E58, E72 F62~F64 F134
		32505MP-CK	09T302MP-CK						< 0.008		●	●			●	●		●		
Finishing - Medium	Polished / Sharp Edge	CCGT 21502MFP-GQ	CCGT 060201MFP-GQ	2	2	1/4	3/32	0.118	< 0.004	7			●	●	●	●	●	●		E26~E27 E58, E72 F33~F34 F64, F67~F68 F134
		21505MFP-GQ	060202MFP-GQ						< 0.008				●	●	●	●	●	●		
		2151MFP-GQ	060204MFP-GQ						< 1/64				●	●	●	●	●	●		
		CCGT 32502MFP-GQ	CCGT 09T301MFP-GQ	2	2	3/8	5/32	0.185	< 0.004	7			●	●	●	●	●	●		E26~E29 E58, E72 F62~F64 F134
		32505MFP-GQ	09T302MFP-GQ						< 0.008				●	●	●	●	●	●		
		3251MFP-GQ	09T304MFP-GQ						< 1/64				●	●	●	●	●	●		

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

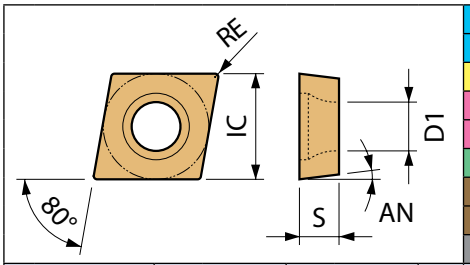


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

80° Diamond

How to read this page See page B15



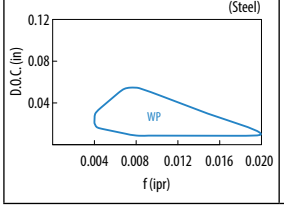
Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA410K	CA415K	CA4515	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD PR1225	PR1535	PR1705	PR1725	PR930	Cermet CVD CCX	Cermet PVD PV7005	PV710	PV720	PV730	PV90	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing	With Wiper Edge	CCMT 21505WP	CCMT 060202WP	1	2	1/4	3/32	0.118	0.008	7	●	●	●							●	●	●	●			●			●			●	●				●	●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134
		2151WP	060204WP						1/64		●	●	●							●	●	●	●			●			●			●	●				●	●	
		2152WP	060208WP						1/32		●	●	●							●	●	●	●			●			●			●	●				●	●	
		CCMT 32505WP	CCMT 09T302WP	1	2	3/8	5/32	0.185	0.008	7	●	●	●							●	●	●	●			●			●			●	●				●	●	E26~E29 E58, E72 F62~F64 F134
		3251WP	09T304WP						1/64		●	●	●							●	●	●	●			●			●			●	●				●	●	
		3252WP	09T308WP						1/32		●	●	●							●	●	●	●			●			●			●	●				●	●	
Finishing		CCMT 21505PP	CCMT 060202PP	2	2	1/4	3/32	0.118	0.008	7	●	●	●							●	●	●				●	●		●		●	●	●				●	●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134
		2151PP	060204PP						1/64		●	●	●							●	●	●				●	●		●		●	●	●				●	●	
		CCMT 32505PP	CCMT 09T302PP	2	2	3/8	5/32	0.185	0.008	7	●	●	●							●	●					●	●		●		●	●	●				●	●	E26~E29 E58, E72 F62~F64 F134
		3251PP	09T304PP						1/64		●	●	●							●	●	●	●			●	●		●		●	●	●				●	●	
		3252PP	09T308PP						1/32		●	●	●							●	●	●	●			●	●		●		●	●	●				●	●	
Finishing - Medium		CCMT 21505GK	CCMT 060202GK	2	2	1/4	3/32	0.110	0.008	7	●	●	●							●	●	●	●	●	●	●	●		●	●	●	●	●				●	●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134
		2151GK	060204GK						1/64		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●				●	●	
		CCMT 32505GK	CCMT 09T302GK	2	2	3/8	5/32	0.173	0.008	7	●	●	●							●	●	●	●	●	●	●	●		●	●	●	●	●				●	●	E26~E29 E58, E72 F62~F64 F134
		3251GK	09T304GK						1/64		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●				●	●	
		CCMT 431GK	CCMT 120404GK	2	2	1/2	3/16	0.217	1/64	7	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●				●	●	E29
		432GK	120408GK						1/32		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●				●	●	
		433GK	120412GK						3/64		●	●	●							●	●	●				●	●		●		●	●	●				●	●	
Finishing - Medium		CCMT 21505HQ	CCMT 060202HQ	2	2	1/4	3/32	0.110	0.008	7	●	●	●							●	●	●	●	●	●	●	●		●	●	●	●	●				●	●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134
		2151HQ	060204HQ						1/64		●	●	●							●	●	●	●	●	●	●	●		●	●	●	●	●				●	●	
		CCMT 32505HQ	CCMT 09T302HQ	2	2	3/8	5/32	0.173	0.008	7	●	●	●							●	●	●	●	●	●	●	●		●	●	●	●	●				●	●	E26~E29 E58, E72 F62~F64 F134
		3251HQ	09T304HQ						1/64		●	●	●							●	●	●	●	●	●	●	●		●	●	●	●	●				●	●	
		3252HQ	09T308HQ						1/32		●	●	●							●	●	●	●	●	●	●	●		●	●	●	●	●				●	●	
Medium		CCGT 21502	CCGT 060201	2	2	1/4	3/32	0.110	0.004	7																			●			●	●	●			●	●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134
		21505	060202						0.008																			●			●	●	●			●	●	
		2151	060204						1/64																			●			●	●	●			●	●	
		CCGT 32502	CCGT 09T301	2	2	3/8	5/32	0.173	0.004	7																			●			●	●	●			●	●	E26~E29 E58, E72 F62~F64 F134
		32505	09T302						0.008																			●			●	●	●			●	●	
		3251	09T304						1/64																			●			●	●	●			●	●	
		CCMT 3252	CCMT 09T308	2	2	3/8	5/32	0.173	1/32	7	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●				●	●	

See "Precautions when using Wiper inserts" on page R42 and R43 for WP chipbreaker.

Chipbreaker Range

1



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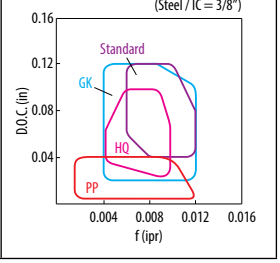
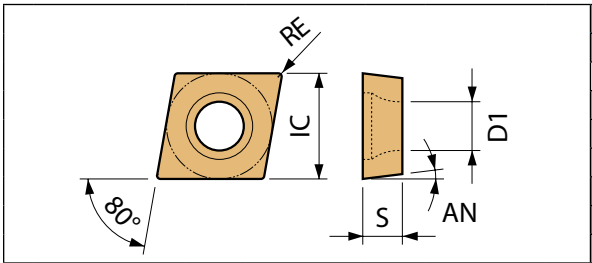


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

80° Diamond

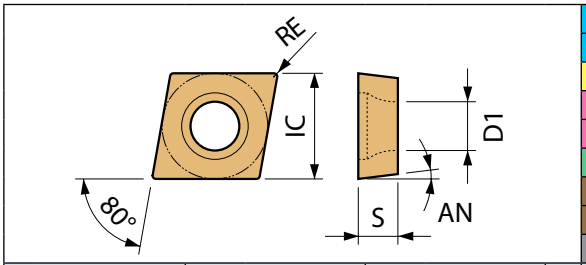
How to read this page See page B15



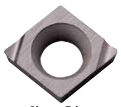
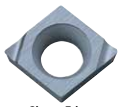
| | | |

80° Diamond

How to read this page See page B15

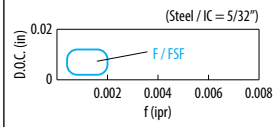
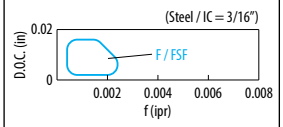


Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide DLC PDL010	DLC PDL025	PVD PR1225	PVD PR1535	PVD PR1705	PVD PR1725	- PR930	- KW10	Cermet PVD PV710	PVD PV720	PVD PV730	- TN60	- TN610	- TN620	Applicable Toolholder Page
Finishing	 Sharp Edge	CCET 1109013MR-F	CCET 0301005MR-F	1	2	0.138	0.055	0.075	< 0.002	7			●		●										F33~F34 F62, F64 F66
		1109013ML-F	0301005ML-F						< 0.002			●	●		●									
		110902MR-F	030101MR-F						< 0.004				●		●				●			●		
		110902ML-F	030101ML-F						< 0.004	●	●		●		●				●	●		●	●	
		110905MR-F	030102MR-F						< 0.008				●		●				●			●		
		110905ML-F	030102ML-F						< 0.008	●	●		●	●	●				●	●		●	●	
		11091MR-F	030104MR-F						< 1/64				●		●				●			●		
		11091ML-F	030104ML-F						< 1/64	●	●		●	●	●				●	●		●	●	
		CCET 141102MR-F	CCET 040101MR-F	2	2	0.169	0.071	0.091	< 0.004	7			●		●				●			●		F33~F34 F62, F64
		141102ML-F	040101ML-F						< 0.004	●	●		●		●				●	●		●	●	
		141105MR-F	040102MR-F						< 0.008				●	●	●				●			●		
		141105ML-F	040102ML-F						< 0.008	●	●		●	●	●				●	●		●	●	
		14111MR-F	040104MR-F						< 1/64				●		●				●			●		
		14111ML-F	040104ML-F						< 1/64	●	●		●	●	●				●	●		●	●	
Finishing	 Sharp Edge	CCGT 110901L-F	CCGT 0301003L-F	1	2	0.138	0.055	0.075	0.001	7						●								F33~F34 F62, F64 F66
		110902R-F	030101R-F						0.004							●	●							
		110902L-F	030101L-F						0.004							●	●				●			
		110905R-F	030102R-F						0.008							●	●				●			
		110905L-F	030102L-F						0.008							●	●				●			
		11091R-F	030104R-F						1/64							●	●				●			
		11091L-F	030104L-F						1/64							●	●				●			
		CCGT 141101L-F	CCGT 0401003L-F	2	2	0.169	0.071	0.091	0.001	7						●								F33~F34 F62, F64
		141102R-F	040101R-F						0.004							●	●							
		141102L-F	040101L-F						0.004							●	●				●			
		141105R-F	040102R-F						0.008							●	●				●			
		141105L-F	040102L-F						0.008							●	●				●			
		14111R-F	040104R-F						1/64							●	●				●			
		14111L-F	040104L-F						1/64							●	●				●			
		CCGT 1109013ML-F	CCGT 0301005ML-F	1	2	0.138	0.055	0.075	< 0.002	7			●											F33~F34 F62, F64 F66
		110902MR-F	030101MR-F						< 0.004				●											
		110902ML-F	030101ML-F						< 0.004				●											
		110905MR-F	030102MR-F						< 0.008				●											
		110905ML-F	030102ML-F						< 0.008				●											
		11091MR-F	030104MR-F						< 1/64				●											
		11091ML-F	030104ML-F						< 1/64				●											
		CCGT 1411013ML-F	CCGT 0401005ML-F	2	2	0.169	0.071	0.091	< 0.002	7			●											F33~F34 F62, F64
		141102ML-F	040101ML-F						< 0.004				●											
		141105MR-F	040102MR-F						< 0.008				●											
		141105ML-F	040102ML-F						< 0.008				●											
		14111MR-F	040104MR-F						< 1/64				●											
		14111ML-F	040104ML-F						< 1/64				●											

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

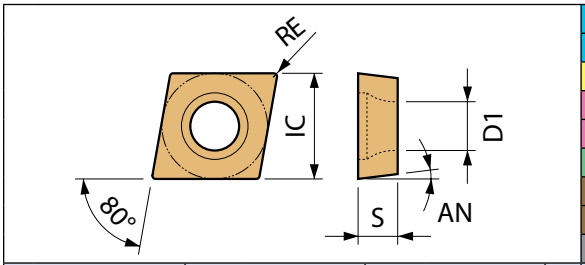
1	2
	

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

80° Diamond

How to read this page See page B15



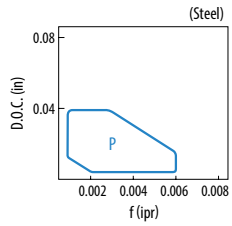
Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide DLC PDL010	DLC PDL025	PVD PR1225	PVD PR1535	PVD PR1705	PVD PR1725	PVD PR930	Cermet PVD PV710	PVD PV720	PVD PV730	- TN60	- TN610	- TN620	Applicable Toolholder Page
Finishing	Sharp Edge	CCET 32502MR-P	CCET 09T301MR-P	1	2	3/8	5/32	0.173	< 0.004	7			●			●								E26~E29 E58, E72 F62~F64 F134
		32502ML-P	09T301ML-P						< 0.004				●			●								
		32505MR-P	09T302MR-P						< 0.008				●			●								
		32505ML-P	09T302ML-P						< 0.008				●			●								
		3251MR-P	09T304MR-P						< 1/64				●			●								
		3251ML-P	09T304ML-P						< 1/64				●			●								
Low Feed	Precision / Sharp Edge	CCET 21501FR-USF	CCET 0602003FR-USF	2	2	1/4	3/32	0.110	0.001	7							●							E26~E27 E58, E72 F33~F34 F64, F67~F68 F134
		21501FL-USF	0602003FL-USF						0.001								●							
		21502FR-USF	060201FR-USF						0.004								●				●			
		21502FL-USF	060201FL-USF						0.004								●							
		21505FR-USF	060202FR-USF						0.008								●				●			
		21505FL-USF	060202FL-USF						0.008								●				●			
		CCET 32501FR-USF	CCET 09T3003FR-USF	3	2	3/8	5/32	0.173	0.001	7							●				●			E26~E29 E58, E72 F62~F64 F134
		32501FL-USF	09T3003FL-USF						0.001								●							
		32502FR-USF	09T301FR-USF						0.004								●				●			
		32502FL-USF	09T301FL-USF						0.004								●							
		32505FR-USF	09T302FR-USF						0.008								●				●			
		32505FL-USF	09T302FL-USF						0.008								●				●			
		CCET 215013MFR-USF	CCET 0602005MFR-USF	2	2	1/4	3/32	0.110	< 0.002	7			●											E26~E27 E58, E72 F33~F34 F64, F67~F68 F134
		215013MFL-USF	0602005MFL-USF						< 0.002				●											
		21502MFR-USF	060201MFR-USF						< 0.004				●											
		21502MFL-USF	060201MFL-USF						< 0.004				●											
		21505MFR-USF	060202MFR-USF						< 0.008				●											
		21505MFL-USF	060202MFL-USF						< 0.008				●											
		CCET 325013MFR-USF	CCET 09T3005MFR-USF	3	2	3/8	5/32	0.173	< 0.002	7			●											E26~E29 E58, E72 F62~F64 F134
		325013MFL-USF	09T3005MFL-USF						< 0.002				●											
		32502MFR-USF	09T301MFR-USF						< 0.004				●											
		32502MFL-USF	09T301MFL-USF						< 0.004				●											
		32505MFR-USF	09T302MFR-USF						< 0.008				●											
		32505MFL-USF	09T302MFL-USF						< 0.008				●											
Low Feed	Sharp Edge	CCET 215013MFR-U	CCET 0602005MFR-U	2	2	1/4	3/32	0.110	< 0.002	7		●		●	●									E26~E27 E58, E72 F33~F34 F64, F67~F68 F134
		215013MFL-U	0602005MFL-U						< 0.002			●		●										
		21502MFR-U	060201MFR-U						< 0.004		●	●		●	●			●	●	●		●	●		
		21502MFL-U	060201MFL-U						< 0.004		●	●		●				●	●	●		●	●		
		21505MFR-U	060202MFR-U						< 0.008		●	●		●	●	●		●	●	●		●	●		
		21505MFL-U	060202MFL-U						< 0.008		●	●		●	●	●		●	●	●		●	●		
		CCET 325013MFL-U	CCET 09T3005MFL-U	3	2	3/8	5/32	0.173	< 0.002	7		●		●	●									E26~E29 E58, E72 F62~F64 F134
		325013MFR-U	09T3005MFR-U						< 0.002			●		●	●									
		32502MFL-U	09T301MFL-U						< 0.004		●	●		●	●			●	●	●		●	●		
		32502MFR-U	09T301MFR-U						< 0.004		●	●		●	●			●	●	●		●	●		
		32505MFL-U	09T302MFL-U						< 0.008		●	●		●	●	●		●	●	●		●	●		
		32505MFR-U	09T302MFR-U						< 0.008		●	●		●	●	●		●	●	●		●	●		
		3251MFL-U	09T304MFL-U						< 1/64		●	●		●		●									
		3251MFR-U	09T304MFR-U						< 1/64		●	●		●		●									

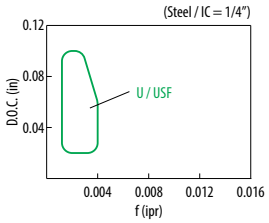
Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

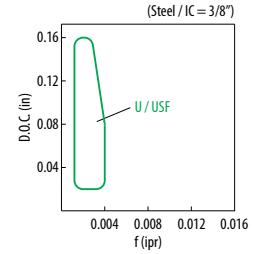
1



2



3



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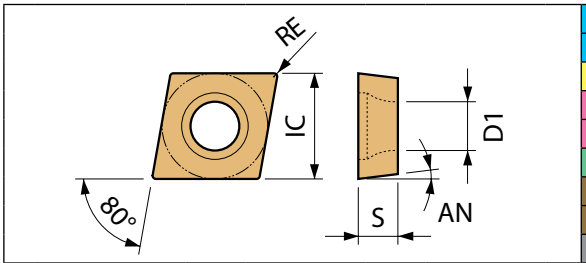
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

80° Diamond

How to read this page See page B15



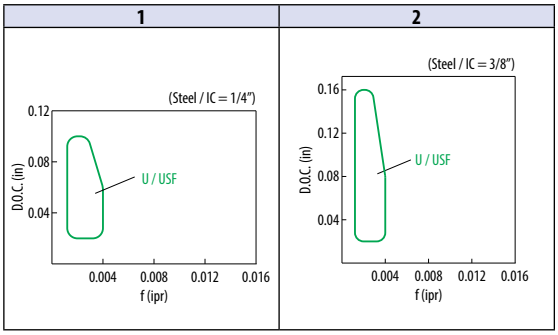
Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1225	PVD PR930	- KW10	- TN60 (Cermet)	Applicable Toolholder Page
Low Feed	CCGT 21501FR-U	CCGT 0602003FR-U	1	2	1/4	3/32	0.110	0.001	7			●		E26~E27 E58, E72 F33~F34 F64, F67~F68 F134
	21501FL-U	0602003FL-U						0.001			●	●		
	21502FR-U	060201FR-U						0.004			●	●	●	
	21502FL-U	060201FL-U						0.004			●	●	●	
	21505FR-U	060202FR-U						0.008			●	●	●	
	21505FL-U	060202FL-U						0.008			●	●	●	
	CCGT 32501FR-U	CCGT 09T3003FR-U	2	2	3/8	5/32	0.173	0.001	7		●	●	●	E26~E29 E58, E72 F62~F64 F134
	32501FL-U	09T3003FL-U						0.001			●	●		
	32502FR-U	09T301FR-U						0.004			●	●	●	
	32502FL-U	09T301FL-U						0.004			●	●	●	
	32505FR-U	09T302FR-U						0.008			●	●	●	
	32505FL-U	09T302FL-U						0.008			●	●	●	
	CCGT 215013MFR-U	CCGT 0602005MFR-U	1	2	1/4	3/32	0.110	< 0.002	7	●				E26~E27 E58, E72 F33~F34 F64, F67~F68 F134
	215013MFL-U	0602005MFL-U						< 0.002		●				
	21502MFR-U	060201MFR-U						< 0.004		●				
	21502MFL-U	060201MFL-U						< 0.004		●				
	21505MFR-U	060202MFR-U						< 0.008		●				
	21505MFL-U	060202MFL-U						< 0.008		●				
	2151MFR-U	060204MFR-U						< 1/64		●				
	2151MFL-U	060204MFL-U						< 1/64		●				
	CCGT 325013MFR-U	CCGT 09T3005MFR-U	2	2	3/8	5/32	0.173	< 0.002	7	●				E26~E29 E58, E72 F62~F64 F134
	325013MFL-U	09T3005MFL-U						< 0.002		●				
	32502MFR-U	09T301MFR-U						< 0.004		●				
	32502MFL-U	09T301MFL-U						< 0.004		●				
	32505MFR-U	09T302MFR-U						< 0.008		●				
	32505MFL-U	09T302MFL-U						< 0.008		●				
	3251MFR-U	09T304MFR-U						< 1/64		●				
	3251MFL-U	09T304MFL-U						< 1/64		●				

Sharp Edge

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

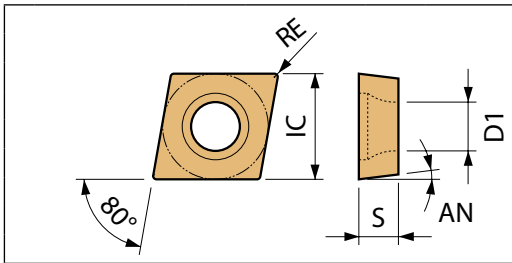


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

80° Diamond

How to read this page See page B15

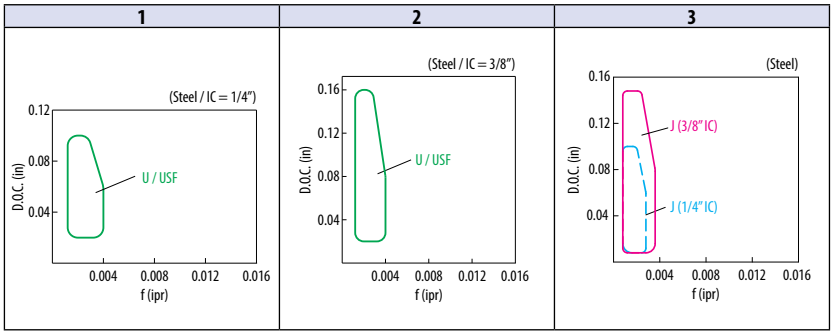


Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1225	PR1535	PR1725	PR930	Cermet PVD PV710	PV720	PV730	- TN60	TN610	TN620	Applicable Toolholder Page
Low Feed	Honed Edge	CCGT 21502ER-U	CCGT 060201ER-U	1	2	1/4	3/32	0.110	0.004	7				●	●				●		E26~E27 E58, E72 F33~F34 F64, F67~F68 F134
		21502EL-U	060201EL-U						0.004					●	●	●	●	●	●	●	
		21505ER-U	060202ER-U						0.008					●	●	●	●	●	●	●	
		21505EL-U	060202EL-U						0.008					●	●	●	●	●	●	●	
		2151ER-U	060204ER-U						1/64					●	●	●	●	●	●	●	
		2151EL-U	060204EL-U						1/64					●	●	●	●	●	●	●	
		CCGT 32502ER-U	CCGT 09T301ER-U	2	2	3/8	5/32	0.173	0.004	7				●	●	●	●	●	●	●	E26~E29 E58, E72 F62~F64 F134
		32502EL-U	09T301EL-U						0.004					●	●	●	●	●	●	●	
		32505ER-U	09T302ER-U						0.008					●	●	●	●	●	●	●	
		32505EL-U	09T302EL-U						0.008					●	●	●	●	●	●	●	
		3251ER-U	09T304ER-U						1/64					●	●	●	●	●	●	●	
		3251EL-U	09T304EL-U						1/64					●	●	●	●	●	●	●	
		CCGT 21505MER-U	CCGT 060202MER-U	1	2	1/4	3/32	0.110	< 0.008	7			●								E26~E27 E58, E72 F33~F34 F64, F67~F68 F134
		21505MEL-U	060202MEL-U						< 0.008				●								
		2151MER-U	060204MER-U						< 1/64				●								
		2151MEL-U	060204MEL-U						< 1/64				●								
		CCGT 32502MER-U	CCGT 09T301MER-U	2	2	3/8	5/32	0.173	< 0.004	7			●								E26~E29 E58, E72 F62~F64 F134
		32505MER-U	09T302MER-U						< 0.008				●								
		32505MEL-U	09T302MEL-U						< 0.008				●								
		3251MER-U	09T304MER-U						< 1/64				●								
		3251MEL-U	09T304MEL-U						< 1/64				●								
Low Feed	Sharp Edge	CCET 215013MFR-J	CCET 0602005MFR-J	3	2	1/4	3/32	0.110	< 0.002	7		●	●								E26~E27 E58, E72 F33~F34 F64, F67~F68 F134
		21502MFR-J	060201MFR-J						< 0.004		●	●	●								
		21502MFL-J	060201MFL-J						< 0.004		●	●	●								
		21505MFR-J	060202MFR-J						< 0.008		●	●	●								
		21505MFL-J	060202MFL-J						< 0.008		●	●	●								
		CCET 32502MFR-J	CCET 09T301MFR-J	3	2	3/8	5/32	0.173	< 0.004	7	●	●	●								E26~E29 E58, E72 F62~F64 F134
		32502MFL-J	09T301MFL-J						< 0.004			●	●								
		32505MFR-J	09T302MFR-J						< 0.008		●	●	●								
		32505MFL-J	09T302MFL-J						< 0.008		●	●	●								
		3251MFR-J	09T304MFR-J						< 1/64		●	●	●								
		3251MFL-J	09T304MFL-J						< 1/64			●	●								

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

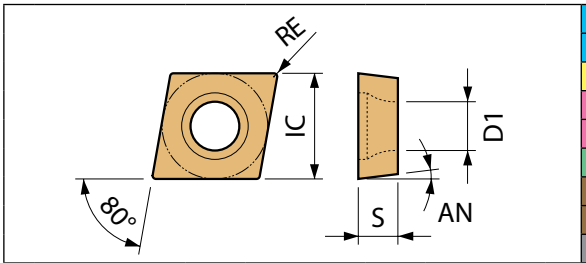


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

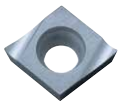
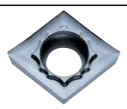
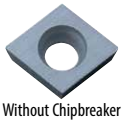
Inserts sold in 10 piece boxes

80° Diamond

How to read this page See page B15

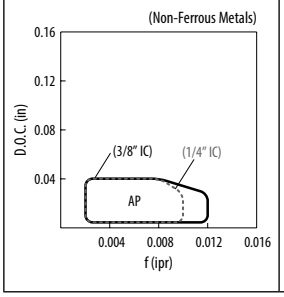


Free-cutting steel																					P
Carbon steel / Alloy steel															●	○	●				P
Stainless Steel															●	○	○				M
Gray cast iron														○							K
Nodular cast iron																					K
Non-ferrous metals	●	●	●																		N
Heat-resistant alloy															✖						S
Titanium alloy														○	●						S
Hard materials																					H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide DLC PDL010	DLC PDL025	- KW10	PVD PR1535	PVD PR1725	PVD PR930	Cermet PVD PV720	Cermet - TN60	Applicable Toolholder Page
Non-Ferrous Metals	Finishing / Sharp Edge	CCGT 21505AP	CCGT 060202AP	1	2	1/4	3/32	0.118	0.008	7	●		●						E26~E27, E58 E72, F33~F34 F64, F67~F68 F134
		2151AP	060204AP						1/64		●		●						
		CCGT 32505AP	CCGT 09T302AP	1	2	3/8	5/32	0.185	0.008	7	●		●						E26~E29 E58, E72 F62~F64 F134
		3251AP	09T304AP						1/64		●		●						
		3252AP	09T308AP						1/32		●		●						
Non-Ferrous Metals	 Finishing - Medium / Sharp Edge	CCGT 32505R-A3	CCGT 09T302R-A3	2	2	3/8	5/32	0.173	0.008	7	●	●	●						
		32505L-A3	09T302L-A3						0.008		●	●	●						
		3251R-A3	09T304R-A3						1/64		●	●	●						
		3251L-A3	09T304L-A3						1/64		●	●	●						
		3252R-A3	09T308R-A3						1/32		●	●	●						
		3252L-A3	09T308L-A3						1/32		●	●	●						
		CCGT 4305R-A3	CCGT 120402R-A3	2	2	1/2	3/16	0.217	0.008	7		●	●						E29
		4305L-A3	120402L-A3						0.008			●	●						
		431R-A3	120404R-A3						1/64			●	●						
		431L-A3	120404L-A3						1/64			●	●						
		432R-A3	120408R-A3						1/32			●	●						
		432L-A3	120408L-A3						1/32			●							
Non-Ferrous Metals	 Finishing - Medium / Sharp Edge	CCGT 3251AH	CCGT 09T304AH	2	2	3/8	5/32	0.173	1/64	7	●	●	●						E26~E29 E58, E72 F62~F64 F134
		3252AH	09T308AH						1/32		●	●	●						
Cast Iron	 Without Chipbreaker	CCGW 21502	CCGW 060201	-	2	1/4	3/32	0.110	0.004	7			●						E26~E27, E58 E72, F33~F34 F64, F67~F68 F134
		21505	060202						0.008				●						
		CCGW 32500	CCGW 09T300	-	2	3/8	5/32	0.173	0	7			●						E26~E29 E58, E72 F62~F64 F134
		32502	09T301						0.004				●						
		32505	09T302						0.008				●						
		3251	09T304						1/64				●						
Medium		CPGT 21505	CPGT 060202	-	2	1/4	3/32	0.110	0.008	11							●		F70
		2151	060204						1/64						●	●	●		
		CPGT 32505	CPGT 09T302	-	2	3/8	5/32	0.185	0.008	11				●		●			-
		3251	09T304						1/64					●		●			
		3252	09T308						1/32									●	

Chipbreaker Range

1



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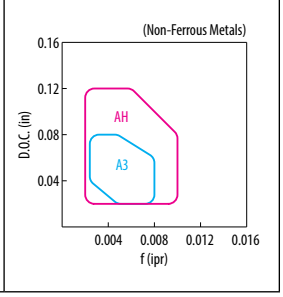
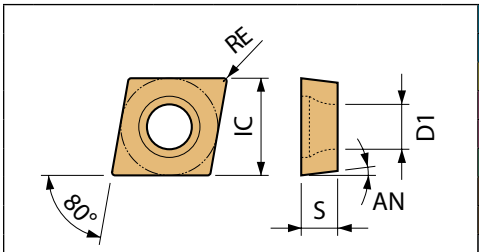


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

80° Diamond

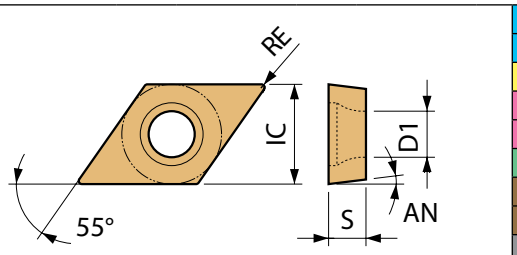
How to read this page See page B15



| | | |

55° Diamond

How to read this page See page B15



	P	M	K	N	S	H
Free-cutting steel	●					
Carbon steel / Alloy steel	◔					
Stainless Steel	◔	○ ◔	◔			
Gray cast iron	◔		◔			
Nodular cast iron	◔					
Non-ferrous metals				● ●		
Heat-resistant alloy		● ●			✕	
Titanium alloy	◔		◔		●	
Hard materials						

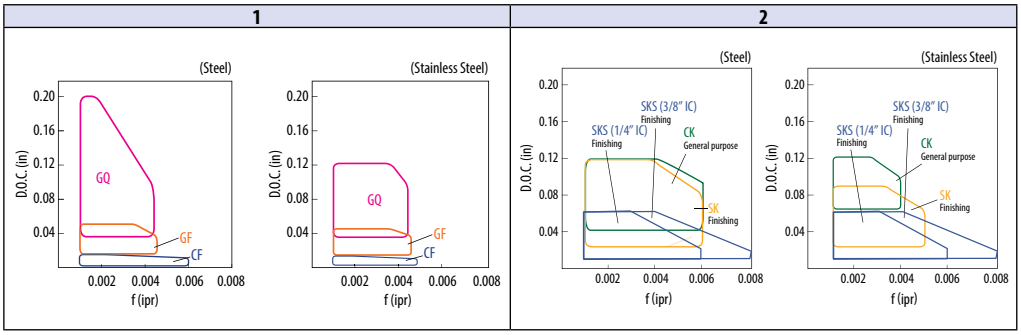
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide DLC PD1010	DLC PD1025	PVD PR115S	PVD PR120S	PVD PR1225	PVD PR1535	PVD PR1705	PVD PR1725	PVD PR930	- KW10	Cermet PVD PV730	Applicable Toolholder Page
Minute D.O.C.	Sharp Edge	DCGT 21505CF	DCGT 070202CF	1	2	1/4	3/32	0.110	0.008	7									●			*1
		DCGT 32505CF	DCGT 11T302CF	1	2	3/8	5/32	0.173	0.008	7									●			*2
Minute D.O.C.	Polished / Sharp Edge	DCGT 21502MP-CF 21505MP-CF	DCGT 070201MP-CF 070202MP-CF	1	2	1/4	3/32	0.110	< 0.004 < 0.008	7	● ● ● ●				● ● ● ●		● ● ● ●					*1
		DCGT 32502MP-CF 32505MP-CF	DCGT 11T301MP-CF 11T302MP-CF	1	2	3/8	5/32	0.173	< 0.004 < 0.008	7	● ● ● ●				● ● ● ●		● ● ● ●					*2
Finishing	Polished / Sharp Edge	DCGT 21502MFP-GF 21505MFP-GF 2151MFP-GF	DCGT 070201MFP-GF 070202MFP-GF 070204MFP-GF	1	2	1/4	3/32	0.118	< 0.004 < 0.008 < 1/64	7					● ● ● ● ● ●		● ● ● ● ● ●					*1
		DCGT 32502MFP-GF 32505MFP-GF 3251MFP-GF	DCGT 11T301MFP-GF 11T302MFP-GF 11T304MFP-GF	1	2	3/8	5/32	0.185	< 0.004 < 0.008 < 1/64	7					● ● ● ● ● ●		● ● ● ● ● ●					*2
Finishing	Polished / Sharp Edge	DCGT 215013MFP-SKS 21502MFP-SKS 21505MFP-SKS	DCGT 0702005MFP-SKS 070201MFP-SKS 070202MFP-SKS	2	2	1/4	3/32	0.118	< 0.002 < 0.004 < 0.008	7			● ● ● ● ● ●		● ● ● ● ● ●		● ● ● ● ● ●			● ● ●		*1
		DCGT 325013MFP-SKS 32502MFP-SKS 32505MFP-SKS 3251MFP-SKS	DCGT 11T3005MFP-SKS 11T301MFP-SKS 11T302MFP-SKS 11T304MFP-SKS	2	2	3/8	5/32	0.185	< 0.002 < 0.004 < 0.008 < 1/64	7			● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ●			● ● ● ●		*2
Finishing	Polished / Sharp Edge	DCGT 21502MFP-SK 21505MFP-SK 2151MFP-SK	DCGT 070201MFP-SK 070202MFP-SK 070204MFP-SK	2	2	1/4	3/32	0.118	< 0.004 < 0.008 < 1/64	7	● ● ● ● ● ●		● ● ● ● ● ●		● ● ● ● ● ●		● ● ● ● ● ●			● ● ●		*1
		DCGT 32502MFP-SK 32505MFP-SK 3251MFP-SK	DCGT 11T301MFP-SK 11T302MFP-SK 11T304MFP-SK	2	2	3/8	5/32	0.185	< 0.004 < 0.008 < 1/64	7	● ● ● ● ● ●		● ● ● ● ● ●		● ● ● ● ● ●		● ● ● ● ● ●			● ● ●		*2
Finishing		DCGT 21502CK 21505CK	DCGT 070201CK 070202CK	2	2	1/4	3/32	0.110	0.004 0.008	7									● ●			*1
		DCGT 32502CK 32505CK	DCGT 11T301CK 11T302CK	2	2	3/8	5/32	0.173	0.004 0.008	7									● ●			*2
Finishing	Polished / Sharp Edge	DCGT 21502MP-CK 21505MP-CK	DCGT 070201MP-CK 070202MP-CK	2	2	1/4	3/32	0.110	< 0.004 < 0.008	7	● ● ● ●				● ● ● ●		● ● ● ●					*1
		DCGT 32502MP-CK 32505MP-CK	DCGT 11T301MP-CK 11T302MP-CK	2	2	3/8	5/32	0.173	< 0.004 < 0.008	7	● ● ● ●				● ● ● ●		● ● ● ●			● ●		*2

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

*1 : DC..215... **E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135**

*2 : DC..325... **E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135**

Chipbreaker Range



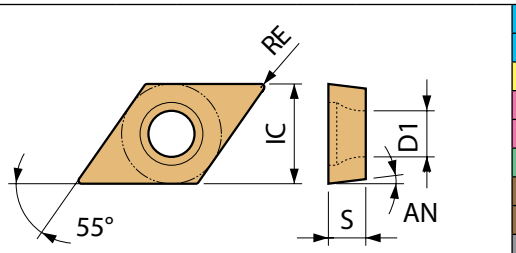
Inserts sold in 10 piece boxes

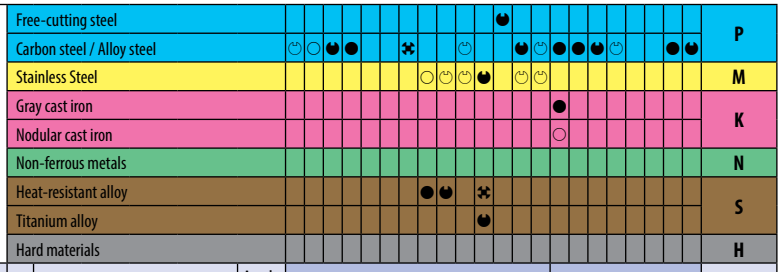
● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

55° Diamond

How to read this page See page B15



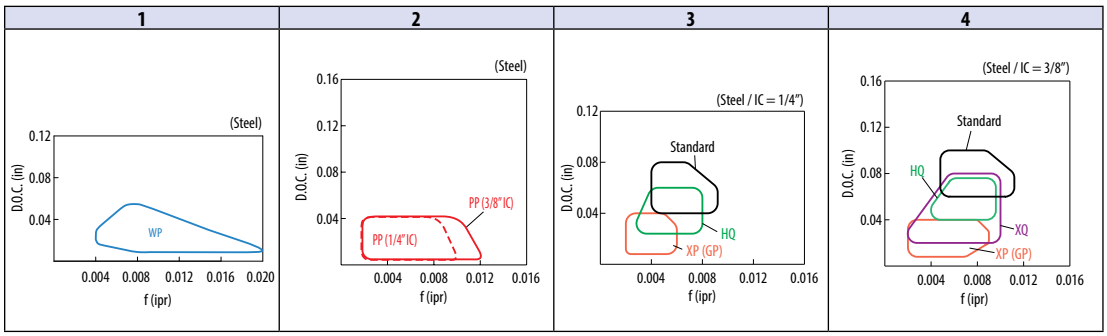


Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	Carbide PVD PR115S	PR1205	PR1225	PR1535	PR1705	PR1725	PR930	Cermet CVD CCX	Cermet PVD PV710	PV720	PV730	PV90	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing - Medium	Polished / Sharp Edge	DCGT 21502MFP-GQ	DCGT 070201MFP-GQ	(B68) 1	2	1/4	3/32	0.118	< 0.004	7								●	●	●	●	●	●										*1
		21505MFP-GQ	070202MFP-GQ						< 0.008									●	●	●	●	●	●										
		2151MFP-GQ	070204MFP-GQ						< 1/64									●	●	●	●	●	●										
		DCGT 32502MFP-GQ	DCGT 11T301MFP-GQ	(B68) 1	2	3/8	5/32	0.185	< 0.004	7								●	●	●	●	●	●										*2
		32505MFP-GQ	11T302MFP-GQ						< 0.008									●	●	●	●	●	●										
		3251MFP-GQ	11T304MFP-GQ						< 1/64									●	●	●	●	●	●										
Finishing	With Wiper Edge	DCMX 21505WP	DCMX 070202WP	1	2	1/4	3/32	0.118	0.008	7	●	●	●	●	●	●	●						●			●	●				●	●	*3
		2151WP	070204WP						1/64		●	●	●	●	●	●	●						●			●	●				●	●	
		2152WP	070208WP						1/32		●	●	●	●	●	●	●						●			●	●				●	●	
		DCMX 32505WP	DCMX 11T302WP	1	2	3/8	5/32	0.185	0.008	7	●	●	●	●	●	●	●		●				●			●	●				●	●	*4
		3251WP	11T304WP						1/64		●	●	●	●	●	●	●		●				●			●	●				●	●	
		3252WP	11T308WP						1/32		●	●	●	●	●	●	●		●				●			●	●				●	●	
Finishing	With Wiper Edge	DCMX 2151R-WP	DCMX 070204R-WP	1	2	1/4	3/32	0.118	1/64	7													●										*3
		2151L-WP	070204L-WP						1/64														●										
		DCMX 3251R-WP	DCMX 11T304R-WP	1	2	3/8	5/32	0.185	1/64	7													●										*4
		3251L-WP	11T304L-WP						1/64														●										
Finishing		DCMT 21505PP	DCMT 070202PP	2	2	1/4	3/32	0.118	0.008	7	●	●	●	●	●	●	●		●	●			●		●	●	●				●	●	*1
		2151PP	070204PP						1/64		●	●	●	●	●	●	●		●	●			●		●	●	●				●	●	
		DCMT 32505PP	DCMT 11T302PP	2	2	3/8	5/32	0.185	0.008	7	●	●	●	●	●	●	●		●	●			●		●	●	●				●	●	*2
		3251PP	11T304PP						1/64		●	●	●	●	●	●	●		●	●			●		●	●	●				●	●	
		3252PP	11T308PP						1/32		●	●	●	●	●	●	●		●	●			●		●	●	●				●	●	
Finishing		DCMT 21505GP	DCMT 070202GP	3	2	1/4	3/32	0.110	0.008	7	●	●	●		●	●				●			●	●		●	●			●	●	●	*1
		2151GP	070204GP						1/64		●	●	●		●	●				●			●	●		●	●	△		●	●	●	
		DCMT 3251GP	DCMT 11T304GP	4	2	3/8	5/32	0.173	1/64	7	●	●	●		●	●	●			●			●	●		●	●			●	●	●	*2
		3252GP	11T308GP						1/32		●	●	●		●	●				●			●	●		●	●			●	●	●	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).
See "Precautions when using Wiper inserts" on page **R42** and **R43** for WP chipbreaker.

*1 : DC..215... **E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135**
*2 : DC..325... **E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135**
*3 : DC..215...WP **E30~E31, E33, E59, F74~F76, F82~F87, F135**
*4 : DC..325...WP **E23, E30~E34, E59, F74~F76, F82~F87, F135**

Chipbreaker Range

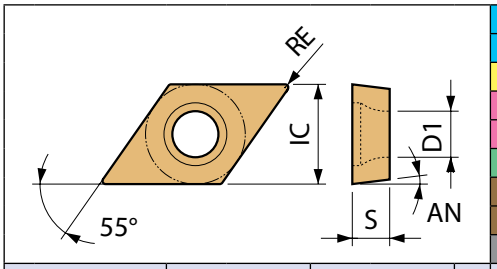


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

55° Diamond

How to read this page See page B15



Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

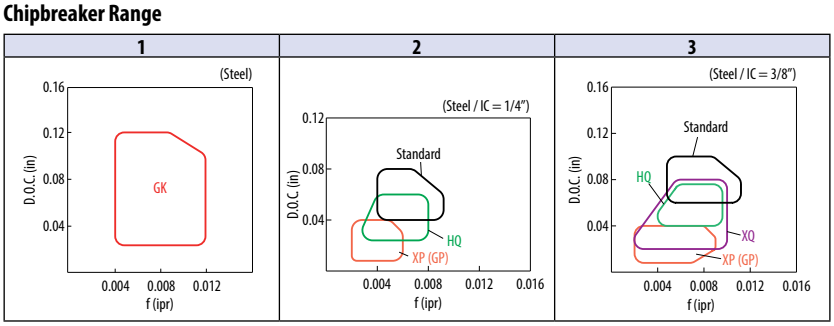
Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA410K	CA415K	CA4515	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD PR1225	PR1535	PR1705	PR1725	PR930	Cermet CVD CCX	Cermet PVD PV7005	PV710	PV720	PV730	PV90	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing - Medium	DCMT 21505GK 2151GK 2152GK	DCMT 070202GK 070204GK 070208GK	1	2	1/4	3/32	0.110	0.008 1/64 1/32	7	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	*1
	DCMT 32505GK 3251GK 3252GK	DCMT 11T302GK 11T304GK 11T308GK	1	2	3/8	5/32	0.173	0.008 1/64 1/32	7	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	*2
Finishing - Medium	DCMT 21505HQ 2151HQ 2152HQ	DCMT 070202HQ 070204HQ 070208HQ	2	2	1/4	3/32	0.110	0.008 1/64 1/32	7	●	●	●							●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	△	●	●	●	*1
	DCMT 32505HQ 3251HQ 3252HQ	DCMT 11T302HQ 11T304HQ 11T308HQ	3	2	3/8	5/32	0.173	0.008 1/64 1/32	7	●	●	●							●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	△	●	●	●	*2
Medium	DCGT 21502 21505 2151	DCGT 070201 070202 070204	2	2	1/4	3/32	0.110	0.004 0.008 1/64	7																			●			●	●	●	●		●	●	●	*1
	DCGT 32502 32505 3251	DCGT 11T301 11T302 11T304	3	2	3/8	5/32	0.173	0.004 0.008 1/64	7																			●			●	●	●	●	△	●	●	●	*2
	DCMT 3252	DCMT 11T308	3	2	3/8	5/32	0.173	1/32	7				●	●	●	●	●	●										●	●	●	●	●	●	●		●	●	●	
	DCGT 215013M 21502M 21505M 2151M	DCGT 0702005M 070201M 070202M 070204M	2	2	1/4	3/32	0.110	< 0.002 < 0.004 < 0.008 < 1/64	7																			●											*1
	DCGT 325013M 32502M 32505M 3251M	DCGT 11T3005M 11T301M 11T302M 11T304M	3	2	3/8	5/32	0.173	< 0.002 < 0.004 < 0.008 < 1/64	7																			●											*2
Medium	DCGT 215013MF 21502MF 21505MF 2151MF	DCGT 0702005MF 070201MF 070202MF 070204MF	2	2	1/4	3/32	0.110	< 0.002 < 0.004 < 0.008 < 1/64	7																			●	●		●									*1
Sharp Edge	DCGT 325013MF 32502MF 32505MF 3251MF	DCGT 11T3005MF 11T301MF 11T302MF 11T304MF	3	2	3/8	5/32	0.173	< 0.002 < 0.004 < 0.008 < 1/64	7																			●	●		●									*2
Medium	DCGT 21505FN-Z 2151FN-Z	DCGT 070202FN-Z 070204FN-Z	-	2	1/4	3/32	0.110	0.008 1/64	7																												●	●		*1
Sharp Edge	DCGT 32505FN-Z 3251FN-Z	DCGT 11T302FN-Z 11T304FN-Z	-	2	3/8	5/32	0.173	0.008 1/64	7																												●	●		*2

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

*1 : DC..215... **E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135**

*2 : DC..325... **E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135**

Chipbreaker Range



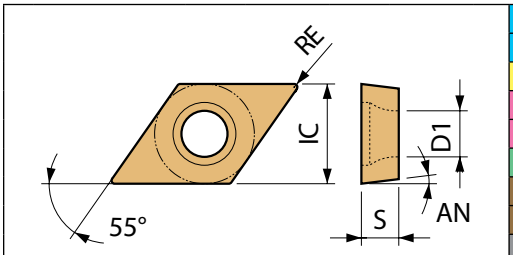
Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

55° Diamond

How to read this page See page B15



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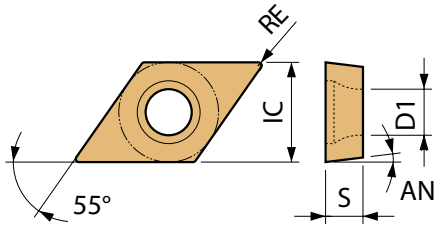
55° Diamond

How to read this page See page B15



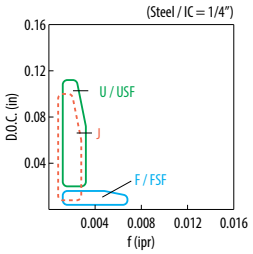
Free-cutting steel					●												P
Carbon steel / Alloy steel			○			●	○	●	●	○			●	●			P
Stainless Steel			○	●		○	○										M
Gray cast iron																	K
Nodular cast iron																	K
Non-ferrous metals	●	●															N
Heat-resistant alloy				✖													S
Titanium alloy				●													S
Hard materials																	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide DLC PD1010	PD1025	PVD PR1225	PR1535	PR1705	PR1725	PR930	Cermet PVD PV710	PV720	PV730	- TN60	TN610	TN620	Applicable Toolholder Page
Finishing	Precision / Sharp Edge	DCET 21501R-FSF	DCET 0702003R-FSF	1	2	1/4	3/32	0.110	0.001	7							●							*1
		21501L-FSF	0702003L-FSF						0.001								●							
		21502R-FSF	070201R-FSF						0.004								●							
		21502L-FSF	070201L-FSF						0.004								●							
		21505R-FSF	070202R-FSF						0.008								●				●			
		21505L-FSF	070202L-FSF						0.008								●				●			
		2151R-FSF	070204R-FSF						1/64								●				●			
		2151L-FSF	070204L-FSF						1/64								●				●			
		DCET 32501R-FSF	DCET 11T3003R-FSF	2	2	3/8	5/32	0.173	0.001	7							●							*2
		32502R-FSF	11T301R-FSF						0.004								●				●			
		32502L-FSF	11T301L-FSF						0.004								●							
		32505R-FSF	11T302R-FSF						0.008								●				●			
		32505L-FSF	11T302L-FSF						0.008								●				●			
		3251R-FSF	11T304R-FSF						1/64								●				●			
		3251L-FSF	11T304L-FSF						1/64								●				●			
		DCET 215013MR-FSF	DCET 0702005MR-FSF	1	2	1/4	3/32	0.110	< 0.002	7			●											*1
		215013ML-FSF	0702005ML-FSF						< 0.002				●											
		21502MR-FSF	070201MR-FSF						< 0.004				●											
		21502ML-FSF	070201ML-FSF						< 0.004				●											
		21505MR-FSF	070202MR-FSF						< 0.008				●											
		21505ML-FSF	070202ML-FSF						< 0.008				●											
		2151MR-FSF	070204MR-FSF						< 1/64				●											
		DCET 325013MR-FSF	DCET 11T3005MR-FSF	2	2	3/8	5/32	0.173	< 0.002	7			●											*2
		32502MR-FSF	11T301MR-FSF						< 0.004				●											
		32505MR-FSF	11T302MR-FSF						< 0.008				●											
		32505ML-FSF	11T302ML-FSF						< 0.008				●											
		3251MR-FSF	11T304MR-FSF						< 1/64				●											
Finishing	Sharp Edge	DCET 215013MR-F	DCET 0702005MR-F	1	2	1/4	3/32	0.110	< 0.002	7		●		●	●	●								*1
		215013ML-F	0702005ML-F						< 0.002						●									
		21502MR-F	070201MR-F						< 0.004		●	●		●		●		●	●	●		●	●		
		21502ML-F	070201ML-F						< 0.004		●	●		●		●		●	●	●		●	●		
		21505MR-F	070202MR-F						< 0.008		●	●		●		●		●	●	●		●	●		
		21505ML-F	070202ML-F						< 0.008		●	●		●		●		●	●	●		●	●		
		2151MR-F	070204MR-F						< 1/64		●	●		●		●		●	●	●		●	●		
		2151ML-F	070204ML-F						< 1/64		●	●		●		●		●	●	●		●	●		
		DCET 325013MR-F	DCET 11T3005MR-F	2	2	3/8	5/32	0.173	< 0.002	7	●	●		●		●								*2
		32502MR-F	11T301MR-F						< 0.004		●	●		●		●		●	●	●		●	●		
		32502ML-F	11T301ML-F						< 0.004		●	●		●		●		●	●	●		●	●		
		32505MR-F	11T302MR-F						< 0.008		●	●		●	●	●		●	●	●		●	●		
		32505ML-F	11T302ML-F						< 0.008		●	●		●	●	●		●	●	●		●	●		
		3251MR-F	11T304MR-F						< 1/64		●	●		●	●	●		●	●	●		●	●		
		3251ML-F	11T304ML-F						< 1/64		●	●		●	●	●		●	●	●		●	●		

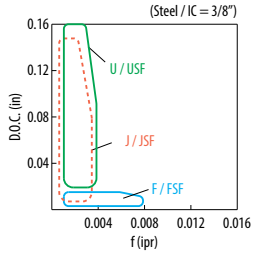
Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

1



2



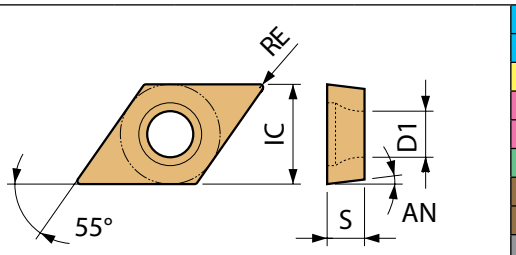
*1 : DC..215... **E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135**
*2 : DC..325... **E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135**

Inserts sold in 10 piece boxes

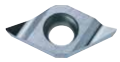
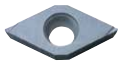
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

55° Diamond

How to read this page See page B15



Free-cutting steel																	P
Carbon steel / Alloy steel																	P
Stainless Steel																	M
Gray cast iron																	K
Nodular cast iron																	K
Non-ferrous metals																	N
Heat-resistant alloy																	S
Titanium alloy																	S
Hard materials																	H

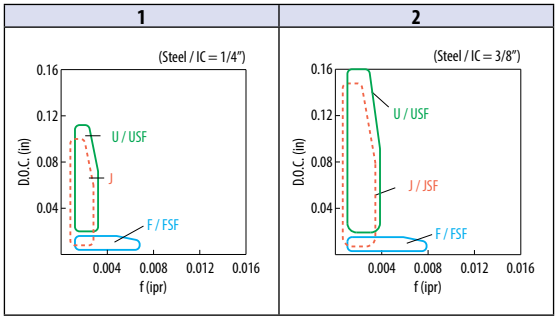
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1225	Carbide PVD PR930	Carbide - KW10	Cermet - TN60	Applicable Toolholder Page
Finishing - Medium		DCGT 21505L-FS	DCGT 070202L-FS	1	2	1/4	3/32	0.110	0.008	7				●	*1
		2151R-FS	070204R-FS						1/64					●	
		2151L-FS	070204L-FS						1/64					●	
		DCGT 32505R-FS	DCGT 11T302R-FS	2	2	3/8	5/32	0.173	0.008					●	*2
		32505L-FS	11T302L-FS						0.008					●	
		3251R-FS	11T304R-FS						1/64					●	
		3251L-FS	11T304L-FS						1/64					●	
Finishing	 Sharp Edge	DCGT 21501R-F	DCGT 0702003R-F	1	2	1/4	3/32	0.110	0.001	7			●		*1
		21501L-F	0702003L-F						0.001				●		
		21502R-F	070201R-F						0.004				●		
		21502L-F	070201L-F						0.004			●	●		
		21505R-F	070202R-F						0.008			●	●	●	
		21505L-F	070202L-F						0.008			●	●	●	
		2151R-F	070204R-F						1/64			●	●	●	
		2151L-F	070204L-F						1/64			●	●	●	
		DCGT 32501R-F	DCGT 11T3003R-F	2	2	3/8	5/32	0.173	0.001			●	●		*2
		32501L-F	11T3003L-F						0.001			●			
		32505R-F	11T302R-F						0.008			●	●	●	
		32505L-F	11T302L-F						0.008			●	●	●	
		3251R-F	11T304R-F						1/64			●	●	●	
		3251L-F	11T304L-F						1/64			●	●	●	
		DCGT 215013MR-F	DCGT 0702005MR-F	1	2	1/4	3/32	0.110	< 0.002	7	●				*1
		215013ML-F	0702005ML-F						< 0.002		●				
		21502MR-F	070201MR-F						< 0.004		●				
		21502ML-F	070201ML-F						< 0.004		●				
		21505MR-F	070202MR-F						< 0.008		●				
		21505ML-F	070202ML-F						< 0.008		●				
		2151MR-F	070204MR-F						< 1/64		●				
		2151ML-F	070204ML-F						< 1/64		●				
		DCGT 325013MR-F	DCGT 11T3005MR-F	2	2	3/8	5/32	0.173	< 0.002		●				*2
		32502MR-F	11T301MR-F						< 0.004		●				
		32502ML-F	11T301ML-F						< 0.004		●				
		32505MR-F	11T302MR-F						< 0.008		●				
		32505ML-F	11T302ML-F						< 0.008		●				
		3251MR-F	11T304MR-F						< 1/64		●				
		3251ML-F	11T304ML-F						< 1/64		●				

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

*1 : DC..215... **E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135**

*2 : DC..325... **E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135**

Chipbreaker Range



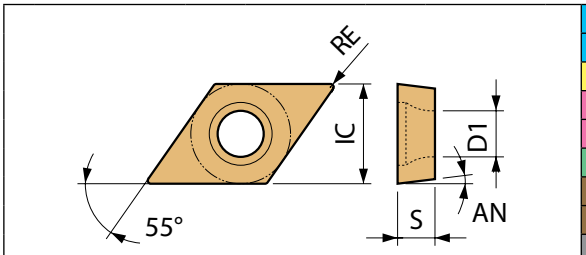
● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

55° Diamond

How to read this page See page B15



Free-cutting steel					●																						P
Carbon steel / Alloy steel			○			●	○	●	●	○										●	●						P
Stainless Steel			○	●		○	○																				M
Gray cast iron																											K
Nodular cast iron																											K
Non-ferrous metals	●	●																									N
Heat-resistant alloy				✖																							S
Titanium alloy				●																							S
Hard materials																											H

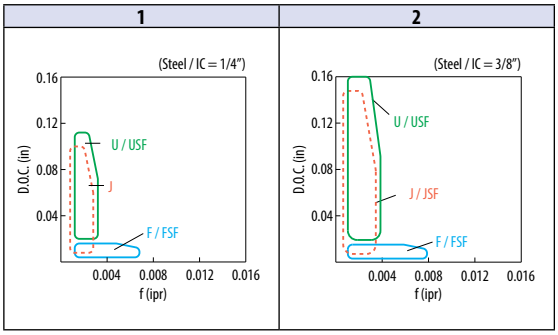
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide DLC PDL010	DLC PDL025	PVD PR1225	PVD PR1535	PVD PR1705	PVD PR1725	PVD PR930	Cermet PVD PV710	PVD PV720	PVD PV730	- TN60	- TN610	- TN620	Applicable Toolholder Page
Low Feed	Precision / Sharp Edge	DCET 21501FR-USF	DCET 0702003FR-USF	1	2	1/4	3/32	0.110	0.001	7							●							*1
		21501FL-USF	0702003FL-USF						0.001								●							
		21502FR-USF	070201FR-USF						0.004								●							
		21502FL-USF	070201FL-USF						0.004								●							
		21505FR-USF	070202FR-USF						0.008								●				●			
		21505FL-USF	070202FL-USF						0.008								●				●			
		DCET 32501FR-USF	DCET 11T3003FR-USF	2	2	3/8	5/32	0.173	0.001	7							●							*2
		32501FL-USF	11T3003FL-USF						0.001								●							
		32502FR-USF	11T301FR-USF						0.004								●				●			
		32502FL-USF	11T301FL-USF						0.004								●				●			
		32505FR-USF	11T302FR-USF						0.008								●				●			
		32505FL-USF	11T302FL-USF						0.008								●				●			
		DCET 215013MFR-USF	DCET 0702005MFR-USF	1	2	1/4	3/32	0.110	< 0.002	7			●											*1
		21502MFR-USF	070201MFR-USF						< 0.004				●											
		21505MFR-USF	070202MFR-USF						< 0.008				●											
		21505MFL-USF	070202MFL-USF						< 0.008				●											
		DCET 325013MFR-USF	DCET 11T3005MFR-USF	2	2	3/8	5/32	0.173	< 0.002	7			●											*2
		32502MFR-USF	11T301MFR-USF						< 0.004				●											
		32502MFL-USF	11T301MFL-USF						< 0.004				●											
		32505MFR-USF	11T302MFR-USF						< 0.008				●											
		32505MFL-USF	11T302MFL-USF						< 0.008				●											
Low Feed	Sharp Edge	DCET 21501FR-U	DCET 0702003FR-U	1	2	1/4	3/32	0.110	0.001	7						●								*1
		DCET 215013MFR-U	DCET 0702005MFR-U	1	2	1/4	3/32	0.110	< 0.002	7		●		●		●								
		21502MFR-U	070201MFR-U						< 0.004		●	●		●	●	●		●				●		
		21502MFL-U	070201MFL-U						< 0.004		●	●		●		●		●				●		
		21505MFR-U	070202MFR-U						< 0.008		●	●		●	●	●		●	●	●		●	●	
		21505MFL-U	070202MFL-U						< 0.008		●	●		●		●		●	●	●		●	●	
		DCET 325013MFR-U	DCET 11T3005MFR-U	2	2	3/8	5/32	0.173	< 0.002	7		●		●	●	●								*2
		32502MFR-U	11T301MFR-U						< 0.004		●	●		●	●	●		●				●		
		32502MFL-U	11T301MFL-U						< 0.004		●	●		●		●		●				●		
		32505MFR-U	11T302MFR-U						< 0.008		●	●		●	●	●		●	●	●		●	●	
		32505MFL-U	11T302MFL-U						< 0.008		●	●		●	●	●		●	●	●		●	●	
		3251MFR-U	11T304MFR-U						< 1/64		●	●		●	●	●								

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

*1 : DC..215... **E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135**

*2 : DC..325... **E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135**

Chipbreaker Range



Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

55° Diamond

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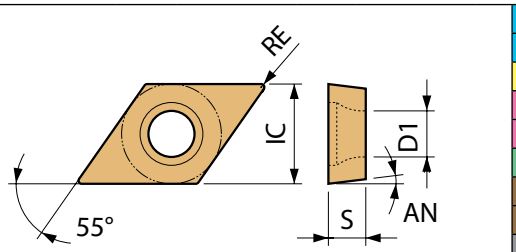


Free-cutting steel		P
Carbon steel / Alloy steel	○ ○	P
Stainless Steel	○ ○	M
Gray cast iron	○	K
Nodular cast iron		K
Non-ferrous metals	●	N
Heat-resistant alloy		S
Titanium alloy	○	S
Hard materials		H

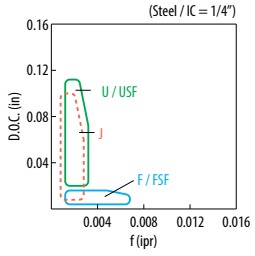
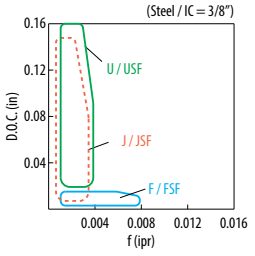
Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1225	PVD PR930	- KW10	- TN60	Applicable Toolholder Page
Low Feed	DCGT 21501FR-U	DCGT 0702003FR-U	1	2	1/4	3/32	0.110	0.001	7		●	●		*1
	21501FL-U	0702003FL-U						0.001			●			
	21502FR-U	070201FR-U						0.004			●	●	●	
	21502FL-U	070201FL-U						0.004			●	●	●	
	21505FR-U	070202FR-U						0.008			●	●	●	
	21505FL-U	070202FL-U						0.008			●		●	
	DCGT 32501FR-U	DCGT 11T3003FR-U	2	2	3/8	5/32	0.173	0.001	7		●	●	●	*2
	32501FL-U	11T3003FL-U						0.001			●		●	
	32502FR-U	11T301FR-U						0.004			●	●	●	
	32502FL-U	11T301FL-U						0.004			●	●		
	32505FR-U	11T302FR-U						0.008			●	●	●	
	32505FL-U	11T302FL-U						0.008			●	●	●	
Sharp Edge	DCGT 215013MFR-U	DCGT 0702005MFR-U	1	2	1/4	3/32	0.110	< 0.002	7	●				*1
	215013MFL-U	0702005MFL-U						< 0.002		●				
	21502MFR-U	070201MFR-U						< 0.004		●				
	21502MFL-U	070201MFL-U						< 0.004		●				
	21505MFR-U	070202MFR-U						< 0.008		●				
	21505MFL-U	070202MFL-U						< 0.008		●				
	2151MFR-U	070204MFR-U						< 1/64		●				
	2151MFL-U	070204MFL-U						< 1/64		●				
	DCGT 325013MFR-U	DCGT 11T3005MFR-U	3	2	3/8	5/32	0.173	< 0.002	7	●				*2
	32502MFR-U	11T301MFR-U						< 0.004		●				
	32502MFL-U	11T301MFL-U						< 0.004		●				
	32505MFR-U	11T302MFR-U						< 0.008		●				
	32505MFL-U	11T302MFL-U						< 0.008		●				
	3251MFR-U	11T304MFR-U						< 1/64		●				
	3251MFL-U	11T304MFL-U						< 1/64		●				

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

*1 : DC..215... **E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135**

*2 : DC..325... **E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135**

Chipbreaker Range

1	2
	

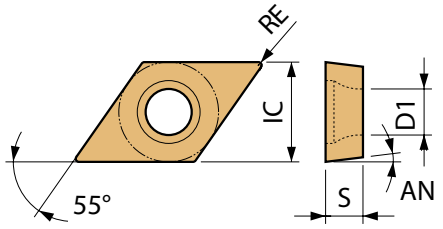
● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

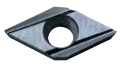
Inserts sold in 10 piece boxes

55° Diamond

How to read this page See page B15



Free-cutting steel																						P
Carbon steel / Alloy steel	○	◒	○	●	◒	○			●	◒												P
Stainless Steel	○	○	○																			M
Gray cast iron																						K
Nodular cast iron																						K
Non-ferrous metals																						N
Heat-resistant alloy																						S
Titanium alloy																						S
Hard materials																						H

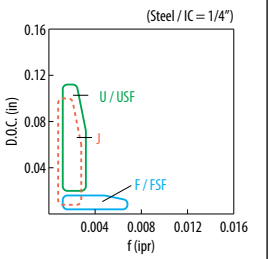
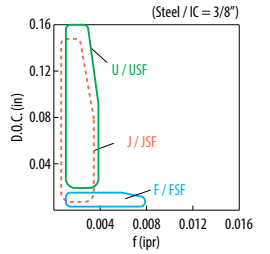
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1225	Carbide PVD PR1725	Carbide PVD PR930	Cermet PVD PV710	Cermet PVD PV720	Cermet PVD PV730	Cermet - TN60	Cermet - TN610	Cermet - TN620	Applicable Toolholder Page
Low Feed	Honed Edge	DCGT 21502ER-U	DCGT 070201ER-U	1	2	1/4	3/32	0.110	0.004	7			●	●				●		*1
		21502EL-U	070201EL-U						0.004					●				●		
		21505ER-U	070202ER-U						0.008				●	●	●	●	●	●	●	
		21505EL-U	070202EL-U						0.008				●	●	●	●	●	●	●	
		2151ER-U	070204ER-U						1/64				●	●	●	●	●	●	●	
		2151EL-U	070204EL-U						1/64				●	●	●	●	●	●	●	
		DCGT 32502ER-U	DCGT 11T301ER-U	2	2	3/8	5/32	0.173	0.004	7				●	●	●		●	●	*2
		32502EL-U	11T301EL-U						0.004					●				●		
		32505ER-U	11T302ER-U						0.008				●	●	●	●	●	●	●	
		32505EL-U	11T302EL-U						0.008				●	●	●	●	●	●	●	
		3251ER-U	11T304ER-U						1/64				●	●	●	●	●	●	●	
		3251EL-U	11T304EL-U						1/64				●	●	●	●	●	●	●	
		DCGT 21502MER-U	DCGT 070201MER-U	1	2	1/4	3/32	0.110	< 0.004	7	●									*1
		21505MER-U	070202MER-U						< 0.008		●									
		21505MEL-U	070202MEL-U						< 0.008		●									
		2151MER-U	070204MER-U						< 1/64		●									
		2151MEL-U	070204MEL-U						< 1/64		●									
		DCGT 32502MER-U	DCGT 11T301MER-U	2	2	3/8	5/32	0.173	< 0.004	7	●									
		32502MEL-U	11T301MEL-U						< 0.004		●									
		32505MER-U	11T302MER-U						< 0.008		●									
		32505MEL-U	11T302MEL-U						< 0.008		●									
		3251MER-U	11T304MER-U						< 1/64		●									
		3251MEL-U	11T304MEL-U						< 1/64		●									
Low Feed	 Precision / Sharp Edge	DCET 32501FR-JSF	DCET 11T3003FR-JSF	2	2	3/8	5/32	0.173	0.001	7			●							*2
		32501FL-JSF	11T3003FL-JSF						0.001				●							
		32502FR-JSF	11T301FR-JSF						0.004				●							
		32502FL-JSF	11T301FL-JSF						0.004				●							
		32505FR-JSF	11T302FR-JSF						0.008				●							
		32505FL-JSF	11T302FL-JSF						0.008				●							
		DCET 325013MFR-JSF	DCET 11T3005MFR-JSF	2	2	3/8	5/32	0.173	< 0.002	7	●									
		32502MFR-JSF	11T301MFR-JSF						< 0.004		●									
		32505MFR-JSF	11T302MFR-JSF						< 0.008		●									
		32505MFL-JSF	11T302MFL-JSF						< 0.008		●									

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

*1 : DC..215... **E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135**

*2 : DC..325... **E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135**

Chipbreaker Range

1	2
	

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

55° Diamond

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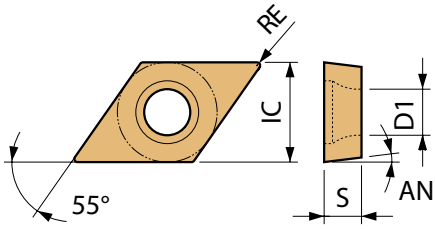

| | | |

55° Diamond

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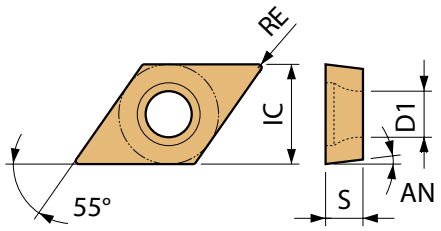
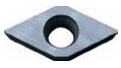
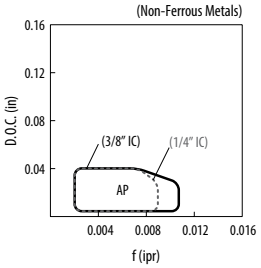
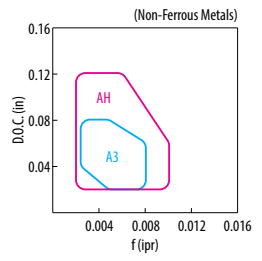


Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide DLC PDJ010	DLC PDJ025	- KW10	Applicable Toolholder Page
Non-Ferrous Metals	Finishing / Sharp Edge	DCGT 21505AP	DCGT 070202AP	1	2	1/4	3/32	0.110	0.008	7	●		●	*1
		2151AP	070204AP						1/64		●		●	
		DCGT 32505AP	DCGT 11T302AP	1	2	3/8	5/32	0.173	0.008	7	●		●	
		3251AP	11T304AP						1/64		●		●	
		3252AP	11T308AP						1/32		●		●	
Non-Ferrous Metals	Finishing - Medium / Sharp Edge	DCGT 32505R-A3	DCGT 11T302R-A3	2	2	3/8	5/32	0.173	0.008	7	●	●	●	*2
		32505L-A3	11T302L-A3						0.008		●	●	●	
		3251R-A3	11T304R-A3						1/64		●	●	●	
		3251L-A3	11T304L-A3						1/64		●	●	●	
		3252R-A3	11T308R-A3						1/32		●	●		
		3252L-A3	11T308L-A3						1/32		●	●		
Non-Ferrous Metals	Finishing - Medium / Sharp Edge	DCGT 3251AH	DCGT 11T304AH	2	2	3/8	5/32	0.173	1/64	7	●	●	●	
		3252AH	11T308AH						1/32		●	●	●	
Cast Iron	 Without Chipbreaker	DCGW 21502	DCGW 070201	-	2	1/4	3/32	0.110	0.004	7			●	*1
		21505	070202						0.008				●	
		DCGW 32502	DCGW 11T301	-	2	3/8	5/32	0.173	0.004	7			●	*2
		32505	11T302						0.008				●	
		3251	11T304						1/64				●	

*1 : DC..215... **E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135**
*2 : DC..325... **E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135**

Chipbreaker Range

1	2
	

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

55° Diamond

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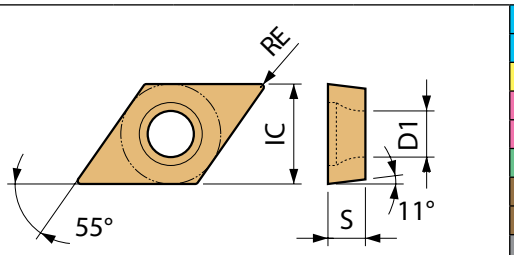
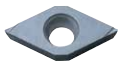
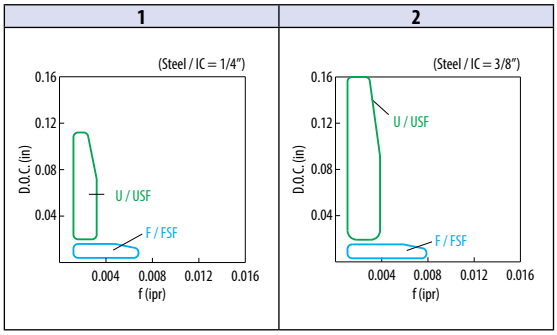


	Carbide	Cermet	
Free-cutting steel			P
Carbon steel / Alloy steel	●	○	P
Stainless Steel	○	○	M
Gray cast iron			K
Nodular cast iron			K
Non-ferrous metals			N
Heat-resistant alloy			S
Titanium alloy			S
Hard materials			H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1725	Carbide PVD PR930	Cermet - TN60	Applicable Toolholder Page
Finishing	 Precision / Sharp Edge	DPET 21501R-FSF	DPET 0702003R-FSF	1	2	1/4	3/32	0.110	0.001	11		●		E39
		21502R-FSF	070201R-FSF						0.004			●		
		21505R-FSF	070202R-FSF						0.008			●		
		21505L-FSF	070202L-FSF						0.008			●		
		DPET 32501R-FSF	DPET 11T3003R-FSF	2	2	3/8	5/32	0.173	0.001	11		●		
		32502R-FSF	11T301R-FSF						0.004			●		
		32505R-FSF	11T302R-FSF						0.008			●	●	
		32505L-FSF	11T302L-FSF						0.008			●	●	
		DPET 21505MR-FSF	DPET 070202MR-FSF	1	2	1/4	3/32	0.110	< 0.008	11	●			
		21505ML-FSF	070202ML-FSF						< 0.008		●			
		DPET 325013MR-FSF	DPET 11T3005MR-FSF	2	2	3/8	5/32	0.173	< 0.002	11	●			
		32502MR-FSF	11T301MR-FSF						< 0.004		●			
		32505MR-FSF	11T302MR-FSF						< 0.008		●			
Low Feed	Precision / Sharp Edge	DPET 21501FR-USF	DPET 0702003FR-USF	1	2	1/4	3/32	0.110	0.001	11		●		
		21502FR-USF	070201FR-USF						0.004			●		
		21502FL-USF	070201FL-USF						0.004			●		
		21505FR-USF	070202FR-USF						0.008			●		
		21505FL-USF	070202FL-USF						0.008			●		
		DPET 32501FR-USF	DPET 11T3003FR-USF	2	2	3/8	5/32	0.173	0.001	11		●		
		32502FR-USF	11T301FR-USF						0.004			●		
		32502FL-USF	11T301FL-USF						0.004			●		
		32505FR-USF	11T302FR-USF						0.008			●	●	
		32505FL-USF	11T302FL-USF						0.008			●	●	
		DPET 215013MFR-USF	DPET 0702005MFR-USF	1	2	1/4	3/32	0.110	< 0.002	11	●			
		21502MFR-USF	070201MFR-USF						< 0.004		●			
		21505MFR-USF	070202MFR-USF						< 0.008		●			
		DPET 325013MFR-USF	DPET 11T3005MFR-USF	2	2	3/8	5/32	0.173	< 0.002	11	●			
		32502MFR-USF	11T301MFR-USF						< 0.004		●			
		32505MFR-USF	11T302MFR-USF						< 0.008		●			

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

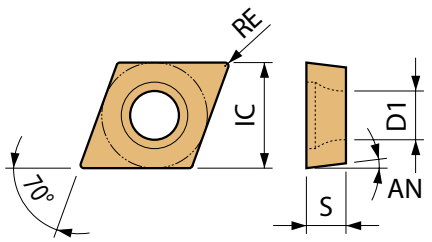


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

70° Diamond

How to read this page See page B15



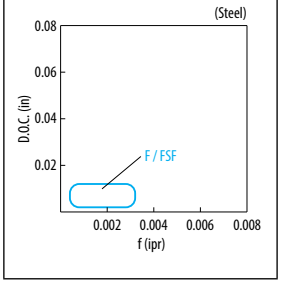
	P	M	K	N	S	H
Free-cutting steel						
Carbon steel / Alloy steel	●	○				
Stainless Steel	●	○	○			
Gray cast iron						
Nodular cast iron						
Non-ferrous metals				●		
Heat-resistant alloy	✖					
Titanium alloy	●			○		
Hard materials						

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1535	PR1725	- PR930	- KW10	Cermet - TN60	Applicable Toolholder Page
Finishing	Precision / Sharp Edge	JCET 110905R-FSF	JCET 030102R-FSF	1	2	0.138	0.055	0.075	0.008	7					●	F88 F89
		110905L-FSF	030102L-FSF						0.008				●		●	
		11091L-FSF	030104L-FSF						1/64				●			
		JCET 110902MR-FSF	JCET 030101MR-FSF	1	2	0.138	0.055	0.075	< 0.004	7		●				
		110902ML-FSF	030101ML-FSF						< 0.004			●				
Finishing	Sharp Edge	JCET 110905MR-F	JCET 030102MR-F	1	2	0.138	0.055	0.075	< 0.008	7	●	●				
		110905ML-F	030102ML-F						< 0.008		●	●				
		11091MR-F	030104MR-F						< 1/64		●	●				
		11091ML-F	030104ML-F						< 1/64		●	●				
Finishing	Sharp Edge	JCGT 110902R-F	JCGT 030101R-F	1	2	0.138	0.055	0.075	0.004	7			●			
		110902L-F	030101L-F						0.004					●	●	
		110905R-F	030102R-F						0.008				●	●	●	
		110905L-F	030102L-F						0.008				●	●	●	
		11091R-F	030104R-F						1/64				●		●	
		11091L-F	030104L-F						1/64				●		●	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

1

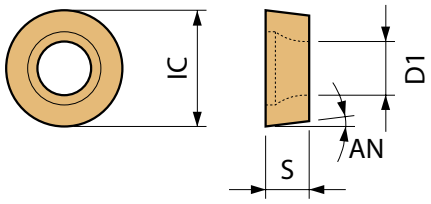


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Round

How to read this page See page B15

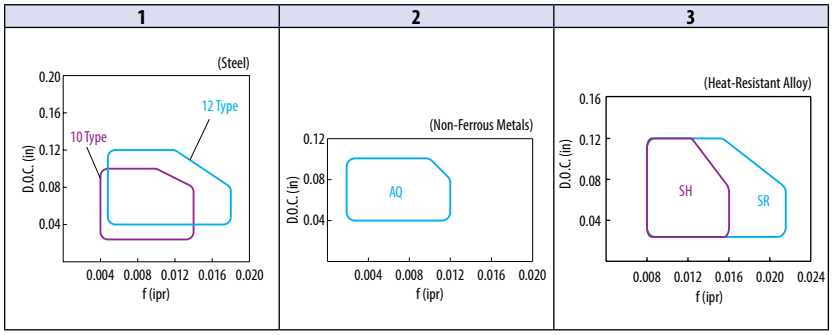


Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in) IC	S	D1	Angle (°) AN	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA410K	CA415K	CA4515	CA510	CA515	CA525	CA530	CA6525	Carbide PVD PR1515	Carbide - KW10	Carbide - GW15	Cermet PVD PV720	PV730	Cermet - TN60	TN620	Applicable Toolholder Page
Medium		RCMX 1003M0	RCMX 1003M0	1	0.394	1/8	0.142	7	●	●	●							●	●	●	●	●				●	●	●	●	D45
		RCMX 1204M0	RCMX 1204M0	1	0.472	3/16	0.165	7	●	●	●	●	●	●	●	●	●	●	●	●	●	●				●	●	●	●	
Non-Ferrous Metals	Finishing - Medium	RCGX 1003M0-AQ	RCGX 1003M0-AQ	2	0.394	1/8	0.142	7																●						
Finishing - Medium		RCMT 43SR	RCMT 120400SR	3	0.500	3/16	0.173	7															●		●					-

Chipbreaker shape of RCMX... varies by grade (cermet / PVD coated cermet / CVD coated carbide)

Chipbreaker Range

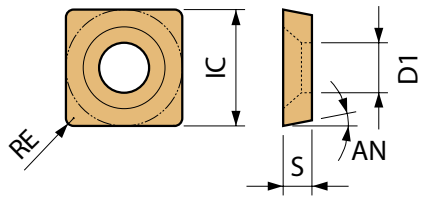


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

90° Square

How to read this page See page B15

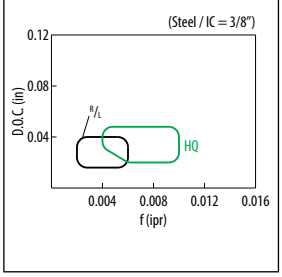


Free-cutting steel		P
Carbon steel / Alloy steel	◔ ○ ◕ ● ✕ ● ◕ ◔ ● ◕	P
Stainless Steel		M
Gray cast iron		K
Nodular cast iron		K
Non-ferrous metals		N
Heat-resistant alloy		S
Titanium alloy		S
Hard materials		H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	Cermet PVD PV710	PV720	PV730	- TN60	TN610	TN620	Applicable Toolholder Page
Finishing - Medium		SCMT 3251HQ	SCMT 09T304HQ	1	4	3/8	5/32	0.173	1/64	7	●	●	●	●	●	●	●	●	●	●	●	●	●	-
		3252HQ	09T308HQ						1/32		●	●	●		●	●	●	●	●	●	●	●	●	
Finishing		SPGH 321L	SPGH 090304L	1	4	3/8	1/8	0.181	1/64	11											●			F129

Chipbreaker Range

1

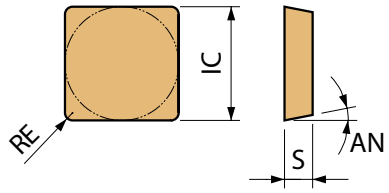


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

90° Square

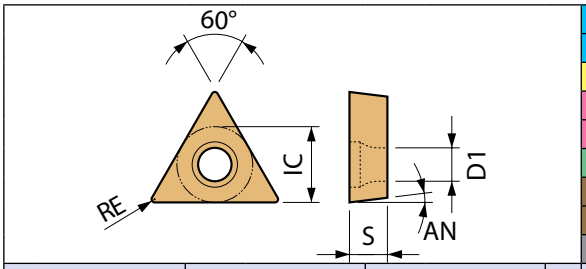
How to read this page See page B15



| | | |

60° Triangle

How to read this page See page B15



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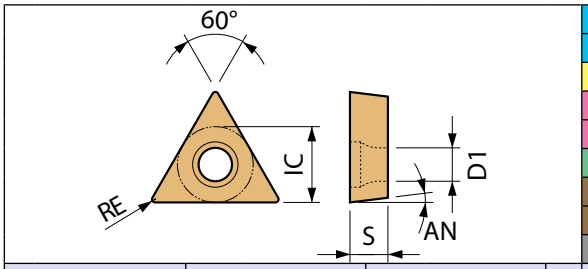
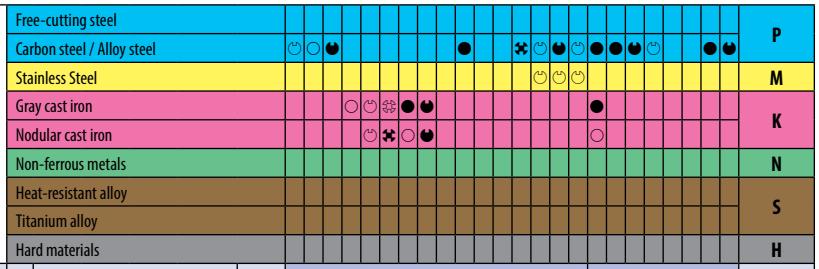
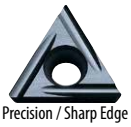
60° Triangle

How to read this page See page B15

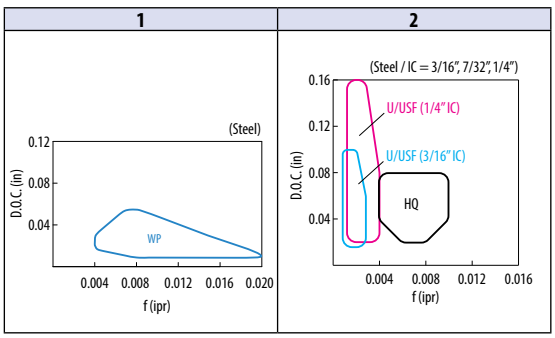




Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide CVD CA025P	CA115P	CA125P	CA310	CA315	CA320	CA410K	CA415K	CA4515	CA510	CA515	CA525	CA530	Carbide PVD PR1225	PR1725	PR930	Cermet CVD CCX	Cermet PVD PV710	PV720	PV730	PV90	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing	With Wiper Edge	TCMX 18151WP	TCMX 090204WP	1	3	7/32	3/32	0.098	1/64	7	●	●	●							●	●	●	●	●	●			●	●				●	●	
		TCMX 2151WP	TCMX 110204WP	1	3	1/4	3/32	0.110	1/64	7	●	●	●							●	●	●	●	●	●			●	●				●	●	
Finishing - Medium		TCMT 181505HQ	TCMT 090202HQ	2	3	7/32	3/32	0.098	0.008	7												●	●				●	●	●	●		●	●	●	F100 F101
		18151HQ	090204HQ						1/64				●									●	●				●	●	●	●		●	●	●	
		TCMT 21505HQ	TCMT 110202HQ	2	3	1/4	3/32	0.110	0.008	7																	●	●	●	●		●	●	●	
		2151HQ	110204HQ						1/64		●	●	●	●	●	●	●	●	●	●	●	●	●			●	●	●	●	●		●	●	●	
		2152HQ	110208HQ						1/32		●	●	●	●	●	●	●	●		●	●	●	●				●	●	●	●	△	●	●	●	
		TCMT 3251HQ	TCMT 16T304HQ	2	3	3/8	5/32	0.173	1/64	7		●	●							●	●	●	●				●		●	●		●		●	-
		3252HQ	16T308HQ						1/32			●	●	●	●	●	●	●	●	●	●	●	●				●		●	●		●		●	
		3253HQ	16T312HQ						3/64				●	●	●	●	●	●				●	●				●								
Low Feed	 Precision / Sharp Edge	TCET 151501FR-USF	TCET 0802003FR-USF	2	3	3/16	3/32	0.098	0.001	7																●									E40
		151501FL-USF	0802003FL-USF						0.001																	●									
		151502FR-USF	080201FR-USF						0.004																	●									
		151505FR-USF	080202FR-USF						0.008																	●									
		TCET 2201FR-USF	TCET 1103003FR-USF	2	3	1/4	1/8	0.110	0.001	7																●									
		2201FL-USF	1103003FL-USF						0.001																	●									
		2202FR-USF	110301FR-USF						0.004																	●									
		2202FL-USF	110301FL-USF						0.004																	●									
		2205FR-USF	110302FR-USF						0.008																	●									
		2205FL-USF	110302FL-USF						0.008																	●									
		TCET 22013MFR-USF	TCET 1103005MFR-USF	2	3	1/4	1/8	0.110	< 0.002	7																●									
		2202MFR-USF	110301MFR-USF						< 0.004																	●									
		2205MFR-USF	110302MFR-USF						< 0.008																	●									

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).
See "Precautions when using Wiper inserts" on page **R42** and **R43** for WP chipbreaker.

Chipbreaker Range

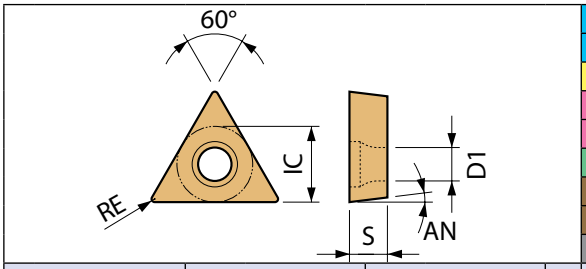


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

60° Triangle

How to read this page See page B15



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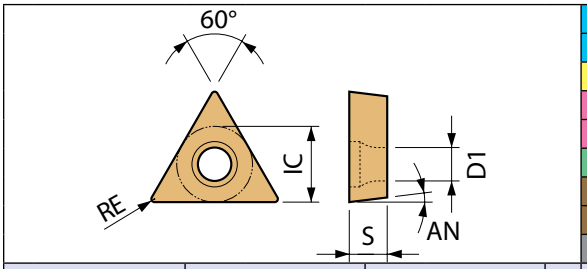
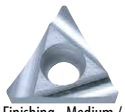
60° Triangle

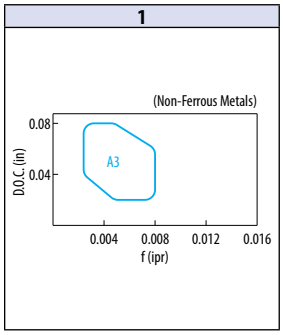
How to read this page See page B15



Free-cutting steel		P
Carbon steel / Alloy steel		
Stainless Steel		M
Gray cast iron	○	K
Nodular cast iron		
Non-ferrous metals	●	N
Heat-resistant alloy		S
Titanium alloy	○	
Hard materials		H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide DLC PDJ010	DLC PDJ025	- KW10	Applicable Toolholder Page
Non-Ferrous Metals	 Finishing - Medium / Sharp Edge	TCGT 2205R-A3	TCGT 110302R-A3	1	3	1/4	1/8	0.110	0.008	7	●	●	●	E40
		2205L-A3	110302L-A3						0.008		●	●	●	
		221R-A3	110304R-A3						1/64		●	●	●	
		221L-A3	110304L-A3						1/64		●	●	●	
		222R-A3	110308R-A3						1/32		●	●		
		222L-A3	110308L-A3						1/32		●	●		
Cast Iron	Without Chipbreaker	TCGW 151502	TCGW 080201	-	3	3/16	3/32	0.098	0.004	7			●	
		151505	080202						0.008				●	
		TCGW 2202	TCGW 110301	-	3	1/4	1/8	0.110	0.004	7			●	
		2205	110302						0.008				●	
		221	110304						1/64				●	

Chipbreaker Range

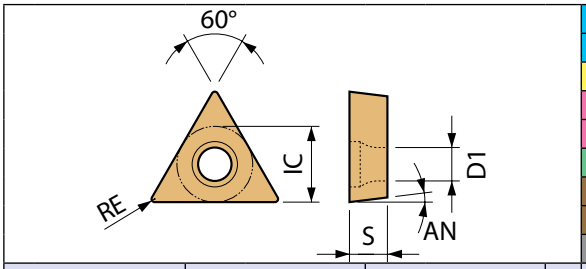


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

60° Triangle

How to read this page See page B15



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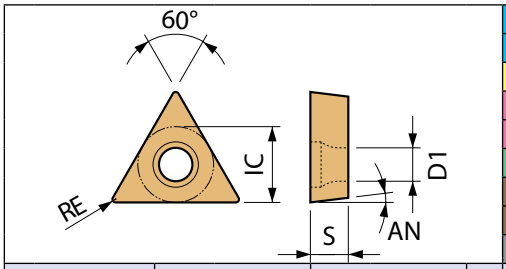
60° Triangle

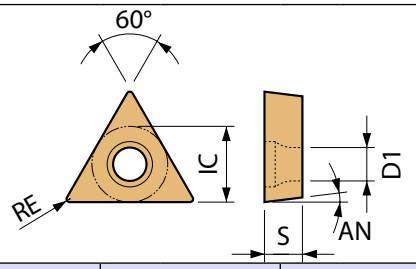
How to read this page See page B15



| | | |

60° Triangle

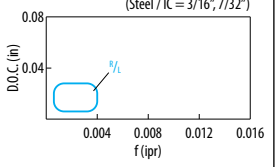
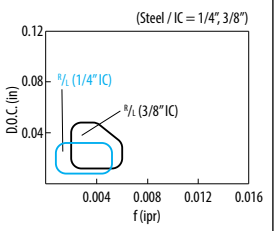
How to read this page See page B15



Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1535	Carbide PVD PR1705	Carbide PVD PR1725	Carbide PVD PR930	Carbide - KW10	Cermet PVD PV7005	Cermet PVD PV710	Cermet PVD PV720	Cermet PVD PV730	Cermet - TN60	Cermet - TN610	Cermet - TN620	Applicable Toolholder Page
Finishing	TPGH 151502R	TPGH 080201R	1	3	3/16	3/32	0.091	0.004	11	●		●										E41 F90~F94 F98
	151502L	080201L						0.004		●			●	●					●			
	151505R	080202R						0.008		●	●	●	●	●			●	●	●		●	
	151505L	080202L						0.008		●	●	●	●	●		●	●	●	●	●	●	
	15151R	080204R						1/64		●	●	●	●	●			●	●	●		●	
	15151L	080204L						1/64		●	●	●	●	●	●	●	●	●	●	●	●	
	TPGH 181502R	TPGH 090201R	1	3	7/32	3/32	0.126	0.004	11	●		●	●	●								F35~F36 F90~F94 F98
	181502L	090201L						0.004		●		●	●	●					●			
	181505R	090202R						0.008		●	●	●	●	●			●	●	●		●	
	181505L	090202L						0.008		●	●	●	●	●	●	●	●	●	●	●	●	
	18151R	090204R						1/64		●	●	●	●	●	●		●	●	●		●	
	18151L	090204L						1/64		●	●	●	●	●	●	●	●	●	●	●	●	
	TPGH 21505R	TPGH 110202R	2	3	1/4	3/32	0.146	0.008	11	●		●	●									F96 F97
	21505L	110202L						0.008		●	●	●	●	●		●	●	●	●	●	●	
	2151R	110204R						1/64		●		●	●	●					●			
	2151L	110204L						1/64		●	●	●	●	●		●	●	●	●	●	●	
	TPGH 2205R	TPGH 110302R	2	3	1/4	1/8	0.130	0.008	11	●	●	●	●	●			●	●	●		●	E41 F90~F97 F136
	2205L	110302L						0.008		●	●	●	●	●	●	●	●	●	●	●	●	
	221R	110304R						1/64		●	●	●	●	●	●		●	●	●		●	
	221L	110304L						1/64		●	●	●	●	●	●	●	●	●	●	●	●	
	222R	110308R						1/32		●		●	●	●		●	●	●	●	●	●	
	222L	110308L						1/32		●	●	●	●	●		●	●	●	●	●	●	
	TPGH 3205R	TPGH 160302R	2	3	3/8	1/8	0.185	0.008	11	●		●	●	●		●	●	●	●	●	●	F90~F92 F96, F136
	3205L	160302L						0.008		●		●	●	●		●	●	●	●	●	●	
	321R	160304R						1/64		●		●	●	●		●	●	●	●	●	●	
	321L	160304L						1/64		●	●	●	●	●	●	●	●	●	●	●	●	
	322R	160308R						1/32		●		●			●							
	322L	160308L						1/32		●		●	●	●		●	●	●	●	●	●	

Chipbreaker Range

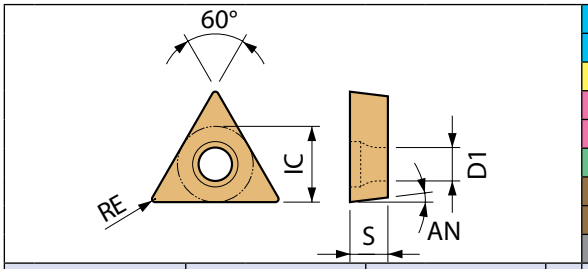
1	2
	

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

60° Triangle

How to read this page See page B15

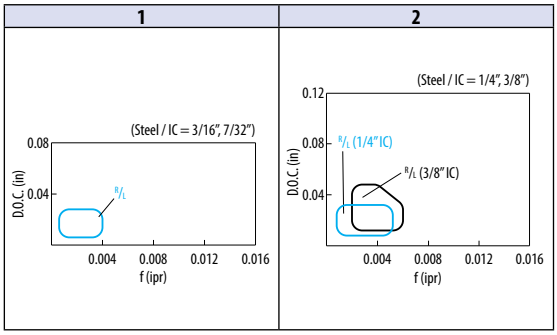


Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1705	Carbide PVD PR1725	Applicable Toolholder Page
Finishing	TPGH 151502ML	TPGH 080201ML	1	3	3/16	3/32	0.091	< 0.004	11		●	E41 F90~F94 F98
	151505MR	080202MR						< 0.008		●	●	
	151505ML	080202ML						< 0.008		●	●	
	15151MR	080204MR						< 1/64		●	●	
	15151ML	080204ML						< 1/64		●	●	
	TPGH 181502ML	TPGH 090201ML	1	3	7/32	3/32	0.126	< 0.004	11		●	F35~F36 F90~F94 F98
	181505MR	090202MR						< 0.008			●	
	181505ML	090202ML						< 0.008		●	●	
	18151MR	090204MR						< 1/64		●	●	
	18151ML	090204ML						< 1/64		●	●	
	TPGH 21505ML	TPGH 110202ML	2	3	1/4	3/32	0.146	< 0.008	11	●		F96 F97
	2151ML	110204ML						< 1/64			●	
	TPGH 2205MR	TPGH 110302MR	2	3	1/4	1/8	0.130	< 0.008	11	●	●	E41 F90~F97 F136
	2205ML	110302ML						< 0.008		●	●	
	221MR	110304MR						< 1/64		●	●	
	221ML	110304ML						< 1/64		●	●	
	222ML	110308ML						< 1/32		●	●	
	TPGH 3205ML	TPGH 160302ML	4	3	3/8	1/8	0.185	< 0.008	11		●	F90~F92 F96, F136
	321MR	160304MR						< 1/64			●	
	321ML	160304ML						< 1/64		●	●	
	322ML	160308ML						< 1/32			●	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

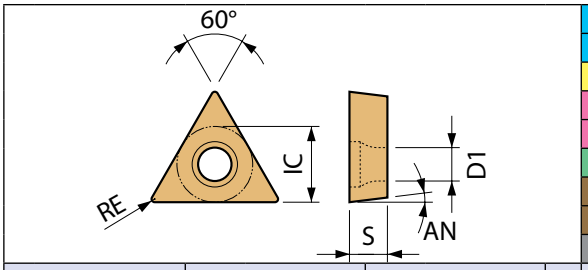


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

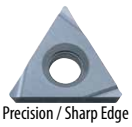
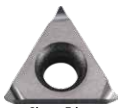
Inserts sold in 10 piece boxes

60° Triangle

How to read this page See page B15

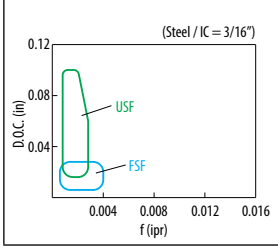
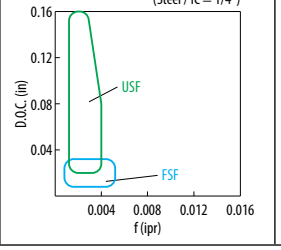
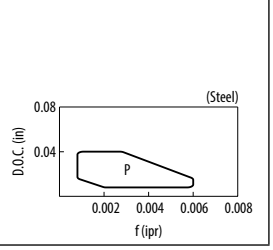


Free-cutting steel																		P
Carbon steel / Alloy steel												●	○					P
Stainless Steel												●	○	○				M
Gray cast iron																		K
Nodular cast iron																		K
Non-ferrous metals																		N
Heat-resistant alloy												✖						S
Titanium alloy												●						S
Hard materials																		H

	Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1535	PR1725	PR930	Cermet - TN60	TN610	Applicable Toolholder Page
Finishing	No Chipbreaker	TP 405	TP 110202	-	3	1/4	3/32	0.110	0.008	11					●	-
		41	110204						1/64						●	
Finishing	 Precision / Sharp Edge	TPET 151501L-FSF	TPET 0802003L-FSF	1	3	3/16	3/32	0.091	0.001	11		●				E41 F90~F94 F98
		151502R-FSF	080201R-FSF						0.004			●				
		151502L-FSF	080201L-FSF						0.004			●				
		151505R-FSF	080202R-FSF						0.008			●				
		151505L-FSF	080202L-FSF						0.008		●	●	●			
		TPET 2201R-FSF	TPET 1103003R-FSF	2	3	1/4	1/8	0.130	0.001	11		●				E41 F90~F97 F136
		2201L-FSF	1103003L-FSF						0.001			●				
		22013L-FSF	1103005L-FSF						0.002		●					
		2202R-FSF	110301R-FSF						0.004		●	●	●			
		2202L-FSF	110301L-FSF						0.004		●	●	●			
		2205R-FSF	110302R-FSF						0.008		●	●	●			
		2205L-FSF	110302L-FSF						0.008		●	●	●			
		TPET 151505ML-FSF	TPET 080202ML-FSF	1	3	3/16	3/32	0.091	< 0.008	11		●				E41 F90~F94 F98
		TPET 22013ML-FSF	TPET 1103005ML-FSF	2	3	1/4	1/8	0.130	< 0.002	11		●				E41 F90~F97 F136
		2202MR-FSF	110301MR-FSF						< 0.004			●				
		2202ML-FSF	110301ML-FSF						< 0.004			●				
		2205MR-FSF	110302MR-FSF						< 0.008			●				
		2205ML-FSF	110302ML-FSF						< 0.008			●				
Finishing	 Sharp Edge	TPEH 151502MR-P	TPEH 080201MR-P	3	3	3/16	3/32	0.091	< 0.004	11	●	●				E41 F90~F94 F98
		151502ML-P	080201ML-P						< 0.004		●	●				
		151505MR-P	080202MR-P						< 0.008		●	●				
		151505ML-P	080202ML-P						< 0.008		●	●				
		15151MR-P	080204MR-P						< 1/64		●	●				
		15151ML-P	080204ML-P						< 1/64		●	●				
		TPEH 181502MR-P	TPEH 090201MR-P	3	3	7/32	3/32	0.126	< 0.004	11	●	●				F35~F36 F90~F94 F98
		181502ML-P	090201ML-P						< 0.004		●	●				
		181505MR-P	090202MR-P						< 0.008		●	●				
		181505ML-P	090202ML-P						< 0.008		●	●				
		18151MR-P	090204MR-P						< 1/64		●	●				
		18151ML-P	090204ML-P						< 1/64		●	●				
		TPEH 2202MR-P	TPEH 110301MR-P	3	3	1/4	1/8	0.130	< 0.004	11	●	●				E41 F90~F97 F136
		2202ML-P	110301ML-P						< 0.004		●	●				
		2205MR-P	110302MR-P						< 0.008		●	●				
		2205ML-P	110302ML-P						< 0.008		●	●				
		221MR-P	110304MR-P						< 1/64		●	●				
		221ML-P	110304ML-P						< 1/64		●	●				

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

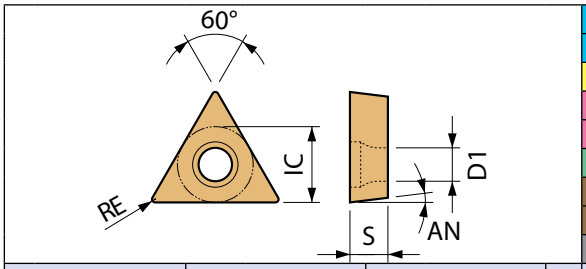
1	2	3
		

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

60° Triangle

How to read this page See page B15

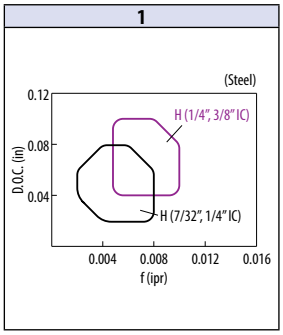


Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1535	Carbide PVD PR1725	Carbide PVD PR930	Carbide - KW10	Cermet PVD PV710	Cermet PVD PV720	Cermet PVD PV730	Cermet - TN60	Cermet - TN610	Cermet - TN620	Applicable Toolholder Page
Medium	TPGH 181502L-H	TPGH 090201L-H	1	3	7/32	3/32	0.126	0.004	11	●	●									F35~F36 F90~F94 F98
	181505L-H	090202L-H						0.008		●	●									
	18151L-H	090204L-H						1/64		●	●									
	TPGH 2205R-H	TPGH 110302R-H	1	3	1/4	1/8	0.130	0.008	11	●	●	●					●			E41 F90~F97 F136
	2205L-H	110302L-H						0.008		●	●	●	●	●	●	●	●	●	●	
	221R-H	110304R-H						1/64		●	●	●	●		●	●	●		●	
	221L-H	110304L-H						1/64		●	●	●	●	●	●	●	●	●	●	
	222R-H	110308R-H						1/32		●	●	●					●			
	222L-H	110308L-H						1/32		●	●	●	●	●	●	●	●	●	●	
	TPGH 321R-H	TPGH 160304R-H	1	3	3/8	1/8	0.185	1/64	11	●	●	●					●			F90~F92 F96, F136
	321L-H	160304L-H						1/64		●	●	●	●	●	●	●	●	●	●	
	322R-H	160308R-H						1/32		●	●	●								
	322L-H	160308L-H						1/32		●	●	●					●			
	TPGT 3305L-H	TPGT 160402L-H	1	3	3/8	3/16	0.177	0.008	11					●	●	●		●	●	-
	331L-H	160404L-H						1/64						●	●	●	●	●	●	
	TPGH 2205ML-H	TPGH 110302ML-H	1	3	1/4	1/8	0.130	< 0.008	11		●									E41 F90~F97 F136
	221ML-H	110304ML-H						< 1/64			●									
	TPGH 321ML-H	TPGH 160304ML-H	1	3	3/8	1/8	0.185	< 1/64	11		●									F90~F92 F96, F136

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

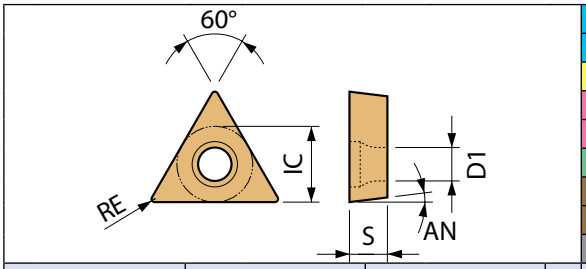


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

60° Triangle

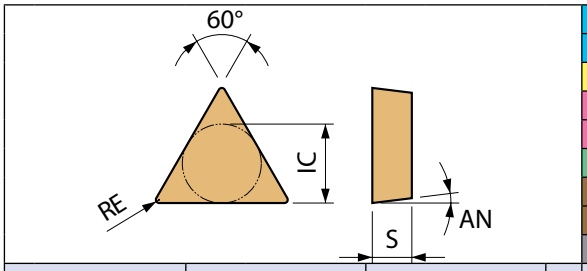
How to read this page See page B15



| | | |

60° Triangle

How to read this page See page B15



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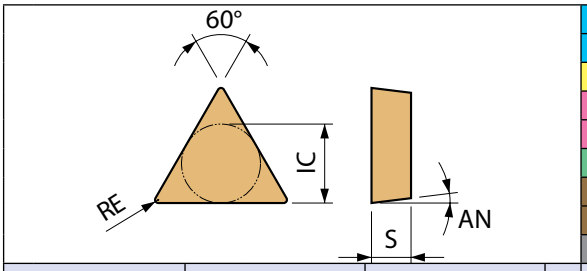
60° Triangle

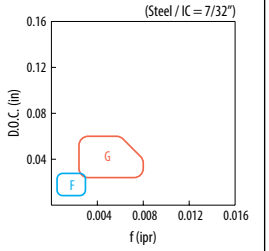
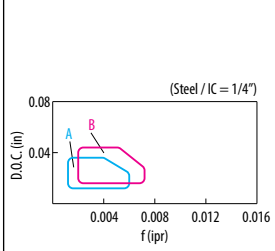
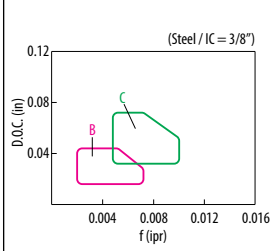
How to read this page See page B15



Workpiece		
Free-cutting steel		P
Carbon steel / Alloy steel	● ◒ ◔	P
Stainless Steel		M
Gray cast iron	○ ◔ ❁ ● ◒ ◔ ●	K
Nodular cast iron	◔ ✖ ○ ◒ ○	K
Non-ferrous metals	◒	N
Heat-resistant alloy		S
Titanium alloy	◔	S
Hard materials		H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	RE	Angle (°) AN	Carbide CVD CA310	CA315	CA320	CA410K	CA415K	CA4515	- KW10	Cermet PVD PV7005	PV710	PV720	PV730	- TN60	TN610	TN620	Applicable Toolholder Page
Finishing	Sharp Edge	TPGR 181505L-F	TPGR 090202L-F					0.008													●			
		18151R-F	090204R-F	1	3	7/32	3/32	1/64	11												●			
		18151L-F	090204L-F					1/64													●			
Finishing		TPGR 2205R-A	TPGR 110302R-A					0.008													●			
		2205L-A	110302L-A	2	3	1/4	1/8	0.008	11								●	●	●	●	●	●	●	
		221R-A	110304R-A					1/64								●					●			
		221L-A	110304L-A					1/64								●	●	●	●	●	●	●	●	
Finishing - Medium		TPGR 221R-B	TPGR 110304R-B					1/64													●			
		221L-B	110304L-B	2	3	1/4	1/8	1/64	11								●	●	●	●	●	●	●	
		222R-B	110308R-B					1/32													●			
		222L-B	110308L-B					1/32									●	●	●	●	●	●	●	
		TPGR 3205R-B	TPGR 160302R-B					0.008									●	●	●	●	●	●	●	
		3205L-B	160302L-B					0.008									●	●	●	●	●	●	●	
		321R-B	160304R-B	3	3	3/8	1/8	1/64	11							●	●	●	●	●	●	●	●	F131
		321L-B	160304L-B					1/64								●	●	●	●	●	●	●	●	
		322R-B	160308R-B					1/32								●	●	●	●	●	●	●	●	
		322L-B	160308L-B					1/32								●	●	●	●	●	●	●	●	
Medium		TPGR 321R-C	TPGR 160304R-C					1/64									●	●	●	●	●	●	●	
		321L-C	160304L-C	3	3	3/8	1/8	1/64	11								●	●	●	●	●	●	●	
		322R-C	160308R-C					1/32									●	●	●	●	●	●	●	
		322L-C	160308L-C					1/32									●	●	●	●	●	●	●	
Cast Iron	Without Chipbreaker	TPG 181505	TPGN 090202					0.008								●								
		18151	090204	-	3	7/32	3/32	1/64	11							●					●	●		
		TPG 2205	TPGN 110302					0.008								●					●			
		221	110304	-	3	1/4	1/8	1/64	11							●	●	●	●		●	●	●	
		222	110308					1/32								●	●	●	●		●	●	●	
		TPG 321	TPGN 160304					1/64								●	●	●	●		●	●	●	
		322	160308	-	3	3/8	1/8	1/32	11							●	●	●	●		●	●	●	
		TPM 221	TPMN 110304					1/64		●	●	●	●	●	●	●								
		222	110308	-	3	1/4	1/8	1/32	11	●	●	●	●	●	●	●								
		TPM 321	TPMN 160304					1/64		●	●	●	●	●	●	●								
		322	160308	-	3	3/8	1/8	1/32	11	●	●	●	●	●	●	●								
		323	160312					3/64		●	●	●	●	●	●									

Chipbreaker Range

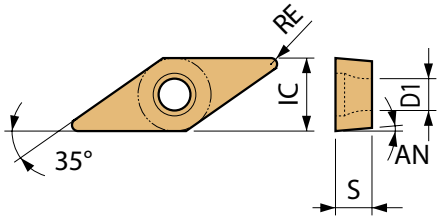
1	2	3
		

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

35° Diamond

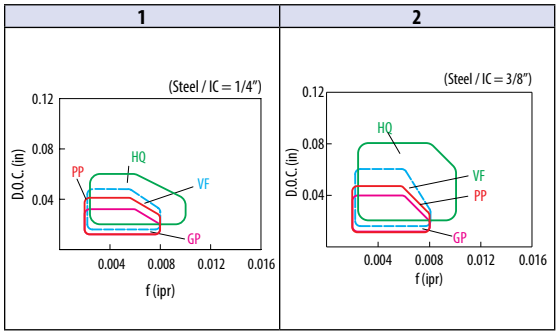
How to read this page See page B15



Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD PR1225	PR1535	PR1725	PR930	Cermet CVD CCX	Cermet PVD PV7005	PV710	PV720	PV730	PV90	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing		VBMT 2205PP	VBMT 110302PP	1	2	1/4	1/8	0.110	0.008	5	●	●	●	●	●	●	●			●	●	●		●		●	●	●			●	●	E42~E47 E62 F102, F103 F106~F114 F137
		221PP	110304PP						1/64		●	●	●	●	●	●	●			●	●	●		●		●	●	●			●	●	
		222PP	110308PP						1/32		●	●	●	●	●	●	●			●	●	●		●		●	●	●			●	●	
		VBMT 331PP	VBMT 160404PP	2	2	3/8	3/16	0.173	1/64	5	●	●	●	●	●	●	●			●	●	●		●		●	●	●			●	●	E45~E47 F102~F103 F106~F114 F137
		332PP	160408PP						1/32		●	●	●	●	●	●	●			●	●	●		●		●	●	●			●	●	
		333PP	160412PP						3/64		●	●	●	●	●	●	●				●	●		●		●	●				●	●	
Finishing		VBMT 221GP	VBMT 110304GP	1	2	1/4	1/8	0.110	1/64	5	●	●	●	●	●	●	●				●	●					●	●	●			●	●	E42~E47, E62 F102, F103 F106~F114 F137
		VBMT 331GP	VBMT 160404GP	2	2	3/8	3/16	0.173	1/64	5	●	●	●	●	●	●	●					●	●				●	●	●			●	●	E45~E47 F102~F103 F106~F114 F137
		332GP	160408GP						1/32		●	●	●		●	●	●					●	●				●	●	●			●	●	
Finishing		VBMT 2205VF	VBMT 110302VF	1	2	1/4	1/8	0.110	0.008	5	●	●	●	●	●	●				●	●	●	●	●		●	●	●			●	●	E42~E47 E62 F102, F103 F106~F114 F137
		221VF	110304VF						1/64		●	●	●	●	●	●	●			●	●	●	●	●		●	●	●			●	●	
		222VF	110308VF						1/32		●	●	●	●	●	●	●			●	●	●	●	●		●	●	●			●	●	
		VBMT 3305VF	VBMT 160402VF	2	2	3/8	3/16	0.173	0.008	5	●	●	●	●	●	●	●				●	●	●	●		●	●	●			●	●	E45~E47 F102~F103 F106~F114 F137
		331VF	160404VF						1/64		●	●	●	●	●	●	●				●	●	●	●		●	●	●			●	●	
		332VF	160408VF						1/32		●	●	●	●	●	●	●				●	●	●	●		●	●	●	△		●	●	
		333VF	160412VF						3/64		●	●	●	●	●	●	●				●		●	●		●	●				●	●	
Finishing - Medium		VBMT 221HQ	VBMT 110304HQ	1	2	1/4	1/8	0.110	1/64	5	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●			●	●	E42~E47 E62 F102, F103 F106~F114 F137
		222HQ	110308HQ						1/32		●	●	●	●	●	●	●	●	●		●	●		●	●	●	●	●			●	●	
		VBMT 331HQ	VBMT 160404HQ	2	2	3/8	3/16	0.173	1/64	5	●	●	●	●	●	●	●	●	●			●		●	●	●	●				●	●	E45~E47 F102~F103 F106~F114 F137
		332HQ	160408HQ						1/32		●	●	●	●	●	●	●	●	●			●	●	●	●	●	●				●	●	
		333HQ	160412HQ						3/64		●	●	●	●	●	●	●	●				●		●	●	●					●	●	

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

35° Diamond

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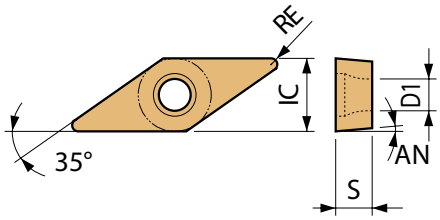


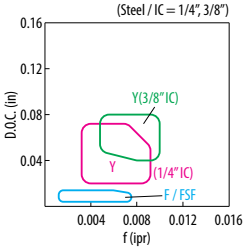
Work Material	
Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1225	PR1535	PR1705	PR1725	PR930	Carbide - KW10	Cermet PVD PV710	PV720	PV730	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing	Precision / Sharp Edge	VBET 2201R-FSF	VBET 1103003R-FSF	1	2	1/4	1/8	0.110	0.001	5					●					●			E42~E47 E62 F102, F103 F106~F114 F137
		2201L-FSF	1103003L-FSF						0.001						●								
		2202R-FSF	110301R-FSF						0.004						●					●			
		2202L-FSF	110301L-FSF						0.004						●					●			
		2205R-FSF	110302R-FSF						0.008						●					●			
		2205L-FSF	110302L-FSF						0.008						●					●			
		VBET 22013MR-FSF	VBET 1103005MR-FSF	1	2	1/4	1/8	0.110	< 0.002	5	●												
		22013ML-FSF	1103005ML-FSF						< 0.002		●												
		2202MR-FSF	110301MR-FSF						< 0.004		●												
		2202ML-FSF	110301ML-FSF						< 0.004		●												
		2205MR-FSF	110302MR-FSF						< 0.008		●												
		2205ML-FSF	110302ML-FSF						< 0.008		●												
Finishing	Sharp Edge	VBET 22013MR-F	VBET 1103005MR-F	1	2	1/4	1/8	0.110	< 0.002	5		●		●									
		22013ML-F	1103005ML-F						< 0.002			●		●									
		2202MR-F	110301MR-F						< 0.004			●	●	●				●	●			●	
		2202ML-F	110301ML-F						< 0.004			●		●				●	●			●	
		2205MR-F	110302MR-F						< 0.008			●	●	●			●	●	●		●	●	
		2205ML-F	110302ML-F						< 0.008			●	●	●			●	●	●		●	●	
Finishing	Sharp Edge	VBGT 2201R-F	VBGT 1103003R-F	1	2	1/4	1/8	0.110	0.001	5					●	●							
		2201L-F	1103003L-F						0.001						●								
		2202R-F	110301R-F						0.004						●	●		●	●	●		●	
		2202L-F	110301L-F						0.004						●	●				●			
		2205R-F	110302R-F						0.008						●	●		●	●	●		●	
		2205L-F	110302L-F						0.008						●	●				●			
		VBGT 22013MR-F	VBGT 1103005MR-F	1	2	1/4	1/8	0.110	< 0.002	5	●												
		22013ML-F	1103005ML-F						< 0.002		●												
		2202MR-F	110301MR-F						< 0.004		●												
		2202ML-F	110301ML-F						< 0.004		●												
		2205MR-F	110302MR-F						< 0.008		●												
		2205ML-F	110302ML-F						< 0.008		●												
Medium	Sharp Edge	VBGT 2202FN-Z	VBGT 110301FN-Z	-	2	1/4	1/8	0.110	0.004	5					●					●			
		2205FN-Z	110302FN-Z						0.008						●					●			
		221FN-Z	110304FN-Z						1/64						●					●			

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

1



Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

35° Diamond

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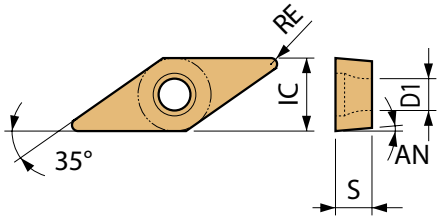
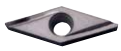
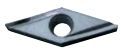
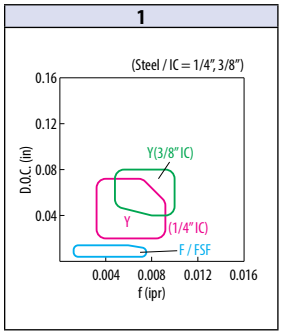


Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1225	PR1535	PR1705	PR1725	PR930	Carbide - KW10	Cermet PVD PV710	PV720	PV730	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Finishing - Medium	 Sharp Edge	VBET 22013MR-Y	VBET 1103005MR-Y	1	2	1/4	1/8	0.110	< 0.002	5	●		●										E42~E47 E62 F102, F103 F106~F114 F137
		22013ML-Y	1103005ML-Y						< 0.002		●		●										
		2202MR-Y	110301MR-Y						< 0.004		●		●										
		2202ML-Y	110301ML-Y						< 0.004		●		●										
		2205MR-Y	110302MR-Y						< 0.008		●		●				●	●	●		●	●	
		2205ML-Y	110302ML-Y						< 0.008		●		●				●	●	●		●	●	
		221MR-Y	110304MR-Y						< 1/64		●		●				●	●	●		●	●	
		221ML-Y	110304ML-Y						< 1/64		●		●				●	●	●		●	●	
Finishing - Medium	 Sharp Edge	VBGT 2201R-Y	VBGT 1103003R-Y	1	2	1/4	1/8	0.110	0.001	5					●	●							E42~E47 E62 F102, F103 F106~F114 F137
		2201L-Y	1103003L-Y						0.001						●								
		2202R-Y	110301R-Y						0.004						●	●		●	●	●		●	
		2202L-Y	110301L-Y						0.004						●	●				●			
		2205R-Y	110302R-Y						0.008						●	●		●	●	●		●	
		2205L-Y	110302L-Y						0.008						●	●		●	●	●		●	
		221R-Y	110304R-Y						1/64						●	●		●	●	●		●	
		221L-Y	110304L-Y						1/64							●		●	●	●		●	
		222R-Y	110308R-Y						1/32						●	●				●			
		222L-Y	110308L-Y						1/32						●	●				●			
		VBGT 3305R-Y	VBGT 160402R-Y	1	2	3/8	3/16	0.173	0.008	5					●	●	●	●	●	●	●	●	E45~E47 F102~F103 F106~F114 F137
		3305L-Y	160402L-Y						0.008						●	●	●	●	●	●	●	●	
		331R-Y	160404R-Y						1/64						●	●	●	●	●	●	●	●	
		331L-Y	160404L-Y						1/64						●	●	●	●	●	●	●	●	
		332R-Y	160408R-Y						1/32						●	●				●			
		332L-Y	160408L-Y						1/32						●	●				●			
		VBGT 22013MR-Y	VBGT 1103005MR-Y	1	2	1/4	1/8	0.110	< 0.002	5	●	●											E42~E47 E62 F102, F103 F106~F114 F137
		22013ML-Y	1103005ML-Y						< 0.002		●												
		2202MR-Y	110301MR-Y						< 0.004		●	●											
		2202ML-Y	110301ML-Y						< 0.004		●												
		2205MR-Y	110302MR-Y						< 0.008		●	●											
		2205ML-Y	110302ML-Y						< 0.008		●	●											
		221MR-Y	110304MR-Y						< 1/64		●	●											
		221ML-Y	110304ML-Y						< 1/64		●	●											
		222MR-Y	110308MR-Y						< 1/32		●												
		222ML-Y	110308ML-Y						< 1/32		●												
		VBGT 3305MR-Y	VBGT 160402MR-Y	1	2	3/8	3/16	0.173	< 0.008	5	●	●											E45~E47 F102~F103 F106~F114 F137
		3305ML-Y	160402ML-Y						< 0.008		●												
		331MR-Y	160404MR-Y						< 1/64		●	●											
		331ML-Y	160404ML-Y						< 1/64		●												
		332MR-Y	160408MR-Y						< 1/32		●												
		332ML-Y	160408ML-Y						< 1/32		●												

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



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Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

35° Diamond

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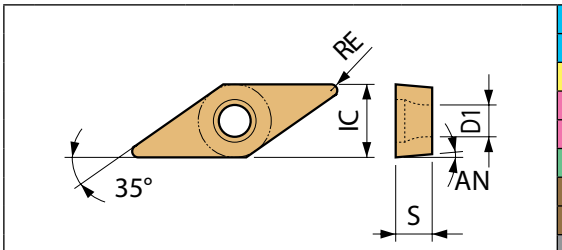
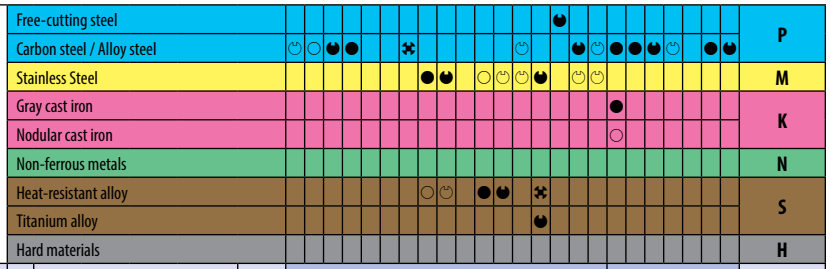
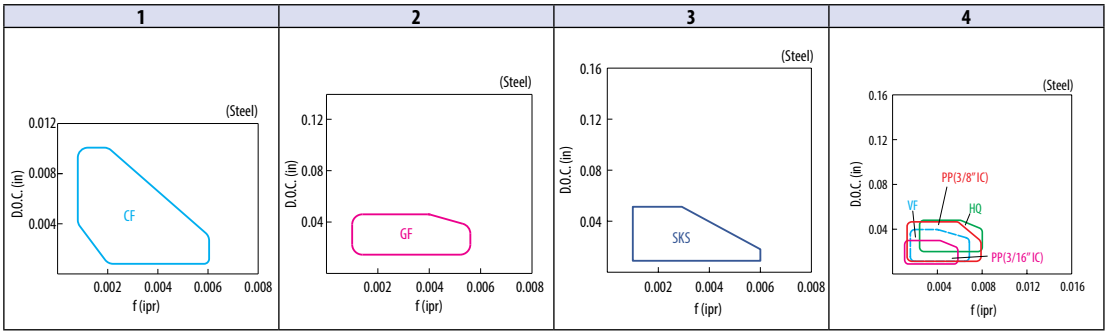




Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	CA6515	CA6525	Carbide PVD PR015S	PR115S	PR120S	PR1225	PR1535	PR1705	PR1725	PR930	Cermet CVD CCX	Cermet PVD PV710	PV720	PV730	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Minute D.O.C.	Polished / Sharp Edge	VCGT 2202MP-CF	VCGT 110301MP-CF	1	2	1/4	1/8	0.110	< 0.004	7														●		●									
		2205MP-CF	110302MP-CF						< 0.008															●		●									
Finishing	Polished / Sharp Edge	VCGT 2202MFP-GF	VCGT 110301MFP-GF	2	2	1/4	1/8	0.110	< 0.004	7														●	●	●									E48~E50 E63
		2205MFP-GF	110302MFP-GF						< 0.008															●	●	●									
Finishing	Polished / Sharp Edge	VCGT 2202MFP-SKS	VCGT 110301MFP-SKS	3	2	1/4	1/8	0.110	< 0.004	7										●	●			●	●	●									
		2205MFP-SKS	110302MFP-SKS						< 0.008											●	●			●	●	●									
		221MFP-SKS	110304MFP-SKS						< 1/64											●	●			●	●	●									
Finishing		VCMT 151505PP	VCMT 080202PP	4	2	3/16	3/32	0.091	0.008	7	●	●	●	●	●	●	●							●	●			●	●	●	●		●	●	E63 F102~F103 F106~F111 F113
		15151PP	080204PP						1/64		●	●	●	●	●	●	●							●	●			●	●	●	●		●	●	
Finishing		VCMT 331PP	VCMT 160404PP	4	2	3/8	3/16	0.173	1/64	7	●	●	●	●	●	●	●							●	●			●	●	●	●		●	●	E45~E47 F102~F103 F106~F114
		332PP	160408PP						1/32		●	●	●	●	●	●	●							●	●			●	●	●	●		●	●	
Finishing		VCMT 151505VF	VCMT 080202VF	4	2	3/16	3/32	0.091	0.008	7	●	●	●		●	●								●		●	●	●	●	●	●		●	●	E63 F102~F103 F106~F111 F113
		15151VF	080204VF						1/64		●	●	●	●	●	●	●							●		●	●	●	●	●	●		●	●	
Finishing - Medium		VCMT 151505HQ	VCMT 080202HQ	4	2	3/16	3/32	0.091	0.008	7	●	●	●		●	●								●		●	●	●	●	●	●		●	●	E63 F102~F103 F106~F111 F113
		15151HQ	080204HQ						1/64		●	●	●	●	●	●	●	●	●					●		●	●	●	●	●	●		●	●	
		VCMT 221HQ	VCMT 110304HQ	4	2	1/4	1/8	0.110	1/64	7			●			●	●															●			E48~E50 E63
		VCMT 331HQ	VCMT 160404HQ	4	2	3/8	3/16	0.173	1/64	7			●			●	●							●								●			E45~E47 F102~F103 F106~F114
		332HQ	160408HQ						1/32				●			●	●	●	△					●								●			

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



Inserts sold in 10 piece boxes

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Contact your local Kyocera sales engineer to upgrade old products to new technology

35° Diamond

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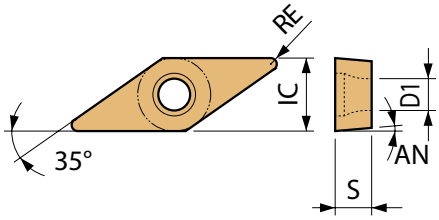
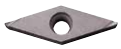
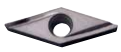
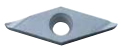
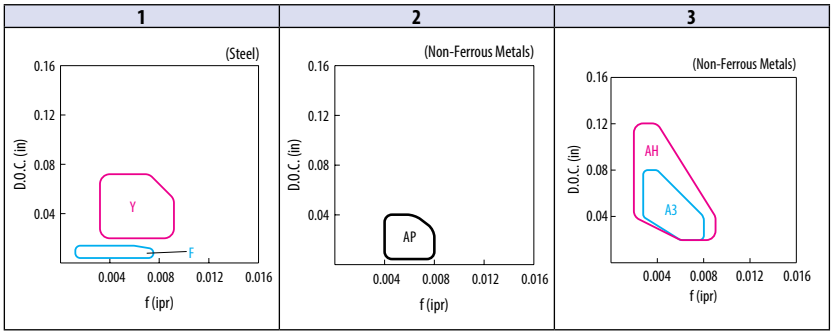


Free-cutting steel																			P
Carbon steel / Alloy steel																			P
Stainless Steel																			M
Gray cast iron																			K
Nodular cast iron																			K
Non-ferrous metals																			N
Heat-resistant alloy																			S
Titanium alloy																			S
Hard materials																			H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide DLC PDL010	DLC PDL025	PVD PR1535	PVD PR1725	- KW10	Cermet - TN60	Applicable Toolholder Page
Finishing		VCET 2202MR-F	VCET 110301MR-F	1	2	1/4	1/8	0.110	< 0.004	7			●	●			E48~E50 E63
		2202ML-F	110301ML-F						< 0.004				●	●			
		2205MR-F	110302MR-F						< 0.008				●	●			
		2205ML-F	110302ML-F						< 0.008				●	●			
		221MR-F	110304MR-F						< 1/64				●	●			
		221ML-F	110304ML-F						< 1/64				●	●			
Finishing - Medium	 Sharp Edge	VCET 22013MR-Y	VCET 1103005MR-Y	1	2	1/4	1/8	0.110	< 0.002	7			●	●			
		22013ML-Y	1103005ML-Y						< 0.002				●	●			
		2202MR-Y	110301MR-Y						< 0.004				●	●			
		2202ML-Y	110301ML-Y						< 0.004				●	●			
		2205MR-Y	110302MR-Y						< 0.008				●	●			
		2205ML-Y	110302ML-Y						< 0.008				●	●			
		221MR-Y	110304MR-Y						< 1/64				●	●			
		221ML-Y	110304ML-Y						< 1/64				●	●			
Non-Ferrous Metals	Finishing / Sharp Edge	VCGT 331AP	VCGT 160404AP	2	2	3/8	3/16	0.173	1/64	7	●				●		
Non-Ferrous Metals	 Finishing - Medium / Sharp Edge	VCGT 331R-A3	VCGT 160404R-A3	3	2	3/8	3/16	0.173	1/64	7	●	●			●		E45~E47 F102~F103 F106~F114
		331L-A3	160404L-A3						1/64		●	●			●		
		332R-A3	160408R-A3						1/32		●	●			●		
		332L-A3	160408L-A3						1/32		●	●			●		
Non-Ferrous Metals	Finishing - Medium / Sharp Edge	VCGT 331AH	VCGT 160404AH	3	2	3/8	3/16	0.173	1/64	7	●	●			●		
Medium	Sharp Edge	VCGT 2202FN-Z	VCGT 110301FN-Z	-	2	1/4	1/8	0.110	0.004	7						●	E48~E50 E63
		2205FN-Z	110302FN-Z						0.008							●	
		221FN-Z	110304FN-Z						1/64							●	
Medium - Roughing		VCGT 333	VCGT 160412	-	2	3/8	3/16	0.173	3/64	7					●		E45~E47 F102~F103 F106~F114

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

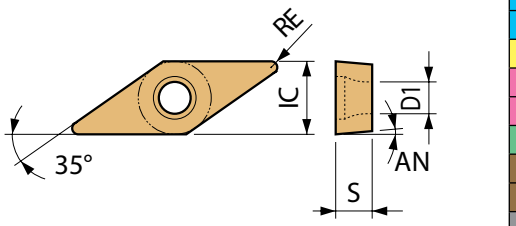


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

35° Diamond

How to read this page See page B15

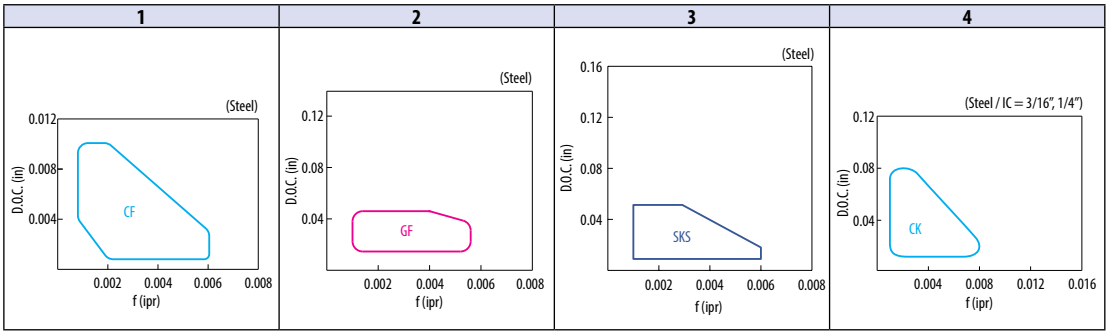


Free-cutting steel	●	P
Carbon steel / Alloy steel	● ◡	P
Stainless Steel	○ ◡ ◡ ● ◡ ◡	M
Gray cast iron	◡ ◡ ◡ ◡	K
Nodular cast iron	◡ ◡ ◡ ◡	K
Non-ferrous metals	● ●	N
Heat-resistant alloy	● ● ✕	S
Titanium alloy	●	S
Hard materials		H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide DLC PDL010	DLC PDL025	PVD PR115S	PVD PR120S	PVD PR1225	PVD PR1535	PVD PR1705	PVD PR1725	PVD PR930	Applicable Toolholder Page
Minute D.O.C.	Sharp Edge	VPGT 2205CF	VPGT 110302CF	1	2	1/4	1/8	0.110	0.008	11									●	E24 E51~E53
Minute D.O.C.	Polished / Sharp Edge	VPGT 2202MP-CF	VPGT 110301MP-CF	1	2	1/4	1/8	0.110	< 0.004	11	●	●			●	●	●	●		
		2205MP-CF	110302MP-CF						< 0.008		●	●			●	●	●	●		
Finishing	Polished / Sharp Edge	VPGT 2202MFP-GF	VPGT 110301MFP-GF	2	2	1/4	1/8	0.118	< 0.004	11					●	●	●	●		
		2205MFP-GF	110302MFP-GF						< 0.008						●	●	●	●		
Finishing	Polished / Sharp Edge	VPGT 2202MFP-SKS	VPGT 110301MFP-SKS	3	2	1/4	1/8	0.118	< 0.004	11			●	●		●	●	●		
		2205MFP-SKS	110302MFP-SKS						< 0.008				●	●		●	●	●		
		221MFP-SKS	110304MFP-SKS						< 1/64				●	●		●	●	●		
Finishing		VPGT 151502CK	VPGT 080201CK	4	2	3/16	3/32	0.091	0.004	11									●	E52~E53 F102~F103
		151505CK	080202CK						0.008										●	
		VPGT 2202CK	VPGT 110301CK	4	2	1/4	1/8	0.110	0.004	11									●	E24 E51~E53
		2205CK	110302CK						0.008										●	
Finishing	Polished / Sharp Edge	VPGT 151502MP-CK	VPGT 080201MP-CK	4	2	3/16	3/32	0.091	< 0.004	11	●	●			●	●	●	●		E52~E53 F102~F103
		151505MP-CK	080202MP-CK						< 0.008		●	●			●	●	●	●		
		VPGT 2202MP-CK	VPGT 110301MP-CK	4	2	1/4	1/8	0.110	< 0.004	11	●	●			●	●	●	●		E24 E51~E53
		2205MP-CK	110302MP-CK						< 0.008		●	●			●	●	●	●		

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



Inserts sold in 10 piece boxes

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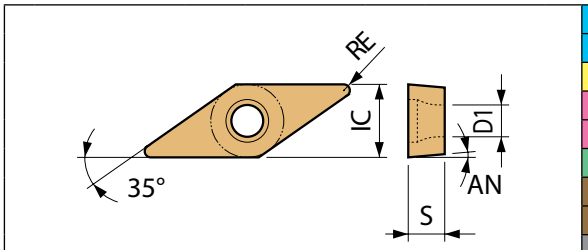
Contact your local Kyocera sales engineer to upgrade old products to new technology

35° Diamond

How to read this page See page B15

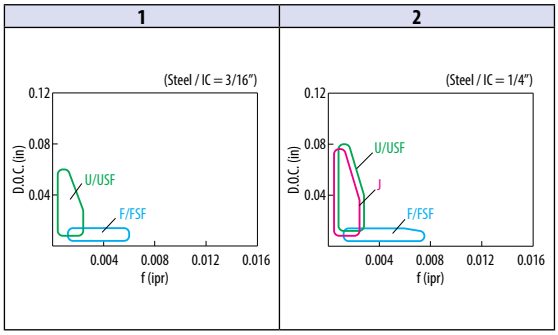


Free-cutting steel																	P
Carbon steel / Alloy steel																	P
Stainless Steel																	M
Gray cast iron																	K
Nodular cast iron																	K
Non-ferrous metals																	N
Heat-resistant alloy																	S
Titanium alloy																	S
Hard materials																	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1225	PR1535	PR1725	PR930	Cermet - TN60	Applicable Toolholder Page
Finishing	Precision / Sharp Edge	VPET 151502R-FSF	VPET 080201R-FSF	1	2	3/16	3/32	0.091	0.004	11				●	●	E52~E53 F102~F103
		151502L-FSF	080201L-FSF						0.004					●	●	
		151505R-FSF	080202R-FSF						0.008					●	●	
		151505L-FSF	080202L-FSF						0.008					●	●	
		VPET 2201R-FSF	VPET 1103003R-FSF	2	2	1/4	1/8	0.110	0.001	11				●		E24 E51~E53
		2202R-FSF	110301R-FSF						0.004					●	●	
		2202L-FSF	110301L-FSF						0.004					●	●	
		2205R-FSF	110302R-FSF						0.008					●	●	
		2205L-FSF	110302L-FSF						0.008					●	●	
		VPET 151502MR-FSF	VPET 080201MR-FSF	1	2	3/16	3/32	0.091	< 0.004	11	●					E52~E53 F102~F103
		151502ML-FSF	080201ML-FSF						< 0.004		●					
		151505MR-FSF	080202MR-FSF						< 0.008		●					
		151505ML-FSF	080202ML-FSF						< 0.008		●					
		VPET 22013MR-FSF	VPET 1103005MR-FSF	2	2	1/4	1/8	0.110	< 0.002	11	●					E24 E51~E53
		2202MR-FSF	110301MR-FSF						< 0.004		●					
		2202ML-FSF	110301ML-FSF						< 0.004		●					
		2205MR-FSF	110302MR-FSF						< 0.008		●					
		2205ML-FSF	110302ML-FSF						< 0.008		●					
Finishing	Sharp Edge	VPET 151502MR-F	VPET 080201MR-F	1	2	3/16	3/32	0.091	< 0.004	11		●	●			E52~E53 F102~F103
		151502ML-F	080201ML-F						< 0.004			●	●			
		151505MR-F	080202MR-F						< 0.008			●	●			
		151505ML-F	080202ML-F						< 0.008			●	●			
		VPET 22013MR-F	VPET 1103005MR-F	2	2	1/4	1/8	0.110	< 0.002	11		●	●			E24 E51~E53
		2202MR-F	110301MR-F						< 0.004			●	●			
		2205MR-F	110302MR-F						< 0.008			●	●			
		2205ML-F	110302ML-F						< 0.008			●	●			

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



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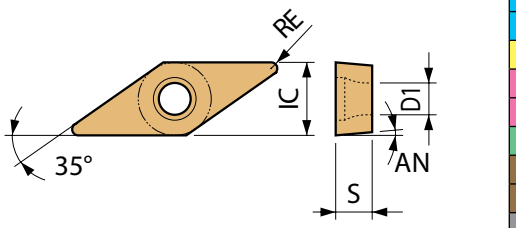
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

35° Diamond

How to read this page See page B15

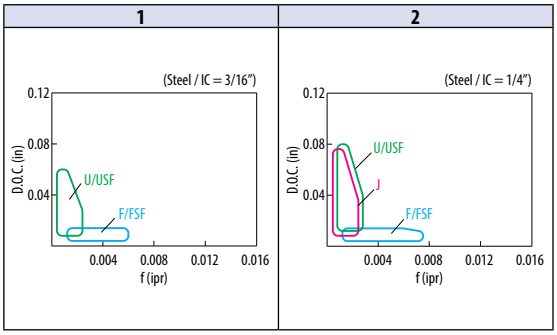


Workpiece								
Free-cutting steel								P
Carbon steel / Alloy steel	○		●	○				P
Stainless Steel	○	●	○	○				M
Gray cast iron								K
Nodular cast iron								K
Non-ferrous metals								N
Heat-resistant alloy		✱						S
Titanium alloy		●						S
Hard materials								H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	AN	Angle (°)	Carbide PVD PR1225	PR1535	PR1725	PR930	Cermet - TN60	Applicable Toolholder Page
Low Feed	Precision / Sharp Edge	VPET 151502FR-USF	VPET 080201FR-USF	1	2	3/16	3/32	0.091	0.004	11					●		E52~E53 F102~F103
		151502FL-USF	080201FL-USF						0.004						●		
		151505FR-USF	080202FR-USF						0.008						●	●	
		151505FL-USF	080202FL-USF						0.008						●	●	
		VPET 2201FR-USF	VPET 1103003FR-USF	2	2	1/4	1/8	0.110	0.001	11					●		E24 E51~E53
		2201FL-USF	1103003FL-USF						0.001						●		
		2202FR-USF	110301FR-USF						0.004						●	●	
		2202FL-USF	110301FL-USF						0.004						●		
		2205FR-USF	110302FR-USF						0.008						●	●	
		2205FL-USF	110302FL-USF						0.008						●	●	
		VPET 151502MFR-USF	VPET 080201MFR-USF	1	2	3/16	3/32	0.091	< 0.004	11		●					E52~E53 F102~F103
		151505MFR-USF	080202MFR-USF						< 0.008			●					
		151505MFL-USF	080202MFL-USF						< 0.008			●					
		VPET 22013MFR-USF	VPET 1103005MFR-USF	2	2	1/4	1/8	0.110	< 0.002	11		●					E24 E51~E53
		2202MFR-USF	110301MFR-USF						< 0.004			●					
		2202MFL-USF	110301MFL-USF						< 0.004			●					
		2205MFR-USF	110302MFR-USF						< 0.008			●					
Low Feed	Sharp Edge	VPET 151502MFR-U	VPET 080201MFR-U	1	2	3/16	3/32	0.091	< 0.004	11			●	●			E52~E53 F102~F103
		151502MFL-U	080201MFL-U						< 0.004				●	●			
		151505MFR-U	080202MFR-U						< 0.008				●	●			
		151505MFL-U	080202MFL-U						< 0.008				●	●			
		VPET 22013MFR-U	VPET 1103005MFR-U	2	2	1/4	1/8	0.110	< 0.002	11			●	●			E24 E51~E53
		22013MFL-U	1103005MFL-U						< 0.002				●	●			
		2202MFR-U	110301MFR-U						< 0.004				●	●			
		2202MFL-U	110301MFL-U						< 0.004				●	●			
		2205MFR-U	110302MFR-U						< 0.008				●	●			
		2205MFL-U	110302MFL-U						< 0.008				●	●			
Low Feed	Sharp Edge	VPET 22013MFR-J	VPET 1103005MFR-J	2	2	1/4	1/8	0.110	< 0.002	11		●	●	●			E24 E51~E53
		2202MFR-J	110301MFR-J						< 0.004			●	●	●			
		2202MFL-J	110301MFL-J						< 0.004				●	●			
		2205MFR-J	110302MFR-J						< 0.008			●	●	●			
		2205MFL-J	110302MFL-J						< 0.008				●	●			

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



Inserts sold in 10 piece boxes

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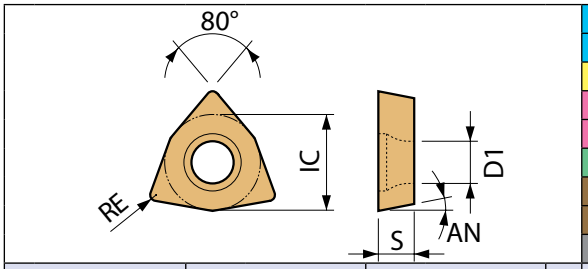
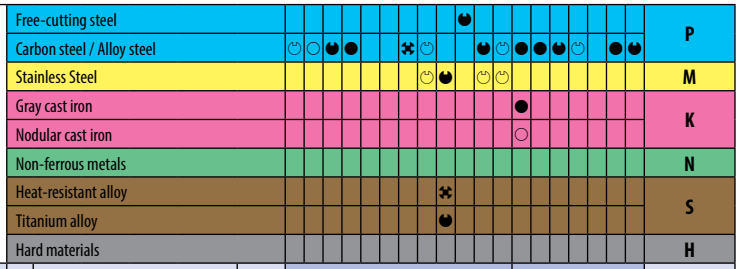
Contact your local Kyocera sales engineer to upgrade old products to new technology

80° Trigon

How to read this page See page B15

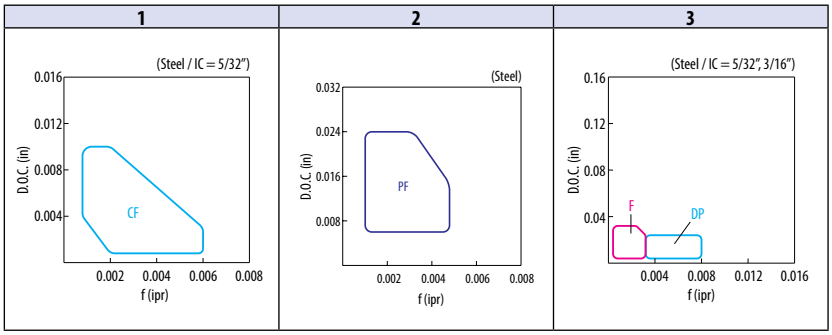




Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide CVD CA025P	CA115P	CA125P	CA510	CA515	CA525	CA530	Carbide PVD PR1225	PR1535	PR1705	PR1725	PR930	Cermet CVD CCX	Cermet PVD PV710	PV720	PV730	Cermet - TN60	TN610	TN620	Applicable Toolholder Page
Minute D.O.C.	WBGT 12102MPR-CF	WBGT 060101MPR-CF	1	3	5/32	1/16	0.094	< 0.004	5									●		●									F38 F116~F118 F120~F121
Polished / Sharp Edge	12102MPL-CF	060101MPL-CF						< 0.004										●		●									
	12105MPR-CF	060102MPR-CF						< 0.008									●	●		●									
	12105MPL-CF	060102MPL-CF						< 0.008									●	●	●	●									
Finishing	WBGT 12102MFPR-PF	WBGT 060101MFPR-PF	2	3	5/32	1/16	0.094	< 0.004	5									●		●									
Polished / Sharp Edge	12102MFPL-PF	060101MFPL-PF						< 0.004										●		●									
	12105MFPR-PF	060102MFPR-PF						< 0.008										●		●									
	12105MFPL-PF	060102MFPL-PF						< 0.008										●		●									
	WBGT 151502MFPR-PF	WBGT 080201MFPR-PF	2	3	3/16	3/32	0.091	< 0.004	5									●		●									
	151502MFPL-PF	080201MFPL-PF						< 0.004										●		●									
	151505MFPR-PF	080202MFPR-PF						< 0.008										●		●									
	151505MFPL-PF	080202MFPL-PF						< 0.008										●		●									
Finishing	WBMT 12105R-DP	WBMT 060102R-DP	3	3	5/32	1/16	0.091	0.008	5									●		●	●	●			●	●		●	
	12105L-DP	060102L-DP						0.008		●	●	●	●	●	●			●		●	●	●	●	●	●	●	●	●	
	1211R-DP	060104R-DP						1/64										●		●	●	●			●	●		●	
	1211L-DP	060104L-DP						1/64		●	●	●		●	●			●		●	●	●	●	●	●	●	●	●	
	WBMT 151505R-DP	WBMT 080202R-DP	3	3	3/16	3/32	0.091	0.008	5									●		●	●	●			●	●			
	151505L-DP	080202L-DP						0.008		●	●	●		●	●	●		●		●	●	●	●	●	●	●	●	●	
	15151R-DP	080204R-DP						1/64										●		●	●	●			●	●		●	
	15151L-DP	080204L-DP						1/64		●	●	●	●	●	●	●		●		●	●	●	●	●	●	●	●	●	
Finishing	WBET 121013ML-F	WBET 0601005ML-F	3	3	5/32	1/16	0.091	< 0.002	5									●		●									
Sharp Edge	12102MR-F	060101MR-F						< 0.004										●		●									
	12102ML-F	060101ML-F						< 0.004										●	●	●									
	12105MR-F	060102MR-F						< 0.008										●		●				●			●		
	12105ML-F	060102ML-F						< 0.008										●	●	●				●	●		●	●	
	1211MR-F	060104MR-F						< 1/64										●		●				●			●		
	1211ML-F	060104ML-F						< 1/64										●	●	●				●	●		●	●	
	WBET 151502MR-F	WBET 080201MR-F	3	3	3/16	3/32	0.091	< 0.004	5															●			●		
	151502ML-F	080201ML-F						< 0.004										●		●				●			●		
	151505MR-F	080202MR-F						< 0.008																●			●		
	151505ML-F	080202ML-F						< 0.008										●		●				●	●		●	●	
	15151MR-F	080204MR-F						< 1/64										●		●				●			●		
	15151ML-F	080204ML-F						< 1/64										●		●				●	●		●	●	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



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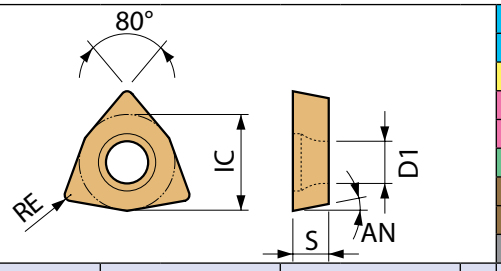
Contact your local Kyocera sales engineer to upgrade old products to new technology

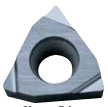
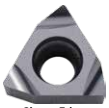
Inserts sold in 10 piece boxes

80° Trigon

How to read this page See page B15



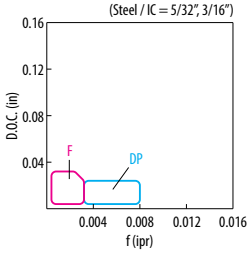
Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1535	PR1725	PR930	- KW10	- TN60	Cermet	Applicable Toolholder Page
Finishing	 Sharp Edge	WBGT 12101L-F	WBGT 0601003L-F	1	3	5/32	1/16	0.091	0.001	5			●				F38 F116~F118 F120~F121
		12102R-F	060101R-F						0.004				●				
		12102L-F	060101L-F						0.004				●	●	●		
		12105R-F	060102R-F						0.008				●	●	●		
		12105L-F	060102L-F						0.008				●	●	●		
		1211R-F	060104R-F						1/64				●	●	●		
		1211L-F	060104L-F						1/64				●	●	●		
		WBGT 151502L-F	WBGT 080201L-F	1	3	3/16	3/32	0.091	0.004	5			●		●		
		151505R-F	080202R-F						0.008				●	●	●		
		151505L-F	080202L-F						0.008				●	●	●		
		15151R-F	080204R-F						1/64				●	●	●		
		15151L-F	080204L-F						1/64				●	●	●		
Finishing	 Sharp Edge	WBET 151502MR-P	WBET 080201MR-P	2	3	3/16	3/32	0.091	< 0.004	5	●	●					
		151502ML-P	080201ML-P						< 0.004		●	●					
		151505MR-P	080202MR-P						< 0.008		●	●					
		151505ML-P	080202ML-P						< 0.008		●	●					
		15151MR-P	080204MR-P						< 1/64		●	●					
		15151ML-P	080204ML-P						< 1/64		●	●					
Cast Iron	Without Chipbreaker	WBGW 12105L	WBGW 060102L	-	3	5/32	1/16	0.091	0.008	5				●	●		
		WBGW 151505L	WBGW 080202L	-	3	3/16	3/32	0.091	0.008	5				●	●		
		15151L	080204L						1/64						●		

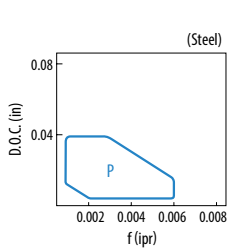
Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

1



2

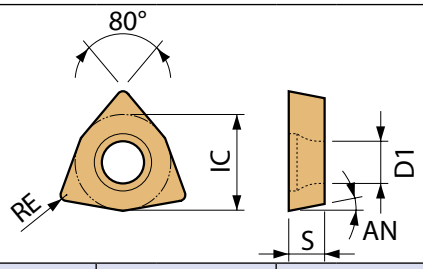


Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

80° Trigon

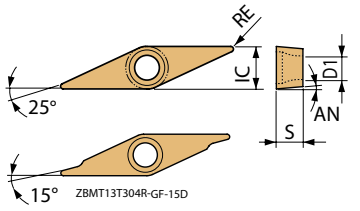
How to read this page See page B15



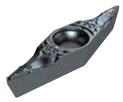
| | | |

25° / 15° Diamond

How to read this page See page B15



Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert		Part Number ISO	No. of Edges	Dimensions (in) IC	S	D1	RE	AN	Angle (°)	Carbide PVD PR1535	Carbide PVD PR1725	Cermet PVD PV720	Cermet PVD PV730	Cermet - TN620	Applicable Toolholder Page
Finishing		ZBMT 13T302GF	2	1/4	5/32	0.209	0.008	5		●	●				E56~E57 F124~F128
		13T304GF					1/64			●	●	●	●	●	
		13T308GF					1/32			●	●	●	●	●	
Finishing		ZBMT 13T304R-GF-15D	2	1/4	5/32	0.209	1/64	5		●	●				

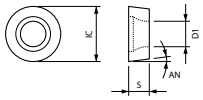
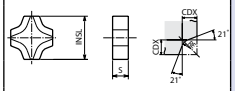
Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

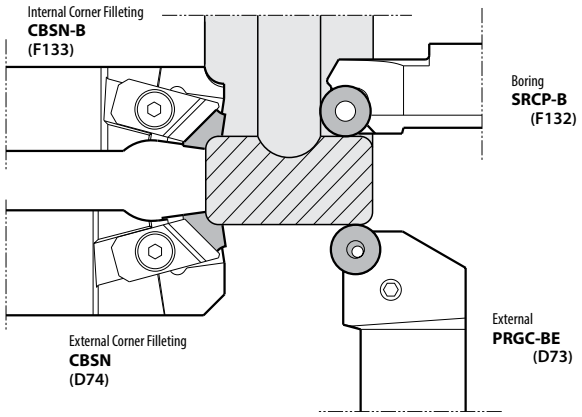
Round / SNMF Type

How to read this page See page B15

Free-cutting steel	P
Carbon steel / Alloy steel	
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	
Hard materials	H

Insert		Part Number ANSI	Part Number ISO	No. of Edges	Dimensions (in)						Angle (°)	Cermet	Applicable Toolholder Page
					CDX	INSL	IC	S	D1	RE	AN	TN90	
	 External / Boring / Facing	Use ISO Part Number	RCMT 1204M0-BB	-	-	-	0.472	3/16	0.165	-	7	●	D73
			RCMT 1606M0-BB	-	-	-	0.630	1/4	0.217	-	7	●	
		RPMT 42M0-BB	RPMT 1203M0-BB	-	-	-	0.472	1/8	0.173	-	11	●	F132
		Use ISO Part Number	RPMT 1604M0-BB	-	-	-	0.630	3/16	0.217	-	11	●	
	 Corner Filleting	SNMF 120406-21	SNMF 120406-21	8	0.059	1/2	-	4.76	-	0.024	-	●	D74 F133
		120410-21	120410-21		0.118					0.039		●	
		120416-21	120416-21		0.122					0.063		●	
		120421-21	120421-21		0.126					0.083		●	
		120426-21	120426-21		0.130					0.102		●	

Tooling for Bearing Machining



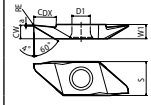
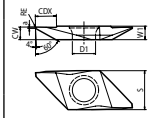
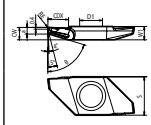
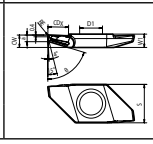
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

TKFB

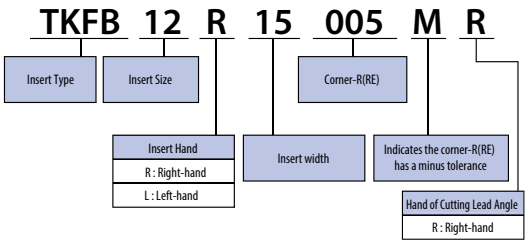
How to read this page See page B15

Free-cutting steel						P
Carbon steel / Alloy steel	○	○	●			P
Stainless Steel	○	●	○			M
Gray cast iron				●		K
Nodular cast iron				○		K
Non-ferrous metals				●		N
Heat-resistant alloy	○	✕	○			S
Titanium alloy		●		○		S
Hard materials						H

Insert	Part Number	No. of Edges	Dimensions (mm) CW in	CW mm	CDX	S	D1	RE	W1	a	θ	Carbide PVD PR1225	PVD PR1535	PVD PR1725	- KW10	Applicable Toolholder Page
	TKFB 12R15005M	2	0.059	1.5	2.6	8.7	5.2	< 0.05	3	0.25	-	●	●	●	●	E15 E16
	TKFB 12R28005M		0.110	2.8	4.6			< 0.05		0.3			●	●	●	
	TKFB 12R28010M		0.110	2.8	4.6			< 0.1		0.3		●	●	●	●	
	TKFB 16R38005M	2	0.150	3.8	6.3	9.5	5.2	< 0.05	4	0.3	-		●	●	●	
	TKFB 16R38010M							< 0.1				●	●	●	●	
	TKFB 12L28005MR	2	0.110	2.8	4.6	8.7	5.2	< 0.05	3	0.3	-	●	●			
	TKFB 12L28010MR							< 0.1				●	●			
	TKFB 16L38005MR	2	0.150	3.8	6.3	9.5	5.2	< 0.05	4	0.3	-	●	●			
	TKFB 16L38010MR							< 0.1				●	●			
 Polished	TKFB 12R28005P-GQ	2	0.110	2.8	4.6	8.7	5.2	0.05	3	1.5	74	●	●	●		
	TKFB 12R28015P-GQ							0.15				●	●	●		
	TKFB 16R38005P-GQ	2	0.150	3.8	6.3	9.5	5.2	0.05	4	1.8	72	●	●	●		
	TKFB 16R38015P-GQ							0.15				●	●	●		
	TKFB 12R28005-GQ	2	0.110	2.8	4.6	8.7	5.2	0.05	3	1.5	74	●	●	●		
	TKFB 12R28015-GQ							0.15				●	●	●		
	TKFB 16R38005-GQ	2	0.150	3.8	6.3	9.5	5.2	0.05	4	1.8	72	●	●	●		
	TKFB 16R38015-GQ							0.15				●	●	●		

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Inserts Identification System (Ref. Tables 1 and 2)



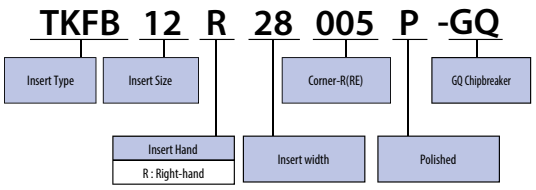


Table 1

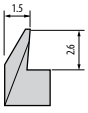
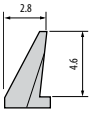
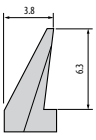
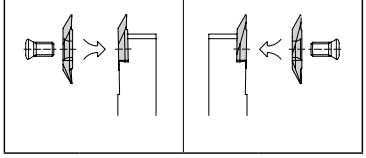
Small machining	General purpose	Large machining
 TKFB12R15..	 TKFB12R28..	 TKFB16R38..

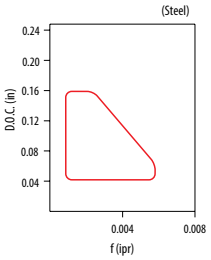
Table 2

Toolholder	Right-hand	Toolholder	Left-hand
Insert	Right-hand	Insert	Left-hand
Lead angle	Right-hand	Lead angle	Right-hand

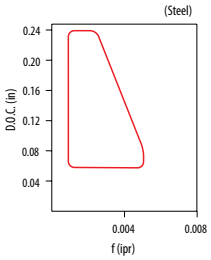


Applicable Chipbreaker Range

TKFB12R28...GQ



TKFB16R38...GQ



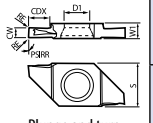
Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

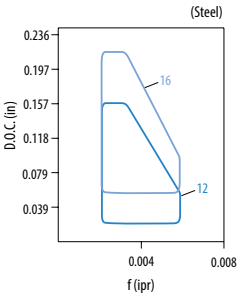
TKF-GTP

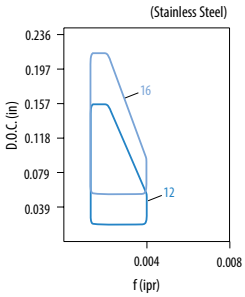
How to read this page See page B15

Free-cutting steel	P
Carbon steel / Alloy steel	P
Stainless Steel	M
Gray cast iron	K
Nodular cast iron	K
Non-ferrous metals	N
Heat-resistant alloy	S
Titanium alloy	S
Hard materials	H

Insert	Part Number	No. of Edges	Dimensions (mm) CW in	CW mm	CDX	S	D1	RE	W1	Angle (°) PSIRR	Carbide PVD PR1535	PR1725	Applicable Toolholder Page
 Plunge and turn	TKF 12R200-GTP	2	0.079	2	4.3	8.7	5.2	0.08	3	0	●	●	E15 E16
	TKF 16R300-GTP	2	0.118	3	5.8	9.5	5.2	0.08	4	0	●	●	

Applicable Chipbreaker Range

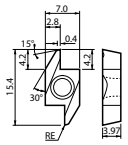
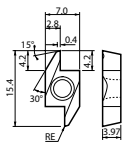
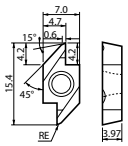
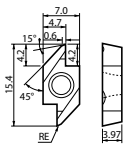
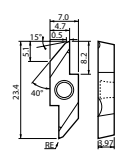
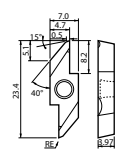




ABS / ABW

How to read this page See page B15

Free-cutting steel		●					P
Carbon steel / Alloy steel	○		●	○			P
Stainless Steel	●		○	○			M
Gray cast iron					●		K
Nodular cast iron					○		K
Non-ferrous metals					●		N
Heat-resistant alloy	●		○				S
Titanium alloy					●		S
Hard materials							H

Insert		Part Number	No. of Edges	Dimensions (mm) RE	Carbide PVD PR1225	Carbide PVD PR1705	Carbide PVD PR1725	Carbide - PR930	Carbide - KW10	Cermet - TC60	Applicable Toolholder Page
		ABS 15R4005M	2	< 0.05	●	●	●				E20
		15R4015M		< 0.15	●	●	●				
		ABS 15R4005	2	0.05				●	●	●	
		15R4015		0.15				●	●	●	
		ABW 15R4005M	2	< 0.05	●	●	●				E21
		15R4015M		< 0.15	●	●	●				
		ABW 15R4005	2	0.05				●	●	●	
		15R4015		0.15				●	●	●	
		ABW 23R5005M	2	< 0.05	●		●				E22
		23R5015M		< 0.15	●	●	●				
		ABW 23R5005	2	0.05				●	●		
		23R5015		0.15				●	●		

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

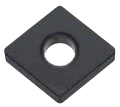
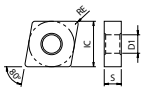
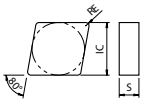
80° Diamond

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed
T	Chamfered	T00825	0.008" × 25° Chamfered

Gray cast iron (with scale)	○					●		✖			K
Gray cast iron (without scale)	●		○	○	●				○	○	
Nodular cast iron (with scale)	○										
Nodular cast iron (without scale)	○										
Heat-resistant alloy					●						S
Hard materials		○	●								H

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	Ceramic CVD CS7050	PVD A66N	PVD PT600M	- A65	- KA30	- KS001	- KS6015	- KS6040	- KS6050	- KT66	Applicable Toolholder Page
 	CNGA 432T00220	T00220	CNGA 120408T00520	T00520	4	1/2	3/16	0.203	1/32						●					D8~D11 F138 F147 F148
	433T00220		120412T00520						3/64						●					
	434T00220		120416T00520						1/16						●					
	CNGA 432T00325	T00325	CNGA 120408T08025	T00825	4	1/2	3/16	0.203	1/32				●							
	433T00325		120412T08025						3/64				●							
	CNGA 432T00420	T00420	CNGA 120408T01020	T01020	4	1/2	3/16	0.203	1/32							●				
	433T00420		120412T01020						3/64							●				
	CNGA 433T00425AA	S00425	CNGA 120412S01025	S01025	4	1/2	3/16	0.203	3/64					●						
	CNGA 431T00625AA	S00625	CNGA 120404S01525	S01525	4	1/2	3/16	0.203	1/64		●									
	432T00625AA		120408S01525						1/32		●									
	433T00625AA		120412S01525						3/64		●									
	CNGA 431T00625	T00625	CNGA 120404T01525	T01525	4	1/2	3/16	0.203	1/64		●									
	432T00625		120408T01525						1/32		●									
	433T00625		120412T01525						3/64		●									
	CNGA 431S00825	S00825	CNGA 120404S02025	S02025	4	1/2	3/16	0.203	1/64			●								
	432S00825		120408S02025						1/32			●								
	433S00825		120412S02025						3/64			●								
	CNGA 434T00820	T00820	CNGA 120416T02020	T02020	4	1/2	3/16	0.203	1/16				●							
	CNGA 431T00825	T00825	CNGA 120404T02025	T02025	4	1/2	3/16	0.203	1/64			●	●						△	
	432T00825		120408T02025						1/32	●		●	●			●		●		
	433T00825		120412T02025						3/64	●		●	●			●		●	△	
	CNGA 431T01230AA	S01230	CNGA 120404S03030	S03030	4	1/2	3/16	0.203	1/64		●									
	432T01230AA		120408S03030						1/32		●									
	433T01230AA		120412S03030						3/64		●									
	CNGA 543T00825	T00825	CNGA 160612T02025	T02025	4	5/8	1/4	0.250	3/64		●									D10~D11
	544T00825		160616T02025						1/16									●		
	CNGA 643T00825	T00825	CNGA 190612T02025	T02025	4	3/4	1/4	0.313	3/64				●							D10
	644T00825		190616T02025						1/16				●							
	CNMA 432T00625AA	S00625	CNMA 120408S01525	S01525	4	1/2	3/16	0.203	1/32		●									D8~D10 F116 F125 F126
	CNMA 432T00625	T00625	CNMA 120408T01525	T01525	4	1/2	3/16	0.203	1/32		●									
	433T00625		120412T01525						3/64		●									
	CNMA 432T01230AA	S01230	CNMA 120408S03030	S03030	4	1/2	3/16	0.203	1/32		●									
	433T01230AA		120412S03030						3/64		●									
	CNG 432T00325	T00325	CNGN 120408T08025	T00825	4	1/2	3/16	-	1/32				●							D53
	CNG 432T00420	T00420	CNGN 120408T01020	T01020	4	1/2	3/16	-	1/32							●				
	CNG 433T00425AA	S00425	CNGN 120412S01025	S01025	4	1/2	3/16	-	3/64					●						
	CNG 432T00825	T00825	CNGN 120408T02025	T02025	4	1/2	3/16	-	1/32			●	●			●				
	433T00825		120412T02025						3/64			●				●				
	434T00825		120416T02025						1/16				●					●		
	CNG 452T00220	T00220	CNGN 120708T00520	T00520	4	1/2	5/16	-	1/32						●					
	453T00220		120712T00520						3/64						●					
	454T00220		120716T00520						1/16						●					
	CNG 452T00625AA	S00625	CNGN 120708S01525	S01525	4	1/2	5/16	-	1/32		●									
	CNG 453T00625	T00625	CNGN 120712T01525	T01525	4	1/2	5/16	-	3/64		●									
	454T00625		120716T01525						1/16		●									
	CNG 451T00825	T00825	CNGN 120704T02025	T02025	4	1/2	5/16	-	1/64				●							
	452T00825		120708T02025						1/32				●					●		
	453T00825		120712T02025						3/64				●							
	454T00825		120716T02025						1/16				●					●		
	CNG 552T00825	T00825	CNGN 160708T02025	T02025	4	5/8	5/16	-	1/32				●							
	553T00825		160712T02025						3/64				●							
	554T00825		160716T02025						1/16				●							
	CNM 452T00825	T00825	CNMN 120708T02025	T02025	4	1/2	5/16	-	1/32				●							

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

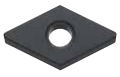
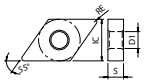
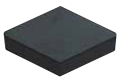
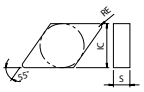
55° Diamond

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed
T	Chamfered	T00825	0.008" × 25° Chamfered

Gray cast iron (with scale)				K
Gray cast iron (without scale)		○	○	
Nodular cast iron (with scale)				
Nodular cast iron (without scale)				
Heat-resistant alloy				S
Hard materials	○	●		H

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	Ceramic PVD A66N PT600M	Ceramic - A65	Applicable Toolholder Page
 	DNGA 432T00325	T00325	DNGA 150408T00825	T00825	4	1/2	3/16	0.203	1/32		●	D14~D19 F140, F152 F152~F156
	433T00325		150412T00825						3/64		●	
	DNGA 432T00625	T00625	DNGA 150408T01525	T01525	4	1/2	3/16	0.203	1/32	●		
	433T00625		150412T01525						3/64	●		
	DNGA 431T00625AA	S00625	DNGA 150404S01525	S01525	4	1/2	3/16	0.203	1/64	●		
	432T00625AA		150408S01525						1/32	●		
	433T00625AA		150412S01525						3/64	●		
	DNGA 431T00625	T00625	DNGA 150404T01525	T01525		1/2	3/16	0.203	1/64	●		
	DNGA 431S00825	S00825	DNGA 150404S02025	S02025	4	1/2	3/16	0.203	1/64		●	
	432S00825		150408S02025						1/32		●	
	DNGA 431T00825	T00825	DNGA 150404T02025	T02025	4	1/2	3/16	0.203	1/64		●	●
	432T00825		150408T02025						1/32		●	●
	433T00825		150412T02025						3/64		●	●
	434T00825		150412T02025						1/16			●
	DNGA 432T01230AA	S01230	DNGA 150408S03030	S03030	4	1/2	3/16	0.203	1/32	●		
	DNGA 441S00625	S00625	DNGA 150604S01525	S01525	4	1/2	1/4	0.203	1/64	●		D14, D16 D18
	442T00625AA		150608S01525						1/32	●		
	443T00625AA		150612S01525						3/64	●		
	444T00625AA		150616S01525						1/16	●		
	DNGA 441T00625	T00625	DNGA 150604T01525	T01525	4	1/2	1/4	0.203	1/64	●		
	443T00625		150612T01525						3/64	●		
	DNGA 441T00825	T00825	DNGA 150604T02025	T02025	4	1/2	1/4	0.203	1/64		●	●
	442T00825		150608T02025						1/32		●	●
	443T00825		150612T02025						3/64		●	●
 	DNG 451T00625AA	S00625	DNGN 150704S01525	S01525	4	1/2	5/16	-	1/64	●		D54
	452T00625AA		150708S01525						1/32	●		
	453T00625AA		150712S01525						3/64	●		
	DNG 452S00825	S00825	DNGN 150708S02025	S02025	4	1/2	5/16	-	1/32		●	
	DNG 451T00825	T00825	DNGN 150704T02025	T02025	4	1/2	5/16	-	1/64			●
	452T00825		150708T02025						1/32			●
	453T00825		150712T02025						3/64			●
	454T00825		150716T02025						1/16			●

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

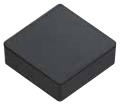
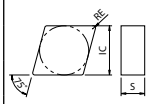
75° Diamond

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed
T	Chamfered	T00825	0.008" × 25° Chamfered

Gray cast iron (with scale)			K
Gray cast iron (without scale)		○	
Nodular cast iron (with scale)			
Nodular cast iron (without scale)			
Heat-resistant alloy			S
Hard materials	○		H

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	RE	Ceramic PVD A66N	Ceramic - A65	Applicable Toolholder Page
 	ENG 452T00625AA	S00625	ENGN 130708S01525	S01525	4	1/2	5/16	1/32	●		D55 F167
	ENG 451T00825	T00825	ENGN 130704T02025	T02025	4	1/2	5/16	1/64		●	
	452T00825		130708T02025					1/32		●	
	453T00825		130712T02025					3/64		●	
	454T00825		130716T02025					1/16		●	
	455T00825		130720T02025					5/64		●	

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

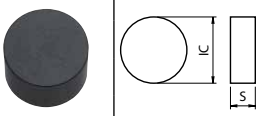
Round

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
E	R-Honed	E002	R0.002" Honed
K	Double Chamfered	K06015	0.060" × 15° Chamfered
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed
T	Chamfered	T00825	0.008" × 25° Chamfered

Gray cast iron (with scale)					●			✖	K
Gray cast iron (without scale)		◡	◡					◡	
Nodular cast iron (with scale)									
Nodular cast iron (without scale)									
Heat-resistant alloy				◕		◕	✖		S
Hard materials	●	○							H

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	Dimensions (in)		Ceramic							Applicable Toolholder Page
					IC	S	PVD	-						
							A66N PT600M	A65 KS001	KS6015	KS6030	KS6040	KS6050		
	RNG 32T00420	T00420	RNGN 090300T01020	T01020	3/8	1/8				●				D67
	RNG 32T00625	T00625	RNGN 090300T01525	T01525	3/8	1/8	●							
	RNG 33T00220	T00220	RNGN 090400T00520	T00520	3/8	3/16		●						
	RNG 33T00625AA	S00625	RNGN 090400S01525	S01525	3/8	3/16	●							
	RNG 33S00825	S00825	RNGN 090400S02025	S02025	3/8	3/16		●						
	RNG 33T00825	T00825	RNGN 090400T02025	T02025	3/8	3/16		●	●					
	RNG 43E001	E001	RNGN 120400E003	E003	1/2	3/16				●				D63~D64 D67
	RNG 43T00220	T00220	RNGN 120400T00520	T00520	1/2	3/16			●					
	RNG 43T00420	T00420	RNGN 120400T01020	T01020	1/2	3/16				●				
	RNG 43T00625AA	S00625	RNGN 120400S01525	S01525	1/2	3/16	●							
	RNG 43S00825	S00825	RNGN 120400S02025	S02025	1/2	3/16		●						
	RNG 43T00625	T00625	RNGN 120400T01525	T01525	1/2	3/16	●							
	RNG 43T00825	T00825	RNGN 120400T02025	T02025	1/2	3/16		●	●		●		●	
	RNG 45E001	E001	RNGN 120700E003	E003	1/2	5/16				●				
	RNG 45E002	E002	RNGN 120700E005	E005	1/2	5/16					●			
	RNG 45T00220	T00220	RNGN 120700T00520	T00520	1/2	5/16			●					
	RNG 45T00420	T00420	RNGN 120700T01020	T01020	1/2	5/16				●	●			
	RNG 45K06015	K06015	RNGN 120700K15015	K15015	1/2	5/16		●						
	RNG 45T00625AA	S00625	RNGN 120700S01525	S01525	1/2	5/16	●							
	RNG 45S00825	S00825	RNGN 120700S02025	S02025	1/2	5/16		●						
	RNG 45T00625	T00625	RNGN 120700T01525	T01525	1/2	5/16	●							
	RNG 45T00825	T00825	RNGN 120700T02025	T02025	1/2	5/16		●	●		●		●	
	RNG 55T00625AA	S00625	RNGN 150700S01525	S01525	5/8	5/16	●							D64
	RNG 55S00825	S00825	RNGN 150700S02025	S02025	5/8	5/16		●						
	RNG 55T00825	T00825	RNGN 150700T02025	T02025	5/8	5/16		●						
	RNG 65E001	E001	RNGN 190700E003	E003	3/4	5/16				●				-
	RNG 65T00420	T00420	RNGN 190700T01020	T01020	3/4	5/16				●	●			
	RNG 85E001	E001	RNGN 250700E003	E003	1	5/16				●				

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

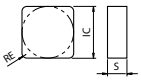
90° Square

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed
T	Chamfered	T00825	0.008" × 25° Chamfered

Gray cast iron (with scale)	○				●		✱				K
Gray cast iron (without scale)	◕		○	○	●			○	○		
Nodular cast iron (with scale)	○										
Nodular cast iron (without scale)	○										
Heat-resistant alloy						✱					S
Hard materials		○	●								H

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	Ceramic CVD CS7050	PVD A66N	PVD PT600M	- A65	- KA30	- KS6015	- KS6040	- KS6050	- KT66	Applicable Toolholder Page
		SNGA 431T00625AA	S00625	SNGA 120404S01525	S01525	8	1/2	3/16	0.203	1/32		●								D21~D23 F158
		432T00625AA		120408S01525						3/64		●								
		433T00625AA		120412S01525								●								
		SNGA 432S00825	S00825	SNGA 120408S02025	S02025	8	1/2	3/16	0.203	1/32			●							
		433S00825		120412S02025						3/64			●							
		SNGA 432T00625	T00625	SNGA 120408T01525	T01525	8	1/2	3/16	0.203	1/32			●							
		433T00625		120412T01525						3/64		●								
		SNGA 432T00825	T00825	SNGA 120408T02025	T02025	8	1/2	3/16	0.203	1/32			●	●		●		●		
		433T00825		120412T02025						3/64			●	●		●		●		
		434T00825		120416T02025						1/16	●		●			●		●		
		SNMA 432T01230AA	S01230	SNMA 120408S03030	S03030	8	1/2	3/16	0.203	1/32		●								
		SNG 432T00220	T00220	SNGN 120408T00520	T00520	8	1/2	3/16	-	1/32				●						D56~D60 D69 D70
		SNG 433T00420	T00420	SNGN 120412T01020	T01020	8	1/2	3/16	-	3/64							●			
		SNG 432T00425AA	S00425	SNGN 120408S01025	S01025	8	1/2	3/16	-	1/32					●					
		433T00425AA		120412S01025						3/64					●					
		434T00425AA		120416S01025						1/16					●					
		435T00425AA		120420S01025						5/64					●					
		SNG 432T00625AA	S00625	SNGN 120408S01525	S01525	8	1/2	3/16	-	1/32		●								
		433T00625AA		120412S01525						3/64		●								
		434T00625AA		120416S01525						1/16		●								
		SNG 432S00825	S00825	SNGN 120408S02025	S02025	8	1/2	3/16	-	1/32			●							
		433S00825		120412S02025						3/64			●							
		434S00825		120416S02025						1/16			●							
		SNG 433T00625	T00625	SNGN 120412T02025	T02025	8	1/2	3/16	-	3/64			●							
		SNG 431T00825	T00825	SNGN 120404T02025	T02025	8	1/2	3/16	-	1/64			●	●						
		432T00825		120408T02025						1/32			●	●		●			△	
		433T00825		120412T02025						3/64	●		●	●		●		●	△	
		434T00825		120416T02025						1/16			●	●		●		●		
		435T00825		120420T02025						5/64			●	●		●		●		
		SNG 434T01230AA	S01230	SNGN 120416S03030	S03030	8	1/2	3/16	-	1/16		●								
		SNG 451T00625AA	S00625	SNGN 120704S01525	S01525	8	1/2	5/16	-	1/64		●								
		452T00625AA		120708S01525						1/32		●								
		453T00625AA		120712S01525						3/64		●								
		454T00625AA		120716S01525						1/16		●								
		455T00625AA		120720S01525						5/64		●								
		SNG 452S00825	S00825	SNGN 120708S02025	S02025	8	1/2	5/16	-	1/32			●							
		453S00825		120712S02025						3/64			●							
		454S00825		120716S02025						1/16			●							
		455S00825		120720S02025						5/64			●							
		SNG 451T00825	T00825	SNGN 120704T02025	T02025	8	1/2	5/16	-	1/64				●						
		452T00825		120708T02025						1/32				●						
		453T00825		120712T02025						3/64			●	●						
		454T00825		120716T02025						1/16			●	●		●		●		
		455T00825		120720T02025						5/64			●	●						
		SNM 454T00825	T00825	SNMN 120716T02025	T02025	8	1/2	5/16	-	1/16				●						
		SNG 553T00825	T00825	SNGN 150712T02025	T02025	8	5/8	5/16	-	3/64				●						D56 D58
		554T00825		150716T02025						1/16				●						

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

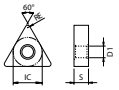
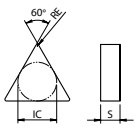
60° Triangle

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed
T	Chamfered	T00825	0.008" × 25° Chamfered

Gray cast iron (with scale)					●	✱		K
Gray cast iron (without scale)		○	○	●		○	○	
Nodular cast iron (with scale)								
Nodular cast iron (without scale)								
Heat-resistant alloy								S
Hard materials	○	●						H

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	Ceramic PVD A66N	PVD PT600M	- A65	- KA30	- KS6015	- KS6050	- KT66	Applicable Toolholder Page
	TNGA 332T00220	T00220	TNGA 160408T00520	T00520	6	3/8	3/16	0.150	1/32				●				D25~D32 F142 F159 F160
	TNGA 331T00625AA	S00625	TNGA 160404S01525	S01525	6	3/8	3/16	0.150	1/64	●							
	332T00625AA		160408S01525						1/32	●							
	333T00625AA		160412S01525						3/64	●							
	TNGA 331S00825	S00825	TNGA 160404S02025	S02025	6	3/8	3/16	0.150	1/64		●						
	332S00825		160408S02025						1/32		●						
	333S00825		160412S02025						3/64		●						
	TNGA 331T00625	T00625	TNGA 160404T01525	T01525	6	3/8	3/16	0.150	1/64	●							
	332T00625		160408T01525						1/32	●							
	333T00625		160412T01525						3/64	●							
	TNGA 331T00825	T00825	TNGA 160404T02025	T02025	6	3/8	3/16	0.150	1/64		●	●				△	
	332T00825		160408T02025						1/32		●	●		●	●	△	
	333T00825		160412T02025						3/64		●			●	●	△	
	TNGA 332T01230AA	S01230	TNGA 160408S03030	S03030	6	3/8	3/16	0.150	1/32	●							
	TNGA 432T00825	T00825	TNGA 220408T02025	T02025	6	1/2	3/16	0.150	1/32							●	D27~D29
	433T00825		220412T02025						3/64			●					
	TNG 221T00220	T00220	TNGN 110304T00520	T00520	6	1/4	1/8	-	1/64			●	●				D72 F168
	222T00220		110308T00520						1/32			●	●				
	TNG 221T00625	T00625	TNGN 110304T01525	T01525	6	1/4	1/8	-	1/64	●							
	TNG 322T00825	T00825	TNGN 160208T00520	T02025	6	3/8	1/8	-	1/32			●					-
	TNG 331T00220	T00220	TNGN 160404T00520	T00520	6	3/8	3/16	-	1/64			●					D62
	332T00220		160408T00520						1/32			●					
	333T00220		160412T00520						3/64				●				
	TNG 331T00425AA	S00425	TNGN 160404S01025	S01025	6	3/8	3/16	-	1/64				●				
	332T00425AA		160408S01025						1/32				●				
	333T00425AA		160412S01025						3/64				●				
	TNG 331T00625AA	S00625	TNGN 160404S01525	S01525	6	3/8	3/16	-	1/64	●							
	332T00625AA		160408S01525						1/32	●							
	333T00625AA		160412S01525						3/64	●							
	TNG 331S00825	S00825	TNGN 160404S02025	S02025	6	3/8	3/16	-	1/64		●						
	332S00825		160408S02025						1/32		●						
	333S00825		160412S02025						3/64		●						
	TNG 332T00625	T00625	TNGN 160408T01525	T01525	6	3/8	3/16	-	1/32	●							
	TNG 331T00825	T00825	TNGN 160404T02025	T02025	6	3/8	3/16	-	1/64			●					
	332T00825		160408T02025						1/32		●	●		●	●		
	333T00825		160412T02025						3/64			●		●	●		
	TNG 351T00825	T00825	TNGN 160704T02025	T02025	6	3/8	5/16	-	1/64			●					
	352T00825		160708T02025						1/32			●					
	353T00825		160712T02025						3/64			●					
	TNG 432T00825	T00825	TNGN 220408T02025	T02025	6	1/2	3/16	-	1/64			●					D62
	434T00825		220416T02025						1/32			●					

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

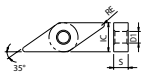
35° Diamond

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed
T	Chamfered	T00825	0.008" × 25° Chamfered

Gray cast iron (with scale)																K
Gray cast iron (without scale)																
Nodular cast iron (with scale)																
Nodular cast iron (without scale)																
Heat-resistant alloy																S
Hard materials												○	●			H

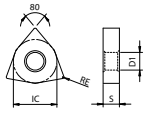
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	Ceramic PVD A66N	PVD PT600M	- A65	- KT66	Applicable Toolholder Page
		VNGA 331T00625AA	S00625	VNGA 160404S01525	S01525	4	3/8	3/16	0.150	1/64	●				D34~D44
		332T00625AA		160408S01525						1/32	●				
		VNGA 331S00825	S00825	VNGA 160404S02025	S02025	4	3/8	3/16	0.150	1/64		●			
		332S00825		160408S02025						1/32		●			
		VNGA 331T00625	T00625	VNGA 160404T01525	T01525	4	3/8	3/16	0.150	1/64	●				
		332T00625		160408T01525						1/32	●				
		VNGA 331T00825	T00825	VNGA 160404T02025	T02025	4	3/8	3/16	0.150	1/64		●	●	△	
		332T00825		160408T02025						1/32		●	●	△	
		333T00825		160412T02025						3/64		●	●		
		VNMA 332T00625AA	S00625	VNMA 160408S01525	S01525	4	3/8	3/16	0.150	1/32	●				

80° Trigon

Cutting Edge Preparation

Symbol	Specification	Example	
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed
T	Chamfered	T00825	0.008" × 25° Chamfered

Gray cast iron (with scale)													K
Gray cast iron (without scale)													
Nodular cast iron (with scale)													
Nodular cast iron (without scale)													
Heat-resistant alloy													S
Hard materials											○		H

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	Ceramic PVD A66N	- KS6050	Applicable Toolholder Page
		WNGA 432T00625AA	S00625	WNGA 080408S01525	S01525	4	1/2	3/16	0.203	1/32	●		D48~D51 F162 F164 F165
		WNGA 431T00625	T00625	WNGA 080404T01525	T01525	4	1/2	3/16	0.203	1/64	●		
		432T00625		080408T01525						1/32	●		
		433T00625		080412T01525						3/64	●		
		WNGA 433T00825	T00825	WNGA 080412T02025	T02025	4	1/2	3/16	0.203	3/64		●	

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

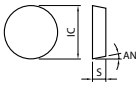
Round

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
E	R-Honed	E001	R0.001" Honed
T	Chamfered	T00420	0.004" × 20° Chamfered

Gray cast iron (with scale)		K
Gray cast iron (without scale)		
Nodular cast iron (with scale)		
Nodular cast iron (without scale)		
Heat-resistant alloy	●	S
Hard materials		H

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	Dimensions (in) IC	Dimensions (in) S	Angle (°) AN	Ceramic -	Ceramic KS6030	Applicable Toolholder Page
		RPG 32E001	E001	RPGN 090300E003	E003	3/8	1/8	11		●	-
		RPG 32T00420	T00420	RPGN 090300T01020	T01020	3/8	1/8	11		●	
		RPG 43E001	E001	RPGN 120400E003	E003	1/2	3/16	11		●	
		RPG 43T00420	T00420	RPGN 120400T01020	T01020	1/2	3/16	11		●	

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Square

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
S	Chamfered and R-Honed	S00320	0.003" × 20° Chamfered and R-Honed
T	Chamfered	T00320	0.003" × 20° Chamfered

Gray cast iron (with scale)		K
Gray cast iron (without scale)	○	K
Nodular cast iron (with scale)		K
Nodular cast iron (without scale)	○	K
Heat-resistant alloy	○	S
Hard materials	○	H

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	RE	Angle (°) AN	Ceramic PVD A66N	Ceramic - A65S	Applicable Toolholder Page
		SPG 322T00320AA	S00320	SPGN 090308S00820	S00820	4	3/8	1/8	1/32	11	●		F130
		SPG 322T00320	T00320	SPGN 090308T00820	T00820	4	3/8	1/8	1/32	11		●	
		SPG 422T00320	T00620	SPGN 120308T00820	T00820	4	1/2	1/8	1/32	11		●	
		423T00320		120312T00820					3/64			●	

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

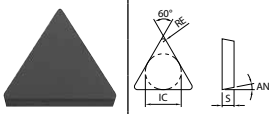
60° Triangle

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
S	Chamfered and R-Honed	S00320	0.003" × 20° Chamfered and R-Honed
T	Chamfered	T00320	0.003" × 20° Chamfered

Gray cast iron (with scale)				K
Gray cast iron (without scale)		○	○	
Nodular cast iron (with scale)				
Nodular cast iron (without scale)				
Heat-resistant alloy				S
Hard materials	○	●		H

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	RE	Angle (°) AN	Ceramic PVD A66N	PVD PT600M	- A65	Applicable Toolholder Page
	TBG 1211T00320AA	S00320	TBGN 060104S00820	S00820	3	5/32	1/16	1/64	5	●			-
	1211S00320		060104S00820					1/64			●		
	1212T00320AA		060108S00820					1/32		●			
	1212S00320		060108S00820					1/32			●		
	TPG 18151T00320	T00320	TPGN 090204T00820	T00820	3	7/32	3/32	1/64	11		●		F131
	18152T00320		090208T00820					1/32			●		
	TPG 2205T00320AA	S00320	TPGN 110302S00820	S00820	3	1/4	1/8	0.008	11	●			
	221T00320AA		110304S00820					1/64		●			
	221S00320		110304S00820					1/64			●		
	222T00320AA		110308S00820					1/32		●			
	222S00320		110308S00820					1/32			●		
	TPG 221T00320	T00320	TPGN 110304T00820	T00820	3	1/4	1/8	1/64	11	●	●	●	
	222T00320		110308T00820					1/32		●	●	●	
	TPG 321T00320AA	S00320	TPGN 160304S00820	S00820	3	3/8	1/8	1/64	11	●			
	321S00320		160304S00820					1/64			●		
	322T00320AA		160308S00820					1/32		●			
	322S00320		160308S00820					1/32			●		
	323T00320AA		160312S00820					3/64		●			
	TPG 3205T00320	T00320	TPGN 160302T00820	T00820	3	3/8	1/8	0.008	11			●	
	321T00320		160304T00820					1/64		●	●	●	
	322T00320		160308T00820					1/32		●	●	●	

Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

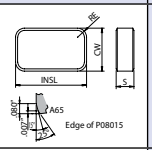
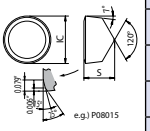
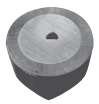
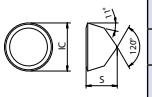
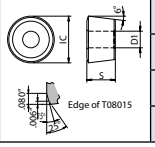
Inserts for Roll Machining

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
E	R-Honed	E002	R0.002" Honed
K	Double Chamfered	K20003	2mm × 3° Chamfered
P	Double Chamfered and R-Honed	P08015	0.080" × 15° Chamfered and R-Honed
T	Chamfered	T00420	0.004" × 20° Chamfered

Gray cast iron (with scale)		✖						K
Gray cast iron (without scale)								
Nodular cast iron (with scale)								
Nodular cast iron (without scale)								
Heat-resistant alloy			●	●	✖			S
Hard materials	○	●						H

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	Dimensions (in)						Ceramic						Applicable Toolholder Page
						IC	CW	INSL	D1	S	RE	PVD		-				
												A66N	PT600M	A65	KS001	KS6030	KS6040	KXW1
		LNU 6688T08015625A	P08015	LNUN 381232P20015	P20015	-	3/4	1-1/2	-	1/2	1/8			●					-
		RCGX 24E002	E002	RCGX 060600E005	E005	1/4	-	-	-	1/4	-						●		D64
		RCGX 24T00220	T00220	RCGX 060600T00520	T00520	1/4	-	-	-	1/4	-							△	
		RCGX 24T00420	T00420	RCGX 060600T01020	T01020	1/4	-	-	-	1/4	-					●	●		
		RCGX 102T04015*	T04015	RCGX 060400*	T10015	1/4	-	-	-	0.180	-	●		●					
		RCGX 102H315T04015	T04015	RCGX 060700	T10015	1/4	-	-	-	0.315	-	●		●					-
		RCGX 35T00220	T00220	RCGX 090700T00520	T00520	3/8	-	-	-	0.315	-				●				D64
		RCGX 35T00420	T00420	RCGX 090700T01020	T01020	3/8	-	-	-	0.315	-					●	●		
		RCGX 103T08015625AA	P08015	RCGX 090700P20015	P20015	3/8	-	-	-	0.315	-	●	●	●					
		RCGX 45E001	E001	RCGX 120700E003	E003	1/2	-	-	-	0.315	-					●			
		RCGX 45T00220	T00220	RCGX 120700T00520	T00520	1/2	-	-	-	0.315	-				●				
		RCGX 45T00420	T00420	RCGX 120700T01020	T01020	1/2	-	-	-	0.315	-					●			
		RCGX 104T08015625AA	P08015	RCGX 120700P20015	P20015	1/2	-	-	-	0.315	-	●	●	●					
		RCGX 106T08015625AA	P08015	RCGX 191000P20015	P20015	3/4	-	-	-	0.394	-	●		●					
		RPGX 24E001	E001	RPGX 060600E003	E003	1/4	-	-	-	1/4	-					●			-
		RPGX 24T00420	T00420	RPGX 060600T01020	T01020	1/4	-	-	-	1/4	-					●			
		RPGX 35E001	E001	RPGX 090700E003	E003	3/8	-	-	-	0.315	-					●			
		RPGX 35T00420	T00420	RPGX 090700T01020	T01020	3/8	-	-	-	0.315	-					●	△		
		RPGX 45E001	E001	RPGX 120700E003	E003	1/2	-	-	-	0.315	-					●			
		RCMA 66T08015625AA	P08015	RCMA 190900P20015	P20015	3/4	-	-	0.250	3/8	-	●		●					
		RCMA 88T08015625AA		RCMA 251200P20015	P20015	1	-	-	0.266	1/2	-			●					
		RCMA 106T08015625AA		RCMA 310900P20015	P20015	1-1/4	-	-	0.390	3/8	-	●		●					
		RCMA 1012T08015625AA		RCMA 311800P20015	P20015	1-1/4	-	-	0.390	3/4	-			●					

*IC may differ based on edge prep.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

RBG Inserts sold in 1 piece boxes
Inserts sold in 10 piece boxes

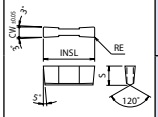
Grooving inserts

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
S	Chamfered and R-Honed	S00420	0.004" × 20° Chamfered and R-Honed
T	Chamfered	T00420	0.004" × 20° Chamfered

Gray cast iron (with scale)				K
Gray cast iron (without scale)		●	○	
Nodular cast iron (with scale)				
Nodular cast iron (without scale)				
Heat-resistant alloy				S
Hard materials	○	●		H

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (mm) CW in	CW mm	S	RE	INSL	Tolerance (mm) CW min.	CW max.	Ceramic PVD A66N	PVD PT600M	- A65	Applicable Toolholder Page
	GH 4020-05	S00420 / T00420	GH 4020-05	S01020 / T01020	2	0.157	4	7.5	0.5	20	- 0.05	+ 0.05	●	●	●	G67 G68 G93
	GH 5020-05	S00420 / T00420	GH 5020-05	S01020 / T01020	2	0.197	5	7.5	0.5	20	- 0.05	+ 0.05	●	●	●	
	GH 6020-05	T00420	GH 6020-05	T01020	2	0.236	6	7.5	0.5	20	- 0.05	+ 0.05			●	
	GH 7020-05	T00420	GH 7020-05	T01020	2	0.276	7	7.5	0.5	20	- 0.05	+ 0.05			●	

Inserts sold in 10 piece boxes

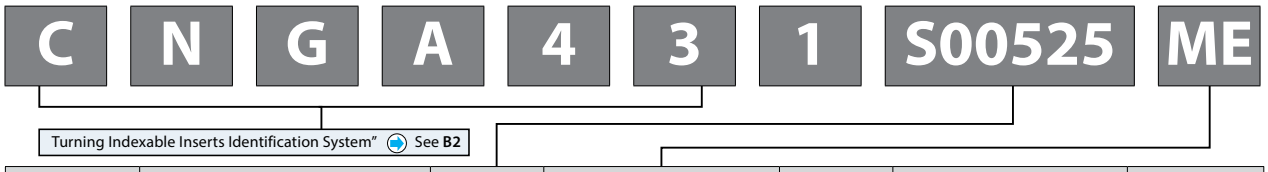
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts

C

CBN Inserts		**C2~C32**
Negative Turning Inserts	CN Type	C8
	DN Type	C10
	SN Type	C12
	TN Type	C13
	VN Type	C14
	WN Type	C15
	CN Type (Solid)	C16
	RN Type (Solid)	C17
	SN Type (Solid)	C18
	TN Type (Solid)	C19
Positive Turning Inserts	CC Type	C20
	CP Type	C21
	DC Type	C22
	TP Type	C23
	VB Type	C26
	VC Type	C27
	WB Type	C28
Grooving Inserts	GBA	C29
	GDGS	C30
	GMN	C31
Solid Bar	EZB-NB	C32
PCD Inserts		**C33~C62**
Negative Turning Inserts	CN Type	C34
	DN Type	C35
	TN Type	C36
	VN Type	C37
	WN Type	C38
Positive Turning Inserts	CC Type	C39
	CP Type	C41
	DC Type	C42
	SP Type	C43
	TB Type	C44
	TC Type	C45
	TP Type	C46
	VB Type	C49
	VC Type	C50
	WB / WP Type	C51
Grooving Inserts	GBA	C52
	GV / GVF	C53
	GDGS	C54
	GMN	C55
	GMGW	C56
	TKF	C57
Solid Bar	EZB-NB	C58
	VNBR-NB	C59
	VNGR-NB	C60
	VNFGR-NB	C61

Identification System (CBN Turning Inserts)



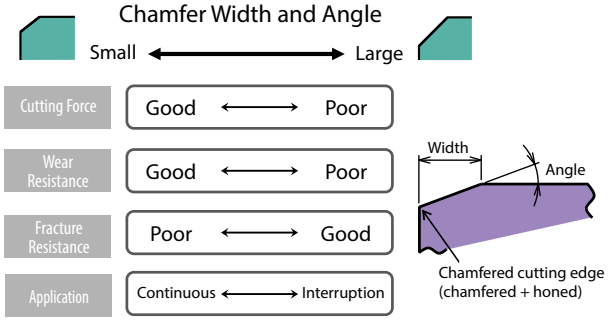
Insert Type	Part Number	Edge Preparation	Manufacture's Option	Edge Length	Number of Edges	Re-Grinding
Negative	CNGA431MEF	F	MEF	Short (Small Edge)	2	Not Recommended
	CNGA431ME4	S00525	ME4		4 (Multi-Edge Double-Sided)	
	CNGA431S00525ME		ME		2	
	CNGA431S00245MEP	S00245	MEP		2	
	CNGA431S00525SE	S00525	SE		1	
	CNMN431S00820	S00820	No Indication (Only KBN900)	Long	Multi Edge	Possible
Positive	CCMW3251MEF	F	MEF	Short (Small Edge)	2	Not Recommended
	CCMW3251T00315ME	T00315	ME		2	
	CCMW3251S00525MES	S00525	MES		2	
	CCMW3251T00315SE	T00315	SE		1	

Re-grinding
- Re-grinding is possible for inserts without any indication in manufacturer's option. Regrinding may not be available depending on the edge condition.
- Re-grinding is not recommended for inserts with manufacturer's symbol like "ME" or "SE"

Edge Preparation Identification System

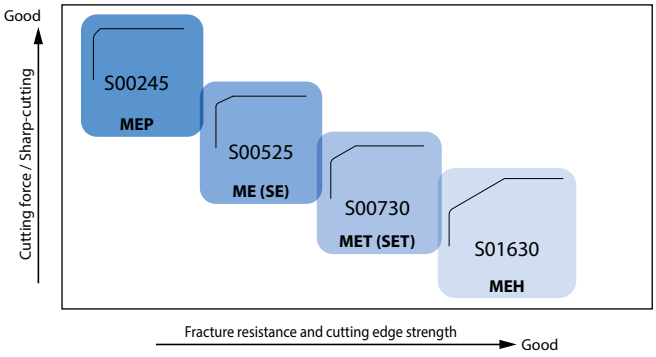
Edge Preparation				
Symbol	Cutting Edge Spec.	Example		Shape
F	Sharp Edge	F	Sharp Edge	Sharp Edge
E	Honed Cutting Edge	E003	R0.003" Honed Cutting Edge	Honed Cutting Edge
T	Chamfered Cutting Edge	T00515	0.005" x 15° Chamfered Cutting Edge	0.005" 15°
S	Chamfered and Honed Cutting Edge	S00525	0.005" x 25° Chamfered and Honed Cutting Edge	0.005" 25° Honed

Features of Chamfer Width and Angle



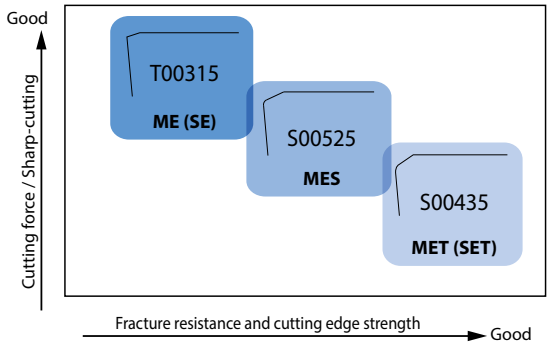
Standard Cutting Edge Preparation

Negative Inserts (Machining of Hard Materials)



Manufacture's Option	Edge Preparation		Application and Features
MEP	S00245	0.002" × 45° + Honed cutting edge	High speed, continuous cut. Excellent crater wear resistance.
ME	S00525	0.005" × 25° + Honed cutting edge	General purpose.
MET	S00730	0.007" × 30° + Honed cutting edge	Superior fracture resistance.
MEH	S01630	0.016" × 30° + Honed cutting edge	Interrupted high feed machining. Prevention of flaking.

Positive Inserts (Machining of Hard Materials)

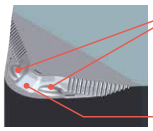
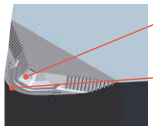
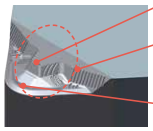


Manufacture's Option	Edge Preparation		Application and Features
ME	T00315	0.003" × 15°	Chamfered type. Sharp-cutting oriented, less burring.
MES	S00525	0.005" × 25° + Honed cutting edge	General purpose.
MET	S00435	0.004" × 35° + Honed cutting edge	Interrupted machining. Stable machining oriented.

CBN Inserts for Machining Hardened Material

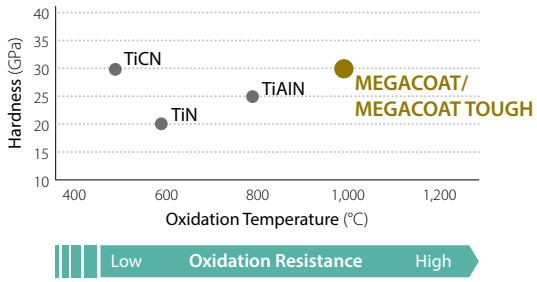
H Chipbreaker Series

Unique molded chipbreaker provides excellent chip control when machining hardened material.
3 Chipbreaker styles for a wide range of machining applications.

Chipbreaker	Application	Recommended Cutting Range
HH (1st Recommendation)  Twin Dots — Breaks chips into small pieces; Wide Bump — Provides stable chip curls	Hardened Steel Finishing 55HRC or more	Small D.O.C. D.O.C. = 0.004" ~ 0.012"
HL  Wide Bump; Rake Surface — Stable chip control for softer interior of hard materials	Hardened Steel Finishing 55HRC or less	
HD  Wide Bump; Multi-step Structure — Good for a wide range of conditions; Rake Surface — Stable chip control for softer interior of hard materials	Removing Carburized Layer From carburized layer to unhardened layer	Large D.O.C. D.O.C. = 0.012" ~ 0.028"

MEGACOAT CBN

Properties of PVD coating



Advantages of MEGACOAT

Long tool life and stable machining due to superior heat-resistance and hardness.

Stability improvement through prevention of crater wear (oxidation, diffusional wear).

High thermal stability and surface smoothness provide excellent surface finish.

Coated CBN for Machining Hardened Material

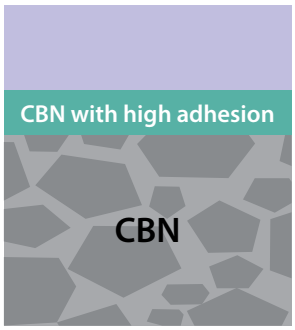
KBN010 / KBN015 / KBN020

Long tool life and stable machining results with wear resistance and fracture resistance
Supports a wide range of applications and reduces the cost of machining hardened materials

1 "MEGACOAT TOUGH" and new CBN provide both wear resistance and fracture resistance

MEGACOAT TOUGH | CBN |

"MEGACOAT TOUGH" coating with newly developed CBN dedicated high adhesion layer
High adhesion suppresses delamination for long tool life and stable machining

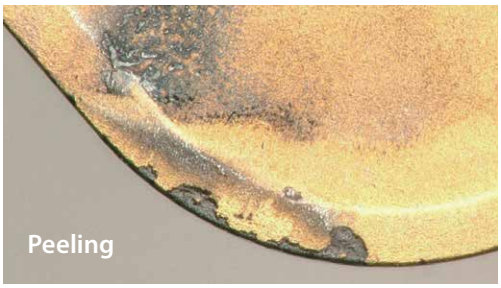


Cross-Section

Cutting Edge Condition after Machining (Internal Evaluation)

KBN015

Competitor G



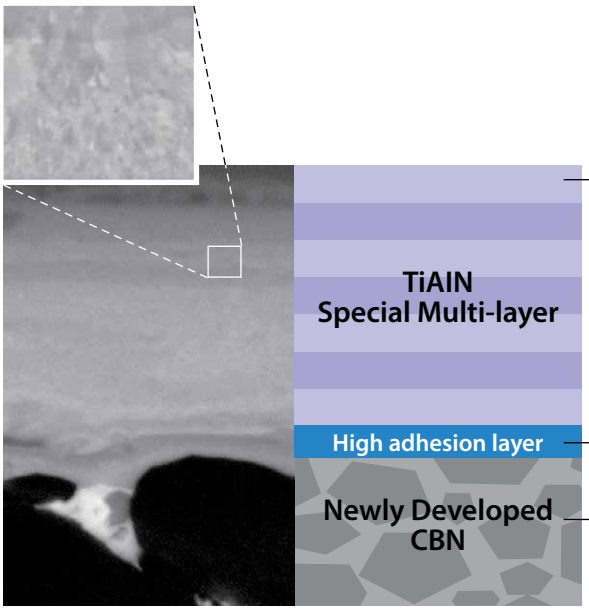
Cutting Conditions : Vc = 490 sfm, D.O.C. = 0.008" , f = 0.008 ipr Dry 4118H 61 HRC

Intermediate layer and high adhesion layer for decreased stress improve adhesion with CBN

Medium - High Speed/General Machining **KBN015**

"MEGACOAT TOUGH" and New CBN substrate for Long Tool Life and Stable Machining

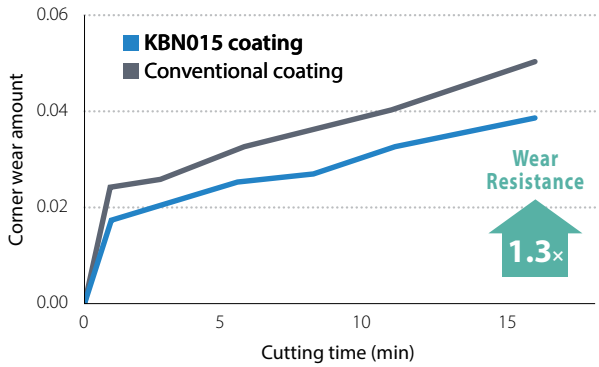
Micronized film structure



Layer Cross-Section

Wear Resistance Layer
- Improved heat resistance by optimizing film composition
- Improved hardness and toughness with atomization

Wear resistance comparison (Internal evaluation)



Cutting Conditions : Vc =490 sfm, f = 0.004 ipr D.O.C. = 0.008" Wet 4118H

"MEGACOAT TOUGH" unique technology
Suppresses delamination with high adhesion

Balanced CBN with heat resistance and fracture resistance
- High purity and tough CBN abrasive grain
- Fine ceramic binder improves heat resistance and fracture resistance

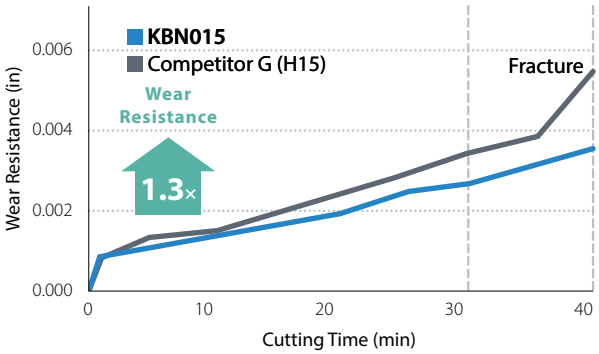
Cutting Performance

Excellent balance of abrasion resistance and fracture resistance, long tool life and stable machining

Medium Speed Machining Evaluation (Vc = 490 sfm)

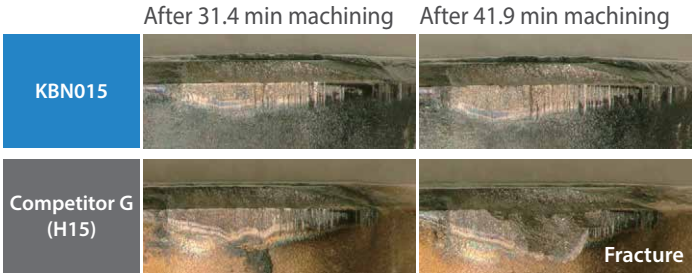
KBN015 has 1.3 times higher wear resistance of competitor G (H15).

Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions : Vc = 490 sfm, f = 0.004 ipr, D.O.C. = 0.008" ipr Wet 4118H

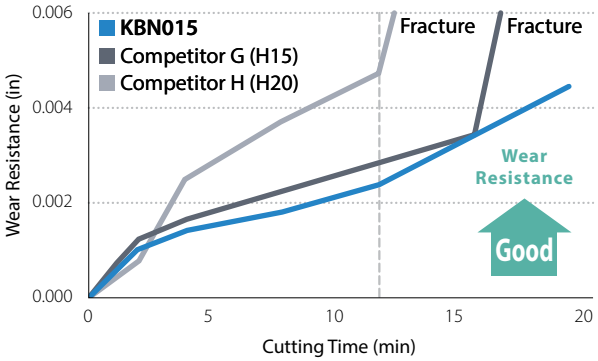
Edge Condition



High Speed Machining Evaluation (Vc = 660 sfm)

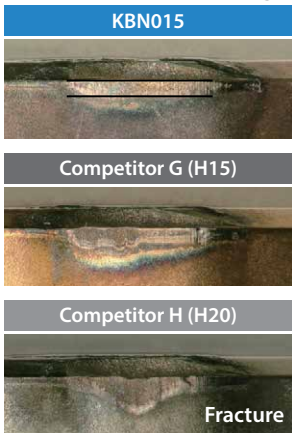
KBN015 has excellent wear resistance and fracture resistance compared to competitor's H15 and H20 grades.

Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions : Vc = 660 sfm, f = 0.004 ipr, D.O.C. = 0.008" Wet 4118H

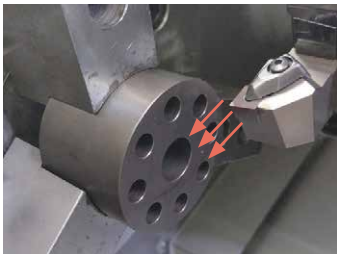
Edge condition
(after 11.5 min machining)



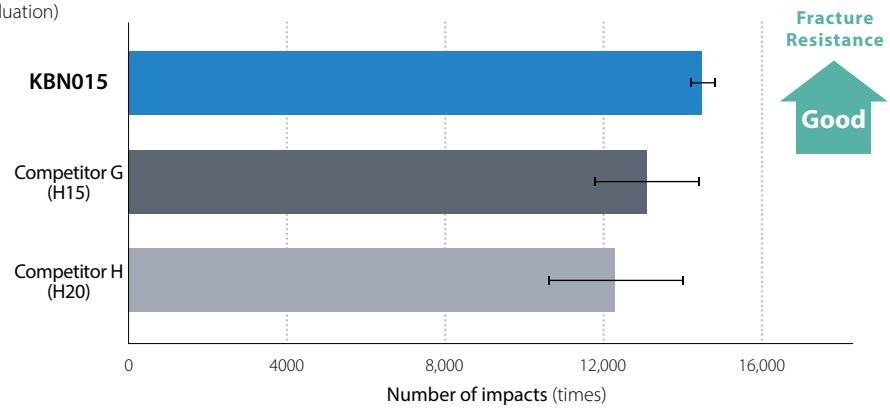
Interrupted Machining Evaluation

KBN015 is resistant to chipping and has high stability compared to competitor's H15 and H20 grades.

Fracture Resistance Comparison (Internal Evaluation)

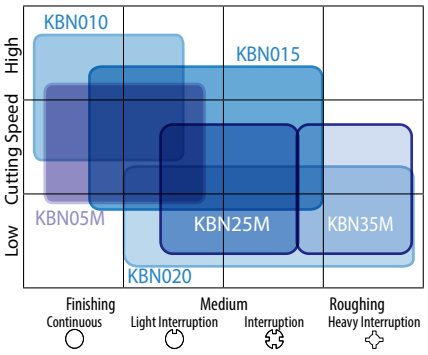


Cutting Conditions : Vc = 490 sfm
f = 0.008 ipr, D.O.C. = 0.008" Dry
4118H



Application Maps

Hard Materials



KBN010 : For high speed finishing.
KBN015 : 1st recommended grade for a wide range of application from continuous to interrupted machining.
KBN020 : For heavily interrupted machining.
KBN05M : Applicable for continuous (high speed finishing) to interrupted machining. Inserts with chipbreakers are available.
KBN25M : High stability for general machining.
KBN35M : Honeycomb structure CBN (Superior fracture resistance in heavy interrupted machining).

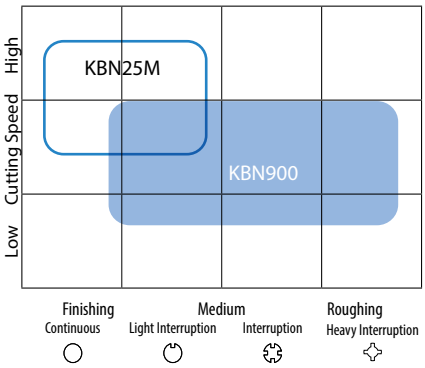
KBN010/KBN015/KBN020 Coolant Recommendation

✓ Recommended ⊘ Not Recommended

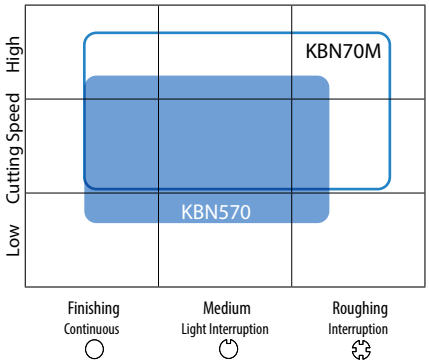
Application	Wet	Dry
Continuous	✓	⊘
Interruption	Partially*	✓

*If running coolant in interrupted material, use **KBN05M**

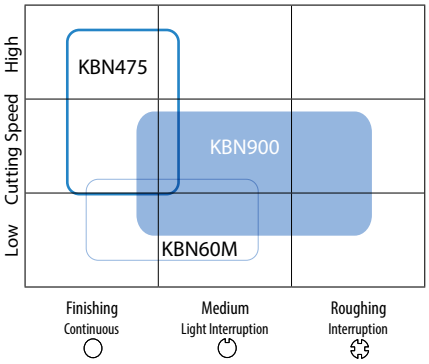
Roll Materials (Chilled Cast Iron)



Sintered Steel



Cast Iron



Recommended Cutting Conditions

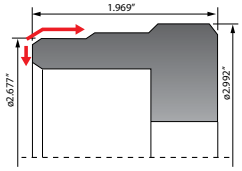
Workpiece Material	Hardness	Applications		Recommended Insert Grade	Cutting Conditions		
					Vc : (sfm)	D.O.C. : (in)	f : (ipr)
Hardened Steel	Over 55HRC	High precision, High speed finishing	Continuous	KBN010	260 - **590** - 820	0.002 - **0.008** - 0.014	0.002 - **0.006** - 0.012
		High speed / General machining	Continuous ~ Interruption	KBN015	260 - **590** - 750	0.002 - **0.008** - 0.020	0.002 - **0.008** - 0.018
		Low speed / General machining	Continuous ~ Heavy interruption	KBN020	260 - **390** - 660	0.002 - **0.008** - 0.020	0.002 - **0.008** - 0.018
		HH chipbreaker for hardened steel finishing	Continuous ~ Interruption	KBN05M	330 - **490** - 660	0.004 - **0.008** - 0.012	0.004 - **0.006** - 0.010
		High efficient stable machining	Light interruption ~ Interruption	KBN020	260 - **490** - 660	0.002 - **0.008** - 0.020	0.002 - **0.008** - 0.018
		Interruption (Small ap)	Interruption ~ Heavy interruption	KBN020	260 - **430** - 590	0.002 - **0.008** - 0.020	0.002 - **0.008** - 0.016
		Heavy machining	Continuous ~ Interruption	KBN900	230 - **300** - 360	0.020 - **0.039** - 0.079	0.002 - **0.004** - 0.008
	Under 55HRC	HL chipbreaker for hardened steel finishing	Continuous ~ Interruption	KBN05M	330 - **490** - 660	0.004 - **0.008** - 0.012	0.004 - **0.006** - 0.010
		Finishing	Continuous	*PT600M	200 - **260** - 390	0.008 - **0.020** - 0.028	0.002 - **0.004** - 0.006
	Removing the carburized layer	HD chipbreaker	Continuous ~ Interruption	KBN05M	330 - **490** - 660	0.012 - **0.020** - 0.028	0.004 - **0.006** - 0.010
Gray Cast Iron	Under 250HB	Finishing	Continuous ~ Light interruption	KBN475	1310 - **2620** - 3940	0.002 - **0.008** - 0.020	0.004 - **0.008** - 0.012
		Finishing	Continuous ~ Light interruption	KBN60M	980 - **1640** - 2300	0.002 - **0.008** - 0.020	0.004 - **0.008** - 0.012
		High efficient finishing	Continuous~Light interruption	KBN900	1640 - **2950** - 3940	0.004 - **0.020** - 0.039	0.002 - **0.004** - 0.008
		Heavy machining	Continuous ~ interruption	KBN900	1640 - **2300** - 2950	0.020 - **0.059** - 0.118	0.004 - **0.012** - 0.020
Roll Materials (Chilled Cast Iron)	Over 55HRC	Finishing	Continuous ~ interruption	KBN25M	260 - **390** - 520	0.002 - **0.012** - 0.020	0.002 - **0.003** - 0.004
		Heavy machining	Continuous ~ interruption	KBN900	230 - **300** - 360	0.012 - **0.028** - 0.039	0.002 - **0.004** - 0.006
Sintered Steel	-	Finishing	Continuous ~ Light interruption	KBN570	160 - **490** - 820	0.002 - **0.006** - 0.010	0.001 - **0.004** - 0.008
	-	Finishing	Continuous ~ Interruption	KBN70M	330 - **660** - 820	0.002 - **0.008** - 0.012	0.002 - **0.006** - 0.010

*PT600M: MEGACOAT on Al_2O_3+TiC ceramic

Case Studies

5120H (58HRC)

- Gear
- External , facing & chamfering
- Vc = 430 sfm
- D.O.C. = 0.024″
- f = 0.005 ipr
- Wet
- CNGA432S00525ME (KBN05M)



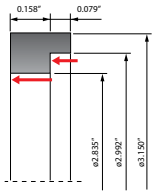
KBN05M	300 pcs/edge
Competitor C	200 pcs/edge

- KBN05M achieved 1.5 times longer tool life than competitor C.
- Its longer tool life contributes to cost-cutting.

User Evaluation

4131 (55HRC)

- Stator
- Boring
- Vc = 560 sfm
- D.O.C. = 0.016″
- f = 0.004 ipr
- Wet
- CNGA432S00525ME (KBN05M)



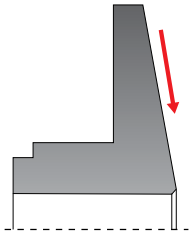
KBN05M	600 pcs/edge
Competitor D	300 pcs/edge

- KBN05M achieved twise longer tool life than competitor D.
- Its longer tool life contributes to cost-cutting.

User Evaluation

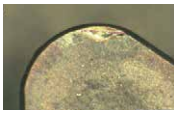
5120 (58HRC)

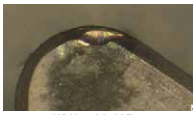
- Pulley
- Facing (Continuous)
- Vc = 390 sfm
- D.O.C. = 0.006″ ~ 0.008″
- f = 0.009 ipr
- Wet
- DNGA432S00245MEP (KBN05M)

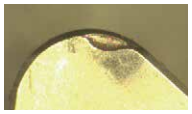


KBN05M-MEP (Edge preperation: 0.002″× 45˚)	150 pcs/edge
KBN05M-ME (Edge preperation: 0.005″× 25˚)	100 pcs/edge
Competitor E	100 pcs/edge

- Tool life of KBN05M-ME type (Edge prep.: 0.005″× 25° chamfered + R honed) is same as comp. E's.
- KBN05M-MEP (Edge prep.: 0.002″× 45° chamfered + R honed) type achieved 1.5 times longer tool life, preventing crater wear.


KBN05M-MEP

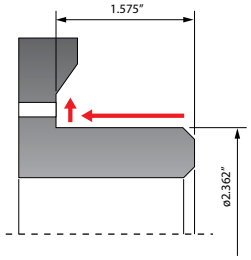

KBN05M-ME


Competitor E

User Evaluation

5120 (61~65HRC)

- Gear
- External & facing (Interrupted)
- Vc = 390 sfm
- D.O.C. = 0.006″
- f = 0.004 ~ 0.006 ipr (External)
- Wet
- CNGA432S01630MEH (KBN05M)



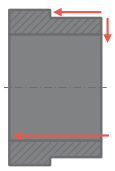
KBN05M-MEH (Edge preperation: 0.016″× 30˚)	150 pcs/edge
Competitor F	100 pcs/edge

- Compared to competitor F, KBN05M-MEH type (Edge prep.: 0.016″× 30° chamfered + R honed) achieved 1.5 times longer tool life.
- No chipping in interrupted machining, and improved productivity. Competitor F's cutting edge had significant chipping.
- Feed rate could be increased from 0.006 to 0.010 ipr when facing.
- Achieved cycle time and cost reduction.

User Evaluation

4140 Hardened Steel (55 ~ 62HRC)

- Pinion
- Vc = 430 sfm
- D.O.C. = 0.002″
- f = 0.003 ipr
- Dry
- CNGM432ME-HH (KBN05M)



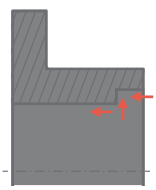
KBN05M HH Chipbreaker	70 pcs/edge
Competitor G	30 pcs/edge

The HH chipbreaker maintained 2.3 times longer tool life than Competitor F.
The molded chipbreaker provided stable chip control.

User Evaluation

5120H (59HRC)

- Clutch
- Vc = 330 sfm
- D.O.C. = 0.006″
- f = 0.004 ipr
- Wet
- WNGA432S00525ME (KBN020)



KBN020	650 pcs/edge
Competitor H	400 pcs/edge

KBN020 can be stable machining and long tool life.

User Evaluation

80° Diamond

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)								●		●					K
Gray Cast Iron (without Scale)															
Nodular Cast Iron (with Scale)															
Hard Materials (Roughing)							✱								H
Hard Materials (Finishing)	●	●	✱	○		◡						○	◡		
Hard Materials (Chip Control)															
Powdered Steel									✱					●	-

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN PVD KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	CBN - KBN475	KBN510	KBN525	KBN570	Applicable Toolholder Page
With Wiper Edge	CNGA 431S00515MEW	S00515	CNGA 120404S01215MEW	S01215	2	1/2	3/16	0.203	1/64	0.102	●	●	●	●		●						●		D8~D11 F138 F147 F148
	432S00515MEW		120408S01215MEW						1/32	0.098	●	●	●	●	●	●	●				●	●		
	433S00515MEW		120412S01215MEW						3/64	0.098	●	●	●	●	●	●								
Finishing	CNGA 431S00245MEP	S00245	CNGA 120404S00545MEP	S00545	2	1/2	3/16	0.203	1/64	0.102				●										
	432S00245MEP		120408S00545MEP						1/32	0.102				●										
	433S00245MEP		120412S00545MEP						3/64	0.098				●										
	434S00245MEP		120416S00545MEP						1/16	0.134				●										
	435S00245MEP		120420S00545MEP						5/64	0.134				●										
	436S00245MEP		120424S00545MEP						3/32	0.130				●										
Sharp Edge	CNGA 431MEF	F	CNGA 120404MEF	F	2	1/2	3/16	0.203	1/64	0.102										●			●	
	432MEF		120408MEF						1/32	0.102										●			●	
	433MEF		120412MEF						3/64	0.098										●				
Double-Sided	CNGA 431ME4	S00525	CNGA 120404ME4	S01225	4	1/2	3/16	0.203	1/64	0.102				●										
	432ME4		120408ME4						1/32	0.102				●										
	433ME4		120412ME4						3/64	0.098				●										
	CNGA 431T00515ME	T00515	CNGA 120404T01215ME	T01215	2	1/2	3/16	0.203	1/64	0.102									●	●				
	432T00515ME		120408T01215ME						1/32	0.102									●	●				
	433T00515ME		120412T01215ME						3/64	0.098									●	●				
	CNGA 4305S00525ME	S00525	CNGA 120402S01225ME	S01225	2	1/2	3/16	0.203	0.008	0.102	●	●	●	●		●		●				●		
	431S00525ME		120404S01225ME						1/64	0.102	●	●	●	●	●	●	●	●		●	●	●		
	432S00525ME		120408S01225ME						1/32	0.102	●	●	●	●	●	●	●	●		●	●	●		
	433S00525ME		120412S01225ME						3/64	0.098	●	●	●	●	●	●	●	●		●		●		
	434S00525ME		120416S01225ME						1/16	0.134	●	●	●	●										
	435S00525ME		120420S01225ME						5/64	0.134	●	●	●	●										
	436S00525ME		120424S01225ME						3/32	0.130				●										
Tough	CNGA 431S00730MET	S00730	CNGA 120404S01730MET	S01730	2	1/2	3/16	0.203	1/64	0.102	●	●	●	●		●	●					●		
	432S00730MET		120408S01730MET						1/32	0.102	●	●	●	●	△	●	●					●		
	433S00730MET		120412S01730MET						3/64	0.098	●	●	●	●		●	●							
	434S00730MET		120416S01730MET						1/16	0.134	●	●	●	●										
	435S00730MET		120420S01730MET						5/64	0.134				●										
	436S00730MET		120424S01730MET						3/32	0.130				●										
Interruption	CNGA 431S01630MEH	S01630	CNGA 120404S04030MEH	S04030	2	1/2	3/16	0.203	1/64	0.102				●										
	432S01630MEH		120408S04030MEH						1/32	0.102	●	●	●	●										
	433S01630MEH		120412S04030MEH						3/64	0.098	●	●	●	●										
	434S01630MEH		120416S04030MEH						1/16	0.134				●										
	435S01630MEH		120420S04030MEH						5/64	0.134				●										
	436S01630MEH		120424S04030MEH						3/32	0.130				●										

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

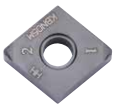
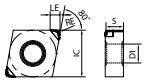
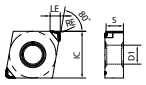
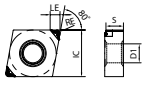
80° Diamond

How to read this page ⇒ See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)		K
Gray Cast Iron (without Scale)		
Nodular Cast Iron (with Scale)		
Hard Materials (Roughing)		H
Hard Materials (Finishing)	●	
Hard Materials (Chip Control)	●	
Powdered Steel		-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN KBN05M	PVD	Applicable Toolholder Page
	 Hardened Steel Finishing (55HRC or more)	CNGM 431ME-HH	E	CNGM 120404ME-HH	E	2	1/2	3/16	0.203	1/64	0.102	●		D8~D11 F138 F147 F148
		432ME-HH		120408ME-HH						1/32	0.102	●		
		433ME-HH		120412ME-HH						3/64	0.098	●		
	 Hardened Steel Finishing (55HRC or less)	CNGM 431ME-HL	E	CNGM 120404ME-HL	E	2	1/2	3/16	0.203	1/64	0.102	●		
		432ME-HL		120408ME-HL						1/32	0.102	●		
		433ME-HL		120412ME-HL						3/64	0.098	●		
	 Removing the Carburized Layer Large D.O.C.	CNGM 431ME-HD	S00535	CNGM 120404ME-HD	S01235	2	1/2	3/16	0.203	1/64	0.102	●		
		432ME-HD		120408ME-HD						1/32	0.102	●		
		433ME-HD		120412ME-HD						3/64	0.098	●		

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CBN and PCD Inserts sold in 1 piece boxes

55° Diamond

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)															K
Gray Cast Iron (without Scale)								●		●					K
Nodular Cast Iron (with Scale)															K
Hard Materials (Roughing)							✱								H
Hard Materials (Finishing)	●	●	✱	○		◔						○	◔		H
Hard Materials (Chip Control)															H
Powdered Steel									✱					●	-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN PVD KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	CBN - KBN475	KBN510	KBN525	KBN570	Applicable Toolholder Page
	Finishing	DNGA 431S00245MEP	S00245	DNGA 150404S00545MEP	S00545	2	1/2	3/16	0.203	1/64	0.102				●										D14~D19 F140, F152 F154~F156
		DNGA 432S00245MEP		DNGA 150408S00545MEP						1/32	0.087				●										
		DNGA 433S00245MEP		DNGA 150412S00545MEP						3/64	0.075				●										
		DNGA 434S00245MEP		DNGA 150416S00545MEP						1/16	0.150				●										
		DNGA 435S00245MEP		DNGA 150420S00545MEP						5/64	0.138				●										
		DNGA 436S00245MEP		DNGA 150424S00545MEP						3/32	0.122				●										
	Sharp Edge	DNGA 431MEF	F	DNGA 150404MEF	F	2	1/2	3/16	0.203	1/64	0.102										●			●	
		432MEF		150408MEF						1/32	0.087										●			●	
		433MEF		150412MEF						3/64	0.075										●				
	Double-Sided	DNGA 431ME4	S00525	DNGA 150404ME4	S01225	4	1/2	3/16	0.203	1/64	0.102				●										
		432ME4		150408ME4						1/32	0.087				●										
		433ME4		150412ME4						3/64	0.075				●										
		DNGA 431T00515ME	T00515	DNGA 150404T01215ME	T01215	2	1/2	3/16	0.203	1/64	0.102									●	●				
		432T00515ME		150408T01215ME						1/32	0.087									●	●				
		433T00515ME		150412T01215ME						3/64	0.075										●				
		DNGA 441T00515ME	T00515	DNGA 150604T01215ME	T01215	2	1/2	1/4	0.203	1/64	0.102									●					D14, D16 D18
		DNGA 4302S00525ME	S00525	DNGA 150401S01225ME	S01225	2	1/2	3/16	0.203	0.004	0.110	●	●	●	●		●								D14~D19 F140, F152 F154~F156
		4305S00525ME		150402S01225ME						0.008	0.106	●	●	●	●		●					●	●		
		431S00525ME		150404S01225ME						1/64	0.102	●	●	●	●	●	●	●	●		●	●	●		
		432S00525ME		150408S01225ME						1/32	0.087	●	●	●	●		●	●	●		●	●	●		
		433S00525ME		150412S01225ME						3/64	0.075	●	●	●	●		●				●				
		434S00525ME		150416S01225ME						1/16	0.150	●	●	●	●										
		435S00525ME		150420S01225ME						5/64	0.138				●										
		436S00525ME		150424S01225ME						3/32	0.122				●										
		DNGA 441S00525ME	S00525	DNGA 150604S01225ME	S01225	2	1/2	1/4	0.203	1/64	0.102	●	●	●	●		●						●		D14, D16 D18
		442S00525ME		150608S01225ME						1/32	0.087	●	●	●	●		●	●	●				●		
		443S00525ME		150612S01225ME						3/64	0.075				●			●							
	Tough	DNGA 431S00730MET	S00730	DNGA 150404S01730MET	S01730	2	1/2	3/16	0.203	1/64	0.102	●	●	●	●		●	●					●		D14~D19 F140, F152 F154~F156
		432S00730MET		150408S01730MET						1/32	0.087	●	●	●	●		●	●					●		
		433S00730MET		150412S01730MET						3/64	0.075	●	●	●	●		●						●		
		434S00730MET		150416S01730MET						1/16	0.150	●	●	●	●										
		435S00730MET		150420S01730MET						5/64	0.138				●										
		436S00730MET		150424S01730MET						3/32	0.122				●										
		DNGA 441S00730MET	S00730	DNGA 150604S01730MET	S01730	2	1/2	1/4	0.203	1/64	0.102	●	●	●	●	●	●	●							D14, D16 D18
		442S00730MET		150608S01730MET						1/32	0.075	●	●	●	●	●	●	●					●		
		443S00730MET		150612S01730MET						3/64	0.075				●										
	Interruption	DNGA 431S01630MEH	S01630	DNGA 150404S04030MEH	S04030	2	1/2	3/16	0.203	1/64	0.102	●	●	●	●										D14~D19 F140, F152 F154~F156
		432S01630MEH		150408S04030MEH						1/32	0.087	●	●	●	●										
		433S01630MEH		150412S04030MEH						3/64	0.075	●	●	●	●										
		434S01630MEH		150416S04030MEH						1/16	0.150				●										
		435S01630MEH		150420S04030MEH						5/64	0.138				●										
		436S01630MEH		150424S04030MEH						3/32	0.122				●										

CBN and PCD Inserts sold in 1 piece boxes

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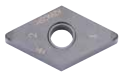
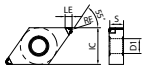
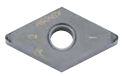
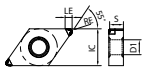
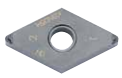
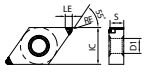
55° Diamond

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)		K
Gray Cast Iron (without Scale)		
Nodular Cast Iron (with Scale)		
Hard Materials (Roughing)		H
Hard Materials (Finishing)	●	
Hard Materials (Chip Control)	●	
Powdered Steel		-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN KBN05M	PVD	Applicable Toolholder Page
	 Hardened Steel Finishing (55HRC or more)	DNGM 431ME-HH	E	DNGM 150404ME-HH	E	2	1/2	3/16	0.203	1/64	0.102	●		D14~D19 F140, F152 F154~F156
		432ME-HH		150408ME-HH						1/32	0.087	●		
		433ME-HH		150412ME-HH						3/64	0.075	●		
	 Hardened Steel Finishing (55HRC or less)	DNGM 431ME-HL	E	DNGM 150404ME-HL	E	2	1/2	3/16	0.203	1/64	0.102	●		
		432ME-HL		150408ME-HL						1/32	0.087	●		
		433ME-HL		150412ME-HL						3/64	0.075	●		
	 Removing the Carburized Layer Large D.O.C.	DNGM 431ME-HD	S00535	DNGM 150404ME-HD	S01235	2	1/2	3/16	0.203	1/64	0.102	●		
		432ME-HD		150408ME-HD						1/32	0.087	●		
		433ME-HD		150412ME-HD						3/64	0.075	●		

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

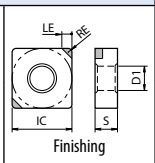
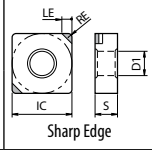
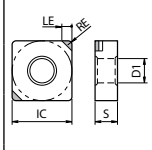
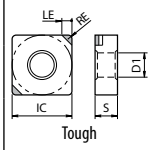
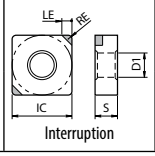
90° Square

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)											K
Gray Cast Iron (without Scale)								●			
Nodular Cast Iron (with Scale)											
Hard Materials (Roughing)							✱				H
Hard Materials (Finishing)	●	◕	✱	○	◔				◔		
Hard Materials (Chip Control)											
Powdered Steel											-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN PVD KBN010	KBN015	KBN020	KBN05M	KBN25M	KBN35M	CBN - KBN475	KBN525	Applicable Toolholder Page
	 Finishing	SNGA 432S00245MEP	S00245	SNGA 120408S00545MEP	S00545	2	1/2	3/16	0.203	1/32	0.071				●					D21~D23 F158
		433S00245MEP		120412S00545MEP						3/64	0.087				●					
	 Sharp Edge	SNGA 432MEF	F	SNGA 120408MEF	F	2	1/2	3/16	0.203	1/32	0.071							●		
		433MEF		120412MEF						3/64	0.087							●		
		SNGA 432T00515ME	T00515	SNGA 120408T01215ME	T01215	2	1/2	3/16	0.203	1/32	0.071							●		
		433T00515ME		120412T01215ME						3/64	0.071							●		
		SNGA 431S00525ME	S00525	SNGA 120404S01225ME	S01225	2	1/2	3/16	0.203	1/64	0.071	●	●	●	●	●				
		432S00525ME		120408S01225ME						1/32	0.071	●	●	●	●	●		●	●	
		433S00525ME		120412S01225ME						3/64	0.071							●		
	 Tough	SNGA 431S00730MET	S00730	SNGA 120404S01730MET	S01730	2	1/2	3/16	0.203	1/64	0.071	●	●	●	●					
		432S00730MET		120408S01730MET						1/32	0.071	●	●	●	●	●	●			
		433S00730MET		120412S01730MET						3/64	0.087	●	●	●	●	●	●			
	 Interruption	SNGA 432S01630MEH	S01630	SNGA 120408S04030MEH	S04030	2	1/2	3/16	0.203	1/32	0.071				●					
		433S01630MEH		120412S04030MEH						3/64	0.087				●					

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

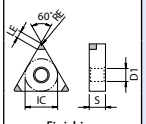
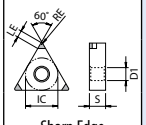
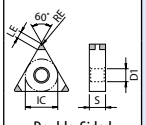
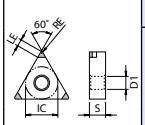
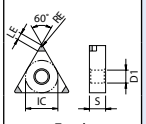
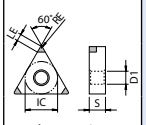
60° Triangle

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)															K
Gray Cast Iron (without Scale)								◕		●					K
Nodular Cast Iron (with Scale)															K
Hard Materials (Roughing)						⚒									H
Hard Materials (Finishing)	●	◕	⚒	○		◔					○	◔			H
Hard Materials (Chip Control)															H
Powdered Steel									⚒				◕		-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN PVD KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	CBN - KBN475	KBN510	KBN525	KBN570	Applicable Toolholder Page
	 Finishing	TNGA 331S00245MEP	S00245	TNGA 160404S00545MEP	S00545	3	3/8	3/16	0.150	1/64	0.106				●										D25~D32 F142 F159 F160
		332S00245MEP		160408S00545MEP						1/32	0.094				●										
		333S00245MEP		160412S00545MEP						3/64	0.083				●										
	 Sharp Edge	TNGA 331MEF	F	TNGA 160404MEF	F	3	3/8	3/16	0.150	1/64	0.106										●			●	
		332MEF		160408MEF						1/32	0.094										●			●	
		333MEF		160412MEF						3/64	0.083										●				
	 Double-Sided	TNGA 331ME6	S00525	TNGA 160404ME6	S01225	6	3/8	3/16	0.150	1/64	0.106				●										
		332ME6		160408ME6						1/32	0.094				●										
		333ME6		160412ME6						3/64	0.083				●										
		TNGA 331T00515ME	T00515	TNGA 160404T01215ME	T01215	3	3/8	3/16	0.150	1/64	0.106									●	●				
		332T00515ME		160408T01215ME						1/32	0.094									●	●				
		333T00515ME		160412T01215ME						3/64	0.083									●	●				
		TNGA 3302S00525ME	S00525	TNGA 160401S01225ME	S01225	3	3/8	3/16	0.150	0.004	0.114	●	●	●	●		●								
		3305S00525ME		160402S01225ME						0.008	0.110	●	●	●	●	●	●	●	●			●	●		
		331S00525ME		160404S01225ME						1/64	0.106	●	●	●	●	●	●	●	●		●	●	●		
		332S00525ME		160408S01225ME						1/32	0.094	●	●	●	●	●	●	●	●		●	●	●		
		333S00525ME		160412S01225ME						3/64	0.083	●	●	●	●		●				●		△		
	 Tough	TNGA 331S00730MET	S00730	TNGA 160404S01730MET	S01730	3	3/8	3/16	0.150	1/64	0.106	●	●	●	●		●	●					●		
		332S00730MET		160408S01730MET						1/32	0.094	●	●	●	●		●	●					●		
		333S00730MET		160412S01730MET						3/64	0.083	●	●	●	●		●	●					●		
	 Interruption	TNGA 331S01630MEH	S01630	TNGA 160404S04030MEH	S04030	3	3/8	3/16	0.150	1/64	0.106	●	●	●	●										
		332S01630MEH		160408S04030MEH						1/32	0.094	●	●	●	●										
		333S01630MEH		160412S04030MEH						3/64	0.083				●										

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

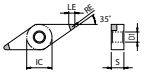
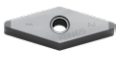
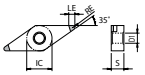
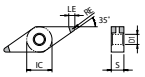
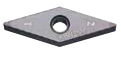
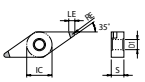
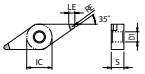
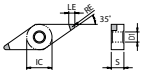
35° Diamond

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)															K
Gray Cast Iron (without Scale)								◕		●					K
Nodular Cast Iron (with Scale)															K
Hard Materials (Roughing)							⚒								H
Hard Materials (Finishing)	●	◕	⚒	○		◔						○	◔		H
Hard Materials (Chip Control)															H
Powdered Steel									⚒				◕		-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN PVD KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	CBN - KBN475	KBN510	KBN525	KBN570	Applicable Toolholder Page
	 Finishing	VNGA 331S00245MEP 332S00245MEP	S00245	VNGA 160404S00545MEP 160408S00545MEP	S00545	2	3/8	3/16	0.150	1/64 1/32	0.079 0.071				● ●											
	 Sharp Edge	VNGA 331MEF 332MEF	F	VNGA 160404MEF 160408MEF	F	2	3/8	3/16	0.150	1/64 1/32	0.079 0.071										● ●			●	
	 Double-Sided	VNGA 331ME4 332ME4	S00525	VNGA 160404ME4 160408ME4	S01225	4	3/8	3/16	0.150	1/64 1/32	0.079 0.071				● ●										
		VNGA 331T00515ME 332T00515ME	T00515	VNGA 160404T01215ME 160408T01215ME	T01215	2	3/8	3/16	0.150	1/64 1/32	0.079 0.071									●	● ●				D34~D44
		VNGA 3302S00525ME 3305S00525ME 331S00525ME 332S00525ME	S00525	VNGA 160401S01225ME 160402S01225ME 160404S01225ME 160408S01225ME	S01225	2	3/8	3/16	0.150	0.004 0.008 1/64 1/32	0.102 0.091 0.079 0.071	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ●		● ● ● ●	● ● ●	● ● ●		
	 Tough	VNGA 331S00730MET 332S00730MET	S00730	VNGA 160404S01730MET 160408S01730MET	S01730	2	3/8	3/16	0.150	1/64 1/32	0.079 0.071	● ●	● ●	● ●	● ●		● ●	● ●					● ●		
	 Interruption	VNGA 331S01630MEH 332S01630MEH	S01630	VNGA 160404S04030MEH 160408S04030MEH	S04030	2	3/8	3/16	0.150	1/64 1/32	0.079 0.071				● ●										

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

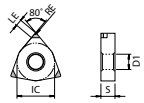
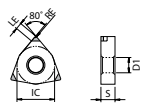
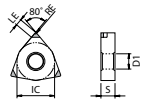
80° Trigon

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)	K
Gray Cast Iron (without Scale)	K
Nodular Cast Iron (with Scale)	K
Hard Materials (Roughing)	H
Hard Materials (Finishing)	H
Hard Materials (Chip Control)	H
Powdered Steel	-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN PVD KBN010	KBN015	KBN020	KBN05M	KBN25M	KBN35M	KBN60M	CBN - KBN475	KBN525	Applicable Toolholder Page
	 Sharp Edge	WNGA 431MEF	F	WNGA 080404MEF	F	3	1/2	3/16	0.203	1/64	0.079								●		D48~D51 F162 F164 F165
		432MEF		080408MEF						1/32	0.102								●		
		WNGA 431T00515ME	T00515	WNGA 080404T01215ME	T01215	3	1/2	3/16	0.203	1/64	0.079								●		
		432T00515ME		080408T01215ME						1/32	0.102								●		
		WNGA 431S00525ME	S00525	WNGA 080404S01225ME	S01225	3	1/2	3/16	0.203	1/64	0.079	●	●	●	●	●	●	●	●	●	
		432S00525ME		080408S01225ME						1/32	0.102	●	●	●	●	●		●	●	●	
		433S00525ME		080412S01225ME						3/64	0.098				●	●					
	 Tough	WNGA 431S00730MET	S00730	WNGA 080404S01730MET	S01730	3	1/2	3/16	0.203	1/64	0.079	●	●	●		●	●				
		432S00730MET		080408S01730MET						1/32	0.102	●	●	●		●	●				
		433S00730MET		080412S01730MET						3/64	0.098						●				

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

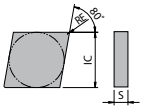
80° Diamond / Solid

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)	✱	K
Gray Cast Iron (without Scale)	✱	
Nodular Cast Iron (with Scale)		
Hard Materials (Roughing)		H
Hard Materials (Finishing)	●	
Hard Materials (Chip Control)		
Powdered Steel		-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	RE	CBN / PVD KBN900	Applicable Toolholder Page
		CNM 322	S00820	CNMN 090308S02020	S02020	4	3/8	1/8	1/32	●	D66
		323		090312S02020					3/64	●	
		CNM 433	S00820	CNMN 120412S02020	S02020	4	1/2	3/16	3/64	●	D53
		434		120416S02020					1/16	●	

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

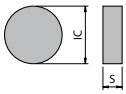
Round / Solid

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)	✕	K
Gray Cast Iron (without Scale)	✕	
Nodular Cast Iron (with Scale)		
Hard Materials (Roughing)		H
Hard Materials (Finishing)	●	
Hard Materials (Chip Control)		
Powdered Steel		-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	Dimensions (in) IC	Dimensions (in) S	CBN / PVD / KBN900	Applicable Toolholder Page
		RNM 22	S00820	RNMN 060300S02020	S02020	1/4	1/8	●	-
		RNM 32	S00820	RNMN 090300S02020	S02020	3/8	1/8	●	D67
		RNM 42	S00820	RNMN 120300S02020	S02020	1/2	1/8	●	
		RNM 43	S00820	RNMN 120400S02020	S02020	1/2	3/16	●	D63~D64 D67

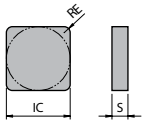
90° Square / Solid

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)	✱	K
Gray Cast Iron (without Scale)	✱	
Nodular Cast Iron (with Scale)		
Hard Materials (Roughing)		H
Hard Materials (Finishing)	●	
Hard Materials (Chip Control)		
Powdered Steel		-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	RE	CBN	PVD KBN900	Applicable Toolholder Page
		SNM 322	S00820	SNMN 090308S02020	S02020	8	3/8	1/8	1/32	●		D69, D70
		323		090312S02020					3/64	●		
		SNM 422	S00820	SNMN 120308S02020	S02020	8	1/2	1/8	1/32	●		
		SNM 423		SNMN 120312S02020					3/64	●		
		SNM 433	S00820	SNMN 120412S02020	S02020	8	1/2	3/16	3/64	●		D56~D60 D69, D70
		434		120416S02020					1/16	●		
		435		120420S02020					5/64	●		

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

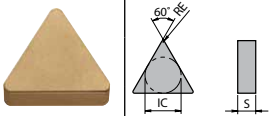
60° Triangle / Solid

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)	✱	K
Gray Cast Iron (without Scale)	✱	
Nodular Cast Iron (with Scale)		
Hard Materials (Roughing)		H
Hard Materials (Finishing)	●	
Hard Materials (Chip Control)		
Powdered Steel		-

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	RE	CBN / PVD / KBN900	Applicable Toolholder Page
	TNM 222	S00820	TNMN 110308S02020	S02020	6	1/4	1/8	1/32	●	D72, F168
	TNM 332	S00820	TNMN 160408S02020	S02020	6	3/8	3/16	1/32	●	D62
	333		160412S02020					3/64	●	

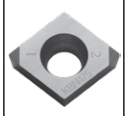
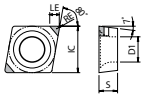
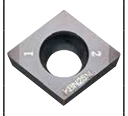
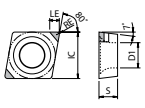
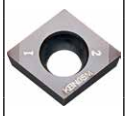
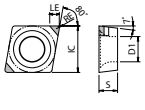
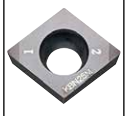
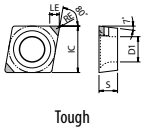
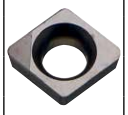
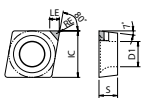
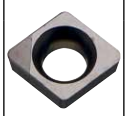
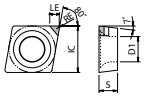
80° Diamond

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)															K
Gray Cast Iron (without Scale)								●		●					K
Nodular Cast Iron (with Scale)															K
Hard Materials (Roughing)						✱									H
Hard Materials (Finishing)	●	●	●	○		◔					○	◔			H
Hard Materials (Chip Control)															H
Powdered Steel									✱				●		-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN PVD KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	CBN - KBN475	KBN510	KBN525	KBN570	Applicable Toolholder Page
	 Sharp Edge	CCMW 3251MEF	F	CCMW 09T304MEF	F	2	3/8	5/32	0.173	1/64	0.075										●			●	E26~E29 E58, E72 F62~F64 F134
		3252MEF		09T308MEF						1/32	0.071										●				
		CCMW 21505T00315ME	T00315	CCMW 060202T00815ME	T00815	2	1/4	3/32	0.110	0.008	0.079	●	●	●	●	●	●	●				●	●		E26~E27, E58 E72, F33~F34 F64, F67~F68 F134
		2151T00315ME		060204T00815ME						1/64	0.075	●	●	●	●	●	●	●	●		●	●	●		
		2152T00315ME		060208T00815ME						1/32	0.071	●	●	●	●	●	●	●	●		●	●			
		CCMW 32505T00315ME	T00315	CCMW 09T302T00815ME	T00815	2	3/8	5/32	0.173	0.008	0.079	●	●	●	●		●	●					●		E26~E29 E58, E72 F62~F64 F134
		3251T00315ME		09T304T00815ME						1/64	0.075	●	●	●	●	●	●	●	●	●	●	●	●		
		3252T00315ME		09T308T00815ME						1/32	0.071	●	●	●	●	●	●	●	●	●	●	●	●		
	 General purpose	CCMW 2151S00525MES	S00525	CCMW 060204S01225MES	S01225	2	1/4	3/32	0.110	1/64	0.075	●	●	●	●										E26~E27, E58 E72, F33~F34 F64, F67~F68 F134
		2152S00525MES		060208S01225MES						1/32	0.071	●	●	●	●										
		CCMW 3251S00525MES	S00525	CCMW 09T304S01225MES	S01225	2	3/8	5/32	0.173	1/64	0.075	●	●	●	●						●				E26~E29 E58, E72 F62~F64 F134
		3252S00525MES		09T308S01225MES						1/32	0.071	●	●	●	●						●				
	 Tough	CCMW 3251S00435MET	S00435	CCMW 09T304S01035MET	S01035	2	3/8	5/32	0.173	1/64	0.075	●	●	●	●	●	●	●					●		E26~E29 E58, E72 F62~F64 F134
		3252S00435MET		09T308S01035MET						1/32	0.071	●	●	●	●	●	●	●							
		CCMW 110905T00315SE	T00315	CCMW 030102T00815SE	T00815	1	0.138	0.055	0.075	0.008	0.055					●	●					●	●		F33~F34 F62, F64 F66
		11091T00315SE		030104T00815SE						1/64	0.055					●	●					●	●		
		CCMW 141105T00315SE	T00315	CCMW 040102T00815SE	T00815	1	0.169	0.071	0.091	0.008	0.055					●	●					●	●		F33~F34 F62, F64
		14111T00315SE		040104T00815SE						1/64	0.055					●	●					●	●		
		CCMW 21505T00315SE	T00315	CCMW 060202T00815SE	T00815	1	1/4	3/32	0.110	0.008	0.079						●					●	●		E26~E27, E58 E72, F33~F34 F64, F67~F68 F134
		2151T00315SE		060204T00815SE						1/64	0.075						●					●	●		
		CCMW 32505T00315SE	T00315	CCMW 09T302T00815SE	T00815	1	3/8	5/32	0.173	0.008	0.079											●	●		E26~E29 E58, E72 F62~F64 F134
		3251T00315SE		09T304T00815SE						1/64	0.075											●	●		
	 Tough	CCMW 110905S00435SET	S00435	CCMW 030102S01035SET	S01035	1	0.138	0.055	0.075	0.008	0.055					●	●								F33~F34 F62, F64 F66
		11091S00435SET		030104S01035SET						1/64	0.055					●	●						●		
		CCMW 141105S00435SET	S00435	CCMW 040102S01035SET	S01035	1	0.169	0.071	0.091	0.008	0.055					●	●								F33~F34 F62, F64
		14111S00435SET		040104S01035SET						1/64	0.055					●	●						●		
		CCMW 2151S00435SET	S00435	CCMW 060204S01035SET	S01035	1	1/4	3/32	0.110	1/64	0.075												●		E26~E27, E58 E72, F33~F34 F64, F67~F68 F134
		CCMW 3251S00435SET	S00435	CCMW 09T304S01035SET	S01035	1	3/8	5/32	0.173	1/64	0.075												●		E26~E29 E58, E72 F62~F64 F134

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

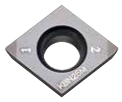
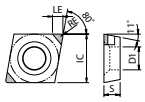
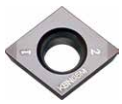
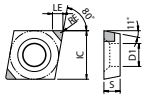
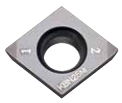
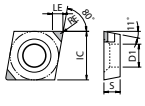
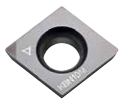
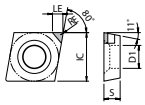
80° Diamond

How to read this page ➡ See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)														K
Gray Cast Iron (without Scale)										◕	●			
Nodular Cast Iron (with Scale)														
Hard Materials (Roughing)								✱						H
Hard Materials (Finishing)	●	◕	◕	○		◔					○	◔		
Hard Materials (Chip Control)														
Powdered Steel														-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN PVD KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	CBN - KBN475	KBN510	KBN525	Applicable Toolholder Page
		CPGB 25151T00315ME	T00315	CPGB 080204T00815ME	T00815	2	5/16	3/32	0.138	1/64	0.075	●	●	●	●		●			●		●	F70~F73
		CPGB 3205T00315ME	T00315	CPGB 090302T00815ME	T00815	2	3/8	1/8	0.177	0.008	0.075	●	●	●	●		●				●		
		321T00315ME		090304T00815ME						1/64	0.075	●	●	●	●		●		●	●	●	●	
		322T00315ME		090308T00815ME						1/32	0.098									●			
	 General Purpose	CPGB 321S00525MES	S00525	CPGB 090304S01225MES	S01225	2	3/8	1/8	0.177	1/64	0.075	●	●	●	●								
		322S00525MES		090308S01225MES						1/32	0.098	●	●	●	●								
	 Tough	CPGB 25151S00435MET	S00435	CPGB 080204S01035MET	S01035	2	5/16	3/32	0.138	1/64	0.075	●	●	●			●					●	
		25152S00435MET		080208S01035MET						1/32	0.087	●	●	●			●						
		CPGB 321S00435MET	S00435	CPGB 090304S01035MET	S01035	2	3/8	1/8	0.177	1/64	0.075	●	●	●	●	●	●					●	
		322S00435MET		090308S01035MET						1/32	0.098	●	●	●	●		●	●					
		CPGB 251505T00315SE	T00315	CPGB 080202T00815SE	T00815	1	5/16	3/32	0.138	0.008	0.075										●	●	
		25151T00315SE		080204T00815SE						1/64	0.075										●	●	
		CPGB 3205T00315SE	T00315	CPGB 090302T00815SE	T00815	1	3/8	1/8	0.177	0.008	0.075										●	●	
		321T00315SE		090304T00815SE						1/64	0.075										●	●	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

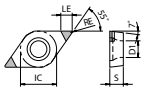
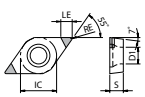
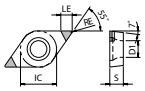
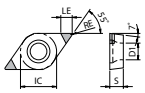
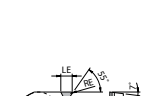
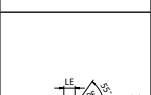
55° Diamond

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)																	K
Gray Cast Iron (without Scale)										●		●					K
Nodular Cast Iron (with Scale)																	K
Hard Materials (Roughing)								⚒									H
Hard Materials (Finishing)	●	●	●	○		◔							○	◔			H
Hard Materials (Chip Control)																	H
Powdered Steel											⚒				●		-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN PVD KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	CBN - KBN475	KBN510	KBN525	KBN570	Applicable Toolholder Page
	 Sharp Edge	DCMW 3251MEF	F	DCMW 11T304MEF	F	2	3/8	5/32	0.173	1/64	0.067										●			●	E23 E30~E37 E59~E60 E72 F74~F87 F135
		3252MEF		11T308MEF						1/32	0.075										●			●	
		DCMW 21505T00315ME	T00315	DCMW 070202T00815ME	T00815	2	1/4	3/32	0.110	0.008	0.075	●	●	●	●	●	●	●	●		●	●	●		E30~E31, E33 E36~E37 E59~E60, E72 F74~F87, F135
		2151T00315ME		070204T00815ME						1/64	0.067	●	●	●	●		●	●	●		●	●	●		
		2152T00315ME		070208T00815ME						1/32	0.075	●	●	●	●		●	●					●		
		DCMW 32505T00315ME	T00315	DCMW 11T302T00815ME	T00815	2	3/8	5/32	0.173	0.008	0.075	●	●	●	●	●	●	●	●			●	●		E23 E30~E37 E59~E60 E72 F74~F87 F135
		3251T00315ME		11T304T00815ME						1/64	0.067	●	●	●	●	●	●	●	●	●	●	●	●		
		3252T00315ME		11T308T00815ME						1/32	0.075	●	●	●	●	●	●	●	●	●	●	●	●		
		3253T00315ME		11T312T00815ME						3/64	0.075	●	●	●	●										
	 General Purpose	DCMW 32505S00525MES	S00525	DCMW 11T302S01225MES	S01225	2	3/8	5/32	0.173	0.008	0.075	●	●	●	●										E23 E30~E37 E59~E60 E72 F74~F87 F135
		3251S00525MES		11T304S01225MES						1/64	0.067	●	●	●	●						●				
		3252S00525MES		11T308S01225MES						1/32	0.075	●	●	●	●						●				
	 Tough	DCMW 21505S00435MET	S00435	DCMW 070202S01035MET	S01035	2	1/4	3/32	0.110	0.008	0.075	●	●	●			●	●							E30~E31, E33 E36~E37 E59~E60, E72 F74~F87, F135
		2151S00435MET		070204S01035MET						1/64	0.067	●	●	●			●	●							
		2152S00435MET		070208S01035MET						1/32	0.075	●	●	●			●								
		DCMW 32505S00435MET	S00435	DCMW 11T302S01035MET	S01035	2	3/8	5/32	0.173	0.008	0.075	●	●	●	●		●	●					●		E23 E30~E37 E59~E60 E72 F74~F87 F135
		3251S00435MET		11T304S01035MET						1/64	0.067	●	●	●	●	●	●	●					●		
		3252S00435MET		11T308S01035MET						1/32	0.075	●	●	●		●	●	●					●		
		3253S00435MET		11T312S01035MET						3/64	0.075	●	●	●		●		●							
		DCMW 21505T00315SE	T00315	DCMW 070202T00815SE	T00815	1	1/4	3/32	0.110	0.008	0.075						●						●		E30~E31, E33 E36~E37 E59~E60, E72 F74~F87, F135
		2151T00315SE		070204T00815SE						1/64	0.067						●					●	●		
		DCMW 32505T00315SE	T00315	DCMW 11T302T00815SE	T00815	1	3/8	5/32	0.173	0.008	0.075											●	●		E23 E30~E37 E59~E60 E72 F74~F87 F135
		3251T00315SE		11T304T00815SE						1/64	0.067											●	●		
		DCMW 2151S00435SET	S00435	DCMW 070204S01035SET	S01035	1	1/4	3/32	0.110	1/64	0.067												●		E30~E31, E33 E36~E37 E59~E60, E72 F74~F87, F135
		DCMW 32505S00435SET	S00435	DCMW 11T302S01035SET	S01035	1	3/8	5/32	0.173	0.008	0.075												●		E23 E30~E37 E59~E60 E72 F74~F87 F135
		3251S00435SET		11T304S01035SET						1/64	0.067												●		

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

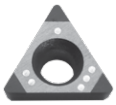
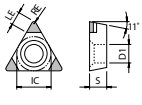
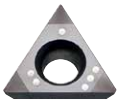
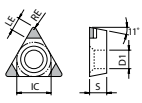
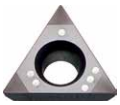
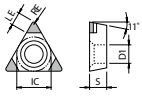
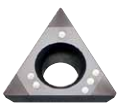
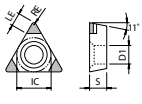
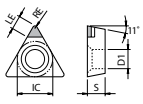
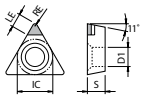
60° Triangle

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)														K
Gray Cast Iron (without Scale)								●	●					
Nodular Cast Iron (with Scale)														
Hard Materials (Roughing)							✱							H
Hard Materials (Finishing)	●	●	●	○		◔					○	◔		
Hard Materials (Chip Control)														
Powdered Steel													●	-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN PVD KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	CBN - KBN475	KBN510	KBN525	KBN570	Applicable Toolholder Page
	 Sharp Edge	TPGB 221MEF	F	TPGB 110304MEF	F	3	1/4	1/8	0.138	1/64	0.083									●			●	E41 F90~F97 F136
		222MEF		110308MEF						1/32	0.071									●			●	
		TPGB 2205T00315ME	T00315	TPGB 110302T00815ME	T00815	3	1/4	1/8	0.138	0.008	0.091	●	●	●	●		●		●	●	●	●		E41 F90~F97 F136
		221T00315ME		110304T00815ME						1/64	0.083	●	●	●	●	●	●	●	●	●	●	●		
		222T00315ME		110308T00815ME						1/32	0.071	●	●	●	●		●		●	●		●		
		TPGB 321T00315ME	T00315	TPGB 160304T00815ME	T00815	3	3/8	1/8	0.177	1/64	0.071				●		●		●	●				F90~F92 F96, F136
		322T00315ME		160308T00815ME						1/32	0.059				●				●	●				
	 General Purpose	TPGB 221S00525MES	S00525	TPGB 110304S01225MES	S01225	3	1/4	1/8	0.138	1/64	0.083	●	●	●	●					●				E41 F90~F97 F136
		222S00525MES		110308S01225MES						1/32	0.071	●	●	●	●					●				
	 Tough	TPGB 2205S00435MET	S00435	TPGB 110302S01035MET	S01035	3	1/4	1/8	0.138	0.008	0.091	●	●	●		●	●							E41 F90~F97 F136
		221S00435MET		110304S01035MET						1/64	0.083	●	●	●	●	●	●	●						
		222S00435MET		110308S01035MET						1/32	0.071	●	●	●	●	●	●	●						
		TPGB 321S00435MET	S00435	TPGB 160304S01035MET	S01035	3	3/8	1/8	0.177	1/64	0.071	●	●	●			●					●		F90~F92 F96, F136
		322S00435MET		160308S01035MET						1/32	0.059	●	●	●								●		
		TPGB 151505T00315SE	T00315	TPGB 080202T00815SE	T00815	1	3/16	3/32	0.098	0.008	0.071						●				●	●		E41 F90~F94 F98
		15151T00315SE		080204T00815SE						1/64	0.063					●	●				●	●		
		TPGB 181505T00315SE	T00315	TPGB 090202T00815SE	T00815	1	7/32	3/32	0.118	0.008	0.071					●	●				●	●		F35~F36 F90~F94 F98
		18151T00315SE		090204T00815SE						1/64	0.063					●	●				●	●		
		TPGB 2205T00315SE	T00315	TPGB 110302T00815SE	T00815	1	1/4	1/8	0.138	0.008	0.075					●					●	●		E41 F90~F97 F136
		221T00315SE		110304T00815SE						1/64	0.071					●					●	●		
		222T00315SE		110308T00815SE						1/32	0.059											●		
		TPGB 3205T00315SE	T00315	TPGB 160302T00815SE	T00815	1	3/8	1/8	0.177	0.008	0.075										●	●		F90~F92 F96, F136
		321T00315SE		160304T00815SE						1/64	0.071										●	●		
	 Tough	TPGB 151505S00435SET	S00435	TPGB 080202S01035SET	S01035	1	3/16	3/32	0.098	0.008	0.071						●							E41 F90~F94 F98
		15151S00435SET		080204S01035SET						1/64	0.063						●					●		
		TPGB 181505S00435SET	S00435	TPGB 090202S01035SET	S01035	1	7/32	3/32	0.118	0.008	0.071						●							F35~F36 F90~F94 F98
		18151S00435SET		090204S01035SET						1/64	0.063						●					●		
		TPGB 221S00435SET	S00435	TPGB 110304S01035SET	S01035	1	1/4	1/8	0.138	1/64	0.071											●		E41 F90~F97 F136
		222S00435SET		110308S01035SET						1/32	0.059											●		
		TPGB 321S00435SET	S00435	TPGB 160304S01035SET	S01035	1	3/8	1/8	0.177	1/64	0.071											●		F90~F92 F96, F136

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

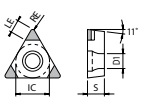
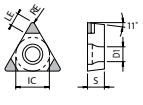
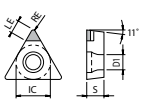
60° Triangle

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)							K
Gray Cast Iron (without Scale)							
Nodular Cast Iron (with Scale)							
Hard Materials (Roughing)							H
Hard Materials (Finishing)	●	●	●	○	○		
Hard Materials (Chip Control)							
Powdered Steel							-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					CBN					Applicable Toolholder Page
							IC	S	D1	RE	LE	PVD				-	
												KBN010	KBN015	KBN020	KBN25M	KBN525	
		TPGW 331T00315ME	T00315	TPGW 160404T00815ME	T00815	3	3/8	3/16	0.173	1/64	0.071				●		
	 Tough	TPGW 331S00435MET 332S00435MET	S00435	TPGW 160404S01035MET 160408S01035MET	S01035	3	3/8	3/16	0.173	1/64 1/32	0.071 0.059	● ●	● ●	● ●	● ●		-
		TPGW 331T00315SE	T00315	TPGW 160404T00815SE	T00815	1	3/8	3/16	0.173	1/64	0.071					●	

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

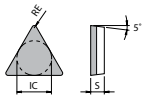
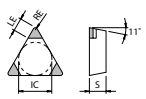
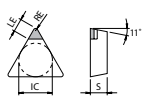
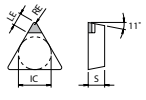
60° Triangle

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)				K
Gray Cast Iron (without Scale)				
Nodular Cast Iron (with Scale)				
Hard Materials (Roughing)				H
Hard Materials (Finishing)		○	◔	
Hard Materials (Chip Control)				
Powdered Steel				-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	RE	LE	CBN PVD KBN10M	CBN - KBN510	CBN - KBN525	Applicable Toolholder Page
	 CBN Surface Type	TBG 12105T00315		TBGN 060102T00815					0.008				●	
		1211T00315	T00315	060104T00815	T00815	3	5/32	1/16	1/64	-		●	●	-
		1212T00315		060108T00815					1/32		●	●		
		TPG 221T00315ME	T00315	TPGN 110304T00815ME	T00815	3	1/4	1/8	1/64	0.098			●	
		TPG 221T00315SE	T00315	TPGN 110304T00815SE	T00815	1	1/4	1/8	1/64	0.098			●	F131
		TPG 3205T00315SE		TPGN 160302T00815SE					0.008	0.102			●	
		321T00315SE	T00315	160304T00815SE	T00815	1	3/8	1/8	1/64	0.094		●	●	
		322T00315SE		160308T00815SE					1/32	0.083			●	
	 Tough	TPG 221S00435SET	S00435	TPGN 110304S01035SET	S01035	1	1/4	1/8	1/64	0.098			●	
		TPG 321S00435SET	S00435	TPGN 160304S01035SET	S01035	1	3/8	1/8	1/64	0.094			●	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

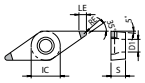
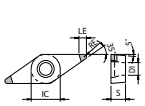
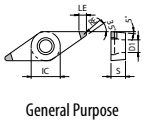
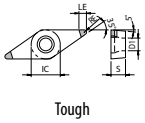
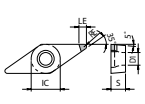
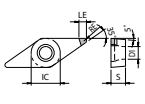
35° Diamond

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)														K
Gray Cast Iron (without Scale)								●	●					
Nodular Cast Iron (with Scale)														
Hard Materials (Roughing)						⚒								H
Hard Materials (Finishing)	●	●	●	○		◔						○	◔	
Hard Materials (Chip Control)														
Powdered Steel									⚒				●	-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					CBN										Applicable Toolholder Page
												PVD								-		
							IC	S	D1	RE	LE	KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN475	KBN510	KBN525	KBN570	
	 Sharp Edge	VBGW 221MEF 222MEF	F	VBGW 110304MEF 110308MEF	F	2	1/4 1/8	1/8	0.110	1/64 1/32	0.079 0.067										● ●			● ●	E42~E47, E62 F102, F103 F106~F114 F137
		VBGW 331MEF 332MEF	F	VBGW 160404MEF 160408MEF	F	2	3/8	3/16	0.173	1/64 1/32	0.079 0.067										● ●			● ●	E45~E47 F102~F103 F106~F114 F137
		VBGW 2205T00315ME 221T00315ME 222T00315ME	T00315	VBGW 110302T00815ME 110304T00815ME 110308T00815ME	T00815	2	1/4 1/8	1/8	0.110	0.008 1/64 1/32	0.094 0.079 0.067	● ●	● ●	● ●	● ●	● ●	● ●		● ●		● ●	● ●	● ●	E42~E47, E62 F102, F103 F106~F114 F137
		VBGW 3305T00315ME 331T00315ME 332T00315ME	T00315	VBGW 160402T00815ME 160404T00815ME 160408T00815ME	T00815	2	3/8	3/16	0.173	0.008 1/64 1/32	0.094 0.079 0.067	● ●	● ●	● ●	● ●	● ●	● ●	● ●	● ●		● ●	● ●	● ●	E45~E47 F102~F103 F106~F114 F137
	 General Purpose	VBGW 221S00525MES 222S00525MES	S00525	VBGW 110304S01225MES 110308S01225MES	S01225	2	1/4 1/8	1/8	0.110	1/64 1/32	0.079 0.067	● ●	● ●	● ●	● ●						● ●				E42~E47, E62 F102, F103 F106~F114 F137
		VBGW 331S00525MES 332S00525MES	S00525	VBGW 160404S01225MES 160408S01225MES	S01225	2	3/8	3/16	0.173	1/64 1/32	0.079 0.067	● ●	● ●	● ●	● ●						● ●				E45~E47 F102~F103 F106~F114 F137
	 Tough	VBGW 2205S00435MET 221S00435MET 222S00435MET	S00435	VBGW 110302S01035MET 110304S01035MET 110308S01035MET	S01035	2	1/4 1/8	1/8	0.110	0.008 1/64 1/32	0.094 0.079 0.067	● ●	● ●	● ●		● ●	● ●	● ●						E42~E47, E62 F102, F103 F106~F114 F137
		VBGW 3305S00435MET 331S00435MET 332S00435MET	S00435	VBGW 160402S01035MET 160404S01035MET 160408S01035MET	S01035	2	3/8	3/16	0.173	0.008 1/64 1/32	0.094 0.079 0.067	● ●	● ●	● ●	● ●	● ●	● ●	● ●						E45~E47 F102~F103 F106~F114 F137
		VBGW 2205T00315SE 221T00315SE	T00315	VBGW 110302T00815SE 110304T00815SE	T00815	1	1/4 1/8	1/8	0.110	0.008 1/64	0.110 0.094					● ●	● ●					● ●	● ●	E42~E47, E62 F102, F103 F106~F114 F137
		VBGW 3305T00315SE 331T00315SE 332T00315SE	T00315	VBGW 160402T00815SE 160404T00815SE 160408T00815SE	T00815	1	3/8	3/16	0.173	0.008 1/64 1/32	0.094 0.079 0.067					● ●						● ●	● ●	E45~E47 F102~F103 F106~F114 F137
	 Tough	VBGW 221S00435SET 222S00435SET	S00435	VBGW 110304S01035SET 110308S01035SET	S01035	1	1/4 1/8	1/8	0.110	1/64 1/32	0.079 0.067						● ●						● ●	E42~E47, E62 F102, F103 F106~F114 F137
		VBGW 331S00435SET 332S00435SET	S00435	VBGW 160404S01035SET 160408S01035SET	S01035	1	3/8	3/16	0.173	1/64 1/32	0.079 0.067												● ●	E45~E47 F102~F103 F106~F114 F137

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

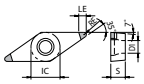
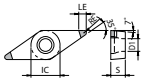
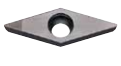
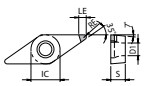
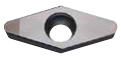
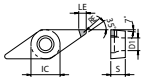
35° Diamond

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)													K
Gray Cast Iron (without Scale)							◕	●					
Nodular Cast Iron (with Scale)													
Hard Materials (Roughing)													H
Hard Materials (Finishing)	●	◕	◕	○		◔			○	◔			
Hard Materials (Chip Control)													
Powdered Steel													-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					CBN									Applicable Toolholder Page
							IC	S	D1	RE	LE	PVD						-			
												KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN60M	KBN475	KBN510	KBN525	
		VCGW 151505T00315ME	T00315	VCGW 080202T00815ME	T00815	2	3/16	3/32	0.091	0.008	0.079	●	●	●	●		●		●	●	●	E63 F102~F103 F106~F111 F113
		15151T00315ME		080204T00815ME						1/64	0.079	●	●	●	●		●	●	●	●	●	
		15152T00315ME		080208T00815ME						1/32	0.067				●				●			
	 Tough	VCGW 151505S00435MET	S00435	VCGW 080202S01035MET	S01035	2	3/16	3/32	0.091	0.008	0.079	●	●	●			●					
		15151S00435MET		080204S01035MET						1/64	0.079	●	●	●			●					
		15152S00435MET		080208S01035MET						1/32	0.067	●	●	●			●					
		VCGW 151505T00315SE	T00315	VCGW 080202T00815SE	T00815	1	3/16	3/32	0.091	0.008	0.094					●				●	●	
		15151T00315SE		080204T00815SE						1/64	0.079					●				●	●	
	 Tough	VCGW 15151S00435SET	S00435	VCGW 080204S01035SET	S01035	1	3/16	3/32	0.091	1/64	0.079										●	
		15152S00435SET		080208S01035SET						1/32	0.071										●	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

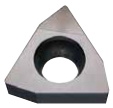
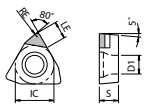
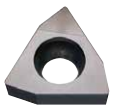
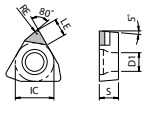
80° Trigon

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)						K
Gray Cast Iron (without Scale)						
Nodular Cast Iron (with Scale)						
Hard Materials (Roughing)						H
Hard Materials (Finishing)	○	●	○	◔		
Hard Materials (Chip Control)						
Powdered Steel						-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	CBN PVD KBN10M	CBN PVD KBN25M	CBN - KBN510	CBN - KBN525	Applicable Toolholder Page
		WBGW 12105T00315L-SE	T00315	WBGW 060102T00815L-SE	T00815	1	5/32	1/16	0.091	0.008	0.075	●	●	●	●	F38 F116~F118 F120~F121
		1211T00315L-SE		060104T00815L-SE						1/64	0.075	●	●	●	●	
		WBGW 151505T00315L-SE	T00315	WBGW 080202T00815L-SE	T00815	1	3/16	3/32	0.091	0.008	0.091	●	●		●	
		15151T00315L-SE		080204T00815L-SE						1/64	0.091	●	●	●	●	
	 Tough	WBGW 12105S00435L-SET	S00435	WBGW 060102S01035LSET	S01035	1	5/32	1/16	0.091	0.008	0.075		●			
		1211S00435L-SET		060104S01035LSET						1/64	0.075		●		●	
		WBGW 151505S00435L-SET	S00435	WBGW 080202S01035LSET	S01035	1	3/16	3/32	0.091	0.008	0.091		●			
		15151S00435L-SET		080204S01035LSET						1/64	0.091	●	●		●	

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

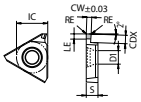
GBA

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)			K
Gray Cast Iron (without Scale)			
Nodular Cast Iron (with Scale)			
Hard Materials (Roughing)			H
Hard Materials (Finishing)	○	●	
Hard Materials (Chip Control)			
Powdered Steel			-

Insert		Part Number	Edge Prep (in)	No. of Edges	Dimensions (mm) CW in	CW mm	CDX	IC	S	D1	RE	LE	Tolerance (mm) CW min.	CW max.	CBN - KBN510	CBN - KBN525	Applicable Toolholder Page
	 External / Internal Grooving	GBA43R 125-020	E003	1	0.049	1.25	2	12.7	4.76	5.5	0.2	1.9	- 0.03	+ 0.03	●	●	G13~G15 G89
		GBA43R 150-020			0.059	1.5	3.5								●	●	
		GBA43R 200-020			0.079	2	3.5								●	●	
		GBA43R 250-020			0.098	2.5	4								●	●	
		GBA43R 300-020			0.118	3	4								●	●	
		GBA43L 125-020			0.049	1.25	2	12.7	4.76	5.5	0.2	1.9	- 0.03	+ 0.03		●	
		GBA43L 150-020			0.059	1.5	3.5								●	●	
		GBA43L 200-020			0.079	2	3.5								●	●	
		GBA43L 250-020			0.098	2.5	4									●	
		GBA43L 300-020			0.118	3	4									●	

Right-hand shown
CDX shows available grooving depth.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

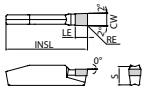
GDGS

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)			K
Gray Cast Iron (without Scale)			
Nodular Cast Iron (with Scale)			
Hard Materials (Roughing)			H
Hard Materials (Finishing)	●		
Hard Materials (Chip Control)			
Powdered Steel		●	-

Insert		Part Number	Edge Prep (in)	No. of Edges	Dimensions (mm)						Tolerance (mm)		CBN		Applicable Toolholder Page
					CW		S	RE	INSL	LE	CW min.	CW max.	PVD	-	
					in	mm							KBN05M	KBN570	
	 External Grooving	GDGS 2020N-020NB	E003 / E0008	1	0.079	2	4.3	0.2	20	2.9	- 0.03	+ 0.03	●	●	G44~G56
		GDGS 3020N-040NB	E003 / E0008	1	0.118	3	4.3	0.4	20	2.9	- 0.03	+ 0.03	●	●	
		GDGS 4020N-040NB	E003 / E0008	1	0.157	4	4.3	0.4	20	2.9	- 0.03	+ 0.03	●	●	
		GDGS 5020N-040NB	E003 / E0008	1	0.197	5	4.3	0.4	20	2.9	- 0.03	+ 0.03	●	●	G44~G45 G48~G56
		GDGS 6020N-040NB	E008	1	0.236	6	4.3	0.4	20	2.9	- 0.03	+ 0.03	●		

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

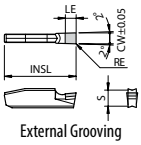
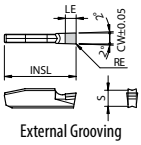
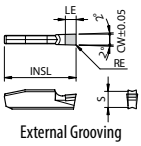
GMN

How to read this page See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)			K
Gray Cast Iron (without Scale)			
Nodular Cast Iron (with Scale)			
Hard Materials (Roughing)			H
Hard Materials (Finishing)	○	●	
Hard Materials (Chip Control)			
Powdered Steel			-

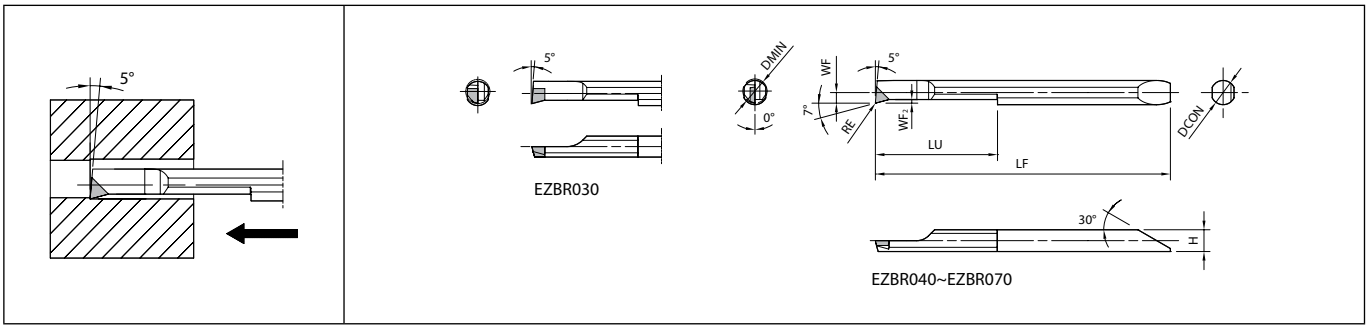
Insert		Part Number	Edge Prep (in)	No. of Edges	Dimensions (mm)						Tolerance (mm)		CBN		Applicable Toolholder Page
					CW		S	RE	INSL	LE	CW min.	CW max.	-		
					in	mm							KBN510	KBN525	
	 External Grooving	GMN 2	E003	1	0.079	2	4.3	0.2	20	2.9	- 0.05	+ 0.05	△	△	
	 External Grooving	GMN 3	E003	1	0.118	3	4.3	0.4	20	2.9	- 0.05	+ 0.05	△	△	-
	 External Grooving	GMN 4	E003	1	0.157	4	4.3	0.4	20	2.9	- 0.05	+ 0.05	△	△	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

EZB-NB (Boring)

How to read this page See page B15



Right-hand shown

Dimensions

Cutting Edge Preparation

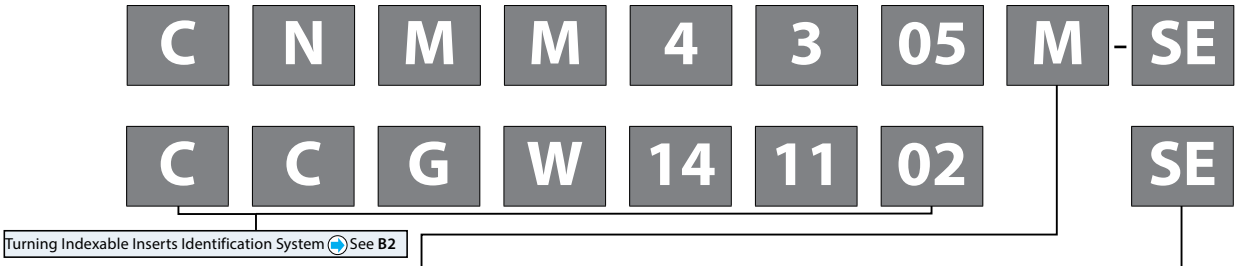
Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)		K
Gray Cast Iron (without Scale)		
Nodular Cast Iron (with Scale)		
Hard Materials (Roughing)		H
Hard Materials (Finishing)	●	
Hard Materials (Chip Control)		
Powdered Steel		-

Part Number		Edge Prep (in)	No. of Edges	Dimensions (mm)								Tolerance (mm)		CBN	PVD	KBN05M	Applicable Sleeve F40~F45
				DMIN	DCON	H	LF	LU	WF	WF_2	RE	RE min.	RE max.				
EZBR	030030-003NB	T00315	1	3	3	2.6	38.8	13	1.25	0.3	0.035	-0.015	+0.015	●			EZH030...
EZBR	040040-003NB	T00315	1	4	4	3.6	48.8	20	1.75	0.5	0.035	-0.015	+0.015	●			EZH040...
EZBR	050050-003NB	T00315	1	5	5	4.6	58.1	25	2.25	0.5	0.035	-0.015	+0.015	●			EZH050...
EZBR	060060-003NB	T00315	1	6	6	5.6	66.1	30	2.75	0.5	0.035	-0.015	+0.015	●			EZH060...
EZBR	070070-003NB	T00315	1	7	7	6.6	74.1	35	3.25	0.5	0.035	-0.015	+0.015	●			EZH070...

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Identification System (PCD Turning Inserts)

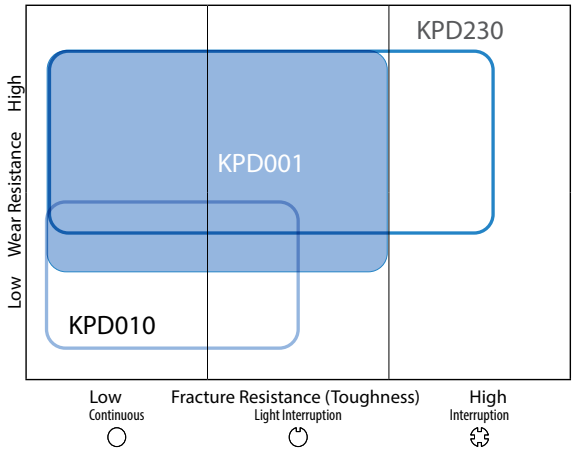


Insert Type	Part Number	Manufacture's Option 1	Manufacture's Option 2	Series Name	Cutting Edge Length	Number of Edges	Re-Grinding
Negative	CNMM431M-SE	M (Indicates the tool is for negative inserts/toolholders)	SE	Small Edge	Short (Small edge)	1	Not Recommended
	CNMM431M-NE		NE	New Value Edge	Long (85% length compared with no Indication's cutting edge)	1	Possible
	CNMM431M		No Indication	-	Long	1	
Positive	CCGW141102SE	-	SE	Small Edge	Short (Small edge)	1	Not Recommended
	CCGW141102NE		NE	New Value Edge	Long (85% length compared with no Indication's cutting edge)	1	Possible
	CCGW141102		No Indication	-	Long	1	

• No edge preparation symbols for PCD inserts. Most of the PCD inserts' edge prep. are sharp edge.
• "M" in manufacturer's option 1 indicates the inserts are applicable to negative toolholders.

About re-grinding:
• Re-grinding is possible for inserts with "NE" and no symbol in manufacturer's option 2.
• Re-grinding may not be available depending on the edge condition.
• Re-grinding is not recommended for inserts with "SE" in manufacturer's option 2.

Application Map



Grades	Applications	Features
KPD001 Average grain size under 0.5 µm	• High speed machining of non-ferrous metals and brass • High speed machining of plastics • Machining of carbide	• The world highest level micro-grain diamond • High edge strength, and superior to wear resistance, fracture resistance and edge sharpening performance
KPD010 Average grain size 10 µm	• High speed machining of non-ferrous metals and brass • High speed machining of plastics • Machining of carbide	• Good balance of wear resistance and flexural strength • General purpose
KPD230 Mixture of fine grain with average grain size 2~30 µm and coarse grain	• High speed machining of non-ferrous metals and brass • High speed machining of plastics	• High density PCD with mixture of coarse and fine grains features excellent abrasive wear resistance and fracture resistance
KPD250 Average grain size 25 µm (Made to order)	• High speed machining of high silicon aluminium alloy • Machining of carbide	• Coarse grain PCD Ave. grain size 25 µm • Superior wear resistance

Recommended Cutting Conditions

Workpiece material	Insert Grades		Cutting Conditions				Notes
	KPD001	KPD010	Vc (sfm)	D.O.C. (in) Small Edge and Positive Inserts	D.O.C. (in) Negative Inserts	f (ipr)	
Aluminum Alloys Zinc alloys	★	☆	980 ~ 4920	~ 0.039	~ 0.079	0.001 ~ 0.020	Both: Dry and Coolant
Copper, Brass, Bronze	★	☆	980 ~ 3280	~ 0.039	~ 0.079	0.001 ~ 0.020	
Magnesium Alloys	★	☆	1310 ~ 3940	~ 0.039	~ 0.079	0.001 ~ 0.020	
Carbide	★	☆	30 ~ 100	~ 0.012	~ 0.012	0.001 ~ 0.004	
Titanium Alloys	★	☆	330 ~ 660	~ 0.039	~ 0.079	0.002 ~ 0.008	Coolant
Glass Fiber Reinforced Plastics Carbon Fiber	★	☆	330 ~ 1970	~ 0.039	~ 0.079	0.002 ~ 0.020	Dry
Silica Filling Plastic Particle Board	★	☆	1310 ~ 2620	~ 0.039	~ 0.079	0.002 ~ 0.020	

★: 1st Recommendation ☆: 2nd Recommendation

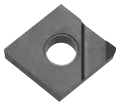
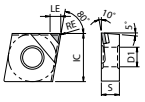
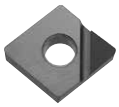
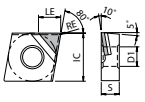
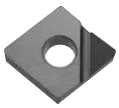
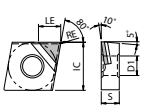
80° Diamond

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

		N	S
Non-ferrous metals (with interruption)	●		
Non-ferrous metals (without interruption)	●		
Titanium alloys (with interruption)	●		
Titanium alloys (without interruption)	●		

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD KPD001	PCD KPD010	Applicable Toolholder Page
  Small Edge	CNMM 4305M-SE	F	CNMM 120402M-SE	F	1	1/2	3/16	0.203	0.008	0.110	●	●	D8~D11 F138 F147 F148
	431M-SE		120404M-SE						1/64	0.110	●	●	
	432M-SE		120408M-SE						1/32	0.106	●	●	
  New Value Edge	CNMM 4305M-NE	F	CNMM 120402M-NE	F	1	1/2	3/16	0.203	0.008	0.201	●		
	431M-NE		120404M-NE						1/64	0.197	●		
	432M-NE		120408M-NE						1/32	0.193	●		
 	CNMM 4305M	F	CNMM 120402M	F	1	1/2	3/16	0.203	0.008	0.228	●	●	
	431M		120404M						1/64	0.228	●	●	
	432M		120408M						1/32	0.224	●	●	
	433M		120412M						3/64	0.220	●	●	

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

55° Diamond

How to read this page See page B15

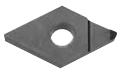
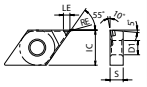
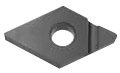
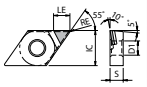
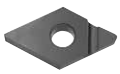
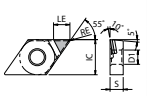
Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	●
Non-ferrous metals (without interruption)	●
Titanium alloys (with interruption)	●
Titanium alloys (without interruption)	●

N

S

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page
							IC	S	D1	RE	LE	- KPD001	- KPD010	
	 Small Edge	DNMM 4305M-SE	F	DNMM 150402M-SE	F	1	1/2	3/16	0.203	0.008	0.110	●	●	D14~D19 F140, F152 F154~F156
		431M-SE		150404M-SE						1/64	0.102	●	●	
		432M-SE		150408M-SE						1/32	0.087	●	●	
	 New Value Edge	DNMM 4305M-NE	F	DNMM 150402M-NE	F	1	1/2	3/16	0.203	0.008	0.205	●		
		431M-NE		150404M-NE						1/64	0.197	●		
		432M-NE		150408M-NE						1/32	0.181	●		
		DNMM 4305M	F	DNMM 150402M	F	1	1/2	3/16	0.203	0.008	0.232	●	●	
		431M		150404M						1/64	0.228	●	●	
		432M		150408M						1/32	0.213	●	●	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

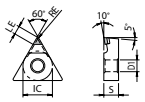
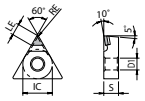
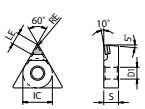
60° Triangle

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	●	N
Non-ferrous metals (without interruption)	●	
Titanium alloys (with interruption)	●	S
Titanium alloys (without interruption)	●	

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD KPD001	PCD KPD010	Applicable Toolholder Page
	 Small Edge	TNMM 3305M-SE	F	TNMM 160402M-SE	F	1	3/8	3/16	0.150	0.008	0.106	●	●	D14~D19 F140, F152 F154~F156
		331M-SE		160404M-SE						1/64	0.102	●	●	
		332M-SE		160408M-SE						1/32	0.091	●	●	
	 New Value Edge	TNMM 3305M-NE	F	TNMM 160402M-NE	F	1	3/8	3/16	0.150	0.008	0.126	●		
		331M-NE		160404M-NE						1/64	0.122	●		
		332M-NE		160408M-NE						1/32	0.110	●		
		TNMM 3305M	F	TNMM 160402M	F	1	3/8	3/16	0.150	0.008	0.150	●	●	
		331M		160404M						1/64	0.142	●	●	
		332M		160408M						1/32	0.130	●	●	
		333M		160412M						3/64	0.118		●	

CBN and PCD Inserts sold in 1 piece boxes

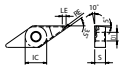
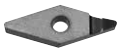
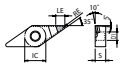
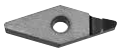
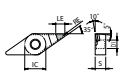
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

35° Diamond

How to read this page See page B15

Cutting Edge Preparation		
All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	●	N
Non-ferrous metals (without interruption)	●	
Titanium alloys (with interruption)	●	S
Titanium alloys (without interruption)	●	

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD - KPD001	PCD - KPD010	Applicable Toolholder Page
	 Small Edge	VNMM 3305M-SE	F	VNMM 160402M-SE	F	1	3/8	3/16	0.150	0.008	0.114	●	●	D34~D44
		331M-SE		160404M-SE						1/64	0.098	●	●	
		332M-SE		160408M-SE						1/32	0.063	●	●	
	 New Value Edge	VNMM 3305M-NE	F	VNMM 160402M-NE	F	1	3/8	3/16	0.150	0.008	0.185	●		
		331M-NE		160404M-NE						1/64	0.165	●		
		332M-NE		160408M-NE						1/32	0.134	●		
		VNMM 3305M	F	VNMM 160402M	F	1	3/8	3/16	0.150	0.008	0.209	●	●	
		331M		160404M						1/64	0.189	●	●	
		332M		160408M						1/32	0.157	●		

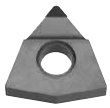
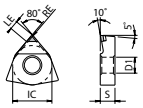
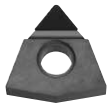
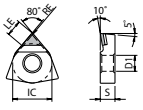
80° Trigon

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	●		N													
Non-ferrous metals (without interruption)	●															
Titanium alloys (with interruption)	●		S													
Titanium alloys (without interruption)	●															

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page
							IC	S	D1	RE	LE	-	KPD001 KPD010	
	 Small Edge	WNMM 4305M-SE	F	WNMM 080402M-SE	F	1	1/2	3/16	0.203	0.008	0.110	●		D48~D51 F162 F164 F165
		431M-SE		080404M-SE						1/64	0.110	●	●	
		432M-SE		080408M-SE						1/32	0.106		●	
	 New Value Edge	WNMM 4305M-NE	F	WNMM 080402M-NE	F	1	1/2	3/16	0.203	0.008	0.197	●		
		431M-NE		080404M-NE						1/64	0.197	●		

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

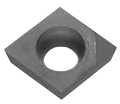
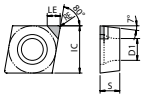
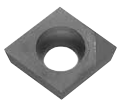
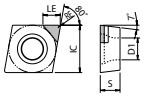
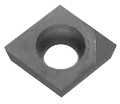
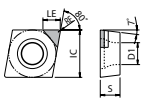
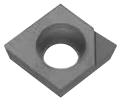
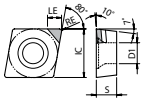
80° Diamond

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	N
Non-ferrous metals (without interruption)	N
Titanium alloys (with interruption)	S
Titanium alloys (without interruption)	S

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD KPD001	PCD KPD010	Applicable Toolholder Page
	 Small Edge	CCGW 141102SE 141105SE 14111SE	F	CCGW 040101SE 040102SE 040104SE	F	1	0.169	0.071	0.091	0.004 0.008 1/64	0.051 0.051 0.051	● ● ●		F33~F34 F62, F64
		CCGW 21502SE 21505SE 2151SE	F	CCGW 060201SE 060202SE 060204SE	F	1	1/4	3/32	0.110	0.004 0.008 1/64	0.091 0.091 0.091	● ● ●		E26~E27, E58, E72, F33~F34 F64, F67~F68 F134
		CCGW 32505SE 3251SE 3252SE	F	CCGW 09T302SE 09T304SE 09T308SE	F	1	3/8	5/32	0.173	0.008 1/64 1/32	0.106 0.106 0.106	● ● ●		E26~E29 E58, E72 F62~F64 F134
	 New Value Edge	CCGW 141102NE 141105NE	F	CCGW 040101NE 040102NE	F	1	0.169	0.071	0.091	0.004 0.008	0.067 0.063	● ●		F33~F34 F62, F64
		CCGW 21502NE 21505NE 2151NE	F	CCGW 060201NE 060202NE 060204NE	F	1	1/4	3/32	0.110	0.004 0.008 1/64	0.122 0.118 0.118	● ● ●		E26~E27, E58, E72, F33~F34 F64, F67~F68 F134
		CCGW 32502NE 32505NE 3251NE 3252NE	F	CCGW 09T301NE 09T302NE 09T304NE 09T308NE	F	1	3/8	5/32	0.173	0.004 0.008 1/64 1/32	0.134 0.134 0.134 0.130	● ● ● ●		E26~E29 E58, E72 F62~F64 F134
		CCGW 141102 141105 14111	F	CCGW 040101 040102 040104	F	1	0.169	0.071	0.091	0.004 0.008 1/64	0.075 0.075 0.075	● ● ●	● ● ●	F33~F34 F62, F64
		CCGW 21502 21505 2151	F	CCGW 060201 060202 060204	F	1	1/4	3/32	0.110	0.004 0.008 1/64	0.138 0.138 0.138		● ● ●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134
		CCGW 32502 32505 3251 3252	F	CCGW 09T301 09T302 09T304 09T308	F	1	3/8	5/32	0.173	0.004 0.008 1/64 1/32	0.150 0.150 0.146 0.142	● ● ● ●	● ● ●	E26~E29 E58, E72 F62~F64 F134
	 Small Edge	CCMT 21505SE 2151SE	F	CCMT 060202SE 060204SE	F	1	1/4	3/32	0.110	0.008 1/64	0.087 0.087	● ●		E26~E27, E58, E72, F33~F34 F64, F67~F68 F134
		CCMT 32502SE 32505SE 3251SE 3252SE	F	CCMT 09T301SE 09T302SE 09T304SE 09T308SE	F	1	3/8	5/32	0.173	0.004 0.008 1/64 1/32	0.106 0.106 0.106 0.106	● ● ● ●		E26~E29 E58, E72 F62~F64 F134
	New Value Edge	CCMT 21502NE 21505NE 2151NE	F	CCMT 060201NE 060202NE 060204NE	F	1	1/4	3/32	0.110	0.004 0.008 1/64	0.110 0.110 0.110	● ● ●		E26~E27, E58, E72, F33~F34 F64, F67~F68 F134
		CCMT 32502NE 32505NE 3251NE	F	CCMT 09T301NE 09T302NE 09T304NE	F	1	3/8	5/32	0.173	0.004 0.008 1/64	0.134 0.134 0.134	● ● ●		E26~E29 E58, E72 F62~F64 F134
		CCMT 21502 21505 2151	F	CCMT 060201 060202 060204	F	1	1/4	3/32	0.110	0.004 0.008 1/64	0.130 0.130 0.126	● ● ●	● ● ●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134
		CCMT 32502 32505 3251 3252	F	CCMT 09T301 09T302 09T304 09T308	F	1	3/8	5/32	0.173	0.004 0.008 1/64 1/32	0.154 0.154 0.154 0.150	● ● ● ●	● ● ●	E26~E29 E58, E72 F62~F64 F134

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

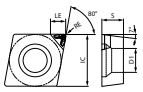
80° Diamond

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Workpiece		
Non-ferrous metals (with interruption)	●	N
Non-ferrous metals (without interruption)	●	N
Titanium alloys (with interruption)	●	S
Titanium alloys (without interruption)	●	S

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD KPD001	PCD KPD010	Applicable Toolholder Page
	 Chip Control	CCMT 32505APD	F	CCMT 09T302APD	F	1	3/8	5/32	0.173	0.008	0.106	●		E26~E29 E58, E72 F62~F64 F134
		3251APD		09T304APD						1/64	0.106	●		
		3252APD		09T308APD						1/32	0.106	●		

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

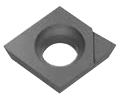
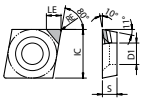
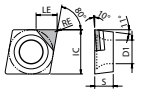
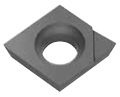
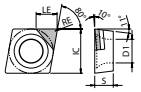
80° Diamond

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	N
Non-ferrous metals (without interruption)	N
Titanium alloys (with interruption)	S
Titanium alloys (without interruption)	S

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD - KPD001	PCD - KPD010	Applicable Toolholder Page
	 Small Edge	CPMH 3205SE	F	CPMH 090302SE	F	1	3/8	1/8	0.177	0.008	0.106	●		F70~F73
		321SE		090304SE						1/64	0.106	●		
	 New Value Edge	CPMH 251505NE	F	CPMH 080202NE	F	1	5/16	3/32	0.138	0.008	0.126	●		
		25151NE		080204NE						1/64	0.126	●		
		CPMH 3202NE	F	CPMH 090301NE	F	1	3/8	1/8	0.177	0.004	0.134	●		
		3205NE		090302NE						0.008	0.134	●		
		321NE		090304NE						1/64	0.134	●		
		322NE		090308NE						1/32	0.130	●		
		CPMH 251502	F	CPMH 080201	F	1	5/16	3/32	0.138	0.004	0.146	●		
		251505		080202						0.008	0.146	●	●	
		25151		080204						1/64	0.146	●	●	
		CPMH 3202	F	CPMH 090301	F	1	3/8	1/8	0.177	0.004	0.157		●	
		3205		090302						0.008	0.154	●	●	
		321		090304						1/64	0.154	●	●	
		322		090308						1/32	0.150		●	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

55° Diamond

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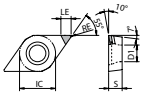
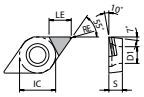
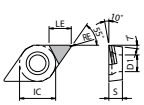
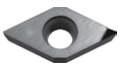
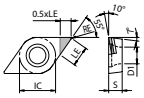
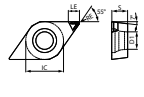
Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	●	N
Non-ferrous metals (without interruption)	●	
Titanium alloys (with interruption)	●	S
Titanium alloys (without interruption)	●	

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD - KPD001	PCD - KPD010	Applicable Toolholder Page
	 Small Edge	DCMT 21502SE	F	DCMT 070201SE	F	1	1/4	3/32	0.110	0.004	0.106	●		E30~E31, E33 E36~E37 E59~E60, E72 F74~F87, F135
		21505SE		070202SE						0.008	0.106	●		
		2151SE		070204SE						1/64	0.106	●		
		DCMT 32502SE	F	DCMT 11T301SE	F	1	3/8	5/32	0.173	0.004	0.106	●		E23 E30~E37 E59~E60 E72 F74~F87 F135
		32505SE		11T302SE						0.008	0.106	●		
		3251SE		11T304SE						1/64	0.106	●		
		3252SE		11T308SE						1/32	0.106	●		
	 New Value Edge	DCMT 21502NE	F	DCMT 070201NE	F	1	1/4	3/32	0.110	0.004	0.134	●		E30~E31, E33 E36~E37 E59~E60, E72 F74~F87, F135
		21505NE		070202NE						0.008	0.134	●		
		2151NE		070204NE						1/64	0.126	●		
		DCMT 32502NE	F	DCMT 11T301NE	F	1	3/8	5/32	0.173	0.004	0.134	●		E23 E30~E37 E59~E60 E72 F74~F87 F135
		32505NE		11T302NE						0.008	0.130	●		
		3251NE		11T304NE						1/64	0.126	●		
		3252NE		11T308NE						1/32	0.110	●		
		DCMT 21502	F	DCMT 070201	F	1	1/4	3/32	0.110	0.004	0.157	●	●	E30~E31, E33 E36~E37 E59~E60, E72 F74~F87, F135
		21505		070202						0.008	0.154	●	●	
		2151		070204						1/64	0.146	●	●	
		DCMT 32502	F	DCMT 11T301	F	1	3/8	5/32	0.173	0.004	0.157	●	●	E23 E30~E37 E59~E60 E72 F74~F87 F135
		32505		11T302						0.008	0.154	●	●	
		3251		11T304						1/64	0.146	●	●	
		3252		11T308						1/32	0.130	●	●	
	 New Value Edge	DCMT 32505R-NE	F	DCMT 11T302R-NE	F	1	3/8	5/32	0.173	0.008	0.130	●		E23 E30~E37 E59~E60 E72 F74~F87 F135
		3251L-NE		11T304L-NE						1/64	0.126	●		
	 Chip Control	DCMT 32505APD	F	DCMT 11T302APD	F	1	3/8	5/32	0.173	0.008	0.106	●		E23 E30~E37 E59~E60 E72 F74~F87 F135
		3251APD		11T304APD						1/64	0.106	●		
		3252APD		11T308APD						1/32	0.106	●		

CBN and PCD Inserts sold in 1 piece boxes

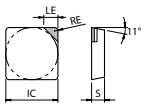
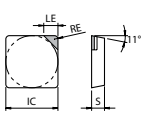
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

90° Square

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)										●		N	
Non-ferrous metals (without interruption)										●			
Titanium alloys (with interruption)										●		S	
Titanium alloys (without interruption)										●			
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	RE	LE	PCD - KPD001	PCD - KPD010	Applicable Toolholder Page
	 New Value Edge	SPG 421NE	F	SPGN 120304NE	F	1	1/2	1/8	1/64	0.142	●		F130
		SPG 421	F	SPGN 120304	F	1	1/2	1/8	1/64	0.165		●	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

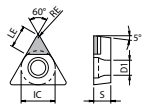
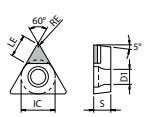
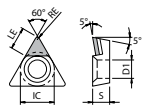
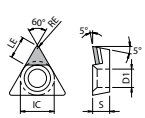
60° Triangle

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

		N	S
Non-ferrous metals (with interruption)	●		
Non-ferrous metals (without interruption)	●		
Titanium alloys (with interruption)	●		
Titanium alloys (without interruption)	●		

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD - KPD001	PCD - KPD010	Applicable Toolholder Page
	 New Value Edge	TBGW 12105NE	F	TBGW 060102NE	F	1	5/32	1/16	0.094	0.008	0.083	●		F35~F36 F90~F94 F98~F99
		1211NE		060104NE						1/64	0.075	●		
		TBGW 12105	F	TBGW 060102	F	1	5/32	1/16	0.094	0.008	0.094	●		
		1211		060104						1/64	0.087	●		
	 New Value Edge	TBMT 12102NE	F	TBMT 060101NE	F	1	5/32	1/16	0.094	0.004	0.087	●		
		1211NE		060104NE						1/64	0.079	●		
		1212NE		060108NE						1/32	0.067	●		
		TBMT 12105	F	TBMT 060102	F	1	5/32	1/16	0.094	0.008	0.098	●	●	
		1211		060104						1/64	0.091		●	
		1212		060108						1/32	0.079	●		

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

60° Triangle

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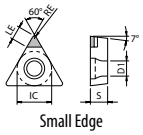
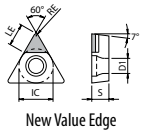
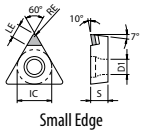
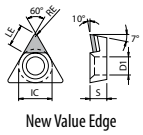
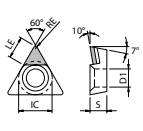
Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	●		N													
Non-ferrous metals (without interruption)	●															
Titanium alloys (with interruption)	●		S													
Titanium alloys (without interruption)	●															

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page
							IC	S	D1	RE	LE	-		
												KPD001	KPD010	
	 Small Edge	TCGW 2205SE	F	TCGW 110302SE	F	1	1/4	1/8	0.110	0.008	0.098		●	E40
		221SE		110304SE						1/64	0.094		●	
	 New Value Edge	TCGW 2205NE	F	TCGW 110302NE	F	1	1/4	1/8	0.110	0.008	0.130	●		
		221NE		110304NE						1/64	0.126	●		
	 Small Edge	TCMT 2202SE	F	TCMT 110301SE	F	1	1/4	1/8	0.110	0.004	0.102		●	
		2205SE		110302SE						0.008	0.098		●	
		221SE		110304SE						1/64	0.094		●	
	 New Value Edge	TCMT 151505NE	F	TCMT 080202NE	F	1	3/16	3/32	0.098	0.008	0.083	●		
		TCMT 2205NE	F	TCMT 110302NE	F	1	1/4	1/8	0.110	0.008	0.134	●		
		TCMT 151505	F	TCMT 080202	F	1	3/16	3/32	0.098	0.008	0.094		●	
		15151		080204						1/64	0.087		●	

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Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

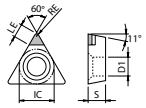
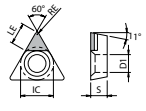
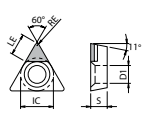
60° Triangle

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	N
Non-ferrous metals (without interruption)	N
Titanium alloys (with interruption)	S
Titanium alloys (without interruption)	S

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD KPD001	PCD KPD010	Applicable Toolholder Page
	 Small Edge	TPGB 181505SE 18151SE 18152SE	F	TPGB 090202SE 090204SE 090208SE	F	1	7/32	3/32	0.126	0.008 1/64 1/32	0.083 0.083 0.083	●		F35~F36 F90~F94 F98
		TPGB 2202SE 2205SE 221SE	F	TPGB 110301SE 110302SE 110304SE	F	1	1/4	1/8	0.130	0.004 0.008 1/64	0.106 0.102 0.098	● ● ●	● ● ●	E41 F90~F97 F136
		TPGB 3205SE 321SE	F	TPGB 160302SE 160304SE	F	1	3/8	1/8	0.185	0.008 1/64	0.102 0.094	● ●	● ●	F90~F92 F96, F136
	 New Value Edge	TPGB 151505NE 15151NE 15152NE	F	TPGB 080202NE 080204NE 080208NE	F	1	3/16	3/32	0.091	0.008 1/64 1/32	0.087 0.083 0.071	● ● ●		E41 F90~F94 F98
		TPGB 181505NE 18151NE	F	TPGB 090202NE 090204NE	F	1	7/32	3/32	0.126	0.008 1/64	0.106 0.102	● ●		F35~F36 F90~F94 F98
		TPGB 2205NE 221NE 222NE	F	TPGB 110302NE 110304NE 110308NE	F	1	1/4	1/8	0.130	0.008 1/64 1/32	0.134 0.130 0.118	● ● ●		E41 F90~F97 F136
		TPGB 321NE 322NE	F	TPGB 160304NE 160308NE	F	1	3/8	1/8	0.185	1/64 1/32	0.126 0.114	● ●		F90~F92 F96, F136
		TPGB 151505 15151	F	TPGB 080202 080204	F	1	3/16	3/32	0.091	0.008 1/64	0.102 0.094	● ●	● ●	E41 F90~F94 F98
		TPGB 181505 18151	F	TPGB 090202 090204	F	1	7/32	3/32	0.126	0.008 1/64	0.126 0.118	● ●	 ●	F35~F36 F90~F94 F98
		TPGB 2205 221 222	F	TPGB 110302 110304 110308	F	1	1/4	1/8	0.130	0.008 1/64 1/32	0.154 0.146 0.134	● ● 	● ● ●	E41 F90~F97 F136

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

60° Triangle

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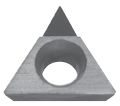
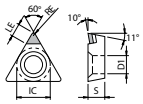
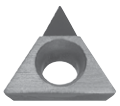
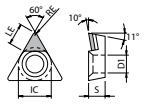
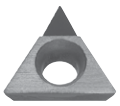
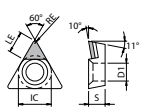
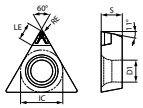
Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	N
Non-ferrous metals (without interruption)	N
Titanium alloys (with interruption)	S
Titanium alloys (without interruption)	S

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD - KPD001	PCD - KPD010	Applicable Toolholder Page
	 Small Edge	TPMH 151505SE	F	TPMH 080202SE	F	1	3/16	3/32	0.091	0.008	0.079	●		E41 F90~F94 F98
		15151SE		080204SE						1/64	0.071	●		
		TPMH 181505SE	F	TPMH 090202SE	F	1	7/32	3/32	0.126	0.008	0.094	●		F35~F36 F90~F94 F98
		18151SE		090204SE						1/64	0.087	●		
		TPMH 2202SE	F	TPMH 110301SE	F	1	1/4	1/8	0.130	0.004	0.106		●	E41 F90~F97 F136
		2205SE		110302SE						0.008	0.102	●	●	
		221SE		110304SE						1/64	0.098	●	●	
		TPMH 3205SE	F	TPMH 160302SE	F	1	3/8	1/8	0.185	0.008	0.102	●		F90~F92 F96, F136
		321SE		160304SE						1/64	0.094	●	●	
	 New Value Edge	TPMH 151502NE	F	TPMH 080201NE	F	1	3/16	3/32	0.091	0.004	0.091	●		E41 F90~F94 F98
		151505NE		080202NE						0.008	0.087	●		
		15151NE		080204NE						1/64	0.083	●		
		TPMH 181502NE	F	TPMH 090201NE	F	1	7/32	3/32	0.126	0.004	0.106	●		F35~F36 F90~F94 F98
		181505NE		090202NE						0.008	0.102	●		
		18151NE		090204NE						1/64	0.098	●		
		18152NE		090208NE						1/32	0.087	●		
		TPMH 2202NE	F	TPMH 110301NE	F	1	1/4	1/8	0.130	0.004	0.134	●		E41 F90~F97 F136
		2205NE		110302NE						0.008	0.130	●		
		221NE		110304NE						1/64	0.126	●		
		222NE		110308NE						1/32	0.114	●		
		TPMH 321NE	F	TPMH 160304NE	F	1	3/8	1/8	0.185	1/64	0.130	●		F90~F92 F96, F136
		322NE		160308NE						1/32	0.118	●		
		TPMH 151505	F	TPMH 080202	F	1	3/16	3/32	0.091	0.008	0.098	●	●	E41 F90~F94 F98
		15151		080204						1/64	0.091	●	●	
		TPMH 181502	F	TPMH 090201	F	1	7/32	3/32	0.126	0.004	0.118	●		F35~F36 F90~F94 F98
		181505		090202						0.008	0.114	●	●	
		18151		090204						1/64	0.110	●	●	
		TPMH 2202	F	TPMH 110301	F	1	1/4	1/8	0.130	0.004	0.154	●	●	E41 F90~F97 F136
		2205		110302						0.008	0.154	●		
		221		110304						1/64	0.146	●	●	
		222		110308						1/32	0.134		●	
		TPMH 3205	F	TPMH 160302	F	1	3/8	1/8	0.185	0.008	0.157	●	●	F90~F92 F96, F136
		321		160304						1/64	0.150	●	●	
		322		160308						1/32	0.142		●	
	 Chip Control	TPMT 2205APD	F	TPMT 110302APD	F	1	1/4	1/8	0.130	0.008	0.102	●		E41 F90~F97 F136
		221APD		110304APD						1/64	0.098	●		
		222APD		110308APD						1/32	0.098	●		

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

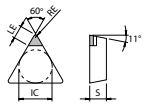
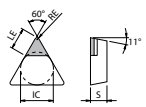
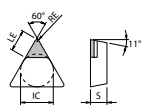
60° Triangle

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

		N
Non-ferrous metals (with interruption)	◕	
Non-ferrous metals (without interruption)	●	
Titanium alloys (with interruption)	◕	S
Titanium alloys (without interruption)	●	

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	RE	LE	PCD - KPD001	PCD - KPD010	Applicable Toolholder Page
 Small Edge	TPG 2202SE	F	TPGN 110301SE	F	1	1/4	1/8	0.004	0.102	●		F131
	TPG 2205SE		TPGN 110302SE					0.008	0.098	●	●	
	TPG 221SE		TPGN 110304SE					1/64	0.094	●	●	
	TPG 3202SE	F	TPGN 160301SE	F	1	3/8	1/8	0.004	0.102		●	
	TPG 3205SE		TPGN 160302SE					0.008	0.102	●	●	
	TPG 321SE		TPGN 160304SE					1/64	0.094	●	●	
 New Value Edge	TPG 321NE	F	TPGN 160304NE	F	1	3/8	1/8	1/64	0.126	●		
	TPG 322NE		TPGN 160308NE					1/32	0.114	●		
	TPG 2205	F	TPGN 110302	F	1	1/4	1/8	0.008	0.154	●	●	
	TPG 221		TPGN 110304					1/64	0.146	●	●	
	TPG 321	F	TPGN 160304	F	1	3/8	1/8	1/64	0.146	●	●	
	TPG 322		TPGN 160308					1/32	0.134		●	

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

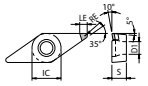
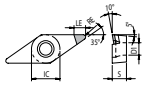
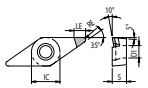
35° Diamond

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	N
Non-ferrous metals (without interruption)	N
Titanium alloys (with interruption)	S
Titanium alloys (without interruption)	S

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD - KPD001	PCD - KPD010	Applicable Toolholder Page
	 Small Edge	VBMT 2202SE 2205SE 221SE 222SE	F	VBMT 110301SE 110302SE 110304SE 110308SE	F	1	1/4	1/8	0.110	0.004 0.008 1/64 1/32	0.098 0.091 0.075 0.075	● ● ● ●		E42~E47, E62 F102, F103 F106~F114 F137
		VBMT 3302SE 3305SE 331SE 332SE	F	VBMT 160401SE 160402SE 160404SE 160408SE	F	1	3/8	3/16	0.173	0.004 0.008 1/64 1/32	0.106 0.098 0.083 0.079	● ● ● ●		E45~E47 F102~F103 F106~F114 F137
	 New Value Edge	VBMT 2202NE 2205NE 221NE 222NE	F	VBMT 110301NE 110302NE 110304NE 110308NE	F	1	1/4	1/8	0.110	0.004 0.008 1/64 1/32	0.102 0.094 0.079 0.122	● ● ● ●		E42~E47, E62 F102, F103 F106~F114 F137
		VBMT 3302NE 3305NE 331NE 332NE	F	VBMT 160401NE 160402NE 160404NE 160408NE	F	1	3/8	3/16	0.173	0.004 0.008 1/64 1/32	0.110 0.102 0.087 0.118	● ● ● ●		E45~E47 F102~F103 F106~F114 F137
		VBMT 2202 2205 221 222	F	VBMT 110301 110302 110304 110308	F	1	1/4	1/8	0.110	0.004 0.008 1/64 1/32	0.118 0.110 0.094 0.138	● ● ● ●	● ● ● ●	E42~E47, E62 F102, F103 F106~F114 F137
		VBMT 3302 3305 331 332	F	VBMT 160401 160402 160404 160408	F	1	3/8	3/16	0.173	0.004 0.008 1/64 1/32	0.126 0.118 0.102 0.138	● ● ● ●	● ● ● ●	E45~E47 F102~F103 F106~F114 F137

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

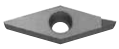
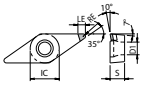
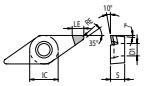
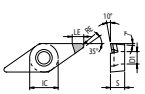
35° Diamond

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

		N	S
Non-ferrous metals (with interruption)	◕		
Non-ferrous metals (without interruption)	●		
Titanium alloys (with interruption)	◕		
Titanium alloys (without interruption)	●		

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD - KPD001	PCD - KPD010	Applicable Toolholder Page
	 Small Edge	VCMT 151505SE	F	VCMT 080202SE	F	1	3/16	3/32	0.091	0.008	0.055	●		E63 F102~F103 F106~F111 F113
		15151SE		080204SE						1/64	0.055	●		
		15152SE		080208SE						1/32	0.055	●		
	 New Value Edge	VCMT 151502NE	F	VCMT 080201NE	F	1	3/16	3/32	0.091	0.004	0.067	●		
		151505NE		080202NE						0.008	0.067	●		
		15151NE		080204NE						1/64	0.071	●		
		15152NE		080208NE						1/32	0.075	●		
		VCMT 151502	F	VCMT 080201	F	1	3/16	3/32	0.091	0.004	0.079		●	
		151505		080202						0.008	0.079	●	●	
		15151		080204						1/64	0.083	●	●	
		15152		080208						1/32	0.087	●	●	

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

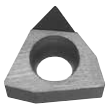
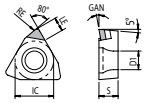
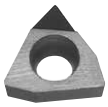
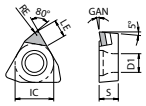
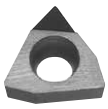
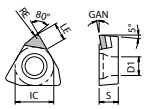
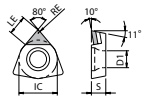
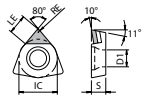
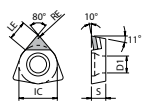
80° Trigon

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	N
Non-ferrous metals (without interruption)	N
Titanium alloys (with interruption)	S
Titanium alloys (without interruption)	S

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in) IC	S	D1	RE	LE	PCD - KPD001	PCD - KPD010	Applicable Toolholder Page
  Small Edge	WBMT 12105L-SE	F	WBMT 060102L-SE	F	1	5/32	1/16	0.091	0.008	0.051	●		F38 F116~F118 F120~F121
	WBMT 151505L-SE	F	WBMT 080202L-SE	F	1	3/16	3/32	0.091	0.008	0.063	●		
  New Value Edge	WBMT 1211L-NE	F	WBMT 060104L-NE	F	1	5/32	1/16	0.091	1/64	0.063	●		
 	WBMT 12102L 12105L 1211L	F	WBMT 060101L 060102L 060104L	F	1	5/32	1/16	0.091	0.004 0.008 1/64	0.075 0.075 0.075	● ● ●	 ● ●	
	WBMT 151505L 15151L	F	WBMT 080202L 080204L	F	1	3/16	3/32	0.091	0.008 1/64	0.094 0.091	● ●	● ●	
 Small Edge	WPMT 21505SE	F	WPMT 110202SE	F	1	1/4	3/32	0.110	0.008	0.083	●		F116~F118
 New Value Edge	WPMT 21505NE	F	WPMT 110202NE	F	1	1/4	3/32	0.110	0.008	0.106	●		
	WPMT 21505	F	WPMT 110202	F	1	1/4	3/32	0.110	0.008	0.122		●	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

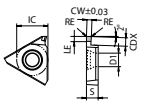
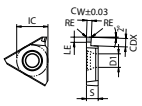
GBA

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	●	N
Non-ferrous metals (without interruption)	●	N
Titanium alloys (with interruption)	●	S
Titanium alloys (without interruption)	●	S

Insert	Part Number	Edge Prep	No. of Edges	Dimensions (mm) CW in	CW mm	CDX	IC	S	D1	RE	LE	Tolerance (mm) CW min.	CW max.	PCD - KPD001	PCD - KPD010	Applicable Toolholder Page
	GBA32R 125-010	F	1	0.049	1.25	2								●	●	
	150-010			0.059	1.5	2	9.525	3.18	4.4	0.1	1.7	- 0.03	+ 0.03	●	●	
	200-010			0.079	2	2.5								●		
	GBA43R 125-010	F	1	0.049	1.25	2									●	G13~G15 G89
	150-010			0.059	1.5	3.5								●	●	
	200-010			0.079	2	3.5	12.7	4.76	5.5	0.1	1.9	- 0.03	+0.03	●	●	
	250-010			0.098	2.5	4								●	●	
	300-010			0.118	3	4								●	●	
	GBA43L 125-010			0.049	1.25	2									●	
	150-010			0.059	1.5	3.5								●	●	
	200-010			0.079	2	3.5	12.7	4.76	5.5	0.1	1.9	- 0.03	+0.03	●	●	
	250-010			0.098	2.5	4								●	●	
	300-010			0.118	3	4								●		

CDX shows available grooving depth.
Right-hand shown

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

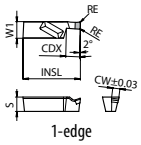
GVF

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	●	N
Non-ferrous metals (without interruption)	●	
Titanium alloys (with interruption)	●	S
Titanium alloys (without interruption)	●	

Insert		Part Number	Edge Prep	No. of Edges	Dimensions (mm)							Tolerance (mm)		PCD	Applicable Toolholder Page
					CW		CDX	S	RE	INSL	W1	CW min.	CW max.	-	
					in	mm								KPD010	
	 1-edge	GVFR 250-020B	F	1	0.098	2.5	4.8							●	G137~G142 G145
		GVFR 300-020B			0.118	3	4.8	5	0.2	20	5.8	-0.03	+0.03	●	
		GVFR 400-020B			0.157	4	5.3							□	
		GVFL 250-020B			0.098	2.5	4.8							●	
		GVFL 300-020B			0.118	3	4.8	5	0.2	20	5.8	-0.03	+0.03	●	
		GVFL 400-020B			0.157	4	5.3							□	
		GVFR 350-040C	F	1	0.138	3.5	6.8	7	0.4	27	7	-0.03	+0.03	□	

CDX shows available grooving depth.
Right-hand shown

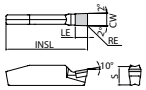
GDGS

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

	PCD	
Non-ferrous metals (with interruption)	●	N
Non-ferrous metals (without interruption)	●	
Titanium alloys (with interruption)	●	S
Titanium alloys (without interruption)	●	

Insert	Part Number	Edge Prep	No. of Edges	Dimensions (mm)						Tolerance (mm)		PCD	Applicable Toolholder Page
				CW		S	RE	INSL	LE	CW min.	CW max.	-	
				in	mm							KPD001	
	GDGS 2020N-020NB	F	1	0.079	2	4.3	0.2	20	2.9	- 0.03	+ 0.03	●	G44~G56
	GDGS 3020N-020NB	F	1	0.118	3	4.3	0.2	20	2.9	- 0.03	+ 0.03	●	
	GDGS 4020N-020NB	F	1	0.157	4	4.3	0.2	20	2.9	- 0.03	+ 0.03	●	
	GDGS 5020N-020NB	F	1	0.197	5	4.3	0.2	20	2.9	- 0.03	+ 0.03	●	G44~G45 G48~G56
	GDGS 6020N-020NB	F	1	0.236	6	4.3	0.2	20	2.9	- 0.03	+ 0.03	●	

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

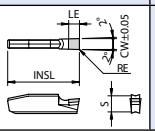
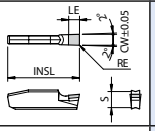
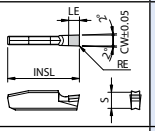
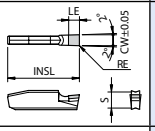
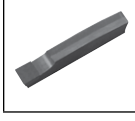
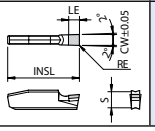
GMN

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	●	N
Non-ferrous metals (without interruption)	●	
Titanium alloys (with interruption)	●	S
Titanium alloys (without interruption)	●	

Insert		Part Number	Edge Prep	No. of Edges	Dimensions (mm)						Tolerance (mm)		PCD		Applicable Toolholder Page
					CW		S	RE	INSL	LE	CW min.	CW max.	-		
					in	mm							KPD001	KPD010	
		GMN 2	F	1	0.079	2	4.3	0.2	20	2.9	-0.05	+0.05	△	△	
		GMN 3	F	1	0.118	3	4.3	0.2	20	2.9	-0.05	+0.05	△	△	
		GMN 4	F	1	0.157	4	4.3	0.2	20	2.9	-0.05	+0.05	△	△	-
		GMN 5	F	1	0.197	5	4.3	0.2	20	2.9	-0.05	+0.05	△	△	
		GMN 6	F	1	0.236	6	4.3	0.2	20	2.9	-0.05	+0.05		△	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN and PCD Inserts sold in 1 piece boxes

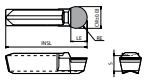
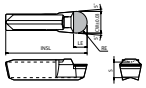
GMGW

How to read this page See page B15

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

		N	S
Non-ferrous metals (with interruption)	◓		
Non-ferrous metals (without interruption)	●		
Titanium alloys (with interruption)	◓		
Titanium alloys (without interruption)	●		

Insert		Part Number	Edge Prep	No. of Edges	Dimensions (mm)						Tolerance (mm)		PCD	Applicable Toolholder Page
					CW		S	RE	INSL	LE	CW min.	CW max.	- / KPD001	
					in	mm								
		GMGW 6030-30R	F	1	0.236	6	5.5	3	30	4.5	- 0.03	+0.03	●	G72
		GMGW 8030-40R	F	1	0.315	8	5.5	4	30	6	- 0.03	+0.03	●	
		GMGW 8030-40R-HR	F	1	0.315	8	5.5	4	30	5	- 0.03	+ 0.03	●	

GMGW inserts are exclusively used for KGMW toolholder. They cannot be used for other toolholders because of its different installation angle.
GMGW inserts Edge Preparation : R-honed Cutting Edge.

CBN and PCD Inserts sold in 1 piece boxes

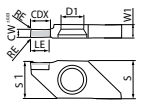
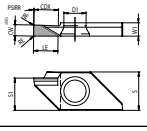
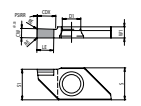
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

TKF

How to read this page See page B15

Cutting Edge Preparation

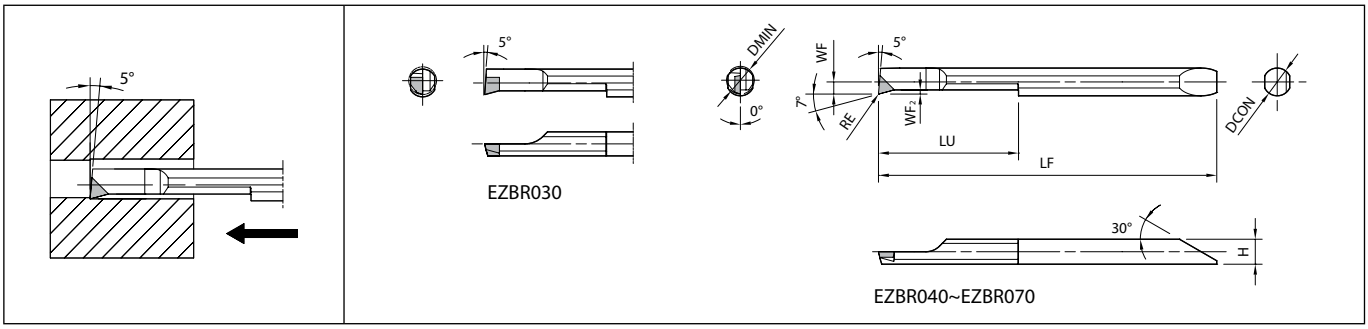
All PCD Items	F	Sharp Edge

Insert		Part Number	Edge Prep	No. of Edges	Dimensions (mm) CW in	CW mm	CDX	S	S1	D1	RE	LE	W1	Angle (°) PSIR	Tolerance (mm) CW min.	CW max.	RE (+/-) min.	RE (+/-) max.	PCD -	PCD KPD001	Applicable Toolholder Page
Non-ferrous metals (with interruption)																			●		N
Non-ferrous metals (without interruption)																			●		N
Titanium alloys (with interruption)																			●		S
Titanium alloys (without interruption)																			●		S
		TKF12R 200-AGT	F	1	0.079	2	4.8	8.7	8.3	5	0.1	4.2	3	0	-0.03	+0.03	-0.05	0	●		E15 E16
		250-AGT			0.098	2.5						4.2							●		
		TKF12R 200-AS	F	1	0.079	2	5	8.7	7.3	5	0.1	5.3	3	0	-0.03	+0.03	-0.05	0	●		
		TKF16R 250-AS	F	1	0.098	2.5	8	9.5	8	5	0.1	6.3	4	0	-0.03	+0.03	-0.05	0	●		
		TKF12R 150-NB	F	1	0.059	1.5	3.5	8.7	8.3	5	0.1	2	3	0	-0.03	+0.03	-0.05	0	●		
		200-NB			0.079	2	4					3							●		
		250-NB			0.098	2.5	4					3							●		

Right-hand shown

EZB-NB (Boring)

How to read this page See page B15



Right-hand shown

Dimensions

Cutting Edge Preparation		
All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	◕	N
Non-ferrous metals (without interruption)	●	
Titanium alloys (with interruption)	◕	S
Titanium alloys (without interruption)	●	

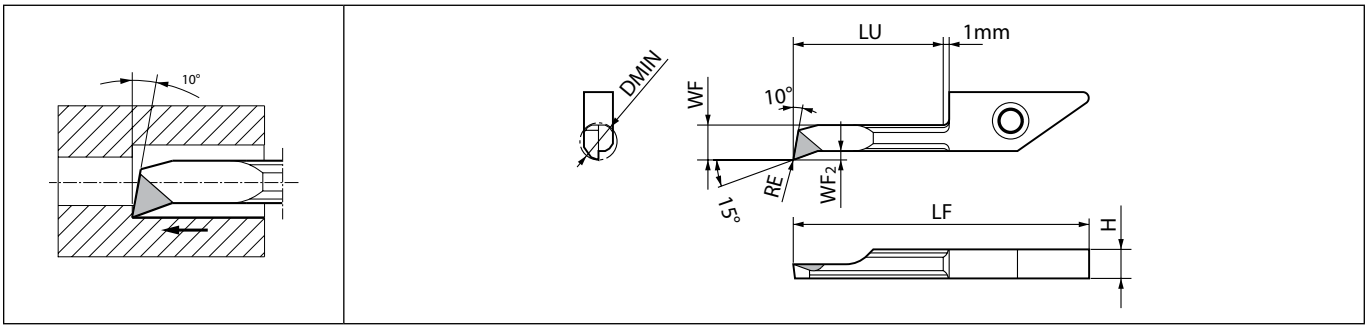
Part Number	No. of Edges	Dimensions (mm)								Tolerance (mm)		PCD	Applicable Sleeve → F41 F43 F45
		DMIN	DCON	H	LF	LU	WF	WF_2	RE	RE min.	RE max.	- / KPD001	
EZBR 040040-003NB	1	4	4	3.6	48.8	20	1.75	0.5	0.035	-0.015	+0.015	●	EZH040...
EZBR 050050-003NB	1	5	5	4.6	58.1	25	2.25	0.5	0.035	-0.015	+0.015	●	EZH050...
EZBR 060060-003NB	1	6	6	5.6	66.1	30	2.75	0.5	0.035	-0.015	+0.015	●	EZH060...
EZBR 070070-003NB	1	7	7	6.6	74.1	35	3.25	0.5	0.035	-0.015	+0.015	●	EZH070...

CBN and PCD Inserts sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

VNB-NB (Boring)

How to read this page See page B15



Right-hand shown

Dimensions

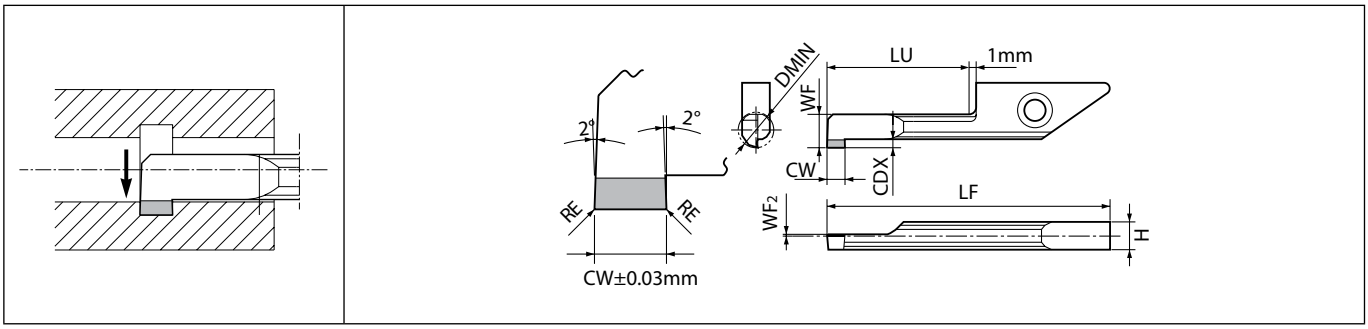
Cutting Edge Preparation			
All PCD Items	F	Sharp Edge	

Non-ferrous metals (with interruption)	●	N
Non-ferrous metals (without interruption)	●	
Titanium alloys (with interruption)	●	S
Titanium alloys (without interruption)	●	

Part Number	No. of Edges	Dimensions (mm)							PCD		Applicable Toolholder Page
		DMIN	H	LF	LU	WF	WF_2	RE	-	KPD001	
VNBR 0411-02NB	1	4	3.66	30.8	11	3.5	0.5	0.2		●	F50~F53
VNBR 0420-02NB				39.8	20					●	
VNBR 0511-02NB	1	5	3.9	30.8	11	4.5	0.7	0.2		●	
VNBR 0520-02NB				39.8	20					●	
VNBR 0620-02NB	1	6	3.9	39.8	20	5.3	1	0.2		●	
VNBR 0630-02NB				49.8	30					●	
VNBR 0720-02NB	1	7	3.9	39.8	20	6.2	1	0.2		●	
VNBR 0730-02NB				49.8	30					●	

VNG (Internal grooving)

How to read this page See page B15



Right-hand shown

Dimensions

Cutting Edge Preparation		
All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	●	N
Non-ferrous metals (without interruption)	●	
Titanium alloys (with interruption)	●	S
Titanium alloys (without interruption)	●	

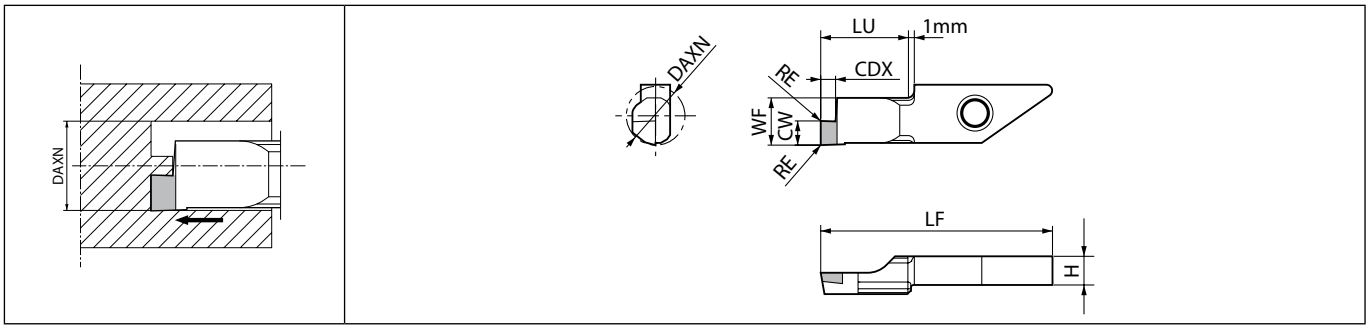
Part Number	No. of Edges	Dimensions (in)								Tolerance (mm)		PCD	Applicable Toolholder Page
		DMIN	CW	CDX	H	LF	LU	WF	WF_2	RE	CW min.	CW max.	- / KPD001	
VNGR 0410-11NB	1	4	1	0.8	3.9	30.8	11	3.5	0.1	0.05	-0.03	+0.03	□	F50~F53
VNGR 0420-11NB			2										□	
VNGR 0510-11NB	1	5	1	1	3.9	30.8	11	4.4	0.1	0.05	-0.03	+0.03	□	
VNGR 0520-11NB			2										□	
VNGR 0610-20NB	1	6	1	1.8	3.9	39.8	20	5.2	0.3	0.05	-0.03	+0.03	□	
VNGR 0620-20NB			2										□	
VNGR 0710-20NB	1	7	1	2	3.9	39.8	20	6.2	0.3	0.05	-0.03	+0.03	□	
VNGR 0720-20NB			2										□	

CDX shows available grooving depth.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

VNFG (Face grooving)

How to read this page See page B15



Right-hand shown

Dimensions

Cutting Edge Preparation			Non-ferrous metals (with interruption)	●	N
All PCD Items	F	Sharp Edge	Non-ferrous metals (without interruption)	●	
			Titanium alloys (with interruption)	●	S
			Titanium alloys (without interruption)	●	

Part Number	No. of Edges	External dia. of the groove (mm)		Dimensions (in)							PCD	Applicable Toolholder Page
		DAXN (min.)	DAXX (max.)	CW	CDX	H	LF	LU	WF	RE	- / KPD001	
VNFGR 0820-10NB	1	8 (0)	∞ (∞)	2	2	3.9	29.6	10	7.3	0.05	□	F50 F52 F53
VNFGR 0830-10NB	1			3	3	3.9	29.6	10	7.3	0.05	□	

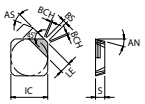
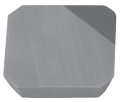
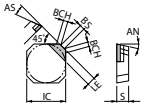
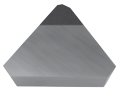
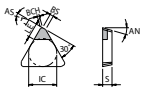
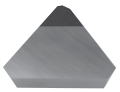
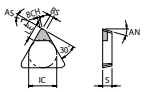
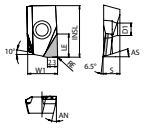
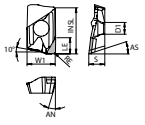
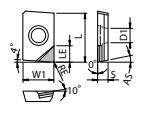
CDX shows available grooving depth.
External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.

Milling Inserts

Cutting Edge Preparation

All PCD Items	F	Sharp Edge

Non-ferrous metals (with interruption)	●	N
Non-ferrous metals (without interruption)	●	N
Titanium alloys (with interruption)	●	S
Titanium alloys (without interruption)	●	S

Part Number		Part Number ANSI	Part Number ISO	No. of Edges	Dimensions (in)									Angle (°)		PCD			Applicable Toolholder Page
					IC	S	D1	RE	INSL	LE	BCH	BS	W1	AN	AS	KPD001	KPD010	KPD230	
		SDKN 42AUFN	SDKN 1203AUFN	1	1/2	1/8	-	-	-	0.142	0.020	0.047	-	15	23	●			-
		SEEN 42AFFN	SEEN 1203AFFN	1	1/2	1/8	-	-	-	0.138	0.020	0.055	-	20	25	●	●		-
		TEEN 32PTFR-NE 32PTFR	TEEN 1603PTFR-NE 1603PTFR	1	3/8	1/8	-	-	-	0.161 0.185	0.024	0.055	-	20	22	 ●	 ●	● 	-
		TEKN 43PTFR-NE 43PTFR	TEKN 2204PTFR-NE 2204PTFR	1	1/2	3/16	-	-	-	0.165 0.189	0.028	0.071	-	20	22	 ●	 ●	● 	-
		Use ISO Part Number	BDGT 11T302FR 11T304FR 11T308FR	1	-	0.150	0.110	0.008 1/64 1/32	0.453	0.150	-	-	0.264	13	18	● ● ●	 	● ● ●	M98~M101 M103~M105
			BDGT 11T302FR-LE 11T304FR-LE 11T308FR-LE	1	-	0.150	0.110	0.008 1/64 1/32	0.453	0.205	-	-	0.264	13	18	● ● ●	 	● ● ●	
		Use ISO Part Number	BDMT 11T302FR 11T304FR	1	-	0.150	0.110	0.008 1/64	0.433	0.142	-	-	0.264	13	18	● ●	 	● ●	
			BDMT 170402FR 170404FR	1	-	0.193	0.173	0.008 1/64	0.669	0.173	-	-	0.378	13	18	● ●	 	● ●	M98~M99 M102~M105
		NDCW 3205FRX-NE	NDCW 150302FRX-NE	1	-	1/8	0.173	0.008	0.591	0.201	-	-	3/8	-	15			●	M171
		NDCW 3205FRX	NDCW 150302FRX	1	-	1/8	0.173	0.008	0.591	0.224	-	-	3/8	-	15	●	●		

Handed insert shows Right-hand

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External Turning Toolholders

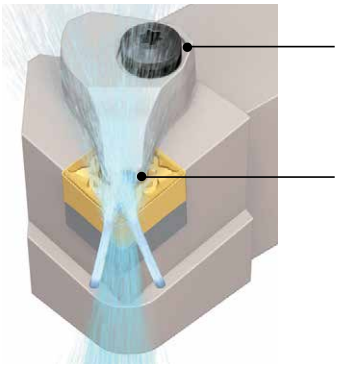
D

Overview		D2~D7
Toolholders for General Purpose		D8~D52
CN Insert	DCLN / DCLN-JCT / MCLN / PCLN	D8
DN Insert	DDJN / DDJN-JCT / DDHN / MDJN	D14
	PDJN / PDHN	D18
SN Insert	DSBN / PSBN	D21
	MSSN / PSDN / PSKN / PSSN	D22
TN Insert	DTGN / DTGN-JCT / MTGN / PTGN / PTFN	D25
	WTJN / WTKN / WTEN	D31
VN Insert	DVJN / DVLN / DVLN-JCT / DVPN / DVPN-JCT	D34
	DVVN / DVVN-JCT	D38
	MVJN / MVLN / MVVN	D40
	PVLN / PVPN / PVVN	D43
RC Insert	PRGC / PRXC	D45
RN Insert	PRGN	D47
WN Insert	DWLN / DWLN-JCT / MWLN / PWLN / WWLN	D48
Toolholders for Ceramic Inserts		D53~D65
CN Insert	CCLN	D53
DN Insert	CDJN	D54
EN Insert	CELN	D55
SN Insert	CSRN / HSRN / CS-N / CSKN / CSYN / CSSN / CSDN / HSDN	D56
TN Insert	CTJN / CTUN	D62
RN Insert	CRSN / HRSN / CRDN / CRDC	D63
Toolholders for Solid CBN Inserts		D66~D72
CNM Insert	CCRN-A / CCLN-A	D66
RNM Insert	CRSN-A / CRDN-A	D67
SNM Insert	CSRN-A / CSKN-A / CSSN-A / CSDN-A	D69
TNM Insert	CTJN-A	D72
Toolholders for Bearing Machining		D73~D74
RCMT Insert	PRGC-BE	D73
SNMF Insert	CBSN	D74
Recommended Cutting Conditions		D75~D76

Jet Coolant-Through Holders for Turning

Double-Clamp-JCT

1 Superior Chip Control Performance



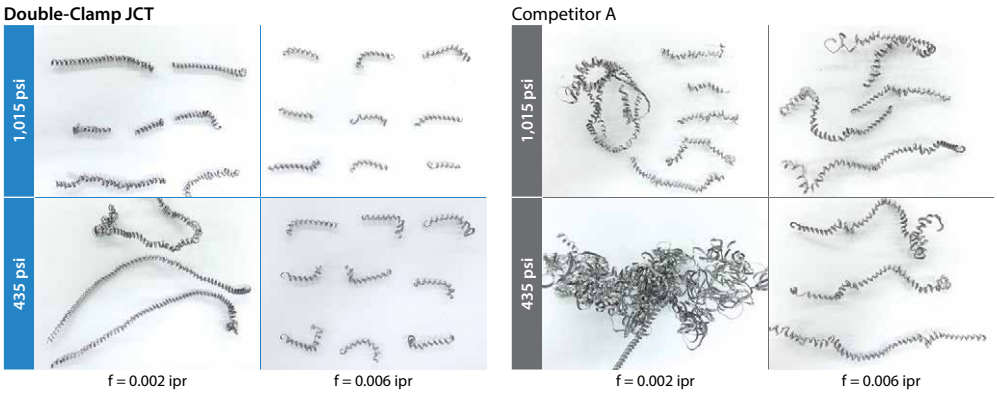
Double-Clamp

Firm insert clamp and easy to use in single operations
High-density coolant supply close to the cutting edge

Unique Nozzle Shape

Provides coolant to a wide area of the insert surface

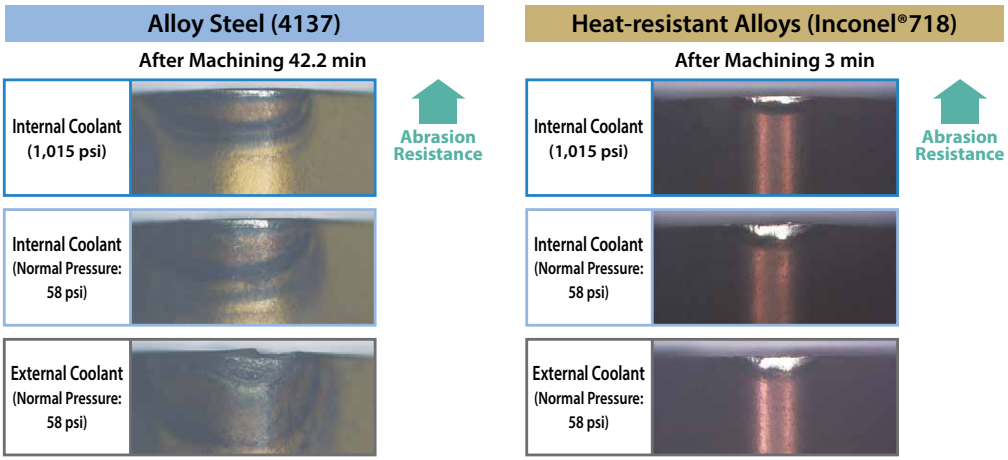
Chip Control Comparison (Internal Evaluation)



Cutting Conditions: Vc = 490 sfm, D.O.C. = 0.020", Wet, CNMG432 Insert Workpiece: 4131 External Turning

2 Longer Tool Life and High-Speed Machining

Coolant is also directed from two directions towards the flank face of the insert to ensure even cooling action
Longer tool life and high-speed machining with improved wear resistance



Cutting Conditions: Vc = 820 sfm, f = 0.012 ipr, D.O.C. = 0.079", Wet
CNMG432 Insert External Turning

Cutting Conditions: Vc = 260 sfm, f = 0.006 ipr, D.O.C. = 0.020", Wet
CNMG432 Insert External Turning

Using internal coolant improves wear resistance in alloy steel and heat-resistant alloys

High-pressure coolant is more effective

External Turning Toolholder Identification System

① Clamping System	
A	Anchor Pin Style
C	Clamp Only
D	Double Clamp
M	Clamp and Lock Pin
P	Lock Pin Only (or Lever Lock)
S	Screw Only
W	Wedge Only

② Insert Shape	
R	Round
S	Square
T	Triangle
C	80° Diamond
D	55° Diamond
V	35° Diamond
W	80° Trigon
R	Round

⑥ Toolholder Shank Size

This position shall be a significant number which indicates the holder cross section.
For square shanks this number will represent the number of sixteenths of width and height.
For rectangular holders the first digit represents the number of eighths of width and the second digit the number of quarters of height, except the following toolholder: 1-1/4 x 1-1/2 which is given the number 91.

⑦ Insert Size IC

Number of 1/8ths on 1/4" IC and over.

⑧ Qualified Control			
Length and Width		Length and Side	
A	4.000 Back and End	M	4.000 Front and End
B	4.500 Back and End	N	4.500 Front and End
C	5.000 Back and End	P	5.000 Front and End
D	6.000 Back and End	R	6.000 Front and End
E	7.000 Back and End	S	7.000 Front and End
F	8.000 Back and End	T	8.000 Front and End
G	5.500 Back and End	U	5.500 Front and End

* NOTE: All qualified dimensions are given to a tolerance of 0.003" over a master gauge insert radius based on the standard shown.

Insert IC	Radius
1/4" - 5/16"	0.015"
3/8" - 1/2"	0.031"
5/8" - 3/4"	0.047"
1"	0.062"

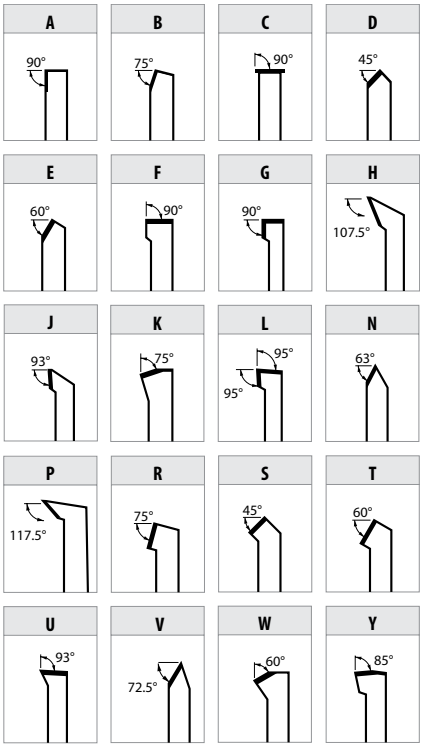
ANSI Inch

D	C	L	N	R	16	-	4	D
①	②	③	④	⑤	⑥		⑦	⑧

ISO Metric

D	C	L	N	R	20	20	K	-	12	
①	②	③	④	⑤	⑥	⑦	⑧		⑨	⑩

③ Cutting Edge Angle



④ Insert Relief Angle

B	5° Positive
C	7° Positive
D	15° Positive
E	20° Positive
N	0° Negative
P	11° Positive

⑤ Hand of Tool

R	Right-hand
L	Left-hand
N	Neutral

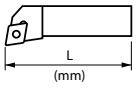
⑥ Shank Height

Shank Height (mm)

⑦ Shank Width

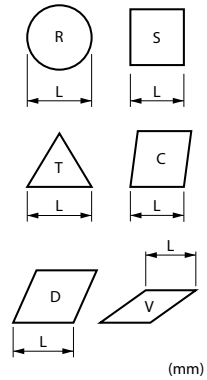
Shank Width (mm)

⑧ Toolholder Length (mm)



A	32	J	110	R	200
B	40	JX	120	S	250
C	50	K	125	T	300
D	60	L	140	U	350
E	70	M	150	V	400
F	80	N	160	W	450
G	90	P	170	Y	500
H	100	Q	180	X	Special

⑨ Insert Size



⑩ Others

Optional Code

Optional Mark or Number

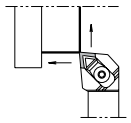
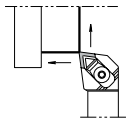
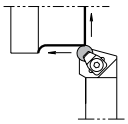
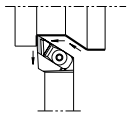
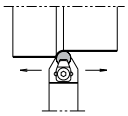
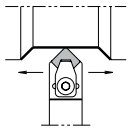
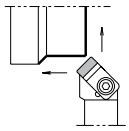
- Specifications may change without prior notice.
- Due to the installation size constraints on the machine, the toolholder length of some products may not match with the symbol.

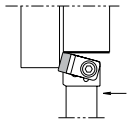
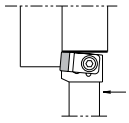
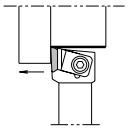
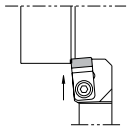
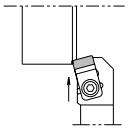
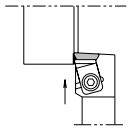
External Turning Toolholders

Applicable Insert Shape	CN..	WN..	TN..	DN..	RC..		RN..	VN..
Application	External / Facing		External / Facing / Copying					External / Facing / Copying / Undercutting
Cutting Edge Angle	95°		105°	107.5°	Special			117.5°
Lever Lock	PCLN	PWLN		PDHN	PRGC	PRXC	PRGN	PVPN (Pin Lock)
Ref. Page	**D11**	**D50**		**D19**	**D45**	**D46**	**D47**	**D43**
Wedge Lock		WWLN	WTKN					
Ref. Page		**D51**	**D31**					
Double Clamp	DCLN (-JCT)	DWLN (-JCT)		DDHN				DVPN (-JCT)
Ref. Page	**D8/D9**	**D48/D49**		**D16**				**D36/D37**
Multi-Lock	MCLN	MWLN						
Ref. Page	**D10**	**D50**						

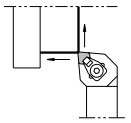
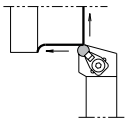
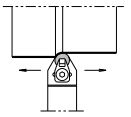
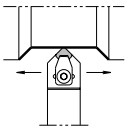
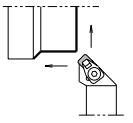
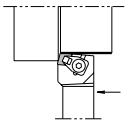
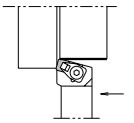
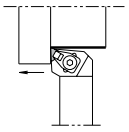
Applicable Insert Shape	VN..	DN.. TN..	SN..	TN..	SN..	SN..	TN..	SN..	TN..
Application	External / Copying		External / Chamfering		External / Facing / Chamfering	External		Facing	
Cutting Edge Angle	72.5°	95°	93°	45°	60°	45°	75°	91°	15°	-1°
Lever Lock (Pin Lock)	PVVN (Pin Lock)	PVLN (Pin Lock)	PDJN	PSDN		PSSN	PSBN	PTGN	PSKN	PTFN
Ref. Page	**D44**	**D43**	**D18**	**D22**		**D23**	**D21**	**D28**	**D23**	**D29**
Wedge Lock			WTJN		WTEN					
Ref. Page			**D31**		**D32**					
Double Clamp	DVVN (-JCT)	DVJN DVLN (-JCT)	DDJN (-JCT)				DSBN	DTGN (-JCT)		
Ref. Page	**D38/D39**	**D34/D35**	**D14/D15**				**D21**	**D25/D26**		
Multi-Lock	MVVN	MVJN / MVLN	MDJN			MSSN		MTGN		
Ref. Page	**D42**	**D40/D41**	**D17**			**D22**		**D27**		

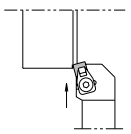
Toolholders for Ceramic Inserts

Application	External / Facing			External / Copying		External / Chamfering	External / Facing / Chamfering
Cutting Edge Angle	95°	97.5°	Special	93°	Special	45°	45°
Top Clamp							
	CCLN / HCLN	CELN	CRSN / HRSN	CDJN	CRDN / CRDC	CSDN / HSDN	CSSN
Ref. Page	**D53**	**D55**	**D63**	**D54**	**D64**	**D60**	**D59**

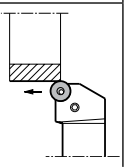
Application	External			Facing		
Cutting Edge Angle	75°	85°	93°	5°	15°	-3°
Top Clamp						
	CSRN / HSRN	CS-N	CTJN	CSYN	CSKN	CTUN
Ref. Page	**D56/D57**	**D58**	**D61**	**D59**	**D58**	**D62**

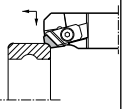
Toolholders for Solid CBN Inserts

Application	External / Facing		External / Copying	External / Chamfering	External / Facing / Chamfering	External		
Cutting Edge Angle	95°	Special	Special	45°	45°	75°		93°
Top Clamp								
	CCLN-A	CRSN-A	CRDN-A	CSDN-A	CSSN-A	CCRN-A	CSRN-A	CTJN-A
Ref. Page	**D66**	**D67**	**D67**	**D70**	**D70**	**D66**	**D69**	**D72**

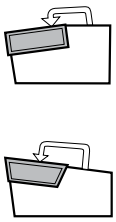
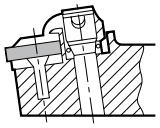
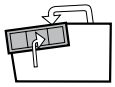
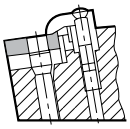
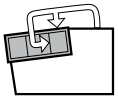
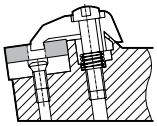
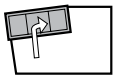
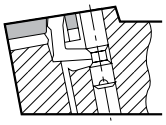
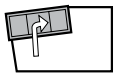
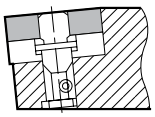
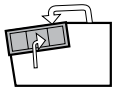
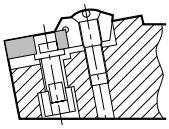
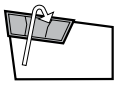
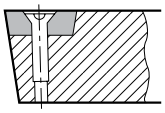
Application	Facing
Cutting Edge Angle	15°
Top Clamp	
	CSKN-A
Ref. Page	**D69**

Toolholder for Bearing Machining

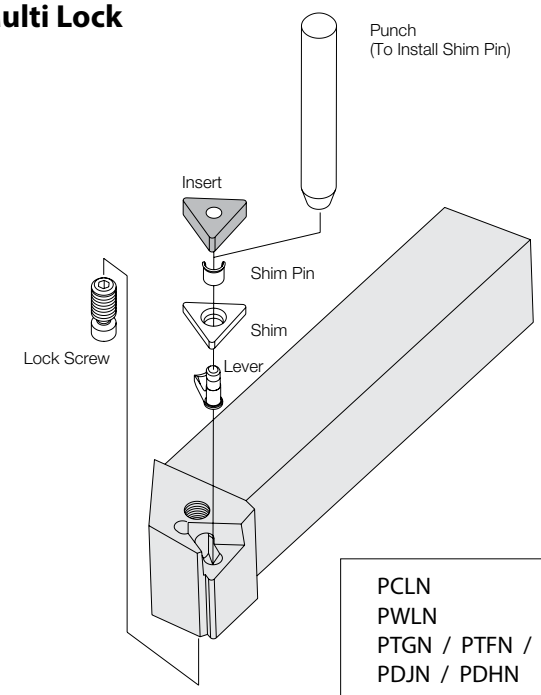
Application	External
Cutting Edge Angle	Special
Lever Lock	
	PRGC-BE
Ref. Page	**D73**

Application	Round Chamfering
Cutting Edge Angle	Special
Top Clamp	
	CBSN
Ref. Page	**D74**

Clamping Systems

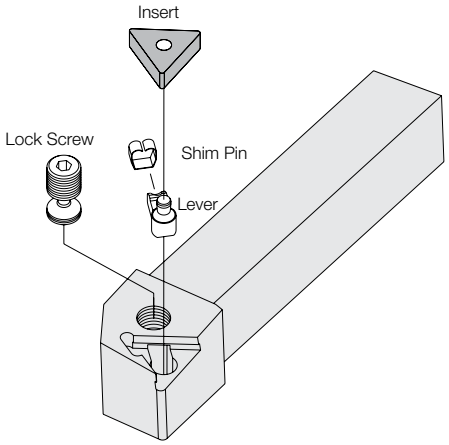
Series	Design		Features	Series	Design		Features
Top Clamp **(C)**			• Rigid Clamping • Negative Insert : Medium to Heavy Machining (Mainly for Ceramic Insert) • Positive Insert : Low Cutting Force	Multi-Lock **(M)**			• Combination of Top Clamp and Pin Lock • Rigid Clamping • Heavy Machining
Double Clamp **(D)**			• Firmly clamp the insert in two directions with one action.	Lever Lock **(P)**			• Easy Insert Replacement • General Use
Pin Lock **(P)**			• Easy Insert Replacement	Wedge Lock **(W)**			• Rigid Clamping • Heavy Machining
Screw Clamp **(S)**			• Simple Mechanism • Fewer Parts • Finishing to Medium Machining				

Multi Lock



With Shim

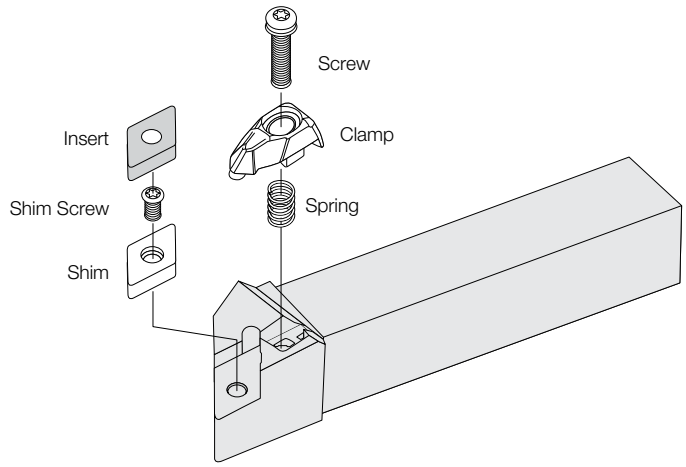
PCLN
PWLN
PTGN / PTFN / PTLN
PDJN / PDHN
PSBN / PSKN / PSSN / PSDN
PRGN
PRGC / PRXC



Without Shim

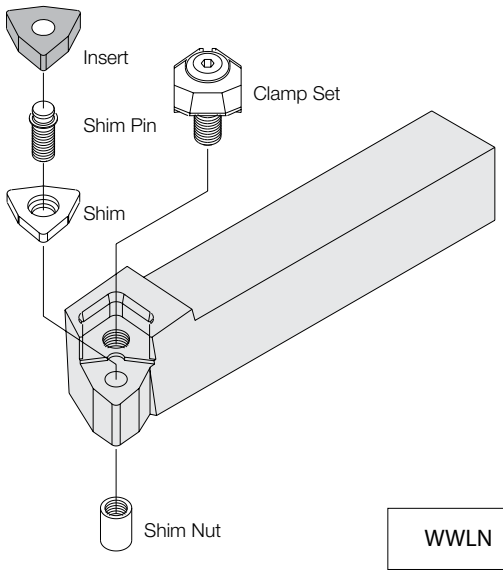
PTGN-11
PTFN-11

Double Clamp

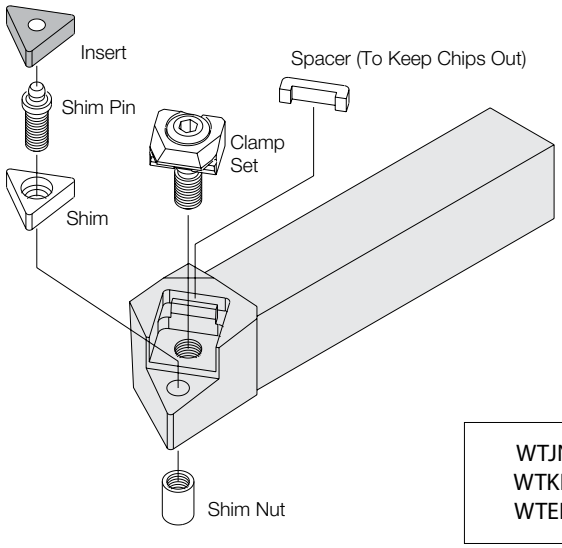


DCLN
DDJN / DDHN
DSBN
DTGN
DVLN / DVJN / DVPN / DVVN
DWLN

Wedge Lock

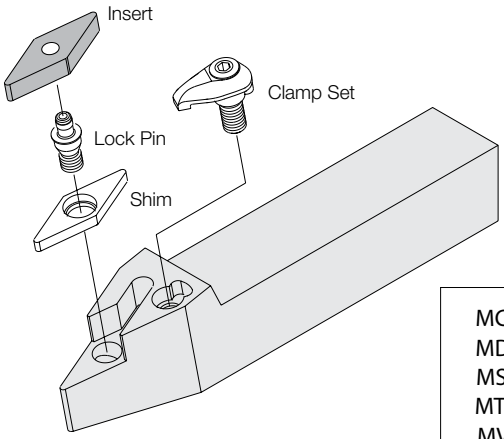


WWLN



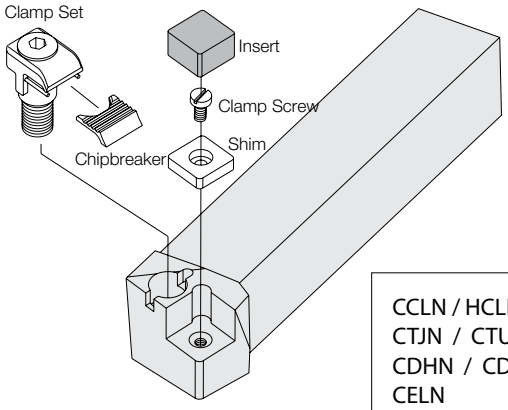
WTJN
WTKN
WTEN

Multi Lock



MCLN
MDJN
MSSN
MTGN
MVJN
MVVN
MWLN

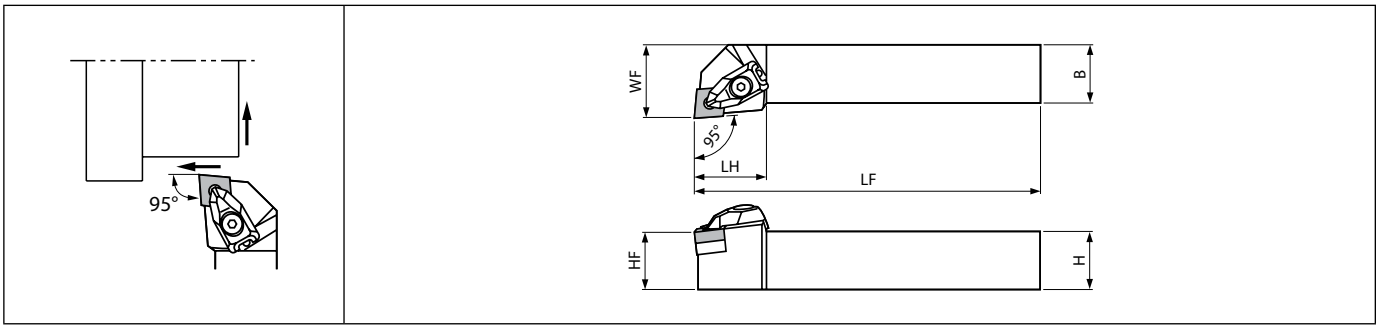
Top Clamp



CCLN / HCLN
CTJN / CTUN
CDHN / CDJN
CELN
CSRN / HSRN / CS-N / CSKN
CSYN / CSSN / CSDN / HSDN
*CRSN / HRSN / *CRDN / CRDC

* Chipbreaker is not included with CRSN / CRDN.

DCLN (External Turning / External Facing)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	
		R	L	H	B	LH	HF	LF	WF											
Inch	DCLN□ 12-4B	●	●	0.75	0.75	1.30	0.75	4.50	1.00	1/32	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DC-44 (DC-44-C*)	SB-4085TR	FT-15	CN□A43... CN□G43... CN□M43...
	16-4D	●	●	1.00	1.00	1.26	1.00	6.00	1.25											
mm	DCLN□ 2020K-12	●	●	20	20	33	20	125	25	0.8	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DC-44 (DC-44-C*)	SB-4085TR	FT-15	
	2525M-12	●	●	25	25	32	25	150	32											

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
When using inserts with SX chipbreaker, use shim (-C type) sold separately.
Wrench (FT-15) is sold separately.
Recommended tightening torque : 3.9N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DCLN-JCT (External Turning / External Facing, Coolant-Through Holders)

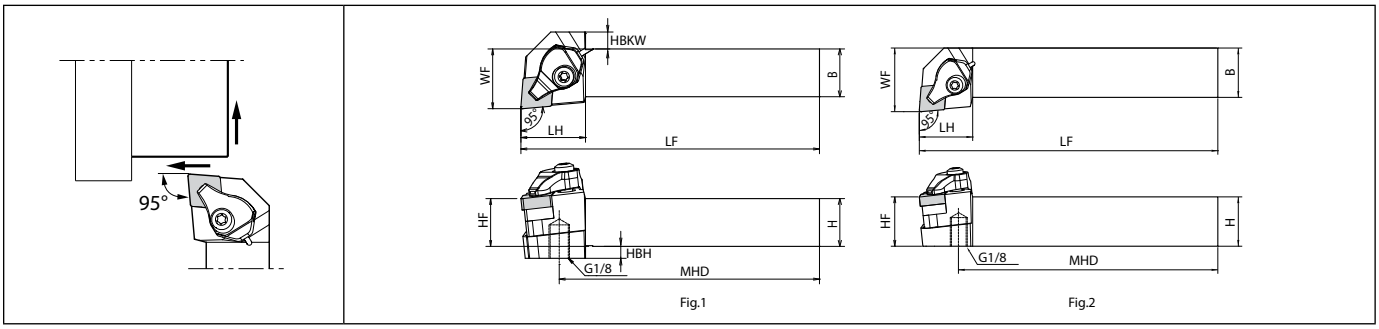


Fig.1 Fig.2

Right-hand shown | Coolant-Through | Applicable Pressure : ~4,350 psi

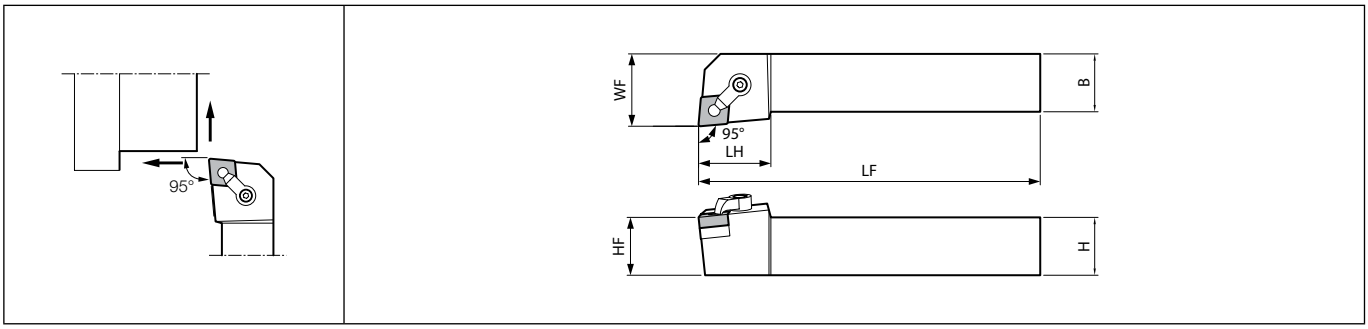
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions									Standard Corner-R (RE)	Fig.	Coolant Hole	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
																		Clamp	Pipe Connection (* with O-Ring)	Screw (for clamp)	Spring	Shim	Screw (for shim)	Wrench	
		R	L	H	B	LH	HBH	HBKW	MHD	HF	LF	WF													
Inch	DCLN□ 12-4BJCT	●	●	0.75	0.75	1.06	0.23	0.26	3.87	0.75	4.50	1.00	1/32	1	Yes	-6	-6	CP-3D-□-JCT	FP-12	CS-3D-TR	SP-3D	DC-44 (DC-44-C*)	SB-4085TR	FT-15	CN□A43... CN□G43... CN□M43...
	16-4DJCT	●	●	1.00	1.00	1.06	-	-	5.37	1.00	6.00	1.25		2											
mm	DCLN□ 2020K-12JCT	●	●	25	20	27	5	7	109	25	125	25	0.8	1	Yes	-6	-6	CP-3D-□-JCT	FP-12	CS-3D-TR	SP-3D	DC-44 (DC-44-C*)	SB-4085TR	FT-15	
	2525M-12JCT	●	●	25	25	27	-	-	134	25	150	32		2											

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
When using inserts with SX chipbreaker, use shim (-C type) sold separately.
Clamp : CP-3D-R-JCT for Right-hand Toolholder, CP-3D-L-JCT for Left-hand Toolholder.
See page **D13** for piping parts of coolant-through holders.
O-ring (SS-035) is available to order separately.
Recommended tightening torque : 3.9N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MCLN (External Turning / External Facing)



Right-hand shown

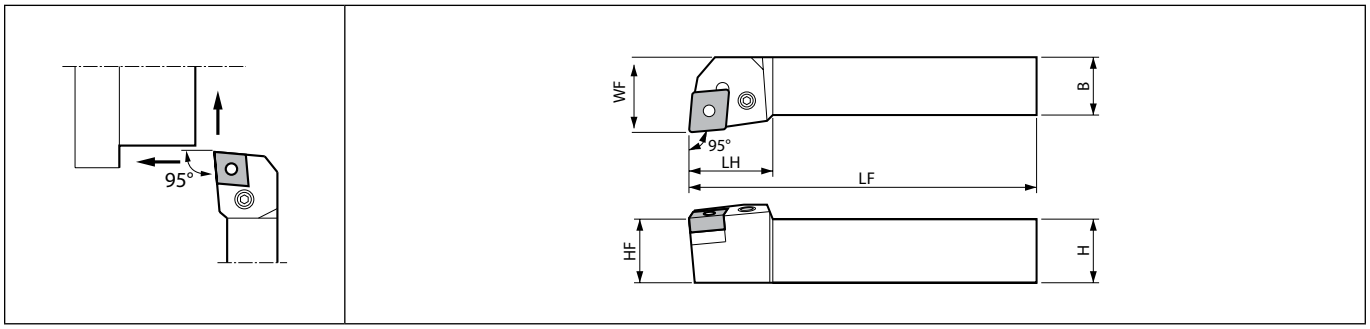
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Clamp	Screw (for clamp)	Wrench	Shim	Screw (for shim)	Lock Pin	Wrench	
		R	L	H	B	LH	HF	LF	WF											
Inch	MCLN 12-4B	●	●	0.75	0.75	1.190	0.75	4.00	1.00	1/32	-6	-6	CL-20	XNS-48	LW-125	ICSN433	S-46	NL46	LW-094	CN□A43... CN□G43... CN□M43...
	16-4D	●	●	1.00	1.00	1.260	1.00	6.00	1.25											
	16-5D	●	●	1.00	1.00	1.375	1.00	6.00	1.25	1/32			CL-12	XNS-510	LW-156	ICSN533	S-58	NL58	LW-125	CN□A54... CN□G54... CN□M54...
	20-5D	●	●	1.25	1.25	1.375	1.25	6.00	1.50											
	20-6D	●	●	1.25	1.25	1.500	1.25	6.00	1.50	1/32			CL-12	XNS-510	LW-156	ICSN633	S-68	NL68	LW-140	CN□A64... CN□G64... CN□M64...

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
When using inserts with SX chipbreaker, use shim (-C type) sold separately.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PCLN (External Turning / External Facing)



Right-hand shown

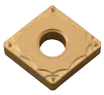
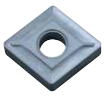
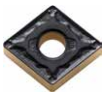
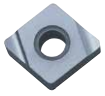
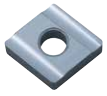
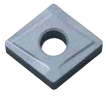
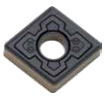
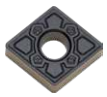
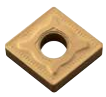
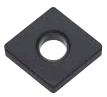
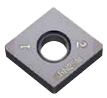
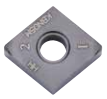
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Lever	Lock screw	Punch	Shim pin	Shim	Wrench	Wrench	
		R	L	H	B	LH	HF	LF	WF											
Inch	PCLNR 12-4B	●		0.75	0.75	1.06	0.75	4.50	1.00	1/32	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	LC-42N (LC-42N-C*) (LC-42N-20*)	LW-3	-	CN□A43... CN□G43... CN□M43...
	16-4D	●		1.00	1.00	1.06	1.00	6.00	1.25											
mm	PCLN□ 1616H-09	●	●	16	16	22	16	100	20	0.8	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	LC-32N	-	FH-2.5	CN□G33...
	2020K-09	●	●	20	20		20	125	25											
	2525M-09	●	●	25	25		25	150	32											
	PCLN□ 2020H-12	●		20	20	27	20	100	25	0.8	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	LC-42N (LC-42N-C*) (LC-42N-20*)	LW-3	-	CN□A43... CN□G43... CN□M43...
	2020K-12	●	●					125												
	2525M-12	●	●	25	25		25	150	32											
	3225P-12	●	●	32			32	170												
	PCLN□ 2525M-16	●	●	25	25	32	25	150	32	0.8	-6	-6	LL-5N	LS-4N	-	LSP-3	LC-53N (LC-53N-C*)	LW-3	-	CN□A54... CN□G54... CN□M54...
	3232P-16	●	●	32	32		32	170	40											

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.
When using inserts with SX chipbreaker, use shim (-C type) sold separately.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

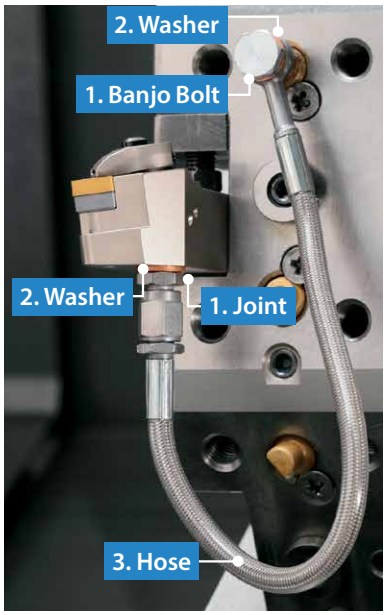
Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B16	B16	B16	B16	B16	B16	B16	B17
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	CQ	CJ	TN-V	PMG	GS	PG	PS	PT
Page	B17	B17	B17	B17	B17	B17	B18	B18
Applications	Medium - Roughing	Roughing	Roughing	Roughing	Finishing	Medium	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	GT	Standard	PH	PX	R/L-S	R/L	R/L-25R	Z
Page	B18	B18	B18	B19	B23	B23	B23	B23
Applications	Low carbon steel	Low carbon steel	Low carbon steel	Low carbon steel	Finishing - Medium	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker	XF	XP	XQ	XS	SK	FP-TK	TK	MQ
Page	B19	B19	B19	B19	B19	B19	B20	B20
Applications	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	MS	MU	KQ	KG	KH	C	ZS	GC
Page	B20	B20	B21	B21	B21	B22	B22	B22
Applications	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Heat-Resistant Alloys
Insert								
Chipbreaker	No Chipbreaker	Ceramic	R/L-A3	AH	PCD	SQ	SG	R/L-SX
Page	B22	B113	B23	B23	C34	B20	B21	B21
Applications	Hard Materials / Cast Iron	Hard Materials	Hard Materials	Hard Materials				
Insert								
Chipbreaker	CBN	HH	HL	HD				
Page	C8	C9	C9	C9				

Recommended Cutting Conditions ➡ D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

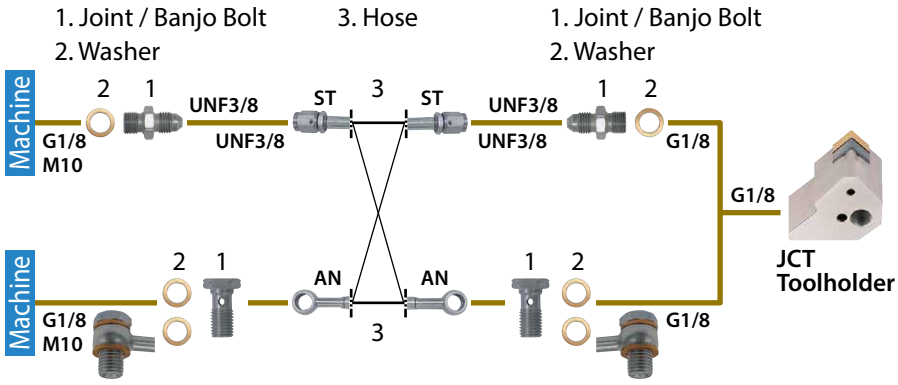
Easy Connection with High Pressure Hose and Joint



· Even without a high pressure pump, internal coolant can be used at a normal pressure

· Banjo bolt available for angled hose connection and can be used in a variety of machines

Piping Installation Guide



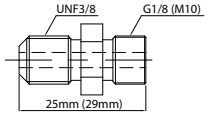
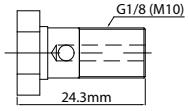
Piping Parts

Optional Piping Parts Available
Choose from parts below to match your machine specifications

1. Joint / Banjo bolt × 2
2. Washer × 2-4
3. Hose × 1

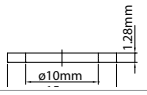
1. Joint / Banjo Bolt

Pressure Resistance: up to 4,350 psi

Shape		Part Number	Std. Item	Thread Standard
		**J-G1/8-UNF3/8**	●	G1/8
		J-M10X1.5-UNF3/8	●	M10X1.5
Banjo Bolt (for Angle Hose)		**BB-G1/8**	●	G1/8
		BB-M10X1.5	●	M10X1.5

2. Washer

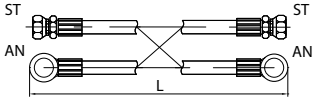
Pressure Resistance: up to 4,350 psi

Shape		Part Number	Std. Item
		**WS-10**	●

* Use 2 washers for a banjo bolt

3. Hose

Pressure Resistance: up to 4,350 psi

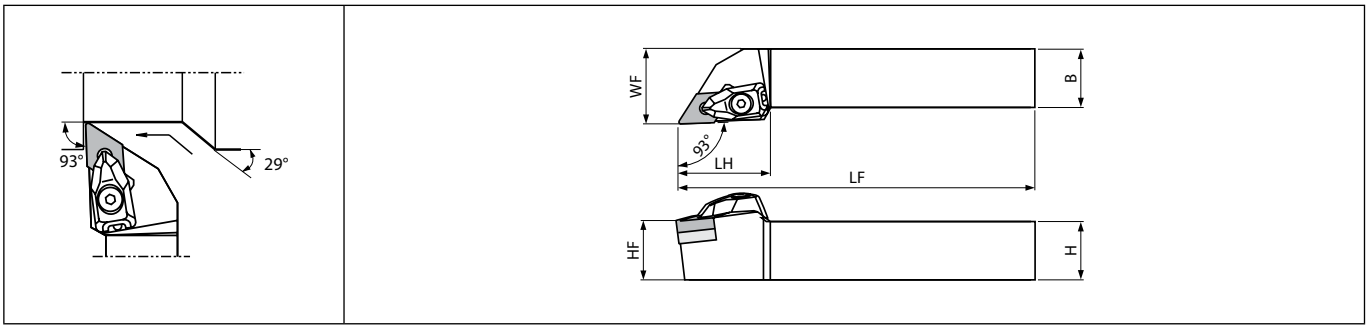
Shape		Part Number	Std. Item	Thread Standard		Dimensions (mm) L
		**HS-ST-ST-200**	●	UNF3/8	UNF3/8	200
		HS-ST-ST-250	●			250
		HS-ST-AN-200	●	UNF3/8	- (Banjo Bolt)	200
		HS-ST-AN-250	●			250
		HS-AN-AN-200	●	- (Banjo Bolt)	- (Banjo Bolt)	200
		HS-AN-AN-250	●			250

Precautions

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure. Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are the same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

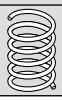
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DDJN (External Turning / External Copying)



Right-hand shown

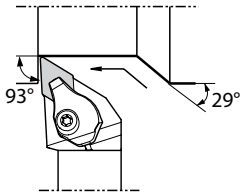
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	
		R	L	H	B	LH	HF	LF	WF											
Inch	DDJN☐ 12-4B	●	●	0.75	0.75	1.54	0.75	4.50	1.00	1/32	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DD-44 (DD-43*)	SB-4085TR	FT-15	DN☐A43... DN☐G43... DN☐M43... DN☐X43...
	16-4D	●	●	1.00	1.00	1.54	1.00	6.00	1.25											
mm	DDJN☐ 2020K-1504	●	●	20	20	39	20	125	25	0.8	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DD-44 (DD-43*)	SB-4085TR	FT-15	DN☐A43... DN☐G43... DN☐M43... DN☐X43...
	2525M-1504	●	●	25	25		25	150	32											
	2020K-1506	●	●	20	20	39	20	125	25	0.8	-6	-6					DD-43 (DD-44*)			DN☐A44... DN☐G44... DN☐M44... DN☐X44...
	2525M-1506	●	●	25	25		25	150	32											

Shims indicated * are not included with the toolholder. To change insert thickness, please purchase it separately.
When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
Wrench (FT-15) is sold separately.
Recommended tightening torque : 3.9N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DDJN-JCT (External Turning / External Copying, Coolant-Through Holders)



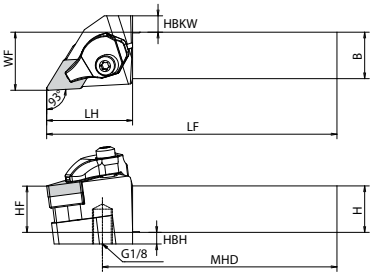


Fig.1

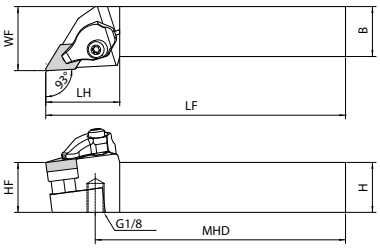


Fig.2

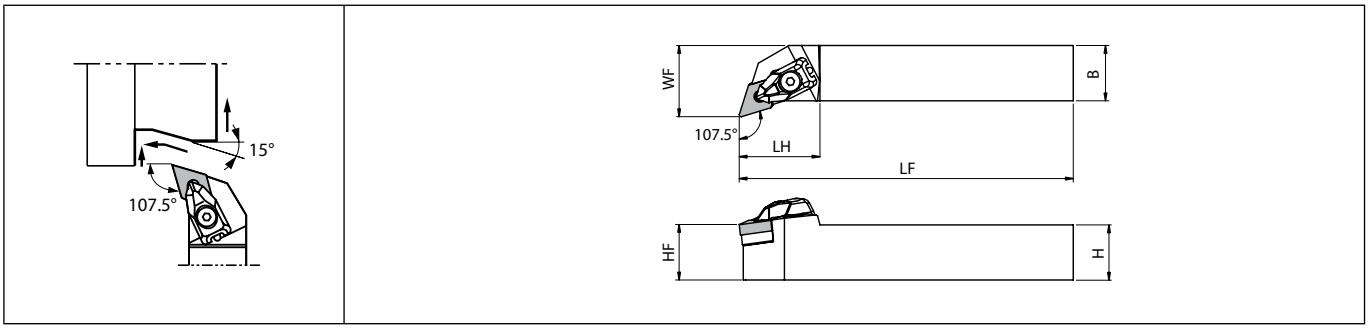
Right-hand shown | Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HBH	HBKW	MHD	HF	LF	WF	Standard Corner-R (RE)	Fig.	Coolant Hole	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts: Clamp	Spare Parts: Pipe Connection (* with O-Ring)	Spare Parts: Screw (for clamp)	Spare Parts: Spring	Spare Parts: Shim	Spare Parts: Screw (for shim)	Spare Parts: Wrench	Applicable Inserts
Inch	DDJN□ 12-4BJCT	●	●	0.75	0.75	1.46	0.23	0.26	3.56	0.75	4.50	1.00	1/32	1	Yes	-6	-7	CP-4D-□-JCT	FP-12	CS-3D-TR	SP-3D	DD-44 (DD-43*)	SB-4085TR	FT-15	DN□A43... DN□G43... DN□M43... DN□X43...
	16-4DJCT	●	●	1.00	1.00	1.46	-	-	5.06	1.00	6.00	1.25		2											
mm	DDJN□ 2020K-15JCT	●	●	20	20	37	5	7	101	20	125	25	0.8	1	Yes	-6	-7	CP-4D-□-JCT	FP-12	CS-3D-TR	SP-3D	DD-44 (DD-43*)	SB-4085TR	FT-15	
	2525M-15JCT	●	●	25	25		-	-	126	25	150	32		2											

Shims indicated * are not included with the toolholder. To change insert thickness, please purchase it separately.
When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
Please see page **D13** for piping parts of coolant-through holders.
Clamp : CP-4D-R-JCT for Right-hand Toolholder, CP-4D-L-JCT for Left-hand Toolholder.
O-ring (SS-035) is available to order separately.
Recommended tightening torque : 3.9N·m

DDHN (External Turning / External Facing / External Copying)



Right-hand shown

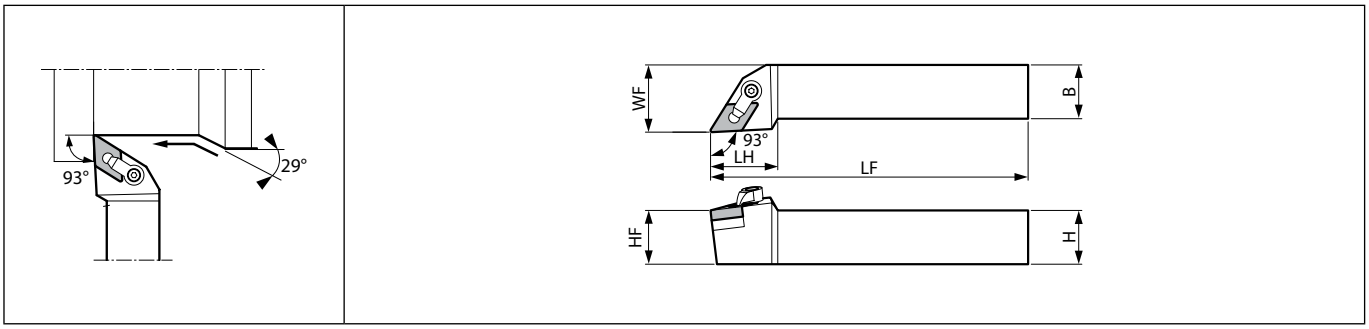
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	
		R	L	H	B	LH	HF	LF	WF											
mm	DDHN R/L 2020K-1504	●	●	20	20	37	20	125	25	0.8	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DD-44 (DD-43*)	SB-4085TR	FT-15	DN□A43... DN□G43... DN□M43...
	2525M-1504	●	●	25	25		25	150	32											
	2020K-1506	●	●	20	20	37	20	125	25	0.8	-6	-6					DD-43 (DD-44*)			DN□A44... DN□G44... DN□M44...
	2525M-1506	●	●	25	25		25	150	32											

Shims indicated * are not included with the toolholder. To change insert thickness, please purchase it separately.
When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Wrench (FT-15) is sold separately.
The insert with WF chipbreaker is not applicable for DDHN type toolholder.
Recommended tightening torque : 3.9N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MDJN (External Turning / External Facing / External Copying)



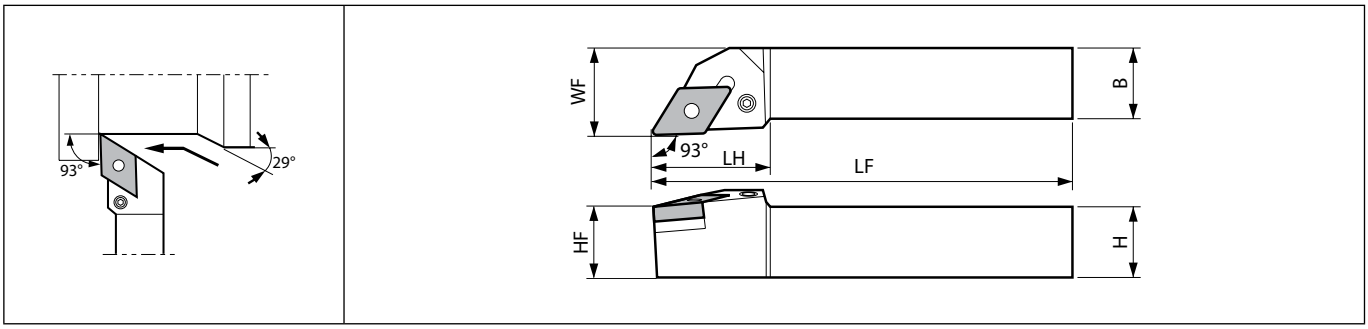
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
													Clamp	Screw (for clamp)	Lock Pin	Shim	Screw (for shim)	Wrench	
		R	L	H	B	LH	HF	LF	WF										
Inch	MDJN R/L 12-4B	●	●	0.75	0.75	1.25	0.75	4.50	1.00	1/32	-6	-6	CL-20	XNS-48	NL46L	IDSN443	S-46	LW-125, LW-094	DN□A43... DN□G43... DN□M43... DN□X43...
	16-4D	●	●	1.00	1.00	1.25	1.00	6.00	1.25										

Shims indicated * are not included with the toolholder. To change insert thickness, please purchase it separately.
When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
Recommended tightening torque : 3.9N·m

PDJN (External Turning / External Copying)



Right-hand shown

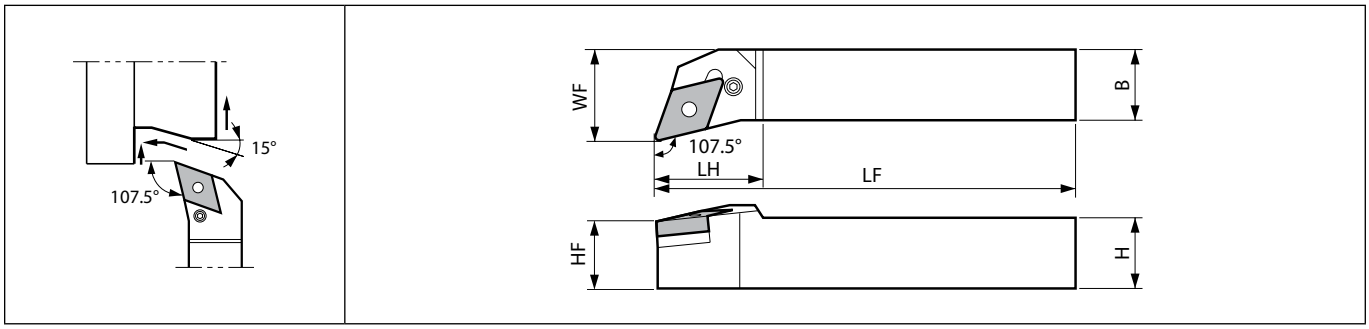
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Lever	Lock screw	Punch	Shim pin	Shim	Wrench	Wrench	Applicable Inserts
				Dimensions									Spare Parts							
Inch	PDJNR 12-3B	●		0.75	0.75	0.87	0.75	4.50	1.00	1/64	-6	-7	LL-1N	LS-1N	PC-1	LSP-1	LD-32N	-	FH-2.5	DN□G33...
	16-3D	●		1.00	1.00	0.87	1.00	6.00	1.25											
	PDJN⅝ 16-4D	●	●	1.00	0.75	1.06	1.00	4.50	1.00	1/32							LD-42 (LD-42-20*)	LW-3	-	DN□A43... DN□G43... DN□M43... DNMX43...
mm	PDJN⅝ 1616H-11	●	●	16	16	28	16	100	20	0.4	-6	-7	LL-1DN	LS-1N	PC-1	LSP-1	LD-32N	-	FH-2.5	DN□G33...
	2020K-11	●	●	20	20		20	125	25											
	2525M-11	●	●	25	25		25	150	32											
	PDJN⅝ 2020H-15	●		20	20	36	20	100	25	0.8	-6	-7	LL-3N	LS-2N	PC-2	LSP-2	LD-42 (LD-42-20*)	LW-3	-	DN□A43... DN□G43... DN□M43... DNMX43...
	2020K-15	●	●					125												
	2525M-15	●	●	25	25		25	150	32											
	3225P-15	●	●	32			32	170												
	2525M-15U	●	●	25	25	34	25	150	32				LL-4	LS-3			LD-42 (LD-42-20*) (LD-43**) (LD-43-20**)			DN□A44... DN□G44... DN□M44... DNMX44...
	3232P-15U	●	●	32	32	36	32	170	40											

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.
Shim : PDJN⅝-15U . . . LD-42 is attached to PDJN⅝-15U. When using DN□□43 type insert, please purchase LD-43 (or LD-43-20 when using inserts with corner-R (RE) greater than 1/16") separately.
When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

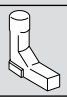
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PDHN (External Turning / External Facing / External Copying)



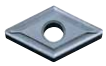
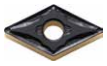
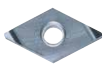
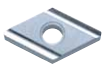
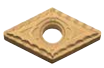
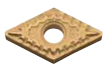
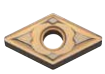
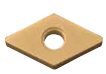
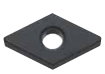
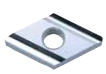
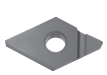
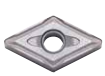
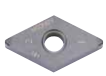
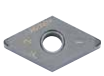
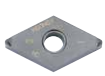
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
		R	L	H	B	LH	HF	LF	WF				Lever	Lock screw	Punch	Shim pin	Shim	Wrench	
																			
mm	PDHN□ 2020K-15	●	●	20	20	35	20	125	25	0.8	-6	-6	LL-4	LS-3	PC-2	LSP-2	LD-43 (LD-43-20*) (LD-42**) (LD-42-20**)	LW-3	DN□A43... DN□G43... DN□M43...
	2525M-15	●	●	25	25	34	25	150	32										

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.
Shim : PDHN . . . LD-43 is attached to PDHN. When using DN□□44 type Insert, please purchase LD-42 (or LD-42-20 when using inserts whose corner-R (RE) is greater than 1/16") separately.
The insert with WF chipbreaker is not applicable for PDHN type toolholder.

Applicable Inserts (DDJN / DDJN-JCT / MDJN / DDHN / PDJN / PDHN)

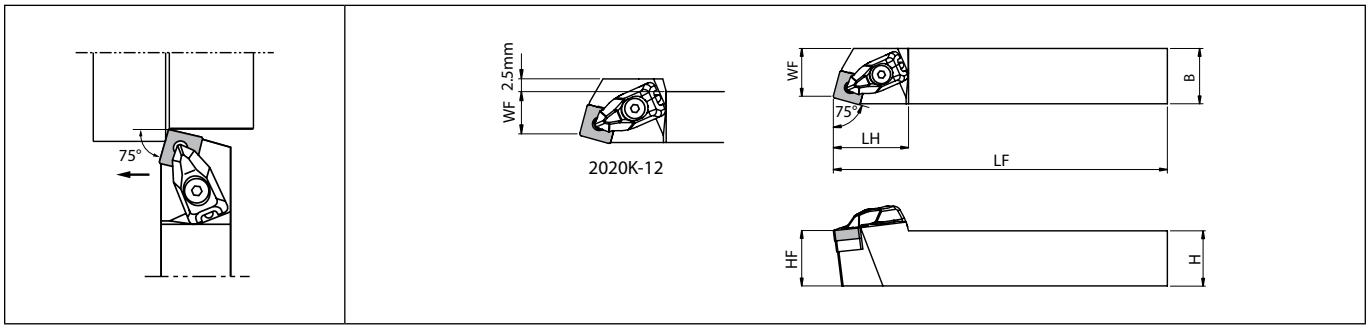
Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium
Insert								
Chipbreaker	WF*	PP	GP	PQ	HQ	CQ	CJ	TN-V
Page	B24	B24	B24	B24	B25	B25	B25	B25
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing
Insert								
Chipbreaker	PMG	GS	PG	PS	PT	GT	Standard	PH
Page	B25	B25	B26	B26	B26	B26	B27	B27
Applications	Roughing	Finishing	Medium	Low carbon steel	Low carbon steel	Low carbon steel	Low carbon steel	Finishing - Medium
Insert								
Chipbreaker	PX	R/L-S	R/L	XF	XP	XQ	XS	SK
Page	B27	B33	B32	B27	B27	B27	B27	B28
Applications	Large D.O.C.	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron
Insert								
Chipbreaker	R-LD	FP-TK	TK	MQ	MS	MU	KQ	KG
Page	B28	B28	B28	B28	B29	B29	B30	B30
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker	KH	C	ZS	GC	No Chipbreaker	Ceramic	R/L-A3	AH
Page	B30	B30	B30	B30	B31	B114	B31	B31
Applications	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials / Cast Iron	Hard Materials	Hard Materials	Hard Materials	
Insert								
Chipbreaker	PCD	SQ	SG	CBN	HH	HL	HD	
Page	C35	B29	B29	C10	C11	C11	C11	

When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
The insert with WF chipbreaker is not applicable for DDHN type and PDHN type toolholder.

Recommended Cutting Conditions ➡ **D75~D76**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DSBN (External Turning)



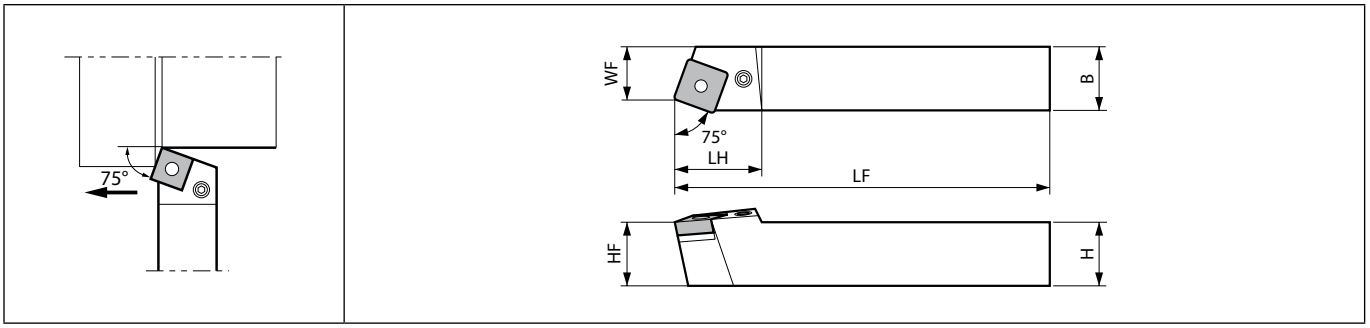
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	Applicable Inserts
													Spare Parts							
mm	DSBN□ 2020K-12	●	●	20	20	34	20	125	17	0.8	-4	-7	CP-3D	CS-3D	SP-3D	LW-3	DS-44	SB-4085TR	FT-15	SN□A43... SN□G43... SN□M43...
	2525M-12	●	●	25	25		25	150	22											

Wrench (FT-15) is sold separately.
When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Recommended tightening torque : 3.9N·m

PSBN (External Turning)



Right-hand shown

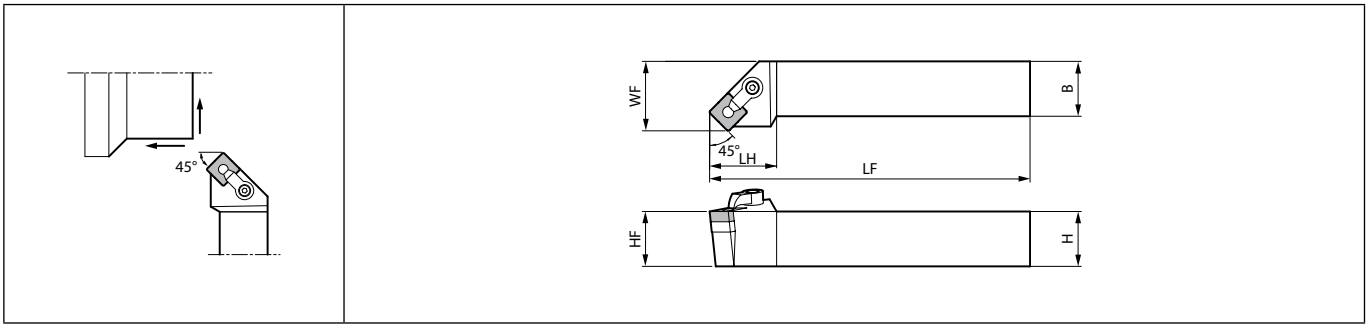
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Lever	Lock screw	Punch	Shim pin	Shim	Wrench	Applicable Inserts
													Spare Parts						
mm	PSBN□ 2020K-12	●	●	20	20	27	20	125	17	0.8	-4	-7	LL-2N	LS-2N	PC-2	LSP-2	LS-42	LW-3	SN□A43... SN□G43... SN□M43...
	2525M-12	●	●	25	25	24	25	150	22										

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MSSN (External Turning / External Facing / External Chamfering)



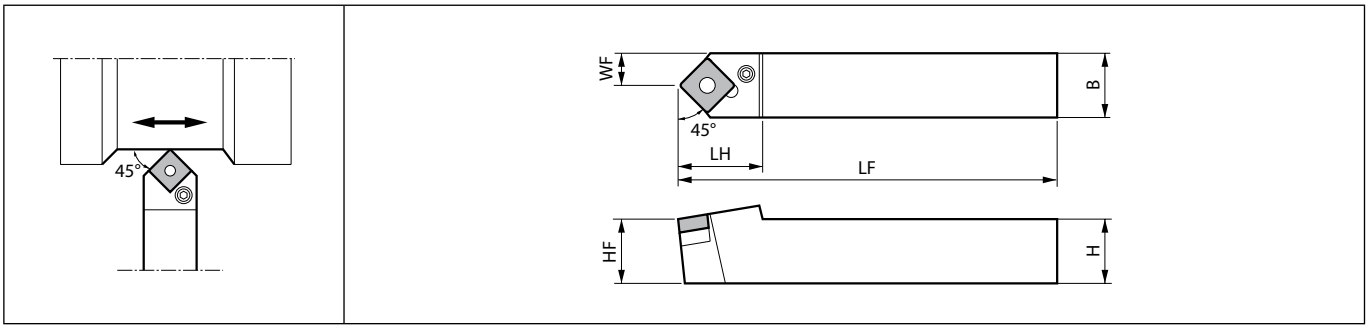
Right-hand shown

Toolholder Dimensions

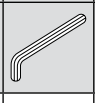
Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench	
		R	H	B	LH	HF	LF	WF												
Inch	MSSNR 16-4D	●	1.00	1.00	1.23	1.00	6.00	0.925	1/32	-8	0	CL-9	XNS59	LW-156	ISSN433	S-46	NL46	LW-094	SN□A43... SN□G43... SN□M43...

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
MSSN℞L : When using handed inserts, For External Turning, Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.
For Facing, Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

PSDN (External Turning / External Chamfering)



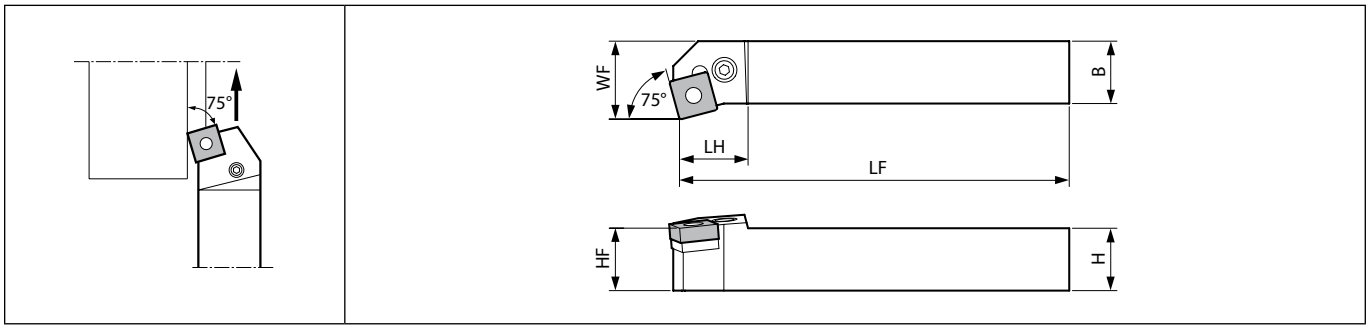
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Back rake angle (°)	Spare Parts							Applicable Inserts
												Lever	Lock screw	Punch	Shim pin	Shim	Wrench	Wrench	
		N	H	B	LH	HF	LF	WF											
mm	PSDNN 1616H-09	●	16	16	21	16	100	8	0.8	-8.5	LL-1N	LS-1N	PC-1	LSP-1	LS-32	-	FH-2.5	SN□G32...
	PSDNN 2020K-12	●	20	20	30	20	125	10	0.8	-8.5	LL-2N	LS-2N	PC-2	LSP-2	LS-42	LW-3	-	SN□A43... SN□G43... SN□M43...
	2525M-12	●	25	25		25	150	12.5										

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PSKN (External Facing)



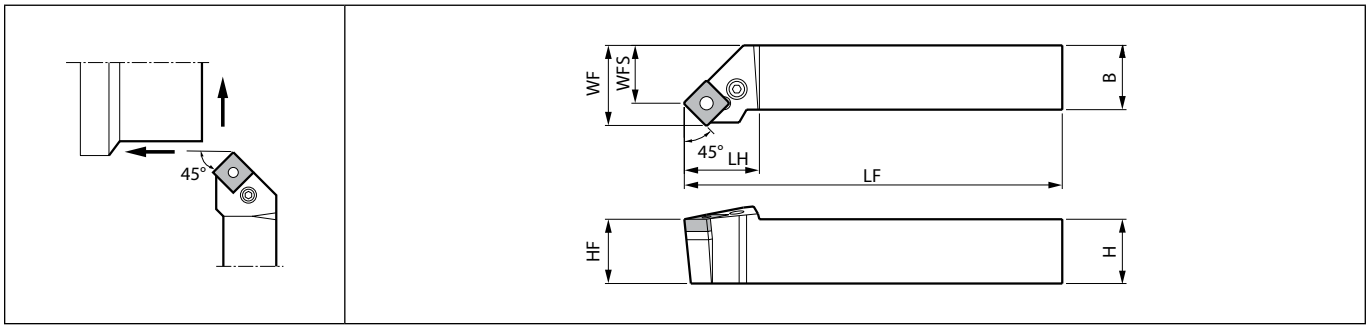
Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Lever	Lock screw	Punch	Shim pin	Shim	Wrench	Applicable Inserts
													Spare Parts						
mm	PSKN□ 2020K-12	●	●	20	20	22.5	20	125	25	0.8	-4	-7	LL-2N	LS-2N	PC-2	LSP-2	LS-42	LW-3	SN□A43... SN□G43... SN□M43...
	2525M-12	●	●	25	25		25	150	32										

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
PSKN□ : Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

PSSN (External Turning / External Facing / External Chamfering)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	WFS	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Lever	Lock screw	Punch	Shim pin	Shim	Wrench	Wrench	Applicable Inserts
														Spare Parts							
mm	PSSN□ 1616H-09	●	●	16	16	22	16	100	20	13.6	0.8	-8	0	LL-1N	LS-1N	PC-1	LSP-1	LS-32	-	FH-2.5	SN□G32...
	PSSN□ 2020K-12	●	●	20	20	29	20	125	25	16.4	0.8	-8	0	LL-2N	LS-2N	PC-2	LSP-2	LS-42	LW-3	-	SN□A43... SN□G43...
	2525M-12	●	●	25	25		25	150	32	23.4											SN□M43...

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
PSSN□ : When using handed inserts, For External Turning, Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.
For Facing, Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

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Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts (DSBN / PSBN / PSKN / PSSN / MSSN / PSDN)

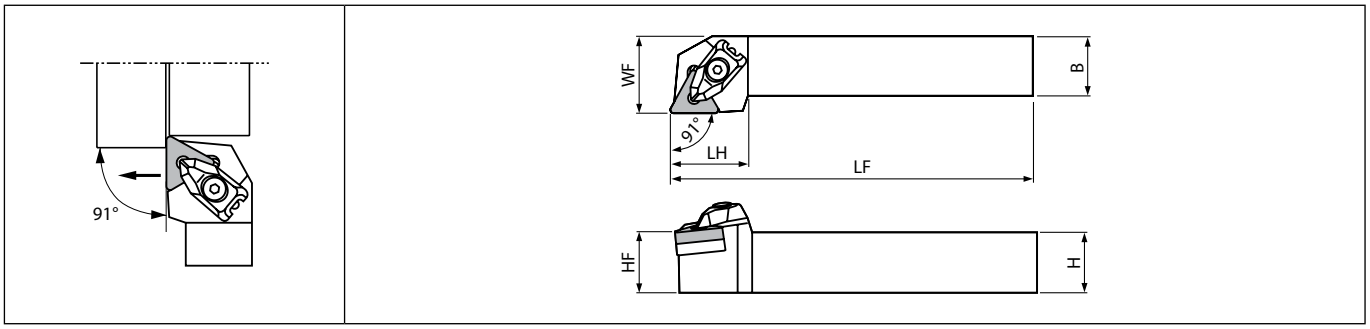
Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing
Insert								
Chipbreaker type	PQ	HQ	PMG	PG	PS	PT	Standard	PH
Page	B34	B34	B34	B34	B34	B34	B34	B35
Applications	Roughing	Finishing - Medium	Medium - Roughing	Medium - Roughing	Low carbon steel	Low carbon steel	Low carbon steel	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker type	PX	R/L-B	R/L-C	R/L-25R	XP	XQ	XS	MQ
Page	B35	B37	B37	B37	B35	B35	B35	B36
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials
Insert								
Chipbreaker type	MS	KG	KH	C	ZS	GC	No Chipbreaker	Ceramic
Page	B36	B36	B36	B36	B37	B37	B37	B117

Applications	Heat-Resistant Alloys	Hard Materials / Cast Iron
Insert		
Chipbreaker type	SG	CBN
Page	B36	C12

Recommended Cutting Conditions D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DTGN (External Turning)



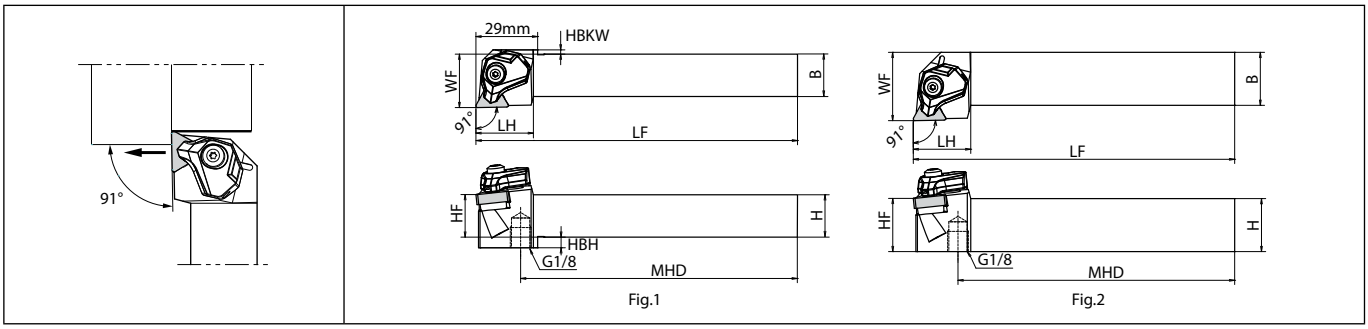
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	
		R	L	H	B	LH	HF	LF	WF											
mm	DTGN□ 2020K-16	●	●	20	20	25	20	125	25	0.8	-6	-6	CP-2D	CS-2D	SP-2D	LW-2.5	DT-32	SB-3080TR	FT-10	TN□A33... TN□G33... TN□M33... TN□X33...
	2525M-16	●	●	25	25		25	150	32											

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
Wrench (FT-10) is sold separately.
Recommended tightening torque : 1.7N·m

DTGN-JCT (External Turning, Coolant-Through Holders)



Right-hand shown | Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

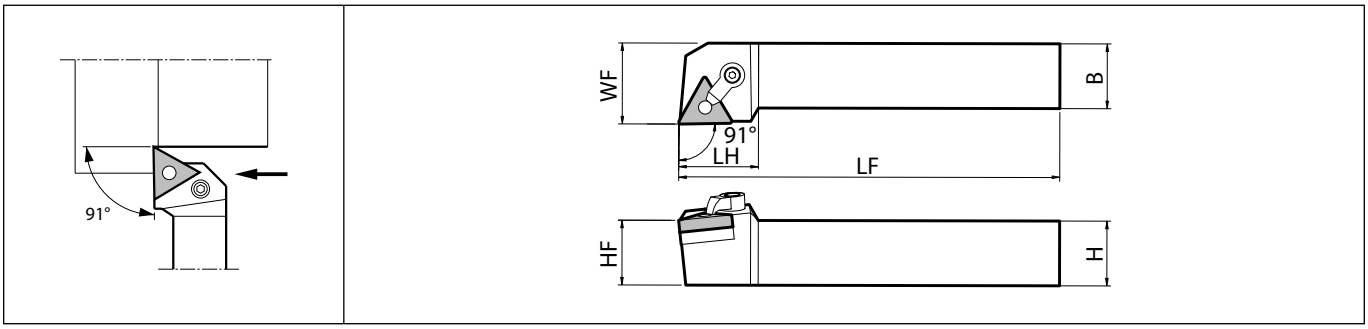
Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HBH	HBKW	MHD	HF	LF	WF	Standard Corner-R (RE)	Fig.	Coolant Hole	Side Rake Angle (°)	Inclination Angle (°)	Applicable Inserts
mm	DTGN[R/L] 2020K-16JCT	●	●	20	20	27	5	2	104	20	125	25	0.8	1	Yes	-6	-6	TN□A33... TN□G33... TN□M33... TN□X33...
	2525M-16JCT	●	●	25	25		-	-	129	25	150	32		2				

Unit	Part Number	Spare Parts: Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	Pipe Connection (* with O-Ring)
mm	DTGN[R/L] 2020K-16JCT 2525M-16JCT	CP-2D-[R/L]-JCT	CS-3D-TR	SP-3D	FT-15	DT-32	SB-3080TR	FT-10	FP-12

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
Wrench (FT-10) is sold separately.
Please see page **D13** for piping parts of coolant-through holders.
O-ring (SS-035) is available to order separately.
Recommended tightening torque : 3.9N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MTGN (External Turning)



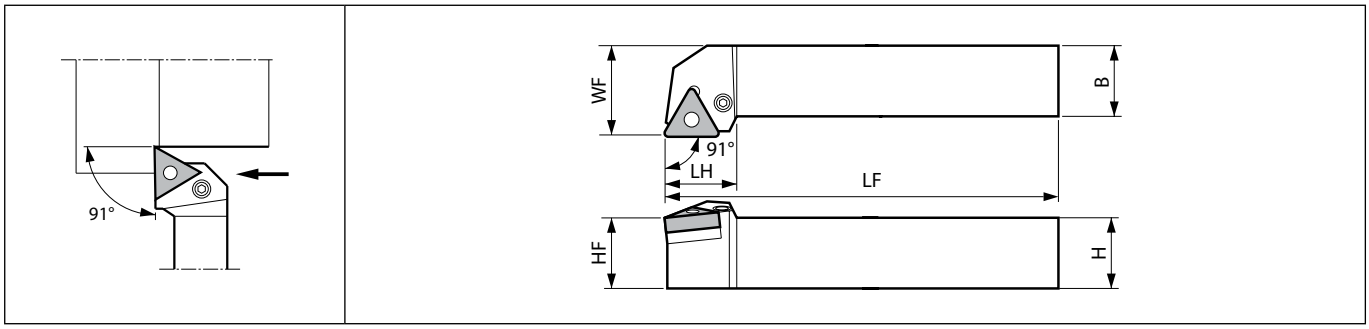
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Clamp	Screw (for clamp)	Wrench	Shim	Screw (for shim)	Lock Pin	Wrench	Applicable Inserts
		Dimensions											Spare Parts							
Inch	MTGN R/L 12-3B	●	●	0.75	0.75	0.94	0.75	4.50	1.00	1/64	-5	-5	CL-6	XNS36	LW-094	ITSN333 (ITSN323)	S-34	NL34L	(5/64 Hex)	TN□A33... TN□G33... TN□M33... TN□X33...
	MTGNR 16-4D	●		1.00	1.00	1.19	1.00	6.00	1.25	1/32			CL-9	XNS48	LW-156	ITSN433	S-46	NL46	LW0	TN□G43... TN□M43...

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
Shim: ITSN333 is included with MTGN R/L 12-3B. When using TN□□32... insert, please purchase ITSN323 separately.
Wrench (FT-10) is sold separately.
Recommended tightening torque : 3.9N·m

PTGN (External Turning)



Right-hand shown

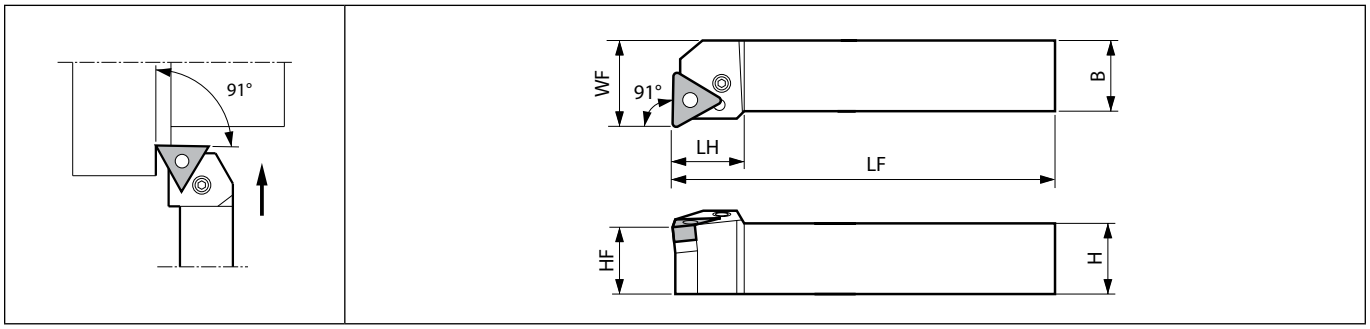
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts								Applicable Inserts
													Lever	Lock screw	Punch	Shim pin	Shim pin	Shim	Wrench	Wrench	
		R	L	H	B	LH	HF	LF	WF												
Inch	PTGNR 12-3B	●		0.75	0.75	0.96	0.75	4.50	1.00	1/32	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	-	LT-32N (LT-32N-20*)	LW-2.5	-	TN□A33... TN□G33... TN□M33... TN□X33...
mm	PTGN□ 1212F-11	●	●	12	12	18	12	80	16	0.8	-6	-6	LL-03N	LS-03N	-	-	P-03	-	-	FH-2	TNGA22... TNGG22...
	1616H-11	●		16	16	22	16	100	20				LL-03TN	LS-03SN			P-03S			FH-2.5	TNGG23... TNMG23...
	2020K-11	●	●	20	20		20	125	25												
	2525M-11	●	●	25	25		25	150	32												
	PTGN□ 1616H-16	●	●	16	16	24	16	100	20	0.8	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	-	LT-32N (LT-32N-20*)	-	FH-2.5	TN□A33... TN□G33... TN□M33... TN□X33...
	2020H-16	●		20	20		20		25												
	2020K-16	●	●					125													
	2525M-16	●	●	25	25		25	150	32												
	PTGN□ 2525M-22	●	●	25	25	29	25	150	32	0.8	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	-	LT-42N (LT-42N-20*)	LW-3	-	TN□G43... TN□M43...

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.
When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
PTGN□ 1212F-11 : TNGA22.. and TNGG22.. type inserts are applicable.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PTFN (External Facing)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Lever	Lock screw	Punch	Shim pin	Shim pin	Shim	Wrench	Wrench	Applicable Inserts
													Spare Parts								
Inch	PTFNL 12-3C		●	0.75	0.75	0.88	0.75	5.00	1.00	1/32	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	-	LT-32N (LT-32N-20*)	-	FH-2.5	TN□A33... TN□G33... TN□M33... TN□X33...
mm	PTFN□ 1212F-11	●	●	12	12	15	12	80	16	0.8	-6	-6	LL-03N	LS-03N	-	-	P-03	-	-	FH-2	TNGA22... TNGG22...
	1616H-11	●	●	16	16	22.5	16	100	20				LL-03TN	LS-03SN			P-03S			FH-2.5	TNGG23... TNMG23...
	2020K-11	●		20	20		20	125	25												
	2525M-11	●	●	25	25		25	150	32												
	PTFN□ 2020K-16	●	●	20	20	22	20	125	25	0.8	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	-	LT-32N (LT-32N-20*)	-	FH-2.5	TN□A33... TN□G33... TN□M33... TN□X33...
	2525M-16	●	●	25	25	23	25	150	32												
	PTFN□ 2525M-22	●	●	25	25	28	25	150	32	0.8	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	-	LT-42N (LT-42N-20*)	LW-3	-	TN□G43... TN□M43...

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.
When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
PTFN□ 1212F-11 : TNGA22.. and TNGG22.. type inserts are applicable.
PTFN□ : Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

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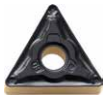
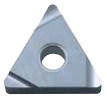
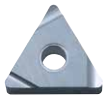
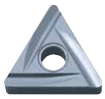
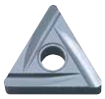
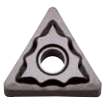
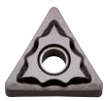
Contact your local Kyocera sales engineer to upgrade old products to new technology

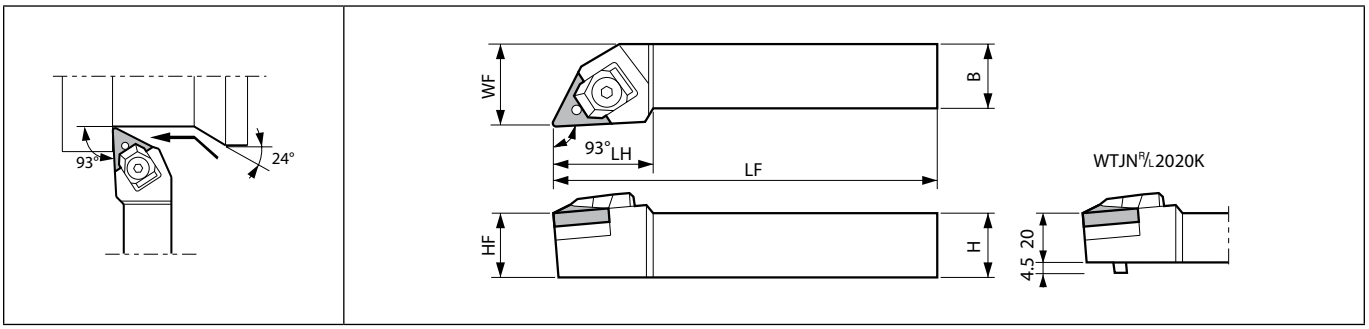
Applicable Inserts (DTGN / DTGN-JCT / MTGN / PTGN / PTFN)

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker type	WF	PP	GP	PQ	HQ	CQ	PMG	GS
Page	B39	B39	B39	B39	B39	B39	B40	B40
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing	Finishing
Insert								
Chipbreaker type	PG	PS	PT	GT	Standard	PH	PX	R/L-SSF
Page	B40	B40	B40	B40	B40	B41	B41	B45
Applications	Finishing	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Low carbon steel	Low carbon steel	Low carbon steel
Insert								
Chipbreaker type	R/L-S	R/L-B	R/L-C	R/L	R/L-25R	XF	XP	XQ
Page	B45	B45	B46	B46	B46	B41	B41	B41
Applications	Low carbon steel	Finishing - Medium	Large D.O.C.	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker type	XS	SK	R-LD	FP-TK	TK	MQ	MS	MU
Page	B41	B42	B42	B42	B42	B42	B42	B42
Applications	Stainless Steel	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker type	R/L-ST	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B43	B43	B43	B43	B43	B43	B43	B44
Applications	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron		
Insert								
Chipbreaker type	Ceramic	R/L-A3	AH	PCD	SG	CBN		
Page	B118	B44	B44	C36	B43	C13		

Recommended Cutting Conditions ➡ D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

WTJN (External Turning / External Copying)



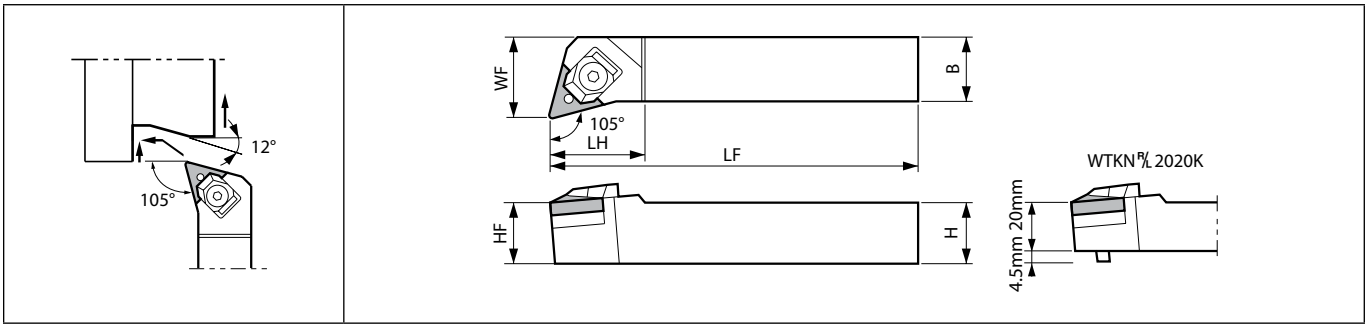
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Clamp set	Nut	Shim pin	Shim	Spacer	Wrench	Applicable Inserts
Inch	WTJNR/L 12-3C	●		0.75	0.75	1.26	0.75	5.00	1.00	1/32	-6	-6	WCS-1N	WN-1	WP-1S	WTN-33 (WTN-33-20*)	WSP-1	LW-3	TN□A33... TN□G33... TN□M33...
	16-3D	●	●	1.00	1.00	1.26	1.00	6.00	1.25										
mm	WTJNR/L 2020K-16N	●	●	20	20	32	20	125	25	0.8	-6	-6	WCS-1N	WN-1	WP-1S	WTN-33 (WTN-33-20*)	WSP-1	LW-3	
	2525M-16N	●	●	25	25		25	150	32										

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.
For wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restraint force.

WTKN (External Turning / External Facing / External Copying)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Clamp set	Nut	Shim pin	Shim	Spacer	Wrench	Applicable Inserts
Inch	WTKNL 12-3C		●	0.75	0.75	1.26	0.75	5.00	1.00		-6	-6	WCS-1N	WN-1	WP-1S	WTN-33 (WTN-33-20*)	WSP-1	LW-3	TN□A33... TN□G33... TN□M33...
mm	WTKNR/L 2020K-16N	●	●	20	20	32	20	125	25	0.8	-6	-6	WCS-1N	WN-1	WP-1S	WTN-33 (WTN-33-20*)	WSP-1	LW-3	
	2525M-16N	●	●	25	25		25	150	32										

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.
For wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restraint force.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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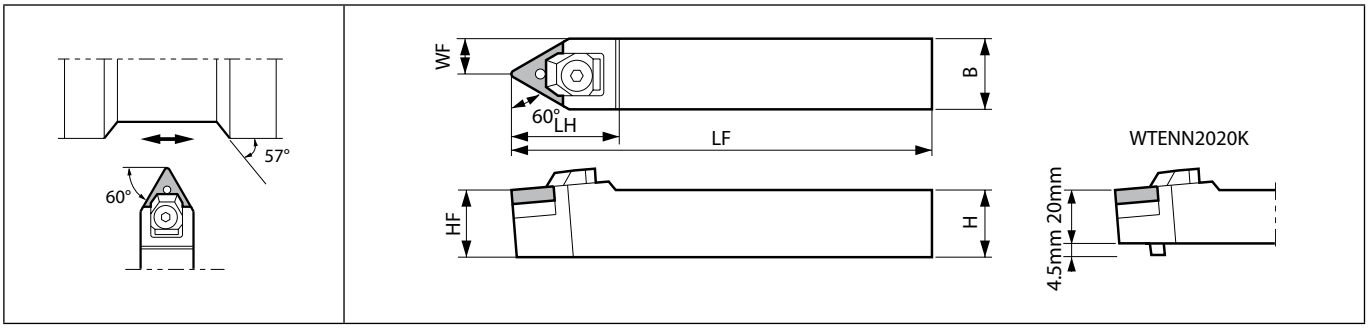
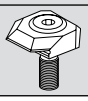
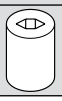
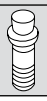
WTEN (External Turning / External Chamfering)



D TURNING HOLDERS

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Back rake angle (°)	Spare Parts						Applicable Inserts
											Clamp set	Nut	Shim pin	Shim	Spacer	Wrench	
		N	H	B	LH	HF	LF	WF									
mm	WTENN 2020K-16N	●	20	20	32	20	125	10	0.8	-8.5	WCS-1N	WN-1	WP-1S	WTN-33 (WTN-33-20*)	WSP-1	LW-3	TN□A33... TN□G33... TN□M33...
	2525M-16N	●	25	25		25	150	12.5									

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.
For wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restraint force.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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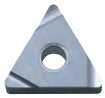
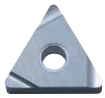
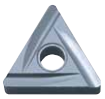
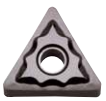
Applicable Inserts (WTJN / WTKN / WTEN)

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker type	PP	GP	PQ	HQ	CQ	GS	GS	PG
Page	B39	B39	B39	B39	B39	B40	B40	B40
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing	Finishing	Finishing
Insert								
Chipbreaker type	PS	PT	GT	Standard	PH	PX	R/L-SSF	R/L-S
Page	B40	B40	B40	B40	B41	B41	B45	B45
Applications	Finishing - Medium	Medium - Roughing	Medium - Roughing	Low carbon steel	Low carbon steel	Low carbon steel	Low carbon steel	Finishing - Medium
Insert								
Chipbreaker type	R/L-B	R/L-C	R/L-25R	XF	XP	XQ	XS	SK
Page	B45	B46	B46	B41	B41	B41	B41	B42
Applications	Large D.O.C.	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel	Cast Iron
Insert								
Chipbreaker type	R-LD	FP-TK	TK	MQ	MS	MU	R/L-ST	KQ
Page	B42	B42	B42	B42	B42	B42	B43	B43
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker type	KG	KH	C	ZS	GC	No Chipbreaker	R/L-A3	AH
Page	B43	B43	B43	B43	B43	B44	B44	B44
Applications	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron					
Insert								
Chipbreaker type	PCD	SG	CBN					
Page	C36	B43	C13					

Recommended Cutting Conditions D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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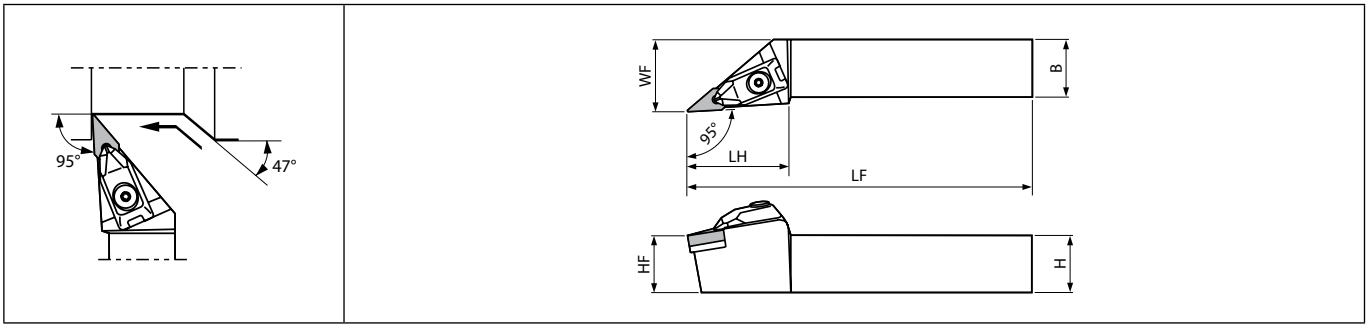
DVJN (External Turning / External Copying)



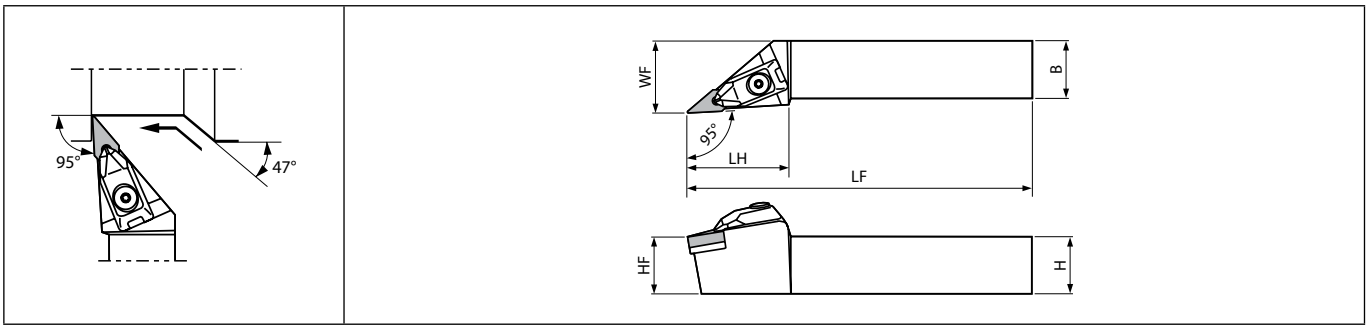
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	Applicable Inserts
													Spare Parts							
Inch	DVJN□ 12-3B	●	●	20	20	45	20	125	25	0.8	-6	-9	CP-5D	CS-5D	SP-5D	LW-3	DV-33	SB-4085TR	FT-15	VN□A33... VN□G33... VN□M33...
	16-3D	●	●	25	25		25	150	32											

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Wrench (FT-15) is sold separately.
Recommended tightening torque : 3.0N·m

DVLN (External Turning / External Copying)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	Applicable Inserts
													Spare Parts							
mm	DVLN□ 2020K-16	●	●	20	20	45	20	125	25	0.8	-6	-9	CP-5D	CS-5D	SP-5D	LW-3	DV-33	SB-4085TR	FT-15	VN□A33... VN□G33... VN□M33...
	2525M-16	●	●	25	25		25	150	32											

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Wrench (FT-15) is sold separately.
Recommended tightening torque : 3.0N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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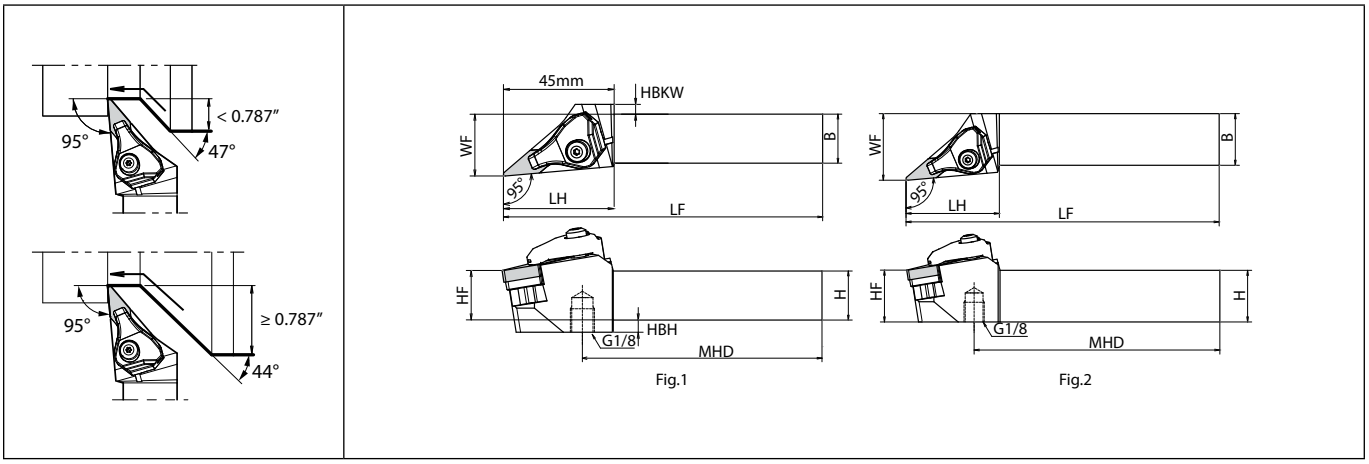
DVLN-JCT (External Turning / External Copying, Coolant-Through Holders)



Right-hand shown | Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HBH	HBKW	MHD	HF	LF	WF	Standard Corner-R (RE)	Fig.	Coolant Hole	Side Rake Angle (°)	Inclination Angle (°)	Applicable Inserts
Inch	DVLNR 12-3BJCT	●		0.75	0.75	1.77	0.234	0.142	3.220	0.75	4.50	1.00	1/32	1	Yes	-6	-9	VN□A33... VN□G33... VN□M33...
Inch	DVLNL 12-3BJCT		●						3.060									
Inch	DVLNR 16-3DJCT	●		1.00	1.00		-	-	4.720	1.00	6.00	1.25		2				
Inch	DVLNL 16-3DJCT		●						4.560									
mm	DVLNR 2020K-16JCT	●		20	20	45	5	4	92.5	20	125	25	0.8	1	Yes	-6	-9	
mm	DVLNL 2020K-16JCT		●						88.5									
mm	DVLNR 2525M-16JCT	●		25	25		-	-	117.5	25	150	32		2				
mm	DVLNL 2525M-16JCT		●						113.5									

Unit	Part Number	Spare Parts: Clamp	Pipe Connection (* with O-Ring)	Screw (for clamp)	Spring	Shim	Screw (for shim)	Wrench
Inch	DVLNR/L 12-3BJCT 16-3DJCT	CP-5D-JCT	FP-12	CS-3D-TR	SP-3D	DV-33	SB-4085TR	FT-15
mm	DVLNR/L 2020K-16JCT 2525M-16JCT	CP-5D-JCT	FP-12	CS-3D-TR	SP-3D	DV-33	SB-4085TR	FT-15

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
The washer may protrude from the holder. To prevent interference, additional modifications to the washer may be required.
O-ring (SS-035) is available to order separately.
Please see page **D13** for piping parts of coolant-through holders.
Recommended tightening torque : 3.9N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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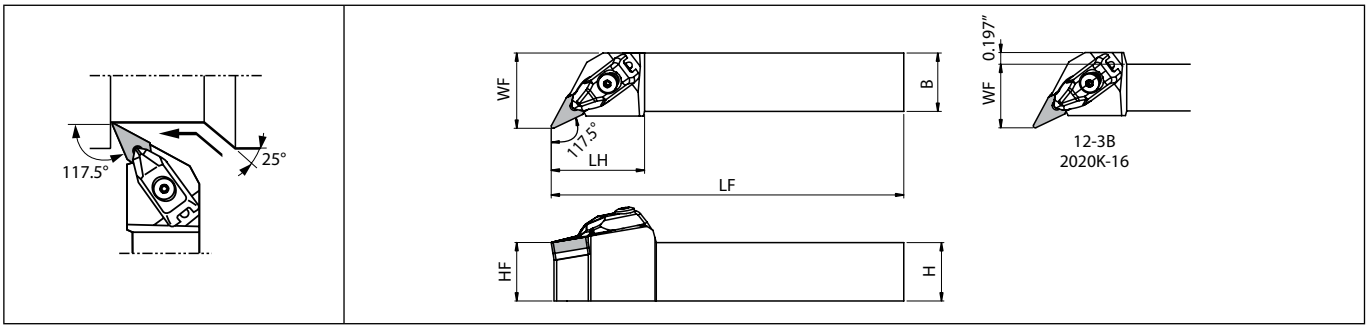
DVPN (External Turning / External Facing / External Copying / Undercutting)



Right-hand shown

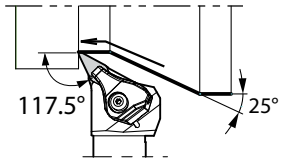
Toolholder Dimensions

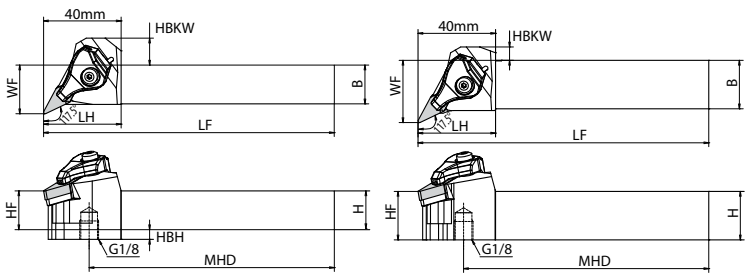
Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	
		R	L	H	B	LH	HF	LF	WF											
Inch	DVPN□L 12-3B	●	●	0.75	0.75	1.58	0.75	4.50	1.00	1/32	-13	-10	CP-5D	CS-5D	SP-5D	LW-3	DV-33	SB-4085TR	FT-15	VN□A33... VN□G33... VN□M33...
	16-3D	●	●	1.00	1.00	1.58	1.00	6.00	1.25											
mm	DVPN□L 2020K-16	●	●	20	20	40	20	125	27	0.8	-13	-10	CP-5D	CS-5D	SP-5D	LW-3	DV-33	SB-4085TR	FT-15	
	2525M-16	●	●	25	25		25	150	32											

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Wrench (FT-15) is sold separately.
Recommended tightening torque : 3.0N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DVPN-JCT (External Turning / External Facing / External Copying / Undercutting, Coolant-Through Holders)





Right-hand shown | Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions									Standard Corner-R (RE)	Fig.	Coolant Hole	Side Rake Angle (°)	Inclination Angle (°)	Applicable Inserts
		R	L	H	B	LH	HBH	HBKW	MHD	HF	LF	WF						
mm	DVPNR 2020K-16JCT	●		20	20	40	5	14	101.5	20	125	25	0.8	1	Yes	-13	-10	VN□A33... VN□G33... VN□M33...
	DVPNL 2020K-16JCT		●						93.5									
	DVPNR 2525M-16JCT	●		25	25		-	7	126.5	25	150	32		2				
	DVPNL 2525M-16JCT		●						118.5									

Unit	Part Number	Spare Parts						
		Clamp	Pipe Connection (* with O-Ring)	Screw (for clamp)	Spring	Shim	Screw (for shim)	Wrench
mm	DVPN□L 2020K-16JCT 2525M-16JCT	CP-5D-JCT	FP-12	CS-3D-TR	SP-3D	DV-33	SB-4085TR	FT-15

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
The washer may protrude from the holder. To prevent interference, additional modifications to the washer may be required.
O-ring (SS-035) is available to order separately.
Please see page **D13** for piping parts of coolant-through holders.
Recommended tightening torque : 3.9N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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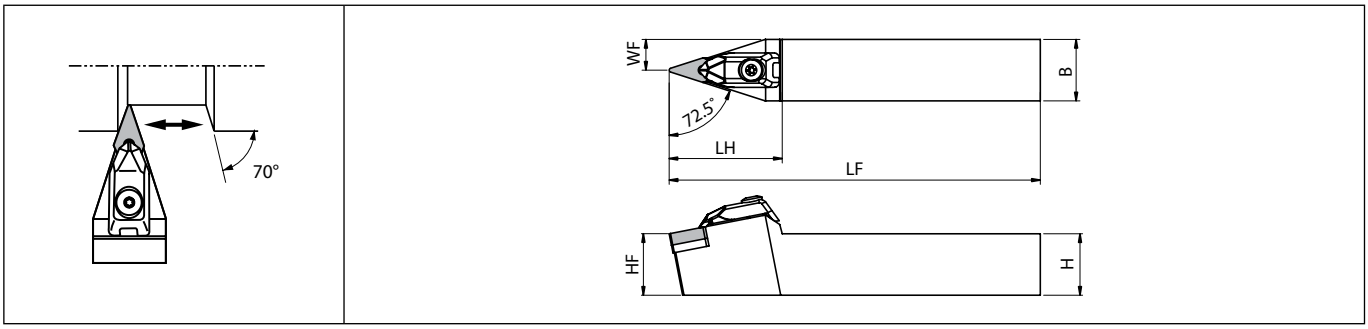
DVVN (External Turning / External Copying)



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Back rake angle (°)	Spare Parts							Applicable Inserts
			N	H	B	LH	HF	LF	WF			Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	
Inch	DVVNN 12-3B	●	0.75	0.75	1.81	0.75	4.50	0.40	1/32	-11	CP-5D	CS-5D	SP-5D	LW-3	DV-33	SB-4085TR	FT-15	VN□A33... VN□G33... VN□M33...
	16-3D	●	1.00	1.00	1.81	1.00	6.00	0.52										
mm	DVVNN 2020K-16	●	20	20	46	20	125	10	0.8	-11	CP-5D	CS-5D	SP-5D	LW-3	DV-33	SB-4085TR	FT-15	
	2525M-16	●	25	25		25	150	12.5										

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Wrench (FT-15) is sold separately.
Recommended tightening torque : 3.0N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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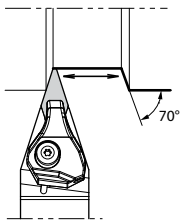
DVVN-JCT (External Turning / External Copying, Coolant-Through Holders)



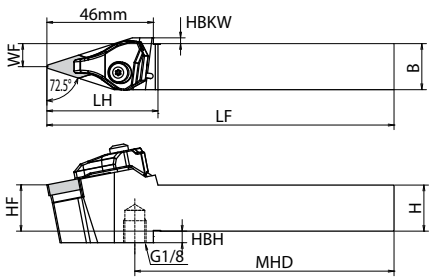


Fig.1

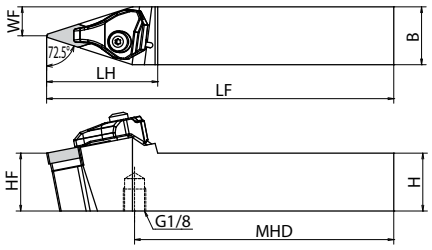
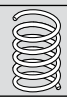


Fig.2

Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

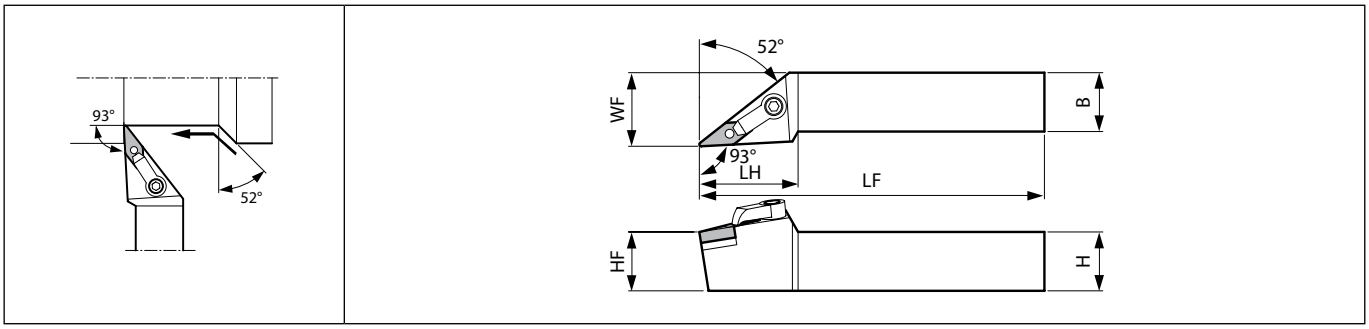
Unit	Part Number	Std. Item	Dimensions									Standard Corner-R (RE)	Fig.	Coolant Hole	Back rake angle (°)	Applicable Inserts
		N	H	B	LH	HBH	HBKW	MHD	HF	LF	WF					
mm	DVVNN 2020K-16JCT	●	20	20	48	5	2.5	87	20	125	10	0.8	1	Yes	-11	VN□A33... VN□G33... VN□M33...
	2525M-16JCT	●	25	25		-	-	112	25	150	12.5		2			

Unit	Part Number	Spare Parts						
		Clamp	Pipe Connection (* with O-Ring)	Screw (for clamp)	Spring	Shim	Screw (for shim)	Wrench
								
mm	DVVNN 2020K-16JCT	CP-5D-JCT	FP-12	CS-3D-TR	SP-3D	DV-33	SB-4085TR	FT-15
	2525M-16JCT							

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
The washer may protrude from the holder. To prevent interference, additional modifications to the washer may be required.
O-ring (SS-035) is available to order separately.
Please see page **D13** for piping parts of coolant-through holders.
Recommended tightening torque : 3.9N·m

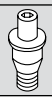
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MVJN (External Turning / External Copying)



Right-hand shown

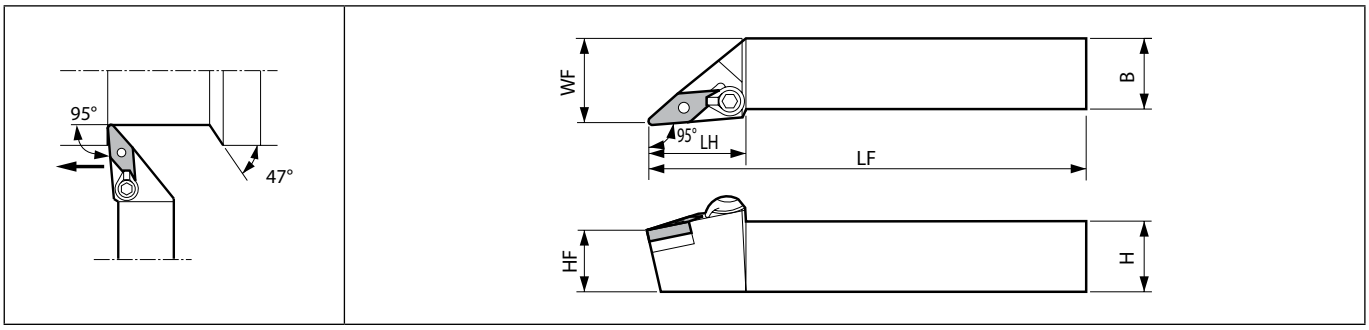
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Clamp	Clamp screw	Wrench	Lock pin	Shim	Shim screw	Wrench	
		R	L	H	B	LH	HF	LF	WF											
Inch	MVJN R/L 12-3B	●	●	0.75	0.75	1.69	0.75	4.50	1.00	1/32	-6	-9	CL-30	XNS48	LX-156	NL34L	IVSN322	S-34	(5/64 Hex)	VN□A33... VN□G33... VN□M33...
	16-3C	●	●	1.00	1.00		1.00	5.00	1.25											

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

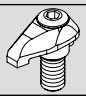
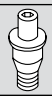
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MVLN (External Turning / External Copying)



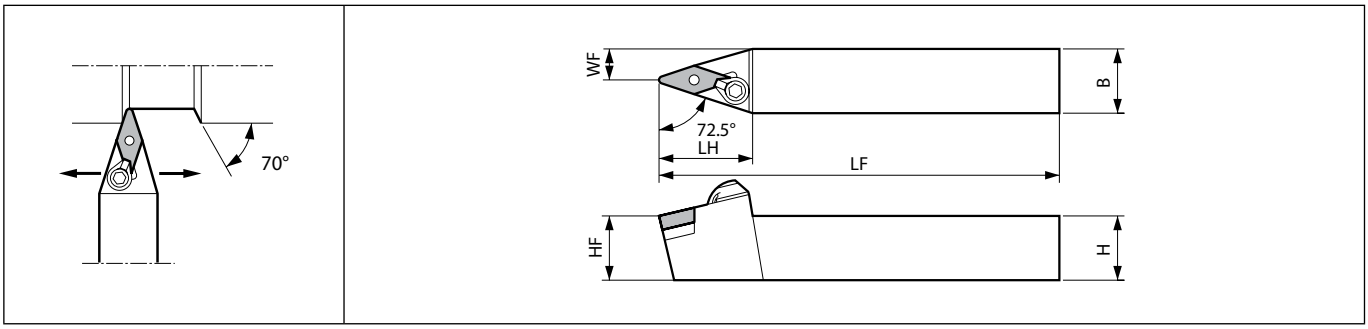
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Clamp set	Wrench (for clamp set)	Lock pin	Shim	Wrench (for shim)	Applicable Inserts
													Spare Parts					
																		
mm	MVLN□□ 2020K-16	●	●	20	20	38	20	125	25	0.8	-6	-9	CPS-5□□	FH-2.5	TS-3S	MVN-32	FH-2	VN□A33... VN□G33... VN□M33...
	2525M-16	●	●	25	25		25	150	32									

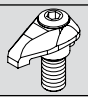
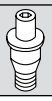
When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Clamp Set : CPS-5R for Right-hand Toolholder, CPS-5L for Left-hand Toolholder.
Clamp set : CPS-5R has Right-hand thread.
When clamping the insert, turn the screw in the arrow direction (clockwise).
When removing the insert, turn the screw away from the arrow (counterclockwise).
Clamp set : CPS-5L has Left-hand thread.
When clamping the insert, turn the screw in the arrow direction (counterclockwise).
When removing the insert, turn the screw away from the arrow (clockwise).

MVVN (External Turning / External Copying)



Toolholder Dimensions

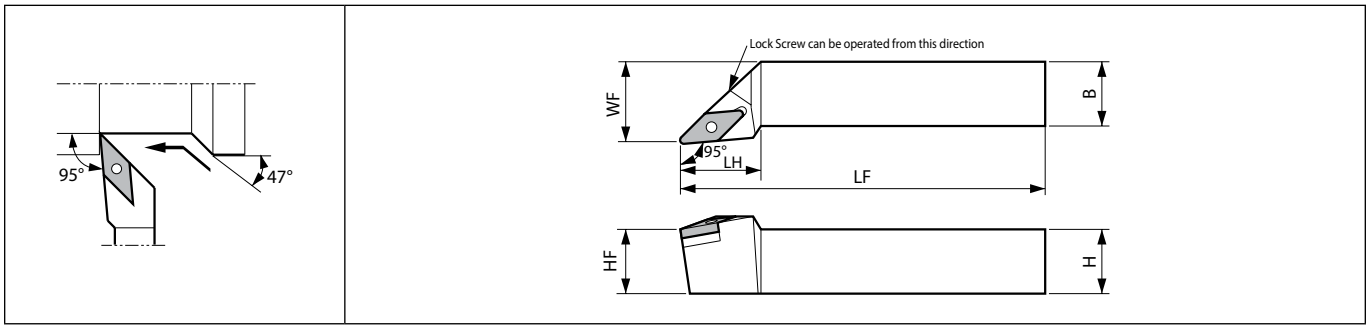
Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Back rake angle (°)	Applicable Inserts
		N	H	B	LH	HF	LF	WF				
Inch	MVVNN 12-3B	●	0.75	0.75	1.67	0.75	4.50	0.375	1/32	-11	VN□A33... VN□G33... VN□M33...
	16-3D	●	1.00	1.00	1.67	1.00	6.00	0.500			
mm	MVVNN 2020K-16	●	20	20	39	20	125	10	0.8	-11	
	2525M-16	●	25	25		25	150	12.5			

Unit	Part Number	Spare Parts								
		Clamp set	Wrench (for clamp set)	Clamp	Clamp screw	Wrench (for clamp screw)	Lock pin	Shim	Wrench (for shim)	Wrench (for shim)
										
Inch	MVVNN 12-3B 16-3D	-	-	CL-12	XNS510	(5/64 Hex)	NL34L	IVSN322	LW-156	-
mm	MVVNN 2020K-16 2525M-16	CPS-5R	FH-2.5	-	-	-	TS-3S	MVN-32	-	FH-2

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Clamp set : CPS-5R has Right-hand thread.
When clamping the insert, turn the screw in the arrow direction (clockwise).
When removing the insert, turn the screw away from the arrow (counterclockwise).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PVLN (External Turning / External Copying)



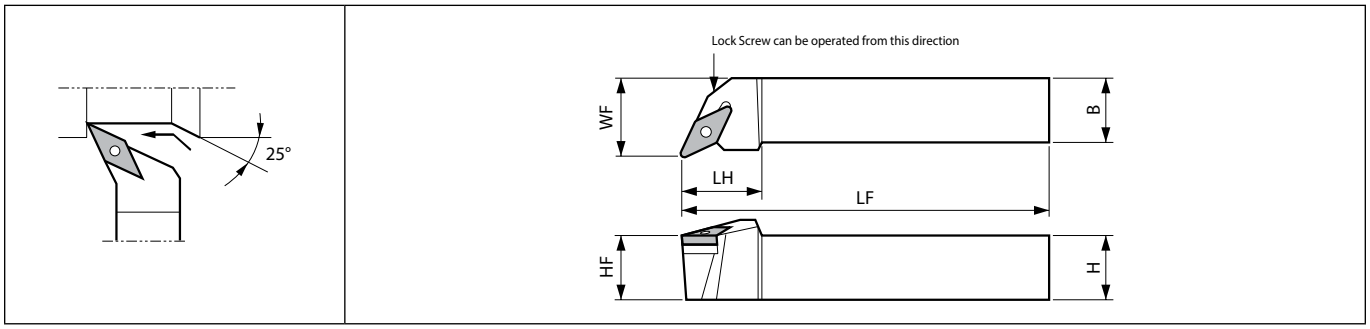
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Dimensions H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts: Lock pin	Lock screw	Shim	Wrench	Applicable Inserts
mm	PVLN□□ 2525M-16Q	●	●	25	25	37	25	150	32	0.8	-6	-9	LP-6S	LS-15	KVN-32	LW-3	VN□A33... VN□G33... VN□M33...

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

PVPN (External Turning / External Facing / External Copying / Undercutting)



Right-hand shown

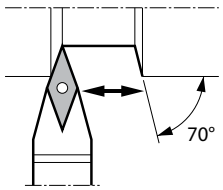
Toolholder Dimensions

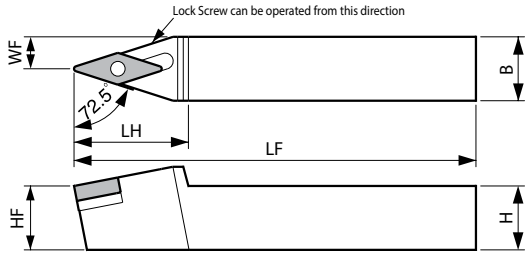
Unit	Part Number	Std. Item R	Std. Item L	Dimensions H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts: Lock pin	Lock screw	Shim	Wrench	Applicable Inserts
mm	PVPN□□ 2020K-16Q	●	●	20	20	30	20	125	25	0.8	-13	-10	LP-2S	LS-11	KVN-32	LW-3	VN□A33... VN□G33... VN□M33...
	2525M-16Q	●	●	25	25		25	150	32				LP-6S				

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PVVN (External Turning / External Copying)





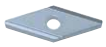
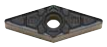
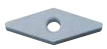
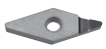
D TURNING HOLDERS

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Back rake angle (°)	Spare Parts				Applicable Inserts
			N	H	B	LH	HF	LF	WF			Lock pin	Lock screw	Shim	Wrench	
mm	PVVNN 2020K-16Q	●	20	20	35	20	125	10		0.8	-11	LP-2S	LS-15	KVN-32	LW-3	VN□A33... VN□G33... VN□M33...
	2525M-16Q	●	25	25	40	25	150	12.5				LP-6S				

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

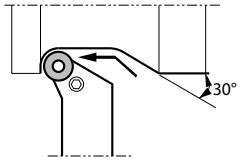
Applicable Inserts

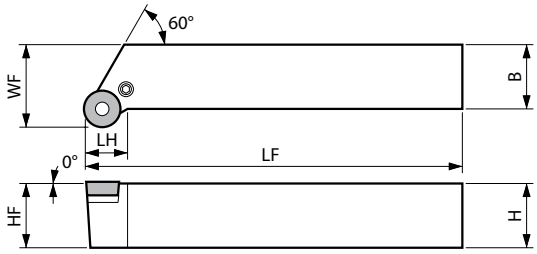
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium	Roughing
Insert								
Chipbreaker type	PP	GP	R/L-VC	VF	PQ	HQ	TN-V	Standard
Page	B47	B47	B47	B47	B47	B47	B47	B47
Applications	Finishing - Medium	Finishing	Medium	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron
Insert								
Chipbreaker type	SK	R/L-S	R/L	MQ	MS	MU	KG	KH
Page	B48	B49	B49	B48	B48	B48	B48	B48
Applications	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron			
Insert								
Chipbreaker type	No Chipbreaker	Ceramic	PCD	SG	CBN			
Page	B49	B119	C37	B48	C14			

Recommended Cutting Conditions ➔ D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PRGC (External Turning / External Facing / External Copying)





Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Side Rake Angle (°)	Inclination Angle (°)	Lever	Lock screw	Punch	Shim pin	Shim	Wrench	Applicable Inserts
Inch	PRGCR/L 12-10MC	●	●	0.75	0.75	0.60	0.75	5.00	1.00	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	16-10MD	●	●	1.00	1.00	0.60	1.00	6.00	1.25									
	PRGCR/L 12-12MC		●	0.75	0.75	0.60	0.75	5.00	1.00	0	0	LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMX1204M0
	16-12MD	●	●	1.00	1.00	0.60	1.00	6.00	1.25									
mm	PRGCR/L 2020K-10	●	●	20	20	15	20	125	25	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	2525M-10	●	●	25	25		25	150	32									
	PRGCR/L 2020K-12	●	●	20	20	14	20	125	25	0	0	LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMX1204M0
	2525M-12	●	●	25	25	17	25	150	32									

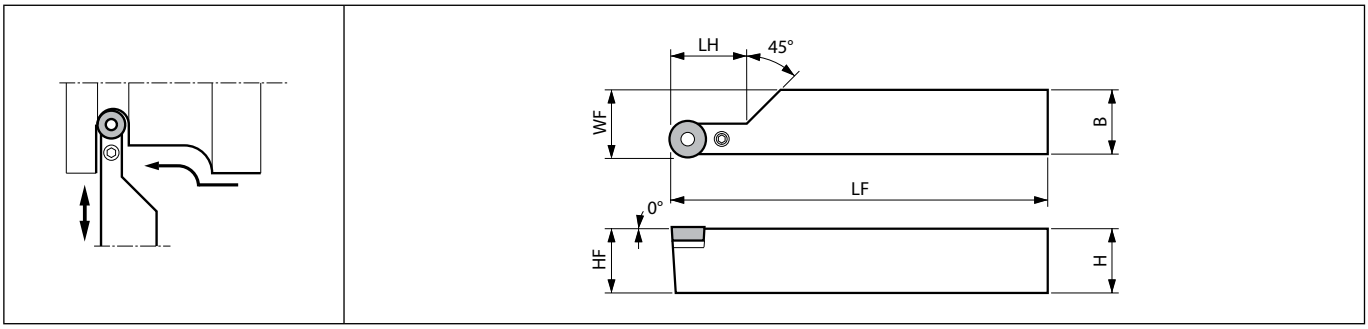
Applicable Inserts

Applications	Medium	Non-Ferrous Metals
Insert		
Chipbreaker type	Standard	AQ
Page	B81	B81

Recommended Cutting Conditions D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PRXC (External Turning / External Facing / External Copying)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Side Rake Angle (°)	Inclination Angle (°)	Lever	Lock screw	Punch	Shim pin	Shim	Wrench	Applicable Inserts
Inch	PRXC R/L 12-10MC	●	●	0.75	0.75	1.00	0.75	5.00	0.77	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	16-10MD	●	●	1.00	1.00	1.00	1.00	6.00	1.02									
	PRXC R/L 12-12MC		●	0.75	0.75	1.00	0.75	5.00	0.77	0	0	LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMX1204M0
	16-12MD	●	●	1.00	1.00	1.00	1.00	6.00	1.02									
mm	PRXC R/L 2020K-10	●	●	20	20	25	20	125	20.5	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	2525M-10	●	●	25	25	30	25	150	25.5									
	2525Q-10	●	●					180										
	PRXC R/L 2525M-12	●	●	25	25	30	25	150	25.7	0	0	LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMX1204M0

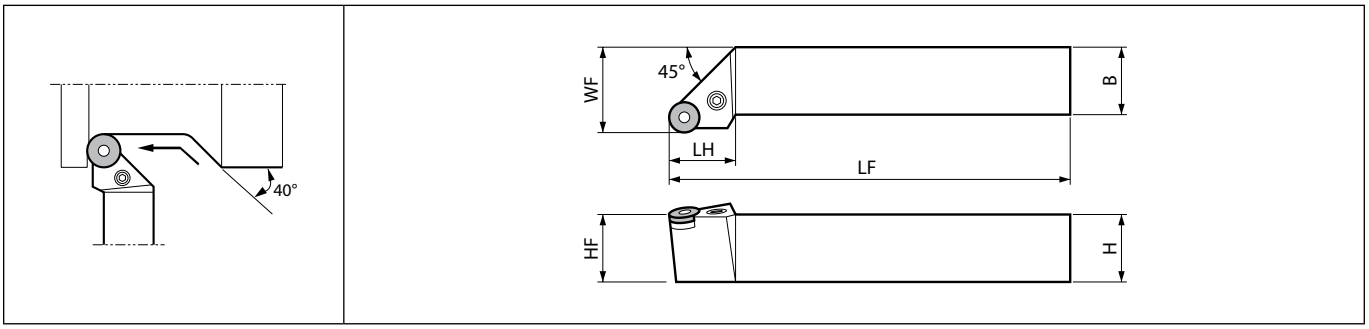
Applicable Inserts

Applications	Medium	Non-Ferrous Metals
Insert		
Chipbreaker type	Standard	AQ
Page	B81	B81

Recommended Cutting Conditions D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PRGN (External Turning / External Facing / External Copying)



Right-hand shown

Toolholder Dimensions

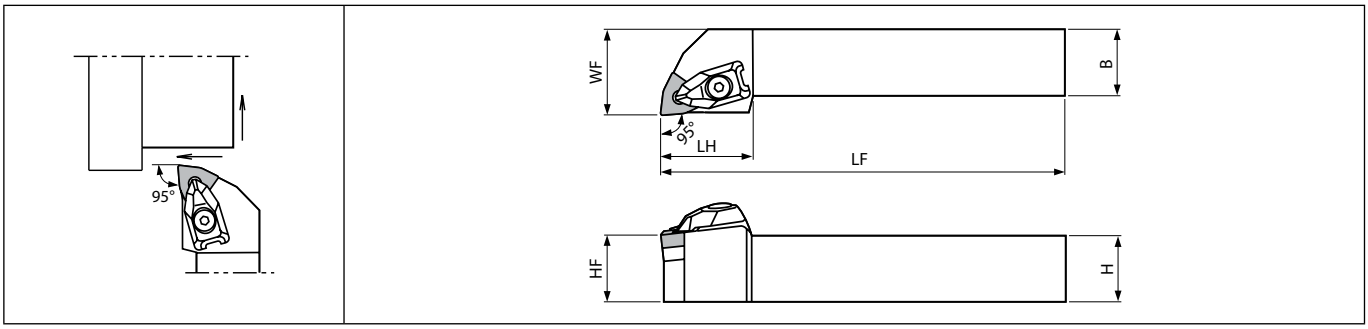
Unit	Part Number	Std. Item		Dimensions						Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
		R	L	H	B	LH	HF	LF	WF			Lever	Lock screw	Punch	Shim pin	Shim	Wrench	Wrench	
mm	PRGNR/L 2020K-09	●	●	20	20	19	20	125	25	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	LR-80	-	FH-2.5	RNMG32
	PRGNR/L 2525M-12	●	●	25	25	26	25	150	32	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	LR-81	LW-3	-	RNMG43

Applicable Inserts

Applications	Medium - Roughing
Insert	
Chipbreaker type	Standard
Page	B33

Recommended Cutting Conditions ➡ D75~D76

DWLN (External Turning / External Facing)



Right-hand shown

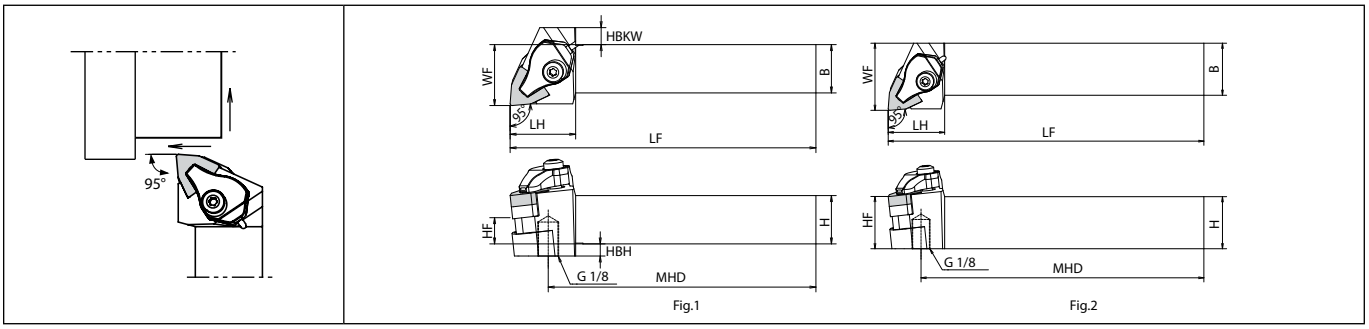
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	
		R	L	H	B	LH	HF	LF	WF											
Inch	DWLN□ 12-3B	●	●	0.75	0.75	1.06	0.75	4.50	1.00	1/32	-6	-6	CP-2D	CS-2D	SP-2D	LW-2.5	DW-32	SB-3080TR	FT-10	WN□G33... WN□M33...
	16-3D	●	●	1.00	1.00	1.06	1.00	6.00	1.25											
	DWLN□ 12-4B	●	●	0.75	0.75	1.34	0.75	4.50	1.25	1/32	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DW-44	SB-4085TR	FT-15	WN□A43... WN□G43... WN□M43...
	16-4D	●	●	1.00	1.00	1.34	1.00	6.00	1.25											
mm	DWLN□ 2020K-08	●	●	20	20	34	20	125	25	0.8	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DW-44	SB-4085TR	FT-15	
	2525M-08	●	●	25	25		25	150	32											

Wrench (FT-15) is sold separately.
Recommended tightening torque : 3.9N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DWLN-JCT (External Turning / External Facing, Coolant-Through Holders)



Right-hand shown | Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

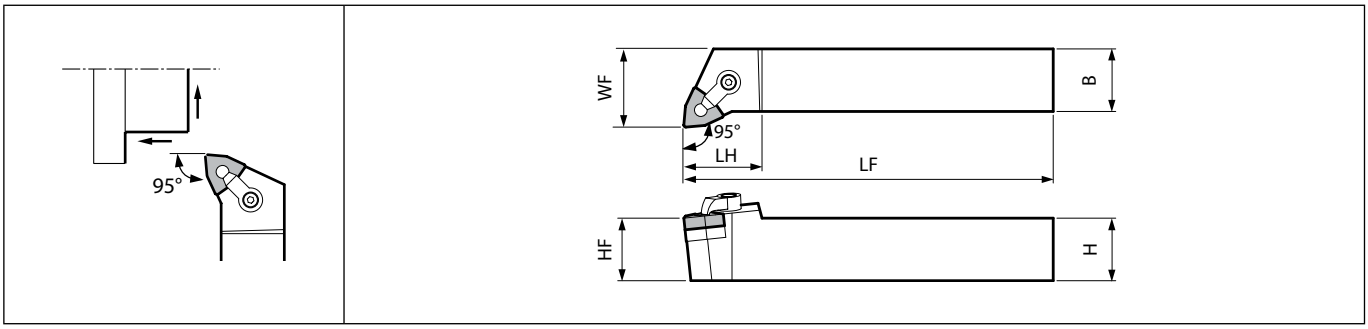
Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HBH	HBKW	MHD	HF	LF	WF	Standard Corner-R (RE)	Fig.	Coolant Hole	Side Rake Angle (°)	Inclination Angle (°)	Applicable Inserts
Inch	DWLN□ 12-4BJCT	●	●	0.75	0.75	1.06	0.23	0.26	3.88	0.75	4.50	1.00	1/32	1	Yes	-6	-6	WN□A43... WN□G43... WN□M43...
	16-4DJCT	●	●	1.00	1.00	1.06	-	-	5.38	1.00	6.00	1.25		2				
mm	DWLN□ 2020K-08JCT	●	●	20	20	27	5	7	109	20	125	25	0.8	1	Yes	-6	-6	
	2525M-08JCT	●	●	25	25		-	-	134	25	150	32		2				

Unit	Part Number	Spare Parts: Clamp	Pipe Connection (* with O-Ring)	Screw (for clamp)	Screw	Shim	Spring	Wrench
Inch	DWLN□ 12-4BJCT 16-4DJCT	CP-3D-□-JCT	FP-12	CS-3D-TR	SB-4085TR	DW-44	SP-3D	FT-15
mm	DWLN□ 2020K-08JCT 2525M-08JCT	CP-3D-□-JCT	FP-12	CS-3D-TR	SB-4085TR	DW-44	SP-3D	FT-15

Clamp : CP-3D-R-JCT for Right-hand Toolholder, CP-3D-L-JCT for Left-hand Toolholder.
Please see page **D13** for piping parts of coolant-through holders.
O-ring (SS-035) is available to order separately.
Recommended tightening torque : 3.9N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MWLN (External Turning / External Facing)



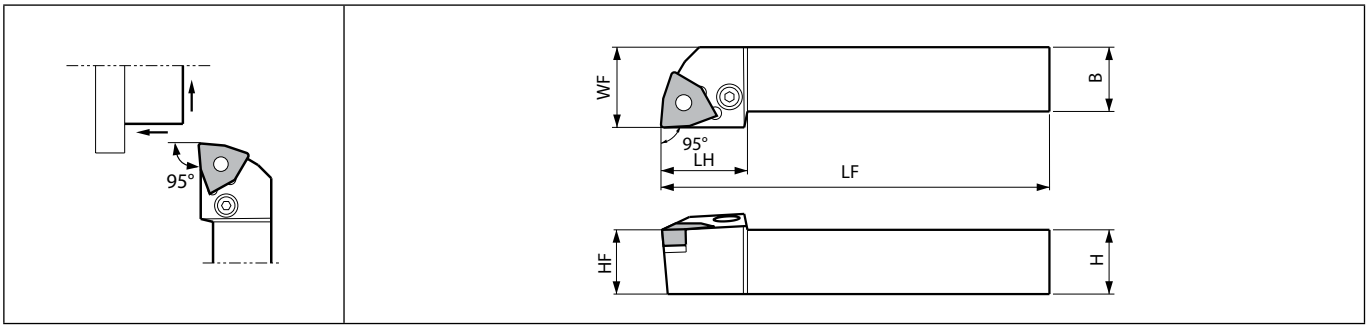
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts: Clamp	Screw (for clamp)	Wrench	Shim	Shim Screw	Lock Pin	Wrench	Applicable Inserts
Inch	MWLN R/L 16-4D	●	●	1.00	1.00	1.19	1.00	6.00	1.25	1/32	-5	-5	CL-9	XNS-510	LW-156	IWSN432	S-46	NL46	LW-094	WN□A43... WN□G43... WN□M43...

When using inserts with a corner-R (RE) greater than 1/16" (1.6mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

PWLN (External Turning / External Facing)



Right-hand shown

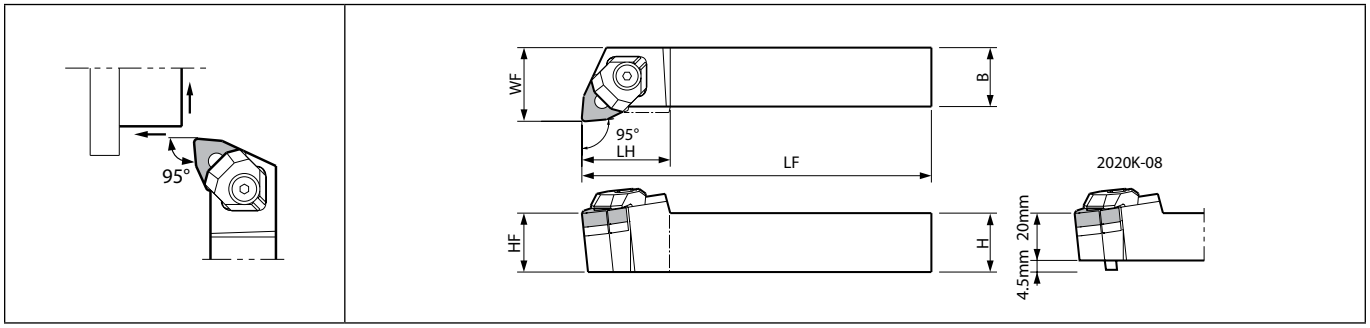
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts: Lever	Lock screw	Punch	Shim pin	Shim	Wrench	Wrench	Applicable Inserts
Inch	PWLNR 12-3B	●		0.75	0.75	0.87	0.75	4.50	1.00	1/32	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	LW-32N	-	FH-2.5	WN□G33...
	16-3D	●		1.00	1.00	0.87	1.00	6.00	1.25											
mm	PWLN R/L 1616H-06	●	●	16	16	22	16	100	20	0.8	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	LW-32N	-	FH-2.5	WN□G33...
	2020K-06	●	●	20	20		20	125	25											
	2525M-06	●	●	25	25		25	150	32											
	PWLN R/L 2020K-08	●	●	20	20	26	20	125	25	0.8	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	LW-42N	LW-3	-	WN□A43... WN□G43...
	2525M-08	●	●	25	25		25	150	32											WN□M43...

When using inserts with a corner-R (RE) greater than 1/16" (1.6mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

WWLN (External Turning / External Facing)



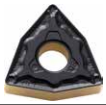
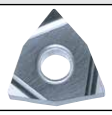
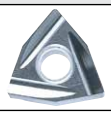
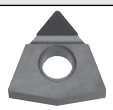
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
													Clamp set	Nut	Shim pin	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF									
mm	WWLN□ 2020K-08	●	●	20	20	30	20	125	25	1.2	-6	-6	WCS-8	WN-1	WP5X15	WWN-42	LW-3	WN□A43... WN□G43... WN□M43...
	2525M-08	●	●	25	25		25	150	32									

In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restrain force.

Applicable Inserts (DWLN / DWLN-JCT / MWLN / PWLN / WWLN)

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker type	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B50	B50	B50	B50	B50	B50	B50	B51
Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker type	CQ	CJ	PMG	GS	PG	PS	PT	GT
Page	B51	B51	B51	B51	B51	B51	B51	B52
Applications	Roughing	Roughing	Finishing	Medium	Low carbon steel	Low carbon steel	Low carbon steel	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker type	Standard	PH	R/L-S	R/L	XP	XQ	XS	TK
Page	B52	B52	B54	B54	B52	B52	B52	B52
Applications	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker type	MQ	MS	MU	KQ	KG	KH	C	ZS
Page	B53	B53	B53	B53	B53	B53	B54	B54
Applications	Cast Iron	Cast Iron	Non-Ferrous Metals	Cast Iron / Hard Materials	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron	
Insert								
Chipbreaker type	GC	No Chipbreaker	AH	Ceramic	PCD	SG	CBN	
Page	B54	B54	B54	B119	C38	B53	C15	

In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restrain force.

Recommended Cutting Conditions ➡ D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

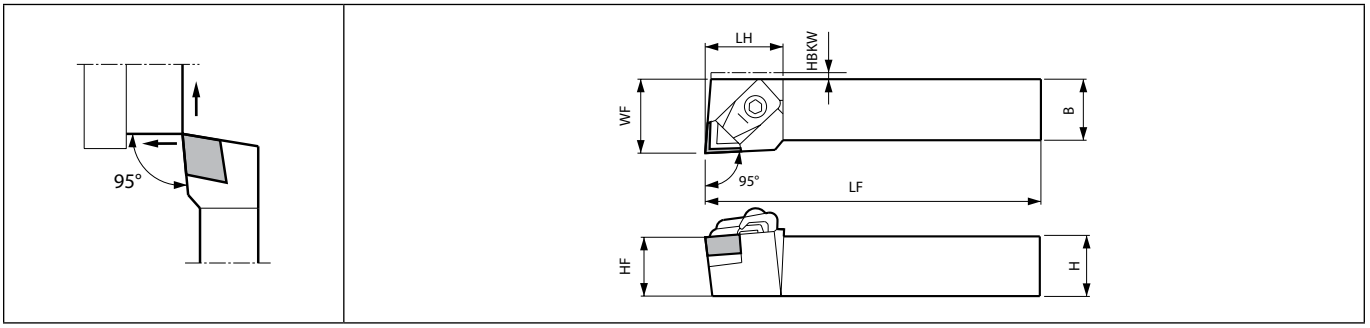
Selection Guide for Ceramic Inserts

Select the suitable ceramic specifications (Corner-R (RE), Feed Rate, Chamfer, etc.) from the table below.

Insert Shape	Corner-R (RE)	f (ipr) 0.004	0.006	0.008	0.010	0.012	0.014	0.016	0.018	0.020	0.024	D.O.C. (in)
RN	-	●	●	●	●	●	●	●	●	●	●	0.012~0.158
SN	5/64	●	●	●	●	●	●	●	●	●	●	0.012~0.158
	1/16	●	●	●	●	●	●	●	●			
EN, CN	3/64	●	●	●	●	●	●					
	1/32	●	●	●	●							
	1/64	●	●									
TN	1/16	●	●	●	●	●						0.012~0.079
DN	3/64	●	●	●	●							
	1/32	●	●	●								
Chamfer		0.002" x 20°		(0.004"~0.008") x (20°~ 25°)				0.012" x 30°				-
Insert Thickness		5/16"										

(No.45, Cutting Edge Angle: 0°~15)

CCLN (External Turning / External Facing)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	HBKW	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts: Chipbreaker	Clamp Set	Shim Screw	Shim	Wrench	Applicable Inserts
inch	CCLNR 16-4D	●		1.00	1.00	1.26	1.00	-	6.00	1.25	0.8	-6	-6	CB-16	CE-010	M3X8 (M3X12*)	SP-441 (SP-443*)	LW-4	CNG45..., CNM45... (CNG43..., CNM43...)*
mm	CCLN[R/L] 2020K-12	●	●	20	20	32	20	5	125	27	0.8	-6	-6	CB-16	CE-010	M3X8 (M3X12*)	SP-441 (SP-443*)	LW-4	CNG45..., CNM45... (CNG43..., CNM43...)*
	2525M-12	●	●	25	25		25	-	150	32									
	CCLN[R/L] 3225P-16	●	●	32	25	35	32	-	170	32	0.8	-6	-6	CB-17	CE-220	M4X10	SP-454	LW-4	CNG55...

Shims indicated with * are not included with the toolholder. When using CNG43 or CNM43 type insert, please purchase shim (SP-443) and screw (M3X12) separately.

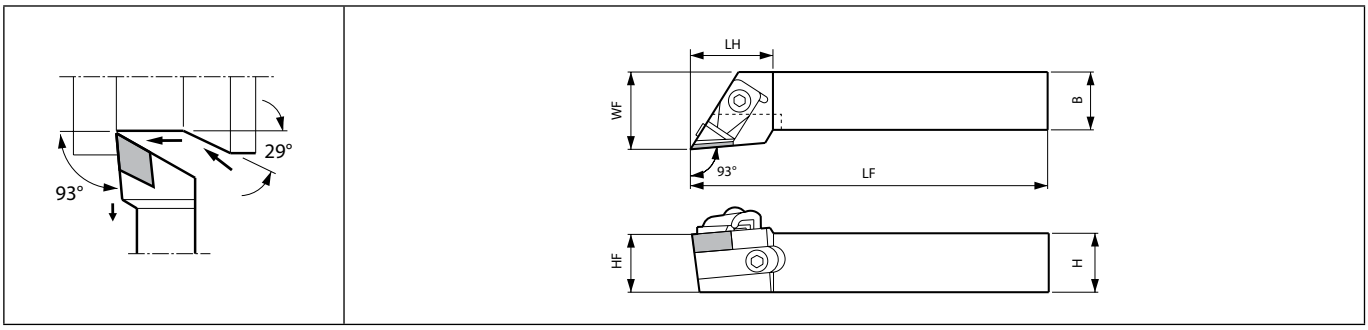
Applicable Inserts

Applications	Cast Iron / Hard Materials	Hard Materials / Cast Iron
Insert		
Type	Ceramic	CBN
Page	B113	C16

Recommended Cutting Conditions ➡ D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CDJN (External Turning / External Copying / Back Turning)



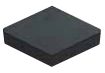
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
													Chipbreaker	Clamp bolt	Clamp set	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF									
mm	CDJN R/L 2525M-15	●	●	25	25	32	25	150	32	0.8	-5	-8	CB-14/15	HH5X16	CE-010	556C R/L	LW-4	DNG45...
	3225P-15	●	●	32			32	170										

Chipbreaker : CB-14 for Right-hand Toolholder, CB-15 for Left-hand Toolholder.
Shim : 556CR for Right-hand Toolholder, 556CL for Left-hand Toolholder.

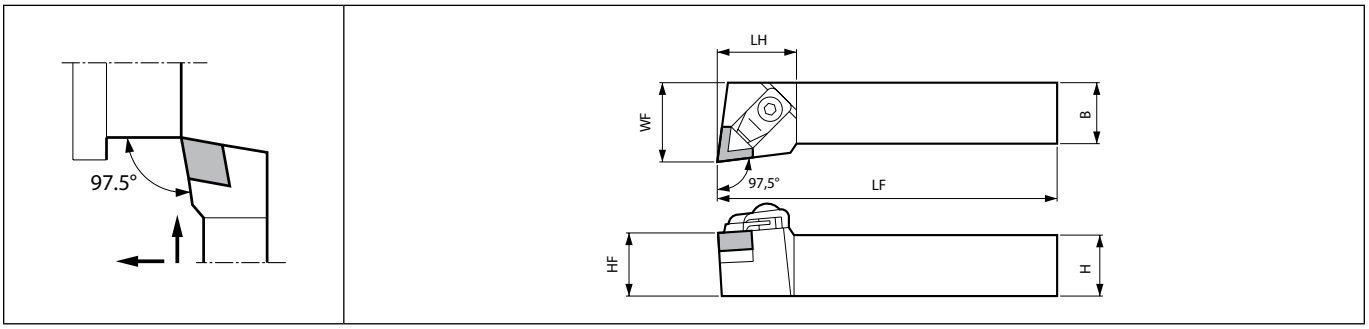
Applicable Inserts

Applications	Cast Iron / Hard Materials
Insert	
Type	Ceramic
Page	B114

Recommended Cutting Conditions D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CELN (External Turning / External Facing)



Right-hand shown

Toolholder Dimensions

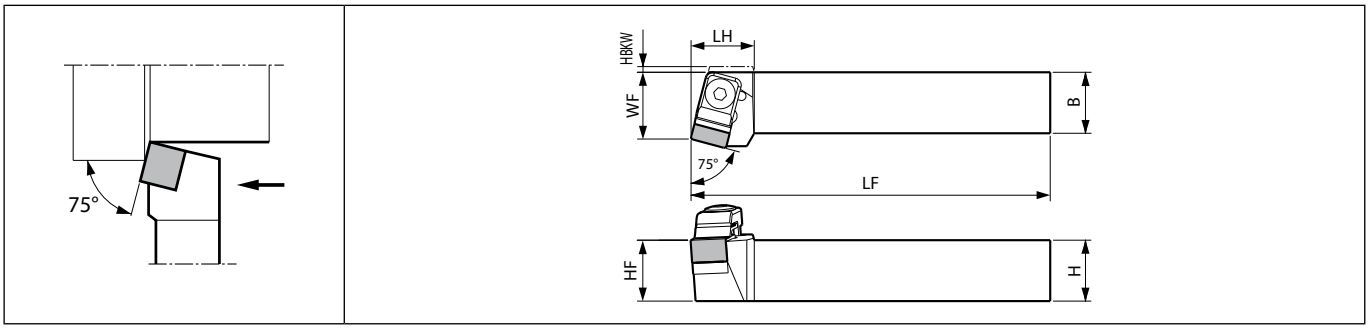
Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
													Chipbreaker	Clamp set	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF									
mm	CELN□□ 2525M-13	●	●	25	25	32	25	150	32	0.8	-6	-6	CB-16	CE-010	M3X8	SP-342	LW-4	ENG45...

Applicable Inserts

Applications	Cast Iron / Hard Materials
Insert	
Type	Ceramic
Page	B115

Recommended Cutting Conditions ➔ D75~D76

CSRN (External Turning)



Right-hand shown

Toolholder Dimensions

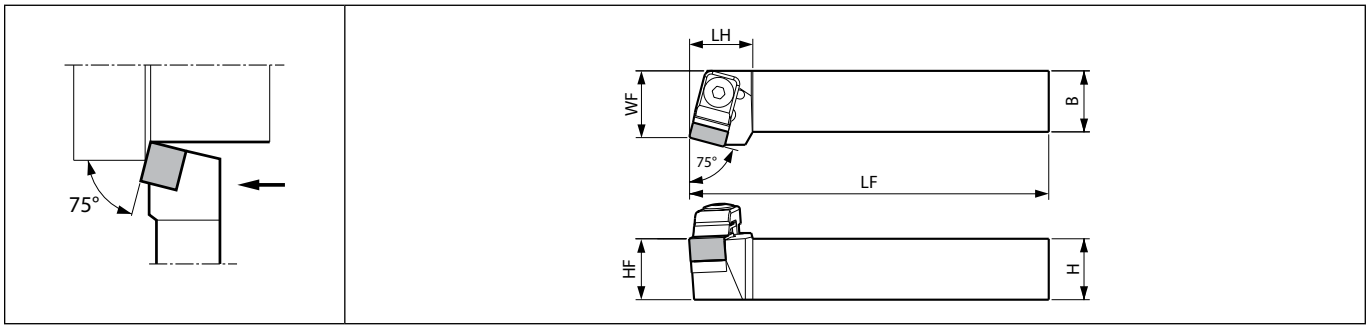
Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
														Chipbreaker	Clamp set	Clamp set	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	HBKW	LF	WF										
Inch	CSRN□ 20-4E	●	●	1.25	1.25	0.88	1.25	-	7.00	1.50	1/32	-6	-4	CB-11	CE-020	-	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)
mm	CSRN□ 2020K-12	●	●	20	20	22	20	2	125	22	0.8	-6	-4	CB-11	CE-020	-	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)
	2525M-12	●	●	25	25		25	-	150	27										
	3225P-12	●	●	32			32		170											
	CSRN□ 3225P-15	●		32	25	30	32	-	170	32.4	1.2	-6	-4	CB-51	-	CE-220	M4X10	SP-162	LW-4	SNG55...
	4040R-15	●	●	40	40		40		200	43										

Shims indicated with * are not included with the toolholder. When using SN□43 type insert, please purchase shim (SP-143) and screw (M3X12) separately.

If installing SNM43... inserts in grade CA410K or CA415K, see clamping caution on **Page D61**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

HSRN (External Turning)



Right-hand shown

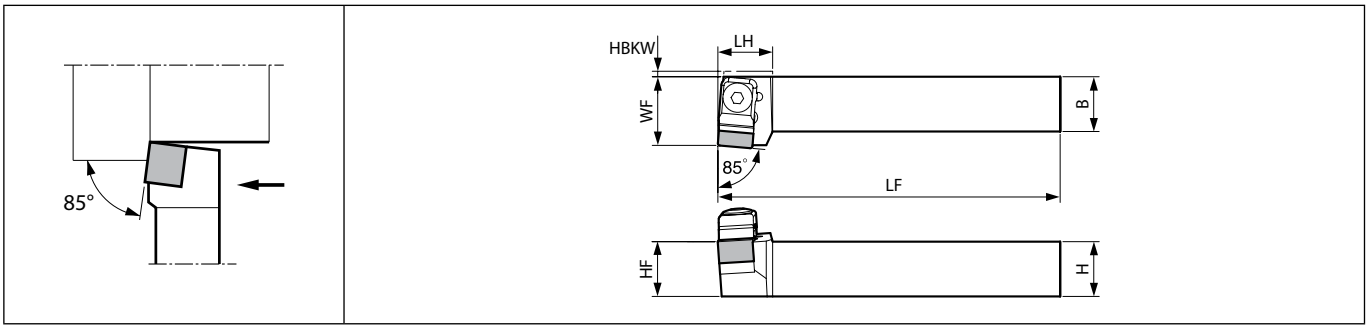
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
												Chipbreaker	Clamp set	Shim screw	Shim	Lock Pin	Wrench	
		R	H	B	LH	HF	LF	WF										
Inch	HSRNR 16-4D	●	1.00	1.00	0.87	1.00	6.00	1.13	1/32	-6	-4	HCB300	HCL-000 (HCL-001*)	S-46	ISSN433 (ISSN453*)	NL46L	LW-094	SN□45... (SN□43..., SN□A43...)*

Shim and Clamp Set indicated with * are not included with the toolholder. When using SN□43 or SN□A43 type insert, please purchase clamp set (HCL-001) and shim (ISSN453) separately.

If installing SNM43... inserts in grade CA410K or CA415K, see clamping caution on **Page D61**

CS-N (External Turning)



Right-hand shown

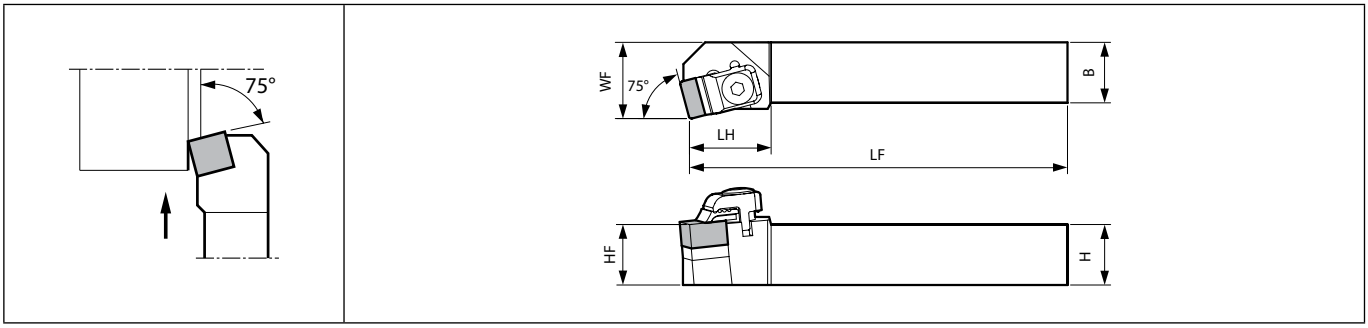
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
													Chipbreaker	Clamp set	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF									
mm	CS-N□ 2525M-12	●	●	25	25	20	25	150	32	0.8	-6	-4	CB-11	CE-020	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)

Shims indicated with * are not included with the toolholder. When using SN□43 type insert, please purchase shim (SP-143) and screw (M3X12) separately.

If installing SNM43... inserts in grade CA410K or CA415K, see clamping caution on **Page D61**

CSKN (External Facing)



Right-hand shown

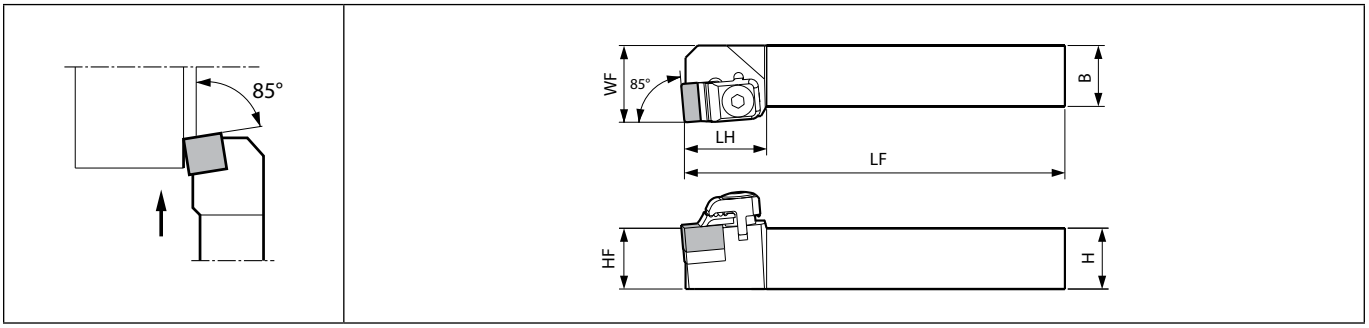
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Chipbreaker	Clamp set	Clamp set	Shim screw	Shim	Wrench		
		R	L	H	B	LH	HF	LF	WF											
mm	CSKN□ 2020K-12	●		20	20	27	20	125	25	0.8	-6	-4	CB-11	CE-020	-	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)	
	2525M-12	●	●	25	25		25	150	32											
	CSKNR 3225P-15	●		32	25	37	32	170	32	1.2	-6	-4	CB-51	-	CE-220	M4X10	SP-162	LW-4	SNG55...	

Shims indicated with * are not included with the toolholder. When using SN□43 type insert, please purchase shim (SP-143) and screw (M3X12) separately.

If installing SNM43... inserts in grade CA410K or CA415K, see clamping caution on **Page D61**

CSYN (External Facing)



Right-hand shown

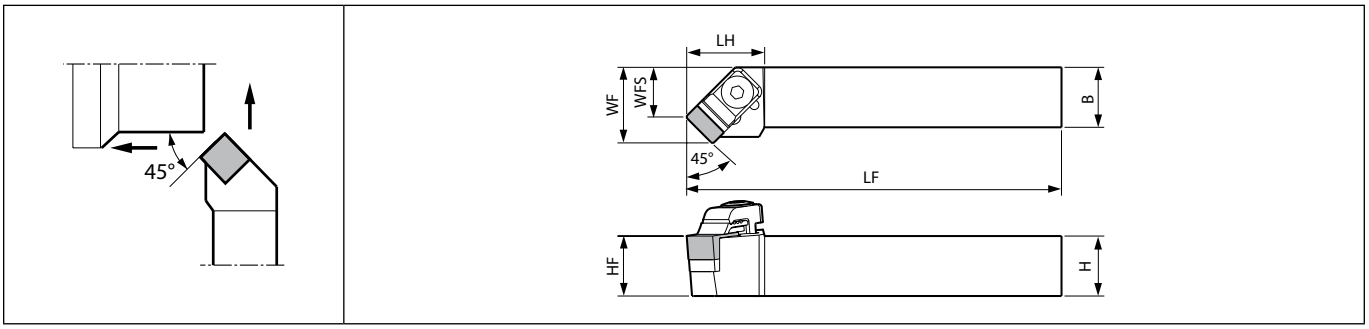
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts: Chipbreaker	Spare Parts: Clamp set	Spare Parts: Shim screw	Spare Parts: Shim	Spare Parts: Wrench	Applicable Inserts
				Dimensions														
mm	CSYN□ 2525M-12	●	●	25	25	27	25	150	32	0.8	-6	-4	CB-11	CE-020	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)

Shims indicated with * are not included with the toolholder. When using SN□43 type insert, please purchase shim (SP-143) and screw (M3X12) separately.

If installing SNM43... inserts in grade CA410K or CA415K, see clamping caution on **Page D61**

CSSN (External Turning / External Facing / Chamfering)



Right-hand shown

Toolholder Dimensions

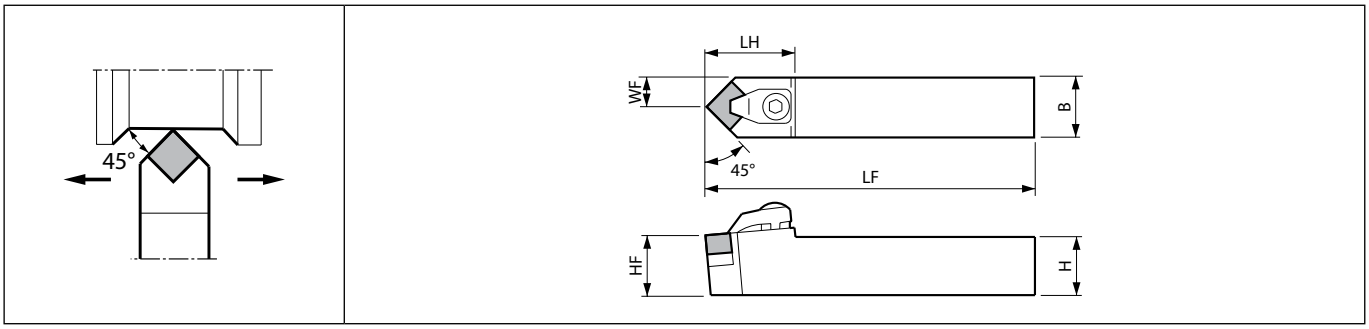
Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	WFS	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts: Chipbreaker	Spare Parts: Clamp set	Spare Parts: Shim screw	Spare Parts: Shim	Spare Parts: Wrench	Applicable Inserts
				Dimensions															
Inch	CSSN□ 16-4D	●	●	1.00	1.00	1.00	1.00	6.00	1.25	-	1/32	-6	0	CB-11	CE-020	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)
mm	CSSN□ 2020K-12	●		20	20	26	20	125	25	16	0.8	-6	0	CB-11	CE-020	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)
	2525M-12	●	●	25	25		25	150	32	23									

Shims indicated with * are not included with the toolholder. When using SN□43 type insert, please purchase shim (SP-143) and screw (M3X12) separately.

If installing SNM43... inserts in grade CA410K or CA415K, see clamping caution on **Page D61**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CSDN (External Turning / Chamfering)

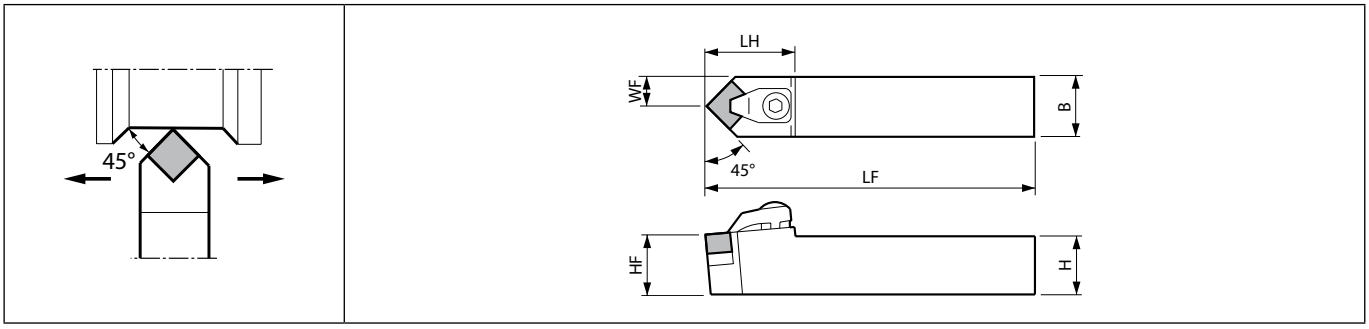


Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Back rake angle (°)	Spare Parts				Applicable Inserts
			N	H	B	LH	HF	LF	WF			Clamp set	Shim screw	Shim	Wrench	
mm	CSDNN 2020K-12	●	20	20			20	125	10							
	2525M-12	●	25	25	32		25	150	12.5	0.8	-8.5	CE-040	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)
	3225P-12	●	32				32	170								

Shims indicated with * are not included with the toolholder. When using SN□43 type insert, please purchase shim (SP-143) and screw (M3X12) separately.

HSDN (External Turning / Chamfering)



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Back rake angle (°)	Spare Parts						Applicable Inserts
			N	H	B	LH	HF	LF	WF			Clamp set	Wrench	Shim screw	Shim	Lock Pin	Wrench	
Inch	HSDNN 20-4D	●	1.25	1.25	1.30	1.25	6.00	0.625	1/32	-8.5		CE-040	LW-4	S-46	ISSN433 (ISSN453*)	NL46L	LW-094	SN□45... (SN□43..., SN□A43...)*

Shim and Clamp Set indicated with * are not included with the toolholder. When using SN□43 or SN□A43 type insert, please purchase shim (ISSN453) separately.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts

Applications	Cast Iron / Hard Materials	Cast Iron / Hard Materials	Cast Iron
Type	Ceramic	Ceramic	Coated Carbide
Insert / Toolholder			
CSRN R/L ...-4E CSRN R/L ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)
HSRN R/L ...-4D	SNG45.. (SNG43..) SNM45..	(SNGA43..) (SNMA43..)	(SNM43..)
CSRN R/L ...-15	SNGN55..	-	-
CS-N R/L ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)
CSKN R/L ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)
CSKN R/L ...-15	SNGN55..	-	-
CSYN R/L ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)
CSSN R/L ...-4D CSSN R/L ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)
CSDNN ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)
HSDNN ...-4D	SNG45.. (SNG43..) SNM45..	(SNGA43..) (SNMA43..)	(SNM43..)
Page	B117	B117	B38

Spare Parts

When using toolholder with CBN inserts (KBN900), please purchase spare parts below separately.

Hard Materials / Cast Iron	Spare Parts			
CBN	Clamp Set	Shim	Shim screw	Shim screw
(SNM43..)	CE-030A	SP-143	M3X12	-
(SNM43..)	HCL-001	ISSN453	-	S-46
-	-	-	-	-
(SNM43..)	CE-030A	SP-143	M3X12	-
(SNM43..)	CE-030A	SP-143	M3X12	-
-	-	-	-	-
(SNM43..)	CE-030A	SP-143	M3X12	-
(SNM43..)	CE-030A	SP-143	M3X12	-
(SNM43..)	*-	SP-143	M3X12	-
(SNM43..)	*-	ISSN453	-	S-46

Recommended Cutting Conditions ➡ D75~D76

* CSDNN...-12 : Clamp Set CE-040 is used continuously.

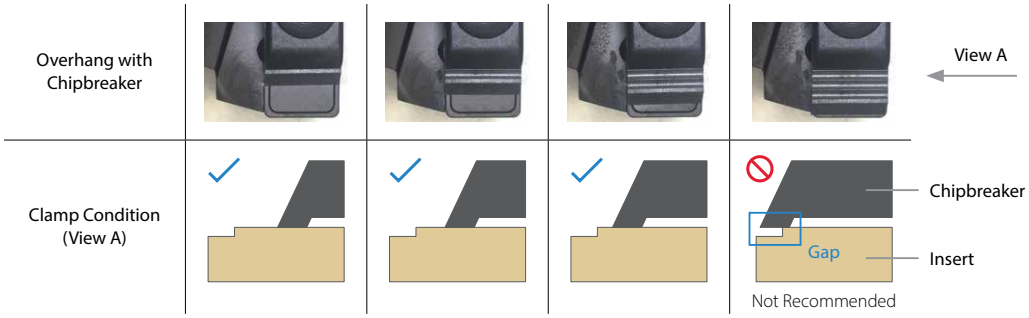
Installation Precautions for SNM43□ in Grade CA410K & CA415K

For the insert part numbers listed below, when using a top-clamp type holder with the CB-11 chipbreaker, it is not recommended to use chipbreaker with the maximum overhang.

Inserts : SNM43... (CA410K/CA415K)

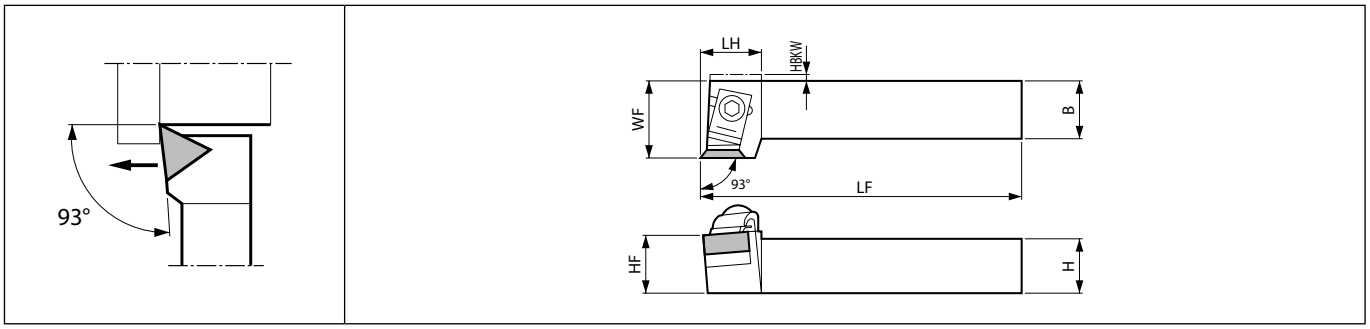
Holders : CSRN R/L ...-4E, HSRN R/L ...-4D, CSSN R/L ...-4D
CSRN R/L ...-12, CS-N R/L ...-12, CSKN R/L ...-12, CSYN R/L ...-12, CSSN R/L ...-12

Overhang of the chipbreaker and the clamp



SNM43… (CA310/CA315/CA320) can be installed.

CTJN (External Turning)



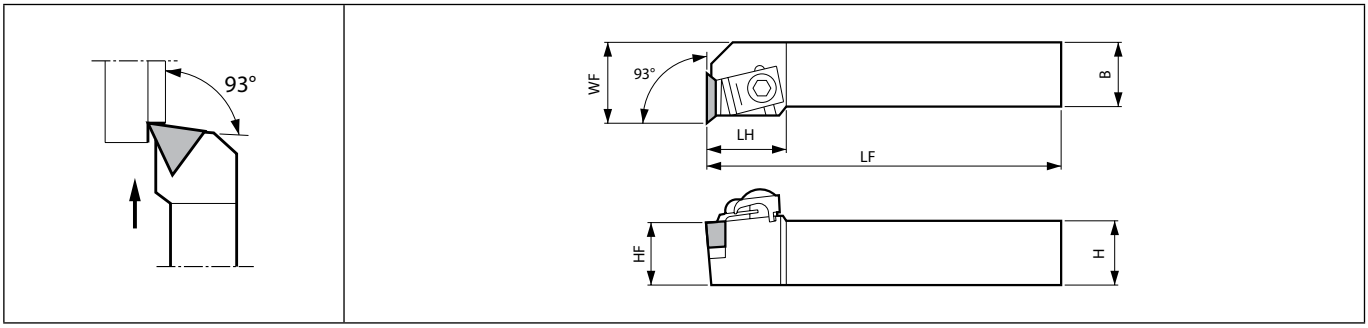
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	HBKW	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts: Chipbreaker	Clamp set	Shim screw	Shim	Wrench	Applicable Inserts
Inch	CTJN□ 16-3D	●	●	1.00	1.00	0.88	1.00	-	6.00	1.25	1/32	-6	-4	CB-12/13	CE-020	M3X8 (M3X12*)	SP-221 (SP-223*)	LW-4	TNG35... (TN□33...*)
	16-4D	●	●	1.00	1.00	0.88	1.00	-	6.00	1.25									TNG45... (TN□43...*)
mm	CTJN□ 2020K-16	●	●	20	20	21	20	2	125	25	0.8	-6	-4	CB-12/13	CE-020	M3X8 (M3X12*)	SP-221 (SP-223*)	LW-4	TNG35... (TN□33...*)
	2525M-16	●	●	25	25		25	-	150	32									

Chipbreaker : CB-12 for Right-hand Toolholder, CB-13 for Left-hand Toolholder.
Shims indicated with * are not included with the toolholder. When using TN□33 or TN□43 type insert, please purchase shim (SP-223) and screw (M3X12) separately.

CTUN (External Facing)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts: Chipbreaker	Clamp set	Shim screw	Shim	Wrench	Applicable Inserts
mm	CTUN□ 2020K-16	●	●	20	20	27	20	125	25	0.8	-6	-4	CB-13/12	CE-020	M3X8 (M3X12*)	SP-221 (SP-223*)	LW-4	TNG35... (TN□33...*)
	2525M-16	●	●	25	25		25	150	32									

Chipbreaker : CB-13 for Right-hand Toolholder, CB-12 for Left-hand Toolholder.
Shims indicated with * are not included with the toolholder. When using TN□33 type insert, please purchase shim (SP-223) and screw (M3X12) separately.

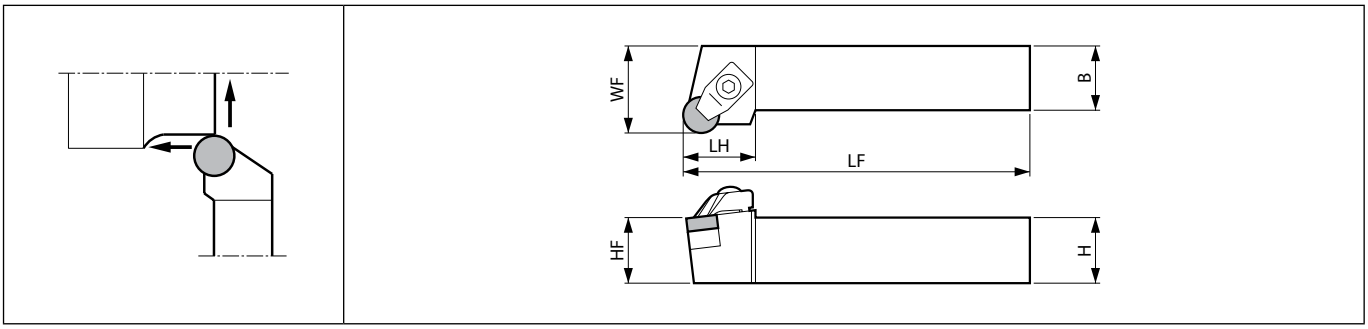
Applicable Inserts (CTJN / CTUN)

Applications	Cast Iron / Hard Materials	Hard Materials / Cast Iron
Insert		
Type	Ceramic	CBN
Page	B118	C19

Recommended Cutting Conditions ➡ D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CRSN (External Turning / External Facing)



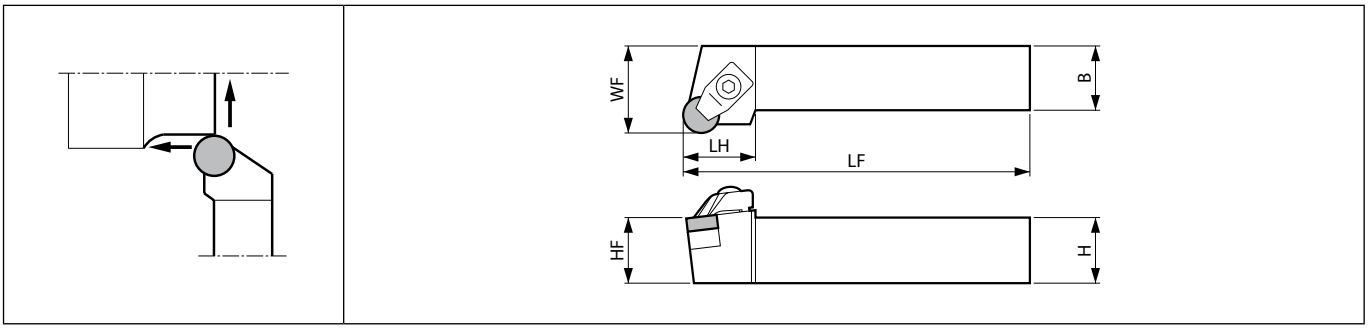
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Side Rake Angle (°)	Inclination Angle (°)	Clamp set	Shim screw	Shim	Wrench	Applicable Inserts
mm	CRSN R/L 2020K-12	●	●	20	20	26	20	125	25	-6	-6	CE-030	M3X8 (M3X12*)	SP-841 (SP-843*)	LW-4	RNG45... (RN□43...*)
	2525M-12	●	●	25	25		25	150	32							
	3225P-12	●	●	32			32	170								

Shims indicated with * are not included with the toolholder. When using RN□43 type insert, please purchase shim (SP-843) and screw (M3X12) separately.

HRSN (External Turning / External Facing)



Right-hand shown

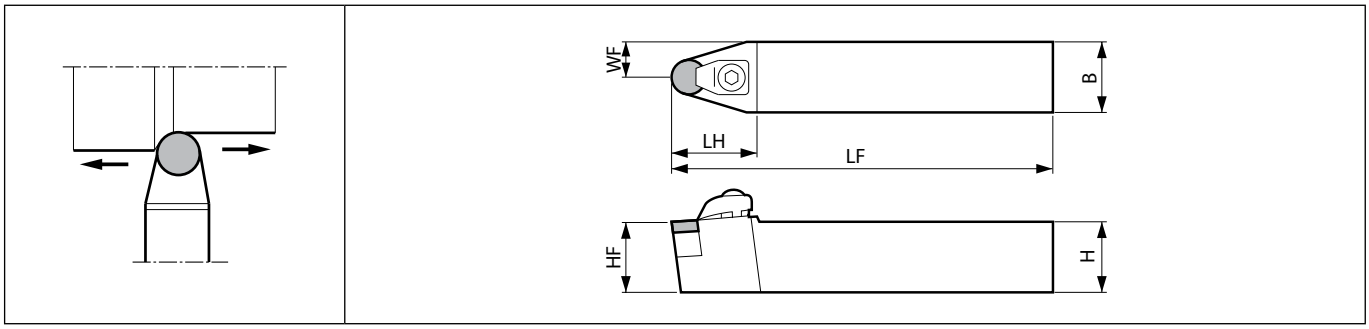
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Side Rake Angle (°)	Inclination Angle (°)	Clamp set	Wrench	Shim screw	Shim	Lock Pin	Wrench	Applicable Inserts
Inch	HRSNR 16-4D	●	□	1.00	1.00	1.03	1.00	6.00	1.25	-6	-6	HCL-001	LW-4	S-46	IRSN43 (IRSN45*)	NL46L	LW-094	RNG45... (RN□43...*)
	20-4D	●	□	1.25	1.25	1.03	1.25	6.00	1.50									

Shims indicated with * are not included with the toolholder. When using RN□43 type insert, please purchase shim (IRSN45) separately.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CRDN (External Turning / External Copying)

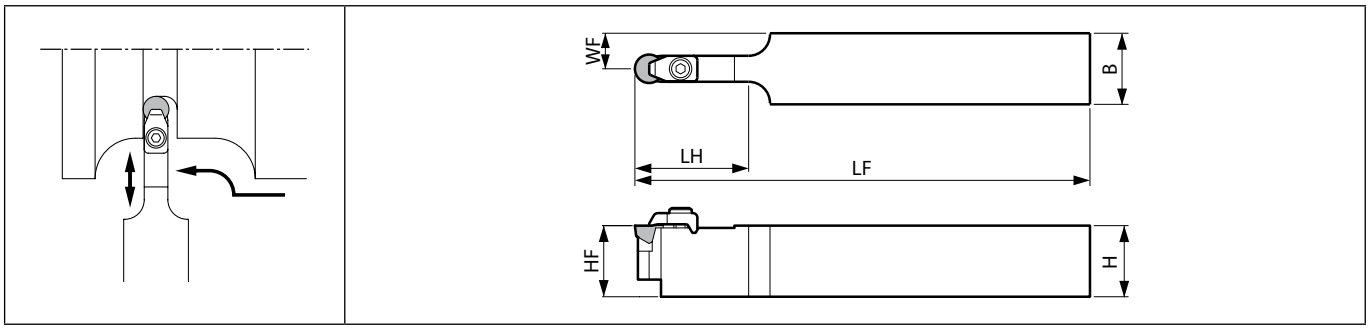


Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Back rake angle (°)	Spare Parts				Applicable Inserts
			N	H	B	LH	HF	LF	WF		Clamp set	Shim screw	Shim	Wrench	
Inch	CRDNN 16-4D	●	1.00	1.00	1.13	1.00	6.00	0.500	-8.5	CE-030	M3X8	SP-841 (SP-843*)	LW-4	RNG45... (RN□43...*)	
	20-4E	●	1.25	1.25		1.25	7.00	0.625							
mm	CRDNN 2020K-12	●	20	20	28	20	125	10	-8.5	CE-030	M3X8 (M3X12*)	SP-841 (SP-843*)	LW-4	RNG45... (RN□43...*)	
	2525M-12	●	25	25		25	150	12.5							
	3225P-12	●	32			32	170								
	CRDNN 3232P-15	●	32	32	35	32	170	16	-8.5	CE-040	M4X10	SP-861	LW-4	RNG55...	
	4040R-15	●	40	40		40	200	20							

Shims indicated * are not included with the toolholder. When using RNUN1204 type insert, please purchase shim (SP-843) and screw (M3X12) separately.

CRDC (External Turning / External Copying)



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Spare Parts			Applicable Inserts
			N	H	B	LH	HF	LF	WF	Clamp set	Wrench	Shim	
Inch	CRDCN 16-2	●	1.00	1.00	1.00	1.00	8.00	0.500		HCL-017C	LW-2	HSH665A	RCGX24..., RCGX102T04015
	16-3	●	1.00	1.00	1.50	1.00	8.00	0.500		HCL-016	LW-25IP	HSH655	RCGX35..., RCGX103...
	20-3	●	1.25	1.25	1.50	1.25	8.00	0.625					
	20-4	●	1.25	1.25	2.00	1.25	8.00	0.625		HCL-007	LW-4	HSH657	RCGX45..., RCGX104...
	20-6	●	1.25	1.25	2.00	1.25	8.00	0.625		HCL-013	LW-4	HSH661	RCGX106...

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts

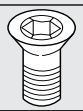
Applications	Cast Iron / Hard Materials	Hard Materials / Cast Iron
Type	Ceramic	CBN
Insert / Toolholder		
CRSN R/L ...-12	RNG45... (RNG43...)	(RNM43...)
HRSN R/L ...-4D	RNG45... (RNG43...)	(RNM43...)
CRDNN ...-4D / 4E CRDNN ...-12	RNG45... (RNG43...)	(RNM43...)
CRDNN ...-15	RNG55...	-
Page	B116	C17

Applications	Cast Iron / Hard Materials
Type	Ceramic
Insert / Toolholder	
CRDCN ...-2	RCGX24..., RCGX102T04015
CRDCN ...-3	RCGX35..., RCGX103...
CRDCN ...-4	RCGX45..., RCGX104...
CRDCN ...-6	RCGX106...
Page	B116

Recommended Cutting Conditions D75~D76

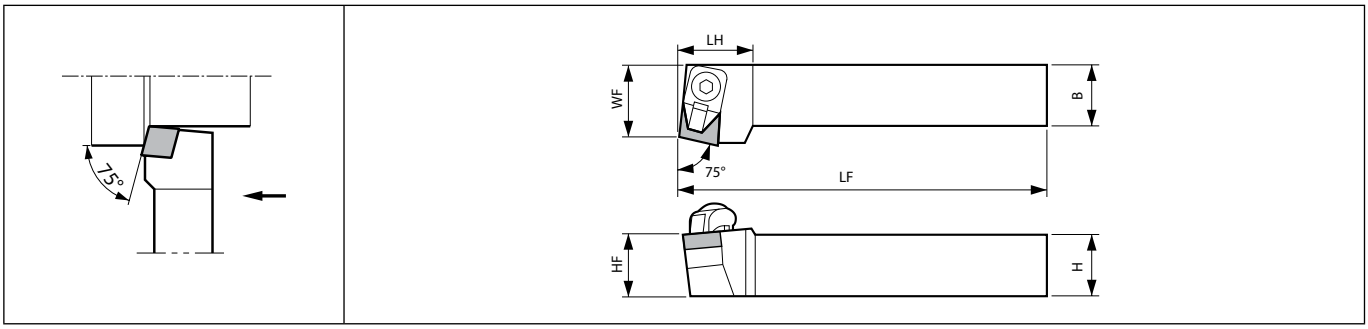
Spare Parts

When using toolholder with CBN inserts (KBN900), please purchase spare parts below separately.

Applications	Hard Materials / Cast Iron	Spare Parts				
Type	CBN	Clamp set	Clamp set	Shim	Shim screw	Shim screw
Insert / Toolholder						
CRSN R/L ...-12	(RNM43...)	CE-030A	-	SP-843	M3X12	-
HRSN R/L ...-4D	(RNM43...)	-	HCL-001	IRSN45	-	S-46
CRDNN ...-4D / 4E CRDNN ...-12	(RNM43...)	CE-030A	-	SP-843	M3X12	-
CRDNN ...-15	-	-	-	-	-	-

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CCRN-A (External Turning)

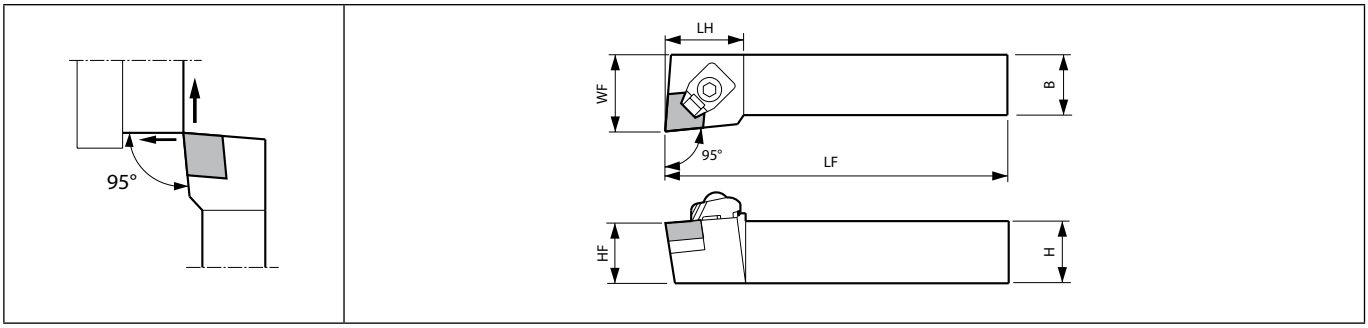


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Clamp set	Shim screw	Shim	Wrench	Applicable Inserts
				Dimensions									Spare Parts				
mm	CCRN□□ 2525M-09A	●	●	25	25	27	25	150	27	0.8	-6	-6	CE-030A	HH3X12	SP-429	LW-4	CNM32...

CCLN-A (External Turning / External Facing)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Clamp set	Shim screw	Shim	Wrench	Applicable Inserts
				Dimensions									Spare Parts				
mm	CCLN□□ 2525M-09A	●	●	25	25	28	25	150	32	0.8	-5	-5	CE-030A	HH3X12	SP-429	LW-4	CNM32...

For CNMN1204 Insert toolholder, see page **D49**

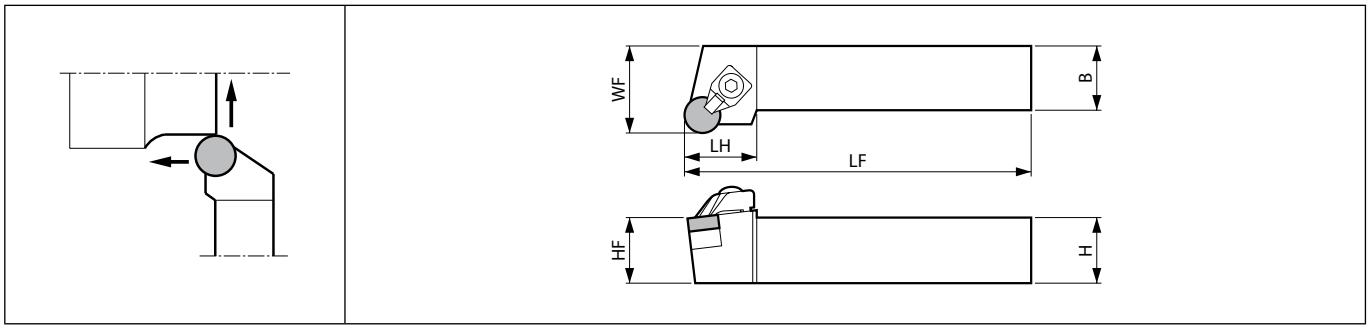
Applicable Inserts

Applications	Hard Materials / Cast Iron
Insert	
Type	CBN
Page	C16

Recommended Cutting Conditions **D75~D76**

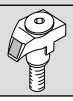
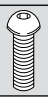
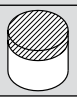
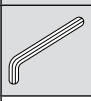
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CRSN-A (External Turning / External Facing)



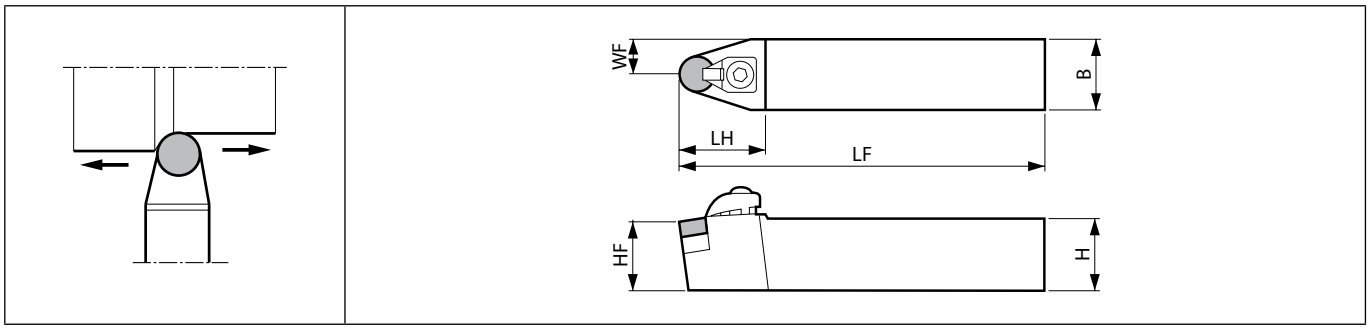
Right-hand shown

Toolholder Dimensions

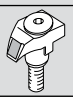
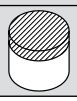
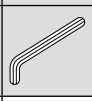
Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Side Rake Angle (°)	Inclination Angle (°)	Clamp set	Shim screw	Shim screw	Shim	Shim	Wrench	Applicable Inserts
																		
mm	CRSN□ 2525M-09A	●	●	25	25	26	25	150	32	-6	-6	CE-030A	-	HH3X12	SP-829 (SP-826*)	-	LW-4	RNM33... (RNG33...*)
	3225P-09A	●	●	32			32	170										
mm	CRSN□ 2525M-12A	●	●	25	25	26	25	150	32	-6	-6	CE-030A	BH3X12	-	-	SP-849 (SP-843**) (SP-841***)	LW-4	RNM42... (RN□43...**) (RNG45...***)
	3225P-12A	●	●	32			32	170										

When using RNG33 type insert, please purchase shim (SP-826) separately.
When using RN□43 type insert, please purchase shim (SP-843) separately.
When using RNG45 type insert, please purchase shim (SP-841) separately.

CRDN-A (External Turning / External Copying)



Toolholder Dimensions

Unit	Part Number	Std. Item N	H	B	LH	HF	LF	WF	Back rake angle (°)	Clamp set	Shim screw	Shim screw	Shim	Shim	Wrench	Applicable Inserts
																
mm	CRDNN 2525M-09A	●	25	25	29	25	150	12.5	-8.5	CE-030A	-	HH3X12	SP-829 (SP-826*)	-	LW-4	RNM33... (RNG33...*)
	3225P-09A	●	32			32	170									
mm	CRDNN 2525M-12A	●	25	25	28	25	150	12.5	-8.5	CE-030A	BH3X12	-	-	SP-849 (SP-843**) (SP-841***)	LW-4	RNM42... (RN□43...**) (RNG45...***)
	3225P-12A	●	32			32	170									

When using RNG33 type insert, please purchase shim (SP-826) separately.
When using RN□43 type insert, please purchase shim (SP-843) separately.
When using RNG45 type insert, please purchase shim (SP-841) separately.
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts

Applications	Hard Materials / Cast Iron	Cast Iron / Hard Materials
Type	CBN	Ceramic
Insert / Toolholder		
CRSNR/L ...-09A	RNM32	(RNG33)
CRSNR/L ...-12A	RNM42 (RNM43)	(RNG43) (RNG45)
CRDNN ...-09A	RNM32	(RNG33)
CRDNN ...-12A	RNM42 (RNM43)	(RNG43) (RNG45)
Page	C17	B116

Recommended Cutting Conditions ➡ D75~D76

Spare Parts

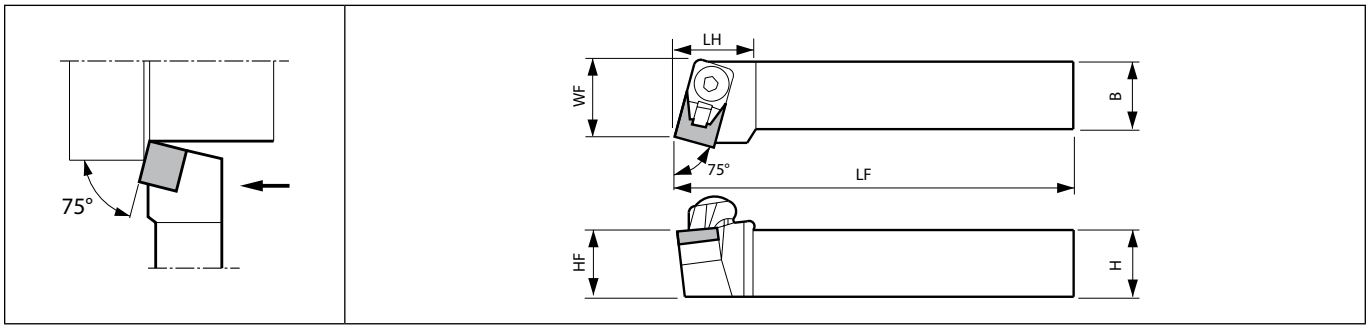
When using toolholder with Ceramic inserts, please purchase spare parts below separately.

Applications	Cast Iron / Hard Materials	Spare Parts	
Type	Ceramic	Shim	Shim screw
Insert / Toolholder			
CRSNR/L ...-09A	(RNG33)	SP-826	-
CRSNR/L ...-12A	(RNG43)	SP-843	M3X12
	(RNG45)	SP-841	M3X8
CRDNN ...-09A	(RNG33)	SP-826	-
CRDNN ...-12A	(RNG43)	SP-843	M3X12
	(RNG45)	SP-841	M3X8

Recommended Cutting Conditions ➡ D39-D40

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CSRN-A (External Turning)



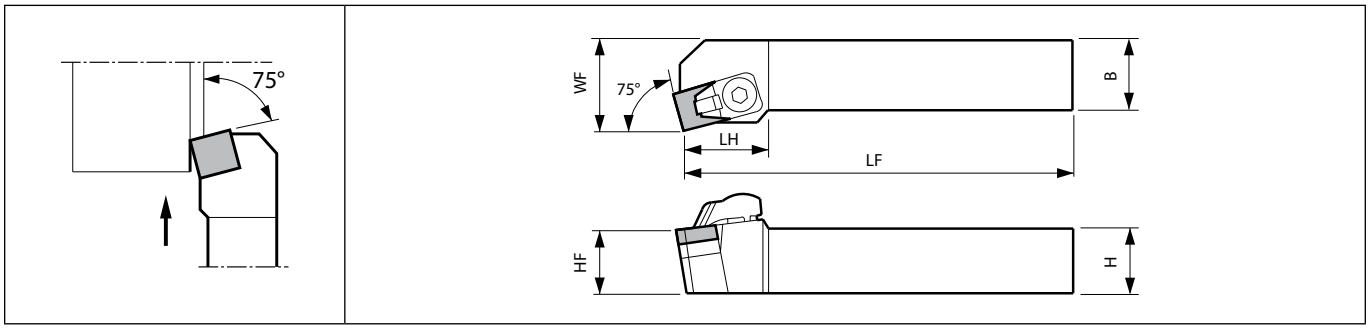
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts				Applicable Inserts
		R	L	H	B	LH	HF	LF	WF				Clamp set	Shim screw	Shim	Wrench	
mm	CSRN□ 2525M-12A	●	●	25	25	22	25	150	27	0.8	-6	-4	CE-030A	BH3X12	SP-148 (SP-143*)	LW-4	SNM42... (SN□43...)

When using SN□43 type insert, please purchase shim (SP-143) separately.

CSKN-A (External Facing)



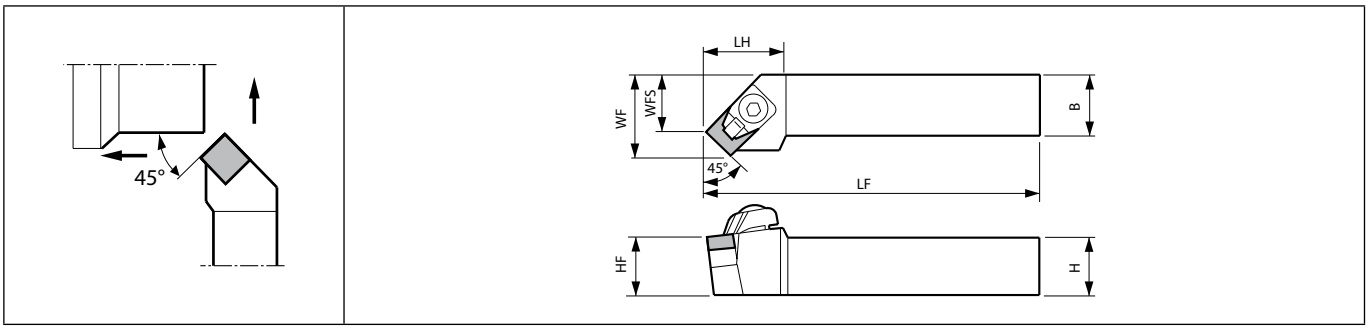
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts				Applicable Inserts
		R	H	B	LH	HF	LF	WF				Clamp set	Shim screw	Shim	Wrench	
mm	CSKNR 2525M-09A	●	25	25	27	25	150	32	0.8	-6	-4	CE-030A	HH3X12	SP-129	LW-4	SNM32...

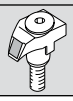
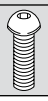
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CSSN-A (External Turning / External Facing / Chamfering)



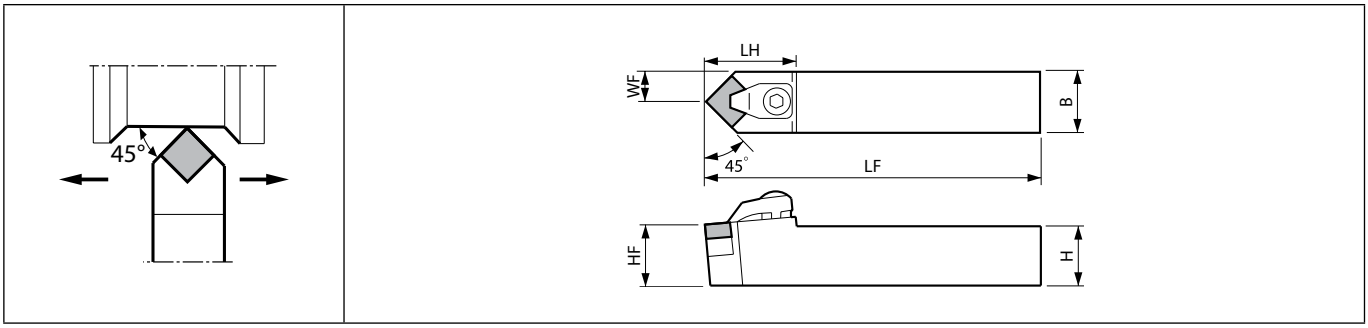
Right-hand shown

Toolholder Dimensions

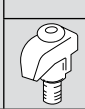
Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
														Clamp set	Shim screw	Shim screw	Shim	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF	WFS										
mm	CSSNR/L 2525M-09A	●	●	25	25	26	25	150	32	25	0.8	-6	0	CE-030A	-	HH3X12	SP-129	-	LW-4	SNM32...
mm	CSSNR/L 2525M-12A	●	●	25	25	26	25	150	32	23	0.8	-6	0	CE-030A	BH3X12	-	-	SP-148 (SP-143*) (SP-141*)	LW-4	SNM42... (SN□43...*) (SN□45...*)

When using SN□43 type insert, please purchase shim (SP-143) separately. When using SN□45 type insert, please purchase shim (SP-141) separately.

CSDN-A (External Turning / Chamfering)



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Back rake angle (°)	Spare Parts						Applicable Inserts
											Clamp set	Shim screw	Shim screw	Shim	Shim	Wrench	
		N	H	B	LH	HF	LF	WF									
mm	CSDNN 2525M-09A	●	25	25	32	25	150	12.5	0.8	-8.5	CE-040	-	HH3X12	SP-129	-	LW-4	SNM32...
mm	CSDNN 2525M-12A	●	25	25	32	25	150	12.5	0.8	-8.5	CE-040	BH3X12	-	-	SP-148 (SP-143*) (SP-141*)	LW-4	SNM42... (SN□43...*) (SN□45...*)

When using SN□43 type insert, please purchase shim (SP-143) separately. When using SN□45 type insert, please purchase shim (SP-141) separately.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts

Applications	Hard Materials / Cast Iron	Cast Iron	Cast Iron / Hard Materials
Type	CBN	Coated carbide	Ceramic
Insert / Toolholder			
CSRN R/L ...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..) (SNG45..) (SNM45..)
CSKN R/L ...-09A	SNM32..	-	-
CSSN R/L ...-09A	SNM32..	-	-
CSSN R/L ...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..) (SNG45..) (SNM45..)
CSDNN ...-09A	SNM32..	-	-
CSDNN ...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..) (SNG45..) (SNM45..)
Page	C18	B38	B117

Recommended Cutting Conditions ➡ D75~D76

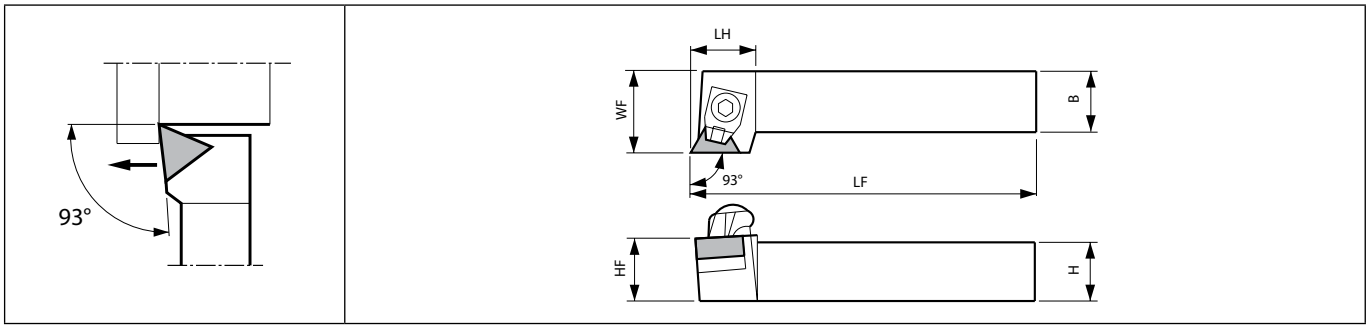
Spare Parts

When using toolholder with Ceramic inserts, please purchase spare parts below separately.

Applications	Cast Iron / Hard Materials	Spare Parts			
Type	Ceramic	Chipbreaker	Clamp set	Shim	Shim screw
Insert / Toolholder					
CSRN R/L ...-12A	(SNG43..) (SNM43..)	CB-11	CE-020	SP-143	M3X12
	(SNG45..) (SNM45..)			SP-141	M3X8
CSKN R/L ...-09A	-	-	-	-	-
CSSN R/L ...-09A	-	-	-	-	-
CSSN R/L ...-12A	(SNG43..) (SNM43..)	CB-11	CE-020	SP-143	M3X12
	(SNG45..) (SNM45..)			SP-141	M3X8
CSDNN ...-09A	-	-	-	-	-
CSDNN ...-12A	(SNG43..) (SNM43..)	-	-	SP-143	M3X12
	(SNG45..) (SNM45..)			SP-141	M3X8

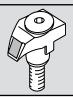
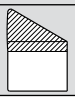
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CTJN-A (External Turning)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts				Applicable Inserts
		R	L	H	B	LH	HF	LF	WF				Clamp set	Shim screw	Shim	Wrench	
																	
mm	CTJN R/L 2525M-11A	●	●	25	25	22	25	150	32	0.8	-6	-4	CE-030A	HH3X12	SP-219	LW-4	TN□22...

For TNMN1604 Insert toolholder, see page **D56**.

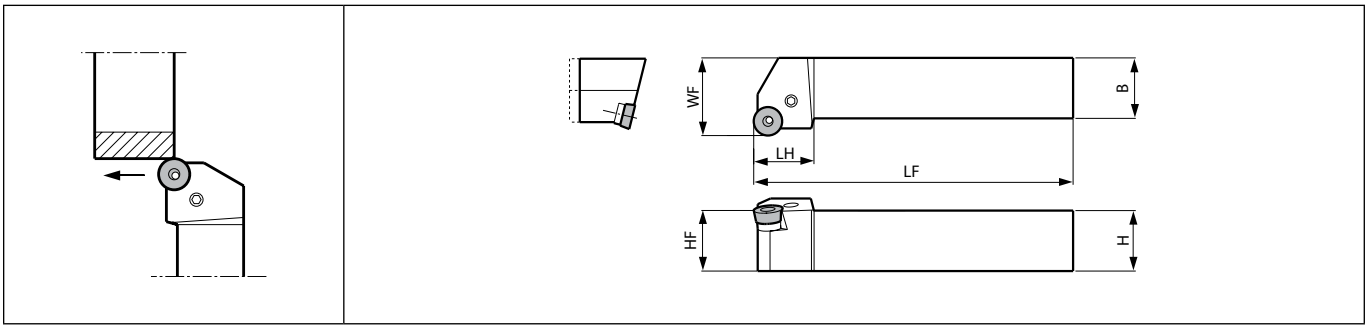
Applicable Inserts

Applications	Hard Materials / Cast Iron	Cast Iron / Hard Materials
Insert		
Type	CBN	Ceramic
Page	C19	B118

Recommended Cutting Conditions ➡ **D75~D76**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PRGC-BE (External Turning)



Right-hand shown

Toolholder Dimensions

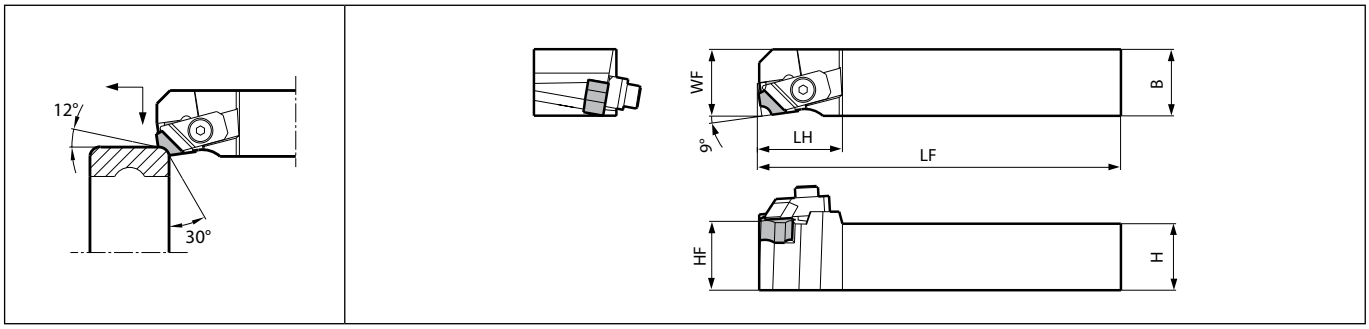
Unit	Part Number	Std. Item	Dimensions							Spare Parts						Applicable Inserts
										Lever	Lock screw	Punch	Shim pin	Shim	Wrench	
		R	H	B	LH	HF	LF	WF								
mm	PRGCR 2525M-12BE	●	25	25	25	25	150	32		LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMT1204M0-BB

Applicable Inserts

Applications	Finishing
Insert	
Chipbreaker type	BB
Page	B109

Recommended Cutting Conditions D75~D76

CBSN (External Corner Filleting)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Spare Parts				Applicable Inserts
		R	L	H	B	LH	HF	LF	WF	Clamp set	Shim screw	Shim	Wrench	
mm	CBSN□2020K-12	●	●	20	20	32	20	125	20	CP-RC□L	SP3X8	SP-RC	LW-5	SNMF1204..-21
	2525M-12	●	●	25	25		25	150	25					

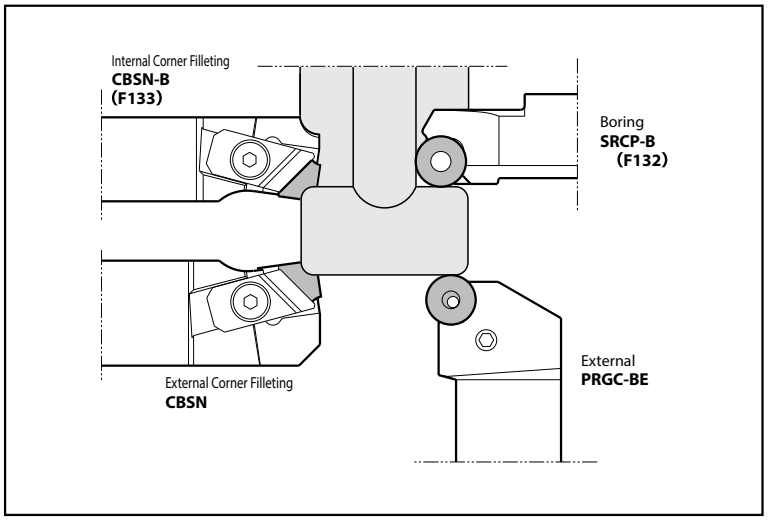
Clamp Set : CP-RCR for Right-hand Toolholder, CP-RCL for Left-hand Toolholder.

Applicable Inserts

Applications	Finishing
Insert	
Chipbreaker type	21
Page	B109

Recommended Cutting Conditions ➡ D75~D76

Tooling for Bearing Machining



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

External Turning - Negative Insert

D.O.C. Indicates Radius

ISO Class	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - **Recommendation** - Upper Limit		
								Vc (sfm)	D.O.C. (in)	f (ipr)
P	Low Carbon Steel Low Carbon Alloy	HB ≤ 300	Finishing (High Speed Machining)	Continuous	**XP**	**CCX**	1/32	980 - **1,970** - 2,620	0.008 - **0.020** - 0.028	0.003 - **0.005** - 0.008
			Finishing (Small D.O.C.)	Continuous	**XF**	**PV710**	1/64	820 - **1,150** - 1,710	0.002 - **0.005** - 0.024	0.001 - **0.004** - 0.009
				Interruption		**PV720**	1/32	790 - **1,050** - 1,570	0.002 - **0.006** - 0.024	0.002 - **0.005** - 0.010
			Finishing (Gloss Oriented)	Continuous	**XP**	**TN610**	1/64	820 - **1,050** - 1,310	0.008 - **0.020** - 0.028	0.003 - **0.005** - 0.008
				Interruption		**TN620**	1/32	790 - **1,020** - 1,210	0.008 - **0.020** - 0.028	0.003 - **0.005** - 0.008
			Finishing (Tool Life Oriented)	Continuous	**XP**	**PV710**	1/64	820 - **980** - 1,210	0.008 - **0.020** - 0.028	0.003 - **0.005** - 0.008
				Interruption		**PV720**	1/32	790 - **950** - 1,120	0.008 - **0.020** - 0.028	0.003 - **0.005** - 0.008
			Finishing - Medium (Gloss Oriented)	Continuous	**XQ**	**TN610**	1/64	820 - **1,050** - 1,310	0.020 - **0.039** - 0.059	0.007 - **0.010** - 0.012
				Interruption		**TN620**	1/32	790 - **920** - 1,120	0.020 - **0.039** - 0.059	0.007 - **0.010** - 0.012
			Finishing - Medium (Tool Life Oriented)	Continuous	**XQ**	**PV710**	1/32	820 - **980** - 1,210	0.020 - **0.039** - 0.059	0.007 - **0.010** - 0.012
				Interruption		**PV720**	1/32	790 - **920** - 1,120	0.020 - **0.039** - 0.059	0.007 - **0.010** - 0.012
			Medium - Roughing	Continuous	**XS**	**PV720**	1/32	720 - **850** - 1,050	0.031 - **0.059** - 0.079	0.010 - **0.012** - 0.016
				Interruption		**CA115P**	1/32	520 - **690** - 850	0.031 - **0.059** - 0.079	0.010 - **0.012** - 0.016
			Roughing	Continuous	**PMG**	**CA115P**	1/32	590 - **720** - 850	0.039 - **0.098** - 0.138	0.008 - **0.012** - 0.016
				Interruption		**CA125P**	3/64	490 - **660** - 790	0.039 - **0.098** - 0.138	0.008 - **0.012** - 0.016
			Medium - Roughing (High Feed Rate)	Continuous	**PT**	**CA115P**	1/32	490 - **660** - 790	0.059 - **0.118** - 0.177	0.010 - **0.014** - 0.018
				Interruption		**CA125P**	3/64	390 - **590** - 720	0.059 - **0.118** - 0.177	0.010 - **0.014** - 0.018
			Roughing (High Feed Rate)	Continuous	**PH**	**CA115P**	3/64	490 - **660** - 790	0.079 - **0.197** - 0.315	0.016 - **0.024** - 0.031
				Interruption		**CA125P**	1/16	390 - **590** - 720	0.079 - **0.197** - 0.315	0.012 - **0.020** - 0.028
			Roughing (Low Cutting Force)	Continuous	**PX** (Single-Sided)	**CA115P**	3/64	490 - **660** - 790	0.079 - **0.197** - 0.315	0.016 - **0.024** - 0.031
				Interruption		**CA125P**	1/16	390 - **590** - 720	0.079 - **0.197** - 0.315	0.012 - **0.020** - 0.028
	Medium Carbon Steel Medium Carbon Alloy	HB ≤ 300	Finishing (Time Oriented)	Continuous	**WF** (Wiper)	**PV710**	1/32	660 - **820** - 1,050	0.012 - **0.020** - 0.039	0.008 - **0.012** - 0.016
				Interruption		**CA115P**	1/32	520 - **720** - 920	0.012 - **0.020** - 0.039	0.008 - **0.012** - 0.016
			Finishing - Medium (Time Oriented)	Continuous	**WE** (Wiper)	**PV710**	1/32	590 - **720** - 920	0.039 - **0.079** - 0.118	0.008 - **0.012** - 0.016
				Interruption		**CA125P**	1/32	430 - **590** - 790	0.039 - **0.079** - 0.118	0.008 - **0.012** - 0.016
			Finishing (High Speed Machining)	Continuous	**PP**	**CCX**	1/32	660 - **980** - 1,480	0.008 - **0.020** - 0.059	0.002 - **0.006** - 0.011
			Finishing (Gloss Oriented)	Continuous	**PP**	**TN610**	1/64	660 - **820** - 1,050	0.008 - **0.020** - 0.059	0.002 - **0.006** - 0.011
				Interruption		**TN610**	1/32	590 - **750** - 980	0.008 - **0.020** - 0.059	0.002 - **0.008** - 0.014
			Finishing (Tool Life Oriented)	Continuous	**PP**	**PV710**	1/64	660 - **820** - 1,050	0.008 - **0.020** - 0.059	0.002 - **0.006** - 0.011
				Interruption		**PV720**	1/32	660 - **790** - 950	0.008 - **0.020** - 0.059	0.002 - **0.008** - 0.014
			Finishing - Medium (Gloss Oriented)	Continuous	**PQ**	**TN610**	1/32	590 - **750** - 980	0.020 - **0.059** - 0.098	0.004 - **0.008** - 0.012
				Interruption		**TN620**	3/64	520 - **720** - 850	0.020 - **0.059** - 0.098	0.004 - **0.007** - 0.010
			Finishing - Medium (Tool Life Oriented)	Continuous	**PQ**	**PV710**	1/32	520 - **690** - 920	0.020 - **0.059** - 0.098	0.004 - **0.008** - 0.012
				Interruption		**CA125P**	1/32	460 - **660** - 790	0.020 - **0.059** - 0.098	0.004 - **0.007** - 0.010
			Medium - Roughing	Continuous	**PMG**	**CA115P**	1/32	490 - **660** - 790	0.039 - **0.098** - 0.138	0.008 - **0.012** - 0.016
				Interruption		**CA125P**	3/64	390 - **520** - 660	0.039 - **0.098** - 0.138	0.008 - **0.012** - 0.016
			Medium - Roughing (High Feed Rate)	Continuous	**PT**	**CA115P**	1/32	390 - **590** - 750	0.059 - **0.118** - 0.177	0.010 - **0.014** - 0.018
				Interruption		**CA125P**	3/64	330 - **490** - 660	0.059 - **0.118** - 0.177	0.010 - **0.014** - 0.018
			Roughing (High Feed Rate)	Continuous	**PH**	**CA115P**	3/64	390 - **590** - 750	0.079 - **0.197** - 0.315	0.016 - **0.024** - 0.031
				Interruption		**CA125P**	1/16	330 - **490** - 660	0.079 - **0.197** - 0.315	0.012 - **0.020** - 0.028
			Roughing (Low Cutting Force)	Continuous	**PX** (Single-Sided)	**CA115P**	3/64	390 - **590** - 750	0.079 - **0.197** - 0.315	0.016 - **0.024** - 0.031
				Interruption		**CA125P**	1/16	330 - **490** - 660	0.079 - **0.197** - 0.315	0.012 - **0.020** - 0.028
	High Carbon Alloy	HB ≤ 280	Finishing (High Speed Machining)	Continuous	**PP**	**CCX**	1/32	660 - **980** - 1,310	0.008 - **0.020** - 0.059	0.002 - **0.006** - 0.011
			Finishing (Gloss Oriented)	Continuous	**PP**	**TN610**	1/64	490 - **660** - 920	0.008 - **0.020** - 0.059	0.002 - **0.006** - 0.011
				Interruption		**TN620**	1/32	460 - **590** - 790	0.008 - **0.020** - 0.059	0.002 - **0.008** - 0.014
			Finishing (Tool Life Oriented)	Continuous	**PP**	**PV710**	1/64	390 - **590** - 850	0.008 - **0.020** - 0.059	0.002 - **0.006** - 0.011
				Interruption		**CA115P**	1/32	330 - **490** - 660	0.008 - **0.020** - 0.059	0.002 - **0.008** - 0.014
			Finishing - Medium	Continuous	**PQ**	**CA115P**	1/32	390 - **520** - 720	0.020 - **0.059** - 0.098	0.006 - **0.010** - 0.012
				Interruption		**CA125P**	1/32	330 - **460** - 590	0.020 - **0.059** - 0.098	0.006 - **0.008** - 0.010
			Medium - Roughing	Continuous	**PMG**	**CA115P**	1/32	390 - **490** - 660	0.039 - **0.079** - 0.118	0.008 - **0.012** - 0.020
				Interruption		**CA125P**	1/32	330 - **430** - 590	0.039 - **0.079** - 0.118	0.006 - **0.008** - 0.012
			Medium - Roughing (High Feed Rate)	Continuous	**PT**	**CA115P**	1/32	330 - **460** - 590	0.059 - **0.118** - 0.177	0.010 - **0.014** - 0.018
				Interruption		**CA125P**	3/64	260 - **390** - 520	0.059 - **0.118** - 0.177	0.010 - **0.014** - 0.018
			Roughing (High Feed Rate)	Continuous	**PH**	**CA115P**	3/64	330 - **460** - 590	0.079 - **0.197** - 0.315	0.016 - **0.024** - 0.031
				Interruption		**CA125P**	1/16	260 - **390** - 520	0.079 - **0.197** - 0.315	0.012 - **0.020** - 0.028
			Roughing (Low Cutting Force)	Continuous	**PX** (Single-Sided)	**CA115P**	3/64	330 - **460** - 590	0.079 - **0.197** - 0.315	0.016 - **0.024** - 0.031
				Interruption		**CA125P**	1/16	260 - **390** - 520	0.079 - **0.197** - 0.315	0.012 - **0.020** - 0.028

External Turning - Negative Insert

D.O.C. Indicates Radius

ISO Class	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - **Recommendation** - Upper Limit		
								Vc (sfm)	D.O.C. (in)	f (ipr)
M	Stainless Steel (Austenitic)	HB ≤ 220	Finishing (Gloss Oriented)	Continuous	PQ	TN620	1/32	390 - **520** - 660	0.020 - **0.039** - 0.059	0.003 - **0.006** - 0.008
				Interruption		TN620	1/32	330 - **390** - 490	0.020 - **0.039** - 0.059	0.002 - **0.004** - 0.006
			Finishing	Continuous	MQ	CA6515	1/64	390 - **590** - 790	0.020 - **0.039** - 0.059	0.003 - **0.006** - 0.008
				Interruption		CA6525	1/32	330 - **520** - 720	0.020 - **0.039** - 0.059	0.002 - **0.004** - 0.006
			Medium-Roughing (Chip Control Oriented)	Continuous	MS	CA6515	1/64	390 - **520** - 660	0.039 - **0.079** - 0.118	0.004 - **0.008** - 0.012
				Interruption		CA6525	1/32	260 - **460** - 590	0.039 - **0.079** - 0.118	0.008 - **0.012** - 0.016
			Medium-Roughing (Sharpness Oriented)	Continuous	MU	CA6515	1/64	390 - **520** - 660	0.039 - **0.079** - 0.118	0.006 - **0.010** - 0.014
				Interruption		CA6525	1/32	260 - **460** - 590	0.039 - **0.079** - 0.118	0.006 - **0.010** - 0.012
			Roughing	Continuous	Standard	CA6515	1/32	330 - **460** - 590	0.039 - **0.079** - 0.157	0.008 - **0.012** - 0.016
				Interruption		CA6525	3/64	260 - **390** - 490	0.039 - **0.079** - 0.157	0.008 - **0.012** - 0.016
	Stainless Steel (Precipitation Hardened)	HB ≤ 300	Finishing (Gloss Oriented)	Continuous	PQ	TN620	1/32	330 - **390** - 490	0.020 - **0.039** - 0.059	0.002 - **0.004** - 0.006
				Interruption		TN620	1/32	260 - **330** - 390	0.020 - **0.039** - 0.059	0.002 - **0.003** - 0.004
			Finishing	Continuous	MQ	CA6515	1/64	330 - **390** - 490	0.020 - **0.039** - 0.059	0.003 - **0.006** - 0.008
				Interruption		CA6525	1/32	260 - **330** - 390	0.020 - **0.039** - 0.059	0.002 - **0.004** - 0.006
			Medium-Roughing (Chip Control Oriented)	Continuous	MS	CA6515	1/64	330 - **390** - 490	0.039 - **0.059** - 0.079	0.004 - **0.006** - 0.010
				Interruption		CA6525	1/32	260 - **330** - 390	0.039 - **0.079** - 0.118	0.004 - **0.006** - 0.008
			Medium-Roughing (Sharpness Oriented)	Continuous	MU	CA6515	1/64	330 - **390** - 490	0.039 - **0.059** - 0.079	0.004 - **0.006** - 0.010
				Interruption		CA6525	1/32	260 - **330** - 390	0.039 - **0.079** - 0.118	0.004 - **0.006** - 0.008
			Roughing	Continuous	Standard	CA6515	1/32	260 - **330** - 390	0.039 - **0.079** - 0.118	0.008 - **0.012** - 0.016
				Interruption		CA6525	3/64	200 - **260** - 330	0.039 - **0.079** - 0.157	0.008 - **0.012** - 0.016
K	Gray Cast Iron	HB ≤ 250	High Speed Machining	Continuous	No Chipbreaker	KBN475	1/32	1,310 - **2,620** - 3,940	0.002 - **0.008** - 0.020	0.004 - **0.008** - 0.012
				Continuous		KBN900	3/64	1,640 - **2,950** - 3,940	0.004 - **0.020** - 0.039	0.002 - **0.004** - 0.008
				Interruption		KBN900	3/64	1,640 - **2,300** - 2,950	0.020 - **0.039** - 0.059	0.002 - **0.004** - 0.008
			Finishing (Gloss Oriented)	Continuous	Standard	PV7005	1/32	980 - **1,150** - 1,310	0.020 - **0.039** - 0.059	0.004 - **0.008** - 0.012
				Interruption		PV720	1/32	490 - **660** - 980	0.020 - **0.039** - 0.059	0.003 - **0.006** - 0.008
			Finishing (Ceramic)	Continuous	No Chipbreaker	KA30	3/64	980 - **1,640** - 2,300	0.012 - **0.020** - 0.039	0.004 - **0.008** - 0.012
				Continuous		PT600M	1/32	980 - **1,480** - 1,970	0.012 - **0.020** - 0.039	0.004 - **0.008** - 0.012
			Medium (Ceramic)	Continuous		CS7050	3/64	980 - **1,480** - 1,800	0.039 - **0.079** - 0.118	0.006 - **0.010** - 0.014
				Interruption		KS6050	3/64	820 - **1,310** - 1,640	0.039 - **0.079** - 0.118	0.006 - **0.008** - 0.012
			Medium	Continuous	KH	CA410K	1/32	660 - **1,310** - 2,300	0.020 - **0.079** - 0.098	0.004 - **0.008** - 0.012
				Interruption		CA415K	3/64	590 - **980** - 1,480	0.020 - **0.079** - 0.098	0.003 - **0.006** - 0.008
			Roughing	Continuous	KH	CA410K	1/32	660 - **1,310** - 2,300	0.039 - **0.079** - 0.157	0.008 - **0.012** - 0.016
				Interruption		CA415K	3/64	590 - **980** - 1,480	0.039 - **0.079** - 0.157	0.008 - **0.012** - 0.016
	Nodular Cast Iron	HB ≤ 270	High Speed Machining	Continuous	No Chipbreaker	KBN60M	1/64	660 - **980** - 1,310	0.004 - **0.012** - 0.020	0.004 - **0.006** - 0.008
				Continuous		PT600M	1/32	660 - **820** - 1,150	0.004 - **0.020** - 0.039	0.004 - **0.008** - 0.016
			Finishing (Gloss Oriented)	Continuous	Standard	PV7005	1/32	490 - **820** - 980	0.020 - **0.039** - 0.059	0.004 - **0.008** - 0.012
				Interruption		PV720	1/32	390 - **660** - 820	0.020 - **0.039** - 0.059	0.003 - **0.006** - 0.008
			Medium	Continuous	KG	CA410K	1/32	660 - **1,150** - 1,640	0.020 - **0.079** - 0.098	0.004 - **0.008** - 0.012
				Interruption		CA415K	3/64	490 - **820** - 1,150	0.020 - **0.079** - 0.098	0.003 - **0.006** - 0.008
			Roughing	Continuous	KG	CA410K	1/32	660 - **1,150** - 1,640	0.039 - **0.079** - 0.157	0.008 - **0.012** - 0.016
				Interruption	KH	CA415K	3/64	490 - **820** - 1,150	0.039 - **0.079** - 0.157	0.008 - **0.012** - 0.016
N	Non-ferrous Metals Copper Alloy Aluminum Aluminum Alloys	HB ≤ 100	High Speed Machining (Glossy Surface)	Continuous	No Chipbreaker	KPD001	1/64	980 - **2,620** - 6,560	0.002 - **0.020** - 0.039	0.002 - **0.004** - 0.006
			Finishing (Long Tool Life)	Continuous	A3	PDL025	1/64	1,310 - **1,640** - 2,300	0.020 - **0.039** - 0.079	0.004 - **0.008** - 0.010
				Interruption		PDL025	1/32	1,310 - **1,640** - 2,300	0.020 - **0.039** - 0.079	0.004 - **0.008** - 0.010
			Finishing	Continuous	A3	KW10	1/32	1,310 - **1,640** - 2,300	0.020 - **0.039** - 0.079	0.004 - **0.008** - 0.010
				Interruption		KW10	1/32	1,310 - **1,640** - 2,300	0.020 - **0.039** - 0.079	0.004 - **0.008** - 0.010
			Medium	Continuous	AH	KW10	1/32	660 - **980** - 1,640	0.039 - **0.079** - 0.138	0.004 - **0.012** - 0.016
				Interruption		KW10	1/32	660 - **980** - 1,640	0.039 - **0.079** - 0.138	0.004 - **0.012** - 0.016
S	Titanium Alloys	HB ≤ 400	Precision Finishing (Glossy Surface)	Continuous	No Chipbreaker	KPD001	1/64	330 - **490** - 590	0.002 - **0.012** - 0.020	0.001 - **0.004** - 0.006
				Interruption		KPD001	1/64	230 - **390** - 490	0.002 - **0.012** - 0.020	0.001 - **0.003** - 0.004
			Finishing	Continuous	MQ	SW05	1/64	130 - **230** - 330	0.008 - **0.020** - 0.039	0.002 - **0.008** - 0.012
				Interruption		SW05	1/64	130 - **230** - 330	0.008 - **0.020** - 0.039	0.002 - **0.006** - 0.008
			Medium	Continuous	MU	SW05	1/32	130 - **200** - 260	0.020 - **0.039** - 0.118	0.004 - **0.010** - 0.014
				Interruption		SW05	1/32	130 - **200** - 260	0.020 - **0.039** - 0.118	0.004 - **0.008** - 0.012
	Heat-Resistant Alloys	HB ≤ 350	Finishing	Continuous	MQ	PR005S	1/64	100 - **180** - 300	0.008 - **0.012** - 0.039	0.002 - **0.003** - 0.006
				Interruption		PR115S	1/32	80 - **150** - 230	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
			Medium	Continuous	SQ	PR115S	1/32	100 - **180** - 300	0.012 - **0.020** - 0.059	0.004 - **0.007** - 0.014
				Interruption		PR120S	1/32	80 - **150** - 230	0.012 - **0.020** - 0.059	0.004 - **0.007** - 0.014
			Roughing	Continuous	SX	PR115S	-	100 - **180** - 300	0.020 - **0.079** - 0.157	0.006 - **0.012** - 0.018
				Interruption		PR120S	-	80 - **150** - 230	0.020 - **0.079** - 0.157	0.006 - **0.012** - 0.018
H	Hardened Steel Hard Materials	40~50 HRC	Finishing	Continuous	PQ	CA115P	1/32	200 - **330** - 390	0.004 - **0.012** - 0.020	0.002 - **0.003** - 0.004
				Interruption	Standard	CA115P	1/32	100 - **160** - 230	0.004 - **0.012** - 0.020	0.002 - **0.003** - 0.004
		40~50 HRC	Finishing	Continuous	No Chipbreaker	PT600M	1/32	200 - **250** - 325	0.008 - **0.020** - 0.028	0.002 - **0.004** - 0.006
		50~65 HRC		Continuous		PT600M	3/64	100 - **125** - 200	0.008 - **0.020** - 0.028	0.002 - **0.004** - 0.006
		50~68 HRC	Finishing	Continuous	ME	KBN010	1/32	260 - **590** - 820	0.002 - **0.012** - 0.020	0.002 - **0.003** - 0.004
				Interruption	MET	KBN015	3/64	260 - **590** - 750	0.002 - **0.012** - 0.020	0.002 - **0.003** - 0.004
			Medium	Continuous	No Chipbreaker	KBN900	3/64	250 - **325** - 400	0.020 - **0.039** - 0.079	0.002 - **0.004** - 0.008
				Interruption		KBN900	Radius	225 - **300** - 350	0.012 - **0.028** - 0.039	0.002 - **0.004** - 0.006

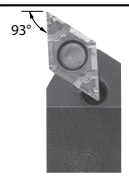
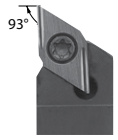
Small Tools

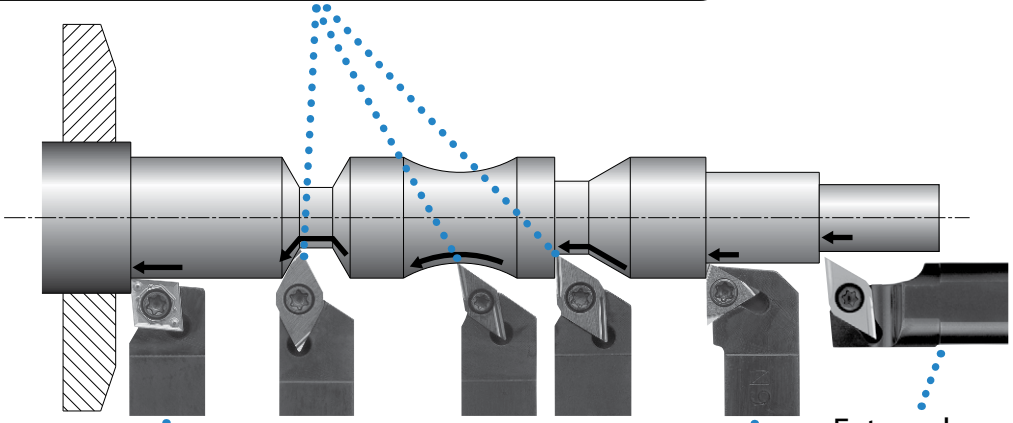
E

Overview		E2~E11
Toolholders for Back Turning		E12~E22
TKF / TKFB Inserts	KTKF	E15
	KTKF Goose-Neck Toolholder / KTKF-Y Y-Axis Toolholder	E16
ABS15 Inserts	AABS / SABS	E20
ABW15 Inserts	AABW / SABW	E21
ABW23 Inserts	AABW / SABW	E22
Goose-Neck Toolholders		E23~E25
DC Inserts	SDJC	E23
VP Inserts	SVLP	E24
External Toolholders		E26~E57
CC Inserts	ACLC-FF / SCLC-FF	E26
	SCLC-JCTM	E28
	SCLC	E29
DC Inserts	ADJC-FF / SDJC-FF	E30
	SDJC-JCTM	E32
	SDJC-F / SDJC	E33
	SDJC-FF-Y	E34
	SDLC-FF / SDXC	E36
	SDNC	E37
DP Inserts	SDLP-FF	E39
TC Inserts	STGC	E40
TP Inserts	STGP	E41
VB Inserts	AVJB-FF / SVJB-FF / SVJB-F / SVJB-FFJCTM / SVJB / SVPB / SVVB	E42
VC Inserts	SVJC-FF / SVLC-FF / SVPC-FF / SVVC	E45
VP Inserts	SVJP-FF / SVJP-FFJCTM / SVLP-FF / SVPP-FF	E51
ZB Inserts	SZLB / SZPB / SZVBN	E56
External Sleeve Toolholders		E58~E63
CC Inserts	S...SCLC	E58
DC Inserts	S...SDUC / S...SDLC	E59
VB Inserts	S...SVUB	E62
VC Inserts	S...SVUC	E63
Small Double-Sided Insert Toolholders (Screw Clamp)		E64~E66
CN Inserts	SCLN-FF	E64
DN Inserts	SDLN-FF	E65
TN Inserts	STLN-FF	E66
Small Double-Sided Insert Toolholders (Lever Lock)		E67~E68
CN Inserts	PCLN-FF	E67
TN Inserts	PTLN-FF	E68
Sub-Spindle Tools (for STAR Machines)		E69~E73
Recommended Cutting Conditions		E74~E77

Summary of External Turning

External / Copying

					
ADJC-FF	SDJC-FF(JCTM) SDJC-FF-Y	SDJC(-F)	SDLC-FF SDLP-FF	SDLN-FF	SDNC
Back Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp	Screw Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp
E30	E31, E32, E34	E33	E36, E39	E65	E37



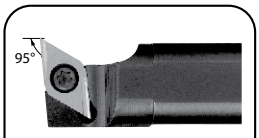
External / Facing

ACLC-FF	SCLC-FF(JCTM)	SCLC	SCLN-FF
Back Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp	Screw Clamp Without Offset
E26	E27, E28	E29	E64

External

STGC(P)	STLN-FF
Screw Clamp	Screw Clamp Without Offset
E40, E41	E66

External Sleeve Holder

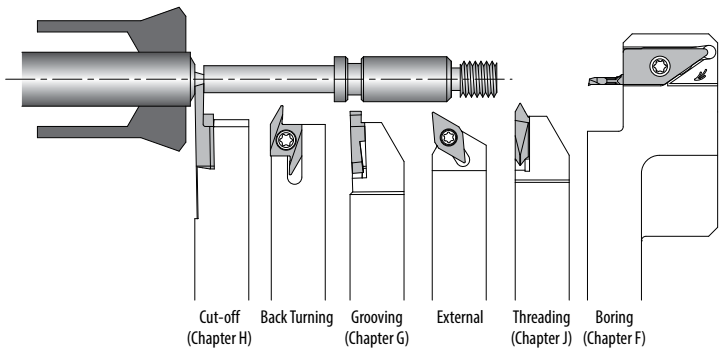


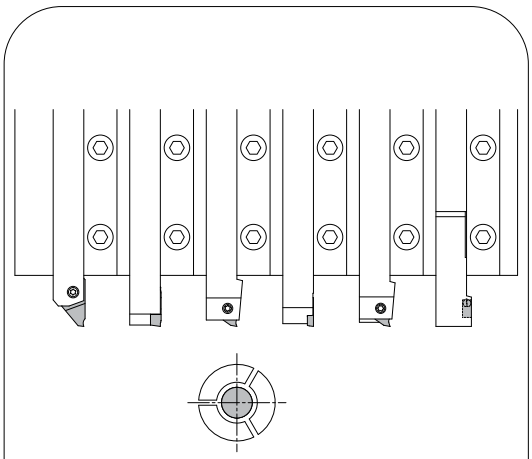
S-SDLC

Screw Clamp
Shank Dia.
Ø0.625"~Ø1.000" / Ø12.0mm~Ø25.4mm

E60

Tooling Example (1) CNC Automatic lathe (Gang Type)



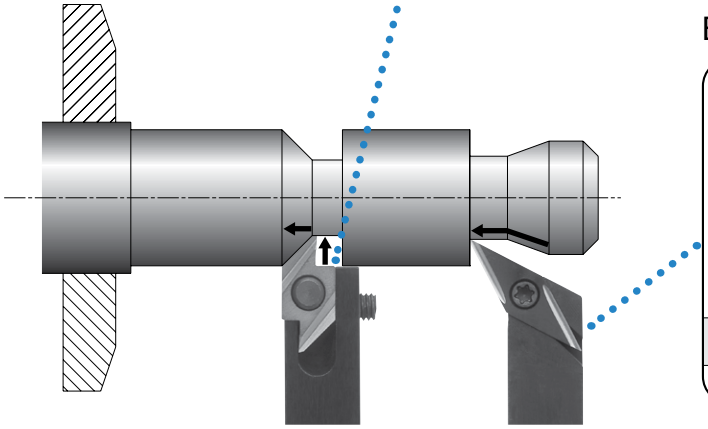


Tools installed on gang tool post

800.823.7284
www.kyoceraprecisiontools.com

Back Turning

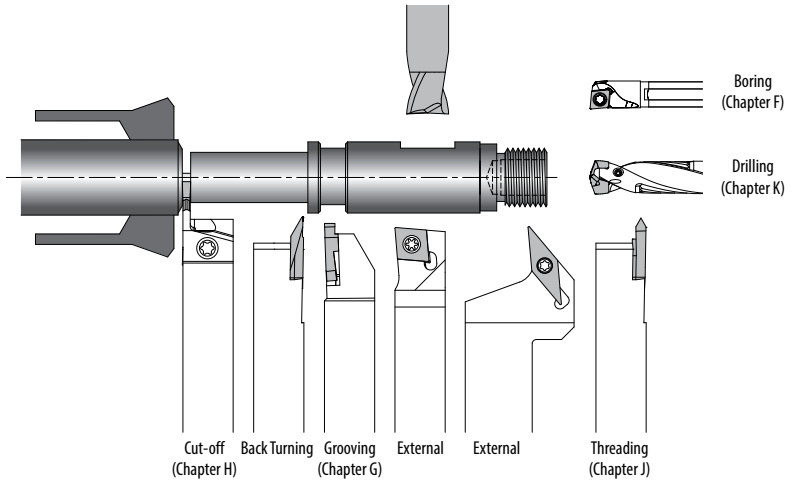
AABS -15JXF/-40F	SABS -15JXF/-40F	AABW -15JXF/-40F	SABW -15JXF/-40F	AABW -23JXF/-50F	SABW -23JXF/-50F	KTKF
Back Clamp Edge Width : 0.110" / 2.8mm D.O.C. : ~0.158" / ~4.0mm	Screw Clamp Edge Width : 0.110" / 2.8mm D.O.C. : ~0.158" / ~4.0mm	Back Clamp Edge Width : 0.185" / 4.7mm D.O.C. : ~0.158" / ~4.0mm	Screw Clamp Edge Width : 0.185" / 4.7mm D.O.C. : ~0.158" / ~4.0mm	Back Clamp Edge Width : 0.185" / 4.7mm D.O.C. : ~0.197" / ~5.0mm	Screw Clamp Edge Width : 0.185" / 4.7mm D.O.C. : ~0.197" / ~5.0mm	Screw Clamp Edge Width : 0.059"~0.150" / 1.5mm~3.8mm Max. D.O.C. : 0.071"~0.217" / 1.8mm~5.5mm
E20	E20	E21	E21	E22	E22	E15, E16

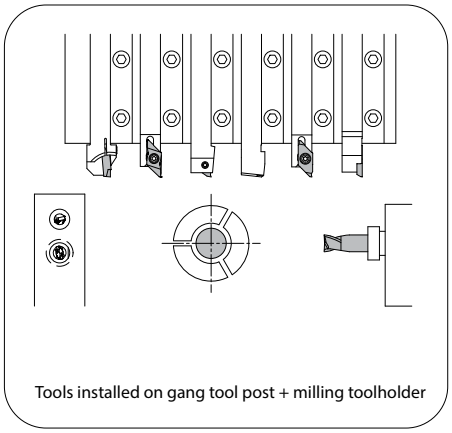


External / Facing / Copying / Undercutting

SVPB	SVPP-FF
Screw Clamp	Screw Clamp Without Offset
E46	E53

Tooling Example (2) CNC Automatic lathe (Gang Type)





Tools installed on gang tool post + milling toolholder

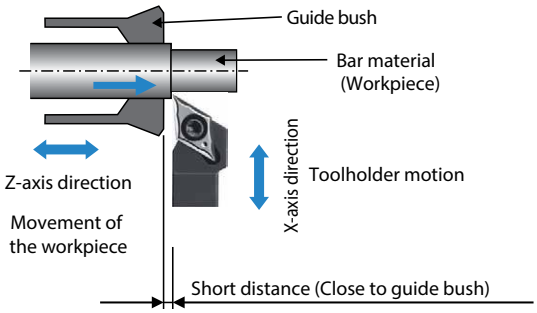
How to use goose-neck holder for swiss tool automatic lathe (gang type tool post)

Goose-neck holders are applicable to automatic lathes where toolholder does not move in longitudinal direction (Z-axis direction).

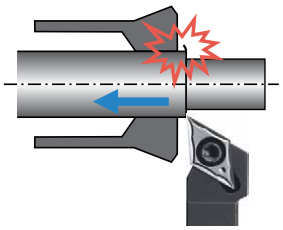
Swiss Tool Automatic Lathe (Guide Bush System)

When using a conventional toolholder

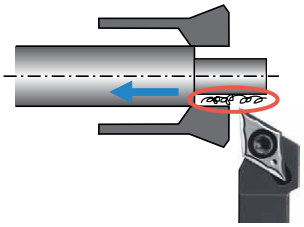
The Goose-neck Holder works with automatic lathes that do not move toolholders in longitudinal direction (Z-axis)



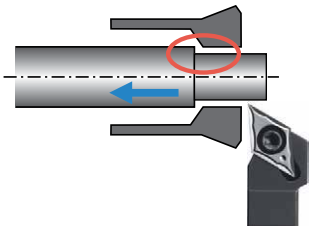
Problems When Machining with a Conventional Toolholder



Case 1
During multiple passes, when bar material returns into guide bush, the burr contacts and breaks guide bush.



Case 3
During multiple passes, when bar material returns into guide bush, the chips contact and break guide bush.

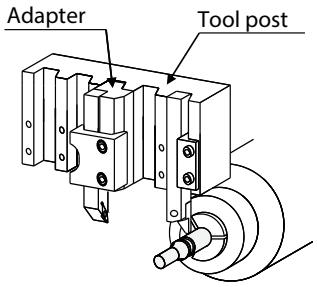


Case 4
Bar material deviation from the guide bush disables machining.

Case 2
The workpiece burr contacts the guide bush and causes dimensional variation.

Toolholder Installation Problems
When Using a Conventional Toolholder

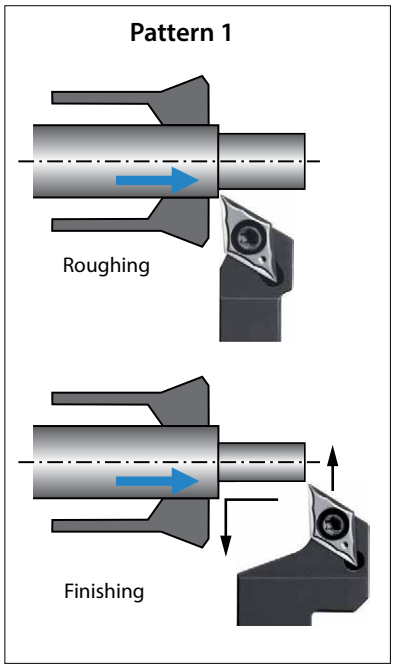
1. Additional space is required for an adapter.
2. Toolholder's handling is difficult due to limited space.
3. It is necessary to buy an adapter.
4. An adapter may interfere with the next tool post.



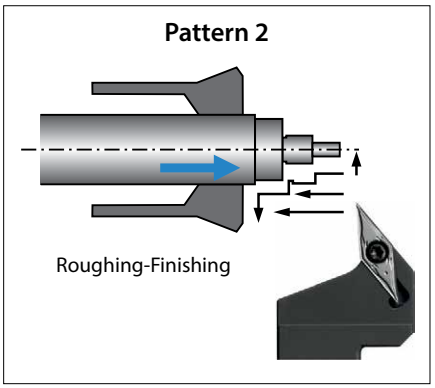
Advantages of the goose-neck holder

When using goose-neck holder

1. Additional finishing process improves machining precision
2. Chips do not enter guide bushing
3. Large chip evacuation space produces better chip control

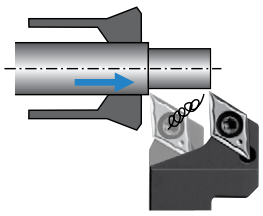


Available for machining after roughing without returning bar material into guide bushing, prevents damages and improves precision.

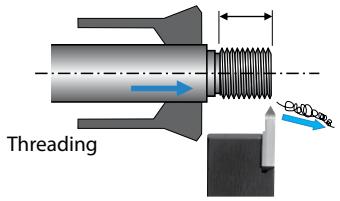


Available for machining from roughing to finishing with a single Goose-neck Holder.

For better chip control



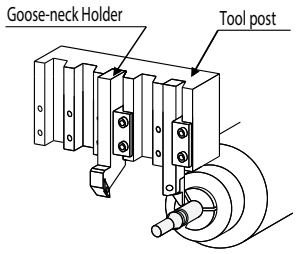
Optimum cutting edge position and large space for efficient chip evacuation.



With conventional threading toolholders, chip biting into guide bush can cause damages on threads.

Advantages of Toolholder installation - When using a goose-neck holder

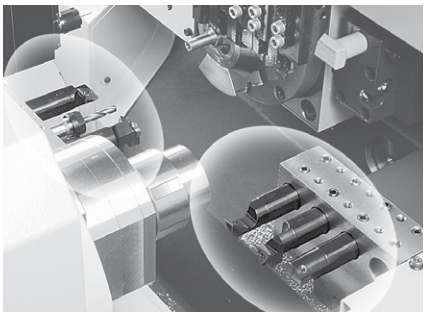
1. Maximum number of toolholders can be attached
2. No interference with next tool post



Summary of External Turning

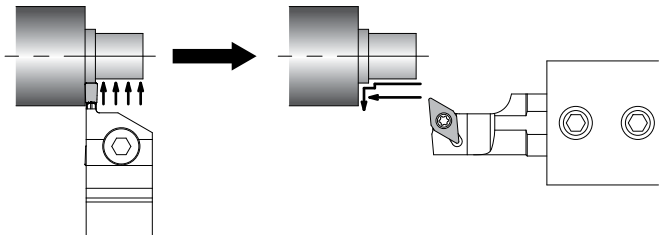
External Sleeve Holder

S-SCLC	S-SDUC	S-SDLC	S-SVUB(C)
Screw Clamp Shank Dia. ø0.625"~ø1.000" / ø12mm~ø25.4mm	Screw Clamp Shank Dia. ø0.625"~ø1.000" / ø14mm~ø25.4mm	Screw Clamp Shank Dia. ø0.625"~ø1.000" / ø12mm~ø25.4mm	Screw Clamp Shank Dia. ø0.625"~ø1.000" / ø12mm~ø25.4mm
E58	E59	E60	E62, E63



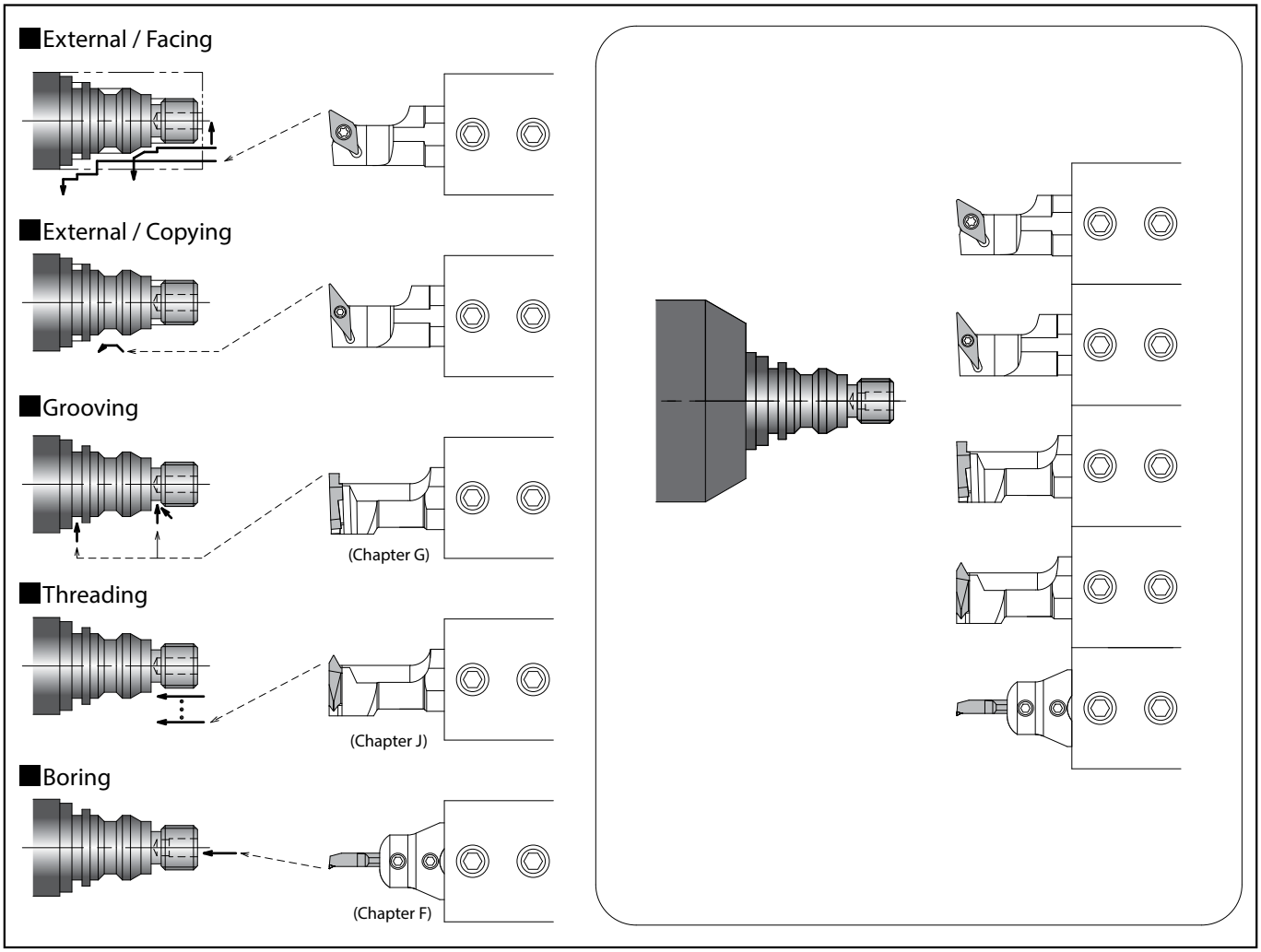
For Tooling Layout and Automatic Lathe List by Manufacturer, See Page R58~R66

Finishing with Sleeve Holder



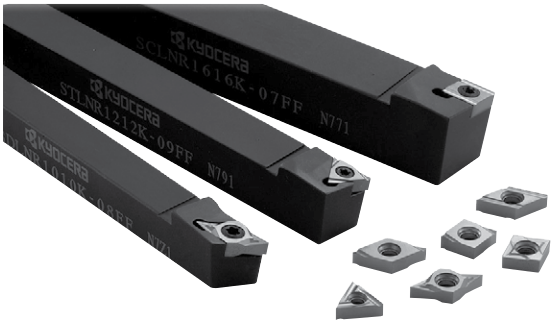
1) Roughing by grooving toolholder
2) Finishing by Sleeve Holder improves chip control and reduces cutting time

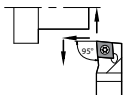
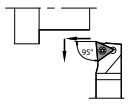
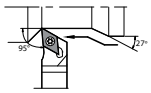
Tooling Example (3) CNC Automatic lathe (Opposed Gang Type)



For Tooling Layout and Automatic Lathe List by Manufacturer, See Page R58~R66

Double-Sided Small Tools (Screw Clamp)

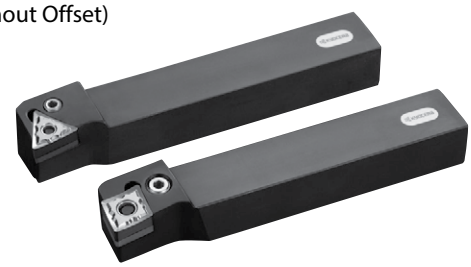


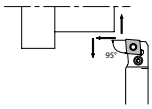
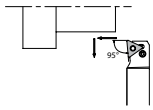
Applications	External / Facing	External / Up Facing	External / Copying
Cutting Edge Angle	95°	95°	95°
Screw Clamp (Without Offset)	 SCLN-FF	 STLN-FF	 SDLN-FF
See Page	E64	E66	E65

The double-sided design offers less cost per insert and more stability.
Sharp cutting performance equivalent to conventional positive inserts.

Double Sided Toolholder for Automatic Lathe

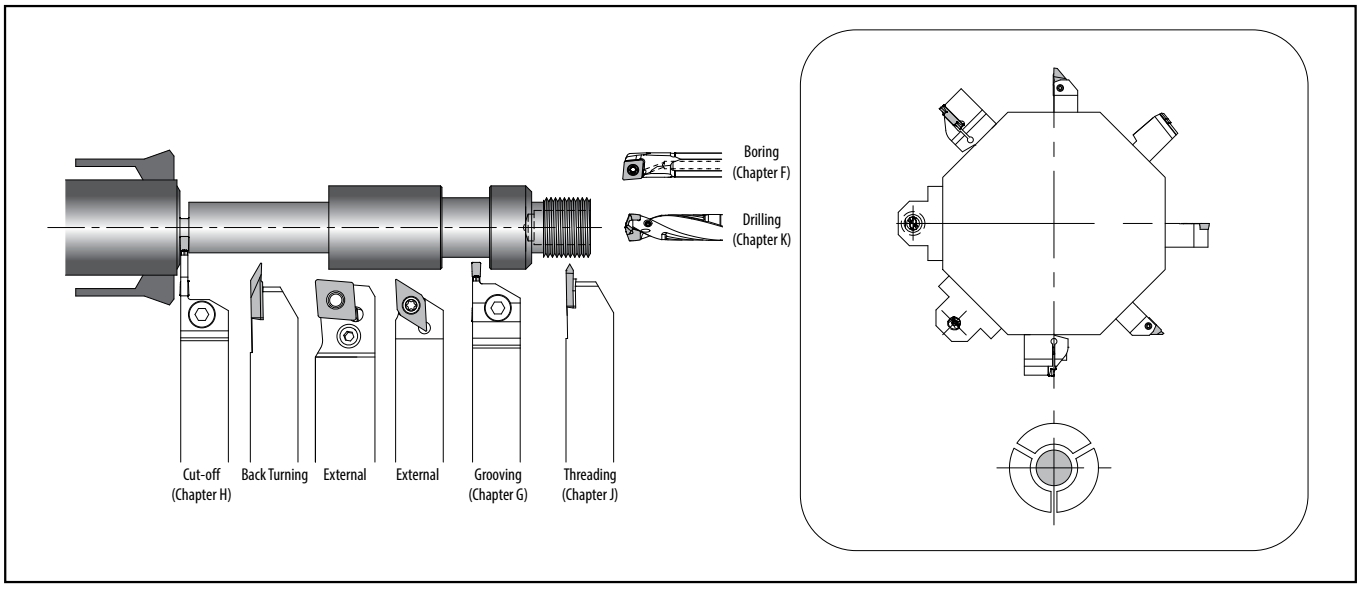
(Lever Lock, Without Offset)



Applications	External / Facing	External / Up Facing
Cutting Edge Angle	95°	95°
Lever Lock (Without Offset)	 PCLN-FF	 PTLN-FF
See Page	E67	E68

The Lever Lock type is available for small tools with external turning.

Tooling Example (4)



For Tooling Layout and Automatic Lathe List by Manufacturer, See Page R58~R66

JCTM Series

Direct Coolant Holders for Small Parts Machining

Supports Internal Coolant with or without Piping Systems
Lineup of Turning, Grooving (KGBF), and Cut-off (KGD/KTKF) Holders

1 Using Internal Coolant to Enhance Tool Performance

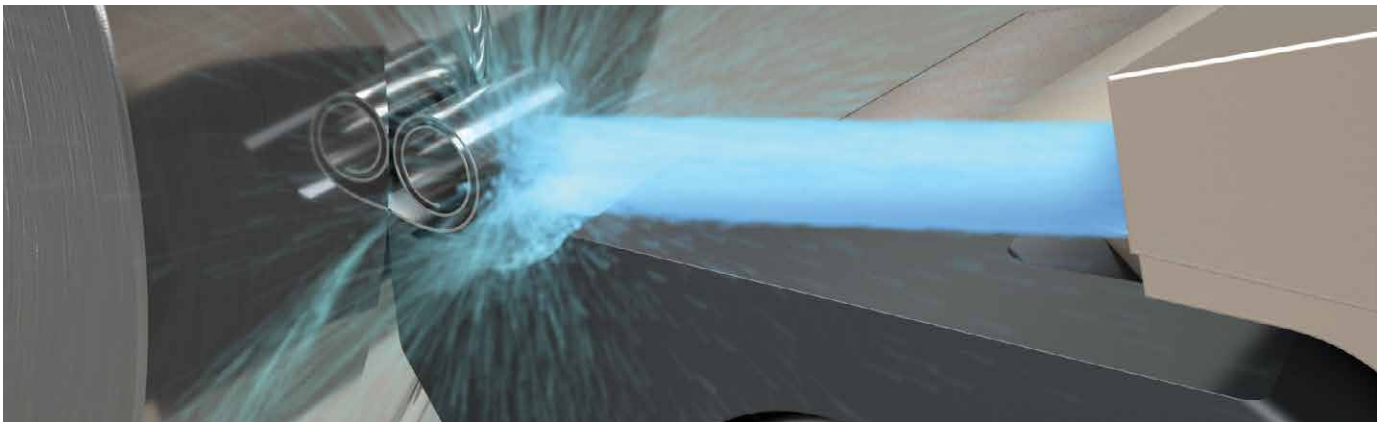
CG Image

Challenges

- Difficulty with automated operations due to sudden chip entanglement issues
- Insert change is not enough to extend tool life

SOLUTIONS

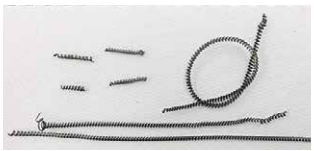
- The JCTM series is compatible with internal coolant in a wide range of machines and also works under normal pressure
- Reduces down time by improving chip control and reduces cost by extending tool life



CG Image

Switching to internal coolant toolholder reduces chip entanglement issues

Internal Coolant (2.5 MPa)



External Coolant

Pin Alloy Tool Steel

Vc = 590 sfm, D.O.C. = 0.055"
f = 0.005 ipr, Wet
SDJC Holder / DCMT3251 Insert (User Evaluation)

2 Supports Internal Coolant with or without Piping Systems

Internal Coolant without Piping

***When the tool plate supports direct coolant**

Coolant is supplied directly from plate into the holder without the need to install piping

Applicable to Wide Range of Machines

The tool plate is optional. Please contact our company sales representative for details.

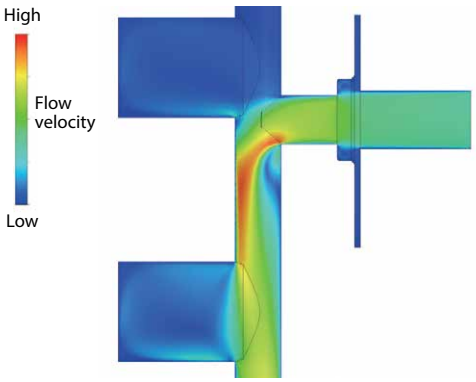
(Random order)
Based on Kyocera Survey in January 2021

CITIZEN MACHINERY CO., LTD. (L20, D25, M32)
STAR MICRONICS CO., LTD. (SB-R series, SR series, SV series)
TSUGAMI CORPORATION (S205/206-Ⅱ □16 type, S205A/206A-Ⅱ □16 type)
Compatible with various machine including the above.Toolholders can be customized as well.

Optimized Coolant Supply

Supply hole designed to reduce energy loss based on extensive flow analysis

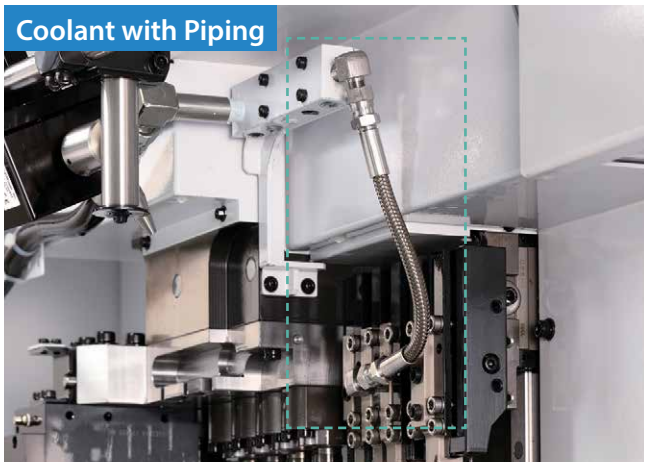
Analysis Image (Internal Evaluation)



Internal Coolant with Piping

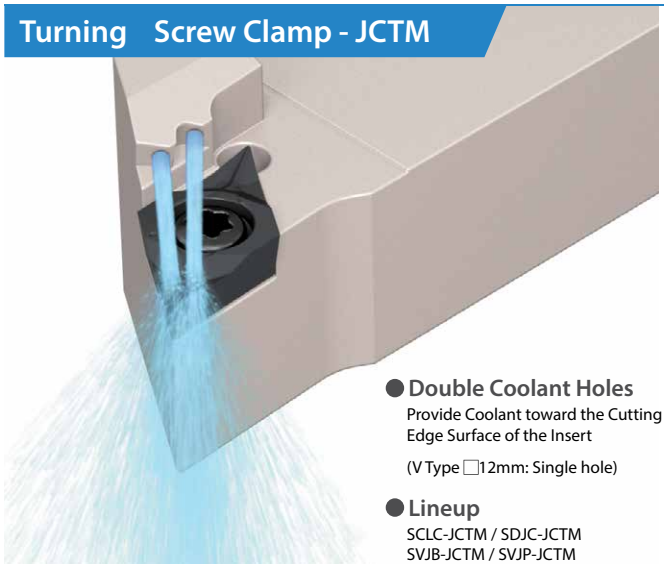
Compatible with internal coolant on any machine with standard piping parts

Commercial piping parts are available when using at normal pressure



3 Large Lineup for Various Tooling Operations

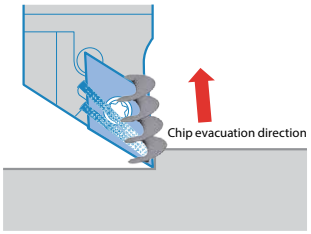
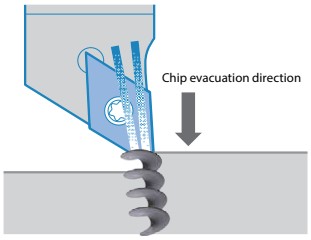
Turning Screw Clamp - JCTM



● **Double Coolant Holes**
Provide Coolant toward the Cutting Edge Surface of the Insert
(V Type □12mm: Single hole)

● **Lineup**
SCLC-JCTM / SDJC-JCTM
SVJB-JCTM / SVJP-JCTM

Coolant Supply Structure Comparison (Internal Evaluation)

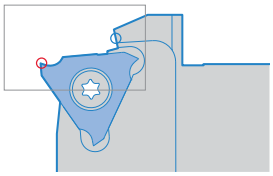
Screw Clamp- JCTM	Competitor A
Discharges coolant toward the rake surface of insert	Discharges coolant down onto the chip forcing the chip into the part
	
Chip control performance ✓ Provides stable chip curls	**Chip control performance** Chip becomes unstable
Cooling effect ✓ The cutting edge stays cool	**Cooling effect** Chip can cause interference with the workpiece

External Grooving KGBF-JCTM

Coolant Discharge Comparison (Internal Evaluation)

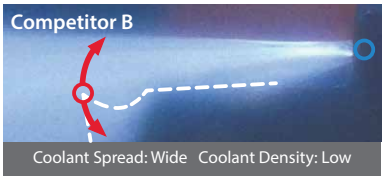
Small chips and better cooling of the insert leads to longer tool life.

○ Cutting Edge
○ Coolant Hole



(Without Insert)

(Without Insert)



● **Provides Coolant toward the Rake Surface of Insert**

● **Specification**
Edge Width: 0.010" - 0.118" (0.25mm - 3mm)
Ground Chipbreaker / Molded GL Chipbreaker
Maximum groove depth: 0.118" (3mm)

Square / Rectangle Shank Identification System

Note: JCTM-Series holders for small parts machining have rectangle shanks
See below for part number identification examples

Clamping System	
A	Back Clamp
C	Top Clamp
P	Lever Lock
S	Screw Clamp

Insert Shape	
C	80° Diamond
D	55° Diamond
S	90° Square
T	60° Triangle
V	35° Diamond

Hand of Tool	
R	Righ-Hand
L	Left-Hand
N	Neutral

Shank Size

Square Shank:
This number will represent the number of sixteenths of width and height.
Ex. 6/16 = 3/8" Square

Rectangle Shank:
the first digit represents the number of eighths of width and the second digit the number of quarters of height.
Ex. **Width = 6**/8 = 3/4"
Height = 2/4 = 1/2"

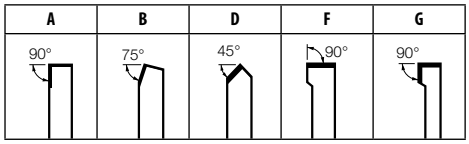
Insert Size (IC)

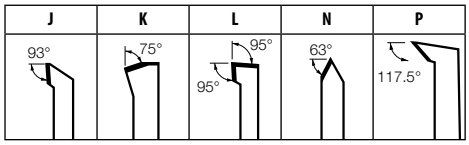
Number of 1/8ths on 1/4" IC and over

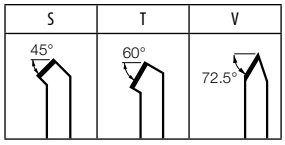
Optional Code	
Manufacturers Option	
FF	Without Offset
JCTM	Jet Coolant-Through

ANSI (Inch)	S	C	L	C	R	6	2	JX		FF	(JCTM)	
ISO (Metric)	S	C	L	C	R	12	12	JX	-	09	FF	(JCTM)

Cutting Edge Angle







Insert Relief Angle

B	5° Positive
C	7° Positive
N	0° Negative
P	11° Positive

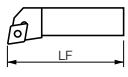
Shank Height

Shank Height (mm)

Shank Width

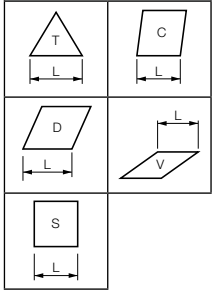
Shank Width (mm)

Toolholder Length



F	80mm (85mm)
H	100mm
JX	4.750" / 120mm
K	125mm
M	150mm

Insert Size (mm)



• Some back turning toolholders have Kyocera's unique descriptions

External Sleeve Holder Identification System

Shank	
S	Steel

Toolholder Length	
F	80mm (85mm)
G	90mm
H	100mm
K	125mm (120mm)

Clamping System	
S	Screw Clamp

Insert Shape	
C	80° Diamond
D	55° Diamond
V	35° Diamond

Hand of Tool	
L	Left-Hand

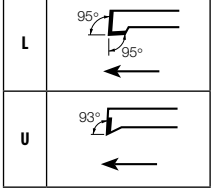
ANSI (Inch)	S	19	K	-	S	C	L	C	L	09	
ISO (Metric)	S	20	K	-	S	C	L	C	L	09	

Shank Diameter

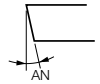
ANSI:
A two-digit number that indicates the shank diameter in 1/16" increments.

ISO:
Shank diameter in mm.

Cutting Edge Angle

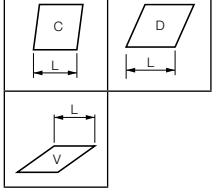


Insert Relief Angle



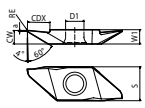
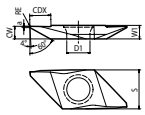
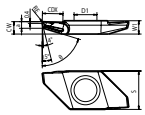
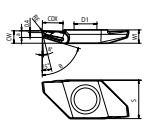
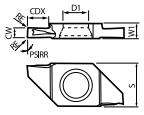
B	5° Positive
C	7° Positive

Insert Size (mm)



• The dimensions and specifications are subject to change for improvement without notice.
• Depending on the machine specifications such as attachment Dimensions, the symbol may not match the actual toolholder length.

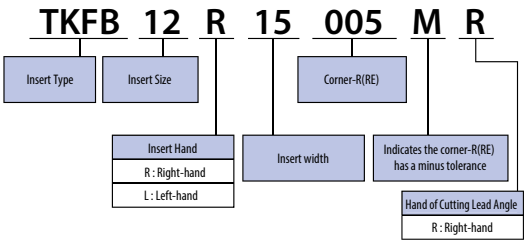
TKF / TKFB

Insert		Part Number	No. of Edges	Dimension (mm) CW in	CW mm	CDX	S	D1	RE	W1	a	Angle (°) PSIR/L	θ	Carbide PVD PR1225	PVD PR1535	PVD PR1725	- KW10	Applicable Toolholder ▶ E15, E16
Carbon Steel / Alloy Steel														○	○	●		P
Stainless Steel														○	●	○		M
Cast Iron																	●	K
Non-ferrous metals																	●	N
		TKFB 12R15005M 12R28005M 12R28010M	2	0.059 0.110 0.110	1.5 2.8 2.8	2.6 4.6 4.6	8.7	5.2	< 0.05 < 0.05 < 0.1	3	0.25 0.3 0.3	-	-	● ●	● ● ●	● ● ●	● ● ●	KTKFR...-12 KTKFR...-12-Y
		TKFB 16R38005M 16R38010M	2	0.150	3.8	6.3	9.5	5.2	< 0.05 < 0.1	4	0.3	-	-	● ●	● ●	● ●	● ●	KTKFR...-16
		TKFB 12L28005MR 12L28010MR	2	0.110	2.8	4.6	8.7	5.2	< 0.05 < 0.1	3	0.3	-	-	● ●	● ●			KTKFL...-12
		TKFB 16L38005MR 16L38010MR	2	0.150	3.8	6.3	9.5	5.2	< 0.05 < 0.1	4	0.3	-	-	● ●	● ●			KTKFL...-16
	 Polished	TKFB 12R28005P-GQ 12R28015P-GQ	2	0.110	2.8	4.6	8.7	5.2	0.05 0.15	3	1.5	-	74	● ●	● ●	● ●		KTKFR...-12 KTKFR...-12-Y
		TKFB 16R38005P-GQ 16R38015P-GQ	2	0.150	3.8	6.3	9.5	5.2	0.05 0.15	4	1.8	-	72	● ●	● ●	● ●		KTKFR...-16
		TKFB 12R28005-GQ 12R28015-GQ	2	0.110	2.8	4.6	8.7	5.2	0.05 0.15	3	1.5	-	74	● ●	● ●	● ●		KTKFR...-12 KTKFR...-12-Y
		TKFB 16R38005-GQ 16R38015-GQ	2	0.150	3.8	6.3	9.5	5.2	0.05 0.15	4	1.8	-	72	● ●	● ●	● ●		KTKFR...-16
	 Plunge and turn	TKF 12R200-GTP	2	0.079	2	4.3	8.7	5	0.08	3	-	0	-		●	●		KTKFR...-12 KTKFR...-12-Y
		TKF 16R300-GTP	2	0.118	3	5.8	9.5	5	0.08	4	-	0	-		●	●		KTKFR...-16

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Recommended Cutting Conditions ▶ E76

Inserts Identification System (Ref. Tables 1 and 2)



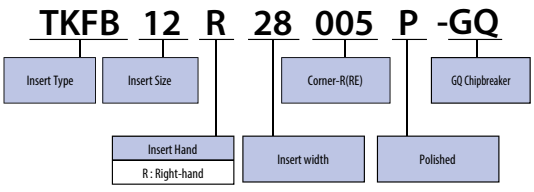


Table 1

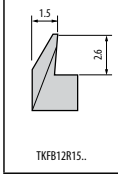
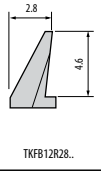
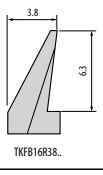
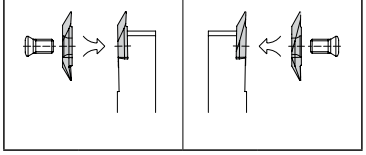
Small machining	General purpose	Large machining
		
TKFB12R15..	TKFB12R28..	TKFB16R38..

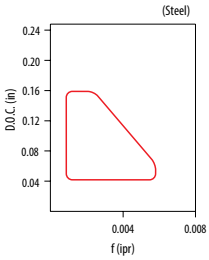
Table 2

Toolholder	Right-hand	Toolholder	Left-hand
Insert	Right-hand	Insert	Left-hand
Lead angle	Right-hand	Lead angle	Right-hand

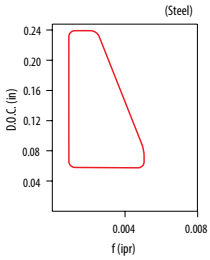


Applicable Chipbreaker Range

TKFB12R28...GQ



TKFB16R38...GQ



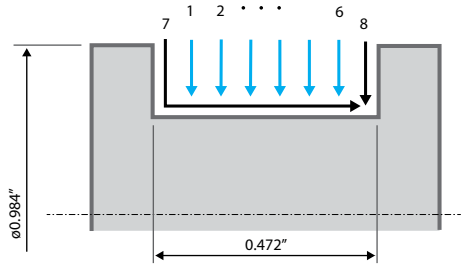
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GTP chipbreaker - Grooving and Turning Available

Cutting Time Comparison (Internal evaluation)

Competitor A

Multiple Grooves and a Finishing Pass
Workpiece Material : 1045 (ø0.984")

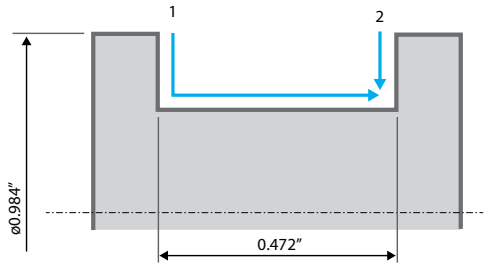


Cutting Conditions: Multiple Grooves
Vc= 330 sfm
D.O.C. = 0.138", f = 0.004 ipr

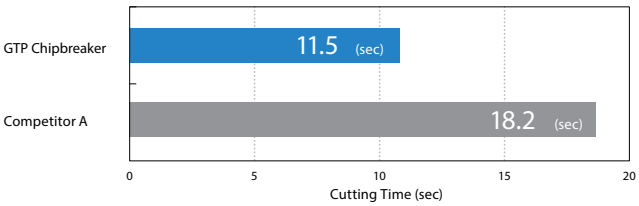
Cutting Conditions: Finishing
Vc= 330 sfm
D.O.C. = 0.020", f = 0.002 ipr

TKF12R200-GTP

Grooving and Turning
Workpiece Material : 1045 (ø0.984")



Cutting Conditions: Grooving and Turning
Vc= 330 sfm
D.O.C. = 0.158", f = 0.002 ipr



GTP chipbreaker required fewer machining paths than competitor

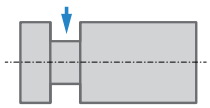
40%
Cutting Time Reduction

Chip Control Comparison (Internal evaluation)

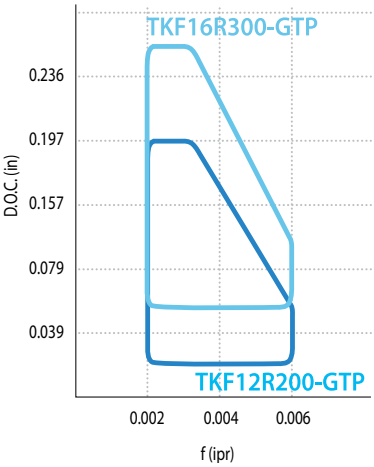
Grooving

f (ipr)	0.002	0.003	0.004
TKF12R 200-GTP			
Competitor B			

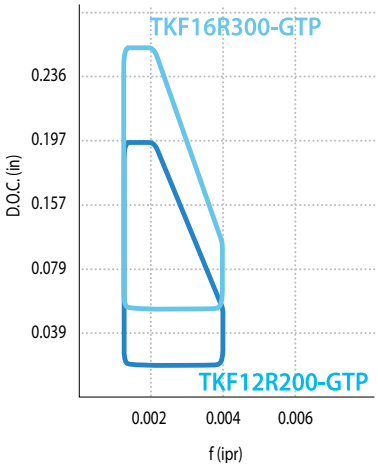
Cutting Conditions : Vc = 330 sfm, D.O.C. = 0.158" , Wet
Workpiece Material : 1045 (ø0.984")



Recommended Chipbreaker Range (Steel)

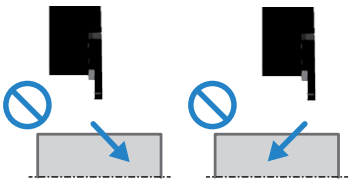


Recommended Chipbreaker Range (Stainless Steel)



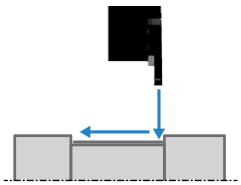
Caution for machining

Ramping

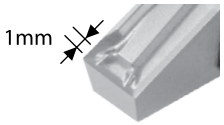


Ramping is not recommended if the workpiece is not pre-machined as shown in the right gures

Back Turning

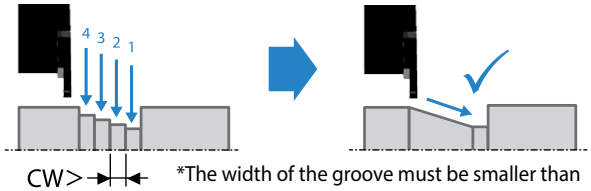


When back turning is used for nishing, make sure that the side cutting edge (back) of the tool is within 1mm

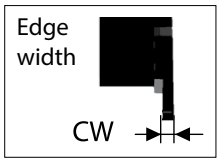


Tips for Ramping

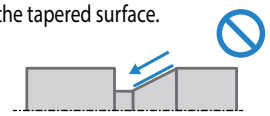
Step grooving is required before ramping. (Refer to the gure below)



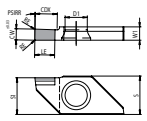
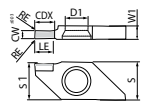
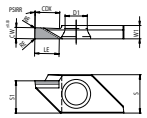
*The width of the groove must be smaller than the edge width to overlap the previous groove



Back turning is not recommended on the tapered surface.



TKF

Insert		Part Number	No. of Edges	CW in	CW mm	CDX	S	S1	D1	RE	LE	W1	Angle (°) PSIR	Tolerance (in) CW min.	CW max.	RE (+/-) min.	RE (+/-) max.	PCD	-	KPD001	Applicable Toolholder ➡ E15, E16
Carbon Steel / Alloy Steel																			●		P
Stainless Steel																			●		M
Cast Iron																			●		K
Non-ferrous metals																			●		N
		TKF12R 150-NB	1	0.059	1.5	0.138	0.343	0.327	0.197	0.004	0.079	0.118	0	- 0.0012	+ 0.0012	- 0.0020	0		●		KTKFR...-12 KTKFR...-12-Y
		200-NB		0.079	2.0	0.157					0.118								●		
		250-NB		0.098	2.5	0.157					0.118								●		
		TKF12R 200-AGT	1	0.079	2.0	0.189	0.343	0.327	0.197	0.004	0.165	0.118	0	- 0.0012	+ 0.0012	- 0.0020	0		●		
		250-AGT		0.098	2.5														●		
		TKF12R 200-AS	1	0.079	2.0	0.197	0.343	0.287	0.197	0.004	0.209	0.118	0	- 0.0012	+ 0.0012	- 0.0020	0		●		KTKF□...-12 KTKFR...-12-Y
		TKF16R 250-AS	1	0.098	2.5	0.315	0.374	0.315	0.197	0.004	0.248	0.157	0	- 0.0012	+ 0.0012	- 0.0020	0		●		KTKF□...-16

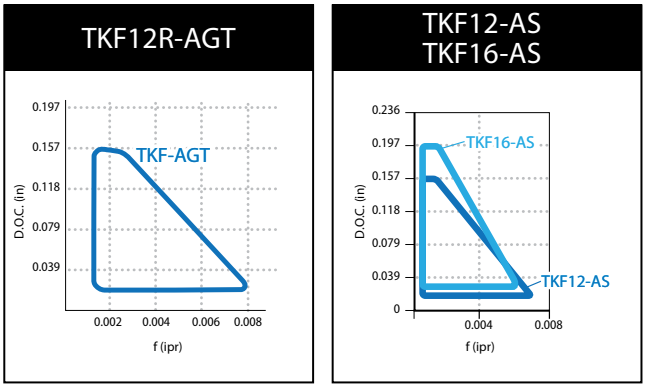
Recommended Cutting Conditions ➡ E76

Inserts Identification System

TKF	12	R	200	-	AGT
TKF	12	L	200	-	AS

- Insert Type
- Insert Size
- Insert Hand: R : Right-hand; L : Left-hand
- Width (Edge Width)
- Name of Chipbreaker: AGT : AGT Chipbreaker; AS : AS Chipbreaker; GTP : GTP Chipbreaker; NB : Without Chipbreaker

Applicable Range



* PCD Inserts for turning and grooving

* Not recommended for cut-off

Note 1) The cutting edge of the TKF-AS / -ASR will be 1 mm lower than the center line when attached to the KTKF toolholder (Ref. to Fig. 2).
Adjust the height by making NC lathe parameter settings or inserting a plate.
2) If the 1 mm adjustment is not possible, use the TKF..-AGT/TKF..-NB. (Ref. to Fig. 3)

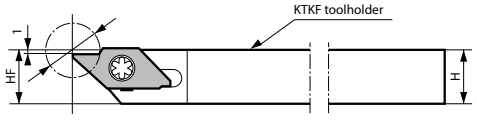


Fig. 2 When a TKF-AS / -ASR insert is attached(The cutting edge is 1mm lower than the center line)

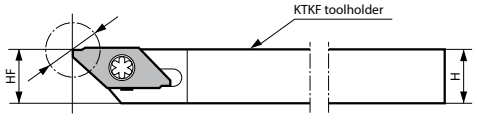
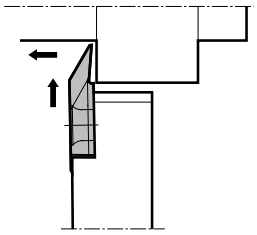


Fig. 3 When a TKF-NB insert is attached

PCD Inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KTKF (Back Turning)



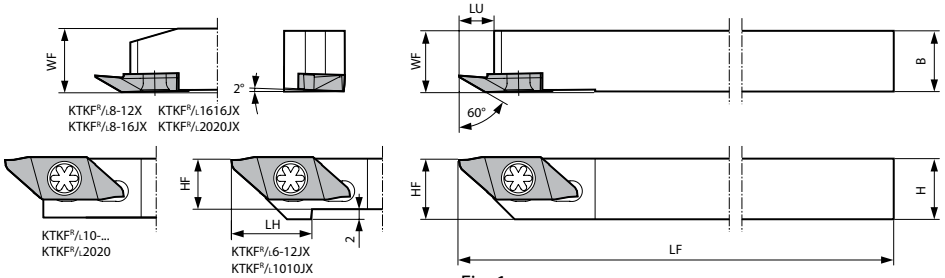


Fig. 1

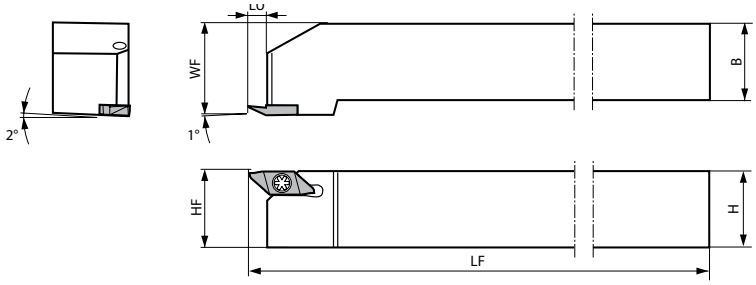


Fig. 2

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

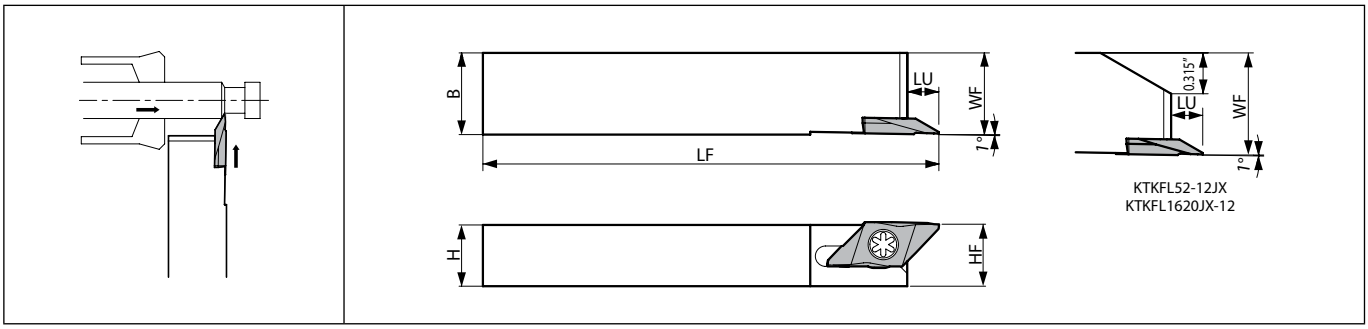
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	LU	WF	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
Inch	KTKF®/L 6-12JX	●	●	0.375	0.375	0.590	0.375	4.750	0.236	0.375				
	8-12JX	●	●	0.500	0.500	-	0.500	4.750	0.236	0.500	1	SB-4590TRWN	FT-10	TKF12®/L... TKFB12®/L...
	10-12JX	●	●	0.625	0.625	-	0.625	4.750	0.236	0.625				
	KTKF®/L 6-16JX	●	●	0.375	0.375	0.787	0.375	4.750	0.315	0.375				
	8-16JX	●	●	0.500	0.500	-	0.500	4.750	0.315	0.500	1	SB-4590TRWN	FT-10	TKF16®/L... TKFB16®/L...
	10-16JX	●	●	0.625	0.625	-	0.625	4.750	0.315	0.625				
mm	KTKF®/L 1010JX-12	●	●	10	10	15	10	120		10	1			
	1212F-12	●	●	12	12		12	85		12	1			
	1212JX-12	●	●					120						
	1616JX-12	●	●	16	16	-	16	120	6	16	1	SB-4590TRWN	FT-10	TKF12®/L... TKFB12®/L...
	2020JX-12	●	●	20	20		20	120		20	1			
	2525M-12	●		25	25		25	150		30	1			
	KTKF®/L 1010JX-16	●	●	10	10	20	10	120		10	1			
	1212F-16	●	●	12	12		12	85		12	1			
	1212JX-16	●	●					120						
	1616JX-16	●	●	16	16	-	16	120	8	16	1	SB-4590TRWN	FT-10	TKF16®/L... TKFB16®/L...
	2020JX-16	●	●	20	20		20	120		20	1			
	2525M-16	●		25	25		25	150		30	2			

LU shows the distance from the toolholder to the cutting edge.
See Page H15 for internal coolant type (coolant-through holders)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KTKF (Back Turning , Goose-Neck Toolholder)



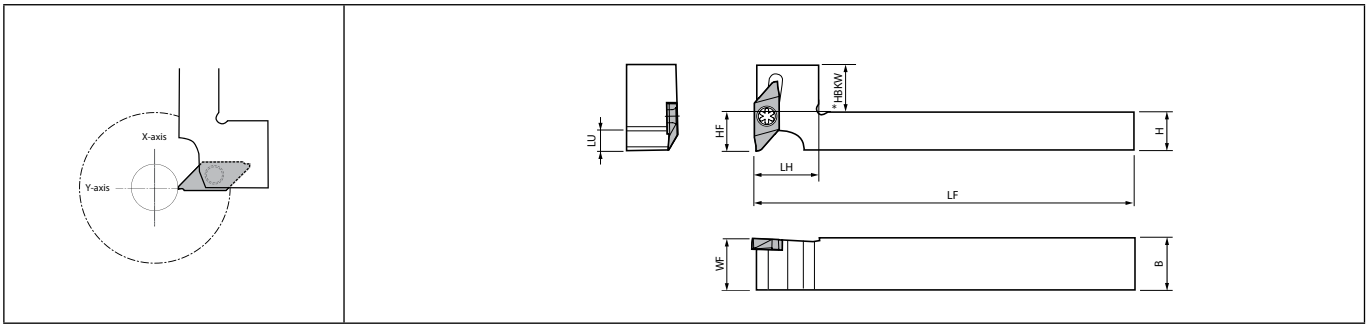
Left-hand shown | Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Spare Parts		Applicable Inserts E12, E14
			L	H	B	HF	LF	LU	WF	Screw	Wrench	
Inch	KTKFL 52-12JX	●	0.500	0.625	0.500	4.750	0.236	0.625	SB-4590TRWN	FT-10	TKF12L... TKFB12L...
	62.5-12JX	●	0.625	0.750	0.625			0.750			
mm	KTKFL 1216JX-12	●	12	16	12	120	6	16	SB-4590TRWN	FT-10	TKF12L... TKFB12L...
	1620JX-12	●	16	20	16			20			

LU shows the distance from the toolholder to the cutting edge.

KTKF-Y (Back Turning , Y-Axis Toolholder)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Spare Parts		Applicable Inserts E12, E14
			R	H	B	LH	HF	HBKW	LF	WF	Screw	Wrench	
mm	KTKFR 1216JX-12-Y	●	12	16	20	12	15	120	16	SB-4590TRWN	FT-10	TKF12R... TKFB12R...
	1616JX-12-Y	●	16		25	16	11					

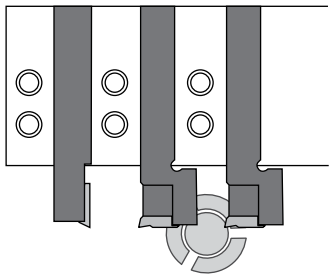
LU shows the distance from the toolholder to the cutting edge.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

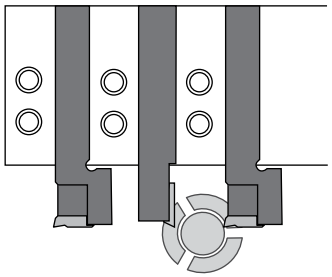
Precautions for using Y-axis toolholder

Do not use Y-axis toolholders side by side to prevent interference. (Only two Y-axis holder can be used at the same time)

With interference

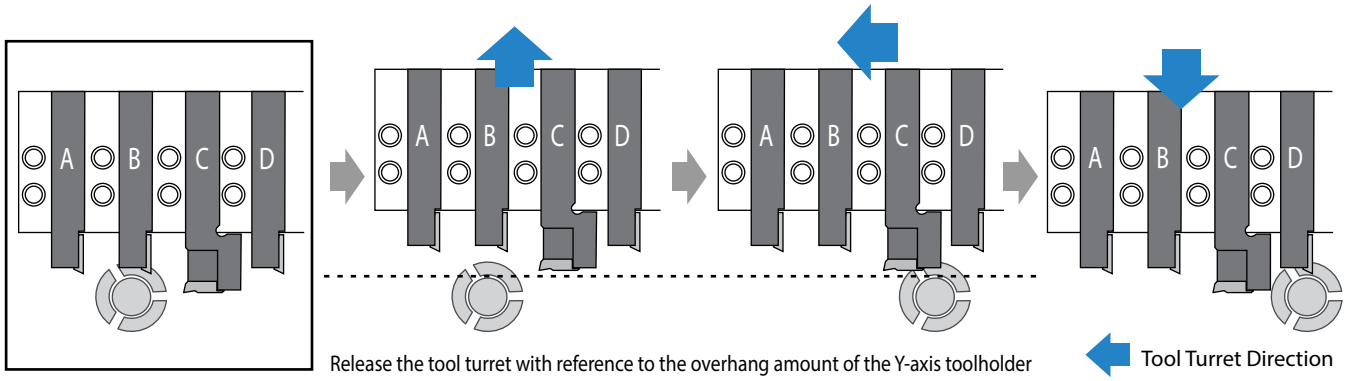


Without interference



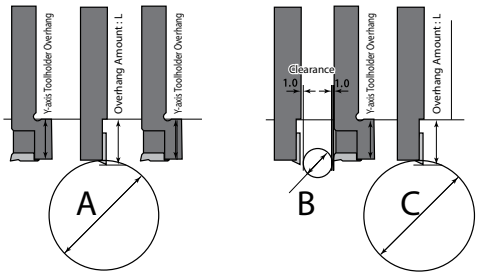
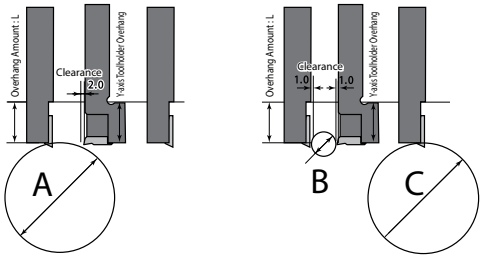
Standard toolholders may be mounted between two Y-axis toolholders

When changing the tool, set the retracted position with reference to the cutting edge of the Y-axis holder. (When exchanging from tool B to D)



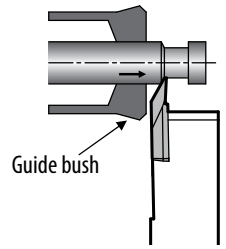
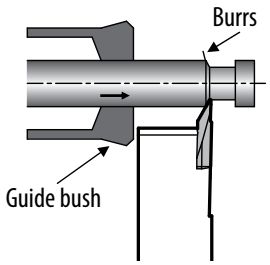
Note that using other toolholders together will result in different outside diameters

(Unit : mm)

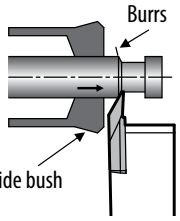
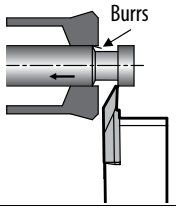
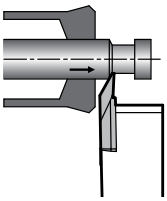
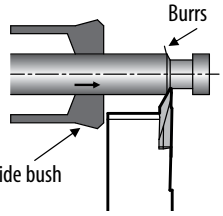
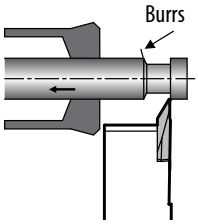
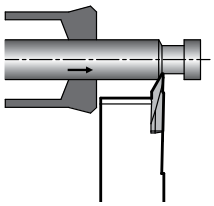
Y-axis Toolholder Overhang	Examples	Overhang Amount L / Available Outside Cutting Diameter (ø)	20	22	25
20		A	Without Restriction	Without Restriction	Without Restriction
		B	13.0	13.0	13.0
		C	Without Restriction	Without Restriction	Without Restriction
25		A	38.0	58.0	Without Restriction
		B	14.9	13.6	13.0
		C	45.0	60.0	Without Restriction

Toolholders for back turning - TKFB insert

How to select back turning toolholder hand

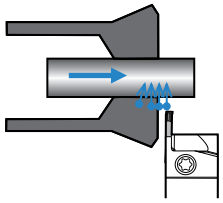
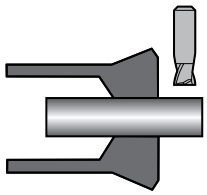
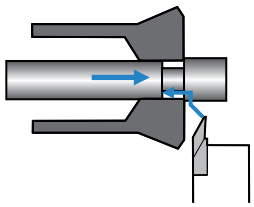
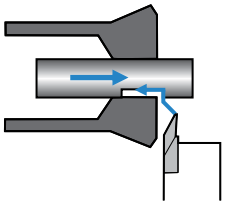
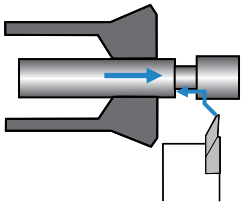
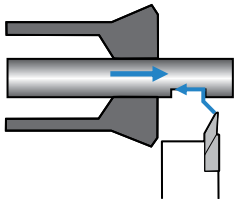
Right-hand		• Machining near the guide bush is possible • Narrow cutting edge width of TKFB12R15005M • Optimum for small parts and high precision machining
Left-hand	The workpiece burr does not contact the guide bush. 	• Machining with a distance from guide bush • Good chip control due to large space between the guide bush and the tool. • Excellent chip control in roughing and finishing (plural passes) • Stable accuracy of external diameter dimension: • When burrs occur, if a left-hand toolholder is used, it is not necessary to return workpiece into guide bush in finishing. • Also, left-hand toolholders prevent guide bush wear caused by chip biting.

Workpiece movement and tool hand selection - when roughing and finishing

	Roughing	Workpiece position after roughing	Finishing
Right-hand			
Left-hand			

* Good dimension accuracy: If a left-hand toolholder is used, burrs on workpiece generated in roughing do not damage the guide bush in finishing.

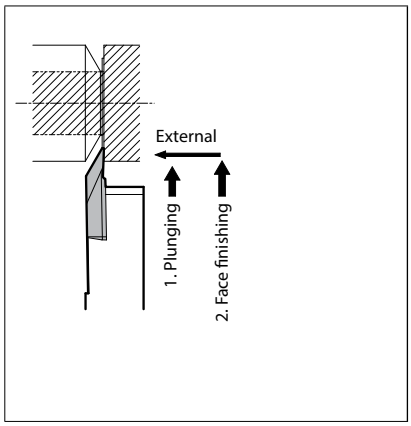
Chip control improvement in back turning

	Chip control improvement by tool pass changes - 1	Chip control improvement by tool pass changes - 2
Roughing	Roughing with grooving tools 1. GMM2420-020MW (Grooving) 	Pre-Stage machining is processed with solid end mill 1. Solid end mill 
Finishing (Countermeasures 1) Use right-hand toolholder	When using TKFB12R28010M (for back turning / right hand)  Advantages: • Good surface finish Disadvantages: • If a machining pass is long, the guide bush can not support the workpiece.	When using TKFB12R28010M (for back turning / right hand)  Advantages: 1. Minimal deflection in long machining passes 2. Chips are broken into small pieces, though the workpiece material is sticky Disadvantages: • The pre-stage machining may cause fractures, because of interrupted machining
Finishing (Countermeasures 2) Use left-hand toolholder	When using TKFB12L28010M (for back turning / left hand)  Advantages: 1. Good surface finish 2. High precision machining if the machined portion does not contact the guide bush. Disadvantages: • If a machining pass is long, the guide bush can not support the workpiece.	When using TKFB12L28010M (for back turning / left hand)  Advantages: 1. Minimal deflection in long machining passes 2. Chips are broken into small pieces, though the workpiece material is sticky. 3. High precision machining if the machined portion does not contact the guide bush. Disadvantages: • The pre-stage machining may cause fractures, because of interrupted machining.

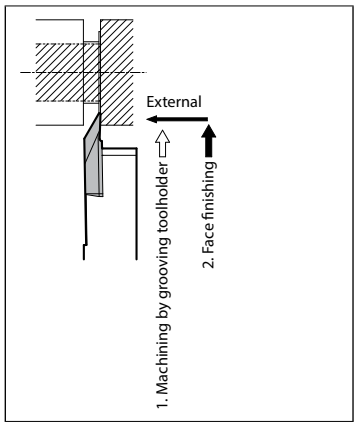
Countermeasure against peeled surface in face back turning

When peeled surface occurs on the workpiece face, please apply the countermeasures below.

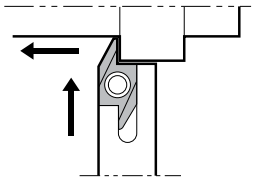
Countermeasures 1 Face finishing

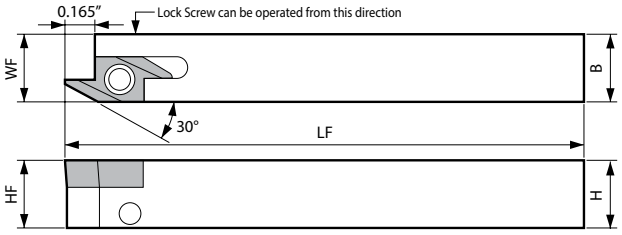


Countermeasures 2 Face finishing after grooving



AABS (Back Turning / Edge Width : 0.110", Max. Depth : 0.158")

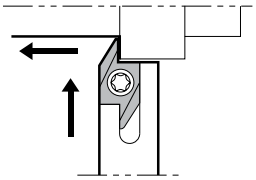


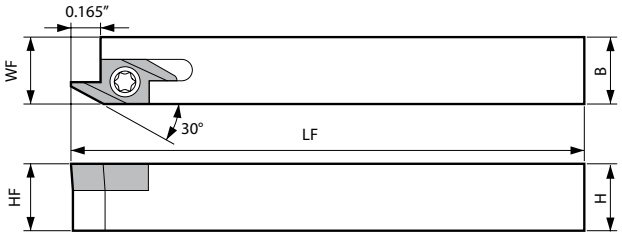


Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts			Applicable Inserts ➡ B112
		R	H	B	HF	LF	WF		Anchor pin	Lock Screw	Wrench	
Inch	AABSR 6-15JXF	●	0.375	0.375	0.375	4.750	0.383	0.006	LPA-11	HSB4X8R	FH-2	ABS15R40...
	8-15JXF	●	0.500	0.500	0.500		0.508		LPA-13			
	10-15JXF	●	0.625	0.625	0.625		0.633		LPA-17			
mm	AABSR 1010JX-40F	●	10	10	10	120	10.2	0.15	LPA-11	HSB4X8R	FH-2	ABS15R40...
	1212JX-40F	●	12	12	12		12.2		LPA-13			
	1616JX-40F	●	16	16	16		16.2		LPA-17			

SABS (Back Turning / Edge Width : 0.110", Max. Depth : 0.158")





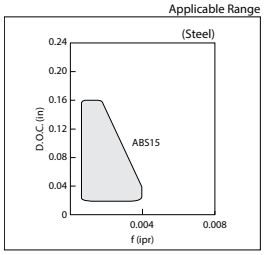
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts		Applicable Inserts ➡ B112
		R	H	B	HF	LF	WF		Screw	Wrench	
Inch	SABSR 6-15JXF	●	0.375	0.375	0.375	4.750	0.383	0.006	SB-3080TR	FT-10	ABS15R40...
	8-15JXF	●	0.500	0.500	0.500		0.508				
	10-15JXF	●	0.625	0.625	0.625		0.633				
mm	SABSR 1010JX-40F	●	10	10	10	120	10.2	0.15	SB-3080TR	FT-10	ABS15R40...
	1212F-40F	●	12	12	12	85	12.2				
	1616JX-40F	●	16	16	16	120	16.2				
	2020K-40F	●	20	20	20	125	20.2				

Applicable Inserts

Applications	Back Turning
Insert	
Type	ABS15
Page	B112

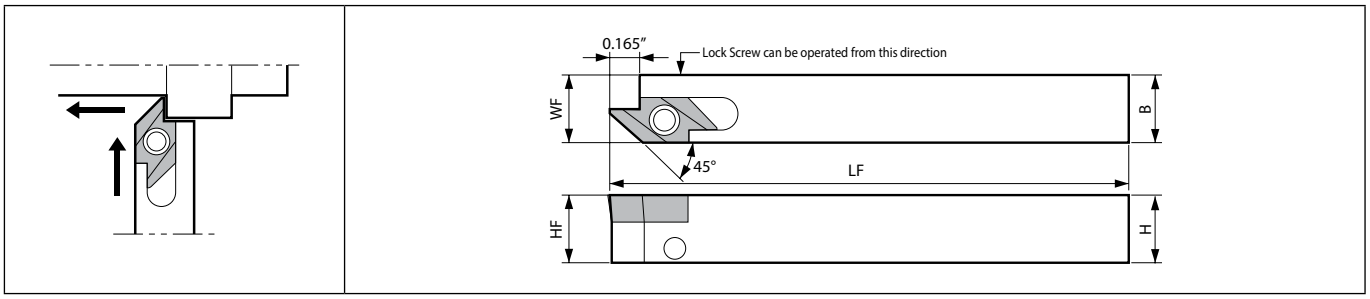
Applicable Range



Recommended Cutting Conditions ➡ E76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

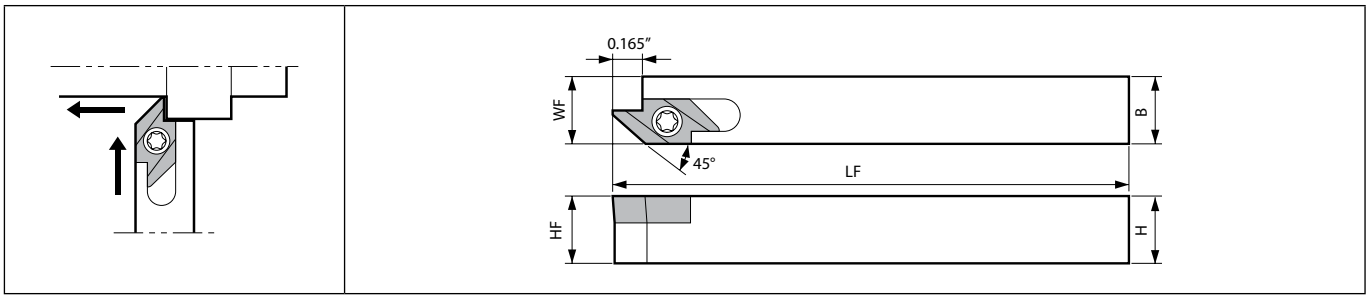
AABW (Back Turning / Edge Width : 0.185", Max. Depth : 0.158")



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Spare Parts			Applicable Inserts ➡ B112
		R	H	B	HF	LF	WF			Anchor pin	Lock Screw	Wrench	
Inch	AABWR 6-15JXF	●	0.375	0.375	0.375	4.750	0.383	0.006	LPA-11	HSB4X8R	FH-2	ABW15R40...	
	8-15JXF	●	0.500	0.500	0.500		0.508		LPA-13				
	10-15JXF	●	0.625	0.625	0.625		0.633		LPA-17				
mm	AABWR 1010JX-40F	●	10	10	10	120	10.2	0.15	LPA-11	HSB4X8R	FH-2	ABW15R40...	
	1212JX-40F	●	12	12	12		12.2		LPA-13				
	1616JX-40F	●	16	16	16		16.2		LPA-17				

SABW (Back Turning / Edge Width : 0.185", Max. Depth : 0.158")

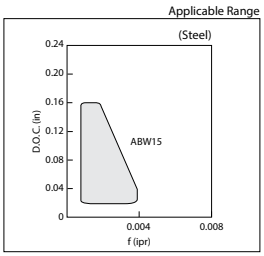


Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Spare Parts		Applicable Inserts ➡ B112
		R	H	B	HF	LF	WF			Screw	Wrench	
Inch	SABWR 8-15JXF	●	0.500	0.500	0.500	4.750	0.508	0.006	SB-3080TR	FT-10	ABW15R40...	
	10-15JXF	●	0.625	0.625	0.625		0.633					
mm	SABWR 1010JX-40F	●	10	10	10	120	10.2	0.15	SB-3080TR	FT-10	ABW15R40...	
	1212JX-40F	●	12	12	12		12.2					
	1616JX-40F	●	16	16	16		16.2					
	2020K-40F	●	20	20	20	125	20.2					

Applicable Inserts

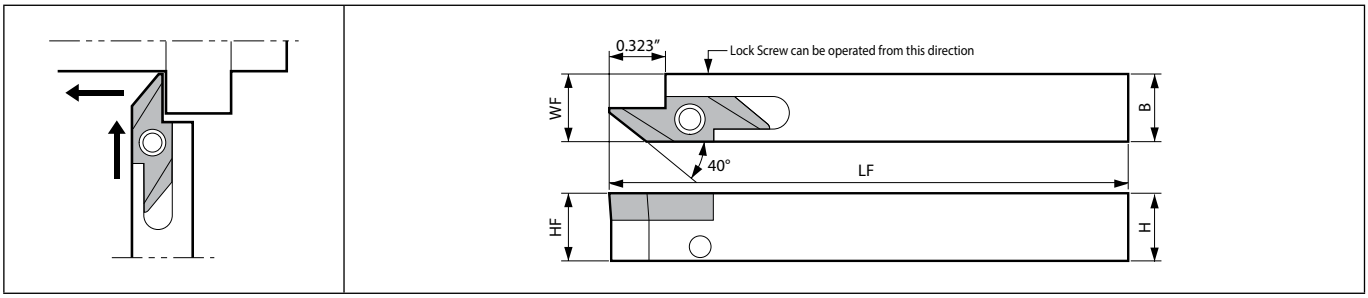
Applications	Back Turning
Insert	
Type	ABW15
Page	B112



Recommended Cutting Conditions ➡ E76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

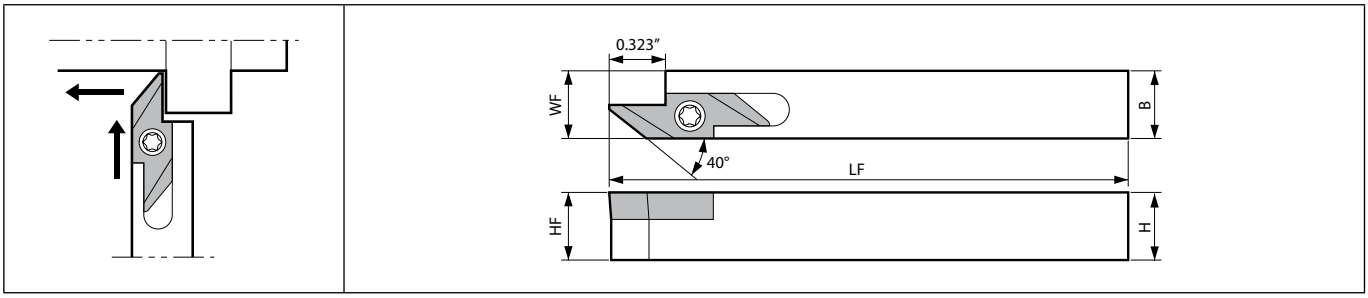
AABW (Back Turning / Edge Width : 0.185", Max. Depth : 0.197")



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts			Applicable Inserts ➡ B112
		R	H	B	HF	LF	WF		Anchor pin	Lock Screw	Wrench	
Inch	AABWR 6-23JXF	●	0.375	0.375	0.375	4.750	0.383	0.006	LPA-11	HSB4X8R	FH-2	ABW23R50...
	8-23JXF	●	0.500	0.500	0.500		0.508		LPA-13			
	10-23JXF	●	0.625	0.625	0.625		0.633		LPA-17			
mm	AABWR 1010JX-50F	●	10	10	10	120	10.2	0.15	LPA-11	HSB4X8R	FH-2	ABW23R50...
	1212JX-50F	●	12	12	12		12.2		LPA-13			
	1616JX-50F	●	16	16	16		16.2		LPA-17			

SABW (Back Turning / Edge Width : 0.185", Max. Depth : 0.197")

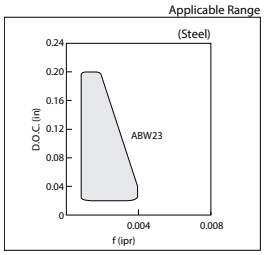


Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts		Applicable Inserts ➡ B112
		R	H	B	HF	LF	WF		Screw	Wrench	
Inch	SABWR 8-23JXF	●	0.500	0.500	0.500	4.750	0.508	0.006	SB-3080TR	FT-10	ABW23R50...
	10-23JXF	●	0.625	0.625	0.625		0.633				
mm	SABWR 1010JX-50F	●	10	10	10	120	10.2	0.15	SB-3080TR	FT-10	ABW23R50...
	1212JX-50F	●	12	12	12		12.2				
	1616JX-50F	●	16	16	16		16.2				
	2020K-50F	●	20	20	20	125	20.2				

Applicable Inserts

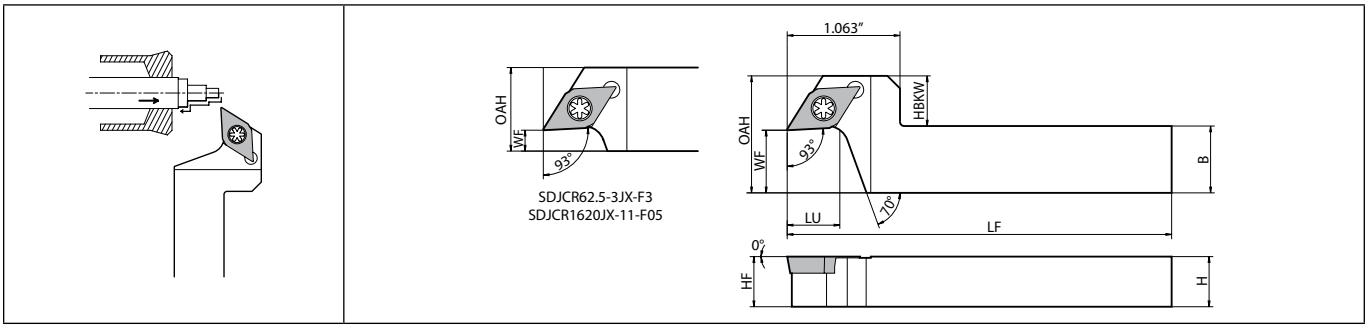
Applications	Back Turning
Insert	
Type	ABW23
Page	B112



Recommended Cutting Conditions ➡ E76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SDJC (External Turning / External Copying)



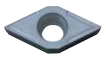
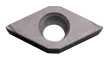
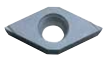
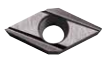
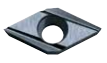
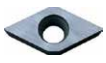
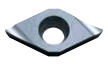
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Standard Corner-R (RE)	Spare Parts		Applicable Inserts
			R	H	B	OAH	HF	HBKW	LF	LU	WF		Screw	Wrench	
Inch	SDJCR 52-3JX-F3	●	0.500	0.500	0.625	0.687	0.500	0.062	4.750	0.488	0.187	0.008	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...
	52-3JX-F9	●				1.125		0.500			0.562				
	62.5-3JX-F9	●	0.625	0.750	1.125	0.625	0.375				0.562				
mm	SDJCR 1216JX-11-F05	●	12	12	16	18	12	2	120	12.6	5	0.2	SB-4085TR	FT-15	
	1216JX-11-F15	●				28		12			15				
	1620JX-11-F05	●	16	16	20	20	16	-			5				
	1620JX-11-F15	●				28		8			15				

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

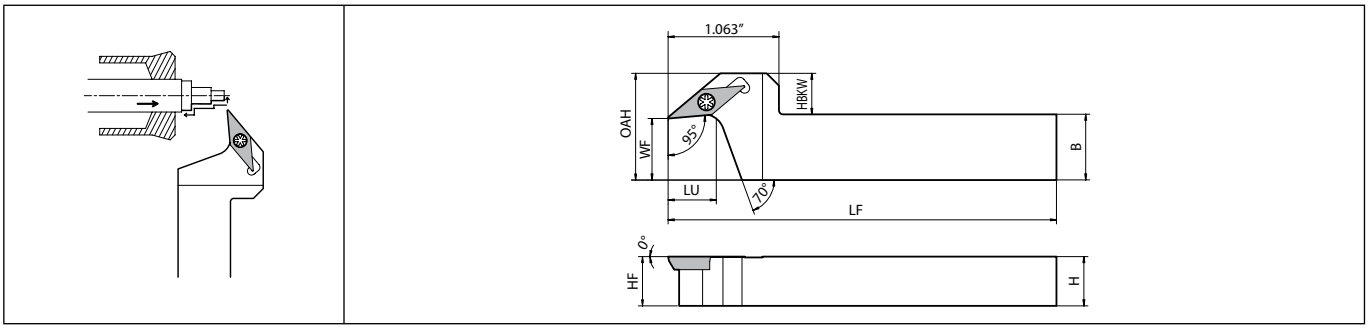
Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker	**CF**	**GF**	**SKS**	**SK**	**CK**	**GQ**	**WP**	**R/L-WP**
Page	**B68**	**B68**	**B68**	**B68**	**B68**	**B69**	**B69**	**B69**
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker	**PP**	**GP**	**GK**	**HQ**	**Standard**	**MF**	**R/L-F**	**R/L-FSF**
Page	**B69**	**B69**	**B70**	**B70**	**B70**	**B70**	**B72, B73**	**B72**
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker	**R/L-U**	**R/L-USF**	**R/L-J**	**R/L-JSF**	**XP**	**XQ**	**MQ**	**No Chipbreaker**
Page	**B74~B76**	**B74**	**B77**	**B76**	**B71**	**B71**	**B71**	**B78**
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker	**AP**	**R/L-A3**	**AH**	**PCD**	**APD**	**CBN**		
Page	**B78**	**B78**	**B78**	**C42**	**C42**	**C22**		

Recommended Cutting Conditions E76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVLP (External Turning / External Copying)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Standard Corner-R (RE)	Spare Parts		Applicable Inserts
												Screw	Wrench	
		R	H	B	OAH	HF	HBKW	LF	LU	WF				
Inch	SVLPR 52-2JX-F9	●	0.500	0.625	1.000	0.500	0.375	4.750	0.472	0.562	0.008	SB-2570TR	FT-15	VP□T22...
	62.5-2JX-F9	●	0.625	0.750		0.625	0.250							
mm	SVLPR 1216JX-11-F15	●	12	16	26	12	10	120	12	15	0.2	SB-2570TR	FT-8	
	1620JX-11-F15	●	16	20		16	6							

Applicable Inserts

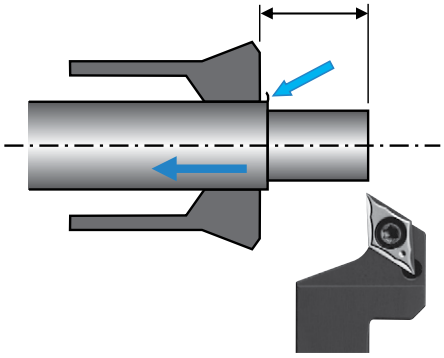
Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Low Feed	Low Feed
Insert								
Chipbreaker	CF	GF	SKS	CK	R/L-F	R/L-FSF	R/L-U	R/L-USF
Page	B102	B102	B102	B102	B103	B103	B104	B104

Applications	Low Feed
Insert	
Chipbreaker	R/L-J
Page	B104

Recommended Cutting Conditions ➡ E74~E75

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Goose-neck holder is available for multiple pass roughing and finishing

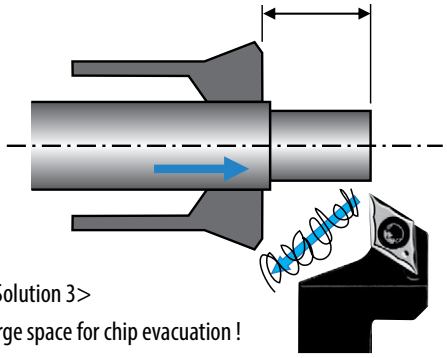


<Solution 1>

The workpiece burr does not contact the guide bush and no breakage will be caused !

<Solution 2>

Longitudinal dimension will be stable. External diameter will be stable with multiple pass machining (roughing and finishing).

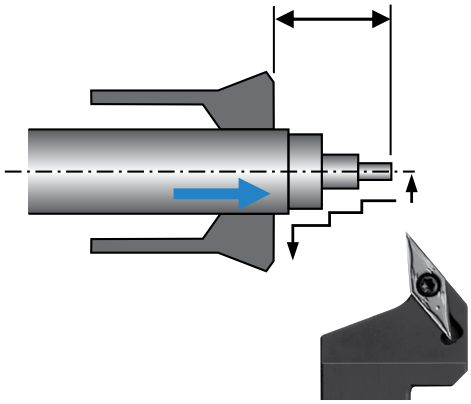


<Solution 3>

Large space for chip evacuation !

Better and smooth chip control.

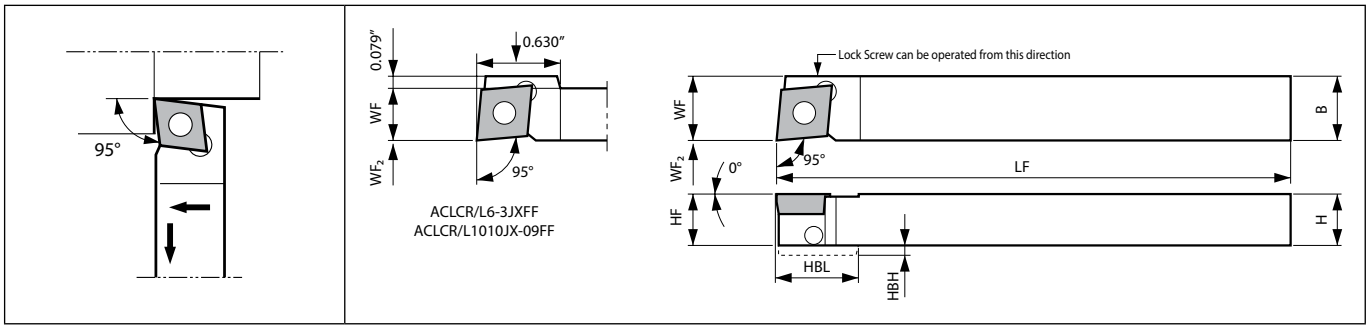
One toolholder for complex workpiece shapes



Complex workpiece shapes can be processed with one toolholder.

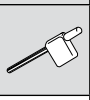
It can be used for undercutting and external / face finishing.

ACLC-FF (External Turning / External Facing , Back Clamp, Without Offset)



Right-hand shown

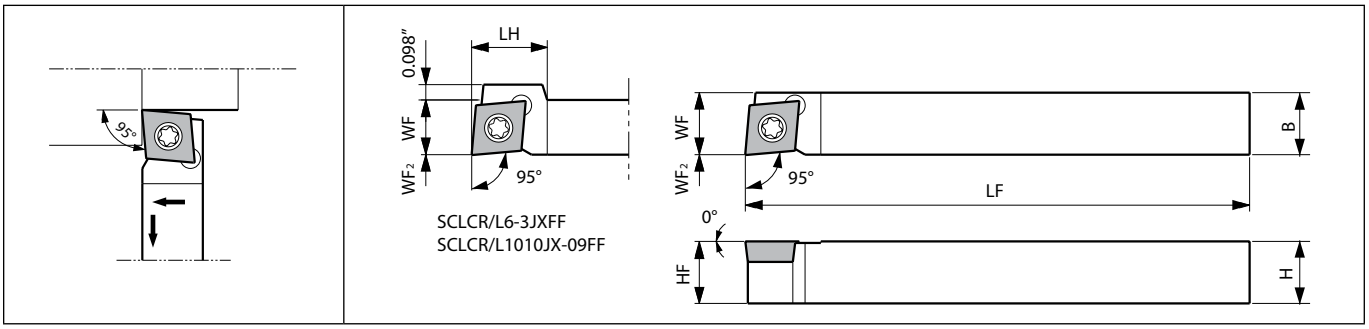
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	HF	HBH	HBL	LF	WF	WF2	Standard Corner-R (RE)	Spare Parts: Anchor pin	Spare Parts: Lock Screw	Spare Parts: Wrench	Applicable Inserts
																
Inch	ACLC□L 6-2JXFF	●	●	0.375	0.375	0.375	-	-	4.750	0.375	0	0.008	LPF-11	HSB4X8□L	FH-2	CC□T215... CC□W215...
	ACLC□L 6-3JXFF	●	●	0.375	0.375	0.375	0.097	0.630	4.750	0.375	0	0.008	LPF-13	HSB4X8□L	FH-2	CC□T325... CC□W325...
	8-3JXFF	●	●	0.500	0.500	0.500	-	-	4.750	0.500						
	10-3JXFF	●	●	0.625	0.625	0.625			4.750	0.625			LPF-17			
mm	ACLC□L 1010JX-06FF	●	●	10	10	10	-	-	120	10	0	0.2	LPF-11	HSB4X8□L	FH-2	CC□T215... CC□W215...
	ACLC□L 1010JX-09FF	●	●	10	10	10	2	16	120	10	0	0.2	LPF-13	HSB4X8□L	FH-2	CC□T325... CC□W325...
	1212JX-09FF	●	●	12	12	12	-	-		12						
	1616JX-09FF	●	●	16	16	16				16			LPF-17			

Lock Screw : HSB4X8R for Right-hand Toolholder, HSB4X8L for Left-hand Toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SCLC-FF (External Turning / External Facing , Screw Clamp, Without Offset)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Spare Parts			Applicable Inserts
												Screw	Wrench	Wrench	
		R	L	H	B	LH	HF	LF	WF	WF2					
Inch	SCLC□R/L 6-2JXFF	●	●	0.375	0.375	-	0.375	4.750	0.375	0	0.008	SB-2570TR	-	FT-8	CC□T215... CC□W215...
	SCLC□R/L 6-3JXFF	●		0.375	0.375	0.590	0.375		0.375						
	8-3JXFF	●	●	0.500	0.500	-	0.500	4.750	0.500	0	0.008	SB-4085TR	FT-15	-	CC□T325... CC□W325...
	10-3JXFF	●	●	0.625	0.625		0.625		0.625						
mm	SCLC□R/L 0808F-06FF	●	●	8	8	-	8	85	8	0	0.2	SB-2570TR	-	FT-8	CC□T215... CC□W215...
	1010JX-06FF	●	●	10	10		10	120	10						
	SCLC□R/L 1010JX-09FF	●	●	10	10	15	10	120	10						
	1212F-09FF	●	●	12	12	-	12	85	12	0	0.2	SB-4085TR	FT-15	-	CC□T325... CC□W325...
	1212JX-09FF	●	●					120							
	1616JX-09FF	●	●	16	16		16		16						
	2020JX-09FF	●	●	20	20		20		20						

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SCLC-FFJCTM (External Turning / External Facing , Screw Clamp, Without Offset, Coolant-Though Toolholder)

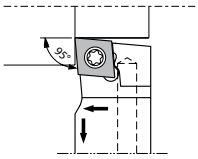
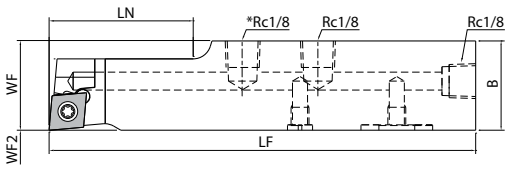


Fig. 1



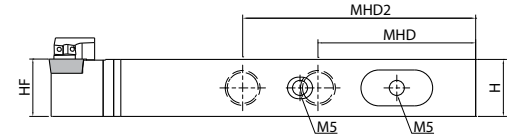
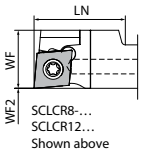
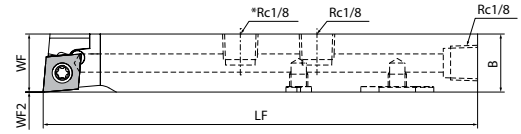
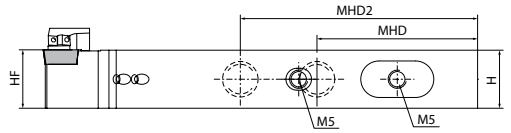


Fig. 2







Right-hand shown
SCLCR5.72…, SCLCR8-… : 2-Rc1/8
SCLCR1218…, SCLCR1212… : 2-Rc1/8

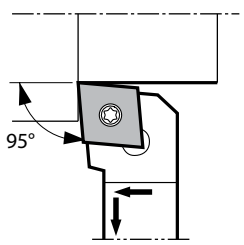
Toolholder Dimensions

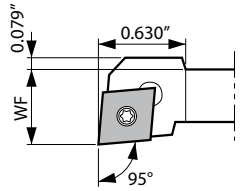
Unit	Part Number	Std. Item	Dimensions									Fig.	Standard Corner-R (RE)	Coolant Hole	Spare Parts				Applicable Inserts
															Plug	Plug	Screw	Wrench	
		R	H	B	MHD	MHD2	HF	LF	LN	WF	WF2								
Inch	SCLCR 5.72-3FFJCTM	●	0.500	0.709	2.126	-	0.500	4.750	1.102	0.630	0	1	0.008	Yes	GP-1	HS5X4LP	SB-4085TR	FT-15	CC□T325... CC□W325...
	82.5-3FFJCTM	●	0.625	1.000	1.732	2.559	0.625		1.575	0.787									
	SCLCR 8-3FFJCTM	●	0.500	0.500	2.323	-	0.500	4.750	0.984	0.630	0	2	0.008	Yes	GP-1	HS5X4LP	SB-4085TR	FT-15	
	10-3FFJCTM	●	0.625	0.625	1.732	2.559	0.625		-	0.625									
	12-3FFJCTM	●	0.750	0.750			0.750			0.750						-			
mm	SCLCR 1218JX-09FFJCTM	●	12	18	54	-	12	120	28	18	0	1	0.2	Yes	GP-1	HS5X4LP	SB-4085TR	FT-15	CC□T325... CC□W325...
	1625JX-09FFJCTM	●	16	25	44	65	16		40	25									
	2025JX-09FFJCTM	●	20				20									-			
	SCLCR 1212JX-09FFJCTM	●	12	12	59	-	12	120	25	16	0	2	0.2	Yes	GP-1	HS5X4LP	SB-4085TR	FT-15	
	1616JX-09FFJCTM	●	16	16	44	65	16		-										
	2020JX-09FFJCTM	●	20	20			20			20						-			

Please see page **H16** and **H17** for piping parts of coolant-through holders.

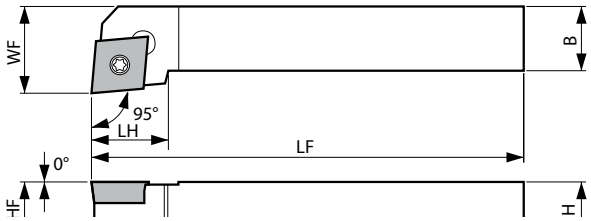
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SCLC (External Turning / External Facing , Screw Clamp)





SCLCR/L1010F-09

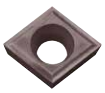
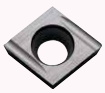
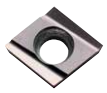
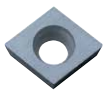
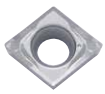
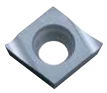
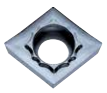
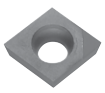
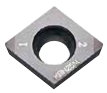


Right-hand shown

Toolholder Dimensions

Unit	Part Number		Std. Item R	Std. Item L	Dimensions H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Spare Parts: Screw	Wrench	Wrench	Wrench	Applicable Inserts
Inch	SCLCR	6-2X	●		0.375	0.375	0.354	0.375	3.000	0.500	0.004	SB-2570TR	-	FT-8	-	CC□T215... CC□W215...
Inch	SCLC□	8-3A	●	●	0.500	0.500	0.551	0.500	4.000	0.625	0.004	SB-4085TR	FT-15	-	-	CC□T325... CC□W325...
Inch		10-3C	●		0.625	0.625	0.572	0.625	5.000	0.750						
Inch		12-3C	●	●	0.750	0.750	0.572	0.750	5.000	0.875						
Inch		16-3D	●		1.000	1.000	0.790	1.000	6.000	1.250	0.008					
mm	SCLC□	1010F-06	●	●	10	10	9	10	80	12	0.2	SB-2570TR	-	FT-8	-	CC□T215... CC□W215...
mm	SCLC□	1010F-09	●	●	10	10	14	10	80	14	0.2	SB-4085TR	FT-15	-	-	CC□T325... CC□W325...
mm		1212H-09	●	●	12	12		12	100	16						
mm		1616H-09	●	●	16	16	15	16		20						
mm		2020K-09	●	●	20	20	20	20	125	25						
mm		2525M-09	●	●	25	25	22	25	150	32						
mm	SCLC□	1616H-12	●	●	16	16	20	16	100	20	0.4	SB-5090TR	-	-	LTW-20	CC□T43...
mm		2020K-12	●	●	20	20	22	20	125	25						
mm		2525M-12	●	●	25	25		25	150	32						

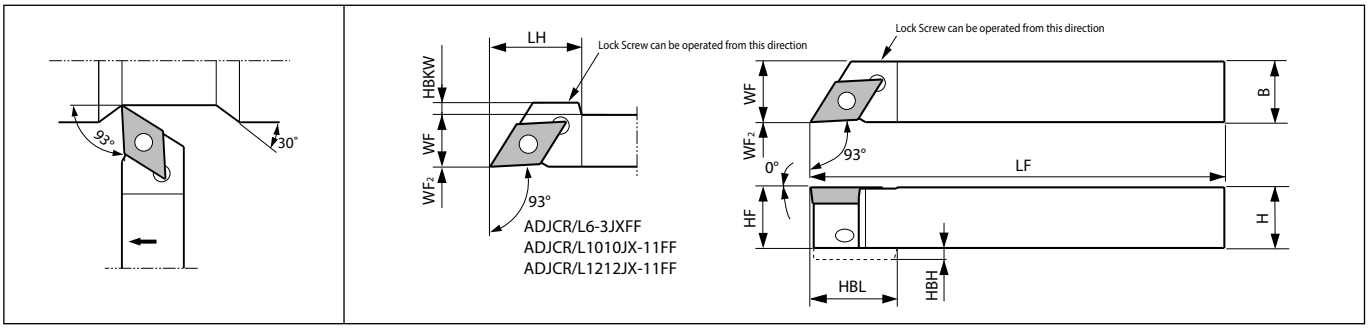
Applicable Inserts (ACLC-FF / SCLC-FF / SCLC-FFJCTM / SCLC)

Applications	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker	PF	GF	SKS	SK	CK	GQ	WP	PP
Page	B58	B58	B59	B59	B59	B59	B60	B60
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium	Low Feed	Low Feed	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker	GK	HQ	Standard	MF	□-U	□-J	MQ	No Chipbreaker
Page	B60	B60	B60	B61	B63~B65	B65	B61	B66
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker	AP	□-A3	AH	PCD	APD	CBN		
Page	B66	B66	B66	C39	C40	C20		

Recommended Cutting Conditions E74, E75

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

ADJC-FF (External Turning / External Copying , Back Clamp, Without Offset)



Right-hand shown

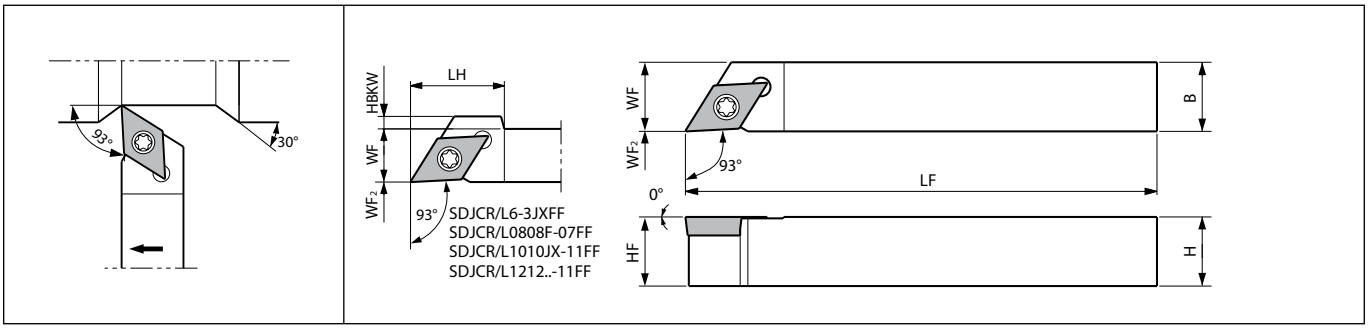
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions										Standard Corner-R (RE)	Spare Parts			Applicable Inserts
		R	L	H	B	LH	HF	HBH	HBKW	HBL	LF	WF	WF2		Anchor pin	Lock Screw	Wrench	
Inch	ADJC□R/L 6-2JXFF	●	●	0.375	0.375	-	0.375	-	-	-	4.750	0.375	0	0.008	LPF-11	HSB4X8□R/L	FH-2	DC□T215... DC□W215... DC□X215...
	ADJC□R/L 6-3JXFF	●	●	0.375	0.375	0.787	0.375	0.097	0.137	0.787	4.750	0.375	0	0.008	LPF-13	HSB4X8□R/L	FH-2	DC□T325... DC□W325... DC□X325...
	8-3JXFF	●	●	0.500	0.500	-	0.500	-	-	-	4.750	0.500						
	10-3JXFF	●	●	0.625	0.625		0.625				4.750	0.625			LPF-17			
mm	ADJC□R/L 1010JX-07FF	●	●	10	10	-	10	-	-	-	120	10	0	0.2	LPF-11	HSB4X8□R/L	FH-2	DC□T215... DC□W215... DC□X215...
	ADJC□R/L 1010JX-11FF	●	●	10	10	20	10	2	3	20	120	10	0	0.2	LPF-13	HSB4X8□R/L	FH-2	DC□T325... DC□W325... DC□X325...
	1212JX-11FF	●	●	12	12		12	-	1	-		12						
	1616JX-11FF	●	●	16	16	-	16		-			16			LPF-17			

Lock Screw : HSB4X8R for Right-hand Toolholder, HSB4X8L for Left-hand Toolholder.
For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SDJC-FF (External Turning / External Copying, Screw Clamp, Without Offset)



Right-hand shown

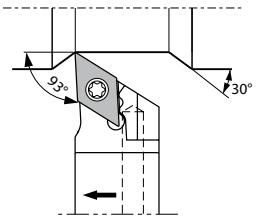
Toolholder Dimensions

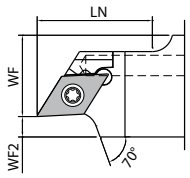
Unit	Part Number	Std. Item		Dimensions								Standard Corner-R (RE)	Spare Parts			Applicable Inserts
													Screw	Wrench	Wrench	
		R	L	H	B	LH	HF	HBKW	LF	WF	WF2					
Inch	SDJCR 6-2JXFF	●		0.375	0.375	-	0.375	-	4.750	0.375			SB-2570TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	SDJC□ 6-3JXFF	●		0.375	0.375	0.787	0.375	0.137	4.750	0.375	0	0.008				
	8-3JXFF	●	●	0.500	0.500	-	0.500	-	4.750	0.500			SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	10-3JXFF	●		0.625	0.625		0.625		4.750	0.625						
mm	SDJC□ 0808F-07FF	●	●	8	8	14	8	0.5	85	8	0	0.2	SB-2570TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	1010JX-07FF	●	●	10	10	-	10	-	120	10						
	SDJC□ 1010JX-11FF	●	●	10	10	20	10	3	120	10	0	0.2	SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	1212F-11FF	●	●	12	12		12	1	85	12						
	1212JX-11FF	●	●						120							
	1616JX-11FF	●	●	16	16	-	16	-		16						
	2020JX-11FF	●	●	20	20		20			20						

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SDJC-JCTM (External Turning / External Copying, Screw Clamp, Without Offset, Coolant-Though Toolholder)





SDJCR82-3-F05JCTM
SDJCR112-3-F15JCTM
SDJCR1235JX11F15JCTM
SDJCR1225JX11F05JCTM

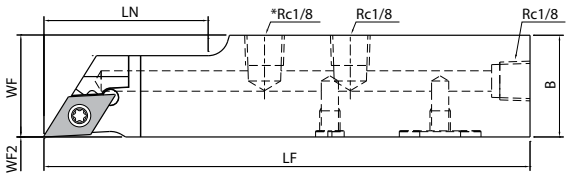
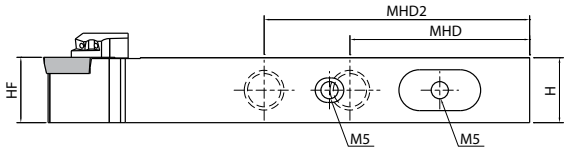
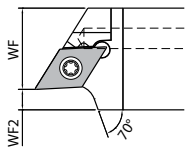


Fig. 1





SDJCR82.5-3-F05JCTM
SDJCR112.5-3-F15JCTM
SDJCR1625JX11F05JCTM
SDJCR1635JX11F15JCTM

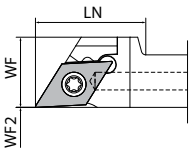
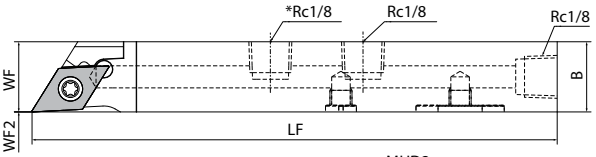
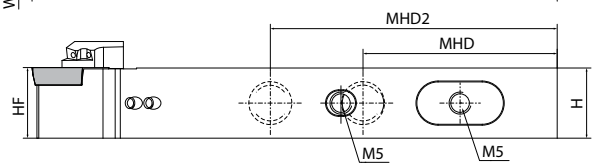


Fig. 2

SDJCR8-3FFJCTM
SDJCR1212JX-11FFJCTM

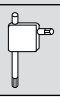




*SDJCR5.72-3FFJCTM : 2-Rc1/8
*SDJCR82-3-F05JCTM : 2-Rc1/8
*SDJCR112-3-F15JCTM : 2-Rc1/8
*SDJCR12... : 2-Rc1/8

Right-hand shown

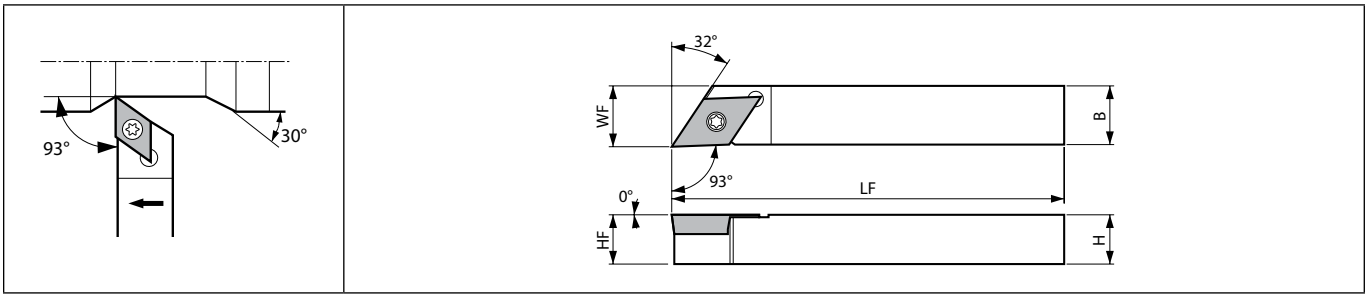
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions									Fig.	Standard Corner-R (RE)	Coolant Hole	Spare Parts				Applicable Inserts
			R	H	B	MHD	MHD2	HF	LF	LN	WF	WF2				Plug	Plug	Screw	Wrench	
																				
Inch	SDJCR 5.72-3FFJCTM	●	0.500	0.709	2.126	-	0.500	4.750	1.102	0.630	0	1	0.008	Yes	GP-1	HS5X4LP	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...
	82.5-3FFJCTM	●	0.625	1.000	1.732	2.559	0.625		1.575	0.787									
	SDJCR 82-3-F05JCTM	●	0.500	1.000	2.126	-	0.500	4.750	1.102	0.630	0.197	1	0.008	Yes	GP-1	HS5X4LP	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...
	112-3-F15JCTM	●		1.375							0.591								
	82.5-3-F05JCTM	●	0.625	1.000	1.732	2.559	0.625	4.750	-	0.787	0.197								
	112.5-3-F15JCTM	●		1.375							0.591								
	SDJCR 8-3FFJCTM	●	0.500	0.500	2.323	-	0.500	4.750	0.984	0.630	0	2	0.008	Yes	GP-1	HS5X4LP	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...
	10-3FFJCTM	●	0.625	0.625	1.732	2.559	0.625		-	0.625						-			
	12-3FFJCTM	●	0.750	0.750			0.750			0.750									
mm	SDJCR 1218JX-11FFJCTM	●	12	18	54	-	12	120	28	18	0	1	0.2	Yes	GP-1	HS5X4LP	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...
	1625JX-11FFJCTM	●	16	25	44	65	16		40	25						-			
	2025JX-11FFJCTM	●	20				20												
	SDJCR 1225JX11F05JCTM	●	12	25	54	-	12	120	28	20	5	1	0.2	Yes	GP-1	HS5X4LP	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...
	1235JX11F15JCTM	●		35							15								
	1625JX11F05JCTM	●	16	25	44	65	16		-		5								
	1635JX11F15JCTM	●		35							15								
	SDJCR 1212JX-11FFJCTM	●	12	12	59	-	12	120	25	16	0	2	0.2	Yes	GP-1	HS5X4LP	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...
	1616JX-11FFJCTM	●	16	16	44	65	16		-							-			
	2020JX-11FFJCTM	●	20	20			20			20									

Please see page **H16** and **H17** for piping parts of coolant-through holders.
For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SDJC-F (External Turning / External Copying , Screw Clamp)



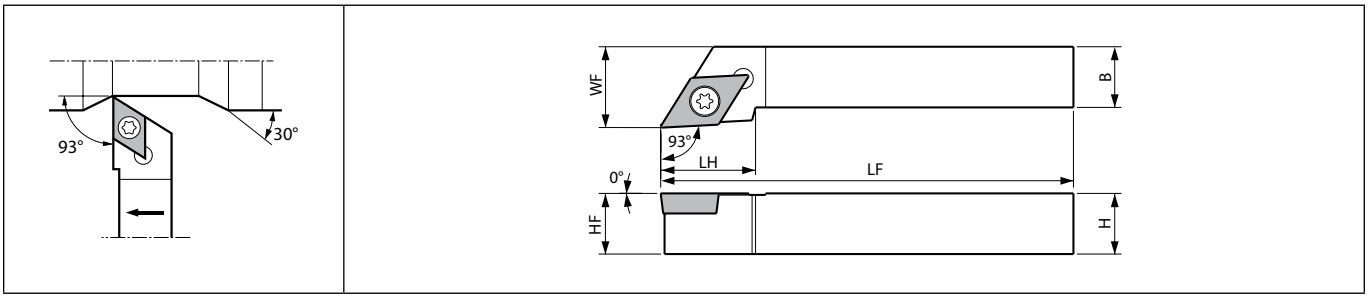
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Spare Parts			Applicable Inserts
										Screw	Wrench	Wrench	
		R	H	B	HF	LF	WF						
Inch	SDJCR 6-2CF	●	0.375	0.375	0.375	5.000	0.395	0.004	SB-2570TR	-	FT-8		DC□T215... DC□W215... DC□X215...
	SDJCR 8-3DF	●	0.500	0.500	0.500	6.000	0.520	1/32	SB-4085TR	FT-15	-		DC□T325... DC□W325... DC□X325...

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

SDJC (External Turning / External Copying , Screw Clamp)



Right-hand shown

Toolholder Dimensions

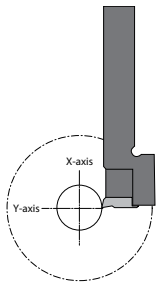
Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Spare Parts			Applicable Inserts
											Screw	Wrench	Wrench	
		R	L	H	B	LH	HF	LF	WF					
Inch	SDJCR 6-2X	●		0.375	0.375	0.472	0.375	3.000	0.500	0.004	SB-2570TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	SDJC□□ 8-3A	●	●	0.500	0.500	0.709	0.500	4.000	0.625	0.004	SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	10-3C	●	●	0.625	0.625		0.625	5.000	0.750					
	12-3C	●	●	0.750	0.750		0.750		0.875					
	16-3D	●		1.000	1.000	0.810	1.000	6.000	1.250	0.008				
mm	SDJC□□ 1010F-07	●	●	10	10	12	10	80	12	0.2	SB-2570TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	SDJC□□ 1010F-11	●	●	10	10	18	10	80	12	0.2	SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	1212H-11	●	●	12	12		12	100	16					
	1616H-11	●	●	16	16		16		20					
	2020K-11	●	●	20	20		20	125	25					
	2525M-11	●	●	25	25	23	25	150	32					

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

SDJC-FF-Y (External Turning / External Copying , Y-Axis Toolholder)



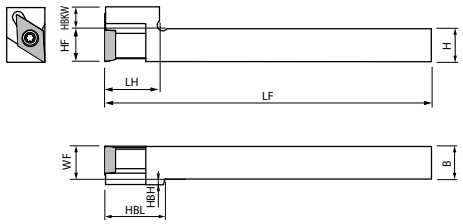


Fig. 1

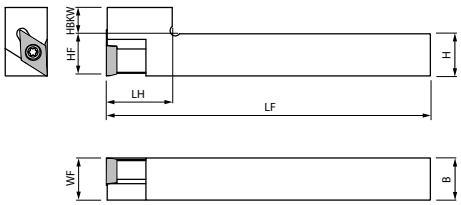


Fig. 2

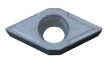
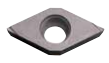
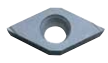
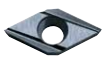
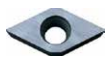
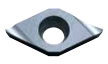
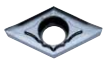
Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions									Fig.	Coolant Hole	Spare Parts		Applicable Inserts
			R	H	B	LH	HF	HBH	HBKW	HBL	LF	WF			Screw	Wrench	
mm	SDJCR 1212JX-11FF-Y	●	12	12	20	12	2	8	22	120	12	1	No	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...
	1616JX-11FF-Y	●	16	16	25	16	-	10	-		16	2				

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

Applicable Inserts (ADJC-FF / SDJC-FF / SDJC-FFJCTM / SDJC-F / SDJC / SDJC-FF-Y)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker	**CF**	**GF**	**SKS**	**SK**	**CK**	**GQ**	**WP**	**R/L-WP**
Page	**B68**	**B68**	**B68**	**B68**	**B68**	**B69**	**B69**	**B69**
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker	**PP**	**GP**	**GK**	**HQ**	**Standard**	**MF**	**R/L-F**	**R/L-FSF**
Page	**B69**	**B69**	**B70**	**B70**	**B70**	**B70**	**B72, B73**	**B72**
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker	**R/L-U**	**R/L-USF**	**R/L-J**	**R/L-JSF**	**XP**	**XQ**	**MQ**	**No Chipbreaker**
Page	**B74~B76**	**B74**	**B77**	**B76**	**B71**	**B71**	**B71**	**B78**
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker	**AP**	**R/L-A3**	**AH**	**PCD**	**APD**	**CBN**		
Page	**B78**	**B78**	**B78**	**C42**	**C42**	**C22**		

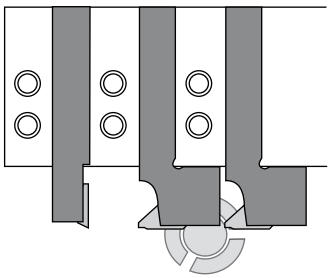
Recommended Cutting Conditions ➡ **E74, E75**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

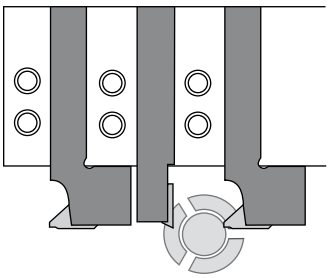
Precautions for using Y-axis toolholder

Do not use Y-axis toolholders side by side to prevent interference. (Only two Y-axis holder can be used at the same time)

With interference

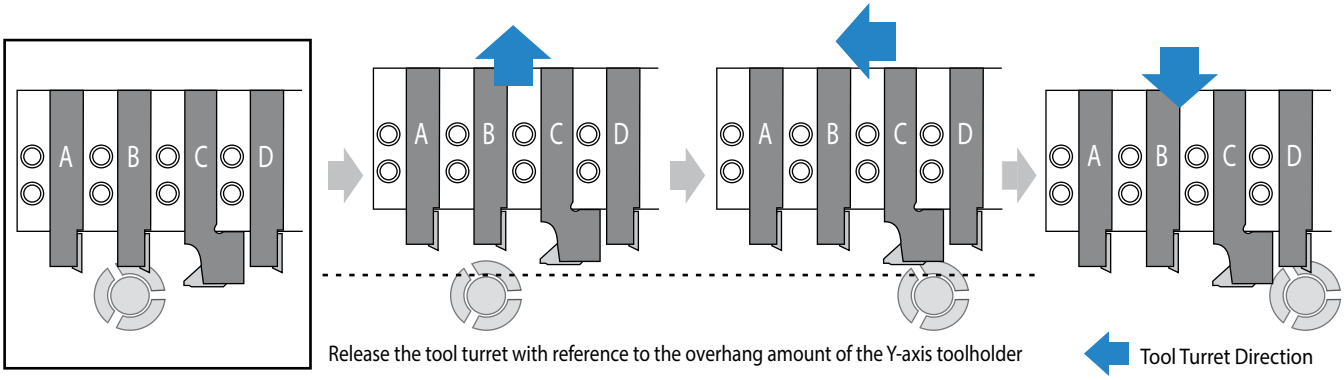


Without interference



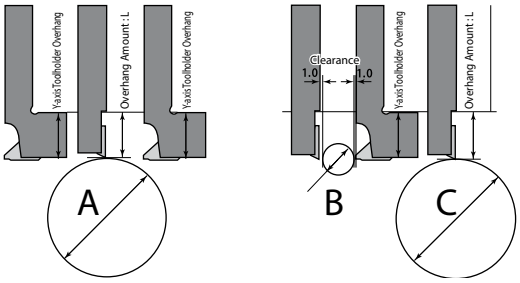
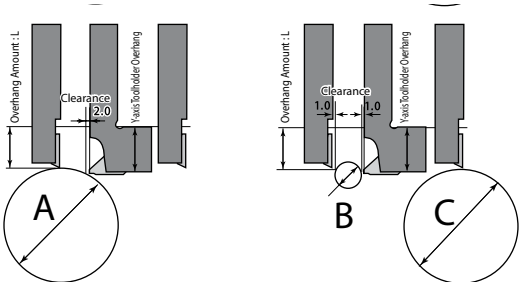
Standard toolholders may be mounted between two Y-axis toolholders

When changing the tool, set the retracted position with reference to the cutting edge of the Y-axis holder. (When exchanging from tool B to D)

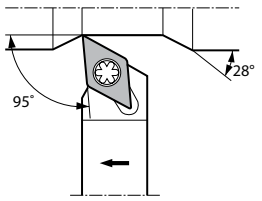


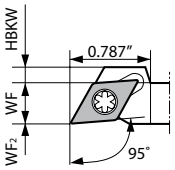
Note that using other toolholders together will result in different outside diameters

(Unit : mm)

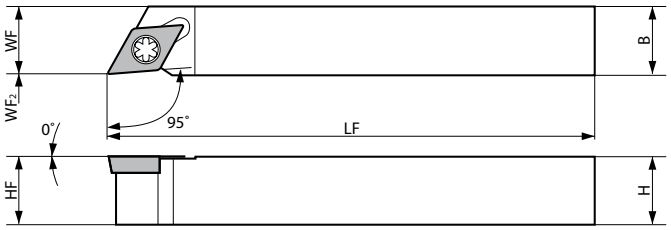
Y-axis Toolholder Overhang	Examples	Overhang Amount L / Available Outside Cutting Diameter (ø)	20	22	25
20		A	Without Restriction	Without Restriction	Without Restriction
		B	13.0	13.0	13.0
		C	Without Restriction	Without Restriction	Without Restriction
25		A	38.0	58.0	Without Restriction
		B	14.9	13.6	13.0
		C	45.0	60.0	Without Restriction

SDLC-FF (External Turning / External Copying, Screw Clamp, Without Offset)





SDLCR/L8-3JXFF
SDLCR/L10-3JXFF
SDLCR/L1010..-11FF
SDLCR/L1212..-11FF

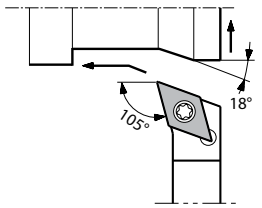


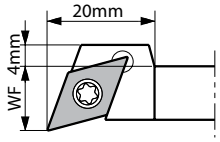
Right-hand shown

Toolholder Dimensions

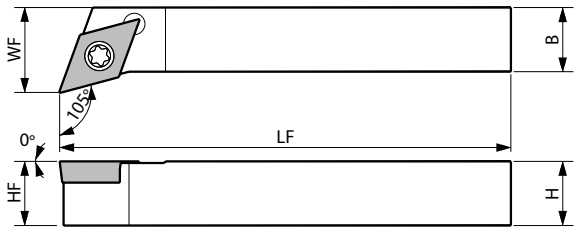
Unit	Part Number	Std. Item R	Std. Item L	H	B	HF	HBKW	LF	WF	WF2	Standard Corner-R (RE)	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
Inch	SDLCR 8-3JXFF	●		0.500	0.500	0.500	0.051	4.750	0.500	0	0.008	SB-4085TR	FT-15	-	DC□T325... DC□W325...
	10-3JXFF	●		0.625	0.625	0.625	-	4.750	0.625						
mm	SDLC□□ 1010JX-07FF	●	●	10	10	10	-	120	10	0	0.2	SB-2570TR	-	FT-8	DC□T215... DC□W215...
	1212F-07FF	●		12	12	12		85	12						
	1212JX-07FF	●	●					120							
	1616JX-07FF	●	●	16	16	16			16						
mm	SDLC□□ 1010F-11FF	●		10	10	10	4	80	10	0	0.2	SB-4085TR	FT-15	-	DC□T325... DC□W325...
	1010JX-11FF	●	●					120							
	1212F-11FF	●		12	12	12	2	85	12						
	1212JX-11FF	●	●					120							
	1616H-11FF	●		16	16	16	-	100	16						
	1616JX-11FF	●	●					120							

SDXC (External Turning / External Facing / External Copying)





SDXCR/L1010JX-11



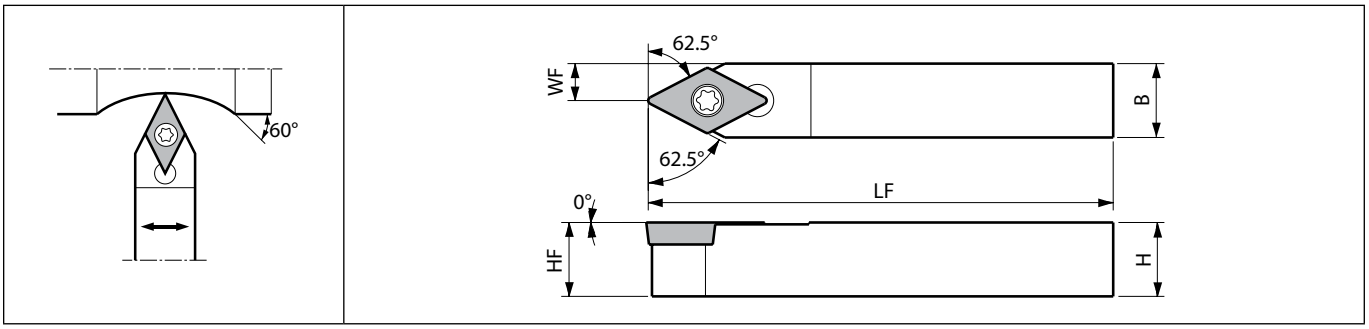
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	HF	LF	WF	Standard Corner-R (RE)	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
mm	SDXC□□ 1010JX-07	●	●	10	10	10	120	12	0.2	SB-2570TR	-	FT-8	DC□T215... DC□W215...
mm	SDXC□□ 1010JX-11	●	●	10	10	10	120	12	0.2	SB-4085TR	FT-15	-	DC□T325... DC□W325...
	1212JX-11	●	●	12	12	12		16					
	1616JX-11	●	●	16	16	16		20					

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SDNC (External Turning / External Copying)

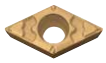
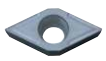
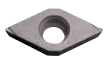
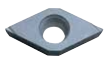
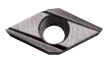
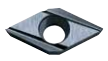
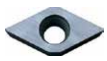
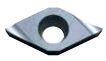


Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Spare Parts			Applicable Inserts
			N	H	B	HF	LF	WF		Screw	Wrench	Wrench	
Inch	SDNCN 6-2JX	●	0.375	0.375	0.375	4.750	0.187	0.008	SB-2570TR	-	FT-8	DC□T215... DC□W215...
	8-2JX	●	0.500	0.500	0.500		0.250					
	SDNCN 6-3JX	●	0.375	0.375	0.375	4.750	0.187	0.008	SB-4085TR	FT-15	-	DC□T325... DC□W325...
	8-3JX	●	0.500	0.500	0.500		0.250					
	10-3JX	●	0.625	0.625	0.625		0.312					
mm	SDNCN 1010JX-07	●	10	10	10	120	5	0.2	SB-2570TR	-	FT-8	DC□T215... DC□W215...
	1212JX-07	●	12	12	12		6					
	SDNCN 1010F-11	●	10	10	10	80	5	0.2	SB-4085TR	FT-15	-	DC□T325... DC□W325...
	1010JX-11	●				120						
	1212JX-11	●	12	12	12	120	6					
	1616H-11	●	16	16	16	100	8					
	1616JX-11	●				120						

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

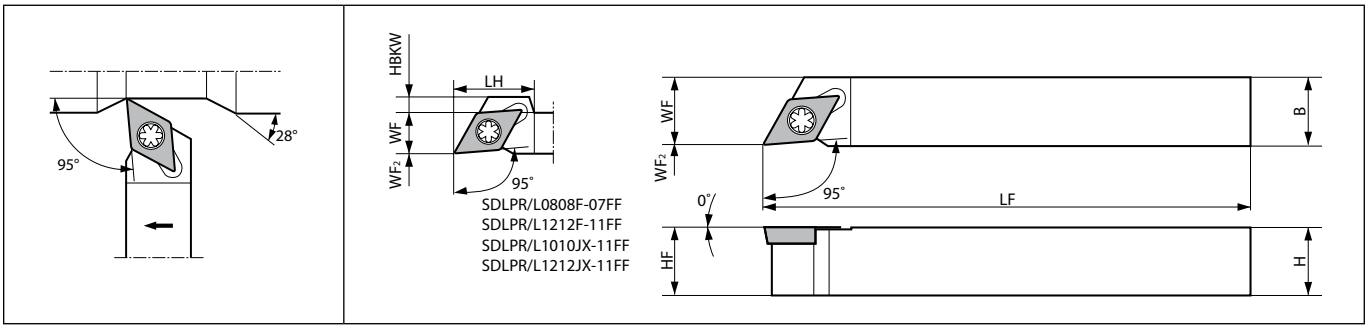
Applicable Inserts (SDLC-FF / SDXC / SDNC-F / SDNC)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker	CF	GF	SKS	SK	CK	GQ	PP	GP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing	Low Feed	Low Feed
Insert								
Chipbreaker	GK	HQ	Standard	MF	PL-F	PL-FSF	PL-U	PL-USF
Page	B70	B70	B70	B70	B72, B73	B72	B74~B76	B74
Applications	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker	PL-J	PL-JSF	XP	XQ	MQ	No Chipbreaker	AP	PL-A3
Page	B77	B76	B71	B71	B71	B78	B78	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials				
Insert								
Chipbreaker	AH	PCD	APD	CBN				
Page	B78	C42	C42	C22				

Recommended Cutting Conditions ➡ **E74, E75**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SDLP-FF (External Turning / External Copying, Screw Clamp, Without Offset)

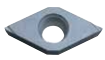


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Standard Corner-R (RE)	Spare Parts			Applicable Inserts
													Screw	Wrench	Wrench	
		R	L	H	B	LH	HF	HBKW	LF	WF	WF2					
mm	SDLP R/L 0808F-07FF	●	●	8	8	14	8	0.5	85	8	0	0.2	SB-2570TR	-	FT-8	DPET215...
	1010JX-07FF	●	●	10	10	-	10	-	120	10						
	SDLP R/L 1010JX-11FF	●	●	10	10	20	10	4	120	10	0	0.2	SB-4085TR	FT-15	-	DPET325...
	1212JX-11FF	●	●	12	12		12	2		12						
	1616JX-11FF	●	●	16	16	-	16	-		16						

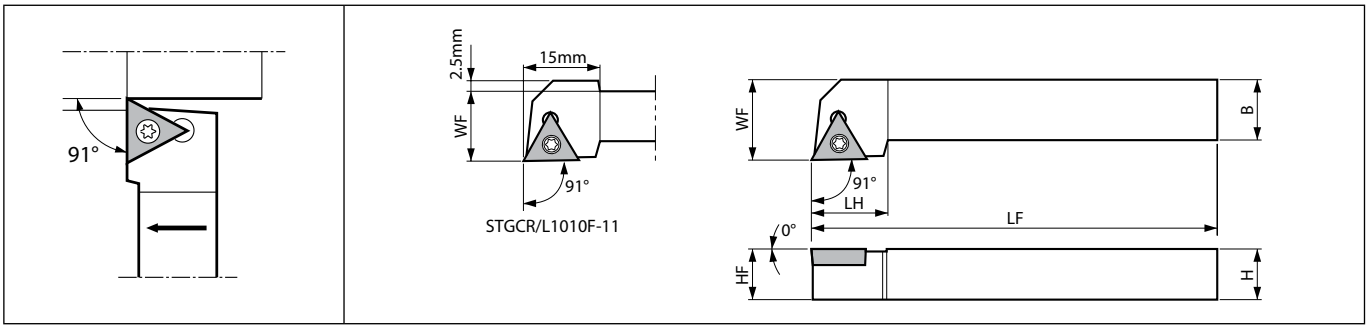
Applicable Inserts

Applications	Finishing	Low Feed
Insert		
Chipbreaker	R/L-FSF	R/L-USF
Page	B79	B79

Recommended Cutting Conditions E74, E75

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

STGC (External Turning)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
mm	STGCR/L 0808E-08	●		8	8	12	8	70	10	0.2	SB-2050TR	FT-6	TC□T1515... TC□W1515...
	1010F-08	●	●	10	10		10	80	12				
	STGCR/L 1010F-11	●	●	10	10	15	10	80	14	0.4	SB-2570TR	FT-8	TC□T22... TC□W22...
	1212H-11	●	●	12	12		12	100	16				
	1616H-11	●	●	16	16		16		20				
	2020K-11	●	●	20	20		20	125	25				
	2525M-11	●	●	25	25	20	25	150	32				

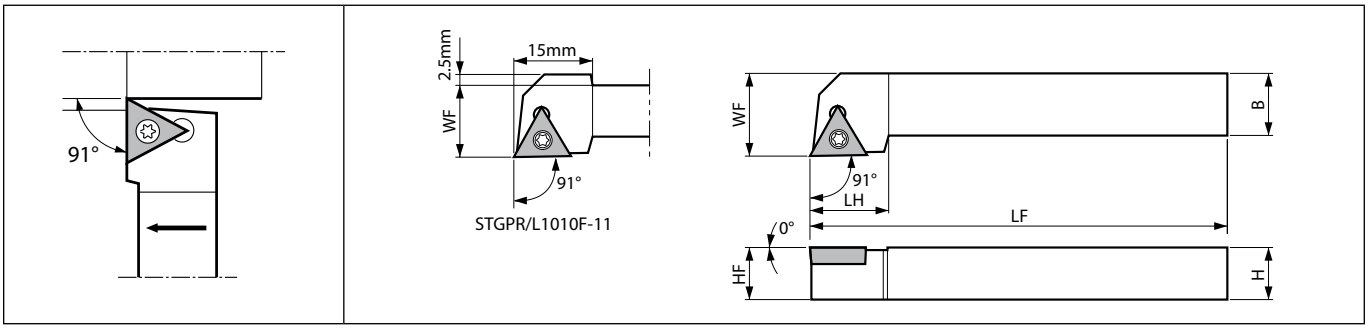
Applicable Inserts

Applications	Low Feed	Low Feed	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals
Insert					
Chipbreaker	R/L-U	R/L-USF	No Chipbreaker	R/L-A3	PCD
Page	B86	B85	B87	B87	C45

Recommended Cutting Conditions ➡ E74, E75

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

STGP (External Turning)

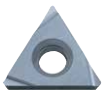


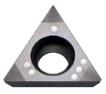
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
mm	STGPR 0808E-08	●		8	8	12	8	70	10	0.2	SB-2050TR	FT-6	TP□B1515... TP□H1515... TP□T1515...
mm	STGP R/L 1010F-11	●	●	10	10	15	10	80	14	0.2	SB-3080TR	FT-10	TP□B22... TP□H22... TP□T22...
	1212H-11	●	●	12	12		12	100	16				
	1616H-11	●	●	16	16		16		20				

Applicable Inserts

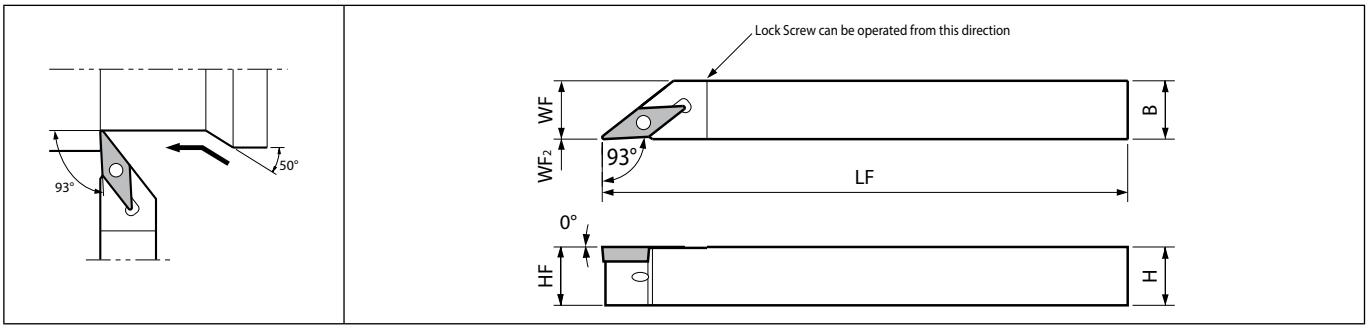
Applications	Minute D.O.C.	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Low Feed	Medium
Insert								
Chipbreaker	CF	PP	GP	HQ	R/L	R/L-FSF	R/L-USF	R/L-H
Page	B88	B88	B89	B89	B90, B91	B92	B94	B93

Applications	Low Carbon Steel	Low Carbon Steel	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials
Insert							
Chipbreaker	XP	XQ	No Chipbreaker	AP	PCD	APD	CBN
Page	B89	B89	B94	B94	C46, C47	C47	C23

Recommended Cutting Conditions E74, E75

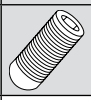
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

AVJB-FF (External Turning / External Copying , Back Clamp, Without Offset)



Right-hand shown

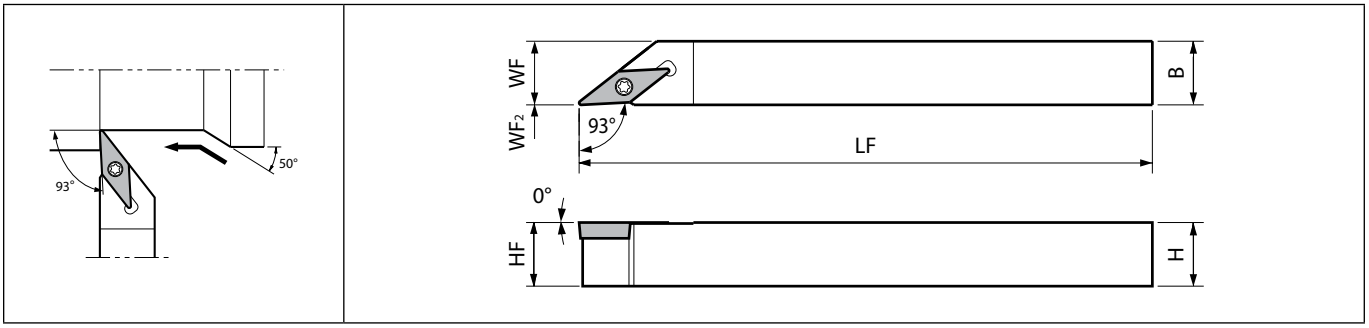
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	HF	LF	WF	WF2	Standard Corner-R (RE)	Spare Parts: Anchor pin	Spare Parts: Lock Screw	Spare Parts: Wrench	Applicable Inserts
														
Inch	AVJB□ 6-2JXFF	●	●	0.375	0.375	0.375	4.750	0.375	0	1/64	LPF-11	HSB4X8□L	FH-2	VB□T22... VB□W22...
	8-2JXFF	●	●	0.500	0.500	0.500		0.500			LPF-1113			
	10-2JXFF	●	●	0.625	0.625	0.625		0.625			LPF-1117			
mm	AVJB□ 1010JX-11FF	●	●	10	10	10	120	10	0	0.4	LPF-11	HSB4X8□L	FH-2	VB□T22... VB□W22...
	1212JX-11FF	●	●	12	12	12		12			LPF-1113			
	1616JX-11FF	●	●	16	16	16		16			LPF-1117			

Lock Screw : HSB4X8R for Right-hand Toolholder, HSB4X8L for Left-hand Toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVJB-FF (External Turning / External Copying, Screw Clamp, Without Offset)

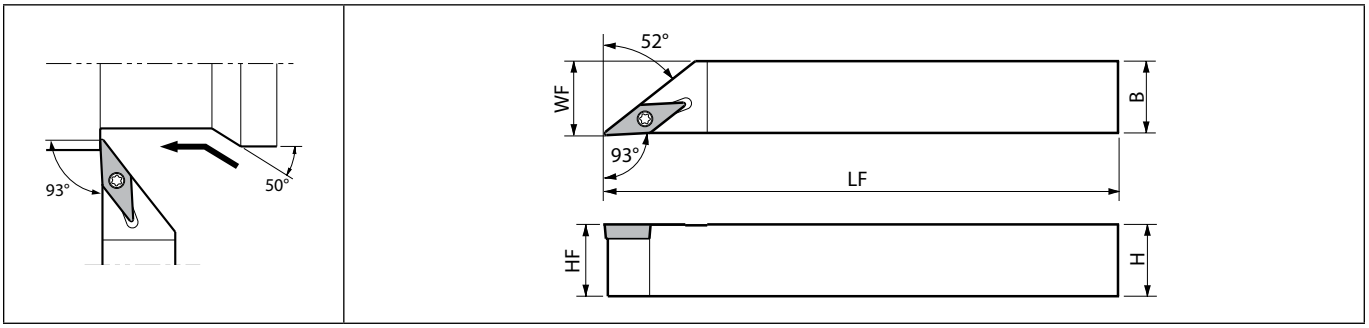


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	HF	LF	WF	WF2	Standard Corner-R (RE)	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
Inch	SVJB□ 6-2JXFF	●	●	0.375	0.375	0.375	4.750	0.375	0	1/64	SB-2570TR	FT-8	VB□T22... VB□W22...
	8-2JXFF	●	●	0.500	0.500	0.500		0.500					
	10-2JXFF	●		0.625	0.625	0.625		0.625					
mm	SVJB□ 1010JX-11FF	●	●	10	10	10	120	10	0	0.4	SB-2570TR	FT-8	VB□T22... VB□W22...
	1212JX-11FF	●	●	12	12	12		12					
	1616JX-11FF	●	●	16	16	16		16					
	2020JX-11FF	●	●	20	20	20		20					

SVJB-F (External Turning / External Copying, Screw Clamp, Without Offset)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	HF	LF	WF	Standard Corner-R (RE)	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
Inch	SVJB□ 6-2CF	●	●	0.375	0.375	0.375	5.000	0.395	1/64	SB-2570TR	FT-8	VB□T22... VB□W22...
	8-2DF	●	●	0.500	0.500	0.500	6.000	0.520				

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVJB-FFJCTM (External Turning / External Copying, Screw Clamp, Without Offset, Coolant-Though Toolholder)

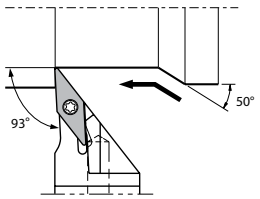
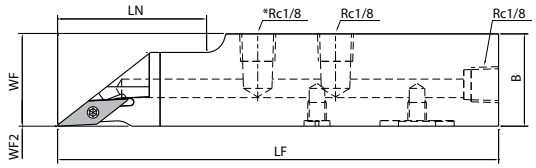


Fig. 1



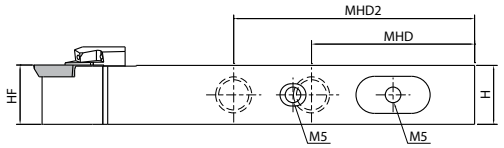
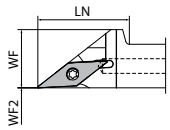
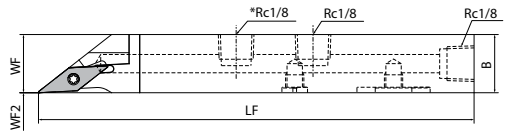
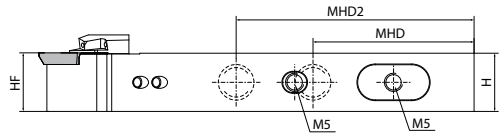


Fig. 2



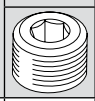
SVJBR8-2FFJCTM
SVJBR1212JX-11FFJCTM
Shown Above





Right-hand shown
SVJBR5.72…, SVJBR8-… : 2-Rc1/8
SVJBR1218…, SVJBR1212… : 2-Rc1/8

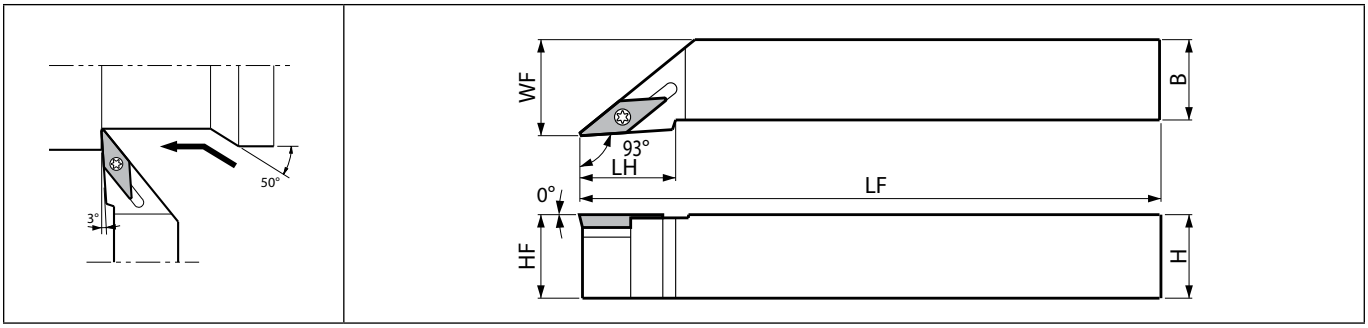
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions									Fig.	Standard Corner-R (RE)	Coolant Hole	Spare Parts				Applicable Inserts
			R	H	B	MHD	MHD2	HF	LF	LN	WF	WF2				Plug	Plug	Screw	Wrench	
																				
Inch	SVJBR 5.72-2FFJCTM	●	0.500	0.709	2.126	-	0.500	4.750	1.102	0.630	0	1	1/64	Yes	GP-1	HS5X4LP	SB-2570TR	FT-8	VB□T22... VB□W22...
	82.5-2FFJCTM	●	0.625	1.000	1.732	2.559	0.625		1.575	0.787									
	SVJBR 8-2FFJCTM	●	0.500	0.500	2.323	-	0.500	4.750	0.984	0.630	0	2	1/64	Yes	GP-1	HS5X4LP	SB-2570TR	FT-8	VB□T22... VB□W22...
	10-2FFJCTM	●	0.625	0.625	1.732	2.559	0.625		-	0.625									
	12-2FFJCTM	●	0.750	0.750			0.750			0.750						-			
mm	SVJBR 1218JX-11FFJCTM	●	12	18	54	-	12	120	28	18	0	1	0.4	Yes	GP-1	HS5X4LP	SB-2570TR	FT-8	VB□T22... VB□W22...
	1625JX-11FFJCTM	●	16	25	44	65	16		40	25									
	2025JX-11FFJCTM	●	20				20									-			
	SVJBR 1212JX-11FFJCTM	●	12	12	59	-	12	120	25	16	0	2	0.4	Yes	GP-1	HS5X4LP	SB-2570TR	FT-8	VB□T22... VB□W22...
	1616JX-11FFJCTM	●	16	16	44	65	16		-										
	2020JX-11FFJCTM	●	20	20			20			20						-			

Please see page **H16** and **H17** for piping parts of coolant-through holders.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVJB (External Turning / External Copying, Screw Clamp)



Right-hand shown

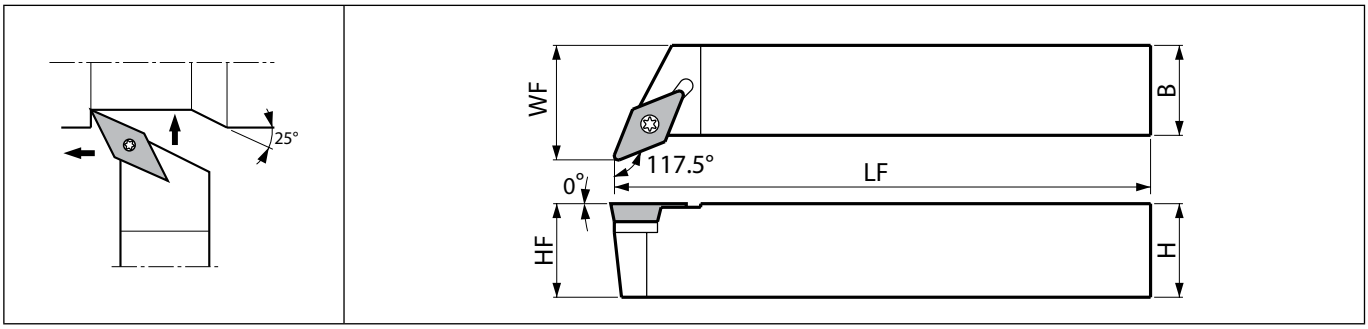
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	HF	LF	WF	Standard Corner-R (RE)	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Spare Parts: Shim screw	Spare Parts: Shim	Spare Parts: Wrench	Applicable Inserts
Inch	SVJB R/L 8-2A	●	●	0.500	0.500	0.895	0.500	4.000	0.625	1/64	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
Inch	SVJBR 12-3C	●		0.750	0.750	1.220	0.750	5.000	0.875	1/32	SB-4085TR	FT-15	-	-	-	-	VB□T33... VB□W33... VC□T33...
Inch	16-3D	●		1.000	1.000	1.250	1.000	6.000	1.250								
mm	SVJB R/L 2020K-11	●	●	20	20	30	20	125	25	0.4	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
mm	2525M-11	●	●	25	25	35	25	150	32								
mm	SVJB R/L 2020K-16N	●	●	20	20	30	20	125	25	0.8	SB-40125TRN	FT-15	-	SS-4N	SVN-32N (SVN-32S*)	LW-4	VB□T33... VB□W33... VC□T33...
mm	2525M-16N	●	●	25	25		25	150	32								

When using inserts with a corner-R(RE) of 0.008" or 1/64" (0.2mm or 0.4mm), shim (SVN-32S) is recommended (sold separately).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVPB (External Turning / External Facing / External Copying / Undercutting, Screw Clamp)



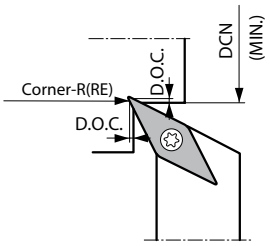
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	HF	LF	WF	Standard Corner-R (RE)	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Spare Parts: Shim screw	Spare Parts: Shim	Spare Parts: Wrench	Applicable Inserts
mm	SVPB□ 1010JX-11	●	●	10	10	10	120	14.5	0.4	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	1212JX-11	●	●	12	12	12		16.5								
	1616JX-11	●	●	16	16	16		20.5								
	2020K-11	●	●	20	20	20	125	25								
	2525M-11	●	●	25	25	25	150	32								
	SVPB□ 2020K-16N	●	●	20	20	20	125	25	0.8	SB-40125TRN	FT-15	-	SS-4N	SVN-32N (SVN-32S*)	LW-4	VB□T33... VB□W33... VC□T33...
	2525M-16N	●	●	25	25	25	150	32								

When using inserts with a corner-R(RE) of 0.008" or 1/64" (0.2mm or 0.4mm), shim (SVN-32S) is recommended (sold separately).

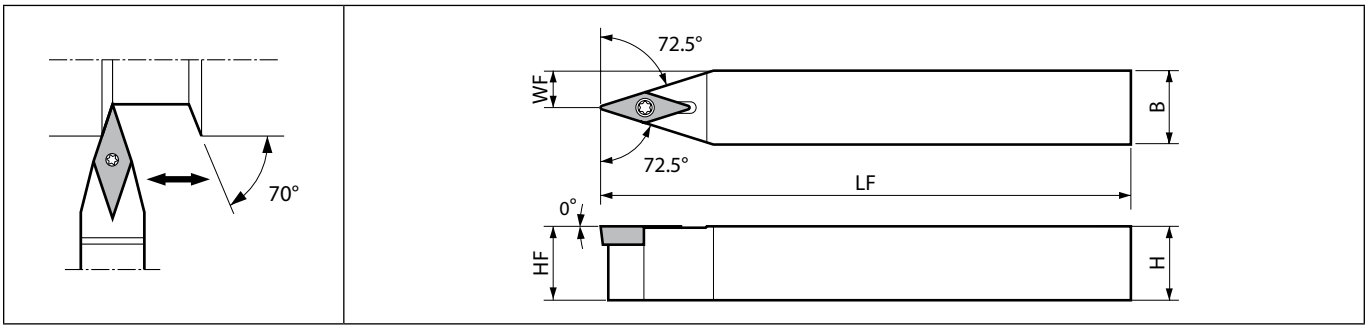
Undercutting diameter of SVPB



Corner-R (RE)	D.O.C. (in)	DCN (Min.)
1/64	0.020	Ø0.984
	0.039	Ø1.181
1/32	0.020	Ø1.772
	0.039	Ø2.165

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVVB (External Turning / External Copying)

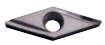


Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts						Applicable Inserts
									Screw	Wrench	Wrench	Shim screw	Shim	Wrench	
		N	H	B	HF	LF	WF								
Inch	SVVBN 6-2JX	●	0.375	0.375	0.375	4.750	0.187	1/64	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	8-2JX	●	0.500	0.500	0.500		0.250								
	10-2JX	●	0.625	0.625	0.625		0.312								
mm	SVVBN 1010F-11	●	10	10	10	80	5	0.4	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	1010JX-11	●				120									
	1212JX-11	●	12	12	12	120	6								
	1616H-11	●	16	16	16	100	8								
	1616JX-11	●				120									
	2020K-11	●	20	20	20	125	10								
	2525M-11	●	25	25	25	150	12.5								
	SVVBN 2020K-16N	●	20	20	20	125	10	0.8	SB-40125TRN	FT-15	-	SS-4N	SVN-32N (SVN-32S*)	LW-4	VB□T33... VB□W33... VC□T33...
	2525M-16N	●	25	25	25	150	12.5								

When using inserts with a corner-R(RE) of 0.008" or 1/64" (0.2mm or 0.4mm), shim (SVN-32S) is recommended (sold separately).

Applicable Inserts (AVJB-FF / SVJB-FF / SVJB-FFJCTM / SVJB-F / SVJB / SVPB / SVVB)

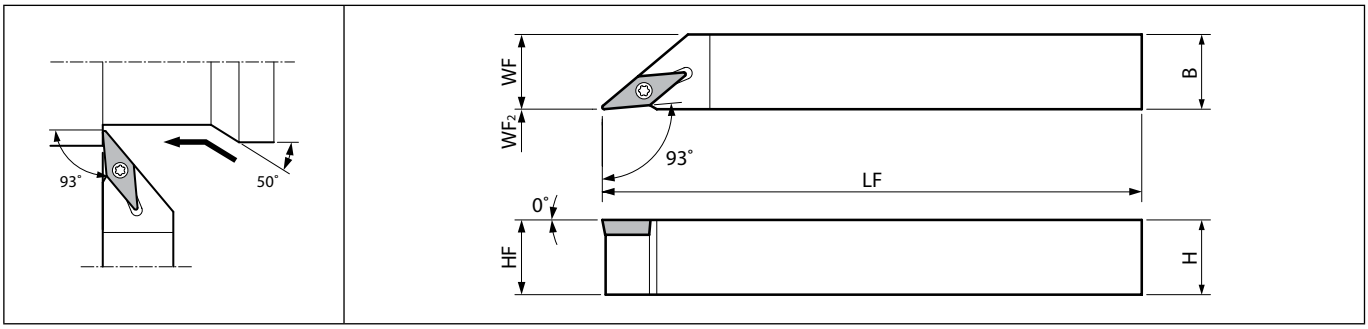
Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker	PP	GP	VF	HQ	R/L-F	R/L-FSF	R/L-Y	PCD
Page	B97	B97	B97	B97	B98	B98	B99	C49

Applications	Hard Materials
Insert	
Chipbreaker	CBN
Page	C26

Recommended Cutting Conditions E74, E75

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVJC-FF (External Turning / External Copying, Screw Clamp, Without Offset)

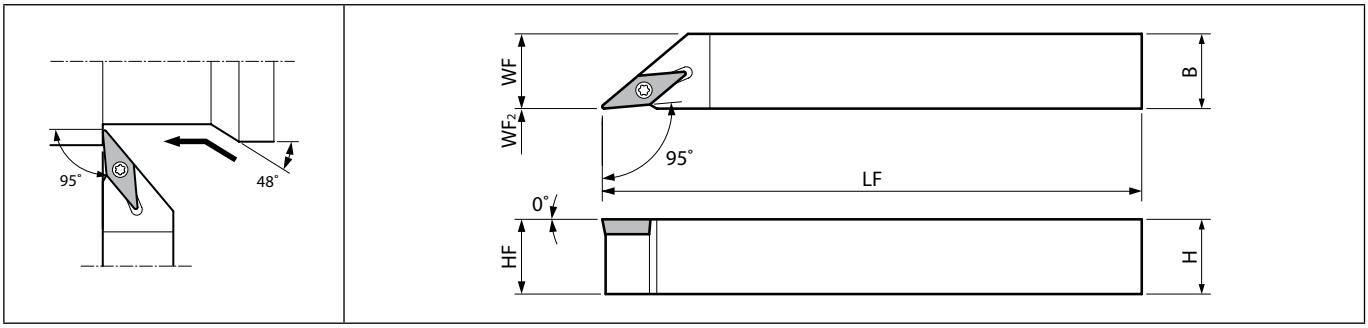


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	HF	LF	WF	WF2	Standard Corner-R (RE)	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
mm	SVJC□L 1010JX-11FF	●	●	10	10	10	120	10	0	0.2	SB-2570TR	FT-8	VC□T22...
	1212F-11FF	●	●	12	12	12	85	12					
	1212JX-11FF	●	●				120						
	1616JX-11FF	●	●	16	16	16		16					
	2020JX-11FF	●	●	20	20	20		20					

SVLC-FF (External Turning / External Copying, Screw Clamp, Without Offset)



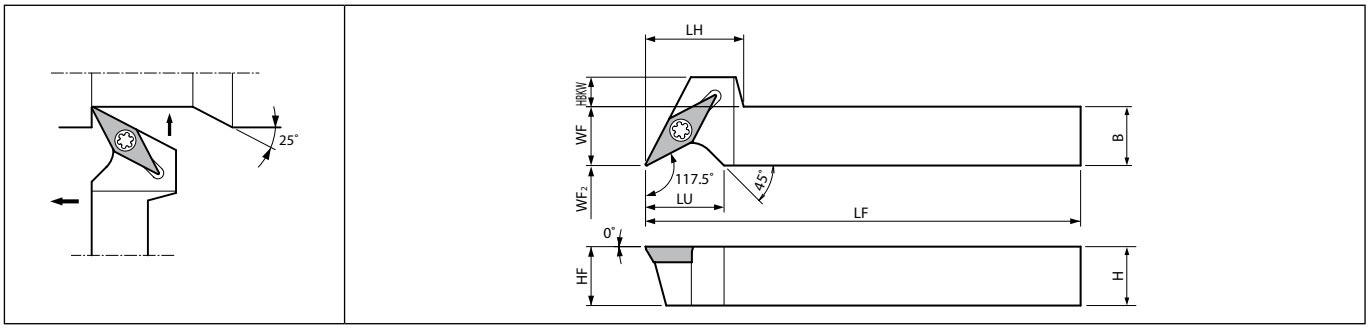
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	HF	LF	WF	WF2	Standard Corner-R (RE)	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
mm	SVLC□L 1212F-11FF	●	●	12	12	12	85	12	0	0.2	SB-2570TR	FT-8	VC□T22...
	1212JX-11FF	●	●				120						
	1616JX-11FF	●	●	16	16	16		16					

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVPC-FF (External Turning / External Facing / External Copying / Undercutting, Screw Clamp, Without Offset)

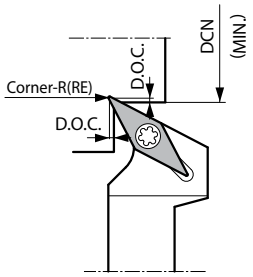


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions									Standard Corner-R (RE)	Spare Parts		Applicable Inserts
			R	H	B	LH	HF	HBKW	LF	LU	WF	WF2		Screw	Wrench	
mm	SVPCR 1010JX-11FF	●	10	10	20	10	8	120	16	10	0	0.2	SB-2570TR	FT-8	VC□T22...
	1212F-11FF	●	12	12		12	6	85		12					
	1212JX-11FF	●						120							
	1616JX-11FF	●	16	16		16	2		20	16					

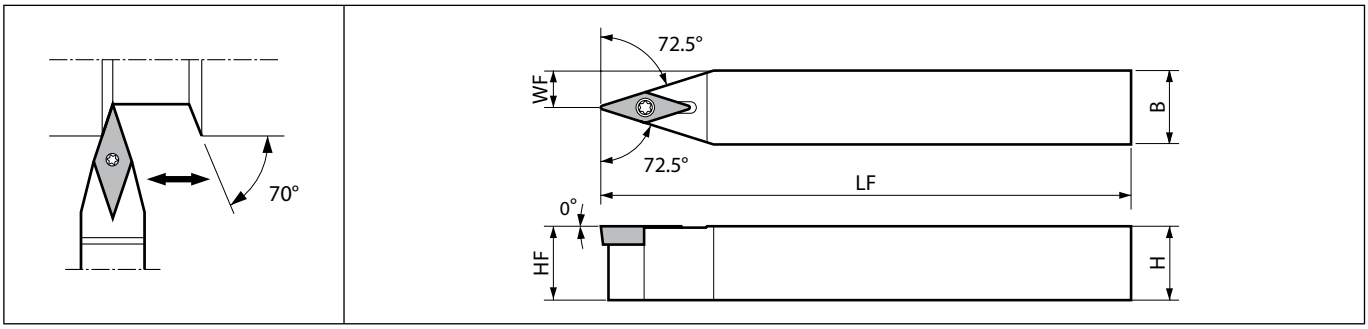
Undercutting Diameter of SVPC-FF



Corner-R (RE)	D.O.C. (in)	DCN (Min.)
0.008	0.020	ø0.787
	0.028	ø0.984

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

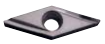
SVVC (External Turning / External Copying)



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts		Applicable Inserts
			N	H	B	HF	LF	WF		Screw	Wrench	
mm	SVVCN 1010JX-11	●	10	10	10			5	0.2	SB-2570TR	FT-8	VC□T22...
	1212JX-11	●	12	12	12	120		6				
	1616JX-11	●	16	16	16			8				

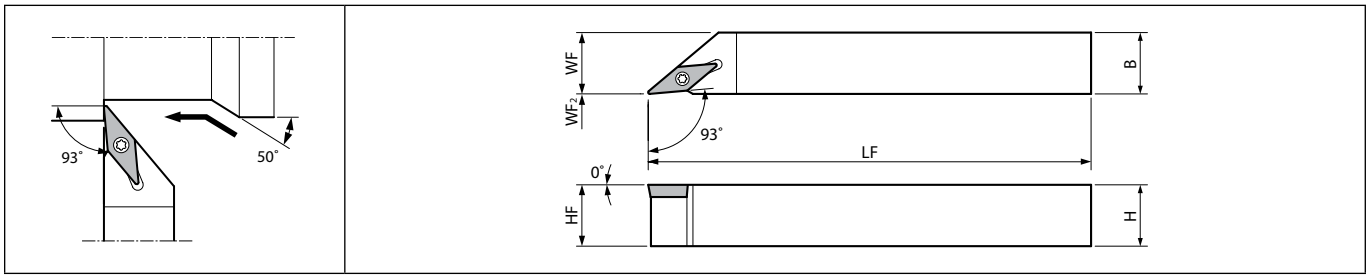
Applicable Inserts (SVJC-FF / SVLC-FF / SVPC-FF / SVVC)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing - Medium
Insert					
Chipbreaker	CF	GF	SKS	R/L-F	R/L-Y
Page	B100	B100	B100	B101	B101

Recommended Cutting Conditions ➡ E74, E75

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVJP-FF (External Turning / External Copying, Screw Clamp, Without Offset)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	HF	LF	WF	WF2	Standard Corner-R (RE)	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts
Inch	SVJP R/L 8-2JXFF	●	●	0.500	0.500	0.500	4.750	0.500	0	0.008	SB-2570TR	FT-8	VP□T22...
	10-2JXFF	●		0.625	0.625	0.625		0.625					
mm	SVJP R/L 1212F-11FF	●	●	12	12	12	85	12	0	0.2	SB-2570TR	FT-8	
	1212JX-11FF	●	●				120						
	1616JX-11FF	●	●	16	16	16		16					
	2020JX-11FF	●	●	20	20	20		20					

SVJP-FFJCTM (External Turning / External Copying, Screw Clamp, Without Offset, Coolant-Though Toolholder)

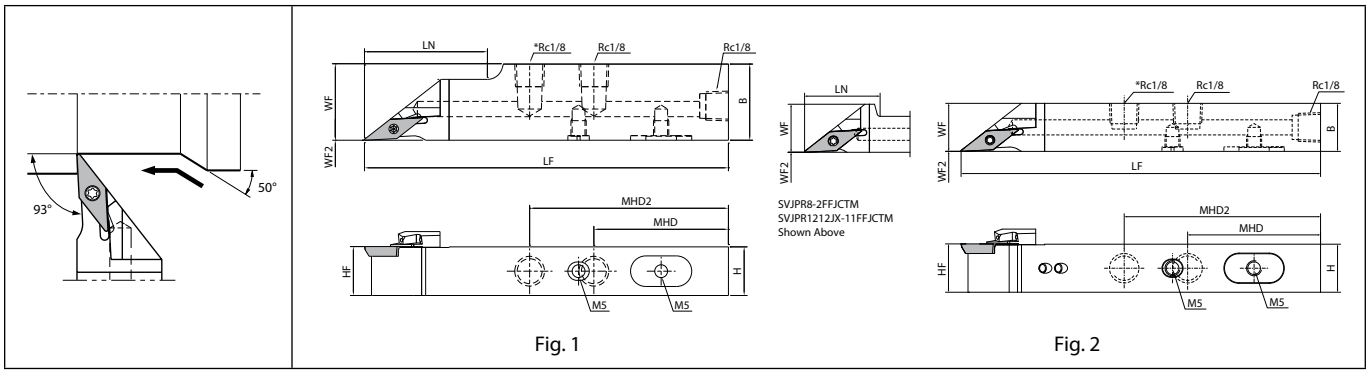


Fig. 1 Fig. 2

Right-hand shown
SVJPR5.72…, SVJPR8-… : 2-Rc1/8
SVJPR1218…, SVJPR1212… : 2-Rc1/8

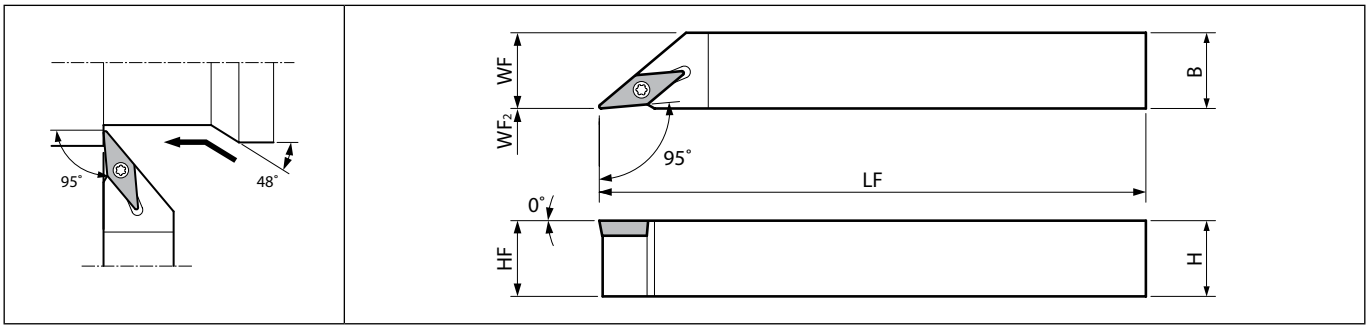
Toolholder Dimensions

Unit	Part Number	Std. Item R	H	B	MHD	MHD2	HF	LF	LN	WF	WF2	Fig.	Standard Corner-R (RE)	Coolant Hole	Spare Parts Plug	Spare Parts Plug	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts
Inch	SVJPR 5.72-2FFJCTM	●	0.500	0.709	2.126	-	0.500	4.750	1.102	0.630	0	1	0.008	Yes	GP-1	HS5X4LP	SB-2570TR	FT-8	VP□T22...
	82.5-2FFJCTM	●	0.625	1.000	1.732	2.559	0.625		1.575	0.787									
	SVJPR 8-2FFJCTM	●	0.500	0.500	2.323	-	0.500		0.984	0.630									
	10-2FFJCTM	●	0.625	0.625	1.732	2.559	0.625	4.750	-	0.625	0	2	0.008	Yes	GP-1		SB-2570TR	FT-8	
	12-2FFJCTM	●	0.750	0.750			0.750			0.750						-			
mm	SVJPR 1218JX-11FFJCTM	●	12	18	54	-	12	120	28	18	0	1	0.2	Yes	GP-1	HS5X4LP	SB-2570TR	FT-8	VP□T22...
	1625JX-11FFJCTM	●	16	25	44	65	16		40	25									
	2025JX-11FFJCTM	●	20				20									-			
	SVJPR 1212JX-11FFJCTM	●	12	12	59	-	12	120	25	16	0	2	0.2	Yes	GP-1	HS5X4LP	SB-2570TR	FT-8	
	1616JX-11FFJCTM	●	16	16	44	65	16		-										
	2020JX-11FFJCTM	●	20	20			20			20						-			

Please see page **H16** and **H17** for piping parts of coolant-through holders.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVLP-FF (External Turning / External Copying, Screw Clamp, Without Offset)



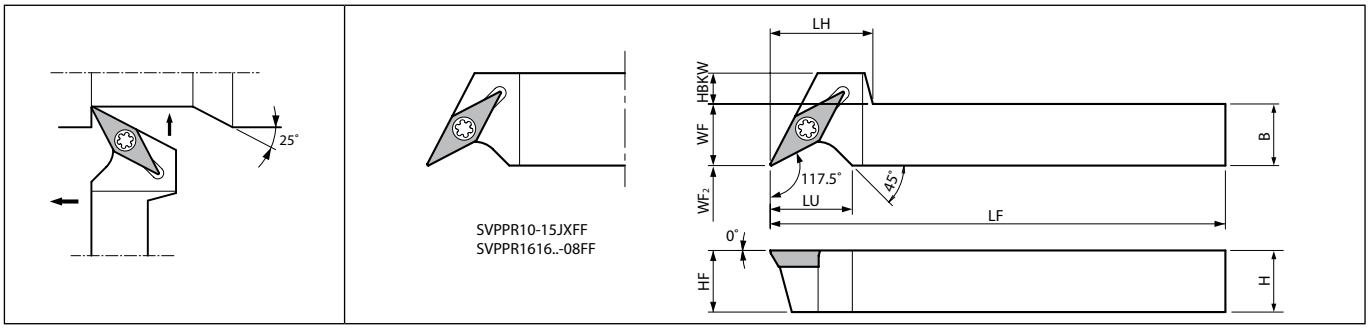
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	HF	LF	WF	WF2	Standard Corner-R (RE)	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
inch	SVLPR 8-2JXFF	●		0.500	0.500	0.500	4.750	0.500	0	0.008	SB-2570TR	FT-8	VP□T22...
mm	SVLP□L 1010JX-08FF	●	●	10	10	10	120	10	0	0.1	SB-2050TR	FT-6	VP□T1515...
	1212F-08FF	●		12	12	12	85	12					
	1212JX-08FF	●	●				120						
	1616JX-08FF	●	●	16	16	16		16					
	SVLP□L 1212F-11FF	●		12	12	12	85	12	0	0.2	SB-2570TR	FT-8	VP□T22...
	1212JX-11FF	●	●				120						
	1616JX-11FF	●	●	16	16	16		16					

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVPP-FF (External Turning / External Facing / External Copying / Undercutting, Screw Clamp, Without Offset)

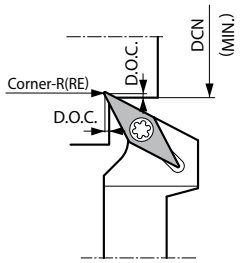


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions									Standard Corner-R (RE)	Spare Parts		Applicable Inserts
			R	H	B	LH	HF	HBKW	LF	LU	WF	WF2	Screw	Wrench	
Inch	SVPPR 8-15JXFF	●	0.500	0.500	0.630	0.500	0.051	4.750	0.551	0.500	0	0.004	SB-2050TR	FT-6	VP□T1515...
Inch	SVPPR 8-2JXFF	●	0.500	0.500	0.787	0.500	0.209	4.750	0.630	0.500	0	0.004	SB-2570TR	FT-8	VP□T22...
Inch	10-2JXFF	●	0.625	0.625		0.625	0.084		0.787	0.625					
mm	SVPPR 1010JX-08FF	●	10	10	16	10	4	120	12	10	0	0.1	SB-2050TR	FT-6	VP□T1515...
mm	1212F-08FF	●	12	12		12	2	85		12					
mm	1212JX-08FF	●						120							
mm	1616JX-08FF	●	16	16	-	16	-			16					
mm	SVPPR 1010JX-11FF	●	10	10	20	10	8	120	16	10	0	0.2	SB-2570TR	FT-8	VP□T22...
mm	1212F-11FF	●	12	12		12	6	85		12					
mm	1212JX-11FF	●						120							
mm	1616JX-11FF	●	16	16		16	2			16					

Undercutting Diameter of SVPP-FF



Corner-R (RE)	D.O.C. (in)	DCN (Min.)
0.008	0.020	ø0.787
	0.039	ø0.984

Applicable Inserts (SVJP-FF / SVJP-FFJCTM / SVLP-FF / SVPP-FF)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Low Feed	Low Feed
Insert								
Chipbreaker	CF	SKS	CK	GF	PL-F	PL-FSF	PL-U	PL-USF
Page	B102	B102	B102	B102	B103	B103	B104	B104

Applications	Low Feed
Insert	
Chipbreaker	PL-J
Page	B104

Recommended Cutting Conditions E74, E75

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

ZBMT Series

25° Insert Profiling Tools

Unique clamping structure and a wide lineup of external toolholders and boring bars
Wide range of applications including copying, undercutting, tapering, V-slotting, spherical machining, and more

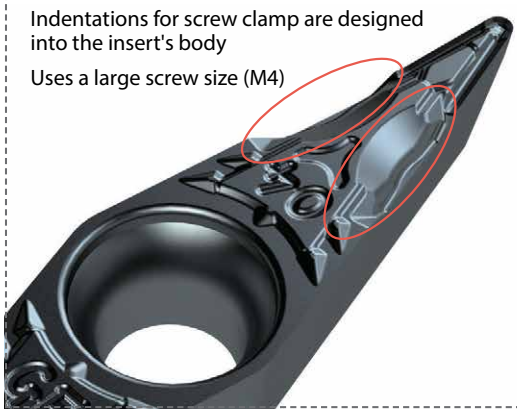
1 Newly Developed Self-Clamping Mechanism Achieves a Higher Rigidity

Side Lock Mechanism

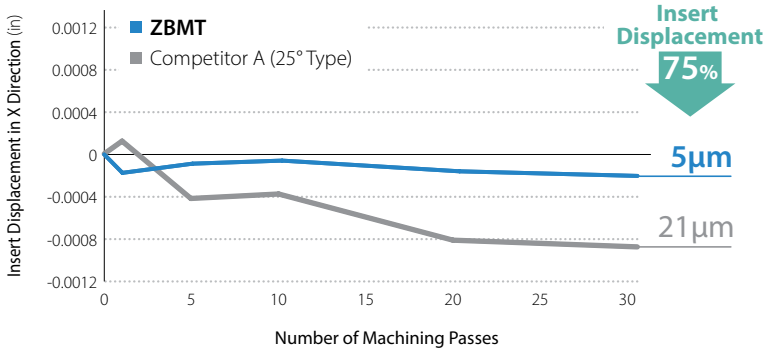
Unique design holds insert at 2 points
Safe even for insert with small tip angle that is difficult to mount

Indentations for screw clamp are designed into the insert's body

Uses a large screw size (M4)



Insert Displacement During Facing Comparison (Internal Evaluation)



Insert Design

By controlling insert displacement,

– Machining precision is stabilized and long tool life is enable

– Reduces defect rate due to sudden dimensional deviation

Cutting Conditions : Vc = 750 sfm, D.O.C. = 0.012", f = 0.006, Wet Workpiece 4137

*The above figures are not guaranteed and will depend on cutting conditions.

Provides High Quality and Stable Machining in Various Machining Applications

Excellent Performance in Various Machining Applications including Copying, Undercutting, Tapering, V-Slotting, Spherical Machining, etc.

Shaft Copying

Internal Undercutting

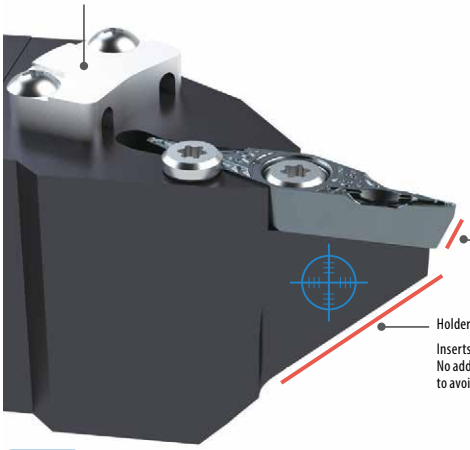
End Face Tapering

800.823.7284
www.kyoceraprecisiontools.com

2 Unique Holder Design to Meet Customers' Needs

Both boring bars and external toolholders are compatible with internal coolant.

Uses a clamp with a small thickness that does not prevent chip flow



Unique Double Coolant Hole Design

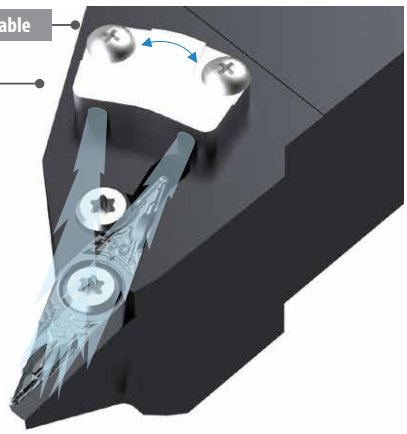
Supplies coolant directly to the cutting edge and provides improved chip evacuation and long tool life (Coolant discharge direction: Fine adjustment possible)

*Though coolant stream hits side clamp screw, machining performance is not affected

*Pressure resistance: ~ 3 MPa

Fine Tuned and Adjustable

± 4° Adjustable Oscillation



Easy to use for Facing

Insert corner : 2-Step Positive Type (20°)

Holder: Tapered shape

Inserts and toolholders have a unique end shape
No additional machining is required when trying to avoid interference with workpiece.

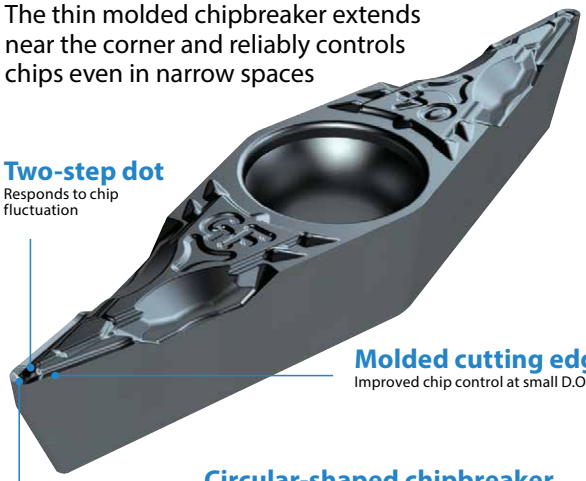
Effective for facing applications

3 New GF Chipbreaker for ZBMT Reduces Chip Control Issues at minute D.O.C.

GF Chipbreaker

Solving chip control issues leads to high-quality surface finishes

The thin molded chipbreaker extends near the corner and reliably controls chips even in narrow spaces

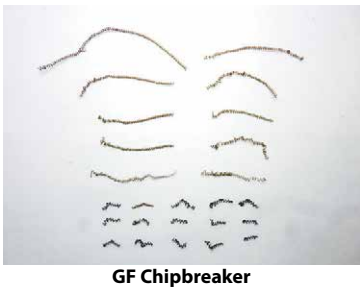


Two-step dot
Responds to chip fluctuation

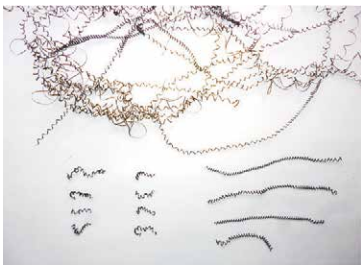
Molded cutting edge
Improved chip control at small D.O.C.

Circular-shaped chipbreaker
Low resistance and excellent chip control even in ductile workpieces

Chip control comparison (Internal evaluation)



GF Chipbreaker

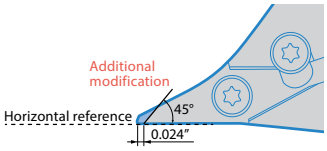


Competitor A (25° Type)

Cutting Conditions : Vc = 750 sfm, f = 0.006 ipr, D.O.C. = 0.008" - 0.020", Wet
Workpiece 4137 Facing

15° Inserts are also available upon requests

To avoid holder interference, additional modifications is required as shown in the figure on the right (Details: **P8**). Also, as shown in the figure below, special order for holders may be required depending on machining application.



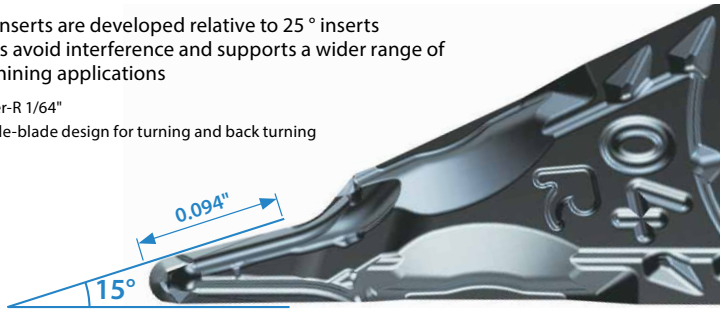
Examples

When using the toolholder in reverse mounting position

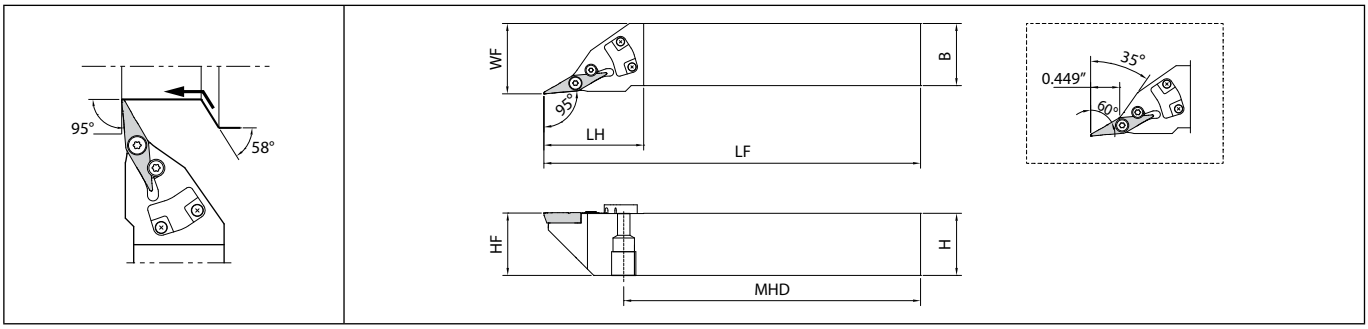
When using the toolholder in normal mounting position
* Holder: Special order specification

15 ° inserts are developed relative to 25 ° inserts
Helps avoid interference and supports a wider range of machining applications

Corner-R 1/64"
Double-blade design for turning and back turning



SZLB (External Turning / External Copying, Screw Clamp, Coolant-Though Toolholder)



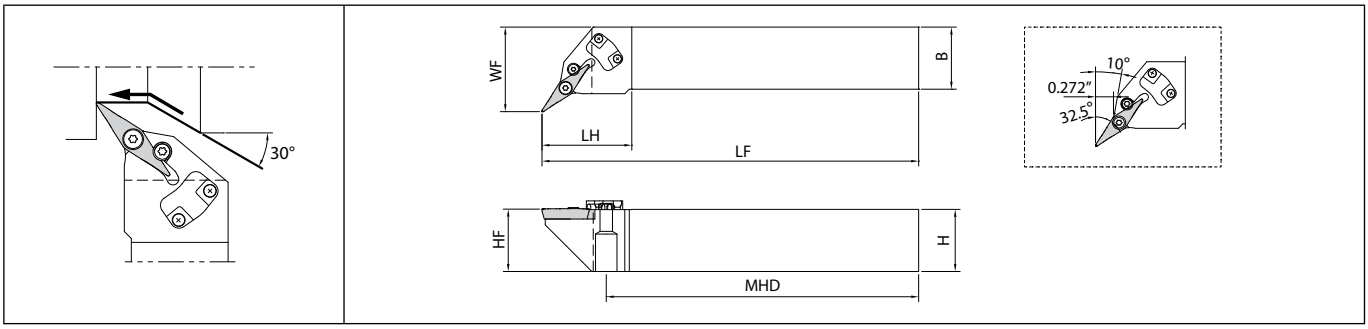
Right-hand shown | ZBMT13T304R-GF-15D is applicable to Right-hand Toolholder. | Applicable Pressure : ~435 psi

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	MHD	HF	LF	WF	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Coolant block screw	Spare Parts: Coolant block	Spare Parts: Insert screw	Spare Parts: Wrench	Applicable Inserts
Inch	SZLB□□ 12-3C-C	●	●	0.750	0.750	1.378	3.760	0.750	5.039	0.905	1/64	Yes	BH2X6	ZCP-13	SB-3079TR	FT-8	ZBMT13T3...
	16-3D-C	●	●	1.000	1.000	1.575	4.779	1.000	6.039	1.110							
mm	SZLB□□ 2020K-13C	●	●	20	20	40	92.6	20	125	23	0.4	Yes	BH2X6	ZCP-13	SB-3079TR	FT-8	
	2525M-13C	●	●	25	25		118	25	150	28.2							

Please see page **D13** for piping parts of coolant-through holders.

SZPB (External Turning / External Facing / External Copying / Undercutting, Screw Clamp, Coolant-Though Toolholder)



Right-hand shown | Applicable Pressure : ~435 psi

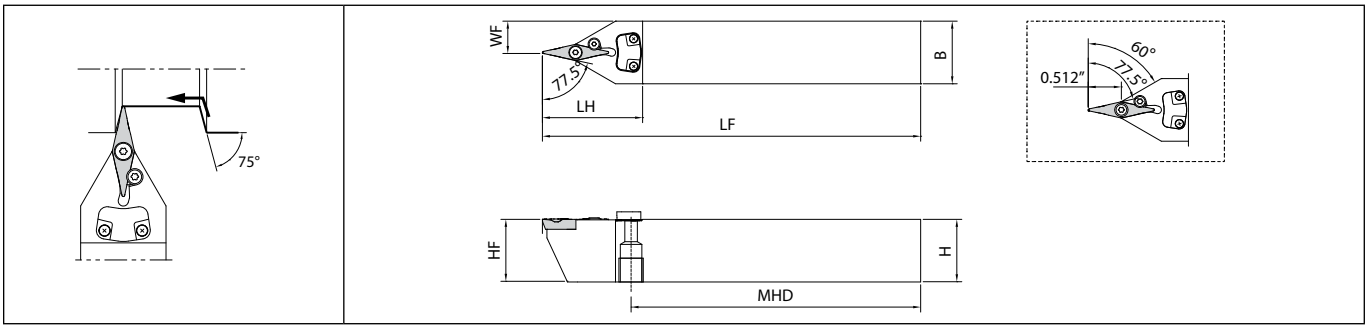
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	MHD	HF	LF	WF	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Coolant block screw	Spare Parts: Coolant block	Spare Parts: Insert screw	Spare Parts: Wrench	Applicable Inserts
Inch	SZPB□□ 12-3C-C	●	●	0.750	0.750	1.378	3.858	0.750	5.039	1.071	1/64	Yes	BH2X6	ZCP-13	SB-3079TR	FT-8	ZBMT13T3...
	16-3D-C	●	●	1.000	1.000	1.378	5.023	1.000	6.039	1.334							
mm	SZPB□□ 2020K-13C	●	●	20	20	37	95	20	125	27.2	0.4	Yes	BH2X6	ZCP-13	SB-3079TR	FT-8	
	2525M-13C	●	●	25	25	36	124.2	25	150	33.9							

Please see page **D13** for piping parts of coolant-through holders.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SZVB (External Turning / External Copying, Screw Clamp, Coolant-Though Toolholder)



Applicable Pressure : ~435 psi

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Coolant Hole	Spare Parts				Applicable Inserts
			N	H	B	LH	MHD	HF	LF	WF			Coolant block screw	Coolant block	Insert screw	Wrench	
Inch	SZVBN 12-3C-C	●	0.750	0.750	1.574	3.645	0.750	5.039	0.373	1/64	Yes	BH2X6	ZCP-13	SB-3079TR	FT-8	ZBMT13T3...
	16-3D-C	●	1.000	1.000	1.574	4.645	1.000	6.039	0.498							
mm	SZVBN 2020K-13C	●	20	20	40	89.6	20	125	10	0.4	Yes	BH2X6	ZCP-13	SB-3079TR	FT-8	
	2525M-13C	●	25	25		114.6	25	150	12.5							

Please see page **D13** for piping parts of coolant-through holders.

Applicable Inserts

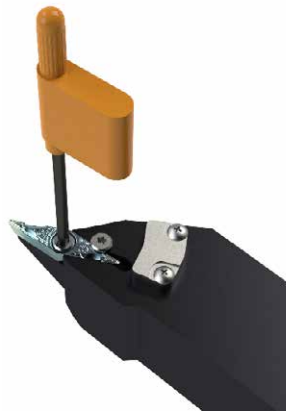
Applications	Finishing	Finishing	Finishing
Insert			
Chipbreaker	GF	R-GF-15D	PCD
Page	B108	B108	C50

R-GF-15D inserts are only for the right-hand toolholders of SZLB.

Recommended Cutting Conditions E77

Instructions

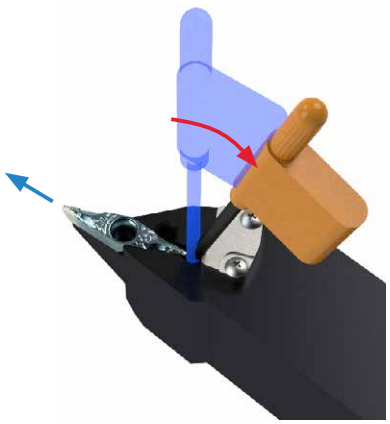
When mounting the insert (Tightening torque: 1.2 N · m)



1. Tighten the main screw with the insert pressed against the contact surface with fingertips.

2. Tighten the side screw to complete the installation.

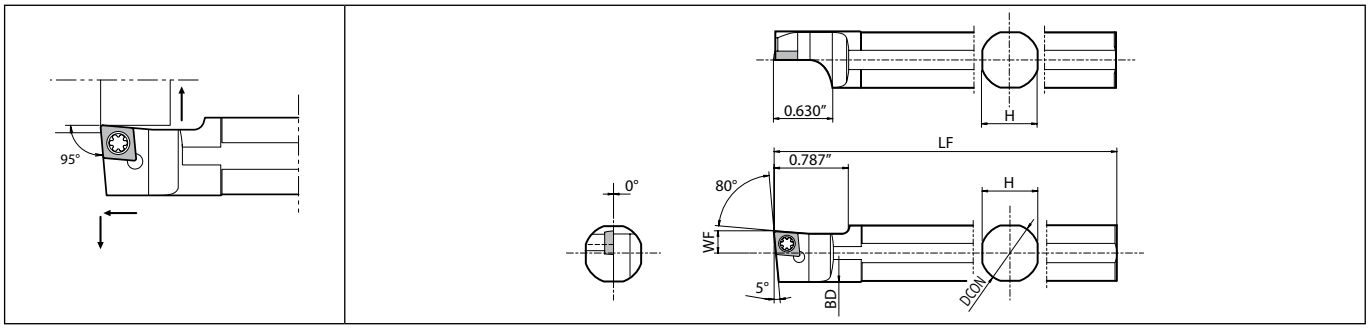
When removing the insert



Remove the two screws and put the wrench into the gap at the back end of the insert. It can be easily removed by pushing out the insert as shown above.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SCLC (External Turning / External Facing)

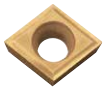
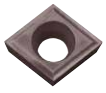
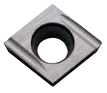
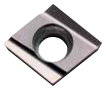
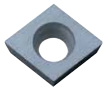
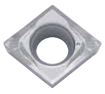
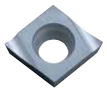
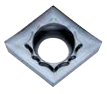
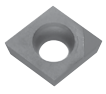
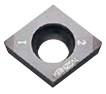


Left-hand shown | Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts			Applicable Inserts
			L	DCON	H	BD	LF	WF	Screw	Wrench	Wrench	
Inch	S15F- SCLCL06	●	0.625	0.590	0.606	3.346	0.236	1/64	SB-2570TR	-	FT-8	CC□T215... CC□W215...
	S19G- SCLCL06	●	0.750	0.669	0.724	3.543						
	S19K- SCLCL06	●	0.750	0.669	0.724	4.724						
	S19G- SCLCL09	●	0.750	0.669	0.724	3.543	0.393	1/64	SB-4065TR	FT-15	-	CC□T325... CC□W325...
	S19K- SCLCL09	●	0.750	0.669	0.724	4.724						
	S25K- SCLCL09	●	1.000	0.905	0.976	4.724						
mm	S12F- SCLCL06	●	12	11	13.4	80	6	0.4	SB-2560TR	-	FT-8	CC□T215... CC□W215...
	S14H- SCLCL06	●	14	13	13.4	100						
	S16F- SCLCL06	●	16	15	15.4	85	6	0.4	SB-2570TR			
	S20G- SCLCL06	●	20	18	19.4	90						
	S20K- SCLCL06	●	20	18	19.4	120						
	S20G- SCLCL09	●	20	18	19.4	90	10	0.4	SB-4065TR	FT-15	-	CC□T325... CC□W325...
	S20K- SCLCL09	●	20	18	19.4	120						
	S25.0H- SCLCL09	●	25	23	24.4	100						

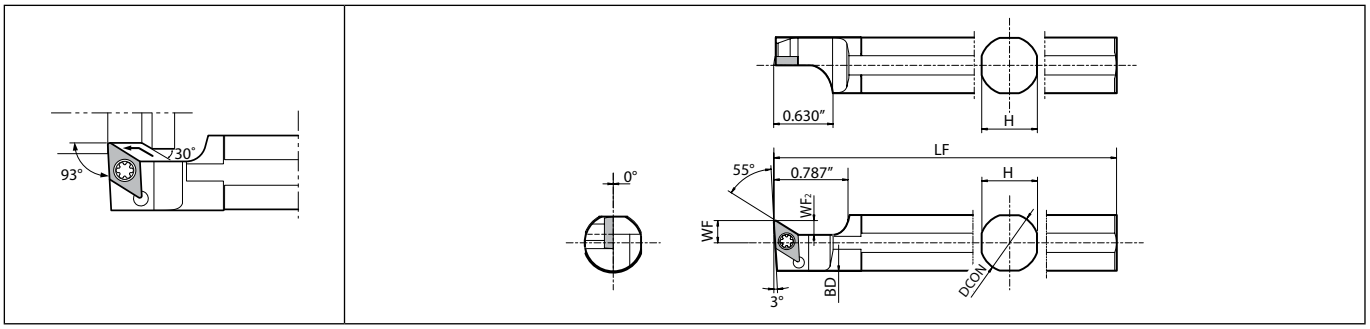
Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker	PF	GF	SKS	SK	CK	GQ	WP	PP
Page	B58	B58	B59	B59	B59	B59	B60	B60
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium	Low Feed	Low Feed	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker	GK	HQ	Standard	MF	R-U	R-J	MQ	No Chipbreaker
Page	B60	B60	B60	B61	B63~B65	B65	B61	B66
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker	AP	R-A3	AH	PCD	APD	CBN		
Page	B66	B66	B66	C39	C40	C20		

Recommended Cutting Conditions ➔ E74, E75

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SDUC (External Turning / External Copying)



Left-hand shown | Right-hand Insert for Left-hand Toolholder.

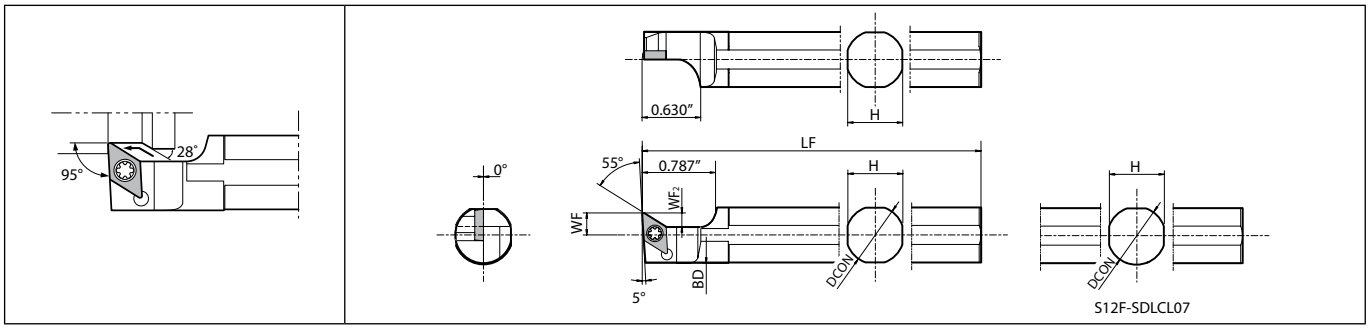
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Spare Parts			Applicable Inserts
			L	DCON	H	BD	LF	WF	WF2		Screw	Wrench	Wrench	
Inch	S15F- SDUCL07	●	0.625	0.590	0.606	3.346	0.236	0.150	1/64	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...	
	S19G- SDUCL07	●	0.750	0.669	0.724	3.543	0.236	0.150						
	S19K- SDUCL07	●	0.750	0.669	0.724	4.724	0.236	0.150						
	S19G- SDUCL11	●	0.750	0.669	0.724	3.543	0.393	0.228	1/64	SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...	
	S19K- SDUCL11	●	0.750	0.669	0.724	4.724	0.393	0.228						
	S25K- SDUCL11	●	1.000	0.905	0.976	4.724	0.393	0.228						
mm	S14H- SDUCL07	●	14	13	13.4	100	6	3.8	0.4	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...	
	S20G- SDUCL07	●	20	18	19.4	90	6	3.8						
	S20K- SDUCL07	●	20	18	19.4	120	6	3.8						
	S20G- SDUCL11	●	20	18	19.4	90	10	5.8	0.4	SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...	
	S20K- SDUCL11	●	20	18	19.4	120	10	5.8						
	S22K- SDUCL11	●	22	20	21.4	120	10	5.8						
	S25.0H- SDUCL11	●	25	23	24.4	100	10	5.8						

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SDLC (External Turning / External Copying)



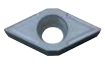
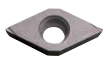
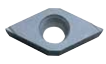
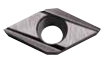
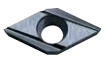
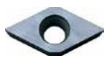
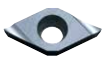
Left-hand shown | Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Spare Parts			Applicable Inserts
			L	DCON	H	BD	LF	WF	WF2		Screw	Wrench	Wrench	
Inch	S15F- SDLCL07	●	0.625	0.590	0.606	3.346	0.236	0.150	1/64	SB-2560TR	-	FT-8	DC□T215... DC□W215...	
	S19G- SDLCL07	●	0.750	0.669	0.724	3.543	0.236	0.150						
	S19K- SDLCL07	●	0.750	0.669	0.724	4.724	0.236	0.150						
	S19G- SDLCL11	●	0.750	0.669	0.724	3.543	0.393	0.228	1/64	SB-4085TR	FT-15	-	DC□T325... DC□W325...	
	S19K- SDLCL11	●	0.750	0.669	0.724	4.724	0.393	0.228						
	S25K- SDLCL11	●	1.000	0.905	0.976	4.724	0.393	0.228						
mm	S12F- SDLCL07	●	12	11	13.4	80	6	3.8	0.4	SB-2560TR	-	FT-8	DC□T215... DC□W215...	
	S14H- SDLCL07	●	14	13	13.4	100	6	3.8						
	S16F- SDLCL07	●	16	15	15.4	85	6	3.8						
	S20G- SDLCL07	●	20	18	19.4	90	6	3.8						
	S20K- SDLCL07	●	20	18	19.4	120	6	3.8						
	S20G- SDLCL11	●	20	18	19.4	90	10	5.8	0.4	SB-4085TR	FT-15	-	DC□T325... DC□W325...	
	S20K- SDLCL11	●	20	18	19.4	120	10	5.8						
	S22K- SDLCL11	●	22	20	21.4	120	10	5.8						
	S25.0H- SDLCL11	●	25	23	24.4	100	10	5.8						

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts (S-SDUC / S-SDLC)

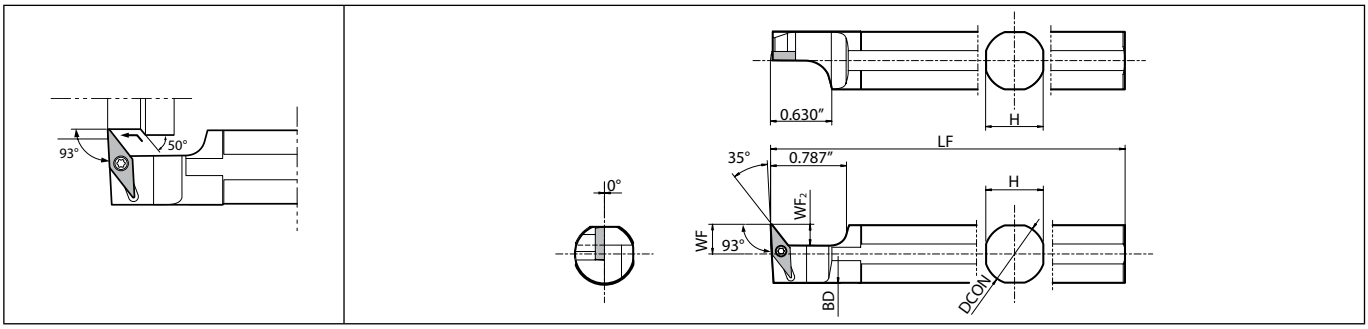
Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker	CF	GF	SKS	SK	CK	GQ	WP*	R-WP*
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker	PP	GP	GK	HQ	Standard	MF	R-F	R-FSF
Page	B69	B69	B70	B70	B70	B70	B72, B73	B72
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker	R-U	R-USF	R-J	R-JSF	XP	XQ	MQ	No Chipbreaker
Page	B74~B76	B74	B77	B76	B71	B71	B71	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker	AP	R-A3	AH	PCD	APD	CBN		
Page	B78	B78	B78	C42	C42	C22		

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**. **(S-SDLC cannot be used)**

Recommended Cutting Conditions ➡ **E74, E75**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SVUB (External Turning / External Copying)

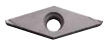
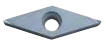
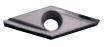


Left-hand shown | Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
			L	DCON	H	BD	LF	WF	WF2			Screw	Wrench	
Inch	S19K- SVUBL11	●	0.750	0.669	0.724	4.724	0.413	0.315	1/64	No	SB-2570TR	FT-8	VB□T22... VB□W22...
Inch	S25K- SVUBL11	●	1.000	0.906	0.976	4.724	0.413	0.315					
mm	S20G- SVUBL11	●	20	18	19.4	90	10.5	8	0.4	No	SB-2570TR	FT-8	
mm	S20K- SVUBL11	●	20	18	19.4	120	10.5	8					
mm	S25.0H- SVUBL11	●	25	23	24.4	100	10.5	8					

Applicable Inserts

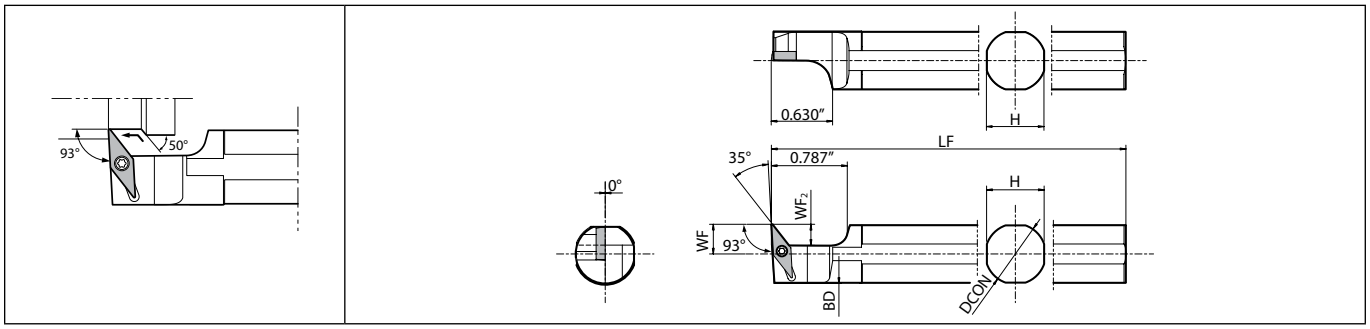
Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker	PP	GP	VF	HQ	R-F	R-FSF	R-Y	PCD
Page	B97	B97	B97	B97	B98	B98	B99	C49

Applications	Hard Materials
Insert	
Chipbreaker	CBN
Page	C26

Recommended Cutting Conditions E74, E75

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SVUC (External Turning / External Copying)

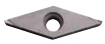
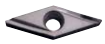


Left-hand shown | Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
			L	DCON	H	BD	LF	WF	WF2			Screw	Wrench
Inch	S15F- SVUCL08	●	0.625	0.591	0.606	3.346	0.315	0.217	1/64	No	SB-2050TR	FT-6	VC□T1515... VC□W1515...
Inch	S19G- SVUCL11	●	0.750	0.669	0.724	3.543	0.413	0.315	0.008	No	SB-2570TR	FT-8	VC□T22...
Inch	S19K- SVUCL11	●	0.750	0.669	0.724	4.724	0.413	0.315					
Inch	S25K- SVUCL11	●	1.000	0.906	0.976	4.724	0.413	0.315					
mm	S12F- SVUCL08	●	12	11	13.4	80	7.5	5.5	0.4	No	SB-2050TR	FT-6	VC□T1515... VC□W1515...
mm	S14H- SVUCL08	●	14	13	13.4	100	7.5	5.5					
mm	S16F- SVUCL08	●	16	15	15.4	85	8	5.5					
mm	S20G- SVUCL11	●	20	18	19.4	90	10.5	8	0.2	No	SB-2570TR	FT-8	VC□T22...
mm	S20K- SVUCL11	●	20	18	19.4	120	10.5	8					
mm	S25.0H- SVUCL11	●	25	23	24.4	100	10.5	8					

Applicable Inserts

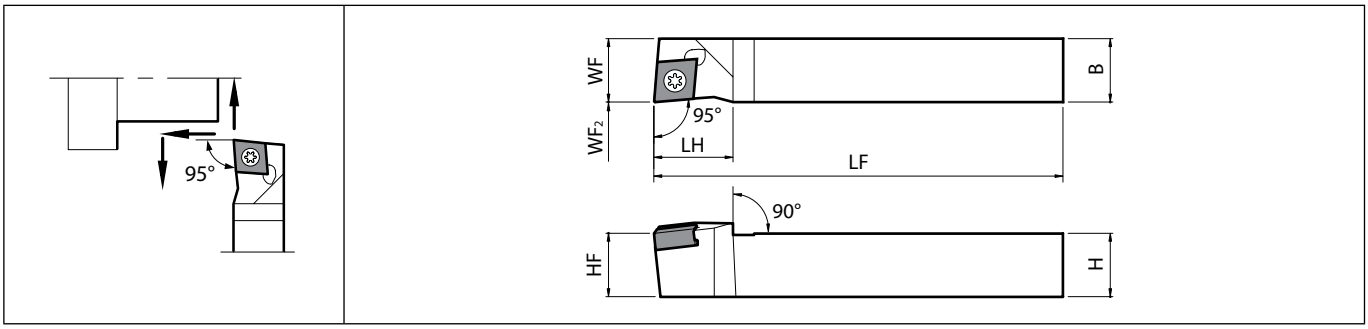
Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing - Medium
Insert								
Chipbreaker	CF	GF	SKS	PP	VF	HQ	R-F	R-Y
Page	B100	B100	B100	B100	B100	B100	B101	B101

Applications	Non-Ferrous Metals	Hard Materials
Insert		
Chipbreaker	PCD	CBN
Page	C50	C27

Recommended Cutting Conditions ➡ E74, E75

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SCLN-FF (External Turning / External Facing, Screw Clamp, Without Offset)

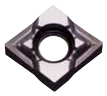
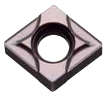
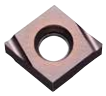
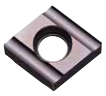


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side rake angle (°)	Inclination angle (°)	Spare Parts		Applicable Inserts
			R	H	B	LH	HF	LF	WF	WF2				Screw	Wrench	
Inch	SCLNR 6-2.4FF	●	0.375	0.375	0.590	0.375	6.000	0.375	0	0.008	-6	-6	SB-3080TR	LTW-10SS	CN□U242...
	8-2.4DF	●	0.500	0.500	0.590	0.500	6.000	0.500							
	10-2.4CF	●	0.625	0.625	0.590	0.625	5.000	0.625							
mm	SCLNR 1010K-07FF	●	10	10	15	10	120	10	0	0.2	-6	-6	SB-3080TR	LTW-10SS	
	1212F-07FF	●	12	12		12	85	12							
	1212K-07FF	●					120								
	1616K-07FF	●	16	16		16		16							

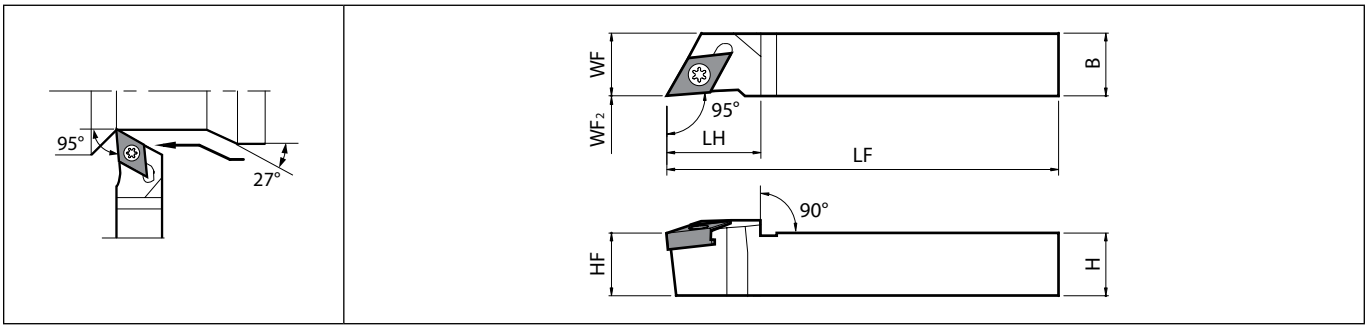
Applicable Inserts

Applications	Finishing - Medium	Medium - Roughing	Finishing	Low Feed
Insert				
Chipbreaker	SK	GK	R-F	R-U
Page	B55	B55	B55	B55

Recommended Cutting Conditions E66

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SDLN-FF (External Turning / External Copying, Screw Clamp, Without Offset)

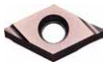
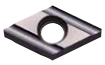


Right-hand shown

Toolholder Dimensions

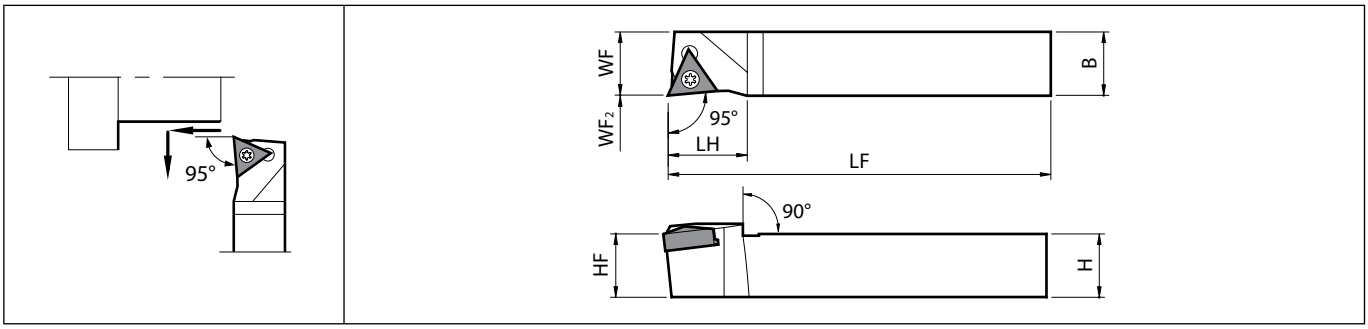
Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side rake angle (°)	Inclination angle (°)	Spare Parts		Applicable Inserts
			R	H	B	LH	HF	LF	WF	WF2				Screw	Wrench	
Inch	SDLNR 6-2.2FF	●	0.375	0.375	0.708	0.375	6.000	0.375	0	0.008	-6	-7	SB-3080TR	LTW-10SS	DN□U222...
	8-2.2DF	●	0.500	0.500	0.708	0.500	6.000	0.500							
	10-2.2CF	●	0.625	0.625	0.708	0.625	5.000	0.625							
mm	SDLNR 1010K-08FF	●	10	10	18	10	120	10	0	0.2	-6	-7	SB-3080TR	LTW-10SS	
	1212F-08FF	●	12	12		12	85	12							
	1212K-08FF	●					120								
	1616K-08FF	●	16	16		16		16							

Applicable Inserts

Applications	Finishing - Medium	Medium - Roughing	Finishing	Low Feed
Insert				
Chipbreaker	SK	GK	R-F	R-U
Page	B56	B56	B56	B56

Recommended Cutting Conditions E66

STLN-FF (External Turning, Screw Clamp, Without Offset)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side rake angle (°)	Inclination angle (°)	Spare Parts		Applicable Inserts
			R	H	B	LH	HF	LF	WF	WF2				Screw	Wrench	
Inch	STLNR 6-1.8FF	●	0.375	0.375	0.590	0.375	6.000	0.375	0	0.008	-6	-7	SB-2570TR	LTW-8SS	TNGU182...
	8-1.8DF	●	0.500	0.500	0.590	0.500	6.000	0.500							
mm	STLNR 1010K-09FF	●	10	10	15	10	120	10	0	0.2	-6	-7	SB-2570TR	LTW-8SS	
	1212F-09FF	●	12	12		12	85	12							
	1212K-09FF	●					120								
	1616K-09FF	●	16	16		16		16							

Applicable Inserts

Applications	Finishing	Low Feed
Insert		
Chipbreaker	R-F	R-U
Page	B57	B57

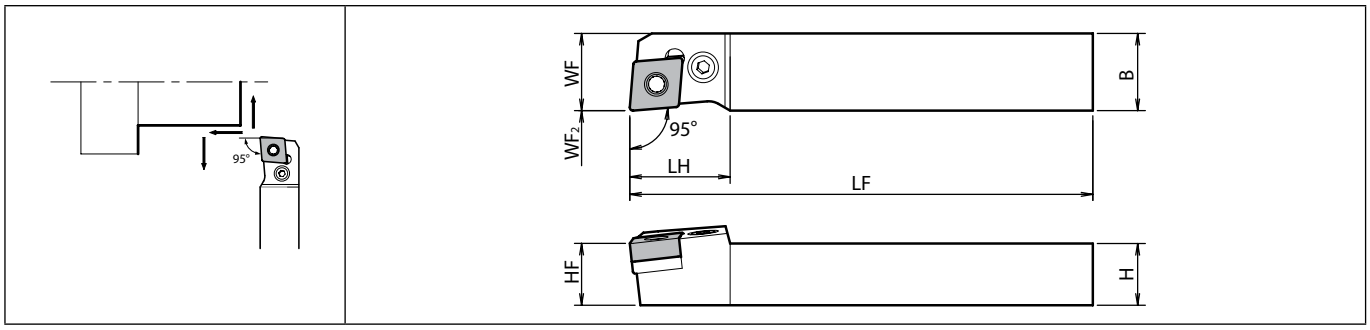
Recommended cutting conditions

Workpiece Material	PR1225	PR1535	PR1705	PR1725
Free-cutting steel	-	-	● Vc = 330 sfm 200 ~ 490	◔ Vc = 330 sfm 200 ~ 490
Carbon Steel / Alloy Steel	◔ Vc = 330 sfm 200 ~ 490	◔ Vc = 330 sfm 200 ~ 490	◔ Vc = 430 sfm 200 ~ 720	● Vc = 430 sfm 200 ~ 660
Stainless Steel	◔ Vc = 260 sfm 160 ~ 490	● Vc = 330 sfm 200 ~ 590	-	◔ Vc = 330 sfm 260 ~ 490

● : Continuous to light interruption: 1st recommendation
◔ : Continuous to light interruption: 2nd recommendation

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PCLN-FF (External Turning / External Facing, Without Offset)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side rake angle (°)	Inclination angle (°)	Spare Parts						Applicable Inserts
			R	H	B	LH	HF	LF	WF	WF2				Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench	
mm	PCLNR 1620JX-12FF	●	16	20	26	16	120	20	0	0.8	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	LC-42N	LW-3	CN□G43...
	2020JX-12FF	●	20			20													

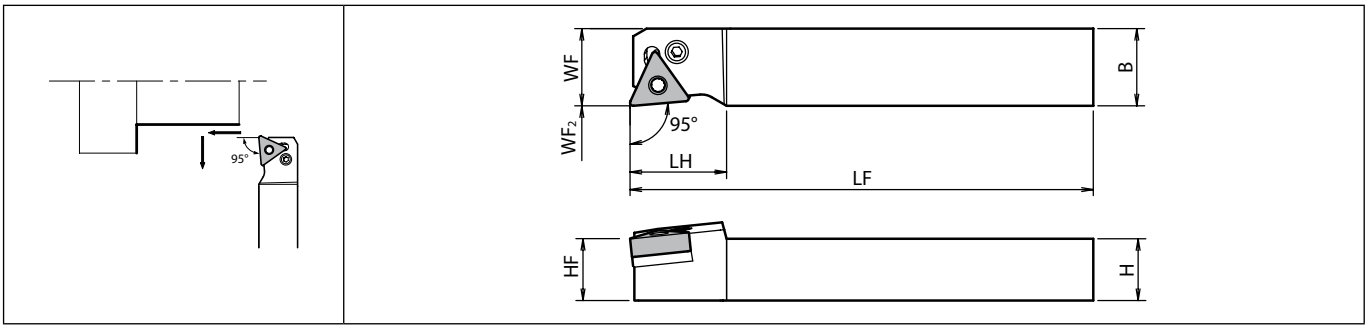
Applicable Inserts

Applications	Finishing - Medium	Medium - Roughing
Insert		
Chipbreaker	SK	FP-TK
Page	B19	B19

Recommended Cutting Conditions E66

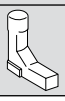
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PTLN-FF (External Turning, Without Offset)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side rake angle (°)	Inclination angle (°)	Spare Parts						Applicable Inserts
			R	H	B	LH	HF	LF	WF	WF2				Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench	
																				
mm	PTLNR 1620JX-16FF	●	16	20	24	16	120	20	0	0.8	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	LT-32N	FH-2.5	TN□G33...
	2020JX-16FF	●	20			20											*LT-32N-20		

When using inserts with corner-R(RE) greater than 1/16" (1.6mm), please purchase shim LT-32N-20 (sold separately) to prevent workpiece and shim from interfering with each other.

Applicable Inserts

Applications	Finishing - Medium	Medium - Roughing	Large D.O.C.
Insert			
Chipbreaker	SK	FP-TK	R-LD
Page	B42	B42	B42

Recommended Cutting Conditions E66

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Sub-Spindle Holders

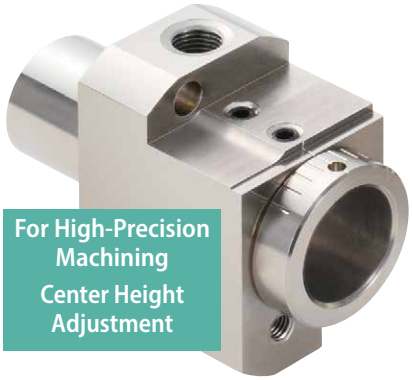
Back machining holder for Star Micronics Co., Ltd.'s machines

Highly rigid and supports internal coolant
Holders with center height adjustment mechanism are available

1 Lineup: Holders for 4- and 8-spindle tool post styles

For 4-spindle tool post

4A-HA type



For High-Precision Machining
Center Height Adjustment

4A type

For 8-spindle tool post

8A type

2 Features

Feature 1

*Only the 4A-HA type for 4-spindle tool post supports the center height adjustment mechanism.

Adjustable sleeve enables easy adjustment of the center height with superior adjustment accuracy.

Feature 2

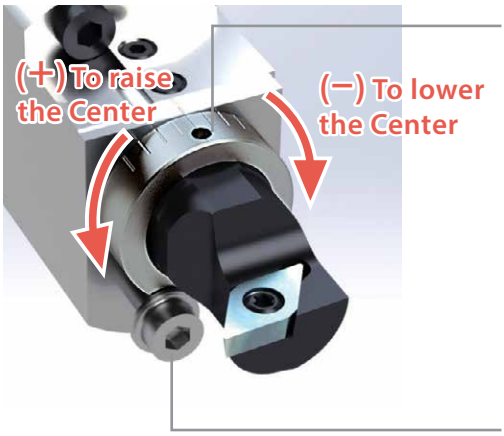
Supports internal coolant

Feature 3

For large shank diameter tools.
High rigidity enhances chattering resistance and provides stable machining.

Easy and Accurate Center Height Adjustment

Adjustable sleeve makes it easy to adjust the center height
Easy to operate with excellent adjustment accuracy

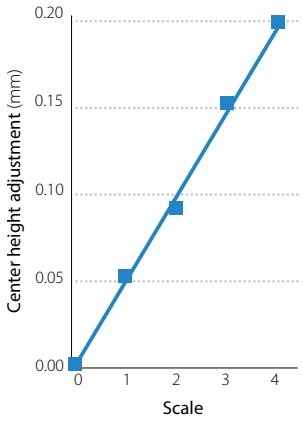


Scale of adjustable sleeve

Adjust the scale of the adjustable sleeve to the reference position of the body
(Center height adjustment range : ±0.2mm)
Please check the machining diameter after adjusting the center height.

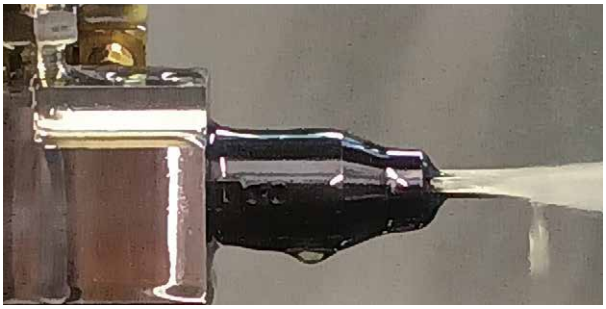
Screw for temporarily fixing adjustable sleeve
- Temporarily fix after adjusting center height
- Remove before machining

Center height adjustment scale
(Internal evaluation)



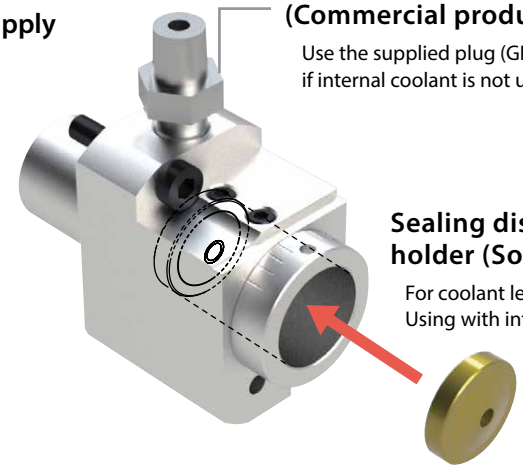
Supports internal coolant

Accelerates chip evacuation and supports extended tool life
Special sealing discs provide more stable coolant supply



Coolant piping part (Commercial product: Rc1/8)

Use the supplied plug (GP-1) if internal coolant is not used.



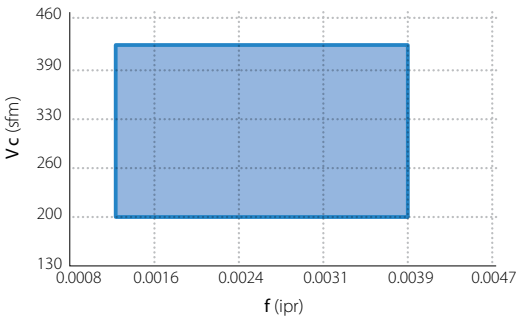
Sealing disc for sub-spindle holder (Sold separately)

For coolant leakage
Using with internal coolant

High rigidity enhances chatter resistance

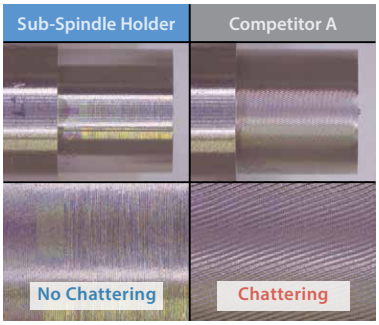
Increased rigidity for tools with large shank diameter
Suppresses chattering and provides stable machining under a wide range of cutting conditions

Cutting condition range for stable machining (No chattering)



Cutting conditions: Vc = 200 ~ 430 sfm, f = 0.0012 ~ 0.0039 ipr, D.O.C. = 0.079",
Wet, 304 SF22H-SH20-4A-HA S20K-SDUCL11 DCGT32505MFP-SK

Chattering Resistance Comparison (Internal Evaluation)



Cutting conditions: Vc = 330 sfm, f = 0.002 ipr, D.O.C. = 0.079"
Wet, 304

The sub-spindle holders had no chattering and good machining sound in a wide range of cutting conditions.

Work surface after machining was also good.

KSTB-TT (Sub-Spindle Holders for STAR™ Machines)

Fig.1

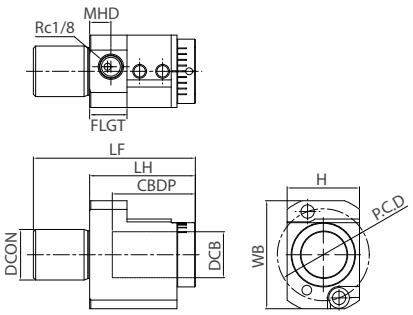


Fig.2

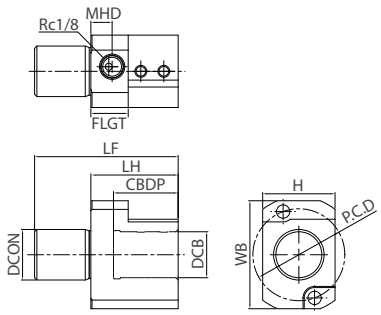
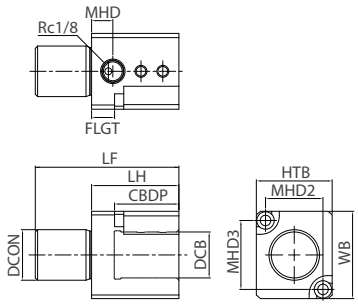


Fig.3



Holder Dimensions

Unit	Part Number	Std. Item	Tool Post Type	Center Height Adjustment	Dimensions (mm)													Fig.
					CBDP	DCB	DCON	FLGT	H	HTB	LF	LH	WB	MHD	MHD2	MHD3	P.C.D	
mm	SF22F- SH20-4A-HA*	●	4-spindle tool post	Yes	36.2	20	22	16.3	31.5	–	70.5	46	47	9.3	–	–	40	1
	SF22F- SH20-4A	●		–	28.2						62.5	38						2
	SF22F- SH20-8A	●	8-spindle tool post	–	28.2	20	22	10	–	33	62.5	38	38	9.3	25	30	–	3

*SF22F-SH20-4A-HA is a combined unit with holder body (SF22-FH23-4A) + sleeve (SHE2023-27). Holder body and sleeve are also available to purchase seperately.

Assembly		Holder Body		Adjustable Sleeve		Screw
SF22F-SH20-4A-HA	=	SF22-FH23-4A	+	SHE2023-27	+	HH5X12-FL

Parts and Assembly

Part Number	Parts								
	Holder Body	Adjustable Sleeve	Screw	Screw	Wrench	Plug	Screw	Wrench	Disc
SF22F- SH20-4A-HA*	SF22-FH23-4A	SHE2023-27	HH5X12-FL	HS5X5	LW-2.5	GP-1	HH5X25	LW-4	SD-D20
SF22F- SH20-4A	–	–	–						
SF22F- SH20-8A							HH4X16	LW-3	

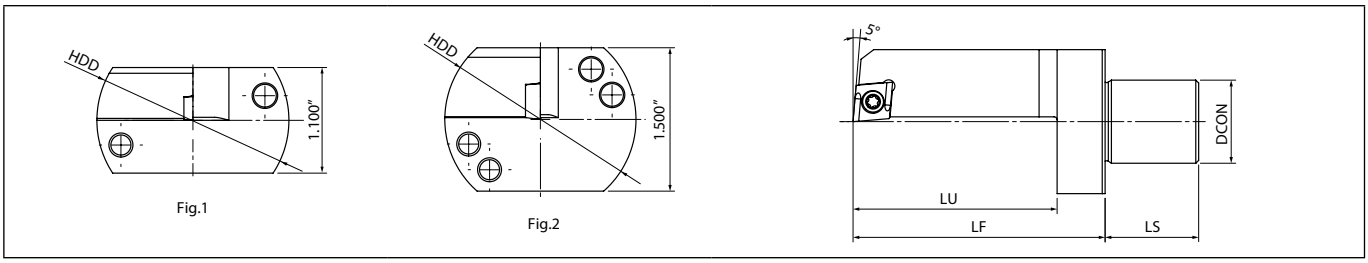
Compatible Machines **Referenced the general catalog of Star Micronics Co., Ltd.**

(4-spindle tool post) SP-20, SR-20JⅡ(A), SB-16Ⅲ, SB-12/16/20R series, SR-32JⅢ(A)
(8-spindle tool post) SV-20R, SW-20 / 12RⅡ, SD-26(S / C / E / G), SR-38(B) / 20RⅣ(A / B), SR-32JⅢ(B)/20JⅡ(B), SL-10

Precautions)
1. Be careful not to interfere with nearby tools.
2. Depending on the shape of the workpiece, special chucks may be required.
3. You may need to change the limits (soft limits) on the machine.
4. A short wrench is required for close proximity.
5. When the sub-spindle holders for 8-spindle tool post are mounted up and down on the tool post, the internal coolant cannot be used at the lower part.
6. When the sub-spindle holders for 4-spindle tool post is attached to the upper part of 8-spindle tool post, other tools cannot be attached to the lower part.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KSTB-CCET (Sub-Spindle Turning for STAR™ Machines)

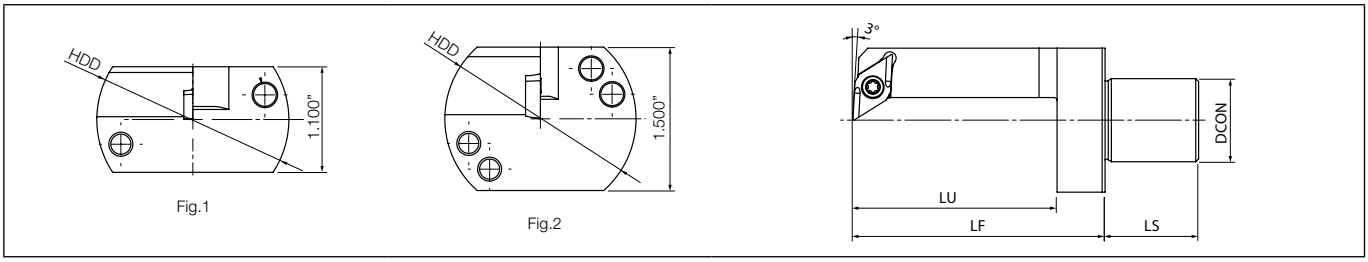


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Fig.	Spare Parts			Applicable Inserts ⇒B58~B66	Reference Machine
									Screw	Wrench	Wrench		
		R	DCON	HDD	LF	LU	LS						
Inch	KSTB SR16/20CCET215	●	0.866	2.000	2.250	1.875	1.073	1	SB-2560TR	-	FT-8	CCET215... CCGT215...	SR16, SR20
	KSTB SR16/20CCET325	●	0.866	2.000	2.250	1.875	1.073	1	SB-4085TR	FT-15	-	CCET325... CCGT325...	SR16, SR20
	KSTB SR32JCCET325	●	0.866	2.000	2.625	2.125	0.980	2	SB-4085TR				SR32J

KSTB-DCET (Sub-Spindle Turning for STAR™ Machines)

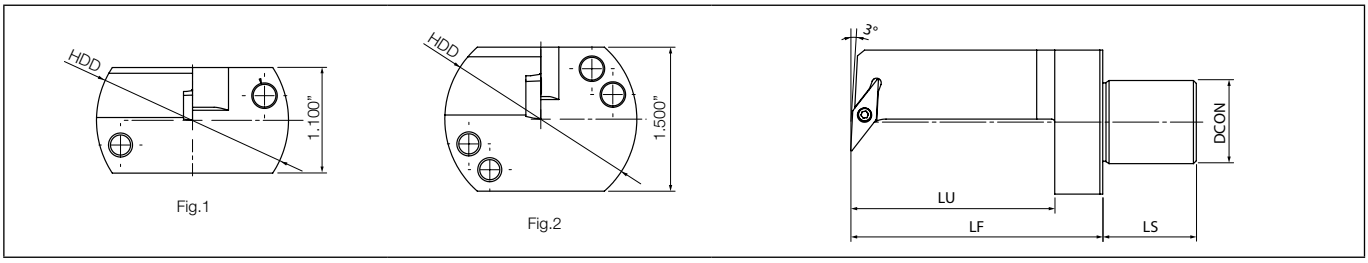


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Fig.	Spare Parts			Applicable Inserts ⇒B68~B78	Reference Machine
									Screw	Wrench	Wrench		
		R	DCON	HDD	LF	LU	LS						
Inch	KSTB SR16/20DCET215	●	0.866	2.000	2.250	1.875	1.073	1	SB-2560TR	-	FT-8	DCET215... DCGT215...	SR16, SR20
	KSTB SR16/20DCET325	●	0.866	2.000	2.250	1.875	1.073	1	SB-4085TR	FT-15	-	DCET325... DCGT325...	SR16, SR20
	KSTB SR32JDCET325	●	0.866	2.000	2.625	2.125	0.980	2	SB-4085TR				SR32J

KSTB-VBET (Sub-Spindle Turning for STAR™ Machines)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Fig.	Spare Parts		Applicable Inserts ⇒B98~B99	Reference Machine
									Screw	Wrench		
		R	DCON	HDD	LF	LU	LS					
Inch	KSTB SR16/20VBET22	●	0.866	2.000	2.250	1.875	1.073	1	SB-2570TR	FT-8	VBET22...	SR16, SR20
	KSTB SR32JVBET22	●	0.866	2.000	2.625	2.125	0.980	2	SB-2570TR			SR32J

Note: All KSTB holders are right-hand, which require neutral or left-hand inserts

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KSTB-TT (Sub-spindle Threading for STAR™ Machines)

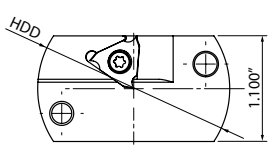


Fig.1

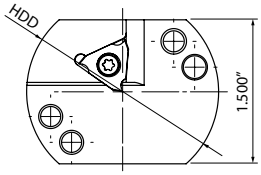
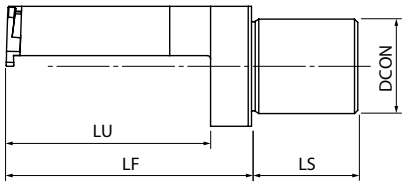


Fig.2



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Fig.	Spare Parts		Applicable Inserts ➡ J40	Reference Machine
		R	DCON	HDD	LF	LU	LS		Screw	Wrench		
Inch	KSTB SR16/20TT32	●	0.866	2.000	2.250	1.875	1.073	1	SB-4070TRS	FT-10	TT32...	SR16, SR20
	KSTB SR32JTT32	●	0.866	2.000	2.625	2.125	0.980	2				SR32J

Note: All KSTB holders are right-hand, which require neutral or left-hand inserts

External Turning (Positive Insert) - Cutting diameter under ø0.630" (ø16mm)

[D.O.C. Indicates Radius]

ISO Class	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - **Recommendation** - Upper Limit		
								Vc (sfm)	D.O.C. (in)	f (ipr)
P*	Low Carbon Steel Low Carbon Alloy	HB ≤ 300	Precision finishing	Continuous	F	PR1725	0.002	330 - **490** - 660	0.002 - **0.003** - 0.006	0.001 - **0.002** - 0.004
				Interruption		PR1725	0.008	260 - **390** - 520	0.002 - **0.004** - 0.008	0.001 - **0.004** - 0.006
			Precision finishing Molded Chipbreaker	Continuous	CF	PR1725	0.008	330 - **490** - 660	0.001 - **0.002** - 0.004	0.001 - **0.002** - 0.005
			Finishing	Continuous	SKS	PR1725	0.008	330 - **460** - 590	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
				Interruption		PR1725	1/64	260 - **390** - 520	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
			Finishing-Medium	Continuous	SK	PR1725	0.008	260 - **390** - 520	0.031 - **0.118** - 0.197	0.001 - **0.002** - 0.004
				Interruption		PR1725	1/64	200 - **330** - 460	0.031 - **0.079** - 0.118	0.001 - **0.002** - 0.004
			Low Feed & Large D.O.C.	Continuous	J, U	PR1725	0.008	260 - **330** - 460	0.020 - **0.079** - 0.138	0.001 - **0.002** - 0.004
	Medium Carbon Steel Medium Carbon Alloy	HB ≤ 330	Precision finishing	Continuous	F	PR1725	0.002	330 - **490** - 660	0.002 - **0.003** - 0.006	0.001 - **0.002** - 0.004
				Interruption		PR1725	0.008	260 - **390** - 520	0.002 - **0.004** - 0.008	0.001 - **0.004** - 0.006
			Precision finishing Molded Chipbreaker	Continuous	CF	PR1725	0.008	330 - **490** - 660	0.001 - **0.002** - 0.004	0.001 - **0.002** - 0.005
			Finishing	Continuous	SKS	PR1725	0.008	330 - **460** - 590	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
				Interruption		PR1725	1/64	260 - **390** - 520	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
			Finishing-Medium	Continuous	SK	PR1725	0.008	260 - **390** - 520	0.031 - **0.118** - 0.197	0.001 - **0.002** - 0.004
				Interruption		PR1725	1/64	200 - **330** - 460	0.031 - **0.079** - 0.118	0.001 - **0.002** - 0.004
			Low Feed & Large D.O.C.	Continuous	J, U	PR1725	0.008	260 - **330** - 460	0.020 - **0.079** - 0.138	0.001 - **0.002** - 0.004
	High Carbon Alloy	HB ≤ 280	Precision finishing	Continuous	F	PR1725	0.002	330 - **490** - 660	0.002 - **0.003** - 0.006	0.001 - **0.002** - 0.004
				Interruption		PR1725	0.008	260 - **390** - 520	0.002 - **0.004** - 0.008	0.001 - **0.004** - 0.006
			Precision finishing Molded Chipbreaker	Continuous	CF	PR1725	0.008	330 - **490** - 660	0.001 - **0.002** - 0.004	0.001 - **0.002** - 0.005
			Finishing	Continuous	SKS	PR1725	0.008	330 - **460** - 590	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
				Interruption		PR1725	1/64	260 - **390** - 520	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
			Finishing-Medium	Continuous	SK	PR1725	0.008	260 - **390** - 520	0.012 - **0.059** - 0.118	0.001 - **0.002** - 0.004
				Interruption		PR1725	1/64	200 - **330** - 460	0.012 - **0.039** - 0.079	0.001 - **0.002** - 0.004
			Low Feed & Large D.O.C.	Continuous	J, U	PR1725	0.008	260 - **330** - 460	0.020 - **0.079** - 0.138	0.001 - **0.002** - 0.004
M	Stainless Steel (Austenitic Related)	HB ≤ 220	Finishing	Continuous	SKS	PR1725	0.008	260 - **330** - 390	0.004 - **0.012** - 0.020	0.001 - **0.002** - 0.004
				Interruption		PR1535	1/64	200 - **260** - 330	0.012 - **0.020** - 0.039	0.002 - **0.004** - 0.006
			Medium	Continuous	SK	PR1725	0.008	260 - **330** - 390	0.020 - **0.059** - 0.118	0.001 - **0.003** - 0.005
				Interruption		PR1535	1/64	200 - **260** - 330	0.020 - **0.039** - 0.079	0.002 - **0.004** - 0.006
	Stainless Steel (Precipitation Hardened)	HB ≤ 300	Finishing	Continuous	SKS	PR1725	0.008	130 - **200** - 260	0.004 - **0.012** - 0.020	0.001 - **0.002** - 0.004
				Interruption		PR1535	1/64	100 - **160** - 230	0.012 - **0.020** - 0.039	0.002 - **0.004** - 0.006
			Medium	Continuous	SK	PR1725	0.008	130 - **200** - 260	0.020 - **0.039** - 0.079	0.001 - **0.003** - 0.005
				Interruption		PR1535	1/64	100 - **160** - 230	0.020 - **0.039** - 0.059	0.002 - **0.004** - 0.006

* For machining free-cutting steels, use PR1705 at Vc = 660 sfm or less.
For D.O.C. and f, refer to specs for low carbon steels.

External Turning (Positive Insert) - Cutting diameter under ø0.630" (ø16mm)

[D.O.C. Indicates Radius]

ISO Class	Workpiece Material	Hardness	Cutting Range	Applications	Chipbreaker	Insert grade	Corner-R (RE)	Lower limit - **Recommendation** - Upper limit		
								Vc (sfm)	D.O.C. (in)	f (ipr)
K	Gray Cast Iron	HB ≤ 250	Finishing	Continuous	**Standard**	**CA410K**	1/64	330 - **620** - 1150	0.008 - **0.020** - 0.039	0.004 - **0.006** - 0.008
				Interruption		**CA415K**	1/64	310 - **490** - 700	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.006
			Medium	Continuous	**Standard**	**CA410K**	1/64	330 - **620** - 1150	0.020 - **0.039** - 0.079	0.004 - **0.006** - 0.008
				Interruption		**CA415K**	1/32	310 - **490** - 700	0.020 - **0.039** - 0.079	0.002 - **0.004** - 0.006
	Nodular Cast Iron	HB ≤ 270	Finishing	Continuous	**Standard**	**CA410K**	1/64	350 - **580** - 780	0.008 - **0.020** - 0.039	0.004 - **0.006** - 0.008
				Interruption		**CA415K**	1/64	250 - **360** - 530	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.006
			Medium	Continuous	**Standard**	**CA410K**	1/64	350 - **580** - 780	0.020 - **0.039** - 0.079	0.004 - **0.006** - 0.008
				Interruption		**CA415K**	1/32	250 - **360** - 530	0.020 - **0.039** - 0.079	0.002 - **0.004** - 0.006
N	Non-Ferrous Metals Copper Alloy Aluminum Aluminum Alloys (Si 10% or less) etc.	HB ≤ 100	High Speed Machining (Glossy Surface Finish)	Continuous	**Without Chipbreaker**	**KPD001**	0.008	490 - **820** - 1150	0.002 - **0.004** - 0.012	0.002 - **0.004** - 0.006
			Finishing (Long Tool Life)	Continuous	**F**	**PDL025**	0.008	330 - **490** - 660	0.002 - **0.012** - 0.020	0.001 - **0.003** - 0.004
				Interruption		**PDL025**	1/64	330 - **490** - 660	0.002 - **0.012** - 0.020	0.001 - **0.003** - 0.004
			Finishing	Continuous	**F**	**KW10**	0.008	330 - **490** - 660	0.002 - **0.012** - 0.020	0.001 - **0.003** - 0.004
				Interruption		**KW10**	1/64	330 - **490** - 660	0.002 - **0.012** - 0.020	0.001 - **0.003** - 0.004
			Medium	Continuous	**U**	**KW10**	0.008	330 - **490** - 660	0.008 - **0.020** - 0.059	0.001 - **0.004** - 0.008
				Interruption		**KW10**	1/64	330 - **490** - 660	0.008 - **0.020** - 0.059	0.001 - **0.004** - 0.008
S	Titanium Alloys	HB ≤ 400	Precision Finishing (Glossy Surface Finish)	Continuous	**Without Chipbreaker**	**KPD001**	0.008	330 - **390** - 490	0.002 - **0.004** - 0.012	0.001 - **0.003** - 0.004
				Interruption		**KPD001**	1/64	230 - **330** - 390	0.002 - **0.004** - 0.012	0.001 - **0.003** - 0.004
			Medium	Continuous	**F, U**	**KW10**	1/64	100 - **160** - 230	0.004 - **0.020** - 0.039	0.001 - **0.004** - 0.008
				Interruption		**KW10**	1/64	100 - **160** - 230	0.004 - **0.020** - 0.039	0.001 - **0.004** - 0.008
	Heat-Resistant Alloys	HB ≤ 350	Finishing	Continuous	**F, U**	**KW10**	1/64	30 - **100** - 160	0.004 - **0.012** - 0.020	0.001 - **0.002** - 0.004
				Interruption	**Without Chipbreaker**	**KW10**	1/32	30 - **100** - 160	0.008 - **0.020** - 0.028	0.001 - **0.002** - 0.004
			Finishing	Continuous	**MQ**	**PR1535**	1/64	130 - **200** - 260	0.004 - **0.012** - 0.020	0.001 - **0.002** - 0.004
				Interruption		**PR1535**	1/32	130 - **200** - 260	0.004 - **0.012** - 0.020	0.001 - **0.002** - 0.004
H	Hardened Steel Hard Materials	40 ~ 50 HRC	Finishing	Continuous	**GK**	**PR1725**	0.008	130 - **200** - 260	0.004 - **0.012** - 0.020	0.001 - **0.003** - 0.004
				Interruption		**PR1725**	1/64	130 - **200** - 260	0.004 - **0.012** - 0.020	0.001 - **0.003** - 0.004
		50 ~ 68 HRC	Finishing	Continuous	**ME**	**KBN010**	0.008	260 - **390** - 490	0.004 - **0.012** - 0.020	0.001 - **0.003** - 0.004
				Interruption	**MET**	**KBN020**	1/64	200 - **330** - 390	0.004 - **0.012** - 0.020	0.001 - **0.003** - 0.004

External Turning (Positive Insert) - Cutting diameter under ø0.630" (ø16mm)

KTKF

Workpiece Material		MEGACOAT NANO PLUS		MEGACOAT NANO		MEGACOAT		Notes
		PR1725		PR1535		PR1225		
		Grooving	Turning	Grooving	Turning	Grooving	Turning	
Carbon Steel / Alloy Steel	Vc (sfm)	★200 ~ 660		☆200 ~ 490		☆200 ~ 490		Coolant
	f (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0059	0.0004 ~ 0.0012	0.0008 ~ 0.0059	0.0004 ~ 0.0012	0.0008 ~ 0.0059	
Stainless Steel	Vc (sfm)	☆200 ~ 490		★200 ~ 430		☆200 ~ 430		
	f (ipr)	0.0004 ~ 0.0008	0.0008 ~ 0.0039	0.0004 ~ 0.0008	0.0008 ~ 0.0039	0.0004 ~ 0.0008	0.0008 ~ 0.0039	

Workpiece Material		Carbide		PCD		Notes
		KW10		KPD001		
		Grooving	Turning	Grooving	Turning	
Cast Iron	Vc (sfm)	160 ~ 330		-		Coolant
	f (ipr)	0.0004 ~ 0.0008	0.0008 ~ 0.0059	-		
Aluminum	Vc (sfm)	660 ~ 1,480		660 ~ 1,640		
	f (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0059	0.0004 ~ 0.0012	0.0008 ~ 0.0047	
Brass	Vc (sfm)	330 ~ 660		330 ~ 1,150		
	f (ipr)	0.0004 ~ 0.0020	0.0008 ~ 0.0079	0.0004 ~ 0.0020	0.0008 ~ 0.0059	

KTKF (GTP Chipbreaker)

Workpiece Material		MEGACOAT NANO PLUS		MEGACOAT NANO		Notes
		PR1725		PR1535		
		Grooving	Turning	Grooving	Turning	
Carbon Steel / Alloy Steel	Vc (sfm)	★200 ~ 660		☆200 ~ 490		Coolant
	f (ipr)	0.0012~0.0028	0.0020~0.0059	0.0012~0.0028	0.0020~0.0059	
Stainless Steel	Vc (sfm)	☆200 ~ 490		★200 ~ 430		
	f (ipr)	0.0008~0.0020	0.0012~0.0039	0.0008~0.0020	0.0012~0.0039	

KTKF (GQ Chipbreaker)

Workpiece Material		MEGACOAT NANO PLUS		MEGACOAT NANO		MEGACOAT		Notes
		PR1725		PR1535		PR1225		
		Grooving	Turning	Grooving	Turning	Grooving	Turning	
Carbon Steel / Alloy Steel	Vc (sfm)	★200 ~ 200		☆200 ~ 490		☆200 ~ 490		Coolant
	f (ipr)	0.0004 ~ 0.0016	0.0008 ~ 0.0059	0.0004 ~ 0.0016	0.0008 ~ 0.0059	0.0004 ~ 0.0016	0.0008 ~ 0.0059	
Stainless Steel	Vc (sfm)	☆200 ~ 490		★200 ~ 430		☆200 ~ 430		
	f (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0039	0.0004 ~ 0.0012	0.0008 ~ 0.0039	0.0004 ~ 0.0012	0.0008 ~ 0.0039	

KTKF (AGT Chipbreaker)

Workpiece Material		PCD		Notes
		KPD001		
		Grooving	Turning	
Aluminum	Vc (sfm)	660 ~ 1,640		Coolant
	f (ipr)	0.0012 ~ 0.0059	0.0012 ~ 0.0079	
Brass	Vc (sfm)	330 ~ 1,150		
	f (ipr)	0.0012 ~ 0.0059	0.0012 ~ 0.0079	

ABS15, ABW15, ABW23

Workpiece Material		MEGACOAT NANO PLUS				MEGACOAT		PVD coated carbide		Notes
		PR1725		PR1705		PR1225		PR930		
		Grooving	Turning	Grooving	Turning	Grooving	Turning	Grooving	Turning	
Carbon Steel / Alloy Steel	Vc (sfm)	★200 ~ 590		☆260 ~ 660		☆200 ~ 490		☆260 ~ 330		Coolant
	f (ipr)	0.0008	0.0008 ~ 0.0028	0.0008	0.0008 ~ 0.0028	0.0008	0.0008 ~ 0.0028	0.0008	0.0008 ~ 0.0028	
Stainless Steel	Vc (sfm)	☆100 ~ 430		☆130 ~ 490		★130 ~ 390		☆100 ~ 160		
	f (ipr)	0.0008	0.0008 ~ 0.0020	0.0008	0.0008 ~ 0.0020	0.0008	0.0008 ~ 0.0020	0.0008	0.0008 ~ 0.0020	

Workpiece Material		Carbide		Notes
		KW10		
		Grooving	Turning	
Aluminum	Vc (sfm)	490 ~ 660		Coolant
	f (ipr)	0.0008	0.0008 ~ 0.0039	
Brass	Vc (sfm)	330 ~ 520		
	f (ipr)	0.0012	0.0008 ~ 0.0059	

★: 1st Recommendation
☆: 2nd Recommendation

ZBMT

Workpiece	Insert Tip Angle	Corner-R (RE) (in)	Insert Grade	Vc (sfm)	D.O.C. (in)	f (ipr)
Carbon Steel / Alloy Steel	25°	0.008	**PR1725**	200 - **490** - 660	0.008 - **0.012** - 0.059	0.002 - **0.004** - 0.006
			PR1535	200 - **390** - 590	0.008 - **0.012** - 0.059	0.002 - **0.004** - 0.006
		1/64 | 1/32	**PR1725**	200 - **490** - 660	0.008 - **0.012** - 0.079	0.002 - **0.006** - 0.010
			PR1535	200 - **390** - 590	0.008 - **0.012** - 0.079	0.002 - **0.006** - 0.010
			PV720	460 - **590** - 790	0.008 - **0.012** - 0.059	0.002 - **0.005** - 0.008
			PV730	460 - **590** - 790	0.008 - **0.012** - 0.059	0.002 - **0.005** - 0.008
			TN620	460 - **590** - 790	0.008 - **0.012** - 0.059	0.002 - **0.005** - 0.008
	15°	1/64	**PR1725**	200 - **490** - 660	0.008 - **0.012** - 0.039	0.002 - **0.004** - 0.006
			PR1535	200 - **390** - 590	0.008 - **0.012** - 0.039	0.002 - **0.004** - 0.006
Stainless Steel	25°	0.008	**PR1725**	200 - **490** - 590	0.008 - **0.012** - 0.039	0.002 - **0.004** - 0.006
			PR1535	200 - **390** - 490	0.008 - **0.012** - 0.039	0.002 - **0.004** - 0.006
		1/64 | 1/32	**PR1725**	200 - **490** - 590	0.008 - **0.012** - 0.039	0.002 - **0.006** - 0.010
			PR1535	200 - **390** - 490	0.008 - **0.012** - 0.039	0.002 - **0.006** - 0.010
	15°	1/64	**PR1725**	200 - **490** - 590	0.008 - **0.012** - 0.039	0.002 - **0.004** - 0.006
			PR1535	200 - **390** - 490	0.008 - **0.012** - 0.039	0.002 - **0.004** - 0.006
Cast Iron	25°	0.008	**PR1725**	200 - **490** - 590	0.008 - **0.012** - 0.059	0.002 - **0.004** - 0.006
		1/64 / 1/32	**PR1725**	200 - **490** - 590	0.008 - **0.012** - 0.079	0.002 - **0.006** - 0.010
	15°	1/64	**PR1725**	200 - **490** - 590	0.008 - **0.012** - 0.039	0.002 - **0.004** - 0.006
Non-Ferrous Metals (Aluminum Alloys)	25°	0.004 | 0.008 | 1/64	**KPD001**	660 - **1,640** - 2,620	0.004 - **0.008** - 0.020	0.001 - **0.002** - 0.003

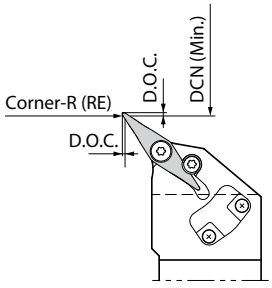
When machining at D.O.C. 0.059" or more, reduce the feed by about 50%.
A PCD insert (KPD001) can not be reground.
When a PCD insert (KPD001) enters a workpiece or contacts a wall, keep the feed rate below 50% of normal use to prevent damage to the insert.

Boring/Facing Available Cutting Dia. and Max. D.O.C.

Standard Corner-R 1/64" (RE)

Cutting Dia.	Depth (in)
Ø1.181	0.020
Ø1.969	0.059
Ø2.559	0.118
Ø3.150	0.236
Ø3.937	0.394
Ø5.906	0.551

SZPB Type Cutting Diameter for Undercutting



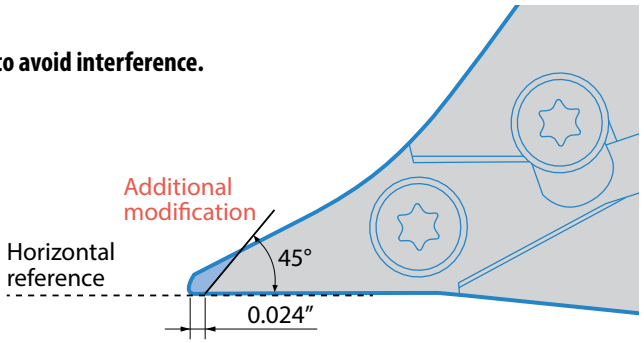
Corner-R (RE)	D.O.C. (in)	DCN (Min)
0.008"	0.020	Ø1.181
	0.039	Ø1.378
1/64"	0.020	Ø1.181
	0.039	Ø1.378
1/32"	0.020	Ø4.331
	0.039	Ø5.906

How to Modify Toolholder when Using 15° Insert

When using 15 ° insert, additional modification are required for the holder to avoid interference.

Recommended Additional Modification

- Set the edge of insert bearing surface at the end of the holder at horizontal reference shown.
- Modify the holder to 0.024" from the tip at an angle no less than 45° from the horizontal.



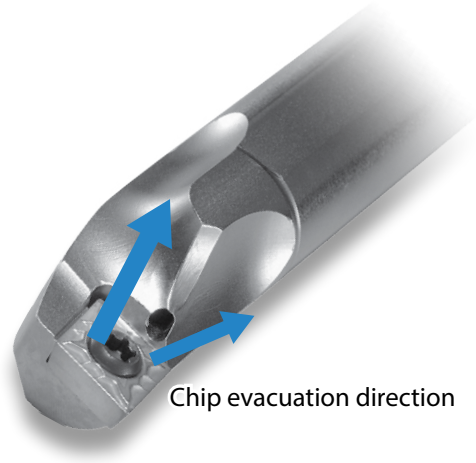
Boring

F

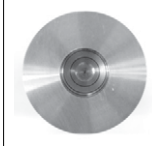
Overview		F2~F17
Solid Bars for Micro Boring		F18~F61
EZ Bars		F18
EZ Bar PLUS		F33
Swiss IQ Bars		F46
Twin Bars		F58
Dynamic Bars / General Purpose Boring Bars		F62~F129
CC Inserts		F62
CP Inserts		F70
DC Inserts		F74
JC Inserts		F88
TB / TP Inserts		F90
TC Inserts		F100
VB / VC / VP Inserts		F102
WB / WP Inserts		F116
ZB Inserts		F124
SP Inserts		F129
Boring Bars for Solid Inserts		F130~F131
SP Inserts	S-CSKP	F130
TP Inserts	S-CTUP	F131
Boring Bars for Bearing Machining		F132~F133
RPMT Inserts	SRCP-B	F132
SNMF Inserts	CBSN-B	F133
KAV Anti-Vibration Bars		F134~F146
CC Inserts	KAVH-SCLC	F134
DC Inserts	KAVH-SDUC	F135
TP Inserts	KAVH-STLP	F136
VB / VC Inserts	KAVH-SVUB	F137
CN Inserts	KAVH-PCLN	F138
DN Inserts	KAVH-PDUN	F140
TN Inserts	KAVH-PTFN	F142
Shank Adapters and Sleeves		F144
Boring Bars for Negative Inserts		F147~F166
CN Inserts		F147
DN Inserts		F150
SN Inserts		F158
TN Inserts		F159
WN Inserts		F162
Boring Bars for Solid Ceramic and CBN Inserts		F167~F168
EN Inserts	Ceramic	F167
TN Inserts	Ceramic / CBN	F168
Sleeves / Coolant Joints		F169~F173
Recommended Cutting Conditions		F174~F175

Dynamic Bar

The Dynamic Bar achieves superior chip evacuation

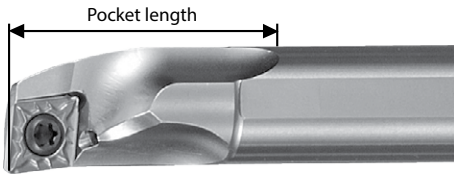


Superior chip evacuation (External coolant)

	Dynamic Bar	Competitor A	Competitor B
Inside the workpiece			

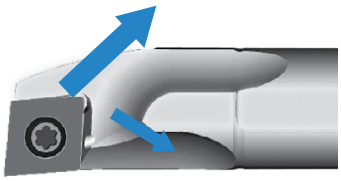
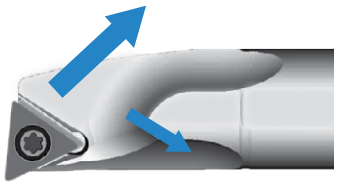
In the products of competitor A and B chips remain inside the workpiece, but chips from the Dynamic Bar are all evacuated from the workpiece.

Comparison of Pocket Length



Part Number	Pocket length (mm)	
	Dynamic Bar	Competitor A
A16-SCLPR09-18 type	37	29
A20-SCLCR09-22 type	48	32

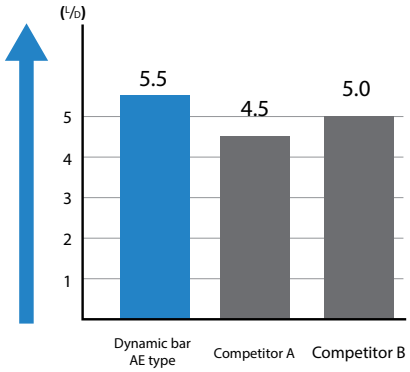
Chip Evacuation Direction

SCLC(P) type	STLB(P) type
	

Better evacuation with duel, backward chip flow

High rigidity and chatter resistance are achieved by using a special alloy designed with innovative stress analysis technology.

Vibration Comparison



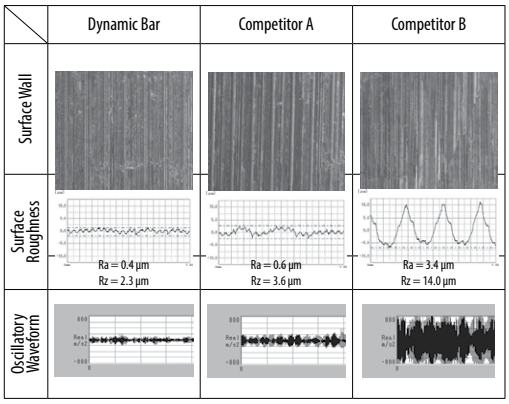
Maximum toolholder overhang length (L/D)

Cutting conditions

4415	f = 0.004 ipr
Vc = 490 sfm	S16-SCLPR09 type
D.O.C. = 0.020"	CPMH321L-Y

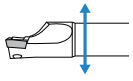
Surface Finish Comparison

Vibration of the Dynamic Bar was minimal even at high cutting speeds, enabling stable machining.



Cutting conditions
4415
Vc = 690 sfm
D.O.C. = 0.020"
f = 0.004 ipr
A16Q-SCLPR09-18 type
CPMT321XP (PV7020)
L/D=4
External coolant

Direction of vibration measurement

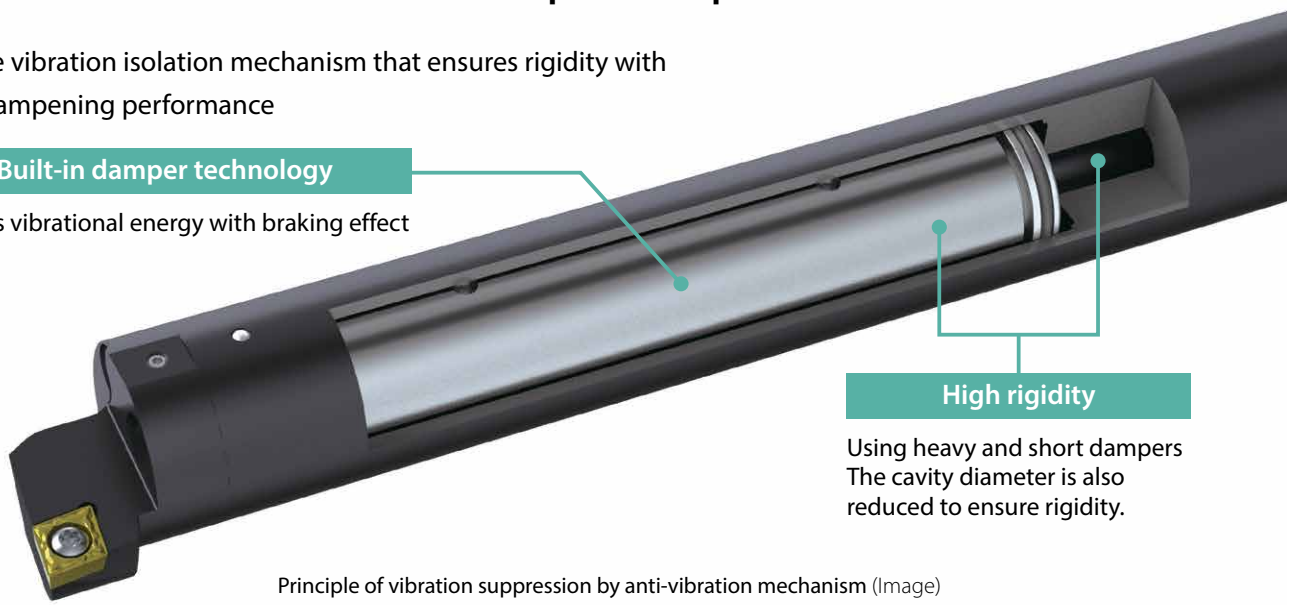


1 KAV Series anti-vibration mechanism provides superior chatter resistance

Unique vibration isolation mechanism that ensures rigidity with high dampening performance

Built-in damper technology

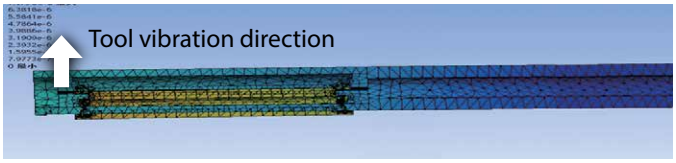
Absorbs vibrational energy with braking effect

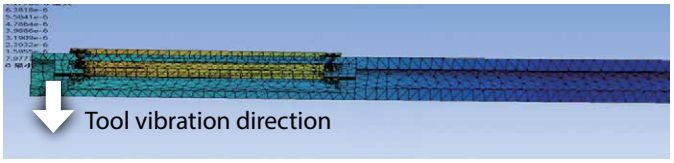


High rigidity

Using heavy and short dampers
The cavity diameter is also reduced to ensure rigidity.

Principle of vibration suppression by anti-vibration mechanism (Image)



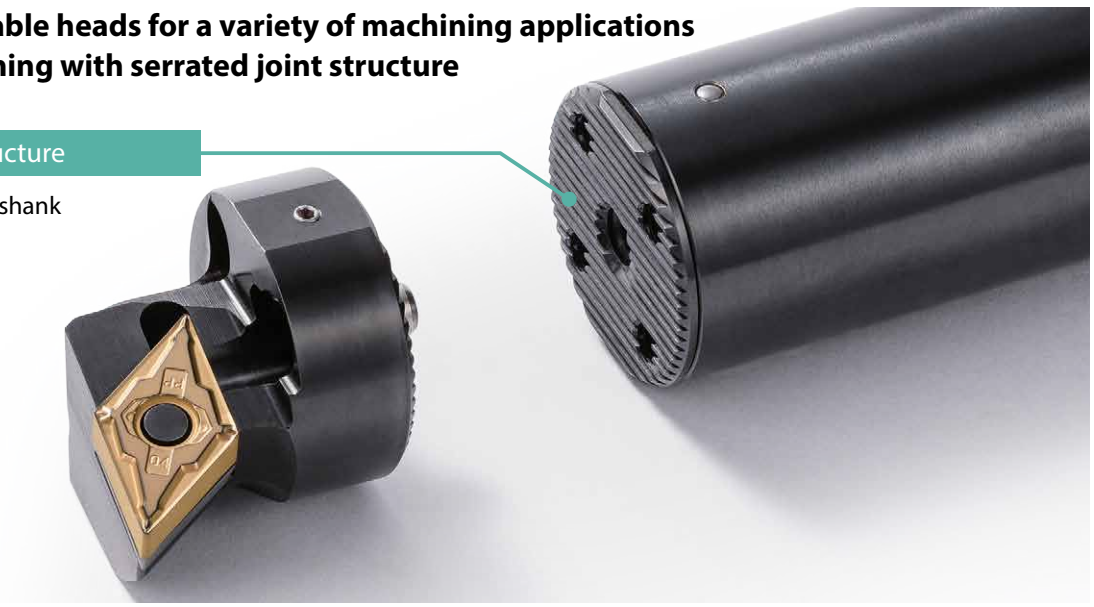


The damper vibrates late against the shank, effective for vibration damping.

2 Interchangeable heads for a variety of machining applications Strong fastening with serrated joint structure

Serrated structure

Securely fastens head and shank



3 Easy cutting edge adjustment with E-Sleeve Smooth machining setup

E-Sleeve (Sold separately)

Separated structure with printed reference lines
Easy adjustment reduces setup time

EZ Bar Series for Small Internal Machining

Large Tooling Lineup for a Wide Application Range

1 Large Tooling Lineup for Various Internal Machining Operations

Internal Turning

Supports a wide range of Internal Machining Applications

Boring	EZB

Chipbreakers

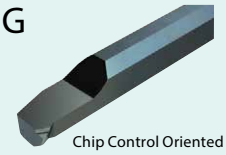
H

Tough Edge (General Purpose)

1st Recommendation / General Purpose Extended reach type available

PR1725

G

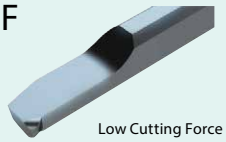


Chip Control Oriented

Excellent Chip Control Performance

PR1725

F

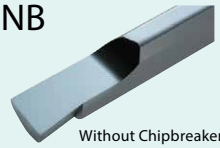


Low Cutting Force

Finishing / Sharpness Oriented

PR1725

NB



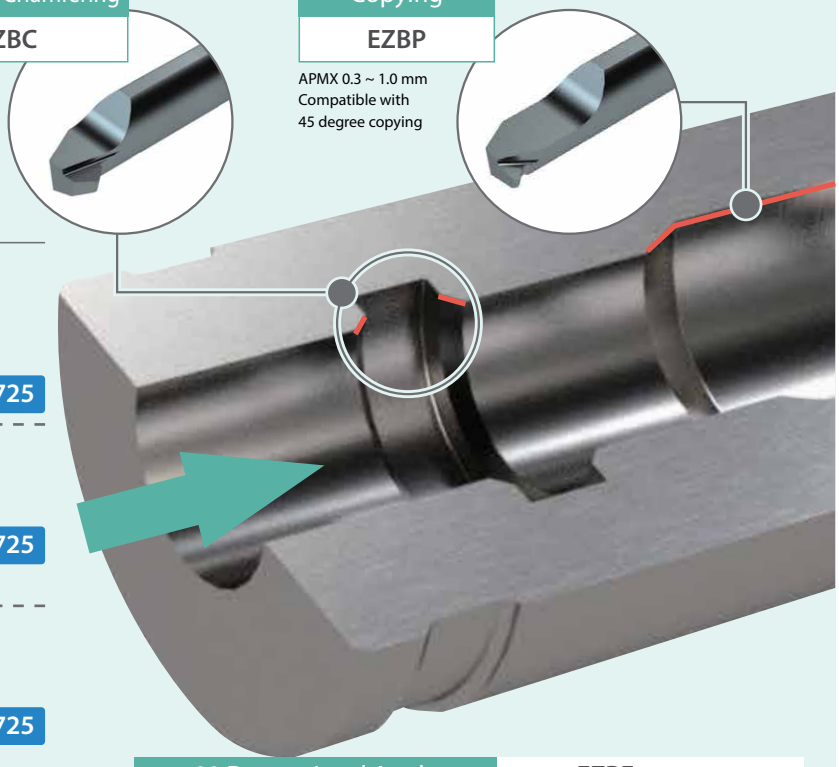
Without Chipbreaker

GW05 Insert Grade for Aluminum Machining

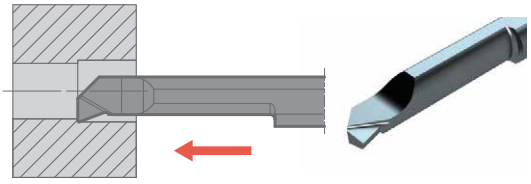
45 Degree Chamfering — EZBC

Copying — EZBP

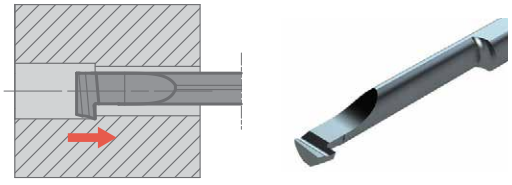
APMX 0.3 ~ 1.0 mm
Compatible with 45 degree copying



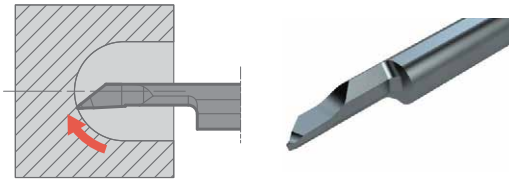
90 Degree Lead Angle — EZBF



Back Boring — EZBT



Internal Facing • Internal Profiling — EZVB

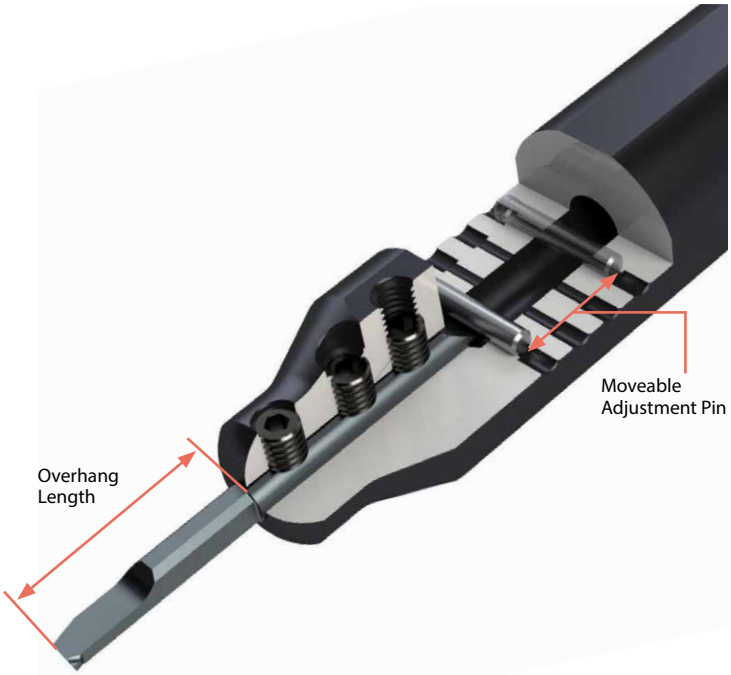


2 Easy Adjustment and High Precision

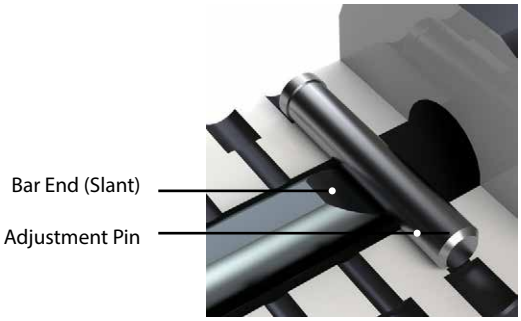
For CT sleeves with coolant holes and HP sleeves with positioning function, the overhang length can be set by moving adjustment pins

Smooth coolant flow due to unique head design

Coolant-Through : EZH-CT



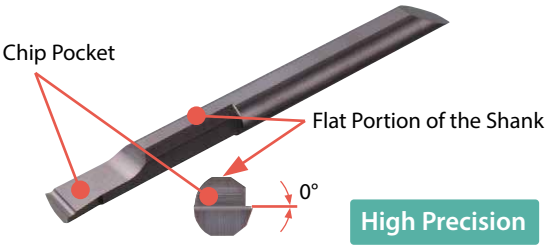
High precision design by contacting the bar end (slant) with the adjustment pin



With EZ Adjust Structure : EZH-CT, EZH-HP

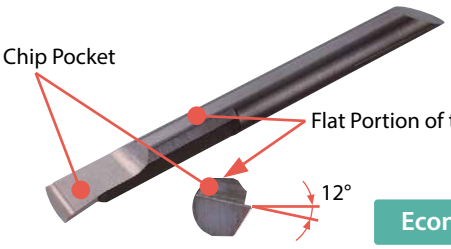
3 HP Bar for High Precision and ST Bar for Cost-Oriented Boring Applications (Tolerances are Different)

HP (EZB-HP)



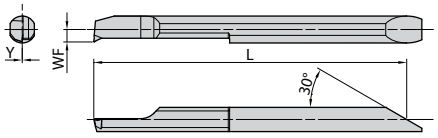
High Precision

ST (EZB-ST)



Economical

Bar Tolerances



Bar Style	Offset (WF)	Longitudinal Direction (L)	Cutting Edge Height (Y)	Min. Bore Dia.
HP	± 0.025 mm	± 0.05 mm	+ 0.05 mm / 0 mm	Same as Shank Dia.
ST	± 0.06 mm	± 0.1 mm	+ 0.06 mm / 0 mm	Different from Shank Dia.

*For [EZBR010040HP-005G-04 to EZBR015040HP-005G-06], the following tolerances apply:

4 4 Chipbreakers and New PVD Coating PR1725 for a Wide Range of Machining Processes

H Chipbreaker (without Lead Angle)
1st Recommendation / General Purpose

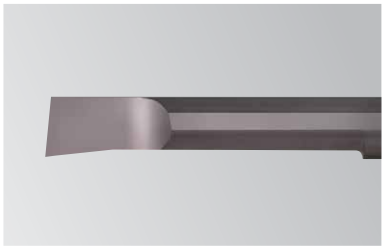
PR1725 Available

GW05 Insert Grade for Aluminum Machining Available
Left-hand Available (HP Type)

F Chipbreaker (with Lead Angle)
Finishing / Sharpness Oriented

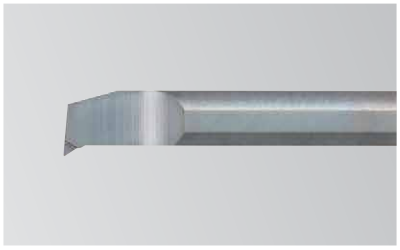
PR1725 Available

NB Chipbreaker (without Chipbreaker)
Non-ferrous Metal Machining



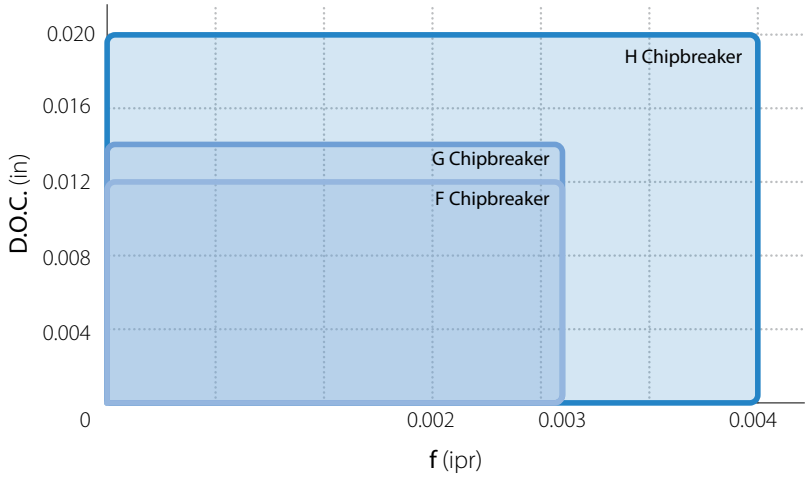
PCD/CBN Inserts Available
GW05 Insert Grade for Aluminum Machining Available

G Chipbreaker (with Lead Angle)
Chip Control Oriented



PR1725 Available

Applicable Chipbreaker Range

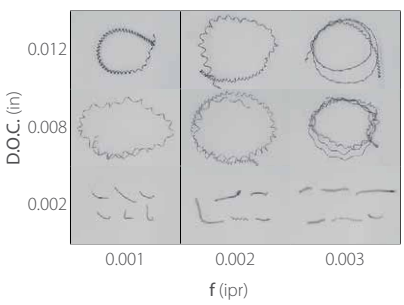


Cutting Performance Comparison

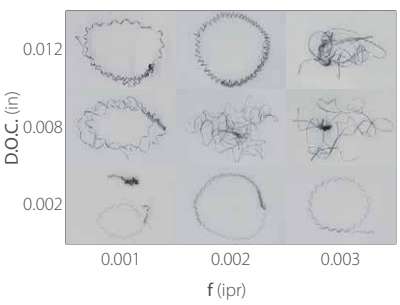
Chip Control Comparison

Stable Chip Curls and Good Chip Breaking

G Chipbreaker



Competitor (With Lead Angle)

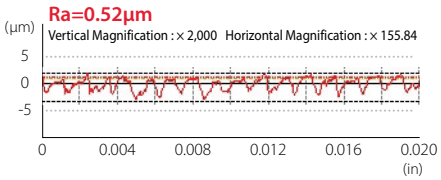


Cutting Conditions: Vc = 260 sfm, Wet Workpiece: 1045 (Internal evaluation)

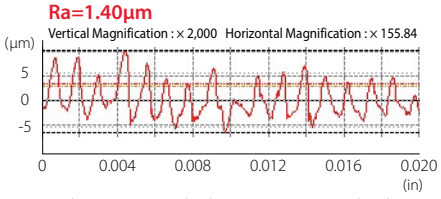
Surface Finish Comparison

Excellent Surface Finish

G Chipbreaker



Competitor (With Lead Angle)



Using Tool : RE = 0.05 mm, Shank Diameter ø4 (Internal evaluation)

Large Tooling Lineup that can be Customized for Your Machining Demands

How to select sleeves

Select between three types of sleeves

EZH-CT
With EZ Adjust Structure
Coolant-Through

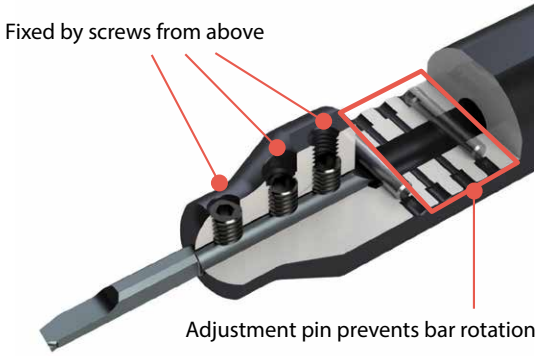
EZH-HP
With EZ Adjust Structure

EZH-ST
Without EZ Adjust Structure

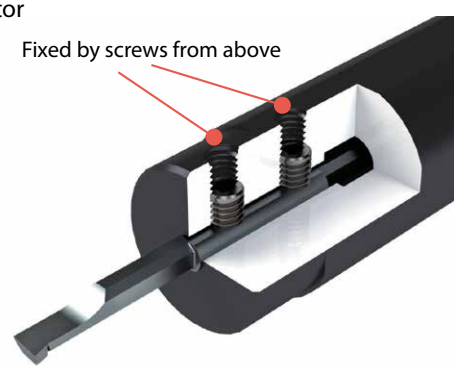
The EZ Bar prevents deviation with high-rigidity clamping

The adjustment pin prevents the bar from rotating during machining

EZ Bar

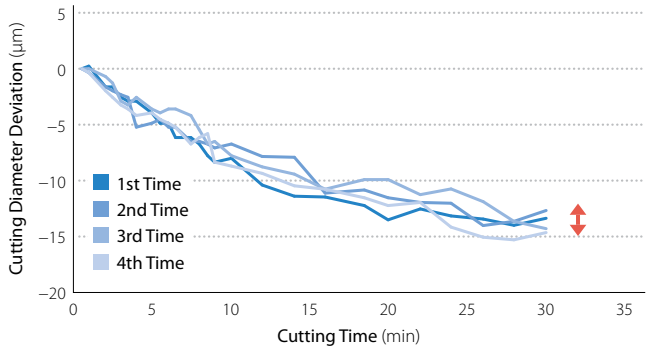


Competitor

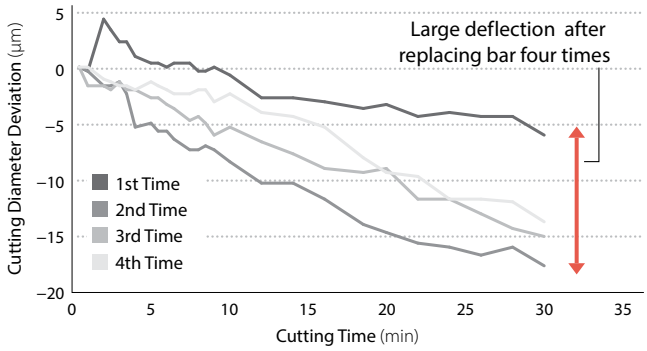


Cutting Diameter Deviation Comparison (Internal Evaluation)

EZ Bar



Competitor A



Cutting Conditions : Vc = 220 sfm, D.O.C. = 0.004", f = 0.0008 ipr, Coolant (Oil-based) Workpiece : W1-9

EZ Bar PLUS

High Precision Solid Bar with the Convenience of Indexable Inserts Reduce Machining Costs

Indexable EZ Bar
Minimum Bore Diameter 5mm

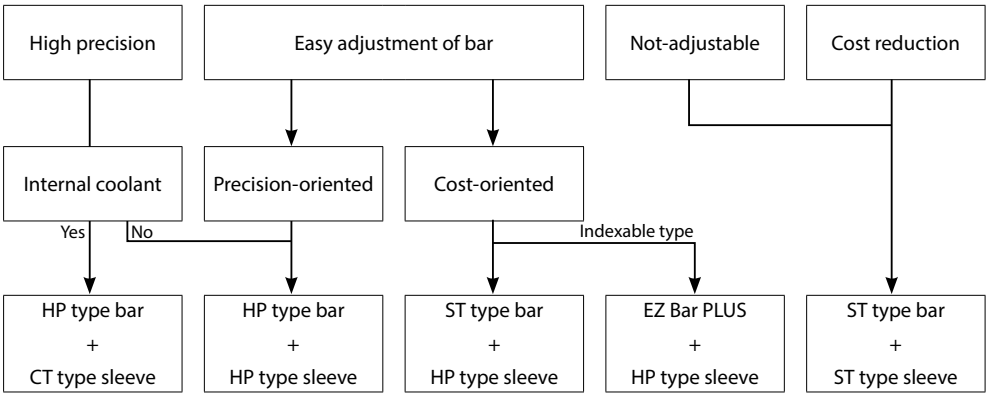
Minimum Bore Diameter 5mm

Carbide or steel bars are available depending on the machining scenario

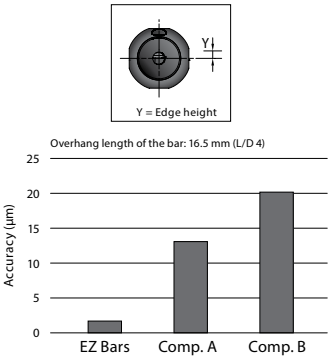
Reduces Installation Times by 1/3

The EZ adjust structure features much lower mounting times compared to conventional boring bars

How to select bars and sleeves for each application



Excellent repeat accuracy by the combination of HP bar + CT / HP sleeve

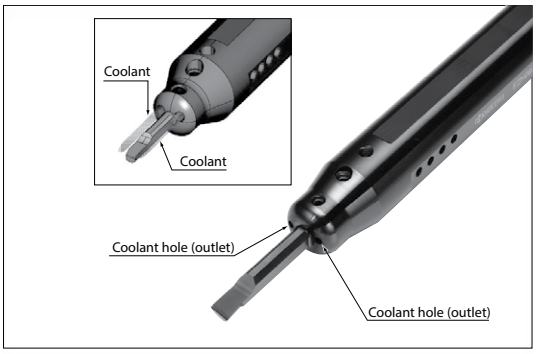


F BORING

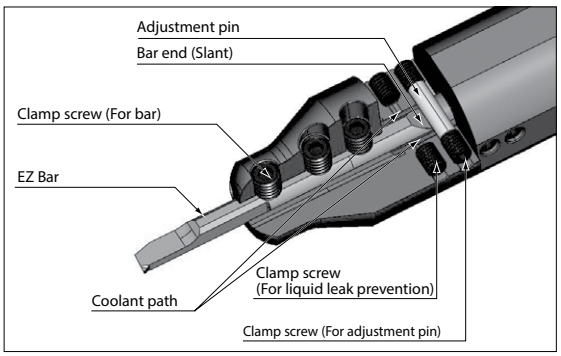
EZH-CT type sleeve (high precision / with coolant hole)

Kyocera's unique EZ adjust structure and internal coolant system improve dimensional accuracy and surface

Coolant discharge system of EZH-CT



Structure of EZH-CT



How to mount EZ Bars (EZH-CT sleeve)

How to use adjustment pin and prevent liquid leak (Fig. 1)

- Put the adjustment pin into the hole according to the overhang length. Push it into the sleeve, using the wrench (LW-1.5).
- Tighten the clamp screw for the adjustment pin "HS3x3P" or "HS3x4P" using the wrench "LW-1.5" from the both sides of the sleeve.
- Put the clamp screws "HS3x3P" or "HS3x4P" into the holes for liquid leak prevention, using the wrench "LW-1.5" and fix them from the both sides of the sleeve.

How to fix bar (Fig. 2)

- With the chip pocket upward, set the bar into the sleeve. Press the slant of the end of the bar with the adjustment pin. Make sure that the bar does not move (Fig. 3)
- Tighten the clamp screw with wrench (LW-2) and fix the bar. Use LW-1.5 if shank dia. is 3 mm or less

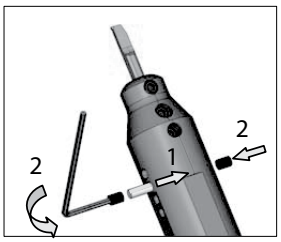


Fig. 1: How to use adjustment pin

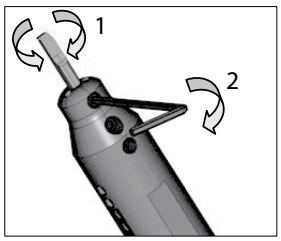


Fig. 2: How to fix bar

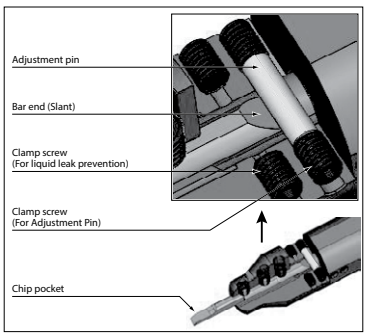
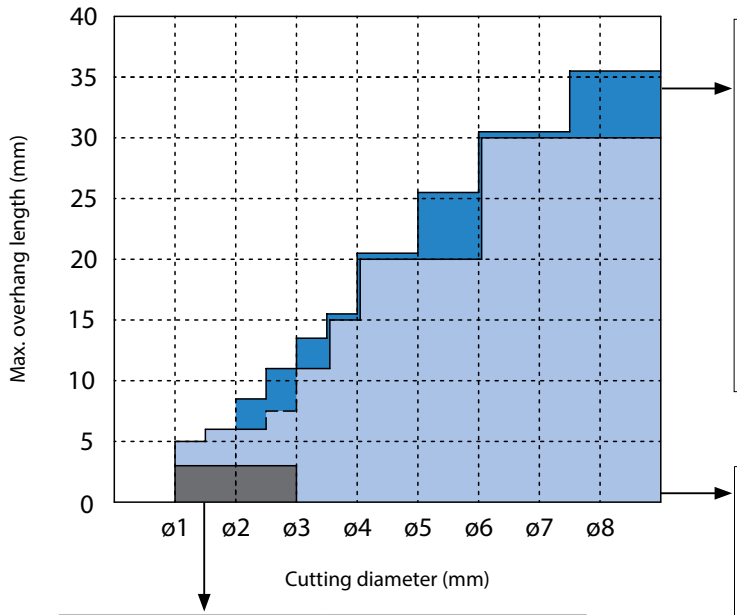


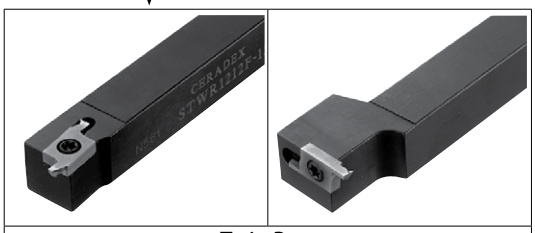
Fig. 3: Fixed bar

Guide for usage (Adjustable overhang type)

Solid tip-bars type: Min. bore diameter ø1mm~



Easy adjustment and high precision - EZ Bars



Twin Bars

SVN

Square Shank (Straight)

S…SVN

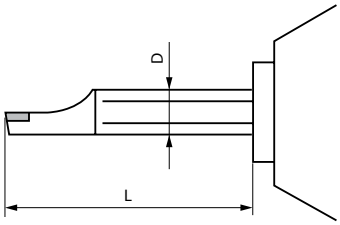
Round Shank (Standard)

SVNS

Swiss IQ Bars

Guide line for overhang length of boring bar - Workpiece material: 1045

Overhang Length (L / D)	Shank Material
3	Steel
4	Steel (Dynamic Bar)
5	Excellent
5.5	Excellent (Dynamic Bar)
7	Carbide
10	KAV bars (with anti-vibration dampener system)



Carbide shank boring bar

Short shank series

Short shank types with length of 1/2 and 2/3 of standard type are available. (-1/2 or -2/3 is shown at the end of the Part Number). When installing on machines, no additional machining (to change toolholder length) is required.

Standard size

2/3 size

1/2 size

Boring Bar Identification System (Round Shank)

Shank Type	
S	Steel
A	Steel (with Coolant Hole)
C	Carbide
E	Carbide (with Coolant Hole)

Toolholder Length					
	ANSI (inch)	ISO (mm)		ANSI (inch)	ISO (mm)
F	3.00	80	Q	7.00	180
G	3.50	90	R	8.00	200
H	4.00	100	S	10.00	250
J	4.50	110	T	12.00	300
K	5.00	125	U	14.00	350
L	5.50	140	V	16.00	400
M	6.00	150	W	18.00	450
N	6.50	160	Y	20.00	500
P	6.75	170	X	Special	

Clamping System	
C	Top Clamp
M	Multi-Lock
P	Lock Pin / Lever Lock
S	Screw Clamp
W	Wedge Lock

Insert Shape	
C	80° Diamond
D	55° Diamond
J	70° Diamond
R	Round
S	90° Square
T	60° Triangle
V	35° Diamond
W	80° Trigon

Hand of Tool	
R	Righ-Hand
L	Left-Hand
N	Neutral

Optional Code	
A(N)	Dynamic Bar
AE	Excellent Bar (Excellent Bar Type)
E	Excellent Bar

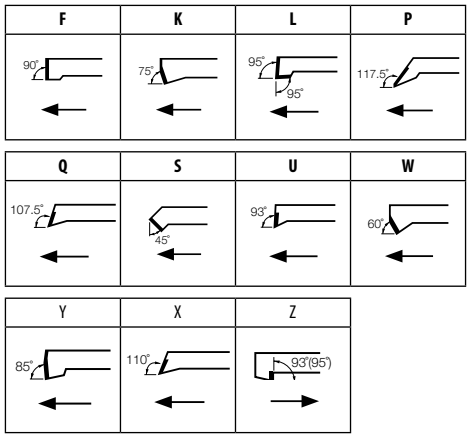
ANSI (Inch)	S	08	M	S	C	L	P	R	3	-	AE	
ISO (Metric)	S	12	M	S	C	L	P	R	09	-	16	A

Shank Diameter

ANSI
A two-digit number that indicates the shank diameter in 1/16" increments

ISO
Shank diameter in mm

Cutting Edge Angle

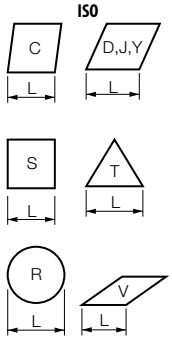


Insert Relief Angle	
B	5° Positive
C	7° Positive
D	15° Positive
E	20° Positive
N	0° Negative
P	11° Positive

Insert Size

ANSI
Number of 1/8 increments of IC

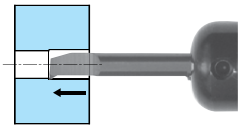
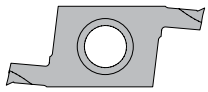
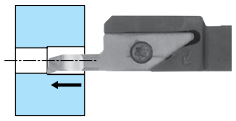
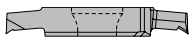
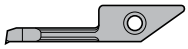
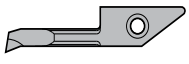
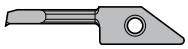
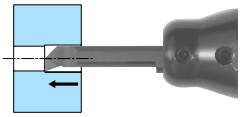
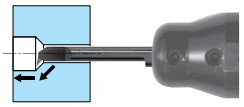
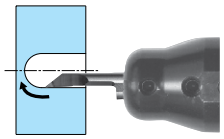
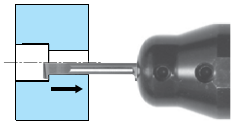
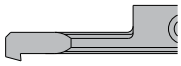
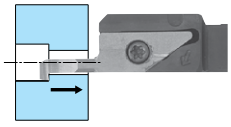
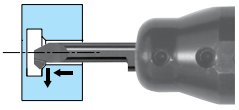
ISO



Min. Bore Diameter

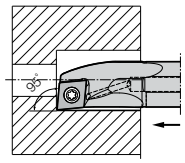
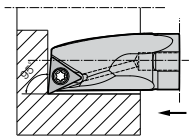
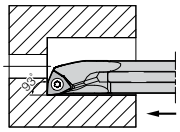
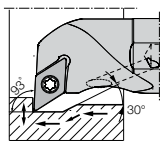
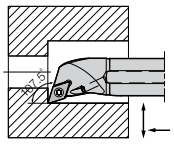
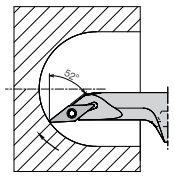
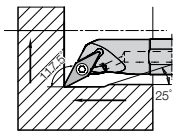
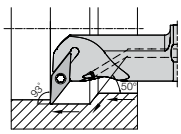
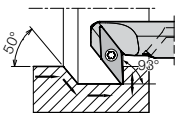
Solid Micro Bars

Metric

Application	Solid Micro Bars	Shape	Shank Type Max. Overhang Length L/D	Min. Bore Dia. DMIN (mm) 1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	Toolholder / Sleeve Ref. Page	Application
Boring	EZB-HP EZ Bar ⇒ F18~F21		Solid L/D = ~5	●	●	●	●	●	●	●	●	●		●				●	F40~F45	
	EZB-HP-LT EZ Bar (Long Type) ⇒ F19		Solid			●	●	●	●	●		●		●						
	EZB-ST EZ Bar ⇒ F22~F23		Solid L/D = ~5			●	●	●	●	●	●		●		●		●			
	EZB-NB EZ Bar (PR1225 / GW05) ⇒ F24		Solid L/D = ~5			●	●	●	●	●	●		●		●		●			
	EZB-NB CBN EZ Bar PCD ⇒ F24		Solid L/D = ~5					●		●		●		●		●				
	TWB Twin Bars ⇒ F58		Solid	●	●	●	●	●											F58~F59	
	TWBT Twin Bars ⇒ F60		Solid	●	●	●	●	●											F61	
	VNB-S Swiss IQ Bars ⇒ F46		Solid	●	●	●	●	●	●	●									F50~F53	
	VNB Swiss IQ Bars ⇒ F47~F48		Solid			●		●		●		●		●		●				
	VNBX-S Swiss IQ Bars ⇒ F45		Solid	●	●	●		●	●	●									F55~F57	
90° Lead Angle	EZBF ⇒ F26		Solid					●		●		●		●					F40~F45	
Copying	EZBP ⇒ F28		Solid			●		●		●		●		●					F40~F45	
	EZVB ⇒ F30		Solid						●		●		●		●				F40~F45	
Back Boring	EZBT EZ Bars ⇒ F32		Solid							●		●							F41 F43 F45	
	VNBT Swiss IQ Bars ⇒ F49		Solid							●		●							F50~F53	
45° Chamfering	EZBC ⇒ F29		Solid									●		●		●			F41 F43 F45	

Dynamic Bars

Inch

Application	Shape	Boring Bar Type	Shank Type Max. Overhang Length L/D	Coolant Hole Yes	Coolant Hole No	Min. Bore Dia. DMIN (in) 0.240	0.312	0.392	0.413	0.450	0.480	0.512	0.551	0.580	0.630	0.700	0.770	0.787	0.790	0.825	0.930	0.980	1.180	1.200	1.240	1.300	1.340	Toolholder / Sleeve Ref. Page
Boring / Internal Facing		A…SCLC-AE	Excellent L/D = ~5.5	●						●			● (0.600)			●				●			●				F62
		E...SCLC-A	Carbide L/D = ~7.0	●						●			● (0.600)			●											F64
		A…SCLP-AE	Excellent L/D = ~5.5	●				●		●			●		●				●				●				F70
		A…STLB(P)-AE	Excellent L/D = ~5.5	●			●			●			●		●				●					● (1.280)			F90
		S…STLB-AE	Excellent L/D = ~5.5		○		●																				
Boring		A...SWUB(P)-AE	Excellent L/D = ~5.5	●							● (0.472)				●		●				●			●				F116
		S...SWUB-AE	Excellent L/D = ~5.5		○	●	●																				
Copying		A...SDUC-AE	Excellent L/D = ~5.5	●								●			●			●				● (1.063)				●		F74
		E...SDUC-A	Carbide L/D = ~7.0	●								●			●			●										F76
		A...SDQC-AE	Excellent L/D = ~5.5	●								●			●			●				●						F78
		E...SDQC-A	Carbide L/D = ~7.0	●								●			●			●										F80
		A…SVJB-AE	Excellent L/D = ~5.5	●																		● (0.984)	●					F102
		A…SVPC(B)-AE	Excellent L/D = ~5.5	●											●				●			●	●		●			F106
		A...SVUC(B)-AE	Excellent L/D = ~5.5	●											●				●			●					●	F108
Back Boring		A...SVZC(B)-AE	Excellent L/D = ~5.5	●											●				●			●					●	F110

Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring bar size.

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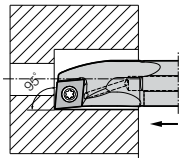
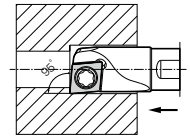
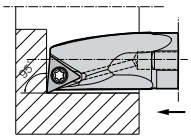
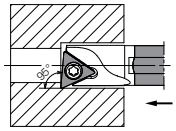
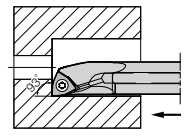
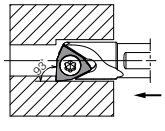
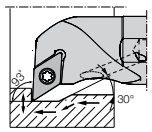
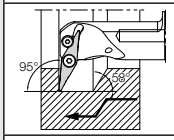
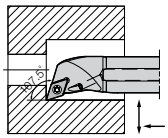
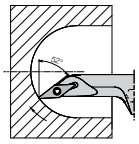
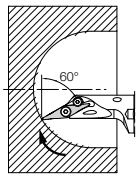
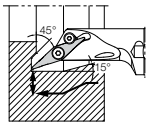
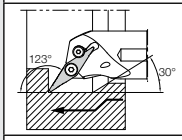
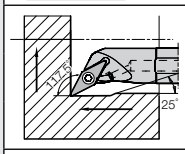
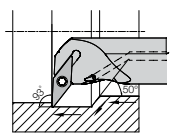
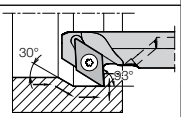
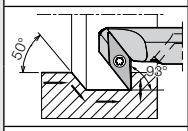
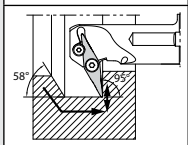
Dynamic Bars / EZ Bar PLUS

Metric

Application	Shape	Boring Bar Type	Shank Type Max. Overhang Length L/D	Coolant Hole Yes	Coolant Hole No	Min. Bore Dia. DMIN (mm) 5	6	7	8	10	12	13	14	16	18	20	22	23	25	26	27	30	31	32	34	40	50	Toolholder / Sleeve Ref. Page
Boring / Internal Facing		A…SCLC-AE	Excellent L/D = ~5.5	●						●	●		●		●		●				●							F62 F63 F64
		S…SCLC-AE	Excellent L/D = ~5.5		○	●	●	●	●																			
		S…SCLC-A	Steel L/D = ~4.0		○					●	●		●		●		●				●							
		C…SCLC-AN	Carbide L/D = ~7.0		○	●	●	●	●																			
		E…SCLC-A(N)	Carbide L/D = ~7.0	●						●	●		●		●		●				●							
		A…SCLP-AE	Excellent L/D = ~5.5	●							●		●	●	●		●				●							F70 F71
		S…SCLP-A	Steel L/D = ~4.0		○						●		●	●	●		●				●							
		E…SCLP-A(N)	Carbide L/D = ~7.0	●							●		●	●	●		●				●							
	EZ Bar PLUS 	S...SCLC-EZP	Steel L/D = ~3.0		○	●	●	●	●	●																	F33 F34
		C...SCLC-EZP	Carbide L/D = ~5.0		○	●	●	●	●	●																		
		A…STLP-AE	Excellent L/D = ~5.5	●						●	●		●	●	●		●		●		●							F90 F91 F92
		S…STLB-AE			○				●																			
		S…STLB(P)-A	Steel L/D = ~4.0		○				●	●	●		●	●	●		●				●							
		E…STLP-A(N)	Carbide L/D = ~7.0	●						●	●		●	●	●		●		●		●							
		C…STLB-AN			○				●																			
		A…STLC-AE	Excellent L/D = ~5.5	●						●	●		●		●		●											F100 F101
		S…STLC-A	Steel L/D = ~4.0		○					●	●		●		●		●											
	EZ Bar PLUS 	S...STLB(P)-EZP	Steel L/D = ~3.0		○				●	●																	F35 F36
		C...STLB(P)-EZP	Carbide L/D = ~5.0		○				●	●																		
Boring		S…SWUB-AE	Excellent L/D = ~5.5		○		●	●	●																			F116 F117 F118
		A…SWUB(P)-AE	Excellent L/D = ~5.5	●						●	●		●		●		●											
		S…SWUB(P)-A	Steel L/D = ~4.0		○		●	●	●	●	●		●		●		●											
		C…SWUB-A	Carbide L/D = ~7.0		○		●	●	●																			
		E…SWUB(P)-A	Carbide L/D = ~7.0	●						●	●		●		●		●											
	EZ Bar PLUS 	S...SWUB-EZP	Steel L/D = ~3.0		○		●	●	●																		F38
		C...SWUB-EZP	Carbide L/D = ~5.0		○		●	●	●																			

Dynamic Bars

Metric

Application	Shape	Boring Bar Type	Shank Type	Max. Overhang Length L/D	Coolant Hole		Min. Bore Dia. DMIN (mm)																						Toolholder / Sleeve Ref. Page
					Yes	No	5	6	7	8	10	12	13	14	16	18	20	22	23	25	26	27	30	31	32	34	40	50	
Copying		A…SDUC-AE	Excellent	~5.5	●									●	●		●		●			●			●				F74 F75 F76
		S…SDUC-A	Steel	~4.0		○								●	●		●		●			●			●				
		E…SDUC-A	Carbide	~7.0	●									●	●		●		●			●			●				
		A…SZLB-AE	Excellent	~5.5	●																	●				●	●		F127
		A…SDQC-AE	Excellent	~5.5	●								●		●		●			●		●							F78 F79 F80
		S…SDQC-A	Steel	~4.0		○							●		●		●			●		●							
		E…SDQC-A	Carbide	~7.0	●								●		●		●			●		●							
		A…SVJB(C)-AE	Excellent	~5.5	●										●		●			●		●					●	●	F102 F103
		A…SVJP-AE			●										●														
		S…SVJB(C)-A	Steel	~4.0		○									●		●			●		●					●	●	
		S…SVJP-A				○									●														
		A…SZJB-AE	Excellent	~5.5	●																	● 28	●				●		F124
		A…SZXB-AE	Excellent	~5.5	●															●			●				●		F125
		A…SZQB-AE	Excellent	~5.5	●																	●			●		●		F126
		A…SVPC(B)-AE	Excellent	~5.5	●									●		●		●			●			●			●		F106 F107
		S…SVPC(B)-A	Steel	~4.0		○								●		●		●			●			●			●		
		E…SVPC(B)-A	Carbide	~7.0	●									●		●		●			●			●					
		A…SVUB(C)-AE	Excellent	~5.5	●										●		●			●						●	●		F108 F109
		S…SVUB(C)-A	Steel	~4.0		○									●		●			●						●	●		
		E…SVUB(C)-A	Carbide	~7.0	●											●				●			● 29			●			
Back Boring		A…SDZC-AE	Excellent	~5.5	●									●	●		●		●			●			●				F82 F83 F84
		S…SDZC-A	Steel	~4.0		○								●	●		●		●			●			●				
		E…SDZC-A	Carbide	~7.0	●									●	●		●		●			●							
		A…SVZB(C)-AE	Excellent	~5.5	●										●		●			●						●	●		F110 F111
		S…SVZB(C)-A	Steel	~4.0		○									●		●			●						●	●		
		A…SZZB-AE	Excellent	~5.5	●																		●			●	●		F128

Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring bar size.

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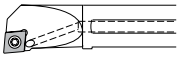
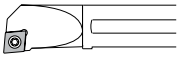
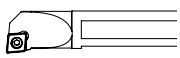
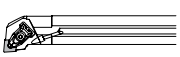
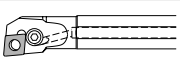
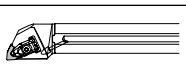
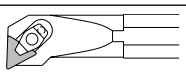
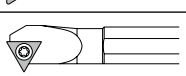
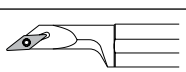
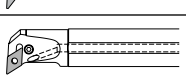
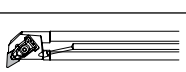
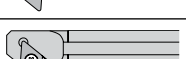
General Purpose Boring Bars

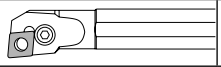
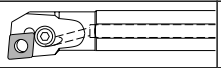
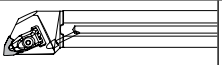
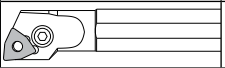
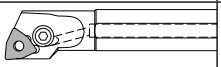
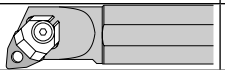
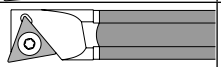
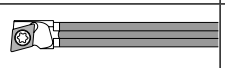
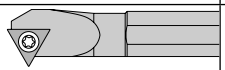
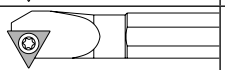
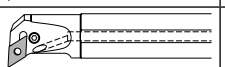
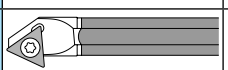
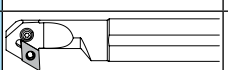
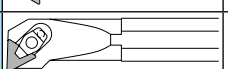
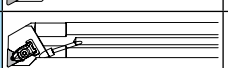
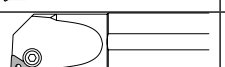
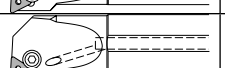
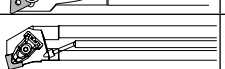
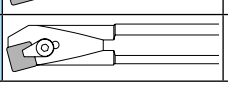
Inch

Application	Boring Bar Type	Shape	Shank Type Max. Overhang Length L/D	Coolant Hole Yes	Coolant Hole No	Insert Type	Min. Bore Dia. DMIN (in) 0.240	0.312	0.394	0.415	0.472	0.480	0.550	0.600	0.630	0.709	0.770	0.787	0.790	0.912	0.984	1.180	1.250	1.260	1.340	1.500	1.570	1.750	2.020	Toolholder / Sleeve Ref. Page
Boring / Internal Facing	S…SCLC-E		Excellent L/D = ~5.0		○	Positive	● (0.197)																							
	A…SCLC		Steel L/D = ~3.0	●		Positive				●				●			●													F66 F67 F68
	S…SCLC		Steel L/D = ~3.0		○	Positive			●																					
	C…SCLC		Carbide L/D = ~7.0		○	Positive			●																					
	S…SCLP		Steel L/D = ~3.0		○	Positive					●				●			● (0.788)			●				● (1.338)					F72 F73
	C…SCLP		Carbide L/D = ~7.0		○	Positive					●				●			● (0.788)			●									
	A…DCLN		Steel L/D = ~3.0	●		Negative																	●			●		●		
	S…PCLN		Steel L/D = ~3.0		○	Negative																				● (1.550)			●	F147 F148
	A…PCLN		Steel L/D = ~3.0	●		Negative													●		● (1.060)			●						
	A…DWLN		Steel L/D = ~3.0	●		Negative																	●			●		●		F164
Boring	S…STUP(B)		Steel L/D = ~3.0		○	Positive		●	● (0.392)		●				●			●		●										F94
	S…SWUB		Steel L/D = ~3.0		○	Negative	●	●																						F120
	C…SWUB		Carbide L/D = ~7.0		○	Positive	●	●																						F121
	S…CTUP		Steel L/D = ~3.0		○	Positive									● (0.625)						● (1.060)				● (1.350)					F131
Copying	S…SDUC		Steel L/D = ~3.0		○	Positive							● (0.564)				● (0.750)													F86
	S…STWP		Steel L/D = ~3.0		○	Positive					● (0.476)										● (0.970)									F97
	S…SVJB		Steel L/D = ~3.0		○	Positive									● (0.620)			● (0.780)			●									F112
	S…SVUC(B)-E		Excellent L/D = ~5.0		○	Positive									●				●											F113
	A…PDUN		Steel L/D = ~3.0	●		Negative															● (1.060)			●			●			F150
	A…DDUN		Steel L/D = ~3.0	●		Negative																				●		●		F152
Back Boring	S…SDZC		Steel L/D = ~3.0		○	Positive									●			●			●									F87
	S…SVZB-E		Excellent L/D = ~5.0		○	Positive															● (0.980)									F114

Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring bar size.

General Purpose Boring Bars

Metric

Application	Boring Bar Type	Overview Shape	Shank Type Max. Overhang Length L/D	Coolant Hole Yes	Coolant Hole No	Insert Type	Min. Bore Dia. DMIN (mm) 5	6	7	8	10	12	14	16	18	20	25	30	32	40	50	63	Toolholder / Sleeve Ref. Page
Boring / Internal Facing	A…DCLN12		Steel L/D = ~3.0	●		Negative													●	●	●		F147
	S…PCLN○○		Steel L/D = ~3.0		○	Negative										●	● 27		●	●	●		F148
	A…PCLN09		Steel L/D = ~3.0	●		Negative										●	● 27		●				
	A…DWLN08		Steel L/D = ~3.0	●		Negative													●	●	●		F164
	S…PWLN○○		Steel L/D = ~3.0		○	Negative										●	● 27		●	●	●		F162
	A…PWLN06		Steel L/D = ~3.0	●		Negative										●	● 27		●				
	S…WWLN08-E		Excellent L/D = ~5.0		○	Negative											● 28		● 34	●			F165
	C…STXP(B)		Carbide L/D = ~7.0		○	Positive			● 7.5	● 9	● 11												F98
	C…SJLC		Carbide L/D = ~7.0		○	Positive	● 5.5																F88
Copying	S…STWP-E		Excellent L/D = ~5.0		○	Positive						●		●		●	●		●				F96 F97
	S…STWP		Steel L/D = ~3.0		○	Positive						●		●		●	●						
	A…DDUN15		Steel L/D = ~3.0	●		Negative														●	●	●	F152
	S…PDUN11		Steel L/D = ~3.0		○	Negative											● 27		●	●			F50
	A…PDUN11		Steel L/D = ~3.0	●		Negative											● 27		●	●			
	S…PDUN15		Steel L/D = ~3.0		○	Negative													●	● 44	● 54		F154
	S…PDQN15		Steel L/D = ~3.0		○	Negative													●	● 44	● 54		F155
Back Boring	C…STZB		Carbide L/D = ~7.0		○	Positive				● 8.5													F99
	C…SJZC		Carbide L/D = ~7.0		○	Positive		● 6.5															F89
	S…PDZN15		Steel L/D = ~3.0		○	Negative													●	● 44	● 54		F156
Boring	S…CTUP		Steel L/D = ~3.0		○	Positive								●		●	● 27		● 34	● 43	●		F131
	A…DTFN○○		Steel L/D = ~3.0	●		Negative													●	●	●		F159
	S…PTUN○○		Steel L/D = ~3.0		○	Negative										●	●	●	●	●	●		F160
	A…PTUN11		Steel L/D = ~3.0	●		Negative										●	●		●				
	A…DSKN12		Steel L/D = ~3.0	●		Negative													●	●	●		F158
	S…SSKP		Steel L/D = ~3.0		○	Positive										●	●						F129 F130
	S…CSKP		Steel L/D = ~3.0		○	Positive										●	● 27		● 34	● 43			

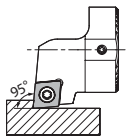
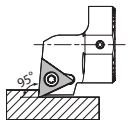
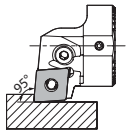
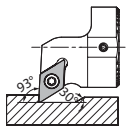
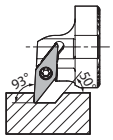
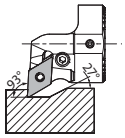
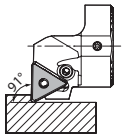
Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring bar size.

F BORING

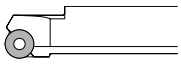
800.823.7284
www.kyoceraprecisiontools.com

KAV Anti-Vibration Boring Bars with Replaceable Heads

Metric

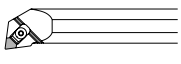
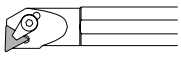
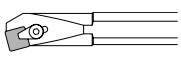
Application	Boring Bar Type	Shape	Shank Type Max. Overhang Length L/D	Coolant Hole Yes	Coolant Hole No	Insert Type	Min. Bore Dia. DMIN (mm) 7	8	10	12	14	16	18	20	25	30	32	40	43	50	63	Toolholder / Sleeve Ref. Page
Boring / Internal Facing	KAV-SCLC		Anti-Vibration Dampener L/D = ~10	●		Positive								●	●		●	●		●		F134
Boring / Internal Facing	KAV-STLP		Anti-Vibration Dampener L/D = ~10	●		Positive								●	●		●	●		●		F136
Boring / Internal Facing	KAV-PCLN		Anti-Vibration Dampener L/D = ~10	●		Negative												●		●		F138
Copying	KAV-SDUC		Anti-Vibration Dampener L/D = ~10	●		Positive								●	●		●	●		●		F135
Copying	KAV-SVUB		Anti-Vibration Dampener L/D = ~10	●		Positive									●		●	●		●		F137
Copying	KAV-PDUN		Anti-Vibration Dampener L/D = ~10	●		Negative												●		●		F140
Boring	KAV-PTFN		Anti-Vibration Dampener L/D = ~10	●		Negative												●		●		F142

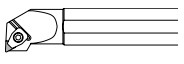
Toolholders for Bearing Machining (Square Shank)

Application	Boring Bar Type	Shape	Min. Bore Dia. DMIN (mm) 20	25	30	32	40	50	Toolholder / Sleeve Ref. Page
Boring	SRCP-B		●			●			F132

Application	Boring Bar Type	Shape	Min. Bore Dia. DMIN (mm) 20	25	30	32	40	50	Toolholder / Sleeve Ref. Page
Round-Chamfering	CBSN-B		●						F133

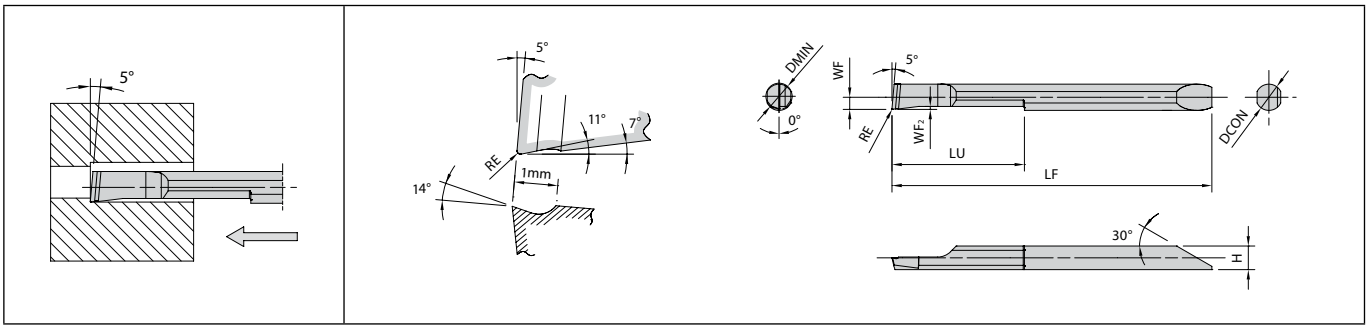
Toolholders for Ceramic / Solid CBN Inserts (L/D = ~3)

Application	Boring Bar Type	Shape	Min. Bore Dia. DMIN (mm) 16	18	20	25	30	32	40	50	Toolholder / Sleeve Ref. Page
Boring / Internal Facing	S…CELN									●	F167
Boring	S…CTUP		●		●	● 27		● 34	● 43	●	F131
Boring	S…CSKP				●	● 27		● 34	● 43		F130

Application	Boring Bar Type	Shape	Min. Bore Dia. DMIN (mm) 20	25	30	32	40	50	Toolholder / Sleeve Ref. Page
Boring	S…CTUN-A				● 30 (mm) ● 1.18 (in)				F168

Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring bar size.

EZB-HP (H Chipbreaker) (Boring)



Right-hand shown | Without lead angle | Tough edge (General purpose)

Dimensions

Unit	Part Number	No. of Edges	Dimensions								Tolerance (mm)		Carbide				Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LF	LU	WF	WF_2	RE	RE min.	RE max.	PVD			-	
													PR1225		PR1725	GW05	
													R	L	R	R	
mm	EZB□L 020020HP-008H	1	2	2	1.8	32	8	0.85	0.25	0.08	-0.015	+0.015	●	●	●	●	EZH020...
	EZB□L 025025HP-008H	1	2.5	2.5	2.3	35	10.5	1.1	0.25	0.08	-0.015	+0.015	●	●	●	●	EZH025...
	025025HP-015H									0.15	-0.02	+0.02	●		●		
	EZB□L 030030HP-008H	1	3	3	2.7	38.9	13	1.35	0.3	0.08	-0.015	+0.015	●	●	●	●	EZH030...
	030030HP-015H									0.15	-0.02	+0.02	●		●		
	EZB□L 035035HP-008H	1	3.5	3.5	3.2	41.9	15	1.6	0.4	0.08	-0.015	+0.015	●	●	●	●	EZH035...
	035035HP-015H									0.15	-0.02	+0.02	●		●		
	EZB□L 040040HP-008H	1	4	4	3.6	48.8	20	1.85	0.4	0.08	-0.015	+0.015	●	●	●	●	EZH040...
	040040HP-015H									0.15	-0.02	+0.02	●		●		
	EZB□L 045045HP-008H	1	4.5	4.5	4.1	51.1	22.5	2.1	0.5	0.08	-0.015	+0.015	●	●	●	●	EZH045...
	045045HP-015H									0.15	-0.02	+0.02	●		●		
	EZB□L 050050HP-008H	1	5	5	4.6	58.1	25	2.35	0.5	0.08	-0.015	+0.015	●	●	●	●	EZH050...
	050050HP-015H									0.15	-0.02	+0.02	●		●		
	EZB□L 060060HP-008H	1	6	6	5.6	66.1	30	2.85	0.6	0.08	-0.015	+0.015	●	●	●	●	EZH060...
	060060HP-015H									0.15	-0.02	+0.02	●		●		
	EZB□L 070070HP-008H	1	7	7	6.3	73.8	35	3.3	0.7	0.08	-0.015	+0.015	●	●	●	●	EZH070...
	070070HP-015H									0.15	-0.02	+0.02	●		●		
	EZB□L 080080HP-008H	1	8	8	7.2	84.8	40	3.75	0.8	0.08	-0.015	+0.015	●	●	●	●	EZH080...
	080080HP-015H									0.15	-0.02	+0.02	●		●		

Tolerance : Offset ±0.025 mm (of the reference pin), overall length ±0.05 mm, edge height +0.05/0 mm

Recommended Cutting Conditions ➡ F25

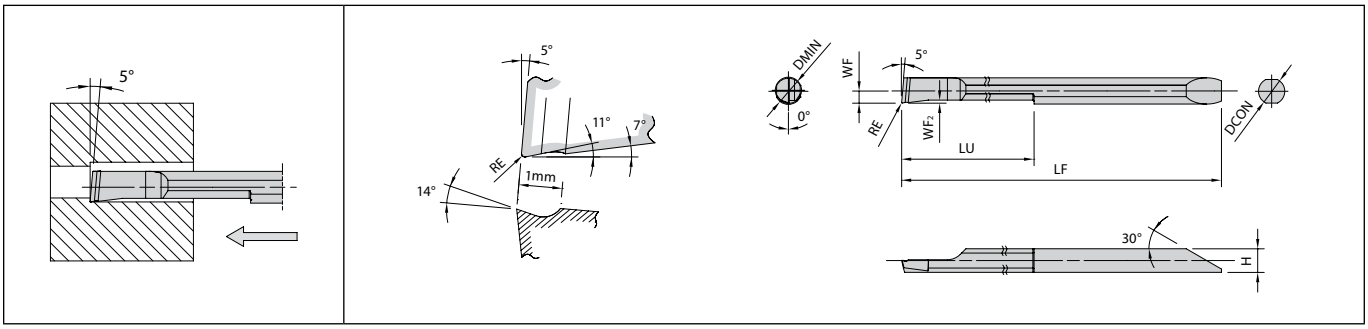
EZ Bars Identification System

EZ	B	R	020	020	HP	-	008	H
Symbol of EZ Bars	Applications	Insert Hand	Min. Bore Dia.	Shank Dia.	Symbol of Precision		Corner-R(RE)	Name of Chipbreaker
	B : Boring Bars	R : Right-hand L : Left-hand	020 : 2mm 025 : 2.5mm ⋮	020 : 2mm 025 : 2.5mm ⋮	HP : High Precision ST : Standard		008 : 0.08mm 015 : 0.15mm ⋮	H : Without lead angle G : With lead angle F : With lead angle NB : Without chipbreaker

EZ Bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZB-HP-LT (H Chipbreaker) (Boring)



Right-hand shown | Without lead angle | Tough edge (General purpose)

Dimensions

Unit	Part Number	No. of Edges	Dimensions								Overhang length (mm)				Tolerance (mm)		Carbide	Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LF	LU	WF	WF_2	RE	#1	#2	#3	#4	RE min.	RE max.	PVD / PR1225 / R	
mm	EZBR 020020HP-008H-LT	1	2	2	1.8	36	12	0.85	0.25	0.08	12.5	8.5	-	-	-0.015	+0.015	●	EZH020...
	025025HP-008H-LT	1	2.5	2.5	2.3	39.5	15	1.1			15.5	11.5	-	-			●	EZH025...
	030030HP-008H-LT	1	3	3	2.7	47.9	18	1.35	0.3		*22.5*	18.5	14.5	-			●	EZH030...
	035035HP-008H-LT	1	3.5	3.5	3.2	51.9	21	1.6	0.4		*25.5*	21.5	17.5	-			●	EZH035...
	040040HP-008H-LT	1	4	4	3.6	60.8	28	1.85			*32.5*	28.5	24.5	20.5			●	EZH040...
	050050HP-008H-LT	1	5	5	4.6	73.1	35	2.35	0.5		*40.5*	35.5	30.5	25.5			●	EZH050...
	060060HP-008H-LT	1	6	6	5.6	83.1	42	2.85	0.6		*47.5*	42.5	37.5	32.5			●	EZH060...

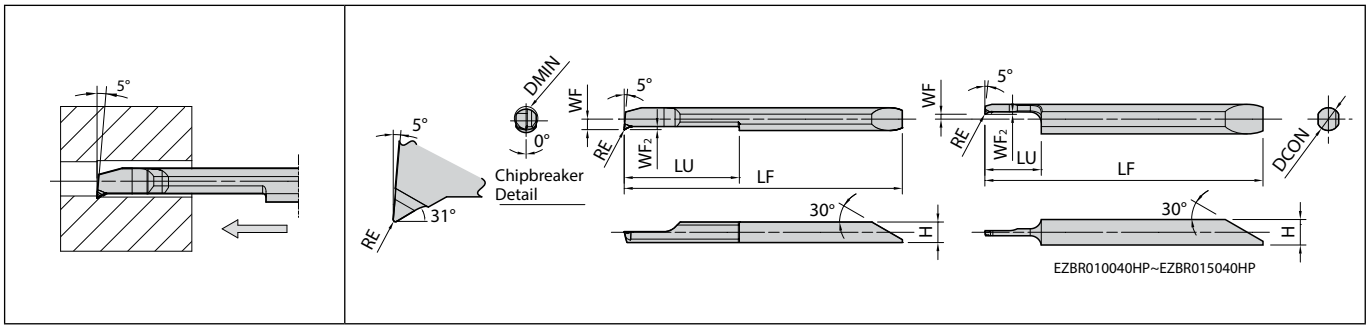
Tolerance : Offset ±0.025 mm (of the reference pin), overall length ±0.05 mm, edge height +0.05/0 mm
EZBR..H-LT : Inserts need to be modified for overhang length #1 in italics (DCON = 3 - 6 mm).

Recommended Cutting Conditions ➡ F25

EZ Bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZB-HP (G Chipbreaker) (Boring)



Right-hand shown | With lead angle | Chip control oriented

Dimensions

Unit	Part Number	No. of Edges	Dimensions								Tolerance (mm)		Carbide	Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LF	LU	WF	WF_2	RE	RE min.	RE max.	PVD PR1725 R	
mm	EZBR 010040HP-005G-04	1	1	4	3.45	35.7	4	1.1	0.25	0.05	-0.01	+0.01	●	EZH040...
	010040HP-005G-06					37.7	6	0.65		0.05	-0.01	+0.01	●	
	EZBR 015040HP-005G-04	1	1.5	4	3.45	37.7	6	0.65	0.25	0.05	-0.01	+0.01	●	EZH040...
	015040HP-005G-06					40.7	9	0.55		0.05	-0.01	+0.01	●	
	EZBR 020020HP-005G	1	2	2	1.65	31.8	8	0.55	0.25	0.05	-0.01	+0.01	●	EZH020...
	EZBR 025025HP-005G	1	2.5	2.5	2.15	34.8	10.5	0.8	0.3	0.05	-0.01	+0.01	●	EZH025...
	025025HP-015G									0.15	-0.02	+0.02	●	
	EZBR 030030HP-005G	1	3	3	2.5	38.7	13	1.05	0.4	0.05	-0.01	+0.01	●	EZH030...
	030030HP-015G									0.15	-0.02	+0.02	●	
	EZBR 035035HP-005G	1	3.5	3.5	3	41.7	15	1.3	0.5	0.05	-0.01	+0.01	●	EZH035...
	035035HP-015G									0.15	-0.02	+0.02	●	
	EZBR 040040HP-005G	1	4	4	3.45	48.7	20	1.55	0.5	0.05	-0.01	+0.01	●	EZH040...
	040040HP-015G									0.15	-0.02	+0.02	●	
	EZBR 045045HP-005G	1	4.5	4.5	3.95	50.9	22.5	1.8	0.7	0.05	-0.01	+0.01	●	EZH045...
	045045HP-015G									0.15	-0.02	+0.02	●	
	EZBR 050050HP-005G	1	5	5	4.3	57.8	25	2.05	0.7	0.05	-0.01	+0.01	●	EZH050...
	050050HP-015G									0.15	-0.02	+0.02	●	
	EZBR 060060HP-005G	1	6	6	5.15	65.7	30	2.55	0.9	0.05	-0.01	+0.01	●	EZH060...
	060060HP-015G									0.15	-0.02	+0.02	●	
	EZBR 070070HP-005G	1	7	7	6.15	73.7	35	3.05	1	0.05	-0.01	+0.01	●	EZH070...
	070070HP-015G									0.15	-0.02	+0.02	●	
	EZBR 080080HP-005G	1	8	8	7.1	84.8	40	3.55	1	0.05	-0.01	+0.01	●	EZH080...
	080080HP-015G									0.15	-0.02	+0.02	●	

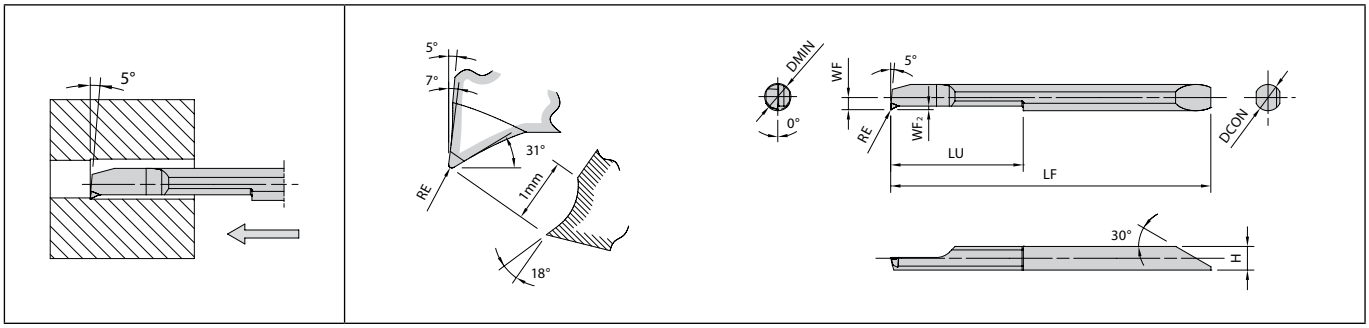
Tolerance (of the reference pin) : [010040HP-005G-04~015040HP-005G-06] Offset ±0.020mm, Overall Length ±0.04mm, Edge Height +0.03/0mm
[020020HP-005G~080080HP-015F] Offset ±0.025mm, Overall Length ±0.05mm, Edge Height +0.05/0mm

Recommended Cutting Conditions ➡ F25

EZ Bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZB-HP (F Chipbreaker) (Boring)



Right-hand shown | With lead angle | Sharp cutting (For finishing)

Dimensions

Unit	Part Number	No. of Edges	Dimensions								Tolerance (mm)		Carbide		Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LF	LU	WF	WF_2	RE	RE min.	RE max.	PVD		
													PR1225	PR1725	
													R	R	
mm	EZBR 020020HP-005F	1	2	2	1.8	32	8	0.85	0.25	0.05	-0.01	+0.01	●	●	EZH020...
	EZBR 025025HP-005F	1	2.5	2.5	2.3	35	10.5	1.1	0.3	0.05	-0.01	+0.01	●	●	EZH025...
	025025HP-015F									0.15	-0.02	+0.02	●	●	
	EZBR 030030HP-005F	1	3	3	2.7	38.9	13	1.35	0.4	0.05	-0.01	+0.01	●	●	EZH030...
	030030HP-015F									0.15	-0.02	+0.02	●	●	
	EZBR 035035HP-005F	1	3.5	3.5	3.2	41.9	15	1.6	0.5	0.05	-0.01	+0.01	●	●	EZH035...
	035035HP-015F									0.15	-0.02	+0.02	●	●	
	EZBR 040040HP-005F	1	4	4	3.6	48.8	20	1.85	0.5	0.05	-0.01	+0.01	●	●	EZH040...
	040040HP-015F									0.15	-0.02	+0.02	●	●	
	EZBR 045045HP-005F	1	4.5	4.5	4.1	51.1	22.5	2.1	0.7	0.05	-0.01	+0.01	●	●	EZH045...
	045045HP-015F									0.15	-0.02	+0.02	●	●	
	EZBR 050050HP-005F	1	5	5	4.6	58.1	25	2.35	0.7	0.05	-0.01	+0.01	●	●	EZH050...
	050050HP-015F									0.15	-0.02	+0.02	●	●	
	EZBR 060060HP-005F	1	6	6	5.6	66.1	30	2.85	0.9	0.05	-0.01	+0.01	●	●	EZH060...
	060060HP-015F									0.15	-0.02	+0.02	●	●	
	EZBR 070070HP-005F	1	7	7	6.3	73.8	35	3.3	1	0.05	-0.01	+0.01	●	●	EZH070...
	070070HP-015F									0.15	-0.02	+0.02	●	●	
	EZBR 080080HP-005F	1	8	8	7.2	84.8	40	3.75	1	0.05	-0.01	+0.01	●	●	EZH080...
	080080HP-015F									0.15	-0.02	+0.02	●	●	

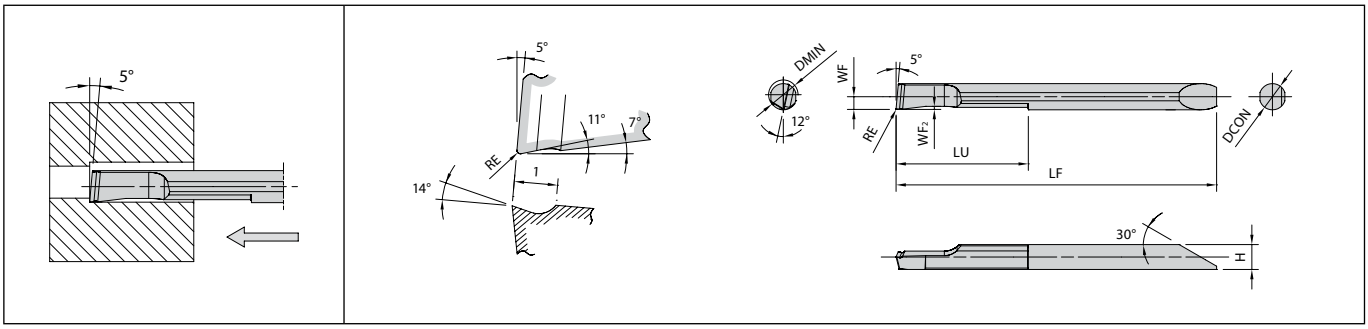
Tolerance : Offset ±0.025 mm (of the reference pin), overall length ±0.05 mm, edge height +0.05/0 mm

Recommended Cutting Conditions ➡ F25

EZ Bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZB-ST (H Chipbreaker) (Boring)



Right-hand shown | Without lead angle | Tough edge (General purpose)

Dimensions

Unit	Part Number	No. of Edges	Dimensions								Tolerance (mm)		Carbide		Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LF	LU	WF	WF_2	RE	RE min.	RE max.	PVD PR1225 R	PVD PR1725 R	
mm	EZBR 020017ST-008H	1	2	1.7	1.5	27.3	7	0.79	0.19	0.08	-0.015	+0.015	●	●	EZH017...
	EZBR 025020ST-008H	1	2.5	2	1.82	32	8	0.94	0.16	0.08	-0.015	+0.015	●	●	EZH020...
	025020ST-015H									0.15	-0.02	+0.02	●	●	
	EZBR 030025ST-008H	1	3	2.5	2.3	35	10.5	1.19	0.15	0.08	-0.015	+0.015	●	●	EZH025...
	030025ST-015H									0.15	-0.02	+0.02	●	●	
	EZBR 035030ST-008H	1	3.5	3	2.8	39	13	1.44	0.18	0.08	-0.015	+0.015	●	●	EZH030...
	035030ST-015H									0.15	-0.02	+0.02	●	●	
	EZBR 040035ST-008H	1	4	3.5	3.3	42	15	1.69	0.24	0.08	-0.015	+0.015	●	●	EZH035...
	040035ST-015H									0.15	-0.02	+0.02	●	●	
	EZBR 045040ST-008H	1	4.5	4	3.8	49	20	1.94	0.27	0.08	-0.015	+0.015	●	●	EZH040...
	045040ST-015H									0.15	-0.02	+0.02	●	●	
	EZBR 055050ST-008H	1	5.5	5	4.8	58.2	25	2.44	0.33	0.08	-0.015	+0.015	●	●	EZH050...
	055050ST-015H									0.15	-0.02	+0.02	●	●	
	EZBR 065060ST-008H	1	6.5	6	5.8	66.2	30	2.94	0.38	0.08	-0.015	+0.015	●	●	EZH060...
	065060ST-015H									0.15	-0.02	+0.02	●	●	
	EZBR 075070ST-008H	1	7.5	7	6.8	74.2	35	3.44	0.44	0.08	-0.015	+0.015	●	●	EZH070...
	075070ST-015H									0.15	-0.02	+0.02	●	●	

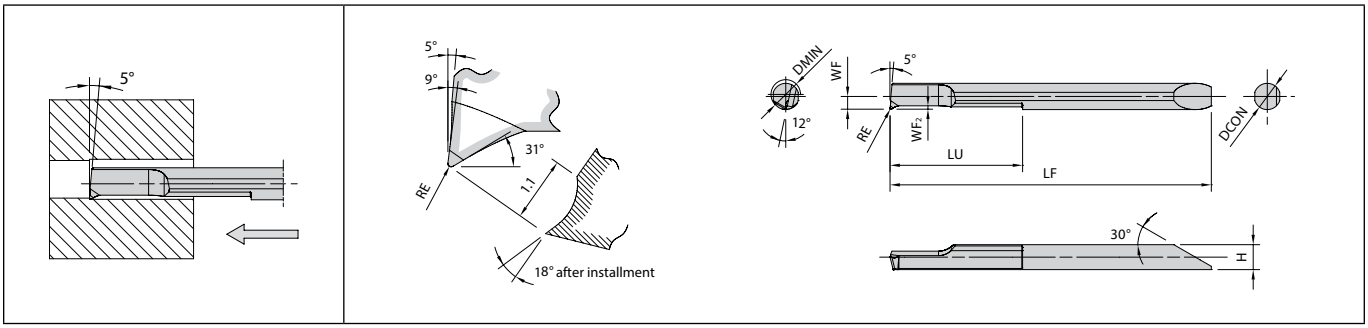
Tolerance : Offset ±0.06 mm , overall length ±0.1 mm, edge height +0.06/0 mm

Recommended Cutting Conditions ➡ F25

EZ Bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZB-ST (F Chipbreaker) (Boring)



Right-hand shown | With lead angle | Sharp cutting (For finishing)

Dimensions

Unit	Part Number	No. of Edges	Dimensions								Tolerance (mm)		Carbide		Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LF	LU	WF	WF_2	RE	RE min.	RE max.	PVD		
													PR1225	PR1725	
													R	R	
mm	EZBR 020017ST-005F	1	2	1.7	1.5	27.3	7	0.79	0.2	0.05	-0.01	+0.01	●	●	EZH017...
	EZBR 025020ST-005F	1	2.5	2	1.82	32	8	0.94	0.16	0.05	-0.01	+0.01	●	●	EZH020...
	025020ST-015F									0.15	-0.02	+0.02	●	●	
	EZBR 030025ST-005F	1	3	2.5	2.3	35	10.5	1.19	0.2	0.05	-0.01	+0.01	●	●	EZH025...
	030025ST-015F									0.15	-0.02	+0.02	●	●	
	EZBR 035030ST-005F	1	3.5	3	2.8	39	13	1.44	0.26	0.05	-0.01	+0.01	●	●	EZH030...
	035030ST-015F									0.15	-0.02	+0.02	●	●	
	EZBR 040035ST-005F	1	4	3.5	3.3	42	15	1.69	0.33	0.05	-0.01	+0.01	●	●	EZH035...
	040035ST-015F									0.15	-0.02	+0.02	●	●	
	EZBR 045040ST-005F	1	4.5	4	3.8	49	20	1.94	0.31	0.05	-0.01	+0.01	●	●	EZH040...
	045040ST-015F									0.15	-0.02	+0.02	●	●	
	EZBR 055050ST-005F	1	5.5	5	4.8	58.2	25	2.44	0.45	0.05	-0.01	+0.01	●	●	EZH050...
	055050ST-015F									0.15	-0.02	+0.02	●	●	
	EZBR 065060ST-005F	1	6.5	6	5.8	66.2	30	2.94	0.59	0.05	-0.01	+0.01	●	●	EZH060...
	065060ST-015F									0.15	-0.02	+0.02	●	●	
	EZBR 075070ST-005F	1	7.5	7	6.8	74.2	35	3.44	0.65	0.05	-0.01	+0.01	●	●	EZH070...
	075070ST-015F									0.15	-0.02	+0.02	●	●	

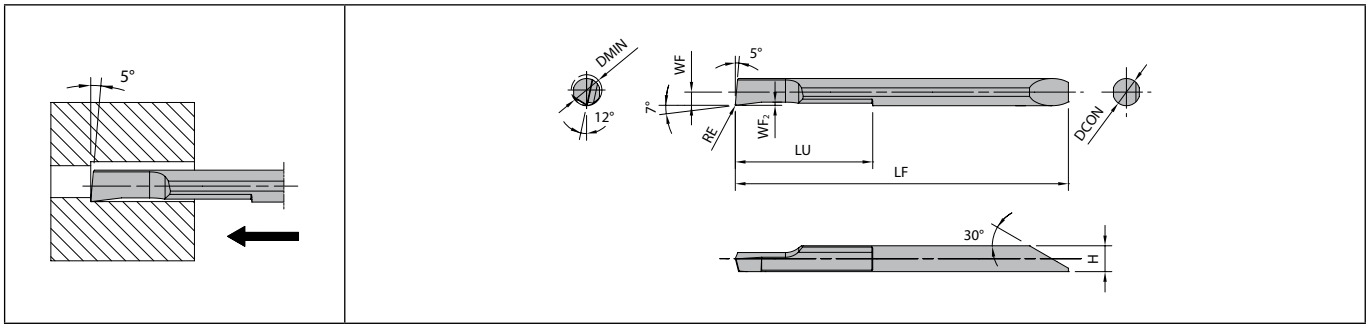
Tolerance : Offset ±0.06 mm , overall length ±0.1 mm, edge height +0.06/0 mm

Recommended Cutting Conditions ➡ F25

EZ Bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZB-NB (Boring)



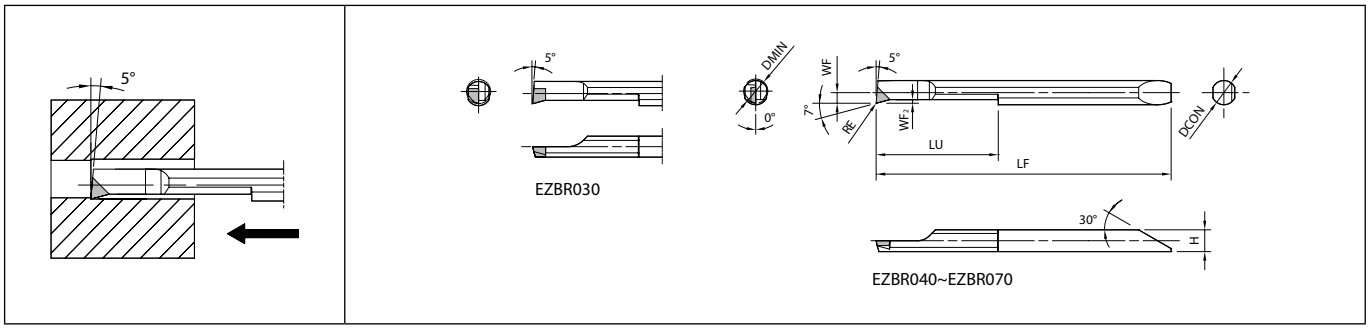
Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions								Tolerance (mm)		Carbide		Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LF	LU	WF	WF2	RE	RE min.	RE max.	PVD PR1225 R	- GW05 R	
mm	EZBR 020017-005NB	1	2	1.7	1.5	27.3	7	0.79	0.2	0.05	-0.015	+0.015	●	●	EZH017...
	EZBR 025020-005NB	1	2.5	2	1.82	32	8	0.94	0.16	0.05	-0.015	+0.015	●	●	EZH020...
	EZBR 030025-005NB	1	3	2.5	2.3	35	10.5	1.19	0.16	0.05	-0.015	+0.015	●	●	EZH025...
	EZBR 035030-005NB	1	3.5	3	2.8	39	13	1.44	0.19	0.05	-0.015	+0.015	●	●	EZH030...
	EZBR 040035-005NB	1	4	3.5	3.3	42	15	1.69	0.25	0.05	-0.015	+0.015	●	●	EZH035...
	EZBR 045040-005NB	1	4.5	4	3.8	49	20	1.94	0.28	0.05	-0.015	+0.015	●	●	EZH040...
	EZBR 055050-005NB	1	5.5	5	4.8	58.2	25	2.44	0.33	0.05	-0.015	+0.015	●	●	EZH050...
	EZBR 065060-005NB	1	6.5	6	5.8	66.2	30	2.94	0.39	0.05	-0.015	+0.015	●	●	EZH060...
	EZBR 075070-005NB	1	7.5	7	6.8	74.2	35	3.44	0.45	0.05	-0.015	+0.015	●	●	EZH070...

Recommended Cutting Conditions ➡ F25

EZB-NB (Boring)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions								Tolerance (mm)		CBN	PCD	Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LF	LU	WF	WF2	RE	RE min.	RE max.	PVD KBN05M R	- KPD001 R	
mm	EZBR 030030-003NB	1	3	3	2.6	38.8	13	1.25	0.3	0.035	-0.015	+0.015	●		EZH030...
	EZBR 040040-003NB	1	4	4	3.6	48.8	20	1.75	0.5	0.035	-0.015	+0.015	●	●	EZH040...
	EZBR 050050-003NB	1	5	5	4.6	58.1	25	2.25	0.5	0.035	-0.015	+0.015	●	●	EZH050...
	EZBR 060060-003NB	1	6	6	5.6	66.1	30	2.75	0.5	0.035	-0.015	+0.015	●	●	EZH060...
	EZBR 070070-003NB	1	7	7	6.6	74.1	35	3.25	0.5	0.035	-0.015	+0.015	●	●	EZH070...

KBN05M edge preparation : T00815 (0.08mm x 15° Chamfered cutting edge)
KPD001 edge preparation : F (Sharp edge)

Recommended Cutting Conditions ➡ F25

EZ Bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

H Chipbreaker (EZB-HP...H Type / EZB-ST...H Type)

Workpiece Material	Insert Grade (Vc : sfm)			EZB□020/025		EZB□030/035		EZB□040/045		EZB□050/055/060/065/070/075/080		Notes
	MEGACOAT NANO PLUS	MEGACOAT	Carbide	D.O.C. (inch), f (ipr)								
	PR1725	PR1225	GW05	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	100~330	-	~0.0118	~0.0012	~0.0157	~0.0016	~0.0177	~0.0028	~0.0197	~0.0039	Coolant
Stainless Steel	100~260	100~260	-	~0.0079	~0.0008	~0.0118	~0.0012	~0.0138	~0.0020	~0.0157	~0.0028	
Non-Ferrous Material	-	-	~330	~0.0118	~0.0020	~0.0157	~0.0024	~0.0177	~0.0039	~0.0197	~0.0059	

H Chipbreaker (EZB-HP...H-LT Type (Long Type))

Workpiece Material	Insert Grade (Vc : sfm)	EZBR020/025/030/035		EZBR040/050/060		Notes
	MEGACOAT	D.O.C. (inch), f (ipr)				
	PR1225	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~200	~0.0118	~0.0020	~0.0157	~0.0039	Coolant
Stainless Steel	70~130	~0.0098	~0.0020	~0.0118	~0.0028	

G Chipbreaker

Workpiece Material	Insert Grade (Vc : sfm)	EZBR010/015		EZBR020/025		EZBR030/035		EZBR040/045/050/060/070/080		Notes
	MEGACOAT NANO PLUS	D.O.C. (inch), f (ipr)								
	PR1725	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~390	~0.0079	~0.0008	~0.0098	~0.0012	~0.0118	~0.0020	~0.0138	~0.0028	Coolant
Stainless Steel	100~330	~0.0059	~0.0006	~0.0079	~0.0008	~0.0098	~0.0012	~0.0118	~0.0020	

F Chipbreaker (EZB-HP...F Type / EZB-ST...F Type)

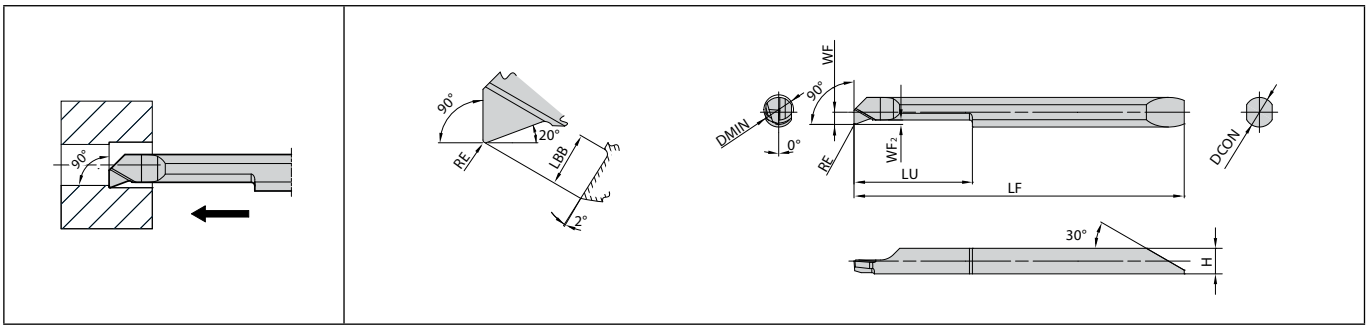
Workpiece Material	Insert Grade (Vc : sfm)		EZBR020/025		EZBR030/035		EZBR040/045		EZBR050/055/060/065/070/075/080		Notes
	MEGACOAT NANO PLUS	MEGACOAT	D.O.C. (inch), f (ipr)								
	PR1725	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~390	100~330	~0.0079	~0.0012	~0.0079	~0.0020	~0.0118	~0.0028	~0.0118	~0.0028	Coolant
Stainless Steel	100~330	100~260	~0.0079	~0.0008	~0.0079	~0.0012	~0.0098	~0.0020	~0.0098	~0.0020	

NB (Without Chipbreaker)

Workpiece Material	Insert Grade (Vc : sfm)		EZBR020/025		EZBR030/035		EZBR040/045		EZBR050/055/060/065/075		Notes
	MEGACOAT	Carbide	D.O.C. (inch), f (ipr)								
	PR1225	GW05	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	-	~0.0118	~0.0012	~0.0157	~0.0016	~0.0177	~0.0028	~0.0197	~0.0039	Coolant
Stainless Steel	100~260	-	~0.0079	~0.0008	~0.0118	~0.0012	~0.0138	~0.0020	~0.0157	~0.0028	
Non-Ferrous Material	-	~330	~0.0118	~0.0020	~0.0157	~0.0024	~0.0177	~0.0028	~0.0197	~0.0039	

Workpiece Material	Insert Grade (Vc : sfm)		EZBR030		EZBR040/045		EZBR050/060/070		Notes
	MEGACOAT CBN	PCD	D.O.C. (inch), f (ipr)						
	KBN05M	KPD001	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Non-Ferrous Material	-	~980	-	-	~0.0177	~0.0039	~0.0197	~0.0059	Coolant
Hardened Materials (Heat-Treated Steel)	~330	-	~0.0028	~0.0012	~0.0039	~0.0020	~0.0059	~0.0028	

EZBF (Boring, 90° Lead Angle)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions									Tolerance (mm)		Carbide	Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LBB	LF	LU	WF	WF_2	RE	RE min.	RE max.	PVD / PR1225 / R	
mm	EZBFR 030030-008	1	3	3	2.5	1.5	37.7	12	1.2	0.45	0.08	-0.015	+0.015	●	EZH030...
	EZBFR 040040-008	1	4	4	3.45	2	44.6	16	1.65	0.55	0.08	-0.015	+0.015	●	EZH040...
	EZBFR 050050-015	1	5	5	4.3	2.4	52.7	20	2.15	0.7	0.15	-0.02	+0.02	●	EZH050...
	EZBFR 060060-015	1	6	6	5.15	2.8	59.6	24	2.55	0.85	0.15	-0.02	+0.02	●	EZH060...

Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc : sfm)	EZBFR030030-008		EZBFR040040-008		EZBFR050050/ 060060-015		Notes
	MEGACOAT	D.O.C. (in), f (ipr)						
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	~0.0079	~0.0020	~0.0118	~0.0020	~0.0197	~0.0020	Coolant
Stainless Steel	100~260	~0.0079	~0.0020	~0.0118	~0.0020	~0.0197	~0.0020	

EZ Bars are sold in 1 piece boxes

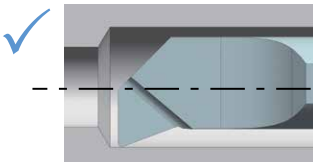
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Precautions

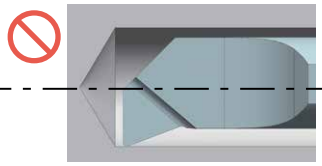
✓ Recommended ⃠ Not Recommended

1. Machining in blind hole is not recommended

Stepped hole

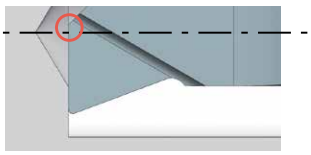


Blind hole



2. If front cutting edge exceeds beyond workpiece center line, fracturing may occur

Fracturing May Occur

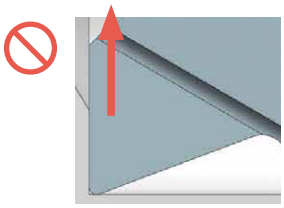


Min boring diameter of ø 4 : 1.9 mm front cutting edge length

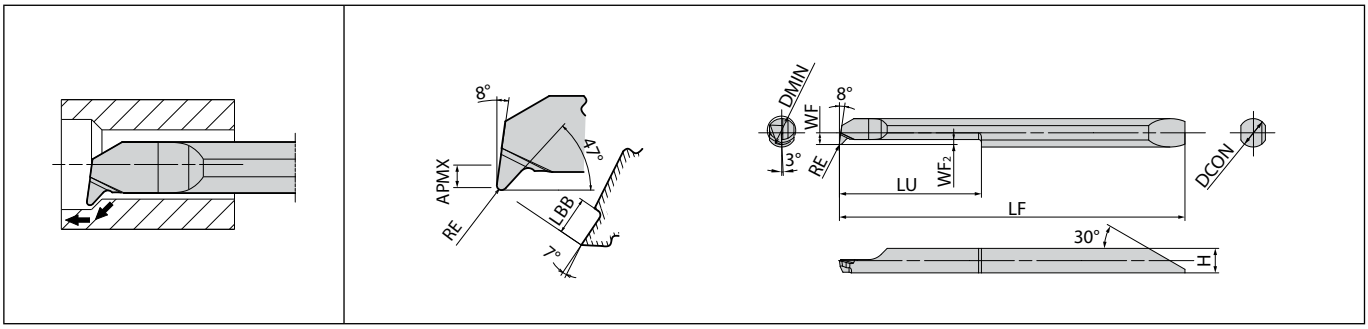
Off-center Boring

3. Up facing is not recommended

Fracturing May Occur



EZBP (Internal Copying)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions										Tolerance (mm)		Carbide	Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LBB	LF	LU	WF	WF_2	APMX	RE	RE min.	RE max.	PVD PR1225 / R	
mm	EZBPR 020020-005-08	1	2	2	1.65	1	31.8	8	0.55	0.35	0.3	0.05	-0.01	+0.01	●	EZH020...
	EZBPR 020020-005-10						33.8	10							●	
	EZBPR 020020-005-12						35.8	12							●	
	EZBPR 030030-005-12	1	3	3	2.5	1.2	37.7	12	1.05	0.45	0.4	0.05	-0.01	+0.01	●	EZH030...
	EZBPR 030030-005-15						40.7	15							●	
	EZBPR 040040-015	1	4	4	3.45	1.5	48.7	20	1.65	0.65	0.6	0.15	-0.02	+0.02	●	EZH040...
	EZBPR 050050-015	1	5	5	4.3	2.2	57.8	25	2	1.1	0.8	0.15	-0.02	+0.02	●	EZH050...
	EZBPR 060060-015	1	6	6	5.15	2.5	65.7	30	2.45	1.35	1	0.15	-0.02	+0.02	●	EZH060...

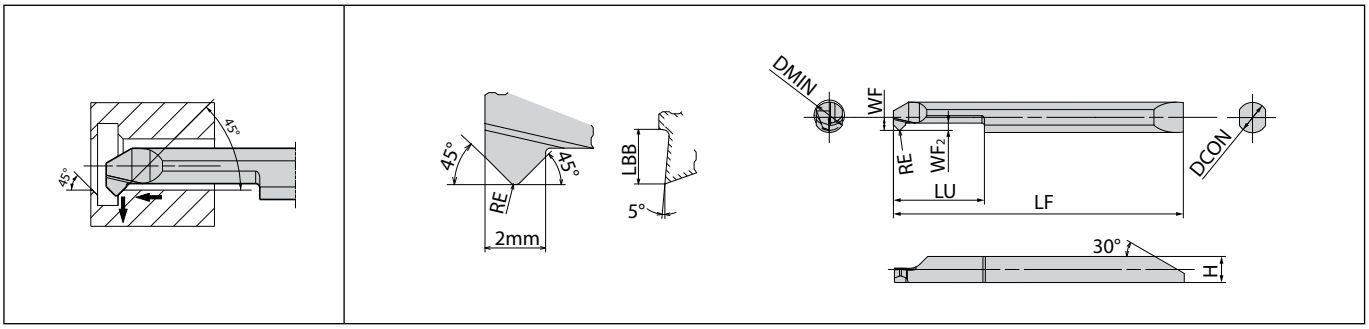
Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc : sfm)	EZBPR020		EZBPR030		EZBPR040		EZBPR050		EZBPR060		Notes
	MEGACOAT	D.O.C. (in), f (ipr)										
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100-330	~0.0118	~0.0020	~0.0157	~0.0020	~0.0236	~0.0020	~0.0315	~0.0020	~0.0394	~0.0020	Coolant
Stainless Steel	100-260	~0.0118	~0.0020	~0.0157	~0.0020	~0.0236	~0.0020	~0.0315	~0.0020	~0.0394	~0.0020	

EZ Bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZBC (Internal Chamfering)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions									Tolerance (mm)		Carbide	Applicable Sleeve ➡ F41 F43 F45
			DMIN	DCON	H	LBB	LF	LU	WF	WF_2	RE	RE min.	RE max.	PVD / PR1225 / R	
mm	EZBCR 050050-020-15	1	5	5	4.3	1.8	47.8	15	2.15	1.2	0.2	-0.02	+0.02	●	EZH050...
	050050-020-20						52.8	20						●	
	EZBCR 060060-020-18	1	6	6	5.15	2.5	53.7	18	2.65	1.9	0.2	-0.02	+0.02	●	EZH060...
	060060-020-24						59.7	24						●	
	EZBCR 070070-020-21	1	7	7	6.2	3.1	59.7	21	3	2.5	0.2	-0.02	+0.02	●	EZH070...
	070070-020-42						80.7	42						●	

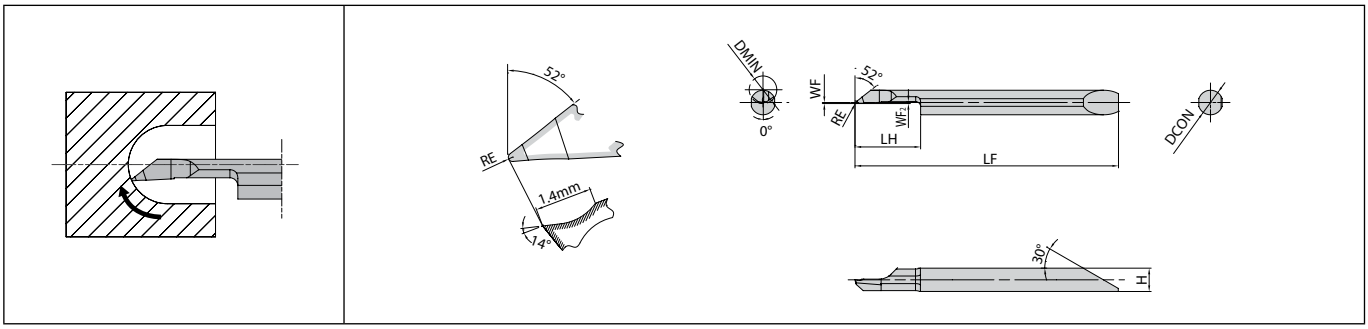
Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc : sfm)	EZBC050		EZBC060		EZBC070		Notes
	MEGACOAT	D.O.C. (in), f (ipr)						
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100-330	~0.0276	~0.0024	~0.0276	~0.0024	~0.0276	~0.0024	Coolant
Stainless Steel	100-260	~0.0276	~0.0024	~0.0276	~0.0024	~0.0276	~0.0024	

EZ Bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZVB (Boring / Internal Facing / Internal Copying)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions									Tolerance (mm)		Carbide	Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LH	H	LF	WF	WF_2	RE	RE min.	RE max.	PVD / PR1225 / R	
mm	EZVBR 035030-010	1	3.5	3	2.8	8	2.8	38	0.17	0.22	0.1	-0.015	+0.015	●	EZH030...
	EZVBR 045040-010	1	4.5	4	3.8	10	3.8	43		0.26				●	EZH040...
	EZVBR 055050-010	1	5.5	5	4.8	12	4.8	50.2		0.29				●	EZH050...
	EZVBR 065060-010	1	6.5	6	5.8	14	5.8	55.2		0.32				●	EZH060...

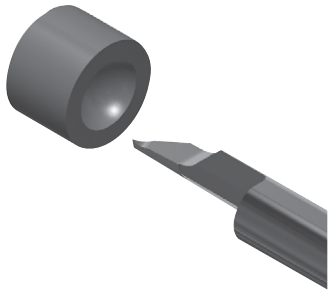
Recommended Cutting Conditions

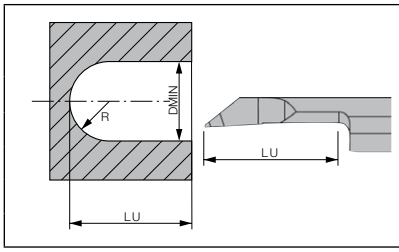
Workpiece Material	Insert Grade (Vc : sfm)	EZVB035		EZVB045		EZVB055/065		Notes
	MEGACOAT	D.O.C. (in), f (ipr)						
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	~0.0020	~0.0016	~0.0028	~0.0028	~0.0039	~0.0028	Coolant
Stainless Steel	100~260	~0.0012	~0.0012	~0.0020	~0.0020	~0.0028	~0.0020	

EZ Bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

1. Application Range

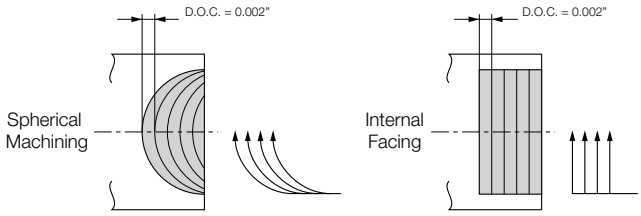




Part Number	Min. Bore Dia.	R	LU
	DMIN	mm	mm
EZVBR 035030-010	3.5	1.75	8.0
EZVBR 045040-010	4.5	2.25	10.0
EZVBR 055050-010	5.5	2.75	12.0
EZVBR 065060-010	6.5	3.25	14.0

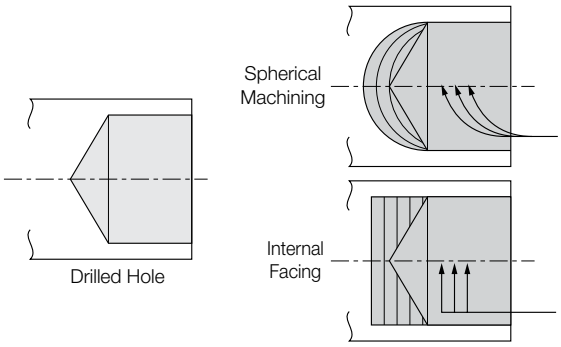
2. Application

Without Existing Hole



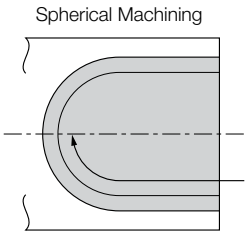
(Note) f should be under 0.0012 ipr during internal facing

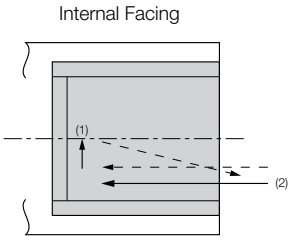
With Pre-Drilled Hole



(Note) f should be under 0.0012 ipr during internal facing

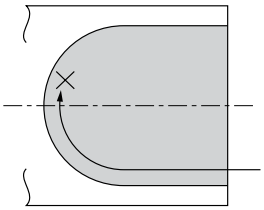
Finishing



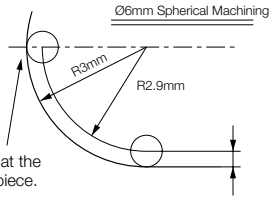


Machining Process
(1) Finish the internal face first.
(2) Next, finish the internal diameter.

3. Caution

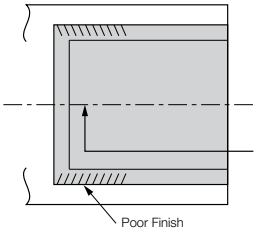


When machining past the center of the workpiece, insert may break.



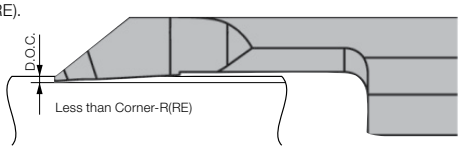
Fix the insert edge at the center of the workpiece.

Adjust the machining program to radius minus the value of Corner-R(RE).



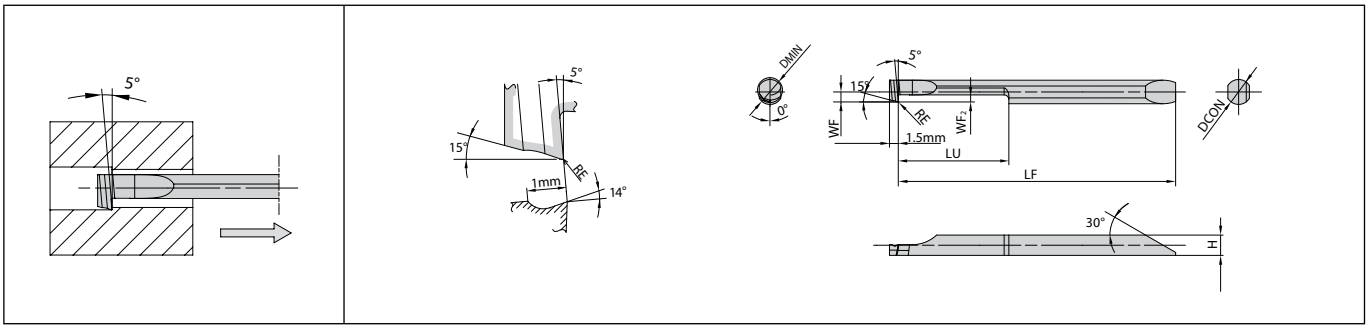
This type of machining is possible, but the chips might scratch the surface.

For internal profiling, ap should be less than the value of Corner-R(RE).



[Burrs may occur, if D.O.C. is bigger than Corner-R(RE)]

EZBT (Back Boring)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions								Tolerance (mm)		Carbide		Applicable Sleeve
			DMIN	DCON	H	LF	LU	WF	WF_2	RE	RE min.	RE max.	PVD	-	
													PR1225	GW05	F41 F43 F45
													R	R	
mm	EZBTR 040040-005	1	4	4	3.45	47.2	18.5	1.7	1.2	0.05	-0.02	0	●	●	EZH040...
	EZBTR 050050-005	1	5	5	4.3	57.2	23.5	2.15	1.5				●	●	EZH050...

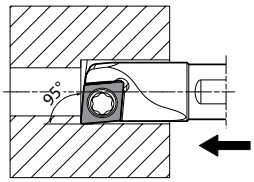
Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc : sfm)		EZBTR040040-005		EZBTR050050-005		Notes
	MEGACOAT	Carbide	D.O.C. (in), f (ipr)				
	PR1225	GW05	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	★ 100~330	–	~0.018	~0.003	~0.020	~0.004	Coolant
Stainless Steel	★ 100~260	–	~0.018	~0.002	~0.020	~0.003	
Non-Ferrous Metals	–	★ 100~330	~0.018	~0.004	~0.020	~0.006	

★ : 1st Recommendation

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SCLC-EZP Steel Shank Bar (Boring)



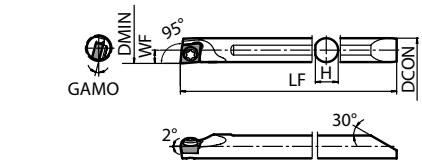


Fig. 1

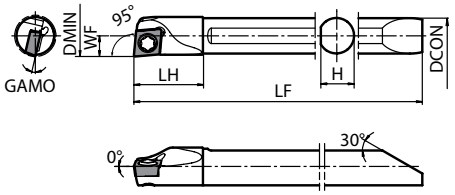


Fig. 2

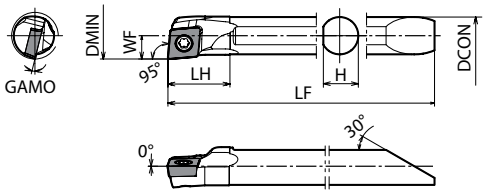


Fig. 3

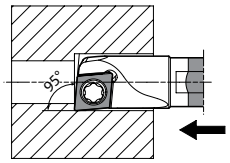
Right-hand shown | Left-hand Insert for Right-hand Toolholder. | Max. Overhang Length L/D=~3

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts		Applicable Inserts	Applicable Sleeve ➡ F41 F43 F45
													Screw	Wrench		
		R	DMIN	DCON	H	LH	LF	WF								
mm	S045X- SCLCR03-050EZP	●	5	4.5	4.3	-	42.4	2.5	15	0.2	No	1	SB-1635TR	FT-6	CC□T1109... CC□W1109...	EZH045...
	S050X- SCLCR03-060EZP	●	6	5	4.7	9	48.4	3	13			2				EZH050...
	S060X- SCLCR04-070EZP	●	7	6	5.7	10	54.4	3.5	13	0.2	No	2	SB-2035TR	FT-6	CC□T1411... CC□W1411...	EZH060...
	S070X- SCLCR04-080EZP	●	8	7	6.7	10.3	60.4	4	11							EZH070...
	S080X- SCLCR06-100EZP	●	10	8	7.5	13.3	69.5	5	14	0.4	No	3	SB-2545TR	FT-8	CC□T215..., CC□W215...	EZH080...

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

C-SCLC-EZP Carbide Shank Bar (Boring)



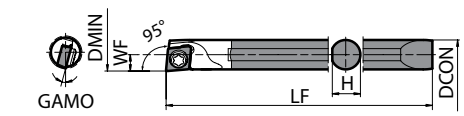
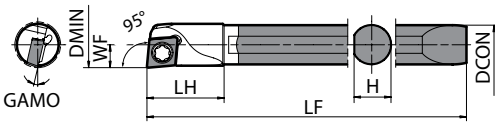


Fig. 1



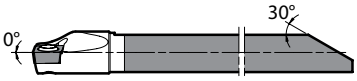
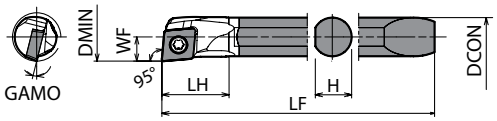


Fig. 2



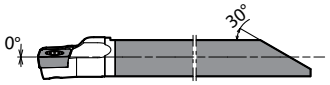


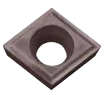
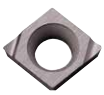
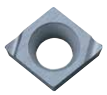
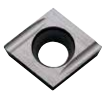
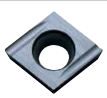
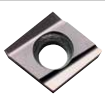
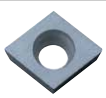
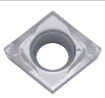
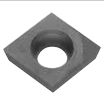
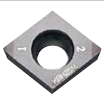
Fig. 3

Right-hand shown | Left-hand Insert for Right-hand Toolholder. | Max. Overhang Length L/D=~5

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts		Applicable Inserts	Applicable Sleeve ➡ F41 F43 F45
			R	DMIN	DCON	H	LH	LF	WF					Screw	Wrench		
mm	C045X- SCLCR03-050EZP	●	5	4.5	4.3	-	51.4	2.5	15	0.2	No	1	SB-1635TR	FT-6	CC□T1109... CC□W1109...	EZH045...
	C050X SCLCR03-060EZP	●	6	5	4.7	9	58.4	3	13			2				EZH050...
	C060X- SCLCR04-070EZP	●	7	6	5.7	10	66.4	3.5	13	0.2	No	2	SB-2035TR	FT-6	CC□T1411... CC□W1411...	EZH060...
	C070X SCLCR04-080EZP	●	8	7	6.7	10.3	74.4	4	11							EZH070...
	C080X- SCLCR06-100EZP	●	10	8	7.5	13.3	85.5	5	14	0.4	No	3	SB-2545TR	FT-8	CC□T215..., CC□W215...	EZH080...

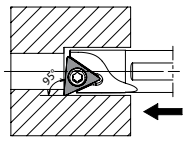
Applicable Inserts (S-SCLC-EZP / C- SCLC-EZP)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing
Insert								
Chipbreaker Type	CF	PF	GF	SKS	SK	CK	GQ	WP
Page	B58	B58	B58	B59	B59	B59	B59	B60
Applications	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing	Low Feed
Insert								
Chipbreaker Type	PP	GK	HQ	Standard	MF	L-F	L-FSF	L-U
Page	B60	B60	B60	B60	B61	B62	B61	B63~B65
Applications	Low Feed	Low Feed	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker Type	L-USF	L-J	No Chipbreaker	AP	PCD	CBN		
Page	B63	B65	B66	B66	C39	C20		

Recommended Cutting Conditions ➡ F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-STLB(P)-EZP Steel Shank Bar (Boring)



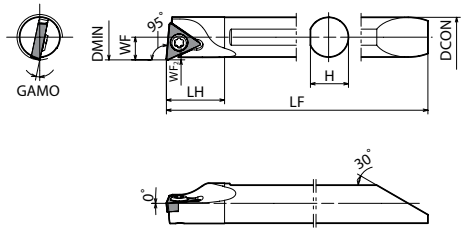


Fig. 1

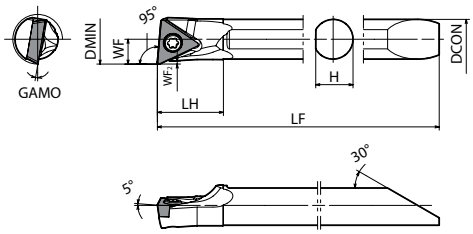


Fig. 2

Right-hand shown | Left-hand Insert for Right-hand Toolholder. | Max. Overhang Length L/D=~3

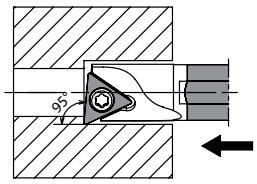
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts		Applicable Inserts	Applicable Sleeve
			R	DMIN	DCON	H	LH	LF	WF	WF_2					Screw	Wrench		
mm	S070X- STLBR06-080EZP	●	8	7	6.7	10.3	60.4	4	0.4	12	0.2	No	1	SB-2035TR	FT-6	TB□T121... TB□W121...	EZH070...
	S080X- STLPR09-100EZP	●	10	8	7.5	13.3	69.5	5	0.5	10	0.4	No	2	SB-2545TR	FT-8	TP□B1815..., TP□H1815... TP□T1815..., TP□X1815...	EZH080...

Applicable Sleeve: **F41** **F43** **F45**

TB□□1212.. type inserts can not be used.
Use Right-handed P Chipbreaker
For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

C-STLB(P)-EZP Carbide Shank Bar (Boring)



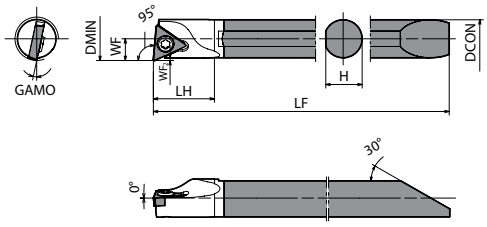


Fig. 1

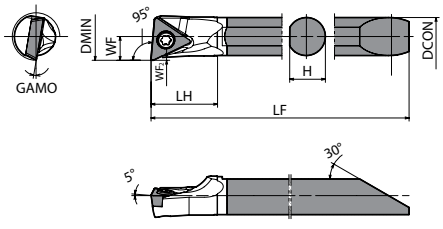


Fig. 2

Right-hand shown | Left-hand Insert for Right-hand Toolholder. | Max. Overhang Length L/D=~5

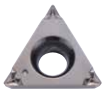
Toolholder Dimensions

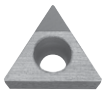
Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts		Applicable Inserts	Applicable Sleeve ➡ F41 F43 F45
														Screw	Wrench		
		R	DMIN	DCON	H	LH	LF	WF	WF_2								
mm	C070X- STLBR06-080EZP	●	8	7	6.7	11	74.4	4	0.4	12	0.2	No	1	SB-2035TR	FT-6	TB□T121... TB□W121...	EZH070...
	C080X- STLPR09-100EZP	●	10	8	7.5	14	85.5	5	0.5	10	0.4	No	2	SB-2545TR	FT-8	TP□B1815..., TP□H1815... TP□T1815..., TP□X1815...	EZH080...

TB□□1212.. type inserts can not be used.
Use Right-handed P Chipbreaker
For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts (S-STLB(P)-EZP / C-STLB(P)-EZP)

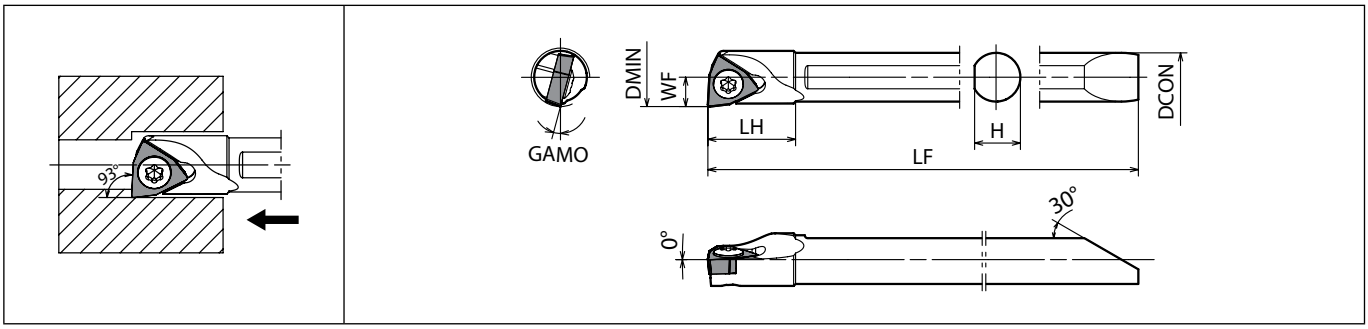
Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium
Insert								
Chipbreaker Type	CF	PF	WP	PP	R-P	GP	DP	HQ
Page	B84, B88	B84, B88	B88	B88	B92	B89	B84	B89

Applications	Finishing	Medium	Low Carbon Steel	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials
Insert							
Chipbreaker Type	L	L-H	XP	No Chipbreaker	AP	PCD	CBN
Page	B84, B90, B91	B93	B89	B84, B94	B94	C44, C46,C47	C23

Recommended Cutting Conditions ➡ **F174, F175**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SWUB-EZP Steel Shank Bar (Boring)

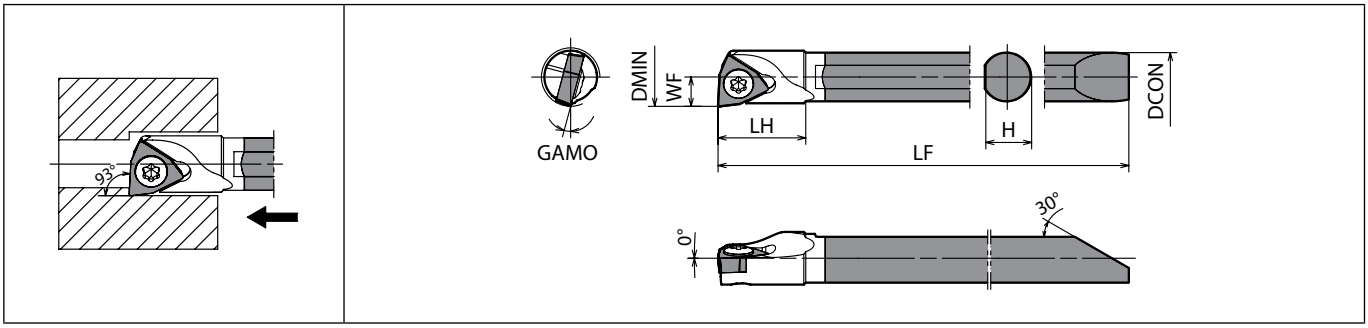


Right-hand shown | Left-hand Insert for Right-hand Toolholder. | Max. Overhang Length L/D=~3

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts	Applicable Sleeve ➡ F41 F43 F45
			R	DMIN	DCON	H	LH	LF	WF				Screw	Wrench		
mm	S050X- SWUBR06-060EZP	●	6	5	4.7	9	48.4	3	15	0.2	No	SB-2035TR	FT-6	WB□T121... WB□W121...	EZH050...	
	S060X- SWUBR06-070EZP	●	7	6	5.7	10	54.4	3.5	13						EZH060...	
	S070X- SWUBR08-080EZP	●	8	7	6.7	10.3	60.4	4	15	0.2	No	SB-2035TR	FT-6	WB□T1515..., WB□W1515...	EZH070...	

C-SWUB-EZP Carbide Shank Bar (Boring)



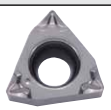
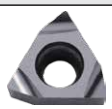
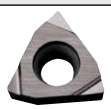
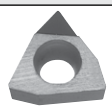
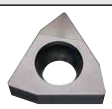
Right-hand shown | Left-hand Insert for Right-hand Toolholder. | Max. Overhang Length L/D=~5

Toolholder Dimensions

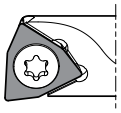
Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts	Applicable Sleeve ➡ F41 F43 F45
			R	DMIN	DCON	H	LH	LF	WF				Screw	Wrench		
mm	C050X- SWUBR06-060EZP	●	6	5	4.7	9	58.4	3	15	0.2	No	SB-2035TR	FT-6	WB□T121... WB□W121...	EZH050...	
	C060X- SWUBR06-070EZP	●	7	6	5.7	10	66.4	3.5	13						EZH060...	
	C070X- SWUBR08-080EZP	●	8	7	6.7	11	74.4	4	15	0.2	No	SB-2035TR	FT-6	WB□T1515..., WB□W1515...	EZH070...	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts (S-SWUB-EZP / C-SWUB-EZP)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Cast Iron	Non-Ferrous Metals	Hard Materials
Insert								
Chipbreaker Type	L-CF	L-PF	L-DP	L-P	L-F	No Chipbreaker	PCD	CBN
Page	B105	B105	B105	B106	B106	B106	C51	C28

Recommended Cutting Conditions ➡ F174, F175



----SWUBR12---- Insert mounting side
Right-hand shown

How to mount EZ Bars

How to use adjustment pin (Fig. 1)

1. Put the adjustment pin into the hole.
2. Push it into the sleeve, using the wrench (LW-1.5).
3. Tightening the clamp screw (HS3X4P) with wrench (LW-1.5) to fix the adjustment pin.

How to fix bar (Fig. 2)

1. With the chip pocket upward, set the bar into the sleeve. Press the slant of the end of the bar with the adjustment pin. Make sure that the bar does not move (Fig. 3)
2. Tighten the clamp screw with wrench (LW-2) and fix the bar. Use LW-1.5 if shank dia.is 3 mm or less.

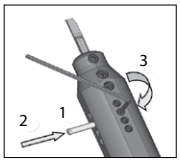


Fig. 1
How to use adjustment pin

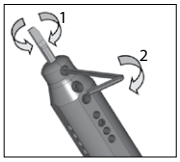


Fig. 2
How to fix bar

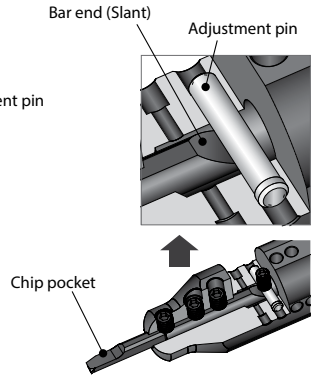
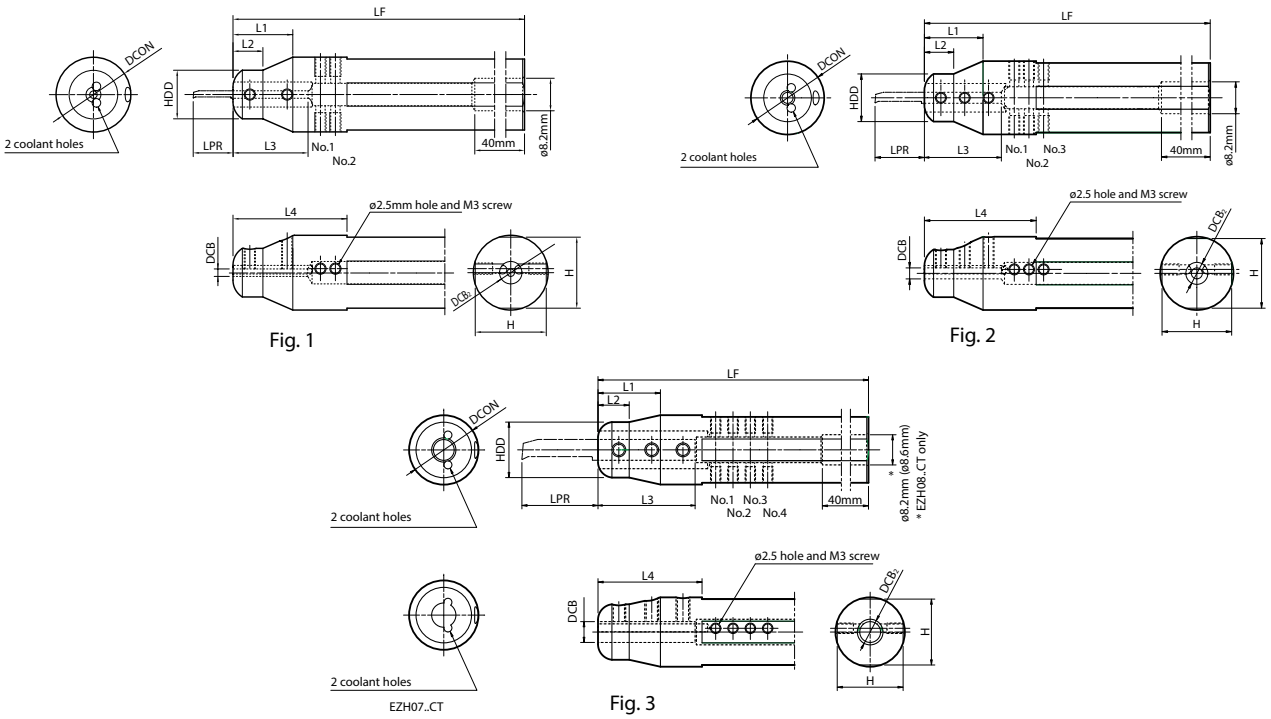


Fig. 3: Fixed bar

EZH-CT (Adjustable, Coolant-Through)



Sleeve Dimensions

Unit	Part Number	Std. Item	Dimensions													Fig.	Applicable EZ Bars
			DCB	DCB2	DCON	H	HDD	LF	L1	L2	L3	L4	LPR No.1	LPR No.2	LPR No.3		
mm	EZH 01719CT-120	●	1.7	6	0.75"	18	13	120	16	8	16	30.5	7.5	3.5	-	1	EZBR...017...
	01720CT-120	●			20	19											
	01722CT-135	●			22	21		135				41.5					
	01725.0CT-135	●			25	24						30.5					
	01725.4CT-120	●			1.00"	24.4		120									
	EZH 02019CT-120	●	2	6	0.75"	18	13	120	16	8	20	30.5	8.5	4.5	-	1	EZB□...020... EZBPR...020...
	02020CT-120	●			20	19											
	02022CT-135	●			22	21		135				41.5					
	02025.0CT-135	●			25	24						30.5					
	02025.4CT-120	●			1.00"	24.4		120									
	EZH 02519CT-120	●	2.5	6	0.75"	18	13	120	16	8	20	30.5	11	7	-	1	EZB□...025... EZTR...025...
	02520CT-120	●			20	19											
	02522CT-135	●			22	21		135				41.5					
	02525.0CT-135	●			25	24						30.5					
	02525.4CT-120	●			1.00"	24.4		120									
	EZH 03019CT-120	●	3	6	0.75"	18	13	120	16	8	21	30.5	13.5	9.5	5.5	2	EZB□...030... EZBFR...030... EZBPR...030... EZVBR...030... EZGR...030... EZTR...030...
	03020CT-135	●			20	19											
	03022CT-135	●			22	21		135				41.5					
	03025.0CT-135	●			25	24						30.5					
	03025.4CT-120	●			1.00"	24.4		120									
	EZH 03519CT-120	●	3.5	6	0.75"	18	13	120	16	8	21	31.1	15.5	11.5	7.5	2	EZB□...035... EZTR...035...
	03520CT-120	●			20	19											
	03522CT-135	●			22	21		135				41.5					
	03525.0CT-135	●			25	24						31.1					
	03525.4CT-120	●			1.00"	24.4		120									

L3 shows DCB length.
LPR shows overhang length of the EZB Bar when attached to sleeve.
Choose sleeves (DCB) to meet with DCON dimension of bar.
A hole on the rear end of sleeve is prepared hole for Rc1/8 threading. Please modify by additional processing if necessary. The body hardness is 42HRC.
For how to mount EZ Bars (EZH-CT sleeve), please refer to **F8**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

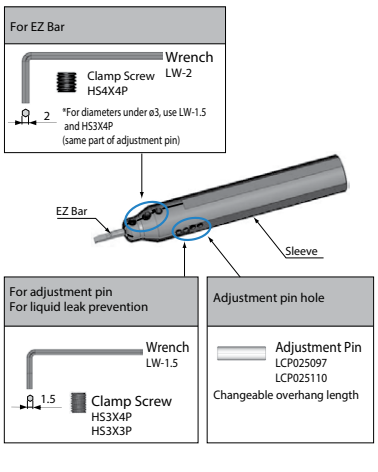
Sleeve Dimensions

Unit	Part Number	Std. Item	Dimensions DCB	DCB2	DCON	H	HDD	LF	L1	L2	L3	L4	LPR No.1	LPR No.2	LPR No.3	LPR No.4	Fig.	Applicable EZ Bars ➡ F18~F38 ➡ G75, G99 ➡ J44
mm	EZH 04019CT-120	●	4	6	0.75"	18	13	120	16	8	22	32.7	20.5	16.5	12.5	8.5	3	EZBR010040..., EZBR015040... EZB□...040..., EZBFR...040... EZBPR...040..., EZVBR...040... EZBTR...040..., EZG□...040... EZFG□...040..., EZTR...040...
	04020CT-120	●			20	19												
	04022CT-135	●			22	21		135				41.5						
	04025.0CT-135	●			25	24												
	04025.4CT-120	●			1.00"	24.4		120				32.7						
	EZH 04519CT-120	●	4.5	6	0.75"	18	16	120	18	9	23	30	23 (14)	18.5 (9.5)	14 (-)	9.5 (-)	3	EZB□...045... _045X...-050EZP
	04520CT-120	●			20	19												
	04522CT-135	●			22	21		135				44						
	04525.0CT-135	●			25	24												
	04525.4CT-120	●			1.00"	24.4		120				30						
	EZH 05019CT-120	●	5	6	0.75"	18	16	120	18	9	26	30	25.5 (15.5)	20.5 (10.5)	15.5 (-)	10.5 (-)	3	EZB□...050..., EZBFR...050... EZBPR...050..., EZBCR...050... EZVBR...050..., EZBTR...050... _050X...-060EZP, EZG□...050... EZFG□...050..., EZTR...050...
	05020CT-120	●			20	19												
	05022CT-135	●			22	21		135				44						
	05025.0CT-135	●			25	24												
	05025.4CT-120	●			1.00"	24.4		120				30						
	EZH 06019CT-120	●	6	7.4	0.75"	18	16	120	18	9	28	30	30.5 (18.5)	25.5 (13.5)	20.5 (-)	15.5 (-)	3	EZB□...060..., EZBFR...060... EZBPR...060..., EZBCR...060... EZVBR...060..., _060X...-070EZP EZG□...060..., EZTR...060...
	06020CT-120	●			20	19												
	06022CT-135	●			22	21		135				41.5						
	06025.0CT-135	●			25	24												
	06025.4CT-120	●			1.00"	24.4		120				30						
	EZH 07019CT-120	●	7	7.4	0.75"	18	16	120	18	9	29	30	35.5 (21.5)	30.5 (16.5)	25.5 (11.5)	20.5 (-)	3	EZB□...070..., EZBCR...070... _070X...-080EZP, EZG□...070... EZFG□...070..., EZTR...070...
	07020CT-120	●			20	19												
	07022CT-135	●			22	21		135				44						
	07025.0CT-135	●			25	24												
	07025.4CT-120	●			1.00"	24.4		120				30						
	EZH 08019CT-120	●	8	8.6	0.75"	18	16	120	18	9	33	34	40.5 (24.5)	35.5 (19.5)	30.5 (14.5)	25.5 (-)	3	EZB□...080... _080X...-100EZP
	08020CT-120	●			20	19												
	08022CT-135	●			22	21		135				44						
	08025.0CT-135	●			25	24												
	08025.4CT-120	●			1.00"	24.4		120				34						

L3 shows DCB length.
LPR shows overhang length of the EZB Bar when attached to sleeve. ( ) value indicates the overhang length when installed the steel boring bar (EZ Bar PLUS).
Choose sleeves (DCB) to meet with DCON dimension of bar.
A hole on the rear end of sleeve is prepared hole for Rc1/8 threading. Please modify by additional processing if necessary. The body hardness is 42HRC.
For how to mount EZ Bars (EZH-CT sleeve), please refer to **F8**.

Spare Parts Part Number (for EZH-CT Sleeves)

Part Number	Spare Parts: Adjustment Pin	Clamp Screw (for adjustment pin)	Wrench	Clamp Screw (for bar)	Wrench
EZH 017...CT-.. 020...CT-.. 025...CT-.. 030...CT-..	LCP025097	HS3X4P (for adjustment pin and liquid leak prevention)	LW-1.5 Tightening Torque 1N·m	HS3X4P	LW-1.5 Tightening Torque 1N·m
EZH 035...CT-.. 040...CT-.. 045...CT-.. 050...CT-.. 060...CT-.. 070...CT-..	LCP025097	HS3X4P (for adjustment pin and liquid leak prevention)	LW-1.5 Tightening Torque 1N·m	HS4X4P (for bar)	LW-2 Tightening Torque 2N·m
080...CT-..	LCP025110	HS3X3P (for adjustment pin and liquid leak prevention)			

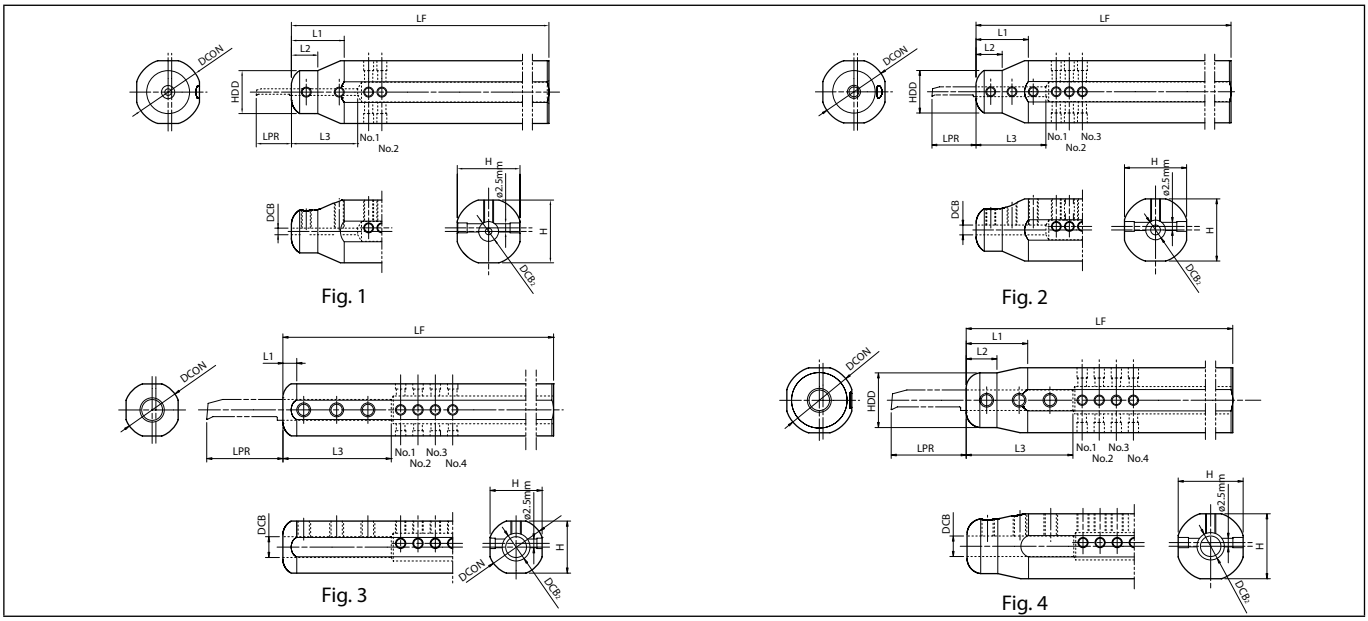


1) If shank dia. is ø2.5mm or less, use clamp screw (HS3X4P)
For adjustment pin 2 pcs
For liquid leak prevention 2 pcs
For EZ Bar 2 pcs

2) If shank dia. is ø3mm, use clamp screw (HS3X4P)
For adjustment pin 2 pcs
For liquid leak prevention 4 pcs
For EZ Bar 3 pcs

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZH-HP (Adjustable)



Sleeve Dimensions

Unit	Part Number		Std. Item	Dimensions DCB	DCB2	DCON	H	HDD	LF	L1	L2	L3	LPR No.1	LPR No.2	LPR No.3	LPR No.4	Fig.	Applicable EZ Bars ➡ F18~F28, F30 ➡ G75 ➡ J44
mm	EZH	01716HP-100	●	1.7	6	16	15	13	100	16	8	16	7.5	3.5	-	-	1	EZBR...017...
		01719HP-120	●			0.75"	18		120									
		01720HP-120	●			20	19											
		01722HP-135	●			22	21		135									
		01725.0HP-135	●			25	24											
		01725.4HP-120	●			1.00"	24.4		120									
	EZH	02016HP-100	●	2	6	16	15	13	100	16	8	20	8.5	4.5	-	-	1	EZB□...020... EZBPR...020...
		02019HP-120	●			0.75"	18		120									
		02020HP-120	●			20	19											
		02022HP-135	●			22	21		135									
		02025.0HP-135	●			25	24											
		02025.4HP-120	●			1.00"	24.4		120									
	EZH	02516HP-100	●	2.5	6	16	15	13	100	16	8	20	11	7	-	-	1	EZB□...025... EZTR...025...
		02519HP-120	●			0.75"	18		120									
		02520HP-120	●			20	19											
		02522HP-135	●			22	21		135									
		02525.0HP-135	●			25	24											
		02525.4HP-120	●			1.00"	24.4		120									
	EZH	03016HP-100	●	3	6	16	15	13	100	16	8	21	13.5	9.5	5.5	-	2	EZB□...030... EZBFR...030... EZBPR...030... EZVBR...030... EZGR...030... EZTR...030...
		03019HP-120	●			0.75"	18		120									
		03020HP-120	●			20	19											
		03022HP-135	●			22	21		135									
		03025.0HP-135	●			25	24											
		03025.4HP-120	●			1.00"	24.4		120									
	EZH	03516HP-100	●	3.5	6	16	15	13	100	16	8	22	15.5	11.5	7.5	-	2	EZB□...035... EZTR...035...
		03519HP-120	●			0.75"	18		120									
		03520HP-120	●			20	19											
		03522HP-135	●			22	21		135									
		03525.0HP-135	●			25	24											
		03525.4HP-120	●			1.00"	24.4		120									

L3 shows DCB length.
LPR shows overhang length of the EZB Bar when attached to sleeve.
Choose sleeves (DCB) to meet with DCON dimension of bar.
For how to mount EZ Bars (EZH-HP sleeve), please refer to **F39**.

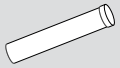
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Sleeve Dimensions

Unit	Part Number	Std. Item	Dimensions									LPR				Fig.	Applicable EZ Bars ➔ F18~F38 ➔ G75, G99 ➔ J44
			DCB	DCB2	DCON	H	HDD	LF	L1	L2	L3	No.1	No.2	No.3	No.4		
mm	EZH 04016HP-100	●	4	6	16	15	13	100	16	8	24	20.5	16.5	12.5	8.5	4	EZBR010040..., EZBR015040... EZB□...040..., EZBFR...040... EZBPR...040..., EZVBR...040... EZBTR...040..., EZG□...040... EZFG□...040..., EZTR...040...
	04019HP-120	●			0.75"	18		120									
	04020HP-120	●			20	19											
	04022HP-135	●			22	21		135									
	04025.0HP-135	●			25	24											
	04025.4HP-120	●			1.00"	24.4		120									
	EZH 04516HP-100	●	4.5	6	16	15	16	100	4	-	25.3	23 (14)	18.5 (9.5)	14 (-)	9.5 (-)	3	EZB□...045... _045X...-050EZP
	04519HP-120	●			0.75"	18		120	18	9						4	
	04520HP-120	●			20	19											
	04522HP-135	●			22	21		135									
	04525.0HP-135	●			25	24											
	04525.4HP-120	●			1.00"	24.4		120									
	EZH 05016HP-100	●	5	6	16	15	16	100	4	-	29	25.5 (15.5)	20.5 (10.5)	15.5 (-)	10.5 (-)	3	EZB□...050..., EZBFR...050... EZBPR...050..., EZBCR...050... EZVBR...050..., EZBTR...050... _050X...-060EZP, EZG□...050... EZFG□...050..., EZTR...050...
	05019HP-120	●			0.75"	18		120	18	9						4	
	05020HP-120	●			20	19											
	05022HP-135	●			22	21		135									
	05025.0HP-135	●			25	24											
	05025.4HP-120	●			1.00"	24.4		120									
	EZH 06016HP-100	●	6	8	16	15	16	100	4	-	31	30.5 (18.5)	25.5 (13.5)	20.5 (-)	15.5 (-)	3	EZB□...060..., EZBFR...060... EZBPR...060..., EZBCR...060... EZVBR...060..., _060X...-070EZP EZG□...060..., EZTR...060...
	06019HP-120	●			0.75"	18		120	18	9						4	
	06020HP-120	●			20	19											
	06022HP-135	●			22	21		135									
	06025.0HP-135	●			25	24											
	06025.4HP-120	●			1.00"	24.4		120									
	EZH 07016HP-100	●	7	8	16	15	16	100	4	-	33	35.5 (21.5)	30.5 (16.5)	25.5 (11.5)	20.5 (-)	3	EZB□...070..., EZBCR...070... _070X...-080EZP, EZG□...070... EZFG□...070..., EZTR...070...
	07019HP-120	●			0.75"	18		120	18	9						4	
	07020HP-120	●			20	19											
	07022HP-135	●			22	21		135									
	07025.0HP-135	●			25	24											
	07025.4HP-120	●			1.00"	24.4		120									
	EZH 08019HP-120	●	8	8.4	0.75"	18	16	120	18	9	37	40.5 (24.5)	35.5 (19.5)	30.5 (14.5)	25.5 (-)	4	EZB□...080... _080X...-100EZP
	08020HP-120	●			20	19											
	08022HP-135	●			22	21		135									
	08025.0HP-135	●			25	24											
	08025.4HP-120	●			1.00"	24.4		120									

L3 shows DCB length.
LPR shows overhang length of the EZB Bar when attached to sleeve. ( ) value indicates the overhang length when installed the steel boring bar (EZ Bar PLUS).
Choose sleeves (DCB) to meet with DCON dimension of bar.
For how to mount EZ Bars (EZH-HP sleeve), please refer to **F39**.

Spare Parts Part Number (for EZH-HP Sleeves)

Part Number		Spare Parts: Adjustment Pin	Clamp Screw (for Adjustment Pin)	Wrench	Clamp Screw (for Bar)	Wrench	Applicable EZ Bars / EZ Bar PLUS	
								
EZH	017...HP-..	LCP025140	HS3X4P (for both Adjustment Pin and Bar)	LW-1.5 Tightening Torque 1N·m	HS3X4P	LW-1.5 Tightening Torque 1N·m	EZBR...017...	
	020...HP-..						EZB□...020...	EZ_R...020-...
	025...HP-..						EZB□...025...	EZ_R...025-...
	030...HP-..						EZB□...030...	EZ_R...030-...
EZH	035...HP-..	LCP025140	HS3X4P	LW-1.5 Tightening Torque 1N·m	HS4X4P	LW-2 Tightening Torque 2N·m	EZB□...035...	EZ_R...035-...
	040...HP-..						EZB□...040...	EZ_□...040-...
	045...HP-..						EZB□...045...	_045X-...-050EZP
	050...HP-..						EZB□...050... _050X-...-060EZP	EZ_□...050-...
	060...HP-..						EZB□...060... _060X-...-070EZP	EZ_□...060-...
	070...HP-..						EZB□...070... _070X-...-080EZP	EZ_□...070-...
	080...HP-..						EZB□...080...	_080X-...-100EZP

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZH-ST (Not Adjustable)

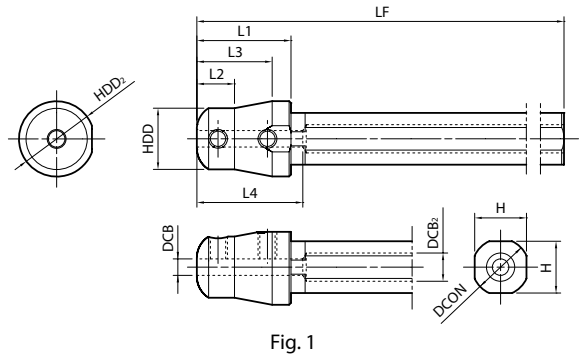


Fig. 1

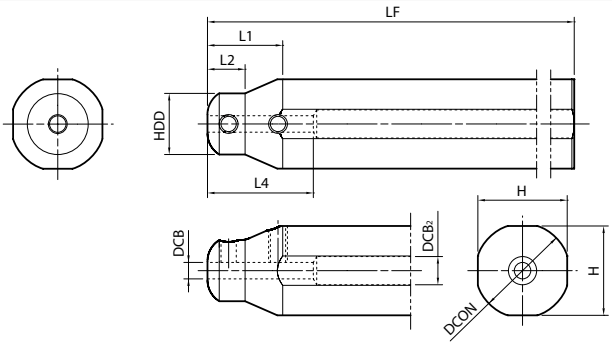


Fig. 2

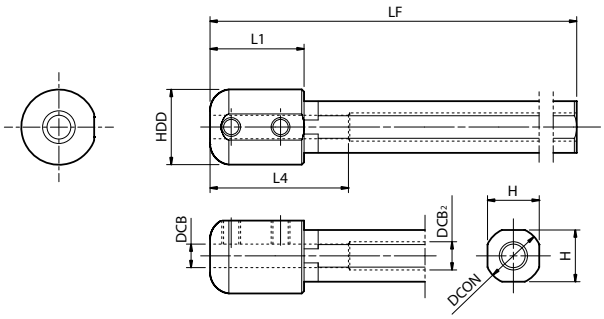


Fig. 3

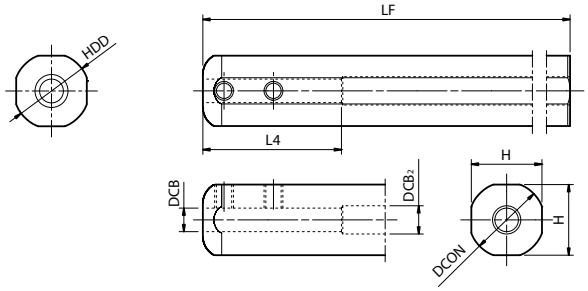


Fig. 4

Sleeve Dimensions

Unit	Part Number		Std. Item	Dimensions DCB	DCB2	DCON	H	HDD	HDD2	LF	L1	L2	L3	L4	Fig.	Applicable EZ Bars ➡ F18~F28, F30 ➡ G75 ➡ J44
mm	EZH	01712ST-80	●	1.7	6	12	11	13	16	80	20	16	8	16	1	EZBR...017...
		01716ST-100	●			16	15		-	100	16	-			2	
		01719ST-120	●			0.75"	18			120						
		01720ST-120	●			20	19									
		01722ST-135	●			22	21			135						
		01725.0ST-135	●			25	24									
		01725.4ST-120	●			1.00"	24.4			120						
	EZH	02012ST-80	●	2	6	12	11	13	16	80	20	16	8	20	1	EZB R/L ...020... EZBPR...020...
		02016ST-100	●			16	15		-	100	16	-			2	
		02019ST-120	●			0.75"	18			120						
		02020ST-120	●			20	19									
		02022ST-135	●			22	21			135						
		02025.0ST-135	●			25	24									
		02025.4ST-120	●			1.00"	24.4			120						
	EZH	02512ST-80	●	2.5	6	12	11	13	16	80	20	16	8	20	1	EZB R/L ...025... EZTR...025...
		02516ST-100	●			16	15		-	100	16	-			2	
		02519ST-120	●			0.75"	18			120						
		02520ST-120	●			20	19									
		02522ST-135	●			22	21			135						
		02525.0ST-135	●			25	24									
		02525.4ST-120	●			1.00"	24.4			120						
	EZH	03012ST-80	●	3	6	12	11	13	16	80	20	16	8	21	1	EZB R/L ...030... EZBFR...030... EZBPR...030... EZVBR...030... EZGR...030... EZTR...030...
		03016ST-100	●			16	15		-	100	16	-			2	
		03019ST-120	●			0.75"	18			120						
		03020ST-120	●			20	19									
		03022ST-135	●			22	21			135						
		03025.0ST-135	●			25	24									
		03025.4ST-120	●			1.00"	24.4			120						

L4 shows DCB length.
Choose sleeves (DCB) to meet with DCON dimension of bar.
Adjustment pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT / HP sleeves.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Sleeve Dimensions

Unit	Part Number	Std. Item	Dimensions DCB	DCB2	DCON	H	HDD	HDD2	LF	L1	L2	L3	L4	Fig.	Applicable EZ Bars F18~F38 G75, G99 J44
mm	EZH 03512ST-80	●	3.5	6	12	11	13	16	80	20	8	16	22	1	EZB□...035... EZTR...035...
	03516ST-100	●			16	15		-	100	16		-		2	
	03519ST-120	●			0.75"	18			120						
	03520ST-120	●			20	19									
	03522ST-135	●			22	21			135						
	03525.0ST-135	●			25	24									
	03525.4ST-120	●			1.00"	24.4			120						
	EZH 04012ST-80	●	4	6	12	11	13	16	80	20	8	16	24	1	EZBR010040..., EZBR015040... EZB□...040..., EZBFR...040... EZBPR...040..., EZVBR...040... EZBTR...040..., EZG□...040... EZFG□...040..., EZTR...040...
	04016ST-100	●			16	15		-	100	16		-		2	
	04019ST-120	●			0.75"	18			120						
	04020ST-120	●			20	19									
	04022ST-135	●			22	21			135						
	04025.0ST-135	●			25	24									
	04025.4ST-120	●			1.00"	24.4			120						
	EZH 05012ST-80	●	5	6	12	11	16	-	80	20	9	-	29	3	EZB□...050..., EZBFR...050... EZBPR...050..., EZBCR...050... EZVBR...050..., EZBTR...050... _050X...-060EZP, EZG□...050... EZFG□...050..., EZTR...050...
	05016ST-100	●			16	15			100	-				4	
	05019ST-120	●			0.75"	18			120	18				2	
	05020ST-120	●			20	19									
	05022ST-135	●			22	21			135						
	05025.0ST-135	●			25	24									
	05025.4ST-120	●			1.00"	24.4			120						
	EZH 06012ST-80	●	6	8	12	11	16	-	80	20	9	-	31	3	EZB□...060..., EZBFR...060... EZBPR...060..., EZBCR...060... EZVBR...060..., _060X...-070EZP EZG□...060..., EZTR...060...
	06016ST-100	●			16	15			100	-				4	
	06019ST-120	●			0.75"	18			120	18				2	
	06020ST-120	●			20	19									
	06022ST-135	●			22	21			135						
	06025.0ST-135	●			25	24									
	06025.4ST-120	●			1.00"	24.4			120						
	EZH 07012ST-80	●	7	8	12	11	16	-	80	20	9	-	33	3	EZB□...070..., EZBCR...070... _070X...-080EZP, EZG□...070... EZFG□...070..., EZTR...070...
	07016ST-100	●			16	15			100	-				4	
	07019ST-120	●			0.75"	18			120	18				2	
	07020ST-120	●			20	19									
	07022ST-135	●			22	21			135						
	07025.0ST-135	●			25	24									
	07025.4ST-120	●			1.00"	24.4			120						
	EZH 08016ST-100	●	8	8.4	16	15	16	-	100	-	9	-	37	4	EZB□...080... _080X...-100EZP
	08019ST-120	●			0.75"	18			120	18				2	
	08020ST-120	●			20	19									
	08022ST-135	●			22	21			135						
	08025.0ST-135	●			25	24									
	08025.4ST-120	●			1.00"	24.4			120						

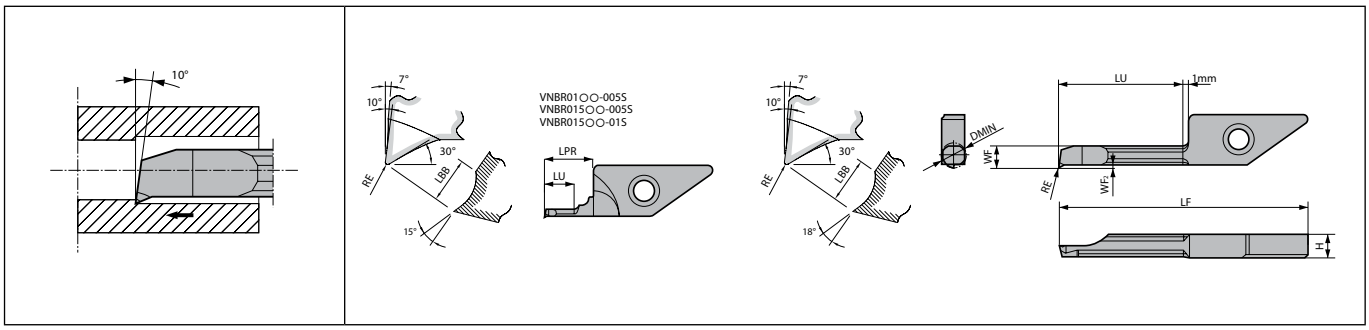
L4 shows DCB length.
Choose sleeves (DCB) to meet with DCON dimension of bar.
Adjustment pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT / HP sleeves.

Spare Parts Part Number (for EZH-ST Sleeves)

Part Number	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable EZ Bars: EZB-HP / EZB-HP-LT / EZB-ST / EZB-NB	Applicable EZ Bars: EZBT / EZBF / EZBP / EZBC / EZVB / EZG / EZFG / EZT	EZ Bar PLUS: S/C-SCLC / S/C-STLB(P) / S/C-SWUB
EZH 017...ST-..	HS3X4P	LW-1.5 Tightening Torque 1N-m	EZBR...017...	-	-
020...ST-..			EZB□...020...	EZ_R...020-...	
025...ST-..			EZB□...025...	EZTR...025-...	-
030...ST-..			EZB□...030...	EZ_R...030-...	-
EZH 035...ST-..	HS4X4P	LW-2 Tightening Torque 2N-m	EZB□...035...	EZTR...035-...	-
040...ST-..			EZB□...040...	EZ_□...040-...	-
050...ST-..			EZB□...050...	EZ_□...050-...	_050X-...-060EZP
060...ST-..			EZB□...060...	EZ_□...060-...	_060X-...-070EZP
070...ST-..			EZB□...070...	EZ_□...070-...	_070X-...-080EZP
080...ST-..			EZB□...080...	-	_080X-...-100EZP

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

VNB-S (Boring)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions									Tolerance (mm)		Carbide		Applicable Toolholder ➡ F50~F53
			DMIN	H	LPR	LBB	LF	LU	WF	WF_2	RE	RE min.	RE max.	PVD PR1225	PVD PR930	
mm	VNBR 0103-005S	1	1	3.9	7	0.7	26.5	3	0.85	0.2	0.05	- 0.02	0	●	●	SVNR...-12N S...-SVNR12N S...-SVNR12SN
	VNBR 0105-005S	1	1	3.9	7	0.7	26.5	5	0.85	0.2	0.05	- 0.02	0	●	●	
	VNBR 01503-005S	1	1.5	3.9	7	0.7	26.5	3	1.3	0.2	0.05	- 0.02	0	●	●	
	01503-01S							3			0.1	- 0.03		●	●	
	01505-005S							5			0.05	- 0.02		●	●	
	01505-01S							5			0.1	- 0.03		●	●	
	VNBR 0206-005S	1	2	3.9	-	0.8	26.5	6	1.8	0.25	0.05	- 0.02	0	●	●	SVNR...-12N, SVNSR-12-06N S...-SVNR12N, S...-SVNR12SN
	0206-01S										0.1	- 0.03		●	●	
	VNBR 025075-005S	1	2.5	3.9	-	0.8	28.1	7.5	2.1	0.4	0.05	- 0.02	0	●	●	SVNR...-12NS..., -SVNR12N S...-SVNR12SN
	025075-01S										0.1	- 0.03		●	●	
	VNBR 0311-005S	1	3	3.9	-	0.8	30.8	11	2.6	0.4	0.05	- 0.02	0	●	●	SVNR...-12N, SVNSR-12-11N S...-SVNR12N, S...-SVNR12SN
	0311-01S										0.1	- 0.03		●	●	
	VNBR 03515-005S	1	3.5	3.9	-	0.8	34.8	15	3	0.5	0.05	- 0.02	0	●	●	SVNR...-12NS..., -SVNR12N S...-SVNR12SN
	03515-01S										0.1	- 0.03		●	●	
	VNBR 0411-005S	1	4	3.66	-	0.8	30.8	11	3.5	0.5	0.05	- 0.02	0	●	●	SVNR...-12N, SVNSR-12-11N S...-SVNR12N, S...-SVNR12SN
	0411-01S										0.1	- 0.03		●	●	
	0411-02S										0.2	- 0.04		●	●	
	VNBR 0420-005S	1	4	3.66	-	0.8	39.8	20	3.5	0.5	0.05	- 0.02	0	●	●	SVNR...-12N, SVNSR-12-20N S...-SVNR12N, S...-SVNR12SN
	0420-01S										0.1	- 0.03		●	●	
	0420-02S										0.2	- 0.04		●	●	

Recommended Cutting Conditions (VNB-S)

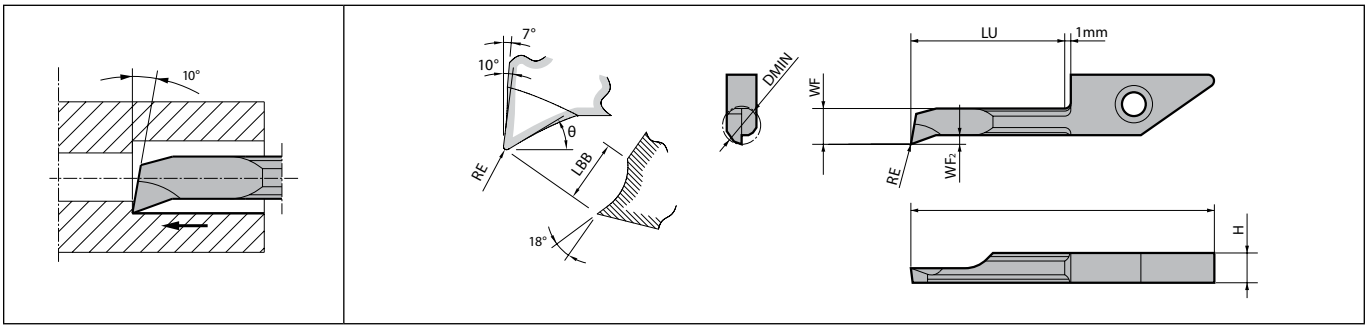
Workpiece Material	Insert Grades (Vc: sfm)		VNB01-S VNB015-S		VNB02-S ~ VNB04-S		Notes
	MEGACOAT	PVD coated carbide	D.O.C. (in), f (ipr)				
	PR1225	PR930	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	★ 100~390	☆ 100~330	~0.0039	~0.0004	~0.0079	~0.0012	Coolant
Stainless Steel	★ 100~300	☆ 100~260	~0.0039	~0.0004	~0.0079	~0.0008	

★1st recommendation ☆2nd recommendation

Swiss IQ Bars are sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

VNB (Boring)



Right-hand shown

Dimensions

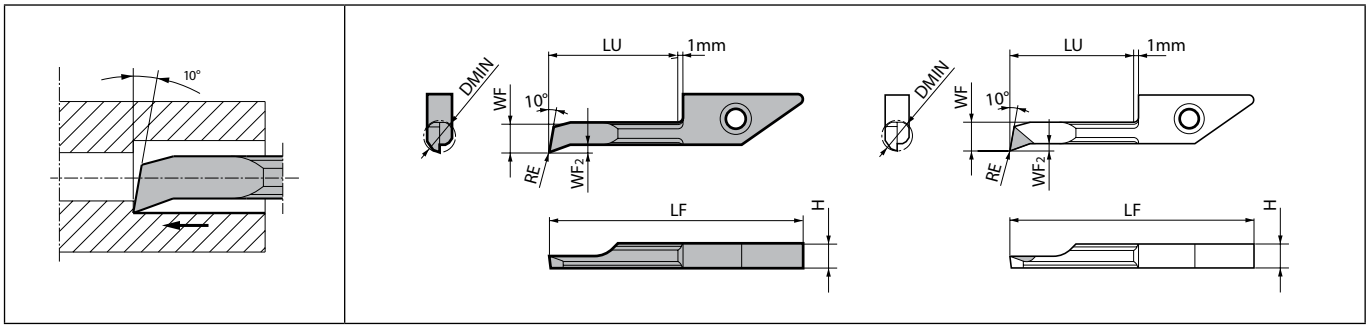
Unit	Part Number	No. of Edges	Dimensions								Angle	Carbide			Applicable Toolholder ➡ F50~F53
			DMIN	H	LBB	LF	LU	WF	WF_2	RE	θ (°)	PVD PR1225	PVD PR930	- KW10	
mm	VNBR 0206-003	1	2	3.9	1.2	26.5	6	1.8	0.25	0.03	24	●	●	●	SVNR...-12N, SVNSR-12-06N S...-SVNR12N, S...-SVNR12SN
	VNBR 0206-01									0.1		●	●	●	
	VNBR 0206-02									0.2		●	●	●	
	VNBR 0311-003	1	3	3.9	1.8	30.8	11	2.6	0.4	0.03	24	●	●	●	SVNR...-12N, SVNSR-12-11N S...-SVNR12N, S...-SVNR12SN
	VNBR 0311-01									0.1		●	●	●	
	VNBR 0311-02									0.2		●	●	●	
	VNBR 0411-003	1	4	3.66	2.7	30.8	11	3.5	0.5	0.03	23	●	●	●	SVNR...-12N, SVNSR-12-11N S...-SVNR12N, S...-SVNR12SN
	VNBR 0411-01									0.1		●	●	●	
	VNBR 0411-02									0.2		●	●	●	
	VNBR 0420-003	1	4	3.66	2.7	39.8	20	3.5	0.5	0.03	23	●	●	●	SVNR...-12N, SVNSR-12-20N S...-SVNR12N, S...-SVNR12SN
	VNBR 0420-01									0.1		●	●	●	
	VNBR 0420-02									0.2		●	●	●	
	VNBR 0511-003	1	5	3.9	3	30.8	11	4.5	0.7	0.03	23	●	●	●	SVNR...-12N, SVNSR-12-11N S...-SVNR12N, S...-SVNR12SN
	VNBR 0511-01									0.1		●	●	●	
	VNBR 0511-02									0.2		●	●	●	
	VNBR 0520-003	1	5	3.9	3	39.8	20	4.5	0.7	0.03	23	●	●	●	SVNR...-12N, SVNSR-12-20N S...-SVNR12N, S...-SVNR12SN
	VNBR 0520-01									0.1		●	●	●	
	VNBR 0520-02									0.2		●	●	●	
	VNBR 0620-003	1	6	3.9	3	39.8	20	5.3	1	0.03	24	●	●	●	SVNR...-12N, SVNSR-12-20N S...-SVNR12N, S...-SVNR12SN
	VNBR 0620-01									0.1		●	●	●	
	VNBR 0620-02									0.2		●	●	●	
	VNBR 0630-003	1	6	3.9	3	49.8	30	5.3	1	0.03	24	●	●	●	SVNR...-12N S...-SVNR12N S...-SVNR12SN
	VNBR 0630-01									0.1		●	●		
	VNBR 0630-02									0.2		●	●	●	
	VNBR 0720-003	1	7	3.9	3	39.8	20	6.2	1	0.03	24		●	●	SVNR...-12N, SVNSR-12-20N S...-SVNR12N, S...-SVNR12SN
	VNBR 0720-01									0.1			●	●	
	VNBR 0720-02									0.2		●	●	●	
	VNBR 0730-003	1	7	3.9	3	49.8	30	6.2	1	0.03	24		●	●	SVNR...-12N S...-SVNR12N S...-SVNR12SN
	VNBR 0730-01									0.1			●		
	VNBR 0730-02									0.2		●	●	●	

Recommended Cutting Conditions ➡ F49

Swiss IQ Bars are sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

VNB-NB (Boring)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions							Angle	Carbide		PCD	Applicable Toolholder ➡ F50~F53
			DMIN	H	LF	LU	WF	WF_2	RE	θ (°)	PVD PR930	- KW10	- KPD001	
mm	VNBR 0206-003NB	1	2	3.9	26.5	6	1.8	0.25	0.03	15	●	●		SVNR...-12N, SVNSR...-12-06N
	0206-02NB								0.2			●		S...-SVNR12(N), S...-SVNR12SN
	VNBR 0311-003NB	1	3	3.9	30.8	11	2.6	0.4	0.03	15	●	●		SVNR...-12N, SVNSR...-12-11(N)
	0311-02NB								0.2			●		S...-SVNR12(N), S...-SVNR12SN
	VNBR 0411-003NB	1	4	3.66	30.8	11	3.5	0.5	0.03	15	●	●		SVNR...-12N, SVNSR...-12-11(N)
	0411-02NB								0.2			●	●	S...-SVNR12(N), S...-SVNR12SN
	VNBR 0420-003NB	1	4	3.66	39.8	20	3.5	0.5	0.03	15	●	●		SVNR...-12N, SVNSR...-12-20(N)
	0420-02NB								0.2			●	●	S...-SVNR12(N), S...-SVNR12SN
	VNBR 0511-003NB	1	5	3.9	30.8	11	4.5	0.7	0.03	15	●	●		SVNR...-12N, SVNSR...-12-11(N)
	0511-02NB								0.2			●	●	S...-SVNR12(N), S...-SVNR12SN
	VNBR 0520-003NB	1	5	3.9	39.8	20	4.5	0.7	0.03	15	●	●		SVNR...-12N, SVNSR...-12-20(N)
	0520-02NB								0.2			●	●	S...-SVNR12(N), S...-SVNR12SN
	VNBR 0620-003NB	1	6	3.9	39.8	20	5.3	1	0.03	15	●	●		SVNR...-12N, SVNSR...-12-20(N)
	0620-02NB								0.2			●	●	S...-SVNR12(N), S...-SVNR12SN
	VNBR 0630-003NB	1	6	3.9	49.8	30	5.3	1	0.03	15	●	●		SVNR...-12N, S...-SVNR12(N)
	0630-02NB								0.2			●	●	S...-SVNR12SN
	VNBR 0720-003NB	1	7	3.9	39.8	20	6.2	1	0.03	15	●	●		SVNR...-12N, SVNSR...-12-20(N)
	0720-02NB								0.2			●	●	S...-SVNR12(N), S...-SVNR12SN
	VNBR 0730-003NB	1	7	3.9	49.8	30	6.2	1	0.03	15	●	●		SVNR...-12N, S...-SVNR12(N)
	0730-02NB								0.2			●	●	S...-SVNR12SN

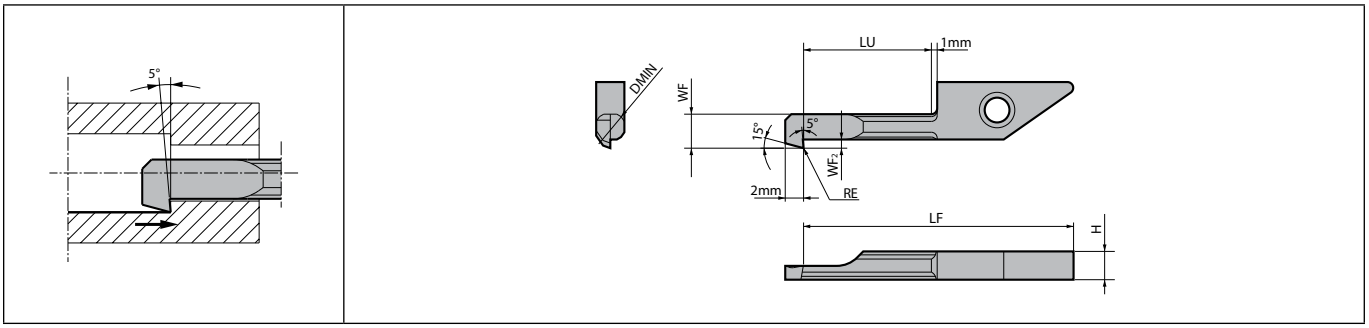
Recommended Cutting Conditions ➡ F49

Swiss IQ Bars are sold in 5 piece boxes

PCD Swiss IQ Bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

VNBT (Back Boring)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions							Carbide			Applicable Toolholder F50~F53
			DMIN	H	LF	LU	WF	WF_2	RE	PVD		-	
										PR1225	PR930	KW10	
mm	VNBTR 0411-003	1	4	3.66	28.8	9	3.6	1	0.03		●	●	SVNR...-12N, SVNSR...-12-11(N) S...-SVNR12(N), S...-SVNR12SN
	0411-01								0.1	●	●	●	
	VNBTR 0420-003	1	4	3.66	37.8	18	3.6	1	0.03		●		SVNR...-12N, SVNSR...-12-20(N) S...-SVNR12(N), S...-SVNR12SN
	0420-01								0.1	●	●		
	VNBTR 0511-003	1	5	3.9	28.8	9	4.6	1.3	0.03		●	●	SVNR...-12N, SVNSR...-12-11(N) S...-SVNR12(N), S...-SVNR12SN
	0511-01								0.1	●	●	●	
	VNBTR 0520-003	1	5	3.9	37.8	18	4.6	1.3	0.03		●		SVNR...-12N, SVNSR...-12-20(N) S...-SVNR12(N), S...-SVNR12SN
	0520-01								0.1	●	●		

Recommended Cutting Conditions (VNB / VNB-NB / VNBT)

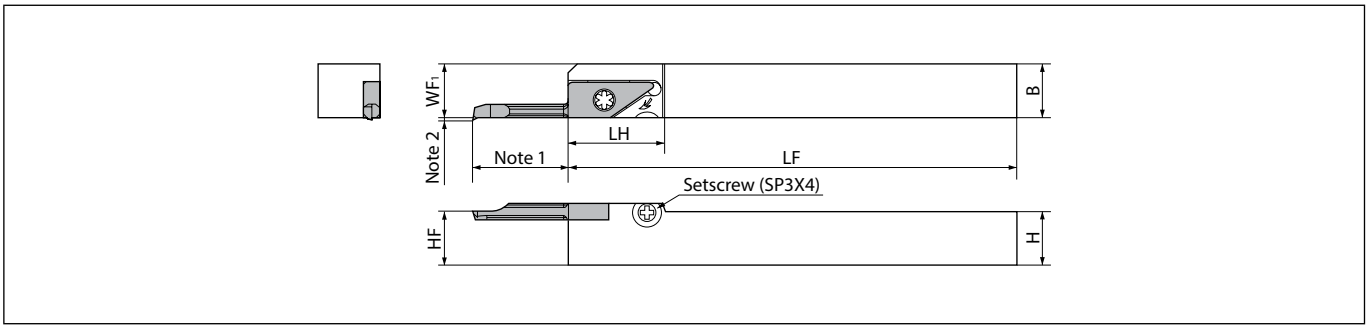
Workpiece Material	Insert Grades (Vc: sfm)					VNB02		VNB03		VNB04 VNBT04		VNB05 VNB06 VNB07 VNBT05		Notes
	MEGACOAT	PVD Coated Carbide	Carbide	PCD										
	PR1225	PR930	KW10	KPD001	KPD010	ap (mm), f (mm/rev)								
						D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	★ 100~390	☆ 100~330				~0.0118	~0.0012	~0.0157	~0.0016	~0.0177	~0.0028	~0.0197	~0.0039	Coolant
Stainless Steel	★ 100~330	☆ 100~260				~0.0118	~0.0008	~0.0157	~0.0012	~0.0177	~0.0020	~0.0197	~0.0028	
Non-Ferrous Metals			☆ ~330	★ ~980	☆ ~980	~0.0118	~0.0020	~0.0157	~0.0024	~0.0177	~0.0039	~0.0197	~0.0059	

★1st recommendation ☆2nd recommendation

Swiss IQ Bars are sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVN-N (without Side Stopper)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.
Note 1 & Note 2 (WF_2) : For insert dimensions, see page (**F46~F49**)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Spare Parts			Applicable Inserts ➡ F46~F49
			R	H	B	LH	HF	LF	WF_1	Screw	Set Screw	Wrench	
mm	SVNR 1010H-12N	●		10	10		10	100	10	SB-3080TR	SP3X4	FT-10	VNBR...-... VNBTR...-... VNGR...-... VNFGR...-... VNTR...-..
	1212K-12N	●		12	12		12		12				
	1616K-12N	●		16	16	22	16	125	16				
	2020K-12N	●		20	20		20		20				
	2525M-12N	●		25	25		25	150	25				

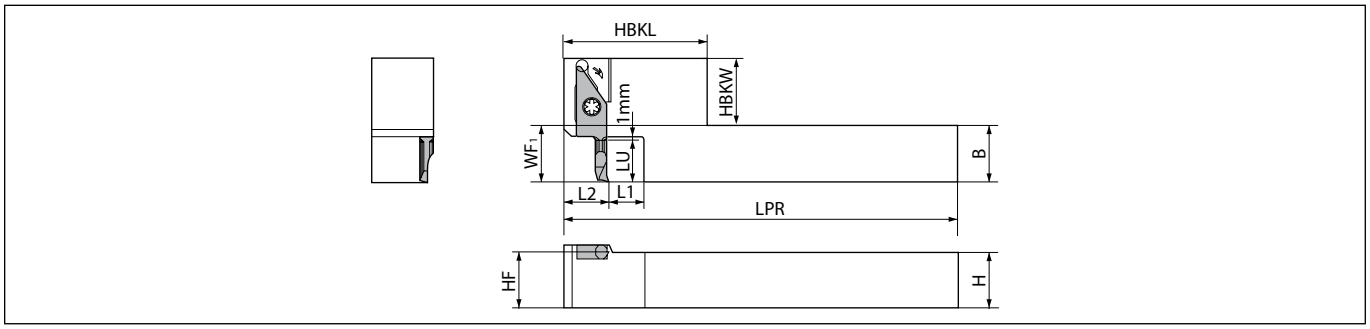
SVN-N (without Side Stopper) retains high index accuracy with an easy restraint.
SVN-N (without Side Stopper) has a setscrew SP3X4. Changing the set screw SP3X4 to a HS3X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

Spare Parts (Optional)

Screw (Side Stopper)	Wrench
HS3X4	LW-1.5

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVNS-N (without Side Stopper / without Set Screw)



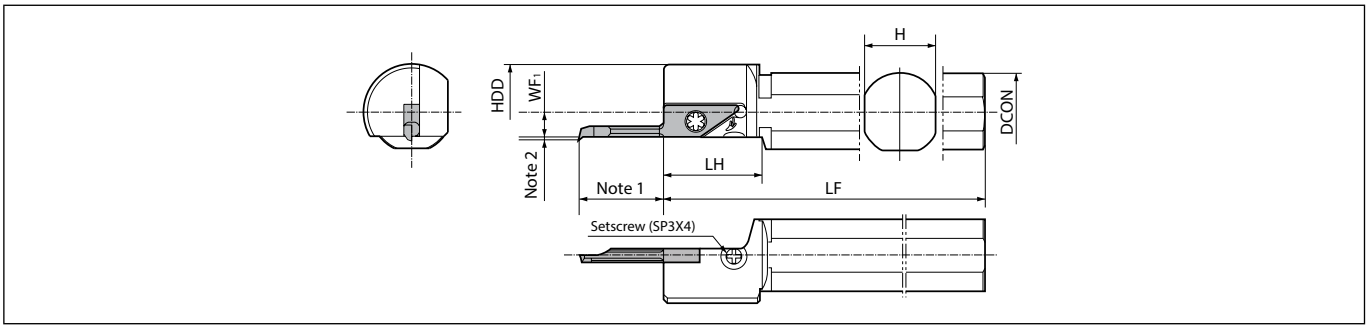
Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions											Spare Parts		Applicable Inserts
														Screw	Wrench	
		R	H	B	LPR	HF	HBKW	HBKL	LU	WF1	L1	L2				F46~F49
mm	SVNSR 1010K-12-06N	●	10	10	125	10	19	45	6	10	10	12	SB-3080TR	LTW-10S	VNBR..06...
	1212M-12-06N	●	12	12	150	12	17			12					
	1616M-12-06N	●	16	16		16	13			16	16				
	SVNSR 1010K-12-11N	●	10	10	125	10	23	45	11	10	10	12	SB-3080TR	LTW-10S	VNBR..11-..., VNBTR..11-... VNGR...-11, VNTR...-11
	1212M-12-11N	●	12	12	150	12	21			12					
	1616M-12-11N	●	16	16		16	17			16	16				
	SVNSR 1212M-12-20N	●	12	12	150	12	30	45	20	12	10	13	SB-3080TR	LTW-10S	VNBR..20-..., VNBTR20-... VNGR...-20
	1616M-12-20N	●	16	16		16	26			16	16				

All Swiss IQ Bar Inserts are used with SVNSR-N Toolholders. However, when setting the cutting edge at the face level of the toolholder as shown in the figure, use the applicable inserts described above. In these cases, the LU dimension of the toolholders corresponds to the LU dimension of the insert.

S-SVN-N (Round Shank / Standard / without Side Stopper)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.
Note 1 & Note 2 (WF_2) : For insert dimensions, see page (**F46~F49**)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Spare Parts			Applicable Inserts F46~F49
									Screw	Set Screw	Wrench	
		R	DCON	H	LH	HDD	LF	WF_1				
Inch	S19H- SVNR12N	●	0.750	0.669	0.945	0.945	3.937	0.236	SB-3080TR	SP3X4	FT-10	VNBR...-... VNBTR...-... VNGR...-... VNFGR...-... VNTR...-..
	S19N- SVNR12N	●					6.299					
	S25H- SVNR12N	●	1.000	0.905	0.945	1.181	3.937					
	S25Q- SVNR12N	●					7.086					
mm	S12F- SVNR12N	●	12	11	23	20.0	80	4	SB-3080TR	SP3X4	FT-10	
	S14G- SVNR12N	●	14	13			90					
	S16H- SVNR12N	●	16	15	23	24.0	100	6				
	S20H- SVNR12N	●	20	18	24		100					

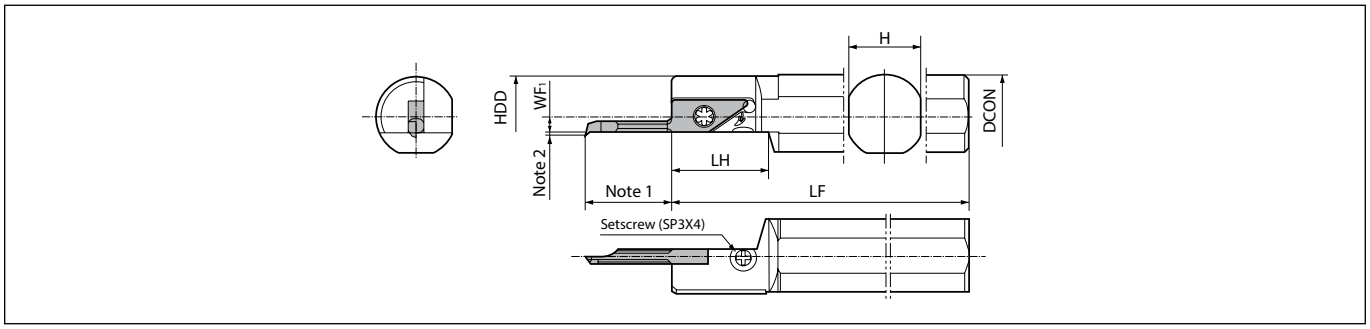
Spare Parts (Optional)

Screw (Side Stopper)	Wrench
HS3X4	LW-1.5

S-SVN-N (without Side Stopper) retains high index accuracy with an easy restraint.
S-SVN-N (without Side Stopper) has a setscrew SP3X4. Changing the set screw SP3X4 to a HS3X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

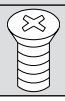
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SVN-SN (Round Shank / Straight / without Side Stopper)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.
Note 1 & Note 2 (WF_2) : For insert dimensions, see page (**F46~F49**)

Toolholder Dimensions

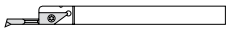
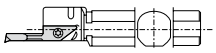
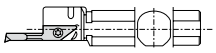
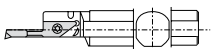
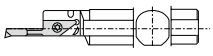
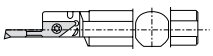
Unit	Part Number	Std. Item	Dimensions						Spare Parts			Applicable Inserts ➡ F46~F49
									Screw	Set Screw	Wrench	
		R	DCON	H	LH	HDD	LF	WF_1				
mm	S20H- SVNR12SN	●	20	18	23	19.5	100	4	SB-3080TR	SP3X4	FT-10	VNBR...-..., VNBTR...-... VNGR...-..., VNFGR...-... VNTR...-..
	S22K- SVNR12SN	●	22	20		21.5	125					
	S25.0G- SVNR12SN	●	25	23		24.5	90					

Spare Parts (Optional)

Screw (Side Stopper)	Wrench
HS3X4	LW-1.5

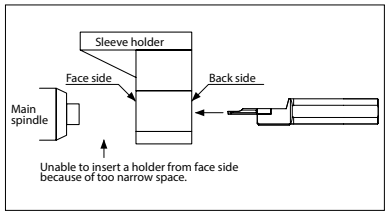
S-SVN-SN (without Side Stopper) retains high index accuracy with an easy restraint.
S-SVN-SN (without Side Stopper) has a setscrew SP3X4. Changing the set screw SP3X4 to a HS3X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

Swiss IQ Bar Selection

Gang-Type (Horizontal)	Gang-Type	Gang-Type Front loading sleeve type	Gang-Type Back loading sleeve type
Square shank (Straight)	Square shank (L-shape)	Square shank	Square shank
		———	———
Round Shank (Standard)		Round Shank (Standard)	Round Shank (Standard)
			———
Round Shank (Straight)		Round Shank (Straight)	Round Shank (Straight)
			

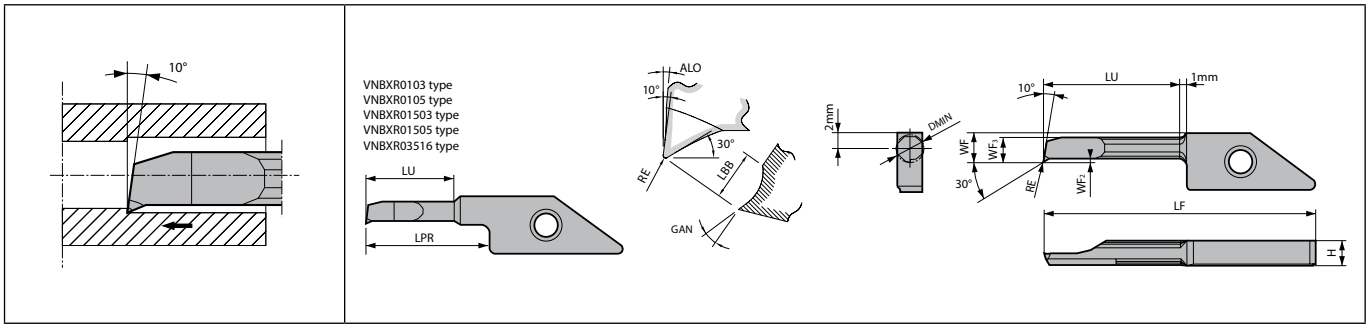
Q: There are standard types (head dia. is larger than shank) and straight types for round shanks.
What is each one used for?

A: The straight type is used when it cannot be inserted from the face side of the sleeve holder and can be inserted only from the back side due to space limitation (Refer to Fig. below).
On the other hand, the standard type should be installed when it can be inserted from the face side. The head end is used for positioning as stopper.



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

VNBX-S



Right-hand shown

Dimensions

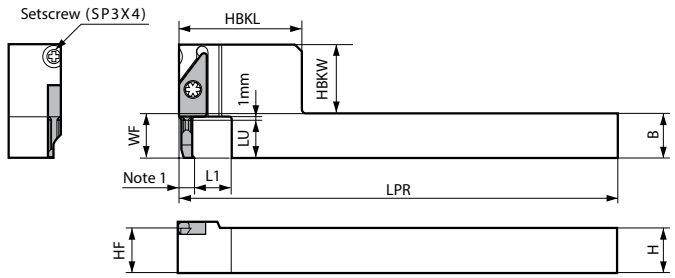
Unit	Part Number	No. of Edges	Dimensions										Angle (°)		Tolerance (mm)		Carbide	Applicable Toolholder ➡ F55~F57
			DMIN	H	LPR	LBB	LF	LU	WF	WF_2	WF_3	RE	ALO	GAN	RE min.	RE max.	PVD PR930	
mm	VNBXR 0103-005S	1	1	3.9	7	0.7	26.5	3	2.95	0.2	0.85	0.05	7	15	- 0.02	0	●	S...-SVNR12XN S...-SVNR12SXN
	VNBXR 0105-005S	1	1	3.9	7	0.7	26.5	5	2.95	0.2	0.85	0.05	7	15	- 0.02	0	●	S...-SVNR12XN S...-SVNR12SXN
	VNBXR 01503-005S	1	1.5	3.9	7	0.7	26.5	3	2.95	0.2	1.3	0.05	7	15	- 0.02	0	●	S...-SVNR12XN S...-SVNR12SXN
	01503-01S							3				0.1			- 0.03		●	
	01505-005S							5				0.05			- 0.02		●	
	01505-01S							5				0.1			- 0.03		●	
	VNBXR 0206-005S	1	2	3.9	-	0.8	26.5	6	3	0.25	1.8	0.05	8	18	- 0.02	0	●	SVNSR...-12-06XN S...-SVNR12XN
	0206-01S											0.1			- 0.03		●	S...-SVNR12SXN
	VNBXR 0311-005S	1	3	3.9	-	0.8	30.8	11	3.5	0.4	2.6	0.05	8	18	- 0.02	0	●	SVNSR...-12-11XN S...-SVNR12XN
	0311-01S											0.1			- 0.03		●	S...-SVNR12SXN
	VNBXR 03511-005S	1	3.5	3.9	-	0.8	30.8	11	3.75	0.45	3.1	0.05	8	18	- 0.02	0	●	SVNSR...-12-11XN, S...-SVNR12XN S...-SVNR12SXN
	03511-01S				-		30.8	11				0.1			- 0.03		●	
	03516-005S				21		39.8	16				0.05			- 0.02		●	S...-SVNR12XN
	03516-01S				21		39.8	16				0.1			- 0.03		●	S...-SVNR12SXN
	VNBXR 0411-005S	1	4	3.66	-	0.8	30.8	11	4	0.5	3.5	0.05	8	18	- 0.02	0	●	SVNSR...-12-11XN
	0411-01S											0.1			- 0.03		●	S...-SVNR12XN
	0411-02S											0.2			- 0.04		●	S...-SVNR12SXN
	VNBXR 0420-005S	1	4	3.66	-	0.8	39.8	20	4	0.5	3.5	0.05	8	18	- 0.02	0	●	SVNSR...-12-20XN
	0420-01S											0.1			- 0.03		●	S...-SVNR12XN
	0420-02S											0.2			- 0.04		●	S...-SVNR12SXN

Recommended Cutting Conditions ➡ F57

Swiss IQ Bars are sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVNS-XN (without Side Stopper)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.
Note 1 : The dimension of Note 1 is same size as the applicable insert (VNBX) WF dimension.

Toolholder Dimensions

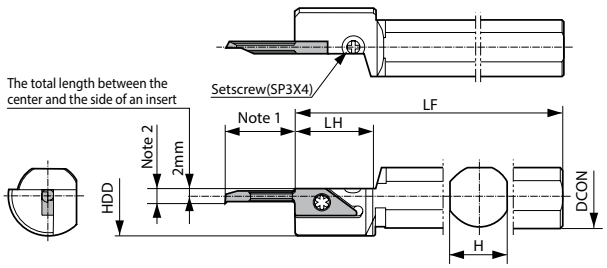
Unit	Part Number	Std. Item	Dimensions										Spare Parts			Applicable Inserts F54
			R	H	B	LPR	L1	HF	HBKW	HBKL	LU	WF	Screw	Set Screw	Wrench	
mm	SVNSR 1010K-12-06XN	●	10	10	125	10	10	19	45	6	10	SB-3080TR	SP3X4	LTW-10S	VNBXR0206-...
	SVNSR 1212M-12-06XN	●	12	12	150		12	17			12				
	SVNSR 1616M-12-06XN	●	16	16		16	16	13			16				
	SVNSR 1010K-12-11XN	●	10	10	125	10	10	23	45	11	10	SB-3080TR	SP3X4	LTW-10S	VNBXR...11-...
	SVNSR 1212M-12-11XN	●	12	12	150		12	21			12				
	SVNSR 1616M-12-11XN	●	16	16		16	16	17			16				
	SVNSR 1212M-12-20XN	●	12	12	150	10	12	30	45	20	12	SB-3080TR	SP3X4	LTW-10S	VNBXR0420-...
	SVNSR 1616M-12-20XN	●	16	16		16	16	26			16				

All VNBXR Swiss IQ Bar Inserts are used with a SVNS-XN Toolholder. However, when setting the cutting edge at the face level of the toolholder as shown in figure, use the applicable inserts shown above.
SVNS-XN (without Side Stopper) retains high index accuracy with an easy restraint.
SVNS-XN (without Side Stopper) has a setscrew SP3X4. Changing the set screw SP3X4 to a HS3X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

Spare Parts (Optional)

Screw (Side Stopper)	Wrench
HS3X4	LW-1.5

S-SVN-XN (Round Shank / Standard / without Side Stopper)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.
Note 1 : The dimension of Note 1 shows the applicable insert (VNBX) LU +1 mm.
Note 2 : The dimension of Note 2 is same size as the applicable insert (VNBX) WF dimension.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Spare Parts			Applicable Inserts F54
								Screw	Set Screw	Wrench	
		R	DCON	H	LH	HDD	LF				
Inch	S19H- SVNR12XN	●	0.750	0.669	0.945	0.945	3.937	SB-3080TR	SP3X4	FT-10	VNBXR...
Inch	S19N- SVNR12XN	●					6.299				
Inch	S25H- SVNR12XN	●	1.000	0.905		1.181	3.937				
Inch	S25Q- SVNR12XN	●					7.086				
mm	S12F- SVNR12XN	●	12	11	23	20	80	SB-3080TR	SP3X4	FT-10	
mm	S14G- SVNR12XN	●	14	13			90				
mm	S16H- SVNR12XN	●	16	15		24	100				
mm	S20H- SVNR12XN	●	20	18			100				

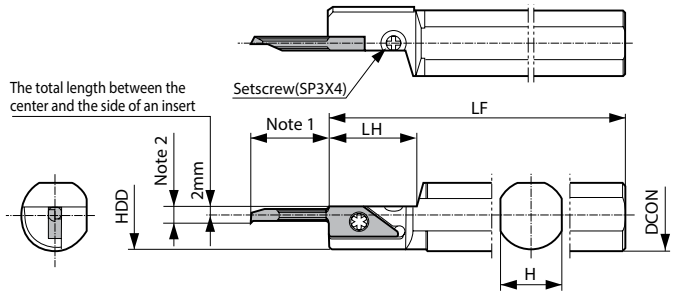
S-SVN-XN (without Side Stopper) retains high index accuracy with an easy restraint.
S-SVN-XN (without Side Stopper) has a setscrew SP3X4. Changing the set screw SP3X4 to a HS3X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

Spare Parts (Optional)

Screw (Side Stopper)	Wrench
HS3X4	LW-1.5

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SVN-SXN (Round Shank / Straight / without Side Stopper)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.
Note 1 : The dimension of Note 1 shows the applicable insert (VNBX) LU +1 mm.
Note 2 : The dimension of Note 2 is same size as the applicable insert (VNBX) WF dimension.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Spare Parts			Applicable Inserts
								Screw	Set Screw	Wrench	
		R	DCON	H	LH	HDD	LF				
Inch	S19H- SVNR12SXN	●	0.750	0.669	0.905	0.728	3.397	SB-3080TR	SP3X4	FT-10	VNBXR...
mm	S20H- SVNR12SXN	●	20	18	23	19.5	100	SB-3080TR	SP3X4	FT-10	
	S22K- SVNR12SXN	●	22	20		21.5	125				
	S25.0G- SVNR12SXN	●	25	23		24.5	90				

Applicable Inserts ➡ F54

S-SVN-SXN (without Side Stopper) retains high index accuracy with an easy restraint.
S-SVN-SXN (without Side Stopper) has a setscrew SP3X4. Changing the set screw SP3X4 to a HS3X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

Spare Parts (Optional)

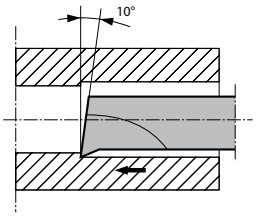
Screw (Side Stopper)	Wrench
HS3X4	LW-1.5

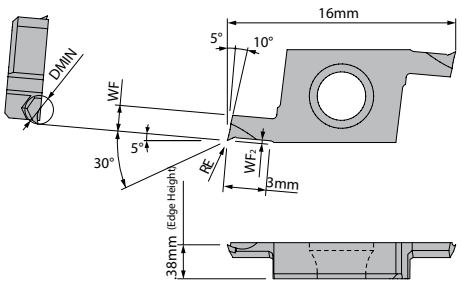
Recommended Cutting Conditions (VNBX-S)

Workpiece Material	Insert Grades (Vc: sfm) PVD Coated Carbide PR930	VNBX01-S type VNBX015-S type		VNBX02-S type ~ VNBX04-S type		Notes
		D.O.C. (in), f (ipr)				
		D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	★ 100~330	~0.0039	~0.0004	~0.0079	~0.0012	Coolant
Stainless Steel	★ 100~260	~0.0039	~0.0004	~0.0079	~0.0008	

★1st recommendation

TWB (Micro Boring, Horizontal Type)





Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions DMIN	WF	WF2	RE	Tolerance (mm) RE min.	RE max.	Carbide PVD PR1535	Applicable Toolholder F58, F59
mm	TWBR 01003-005	2	1	0.85	0.2	0.05	- 0.02	0	●	STWR...-15 S..-STWR15
	TWBR 01503-005	2	1.5	1.3	0.2	0.05	- 0.02	0	●	
	01503-010					0.1	- 0.03		●	
	TWBR 02003-005	2	2	1.75	0.25	0.05	- 0.02	0	●	
	02003-010					0.1	- 0.03		●	
	TWBR 02503-005	2	2.5	2.1	0.3	0.05	- 0.02	0	●	
	02503-010					0.1	- 0.03		●	
	TWBR 03003-005	2	3	2.4	0.4	0.05	- 0.02	0	●	
	03003-010					0.1	- 0.03		●	

Recommended Cutting Conditions F61

STW (Micro Boring, Square Shank for Horizontal Type Insert)

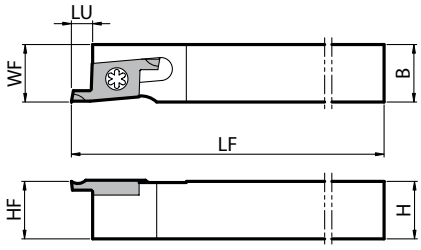


Fig. 1

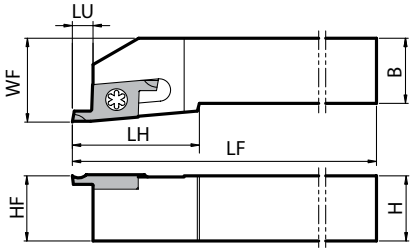


Fig. 2

Right-hand shown | Right-hand Insert for Right-hand Toolholder.
(For Left-hand toolholders for grooving, please see page **G102**.)

Toolholder Dimensions

Unit	Part Number	Std. Item R	Dimensions CDX	H	B	LH	HF	LF	LU	WF	Coolant Hole	Fig.	Spare Parts Screw	Wrench	Applicable Inserts F58
mm	STWR 1212F-15	●	3	12	12	-	12	85	3	12	No	1	SB-3080TR	LTW-10S	TWBR...

Twin Bars are sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-STW (Micro Boring, Round Shank for Horizontal Type Insert)

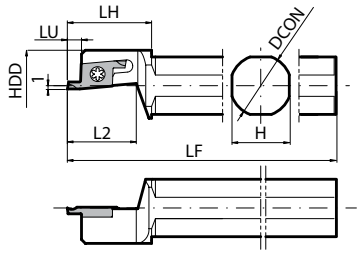


Fig. 1

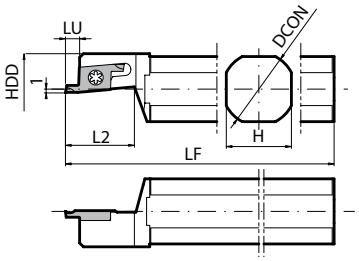


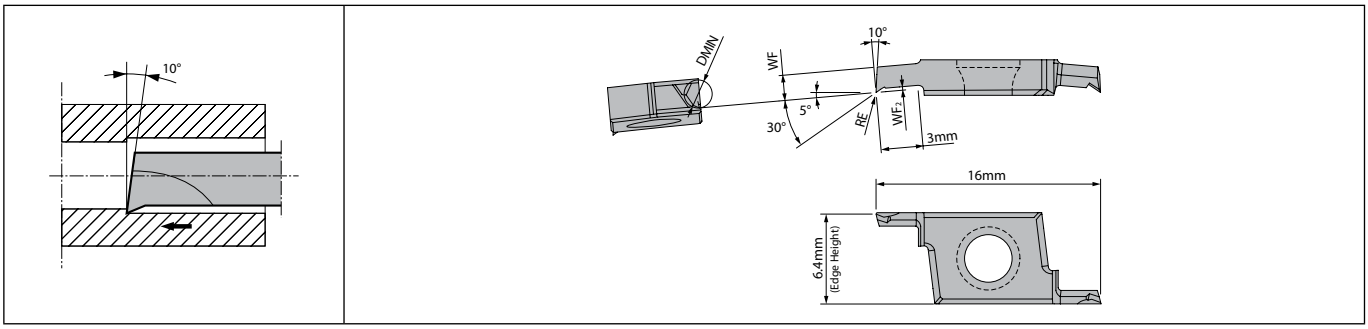
Fig. 2

Right-hand shown | Right-hand Insert for Right-hand Toolholder.
(For Left-hand toolholders for grooving, please see page **G103**.)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Coolant Hole	Fig.	Spare Parts		Applicable Inserts
			R	DCON	H	LH	HDD	L2	LF	LU			Screw	Wrench	
															F58
mm	S20G- STWR15	●	20	18	-	19.5	18	90	3	No	2	SB-3080TR	LTW-10S	TWBR...
	S25.0J- STWR15	●	25	23		24.5		110			2			

TWBT (Micro Boring, Vertical Type)



Right-hand shown

Dimensions

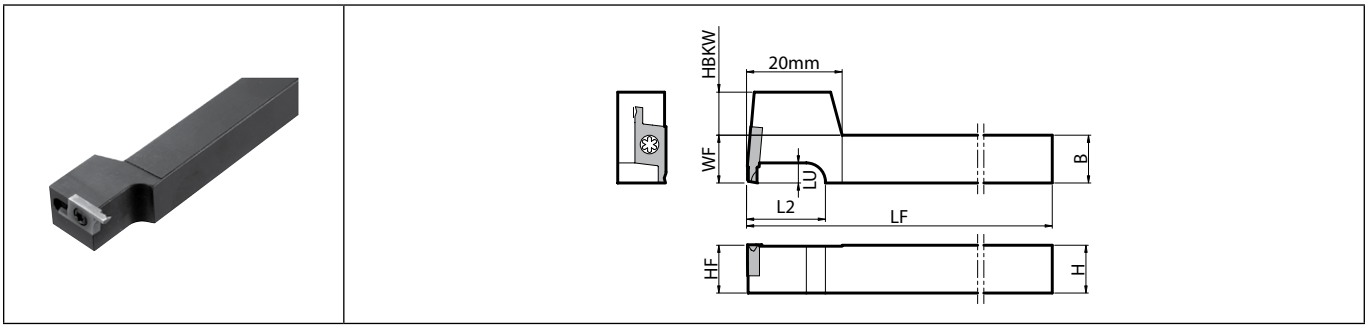
Unit	Part Number	No. of Edges	Dimensions				Tolerance (mm)		Carbide	Applicable Toolholder ➡ F61
			DMIN	WF	WF_2	RE	RE min.	RE max.	PVD PR1535	
mm	TWBTR 01003-005	2	1	0.85	0.2	0.05	- 0.02	0	●	STWSR...-15T
	TWBTR 01503-005	2	1.5	1.3	0.2	0.05	- 0.02	0	●	
	TWBTR 01503-010					0.1	- 0.03		●	
	TWBTR 02003-005	2	2	1.75	0.25	0.05	- 0.02	0	●	
	TWBTR 02003-010					0.1	- 0.03		●	
	TWBTR 02503-005	2	2.5	2.1	0.3	0.05	- 0.02	0	●	
	TWBTR 02503-010					0.1	- 0.03		●	
	TWBTR 03003-005	2	3	2.3	0.4	0.05	- 0.02	0	●	
	TWBTR 03003-010					0.1	- 0.03		●	

Recommended Cutting Conditions ➡ F61

Twin Bars are sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

STWS (Micro Boring, Square Shank for Vertical Type Insert)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Spare Parts		Applicable Inserts ➡ F60
			R	H	B	L2	HF	HBKW	LF	LU	WF	Screw	Wrench	
mm	STWSR 1010F-15T	●	10	10	16	10	9	85	3	10	SB-3080TR	LTW-10S	TWBTR...
	1010JX-15T	●						120					
	1212F-15T	●	12	12		12	7	85		12			
	1212JX-15T	●						120					
	1616JX-15T	●	16	16	20	16	3			16			

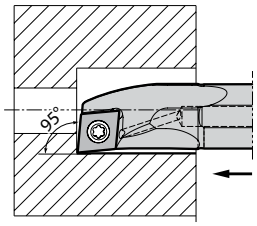
Recommended Cutting Conditions (TWB / TWBT)

Workpiece Material	Insert Grades Vc: sfm		TWBR01003 TWBR01503 TWBTR01003 TWBTR01503		TWBR02003 TWBR02503 TWBR03003 TWBTR02003 TWBTR02503 TWBTR03003		Notes
	MEGACOAT NANO	PVD Coated Carbide	D.O.C. (in), f (ipr)				
	PR1535	PR1025	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	★ 30~100	☆ 30~100	~0.0039	~0.0004	~0.0079	~0.0012	Coolant
Stainless Steel	★ 30~80	☆ 30~80	~0.0039	~0.0004	~0.0079	~0.0008	

★1st recommendation ☆2nd recommendation

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A/S-SCLC-AE Excellent Bar (Boring / Internal Facing)



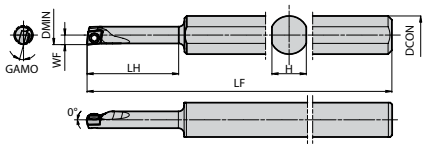


Fig. 1

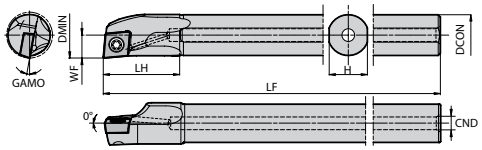


Fig. 2

Max. Overhang Length L/D=~5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

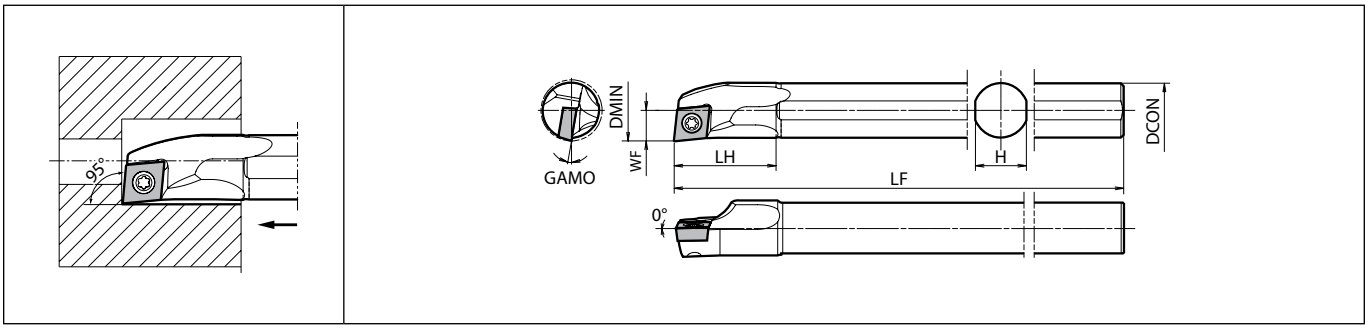
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Dimensions DMIN	DCON	CND	H	LH	LF	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts Screw	Spare Parts Wrench	Spare Parts Wrench	Applicable Inserts
inch	A06M- SCLC□2AE	●	●	0.480	0.375	0.118	0.336	0.787	6.000	0.236	12	1/64	Yes	2	SB-2545TR	-	FT-8	CC□T215... CC□W215...
	A08M- SCLC□2AE	●	●	0.600	0.500	0.158	0.461	0.945	6.000	0.276	10							
	A10R- SCLC□3AE	●	●	0.770	0.625	0.197	0.586	1.181	8.000	0.354	10	1/64	Yes	2	SB-4065TR	FT-15	-	CC□T325... CC□W325...
	A12S- SCLC□3AE	●	●	0.930	0.750	0.197	0.711	1.417	10.000	0.413	8							
	A16T- SCLC□3AE	●	●	1.200	1.000	0.197	0.961	1.811	12.000	0.531	6							
mm	S10H- SCLC□03-05AE	●	●	5	10	-	9	24	100	2.5	15	0.2	No	1	SB-1635TR	-	FT-6	CC□T1109... CC□W1109...
	SCLC□03-06AE	●	●	6				28		3	13							
	S10H- SCLC□04-07AE	●	●	7	10	-	9	32	100	3.5	13	0.2	No	1	SB-2035TR	-	FT-6	CC□T1411... CC□W1411...
	SCLC□04-08AE	●	●	8				37		4	11							
	A08X- SCLC□06-10AE	●	●	10	8	2.5	7	16	120	5	14	0.4	Yes	2	SB-2545TR	-	FT-8	CC□T215... CC□W215...
	A10L- SCLC□06-12AE	●	●	12	10	3	9	20	140	6	12							
	A12M- SCLC□06-14AE	●	●	14	12	4	11	24	150	7	10							
	A16Q- SCLC□09-18AE	●	●	18	16	5	15	30	180	9	10	0.4	Yes	2	SB-4065TR	FT-15	-	CC□T325... CC□W325...
	A20R- SCLC□09-22AE	●	●	22	20		19	36	200	11	8							
	A25S- SCLC□09-27AE	●	●	27	25		24	46	250	13.5	6							

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SCLC-A Steel Shank Bar (Boring / Internal Facing)



Max. Overhang Length L/D=~4 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

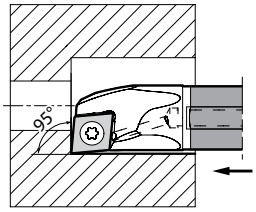
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
													Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF							
mm	S08X- SCLC□06-10A	●	●	10	8	7	16	120	5	14	0.4	No	SB-2545TR	-	FT-8	CC□T215... CC□W215...
	S10L- SCLC□06-12A	●	●	12	10	9	20	140	6	12						
	S12M- SCLC□06-14A	●	●	14	12	11	24	150	7	10						
	S16Q- SCLC□09-18A	●	●	18	16	15	30	180	9	10	0.4	No	SB-4065TR	FT-15	-	CC□T325... CC□W325...
	S20R- SCLC□09-22A	●	●	22	20	19	36	200	11	8						
	S25S- SCLC□09-27A	●	●	27	25	24	46	250	13.5	6						

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

C/E-SCLC-A(N) Carbide Shank Bar (Boring / Internal Facing)



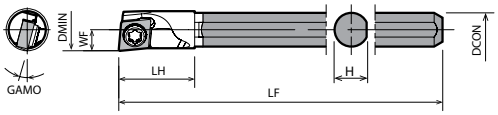


Fig. 1

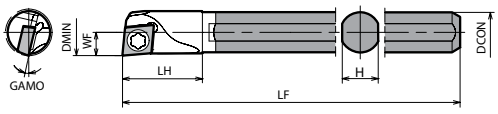


Fig. 2

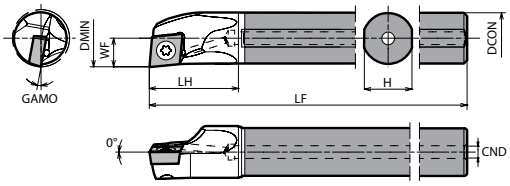
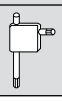


Fig. 3

Max. Overhang Length L/D=~7 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

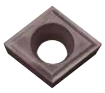
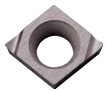
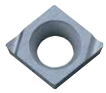
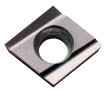
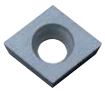
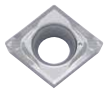
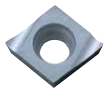
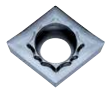
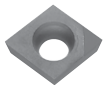
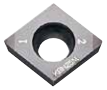
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
																		
Inch	E06N- SCLC□2A	●	●	0.480	0.375	0.118	0.336	0.787	6.300	0.236	12	1/64	Yes	3	SB-2545TR	-	FT-8	CC□T215... CC□W215...
Inch	E08Q- SCLC□2A	●	●	0.600	0.500	0.158	0.461	0.906	7.100	0.276	10							
Inch	E10X- SCLC□3A	●	●	0.770	0.625	0.197	0.586	1.102	8.700	0.354	10	1/64	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...
Inch	E10X- SCLCR3A-2/3	●							5.800									
mm	C04G- SCLC□03-05AN	●	●	5	4	-	3.8	7	90	2.5	15	0.2	No	1	SB-1635TR	-	FT-6	CC□T1109..., CC□W1109...
mm	C05H- SCLC□03-06AN	●	●	6	5	-	4.4	9	100	3	13	0.2	No	2	SB-1635TR	-	FT-6	CC□T1109..., CC□W1109...
mm	C06J- SCLC□04-07AN	●	●	7	6	-	5.4	10	110	3.5	13	0.2	No	2	SB-2035TR	-	FT-6	CC□T1411... CC□W1411...
mm	C07K- SCLC□04-08AN	●	●	8	7	-	6.4	11	125	4	11							
mm	E08L- SCLC□06-10AN	●	●	10	8	3	7	14	140	5	14	0.4	Yes	3	SB-2545TR	-	FT-8	CC□T215... CC□W215...
mm	E08L- SCLCR06-10AN2/3	●							90									
mm	E10N- SCLC□06-12AN	●	●	12	10		9	18	160	6	12							
mm	E10N- SCLCR06-12AN2/3	●							105									
mm	E12Q- SCLC□06-14A	●	●	14	12	4	11	23	180	7	10							
mm	E12Q- SCLCR06-14A-2/3	●							120									
mm	E16X- SCLC□09-18A	●	●	18	16	4	15	28	220	9	10	0.4	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...
mm	E16X- SCLCR09-18A-2/3	●							145									
mm	E20S- SCLC□09-22A	●	●	22	20	6	19	32	250	11	8							
mm	E20S- SCLCR09-22A-2/3	●							165									
mm	E25T- SCLC□09-27A	●	●	27	25		24	38	300	13.5	6							
mm	E25T- SCLCR09-27A-2/3	●							200									

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

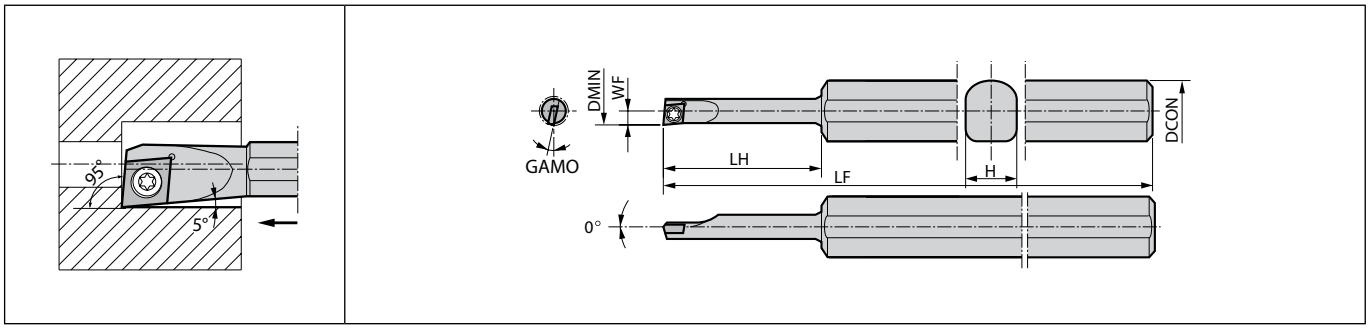
Applicable Inserts (A/S-SCLC-AE / S-SCLC-A / C/E-SCLC-A(N))

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing
Insert								
Chipbreaker Type	CF	PF	GF	SKS	SK	CK	GQ	WP
Page	B58	B58	B58	B59	B59	B59	B59	B60
Applications	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing	Finishing
Insert								
Chipbreaker Type	PP	GK	HQ	Standard	MF	R/L-F	R/L-FSF	R/L-P
Page	B60	B60	B60	B60	B61	B62	B61	B63
Applications	Low Feed	Low Feed	Low Feed	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker Type	R/L-U	R/L-USF	R/L-J	MQ	No Chipbreaker	AP	R/L-A3	AH
Page	B63~B65	B63	B65	B61	B66	B66	B66	B66
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials					
Insert								
Chipbreaker Type	PCD	APD	CBN					
Page	C39	C40	C20					

Recommended Cutting Conditions F174, F175
Applicable Sleeves F171~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SCLC-E Excellent Steel Shank Bar (Boring / Internal Facing)



Max. Overhang Length L/D=~5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

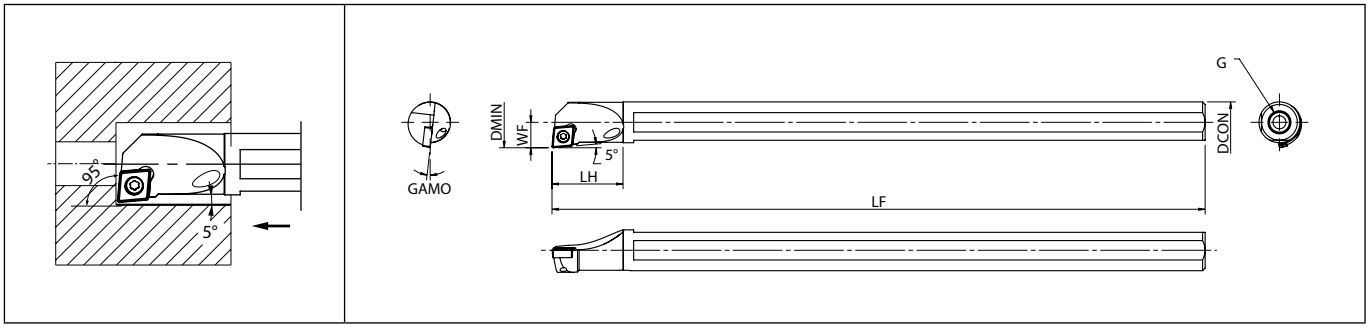
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
												Screw	Wrench	
		R	DMIN	DCON	H	LH	LF	WF						
Inch	S06H- SCLCR1.1E	●	0.197	0.375	0.335	0.900	4.000	0.098	15	1/64	No	SB-1635TR	FT-6	CC□T1109... CC□W1109...

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder.
Optional sleeve SL2.5-10 (0.625" dia.) is available. (Sleeve screw: SLS-2, sleeve wrench: LW-2)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-SCLC Steel Bar (Boring / Internal Facing)



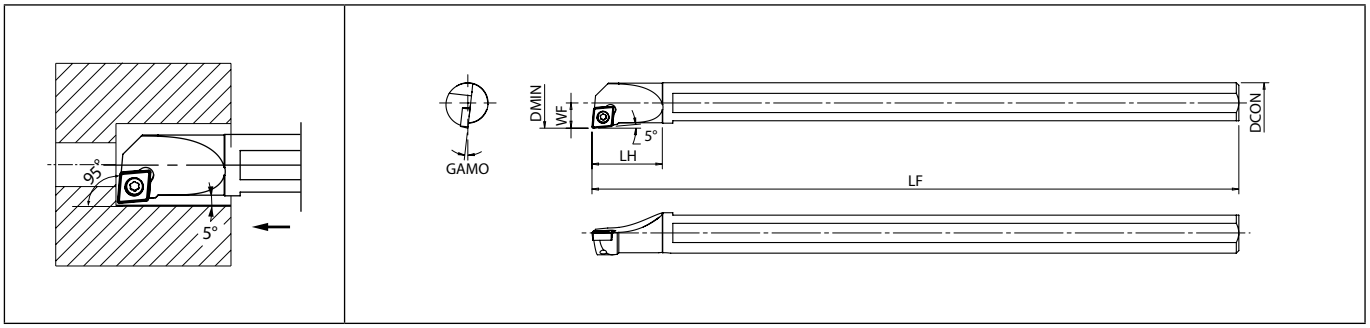
Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					GAMO (°)	G	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
		R	DMIN	DCON	LH	LF	WF					Screw	Wrench	
Inch	A05K- SCLCR2	●	0.415	0.313	0.870	5.000	0.218	11	-	1/64	Yes	SB-2545TR	FT-8	CC□T215... CC□W215...
	A08R- SCLCR2	●	0.600	0.500	0.870	8.000	0.312	6	-					
	A10S- SCLCR2	●	0.770	0.625	0.870	10.000	0.406	4	1/8 NPT					

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder
Optional sleeve SL2.5-10 (0.625" dia.) is available. (Sleeve screw: SLS-2, sleeve wrench: LW-2)

S-SCLC Steel Bar (Boring / Internal Facing)



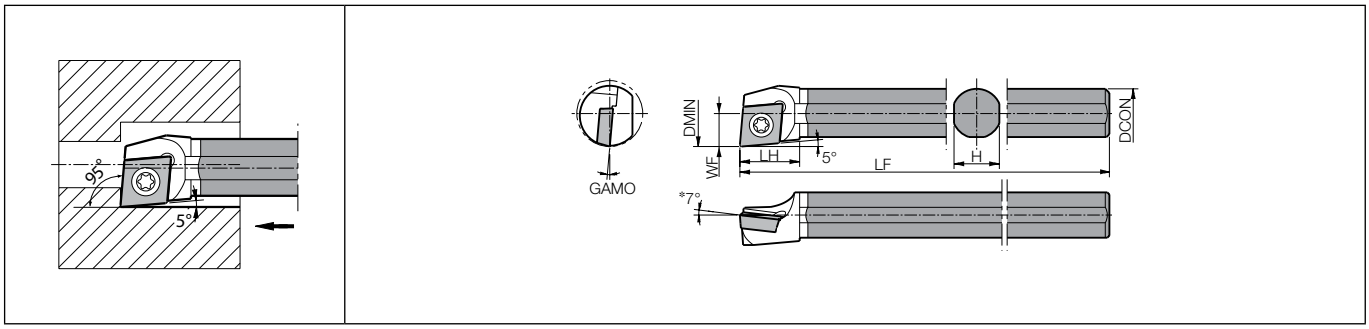
Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions					GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
		R	L	DMIN	DCON	LH	LF	WF				Screw	Wrench	
Inch	S05K- SCLC$^{R}_{L}$2	●	●	0.394	0.312	0.625	5.000	0.197	12	0.004	No	SB-2545TR	FT-8	CC□T215... CC□W215...

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.
Optional sleeve SL2.5-10 (0.625" dia.) is available. (Sleeve screw: SLS-2, sleeve wrench: LW-2)

C-SCLC Carbide Shank Bar (Boring / Internal Facing)



Max. Overhang Length L/D=~7 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

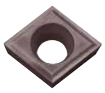
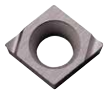
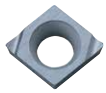
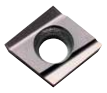
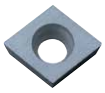
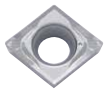
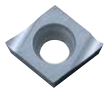
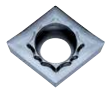
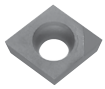
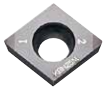
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
												Screw	Wrench	
		R	DMIN	DCON	H	LH	LF	WF						
Inch	C05K- SCLCR2	●	0.394	0.312	0.282	0.625	5.000	0.197	12	0.004	No	SB-2545TR	FT-8	CC□T215... CC□W215...

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder.
Optional sleeve SL2.5-10 (0.625" dia.) is available. (Sleeve screw: SLS-2, sleeve wrench: LW-2)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

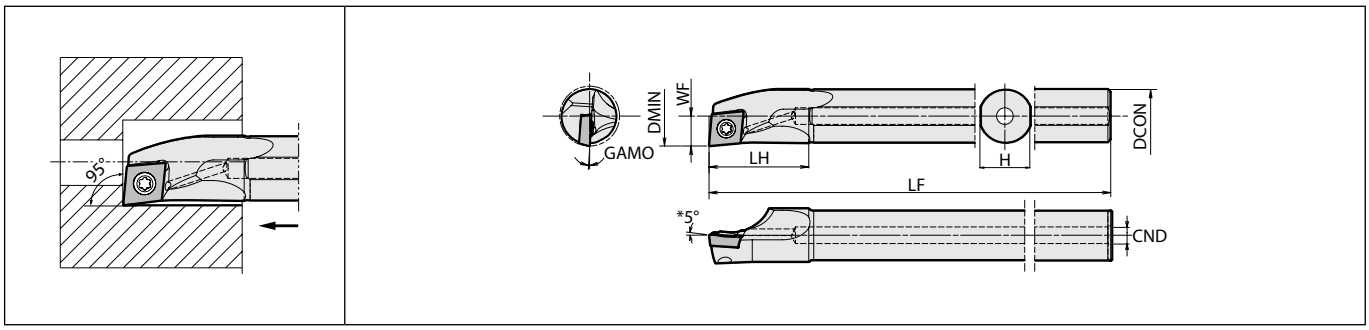
Applicable Inserts (S-SCLC-E / S-SCLC / A-SCLC / C-SCLC)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing
Insert								
Chipbreaker Type	CF	PF	GF	SKS	SK	CK	GQ	WP
Page	B58	B58	B58	B59	B59	B59	B59	B60
Applications	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing	Finishing
Insert								
Chipbreaker Type	PP	GK	HQ	Standard	MF	R/L-F	R/L-FSF	R/L-P
Page	B60	B60	B60	B60	B61	B62	B61	B63
Applications	Low Feed	Low Feed	Low Feed	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker Type	R/L-U	R/L-USF	R/L-J	MQ	No Chipbreaker	AP	R/L-A3	AH
Page	B63~B65	B63	B65	B61	B66	B66	B66	B66
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials					
Insert								
Chipbreaker Type	PCD	APD	CBN					
Page	C39	C40	C20					

Recommended Cutting Conditions F174, F175
Applicable Sleeves F171~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-SCLP-AE Excellent Bar (Boring / Internal Facing)

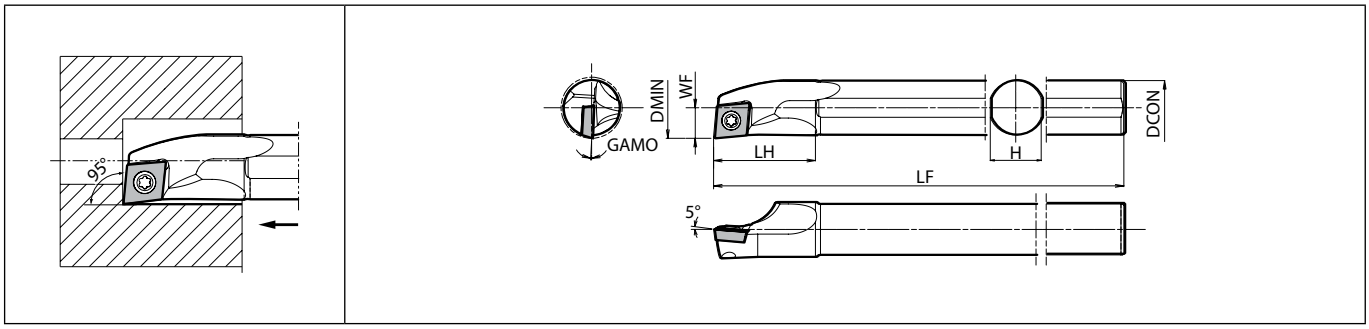


Max. Overhang Length L/D=~5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
Inch	A05K- SCLP□L 2AE	●	●	0.413	0.312	0.098	0.273	0.630	5	0.197	10	1/64	Yes	SB-2545TR	-	FT-8	CPGT215...
Inch	A06M- SCLP□L 2.5AE	●	●	0.480	0.375	0.118	0.336	0.787	6	0.236	5	1/64	Yes	SB-3060TR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
Inch	A08M- SCLP□L 2.5AE	●	●	0.580	0.500	0.157	0.461	0.945	6	0.276	4						
Inch	A10R- SCLP□L 3AE	●	●	0.700	0.625		0.586	1.181	8	0.354	3.5	1/64	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
Inch	A12S- SCLP□L 3AE	●	●	0.825	0.750	0.197	0.711	1.417	10	0.413	2						
Inch	A16T- SCLP□L 3AE	●	●	1.200	1.000		0.961	1.811	12	0.531	0						
mm	A10L- SCLP□L 08-12AE	●	●	12	10	3	9	20	140	6	5	0.4	Yes	SB-3060TR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
mm	A12M- SCLP□L 08-14AE	●	●	14	12	4	11	24	150	7	4						
mm	A12M- SCLP□L 09-16AE	●	●	16	12	4	11	24	150	8	4	0.4	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
mm	A16Q- SCLP□L 09-18AE	●	●	18	16	5	15	30	180	9	3.5						
mm	A20R- SCLP□L 09-22AE	●	●	22	20		19	36	200	11	2						
mm	A25S- SCLP□L 09-27AE	●	●	27	25		24	46	250	13.5	0						

S-SCLP-A Steel Shank Bar (Boring / Internal Facing)



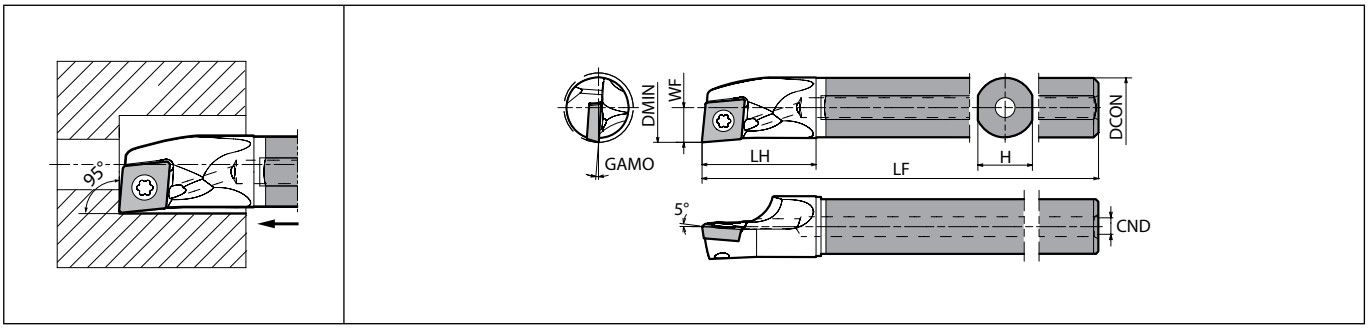
Max. Overhang Length L/D=~4 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
mm	S10L- SCLP□L 08-12A	●	●	12	10	9	20	140	6	5	0.4	No	SB-3060TR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
mm	S12M- SCLP□L 08-14A	●	●	14	12	11	24	150	7	4						
mm	S12M- SCLP□L 09-16A	●	●	16	12	11	24	150	8	4	0.4	No	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
mm	S16Q- SCLP□L 09-18A	●	●	18	16	15	30	180	9	3.5						
mm	S20R- SCLP□L 09-22A	●	●	22	20	19	36	200	11	2						
mm	S25S- SCLP□L 09-27A	●	●	27	25	24	46	250	13.5	0						

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

E-SCLP-A(N) Carbide Shank Bar (Boring / Internal Facing)

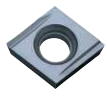
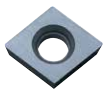


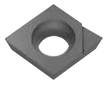
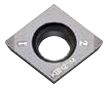
Max. Overhang Length L/D=~7 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number		Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
															Screw	Wrench	Wrench	
			R	L	DMIN	DCON	CND	H	LH	LF	WF							
mm	E10N-	SCLP□09-12AN	●	●	12	10	3	9	18	160	6	5	0.4	Yes	SB-3060TR	-	FT-10	CP□B2515... CP□H2515... CP□T2515...
		SCLPR08-12AN2/3	●							105								
		SCLPR08-12AN1/2	●							80								
	E12Q-	SCLP□08-14A	●	●	14	12	4	11	23	180	7	4						
		SCLPR08-14A-2/3	●							120								
		SCLPR08-14A-1/2	●							90								
	E12Q-	SCLP□09-16A	●	●	16	12	4	11	23	180	8	5						
		SCLPR09-16A-2/3	●							120								
		SCLPR09-16A-1/2	●							90								
	E16X-	SCLP□09-18A	●	●	18	16		15	28	220	9	3.5						
		SCLPR09-18A-2/3	●							145								
		SCLPR09-18A-1/2	●							110								
	E20S-	SCLP□09-22A	●	●	22	20	6	19	32	250	11	2						
		SCLPR09-22A-2/3	●							165								
		SCLPR09-22A-1/2	●							125								
	E25T-	SCLP□09-27A	●	●	27	25		24	38	300	13.5	0						
		SCLPR09-27A-2/3	●							200								

Applicable Inserts (A-SCLP-AE / S-SCLP-A / E-SCLP-A(N))

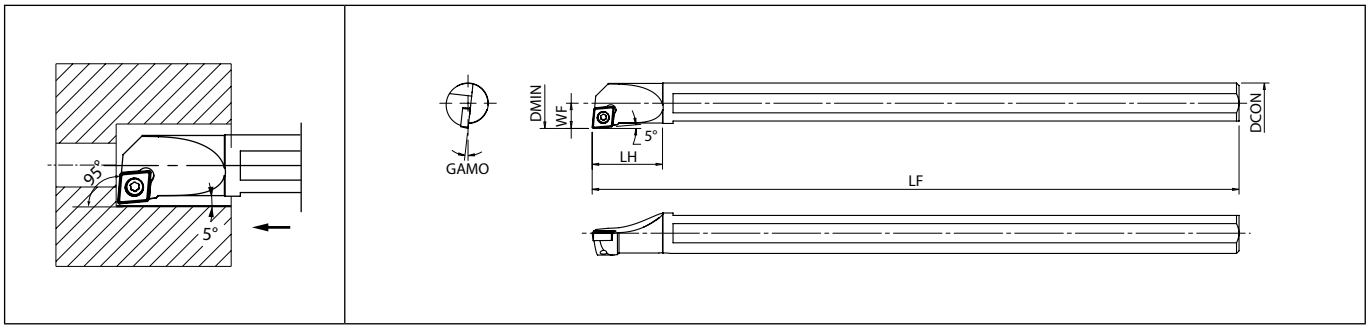
Applications	Finishing	Finishing	Finishing - Medium	Medium	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Cast Iron
Insert								
Chipbreaker Type	PP	GP	HQ	Standard	XP	XQ	□-Y	No Chipbreaker
Page	B67	B67	B67	B67	B67	B67	B67	B67

Applications	Non-Ferrous Metals	Hard Materials
Insert		
Chipbreaker Type	PCD	CBN
Page	C41	C21

Recommended Cutting Conditions F174, F175
Applicable Sleeves F171~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SCLP Steel Bar (Boring / Internal Facing)



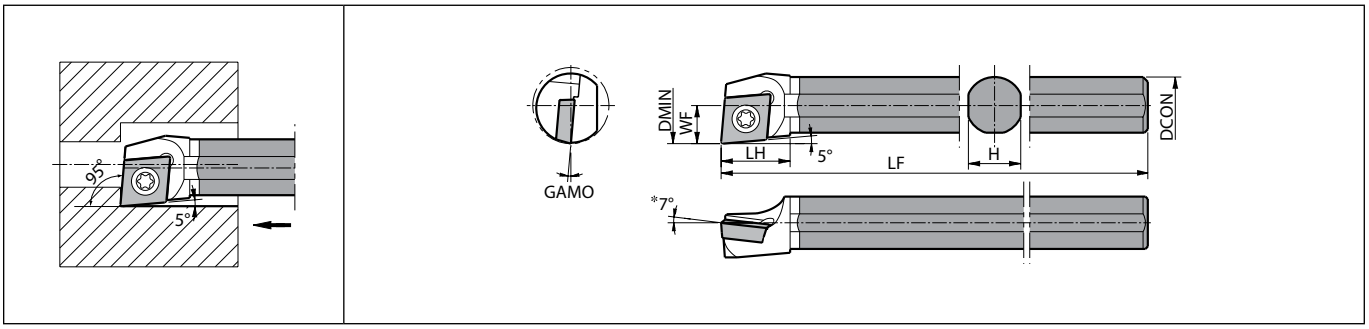
Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	LH	LF	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
Inch	S06M- SCLP R/L 2.5	●	●	0.472	0.375	1.000	6.00	0.236	5	1/64	No	SB-3STR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
	S08M- SCLP R/L 3	●	●	0.630	0.500	1.180	6.00	0.315	4	1/64	No	SB-4TR	FT-15	-	CP□B32... CP□H32... CP□T32...
	S10X- SCLP R/L 3	●		0.788	0.625	1.380	7.00	0.394	3	1/64	No				
	S12R- SCLP R/L 3	●	●	0.984	0.750	1.560	8.00	0.492	0	1/64	No				
	S16T- SCLP R/L 3	●	●	1.338	1.000	1.750	12.00	0.669	0	1/64	No				

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

C-SCLP Carbide Shank Bar (Boring / Internal Facing)

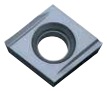
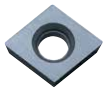


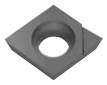
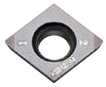
Max. Overhang Length L/D=~7 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
												Screw	Wrench	Wrench	
		R	DMIN	DCON	H	LH	LF	WF							
Inch	C06M- SCLPR2.5	●	0.472	0.375	0.334	1.000	6.00	0.236	5	1/64	No	SB-3STR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
	C08R- SCLPR3	●	0.630	0.500	0.480	1.180	8.00	0.315	4	1/64	No	SB-4TR	FT-15	-	CP□B32... CP□H32... CP□T32...
	C10S- SCLPR3	●	0.788	0.625	0.584	1.380	10.00	0.394	3	1/64	No				
	C12S- SCLPR3	●	0.984	0.750	0.710	1.560	10.00	0.492	0	1/64	No				

Applicable Inserts (S-SCLP / C-SCLP)

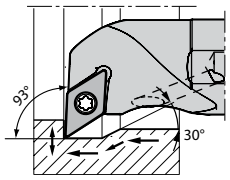
Applications	Finishing	Finishing	Finishing - Medium	Medium	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Cast Iron
Insert								
Chipbreaker Type	PP	GP	HQ	Standard	XP	XQ	FL-Y	No Chipbreaker
Page	B67	B67	B67	B67	B67	B67	B67	B67

Applications	Non-Ferrous Metals	Hard Materials
Insert		
Chipbreaker Type	PCD	CBN
Page	C41	C21

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F171~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-SDUC-AE Excellent Bar (Internal Copying)



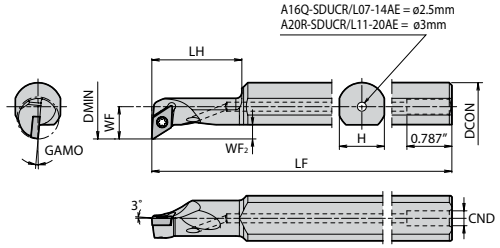


Fig. 1

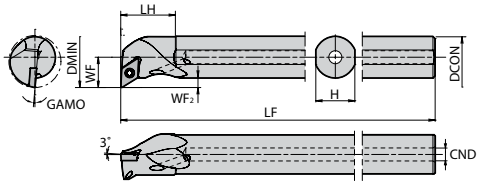


Fig. 2

Max. Overhang Length L/D=~5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

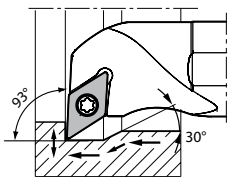
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	WF_2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
Inch	A06M- SDUC☐2AE	●	●	0.551	0.375	0.118	0.336	0.748	6.000	0.341	0.130	5	1/64	Yes	Fig.1	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	A08M- SDUC☐2AE	●	●	0.630	0.500	0.157	0.461	0.827	6.000	0.360									
	A10R- SDUC☐2AE	●	●	0.787	0.625	0.197	0.586	0.827	8.000	0.459									
	A12S- SDUC☐3AE	●	●	1.063	0.750	0.197	0.711	0.866	10.000	0.650	0.240	5	1/64	Yes	Fig.1	SB-4065TR	FT-15	-	DC□T325..., DC□W325... DC□X325...
	A16T- SDUC☐3AE	●	●	1.300	1.000	0.197	0.961	0.945	12.000	0.748									
mm	A10L- SDUC☐07-14AE	●	●	14	10	3	9	19	140	8.7	3.3	5	0.4	Yes	2	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	A12M- SDUC☐07-16AE	●	●	16	12	4	11	21	150	9.7					2				
	A16Q- SDUC☐07-14AE	●	●	14	16	5	15	28	180	10.8	4.4				1				
	SDUC☐07-20AE	●	●	20				21		11.7	3.3				2				
	A16Q- SDUC☐11-23AE	●	●	23	16	5	15	21	180	14.5	6.1	5	0.4	Yes	2	SB-4065TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	A20R- SDUC☐11-20AE	●	●	20	20		19	48	200	15.6					1				
	SDUC☐11-27AE	●	●	27				23		16.5					2				
	A25S- SDUC☐11-32AE	●	●	32	25		24	24	250	19					2				

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SDUC-A Steel Shank Bar (Internal Copying)



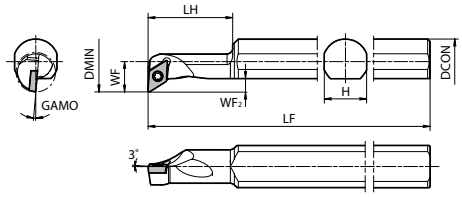


Fig. 1

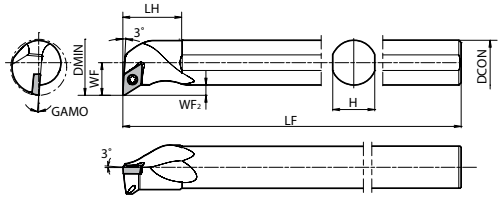


Fig. 2

Max. Overhang Length L/D=~4 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

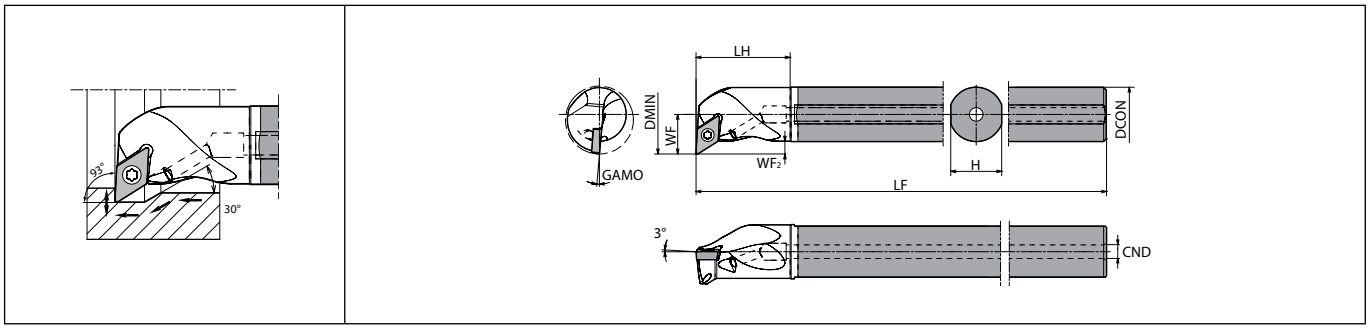
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	WF_2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
mm	S10L- SDUC☐07-14A	●	●	14	10	9	19	140	8.7	3.3	5	0.4	No	2	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	S12M- SDUC☐07-16A	●	●	16	12	11	21	150	9.7					2				
	S16Q- SDUC☐07-14A	●	●	14	16	15	28	180	10.8	4.4				1				
	SDUC☐07-20A	●	●	20			21		11.7	3.3				2				
	S16Q- SDUC☐11-23A	●	●	23	16	15	21	180	14.5	6.1	5	0.4	No	2	SB-4065TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	S20R- SDUC☐11-20A	●	●	20	20	19	48	200	15.6					1				
	SDUC☐11-27A	●	●	27			23		16.5					2				
	S25S- SDUC☐11-32A	●	●	32	25	24	24	250	19					2				

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

E-SDUC-A Carbide Shank Bar (Internal Copying)



Max. Overhang Length L/D=~7 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

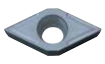
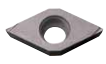
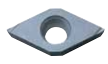
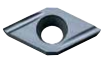
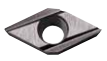
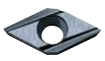
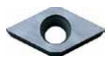
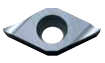
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
Inch	E06N- SDUCR2A	●		0.551	0.375	0.118	0.336	0.776	6.300	0.341	0.130	5	1/64	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	E08Q- SDUCR2A	●		0.630	0.500	0.157	0.461	0.894	7.100	0.360	0.098							
	E10X- SDUCR2A	●		0.787	0.625	0.157	0.586	1.091	8.700	0.459	0.130							
mm	E10N- SDUC□07-14A	●	●	14	10	3	9	20	160	8.7	3.3	5	0.4	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	SDUCR07-14A-2/3	●							105									
	E12Q- SDUC□07-16A	●	●	16	12	4	11	23	180	9.7								
	SDUCR07-16A-2/3	●							120									
	E16X- SDUC□07-20A	●	●	20	16		15	28	220	11.7								
	SDUCR07-20A-2/3	●							145									
	E16X- SDUC□11-23A	●	●	23	16	4	15	28	220	14.5	6.1	5	0.4	Yes	SB-4065TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	SDUCR11-23A-2/3	●							145									
	E20S- SDUC□11-27A	●	●	27	20	6	19	32	250	16.5								
	SDUCR11-27A-2/3	●							165									
	E25T- SDUC□11-32A	●	●	32	25		24	38	300	19								
	SDUCR11-32A-2/3	●							200									

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

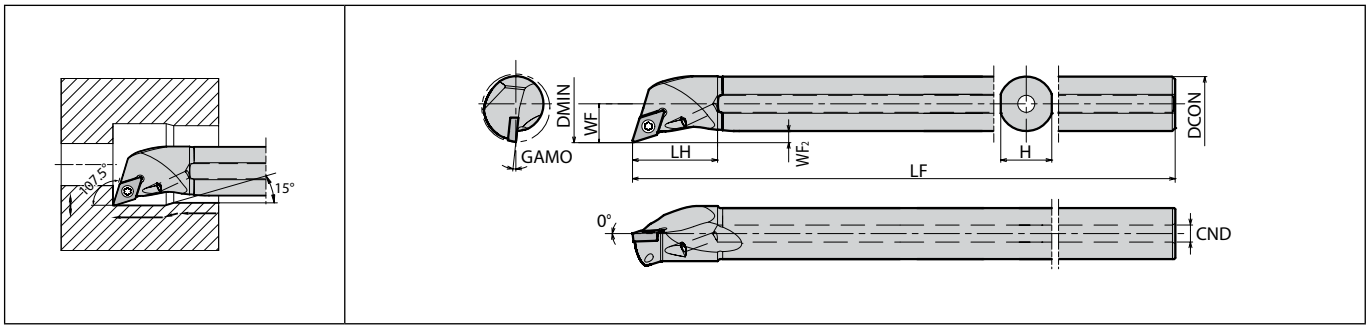
Applicable Inserts (A-SDUC-AE / S-SDUC-A / E-SDUC-A)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	CF	GF	SKS	SK	CK	GQ	WP	R/L-WP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker Type	PP	GP	GK	HQ	Standard	MF	R/L-F	R/L-FSF
Page	B69	B69	B70	B70	B70	B70	B72, B73	B72
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker Type	R/L-U	R/L-USF	R/L-J	R/L-JSF	XP	XQ	MQ	No Chipbreaker
Page	B74~B76	B74	B77	B76	B71	B71	B71	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker Type	AP	R/L-A3	AH	PCD	APD	CBN		
Page	B78	B78	B78	C42	C42	C22		

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F171~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-SDQC-AE Excellent Bar (Internal Copying)



Max. Overhang Length L/D=~5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

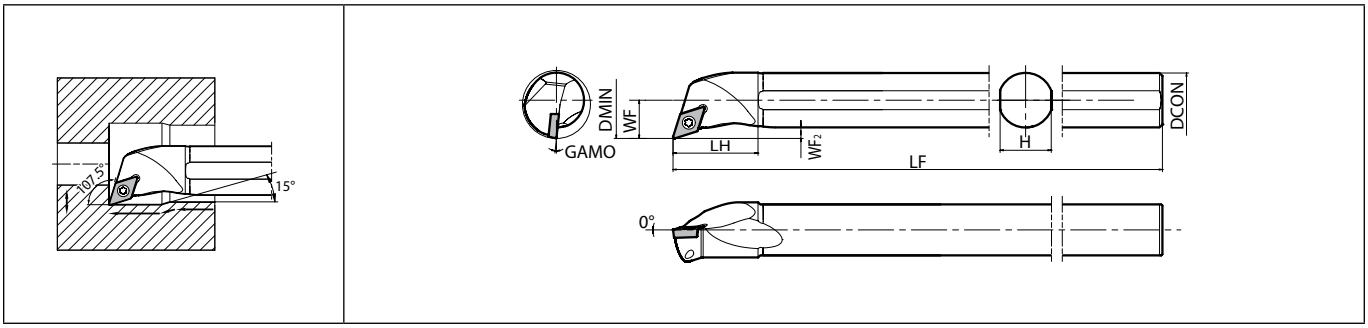
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	WF_2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
Inch	A06M- SDQC□ 2AE	●	●	0.512	0.375	0.118	0.336	0.736	6.0	0.295	0.083	10	1/64	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215...
Inch	A08M- SDQC□ 2AE	●	●	0.630	0.500	0.157	0.461	0.866	6.0	0.364	0.102	8						
Inch	A10R- SDQC□ 2AE	●	●	0.787	0.625	0.197	0.586	0.984	8.0	0.443	0.102	6						
Inch	A12S- SDQC□ 3AE	●	●	0.980	0.750		0.711	1.220	10.0	0.565	0.146	5	1/64	Yes	SB-4065TR	FT-15	-	DC□T325..., DC□W325...
mm	A10L- SDQC□ 07-13AE	●	●	13	10	3	9	19	140	7.5	2.1	10	0.4	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215...
mm	A12M- SDQC□ 07-16AE	●	●	16	12	4	11	22	150	9.25	2.6	8						
mm	A16Q- SDQC□ 07-20AE	●	●	20	16	5	15	25	180	11.3		6						
mm	A20R- SDQC□ 11-25AE	●	●	25	20	5	19	31	200	14.4	3.7	5	0.4	Yes	SB-4065TR	FT-15	-	DC□T325... DC□W325...
mm	A25S- SDQC□ 11-30AE	●	●	30	25		24	38	250	16.9		4						

WP chipbreaker (DCMX-WP : Wiper insert) is not applicable to A-SDQC-AE Toolholders.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SDQC-A Steel Shank Bar (Internal Copying)



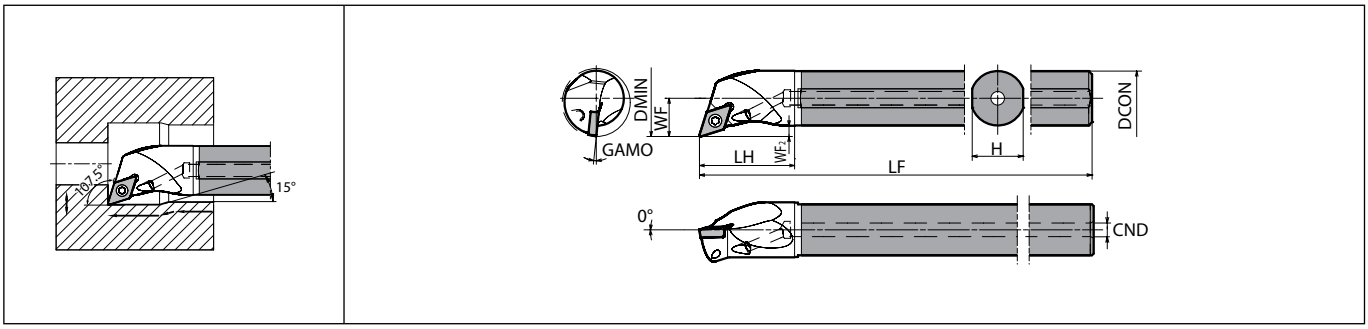
Max. Overhang Length L/D=~4 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	WF_2				Screw	Wrench	Wrench	
mm	S10L- SDQC□07-13A	●	●	13	10	9	19	140	7.5	2.1	10	0.4	No	SB-2560TR	-	FT-8	DC□T215... DC□W215...
	S12M- SDQC□07-16A	●	●	16	12	11	22	150	9.25	2.6	8						
	S16Q- SDQC□07-20A	●	●	20	16	15	25	180	11.3		6						
	S20R- SDQC□11-25A	●	●	25	20	19	31	200	14.4	3.7	5	0.4	No	SB-4065TR	FT-15	-	DC□T325... DC□W325...
	S25S- SDQC□11-30A	●	●	30	25	24	38	250	16.9		4						

WP chipbreaker (DCMX-WP : Wiper insert) is not applicable to S-SDQC-A Toolholders.

E-SDQC-A Carbide Shank Bar (Internal Copying)



Max. Overhang Length L/D=~7 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

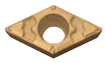
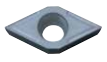
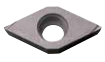
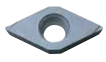
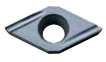
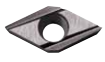
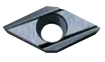
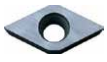
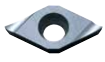
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	WF_2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
Inch	E08Q- SDQCL2A		●	0.630	0.500	0.157	0.461	0.906	7.1	0.364	0.102	8	1/64	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215...
mm	E10N- SDQC□07-13A	●	●	13	10	3	9	20	160	7.5	2.1	10	0.4	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215...
	SDQCR07-13A-2/3	●							105									
	E12Q- SDQC□07-16A	●	●	16	12	4	11	23	180	9.25	2.6	8						
	SDQCR07-16A-2/3	●							120									
	E16X- SDQC□07-20A	●	●	20	16		15	28	220	11.3		6						
	SDQCR07-20A-2/3	●							145									
	E20S- SDQC□11-25A	●	●	25	20	6	19	32	250	14.4	3.7	5	0.4	Yes	SB-4065TR	FT-15	-	DC□T325... DC□W325...
	SDQCR11-25A-2/3	●							165									
	E25T- SDQC□11-30A	●	●	30	25		24	38	300	16.9		4						
	SDQCR11-30A-2/3	●							200									

WP chipbreaker (DCMX-WP : Wiper insert) is not applicable to E-SDQC-A Toolholders.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

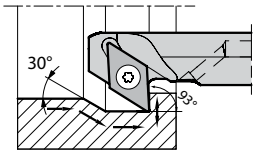
Applicable Inserts (A-SDQC-AE / S-SDQC-A / E-SDQC-A)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	CF	GF	SKS	SK	CK	GQ	PP	GP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing	Low Feed	Low Feed
Insert								
Chipbreaker Type	GK	HQ	Standard	MF	R/L-F	R/L-FSF	R/L-U	R/L-USF
Page	B70	B70	B70	B70	B72, B73	B72	B74~B76	B74
Applications	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker Type	R/L-J	R/L-JSF	XP	XQ	MQ	No Chipbreaker	AP	R/L-A3
Page	B77	B76	B71	B71	B71	B78	B78	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials				
Insert								
Chipbreaker Type	AH	PCD	APD	CBN				
Page	B78	C42	C42	C22				

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F171~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-SDZC-AE Excellent Bar (Back Boring)



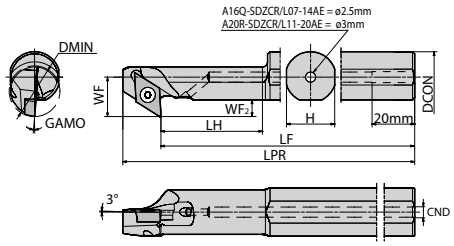


Fig. 1

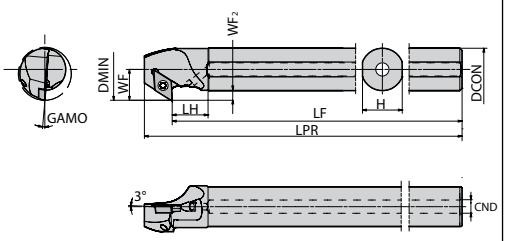


Fig. 2

Max. Overhang Length L/D=~5.5 | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

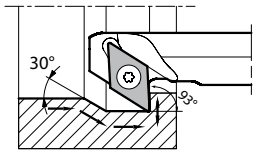
Toolholder Dimensions

Unit	Part Number		Std. Item		Dimensions									GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts
			R	L	DMIN	DCON	CND	H	LH	LPR	LF	WF	WF_2					Screw	Wrench	Wrench	
mm	A10L-	SDZC□07-14AE	●	●	14	10	3	9	14	140	130.5	8.7	3.3	5	0.4	Yes	2	SB-2545TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	A12M-	SDZC□07-16AE	●	●	16	12	4	11		150	139.5	9.7					2	SB-2560TR			
	A16Q-	SDZC□07-14AE	●	●	14	16	5	15	30	180	170	10.8	4.4				1	SB-2545TR			
		SDZC□07-20AE	●	●	20				14		169.5	11.7	3.3				2	SB-2560TR			
	A16Q-	SDZC□11-23AE	●	●	23	16	5	15	15	180	165	14.5	6.1	5	0.4	Yes	2	SB-4065TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	A20R-	SDZC□11-20AE	●	●	20	20		19	40	200	185	15.6					1				
		SDZC□11-27AE	●	●	27				15			16.5					2				
	A25S-	SDZC□11-32AE	●	●	32	25		24		250	235	19					2				

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SDZC-A Steel Shank Bar (Back Boring)



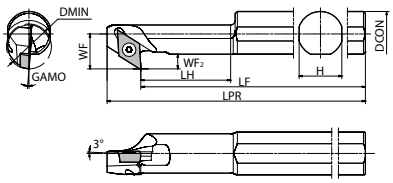


Fig. 1

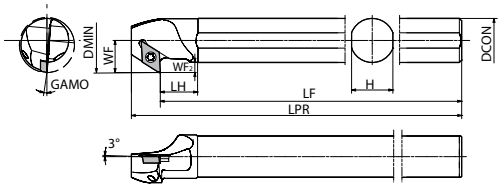


Fig. 2

Max. Overhang Length L/D=~4 | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

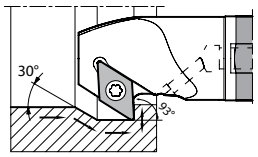
Toolholder Dimensions

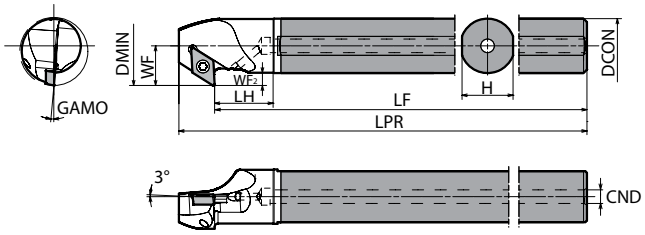
Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts
																Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LPR	LF	WF	WF_2								
mm	S10L- SDZC□07-14A	●	●	14	10	9	14	140	130.5	8.7	3.3	5	0.4	No	2	SB-2545TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	S12M- SDZC□07-16A	●	●	16	12	11		150	139.5	9.7					2	SB-2560TR			
	S16Q- SDZC□07-14A	●	●	14	16	15	30	180	170	10.8	4.4				1	SB-2545TR			
	SDZC□07-20A	●	●	20			14		169.5	11.7	3.3				2	SB-2560TR			
	S16Q- SDZC□11-23A	●	●	23	16	15	15	180	165	14.5	6.1	5	0.4	No	2	SB-4065TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	S20R- SDZC□11-20A	●	●	20	20	19	40	200	185	15.6					1				
	SDZC□11-27A	●	●	27			15			16.5					2				
	S25S- SDZC□11-32A	●	●	32	25	24		250	235	19					2				

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

E-SDZC-A Carbide Shank Bar (Back Boring)





Max. Overhang Length L/D=~7 | Right-hand shown
Right-hand Insert for Right-hand Toolholder.

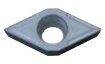
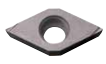
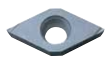
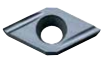
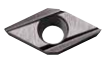
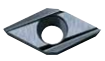
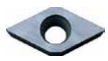
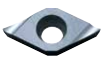
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions									GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
															Screw	Wrench	Wrench	
		R	DMIN	DCON	CND	H	LH	LPR	LF	WF	WF_2							
mm	E10N- SDZCR07-14A	●	14	10	3	9	10.5	160	150.5	8.7					SB-2545TR			
	E12Q- SDZCR07-16A	●	16	12	4	11	12.5	180	169.5	9.7	3.3	5	0.4	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	E16X- SDZCR07-20A	●	20	16		15	17.5	220	209.5	11.7								
	E16X- SDZCR11-23A	●	23	16	4	15	13	220	205	14.5	6.1	5	0.4	Yes	SB-4065TR	FT-15	-	DC□T325..., DC□W325... DC□X325...
	E20S- SDZCR11-27A	●	27	20	6	19	17	250	235	16.5								

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

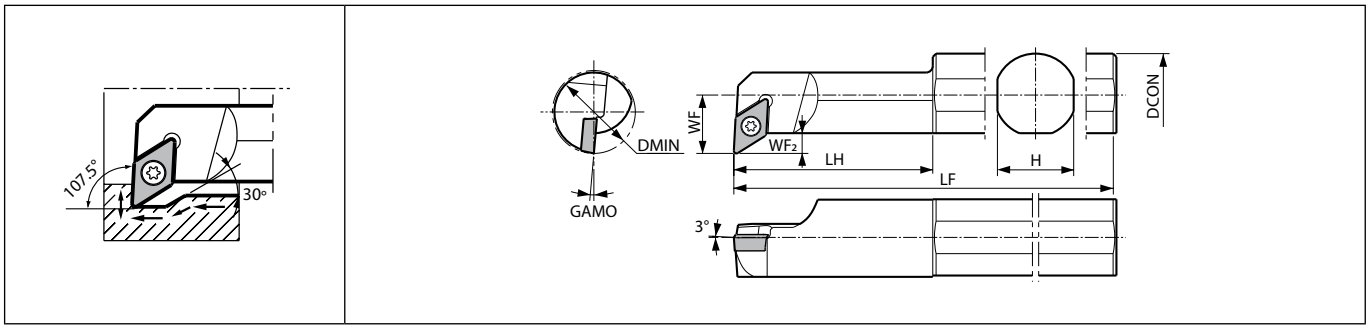
Applicable Inserts (A-SDZC-AE / S-SDZC-A / E-SDZC-A)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	CF	GF	SKS	SK	CK	GQ	WP	R/L-WP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker Type	PP	GP	GK	HQ	Standard	MF	R/L-F	R/L-FSF
Page	B69	B69	B70	B70	B70	B70	B72, B73	B72
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker Type	R/L-U	R/L-USF	R/L-J	R/L-JSF	XP	XQ	MQ	No Chipbreaker
Page	B74~B76	B74	B77	B76	B71	B71	B71	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker Type	AP	R/L-A3	AH	PCD	APD	CBN		
Page	B78	B78	B78	C42	C42	C22		

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F171~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SDUC Steel Bar (Internal Copying)



Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

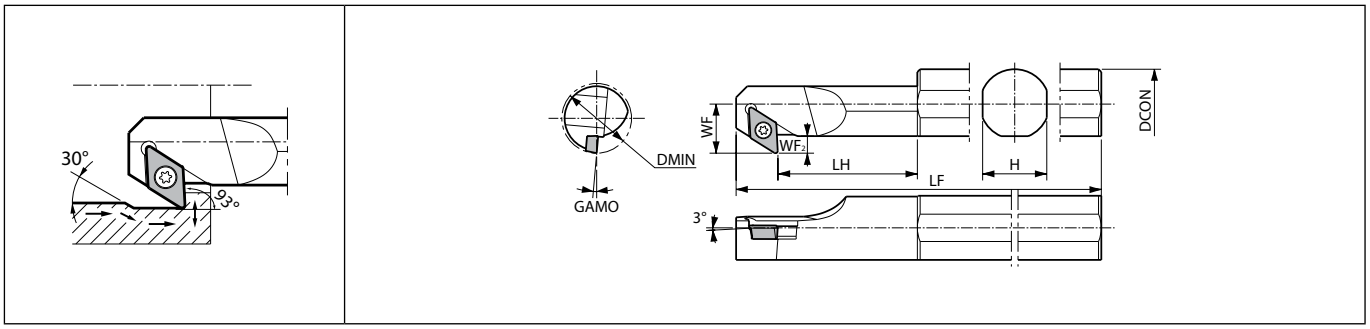
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	WF_2				Screw	Wrench	Wrench	
Inch	S08M- SDUCR2	●		0.564	0.500	0.480	1.125	6.00	0.346	0.145	5	1/64	No	SB-2560TR	-	FT-8	DC□T215..., DC□W215... DC□X215...
	S10X- SDUC□2	●	●	0.564	0.625	0.584	1.125	7.00	0.346	0.145							
	S12R- SDUC□3	●	●	0.750	0.750	0.710	1.500	8.00	0.476	0.224	5	1/32	No	SB-4085TR	FT-15	-	DC□T325..., DC□W325... DC□X325...
	S16X- SDUCR3	△		0.980	1.000	0.945	2.360	9.00	0.693	0.240							

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SDZC Steel Bar (Back Boring)



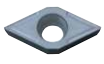
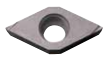
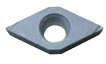
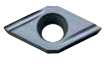
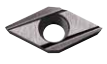
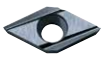
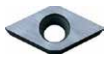
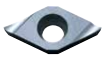
Max. Overhang Length L/D=~3 | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	WF_2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
Inch	S10X- SDZC□L 2	●	●	0.630	0.625	0.596	1.52	7.00	0.449	0.173	5	1/64	No	SB-2560TR	-	FT-8	DC□T215..., DC□W215... DC□X215...
	S12R- SDZCR3	●		0.787	0.750	0.710	1.60	8.00	0.595	0.240	5	1/32	No	SB-4085TR	FT-15	-	DC□T325..., DC□W325... DC□X325...
	S16X- SDZCR3	●		0.984	1.000	0.960	2.09	9.00	0.693	0.240							

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

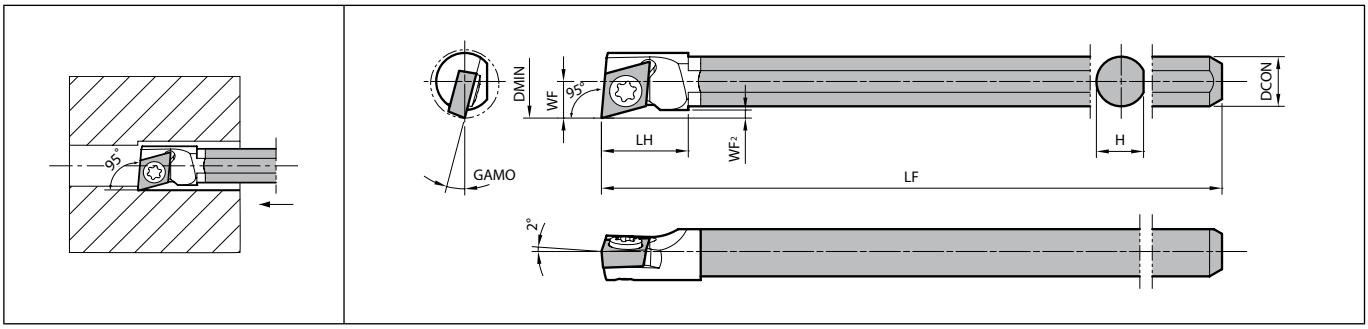
Applicable Inserts (S-SDUC / S-SDZC)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	CF	GF	SKS	SK	CK	GQ	WP	□L-WP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker Type	PP	GP	GK	HQ	Standard	MF	□L-F	□L-FSF
Page	B69	B69	B70	B70	B70	B70	B72, B73	B72
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker Type	□L-U	□L-USF	□L-J	□L-JSF	XP	XQ	MQ	No Chipbreaker
Page	B74~B76	B74	B77	B76	B71	B71	B71	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker Type	AP	□L-A3	AH	PCD	APD	CBN		
Page	B78	B78	B78	C42	C42	C22		

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F171~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

C-SJLC Carbide Shank Bar (Boring / Internal Facing)

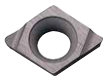
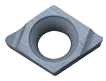


Max. Overhang Length L/D=~7 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	WF_2				Screw	Wrench	
mm	C04X- SJLC R/L 03-055	●	●	5.5	4	3.8	7	91	2.95	0.65	15	0.03	No	SB-1635TR	FT-6	JC□T1109...

Applicable Inserts

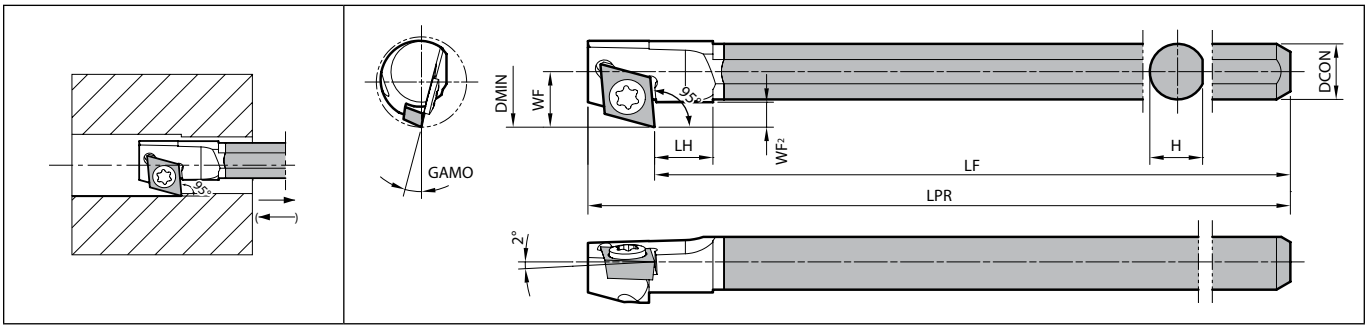
Applications	Finishing	Finishing
Insert		
Chipbreaker Type	R/L-F	R/L-FSF
Page	B80	B80

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F170, F172, F173

- Features of C-SJLC
  1. Specially designed for minimized bore dia.
  2. A relief angle of 15˚ ensures high flexibility of the tool pass during pecking.
  3. Retaining front relief angle 5˚ and good surface finish during Internal Facing.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

C-SJZC Carbide Shank Bar (Back Boring)

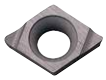
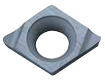


Max. Overhang Length L/D=~7 | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.
When using Right-hand Toolholder, use Right-hand insert if machining from back to front in this direction (→).
Use Left-hand insert if machining from front to back in this direction (←).

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
		R	L	DMIN	DCON	H	LH	LPR	LF	WF	WF_2				Screw	Wrench	
mm	C04X- SJZC□03-065	●	●	6.5	4	3.8	4	93	88.1	4	1.8	15	0.03	No	SB-1635TR	FT-6	JC□T1109...

Applicable Inserts

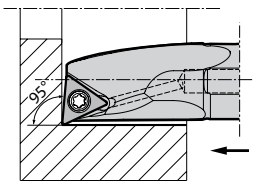
Applications	Finishing	Finishing
Insert		
Chipbreaker Type	□-F	□-FSF
Page	B80	B80

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F170, F172, F173

• Features of C-SJZC

1. Back Boring bars for workpiece that require high concentric circle accuracy and when a change of chuck is not possible.
2. Available for back boring and pecking.
3. Despite the small size of minimum boring dia. as ø6.5mm, the edge gap is retained as large as 1.8 mm.

A/S-STLB(P)-AE Excellent Bar (Boring / Internal Facing)



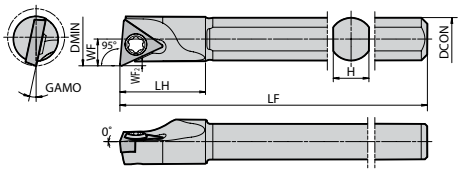


Fig. 1

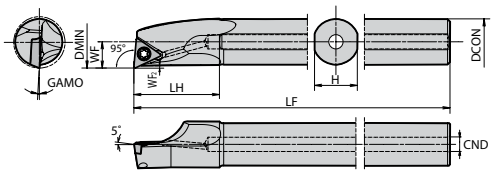


Fig. 2

Max. Overhang Length L/D=~5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

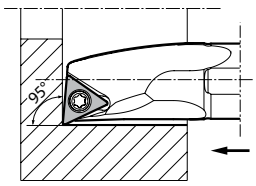
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	WF_2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
Inch	S04H- STLB R/L 1.2AE	●	●	0.312	0.250	-	0.211	0.472	4	0.150	0.025	12	0.008	No	1	SB-2035TR	-	FT-6	TB□T121..., TB□W121...
	A05K- STLB R/L 1.2AE	●	●	0.392	0.312	0.098	0.273	0.630	5	0.201	0.031	12	0.008	Yes	2				
	A05K- STLP R/L 1.8AE	●	●	0.392	0.312		0.273	0.630	5	0.197	0.022	10	1/64	Yes	2	SB-2545TR	-	FT-8	TP□B1815..., TP□H1815... TP□T1815..., TP□X1815...
	A06M- STLP R/L 1.8AE	●	●	0.480	0.375	0.118	0.336	0.787	6	0.244	0.036	8							
	A06M- STLP R/L 2AE	●	●	0.480	0.375		0.336	0.787	6	0.236	0.030	10	1/64	Yes	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	A08M- STLP R/L 2AE	●	●	0.580	0.500	0.157	0.461	0.945	6	0.283	0.032	7							
	A10R- STLP R/L 2AE	●	●	0.700	0.625	0.197	0.586	1.181	8	0.362	0.036	3.5							
	A12S- STLP R/L 2AE	●	●	0.825	0.750	0.197	0.711	1.417	10	0.421	0.031	2							
	A16T- STLP R/L 3AE	●	●	1.280	1.000	0.197	0.961	1.811	12	0.539	0.031	0	1/64	Yes	2	SB-4065TR	FT-15	-	TP□B32..., TP□H32... TP□T32...
mm	S06H- STLB R/L 06-08AE	●	●	8	6	-	5	12	100	3.8	0.5	12	0.2	No	1	SB-2035TR	-	FT-6	TB□T121..., TB□W121...
	A08X- STLP R/L 08-10AE	●	●	10	8	2.5	7	16	120	5	0.5	10	0.4	Yes	2	SB-1TR	-	FT-6	TP□B1515..., TP□H1515... TP□T1515...
	A08X- STLP R/L 09-10AE	●	●	10	8	2.5	7	16	120	5	0.5	10	0.4	Yes	2	SB-2545TR	-	FT-8	TP□B1815... TP□H1815... TP□T1815... TP□X1815...
	A10L- STLP R/L 09-12AE	●	●	12	10	3	9	20	140	6.2	0.9	8							
	A12M- STLP R/L 09-16AE	●	●	16	12	4	11	24	150	8	0.6	5							
	A10L- STLP R/L 11-12AE	●	●	12	10	3	9	20	140	6	0.7	10	0.4	Yes	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	A12M- STLP R/L 11-14AE	●	●	14	12	4	11	24	150	7.2	0.8	7							
	A16Q- STLP R/L 11-18AE	●	●	18	16	5	15	30	180	9.2	0.7	3.5							
	A20R- STLP R/L 11-22AE	●	●	22	20		19	36	200	11.2		2							
	A20R- STLP R/L 16-25AE	●	●	25	20	5	19	36	200	13	0.7	0	0.4	Yes	2	SB-4065TR	FT-15	-	TP□B32... TP□H32... TP□T32...
	A25S- STLP R/L 16-27AE	●	●	27	25		24	46	250	13.7									

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.
When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-STLB(P)-A Steel Shank Bar (Boring / Internal Facing)



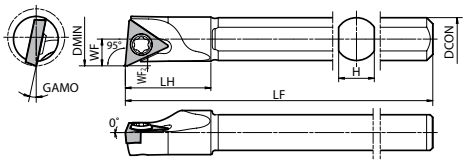


Fig. 1

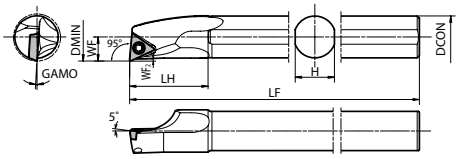


Fig. 2

Max. Overhang Length L/D=~4 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

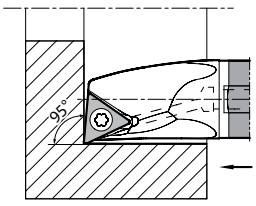
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts
															Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF_2								
mm	S06H- STLBL06-08A		●	8	6	5	12	100	3.8	0.5	12	0.2	No	1	SB-2035TR		FT-6	TB□T121..., TB□W121...
	S08X- STLP□08-10A	●	●	10	8	7	16	120	5	0.5	10	0.4	No	2	SB-1TR	-	FT-6	TP□B1515..., TP□H1515... TP□T1515...
	S08X- STLP□09-10A	●	●	10	8	7	16	120	5	0.5	10	0.4	No	2	SB-2545TR	-	FT-8	TP□B1815... TP□H1815... TP□T1815... TP□X1815...
	S10L- STLP□09-12A	●	●	12	10	9	20	140	6.2	0.9	8							
	S12M- STLP□09-16A	●	●	16	12	11	24	150	8	0.6	5							
	S10L- STLP□11-12A	●	●	12	10	9	20	140	6	0.7	10	0.4	No	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	S12M- STLP□11-14A	●	●	14	12	11	24	150	7.2	0.8	7							
	S16Q- STLP□11-18A	●	●	18	16	15	30	180	9.2	0.7	3.5							
	S20R- STLP□11-22A	●	●	22	20	19	36	200	11.2		2							
	S25S- STLP□16-27A	●	●	27	25	24	46	250	13.7	0.7	0	0.4	No	2	SB-4065TR	FT-15	-	TP□B32..., TP□H32... TP□T32...

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.
When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

C/E-STLB(P)-A(N) Carbide Shank Bar (Boring / Internal Facing)



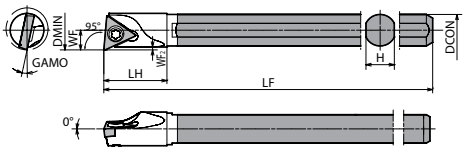


Fig. 1

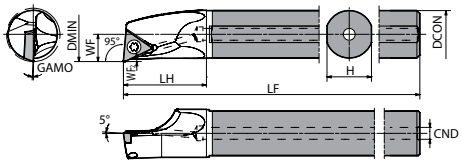


Fig. 2

Max. Overhang Length L/D=~7 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

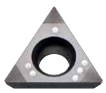
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
mm	C06J- STLBP□06-08AN	●	●	8	6	-	5.4	10	110	3.8	0.5	12	0.2	No	1	SB-2035TR	-	FT-6	TB□T121..., TB□W121...
	E08L- STLPP□08-10AN	●	●	10	8	3	7	14	140	5	0.5	10	0.4	Yes	2	SB-1TR	-	FT-6	TP□B1515..., TP□H1515... TP□T1515...
	E08L- STLPP□09-10AN	●	●	10	8	3	7	14	140	5	0.5	10	0.4	Yes	2	SB-2545TR	-	FT-8	TP□B1815... TP□H1815... TP□T1815... TP□X1815...
	E10N- STLPP□09-12AN	●	●	12	10	3	9	18	160	6.2	0.9	8							
	STLPR09-12AN2/3	●							105										
	STLPR09-12AN1/2	●							80										
	E12Q- STLPP□09-16A	●	●	16	12	4	11	23	180	8	0.6	5							
	STLPR09-16A-2/3	●							120										
	STLPR09-16A-1/2	●							90										
	E10N- STLPP□11-12AN	●	●	12	10	3	9	18	160	6	0.7	10	0.4	Yes	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	STLPR11-12AN2/3	●							105										
	STLPR11-12AN1/2	●							80										
	E12Q- STLPP□11-14A	●	●	14	12	4	11	23	180	7.2	0.8	7							
	STLPR11-14A-2/3	●							120										
	STLPR11-14A-1/2	●							90										
	E16X- STLPP□11-18A	●	●	18	16		15	28	220	9.2	0.7	3.5							
	STLPR11-18A-2/3	●							145										
	STLPR11-18A-1/2	●							110										
	E20S- STLPP□11-22A	●	●	22	20	6	19	32	250	11.2		2							
	STLPR11-22A-2/3	●							165										
	STLPR11-22A-1/2	●							125										
	E20S- STLPP□16-25A	●	●	25	20	6	19	32	250	13	0.7	0	0.4	Yes	2	SB-4065TR	FT-15	-	TP□B32... TP□H32... TP□T32...
	STLPR16-25A-2/3	●							165										
	STLPR16-25A-1/2	●							125										
	E25T- STLPP□16-27A	●	●	27	25		24	38	300	13.7									
	STLPR16-27A-2/3	●							200										

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.
When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

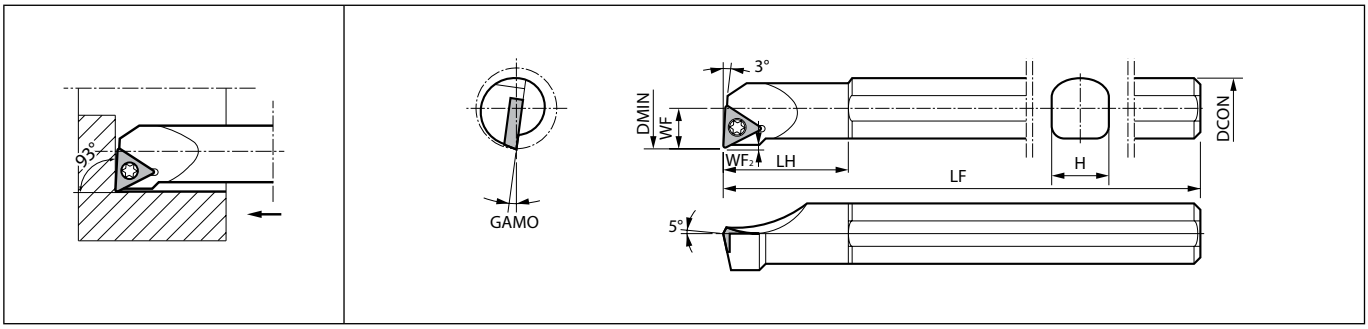
Applicable Inserts (A/S-STLB(P)-AE / S-STLB(P)-A / C/E-STLB(P)-A(N))

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium
Insert								
Chipbreaker Type	CF	PF	WP	R/L-WP	PP	GP	DP	HQ
Page	B84, B88	B84, B88	B88	B88	B88	B89	B84	B89
Applications	Finishing	Finishing	Finishing	Medium	Low Feed	Low Carbon Steel	Low Carbon Steel	Cast Iron
Insert								
Chipbreaker Type	R/L	R/L-FSF	R/L-P	R/L-H	R/L-USF	XP	XQ	No Chipbreaker
Page	B84, B90, B91	B92	B92	B93	B94	B89	B89	B84, B94
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials				
Insert								
Chipbreaker Type	AP	PCD	APD	CBN				
Page	B94	C44, C46, C47	C47	C23				

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F170~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-STUB(P) Steel Bar (Boring)



Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

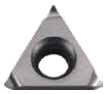
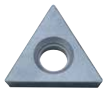
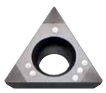
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
Inch	S04H- STUBR1.2	●		0.312	0.250	0.224	0.50	4.00	0.148	0.023	12	1/64	No	SB-1STR	-	FT-6	TB□T121..., TB□W121...
	S05K- STUPR1.5	●		0.392	0.313	0.270	0.75	5.00	0.196	0.020	13	1/64	No	SB-1TR	-	FT-6	TP□B1515..., TP□H1515... TP□T1515...
	S06M- STUP R/L 1.8	●	●	0.472	0.375	0.356	1.01	6.00	0.236	0.015	13	1/64	No	SB-2TR	-	FT-8	TP□B1815..., TP□H1815... TP□T1815..., TP□X1815...
	S08M- STUPR1.8	●		0.630	0.500	0.480	1.18	6.00	0.315	0.090	10						
	S10X- STUP R/L 2	●	●	0.787	0.625	0.584	1.38	7.00	0.394	0.100	7	1/64	No	SB-3TR	FT-10	-	TP□B22..., TP□H22... TP□T22..., TP□X22...
	S12R- STUP R/L 2	●	●	0.912	0.750	0.710	1.58	8.00	0.456	0.115	5						

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.
When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

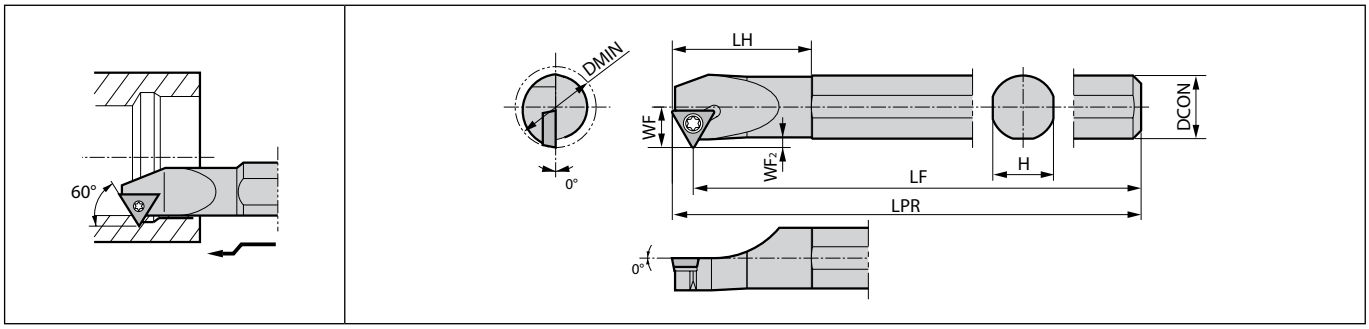
Applicable Inserts (S-STUB(P))

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium
Insert								
Chipbreaker Type	CF	PF	WP	R/L-WP	PP	GP	DP	HQ
Page	B84, B88	B84, B88	B88	B88	B88	B89	B84	B89
Applications	Finishing	Finishing	Finishing	Medium	Low Feed	Low Carbon Steel	Low Carbon Steel	Cast Iron
Insert								
Chipbreaker Type	R/L	R/L-FSF	R/L-P	R/L-H	R/L-USF	XP	XQ	No Chipbreaker
Page	B84, B90, B91	B92	B92	B93	B94	B89	B89	B84, B94
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials				
Insert								
Chipbreaker Type	AP	PCD	APD	CBN				
Page	B94	C44, C46, C47	C47	C23				

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F170~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-STWP-E Excellent Bar (Internal Copying)



Max. Overhang Length L/D=~5 | This toolholder is also available for threading. | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

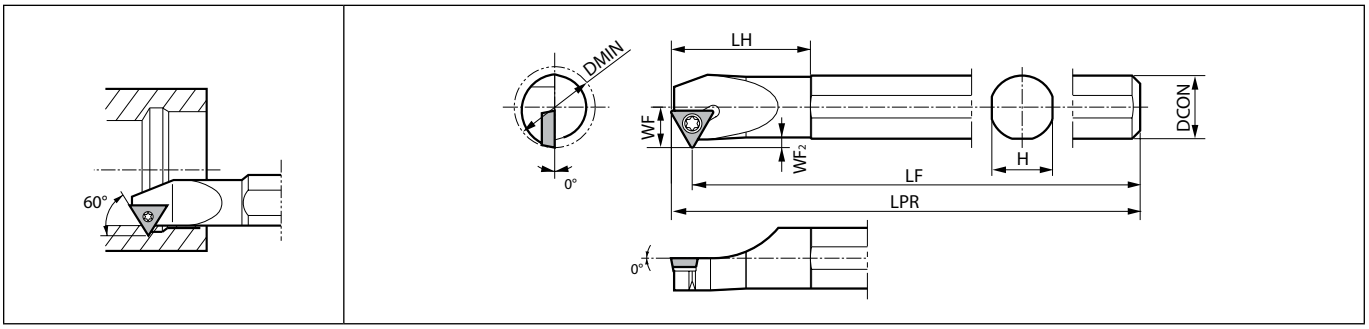
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LPR	LF	WF	WF_2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
mm	S10M- STWP□11-12E	●	●	12	10	9.2	23	150	144.5	6	1	0	0.1	No	SB-3STR	-	FT-10	TP□B215..., TP□H215...
	S12M- STWP□11-16E	●	●	16	12	11	30			8	1.5							TP□B22... TP□H22... TP□T22...
	S16R- STWP□11-20E	●	●	20	16	15	35	200	194.5	10	2				SB-3TR			
	S20X- STWP□11-25E	●	●	25	20	19	40	220	214.5	12.5	2.5							
	S20X- STWP□16-25E	●	●	25	20	19	40	220	212.3	14	4	0	0.8	No	SB-4TR	FT-15	-	TP□B32..., TP□H32... TP□T32...
	S25X- STWP□16-32E	●	●	32	25	24	42	270	262.3	16.5								

WP chipbreaker (TPMX-WP : Wiper insert) is not applicable to S-STWP-E Toolholders.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-STWP Steel Shank Bar (Internal Copying)



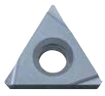
Max. Overhang Length L/D=~3 | This toolholder is also available for threading. | Right-hand shown
Left-hand Insert for Right-hand Toolholder.

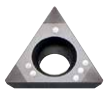
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
			R	DMIN	DCON	H	LH	LPR	LF	WF	WF2				Screw	Wrench	
Inch	S06M- STWPR2	●	0.476	0.375	0.350	0.91	6.00	5.795	0.238	0.056	0	1/64	No	SB-3STR	FT-10	TP□B215..., TP□H215...
Inch	S12R- STWPR2	●	0.970	0.750	0.726	1.60	8.00	7.795	0.485	0.115						
mm	S10M- STWPR11-12	●	12	10	9.2	23	150	144.5	6	1	0	0.1	No	SB-3STR	FT-10	TP□B215..., TP□H215...
mm	S12M- STWPR11-16	●	16	12	11	30			8	1.5						TP□B22... TP□H22... TP□T22...
mm	S16Q- STWPR11-20	●	20	16	15	35	180	174.5	10	2				SB-3TR		
mm	S20R- STWPR11-25	●	25	20	19	40	200	194.5	12.5	2.5						

WP chipbreaker (TPMX-WP : Wiper insert) is not applicable to S-STWP Toolholders.

Applicable Inserts (S-STWP-E / S-STWP)

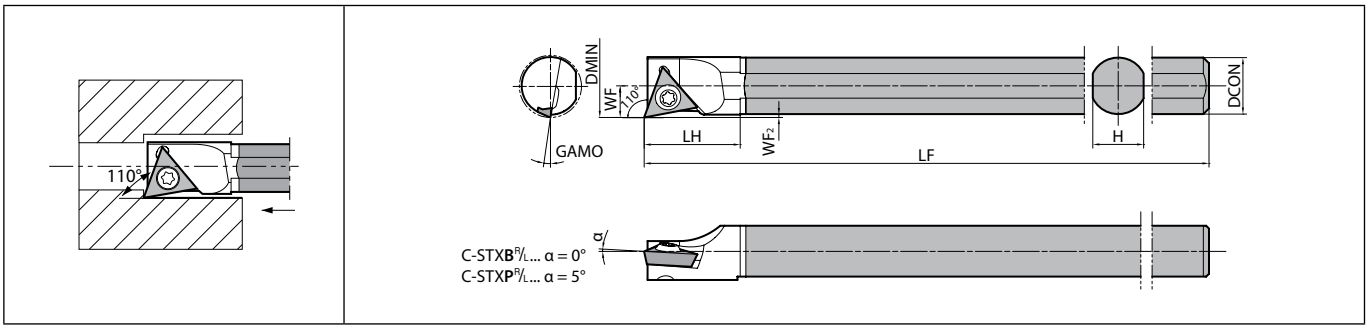
Applications	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Medium	Low Feed	Low Carbon Steel
Insert								
Chipbreaker Type	PP	GP	HQ	R/L	R/L-FSF	R/L-H	R/L-USF	XP
Page	B88	B89	B89	B90, B91	B92	B93	B94	B89

Applications	Low Carbon Steel	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials
Insert						
Chipbreaker Type	XQ	No Chipbreaker	AP	PCD	APD	CBN
Page	B89	B94	B94	C46, C47	C47	C23

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F170~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

C-STXB(P) Carbide Shank Bar (Boring / Internal Facing)



Max. Overhang Length L/D=~7 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

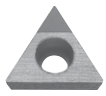
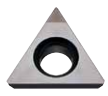
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Dimensions DMIN	DCON	H	LH	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts
mm	C06J- STXBR/L 06-075	●	●	7.5	6	5.4	11	110	3.75	0.5	10	0.03	No	SB-1STR	FT-6	TB□T121..., TB□W121...
mm	C08X- STXPR/L 08-09	●	●	9	8	7	14	143	4.6	0.5	10	0.03	No	SB-1TR	FT-6	TP□B1515..., TP□H1515..., TP□T1515...
mm	C10X- STXPR/L 09-11	●	●	11	10	9	17	164	5.6	0.5	10	0.03	No	SB-2TR	FT-8	TP□B1815..., TP□H1815..., TP□T1815...

WP chipbreaker (TPMX-WP : Wiper insert) is not applicable to C-STXP Toolholders.

Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	CF	PF	PP	GP	DP	HQ	R/L	R/L-FSF
Page	B84, B88	B84, B88	B88	B89	B84	B89	B84, B90, B91	B92

Applications	Medium	Low Feed	Low Carbon Steel	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials
Insert							
Chipbreaker Type	R/L-H	R/L-USF	XP	No Chipbreaker	AP	PCD	CBN
Page	B93	B94	B89	B84, B94	B94	C44, C46, C47	C23

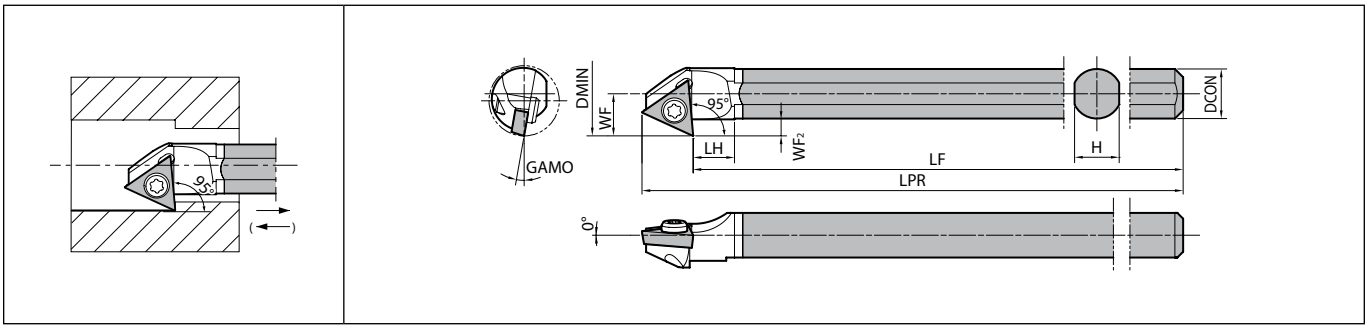
Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F170~F173

C-STXP(B) Boring Bar Cutting Conditions (Workpiece Material : Alloy Steel)

Toolholder Part Number	Insert Part Number (Grades)	Vc (sfm)	D.O.C. (in)	f (ipr)	Coolant
C06J-STXBR/L 06-075	TBGT12101L/R (PR930)	100~330	0.0008~0.0039	0.0008~0.0016	Yes
C08X-STXPR/L 08-09	TPGH151502L/R (PR930)	100~330	0.0020~0.0059	0.0012~0.0031	Yes
C10X-STXPR/L 09-11	TPGH181502L/R (PR930)	100~330	0.0020~0.0059	0.0012~0.0031	Yes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

C-STZB Carbide Shank Bar (Back Boring)



Max. Overhang Length L/D=~7 | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.
When using Right-hand Toolholder, use Right-hand insert if machining from back to front in this direction (→).
Use Left-hand insert if machining from front to back in this direction (←).

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
		R	DMIN	DCON	H	LH	LPR	LF	WF	WF2				Screw	Wrench	
mm	C06J- STZBR06-085	●	8.5	6	5.4	5	110	104.3	5.1	1.8	10	0.03	No	SB-1STR	FT-6	TB□T121..., TB□W121...

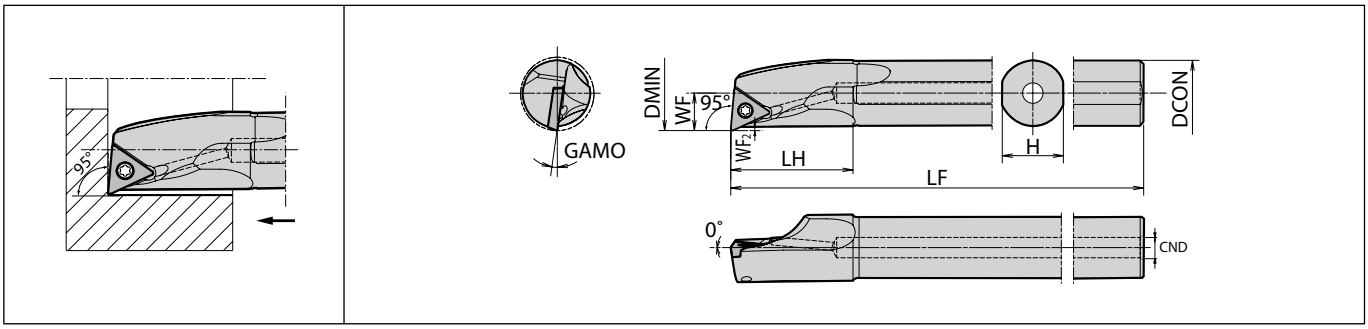
Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Cast Iron	Non-Ferrous Metals
Insert						
Chipbreaker Type	CF	PF	DP	R/L	No Chipbreaker	PCD
Page	B84	B84	B84	B84	B84	C44

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F170~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-STLC-AE Excellent Bar (Boring / Internal Facing)



Max. Overhang Length L/D=~5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	WF_2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
mm	A08X- STLC□09-10AE	●	●	10	8	2.5	7	16	120	5	0.5	14	0.4	Yes	SB-2250TR	FT-7	TCMT1815... TCMX1815...
	A10L- STLC□09-12AE	●	●	12	10	3	9	20	140	6.2	0.9	12					
	A10L- STLC□11-12AE	●	●	12	10	3	9	20	140	6.2	0.9	12	0.4	Yes	SB-2560TR	FT-8	TCMT215... TCMX215...
	A12M- STLC□11-14AE	●	●	14	12	4	11	24	150	7.2	0.7	10					
	A16Q- STLC□11-18AE	●	●	18	16	5	15	30	180	9.2		8					
	A20R- STLC□11-22AE	●	●	22	20		19	36	200	11.2		6					

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

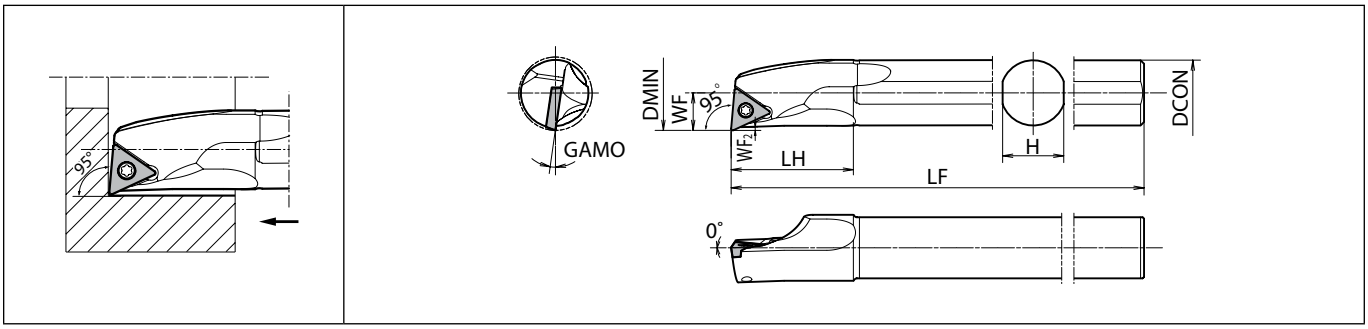
Applicable Inserts

Applications	Finishing	Finishing - Medium
Insert		
Chipbreaker Type	WP	HQ
Page	B85	B85

Recommended Cutting Conditions ➡ **F174, F175**
Applicable Sleeves ➡ **F170~F173**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-STLC-A Steel Shank Bar (Boring / Internal Facing)



Max. Overhang Length L/D=~4 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	WF_2				Screw	Wrench	
mm	S08X- STLC□09-10A	●	●	10	8	7	16	120	5	0.5	14	0.4	No	SB-2250TR	FT-7	TCMT1815... TCMX1815...
	S10L- STLC□09-12A	●	●	12	10	9	20	140	6.2	0.9	12					
	S10L- STLC□11-12A	●	●	12	10	9	20	140	6.2	0.9	12	0.4	No	SB-2560TR	FT-8	TCMT215... TCMX215...
	S12M- STLC□11-14A	●	●	14	12	11	24	150	7.2	0.7	10					
	S16Q- STLC□11-18A	●	●	18	16	15	30	180	9.2		8					
	S20R- STLC□11-22A	●	●	22	20	19	36	200	11.2		6					

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

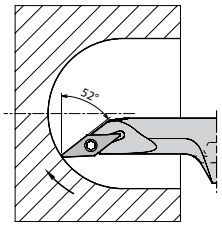
Applicable Inserts

Applications	Finishing	Finishing - Medium
Insert		
Chipbreaker Type	WP	HQ
Page	B85	B85

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F170~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-SVJP(C)(B)-AE Excellent Bar (Spherical Machining / Internal Facing / Internal Copying)



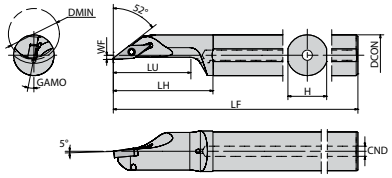


Fig. 1

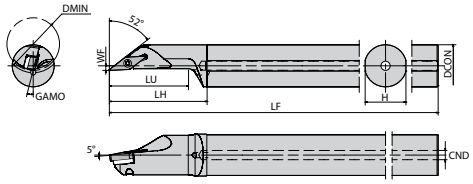


Fig. 2

Max. Overhang Length L/D=~5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

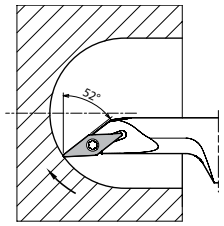
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	LU	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench	Applicable Inserts
Inch	A12S- SVJB[R/L] 2AE	●	●	0.984	0.750	0.197	0.711	-	10	1.476	0.079	5	1/64	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
Inch	A16T- SVJB[R/L] 2AE	●	●	1.180	1.000	0.197	0.961	-	12	1.772	0.138	5	1/64	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
Inch	A16T- SVJBR3AE	●		1.180	1.000	0.197	0.961	2.240	12	1.950	0.236	5	1/64	Yes	1	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
mm	A12M- SVJP[R/L] 08-16AE	●	●	16	12	4	11	33	150	26	2	5	0.2	Yes	1	SB-2050TR	-	FT-6	-	-	-	VP□T1515...
mm	A12M- SVJC[R/L] 08-16AE	●	●	16	12	4	11	33	150	26	2	5	0.4	Yes	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
mm	A16Q- SVJC[R/L] 08-20AE	●	●	20	16		15	43	180	36												
mm	A20R- SVJB[R/L] 11-25AE	●	●	25	20	5	19	48	200	37.5	2	5	0.4	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
mm	A25S- SVJB[R/L] 11-30AE	●	●	30	25	7	24	58	250	45	3.5											
mm	A32S- SVJB[R/L] 16-40AE	●	●	40	32	7	31	74	250	60	3.5	8	0.4	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
mm	A40T- SVJB[R/L] 16-50AE	●	●	50	40	9	39	91	300	75	4.5	7	0.4	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...

Use of VB□T22..-Y / VB□T33..-Y inserts with A-SVJB-AE is not recommended.
When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SVJP(C)(B)-A Steel Shank Bar (Spherical Machining / Internal Facing / Internal Copying)



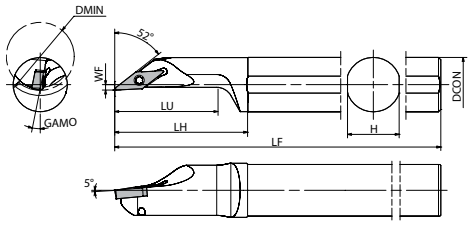


Fig. 1

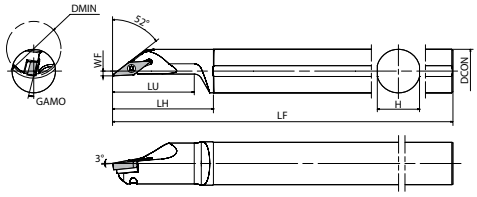


Fig. 2

Max. Overhang Length L/D=~4 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

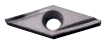
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts						Applicable Inserts
															Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
		R	L	DMIN	DCON	H	LH	LF	LU	WF											
mm	S12M- SVJP□08-16A	●	●	16	12	11	33	150	26	2	5	0.2	No	1	SB-2050TR	-	FT-6	-	-	-	VP□T1515...
	S12M- SVJC□08-16A	●	●	16	12	11	33	150	26	2	5	0.4	No	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
	S16Q- SVJC□08-20A	●	●	20	16	15	43	180	36												
	S20R- SVJB□11-25A	●	●	25	20	19	48	200	37.5	2	5	0.4	No	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	S25S- SVJB□11-30A	●	●	30	25	24	58	250	45	3.5											
	S32S- SVJB□16-40A	●	●	40	32	31	74	250	60	3.5	8	0.4	No	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	S40T- SVJB□16-50A	●	●	50	40	39	91	300	75	4.5	7										

Use of VB□T22..-Y / VB□T33..-Y inserts with S-SVJB-A is not recommended.
When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

Applicable Inserts (A-SVJP(C)(B)-AE / S-SVJP(C)(B)-A)

Applications	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Low Feed
Insert								
Chipbreaker Type	CK	VF	PP	GP	HQ	R/L-F	R/L-FSF	R/L-U
Page	B102	B97, B100	B97, B100	B97	B97, B100	B98, B103	B98, B103	B104

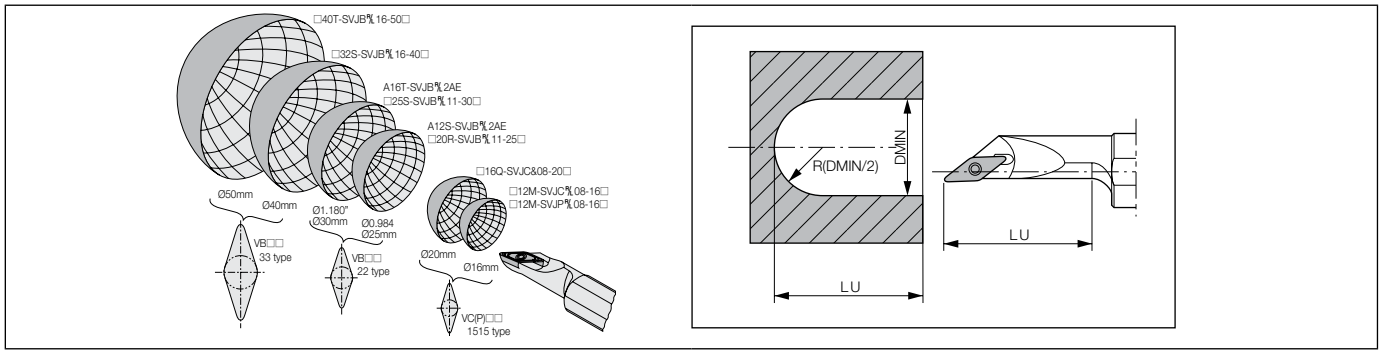
Applications	Low Feed	Finishing - Medium	Non-Ferrous Metals	Hard Materials
Insert				
Chipbreaker Type	R/L-USF	R/L-Y	PCD	CBN
Page	B104	B99	C49, C50	C26, C27

Recommended Cutting Conditions ➡ **F174, F175**
Applicable Sleeves ➡ **F170~F173**

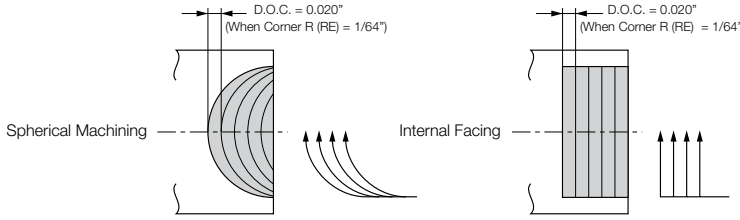
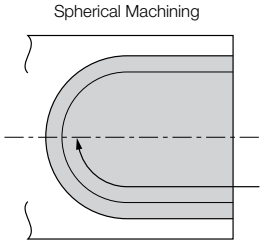
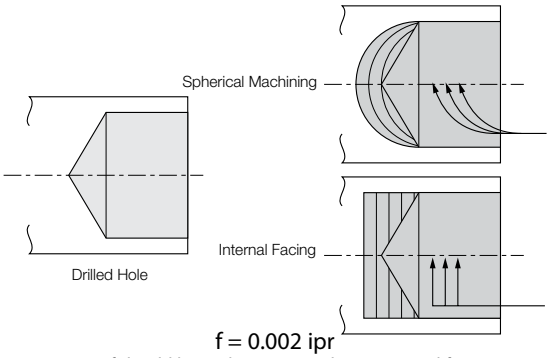
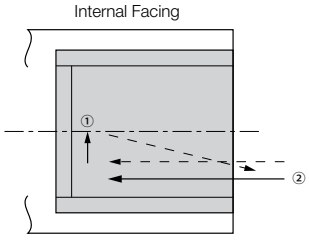
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Application of A...SVJP(C)-□, S...SVJP(C)-□

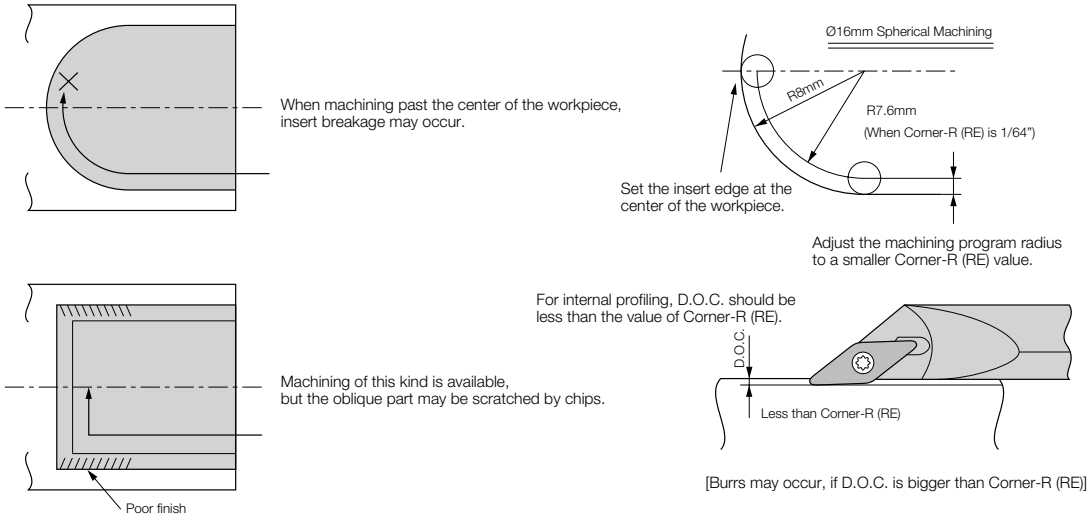
1. Application Range



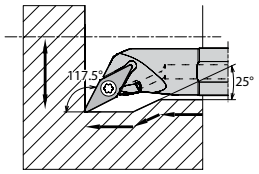
2. Machining Method

In Cases with No Existing Hole	Finishing
	
f = 0.002 ipr (Note) f should be under 0.002 ipr during internal facing	Machining Process 1. First, finish the internal face. 2. Next, finish the internal diameter.
In Cases with Drilled Hole	
	
f = 0.002 ipr (Note) f should be under 0.002 ipr during internal facing	

3. Caution



A-SVPC(B)-AE Excellent Bar (Internal Copying / Undercutting)



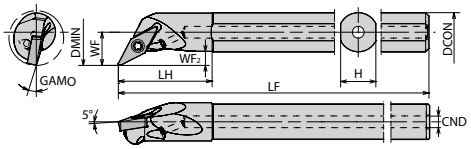


Fig. 1

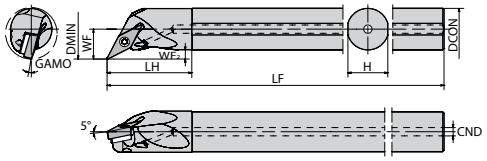


Fig. 2

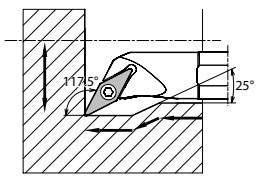
Max. Overhang Length L/D=~5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench	Applicable Inserts
Inch	A06M- SVPC□1.5AE	●	●	0.630	0.375	0.118	0.336	0.945	6	0.335	0.118	8	1/64	Yes	1	SB-2570TR	-	FT-8	-	-	-	VC□T1515... VC□W1515...
Inch	A08M- SVPB□2AE	●	●	0.790	0.500	0.157	0.461	1.142	6	0.433	0.177	8	1/64	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
Inch	A10R- SVPB□2AE	●	●	0.980	0.625	0.197	0.586	1.378	8	0.531	0.197	5										
Inch	A12S- SVPB□2AE	●	●	1.180	0.750	0.197	0.711	1.575	10	0.610	0.197	5										
Inch	A16T- SVPB□3AE	●	●	1.240	1.000	0.197	0.961	2.008	12	0.709	0.197	13°	1/64	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
mm	A10L- SVPC□08-14AE	●	●	14	10	3	9	24	140	8.5	3	8	0.4	Yes	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
mm	A12M- SVPB□11-18AE	●	●	18	12	4	11	29	150	11	4.5	8										
mm	A16Q- SVPB□11-22AE	●	●	22	16	5	15	35	180	13.5	5	5	0.4	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
mm	A20R- SVPB□11-26AE	●	●	26	20		19	41	200	15.5												
mm	A25S- SVPB□16-31AE	●	●	31	25	5	24	51	250	18	5	13	0.4	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
mm	A32S- SVPB□16-40AE	●	●	40	32		31	54		23	6.5	9										

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

S-SVPC(B)-A Steel Shank Bar (Internal Copying / Undercutting)



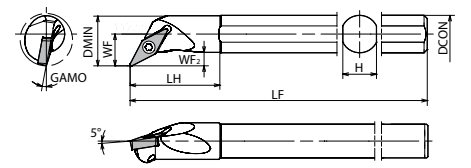


Fig. 1

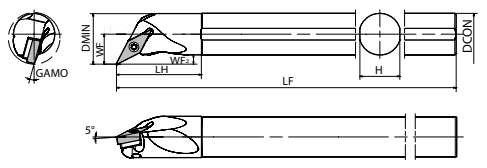


Fig. 2

Max. Overhang Length L/D=~4 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

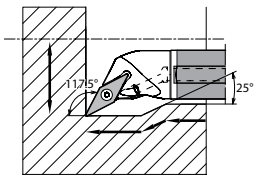
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole		Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench	Applicable Inserts
mm	S10L- SVPC□08-14A	●	●	14	10	9	24	140	8.5	3	8	0.4	No	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515..., VC□W1515...
mm	S12M- SVPB□11-18A	●	●	18	12	11	29	150	11	4.5	8										
mm	S16Q- SVPB□11-22A	●	●	22	16	15	35	180	13.5	5	5	0.4	No	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
mm	S20R- SVPB□11-26A	●	●	26	20	19	41	200	15.5												
mm	S25S- SVPB□16-31A	●	●	31	25	24	51	250	18	5	13	0.4	No	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33..., VB□W33... VC□T33...
mm	S32S- SVPB□16-40A	●	●	40	32	31	54		23	6.5	9										

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

E-SVPC(B)-A Carbide Shank Bar (Internal Copying / Undercutting)



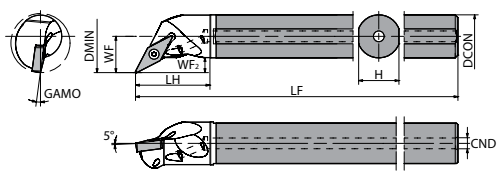


Fig. 1

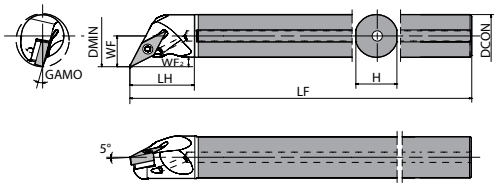


Fig. 2

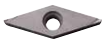
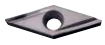
Max. Overhang Length L/D=~7 | Right-hand shown | Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts						Applicable Inserts
															Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
		R	DMIN	DCON	CND	H	LH	LF	WF	WF_2											
mm	E10N- SVPCR08-14A	●	14	10	3	9	20	160	8.5	3	8	0.4	Yes	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
	E12Q- SVPBR11-18A	●	18	12	4	11	23	180	11	4.5	8	0.4	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	E16X- SVPBR11-22A	●	22	16		15	28	220	13.5	5	5										
	E20S- SVPBR11-26A	●	26	20	6	19	32	250	15.5												
	E25T- SVPBR16-31A	●	31	25	6	24	38	300	18	5	13	0.4	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

Applicable Inserts (A-SVPC(B)-AE / S-SVPC(B)-A / E-SVPC(B)-A)

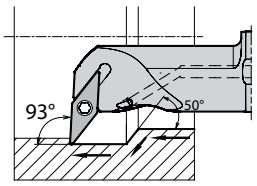
Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker Type	VF	PP	GP	HQ	P/L-F	P/L-FSF	P/L-Y	PCD
Page	B97, B100	B97, B100	B97	B97, B100	B98	B98	B99	C49, C50

Applications	Hard Materials
Insert	
Chipbreaker Type	CBN
Page	C26, C27

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F170~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-SVUC(B)-AE Excellent Bar (Internal Copying)



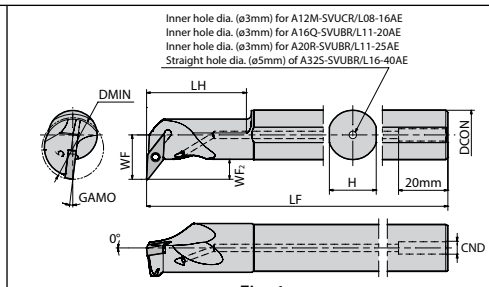


Fig. 1

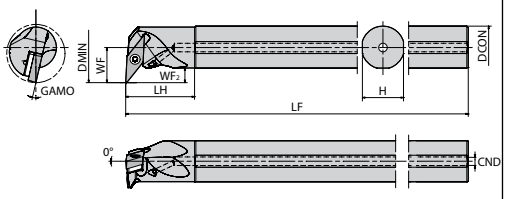


Fig. 2

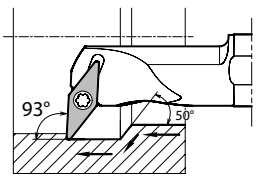
Toolholder Dimensions

Max. Overhang Length L/D=~5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts: Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	Applicable Inserts
Inch	A08M- SVUC□ 1.5AE	●	●	0.630	0.500	0.157	0.461	1.004	6	0.453	0.217	8	1/64	Yes	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
	A10R- SVUB□ 2AE	●	●	0.790	0.625	0.197	0.586	1.280	8	0.630	0.315	8	1/64	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	A12S- SVUB□ 2AE	●	●	0.980	0.750	0.197	0.711	1.595	10	0.709	0.315	7										
	A16T- SVUB□ 3AE	●	●	1.340	1.000	0.197	0.961	1.583	12	0.807	0.335	13	1/64	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
mm	A12M- SVUC□ 08-16AE	●	●	16	12	4	11	25.5	150	11.5	5.5	8	0.4	Yes	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
	A16Q- SVUB□ 11-20AE	●	●	20	16	5	15	32.5	180	16	8	8	0.4	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	A20R- SVUB□ 11-25AE	●	●	25	20		19	40.5	200	18		7										
	A25S- SVUB□ 16-34AE	●	●	34	25	5	24	40	250	20.5	8.5	13	0.4	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	A32S- SVUB□ 16-40AE	●	●	40	32	5	31	84	250	28	12	9	0.4	Yes	1							

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

S-SVUC(B)-A Steel Shank Bar (Internal Copying)



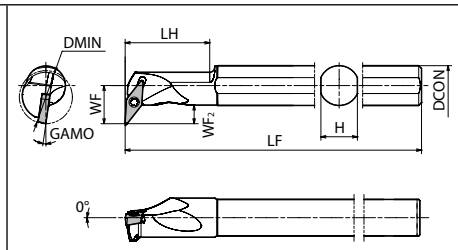


Fig. 1

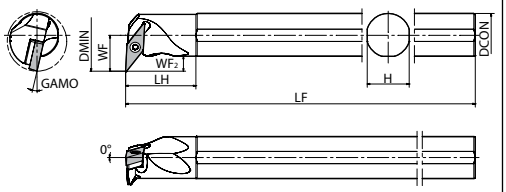


Fig. 2

Toolholder Dimensions

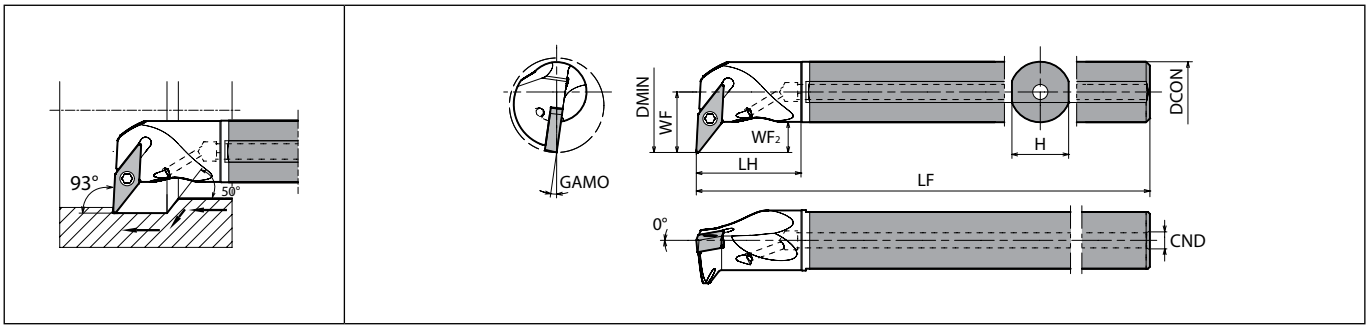
Max. Overhang Length L/D=~4 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts: Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	Applicable Inserts
mm	S12M- SVUC□ 08-16A	●	●	16	12	11	25.5	150	11.5	5.5	8	0.4	No	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
	S16Q- SVUB□ 11-20A	●	●	20	16	15	32.5	180	16	8	8	0.4	No	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	S20R- SVUB□ 11-25A	●	●	25	20	19	40.5	200	18		7										
	S25S- SVUB□ 16-34A	●	●	34	25	24	40	250	20.5	8.5	13	0.4	No	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	S32S- SVUB□ 16-40A	●	●	40	32	31	84	250	28	12	9	0.4	No	1							

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

E-SVUC(B)-A Carbide Shank Bar (Internal Copying)



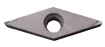
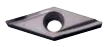
Max. Overhang Length L/D=~7 | Right-hand shown
Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench	Applicable Inserts
		R	DMIN	DCON	CND	H	LH	LF	WF	WF2										
mm	E12Q- SVUCR08-18A	●	18	12	4	11	23	180	11.5	5.5	8	0.4	Yes	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
	E16X- SVUBR11-25A	●	25	16	4	15	28	220	16	8	8	0.4	Yes	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	E20S- SVUBR11-29A	●	29	20	6	19	32	250	18		7									
	E25T- SVUBR16-34A	●	34	25	6	24	38	300	21	8.5	13	0.4	Yes	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

Applicable Inserts (A-SVUC(B)-AE / S-SVUC(B)-A / E-SVUC(B)-A)

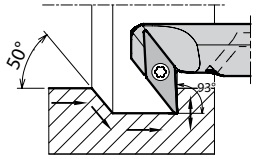
Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker Type	VF	PP	GP	HQ	R/L-F	R/L-FSF	R/L-Y	PCD
Page	B97, B100	B97, B100	B97	B97, B100	B98	B98	B99	C49, C50

Applications	Hard Materials
Insert	
Chipbreaker Type	CBN
Page	C26, C27

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F170~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-SVZC(B)-AE Excellent Bar (Back Boring)



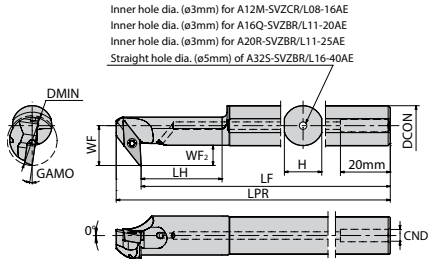


Fig. 1

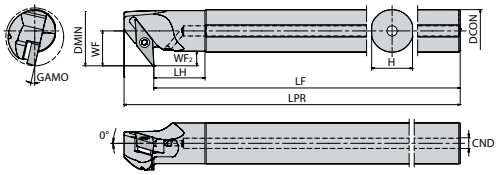


Fig. 2

Max. Overhang Length L/D=~5.5 | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

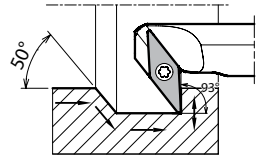
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LPR	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench	Applicable Inserts
Inch	A08M- SVZC R/L 1.5AE	●	●	0.630	0.500	0.157	0.461	1.004	-	6	0.453	0.217	8	1/64	Yes	6	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
Inch	A10R- SVZB R/L 2AE	●	●	0.790	0.625	0.197	0.586	1.280	-	8	0.630	0.315	8	1/64	Yes	6	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
Inch	A12S- SVZB R/L 2AE	●	●	0.980	0.750	0.197	0.711	1.595	-	10	0.709	0.315	7										
Inch	A16T- SVZB R/L 3AE	●	●	1.340	1.000	0.197	0.961	1.181	-	12	0.807	0.335	13	1/64	Yes	7	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
mm	A12M- SVZC R/L 08-16AE	●	●	16	12	4	11	25.5	150	142.5	11.5	5.5	8	0.4	Yes	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
mm	A16Q- SVZB R/L 11-20AE	●	●	20	16	5	15	32.5	180	170	16	8	8	0.4	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
mm	A20R- SVZB R/L 11-25AE	●	●	25	20		19	40.5	200	190	18		7										
mm	A25S- SVZB R/L 16-34AE	●	●	34	25	5	24	30	250	232.5	20.5	8.5	13	0.4	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
mm	A32S- SVZB R/L 16-40AE	●	●	40	32	5	31	72.5	250	232.5	28	12	9	0.4	Yes	1							

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SVZC(B)-A Steel Shank Bar (Back Boring)



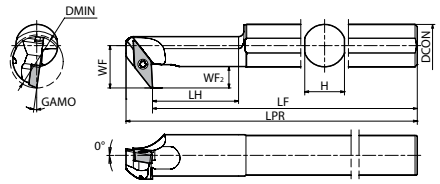


Fig. 1

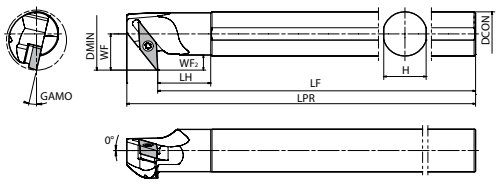


Fig. 2

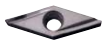
Max. Overhang Length L/D=~4 | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LPR	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench	Applicable Inserts
mm	S12M- SVZC□/□08-16A	●	●	16	12	11	25.5	150	142.5	11.5	5.5	8	0.4	No	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
	S16Q- SVZB□/□11-20A	●	●	20	16	15	32.5	180	170	16	8	8	0.4	No	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	S20R- SVZB□/□11-25A	●	●	25	20	19	40.5	200	190	18		7										
	S25S- SVZB□/□16-34A	●	●	34	25	24	30	250	232.5	20.5	8.5	13	0.4	No	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	S32S- SVZB□/□16-40A	●	●	40	32	31	72.5	250	232.5	28	12	9	0.4	No	1							

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

Applicable Inserts (A-SVZC(B)-AE / S-SVZC(B)-A)

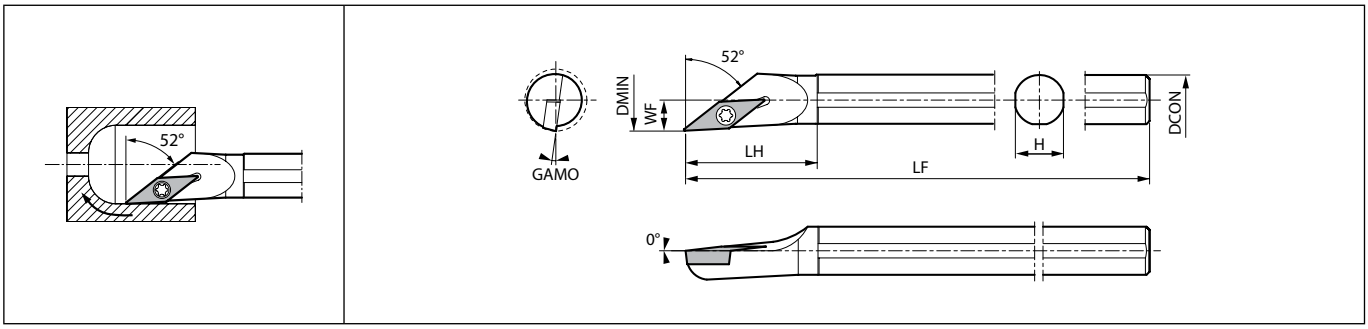
Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker Type	VF	PP	GP	HQ	□-F	□-FSF	□-Y	PCD
Page	B97, B100	B97, B100	B97	B97, B100	B98	B98	B99	C49, C50

Applications	Hard Materials
Insert	
Chipbreaker Type	CBN
Page	C26, C27

Recommended Cutting Conditions F174, F175
Applicable Sleeves F170~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SVJB Steel Bar (Spherical Machining / Internal Facing / Internal Copying)



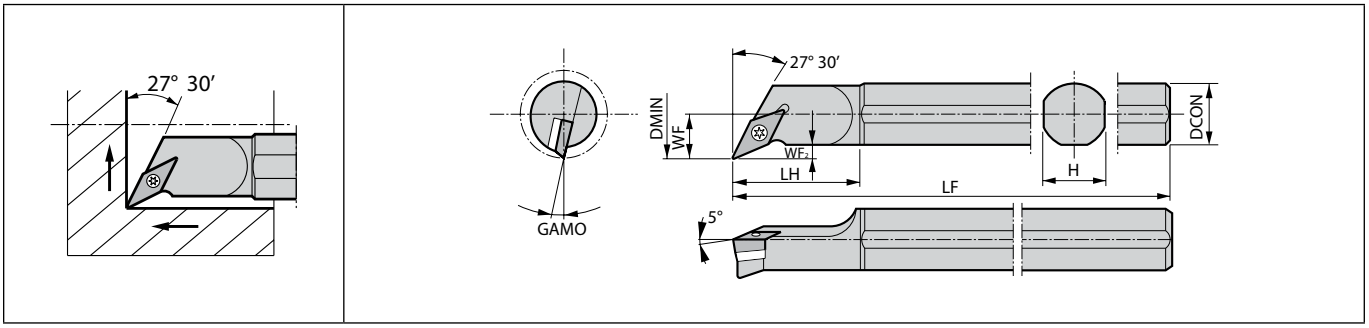
Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
Inch	S08M- SVJB□L 2	●	●	0.620	0.500	0.480	1.25	6.00	0.310	8	1/64	No	SB-2570TR	-	FT-8	VB□T22... VB□W22...
Inch	S10X- SVJB□L 2	●	●	0.780	0.625	0.584	1.44	7.00	0.390	8						
Inch	S12R- SVJB□L 3	●	●	0.984	0.750	0.710	1.86	8.00	0.492	8	1/32	No	SB-4085TR	FT-15	-	VB□T33... VB□W33... VC□T33...

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SVPB-E Excellent Bar (Copying / undercutting)

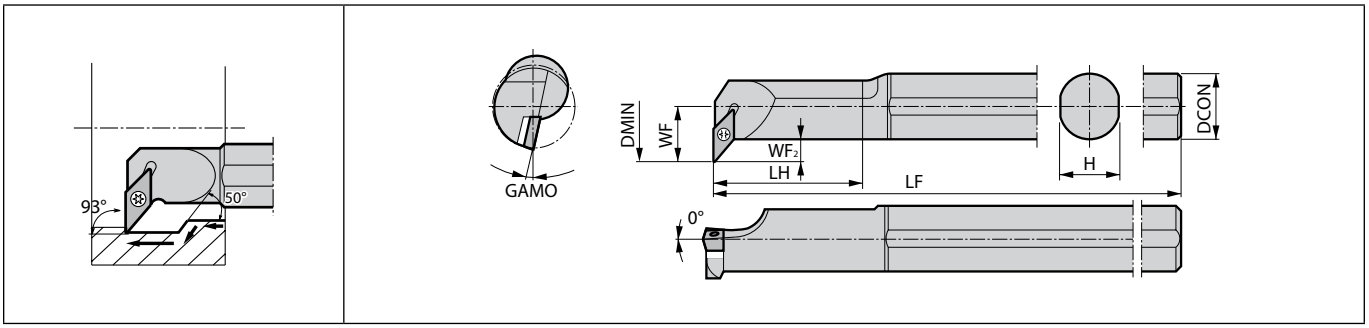


Max. Overhang Length L/D=~5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts
													Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
		R	DMIN	DCON	H	LH	LF	WF	WF_2										
Inch	S10Q- SVPBR2E	△	0.98	0.63	0.59	1.10	7.00	0.492	0.194	5	1/64	No	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	S16X- SVPBR3E	●	1.34	1.00	0.97	2.26	9.00	0.807	0.197	13	1/32	No	SB-40115TR	FT-15	-	SVN-32	SB-2050TR	FT-6	VB□T33... VB□W33... VC□T33...
	S20S- SVPBR3E	△	1.57	1.25	1.18	2.17	10.0	0.866	0.256	9									

S-SVUC(B)-E Excellent Bar (Copying)



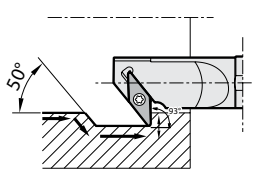
Max. Overhang Length L/D=~5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

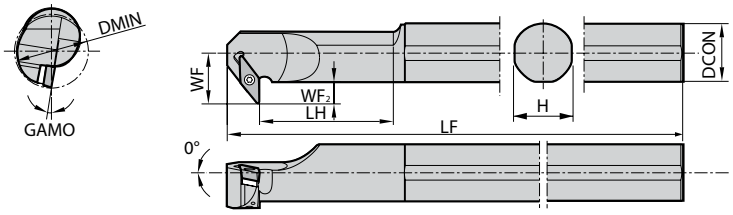
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts
														Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF_2										
Inch	S08M- SVUCR1.5E	●		0.63	0.50	0.46	1.10	6.00	0.433	0.217	8	1/64	No	SB-2050TR	-	FT-8	-	-	-	VC□T1515... VC□W1515...
	S10Q- SVUBR/L 2E	●	△	0.79	0.63	0.59	1.28	7.00	0.610	0.315	8	1/64	No	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	S12R- SVUBR/L 2E	△	△	0.98	0.75	0.71	1.59	8.00	0.689	0.355	7									
	S16X- SVUBR3E	△		1.34	1.00	0.97	1.97	9.00	0.689	0.195	13	1/32	No	SB-40115TR	FT-15	-	SVN-32	SB-2050TR	FT-6	VB□T33... VB□W33... VC□T33...
	S20S- SVUBR3E	△		1.57	1.25	1.18	3.31	10.00	1.080	0.472	9									

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

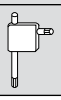
S-SVZB-E Excellent Bar (Back Boring)





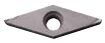
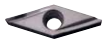
Max. Overhang Length L/D=~5 | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts
													Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
		R	DMIN	DCON	H	LH	LF	WF	WF2										
Inch	S12R- SVZBR2E	●	0.98	0.75	0.71	1.73	8.00	0.689	0.355	7	1/64	No	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts (S-SVJB-E / S-SVJB / S-SVPB-E / S-SVUC(B)-E / S-SVZB-E)

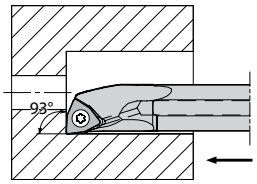
Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker Type	VF	PP	GP	HQ	R/L-F	R/L-FSF	R/L-Y	PCD
Page	B97, B100	B97, B100	B97	B97, B100	B98	B98	B99	C49, C50

Applications	Hard Materials
Insert	
Chipbreaker Type	CBN
Page	C26, C27

Recommended Cutting Conditions ➡ **F174, F175**
Applicable Sleeves ➡ **F170~F173**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A/S-SWUB(P)-AE Excellent Bar (Boring)



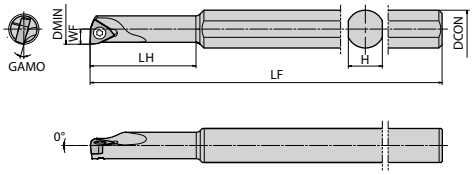


Fig. 1

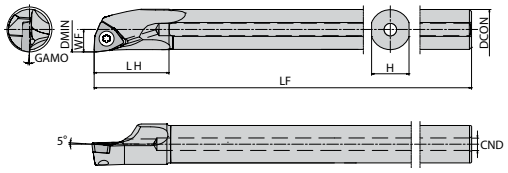


Fig. 2

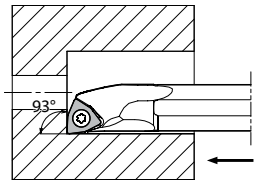
Max. Overhang Length L/D=~5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare parts: Screw	Spare parts: Wrench	Spare parts: Wrench	Applicable Inserts
Inch	S06H- SWUB R/L 1.2AE	●	●	0.240	0.375	0.118	0.336	0.827	4	0.118	15	0.008	No	1	SB-2035TR	-	FT-6	WB□T121... WB□W121...
	S06H- SWUBR1.5AE	●		0.312	0.375	0.118	0.336	1.102	4	0.157	15	0.008	No	1	SB-2035TR	-	FT-6	WB□T1515... WB□W1515...
	A06M- SWUB R/L 1.5AE	●	●	0.472	0.375	0.118	0.336	0.787	6	0.236	10	0.008	Yes	2	SB-2050TR	-	FT-6	
	A08M- SWUP R/L 2AE	●	●	0.630	0.500	0.157	0.461	0.945	6	0.276	4	1/64	Yes	2	SB-2545TR	-	FT-8	WP□T215... WP□W215...
	A10R- SWUP R/L 3AE	●	●	0.770	0.625	0.197	0.586	1.181	8	0.354	3.5	1/32	Yes	2	SB-4065TR	FT-15	-	WP□T32... WP□W32...
	A12S- SWUP R/L 3AE	●	●	0.930	0.750	0.197	0.711	1.417	10	0.413	2							
	A16T- SWUP R/L 3AE	●	●	1.200	1.000	0.197	0.961	1.811	12	0.531	0							
mm	S10H- SWUB R/L 06-06AE	●	●	6	10	-	9	21	100	3	15	0.2	No	1	SB-2035TR	-	FT-6	WB□T121... WB□W121...
	SWUB R/L 06-07AE	●	●	7				25		3.5	13							
	S10H- SWUB R/L 08-08AE	●	●	8	10	-	9	28	100	4	15	0.2	No	1	SB-2035TR	-	FT-6	WB□T1515... WB□W1515...
	A08X- SWUB R/L 08-10AE	●	●	10	8	2.5	7	16	120	5	13	0.2	Yes	2	SB-2050TR	-	FT-6	
	A10L- SWUB R/L 08-12AE	●	●	12	10	3	9	20	140	6	10							
	A12M- SWUP R/L 11-14AE	●	●	14	12	4	11	24	150	7	4	0.4	Yes	2	SB-2545TR	-	FT-8	WP□T215... WP□W215...
	A16Q- SWUP R/L 11-18AE	●	●	18	16	5	15	30	180	9	1							
	A16Q- SWUP R/L 16-18AE	●	●	18	16	5	15	30	180	9	3.5	0.8	Yes	2	SB-4065TR	FT-15	-	WP□T32... WP□W32...
	A20R- SWUP R/L 16-22AE	●	●	22	20		19	36	200	11	2							

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SWUB(P)-A Steel Shank Bar (Boring)



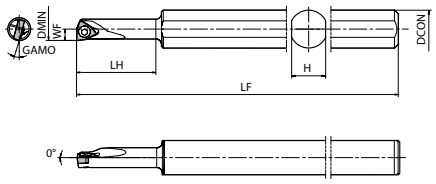


Fig. 1

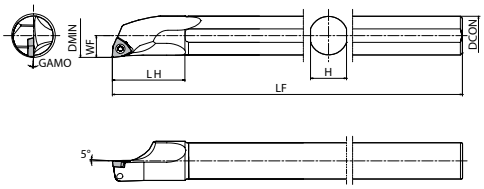


Fig. 2

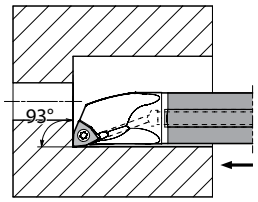
Max. Overhang Length L/D=~4 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part 3Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare parts			Applicable Inserts
														Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF								
mm	S10H- SWUB□06-06A	●	●	6	10	9	21	100	3	15	0.2	No	1	SB-2035TR	-	FT-6	WB□T121... WB□W121...
	SWUB□06-07A	●	●	7			25		3.5	13							
	S10H- SWUB□08-08A	●	●	8	10	9	28	100	4	15	0.2	No	1	SB-2035TR	-	FT-6	WB□T1515... WB□W1515...
	S08X- SWUB□08-10A	●	●	10	8	7	16	120	5	13	0.2	No	2	SB-2050TR			
	S10L- SWUB□08-12A	●	●	12	10	9	20	140	6	10							
	S12M- SWUP□11-14A	●	●	14	12	11	24	150	7	4	0.4	No	2	SB-2545TR	-	FT-8	WP□T215... WP□W215...
	S16Q- SWUP□11-18A	●	●	18	16	15	30	180	9	1							
	S16Q- SWUP□16-18A	●	●	18	16	15	30	180	9	3.5	0.8	No	2	SB-4065TR	FT-15	-	WP□T32... WP□W32...
	S20R- SWUP□16-22A	●	●	22	20	19	36	200	11	2							

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

C/E-SWUB(P)-A(N) Carbide Shank Bar (Boring)



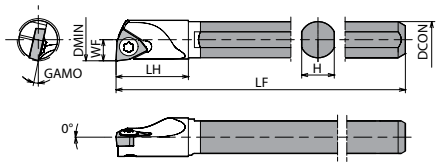


Fig. 1

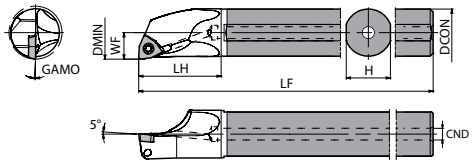


Fig. 2

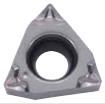
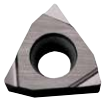
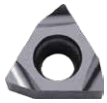
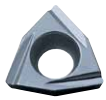
Max. Overhang Length L/D=~7 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

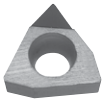
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts
															Screw	Wrench	Wrench	
		R	L	DMIN	DCON	CND	H	LH	LF	WF								
mm	C05H- SWUB□06-06AN	●	●	6	5	-	4.4	9	100	3	15	0.2	No	1	SB-2035TR	-	FT-6	WB□T121... WB□W121...
	C06J- SWUB□06-07AN	●	●	7	6	-	5.4	10	110	3.5	13							
	C07K- SWUB□08-08AN	●	●	8	7	-	6.4	11	125	4	15	0.2	No	1	SB-2035TR	-	FT-6	WB□T1515... WB□W1515...
	E08L- SWUB□08-10AN	●	●	10	8	3	7	14	140	5	13	0.2	Yes	2	SB-2050TR			
	E10N- SWUB□08-12AN	●	●	12	10		9	18	160	6	10							
	SWUBR08-12AN2/3	●							105									
	SWUBR08-12AN1/2	●							80									
	E12Q- SWUP□11-14A	●	●	14	12	4	11	23	180	7	4	0.4	Yes	2	SB-2545TR	-	FT-8	WP□T215... WP□W215...
	SWUPR11-14A-2/3	●							120									
	SWUPR11-14A-1/2	●							90									
	E16X- SWUP□11-18A	●	●	18	16		15	28	220	9	1							
	SWUPR11-18A-2/3	●							145									
	SWUPR11-18A-1/2	●							110									
	E16X- SWUP□16-18A	●	●	18	16	4	15	28	220	9	3.5	0.8	Yes	2	SB-4065TR	FT-15	-	WP□T32... WP□W32...
	SWUPR16-18A-2/3	●							145									
	SWUPR16-18A-1/2	●							110									
	E20S- SWUP□16-22A	●	●	22	20	6	19	32	250	11	2							
	SWUPR16-22A-2/3	●							165									
	SWUPR16-22A-1/2	●							125									

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts

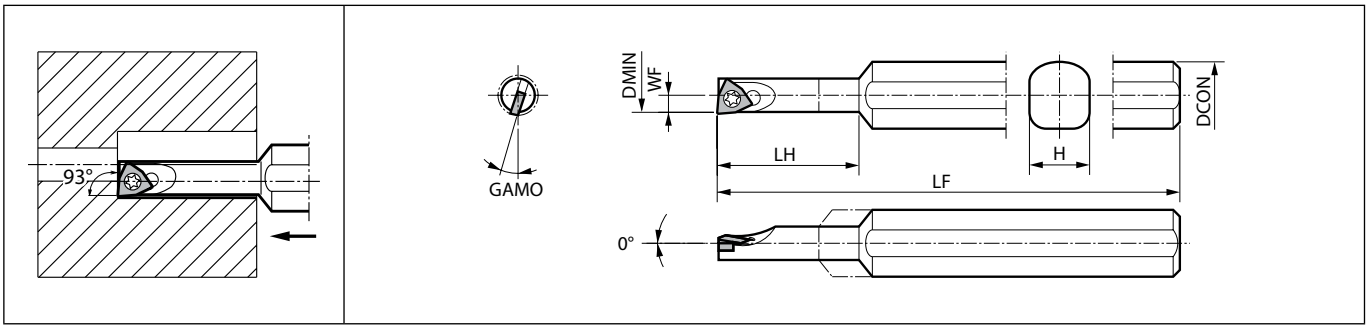
Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium
Insert								
Chipbreaker Type	PL-CF	PL-PF	GP	PL-DP	HQ	PL-F	PL-P	PL-Y
Page	B105	B105	B107	B105	B107	B105, B106	B106	B107

Applications	Cast Iron	Non-Ferrous Metals	Hard Materials
Insert			
Chipbreaker Type	No Chipbreaker	PCD	CBN
Page	B107	C51	C28

Recommended Cutting Conditions ➡ F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SWUB Steel Bar (Boring / Internal Facing)

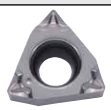
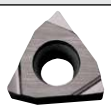
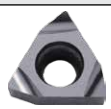
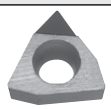
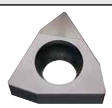


Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare parts: Screw	Spare parts: Wrench	Applicable Inserts
Inch	S06H- SWUB□1.2	●	●	0.240	0.375	0.356	0.825	4.00	0.115	15	0.004	No	SB-2040TR	FT-6	WB□T121... WB□W121...
Inch	S06X- SWUBR1.5	●		0.312	0.375	0.356	1.102	4.33	0.156	15	1/64	No	SB-2050TR	FT-6	WB□T1515... WB□W1515...

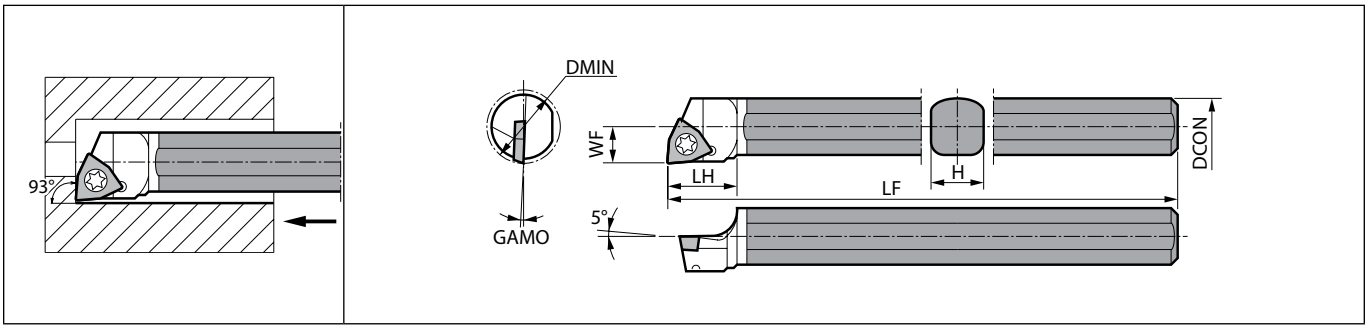
Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Cast Iron	Non-Ferrous Metals	Hard Materials
Insert								
Chipbreaker Type	□-CF	□-PF	□-DP	□-F	□-P	No Chipbreaker	PCD	CBN
Page	B105	B105	B105	B105, B106	B106	B107	C51	C28

Recommended Cutting Conditions ➔ F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

C-SWUB Carbide Shank Bar (Boring)

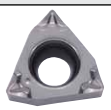
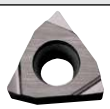
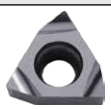
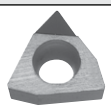
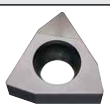


Max. Overhang Length L/D=~7 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare parts		Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF				Screw	Wrench	
Inch	C0325K- SWUB□1.2	●	●	0.240	0.203	0.180	0.50	5.00	0.118	15	1/64	No	SB-2040TR	FT-6	WB□T121... WB□W121...
	C045K- SWUB□1.5	●	●	0.312	0.281	0.252	0.55	5.00	0.157	15	1/64	No	SB-2050TR	FT-6	WB□T1515... WB□W1515...

Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Cast Iron	Non-Ferrous Metals	Hard Materials
Insert								
Chipbreaker Type	□-CF	□-PF	□-DP	□-F	□-P	No Chipbreaker	PCD	CBN
Page	B105	B105	B105	B105, B106	B106	B107	C51	C28

Recommended Cutting Conditions F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

ZBMT Series

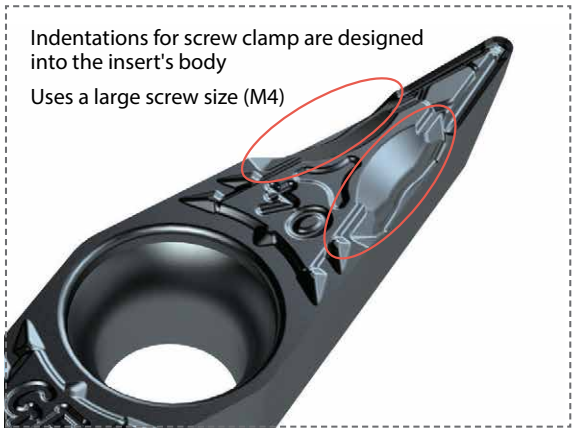
25° Insert Profiling Tools

Unique clamping structure and a wide lineup of external toolholders and boring bars
Wide range of applications including copying, undercutting, tapering, V-slotting, spherical machining, and more

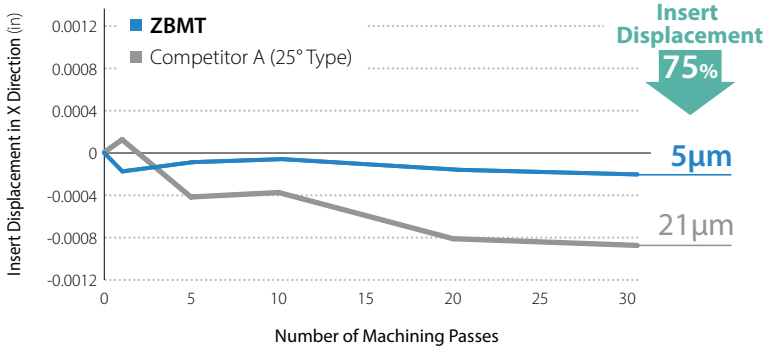
1 Newly Developed Self-Clamping Mechanism Achieves a Higher Rigidity

Side Lock Mechanism

Unique design holds insert at 2 points
Safe even for insert with small tip angle that is difficult to mount



Insert Displacement During Facing Comparison (Internal Evaluation)



Insert Design

By controlling insert displacement,

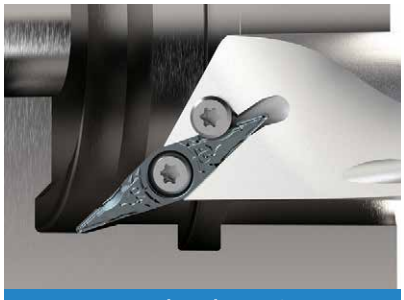
- Machining precision is stabilized and long tool life is enable
- Reduces defect rate due to sudden dimensional deviation

Cutting Conditions : Vc = 750 sfm, D.O.C. = 0.012", f = 0.006, Wet Workpiece 4137
*The above figures are not guaranteed and will depend on cutting conditions.

Provides High Quality and Stable Machining in Various Machining Applications

Excellent Performance in Various Machining Applications including Copying, Undercutting, Tapering, V-Slotting, Spherical Machining, etc.

Shaft Copying


Internal Undercutting

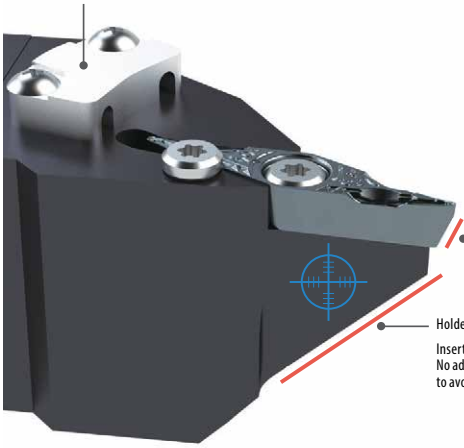
End Face Tapering

800.823.7284
www.kyoceraprecisiontools.com

2 Unique Holder Design to Meet Customers' Needs

Both boring bars and external toolholders are compatible with internal coolant.

Uses a clamp with a small thickness that does not prevent chip flow



Unique Double Coolant Hole Design

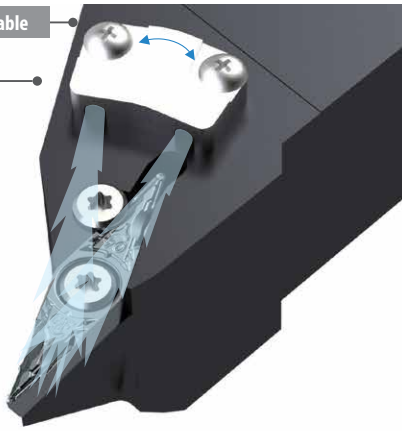
Supplies coolant directly to the cutting edge and provides improved chip evacuation and long tool life (Coolant discharge direction: Fine adjustment possible)

*Though coolant stream hits side clamp screw, machining performance is not affected

*Pressure resistance: ~ 3 MPa

Fine Tuned and Adjustable

± 4° Adjustable Oscillation



Easy to use for Facing

Insert corner : 2-Step Positive Type (20°)

Holder: Tapered shape

Inserts and toolholders have a unique end shape
No additional machining is required when trying to avoid interference with workpiece.

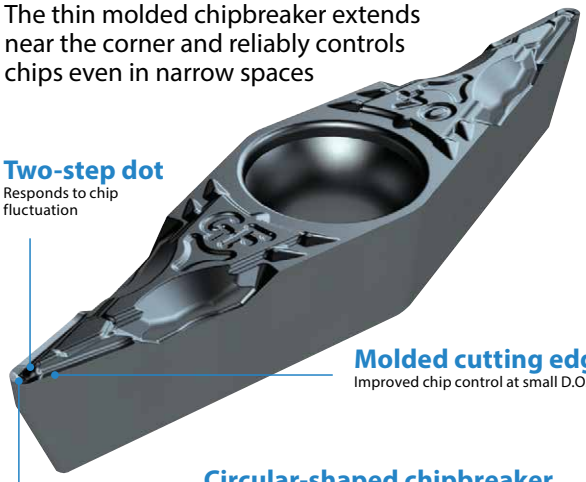
Effective for facing applications

3 New GF Chipbreaker for ZBMT Reduces Chip Control Issues at minute D.O.C.

GF Chipbreaker

Solving chip control issues leads to high-quality surface finishes

The thin molded chipbreaker extends near the corner and reliably controls chips even in narrow spaces



Two-step dot
Responds to chip fluctuation

Molded cutting edge
Improved chip control at small D.O.C.

Circular-shaped chipbreaker
Low resistance and excellent chip control even in ductile workpieces

Chip control comparison (Internal evaluation)

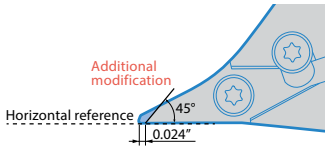
GF Chipbreaker

Competitor A (25° Type)

Cutting Conditions : Vc = 750 sfm, f = 0.006 ipr, D.O.C. = 0.008" - 0.020", Wet
Workpiece 4137 Facing

15° Inserts are also available upon requests

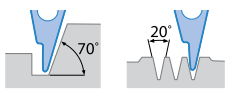
To avoid holder interference, additional modifications is required as shown in the figure on the right (Details: **P8**). Also, as shown in the figure below, special order for holders may be required depending on machining application.



Examples

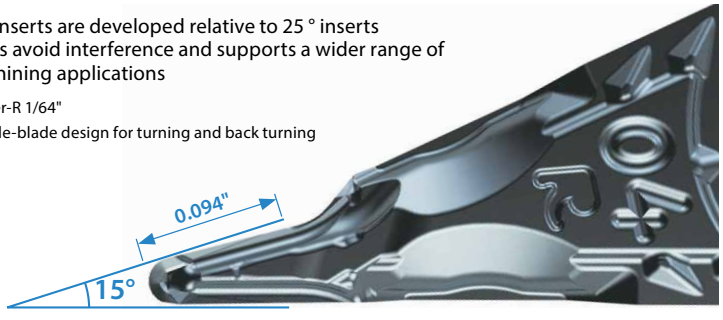
When using the toolholder in reverse mounting position

When using the toolholder in normal mounting position
* Holder: Special order specification

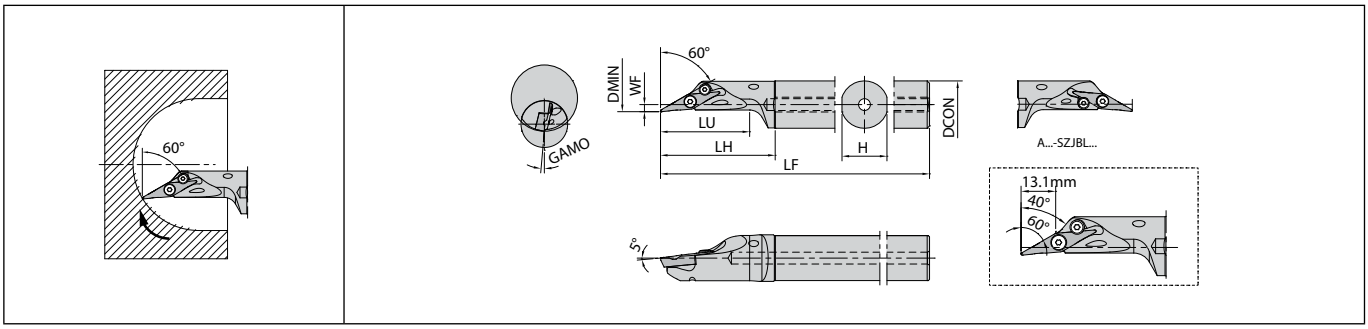


15 ° inserts are developed relative to 25 ° inserts
Helps avoid interference and supports a wider range of machining applications

Corner-R 1/64"
Double-blade design for turning and back turning



A-SZJB-AE Excellent Bar (Spherical Machining / Internal Facing / Internal Copying)



Max. Overhang Length L/D=~5.5 | Right-hand shown | ZBMT13T304R-GF-15D is applicable to Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	LU	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
mm	A20R- SZJB□ 13-28AE	●	●	28	20	5	19	48	200	37.5	3	5	0.4	Yes	SB-3079TR	FT-8	ZBMT13T3...
	A25S- SZJB□ 13-30AE	●	●	30	25		24	58	250	47	3.5						
	A32S- SZJB□ 13-40AE	●	●	40	32		31	72		61.5							

For application of A-SZJB-AE, please refer to **F93**.

Applicable Inserts

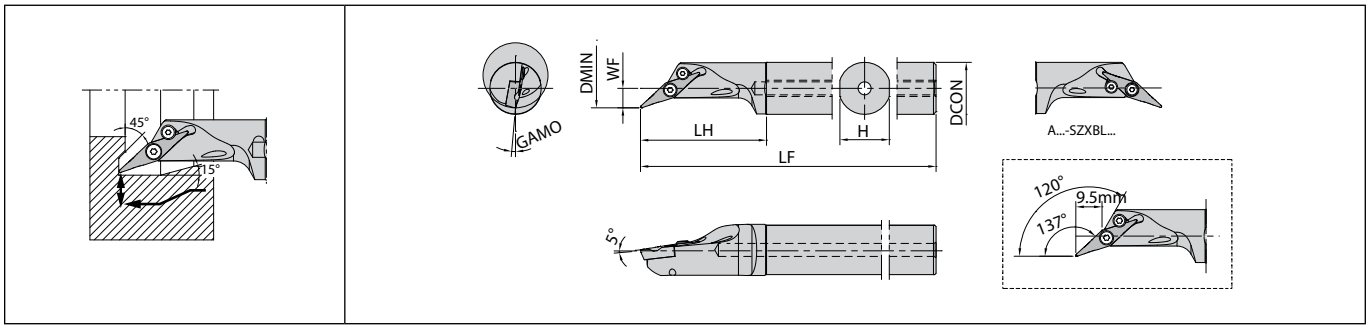
Applications	Finishing	Finishing
Insert		
Chipbreaker Type	GF	R-GF-15D
Page	B108	B108

R-GF-15D inserts are only for the right-hand toolholders of A-SZJB-AE.

Recommended Cutting Conditions ➡ **F174, F175**
Applicable Sleeves ➡ **F172**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-SZXB-AE Excellent Bar (Internal Facing / Internal Copying / Undercutting)



Max. Overhang Length L/D=~5.5 | Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
		R	L	DMIN	DCON	CND	H	LH	LF	LU	WF				Screw	Wrench	
mm	A20R- SZXB□13-25AE	●	●	25	20	5	19	48	200	37.5	7.5	5	0.4	Yes	SB-3079TR	FT-8	ZBMT13T3...
	A25S- SZXB□13-30AE	●	●	30	25		24	58	250	45.2	7						
	A32S- SZXB□13-40AE	●	●	40	32		31	74		60.2							

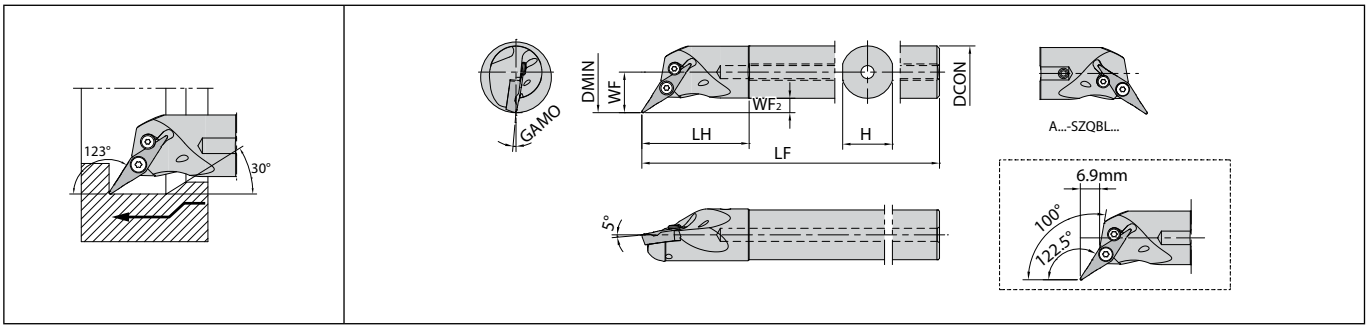
Applicable Inserts

Applications	Finishing
Insert	
Chipbreaker Type	GF
Page	B108

Recommended Cutting Conditions ➡ **F174, F175**
Applicable Sleeves ➡ **F172**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-SZQB-AE Excellent Bar (Internal Copying / Undercutting)



Max. Overhang Length L/D=~5.5 | Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
		R	L	DMIN	DCON	CND	H	LH	LF	WF	WF_2				Screw	Wrench	
mm	A20R- SZQB□13-27AE	●	●	27	20	5	19	41	200	15.5	5.5	5	0.4	Yes	SB-3079TR	FT-8	ZBMT13T3...
	A25S- SZQB□13-32AE	●	●	32	25		24	51	250	18							
	A32S- SZQB□13-40AE	●	●	40	32		31	54		22.5	6.5						

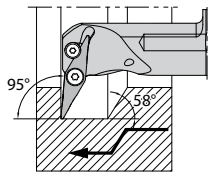
Applicable Inserts

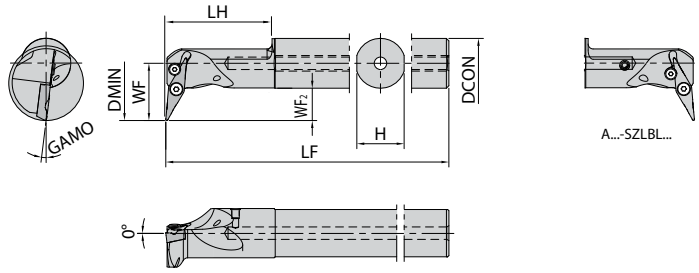
Applications	Finishing
Insert	
Chipbreaker Type	GF
Page	B108

Recommended Cutting Conditions ➡ **F174, F175**
Applicable Sleeves ➡ **F172**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-SZLB-AE Excellent Bar (Internal Copying)





Max. Overhang Length L/D=~5.5 | Right-hand shown | ZBMT13T304R-GF-15D is applicable to Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LF	WF	WF_2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
mm	A20R- SZLB□13-30AE	●	●	30	20	5	19	42	200	23	13	7	0.4	Yes	SB-3079TR	FT-8	ZBMT13T3...
	A25S- SZLB□13-34AE	●	●	34	25		24	64	250	25.5							
	A32S- SZLB□13-40AE	●	●	40	32		31	86		29							

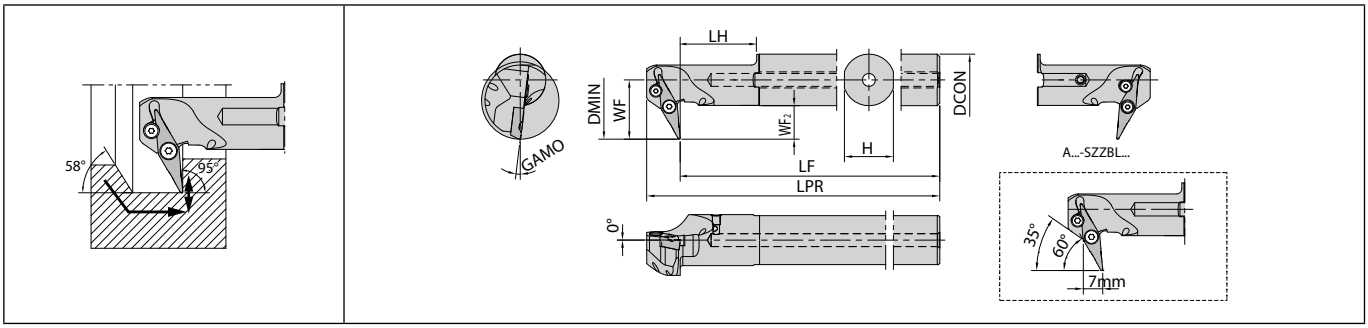
Applicable Inserts

Applications	Finishing	Finishing
Insert		
Chipbreaker Type	GF	R-GF-15D
Page	B108	B108

R-GF-15D inserts are only for the left-hand toolholders of A-SZLB-AE.

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F172

A-SZZB-AE Excellent Bar (Back Boring)



Max. Overhang Length L/D=~5.5 | Right-hand shown | ZBMT13T304R-GF-15D is applicable to Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CND	H	LH	LPR	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
mm	A20R- SZZB□13-30AE	●	●	30	20	5	19	42	200	187	23	13	7	0.4	Yes	SB-3079TR	FT-8	ZBMT13T3...
	A25S- SZZB□13-34AE	●	●	34	25		24	58	250	237	25.5							
	A32S- SZZB□13-40AE	●	●	40	32		31	74			29							

Applicable Inserts

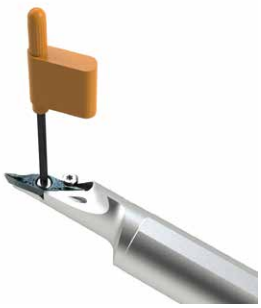
Applications	Finishing	Finishing
Insert		
Chipbreaker Type	GF	R-GF-15D
Page	B108	B108

R-GF-15D inserts are only for the right-hand toolholders of A-SZZB-AE.

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F172

Instructions

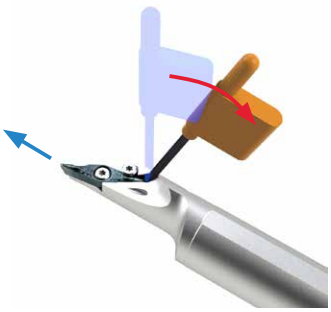
When mounting the insert (Tightening torque: 1.2 N · m)



1. Tighten the main screw with the insert pressed against the contact surface with fingertips.

2. Tighten the side screw to complete the installation.

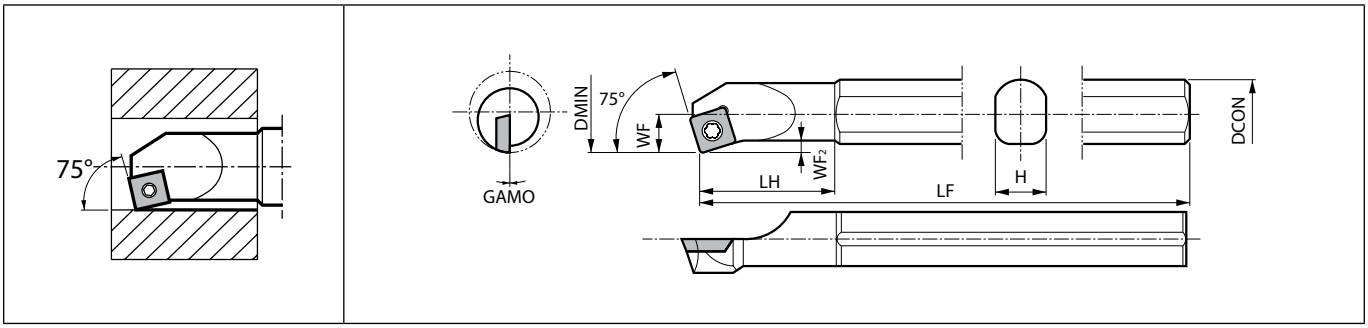
When removing the insert



Remove the two screws and put the wrench into the gap at the back end of the insert. It can be easily removed by pushing out the insert as shown above.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-SSKP Steel Shank Bar (Boring)



Max. Overhang Length L/D=~3 | Right-hand shown | Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

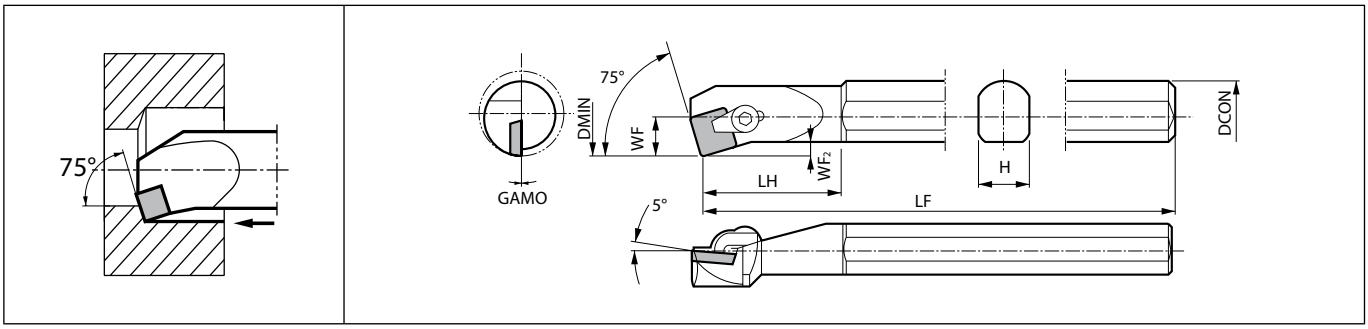
Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
		R	DMIN	DCON	H	LH	LF	WF	WF_2				Screw	Wrench	
mm	S16Q- SSKPR09-20	●	20	16	14	30	180	10	2	-3	0.8	No	SB-4TR	FT-15	SPGH0903...

Applicable Inserts

Applications	Finishing
Insert	
Chipbreaker Type	L
Page	B82

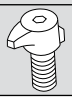
Recommended Cutting Conditions ➡ **F174, F175**
Applicable Sleeves ➡ **F172, F173**

S-CSKP Steel Shank Bar (Boring)



Max. Overhang Length L/D=~3 | Right-hand shown | Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
			R	DMIN	DCON	H	LH	LF	WF	WF_2				Clamp Set	Wrench	Wrench	
																	
mm	S16N- CSKPR09-20	●	20	16	14	40	160	10	2	0	0.8	No	CPS-2	-	FH-2.5	SP□32... SP□R32...
	S20Q- CSKPR09-27	●	27	20	18	45	180	13.5	3.5							
	S25X- CSKPR12-34	●	34	25	23	60	220	17	4.5	0	0.8	No	CPS-3	LW-3	-	SP□42..., SP□R42...

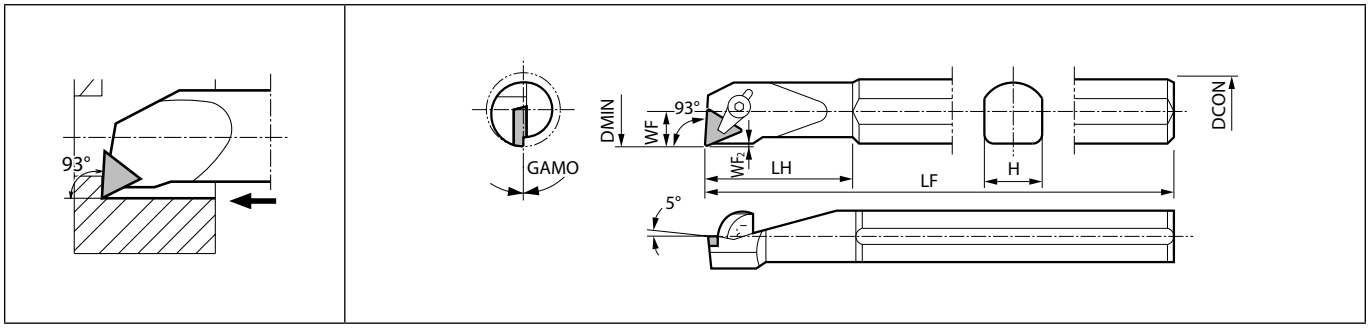
Applicable Inserts

Applications	Medium	Medium	Finishing - Medium	Cast Iron	Cast Iron	Non-Ferrous Metals
Insert						
Chipbreaker Type	G	Standard	L	No Chipbreaker	Ceramic	PCD
Page	B83	B83	B83	B83	B121	C43

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F172, F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-CTUP Steel Shank Bar (Boring)



Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	WF_2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Clamp Set	Spare Parts: Clamp Set	Spare Parts: Shim Screw	Spare Parts: Shim	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
Inch	S10X- CTUPR2	●		0.625	0.625	0.584	1.25	7.00	0.313	0.03	0	1/64	No	-	CPS-2S	-	-	-	FT-15	TP□22... TP□R22...
Inch	S12X- CTUPR2	●		1.060	0.750	0.710	1.50	7.00	0.520	0.05	0	1/64	No	-	CPS-2	-	-	LW-2.5	-	
Inch	S16R- CTUPR3	●		1.350	1.000	0.910	2.10	8.00	0.669	0.04	0	1/32	No	-	CPS-3	-	-	LW-3	-	TP□32... TP□R32...
mm	S12L- CTUPR09-16	●		16	12	11	32	140	8	0.5	0	0.4	No	CPS-1	-	-	-	-	FH-2	TP□1815... TP□R1815...
mm	S16N- CTUP□11-20	●	●	20	16	15	30	160	10	0.5	0	0.4	No	-	CPS-2	-	-	-	FH-2.5	TP□22... TP□R22...
mm	S20Q- CTUP□11-27	●	●	27	20	18	40	180	13.5	1.3	0	0.4	No	-	CPS-2	-	-	-	FH-2.5	TP□22... TP□R22...
mm	S25X- CTUP□16-34	●	●	34	25	23	60	220	17	1	0	0.8	No	-	CPS-3	-	-	LW-3	-	TP□32... TP□R32...
mm	S32S- CTUP□16-43	●	●	43	32	30	70	250	21.5	1	0	0.8	No	-	CPS-3	SP3X10	KPT-32	LW-3	-	TP□32... TP□R32...
mm	S40X- CTUP□16-50	●	●	50	40	37	80	315	25	1	0	0.8	No	-	CPS-3	SP3X10	KPT-32	LW-3	-	TP□32... TP□R32...

Applicable Inserts

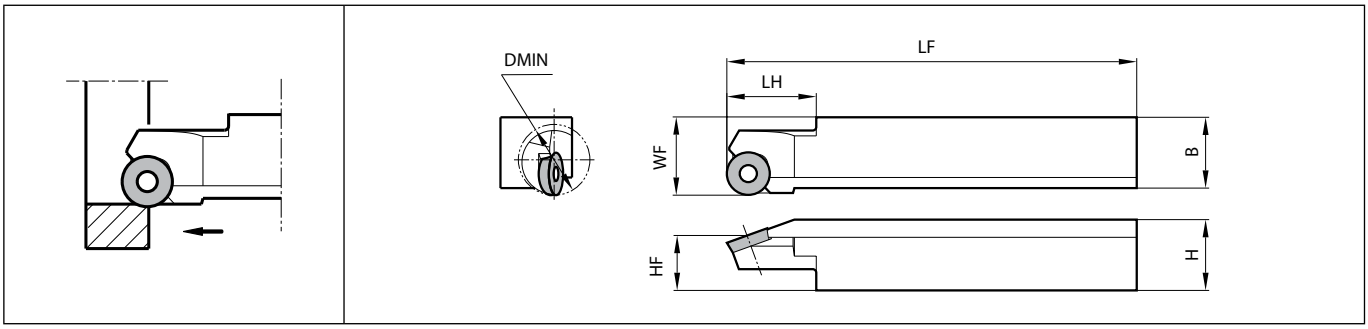
Applications	Finishing	Finishing	Finishing - Medium	Medium	Medium	Finishing	Finishing	Finishing - Medium
Insert								
Chipbreaker Type	DP	GP	HQ	G	Standard	□-F	□-A	□-B
Page	B95	B95	B95	B95	B95	B96	B96	B96

Applications	Medium	Cast Iron	Cast Iron	Non-Ferrous Metals	Hard Materials
Insert					
Chipbreaker Type	□-C	No Chipbreaker	Ceramic	PCD	CBN
Page	B96	B96	B122	C48	C25

Recommended Cutting Conditions ➡ F174~F175
Applicable Sleeves ➡ F171~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SRCP-B (Boring)



Right-hand shown

Toolholder Dimensions

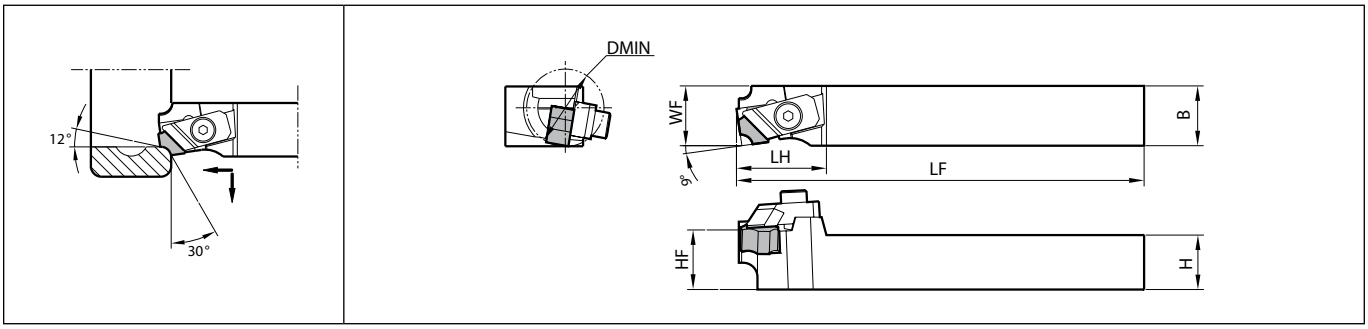
Unit	Part Number	Std. Item		Dimensions							Spare Parts			Applicable Inserts
		R	L	DMIN	H	B	LH	HF	LF	WF	Screw	Wrench	Wrench	
mm	SRCP R/L 2020B-12-A20	●	●	20	20	20	25	15.5	125	22	SB-4TR	FT-15	-	RPMT42M0-BB
	SRCPR 2525B-16-A32	●		32	25	25	31	20	150	27	SB-5090TR	-	LTW-20	RPMT1604M0-BB

Applicable Inserts

Applications	Bearing Machining
Insert	
Chipbreaker Type	BB
Page	B109

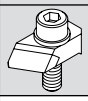
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CBSN-B (Internal Corner Filleting)

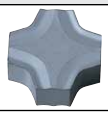


Right-hand shown

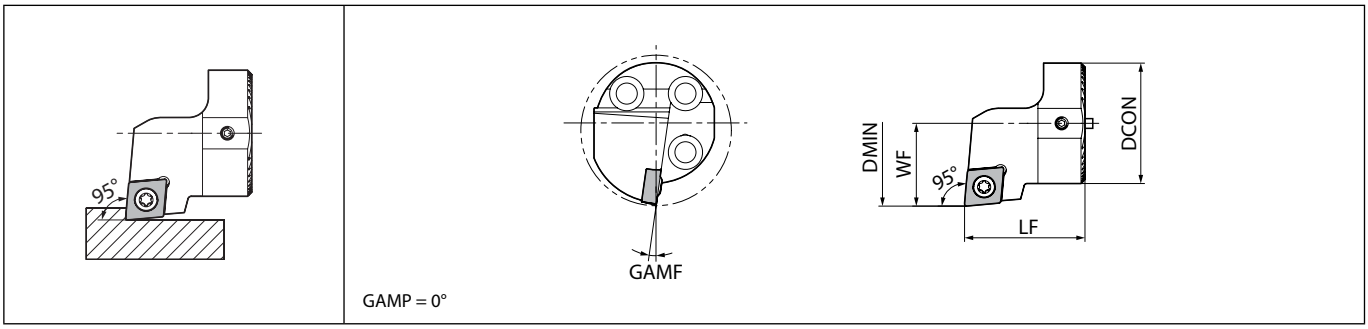
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Spare Parts		Applicable Inserts
										Clamp Set (R)	Wrench	
		R	DMIN	H	B	LH	HF	LF	WF			
mm	CBSNR 2020B-12-A20	●	20	20	20	32	21	125	20	CP-RCR	LW-5	SNMF1204..-21
	2525B-12-A20	●		25	25		26	150	25			

Applicable Inserts

Applications	Bearing Machining
Insert	
Chipbreaker Type	21
Page	B109

KAVH-SCLC (Boring / Internal Facing)



GAMP = 0°

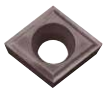
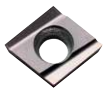
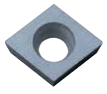
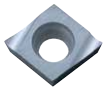
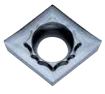
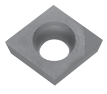
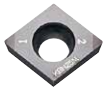
Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Dimensions DMIN	Dimensions DCON	Dimensions LF	Dimensions WF	GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Applicable Shank Adapter	Applicable Inserts
mm	KAVH 16-SCLC□06	●	●	20	16	20	11	-7	0.4	Yes	SB-2545TR	FT-8	KAV-D16/G16...	CC□T215... CC□W215...
	KAVH 20-SCLC□09	●	●	25	20	20	13	-8	0.4	Yes	SB-4065TR	FT-15	KAV-D20/G20...	CC□T325... CC□W325...
	25-SCLC□09	●	●	32	25		17						KAV-D25...	
	32-SCLC□09	●	●	40	32	32	22						KAV-D32...	
	40-SCLC□09	●	●	50	40		27	-7					KAV-D40...	

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

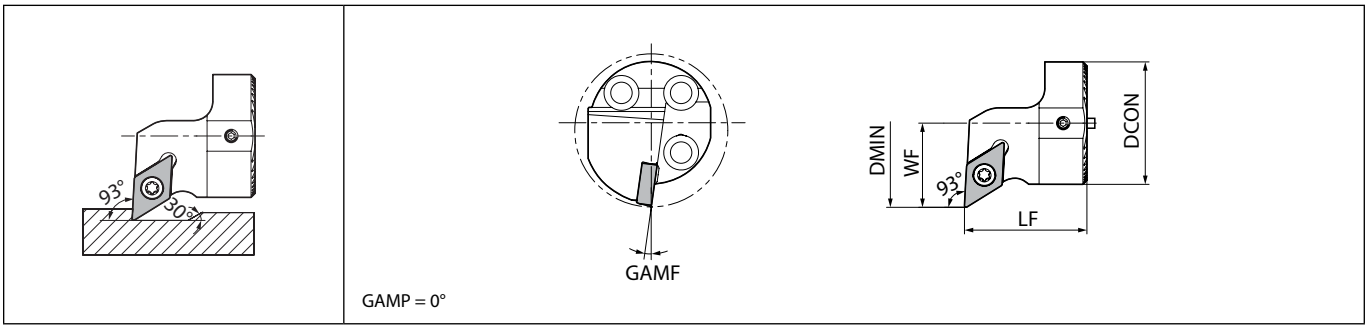
Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium
Insert								
Chipbreaker Type	GF	SKS	SK	CK	GQ	WP	PP	GK
Page	B58	B59	B59	B59	B59	B60	B60	B60
Applications	Finishing - Medium	Medium	Medium	Finishing	Low Feed	Low Feed	Low Feed	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	HQ	Standard	MF	□-P	□-U	□-USF	□-J	MQ
Page	B60	B60	B61	B63	B63~B65	B63	B65	B61
Applications	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials	
Insert								
Chipbreaker Type	No Chipbreaker	AP	□-A3	AH	PCD	APD	CBN	
Page	B66	B66	B66	B66	C39	C40	C20	

Recommended Cutting Conditions ➡ F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KAVH-SDUC (Internal Copying)



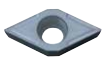
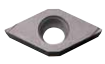
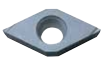
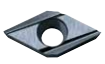
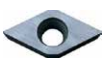
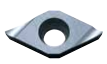
Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Dimensions DMIN	Dimensions DCON	Dimensions LF	Dimensions WF	GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Applicable Shank Adapter	Applicable Inserts
mm	KAVH 16-SDUC R/L 07	●	●	20	16	20	11	-7	0.4	Yes	SB-2545TR	FT-8	KAV-D16/G16...	DC□T215... DC□W215... DC□X215...
	KAVH 20-SDUC R/L 11	●	●	25	20	20	13	-9	0.4	Yes	SB-4065TR	FT-15	KAV-D20/G20...	DC□T325... DC□W325... DC□X325...
	25-SDUC R/L 11	●	●	32	25		17	-8					KAV-D25...	
	32-SDUC R/L 11	●	●	40	32	32	22	-8					KAV-D32...	
	40-SDUC R/L 11	●	●	50	40		27	-7					KAV-D40...	

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

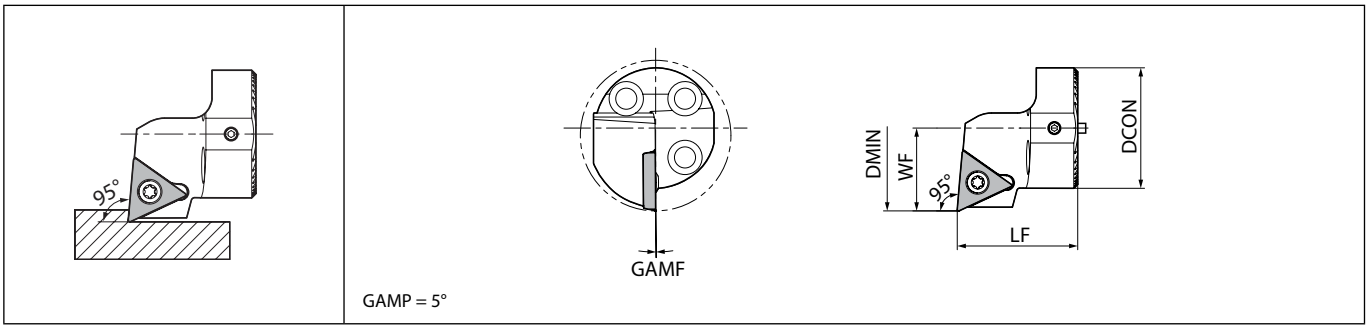
Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	**CF**	**GF**	**SKS**	**SK**	**CK**	**GQ**	**WP**	**R/L-WP**
Page	**B68**	**B68**	**B68**	**B68**	**B68**	**B69**	**B69**	**B69**
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker Type	**PP**	**GP**	**GK**	**HQ**	**Standard**	**MF**	**R/L-F**	**R/L-FSF**
Page	**B69**	**B69**	**B70**	**B70**	**B70**	**B70**	**B72, B73**	**B72**
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker Type	**R/L-U**	**R/L-USF**	**R/L-J**	**R/L-JSF**	**XP**	**XQ**	**MQ**	**No Chipbreaker**
Page	**B74~B76**	**B74**	**B77**	**B76**	**B71**	**B71**	**B71**	**B78**
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker Type	**AP**	**R/L-A3**	**AH**	**PCD**	**APD**	**CBN**		
Page	**B78**	**B78**	**B78**	**C42**	**C42**	**C22**		

Recommended Cutting Conditions ➡ **F174, F175**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KAVH-STLP (Boring / Internal Facing)



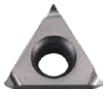
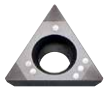
Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number		Std. Item R	Std. Item L	Dimensions DMIN	Dimensions DCON	Dimensions LF	Dimensions WF	GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Applicable Shank Adapter	Applicable Inserts
mm	KAVH	16-STLP R/L 11	●	●	20	16		11	-3.5					KAV-D16/G16...	TP□T22... TP□H22... TP□B22... TP□X22...
		20-STLP R/L 11	●	●	25	20	20	13	-2	0.4	Yes	SB-2545TR	FT-8	KAV-D20/G20...	
		25-STLP R/L 11	●	●	32	25		17	0					KAV-D25...	
	KAVH	32-STLP R/L 16	●	●	40	32	32	22	0	0.4	Yes	SB-4065TR	FT-15	KAV-D32...	TP□T32... TP□H32... TP□B32...
		40-STLP R/L 16	●	●	50	40		27	0					KAV-D40...	

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.
When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

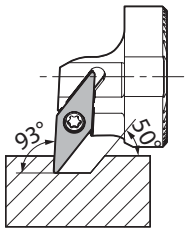
Applicable Inserts

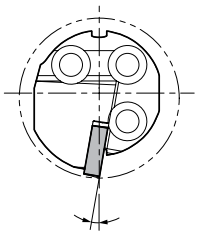
Applications	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	**WP**	**R/L-WP**	**PP**	**GP**	**DP**	**HQ**	**R/L**	**R/L-FSF**
Page	**B88**	**B88**	**B88**	**B89**	**B84**	**B89**	**B84, B90, B91**	**B92**
Applications	Finishing	Medium	Low Feed	Low Carbon Steel	Low Carbon Steel	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker Type	**R/L-P**	**R/L-H**	**R/L-USF**	**XP**	**XQ**	**No Chipbreaker**	**AP**	**PCD**
Page	**B92**	**B93**	**B94**	**B89**	**B89**	**B84, B94**	**B94**	**C44, C46, C47**
Applications	Non-Ferrous Metals	Hard Materials						
Insert								
Chipbreaker Type	**APD**	**CBN**						
Page	**C47**	**C23**						

Recommended Cutting Conditions ➡ **F174, F175**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KAVH-SVUB (Internal Copying)





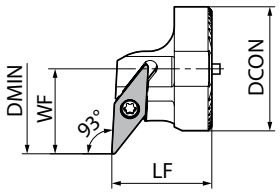
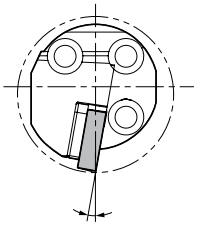


Fig.1



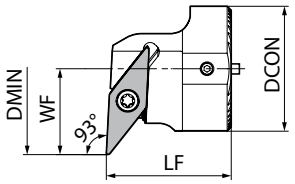


Fig.2

GAMP = 0°

Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	LF	WF	GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench	Applicable Shank Adapter	Applicable Inserts
mm	KAVH 20-SVUBR/L 11	●	●	25	20	20	13	-10	0.4	Yes	1	SB-2570TR	FT-8	-	-	-	KAV-D16/G16...	VB□T22... VB□W22...
	25-SVUBR/L 11	●	●	32	25		17										KAV-D20/G20...	
	KAVH 32-SVUBR/L 16	●	●	40	32	32	22	-10	0.4	Yes	2	SB-40125TRN	FT-15	SVN-32N (SVN-32S*)	SS-4N	LW-4	KAV-D32...	VB□T33... VB□W33...
	40-SVUBR/L 16	●	●	50	40		27	-9									KAV-D40...	

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

Applicable Inserts

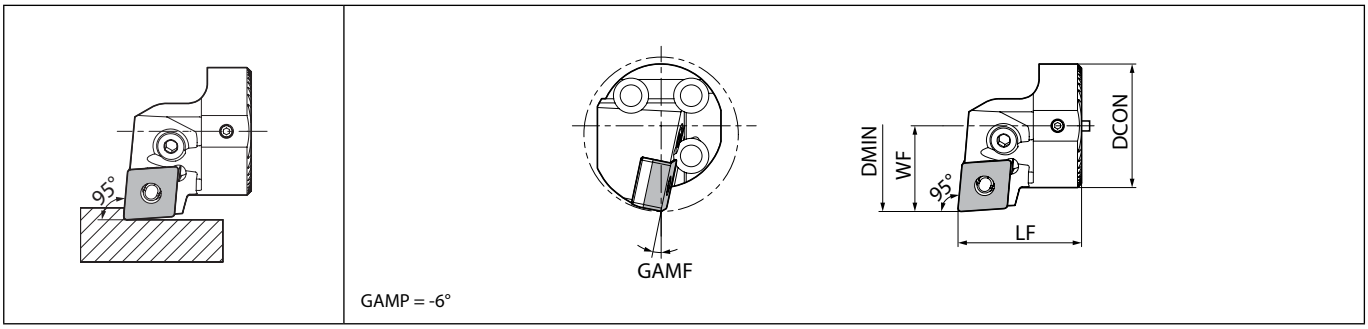
Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker Type	VF	PP	GP	HQ	R/L-F	R/L-FSF	R/L-Y	PCD
Page	B97, B100	B97, B100	B97	B97, B100	B98	B98	B99	C49, C50

Applications	Hard Materials
Insert	
Chipbreaker Type	CBN
Page	C26, C27

Recommended Cutting Conditions F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KAVH-PCLN (Boring / Internal Facing)



GAMP = -6°

Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

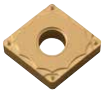
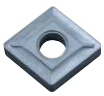
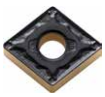
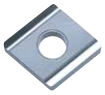
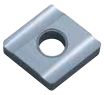
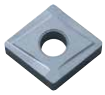
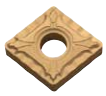
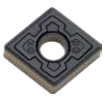
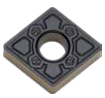
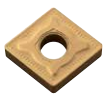
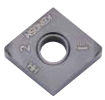
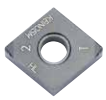
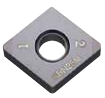
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions				GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Shank Adapter	Applicable Inserts
											Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench		
		R	L	DMIN	DCON	LF	WF											
mm	KAVH 32-PCLNR/L 12	●	●	40	32	32	22.2	-11.5	0.8	Yes	LL-2N	LS-2N	PC-2	LSP-2	LC-42NR/L	LW-3	KAV-D32...	CN□A43... CN□G43... CN□M43...
	40-PCLNR/L 12	●	●	50	40		27	-10									KAV-D40...	

Shim: LC-42NR for Right-hand toolholder, LC-42NL for Left-hand toolholder

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

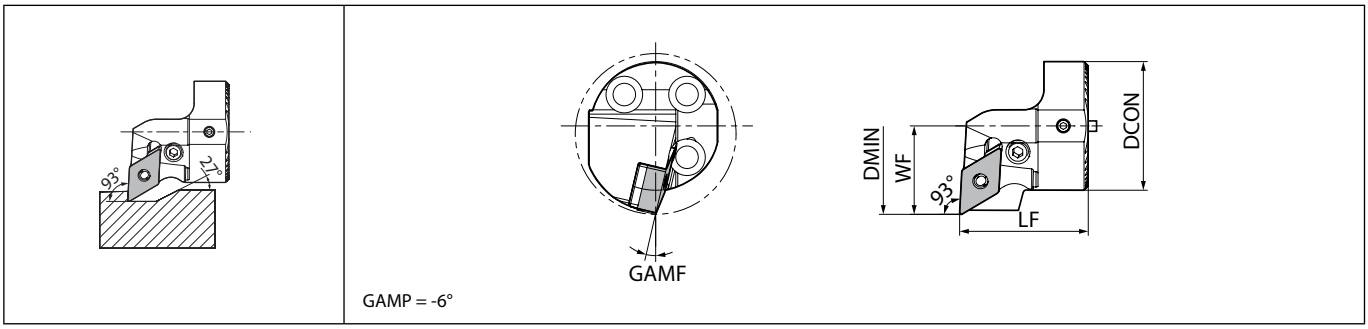
Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker Type	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B16	B16	B16	B16	B16	B16	B16	B17
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	CQ	CJ	TN-V	PMG	GS	PG	PS	PT
Page	B17	B17	B17	B17	B17	B17	B18	B18
Applications	Medium - Roughing	Roughing	Roughing	Roughing	Medium	Medium - Roughing	Medium - Roughing	Low Carbon Steel
Insert								
Chipbreaker Type	GT	Standard	PH	PX	R/L	R/L-25R	Z	XF
Page	B18	B18	B18	B19	B23	B23	B23	B19
Applications	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	XP	XQ	XS	SK	FP-TK	TK	MQ	MS
Page	B19	B19	B19	B19	B19	B20	B20	B20
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	MU	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B20	B21	B21	B21	B22	B22	B22	B22
Applications	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials	Hard Materials
Insert								
Chipbreaker Type	Ceramic	R/L-A3	AH	PCD	SQ	SG	HH	HL
Page	B113	B23	B23	C34	B20	B21	C9	C9
Applications	Hard Materials	Hard Materials / Cast Iron						
Insert								
Chipbreaker Type	HD	CBN						
Page	C9	C8						

Recommended Cutting Conditions ➡ F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KAVH-PDUN (Internal Copying)



GAMP = -6°

Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

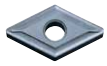
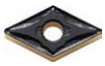
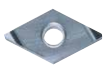
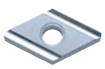
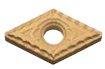
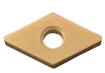
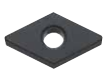
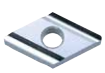
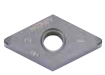
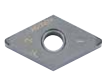
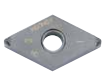
Unit	Part Number	Std. Item R	Std. Item L	Dimensions DMIN	Dimensions DCON	Dimensions LF	Dimensions WF	GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Lever	Spare Parts: Lock Screw	Spare Parts: Punch	Spare Parts: Shim Pin	Spare Parts: Shim	Spare Parts: Wrench	Applicable Shank Adapter	Applicable Inserts
mm	KAVH 32-PDUN R/L 11	●	●	40	32	32	22	-13	0.4	Yes	LL-1DN	LS-1SN	PC-1	LSP-1	LD-32N	FH-2.5	KAV-D32...	DN□G33...

Unit	Part Number	Std. Item R	Std. Item L	Dimensions DMIN	Dimensions DCON	Dimensions LF	Dimensions WF	GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Lock Pin	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Screw	Spare Parts: Wrench	Applicable Shank Adapter	Applicable Inserts
mm	KAVH 32-PDUN R/L 15	●	●	40	32	32	22	-12.5	0.8	Yes	PP-4	LW-3	PD-42	SB-2050TR	FT-6	KAV-D32...	DN□A43... DN□G43... DN□M43... DN□X43...
	40-PDUN R/L 15	●	●	50	40		27									KAV-D40...	

For WF chipbreaker, cutting edge offsets or program corrections are required on **R40** and **R41**.
When using inserts with corner-R (RE) greater than 1/16" (1.6mm), additional modifications to the shim are necessary to prevent workpiece and shim from interfering with each other.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

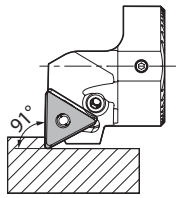
Applicable Inserts

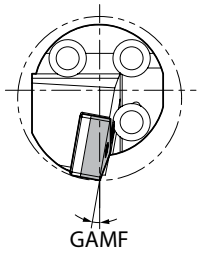
Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium
Insert								
Chipbreaker	WF*	PP	GP	PQ	HQ	CQ	CJ	TN-V
Page	B24	B24	B24	B24	B25	B25	B25	B25
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing
Insert								
Chipbreaker	PMG	GS	PG	PS	PT	GT	Standard	PH
Page	B25	B25	B26	B26	B26	B26	B27	B27
Applications	Roughing	Finishing	Medium	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium
Insert								
Chipbreaker	PX	R/L-S	R/L	XF	XP	XQ	XS	SK
Page	B27	B32	B32	B27	B27	B27	B27	B28
Applications	Large D.O.C.	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron
Insert								
Chipbreaker	R-LD	FP-TK	TK	MQ	MS	MU	KQ	KG
Page	B28	B28	B28	B28	B29	B29	B30	B30
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker	KH	C	ZS	GC	No Chipbreaker	Ceramic	R/L-A3	AH
Page	B30	B30	B30	B30	B31	B114	B31	B31
Applications	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials / Cast Iron	Hard Materials	Hard Materials	Hard Materials	
Insert								
Chipbreaker	PCD	SQ	SG	CBN	HH	HL	HD	
Page	C35	B29	B29	C10	C11	C11	C11	

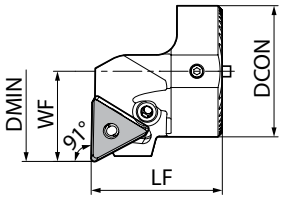
Recommended Cutting Conditions ➡ F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KAVH-PTFN (Internal Copying)



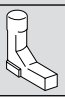




GAMP = -6°

Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions				GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Shank Adapter	Applicable Inserts
											Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench		
		R	L	DMIN	DCON	LF	WF											
mm	KAVH 32-PTFN R/L 16	●	●	40	32	32	22	-10	0.8	Yes	LL-1N	LS-1N	PC-1	LSP-1	LT-32N (LT-32N-20)	FH-2.5	KAV-D32...	TN□A33... TN□G33... TN□M33... TN□X33...
	40-PTFN R/L 16	●	●	50	40		27	-9									KAV-D40...	

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), shim (LT-32N-20) is recommended (sold separately).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	WF	PP	GP	PQ	HQ	CQ	PMG	GS
Page	B39	B39	B39	B39	B39	B39	B40	B40
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing	Finishing
Insert								
Chipbreaker Type	PG	PS	PT	GT	Standard	PH	PX	R/L-SSF
Page	B40	B40	B40	B40	B40	B41	B41	B45
Applications	Finishing - Medium	Medium - Roughing	Medium - Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium
Insert								
Chipbreaker Type	R/L-B	R/L-C	R/L-25R	XF	XP	XQ	XS	SK
Page	B45	B46	B46	B41	B41	B41	B41	B42
Applications	Large D.O.C.	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel	Cast Iron
Insert								
Chipbreaker Type	R-LD	FP-TK	TK	MQ	MS	MU	R/L-ST	KQ
Page	B42	B42	B42	B42	B42	B42	B43	B43
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals
Insert								
Chipbreaker Type	KG	KH	C	ZS	GC	No Chipbreaker	Ceramic	R/L-A3
Page	B43	B43	B43	B43	B43	B44	B118	B44
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron				
Insert								
Chipbreaker Type	AH	PCD	SG	CBN				
Page	B44	C36	B43	C13				

Recommended Cutting Conditions F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Boring Bar Shank Adapter

Standard Shank

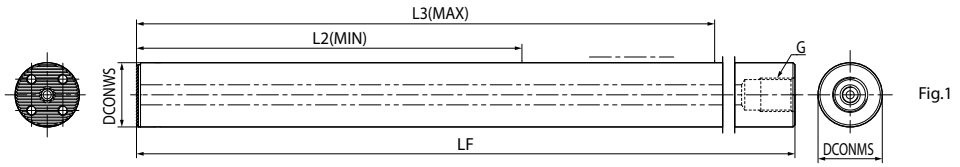


Fig.1

Carbide Reinforced Shank

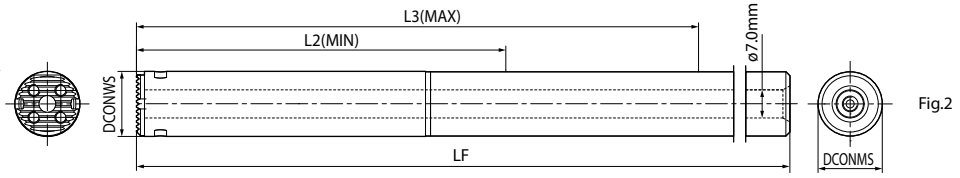


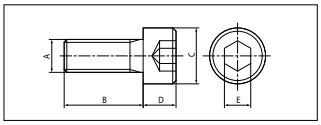
Fig.2

Toolholder Dimensions

Unit	Part Number		Std. Item	Dimensions DCONWS	DCONMS	G	LF	L2 (Min.)	L3 (Max.)	Fig.	Spare Parts: Head Fastening Bolts (3 pcs)	Wrench	O-Ring
mm	Standard Shank	KAV-D16-7D	●	16	16	G1/8	157.5	44	92	1	HH3X10S	LW-2.5	-
		D20-7D	●	20	20	G1/4	201.5	60	120		HH3.5X10S		
		D25-7D	●	25	25		256.5	80	155		HH4X12S	LW-3	
		D25-10D	●				331.5	155	230				
		D32-7D	●	32	32	G3/8	321.5	96	192		HH5X12	LW-4	GR-006-2
		D32-10D	●				417.5	192	288				
		D40-7D	●	40	40	G1/2	409.5	128	248		HH6X12	LW-5	
		D40-10D	●				529.5	248	368				
	Carbide Reinforced Shank	KAV-G16-10D	●	16.2	16	-	205.5	92	140	2	HH3X10S	LW-2.5	-
		G20-10D	●	20.2	20		261.5	120	180		HH3.5X10S		

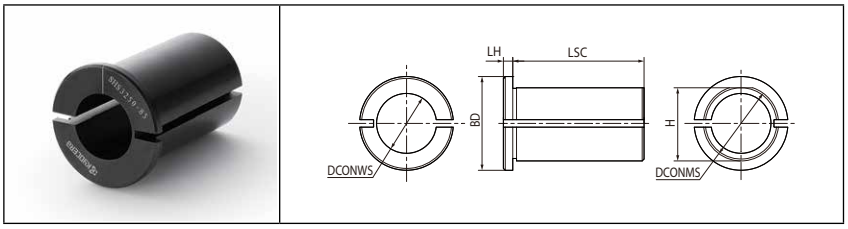
L2 (Min.) = Minimum Overhang Length
L3 (Max.) = Maximum Overhang Length
If cutting the back end, consider the length of the shank grip in addition to the amount of overhang length: See page **F146**.

Head Fastening Bolt



Part Number	Dimensions (mm) A	B	C	D	E	Tightening Torque [N·m]
HH3X10S	M3X0.5	10	5	3	2.5	2.2
HH3.5X10S	M3.5X0.6	10	5.5	3	2.5	2.2
HH4X12S	M4X0.7	12	7	4	3	3.0
HH5X12	M5X0.8	12	8.5	5	4	5.0
HH6X12	M6X1.0	12	10	6	5	8.5

KAV Sleeve (E-Sleeve)



Toolholder Dimensions

Unit	Part Number		Std. Item	Dimensions DCONMS	DCONWS	BD	LSC	LH	H	Applicable Shank
Inch	SHS	1615N-75	●	1.500	0.630	1.969	2.756	0.197	1.461	KAV-D16-7D/10D, KAV-G16-10D
		2015N-75	●		0.787					KAV-D20-7D/10D, KAV-G20-10D
		2515N-75	●		0.984					KAV-D25-7D/10D
		3215N-75	●		1.260					KAV-D32-7D/10D
	SHS	2520N-85	●	2.000	0.984	2.362	3.150	0.197	1.941	KAV-D25-7D/10D
		3220N-85	●		1.260					KAV-D32-7D/10D
mm	SHS	1640-75	●	40	16	50	70	5	39	KAV-D16-7D/10D, KAV-G16-10D
		2040-75	●		20					KAV-D20-7D/10D, KAV-G20-10D
		2540-75	●		25					KAV-D25-7D/10D
		3240-75	●		32					KAV-D32-7D/10D
	SHS	2550-85	●	50	25	60	80	5	48.5	KAV-D25-7D/10D
		3250-85	●		32					KAV-D32-7D/10D
		4050-85	●		40					KAV-D40-7D/10D

Choose the sleeve DCONWS together with the shank DCONMS.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Internal coolant: Piping connections

1 Screw standard for shank back end (pipe connection)

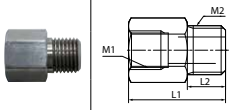
- The thread standard depends on the description. Please refer to the dimension chart "G" on page 11 when using commercially available piping parts.
- When using our piping components, they must be converted to **"UNF3/8" or "G1/8."**
  Check the table below and select the required joint parts (sold separately).

● Steel shank (Pressure ~ 1,015 psi)

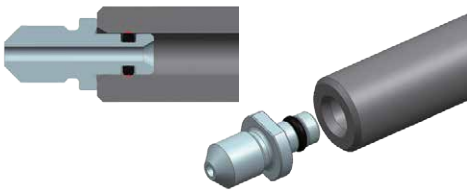
Type	Thread Standards and Conversion Joints
ø16-7D	**G1/8**
ø20-7D ø25-7D/10D	**G1/8 ⇐ G1/4** J-ST-G1/4-G1/8
ø32-7D/10D	**G1/8 ⇐ G1/4 ⇐ G3/8** J-ST-G3/8-G1/4 J-ST-G1/4-G1/8
ø40-7D/10D	**G1/8 ⇐ G1/4 ⇐ G3/8 ⇐ G1/2** J-ST-G1/2-G3/8 J-ST-G3/8-G1/4 J-ST-G1/4-G1/8

If a leak occurs, use a commercially available washer.

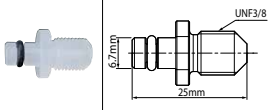
Joint

Shape	Part Number	Std. Item	M1	M2	L1	L2
	J-ST-G1/4-G1/8	●	G1/8	G1/4	27	12
	J-ST-G3/8-G1/4	●	G1/4	G3/8	33	13
	J-ST-G1/2-G3/8	●	G3/8	G1/2	37	17

● Carbide reinforced shank (Pressure ~ 145 psi)

Type	Thread Standards and Conversion Joints
ø16-10D ø20-10D	 **UNF3/8 ⇐ ø7mm Straight Hole** *The shank side is not threaded.

Resin joint (with O-ring)

Shape	Part Number	Std. Item	Thread Standard
	PR07-ST-UNF3/8	●	UNF3/8

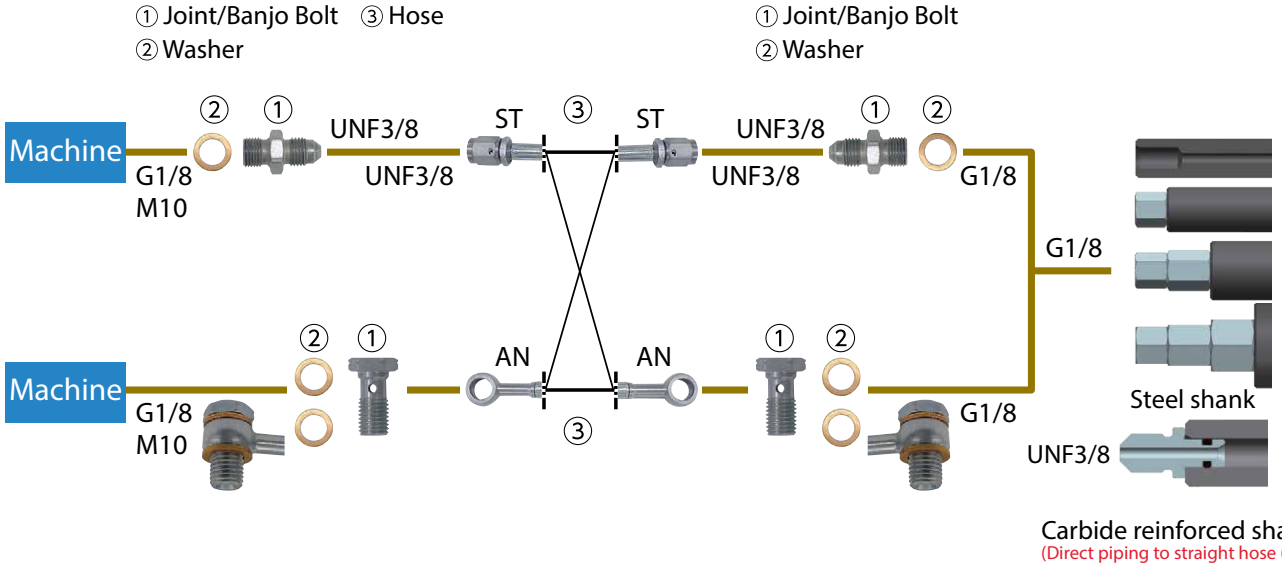
You can order only the included O-ring (**GR-004-2**).

2 How to connect when using our plumbing parts

Easy to use with high pressure capable hoses and joints

- Can be used as internal coolant at normal pressure without a high-pressure pump unit
- Banjo bolts for angle hoses available. Supports a wide variety of machines.

< Piping Installation Guide >



Carbide reinforced shank
(Direct piping to straight hose (ST))

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

About the Dedicated E-Sleeve

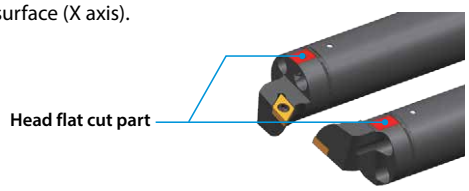
The shank does not have a flat cut.
In order to ensure vibration-proof performance, we recommend using a special sleeve (SHS ****-**) that is sold separately.

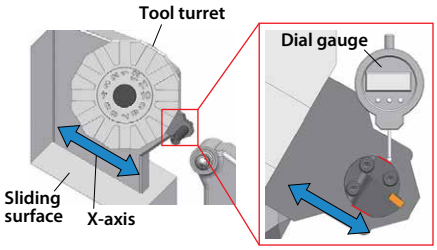
Use the entire sleeve to grasp the shank area.

How to adjust cutting edge position

When using a head flat cut part

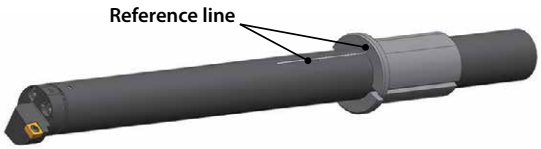
After attaching the tool to the machine, move the tool turret against the flat cut part of the head with a dial gauge, etc., and make sure that it is parallel to the sliding surface (X axis).





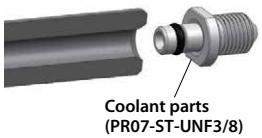
When using the reference lines of the shank/dedicated sleeve (E-Sleeve)

Align the reference lines printed on the shank and the dedicated sleeve (SHS ****-**).
It is easier to adjust the cutting edge position than using the flat on the head to align.



Recommendations for internal coolant

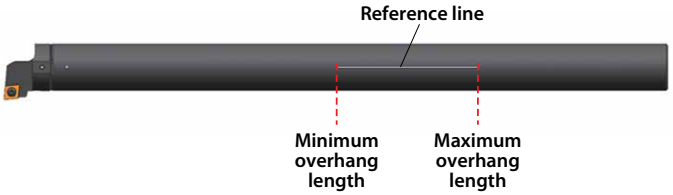
Under high temperatures, the anti-vibration mechanism may deteriorate or become damaged. Please use with internal coolant. The coolant pressure resistance of the shank is 1015 PSI. However, when using coolant parts (PR07-ST-UNF 3/8) for internal coolant in the carbide reinforced shank (KAV-G ***), the coolant pressure is 145 PSI. Please be careful.



Available overhang length range

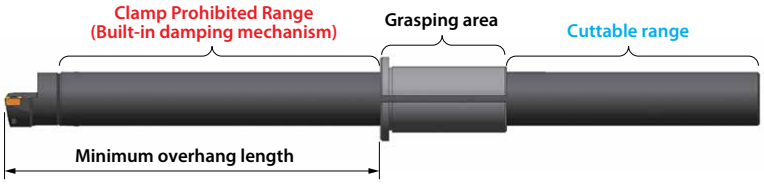
Available overhang length is set for this tool
To adjust the overhang length, please use the reference line printed on the shank.

Available Overhang Length Range		
Part Number	Minimum Overhang Length	Maximum Overhang Length
KAV-***-10D	Shank diameter × 7	Shank diameter × 10
KAV-***-7D	Shank diameter × 4	Shank diameter × 7



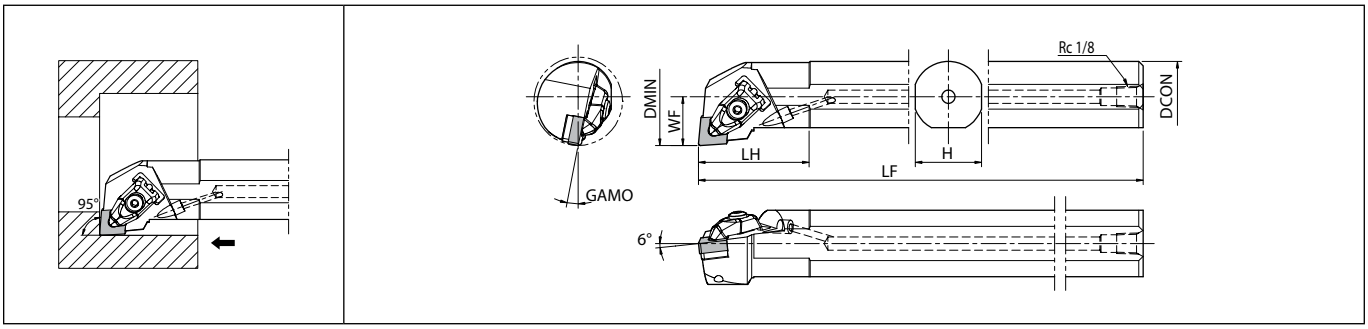
Shank cut

If the shank needs to be cut or modified, do so within the cutting range and do not clamp the built-in damping mechanism.



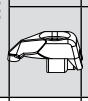
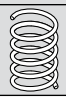
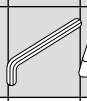
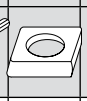
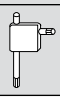
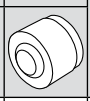
- Use the appropriate inserts and parts. Use of damaged parts may result in tool breakage and injury.
- Do not touch the cutting edge of the insert directly with your bare hands. There is a risk of injury.
- Make sure that there are no foreign materials such as chips in the insert seating area, serrated area, or shank grip area before mounting.
- Do not use the product under chattering conditions. This can lead to damage of the built-in damping mechanism.
- If tool falls or hits the part while machining, do not use it. The impact can cause tool damage and lead to large chattering.
- Avoid high humidity and store at room temperature (about 20°C).

A-DCLN (Boring / Internal Facing)



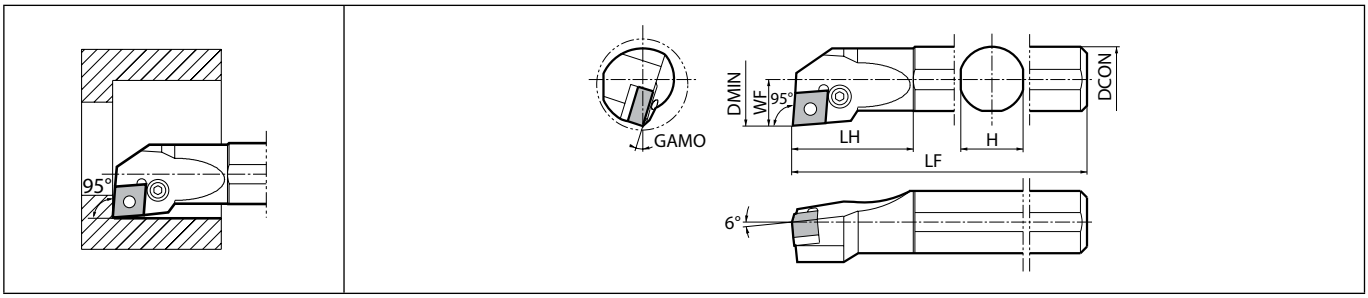
Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts								Applicable Inserts
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	Nozzle	
		R	L	DMIN	DCON	H	LH	LF	WF												
Inch	A16T- DCLNR4	●		1.25	1.00	0.905	1.575	12.0	0.640	12	1/32	Yes	CP-3D	CS-3D	SP-3D	LW-3	DC-42	SB-4085TR	FT-15	DN10	CN□A43... CN□G43... CN□M43...
	A20T- DCLNR4	●		1.50	1.25	1.181	1.614	12.0	0.765	11											
	A24T- DCLNR4	●		1.75	1.50	1.374	2.362	12.0	0.905	13											
mm	A25R- DCLNR/L 12-32	●	●	32	25	23	42	200	17	11	0.8	Yes	CP-3D	CS-3D	SP-3D	LW-3	DC-42	SB-4085TR	FT-15	DN10	CN□A43... CN□G43... CN□M43...
	A32S- DCLNR/L 12-40	●	●	40	32	30	50	250	22												
	A40T- DCLNR/L 12-50	●	●	50	40	37	60	300	27	14										DN20	

Not applicable to high-pressure coolant
Wrench (FT-15) is sold separately.

S-PCLN (Boring / Internal Facing)



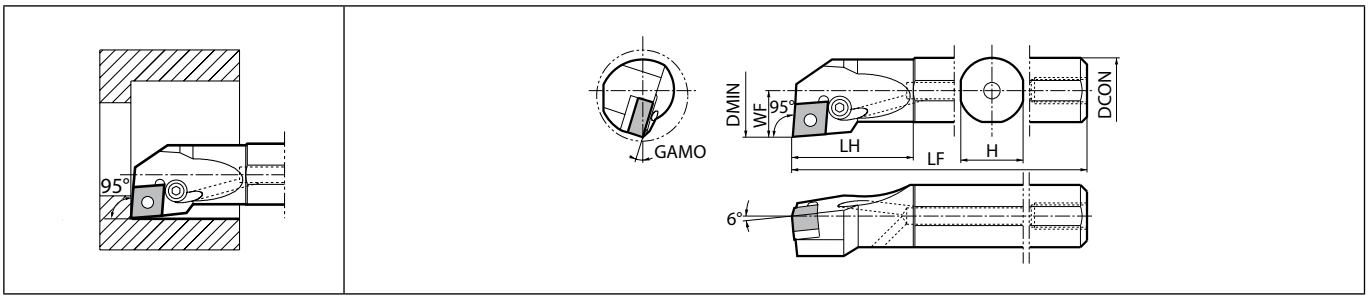
Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Lever	Lock Screw	Punch	Shim Pin	Shim Pin	Shim	Wrench	Wrench	Applicable Inserts
Inch	S20S- PCLNR4	●		1.55	1.25	1.17	2.00	10.00	0.75	10	1/32	No	LL-2N	LS-2N	PC-2	LSP-2	-	LC-42NR/L	LW-3	-	CN□A43... CN□G43... CN□M43...
Inch	S24T- PCLNR4	●		2.02	1.50	1.42	2.50	12.00	1.00	10	1/32	No	LL-2N	LS-2N	PC-2	LSP-2	-	LC-42NR/L	LW-3	-	CN□A43... CN□G43... CN□M43...
mm	S16M- PCLNR/L09-20	●	●	20	16	15	34	150	11	16	0.8	No	LL-03SN	LS-03SN	-	-	P-03S	-	-	FH-2.5	CN□G33...
mm	S20Q- PCLNR/L09-27	●	●	27	20	19	37	180	14.2	17	0.8	No	LL-1N	LS-1SN	PC-1	LSP-1	-	LC-32N	-	FH-2.5	CN□G33...
mm	S25R- PCLNR/L09-32	●	●	32	25	24	42	200	15.7	15	0.8	No	LL-1N	LS-1SN	PC-1	LSP-1	-	LC-32N	-	FH-2.5	CN□G33...
mm	S25R- PCLNR/L12-32	●	●	32	25	24	42	200	16.3	16	0.8	No	LL-2N	LS-2N	PC-2	LSP-2	-	LC-42NR/L	LW-3	-	CN□A43... CN□G43... CN□M43...
mm	S32S- PCLNR/L12-40	●	●	40	32	30	50	250	21	10	0.8	No	LL-2N	LS-2N	PC-2	LSP-2	-	LC-42NR/L	LW-3	-	CN□A43... CN□G43... CN□M43...
mm	S40T- PCLNR/L12-50	●	●	50	40	37	60	300	25	10	0.8	No	LL-2N	LS-2N	PC-2	LSP-2	-	LC-42NR/L	LW-3	-	CN□A43... CN□G43... CN□M43...

LC-42NR for Right-hand Toolholder, LC-42NL for Left-hand Toolholder.

A-PCLN (Boring / Internal Facing)



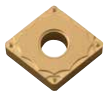
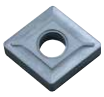
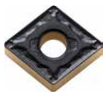
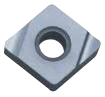
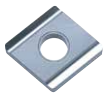
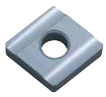
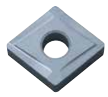
Max. Overhang Length L/D=~3 | Right-hand shown | Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Lever	Lock Screw	Punch	Shim Pin	Shim Pin	Shim	Wrench	Applicable Inserts
Inch	A10M- PCLNR/L3	●	●	0.79	0.63	0.59	1.34	6.00	-	16	1/32	Yes	LL-03SN	LS-03SN	-	-	P-03S	-	FH-2.5	CN□G33...
Inch	A12Q- PCLNR/L3	●	●	1.06	0.75	0.71	1.46	7.00	-	17	1/32	Yes	LL-1N	LS-1SN	PC-1	LSP-1	-	LC-32N	FH-2.5	CN□G33...
Inch	A16Q- PCLNR/L3	●	●	1.26	1.00	0.97	1.65	7.00	-	15	1/32	Yes	LL-1N	LS-1SN	PC-1	LSP-1	-	LC-32N	FH-2.5	CN□G33...
mm	A16M- PCLNR09-20	●		20	16	15	34	150	11	16	0.8	Yes	LL-03SN	LS-03SN	-	-	P-03S	-	FH-2.5	CN□G33...
mm	A20Q- PCLNR09-27	●		27	20	19	37	180	14.2	17	0.8	Yes	LL-1N	LS-1SN	PC-1	LSP-1	-	LC-32N	FH-2.5	CN□G33...
mm	A25R- PCLNR09-32	●		32	25	24	42	200	15.7	15	0.8	Yes	LL-1N	LS-1SN	PC-1	LSP-1	-	LC-32N	FH-2.5	CN□G33...

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts (A-DCLN / S-PCLN / A-PCLN)

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker Type	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B16	B16	B16	B16	B16	B16	B16	B17
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	CQ	CJ	TN-V	PMG	GS	PG	PS	PT
Page	B17	B17	B17	B17	B17	B17	B18	B18
Applications	Medium - Roughing	Roughing	Roughing	Roughing	Finishing	Medium	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	GT	Standard	PH	PX	R/L-S	R/L	R/L-25R	Z
Page	B18	B18	B18	B19	B23	B23	B23	B23
Applications	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	XF	XP	XQ	XS	SK	FP-TK	TK	MQ
Page	B19	B19	B19	B19	B19	B19	B20	B20
Applications	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	MS	MU	KQ	KG	KH	C	ZS	GC
Page	B20	B20	B21	B21	B21	B22	B22	B22
Applications	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials
Insert								
Chipbreaker Type	No Chipbreaker	Ceramic	R/L-A3	AH	PCD	SQ	SG	HH
Page	B22	B113	B23	B23	C34	B20	B21	C9
Applications	Hard Materials	Hard Materials	Hard Materials / Cast Iron					
Insert								
Chipbreaker Type	HL	HD	CBN					
Page	C9	C9	C8					

Recommended Cutting Conditions ➡ F174, F175

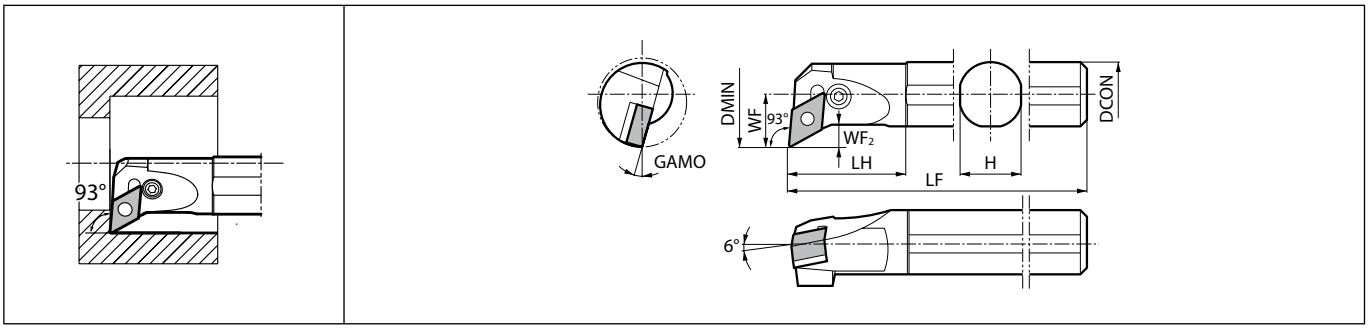
Applicable Coolant Sleeve / Joint

Toolholder Part Number	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M -PCLN R/L 09-20	SHC1640-70, SHC1650-95	SJS-8
A20Q -PCLN R/L 09-27	SHC2040-70, SHC2050-95	
A25R -PCLN R/L 09-32	SHC2540-70, SHC2550-95	

For Coolant Sleeve, Coolant Joint See Page ➡ F172~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-PDUN11 (Boring / Internal Facing)

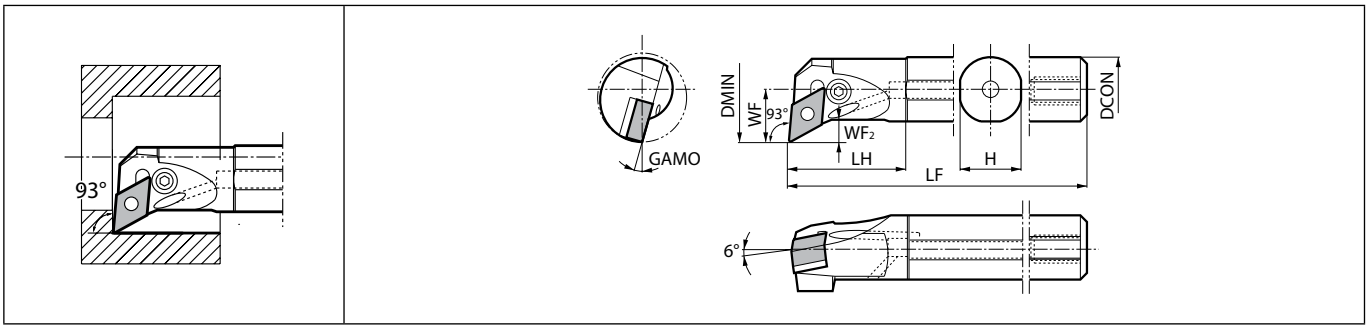


Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts
														Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF_2										
mm	S20Q- PDUN□11-27	●	●	27	20	19	35	180	16	7.6	17	0.4	No	LL-1DN	LS-1SN	PC-1	LSP-1	LD-32N	FH-2.5	DN□G33...
	S25R- PDUN□11-32	●	●	32	25	24	40	200	17		15									
	S32S- PDUN□11-40	●	●	40	32	31	45	250	22	8.5	12									

A-PDUN3/11 (Boring / Internal Facing)



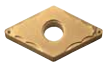
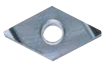
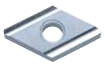
Max. Overhang Length L/D=~3 | Right-hand shown | Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts
														Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF_2										
Inch	A12Q- PDUN□3	●	●	1.06	0.75	0.71	1.37	7.00	-	-	17	1/32	Yes	LL-1D	LS-1S	PC-1	LSP-1	LD-32	FH-2.5	DN□G33...
	A16R- PDUN□3	●	●	1.26	1.00	0.97	1.37	8.00	-	-	15									
	A20S- PDUN□3	●	●	1.57	1.25	1.18	1.37	10.00	-	-	12									
mm	A20Q- PDUNR11-27	●		27	20	19	35	180	16	7.6	17	0.4	Yes	LL-1DN	LS-1SN	PC-1	LSP-1	LD-32N	FH-2.5	
	A25R- PDUNR11-32	●		32	25	24	40	200	17		15									
	A32S- PDUNR11-40	●		40	32	31	45	250	22	8.5	12									

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts (S-PDUN / A-PDUN)

Applications	Finishing	Finishing - Medium	Medium - Roughing	Finishing	Medium
Insert					
Chipbreaker Type	GP	HQ	GS	R/L-S	R/L
Page	B24	B25	B25	B32	B32

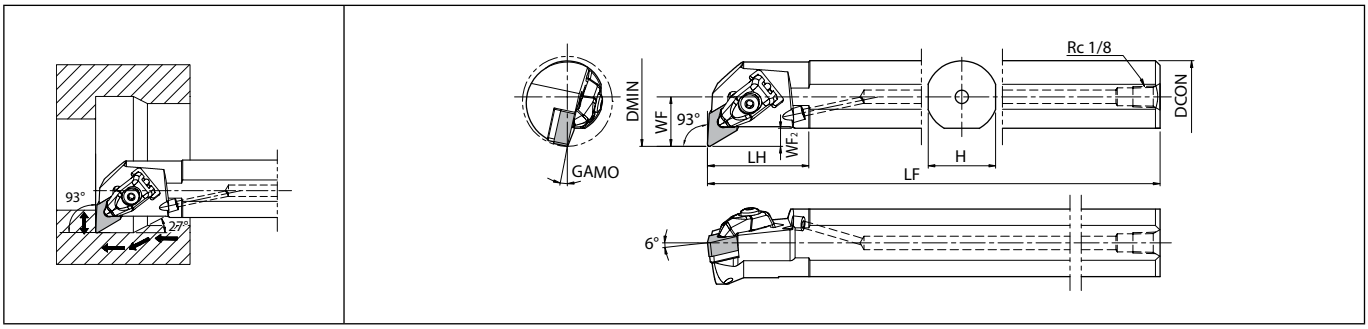
Recommended Cutting Conditions F174, F175

Applicable Coolant Sleeve / Joint

Toolholder Part Number	Applicable Coolant Sleeve	Applicable Coolant Joint
A20Q-PDUNR11-27	SHC2040-70, SHC2050-95	SJS-8
A25R-PDUNR11-32	SHC2540-70, SHC2550-95	
A32S-PDUNR11-40	-	

For Coolant Sleeve, Coolant Joint See Page F172~F173

A-DDUN (Boring / Internal Copying)



Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

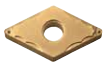
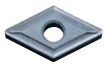
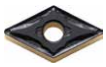
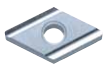
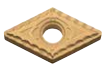
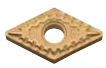
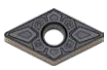
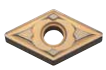
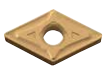
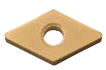
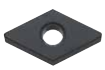
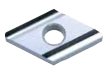
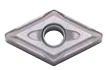
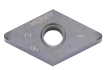
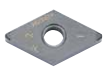
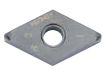
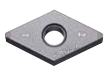
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	Nozzle	Applicable Inserts
Inch	A16T- DDUN□L 4	●		1.500	1.000	0.905	1.575	12	0.750	0.297	15	1/32	Yes	CP-3D	CS-3D	SP-3D	LW-3	DD-42 (DD-42-16*)	SB-4085TR	FT-15	DN10	DN□A43... DN□G43... DN□M43... DN□X43...
Inch	A20T- DDUN□L 4	●		1.750	1.250	1.181	1.772	12	0.905	0.299	13	1/32	Yes	CP-3D	CS-3D	SP-3D	LW-3	DD-42 (DD-42-16*)	SB-4085TR	FT-15	DN10	DN□A43... DN□G43... DN□M43... DN□X43...
mm	A32S- DDUN□L 15-40	●	●	40	32	30	45	250	22	8	12	0.8	Yes	CP-3D	CS-3D	SP-3D	LW-3	DD-42 (DD-42-16*)	SB-4085TR	FT-15	DN10	DN□A43... DN□G43... DN□M43... DN□X43...
mm	A40T- DDUN□L 15-50	●	●	50	40	37	55	300	27	8.5	12	0.8	Yes	CP-3D	CS-3D	SP-3D	LW-3	DD-42 (DD-42-16*)	SB-4085TR	FT-15	DN10	DN□A43... DN□G43... DN□M43... DN□X43...
mm	A50U- DDUN□L 15-63	●	●	63	50	47	65	350	35	10.5	12	0.8	Yes	CP-3D	CS-3D	SP-3D	LW-3	DD-42 (DD-42-16*)	SB-4085TR	FT-15	DN20	DN□A43... DN□G43... DN□M43... DN□X43...

When using inserts with corner-R (RE) greater than 1/16" (1.6 mm), please purchase shim DD-42-16* to prevent workpiece interference.
Not applicable to high-pressure coolant
When using insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
Wrench (FT-15) is sold separately.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

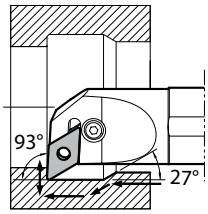
Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium
Insert								
Chipbreaker Type	WF	PP	GP	PQ	HQ	CQ	CJ	TN-V
Page	B24	B24	B24	B24	B25	B25	B25	B25
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing
Insert								
Chipbreaker Type	PMG	GS	PG	PS	PT	GT	Standard	PH
Page	B25	B25	B26	B26	B26	B26	B27	B27
Applications	Roughing	Medium	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Large D.O.C.
Insert								
Chipbreaker Type	PX	R/L	XF	XP	XQ	XS	SK	R-LD
Page	B27	B32	B27	B27	B27	B27	B28	B28
Applications	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	FP-TK	TK	MQ	MS	MU	KQ	KG	KH
Page	B28	B28	B28	B29	B29	B30	B30	B30
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker Type	C	ZS	GC	No Chipbreaker	Ceramic	RL-A3	AH	PCD
Page	B30	B30	B30	B31	B114	B31	B31	C35
Applications	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials	Hard Materials	Hard Materials	Hard Materials / Cast Iron		
Insert								
Chipbreaker Type	SQ	SG	HH	HL	HD	CBN		
Page	B29	B29	C11	C11	C11	C10		

Recommended Cutting Conditions F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-PDUN15 (Internal Copying)



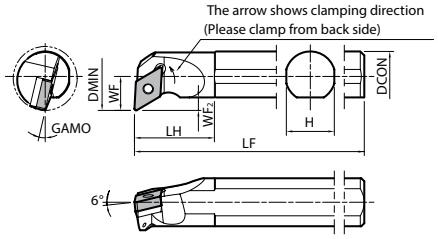


Fig. 1

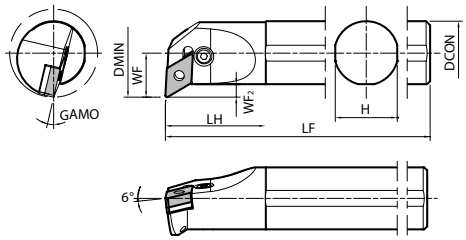


Fig. 2

Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	WF_2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Applicable Inserts
mm	S25R- PDUN☐15-32	●	●	32	25	24	40	200	17	6.5	13	0.8	No	1	DN☐A43..., DN☐G43... DN☐M43..., DN☐X43...
	S32S- PDUN☐15-44	●	●	44	32	31	50	250	22					2	
	S40T- PDUN☐15-54	●	●	54	40	39	65	300	27	7.5	12				

Unit	Part Number	Spare Parts: Lever	Lock Pin	Lock Screw	Wrench	Shim	Shim	Screw	Wrench	Shim Pin	Punch
mm	S25R- PDUN☐15-32	-	PP-4	-	LW-3	-	PD-42	SB-2050TR	FT-6	-	-
	S32S- PDUN☐15-44	LL-3N	-	LS-2N		LD-42 (LD-42-20*)	-	-	-	LSP-2	PC-2
	S40T- PDUN☐15-54										

When using insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm) for S25R-PDUN☐15-32, modifications to the shim are required to prevent workpiece interference.
When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm) for S32S-PDUN☐15-44 and S40T-PDUN☐15-54, please purchase shim LD-42-20* to prevent workpiece interference.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-PDQN15 (Internal Copying)

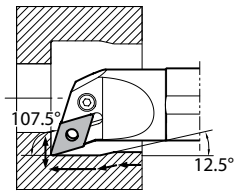


Fig. 1

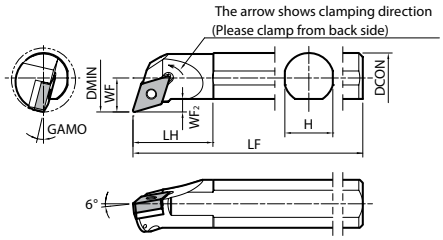
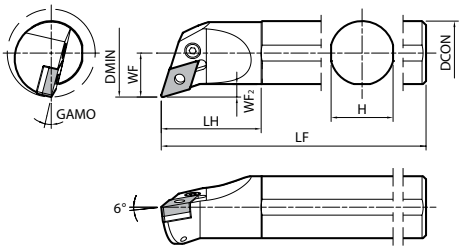


Fig. 2



Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

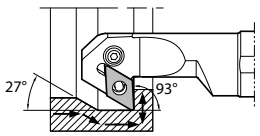
Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	WF_2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Applicable Inserts
mm	S25R- PDQN□15-32	●	●	32	25	24	40	200	17	6.5	13	0.8	No	1	DN□A43... DN□G43... DN□M43...
mm	S32S- PDQN□15-44	●	●	44	32	31	50	250	22					2	
mm	S40T- PDQN□15-54	●	●	54	40	39	65	300	27	7.5	12				

Unit	Part Number	Spare Parts: Lever	Lock Pin	Lock Screw	Wrench	Shim	Shim	Screw	Wrench	Shim Pin	Punch
mm	S25R- PDQN□15-32	-	PP-4	-	LW-3	-	PD-42	SB-2050TR	FT-6	-	-
mm	S32S- PDQN□15-44	LL-3N	-	LS-2N		LD-42 (LD-42-20*)	-	-	-	LSP-2	PC-2
mm	S40T- PDQN□15-54										

When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm) for S25R-PDQN□15-32, modifications to the shim are required to prevent workpiece interference.
When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm) for S32S-PDQN□15-44 and S40T-PDQN□15-54, please purchase shim LD-42-20* to prevent workpiece interference.
WF chipbreaker can not be used for S-PDQN15 toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-PDZN15 (Back Boring)



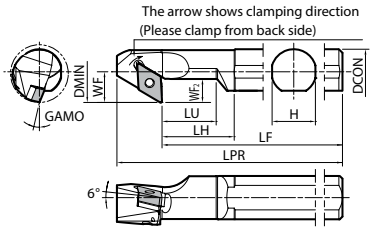


Fig. 1

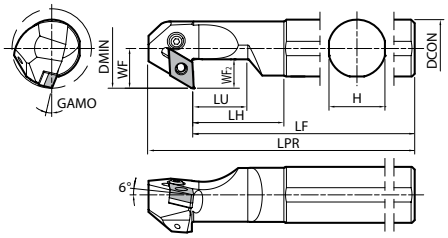


Fig. 2

Max. Overhang Length L/D=~3 | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

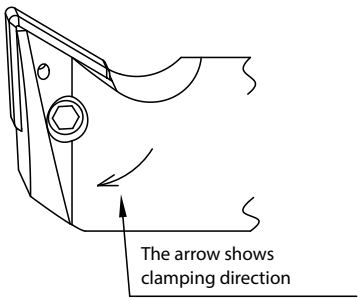
Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LPR	LU	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Applicable Inserts
mm	S25R- PDZN□15-32	●	●	32	25	24	40	225	30	17	13	13	0.8	No	1	DN□A43..., DN□G43... DN□M43..., DN□X43...
	S32S- PDZN□15-44	●	●	44	32	31	50	275		22	16				2	
	S40T- PDZN□15-54	●	●	54	40	39	65	325	50	27		12				

Unit	Part Number	Spare Parts: Lever	Lock Pin	Lock Screw	Wrench	Shim	Shim	Screw	Wrench	Shim Pin	Punch
mm	S25R- PDZN□15-32	-	PP-4	-	LW-3	-	PD-42	SB-2050TR	FT-6	-	-
	S32S- PDZN□15-44	LL-3N	-	LS-2N		LD-42 (LD-42-20*)	-	-	-	LSP-2	PC-2
	S40T- PDZN□15-54										

When using insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm) for S25R-PDZN15-32, modifications to the shim are required to prevent workpiece interference.
When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm) for S32S-PDZN15-44 and S40T-PDZN15-54, please purchase shim LD-42-20* to prevent workpiece interference.

How to change S25R-PD□N□15-32 inserts

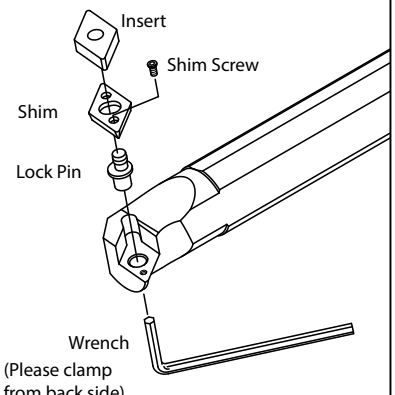
· Please replace S25R-PD□N□15-32 insert from the back side



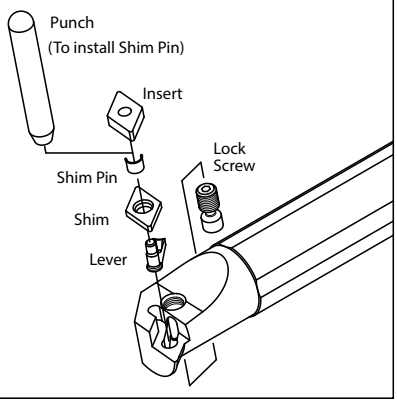
Back side of toolholder

How to assemble spare parts

· S25R-PD□N□15-32 (Pin Lock)

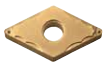
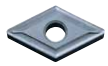
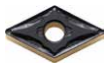
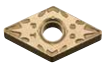
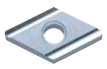
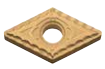
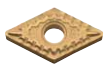
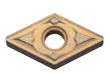
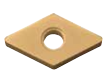
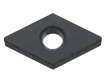
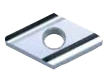
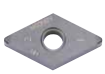
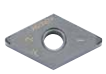
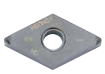
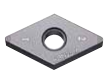


· S32S-PD□N□15-44 (Lever Lock)
· S40T-PD□N□15-54 (Lever Lock)



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

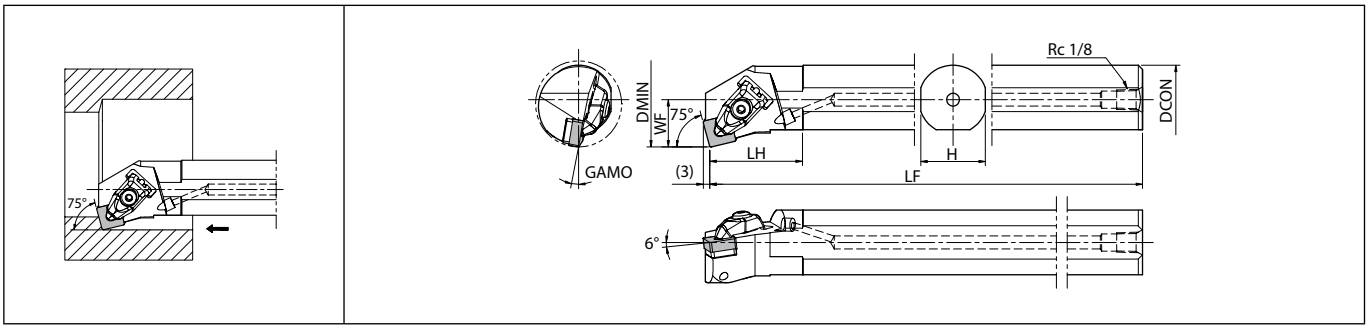
Applicable Inserts (S-PDUN15 / S-PDQN15 / S-PDZN15)

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium
Insert								
Chipbreaker Type	WF	PP	GP	PQ	HQ	CQ	CJ	TN-V
Page	B24	B24	B24	B24	B25	B25	B25	B25
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing
Insert								
Chipbreaker Type	PMG	GS	PG	PS	PT	GT	Standard	PH
Page	B25	B25	B26	B26	B26	B26	B27	B27
Applications	Roughing	Medium	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Large D.O.C.
Insert								
Chipbreaker Type	PX	R/L	XF	XP	XQ	XS	SK	R-LD
Page	B27	B31	B27	B27	B27	B27	B28	B28
Applications	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	FP-TK	TK	MQ	MS	MU	KQ	KG	KH
Page	B28	B28	B28	B29	B29	B30	B30	B30
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker Type	C	ZS	GC	No Chipbreaker	Ceramic	R/L-A3	AH	PCD
Page	B30	B30	B30	B31	B114	B31	B31	C35
Applications	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials	Hard Materials	Hard Materials	Hard Materials / Cast Iron		
Insert								
Chipbreaker Type	SQ	SG	HH	HL	HD	CBN		
Page	B29	B29	C11	C11	C11	C10		

Recommended Cutting Conditions ➡ F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-DSKN (Boring)



Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	Nozzle	Applicable Inserts
mm	A25R- DSKN□ 12-32	●	●	32	25	23	43	200	17	11	0.8	Yes	CP-3D	CS-3D	SP-3D	LW-3	DS-42	SB-4085TR	FT-15	DN10	SN□A43... SN□G43... SN□M43...
	A32S- DSKN□ 12-40	●	●	40	32	30		250	22												
	A40T- DSKN□ 12-50	●	●	50	40	37	53	300	27											DN20	

Not applicable to high-pressure coolant
Wrench (FT-15) is sold separately.

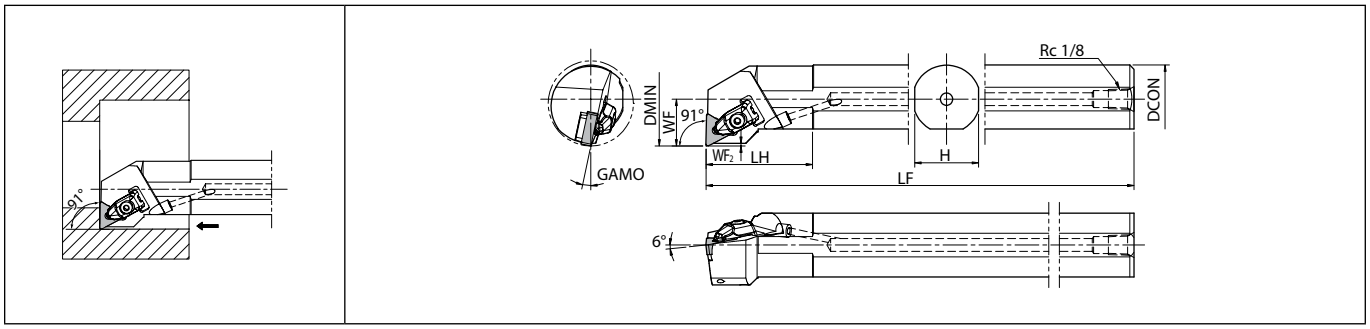
Applicable Inserts

Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing
Insert								
Chipbreaker Type	PQ	HQ	PMG	PG	PS	PT	Standard	PH
Page	B34	B34	B34	B34	B34	B34	B34	B35
Applications	Roughing	Medium - Roughing	Medium - Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	PX	□-C	□-25R	XP	XQ	XS	MQ	MS
Page	B35	B37	B37	B35	B35	B35	B36	B36
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Heat-Resistant Alloys
Insert								
Chipbreaker Type	KG	KH	C	ZS	GC	No Chipbreaker	Ceramic	SG
Page	B36	B36	B36	B37	B37	B37	B117	B36
Applications	Hard Materials / Cast Iron							
Insert								
Chipbreaker Type	CBN							
Page	C12							

Recommended Cutting Conditions F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

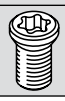
A-DTFN (Boring)



Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

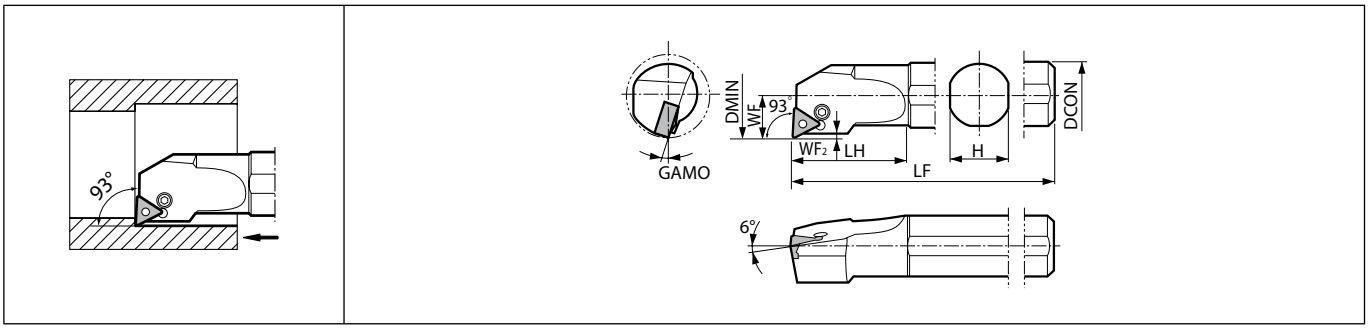
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	WF_2				
mm	A25R- DTFN□ 16-32	●	●	32	25	23	42	200	17	0.8	12	0.8	Yes	TN□A33..., TN□G33... TN□M33..., TN□X33...
mm	A32S- DTFN□ 16-40	●	●	40	32	30	50	250	22	1.2	12	0.8	Yes	TN□A33..., TN□G33... TN□M33..., TN□X33...
mm	A40T- DTFN□ 22-50	●	●	50	40	37	60	300	27	1.5	12	0.8	Yes	TN□G43..., TN□M43...

Unit	Part Number	Spare Parts								
		Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	Wrench* (for shim)	Nozzle
										
mm	A25R- DTFN□ 16-32	CP-2D	CS-2D	SP-2D	LW-2.5	DT-32	SB-3080TR	FT-10	-	DN10
mm	A32S- DTFN□ 16-40	CP-2D	CS-2D	SP-2D	LW-2.5	DT-32	SB-3080TR	FT-10	-	DN10
mm	A40T- DTFN□ 22-50	CP-3D	CS-3D	SP-3D	LW-3	DT-42	SB-4085TR	-	FT-15	DN20

Not applicable to high-pressure coolant
When using insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
Wrench (FT-10 or FT-15) is sold separately

S-PTUN (Boring)



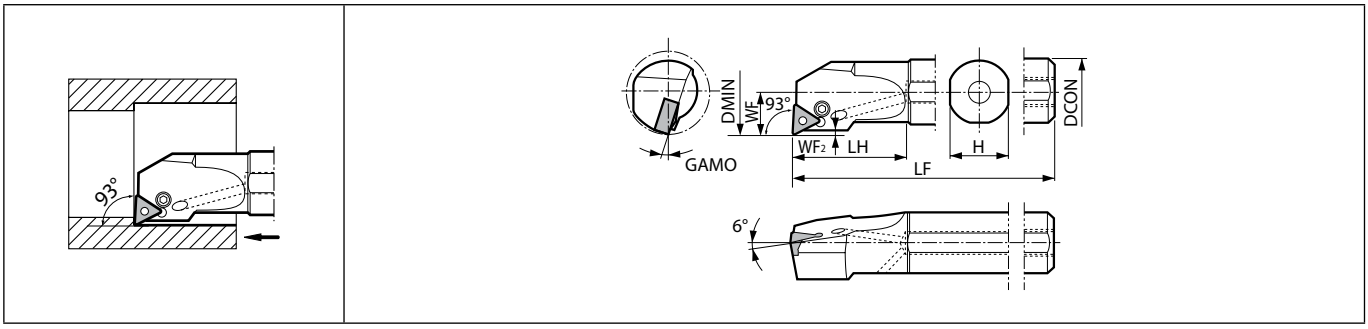
Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Lever	Lock Screw	Punch	Shim	Shim Pin	Shim Pin	Wrench	Applicable inserts
mm	S16M- PTUN□11-20	●	●	20	16	15	34	150	11	0.3	18	0.8	No	LL-03TN	LS-03SN	-	-	-	P-03S	FH-2.5	TN□G23...
	S20Q- PTUN□11-25	●	●	25	20	19	37	180	13.2	0.2	17										
	S25R- PTUN□11-32	●	●	32	25	24	42	200	15.7	0.3	16										
	S16M- PTUN□16-20	●	●	20	16	15	34	150	11	1.3	18	0.8	No	LL-03SN	LS-03SN	-	-	-	P-03S	FH-2.5	TN□A33... TN□G33... TN□M33...
	S20Q- PTUN□16-25	●	●	25	20	19	37	180	13.2		17										
	S25R- PTUN□16-30	●	●	30	25	24	42	200	15.5		13										
	S32S- PTUN□16-40	●	●	40	32	30	50	250	22	0.7				LL-1N	LS-1N	PC-1	LT-32N (LT-32N-20*)	LSP-1	-		
	S40T- PTUN□16-50	●	●	50	40	37	60	300	27	0.6	11										

When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm), please purchase shim LT-32N-20* to prevent workpiece interference.

A-PTUN (Boring)



Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	DMIN	DCON	H	LH	LF	WF	WF2	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts: Lever	Lock Screw	Shim Pin	Wrench	Applicable Inserts
mm	A16M- PTUNR11-20	●	20	16	15	34	150	11	0.3	18	0.8	Yes	LL-03TN	LS-03SN	P-03S	FH-2.5	TN□G23...
	A20Q- PTUNR11-25	●	25	20	19	37	180	13.2	0.2	17							
	A25R- PTUNR11-32	●	32	25	24	42	200	15.7	0.3	16							

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts (A-DTFN / S-PTUN / A-PTUN)

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	WF*	PP	GP	PQ	HQ	CQ	PMG	GS
Page	B39	B39	B39	B39	B39	B39	B40	B40
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing	Finishing
Insert								
Chipbreaker Type	PG	PS	PT	GT	Standard	PH	PX	R/L-SSF
Page	B40	B40	B40	B40	B40	B41	B41	B45
Applications	Finishing	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel
Insert								
Chipbreaker Type	R/L-S	R/L-B	R/L-C	R/L	R/L-25R	XF	XP	XQ
Page	B45	B45	B46	B46	B46	B41	B41	B41
Applications	Low Carbon Steel	Finishing - Medium	Large D.O.C.	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	XS	SK	R-LD	FP-TK	TK	MQ	MS	MU
Page	B41	B42	B42	B42	B42	B42	B42	B42
Applications	Stainless Steel	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	R/L-ST	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B43	B43	B43	B43	B43	B43	B43	B44
Applications	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron		
Insert								
Chipbreaker Type	Ceramic	R/L-A3	AH	PCD	SG	CBN		
Page	B118	B44	B44	C36	B43	C13		

When using insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
The insert with WF chipbreaker is not applicable for S-PTUN type and A-PTUN type toolholder.

Recommended Cutting Conditions **F174, F175**

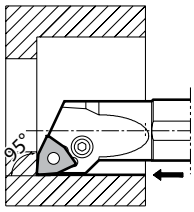
Applicable Coolant Sleeve / Joint

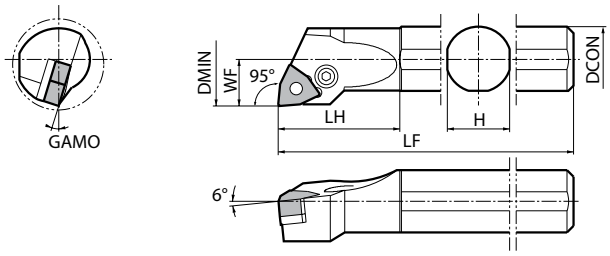
Toolholder Part Number	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M-PTUN R/L 11-20	SHC1640-70, SHC1650-95	SJS-8
A20Q-PTUN R/L 11-25	SHC2040-70, SHC2050-95	
A25R-PTUN R/L 11-32	SHC2540-70, SHC2550-95	

For Coolant Sleeve, Coolant Joint See Page **F172~F173**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

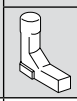
S-PWLN (Boring / Internal Facing)





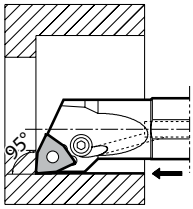
Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

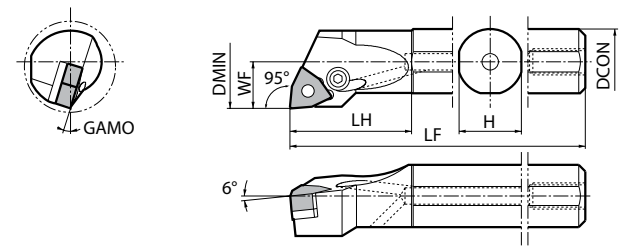
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts								Applicable Inserts
													Lever	Lock Screw	Punch	Shim	Shim Pin	Shim Pin	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF												
mm	S16M- PWLNR/L06-20	●	●	20	16	15	34	150	11	16	0.8	No	LL-03SN	LS-03SN	-	-	-	P-03S	-	FH-2.5	WN□G33...
mm	S20Q- PWLNR/L06-27	●	●	27	20	19	37	180	14.2	17	0.8	No	LL-1N	LS-1SN	PC-1	LW-32N	LSP-1	-	-	FH-2.5	WN□G33...
mm	S25R- PWLNR/L06-32	●	●	32	25	24	42	200	15.7	15	0.8	No	LL-1N	LS-1SN	PC-1	LW-32N	LSP-1	-	-	FH-2.5	WN□G33...
mm	S32S- PWLNR/L08-40	●	●	40	32	30	50	250	22	10	0.8	No	LL-2N	LS-2N	PC-2	LW-42NR/L	LSP-2	-	LW-3	-	WN□A43... WN□G43... WN□M43...
mm	S40T- PWLNR/L08-50	●	●	50	40	37	60	300	27	10	0.8	No	LL-2N	LS-2N	PC-2	LW-42NR/L	LSP-2	-	LW-3	-	WN□A43... WN□G43... WN□M43...

Shim : LW-42NR for Right-hand Toolholder, LW-42NL for Left-hand Toolholder.

A-PWLN (Boring / Internal Facing)





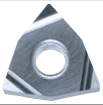
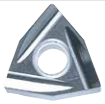
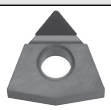
Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts							Applicable Inserts
												Lever	Lock Screw	Punch	Shim	Shim Pin	Shim Pin	Wrench	
		R	DMIN	DCON	H	LH	LF	WF											
mm	A16M- PWLNR06-20	●	20	16	15	34	150	11	16	0.8	Yes	LL-03SN	LS-03SN	-	-	-	P-03S	FH-2.5	WN□G33...
mm	A20Q- PWLNR06-27	●	27	20	19	37	180	14.2	17	0.8	Yes	LL-1N	LS-1SN	PC-1	LW-32N	LSP-1	-	FH-2.5	WN□G33...
mm	A25R- PWLNR06-32	●	32	25	24	42	200	15.7	15	0.8	Yes	LL-1N	LS-1SN	PC-1	LW-32N	LSP-1	-	FH-2.5	WN□G33...

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts (S-PWLN / A-PWLN)

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker Type	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B50	B50	B50	B50	B50	B50	B50	B51
Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	CQ	CJ	PMG	GS	PG	PS	PT	GT
Page	B51	B51	B51	B51	B51	B51	B51	B52
Applications	Roughing	Roughing	Finishing	Medium	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	Standard	PH	R/L-S	R/L	XP	XQ	XS	TK
Page	B52	B52	B54	B54	B52	B52	B52	B52
Applications	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	MQ	MS	MU	KQ	KG	KH	C	ZS
Page	B53	B53	B53	B53	B53	B53	B54	B54
Applications	Cast Iron	Cast Iron	Non-Ferrous Metals	Cast Iron / Hard Materials	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron	
Insert								
Chipbreaker Type	GC	No Chipbreaker	AH	Ceramic	PCD	SG	CBN	
Page	B54	B54	B54	B119	C38	B53	C15	

Recommended Cutting Conditions ➡ F174, F175

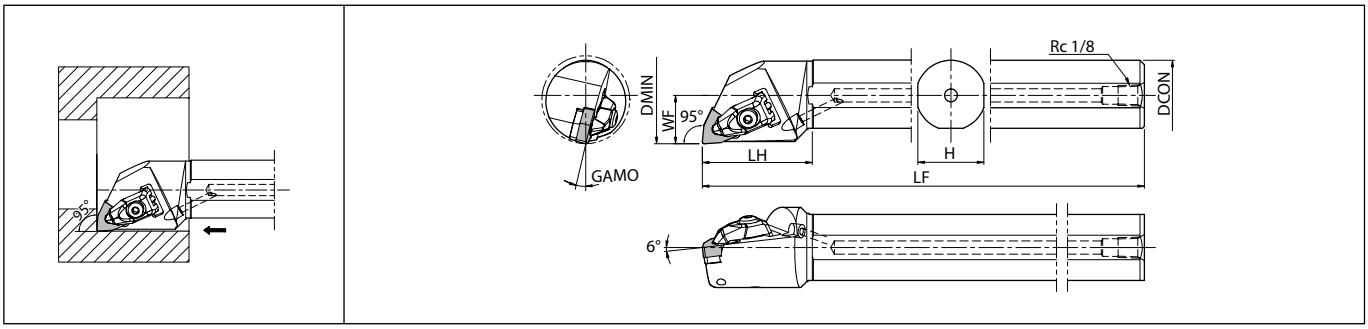
Applicable Coolant Sleeve / Joint

Toolholder Part Number	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M-PWLNR06-20	SHC1640-70, SHC1650-95	SJS-8
A20M-PWLNR06-27	SHC2040-70, SHC2050-95	
A25R-PWLNR06-32	SHC2540-70, SHC2550-95	

For Coolant Sleeve, Coolant Joint See Page ➡ F172~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-DWLN (Boring / Internal Facing)



Max. Overhang Length L/D=~3 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

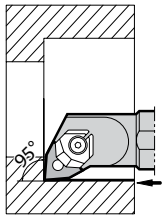
Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Applicable Inserts
Inch	A16T- DWLNR4	●		1.250	1.000	0.905	1.575	12	0.640	12	1/32	Yes	WN□A43... WN□G43... WN□M43...
Inch	A20T- DWLNR4	●		1.500	1.250	1.181	1.614	12	0.765	11	1/32	Yes	WN□A43... WN□G43... WN□M43...
Inch	A24T- DWLNR4	●		1.750	1.500	1.374	2.362	12	0.905	13	1/32	Yes	WN□A43... WN□G43... WN□M43...
mm	A25R- DWLNR/L 08-32	●	●	32	25	23	50	200	17	13	0.8	Yes	WN□A43... WN□G43... WN□M43...
mm	A32S- DWLNR/L 08-40	●	●	40	32	30	50	250	22	13	0.8	Yes	WN□A43... WN□G43... WN□M43...
mm	A40T- DWLNR/L 08-50	●	●	50	40	37	60	300	27	13	0.8	Yes	WN□A43... WN□G43... WN□M43...

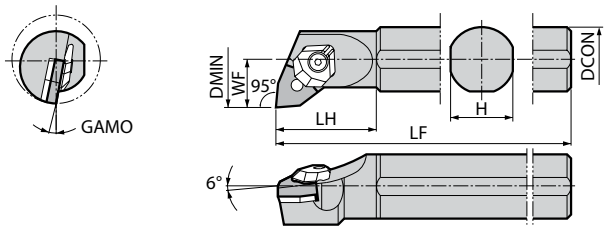
Unit	Part Number	Spare Parts: Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	Nozzle
Inch	A16T- DWLNR/L 4	CP-3D	CS-3D	SP-3D	LW-3	DW-42	SB-4085TR	FT-15	DN10
Inch	A20T- DWLNR/L 4	CP-3D	CS-3D	SP-3D	LW-3	DW-42	SB-4085TR	FT-15	DN10
Inch	A24T- DWLNR/L 4	CP-3D	CS-3D	SP-3D	LW-3	DW-42	SB-4085TR	FT-15	DN10
mm	A25R- DWLNR/L 08-32	CP-3D	CS-3D	SP-3D	LW-3	DW-42	SB-4085TR	FT-15	DN10
mm	A32S- DWLNR/L 08-40	CP-3D	CS-3D	SP-3D	LW-3	DW-42	SB-4085TR	FT-15	DN10
mm	A40T- DWLNR/L 08-50	CP-3D	CS-3D	SP-3D	LW-3	DW-42	SB-4085TR	FT-15	DN20

Not applicable to high-pressure coolant
Wrench (FT-15) is sold separately.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

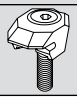
S-WWLN-E Excellent Bar (Boring / Internal Facing)





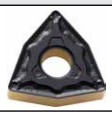
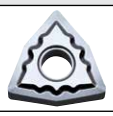
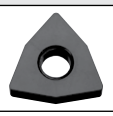
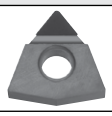
Max. Overhang Length L/D=~5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts					Applicable Inserts
													Clamp Set	Wrench	Shim	Shim Pin	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF									
mm	S25S- WWLN□□ 08-28E	●	●	28	25	24	36	250	14	13	1.2	No	WCS-8	LW-3	WWP-42 (WWP-42-16*)	WP5X11	LW-2	WN□A43... WN□G43... WN□M43...
	WWLN□□ 08-34E	●	●	34			40		17	11								
	S32S- WWLN□□ 08-40E	●	●	40	32	30	50		20	10								

When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm), please purchase shim WWP-42-16* to prevent workpiece interference.
In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restrain force.

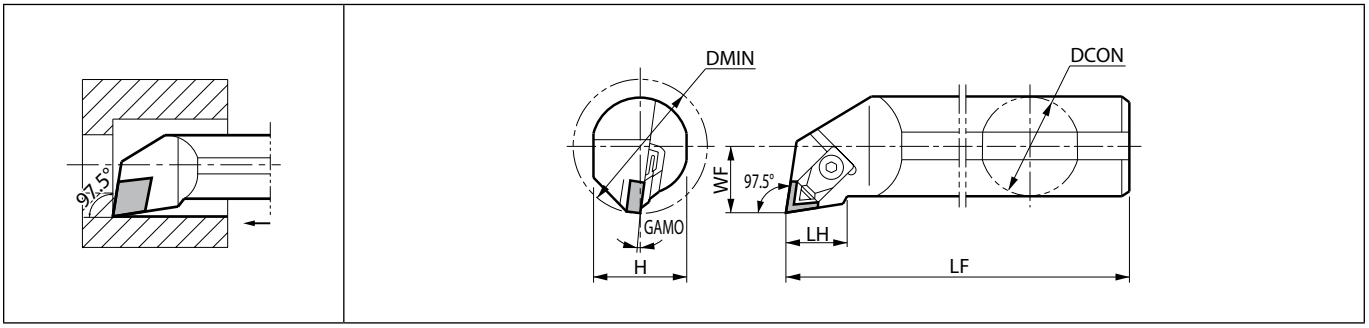
Applicable Inserts (A-DWLN / S-WWLN-E)

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker Type	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B50	B50	B50	B50	B50	B50	B50	B51
Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	CQ	CJ	PMG	GS	PG	PS	PT	GT
Page	B51	B51	B51	B51	B51	B51	B51	B52
Applications	Roughing	Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	Standard	PH	XP	XQ	XS	TK	MQ	MS
Page	B52	B52	B52	B52	B52	B52	B52	B53
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	MU	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B53	B53	B53	B53	B54	B54	B54	B54
Applications	Non-Ferrous Metals	Cast Iron / Hard Materials	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron			
Insert								
Chipbreaker Type	AH	Ceramic	PCD	SG	CBN			
Page	B54	B119	C38	B53	C15			

Recommended Cutting Conditions F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-CELN (Boring / Internal Facing)

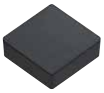


Max. Overhang Length L/D=~3 | Right-hand shown

Toolholder Dimensions

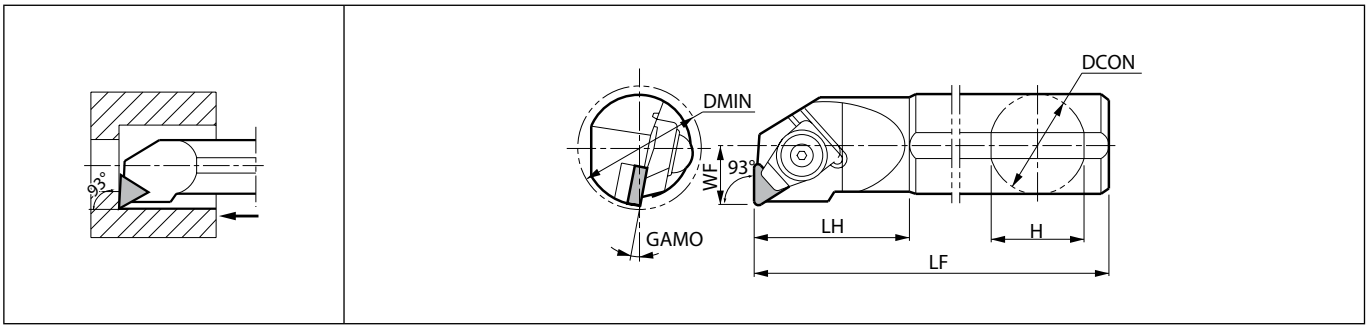
Unit	Part Number	Std. Item	Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts					Applicable Inserts
												Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw	
		R	DMIN	DCON	H	LH	LF	WF									
mm	S40T- CELNR13-50	●	50	40	37	32	300	27	12	0.8	No	CB-16	CE-010	LW-4	SP-341P	M3X8	ENG45...

Applicable Inserts

Applications	Cast Iron / Hard Materials
Insert	
Type	Ceramic
Page	B115

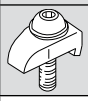
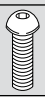
Recommended Cutting Conditions ➡ F174, F175

S-CTUN-A (Boring)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Spare Parts				Applicable Inserts
												Clamp Set	Shim Screw	Shim	Wrench	
		R	DMIN	DCON	H	LH	LF	WF								
mm	S25X- CTUNR11-30A	●	30	25	24	40	220	15	10	0.8	CE-360S	BH3X6	SP-210A	LW-4	TN□22...

Applicable Inserts

Applications	Hard Materials / Cast Iron	Cast Iron / Hard Materials
Insert		
Type	CBN	Ceramic
Page	C19	B118

Recommended Cutting Conditions F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZH Sleeves

Sleeve Part Number			Sleeve Shank Dia.	Applicable EZ Bar				Applicable Machine Manufacturer
EZH-CT Adjustable Overhang Length with Coolant Hole	EZH-HP Adjustable Overhang Length	EZH-ST	DCON (mm)	EZB	EZBT/ EZBF EZBP / EZBC / EZVB EZG / EZFG / EZT	EZ Bar PLUS	Shank Dia. DCON (mm)	
-	-	EZH 01712ST-80	12	EZB_ ...017...	-	-	1.7	(General Purpose)
		02012ST-80		EZB_ ...020...	EZ_ _ ...020-...		2	
		02512ST-80		EZB_ ...025...	EZ_ _ ...025-...		2.5	
		03012ST-80		EZB_ ...030...	EZ_ _ ...030-...		3	
		03512ST-80		EZB_ ...035...	EZ_ _ ...035-...		3.5	
		04012ST-80		EZB_ ...040...	EZ_ _ ...040-...		4	
		05012ST-80		EZB_ ...050...	EZ_ _ ...050-...		5	
		06012ST-80		EZB_ ...060...	EZ_ _ ...060-...		6	
		07012ST-80		EZB_ ...070...	EZ_ _ ...070-...		7	
-	EZH 01716HP-100	EZH 01716ST-100	16	EZB_ ...017...	-	-	1.7	(General Purpose)
	02016HP-100	02016ST-100		EZB_ ...020...	EZ_ _ ...020-...		2	
	02516HP-100	02516ST-100		EZB_ ...025...	EZ_ _ ...025-...		2.5	
	03016HP-100	03016ST-100		EZB_ ...030...	EZ_ _ ...030-...		3	
	03516HP-100	03516ST-100		EZB_ ...035...	EZ_ _ ...035-...		3.5	
	04016HP-100	04016ST-100		EZB_ ...040...	EZ_ _ ...040-...		4	
	04516HP-100	-		EZB_ ...045...	-	_045X- ...-050EZP	4.5	
	05016HP-100	05016ST-100		EZB_ ...050...	EZ_ _ ...050-...	_050X- ...-060EZP	5	
	06016HP-100	06016ST-100		EZB_ ...060...	EZ_ _ ...060-...	_060X- ...-070EZP	6	
	07016HP-100	07016ST-100		EZB_ ...070...	EZ_ _ ...070-...	_070X- ...-080EZP	7	
	-	08016ST-100		EZB_ ...080...	-	_080X- ...-100EZP	8	
EZH 01719CT-120	EZH 01719HP-120	EZH 01719ST-120	0.750"	EZB_ ...017...	-	-	1.7	Citizen Machinery
02019CT-120	02019HP-120	02019ST-120		EZB_ ...020...	EZ_ _ ...020-...		2	
02519CT-120	02519HP-120	02519ST-120		EZB_ ...025...	EZ_ _ ...025-...		2.5	
03019CT-120	03019HP-120	03019ST-120		EZB_ ...030...	EZ_ _ ...030-...		3	
03519CT-120	03519HP-120	03519ST-120		EZB_ ...035...	EZ_ _ ...035-...		3.5	
04019CT-120	04019HP-120	04019ST-120		EZB_ ...040...	EZ_ _ ...040-...		4	
04519CT-120	04519HP-120	-		EZB_ ...045...	-	_045X- ...-050EZP	4.5	
05019CT-120	05019HP-120	05019ST-120		EZB_ ...050...	EZ_ _ ...050-...	_050X- ...-060EZP	5	
06019CT-120	06019HP-120	06019ST-120		EZB_ ...060...	EZ_ _ ...060-...	_060X- ...-070EZP	6	
07019CT-120	07019HP-120	07019ST-120		EZB_ ...070...	EZ_ _ ...070-...	_070X- ...-080EZP	7	
08019CT-120	08019HP-120	08019ST-120		EZB_ ...080...	-	_080X- ...-100EZP	8	
EZH 01720CT-120	EZH 01720HP-120	EZH 01720ST-120	20	EZB_ ...017...	-	-	1.7	Amada Machine Tools Eguro Tsugami Citizen Machinery (General Purpose)
02020CT-120	02020HP-120	02020ST-120		EZB_ ...020...	EZ_ _ ...020-...		2	
02520CT-120	02520HP-120	02520ST-120		EZB_ ...025...	EZ_ _ ...025-...		2.5	
03020CT-120	03020HP-120	03020ST-120		EZB_ ...030...	EZ_ _ ...030-...		3	
03520CT-120	03520HP-120	03520ST-120		EZB_ ...035...	EZ_ _ ...035-...		3.5	
04020CT-120	04020HP-120	04020ST-120		EZB_ ...040...	EZ_ _ ...040-...		4	
04520CT-120	04520HP-120	-		EZB_ ...045...	-	_045X- ...-050EZP	4.5	
05020CT-120	05020HP-120	05020ST-120		EZB_ ...050...	EZ_ _ ...050-...	_050X- ...-060EZP	5	
06020CT-120	06020HP-120	06020ST-120		EZB_ ...060...	EZ_ _ ...060-...	_060X- ...-070EZP	6	
07020CT-120	07020HP-120	07020ST-120		EZB_ ...070...	EZ_ _ ...070-...	_070X- ...-080EZP	7	
08020CT-120	08020HP-120	08020ST-120		EZB_ ...080...	-	_080X- ...-100EZP	8	
EZH 01722CT-135	EZH 01722HP-135	EZH 01722ST-135	22	EZB_ ...017...	-	-	1.7	Star Micronics Nomura DS Tsugami
02022CT-135	02022HP-135	02022ST-135		EZB_ ...020...	EZ_ _ ...020-...		2	
02522CT-135	02522HP-135	02522ST-135		EZB_ ...025...	EZ_ _ ...025-...		2.5	
03022CT-135	03022HP-135	03022ST-135		EZB_ ...030...	EZ_ _ ...030-...		3	
03522CT-135	03522HP-135	03522ST-135		EZB_ ...035...	EZ_ _ ...035-...		3.5	
04022CT-135	04022HP-135	04022ST-135		EZB_ ...040...	EZ_ _ ...040-...		4	
04522CT-135	04522HP-135	-		EZB_ ...045...	-	_045X- ...-050EZP	4.5	
05022CT-135	05022HP-135	05022ST-135		EZB_ ...050...	EZ_ _ ...050-...	_050X- ...-060EZP	5	
06022CT-135	06022HP-135	06022ST-135		EZB_ ...060...	EZ_ _ ...060-...	_060X- ...-070EZP	6	
07022CT-135	07022HP-135	07022ST-135		EZB_ ...070...	EZ_ _ ...070-...	_070X- ...-080EZP	7	
08022CT-135	08022HP-135	08022ST-135		EZB_ ...080...	-	_080X- ...-100EZP	8	
EZH 01725.0CT-135	EZH 01725.0HP-135	EZH 01725.0ST-135	25	EZB_ ...017...	-	-	1.7	Amada Machine Tools Eguro Tsugami Citizen Machinery (General Purpose)
02025.0CT-135	02025.0HP-135	02025.0ST-135		EZB_ ...020...	EZ_ _ ...020-...		2	
02525.0CT-135	02525.0HP-135	02525.0ST-135		EZB_ ...025...	EZ_ _ ...025-...		2.5	
03025.0CT-135	03025.0HP-135	03025.0ST-135		EZB_ ...030...	EZ_ _ ...030-...		3	
03525.0CT-135	03525.0HP-135	03525.0ST-135		EZB_ ...035...	EZ_ _ ...035-...		3.5	
04025.0CT-135	04025.0HP-135	04025.0ST-135		EZB_ ...040...	EZ_ _ ...040-...		4	
04525.0CT-135	04525.0HP-135	-		EZB_ ...045...	-	_045X- ...-050EZP	4.5	
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZB_ ...050...	EZ_ _ ...050-...	_050X- ...-060EZP	5	
06025.0CT-135	06025.0HP-135	06025.0ST-135		EZB_ ...060...	EZ_ _ ...060-...	_060X- ...-070EZP	6	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZB_ ...070...	EZ_ _ ...070-...	_070X- ...-080EZP	7	
08025.0CT-135	08025.0HP-135	08025.0ST-135		EZB_ ...080...	-	_080X- ...-100EZP	8	
EZH 01725.4CT-120	EZH 01725.4HP-120	EZH 01725.4ST-120	1.000"	EZB_ ...017...	-	-	1.7	Citizen Machinery
02025.4CT-120	02025.4HP-120	02025.4ST-120		EZB_ ...020...	EZ_ _ ...020-...		2	
02525.4CT-120	02525.4HP-120	02525.4ST-120		EZB_ ...025...	EZ_ _ ...025-...		2.5	
03025.4CT-120	03025.4HP-120	03025.4ST-120		EZB_ ...030...	EZ_ _ ...030-...		3	
03525.4CT-120	03525.4HP-120	03525.4ST-120		EZB_ ...035...	EZ_ _ ...035-...		3.5	
04025.4CT-120	04025.4HP-120	04025.4ST-120		EZB_ ...040...	EZ_ _ ...040-...		4	
04525.4CT-120	04525.4HP-120	-		EZB_ ...045...	-	_045X- ...-050EZP	4.5	
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZB_ ...050...	EZ_ _ ...050-...	_050X- ...-060EZP	5	
06025.4CT-120	06025.4HP-120	06025.4ST-120		EZB_ ...060...	EZ_ _ ...060-...	_060X- ...-070EZP	6	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZB_ ...070...	EZ_ _ ...070-...	_070X- ...-080EZP	7	
08025.4CT-120	08025.4HP-120	08025.4ST-120		EZB_ ...080...	-	_080X- ...-100EZP	8	

- Choose sleeves (DCB) to meet with DCON dimension of bar.
- Adjustment Pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT/HP sleeves.
- Machine manufacturers in random order.

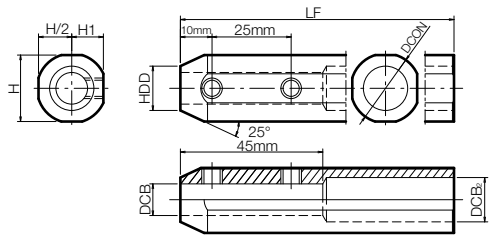
EZH Sleeves and Applicable Inserts / Toolholders

Shank Size (Hole Dia. : mm)		017 (1.7mm)	020 (2.0mm)	025 (2.5mm)	03 (3.0mm)	035 (3.5mm)
EZH-CT Sleeve Part Number (Internal Coolant) EZH-HP Sleeve Part Number (Adjustable Overhang Length)		EZH 01716HP-100	EZH 02016HP-100	EZH 02516HP-100	EZH 03016HP-100	EZH 03516HP-100
		01719CT/HP-120	02019CT/HP-120	02519CT/HP-120	03019CT/HP-120	03519CT/HP-120
		01720CT/HP-120	02020CT/HP-120	02520CT/HP-120	03020CT/HP-120	03520CT/HP-120
		01722CT/HP-135	02022CT/HP-135	02522CT/HP-135	03022CT/HP-135	03522CT/HP-135
		01725.0CT/HP-135	02025.0CT/HP-135	02525.0CT/HP-135	03025.0CT/HP-135	03525.0CT/HP-135
		01725.4CT/HP-120	02025.4CT/HP-120	02525.4CT/HP-120	03025.4CT/HP-120	03525.4CT/HP-120
EZH-ST Sleeve Part Number		EZH 01712ST-80	EZH 02012ST-80	EZH 02512ST-80	EZH 03012ST-80	EZH 03512ST-80
		01716ST-100	02016ST-100	02516ST-100	03016ST-100	03516ST-100
		01719ST-120	02019ST-120	02519ST-120	03019ST-120	03519ST-120
		01720ST-120	02020ST-120	02520ST-120	03020ST-120	03520ST-120
		01722ST-135	02022ST-135	02522ST-135	03022ST-135	03522ST-135
		01725.0ST-135	02025.0ST-135	02525.0ST-135	03025.0ST-135	03525.0ST-135
		01725.4ST-120	02025.4ST-120	02525.4ST-120	03025.4ST-120	03525.4ST-120
EZ Bar			EZB R/L 020020HP-	EZB R/L 025025HP-	EZB R/L 030030HP-	EZB R/L 035035HP-
	Boring Bar	EZBR 020017ST-	EZBR 025020ST-	EZBR 030025ST-	EZBR 035030ST-	EZBR 040035ST-
		EZBR 020017-...NB	EZBR 025020-...NB	EZBR 030025-...NB	EZBR ...030-...NB	EZBR 040035-...NB
					EZVBR 035030-	
					EZBFR 030030-	
	Internal Grooving				EZGR 030030-	
	Face Grooving					
	Internal Threading			EZTR 030025-	EZTR 035030-	EZTR 040035-
EZ Bar - Plus						

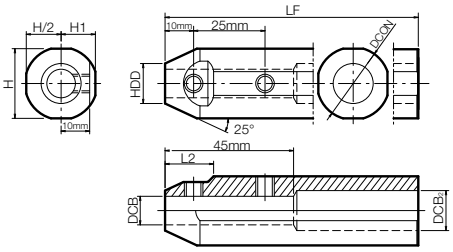
Shank Size (Hole Dia. : mm)		04 (4.0mm)	045 (4.5mm)	05 (5.0mm)	06 (6.0mm)	07 (7.0mm)	08 (8.0mm)
EZH-CT Sleeve Part Number (Internal Coolant) EZH-HP Sleeve Part Number (Adjustable Overhang Length)		EZH 04016HP-100	EZH 04516HP-100	EZH 05016HP-100	EZH 06016HP-100	EZH 07016HP-100	
		04019CT/HP-120	04519CT/HP-120	05019CT/HP-120	06019CT/HP-120	07019CT/HP-120	EZH 08019CT/HP-120
		04020CT/HP-120	04520CT/HP-120	05020CT/HP-120	06020CT/HP-120	07020CT/HP-120	08020CT/HP120
		04022CT/HP-135	04522CT/HP-135	05022CT/HP-135	06022CT/HP-135	07022CT/HP-135	08022CT/HP-135
		04025.0CT/HP-135	04525.0CT/HP-135	05025.0CT/HP-135	06025.0CT/HP-135	07025.0CT/HP-135	08025.0CT/HP-135
		04025.4CT/HP-120	04525.4CT/HP-120	05025.4CT/HP-120	06025.4CT/HP-120	07025.4CT/HP-120	08025.4CT/HP-120
EZH-ST Sleeve Part Number		EZH 04012ST-80		EZH 05012ST-80	EZH 06012ST-80	EZH 07012ST-80	
		04016ST-100		05016ST-100	06016ST-100	07016ST-100	EZH 08016ST-100
		04019ST-120		05019ST-120	06019ST-120	07019ST-120	08019ST-120
		04020ST-120		05020ST-120	06020ST-120	07020ST-120	08020ST-120
		04022ST-135		05022ST-135	06022ST-135	07022ST-135	08022ST-135
		04025.0ST-135		05025.0ST-135	06025.0ST-135	07025.0ST-135	08025.0ST-135
		04025.4ST-120		05025.4ST-120	06025.4ST-120	07025.4ST-120	08025.4ST-120
EZ Bar		EZB R/L 040040HP-		EZB R/L 050050HP-	EZB R/L 060060HP-		
	Boring Bar	EZBR 045040ST-		EZBR 055050ST-	EZBR 065060ST-	EZBR 075070ST-	
		EZBR ...040-...NB		EZBR ...050-...NB	EZBR ...060-...NB	EZBR ...070-...NB	
		EZVBR 045040-		EZVBR 055050-	EZVBR 065060-		
		EZBTR 040040-		EZBTR 050050-			
		EZBFR 040040-		EZBFR 050050-	EZBFR 060060-		
	Internal Grooving	EZG R/L 040040-		EZG R/L 050050-	EZG R/L 060060-	EZG R/L ...070-...	
	Face Grooving	EZFG R/L 050040-		EZFG R/L 060050-		EZFG R/L 080070-	
	Internal Threading	EZTR 050040-		EZTR 060050-	EZTR 070060-	EZTR 080070-	
EZ Bar - Plus			S/C045X-SCLCR03-050EZP	S/C050X-SWUBR03-060EZP	S/C060X-SCLCR04-070EZP	S/C070X-SCLCR04-080EZP	S/C080X-SCLCR06-100EZP
						S/C070X-STLBR06-080EZP	S/C080X-STLBR09-100EZP
				S/C050X-SWUBR06-060EZP	S/C060X-SWUBR06-070EZP	S/C070X-SWUBR08-080EZP	
Boring Bar		C04-...		C05-...	C06-...	C07-...	C/E08-...
					S06-...		A/S08-...

Note 1) When attaching Double-sided Micro Bars to EZH-CT/HP Sleeve (Adjustable overhang length), detach Adjustable Pin.
Overhang length of bar is not adjustable.

SHA Sleeves (Applicable Toolholders F172)



(Toolholder Installation Side) Fig.1

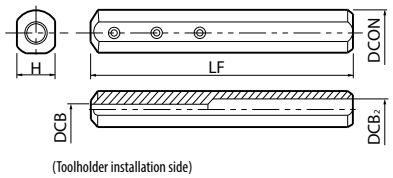


(Toolholder Installation Side) Fig.2

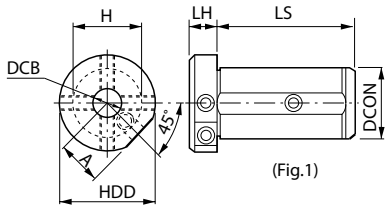
Unit	Part Number	Std. Item	Dimensions								Fig.	Spare Parts		Applicable Inserts
			DCB	DCON	HDD	DCB_2	H	H1	LF	L2		Screw	Wrench	
mm	SHA 0820-120	□	8	20.00	14	12	19.0	9.25	120	-	1	HS6X4P	LW-3	Eguro Tsugami Citizen Machinery
	1020-120	●	10											
	SHA 0825.0-135	●	8	25.00	14	14	24.0	11.5	135	17	2			
	1025.0-135	●	10											
	1225.0-135	●	12	25.00	16									
	SHA 0819-120	□	8	0.75"	14	12	18.0	8.75	120	-	1	HS6X4P	LW-3	Citizen Machinery
	1019-120	□	10											
	SHA 0820-120	□	8	20.00	14	12	19.0	9.25	120	-				
	1020-120	●	10											
	SHA 0825.4-120	●	8	1.00"	14	14	24.4	12.0	120	17	2			
	1025.4-120	●	10											
	1225.4-120	●	12	1.00"	16									
	SHA 0822-125	●	8	22.00	14	14	21.0	10.0	125	-	1	HS6X4P	LW-3	Star Micronics Nomura DS
	1022-125	●	10											
	1222-125	□	12	22.00	16									
	SHA 0823-120	□	8	23.00	14	14	22.0	10.5	120	16	2	HS6X4P	LW-3	Nomura DS
	1023-120	□	10											
	1223-120	□	12	23.00	16									

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

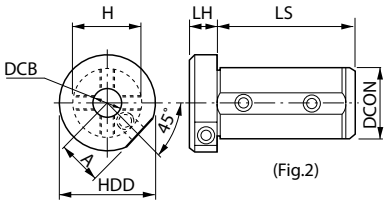
Sleeves for Boring Bars

Shape	Unit	Part Number	Std. Item	Dimensions DCON	DCB	DCB2	H	LF	Spare Parts Screw	Wrench
 (Toolholder installation side)	Inch	SL -1	●	0.625	0.203	0.250	0.292	4.00	SLS-1	LW-2
		-2	●		0.281	0.312			SLS-2	
		-2.5-10	●		0.156	0.197			SLS-1	
	mm	SH 0416-100	●	16	4	5	14	100	HS4X4	LW-2
		0516-100	●		5	6				
		0616-100	●		6	7				
		0716-100	●		7	8				
		SH 0820-120	●	20	8	9	18	120	HS4X4	LW-2
		1020-120	●		10	11				
		1225-150	●	25	12	13	23	150	HS5X5	LW-2.5
		1632-180	●	32	16	18	30	180	HS5X5	LW-2.5
		2032-180	●		20	22				

Coolant Sleeve Dimensions



(Fig.1)



(Fig.2)

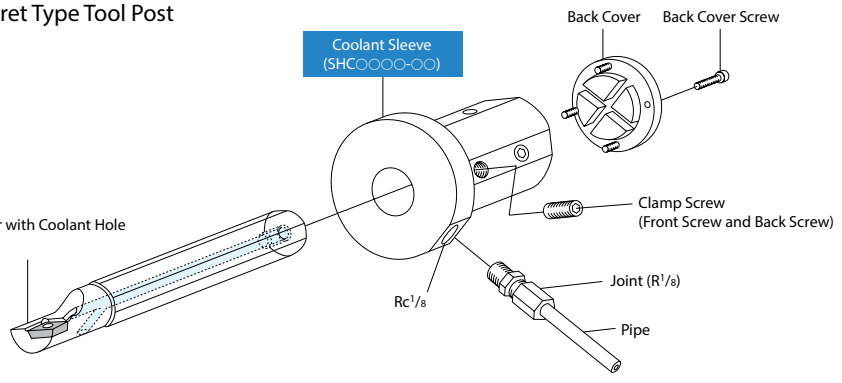
Accessories
Back Cover / SHL-4···SHC○○40-70
SHL-5···SHC○○50-95
Back Cover Screw
Shank Clamp Screw

(Note) To stabilize the Toolholder and to prevent coolant leaks, tighten all 4 screws of coolant sleeve securely.

Unit	Part Number	Std. Item	Dimensions DCON	HDD	DCB	LS	LH	H	A	Fig.	Spare Parts Front Screw	Wrench	Back Screw	Wrench	Back Cover	Back Cover Screw	Wrench
mm	SHC 0840-70	●	40	56	8	70	16	38	27.0	1	HS6X22	LW-3	HS6X14	LW-3	SHL-4	HH3X6	LW-2.5
	1040-70	●			10												
	1240-70	●			12					2	HS10X10	LW-5	HS10X10	LW-5	SHL-4	HH3X6	LW-2.5
	1640-70	●			16												
	2040-70	●			20					1	HS10X10	LW-5	HS6X6	LW-3	SHL-4	HH3X6	LW-2.5
	2540-70	●			25												
	SHC 0850-95	●	50	65	8	95	16	47	30.5	1	HS6X22	LW-3	HS6X14	LW-3	SHL-5	HH3X12	LW-2.5
	1050-95	●			10												
	1250-95	●			12					2	HS10X10	LW-5	HS10X10	LW-5	SHL-5	HH3X12	LW-2.5
	1650-95	●			16												
	2050-95	●			20												
	2550-95	●			25												

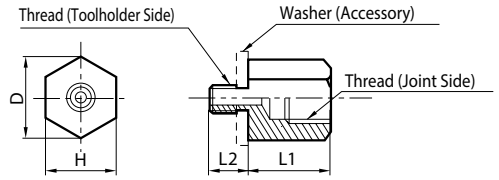
How to Install

1. For Turret Type Tool Post



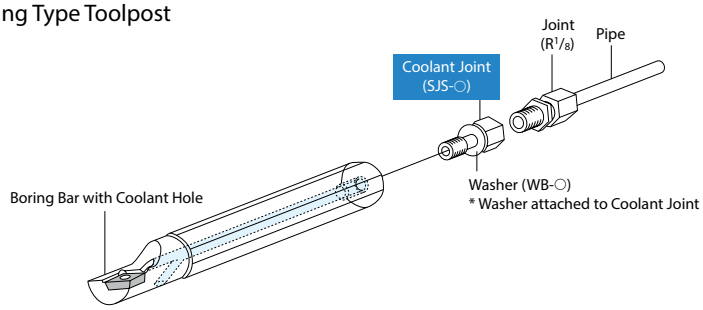
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Coolant Joint Dimensions *This coolant join is not applicable for Dynamic Bars



Unit	Part Number	Std. Item	Dimensions D	L1	L2	H	Thread (Toolholder Side)	Thread (Joint Side)	Spare Parts Washer
mm	SJS-5	●	15	15	7	13	M5XP0.8	Rc1/8 (PT1/8)	WB-5
	SJS-6	●	15	15	9	13	M6XP1.0		WB-6
	SJS-8	●	15	15	13	13	M8XP1.25		WB-8

2. For Gang Type Toolpost



List of Toolholders and Applicable Joints

Toolholder Part Number	Applicable Coolant Joint
A08-----○○E	SJS-5
A10-----○○E	
A12-----○○E	SJS-6
A16-----○○E	SJS-8
A20-----○○E	
A25-----○○E	
E08-----○○	SJS-5
E10-----○○	
E12-----○○	SJS-6
E16-----○○	SJS-8
E20-----○○	

* This Coolant Joint is not applicable for Dynamic Bar

SHA / SH / SHC Sleeves and Applicable Toolholders

Shank Size (Hole Dia. : mm)	04 (4mm)	05 (5mm)	06 (6mm)	07 (7mm)	08 (8mm)	10 (10mm)	12 (12mm)	16 (16mm)	20 (20mm)	25 (25mm)
Sleeve Part Number	SH0416-100	SH0516-100	SH0616-100	SH0716-100	SH0820-120	SH1020-120	SH1225-150	SH1632-180	SH2032-180	
					SHA0819-120	SHA1019-120				
					SHA0820-120	SHA1020-120				
					SHA0822-125	SHA1022-125	SHA1222-125			
					SHA0823-120	SHA1023-120	SHA1223-120			
					SHA0825.0-135	SHA1025.0-135	SHA1225.0-135			
					SHA0825.4-120	SHA1025.4-120	SHA1225.4-120			
					SHC0840-70	SHC1040-70	SHC1240-70	SHC1640-70	SHC2040-70	SHC2540-70
					SHC0850-95	SHC1050-95	SHC1250-95	SHC1650-95	SHC2050-95	SHC2550-95
Boring Bars Part Number					A08-----	A10-----	A12-----	A16-----	A20-----	A25-----
	C04-----	C05-----	C06-----	C07-----	C08-----	C10-----	C12-----	C16-----	C20-----	C25-----
					E08-----	E10-----	E12-----	E16-----	E20-----	E25-----
			S06-----		S08-----	S10-----	S12-----	S16-----	S20-----	S25-----
Internal Grooving Toolholder Part Number			SIGC R/L 0806-WH		SIGC R/L 1008-WH-L85	SIGCR1210-WH-L95	SIGC R/L 0812-EH	SIGC R/L 1016-EH		
					SIGCR1008-WH-L100	SIGC R/L 1210-WH-110		SIGC R/L 1216-EH		
					SIGE R/L 0808A-EH	SIGE R/L 1010B-EH	SIGE R/L 1412C-EH	SIGE R/L 1616C-EH	SIGE R/L 2020D-EH	SIGE R/L 2525E-EH
						SIGE R/L 1210B-EH	SIGE R/L 1612C-EH			KIGBA R/L 3525-16
					SIGE R/L 0808A-WH	SIGE R/L 1010B-WH	SIGE R/L 1412C-WH	KGDI R/L ...16B-	KGDI R/L 2520B-	KGDI R/L 3225B-
						SIGE R/L 1210B-WH	SIGE R/L 1612C-WH			
					SIGER1008B-WH-90	SIGER1210B-WH-90	SIGER1412C-WH-90			
							GIV R/L 1412-1SE	GIV R/L 1216-1SS	GIV R/L 1420-1S	GIV R/L 2025-1B
							GIV R/L 1612-1AE	GIV R/L 2016-1BE	GIV R/L 1620-1A	GIV R/L 2025-2B
								GIV R/L 2016-2BE	GIV R/L 2520-1CE	GIV R/L 3225-1CE
								GIV R/L 1616-1AW	GIV R/L 2720-2CE	GIV R/L 3225-2CE
									GIV R/L 2020-1BW	GIV R/L 2525-1CW
									GIV R/L 2020-2BW	GIV R/L 2525-2CW
Internal Threading Toolholder Part Number							SINR0612S-06E	SINR0816S-08E	SIN R/L 2420S-16	CIN R/L 3025S-16
								SIN R/L 1216S-11E	SINR2420S-22	CINR3025S-22
								SIN R/L 1516S-11		
								SIN R/L 1616S-16		
								SIN R/L 2016S-16		

For SHA sleeves, see page F171
For SL / SH / SHC sleeves, see page F172

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Boring: (Positive Insert) - Cutting Diameter under ø0.394" (ø10mm)

[D.O.C. Indicates Radius]

ISO Class	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - **Recommendation** - Upper Limit		
								Vc (sfm)	D.O.C. (in)	f (ipr)
P*	Low-Carbon Steel Low-Carbon Alloy	HB ≤ 300	Finishing (Solid Bar)	Continuous	EZB-F EZB-H	PR1725	0.002	100 - **230** - 360	0.002 - **0.004** - 0.008	0.0004 - **0.0016** - 0.0028
				Interruption			0.006	100 - **200** - 300	0.002 - **0.004** - 0.008	0.0012 - **0.0028** - 0.0039
			Finishing	Continuous	F	PR1725	0.004	130 - **260** - 390	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	130 - **230** - 330	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing-Medium	Continuous	CF	PR1725	0.004	130 - **260** - 390	0.002 - **0.006** - 0.010	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	130 - **230** - 330	0.002 - **0.006** - 0.010	0.0012 - **0.0028** - 0.0039
	Medium-Carbon Steel Medium-Carbon Alloy	HB ≤ 300	Finishing (Solid Bar)	Continuous	EZB-F EZB-H	PR1725	0.002	100 - **230** - 360	0.002 - **0.004** - 0.008	0.0004 - **0.0016** - 0.0028
				Interruption			0.006	100 - **200** - 300	0.002 - **0.004** - 0.008	0.0012 - **0.0028** - 0.0039
			Finishing	Continuous	F	PR1725	0.004	130 - **260** - 390	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	130 - **230** - 390	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing-Medium	Continuous	CF	PR1725	0.004	130 - **260** - 390	0.002 - **0.006** - 0.010	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	130 - **230** - 330	0.002 - **0.006** - 0.010	0.0012 - **0.0028** - 0.0039
	High-Carbon Alloy	HB ≤ 280	Finishing (Solid Bar)	Continuous	EZB-F EZB-H	PR1725	0.002	100 - **230** - 360	0.002 - **0.004** - 0.008	0.0004 - **0.0016** - 0.0028
				Interruption			0.006	100 - **200** - 300	0.002 - **0.004** - 0.008	0.0012 - **0.0028** - 0.0039
			Finishing	Continuous	F	PR1725	0.004	130 - **260** - 390	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	130 - **230** - 330	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing-Medium	Continuous	CF	PR1725	0.004	130 - **260** - 390	0.002 - **0.006** - 0.010	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	130 - **230** - 330	0.002 - **0.006** - 0.010	0.0012 - **0.0028** - 0.0039
M	Stainless Steel	HB ≤ 220	Finishing (Solid Bar)	Continuous	EZB-F EZB-H	PR1725	0.002	100 - **200** - 260	0.002 - **0.004** - 0.008	0.0004 - **0.0012** - 0.0020
				Interruption			0.006	100 - **200** - 260	0.002 - **0.004** - 0.008	0.0008 - **0.0020** - 0.0028
			Finishing	Continuous	F	PR1225 PR1535	0.004	100 - **200** - 260	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	100 - **200** - 260	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing-Medium	Continuous	CF	PR1225 PR1535	0.004	100 - **200** - 260	0.002 - **0.006** - 0.010	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	100 - **200** - 260	0.002 - **0.006** - 0.010	0.0012 - **0.0028** - 0.0039
	Stainless Steel	HB ≤ 300	Finishing (Solid Bar)	Continuous	EZB-F EZB-H	PR1725	0.002	100 - **200** - 260	0.002 - **0.004** - 0.008	0.0004 - **0.0012** - 0.0020
				Interruption			0.006	100 - **200** - 260	0.002 - **0.004** - 0.008	0.0008 - **0.0020** - 0.0028
			Finishing	Continuous	F	PR1225 PR1535	0.004	100 - **200** - 260	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	100 - **200** - 260	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing-Medium	Continuous	CF	PR1225 PR1535	0.004	100 - **200** - 260	0.002 - **0.006** - 0.010	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	100 - **200** - 260	0.002 - **0.006** - 0.010	0.0012 - **0.0028** - 0.0039
K	Gray Cast Iron	HB ≤ 250	Finishing (Solid Bar)	Continuous	(VNB) (VNB-NB)	KW10	0.001	100 - **200** - 330	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	100 - **200** - 330	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing	Continuous	F	KW10	0.004	100 - **200** - 330	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	100 - **200** - 260	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing-Medium	Continuous	Without Chipbreaker	KW10	0.008	100 - **200** - 330	0.004 - **0.008** - 0.012	0.0012 - **0.0020** - 0.0028
				Interruption			1/64	100 - **200** - 260	0.004 - **0.008** - 0.012	0.0012 - **0.0028** - 0.0039
	Nodular Cast Iron	HB ≤ 270	Finishing (Solid Type)	Continuous	(VNB) (VNB-NB)	KW10	0.001	100 - **200** - 260	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	100 - **200** - 260	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing	Continuous	F, U	KW10	0.004	100 - **200** - 260	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption			0.008	100 - **200** - 260	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing-Medium	Continuous	Without Chipbreaker	KW10	0.008	100 - **200** - 330	0.004 - **0.008** - 0.012	0.0012 - **0.0020** - 0.0028
				Interruption			1/64	100 - **200** - 260	0.004 - **0.008** - 0.012	0.0012 - **0.0028** - 0.0039
N	Non-Ferrous Metals Copper Alloy Aluminum Aluminum Alloy	HB ≤ 100	High Speed Finishing (Surface Finish Oriented)	Continuous	Without Chipbreaker	KPD001	0.002	490 - **660** - 980	0.002 - **0.004** - 0.012	0.0020 - **0.0039** - 0.0059
			Finishing (Long Tool Life)	Continuous	F, U	PDL025	0.004	330 - **490** - 660	0.002 - **0.012** - 0.020	0.0012 - **0.0039** - 0.0079
				Interruption			0.008	330 - **490** - 660	0.002 - **0.012** - 0.020	0.0012 - **0.0039** - 0.0079
			Finishing	Continuous	F, U	KW10	0.004	330 - **490** - 660	0.002 - **0.012** - 0.020	0.0012 - **0.0039** - 0.0079
				Interruption			0.008	330 - **490** - 660	0.002 - **0.012** - 0.020	0.0012 - **0.0039** - 0.0079
S	Titanium Alloy	HB ≤ 400	Precision Finishing (Surface Finish Oriented)	Continuous	Without Chipbreaker	KPD001	0.004	330 - **390** - 490	0.002 - **0.004** - 0.012	0.0012 - **0.0028** - 0.0039
				Interruption			0.008	230 - **330** - 390	0.002 - **0.004** - 0.012	0.0012 - **0.0028** - 0.0039
			Finishing	Continuous	F, U	KW10	0.004	70 - **130** - 200	0.002 - **0.008** - 0.020	0.0012 - **0.0039** - 0.0079
				Interruption			0.008	70 - **130** - 200	0.002 - **0.008** - 0.020	0.0012 - **0.0039** - 0.0079
	Heat-Resistant Alloys	HB ≤ 350	Finishing (Solid Bar)	Continuous	(VNB)	KW10	0.008	30 - **100** - 160	0.002 - **0.004** - 0.012	0.0012 - **0.0020** - 0.0039
				Interruption			0.008	30 - **100** - 160	0.002 - **0.004** - 0.012	0.0012 - **0.0020** - 0.0031
			Finishing	Continuous	F, U	KW10	0.008	30 - **100** - 160	0.002 - **0.008** - 0.016	0.0012 - **0.0020** - 0.0039
				Interruption			0.008	30 - **100** - 160	0.002 - **0.008** - 0.016	0.0012 - **0.0020** - 0.0039
H	Hardened Steel Hardened Materials	40 ~ 50 HRC	Finishing	Continuous	(VNB)	PR930	0.008	100 - **160** - 230	0.002 - **0.004** - 0.016	0.0004 - **0.0008** - 0.0020
				Interruption			0.008	100 - **160** - 230	0.002 - **0.004** - 0.008	0.0004 - **0.0008** - 0.0012
		45 ~ 68 HRC	Finishing	Continuous	ME MES	KBN010	0.008	200 - **330** - 460	0.002 - **0.004** - 0.008	0.0008 - **0.0020** - 0.0039
				Interruption			1/64	200 - **260** - 390	0.002 - **0.004** - 0.008	0.0008 - **0.0020** - 0.0039

* For machining free-cutting steels, use PR1725 at Vc = 490 sfm or less.
For D.O.C. and f, refer to specs for low carbon steels.

Boring: (Positive Insert) - Cutting Diameter over ø0.394" (ø10mm)

[D.O.C. Indicates Radius]

ISO Class	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - **Recommendation** - Upper Limit		
								Vc (sfm)	D.O.C. (in)	f (ipr)
P*	Low-Carbon Steel Low-Carbon Alloy	HB ≤ 300	Precision Finishing	Continuous	F, U	TN620	0.004	820 - **980** - 1150	0.002 - **0.004** - 0.008	0.0004 - **0.0016** - 0.0028
				Interruption		PR1725	0.008	390 - **560** - 720	0.002 - **0.004** - 0.008	0.0012 - **0.0028** - 0.0039
			Finishing	Continuous	XP	PV710	0.016	660 - **820** - 980	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption		CA125P	0.016	490 - **660** - 820	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing-Medium	Continuous	XQ	PV710	0.016	490 - **660** - 820	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption		CA125P	0.016	330 - **490** - 660	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Medium	Continuous	Standard	PV720	0.032	330 - **490** - 660	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption		CA125P	0.032	260 - **390** - 490	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
	Medium-Carbon Steel Medium-Carbon Alloy	HB ≤ 300	Precision Finishing	Continuous	F, U	TN620	0.008	490 - **660** - 820	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption		PR1725	0.016	390 - **460** - 560	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing	Continuous	PP	PV710	0.016	490 - **660** - 820	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption		CA125P	0.016	390 - **590** - 660	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing-Medium	Continuous	HQ	PV710	0.016	390 - **590** - 720	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption		CA125P	0.016	330 - **490** - 660	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Medium	Continuous	Standard	PV720	0.032	330 - **490** - 660	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption		CA125P	0.032	260 - **390** - 490	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
	High-Carbon Alloy	HB ≤ 280	Precision Finishing	Continuous	F, U	TN620	0.008	390 - **490** - 590	0.002 - **0.004** - 0.008	0.0004 - **0.0016** - 0.0028
				Interruption		PR1725	0.016	360 - **430** - 520	0.002 - **0.004** - 0.008	0.0012 - **0.0028** - 0.0039
			Finishing	Continuous	PP	PV710	0.016	390 - **490** - 590	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption		CA125P	0.016	330 - **390** - 490	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing-Medium	Continuous	HQ	PV710	0.016	390 - **490** - 590	0.002 - **0.006** - 0.010	0.0012 - **0.0020** - 0.0028
				Interruption		CA125P	0.016	330 - **390** - 490	0.002 - **0.006** - 0.010	0.0012 - **0.0028** - 0.0039
			Medium	Continuous	Standard	CA515	0.032	330 - **390** - 490	0.002 - **0.006** - 0.010	0.0012 - **0.0020** - 0.0028
				Interruption		CA125P	0.032	260 - **330** - 390	0.002 - **0.006** - 0.010	0.0012 - **0.0028** - 0.0039
M	Stainless Steel	HB ≤ 220	Finishing	Continuous	MQ	CA6525	0.016	390 - **490** - 590	0.002 - **0.004** - 0.008	0.0004 - **0.0012** - 0.0020
				Interruption		PR1535	0.032	330 - **390** - 490	0.002 - **0.004** - 0.008	0.0008 - **0.0020** - 0.0028
			Medium	Continuous	Standard	CA6525	0.016	390 - **490** - 590	0.002 - **0.006** - 0.010	0.0012 - **0.0020** - 0.0028
				Interruption		PR1535	0.032	330 - **390** - 490	0.002 - **0.006** - 0.010	0.0012 - **0.0028** - 0.0039
	Stainless Steel	HB ≤ 300	Finishing	Continuous	MQ	CA6525	0.016	260 - **330** - 390	0.002 - **0.004** - 0.008	0.0004 - **0.0012** - 0.0020
				Interruption		PR1535	0.032	200 - **260** - 330	0.002 - **0.004** - 0.008	0.0008 - **0.0020** - 0.0028
			Medium	Continuous	Standard	CA6525	0.016	260 - **330** - 390	0.002 - **0.006** - 0.010	0.0012 - **0.0020** - 0.0028
				Interruption		PR1535	0.032	200 - **260** - 330	0.002 - **0.006** - 0.010	0.0012 - **0.0028** - 0.0039
K	Gray Cast Iron	HB ≤ 250	High Speed Machining	Continuous	Without Chipbreaker	KBN475	0.016	1310 - **1640** - 1970	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption		PT600M	0.032	660 - **820** - 1150	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing (Surface Finish Oriented)	Continuous	Standard	PV7005	0.032	660 - **820** - 980	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption		TN620	0.032	390 - **590** - 750	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing	Continuous	Standard	CA410K	0.016	490 - **940** - 1550	0.004 - **0.008** - 0.012	0.0012 - **0.0020** - 0.0028
				Interruption		CA415K	0.032	400 - **730** - 1060	0.004 - **0.008** - 0.012	0.0012 - **0.0028** - 0.0039
			Medium	Continuous	Standard	CA410K	0.032	330 - **780** - 1550	0.004 - **0.008** - 0.012	0.0012 - **0.0020** - 0.0028
				Interruption		CA415K	0.032	310 - **580** - 880	0.004 - **0.008** - 0.012	0.0012 - **0.0028** - 0.0039
	Nodular Cast Iron	HB ≤ 270	High Speed Machining	Continuous	Without Chipbreaker	KBN60M	0.016	660 - **980** - 1310	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption		PT600M	0.032	490 - **660** - 820	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing (Surface Finish Oriented)	Continuous	Standard	PV7005	0.032	490 - **660** - 820	0.002 - **0.003** - 0.004	0.0012 - **0.0020** - 0.0028
				Interruption		TN620	0.032	390 - **490** - 660	0.002 - **0.004** - 0.006	0.0012 - **0.0028** - 0.0039
			Finishing	Continuous	Standard	CA410K	0.016	530 - **850** - 1180	0.004 - **0.008** - 0.012	0.0012 - **0.0020** - 0.0028
				Interruption		CA415K	0.032	410 - **540** - 780	0.004 - **0.008** - 0.012	0.0012 - **0.0028** - 0.0039
			Medium	Continuous	Standard	CA410K	0.032	440 - **680** - 980	0.004 - **0.008** - 0.012	0.0012 - **0.0020** - 0.0028
				Interruption		CA415K	0.032	330 - **460** - 620	0.004 - **0.008** - 0.012	0.0012 - **0.0028** - 0.0039
N	Non-Ferrous Metals Copper Alloy Aluminum Aluminum Alloy	HB ≤ 100	High Speed Finishing (Surface Finish Oriented)	Continuous	Without Chipbreaker	KPD001	0.008	660 - **1310** - 3280	0.002 - **0.004** - 0.012	0.0020 - **0.0039** - 0.0059
			Finishing (Long Tool Life)	Continuous	F, U	PDL025	0.016	330 - **660** - 1310	0.002 - **0.012** - 0.020	0.0012 - **0.0039** - 0.0079
				Interruption			0.016	330 - **660** - 1310	0.002 - **0.012** - 0.020	0.0012 - **0.0039** - 0.0079
			Finishing	Continuous	F, U	KW10	0.016	330 - **660** - 1310	0.002 - **0.012** - 0.020	0.0012 - **0.0039** - 0.0079
				Interruption			0.016	330 - **660** - 1310	0.002 - **0.012** - 0.020	0.0012 - **0.0039** - 0.0079
S	Titanium Alloy	HB ≤ 400	Precision Finishing (Surface Finish Oriented)	Continuous	Without Chipbreaker	KPD001	0.008	330 - **390** - 490	0.002 - **0.004** - 0.012	0.0012 - **0.0028** - 0.0039
				Interruption			0.016	230 - **330** - 390	0.002 - **0.004** - 0.012	0.0012 - **0.0028** - 0.0039
			Finishing	Continuous	F, U	KW10	0.008	100 - **160** - 230	0.002 - **0.008** - 0.020	0.0012 - **0.0039** - 0.0079
				Interruption			0.016	100 - **160** - 230	0.002 - **0.008** - 0.020	0.0012 - **0.0039** - 0.0079
	Heat-Resistant Alloys	HB ≤ 350	Finishing	Continuous	F, U	KW10	0.016	30 - **100** - 160	0.002 - **0.004** - 0.012	0.0012 - **0.0020** - 0.0039
				Interruption			0.016	30 - **100** - 160	0.002 - **0.004** - 0.012	0.0012 - **0.0020** - 0.0031
			Finishing	Continuous	MQ	PR115S	0.016	130 - **200** - 260	0.002 - **0.008** - 0.016	0.0012 - **0.0020** - 0.0039
				Interruption			0.032	130 - **200** - 260	0.002 - **0.008** - 0.016	0.0012 - **0.0020** - 0.0039
H	Hardened Steel Hardened Materials	40 ~ 50 HRC	Finishing	Continuous	HQ Standard	CA515	0.032	200 - **260** - 330	0.002 - **0.004** - 0.016	0.0004 - **0.0008** - 0.0020
				Interruption			0.032	100 - **160** - 230	0.002 - **0.004** - 0.008	0.0004 - **0.0008** - 0.0012
		45 ~ 68 HRC	Finishing	Continuous	ME MET	KBN010	0.016	330 - **460** - 590	0.002 - **0.008** - 0.016	0.0012 - **0.0020** - 0.0039
				Interruption		KBN015	0.032	300 - **390** - 520	0.002 - **0.008** - 0.016	0.0012 - **0.0020** - 0.0039
			Medium	Continuous	Without Chipbreaker (Negative)	KBN900	0.032	200 - **260** - 330	0.002 - **0.004** - 0.008	0.0008 - **0.0020** - 0.0039

* For machining free-cutting steels:
Use PR1725 when machining Vc = 660 sfm of less
Use PV720 or CA515 when machining Vc = 660 or more
For D.O.C. and f, refer to specs for low carbon steels.

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G

External Grooving		**G2~G72**
GBA	KGBA / KGBAS / KGBA-JCT	G13
GBF	KGBF-F / KGBF-JCTM / KGBFS	G21
	S-KGBF	G24
KGZ	KGZ-JCTM / KGZ	G30
KGD	KGD (Integral Type)	G44
	KGD (Integral Type for Small Parts)	G46
	KGD-JCT (Integral Type, Coolant-Through)	G48
	KGD-JCTM (Integral Type for Small Parts, Coolant-Through)	G51
	KGD-S / KGDS-S (0˚ / 90˚ SwitchBlade Type)	G52
KKC	KKC (Cera-Notch)	G65
KGH	KGH / KGHS	G67
EGT	EGT	G70
KDB	KDB	G71
KGMW	KGMW	G72
Internal Grooving		**G73~G94**
EZG	EZG (EZ Bars)	G75
VNG	VNG (Swiss IQ Bars)	G77
GC	SIGC	G79
GE / GER	SIGE	G82
KIGBA	KIGBA	G89
KGDI	KGDI	G91
KIGH	KIGH	G93
A-KKC	A-KKC (Cera-Notch)	G94
Face Grooving		**G95~G152**
EZFG	EZFG (EZ Bars)	G99
VNFG	VNFG (Swiss IQ Bars)	G101
TWFG / TWFGT	TWFG (Twin Bars)	G102
	TWFGT (Twin Bars)	G104
KGDF	KGDF (0˚ SwitchBlade Type)	G110
	KGDF-Z	G120
	KGDF (90˚ SwitchBlade Type)	G121
GVF-AA	GFVS-AA / GFVT-AA	G135
GVF	GFV	G137
	GFVS / GFVT	G139
	GIFV	G145
KKCE	KKCE (Cera-Notch)	G147
KFMS	KFMS	G149
KFTB	KFTB-S	G152
Recommended Cutting Conditions		**G153~G159**
Guide for Grooving		**G160~G161**

KGD Grooving (External Grooving and Traversing)

· Integral Type

Type	KGD
Edge Width	0.079" ~ 0.315" (2.00mm ~ 8.00mm)
Max. Grooving Depth	0.236" ~ 1.181" (6.00mm ~ 30.00mm)
Ref. Page	G44

· Integral Type (Coolant-Through Holders)

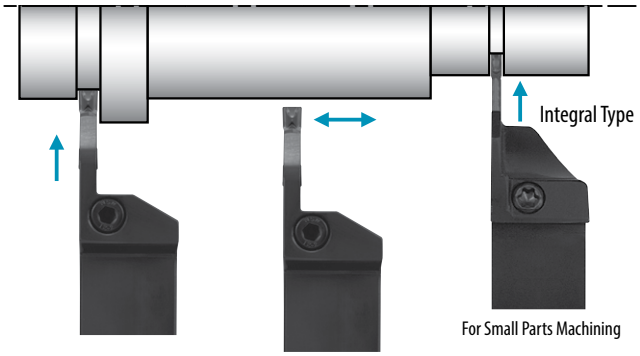
Type	KGD-JCT
Edge Width	0.118" ~ 0.157" (3.00mm ~ 5.00mm)
Max. Grooving Depth	0.787" ~ 1.000" (6.00mm ~ 25.00mm)
Ref. Page	G48

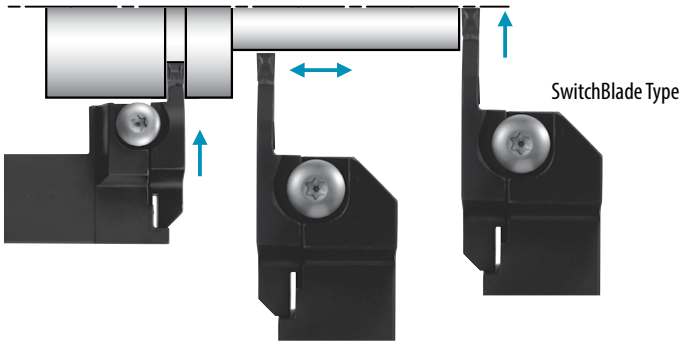
· Integral Type for Small Sarts

Type	KGD
Edge Width	0.079" ~ 0.157" (2.00mm ~ 4.00mm)
Max. Grooving Depth	0.394" ~ 0.827" (10.00mm ~ 25.5mm)
Ref. Page	G46

· Integral Type for Small Parts (Coolant-Through Holders)

Type	KGD-JCTM
Edge Width	0.079" ~ 0.157" (2.00mm ~ 4.00mm)
Max. Grooving Depth	0.472" ~ 0.630" 12.00mm ~ 16.00mm
Ref. Page	G51





· SwitchBlade 90°

Type	*KGDS-S
Edge Width	0.079" ~ 0.197" (2.00mm ~ 5.00mm)
Max. Grooving Depth	0.394" ~ 0.984" (10.00mm ~ 25.00mm)
Ref. Page	G54

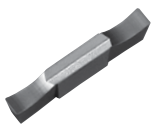
* The SwitchBlade Type toolholders can accept all the blades if their hand is matching.

· SwitchBlade 0°

Type	*KGD-S
Edge Width	0.079" ~ 0.197" (2.00mm ~ 5.00mm)
Max. Grooving Depth	0.394" ~ 0.984" (10.00mm ~ 25.00mm)
Ref. Page	G52

* The SwitchBlade Type toolholders can accept all the blades if their hand is matching.

Low cutting force GS



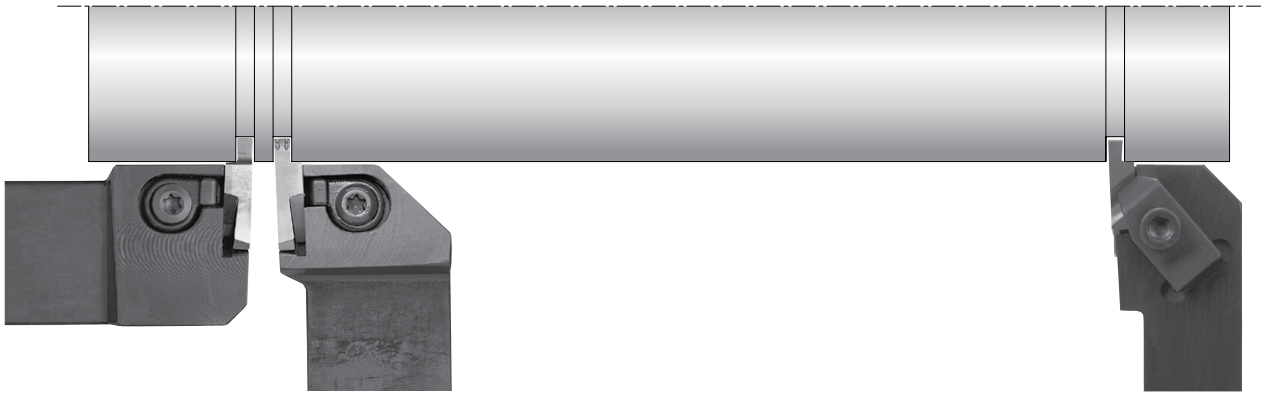
Low feed GL

General purpose GM

High feed PH

Copying CM

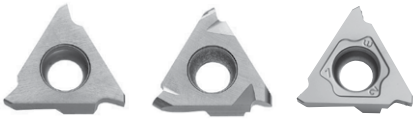
Shallow Grooving (Grooving Depth: ~0.197" / 5mm)

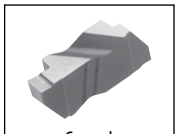


Type	KGBAS
Edge Width	0.031" ~ 0.189" (0.33mm ~ 4.80mm)
Max. Grooving Depth	0.032" ~ 0.197" (0.80mm ~ 5.00mm)
Ref. Page	G14

KGBA (-JCT)
0.031" ~ 0.189" (0.33mm ~ 4.80mm)
0.032" ~ 0.197" (0.80mm ~ 5.00mm)
G13, G15

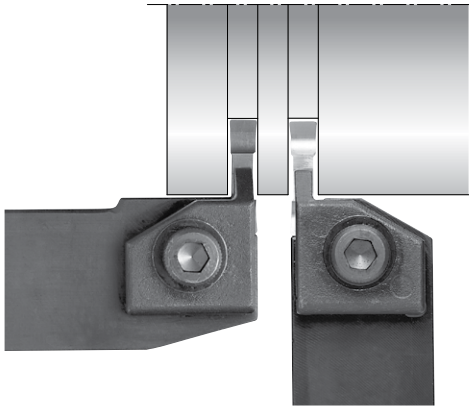
KKC
0.031" ~ 0.250"
0.050" ~ 0.250"
G65





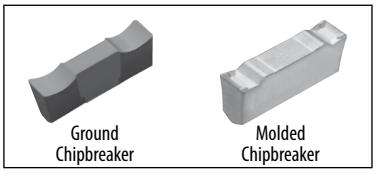
Edge Shape	General (Square)	Full-R (Round)	GM Chipbreaker

Deep Grooving (Grooving Depth: ~0.984" / 25mm)

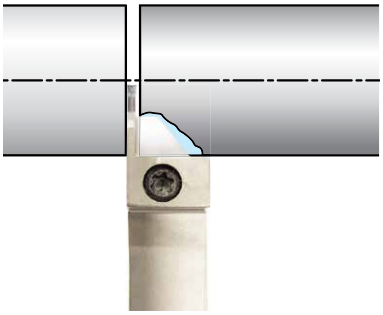


Type	KGHS
Edge Width	0.157" ~ 0.315" (4.00mm ~ 8.00mm)
Max. Grooving Depth	0.512" (13.00mm)
Ref. Page	G68

KGH
0.157" ~ 0.472" (4.00mm ~ 12.00mm)
0.512" ~ 0.669" (13.00mm ~ 17.00mm)
G67



External Grooving of Precision Parts (Small Part Machining)



KGZ Grooving Inserts

GM Chipbreaker
General Purpose

GL Chipbreaker
Low Feed

PH Chipbreaker
High Feed

CM Chipbreaker
Full-R / Copying

GS Chipbreaker
Low Cutting Force

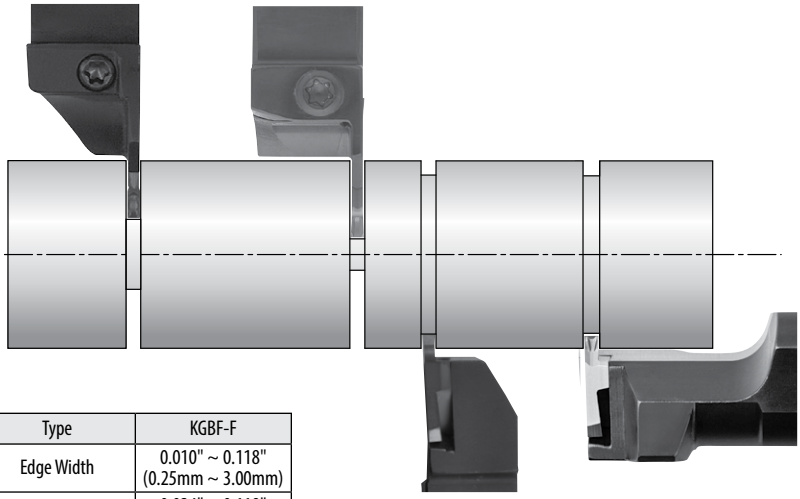
NB PCD
for Alluminum

Type	KGZ
Edge Width	0.079" ~ 0.118" (2.00mm ~ 3.00mm)
Max. Grooving Depth	0.394" ~ 0.827" (10.00mm ~ 25.5mm)
Ref. Page	G32

Type	KGZ-JCTM
Edge Width	0.079" ~ 0.118" (2.00mm ~ 3.00mm)
Max. Grooving Depth	0.472" ~ 0.630" (12.00mm ~ 16.00mm)
Ref. Page	G30

Type	KGD
Edge Width	0.079" ~ 0.157" (2.00mm ~ 4.00mm)
Max. Grooving Depth	0.394" ~ 0.827" (10.00mm ~ 21.00mm)
Ref. Page	G46

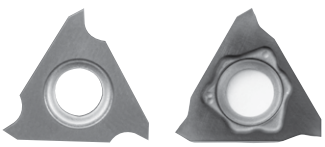
Type	KGD-JCTM
Edge Width	0.079" ~ 0.157" (2.00mm ~ 4.00mm)
Max. Grooving Depth	0.472" ~ 0.630" 12.00mm ~ 16.00mm
Ref. Page	G51



Type	KGBF-F
Edge Width	0.010" ~ 0.118" (0.25mm ~ 3.00mm)
Max. Grooving Depth	0.024" ~ 0.118" (0.60mm ~ 3.00mm)
Ref. Page	G21

Type	KGBFS	KGBF-JCTM
Edge Width	0.010" ~ 0.118" (0.25mm ~ 3.00mm)	0.010" ~ 0.118" (0.25mm ~ 3.00mm)
Max. Grooving Depth	0.024" ~ 0.118" (0.60mm ~ 3.00mm)	0.024" ~ 0.118" (0.60mm ~ 3.00mm)
Ref. Page	G23	G22

Type	S-KGBF
Edge Width	0.010" ~ 0.118" (0.25mm ~ 3.00mm)
Max. Grooving Depth	0.024" ~ 0.118" (0.60mm ~ 3.00mm)
Ref. Page	G24

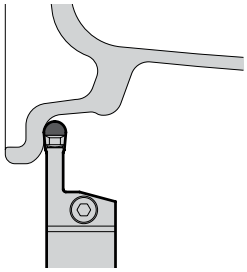


Ground Chipbreaker

GL Chipbreaker

800.823.7284
www.kyocera precisiontools.com

External Grooving of Aluminum Wheels (External / Facing / Copying)



Type	KGMW
Edge Width	0.236" ~ 0.315" (6.00mm ~ 8.00mm)
Max. Grooving Depth	0.984" (25.00mm)
Ref. Page	G72

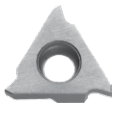
1-edge PCD

GBA32

Insert Size	IC		S		D1	
	in	mm	in	mm	in	mm
GBA32...	3/8	9.525	1/8	3.18	0.173	4.4

Carbon Steel / Alloy Steel	●	●	○	○		●		P
Stainless Steel		●	○	○				M
Cast Iron	●		○		○			K
Non-Ferrous Metals					●			N
Titanium Alloy					●			S
Hard Materials (~ 40HRC)			●					H
Hard Materials (40HRC ~)								

Insert		Part Number		No. of Edges	Dimensions (mm)							Tolerance (mm)		Carbide					Cermet		Applicable Toolholder ⇨ G13~G15 G89
					CW		CDX	IC	S	D1	RE	CW min.	CW max.	PVD				-	PVD	-	
					in	mm								PR2015	PR2025	PR1215	PR1625	KW10	PV7040	TN90	
		GBA32R	033-005	3	0.013	0.33	0.8	9.525	3.18	4.4	0.05	-0.03	+0.02	●	●		●				KGBAR...3 KGBAR...16 KGBAR...16JCT KGBASL...3 KGBASL...16 KIGBAL...3 KIGBAL...16
			050-005*		0.020	0.50	1				0.05	0	+0.05					●		●	
							1.2							●	●		●				
			075-005		0.030	0.75	2				0.05	-0.025	+0.025	●	●	●	●	●	●	●	
			095-005		0.037	0.95	2				0.05	-0.025	+0.025	●	●		●	●		●	
			100-005		0.039	1.00	2				0.05	-0.025	+0.025	●	●	●	●	●	●	●	
			110-005		0.043	1.10	2				0.05	-0.025	+0.025	●	●		●				
			120-005		0.047	1.20	2				0.05	-0.025	+0.025	●	●	●	●				
			125-020		0.049	1.25	2				0.2	-0.025	+0.025	●	●	●	●	●	●	●	
			130-020		0.051	1.30	2				0.2	-0.025	+0.025	●	●	●	●				
			140-020		0.055	1.40	2.5				0.2	-0.025	+0.025	●	●	●	●				
			145-020*		0.057	1.45	2				0.2	-0.025	+0.025					●		●	
							2.5							●	●	●	●				
			150-020*		0.059	1.50	2				0.2	-0.025	+0.025						●	●	
							2.5							●	●	●	●				
			160-020		0.063	1.60	2.5				0.2	-0.025	+0.025	●	●	●	●				
			170-020		0.067	1.70	2.5				0.2	-0.025	+0.025	●	●	●	●				
			175-020*		0.069	1.75	2				0.2	-0.025	+0.025					●		●	
							2.5							●	●	●	●				
			200-020		0.079	2.00	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●	●	
			225-020		0.089	2.25	2.5				0.2	-0.025	+0.025	●	●	●	●				
			250-020		0.098	2.50	2.5				0.2	-0.025	+0.025	●	●	●	●	●		●	
			300-020		0.118	3.00	2.5				0.2	-0.025	+0.025	●	●	●	●				
		GBA32L	033-005	3	0.013	0.33	0.8	9.525	3.18	4.4	0.05	-0.03	+0.02	●	●		●				KGBAL...3 KGBAL...16 KGBAL...16JCT KGBASR...3 KGBASR...16 KIGBAR...3 KIGBAR...16
			050-005*		0.020	0.50	1				0.05	0	+0.05					●			
							1.2							●	●	△	●				
			075-005		0.030	0.75	2				0.05	-0.025	+0.025	●	●		●	●	●		
			095-005		0.037	0.95	2				0.05	-0.025	+0.025	●	●	●	●	●			
			100-005		0.039	1.00	2				0.05	-0.025	+0.025	●	●	●	●	●	●	●	
			110-005		0.043	1.10	2				0.05	-0.025	+0.025	●	●		●				
			120-005		0.047	1.20	2				0.05	-0.025	+0.025	●	●	●	●				
			125-020		0.049	1.25	2				0.2	-0.025	+0.025	●	●	●	●	●	●	●	
			130-020		0.051	1.30	2				0.2	-0.025	+0.025	●	●	●	●				
			140-020		0.055	1.40	2.5				0.2	-0.025	+0.025	●	●	●	●				
			145-020*		0.057	1.45	2				0.2	-0.025	+0.025					●			
							2.5							●	●	●	●				
			150-020*		0.059	1.50	2				0.2	-0.025	+0.025						●	●	
							2.5							●	●	●	●				
			160-020		0.063	1.60	2.5				0.2	-0.025	+0.025	●	●	●	●				
			170-020		0.067	1.70	2.5				0.2	-0.025	+0.025	●	●	●	●				
			175-020*		0.069	1.75	2				0.2	-0.025	+0.025					●		●	
							2.5							●	●	●	●				
			200-020		0.079	2.00	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●	●	
			225-020		0.089	2.25	2.5				0.2	-0.025	+0.025	●	●	●	●				
			250-020		0.098	2.50	2.5				0.2	-0.025	+0.025	●	●	●	●	●		●	
			300-020		0.118	3.00	2.5				0.2	-0.025	+0.025	●	●	●	●				



Right-hand shown
CDX shows available grooving depth.
*CDX dimension is different based on grade.

Recommended Cutting Conditions ⇨ G153

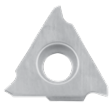
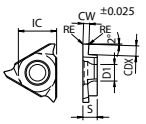
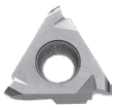
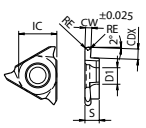
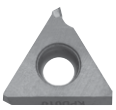
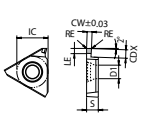
GBA Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GBA32

Insert Size	IC		S		D1	
	in	mm	in	mm	in	mm
GBA32...	3/8	9.525	1/8	3.18	0.173	4.4

Carbon Steel / Alloy Steel	●	◕	○	◔	●			P
Stainless Steel		◕	○	◔				M
Cast Iron	◕		◔					K
Non-Ferrous Metals						●		N
Titanium Alloy						●		S
Hard Materials (~ 40HRC)	●		○					H
Hard Materials (40HRC ~)								

Insert	Part Number	No. of Edges	Dimensions (mm)								Tolerance (mm)		Carbide				Cermet	PCD		Applicable Toolholder ⇒ G13~G15 G89
			CW		CDX	IC	S	D1	RE	LE	CW min.	CW max.	PVD				-	-		
			in	mm									PR2015	PR2025	PR1215	PR1625	TN620	KPD001	KPD010	
	 Sharp edge	GBA32R 050-005F	0.020	0.5	1	9.525	3.18	4.4	0.05	-	0	+0.05					●			KGBAR...3 KGBAR...16 KGBAR...16JCT KGBASL...3 KGBASL...16 KIGBAL...3 KIGBAL...16
		075-005F	0.030	0.75	2				0.05		-0.025	+0.025					●			
		095-005F	0.037	0.95	2				0.05		-0.025	+0.025					●			
		100-005F	0.039	1	2				0.05		-0.025	+0.025					●			
		125-020F	0.049	1.25	2				0.2		-0.025	+0.025					●			
		145-020F	0.057	1.45	2				0.2		-0.025	+0.025					●			
		150-020F	0.059	1.5	2				0.2		-0.025	+0.025					●			
		175-020F	0.069	1.75	2				0.2		-0.025	+0.025					●			
		200-020F	0.079	2	2.5				0.2		-0.025	+0.025					●			
		250-020F	0.098	2.5	2.5				0.2		-0.025	+0.025					●			
		GBA32L 050-005F	0.020	0.5	1	9.525	3.18	4.4	0.05	-	0	+0.05					●			KGBAL...3 KGBAL...16 KGBAL...16JCT KGBASR...3 KGBASR...16 KIGBAR...3 KIGBAR...16
		075-005F	0.030	0.75	2				0.05		-0.025	+0.025					●			
		095-005F	0.037	0.95	2				0.05		-0.025	+0.025					●			
		100-005F	0.039	1	2				0.05		-0.025	+0.025					●			
		125-020F	0.049	1.25	2				0.2		-0.025	+0.025					●			
		145-020F	0.057	1.45	2				0.2		-0.025	+0.025					●			
		150-020F	0.059	1.5	2				0.2		-0.025	+0.025					●			
		175-020F	0.069	1.75	2				0.2		-0.025	+0.025					●			
		200-020F	0.079	2	2.5				0.2		-0.025	+0.025					●			
		250-020F	0.098	2.5	2.5				0.2		-0.025	+0.025					●			
	 Full R	GBA32R 200-100R	0.079	2	2.5	9.525	3.18	4.4	1	-	-0.025	+0.025	●	●	●	●				KGBAR...3 KGBAR...16 KGBAR...16JCT KGBASL...3 KGBASL...16 KIGBAL...3 KIGBAL...16
		300-150R	0.118	3					1.5				●	●	●	●				
	 1-edge	GBA32R 125-010	0.049	1.25	2	9.525	3.18	4.4	0.1	1.7	-0.03	+0.03						●	●	KGBAR...3 KGBAR...16 KGBAR...16JCT KGBASL...3 KGBASL...16 KIGBAL...3 KIGBAL...16
		150-010	0.059	1.5	2													●	●	
		200-010	0.079	2	2.5													●		

Right-hand shown
CDX shows available grooving depth.

Recommended Cutting Conditions ⇒ G153

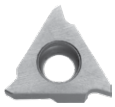
CBN & PCD Inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GBA43

Insert Size	IC		S		D1	
	in	mm	in	mm	in	mm
GBA43...	1/2	12.7	3/16	4.76	0.217	5.5
GBA43R480-...	1/2	12.7	0.197	5.00	0.217	5.5

Carbon Steel / Alloy Steel	●	●	○	○		●		P
Stainless Steel		●	○	○				M
Cast Iron	●		○		○			K
Non-Ferrous Metals					●			N
Titanium Alloy					●			S
Hard Materials (~ 40HRC)			●					H
Hard Materials (40HRC ~)								

Insert	Part Number	No. of Edges	Dimensions (mm)								Tolerance (mm)		Carbide					Cermet		Applicable Toolholder ⇨ G13~G15 G89
			CW		CDX	IC	S	D1	RE		CW min.	CW max.	PVD				-	PVD	-	
			in	mm									PR2015	PR2025	PR1215	PR1625	KW10	PV7040	TN90	
	GBA43R 125-010	3	0.049	1.25	2	12.7	4.76	5.5	0.1		-0.025	+0.025	●	●	●	●				KGBAR...4-15 KGBAR...22-15 KGBAR...22-15JCT KGBASL...4-15 KGBASL...22-15 KIGBAL...4 KIGBAL...22
	125-020		0.049	1.25	2	12.7	4.76	5.5	0.2		-0.025	+0.025	●	●	●	●	●	●	●	
	140-020		0.055	1.4	3.5	12.7	4.76	5.5	0.2		-0.025	+0.025	●	●	●	●				
	145-020*		0.057	1.45	2	12.7	4.76	5.5	0.2		-0.025	+0.025					●		●	
					3.5								●	●	●	●				
	150-010		0.059	1.5	3.5	12.7	4.76	5.5	0.1		-0.025	+0.025	●	●	●	●				
	150-020		0.059	1.5	3.5	12.7	4.76	5.5	0.2		-0.025	+0.025	●	●	●	●	●	●	●	
	170-020		0.067	1.7	3.5	12.7	4.76	5.5	0.2		-0.025	+0.025	●	●	●	●				
	175-020		0.069	1.75	3.5	12.7	4.76	5.5	0.2		-0.025	+0.025	●	●	●	●	●		●	
	185-020		0.073	1.85	3.5	12.7	4.76	5.5	0.2		-0.025	+0.025	●	●	●	●	●		●	
	195-020		0.077	1.95	3.5	12.7	4.76	5.5	0.2		-0.025	+0.025	●	●		●				
	200-010		0.079	2	3.5	12.7	4.76	5.5	0.1		-0.025	+0.025	●	●	●	●				
	200-020		0.079	2	3.5	12.7	4.76	5.5	0.2		-0.025	+0.025	●	●	●	●	●	●	●	
	225-020		0.089	2.25	3.5	12.7	4.76	5.5	0.2		-0.025	+0.025	●	●	●	●				
	230-020		0.091	2.3	3.5	12.7	4.76	5.5	0.2		-0.025	+0.025	●	●	●	●	●		●	
	250-010		0.098	2.5	5	12.7	4.76	5.5	0.1		-0.025	+0.025	●	●	●	●				*1
	250-030*		0.098	2.5	4	12.7	4.76	5.5	0.3		-0.025	+0.025					●	●	●	*2
					5								●	●	●	●				*1
	265-030*		0.104	2.65	4	12.7	4.76	5.5	0.3		-0.025	+0.025					●		●	*2
					5								●	●	●	●				*1
	280-030*		0.110	2.8	4	12.7	4.76	5.5	0.3		-0.025	+0.025					●		●	*2
					5								●	●	●	●				*1
	300-010		0.118	3	5	12.7	4.76	5.5	0.1		-0.025	+0.025	●	●	●	●				
	300-030*		0.118	3	4	12.7	4.76	5.5	0.3		-0.025	+0.025					●	●	●	*2
					5								●	●	●	●				*1
	325-030		0.128	3.25	5	12.7	4.76	5.5	0.3		-0.025	+0.025	●	●		●				
	330-030*		0.130	3.3	4	12.7	4.76	5.5	0.3		-0.025	+0.025					●		●	*2
					5								●	●	●	●				*1
	350-010		0.138	3.5	5	12.7	4.76	5.5	0.1		-0.025	+0.025	●	●	●	●				KGBAR...4-35 KGBAR...22-35 KGBAR...22-35JCT KGBASL...4-35 KGBASL...22-35 KIGBAL...4 KIGBAL...35
	350-030		0.138	3.5	5	12.7	4.76	5.5	0.3		-0.025	+0.025	●	●	●	●	●		●	
	400-010		0.157	4	5	12.7	4.76	5.5	0.1		-0.025	+0.025	●	●	●	●				
	400-040		0.157	4	5	12.7	4.76	5.5	0.4		-0.025	+0.025	●	●	●	●	●	●	●	
	430-040		0.169	4.3	5	12.7	4.76	5.5	0.4		-0.025	+0.025	●	●	●	●	●		●	
	450-040		0.177	4.5	5	12.7	4.76	5.5	0.4		-0.025	+0.025	●	●	●	●	●		●	
	480-040		0.189	4.8	5	12.7	5	5.5	0.4		-0.025	+0.025	●	●	●	●	●		●	

Right-hand shown
CDX shows available grooving depth.
*CDX dimension is different based on grade.
*1 : KGBAR...4-25, KGBAR...22-25T5, KGBAR...22-25JCT | KGBASL...4-25, KGBASL...22-25T5 | KIGBAL...4, KIGBAL...22
*2 : KGBAR...4-25, KGBAR...22-25, KGBAR...22-25T5, KGBAR...22-25JCT | KGBASL...4-25, KGBASL...22-25, KGBASL...22-25T5 | KIGBAL...4, KIGBAL...22

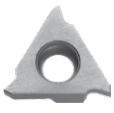
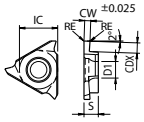
Recommended Cutting Conditions ⇨ G153

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GBA43

Insert Size	IC		S		D1	
	in	mm	in	mm	in	mm
GBA43...	1/2	12.7	3/16	4.76	0.217	5.5
GBA43L480-...	1/2	12.7	0.197	5.00	0.217	5.5

Carbon Steel / Alloy Steel	●	●	○	◔		●	P
Stainless Steel		●	○	◔			M
Cast Iron	●		◔		◔		K
Non-Ferrous Metals					●		N
Titanium Alloy					●		S
Hard Materials (~ 40HRC)			●				H
Hard Materials (40HRC ~)							

Insert	Part Number	No. of Edges	Dimensions (mm)							Tolerance (mm)		Carbide				Cermet		Applicable Toolholder ➡ G13~G15 G89
			CW		CDX	IC	S	D1	RE	CW min.	CW max.	PVD			-	PVD	-	
			in	mm								PR2015	PR2025	PR1215	PR1625	KW10	PV7040	TN90	
 	GBA43L 125-010	3	0.049	1.25	2	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●				KGBAL...4-15 KGBAL...22-15 KGBAL...22-15JCT KGBASR...4-15 KGBASR...22-15 KIGBAR...4 KIGBAR...22
	125-020		0.049	1.25	2	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●	●	●	●	
	140-020		0.055	1.4	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●				
	145-020*		0.057	1.45	2	12.7	4.76	5.5	0.2	-0.025	+0.025					●		●	
					3.5							●	●	●	●				
	150-010		0.059	1.5	3.5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●				
	150-020		0.059	1.5	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●	●	●	●	
	170-020		0.067	1.7	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●				
	175-020		0.069	1.75	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●	●			
	185-020		0.073	1.85	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●	●			
	195-020		0.077	1.95	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●		●				
	200-010		0.079	2	3.5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●				
	200-020		0.079	2	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●	●	●	●	
	225-020		0.089	2.25	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●				
	230-020		0.091	2.3	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●	●		●	
	250-010		0.098	2.5	5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●				*3
	250-030*		0.098	2.5	4	12.7	4.76	5.5	0.3	-0.025	+0.025					●	●	●	*4
					5							●	●	●	●				*3
	265-030*		0.104	2.65	4	12.7	4.76	5.5	0.3	-0.025	+0.025					●		●	*4
					5							●	●	●	●				*3
	280-030*		0.110	2.8	4	12.7	4.76	5.5	0.3	-0.025	+0.025					●		●	*4
					5							●	●	●	●				*3
	300-010		0.118	3	5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●				
	300-030*		0.118	3	4	12.7	4.76	5.5	0.3	-0.025	+0.025					●	●	●	*4
					5							●	●	●	●				*3
	330-030*		0.130	3.3	4	12.7	4.76	5.5	0.3	-0.025	+0.025					●			*4
					5							●	●	●	●				*3
	350-010		0.138	3.5	5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●		●				KGBAL...4-35 KGBAL...22-35 KGBAL...22-35JCT KGBASR...4-35 KGBASR...22-35 KIGBAR...4 KIGBAR...35
	350-030		0.138	3.5	5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●	●	●	●		●	
	400-010		0.157	4	5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●				
	400-040		0.157	4	5	12.7	4.76	5.5	0.4	-0.025	+0.025	●	●	●	●	●	●	●	
	430-040		0.169	4.3	5	12.7	4.76	5.5	0.4	-0.025	+0.025	●	●	●	●	●			
	450-040		0.177	4.5	5	12.7	4.76	5.5	0.4	-0.025	+0.025	●	●	●	●	●			
	480-040		0.189	4.8	5	12.7	5	5.5	0.4	-0.025	+0.025	●	●	●	●	●			

Right-hand shown
CDX shows available grooving depth.
*CDX dimension is different based on grade.
*3 : KGBAL...4-25, KGBAL...22-25T5, KGBAL...22-25JCT | KGBASR...4-25, KGBASR...22-25T5 | KIGBAR...4, KIGBAR...22
*4 : KGBAL...4-25, KGBAL...22-25, KGBAL...22-25T5, KGBAL...22-25JCT | KGBASR...4-25, KGBASR...22-25, KGBASR...22-25T5 | KIGBAR...4, KIGBAR...22

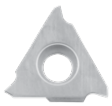
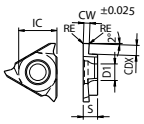
Recommended Cutting Conditions ➡ G153

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GBA43

Insert Size	IC		S		D1	
	in	mm	in	mm	in	mm
GBA43...	1/2	12.7	3/16	4.76	0.217	5.5
GBA43R480-...	1/2	12.7	0.197	5.00	0.217	5.5

Carbon Steel / Alloy Steel	●	P
Stainless Steel		M
Cast Iron		K
Non-Ferrous Metals		N
Titanium Alloy		S
Hard Materials (~ 40HRC)		H
Hard Materials (40HRC ~)		

Insert	Part Number	No. of Edges	Dimensions (mm)							Tolerance (mm)		Cermet	Applicable Toolholder ⇒ G13~G15 G89
			CW		CDX	IC	S	D1	RE	CW min.	CW max.	-	
			in	mm								TN620	
  Sharp Edge	GBA43R 125-020F	3	0.049	1.25	2	12.7	4.76	5.5	0.2	-0.025	+0.025	●	KGBAR...4-15 KGBAR...22-15 KGBAR...22-15JCT KGBASL...4-15 KGBASL...22-15 KIGBAL...4 KIGBAL...22
	145-020F		0.057	1.45	2		4.76		0.2			●	
	150-020F		0.059	1.5	3.5		4.76		0.2			●	
	175-020F		0.069	1.75	3.5		4.76		0.2			●	
	185-020F		0.073	1.85	3.5		4.76		0.2			●	
	200-020F		0.079	2	3.5		4.76		0.2			●	
	230-020F		0.091	2.3	3.5		4.76		0.2			●	
	250-030F		0.098	2.5	4		4.76		0.3			●	*2
	265-030F		0.104	2.65	4		4.76		0.3			●	
	280-030F		0.110	2.8	4		4.76		0.3			●	
	300-030F		0.118	3	4		4.76		0.3			●	
	330-030F		0.130	3.3	4		4.76		0.3			●	
	350-030F		0.138	3.5	5		4.76		0.3			●	*5
	400-040F		0.157	4	5		4.76		0.4			●	
	430-040F		0.169	4.3	5	12.7	4.76	5.5	0.4	-0.025	+0.025	●	
	450-040F		0.177	4.5	5		4.76		0.4			●	
	480-040F		0.189	4.8	5		5		0.4			●	
	GBA43L 125-020F	3	0.049	1.25	2	12.7	4.76	5.5	0.2	-0.025	+0.025	●	KGBAL...4-15 KGBAL...22-15 KGBAL...22-15JCT KGBASR...4-15 KGBASR...22-15 KIGBAR...4 KIGBAR...22
	145-020F		0.057	1.45	2				0.2			●	
	150-020F		0.059	1.5	3.5				0.2			●	
	175-020F		0.069	1.75	3.5				0.2			●	
	185-020F		0.073	1.85	3.5				0.2			●	
	200-020F		0.079	2	3.5				0.2			●	
	230-020F		0.091	2.3	3.5				0.2			●	
	250-030F		0.098	2.5	4				0.3			●	*4
	265-030F		0.104	2.65	4				0.3			●	
	280-030F		0.110	2.8	4				0.3			●	
	300-030F		0.118	3	4				0.3			●	
	330-030F		0.130	3.3	4				0.3			●	
	350-030F		0.138	3.5	5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	*6
	400-040F		0.157	4	5				0.4			●	

Right-hand shown
CDX shows available grooving depth.

Recommended Cutting Conditions ⇒ G153

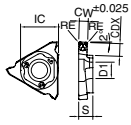
*2 : KGBAR...4-25, KGBAR...22-25, KGBAR...22-25T5, KGBAR...22-25JCT | KGBASL...4-25, KGBASL...22-25, KGBASL...22-25T5 | KIGBAL...4, KIGBAL...22
*4 : KGBAL...4-25, KGBAL...22-25, KGBAL...22-25T5, KGBAL...22-25JCT | KGBASR...4-25, KGBASR...22-25, KGBASR...22-25T5 | KIGBAR...4, KIGBAR...22
*5 : KGBAR...4-35, KGBAR...22-35, KGBAR...22-35JCT | KGBASL...4-35, KGBASL...22-35 | KIGBAL...4, KIGBAL...35
*6 : KGBAL...4-35, KGBAL...22-35, KGBAL...22-35JCT | KGBASR...4-35, KGBASR...22-35 | KIGBAR...4, KIGBAR...35

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GBA43

Insert Size	IC		S		D1	
	in	mm	in	mm	in	mm
GBA43...	1/2	12.7	3/16	4.76	0.217	5.5

Carbon Steel / Alloy Steel	●	◕	○	◔	●	P
Stainless Steel		◕	○	◔		M
Cast Iron	◕		◔			K
Non-Ferrous Metals						N
Titanium Alloy						S
Hard Materials (~ 40HRC)			●			H
Hard Materials (40HRC ~)						

Insert	Part Number	No. of Edges	Dimensions (mm) CW in	CW mm	CDX	IC	S	D1	RE	Tolerance (mm) CW min.	CW max.	Carbide PVD PR2015	PR2025	PR1215	PR1625	Cermet - TN620	Applicable Toolholder ⇨ G13~G15 G89
	 Molded Chipbreaker	GBA43R 140-010GM	0.055	1.4	3.5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●	●	KGBAR...4-15 KGBAR...22-15 KGBAR...22-15JCT KGBASL...4-15 KGBASL...22-15 KIGBAL...4 KIGBAL...22
		150-020GM	0.059	1.5	3.5				0.2			●	●	●	●	●	
		175-020GM	0.069	1.75	3.5				0.2			●	●	●	●	●	
		185-020GM	0.073	1.85	3.5				0.2			●	●	●	●	●	
		200-020GM	0.079	2	3.5				0.2			●	●	●	●	●	
		230-020GM	0.091	2.3	3.5				0.2			●	●	●	●	●	
		250-030GM	0.098	2.5	5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●	●	●	●	*2
		265-030GM	0.104	2.65	5				0.3			●	●	●	●	●	
		300-030GM	0.118	3	5				0.3			●	●	●	●	●	
		330-030GM	0.130	3.3	5				0.3			●	●	●	●	●	
		350-030GM	0.138	3.5	5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●	●	●	●	*5
		400-040GM	0.157	4	5				0.4			●	●	●	●	●	
		GBA43L 140-010GM	0.055	1.4	3.5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●	●	KGBAL...4-15 KGBAL...22-15 KGBAL...22-15JCT KGBASR...4-15 KGBASR...22-15 KIGBAR...4 KIGBAR...22
		150-020GM	0.059	1.5	3.5				0.2			●	●	●	●	●	
		175-020GM	0.069	1.75	3.5				0.2			●	●	●	●	●	
		185-020GM	0.073	1.85	3.5				0.2			●	●	●	●	●	
		200-020GM	0.079	2	3.5				0.2			●	●	●	●	●	
		230-020GM	0.091	2.3	3.5				0.2			●	●	●	●	●	
		250-030GM	0.098	2.5	5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●	●	●	●	*4
		265-030GM	0.104	2.65	5				0.3			●	●		●	●	
		300-030GM	0.118	3	5				0.3			●	●	●	●	●	
		330-030GM	0.130	3.3	5				0.3			●	●	●	●	●	
		350-030GM	0.138	3.5	5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●	●	●	●	*6
		400-040GM	0.157	4	5				0.4			●	●	●	●	●	

Right-hand shown
CDX shows available grooving depth.

Recommended Cutting Conditions ⇨ G153

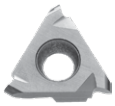
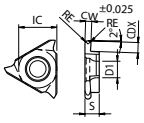
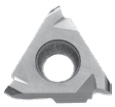
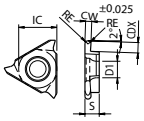
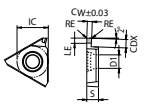
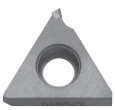
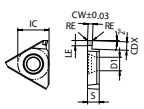
*2 : KGBAR...4-25, KGBAR...22-25, KGBAR...22-25T5, KGBAR...22-25JCT | KGBASL...4-25, KGBASL...22-25, KGBASL...22-25T5 | KIGBAL...4, KIGBAL...22
*4 : KGBAL...4-25, KGBAL...22-25, KGBAL...22-25T5, KGBAL...22-25JCT | KGBASR...4-25, KGBASR...22-25, KGBASR...22-25T5 | KIGBAR...4, KIGBAR...22
*5 : KGBAR...4-35, KGBAR...22-35, KGBAR...22-35JCT | KGBASL...4-35, KGBASL...22-35 | KIGBAL...4, KIGBAL...35
*6 : KGBAL...4-35, KGBAL...22-35, KGBAL...22-35JCT | KGBASR...4-35, KGBASR...22-35 | KIGBAR...4, KIGBAR...35

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GBA43

Insert Size	IC		S		D1	
	in	mm	in	mm	in	mm
GBA43...	1/2	12.7	3/16	4.76	0.217	5.5

Carbon Steel / Alloy Steel	P
Stainless Steel	M
Cast Iron	K
Non-Ferrous Metals	N
Titanium Alloy	S
Hard Materials (~ 40HRC)	H
Hard Materials (40HRC ~)	H

Insert		Part Number	No. of Edges	Dimensions (mm)								Tolerance (mm)		Carbide								Cermet			CBN		PCD		Applicable Toolholder G13~G15 G89
				CW		CDX	IC	S	D1	RE	LE	CW min.	CW max.	PVD				-				PVD	-		-		-		
				in	mm									PR2015	PR2025	PR1215	PR1625	KW10				PV7040	TN620	TN90	KBN510	KBN525	KPD001	KPD010	
	 Full R	GBA43R 100-050R	3	0.039	1	2	12.7	4.76	5.5	0.5	-	-0.025	+0.025	●	●	●	●	●				●		●					*1
		150-075R		0.059	1.5	3.5				0.75				●	●	●	●	●				●		●					
		200-100R		0.079	2	3.5				1				●	●	●	●	●				●							
		250-125R		0.098	2.5	4				1.25				●	●	●	●	●						●					*3
		300-150R		0.118	3	4				1.5				●	●	●	●	●						●					
		400-200R		0.157	4	5				2				●	●	●	●	●						●					*5
		GBA43L 100-050R	3	0.039	1	2	12.7	4.76	5.5	0.5	-	-0.025	+0.025	●	●	●	●	●				●		●					*2
		150-075R		0.059	1.5	3.5				0.75				●	●	●	●	●				●		●					
		200-100R		0.079	2	3.5				1				●	●	●	●	●				●							
		250-125R		0.098	2.5	4				1.25				●	●	●	●	●											*4
		300-150R		0.118	3	4				1.5				●	●	●	●	●						●					
		400-200R		0.157	4	5				2				●	●	●	●	●											*6
	 Full R / Sharp Edge	GBA43R 100-050RF	3	0.039	1	2	12.7	4.76	5.5	0.5	-	-0.025	+0.025							●									*1
		150-075RF		0.059	1.5	3.5				0.75										●									
		200-100RF		0.079	2	3.5				1										●									
		250-125RF		0.098	2.5	4				1.25										●									*3
		300-150RF		0.118	3	4				1.5										●									
		400-200RF		0.157	4	5				2										●									*5
		GBA43L 100-050RF	3	0.039	1	2	12.7	4.76	5.5	0.5	-	-0.025	+0.025							●									*2
		150-075RF		0.059	1.5	3.5				0.75										●									
		200-100RF		0.079	2	3.5				1										●									
		250-125RF		0.098	2.5	4				1.25										●									*4
		300-150RF		0.118	3	4				1.5										●									
	 1-edge	GBA43R 125-020	1	0.049	1.25	2	12.7	4.76	5.5	0.2	1.9	-0.03	+0.03												●	●			*1
		150-020		0.059	1.5	3.5																			●	●			
		200-020		0.079	2	3.5																			●	●			
		250-020		0.098	2.5	4																			●	●			*3
		300-020		0.118	3	4																			●	●			
		GBA43L 125-020	1	0.049	1.25	2	12.7	4.76	5.5	0.2	1.9	-0.03	+0.03												●				*2
		150-020		0.059	1.5	3.5																			●	●			
		200-020		0.079	2	3.5																			●	●			
		250-020		0.098	2.5	4																				●			*4
		300-020		0.118	3	4																				●			
	 1-edge	GBA43R 125-010	1	0.049	1.25	2	12.7	4.76	5.5	0.1	1.9	-0.03	+0.03															●	*1
		150-010		0.059	1.5	3.5																					●	●	
		200-010		0.079	2	3.5																					●	●	
		250-010		0.098	2.5	4																					●	●	*3
		300-010		0.118	3	4																					●	●	
		GBA43L 125-010	1	0.049	1.25	2	12.7	4.76	5.5	0.1	1.9	-0.03	+0.03															●	*2
		150-010		0.059	1.5	3.5																					●	●	
		200-010		0.079	2	3.5																					●	●	
		250-010		0.098	2.5	4																					●	●	*4
		300-010		0.118	3	4																					●		

Right-hand shown
CDX shows available grooving depth.

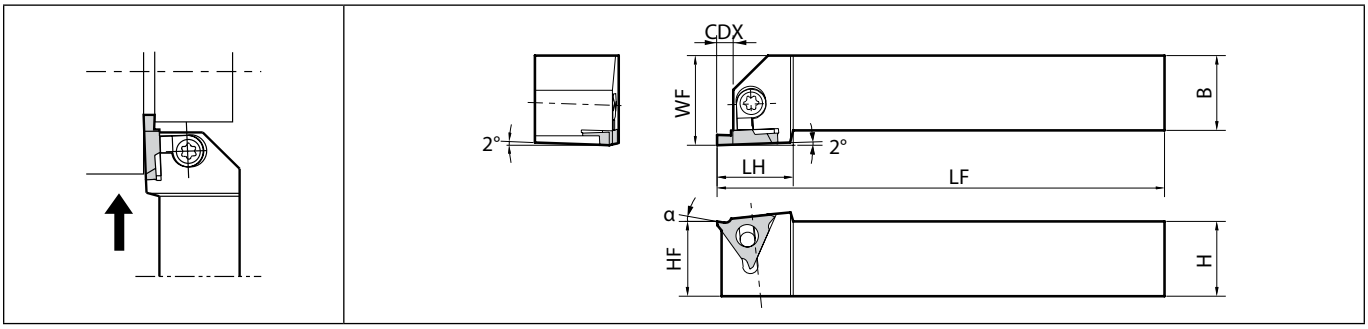
Recommended Cutting Conditions G153

*1 : KGBAR...4-15, KGBAR...22-15, KGBAR...22-15JCT | KGBASL...4-15, KGBASL...22-15 | KIGBAL...4, KIGBAL...22
*2 : KGBAL...4-15, KGBAL...22-15, KGBAL...22-15JCT | KGBASR...4-15, KGBASR...22-15 | KIGBAR...4, KIGBAR...22
*3 : KGBAR...4-25, KGBAR...22-25, KGBAR...22-25T5, KGBAR...22-25JCT | KGBASL...4-25, KGBASL...22-25, KGBASL...22-25T5 | KIGBAL...4, KIGBAL...22
*4 : KGBAL...4-25, KGBAL...22-25, KGBAL...22-25T5, KGBAL...22-25JCT | KGBASR...4-25, KGBASR...22-25, KGBASR...22-25T5 | KIGBAR...4, KIGBAR...22
*5 : KGBAR...4-35, KGBAR...22-35, KGBAR...22-35JCT | KGBASL...4-35, KGBASL...22-35 | KIGBAL...4, KIGBAL...35
*6 : KGBAL...4-35, KGBAL...22-35, KGBAL...22-35JCT | KGBASR...4-35, KGBASR...22-35 | KIGBAR...4, KIGBAR...35

CBN & PCD Inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGBA (External Grooving / Shallow Grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CDX	H	B	LH	HF	LF	WF	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts ➡ G6~G12
Inch	KGBA R/L 12-3	●	●	0.098	0.750	0.750	0.945	0.750	5.000	1.000	LGBA-16 R/L S	FT-15	GBA32 R/L
	16-3	●	●		1.000	1.000		1.000	6.000	1.250			
	KGBA R/L 12-4-15	●	●	0.157	0.750	0.750	1.004	0.750	5.000	1.000	LGBA-22 R/L S	FT-15	GBA43 R/L
	12-4-25	●	●	0.177									
	12-4-35	●	●	0.217									
	16-4-15	●	●	0.157	1.000	1.000		1.000	6.000	1.250			
	16-4-25	●	●	0.177									
	16-4-35	●	●	0.217									
mm	KGBA R/L 2020K-16	●	●	2.5	20	20	24	20	125	25	LGBA-16 R/L S	FT-15	GBA32 R/L
	2525M-16	●	●		25	25		25	150	30			
	KGBA R/L 2020H22-15	●		4	20	20	25.5	20	100	25	LGBA-22RS	FT-15	GBA43 R/L
	2020H22-25	●		4.5									
	2020H22-35	●		5.5									
	2020K22-15	●	●	4					125		LGBA-22 R/L S		
	2020K22-25	●	●	4.5									
	2020K22-25T5	●	●	5.5									
	2020K22-35	●	●										
	2525M22-15	●	●	4	25	25		25	150	30			
	2525M22-25	●	●	4.5									
	2525M22-25T5	●	●	5.5									
	2525M22-35	●	●										

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.
Clamp Set : LGBA-OORS for Right-hand Toolholder and LGBA-OOLS for Left-hand Toolholder.

Rake Angle (α) after Installment of GBA insert

GBA32 R/L OOO-OOO		GBA43 R/L OOO-OOO		GBA43 R/L OOO-OOOR (Full-R)		
α	Insert Grades	α	Insert Grades	α	Insert Grades	Full-R Part Number
10°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215 KPD001, KPD010	0°	KBN510, KBN525	10°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215	050R~150R
		10°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215 KPD001, KPD010	14°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215	200R
20°	KW10				KW10	050R~200R
		20°	KW10			

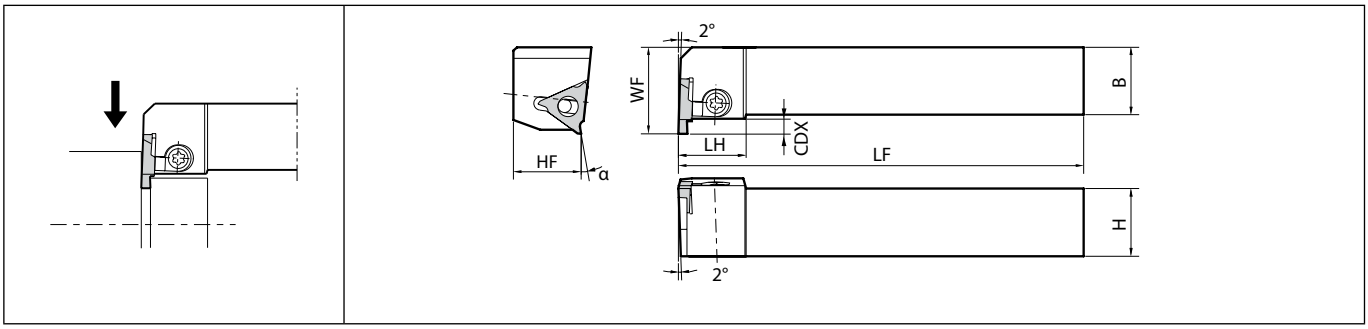
Rake Angle (α) after Installment of GBA-GM insert

α	Insert Part Number
10°	GBA43 R/L 150-020GM
15°	GBA43 R/L 175-020GM ≀ GBA43 R/L 265-030GM
12°	GBA43 R/L 300-030GM ≀ GBA43 R/L 400-040GM

α indicates the rake angle at the center of the edge width, after installing insert.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGBAS (External Grooving / Shallow Grooving)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

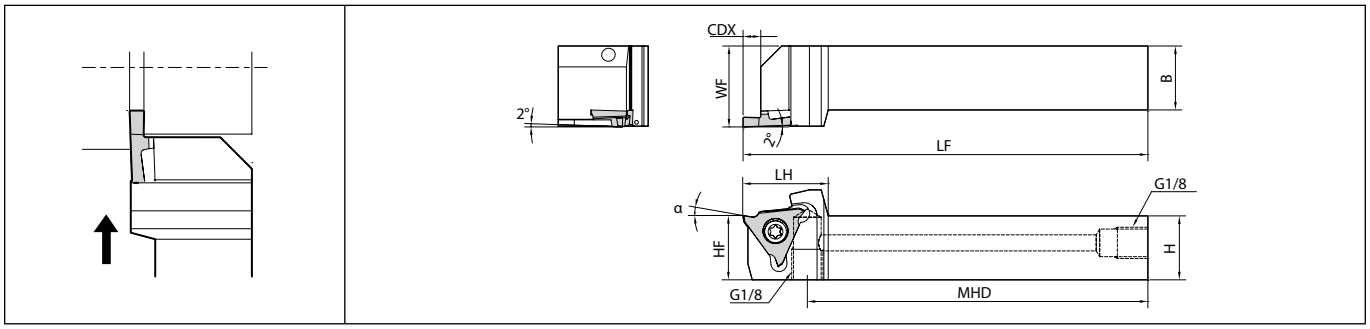
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Dimensions CDX	H	B	LH	HF	LF	WF	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts G6~G12
Inch	KGBASR 12-3	●		0.098	0.750	0.750	0.984	0.750	5.000	0.984	LGBA-16LS	FT-15	GBA32L
	16-3	●			1.000	1.000		1.000	6.000	1.181			
	KGBASR 12-4-15	●		0.157	0.750	0.750	0.984	0.750	5.000	1.062	LGBA-22LS	FT-15	GBA43L
	12-4-25	●		0.177									
	12-4-35	●		0.217									
	16-4-15	●		0.157	1.000	1.000		1.000	6.000	1.260			
	16-4-25	●		0.177						1.250			
	16-4-35	●		0.217						1.260			
mm	KGBASR/L 2020K-16	●	●	2.5	20	20	25	20	125	25	LGBA-16L/RS	FT-15	GBA32L/R
	2525M-16	●	●		25	25		25	150	30			
	KGBASR/L 2020K22-15	●	●	4	20	20	25	20	125	27	LGBA-22L/RS	FT-15	GBA43L/R
	2020K22-25	●	●	4.5									
	2020K22-25T5	●	●	5.5									
	2020K22-35	●	●										
	2525M22-15	●	●	4	25	25		25	150	32			
	2525M22-25	●	●	4.5									
	2525M22-25T5	●	●	5.5									
	2525M22-35	●	●										

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.
See Page **G13** for Rake Angle (α) after Installment of Insert.
Clamp Set : LGBA-OOLS for Right-hand Toolholder and LGBA-OORS for Left-hand Toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGBA-JCT (External Grooving / Shallow Grooving, Coolant-Through Toolholder)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CDX	H	B	LH	MHD	HF	LF	WF	Coolant Hole	Spare Parts: Plug	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts
																	☛ G6~G12
mm	KGBA□□ 2020K-16JCT	●	●	2.5	20	20	24	107.5	20	125	25	Yes	HSG1/8X8.0	SB-4085TR	FT-15	-	GBA32□□
	2525K-16JCT	●	●		25	25			25		30						
	KGBA□□ 2020K22-15JCT	●	●	4	20	20	26.5	105	20	125	25	Yes	HSG1/8X8.0	SB-5085TR	-	LTW-20	GBA43□□
	2020K22-25JCT	●	●	5.5													
	2020K22-35JCT	●	●														
	2525K22-15JCT	●	●	4	25	25			25		30						
	2525K22-25JCT	●	●	5.5													
	2525K22-35JCT	●	●														

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.
See Page **G13** for Rake Angle (α) after Installment of Insert.
KGBA-JCT toolholder is screw clamp type.
Please see page **H16** and **H17** for piping parts of coolant-through holders.

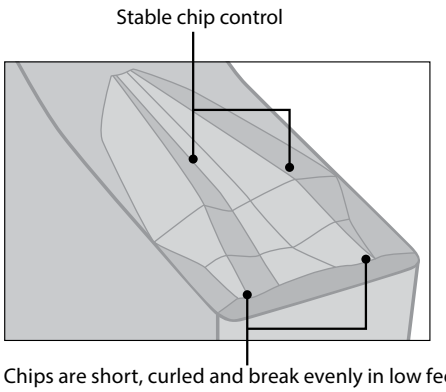
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GBF (for Small Parts)

High precision with edge width tolerance of ±0.02 mm
High efficiency MEGACOAT coating technology for long tool life

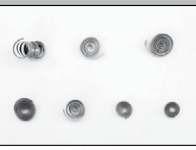
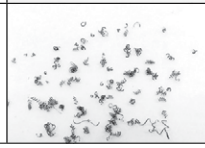
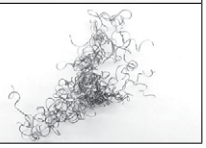
1 Stable chip control with GL chipbreaker

GL Chipbreaker controls chips stable at both grooving and turning.
(Turning is not recommended for GBF32R075-005GL)



Chips are short, curled and break evenly in low feed machining.
Prevents chip clogging.

Chip control comparison (internal evaluation)

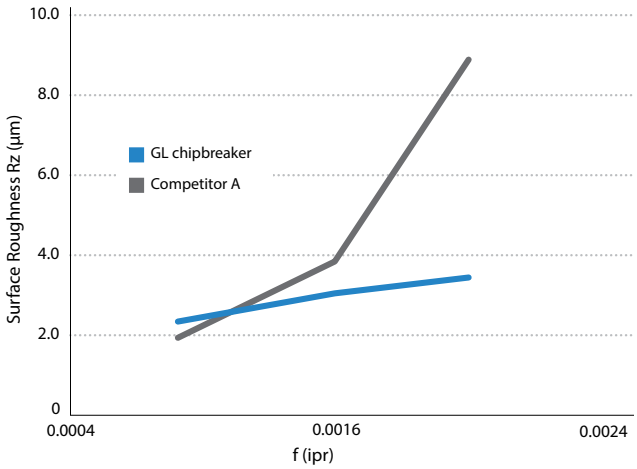
	GL chipbreaker	Competitor A
Grooving f = 0.0020 ipr d = 0.059"		
Turning f = 0.0016 ipr D.O.C. = 0.008"		

Cutting conditions: VVc = 260 sfm, Edge Width 0.039" (1mm)
Workpiece material : 304

2 Good surface finish

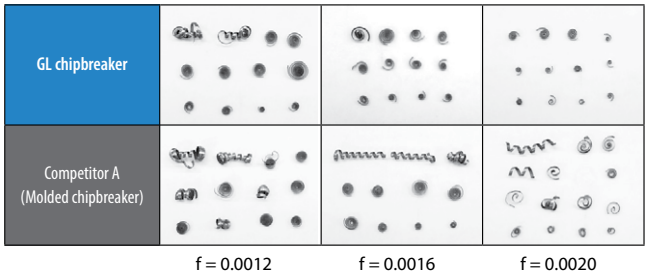
GL chipbreaker controls chips stable at high feed machining,
Good surface finish of side wall

Surface finish comparison (internal evaluation)



Cutting conditions: Vc = 260 sfm, d = 0.059", f = 0.001~0.002 ipr, Edge Width 0.039" (1mm)
Workpiece material : Chromium Steel

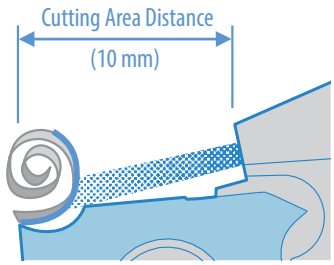
Chip control comparison (internal evaluation)



800.823.7284
www.kyocera precisiontools.com

KGBF-JCTM (for Small Parts)

Discharges coolant from the top of the insert



Coolant Hole

Coolant Hole discharges coolant to the cutting edge and prevents coolant stream spreading which slows the coolant flow

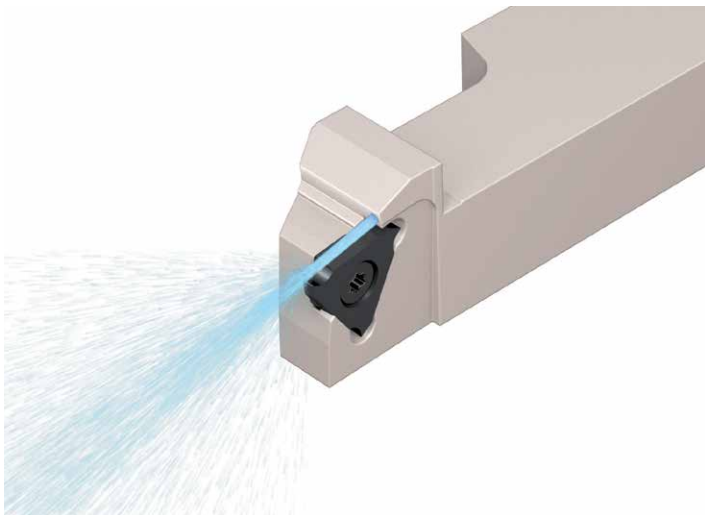
Coolant Direction

Sufficient coolant between the chipbreaker and the chips to provide stable chip curls and sufficient cooling of the insert

1 Excellent chip control

2 Superior cooling action improves tool life

External Grooving KGBF-JCTM



Discharges coolant from the top of the insert to deliver superior chip control and longer tool life

Edge Width : 0.041"-0.094" / 0.25mm-3.00mm

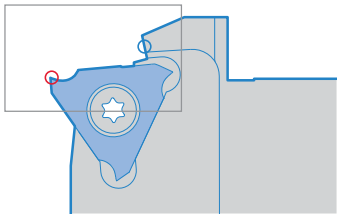
Ground Chipbreaker / Molded GL Chipbreaker

Maximum groove depth : 0.079 / 3mm

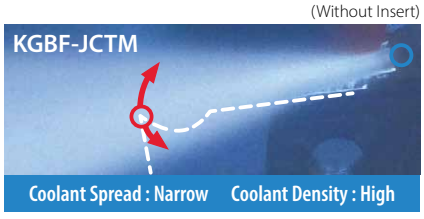
Coolant Discharging Comparison (Internal Evaluation)

Small chips and better cooling of the insert leads to longer tool life

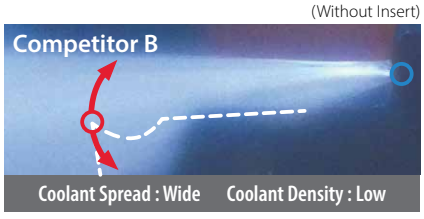
○ Cutting Edge
○ Coolant Hole



(Without Insert)



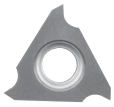
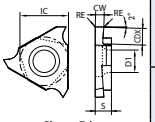
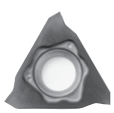
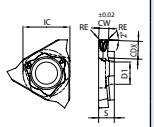
(Without Insert)



GBF

Insert Size	IC		S		D1	
	in	mm	in	mm	in	mm
GBF32...	3/8	9.525	1/8	3.18	0.173	4.4

Carbon Steel / Alloy Steel	●	◔		P
Stainless Steel	○	●		M
Cast Iron			●	K
Non-Ferrous Metals			●	N
Titanium Alloy		●	◔	S
Hard Materials (~ 40HRC)				H
Hard Materials (40HRC ~)				

Insert		Part Number		No. of Edges	Dimensions (mm)							Tolerance (mm)		Carbide			Applicable Toolholder ➡ G21~G24
					CW		CDX	IC	S	D1	RE	CW min.	CW max.	PVD		-	
					in	mm								PR1215	PR1535	GW15	
	 Sharp Edge	GBF32R	025-000F	3	0.010	0.25	0.6	9.525	3.18	4.4	0	-0.02	+0.02	●	●	●	KGBFR...-16F KGBFR...-3... KGBFR...-16FJCTM KGBFSL...-16 S...KGBFL16
			030-000F		0.012	0.3	0.8					-0.02	+0.02	●	●	●	
			033-000F		0.013	0.33	0.8					-0.025	+0.015	●	●	●	
			043-000F		0.017	0.43	1					-0.025	+0.015	●	●	●	
			050-000F		0.020	0.5	1.2					-0.02	+0.02	●	●	●	
			053-000F		0.021	0.53	1.2					-0.025	+0.015	●	●	●	
			065-000F		0.026	0.65	1.2					-0.02	+0.02	●	●	●	
			075-000F		0.030	0.75	2					-0.02	+0.02	●	●	●	
			080-000F		0.031	0.8	2					-0.02	+0.02	●	●	●	
			095-000F		0.037	0.95	2					-0.02	+0.02	●	●	●	
			100-000F		0.039	1	2					-0.02	+0.02	●	●	●	
			110-000F		0.043	1.1	2					-0.02	+0.02	●	●	●	
			120-000F		0.047	1.2	2					-0.02	+0.02	●	●	●	
			125-000F		0.049	1.25	2					-0.02	+0.02	●	●	●	
			130-000F		0.051	1.3	2					-0.02	+0.02	●	●	●	
			140-000F		0.055	1.4	2.7					-0.02	+0.02	●	●	●	
			145-000F		0.057	1.45	2.7					-0.02	+0.02	●	●	●	
			150-000F		0.059	1.5	2.7					-0.02	+0.02	●	●	●	
			165-000F		0.065	1.65	2.7					-0.02	+0.02	●	●	●	
			170-000F		0.067	1.7	3					-0.02	+0.02	●	●	●	
			175-000F		0.069	1.75	3					-0.02	+0.02	●	●	●	
			200-000F		0.079	2	3					-0.02	+0.02	●	●	●	
		GBF32L	025-000F	3	0.010	0.25	0.6	9.525	3.18	4.4	0	-0.02	+0.02	●	●	●	KGBFL...-16F KGBFL...-3... KGBFSR...-16
			030-000F		0.012	0.3	0.8					-0.02	+0.02	●	●	●	
			033-000F		0.013	0.33	0.8					-0.025	+0.015	●	●	●	
			043-000F		0.017	0.43	1					-0.025	+0.015	●	●	●	
			050-000F		0.020	0.5	1.2					-0.02	+0.02	●	●	●	
			053-000F		0.021	0.53	1.2					-0.025	+0.015	●	●	●	
			065-000F		0.026	0.65	1.2					-0.02	+0.02	●	●	●	
			075-000F		0.030	0.75	2					-0.02	+0.02	●	●	●	
			080-000F		0.031	0.8	2					-0.02	+0.02	●	●	●	
			095-000F		0.037	0.95	2					-0.02	+0.02	●	●	●	
			100-000F		0.039	1	2					-0.02	+0.02	●	●	●	
			110-000F		0.043	1.1	2					-0.02	+0.02	●	●	●	
			120-000F		0.047	1.2	2					-0.02	+0.02	●	●	●	
			125-000F		0.049	1.25	2					-0.02	+0.02	●	●	●	
			130-000F		0.051	1.3	2					-0.02	+0.02	●	●	●	
			140-000F		0.055	1.4	2.7					-0.02	+0.02	●	●	●	
			145-000F		0.057	1.45	2.7					-0.02	+0.02	●	●	●	
			150-000F		0.059	1.5	2.7					-0.02	+0.02	●	●	●	
			165-000F		0.065	1.65	2.7					-0.02	+0.02	●	●	●	
			170-000F		0.067	1.7	3					-0.02	+0.02	●	●	●	
			175-000F		0.069	1.75	3					-0.02	+0.02	●	●	●	
			200-000F		0.079	2	3					-0.02	+0.02	●	●	●	
	 Molded Chipbreaker	GBF32R	075-005GL	3	0.030	0.75	2	9.525	3.18	4.4	0.05	-0.02	+0.02	●	●		KGBFR...-16F KGBFR...-3... KGBFR...-16FJCTM KGBFSL...-16 S...KGBFL16
			095-005GL		0.037	0.95	2				0.05	-0.02	+0.02	●	●		
			100-005GL		0.039	1	2				0.05	-0.02	+0.02	●	●		
			150-010GL		0.059	1.5	2.7				0.1	-0.02	+0.02	●	●		
			200-010GL		0.079	2	3				0.1	-0.02	+0.02	●	●		
			300-010GL		0.118	3	3				0.1	-0.02	+0.02	●	●		

Right-hand shown
Max. Cutting Dia. : See Page **G25**

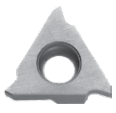
Recommended Cutting Conditions ➡ **G154**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GBF

Insert Size	IC		S		D1	
	in	mm	in	mm	in	mm
GBF32...	3/8	9.525	1/8	3.18	0.173	4.4

Carbon Steel / Alloy Steel	●	◌		P
Stainless Steel	○	●		M
Cast Iron			●	K
Non-Ferrous Metals			●	N
Titanium Alloy		●	◌	S
Hard Materials (~ 40HRC)				H
Hard Materials (40HRC ~)				

Insert	Part Number	No. of Edges	Dimensions (mm)							Tolerance (mm)		Carbide			Applicable Toolholder ➡ G21~G24
			CW		CDX	IC	S	D1	RE	CW min.	CW max.	PVD		-	
			in	mm								PR1215	PR1535	GW15	
	GBF32R 025-005		0.010	0.25	0.6				0.05	-0.02	+0.02	●	●	●	
	030-005		0.012	0.3	0.8				0.05	-0.02	+0.02	●	●	●	
	033-005		0.013	0.33	0.8				0.05	-0.025	+0.015	●	●	●	
	043-005		0.017	0.43	1				0.05	-0.025	+0.015	●	●	●	
	050-005		0.020	0.5	1.2				0.05	-0.02	+0.02	●	●	●	
	053-005		0.021	0.53	1.2				0.05	-0.025	+0.015	●	●	●	
	065-005		0.026	0.65	1.2				0.05	-0.02	+0.02	●	●	●	
	075-005		0.030	0.75	2				0.05	-0.02	+0.02	●	●	●	
	075-010		0.030	0.75	2				0.1	-0.02	+0.02	●	●	●	
	080-005		0.031	0.8	2				0.05	-0.02	+0.02	●	●	●	
	080-010		0.031	0.8	2				0.1	-0.02	+0.02	●	●	●	
	095-005		0.037	0.95	2				0.05	-0.02	+0.02	●	●	●	
	095-010		0.037	0.95	2				0.1	-0.02	+0.02	●	●	●	
	100-005		0.039	1	2				0.05	-0.02	+0.02	●	●	●	
	100-010		0.039	1	2				0.1	-0.02	+0.02	●	●	●	
	041N		0.041	1.05	1				0.05	-0.03	+0.03	●	●	●	
	110-005		0.043	1.1	2				0.05	-0.02	+0.02	●	●	●	
	110-010		0.043	1.1	2				0.1	-0.02	+0.02	●	●	●	
	120-005		0.047	1.2	2				0.05	-0.02	+0.02	●	●	●	
	120-010		0.047	1.2	2				0.1	-0.02	+0.02	●	●	●	
	125-005		0.049	1.25	2				0.05	-0.02	+0.02	●	●	●	
	125-010		0.049	1.25	2				0.1	-0.02	+0.02	●	●	●	KGBFR...-16F
	130-005		0.051	1.3	2				0.05	-0.02	+0.02	●	●	●	KGBFR...-3...
	130-010	3	0.051	1.3	2	9.525	3.18	4.4	0.1	-0.02	+0.02	●	●	●	KGBFR...-16FJCTM
	140-005		0.055	1.4	2.7				0.05	-0.02	+0.02	●	●	●	KGBFSL...-16
	140-010		0.055	1.4	2.7				0.1	-0.02	+0.02	●	●	●	S...KGBFL16
	145-005		0.057	1.45	2.7				0.05	-0.02	+0.02	●	●	●	
	145-010		0.057	1.45	2.7				0.1	-0.02	+0.02	●	●	●	
	058N		0.058	1.47	1.2				0.1	-0.03	+0.03	●	●	●	
	150-005		0.059	1.5	2.7				0.05	-0.02	+0.02	●	●	●	
	150-010		0.059	1.5	2.7				0.1	-0.02	+0.02	●	●	●	
	062N		0.062	1.57	1.2				0.1	-0.03	+0.03	●	●	●	
	165-005		0.065	1.65	2.7				0.05	-0.02	+0.02	●	●	●	
	165-010		0.065	1.65	2.7				0.1	-0.02	+0.02	●	●	●	
	170-005		0.067	1.7	3				0.05	-0.02	+0.02	●	●	●	
	170-010		0.067	1.7	3				0.1	-0.02	+0.02	●	●	●	
	175-005		0.069	1.75	3				0.05	-0.02	+0.02	●	●	●	
	175-010		0.069	1.75	3				0.1	-0.02	+0.02	●	●	●	
	200-005		0.079	2	3				0.05	-0.02	+0.02	●	●	●	
	200-010		0.079	2	3				0.1	-0.02	+0.02	●	●	●	
	225-005		0.089	2.25	3				0.05	-0.02	+0.02	●	●	●	
	225-010		0.089	2.25	3				0.1	-0.02	+0.02	●	●	●	
	094N		0.094	2.39	2				0.1	-0.03	+0.03	●	●	●	
	250-005		0.098	2.5	3				0.05	-0.02	+0.02	●	●	●	
	250-010		0.098	2.5	3				0.1	-0.02	+0.02	●	●	●	
	300-005		0.118	3	3				0.05	-0.02	+0.02	●	●	●	
	300-010		0.118	3	3				0.1	-0.02	+0.02	●	●	●	

Right-hand shown
Max. Cutting Dia. : See Page **G25**

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GBF

Insert Size	IC		S		D1	
	in	mm	in	mm	in	mm
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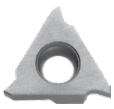
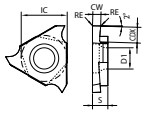
Carbon Steel / Alloy Steel	●	◔		P
Stainless Steel	○	●		M
Cast Iron			●	K
Non-Ferrous Metals			●	N
Titanium Alloy		●	◔	S
Hard Materials (~ 40HRC)				H
Hard Materials (40HRC ~)				

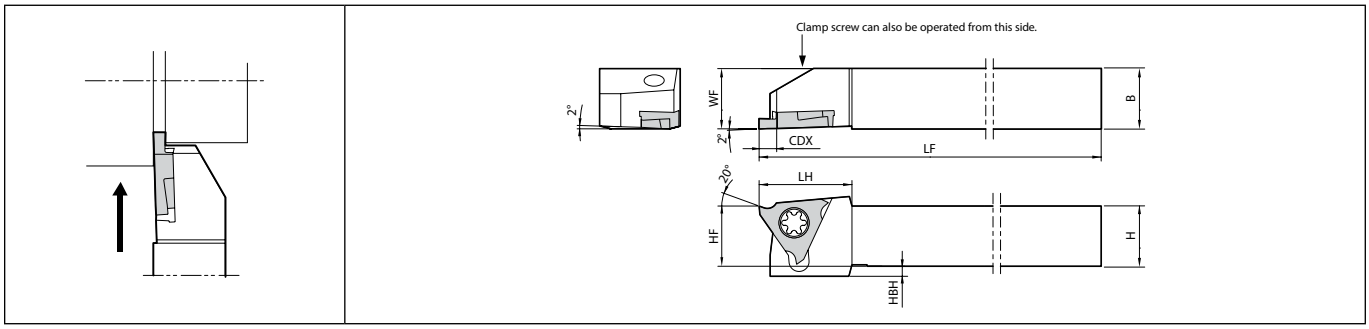
Insert	Part Number	No. of Edges	Dimensions (mm)							Tolerance (mm)		Carbide			Applicable Toolholder
			CW		CDX	IC	S	D1	RE	CW min.	CW max.	PVD		-	
			in	mm								PR1215	PR1535	GW15	G21, G23
 	GBF32L 025-005	3	0.010	0.25	0.6	9.525	3.18	4.4	0.05	-0.02	+0.02	●	●	●	KGBFL...-16F KGBFL...-3... KGBFSR...-16
	030-005		0.012	0.3	0.8				0.05	-0.02	+0.02	●	●	●	
	033-005		0.013	0.33	0.8				0.05	-0.025	+0.015	●	●	●	
	043-005		0.017	0.43	1				0.05	-0.025	+0.015	●	●	●	
	050-005		0.020	0.5	1.2				0.05	-0.02	+0.02	●	●	●	
	053-005		0.021	0.53	1.2				0.05	-0.025	+0.015	●	●	●	
	065-005		0.026	0.65	1.2				0.05	-0.02	+0.02	●	●	●	
	075-005		0.030	0.75	2				0.05	-0.02	+0.02	●	●	●	
	075-010		0.030	0.75	2				0.1	-0.02	+0.02	●	●	●	
	080-005		0.031	0.8	2				0.05	-0.02	+0.02	●	●	●	
	080-010		0.031	0.8	2				0.1	-0.02	+0.02	●	●	●	
	095-005		0.037	0.95	2				0.05	-0.02	+0.02	●	●	●	
	095-010		0.037	0.95	2				0.1	-0.02	+0.02	●	●	●	
	100-005		0.039	1	2				0.05	-0.02	+0.02	●	●	●	
	100-010		0.039	1	2				0.1	-0.02	+0.02	●	●	●	
	041N		0.041	1.05	1				0.05	-0.03	+0.03	●	●	●	
	110-005		0.043	1.1	2				0.05	-0.02	+0.02	●	●	●	
	110-010		0.043	1.1	2				0.1	-0.02	+0.02	●	●	●	
	120-005		0.047	1.2	2				0.05	-0.02	+0.02	●	●	●	
	120-010		0.047	1.2	2				0.1	-0.02	+0.02	●	●	●	
	125-005		0.049	1.25	2				0.05	-0.02	+0.02	●	●	●	
	125-010		0.049	1.25	2				0.1	-0.02	+0.02	●	●	●	
	130-005		0.051	1.3	2				0.05	-0.02	+0.02	●	●	●	
	130-010		0.051	1.3	2				0.1	-0.02	+0.02	●	●	●	
	140-005		0.055	1.4	2.7				0.05	-0.02	+0.02	●	●	●	
	140-010		0.055	1.4	2.7				0.1	-0.02	+0.02	●	●	●	
	145-005		0.057	1.45	2.7				0.05	-0.02	+0.02	●	●	●	
	145-010		0.057	1.45	2.7				0.1	-0.02	+0.02	●	●	●	
	058N		0.058	1.47	1.2				0.1	-0.03	+0.03	●	●	●	
	150-005		0.059	1.5	2.7				0.05	-0.02	+0.02	●	●	●	
	150-010		0.059	1.5	2.7				0.1	-0.02	+0.02	●	●	●	
	062N		0.062	1.57	1.2				0.1	-0.03	+0.03	●	●	●	
	165-005		0.065	1.65	2.7				0.05	-0.02	+0.02	●	●	●	
	165-010		0.065	1.65	2.7				0.1	-0.02	+0.02	●	●	●	
	170-005		0.067	1.7	3				0.05	-0.02	+0.02	●	●	●	
	170-010		0.067	1.7	3				0.1	-0.02	+0.02	●	●	●	
	175-005		0.069	1.75	3				0.05	-0.02	+0.02	●	●	●	
	175-010		0.069	1.75	3				0.1	-0.02	+0.02	●	●	●	
	200-005		0.079	2	3				0.05	-0.02	+0.02	●	●	●	
	200-010		0.079	2	3				0.1	-0.02	+0.02	●	●	●	
	225-005		0.089	2.25	3				0.05	-0.02	+0.02	●	●	●	
	225-010		0.089	2.25	3				0.1	-0.02	+0.02	●	●	●	
	094N		0.094	2.39	2				0.1	-0.03	+0.03	●	●	●	
	250-005		0.098	2.5	3				0.05	-0.02	+0.02	●	●	●	
	250-010		0.098	2.5	3				0.1	-0.02	+0.02	●	●	●	
	300-005		0.118	3	3				0.05	-0.02	+0.02	●	●	●	
	300-010		0.118	3	3				0.1	-0.02	+0.02	●	●	●	

Right-hand shown
Max. Cutting Dia. : See Page **G25**

Recommended Cutting Conditions **G154**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGBF-F (External Grooving / Shallow Grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Spare Parts		Applicable Inserts ⇨ G18~G20
		R	L	CDX	H	B	LH	HF	HBH	LF	WF	Screw	Wrench	
Inch	KGBF□ 6-3JXF	●	●	0.118	0.375	0.375	0.728	0.375	0.157	4.750	0.375	SB-4070TRW	FT-8	GBF32□
	8-3JXF	●	●		0.500	0.500		0.500	0.079		0.500			
	10-3JXF	●	●		0.625	0.625		0.625	-		0.625			
mm	KGBF□ 1010JX-16F	●	●	3	10	10	18.5	10	4	120	10	SB-4070TRW	FT-8	GBF32□
	1212JX-16F	●	●		12	12		12	2		12			
	1616JX-16F	●	●		16	16		16	-		16			
	2020JX-16F	●	●		20	20		20			20			

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGBF-JCTM (External Grooving / Shallow Grooving, Coolant-Through Toolholder)

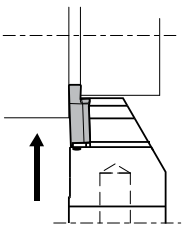
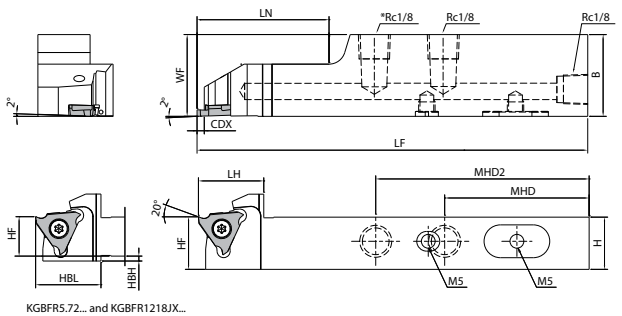
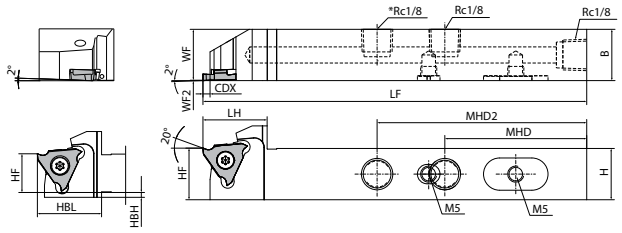


Fig. 1



KGBFR5.72... and KGBFR1218JX...

Fig. 2



KGBFR8-... and KGBFR1212JX...

Right-hand shown | Right-hand Insert for Right-hand Toolholder.
KGBFR5.72-..., KGBFR8-... : 2-Rc1/8
KGBFR1218JX..., KGBFR1212JX... : 2-Rc1/8

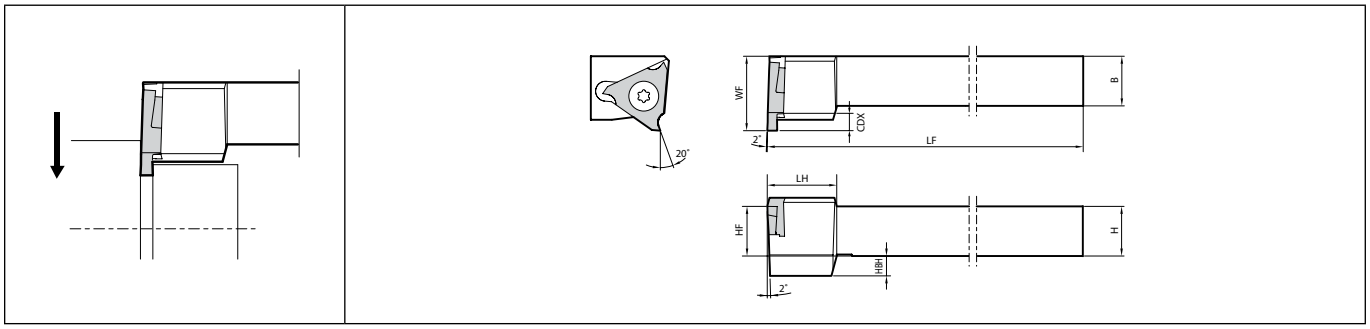
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions												Fig.	Coolant Hole	Spare Parts				Applicable Inserts G18~G19
																	Plug	Plug	Screw	Wrench	
		R	CDX	H	B	LH	MHD	MHD2	HF	HBH	HBL	LF	LN	WF							
Inch	KGBFR 5.72-16FJCTM	●	0.118	0.500	0.709	0.787	2.126	-	0.500	0.059	0.787	4.750	1.110	0.500	1	Yes	GP-1	HS5X4LP	SB-4070TRW	FT-8	GBF32R
	82.5-16FJCTM	●		0.625	1.000		1.732	2.559	0.625	-	-			0.625				-			
	KGBFR 8-16FJCTM	●	0.118	0.500	0.500	0.787	2.323	-	0.500	0.059	0.787	4.750	-	0.500	2	Yes	GP-1	HS5X4LP	SB-4070TRW	FT-8	GBF32R
	10-16FJCTM	●		0.625	0.625		1.732	2.559	0.625	-	-			0.625							
	12-16FJCTM	●		0.750	0.750				0.750					0.750				-			
mm	KGBFR 1218JX-16FJCTM	●	3	12	18	20	54	-	12	1.5	20	120	28	12	1	Yes	GP-1	HS5X4LP	SB-4070TRW	FT-8	GBF32R
	1625JX-16FJCTM	●		16	25		44	65	16	-	-		40	16							
	2025JX-16FJCTM	●		20					20					20				-			
	KGBFR 1212JX-16FJCTM	●	3	12	12	20	59	-	12	1.5	20	120	-	12	2	Yes	GP-1	HS5X4LP	SB-4070TRW	FT-8	GBF32R
	1616JX-16FJCTM	●		16	16		44	65	16	-	-			16							
	2020JX-16FJCTM	●		20	20				20					20				-			

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.
Please see page **H16** and **H17** for piping parts of coolant-through holders.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGBFS (External Grooving / Shallow Grooving)



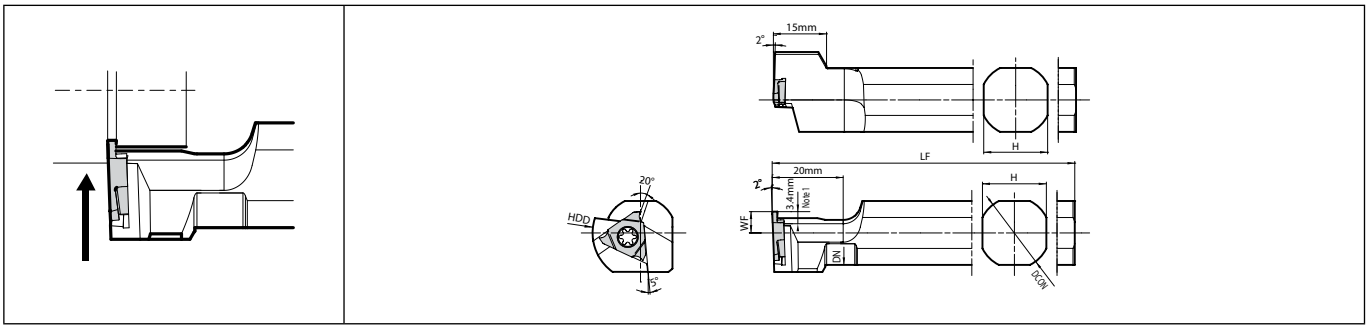
Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Spare Parts		Applicable Inserts G18~G20
		R	L	CDX	H	B	LH	HF	HBH	LF	WF	Screw	Wrench	
mm	KGBFS□ 1010JX-16	●	●	3	10	10	14	10	4	120	15	SB-4070TRW	FT-8	GBF32L/R
	1212JX-16	●	●		12	12		12	2		16			
	1616JX-16	●	●		16	16		16	-		20			

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

S-KGBF (External Grooving / Shallow Grooving)



Left-hand shown | Right-hand Insert for Left-hand Toolholder. | Note 1) CDX shows available grooving depth.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Spare Parts		Applicable Inserts G18~G19
									Screw	Wrench	
		L	DCON	H	DN	HDD	LF	WF			
Inch	S15F- KGBFL16	●	0.625	0.591	0.591	1.063	3.346	0.236	SB-4070TRW	FT-8	GBF32R
	S19G- KGBFL16	●	0.750	0.669	0.709		3.543				
	S19K- KGBFL16	●					4.724				
	S25K- KGBFL16	●	1.000	0.906	0.945	1.260	3.937	0.394			
mm	S12F- KGBFL16	●	12	11	11	27	80	6	SB-4070TRW	FT-8	GBF32R
	S14H- KGBFL16	●	14	13	13		100				
	S16F- KGBFL16	●	16	15	15		85				
	S20G- KGBFL16	●	20	18	19		90				
	S20K- KGBFL16	●					120				
	S22K KGBFL16	●	22	20	21						
	S25.0H- KGBFL16	●	25	23	24	32	100	10			

Note 1) Dimension shown is the available grooving depth of the insert (CDX)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Compatiblity with GBF and GBA

1. GBF will fit KGBA / KGBAS toolholders
   - Caution: The maximum groove depth for KGBA / KGBAS toolholders is 0.098" (2.5mm)
2. GBA inserts will also fit KGBF-F toolholders
   - Caution: The rake angle after installation in the toolholder is 11°

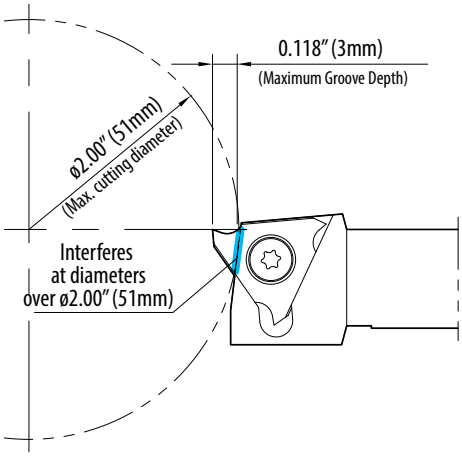
KGBF-F toolholder with GBF insert maximum machining diameter

- 0.118" (3mm) groove depth is available on workpiece diameters up to ø2.008" (ø51mm)
- 0.106" (2.7mm) groove depth is available on workpiece diameters up to ø3.937" (ø100mm)
- 0.098" (2.5mm) or less groove depth is available on workpiece diameters up to ø7.874" (ø200mm)

The workpiece will interfere with the holder at maximum diameter or larger

Max. cutting diameter

Max. cutting diameter at 0.118" (3mm) grooving depth



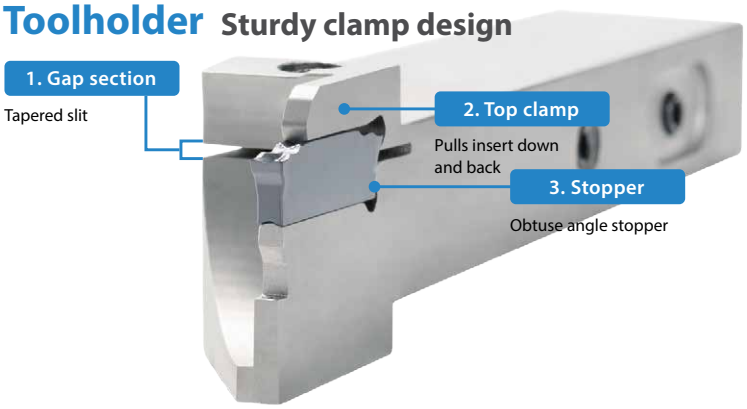
KGZ

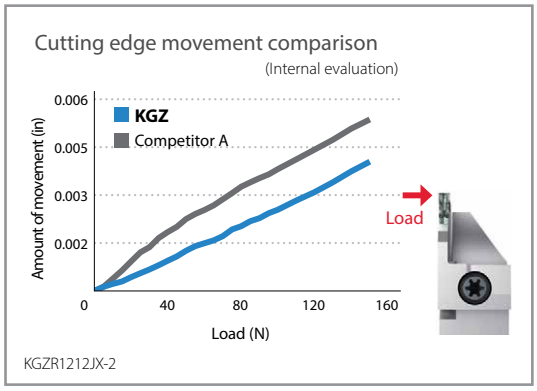
Grooving and Cut-Off Solutions for Small Parts Machining

Provides stable machining and is easy to use with unique clamp design
New coating PR20 series provides longer tool life and supports a wide range of applications

1 Achieve stable machining with newly developed clamp structure

Toolholder Sturdy clamp design





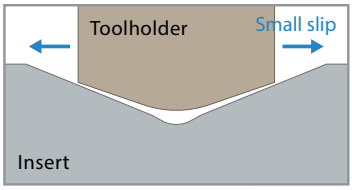
Insert Ease insert installation

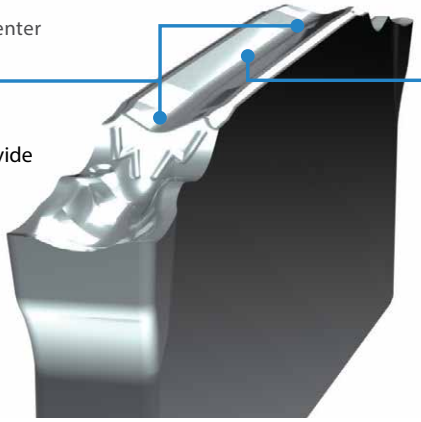
Top V Shape Different groove angles at ends and center

Groove End

Small groove angle on top of insert

These grooves prevent the insert from shifting and provide fast and accurate insert mounts

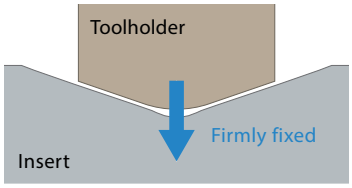




Groove Center

Large groove angle on top of insert

firmly engages the toolholder to increase hold



Excellent chatter resistance

Machined surface comparison (Internal evaluation)

Cutting conditions : Vc = ~ 200 sfm, f = 0.005 ipt
Workpiece : 303 (ø0.551") Wet (External coolant) KGZR1212JX-2
Edge width 0.079" (2mm) (PM Chipbreaker)

800.823.7284
www.kyocera precisiontools.com

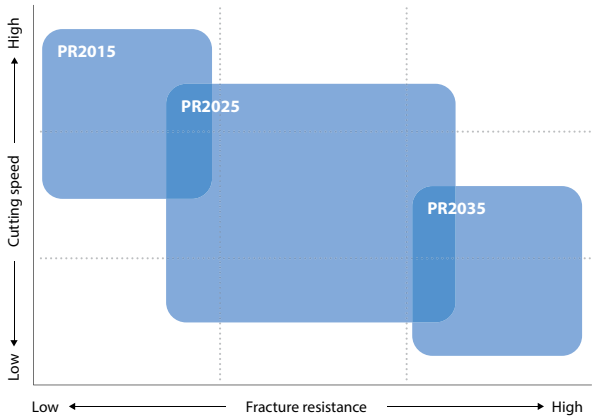
2 New insert grades PR20 series with MEGACOAT NANO EX coating technology provides longer tool life

PR20 Series

PR2015 — **1st recommendation for cast iron**
Also available for steel and stainless steel

PR2025 — **1st recommendation for steel**
Also available for stainless steel

PR2035 — **1st recommendation for stainless steel**
Also available for steel

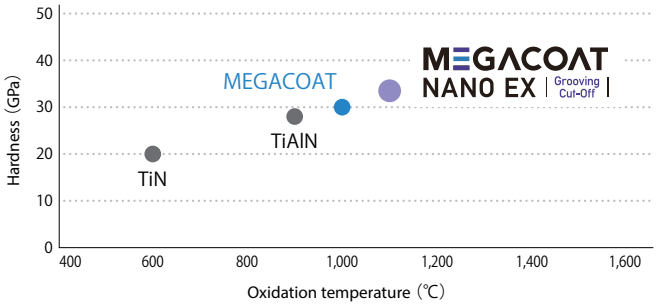


New coating for grooving and cut-off machining

MEGACOAT NANO EX | Grooving Cut-Off

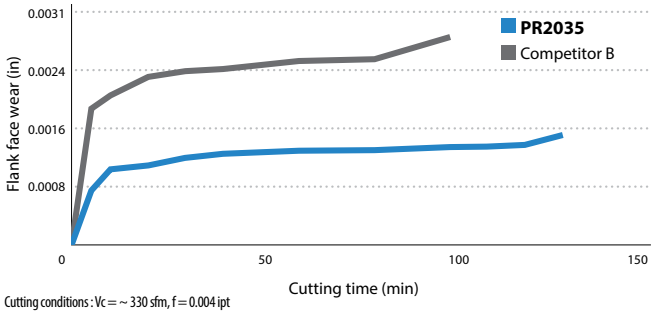
Achieve long tool life and high stability with
the combination of high content aluminum nano coating layer

Coating characteristics (Internal evaluation)



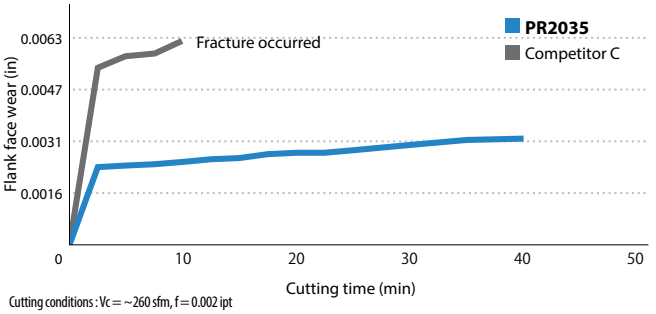
Cutting Performance

1045 Wear resistance comparison (Internal evaluation)



Cutting conditions : Vc = ~ 330 sfm, f = 0.004 ipt
Workpiece : 1045 (ø0.787") Wet (External coolant) GZM2020N-020PM

304 Wear resistance comparison (Internal evaluation)



Cutting conditions : Vc = ~260 sfm, f = 0.002 ipt
Workpiece : 304 (ø0.787") Wet (External coolant) GZM2020N-020PM

3 Large variety of insert and chipbreaker combinations for a wide range of applications

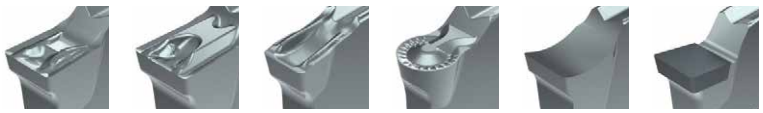
Insert

Cut-off (H22)

Low feed	Medium feed	High feed	Low cutting force
PF	**PM**	**PH**	**PG**

Grooving (G28)

General purpose	Low feed	High feed	Copying	Low cutting force	PCD
GM	**GL**	**PH**	**CM**	**GS**	**NB**



Grades

PVD coating (P M K)
PR2015 / PR2025 / PR2035

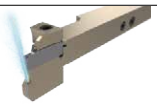
Cermet (P) — **TN620**
DLC coating (N) — **PDL025**

Non-coated carbide (K N)
GW15

PCD (N)
KPD001

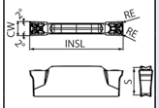
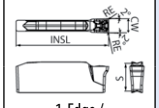
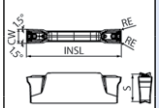
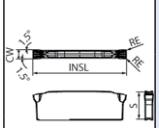
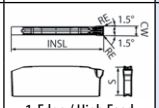
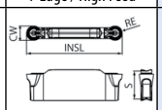
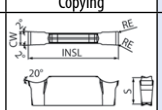
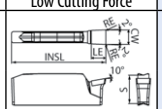
Tool holder

Internal coolant
JCTM Series for direct coolant



External coolant
Standard type / for Sub-spindle tooling

GZM/GZMS/GZG

Insert		Part Number		Edge Prep	No. of Edges	Dimensions (mm) CW in	CW mm	S	RE	INSL	LE	Tolerance (mm) CW min.	CW max.	Cermet TN620	Carbide PVD PR2015	Carbide PVD PR2025	Carbide PVD PR2035	Carbide - GW15	PCD - KPD001	Applicable Toolholder ⇨ G30~G33
Carbon Steel / Alloy Steel														●	◌	●	◌			P
Stainless Steel															◌	◌	●			M
Cast Iron															●			◌		K
Non-Ferrous Metals																		◌	●	N
	 General Purpose	GZM	2420N-020GM	-	2	0.094	2.4	5.9	0.2	20	-	-0.03	+0.03	●	●	●	●			KGZ R/L ...2(...), KGZ R/L ...2.4(...) KGZS R/L ...2A/B
			3020N-020GM			0.118	3		0.2					●	●	●	●			KGZ R/L ...2(...), KGZ R/L ...2.4(...) KGZ R/L ...3(...), KGZS R/L ...2A/B
			3020N-040GM			0.118	3		0.4					●	●	●	●			
	 1-Edge / General Purpose	GZMS	2220N-020GM	-	1	0.087	2.2	5.9	0.2	20	-	-0.03	+0.03	●	●	●	●			KGZ R/L ...2(...) KGZS R/L ...2A/B
			3020N-040GM			0.118	3		0.4					●	●	●	●			KGZ R/L ...2(...) KGZ R/L ...2.4(...) KGZ R/L ...3(...) KGZS R/L ...2A/B
	 Low Feed	GZM	2420N-020GL	-	2	0.094	2.4	5.9	0.2	20	-	-0.03	+0.03	●	●	●	●			KGZ R/L ...2(...), KGZ R/L ...2.4(...) KGZS R/L ...2A/B
			3020N-020GL			0.118	3		0.2					●	●	●	●			KGZ R/L ...2(...), KGZ R/L ...2.4(...) KGZ R/L ...3(...), KGZS R/L ...2A/B
			3020N-040GL			0.118	3		0.4					●	●	●	●			
	 High Feed	GZM	2020N-020PH	-	2	0.079	2	5.9	0.2	20	-	-0.03	+0.03		●	●	●			KGZ R/L ...2(...) KGZS R/L ...2A/B
			2520N-020PH			0.098	2.5		0.2						●	●	●			KGZ R/L ...2(...), KGZ R/L ...2.4(...) KGZS R/L ...2A/B
			3020N-030PH			0.118	3		0.3						●	●	●			KGZ R/L ...2(...), KGZ R/L ...2.4(...) KGZ R/L ...3(...), KGZS R/L ...2A/B
	 1-Edge / High Feed	GZMS	2020N-020PH	-	1	0.079	2	5.9	0.2	20	-	-0.03	+0.03		●	●	●			KGZ R/L ...2(...) KGZS R/L ...2A/B
			3020N-030PH			0.118	3		0.3						●	●	●			KGZ R/L ...2(...), KGZ R/L ...2.4(...) KGZ R/L ...3(...), KGZS R/L ...2A/B
	 Copying	GZM	3020N-150R-CM	-	2	0.118	3	5.9	1.5	20	-	-0.03	+0.03	●	●	●	●			KGZ R/L ...2(...), KGZ R/L ...2.4(...) KGZ R/L ...3(...), KGZS R/L ...2A/B
	 Low Cutting Force	GZG	2520N-020GS	-	2	0.098	2.5	5.9	0.2	20	-	-0.02	+0.02	●	●	●	●	●		KGZ R/L ...2(...), KGZ R/L ...2.4(...) KGZS R/L ...2A/B
			3020N-020GS			0.118	3							●	●	●	●	●		KGZ R/L ...2(...), KGZ R/L ...2.4(...) KGZ R/L ...3(...), KGZS R/L ...2A/B
	 1-Edge	GZGS	2020N-020NB	F	1	0.079	2	5.9	0.2	20	2.9	-0.02	+0.02						●	KGZ R/L ...2(...) KGZS R/L ...2A/B
			3020N-020NB			0.118	3												●	KGZ R/L ...2(...), KGZ R/L ...2.4(...) KGZ R/L ...3(...), KGZS R/L ...2A/B

GZM and GZG inserts cannot be used in KGM or KGD holders.

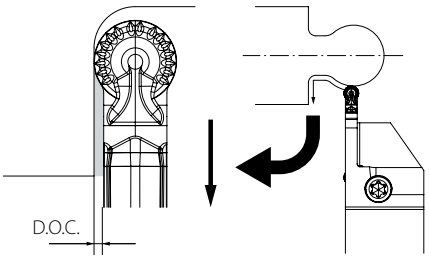
Recommended Cutting Conditions ⇨ G35

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CM Chipbreaker [Depth of cut (D.O.C.) when back copying]

Maximum D.O.C. when back copying

Insert Part Number	Maximum D.O.C.		
	Toolholder Part Number		
	KGZ...2(...)	KGZ...2.4(...)	KGZ...3(...)
GZM3020N-150R-CM	0.009" (0.24mm)	0.009" (0.24mm)	0.008" (0.2mm)



Inserts Identification System

Tolerance symbol	
G	Ground insert
M	M class

Edge width			
13	1.3 mm	25	2.5 mm
15	1.5 mm	30	3 mm
20	2 mm		

Hand of tool	
R	Right-hand
L	Left-hand
N	Neutral

Chipbreaker symbol			
PF	Low feed	PH	High feed
PM	Medium feed	PG	Low cutting force

GZ **M** **S** **20** **20** **N** - **020** **PM** - **6D**

Series
Grooving / Cut-off
GZ Series

No. of edge	
No indication	2-edge
S	1-edge

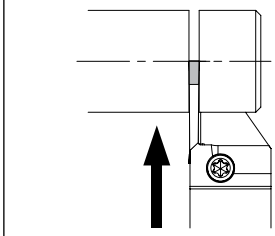
Insert length	
16	16 mm
20	20 mm

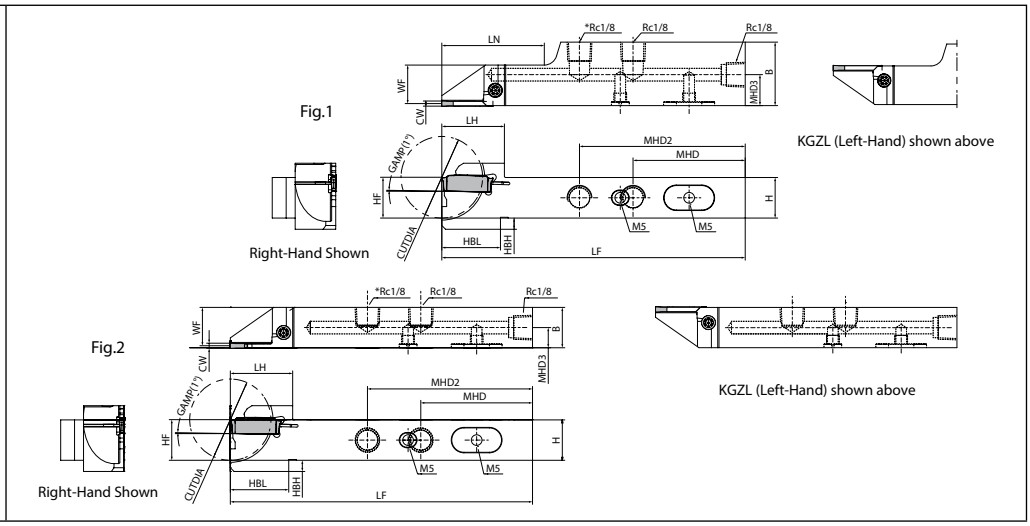
Corner-R (RE)			
003	0.03 mm	020	0.2 mm
005	0.05 mm	025	0.25 mm
015	0.15 mm	030	0.3 mm

Lead angle	
No indication	0°
6D	6°
15D	15°

KGZ-JCTM (External Grooving, Coolant-Through Toolholder)

Coolant Piping Parts ➡ H16, H17





Right-hand shown | KGZR/L 5.72...-JCTM, KGZR/L 8-...-JCTM : 2-Rc1/8

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.	CW max.	Angle GAMP (°)	Fig.	Coolant Hole	Spare Parts: Plug	Spare Parts: Plug	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts ➡ G28
Inch	KGZR 5.72-2JCTM	●		0.945	0.500	0.709	0.780	2.126	-	0.331	0.500	0.335	0.778	4.750	1.717	0.469	0.079" (2mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	KGZL 5.72-2JCTM		●							0.303																
	KGZR 82.5-2JCTM	●		1.260	0.625	1.000	0.976	1.732	2.559	0.480	0.625	0.177	0.913		1.575	0.594										
	KGZL 82.5-2JCTM		●							0.303																
	KGZR 5.72-2.4JCTM	●		0.945	0.500	0.709	0.780	2.126	-	0.331	0.500	0.335	0.778	4.750	1.717	0.461	0.095" (2.4mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	KGZL 5.72-2.4JCTM		●							0.303																
	KGZR 82.5-2.4JCTM	●		1.260	0.625	1.000	0.976	1.732	2.559	0.480	0.625	0.177	0.913		1.575	0.586										
	KGZL 82.5-2.4JCTM		●							0.303																
	KGZR 5.72-3JCTM	●		0.945	0.500	0.709	0.780	2.126	-	0.339	0.500	0.335	0.778	4.750	1.717	0.453	0.118" (3mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...3020...
	KGZL 5.72-3JCTM		●							0.303																
	KGZR 82.5-3JCTM	●		1.260	0.625	1.000	0.976	1.732	2.559	0.480	0.625	0.177	0.913		1.575	0.578										
	KGZL 82.5-3JCTM		●							0.303																
	KGZR/L 8-2JCTM	●	●	0.945	0.500	0.500	0.780	2.323	-	0.236	0.500	0.236	0.780	4.750	-	0.469	0.079" (2mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	KGZR/L 10-2D26JCTM	●	●	1.024	0.625	0.625	0.976	1.732	2.559	0.315	0.625	0.039	0.913			0.594										
	KGZR/L 10-2JCTM	●	●	1.260								0.177														
	KGZR/L 8-2.4JCTM	●	●	0.945	0.500	0.500	0.780	2.323	-	0.236	0.500	0.236	0.780	4.750	-	0.461	0.095" (2.4mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	KGZR/L 10-2.4D26JCTM	●	●	1.024	0.625	0.625	0.976	1.732	2.559	0.315	0.625	0.039	0.913			0.586										
	KGZR/L 10-2.4JCTM	●	●	1.260								0.177														
	KGZR/L 8-3JCTM	●	●	0.945	0.500	0.500	0.780	2.323	-	0.236	0.500	0.236	0.780	4.750	-	0.453	0.118" (3mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...3020...
	KGZR/L 10-3D26JCTM	●	●	1.024	0.625	0.625	0.976	1.732	2.559	0.315	0.625	0.039	0.913			0.578										
	KGZR/L 10-3JCTM	●	●	1.260								0.177														

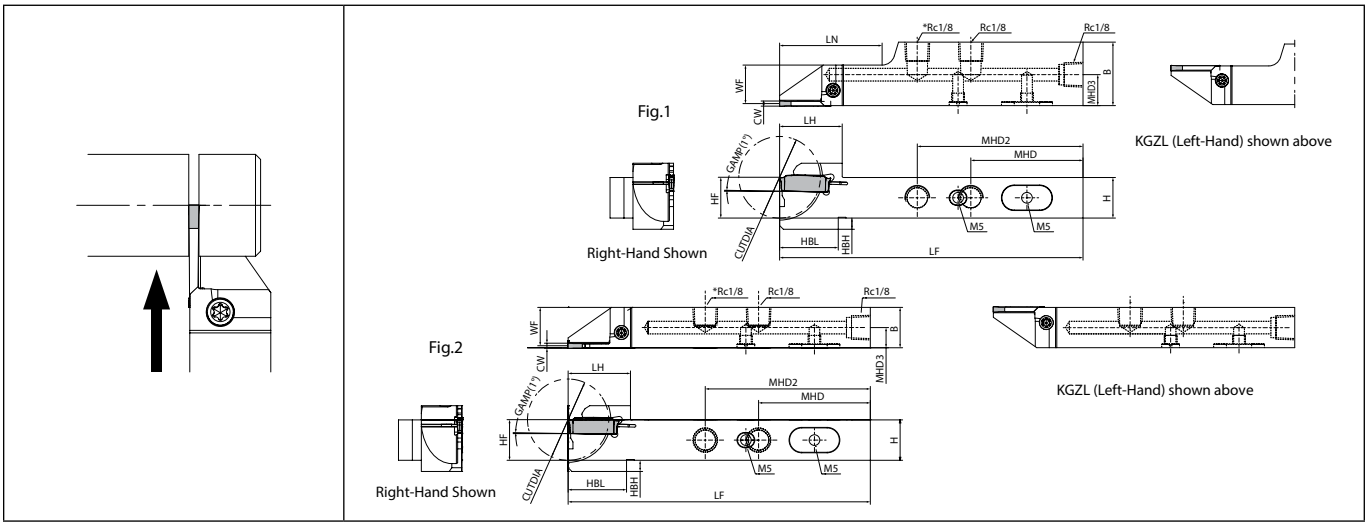
Recommended tightening torque : 2.0N · m(SB-40120TR)

GM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGZ-JCTM (External Grooving, Coolant-Through Toolholder)

Coolant Piping Parts H16, H17



Right-hand shown | KGZ□12...-JCTM : 2-Rc1/8

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.	CW max.	Angle GAMP (°)	Fig.	Coolant Hole	Spare Parts: Plug	Spare Parts: Plug	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts G28
mm	KGZR 1218JX-2JCTM	●		24	12	18	19.8	54	-	8.4	12	8.5	19.8	120	43.7	11.2	0.079" (2mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	KGZL 1218JX-2JCTM		●							7.7																
	KGZR 1625JX-2JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2		40.0	15.2										
	KGZL 1625JX-2JCTM		●							7.7																
	KGZR 1218JX-2.4JCTM	●		24	12	18	19.8	54	-	8.4	12	8.5	19.8	120	43.7	11.0	0.095" (2.4mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	KGZL 1218JX-2.4JCTM		●							7.7																
	KGZR 1625JX-2.4JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2		40.0	15.0										
	KGZL 1625JX-2.4JCTM		●							7.7																
	KGZR 1218JX-3JCTM	●		24	12	18	19.8	54	-	8.6	12	8.5	19.8	120	43.7	10.8	0.118" (3mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...3020...
	KGZL 1218JX-3JCTM		●							7.7																
	KGZR 1625JX-3JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2		40.0	14.8										
	KGZL 1625JX-3JCTM		●							7.7																
	KGZ□ 1212JX-2JCTM	●	●	24	12	12	19.8	59	-	6	12	5	19.8	120	-	11.2	0.079" (2mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	KGZ□ 1616JX2D26JCTM	●	●	26	16	16	24.8	44	65	8	16	1	23.2			15.2										
	KGZ□ 1616JX-2JCTM	●	●	32								4.5														
	KGZ□ 1212JX-2.4JCTM	●	●	24	12	12	19.8	59	-	6	12	5	19.8	120		11.0	0.095" (2.4mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	KGZ□ 1616JX2.4D26JCTM	●	●	26	16	16	24.8	44	65	8	16	1	23.2													
	KGZ□ 1616JX-2.4JCTM	●	●	32								4.5				15.0										
	KGZ□ 1212JX-3JCTM	●	●	24	12	12	19.8	59	-	6	12	5	19.8	120		10.8	0.118" (3mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...3020...
	KGZ□ 1616JX3D26JCTM	●	●	26	16	16	24.8	44	65	8	16	1	23.2			14.8										
	KGZ□ 1616JX-3JCTM	●	●	32								4.5														

Recommended tightening torque : 2.0N · m(SB-40120TR)
GM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

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Contact your local Kyocera sales engineer to upgrade old products to new technology

KGZ (External Grooving, Standard Toolholder)

Coolant Piping Parts ⇨ H16, H17

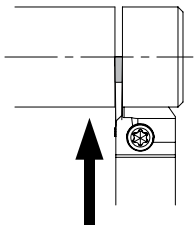
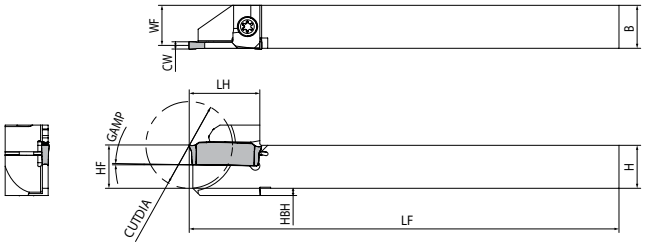


Fig.2



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	GAMP (°)	Spare Parts: Screw	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts ⇨ G28
Inch	KGZ R/L 6-2JX	●	●	0.787	0.375	0.375	0.736	0.375	0.101	4.750	0.344	0.079" (2mm)	0.118" (3mm)	2	SB-40120TR	-	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	8-2JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055		0.469							
	10-2JX	●	●	1.260	0.625	0.625	0.976	0.625	-		0.594							
	KGZ R/L 6-2.4JX	●	●	0.787	0.375	0.375	0.736	0.375	0.101	4.750	0.336	0.095" (2.4mm)	0.118" (3mm)	2	SB-40120TR	-	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	8-2.4JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055		0.461							
	10-2.4JX	●	●	1.260	0.625	0.625	0.976	0.625	-		0.586							
	KGZ R/L 8-3JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055	4.750	0.453	0.118" (3mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GZ...3020...
	10-3JX	●	●	1.260	0.625	0.625	0.976	0.625	-		0.578							
	10-3D38JX	●	●	1.496	0.625	0.625	1.134	0.625	-		0.578				-	SE-50125TR	LTW-20	
	12-3D42JX	●	●	1.654	0.750	0.750	1.217	0.750			0.703							
	43-3D42JX	●	●	1.654	0.750	0.750	1.217	0.750			0.453							

Recommended tightening torque : 2.0N · m (SB-40120TR), 2.5N · m (SE-50125TR)
When machining large cutting dia. (over 1.417" (36mm)) with KGZ R/L...-3D38 or KGZ R/L...-3D42, please follow the instructions below
· Use 1-edge inserts
· Maximum workpiece diameter for 2-edge inserts is ø1.417" (36mm)
KGM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGZ (External Grooving, Standard Toolholder)

Coolant Piping Parts ➡ H16, H17

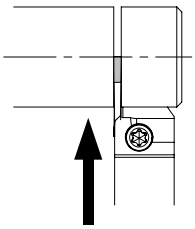
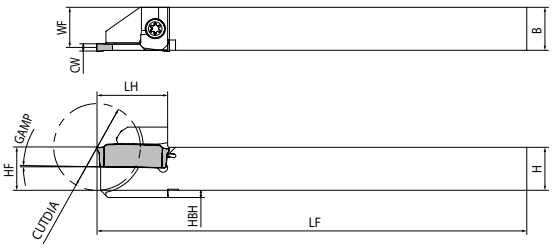


Fig.2



Right-hand shown

Toolholder Dimensions

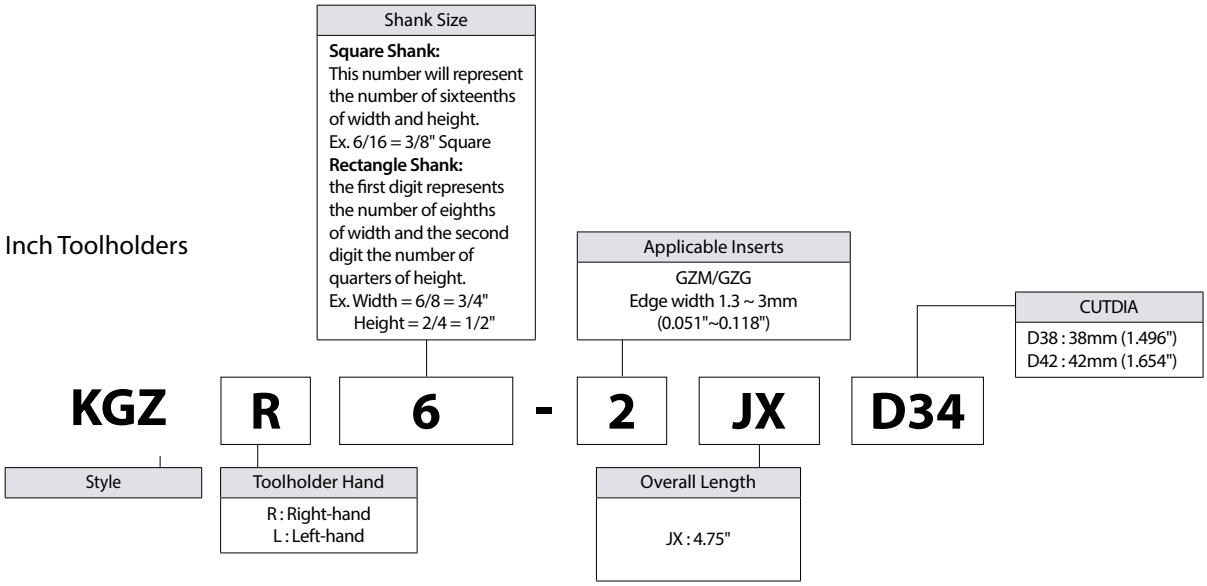
Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Angle GAMP (°)	Spare Parts: Clamp Bolt	Spare Parts: Screw	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts ➡ G28
mm	KGZ R/L 1010JX-2	●	●	20	10	10	18.7	10	2.1	120	9.2	0.079" (2mm)	0.118" (3mm)	2	-	SB-40120TR	-	-	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	1212F-2	●	●	24	12	12	19.8	12		85	11.2			1						
	1212JX-2	●	●							120										
	1616JX-2	●	●	32	16	16	24.8	16	-	120	15.2				-	-	SE-50125TR	-	LTW-20	
	2012K-2D34	●	●	34	20	12	26.8	20		125	11.2									
	2020K-2D34	●	●			20					19.2									
	2525K-2D34	●	●		25	25	32.7	25			24.2				HH5X16	-	-	LW-4	-	
	KGZ R/L 1010JX-2.4	●	●	20	10	10	18.7	10	2.1	120	9	0.094" (2.4mm)	0.118" (3mm)	2	-	SB-40120TR	-	-	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	1212F-2.4	●	●	24	12	12	19.8	12		85	11			1						
	1212JX-2.4	●	●							120										
	1616JX-2.4	●	●	32	16	16	24.6	16	-	120	15				-	-	SE-50125TR	-	LTW-20	
	2012K-2.4D34	●	●	34	20	12	26.6	20		125	11									
	2020K-2.4D34	●	●			20					19									
	2525K-2.4D34	●	●		25	25	32.7	25			24				HH5X16	-	-	LW-4	-	
	KGZ R/L 1212JX-3	●	●	24	12	12	19.8	12	2.1	120	10.8	0.118" (3mm)	0.118" (3mm)	1	-	SB-40120TR	-	-	LTW-15S	GZ...3020...
	1616JX-3	●	●	32	16	16	24.6	16	-		14.8				-	-	SE-50125TR	-	LTW-20	
	1616JX-3D38	●	●	38			28.6													
	1913K-3D38	●	●		19	13		19		125	11.8									
	2012JX-3D42	●	●	42	20	12	30.7	20		120	10.8									
	2012JX-3D51	●	●	51			35.2													
	2020JX-3D42	●	●	42		20	30.7				18.8									
	2020JX-3D51	●	●	51			35.2													
	2525K-3D51	●	●		25	25	41.7	25		125	23.8				HH5X16	-	-	LW-4	-	

Recommended tightening torque : 2.0N · m (SB-40120TR), 2.5N · m (SE-50125TR)
When machining large cutting dia. (over 1.417" (36mm)) with KGZ R/L...-3D38 or KGZ R/L...-3D42, please follow the instructions below
· Use 1-edge inserts
· Maximum workpiece diameter for 2-edge inserts is ø1.417" (36mm)
KGM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

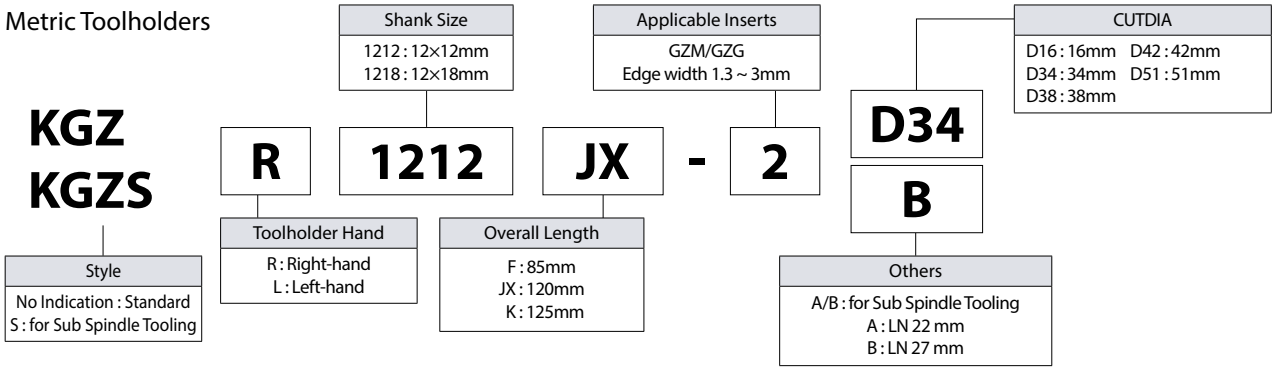
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Identification System

Inch Toolholders



Metric Toolholders



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KGZ Recommended Cutting Conditions

GM / GL / PH / CM Chipbreaker

Workpiece Material	Recommended Insert Grade (Vc : sfm)						f (ipr)						Notes
							GM		GL		PH	CM	
	MEGACOAT NANO EX			Cermet	Carbide	PCD	CW						
	PR2015	PR2025	PR2035	TN620	GW15	KPD001	0.087"~0.095" (2.2mm~2.4mm)	0.118" (3.0mm)	0.095" (2.4mm)	0.118" (3.0mm)	0.079"~0.118" (2.0mm~3.0mm)	0.118" (3.0mm)	
Carbon Steel	☆ 230 ~ 590	★ 230 ~ 490	☆ 230 ~ 490	★ 260 ~ 490	-	-	0.0020 ~ 0.0051	0.0028 ~ 0.0067	0.0012 ~ 0.0043	0.0016 ~ 0.0059	0.0039 ~ 0.0079	0.0020 ~ 0.0059	Coolant
Alloy Steel	☆ 230 ~ 590	★ 230 ~ 490	☆ 230 ~ 490	★ 260 ~ 490	-	-							
Stainless Steel	☆ 200 ~ 490	☆ 200 ~ 390	★ 200 ~ 390	-	-	-	0.0012 ~ 0.0047	0.0020 ~ 0.0059	0.0008 ~ 0.0039	0.0012 ~ 0.0047	0.0031 ~ 0.006	0.0016 ~ 0.0047	
Cast Iron	★ 260 ~ 660	-	-	-	☆ 160 ~ 330	-	0.0020 ~ 0.0051	0.0028 ~ 0.0067	0.0012 ~ 0.0043	0.0016 ~ 0.0059	0.0039 ~ 0.0079	0.0020 ~ 0.0059	
Aluminum Alloy	-	-	-	-	☆ 660 ~ 1480	★ 490 ~ 6560	-	-	-	-	-	-	
Brass	-	-	-	-	☆ 330 ~ 660	★ 660 ~ 2620	-	-	-	-	-	-	

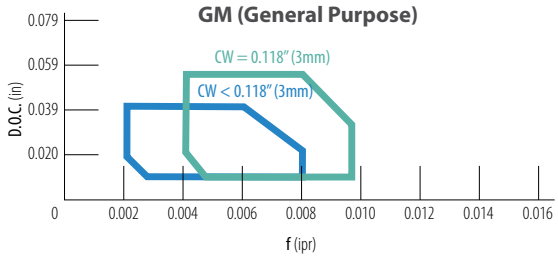
★:1st Recommendation ☆:2nd Recommendation

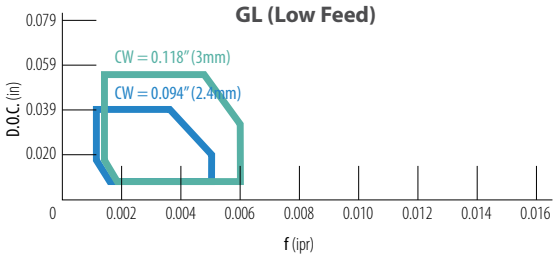
GS / NB (Non-Ferrous)

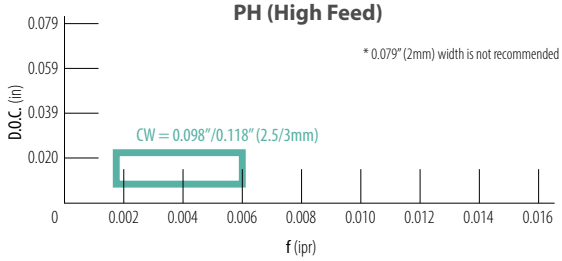
Workpiece Material	Recommended Insert Grade (Vc : sfm)						f (ipr)			Notes
							GS	NB		
	MEGACOAT NANO EX			Cermet	Carbide	PCD	CW			
	PR2015	PR2025	PR2035	TN620	GW15	KPD001	0.098"~0.118" (2.5mm~3.0mm)	0.079" (2.0mm)	0.118" (3.0mm)	
Carbon Steel	☆ 230 ~ 590	★ 230 ~ 490	☆ 230 ~ 490	★ 260 ~ 490	-	-	0.0016 ~ 0.0035	-	-	Coolant
Alloy Steel	☆ 230 ~ 590	★ 230 ~ 490	☆ 230 ~ 490	★ 260 ~ 490	-	-				
Stainless Steel	☆ 200 ~ 490	☆ 200 ~ 390	★ 200 ~ 390	-	-	-	0.0012 ~ 0.0031	-	-	
Cast Iron	★ 260 ~ 660	-	-	-	☆ 160 ~ 330	-	0.0016 ~ 0.0035	-	-	
Aluminum Alloy	-	-	-	-	☆ 660 ~ 1480	★ 490 ~ 6560	0.0012 ~ 0.0028	0.0020 ~ 0.0059	0.0020 ~ 0.0059	
Brass	-	-	-	-	☆ 330 ~ 660	★ 660 ~ 2620	-			

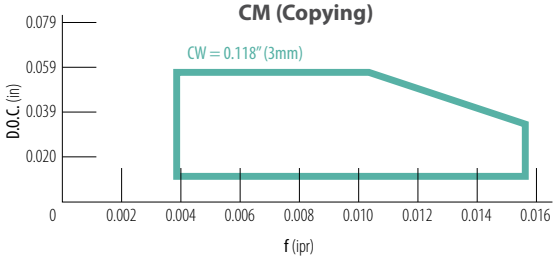
★:1st Recommendation ☆:2nd Recommendation

Turning
(Workpiece Material : 1049)







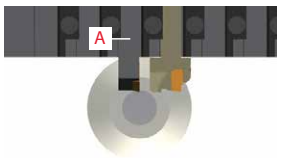


Precautions

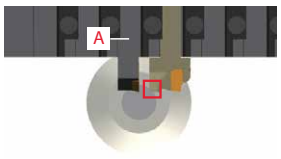
Maximum D.O.C. of the next tool (indicated as tool A) and holder interference

When using JCTM holder 1218/1212 , note maximum D.O.C. of the next tool to avoid interference.

No interference



Interference



Estimated maximum D.O.C. of tool A (mm)

Workpiece Dia. / JCTM Part Number	ø12mm	ø16mm	ø20mm
KGZ R/L 1218JX-*JCTM	2.4	2.0	1.7
KGZ R/L 1212JX-*JCTM	-	-	3.8

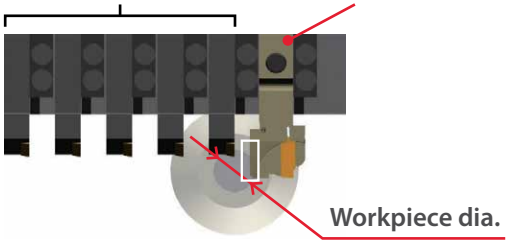
When using the JCTM holder 1218/1625/1616 for T01 on the following models, please check the workpiece diameter in advance to avoid interference.

<Target Models>

T01: Machines where both □16mm (or Spacer plate +□12mm) holders can be mounted

Non-T01: Machines where only □12mm holders can be mounted

Non-T01: □12mm **T01 : □16mm (or Spacer plate +□12mm)**



KGZ Compatibility

Workpiece Dia. / JCTM Part Number	ø14mm or smaller	ø14mm or larger
KGZ R/L 1218JX-*JCTM	Compatible	Please use KGZ R/L 1212JX-*JCTM or KGZ R/L 1616JX*D26JCTM
KGZ R/L 1625JX-*JCTM		
KGZ R/L 1616JX-*JCTM		

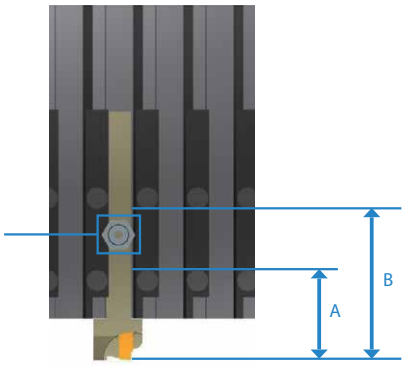
Piping part interference avoidance

Rectangular shank are recommended for use with piping parts connected to JCTM holders.

When connecting the J-**-R1/8-G1/8-L piping parts to the rectangular shank, please check for any potential interference with the machine in advance.

When connecting piping parts to the JCTM square shank, check the lengths of A and B below to avoid interference with the screws of the tool turret.

Adjust the piping part to fit between the top and bottom screws.

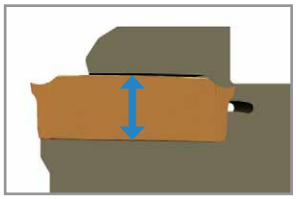


Shank Size	Square Shank Use
□0.500" □12mm	"A" shorter than 51.5mm and "B" longer than 68.5mm → Available Other than the above conditions → Use J-**-R1/8-G1/8-L or a rectangular shank
□0.625" □16mm	Available

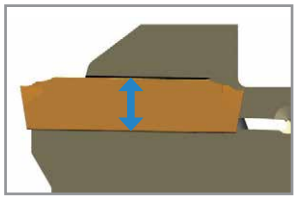
Compatibility with Conventional Tools

KGZ is not compatible with the conventional tools (KGD/KGM)

KGZ



Conventional



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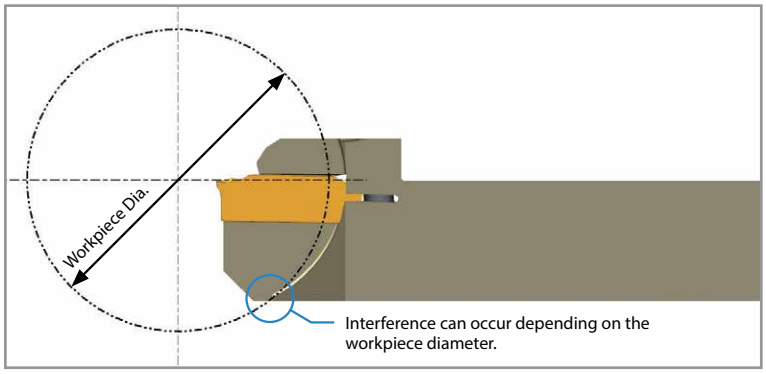
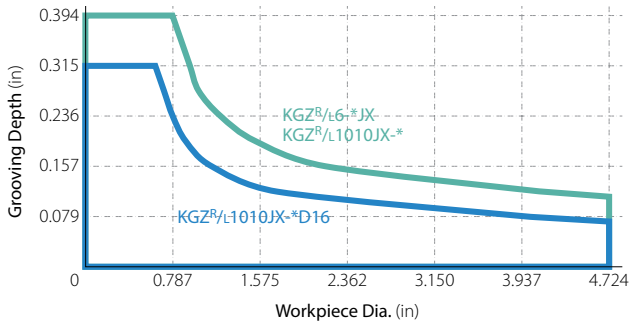
Maximum Grooving Depth Limitations

There is a limit to available grooving depth depending on the workpiece diameter.

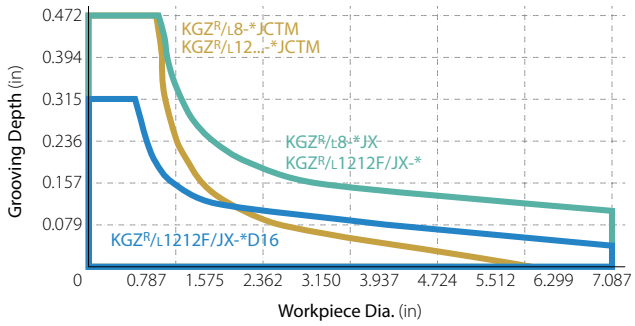


Guideline for Grooving Depth

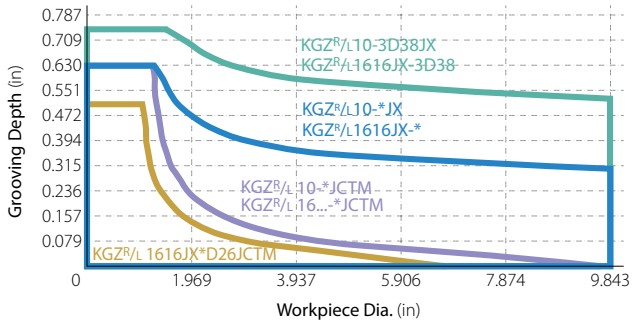
☐ 0.375" / 10mm Toolholders



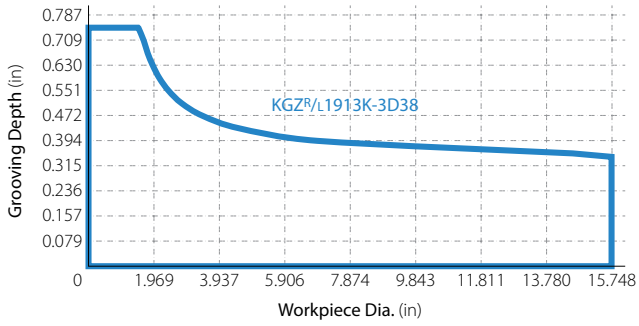
☐ 0.500" / 12mm Toolholders



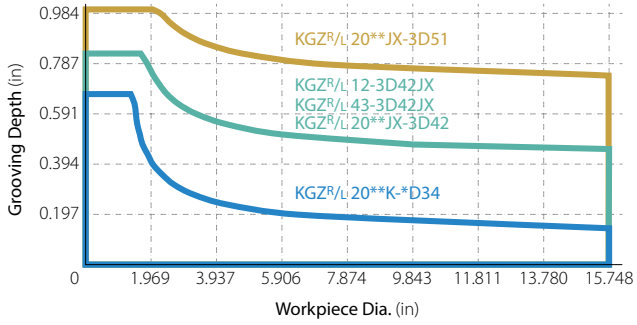
☐ 0.625" / 16mm Toolholders



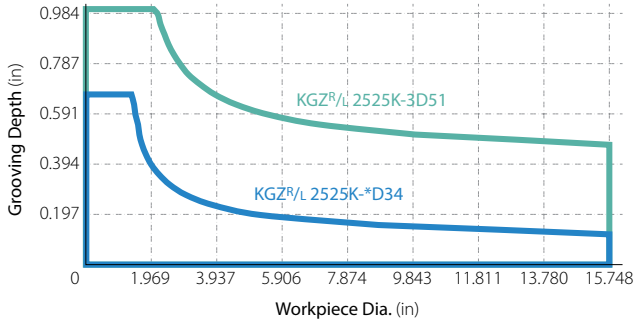
☐ 19mm Toolholders



☐ 0.750" / 20mm Toolholders



☐ 25mm Toolholders



KGD Insert Lineup

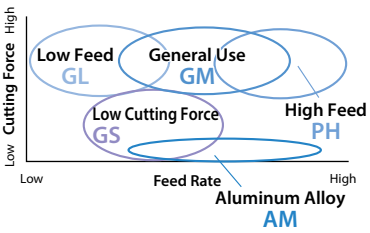
Smooth chip control
» Newly-introduced chipbreakers designed to cover a variety of workpiece materials.

High precision edge preparation
» High precision molding technology with tolerance ±0.03 mm (Edge width 2, 3, 4 mm types)

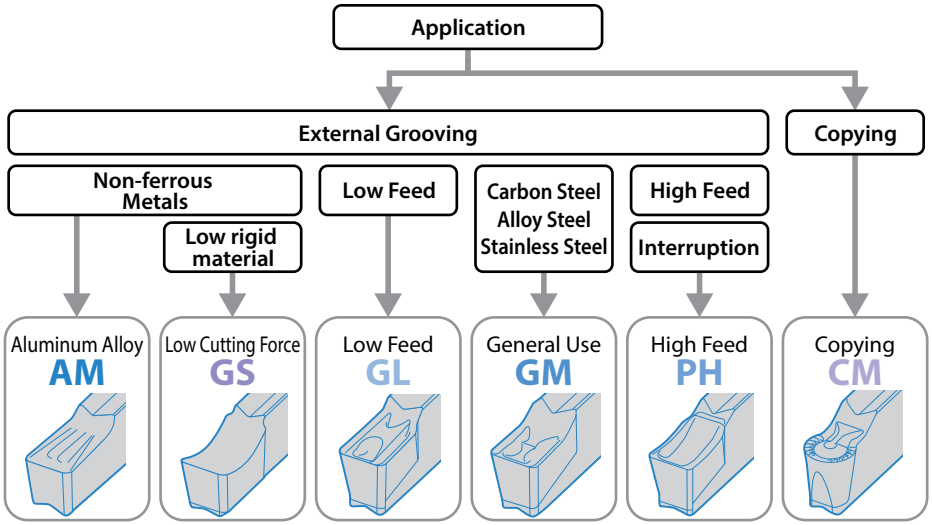
Highly-reputed MEGACOAT technology
» Long tool life and high efficiency machining achieved by superior oxidation resistance and wear resistance.

Application Maps

External Grooving and Turning



Chipbreaker Selection (External)



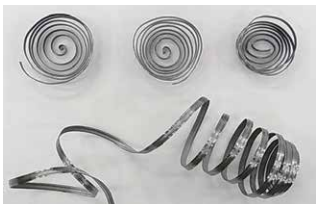
Chip Control Comparison (In-house Evaluation)
Cutting Conditions : Vc = 490 sfm, f = 0.006 ipr Workpiece : Chromium Molybdenum Steel

Better Chip Control than Competitors
Reduces Damage of Cutting Edge Caused by Crushing Chips

GM Chipbreaker

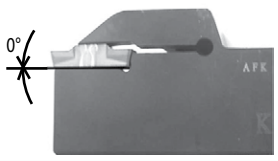
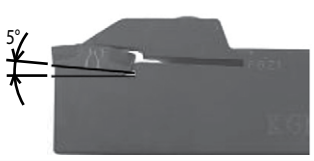
Competitor A

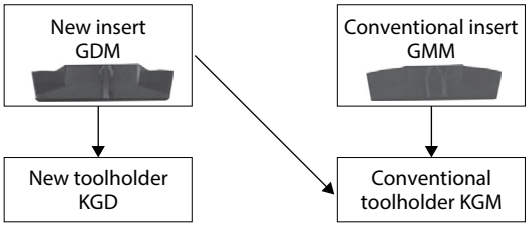
Competitor B



Toolholder and insert combination of KGD type (new) and KGM type (conventional)

Insert setting angle for grooving toolholders

KGD...0°	Conventional tools KGM...5°
	



Installing conventional inserts to the new toolholder is not recommended.

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KGD Grooving Toolholder

Integral type and SwitchBlade type (toolholder + blade) are available

Integral Type

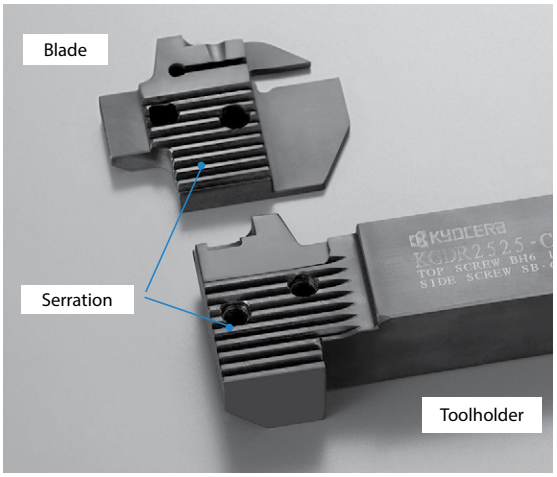
SwitchBlade Type

High Rigidity SwitchBlade Toolholder

- Adaptable to wide applications by changing blades.
- Various edge widths and cutting depths can be achieved by changing the blade and toolholder combination.
- Swap blades out easily to change groove width and depth.

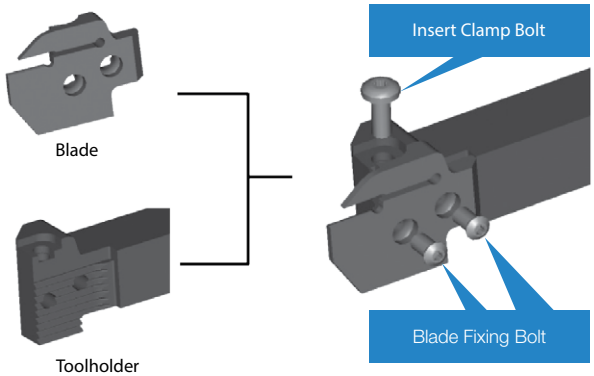
Toolholders for High Pressure Coolant

- Added jet coolant-through holder KGD-JCTM with superior chip control and long tool life

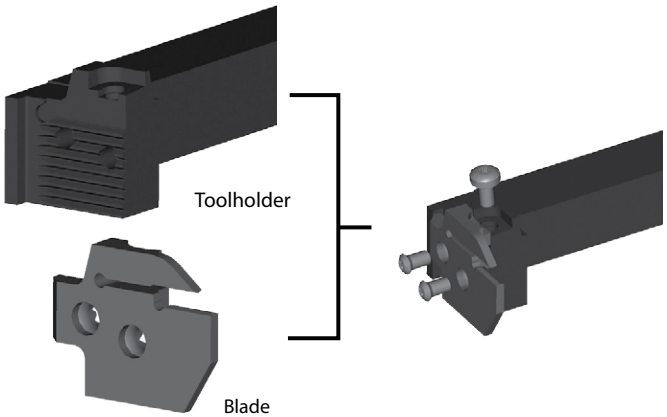


Structure of Toolholder Unit (Toolholder + Blade)

KGD-S (0˚SwitchBlade Type)



KGDS-S (90˚SwitchBlade Type)



Blade Combination of 0˚ SwitchBlade Type

Toolholder (KGDR ○○○○-C)
+
Blade (KGDR-○T○○-C)

Right-hand (R) Blade for Right-hand (R) Toolholder,
Left-hand (L) Blade for Left-hand (L) Toolholder.

Blade Combination of 90° SwitchBlade Type

Toolholder (KGDSR ○○○○-C)
+
Blade (KGDL-○T○○-C)

Left-hand (L) Blade for Right-hand (R) Toolholder,
Right-hand (R) Blade for Left-hand (L) Toolholder.

GDM/GDMS/GDG

Insert		Part Number	No. of Edges	Dimensions (mm)						Tolerance (mm)		Carbide			Cermet		Applicable Toolholder ⇨ G44~G56
				CW		S	RE	INSL		CW min.	CW max.	PVD			-		
				in	mm							PR1215	PR1225	PR1535	TN620	TN90	
		GDM 2420N-020GM	2	0.094	2.4	4.3	0.2	20		-0.03	+0.03	●	●	●	●	●	KGDR/L...2.4... KGDR/L...2...
		GDM 3020N-020GM 3020N-040GM	2	0.118	3	4.3	0.2 0.4	20		-0.03	+0.03	●	●	●	●	●	KGDR/L...3... KGDR/L...2.4...
		GDM 4020N-020GM 4020N-040GM 4020N-080GM	2	0.157	4	4.3	0.2 0.4 0.8	20		-0.03	+0.03	●	●	●	●	●	KGDR/L...4... KGDR/L...3...
		GDM 5020N-040GM 5020N-080GM	2	0.197	5	4.3	0.4 0.8	20		-0.04	+0.04	●	●	●	●	●	KGDR/L...5... KGDR/L...4...
		GDM 6020N-040GM 6020N-080GM	2	0.236	6	4.3	0.4 0.8	20		-0.04	+0.04	●	●	●	●	●	KGDR/L...6... KGDR/L...5...
	General Purpose	GDM 8030N-080GM	2	0.315	8	5.5	0.8	30		-0.05	+0.05	●	●	●			KGDR/L...-8T25
		GDMS 2220N-020GM	1	0.087	2.2	4.3	0.2	20		-0.03	+0.03	●	●	●	●	●	KGDR/L...2...
		GDMS 3020N-040GM	1	0.118	3	4.3	0.4	20		-0.03	+0.03	●	●	●	●		KGDR/L...3... KGDR/L...2.4...
		GDMS 4020N-040GM	1	0.157	4	4.3	0.4	20		-0.03	+0.03	●	●	●	●	●	KGDR/L...4... KGDR/L...3...
		GDMS 5020N-080GM	1	0.197	5	4.3	0.8	20		-0.04	+0.04	●	●	●	●		KGDR/L...5... KGDR/L...4...
	1-edge / General Purpose	GDMS 6020N-080GM	1	0.236	6	4.3	0.8	20		-0.04	+0.04	●	●	●	●		KGDR/L...6... KGDR/L...5...

Recommended Cutting Conditions ⇨ G58

Inserts identification system

Series									
GD	M	S	30	20	N	–	040	GM	

Tolerance symbol

M	M class
G	G class

Insert length

20	20 mm
30	30 mm

Hand of tool

N	Neutral

Number of edges

Without indication	2-edge
S	1-edge

Edge width

20	2 mm
30	3 mm
40	4 mm

Corner-R (RE)

020	0.2 mm
030	0.3 mm
040	0.4 mm
150R	1.5 mm (Full-R)

Chipbreaker symbol

GM	Grooving and turning
GL	Low feed
GS	Low cutting force
CM	Copying
PH	High speed
NB	Without chipbreaker

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GDM/GDMS/GDG

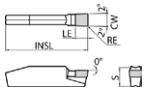
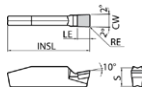
GDM/GDMS/GDG

GDGS

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed

Carbon Steel / Alloy Steel					P
Stainless Steel					M
Cast Iron					K
Non-Ferrous Metals				●	N
Titanium Alloy				●	S
Hard Materials (~ 40HRC)					H
Hard Materials (40HRC ~)	●				
Sintered steel		●			

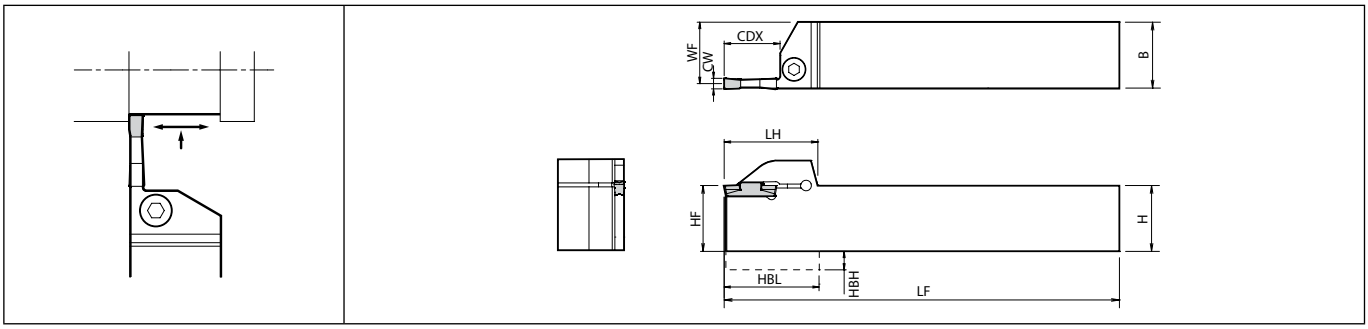
Insert		Part Number	Edge preparation type	No. of Edges	Dimensions (mm) CW in	CW mm	S	RE	INSL	LE	Tolerance (mm) CW min.	CW max.	CBN PVD KBN05M	CBN - KBN570	PCD - KPD001	Applicable Toolholder ⇨ G44~G56
	 1-edge	GDGS 2020N-020NB	E003 / E0008	1	0.079	2	4.3	0.2	20	2.9	-0.03	+0.03	●	●		KGD R/L ...2...
		GDGS 3020N-040NB	E003 / E0008	1	0.118	3	4.3	0.4	20	2.9	-0.03	+0.03	●	●		KGD R/L ...3... KGD R/L ...2.4...
		GDGS 4020N-040NB	E003 / E0008	1	0.157	4	4.3	0.4	20	2.9	-0.03	+0.03	●	●		KGD R/L ...4... KGD R/L ...3...
		GDGS 5020N-040NB	E003 / E0008	1	0.197	5	4.3	0.4	20	2.9	-0.03	+0.03	●	●		KGD R/L ...5... KGD R/L ...4...
		GDGS 6020N-040NB	E003	1	0.236	6	4.3	0.4	20	2.9	-0.03	+0.03	●			KGD R/L ...6... KGD R/L ...5...
	 1-edge	GDGS 2020N-020NB	F	1	0.079	2	4.3	0.2	20	2.9	-0.03	+0.03			●	KGD R/L ...2...
		GDGS 3020N-020NB	F	1	0.118	3	4.3	0.2	20	2.9	-0.03	+0.03			●	KGD R/L ...3... KGD R/L ...2.4...
		GDGS 4020N-020NB	F	1	0.157	4	4.3	0.2	20	2.9	-0.03	+0.03			●	KGD R/L ...4... KGD R/L ...3...
		GDGS 5020N-020NB	F	1	0.197	5	4.3	0.2	20	2.9	-0.03	+0.03			●	KGD R/L ...5... KGD R/L ...4...
		GDGS 6020N-020NB	F	1	0.236	6	4.3	0.2	20	2.9	-0.03	+0.03			●	KGD R/L ...6... KGD R/L ...5...

Recommended Cutting Conditions ⇨ G58

CBN & PCD Inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD (External Grooving)



Right-hand shown

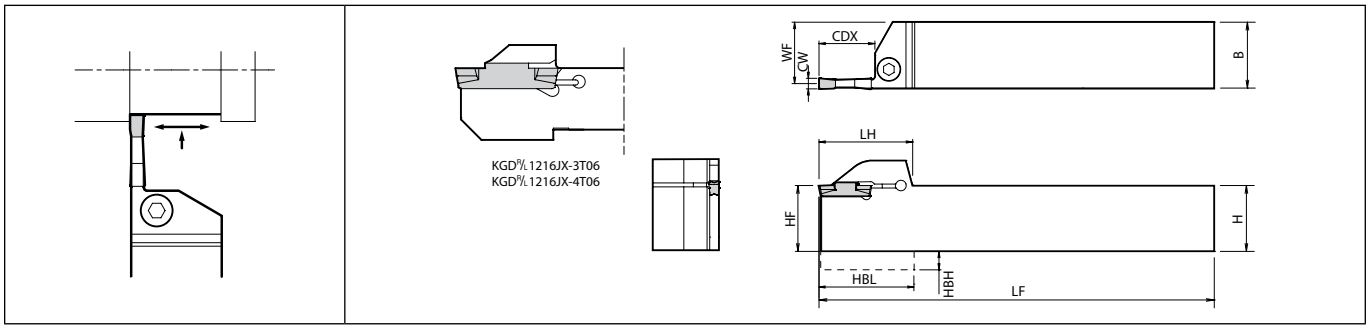
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CDX	H	B	LH	HF	HBH	HBL	LF	WF	CW min.	CW max.	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Inserts G40~G43
Inch	KGD□□ 12-2T17	●	●	0.669	0.75	0.75	1.28	0.75	-	-	4.92	0.71	0.079" (2mm)	0.118" (3mm)	HH5X16	LW-4	GD..2020..., GD..2220... GD..2420..., GD..2520... GD..3020...
	16-2T17	●	●	0.669	1.00	1.00	1.28	1.00			5.90	0.96			HH5X25		
	KGD□□ 12-3T10	●	●	0.393	0.75	0.75	1.20	0.75	-	-	4.92	0.70	0.118" (3mm)	0.157" (4mm)	HH5X16	LW-4	GD..3020... GD..3520... GD..4020...
	12-3T20	●	●	0.787			1.35										
	12-3T254	●	●	1.000			1.52										
	16-3T10	●	●	0.393	1.00	1.00	1.20	1.00	-	-	5.90	0.95			HH5X25		
	16-3T20	●	●	0.787			1.39										
	16-3T254	●	●	1.000			1.52										
	KGD□□ 12-4T10	●	●	0.393	0.75	0.75	1.20	0.75	-	-	4.92	0.68	0.157" (4mm)	0.197" (5mm)	HH5X16	LW-4	GD..4020... GD..5020...
	12-4T20	●	●	0.787			1.35										
	16-4T10	●	●	0.393	1.00	1.00	1.20	1.00	-	-	5.90	0.93			HH5X25		
	16-4T20	●	●	0.787			1.39										
	16-4T25	●	●	0.984			1.59										
	KGD□□ 12-5T10	●	●	0.393	0.75	0.75	1.20	0.75	-	-	4.92	0.66	0.197" (5mm)	0.236" (6mm)	HH5X16	LW-4	GD..5020... GD..6020...
	12-5T17	●	●	0.669			1.47										
	16-5T10	●	●	0.393	1.00	1.00	1.20	1.00	-	-	5.90	0.91			HH5X25		
	16-5T17	●	●	0.669			1.47										
	16-5T25	●	●	0.984			1.59										
	KGD□□ 16-6T15	●	●	0.591	1.00	1.00	1.28	1.00	-	-	5.90	0.89	0.236" (6mm)	0.236" (6mm)	HH5X25	LW-4	GD..6020...
	16-6T30	●	●	1.181	1.00	1.00	1.79	1.00									
	KGD□□ 16-8T25	●	●	0.984	1.00	1.00	1.65	1.00	0.26	1.69	5.90	0.88	0.315" (8mm)	0.315" (8mm)	HH6X25	LW-5	GD..8030...

CDX : Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm.)
Recommended tightening torque of clamp bolt : 6.5N·m (HH5X○○), 8.0N·m (HH6X25), 2.5N·m (SE-50125TR)
Above toolholders are applicable to Cut-off, too.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD (External Grooving)



Right-hand shown

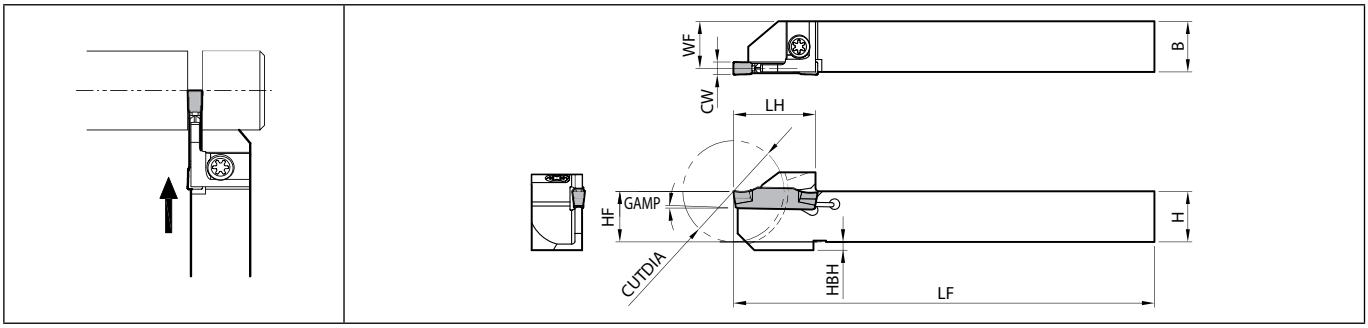
Toolholder Dimensions

Unit	Part Number		Std. Item		Dimensions										Spare Parts				Applicable Inserts ➡ G40~G43
															Clamp Screw	Screw	Wrench	Wrench	
			R	L	CDX	H	B	LH	HF	HBH	HBL	LF	WF	CW min.	CW max.					
mm	KGD□/L	1616H-2T06	●	●	6	16	16	27.7	16	4	28	100	15.2	2	3	HH5X16	-	LW-4	-	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
		1616H-2T10	●	●	10			30.2			30.5									
		1616H-2T17	●	●	17			31.2			31.5									
		2012K-2T17	●	●	17	20	12	32.5	20	-	-	125	11.2							
		2020K-2T06	●	●	6		20	28					19.2							
		2020K-2T10	●	●	10			30.5												
		2020K-2T17	●	●	17			32.5												
		2525M-2T06	●	●	6	25	25	28	25			150	24.2			HH5X25				
		2525M-2T10	●	●	10			30.5												
		2525M-2T17	●	●	17			32.5												
	KGD□/L	2012K-2.4T17	●	●	17	20	12	32.5	20	-	-	125	11	2.4	3	HH5X16	-	LW-4	-	GD..2420... , GD..2520... GD..3020...
		2020K-2.4T17	●	●	17		20						19							
	KGD□/L	1216JX-3T06	●	●	6	12	16	19.5	12	2	19	120	14.8	3	4	-	SE-50125TR	-	LTW-20	GD..3020... GD..3520... GD..4020...
		1616H-3T06	●	●	6	16		27.7	16	4	28	100				HH5X16	-	LW-4	-	
		1616H-3T10	●	●	10			30.2			30.5									
		1616H-3T20	●	●	20			34.2			34.5									
		2012K-3T20	●	●	20	20	12	34.5	20	-	-	125	10.8							
		2020K-3T06	●	●	6		20	28					18.8							
		2020K-3T10	●	●	10			30.5												
		2020K-3T20	●	●	20			34.5												
		2525M-3T06	●	●	6	25	25	28	25			150	23.8			HH5X25				
		2525M-3T10	●	●	10			30.5												
		2525M-3T20	●	●	20			35.5												
	KGD□/L	1216JX-4T06	●	●	6	12	16	19.5	12	2	19	120	14.3	4	5	-	SE-50125TR	-	LTW-20	GD..4020... GD..5020...
		2020K-4T10	●	●	10	20	20	30.5	20	-	-	125	18.3			HH5X16	-	LW-4	-	
		2020K-4T20	●	●	20			34.5												
		2525M-4T10	●	●	10	25	25	30.5	25			150	23.3			HH5X25				
		2525M-4T20	●	●	20			35.5												
		2525M-4T25	●	●	25			40.5												
	KGD□/L	2020K-5T10	●	●	10	20	20	30.5	20	-	-	125	17.8	5	6	HH5X16	-	LW-4	-	GD..5020... GD..6020...
		2020K-5T17	●	●	17			37.5								HH5X25				
		2525M-5T10	●	●	10	25	25	30.5	25			150	22.8							
		2525M-5T17	●	●	17			37.5												
		2525M-5T25	●	●	25			40.5												
	KGD□/L	2525M-6T15	●	●	15	25	25	32.5	25	-	-	150	22.4	6	6	HH5X25	-	LW-4	-	GD..6020...
		2525M-6T30	●	●	30			45.5												
	KGD□/L	2525M-8T25	●	●	25	25	25	43.3	25	7	44.2	150	22	8	8	HH6X25	-	LW-5	-	GD..8030...
		3232P-8T25	●	●	25	32	32		32	-	-	170	29							

CDX : Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm.)
Recommended tightening torque of clamp bolt : 6.5N·m (HH5X○○), 8.0N·m (HH6X25), 2.5N·m (SE-50125TR)
Above toolholders are applicable to Cut-off, too.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD (External Grooving, for Small Parts)



Right-hand shown

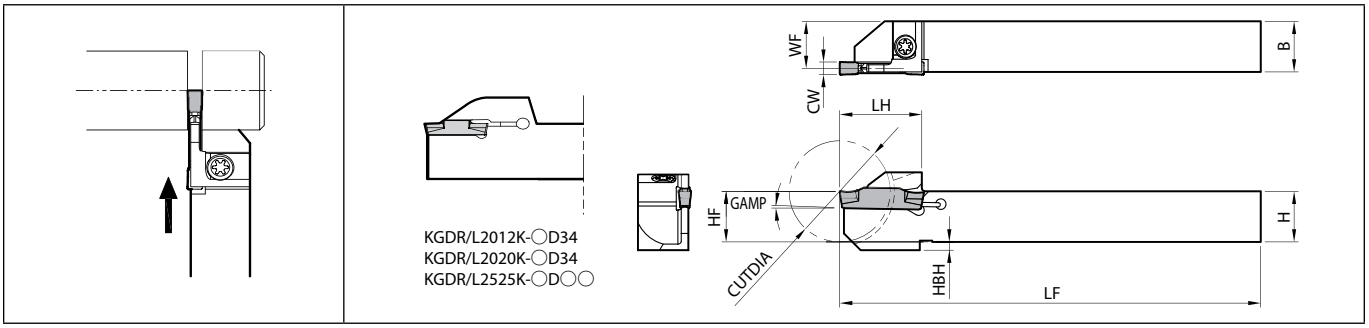
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Angle (°) GAMP	Screw	Screw	Wrench	Applicable Inserts G40~G43
Inch	KGDR/L 6-2JX	●	●	0.787	0.375	0.375	0.709	0.375	0.098	4.75	0.342	0.079" (2mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GD..2020..., GD..2220... GD..2420..., GD..2520... GD..3020...
	8-2JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051		0.467							
	10-2JX	●	●	1.259	0.625	0.625	0.965	0.625	-		0.592							
	KGDR/L 6-2.4JX	●	●	0.787	0.375	0.375	0.709	0.375	0.098	4.75	0.336	0.094" (2.4mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GD..2420... GD..2520... GD..3020...
	8-2.4JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051		0.461							
	10-2.4JX	●	●	1.259	0.625	0.625	0.965	0.625	-		0.586							
	KGDR/L 8-3JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051	4.75	0.453	0.118" (3mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GD..3020...
	10-3JX	●	●	1.259	0.625	0.625	0.965	0.625	-	4.75	0.578	0.118" (3mm)	0.157" (4mm)	1	SB-40120TR	-	LTW-15S	GD..3020..., GD..3520... GD..4020...
	KGDR/L 10-3D38JX	●	●	1.496	0.625	0.625	1.142	0.625	-	4.75	0.578	0.118" (3mm)	0.157" (4mm)	1	-	SE-50125TR	LTW-20	GD..3020..., GD..3520... GD..4020...
	12-3D42JX	●	●	1.653	0.750	0.750	1.220	0.750	-		0.703							
	43-3D42JX	●	●	1.653	0.750	0.500	1.220	0.750	-		0.453							

0.157" (4mm) width insert cannot be installed in KGDR/L 1212JX-3
Recommended tightening torque of clamp screw : 2.0N·m (SB-40120TR), 2.5N·m (SE-50125TR)
When machining material greater than Ø1.417" (36mm) with KGDR/L ...-3D38, KGDR/L ...-3D42 and KGDR/L ...-3D51 toolholders, please use 1-edge inserts.
Maximum cutting diameter for 2-edge inserts is Ø1.417" (36mm).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD (External Grooving, for Small Parts)



Right-hand shown

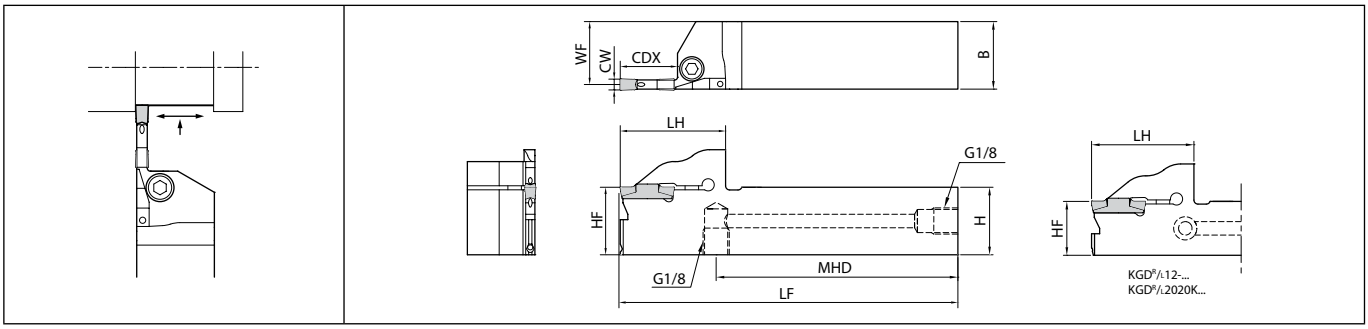
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Angle (°) GAMP	Spare Parts: Clamp Screw	Spare Parts: Screw	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts ➡ G40~G43
mm	KGD□ 1010JX-2	●	●	20	10	10	18	10	2	120	9.2	2	3	1	-	SB-40120TR	-	-	LTW-15S	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	1212F-2	●	●	24	12	12	19.5	12	2	85	11.2	2	3	1	-	SB-40120TR	-	-	LTW-15S	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	1212JX-2	●	●	24	12	12	19.5	12	2	120	11.2	2	3	1	-	SB-40120TR	-	-	LTW-15S	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	1616JX-2	●	●	32	16	16	24.5	16	-	120	15.2	2	3	1	-	SB-40120TR	-	-	LTW-15S	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	2012K-2D34	●	●	34	20	12	32.5	20	-	125	11.2	2	3	0	HH5X16	-	-	LW-4	-	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	2020K-2D34	●	●	34	20	20	32.5	20	-	125	19.2	2	3	0	HH5X16	-	-	LW-4	-	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	KGD□ 1010JX-2.4	●	●	20	10	10	18	10	2	120	9	2.4	3	1	-	SB-40120TR	-	-	LTW-15S	GD..2420... GD..2520... GD..3020...
	1212F-2.4	●	●	24	12	12	19.5	12	2	85	11	2.4	3	1	-	SB-40120TR	-	-	LTW-15S	GD..2420... GD..2520... GD..3020...
	1212JX-2.4	●	●	24	12	12	19.5	12	2	120	11	2.4	3	1	-	SB-40120TR	-	-	LTW-15S	GD..2420... GD..2520... GD..3020...
	1616JX-2.4	●	●	32	16	16	24.5	16	-	120	15	2.4	3	1	-	SB-40120TR	-	-	LTW-15S	GD..2420... GD..2520... GD..3020...
	2012K-2.4D34	●	●	34	20	12	32.5	20	-	125	11	2.4	3	0	HH5X16	-	-	LW-4	-	GD..2420... GD..2520... GD..3020...
	2020K-2.4D34	●	●	34	20	20	32.5	20	-	125	19	2.4	3	0	HH5X16	-	-	LW-4	-	GD..2420... GD..2520... GD..3020...
	KGD□ 1212JX-3	●	●	24	12	12	19.5	12	2	120	10.8	3	3	1	-	SB-40120TR	-	-	LTW-15S	GD..3020...
	KGD□ 1616JX-3	●	●	32	16	16	24.5	16	-	120	14.8	3	4	1	-	SB-40120TR	-	-	LTW-15S	GD..3020... GD..3520... GD..4020...
	1616JX-3D38	●	●	38	19	16	29	19	-	120	14.8	3	4	1	-	-	SE-50125TR	-	LTW-20	GD..3020... GD..3520... GD..4020...
	1913K-3D38	●	●	38	19	13	29	19	-	125	11.8	3	4	1	-	-	SE-50125TR	-	LTW-20	GD..3020... GD..3520... GD..4020...
	2012JX-3D42	●	●	42	20	12	31	20	-	120	10.8	3	4	1	-	-	SE-50125TR	-	LTW-20	GD..3020... GD..3520... GD..4020...
	2012JX-3D51	●	●	51	20	12	36	20	-	120	10.8	3	4	1	-	-	SE-50125TR	-	LTW-20	GD..3020... GD..3520... GD..4020...
	2020JX-3D42	●	●	42	20	20	31	20	-	120	18.8	3	4	1	-	-	SE-50125TR	-	LTW-20	GD..3020... GD..3520... GD..4020...
	2020JX-3D51	●	●	51	20	20	36	20	-	120	18.8	3	4	1	-	-	SE-50125TR	-	LTW-20	GD..3020... GD..3520... GD..4020...

0.157" (4mm) width insert cannot be installed in KGD□ 1212JX-3
Recommended tightening torque of clamp screw : 2.0N·m (SB-40120TR), 2.5N·m (SE-50125TR)
When machining material greater than Ø1.417" (36mm) with KGD□ ...-3D38, KGD□ ...-3D42 and KGD□ ...-3D51 toolholders, please use 1-edge inserts.
Maximum cutting diameter for 2-edge inserts is Ø1.417" (36mm).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD-JCT (External Grooving, Coolant-Through Toolholder)



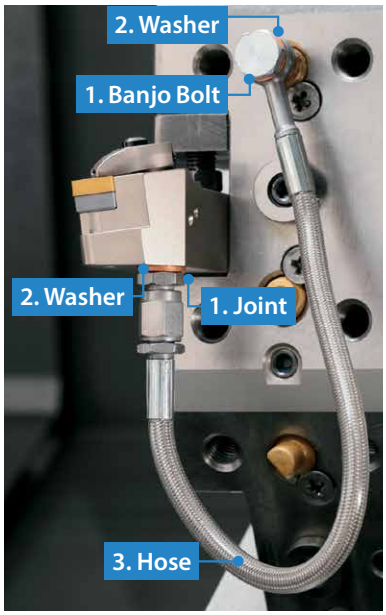
Right-hand shown | Pressure Resistance : ~2,175 psi

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CDX	H	B	LH	MHD	HF	LF	WF	CW min.	CW max.	Coolant Hole	Spare Parts: Clamp Screw	Spare Parts: Plug	Spare Parts: Wrench	Applicable Inserts G40~G43
Inch	KGD® 12-3T20JCT	●	●	0.787	0.750	0.750	1.496	3.590	0.750	5.000	0.702	0.118" (3mm)	0.157" (4mm)	Yes	HH5X16	HSG1/8X8.0	LW-4	GD..3020..., GD..3520...
	16-3T20JCT	●	●		1.000	1.000	1.535	3.551	1.000		0.952				HH5X25			GD..4020...
	KGD® 12-4T20JCT	●		0.787	0.750	0.750	1.496	3.590	0.750	5.000	0.683	0.157" (4mm)	0.197" (5mm)	Yes	HH5X16	HSG1/8X8.0	LW-4	GD..4020...
	16-4T20JCT	●	●		1.000	1.000	1.535	3.551	1.000		0.933				HH5X25			GD..5020...
	KGD® 16-4T25.4JCT	●	●	1.000	1.000	1.000	1.732	3.354	1.000	5.000	0.933				HH5X25			
mm	KGD® 2020K-3T06JCT	●	●	6	20	20	31.5	96.2	20	125	18.8	3	4	Yes	HH5X16	HSG1/8X8.0	LW-4	GD..3020...
	2525K-3T06JCT	●	●		25	25		96.5	25		23.8				HH5X25			GD..3520...
	KGD® 2020K-3T10JCT	●	●	10	20	20	34	94.2	20	125	18.8	3	4	Yes	HH5X16	HSG1/8X8.0	LW-4	GD..4020...
	2525K-3T10JCT	●	●		25	25		94.5	25		23.8				HH5X25			
	KGD® 2020K-3T20JCT	●	●	20	20	20	38	90.2	20	125	18.8	3	4	Yes	HH5X16	HSG1/8X8.0	LW-4	
	2525K-3T20JCT	●	●		25	25	39	89.5	25		23.8				HH5X25			
	KGD® 2020K-4T10JCT	●	●	10	20	20	34	94.2	20	125	18.3	4	5	Yes	HH5X16	HSG1/8X8.0	LW-4	GD..4020...
	2525K-4T10JCT	●	●		25	25		94.5	25		23.3				HH5X25			GD..5020...
	KGD® 2020K-4T20JCT	●	●	20	20	20	38	90.2	20	125	18.3	4	5	Yes	HH5X16	HSG1/8X8.0	LW-4	
	2525K-4T20JCT	●	●		25	25	39	89.5	25		23.3				HH5X25			
	KGD® 2525K-4T25JCT	●	●	25	25	25	44	84.5	25	125	23.3	4	5	Yes	HH5X25	HSG1/8X8.0	LW-4	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

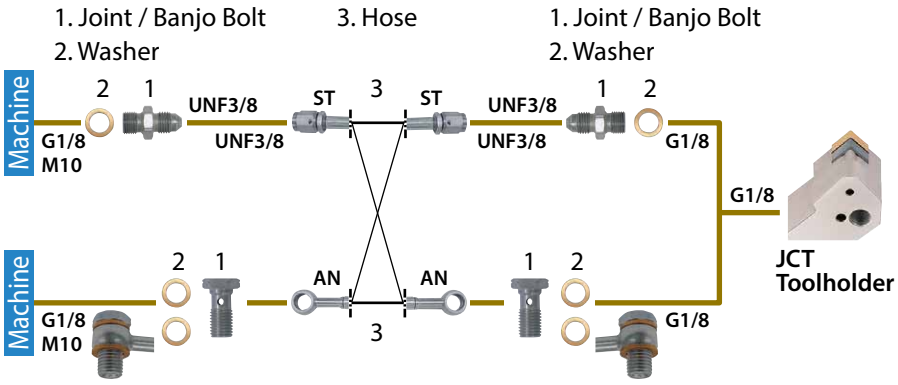
Easy Connection with High Pressure Hose and Joint



· Even without a high pressure pump, internal coolant can be used at a normal pressure

· Banjo bolt available for angled hose connection and can be used in a variety of machines

Piping Installation Guide



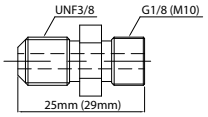
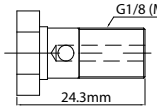
Piping Parts

Optional Piping Parts Available
Choose from parts below to match your machine specifications

1. Joint / Banjo bolt × 2
2. Washer × 2-4
3. Hose × 1

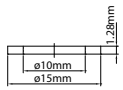
1. Joint / Banjo Bolt

Pressure Resistance: up to 4,350 psi

Shape		Part Number	Std. Item	Thread Standard
		J-G1/8-UNF3/8	●	G1/8
		J-M10X1.5-UNF3/8	●	M10X1.5
Banjo Bolt (for Angle Hose)		BB-G1/8	●	G1/8
		BB-M10X1.5	●	M10X1.5

2. Washer

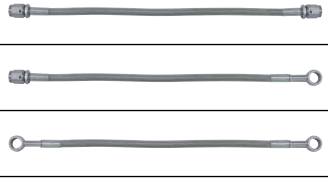
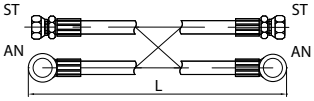
Pressure Resistance: up to 4,350 psi

Shape		Part Number	Std. Item
		WS-10	●

* Use 2 washers for a banjo bolt

3. Hose

Pressure Resistance: up to 4,350 psi

Shape		Part Number	Std. Item	Thread Standard		Dimensions (mm) L
		HS-ST-ST-200	●	UNF3/8	UNF3/8	200
		HS-ST-ST-250	●			250
		HS-ST-AN-200	●	UNF3/8	- (Banjo Bolt)	200
		HS-ST-AN-250	●			250
		HS-AN-AN-200	●	- (Banjo Bolt)	- (Banjo Bolt)	200
		HS-AN-AN-250	●			250

Precautions

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure. Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are the same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

JCTM Series

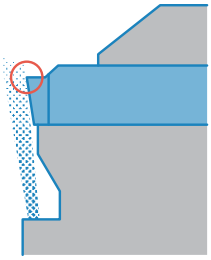
Direct Coolant Holders for Small Parts Machining

Cut-off holders for high pressure coolant with long tool life
Optimized coolant hole position effectively cools the cutting edge

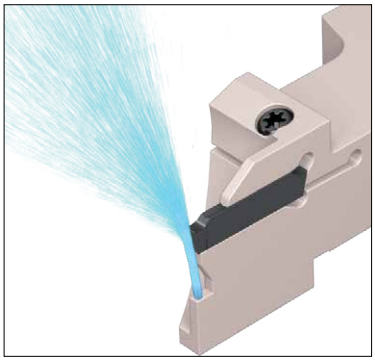
1 Optimized coolant hole position

2 Discharges coolant towards the flank face of the inserts

KGD-JCTM
Cooling the cutting edge leads to longer tool life



Competitor C
Coolant does not flow directly toward the cutting edge



Supports Internal Coolant with or without Piping Systems

Internal Coolant without Piping

***When the tool plate supports direct coolant**

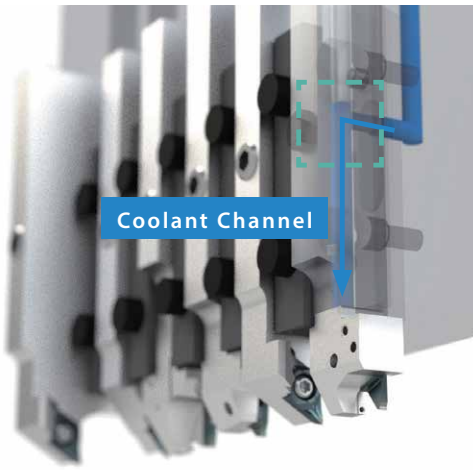
Coolant is supplied directly from the tool plate into the holder without the need to install piping

Applicable to Wide Range of Machines

CITIZEN MACHINERY CO., LTD. (L20, D25, M32)
STAR MICRONICS CO., LTD. (SB-R series, SR series, SV series)
TSUGAMI CORPORATION (S205/206-Ⅱ □16 type, S205A/206A-Ⅱ □16 type)

(Random order)
Based on Kyocera Survey in January 2021

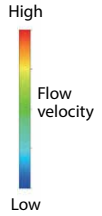
Compatible with various machine including the above.Toolholders can be customized as well.

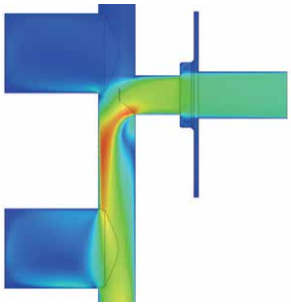


Optimized Coolant Supply

Supply hole designed to reduce energy loss based on extensive flow analysis

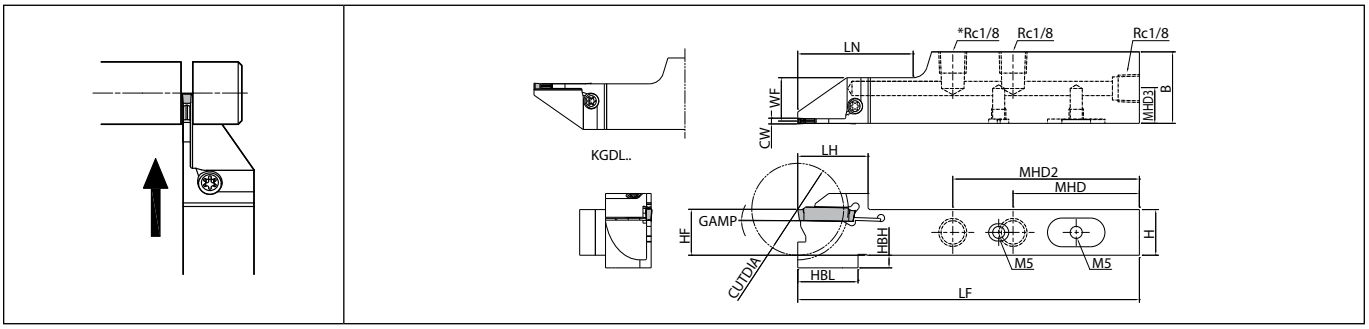
Analysis Image
(Internal Evaluation)





800.823.7284
www.kyocera precisiontools.com

KGD-JCTM (External Grooving, Coolant-Through Toolholder)



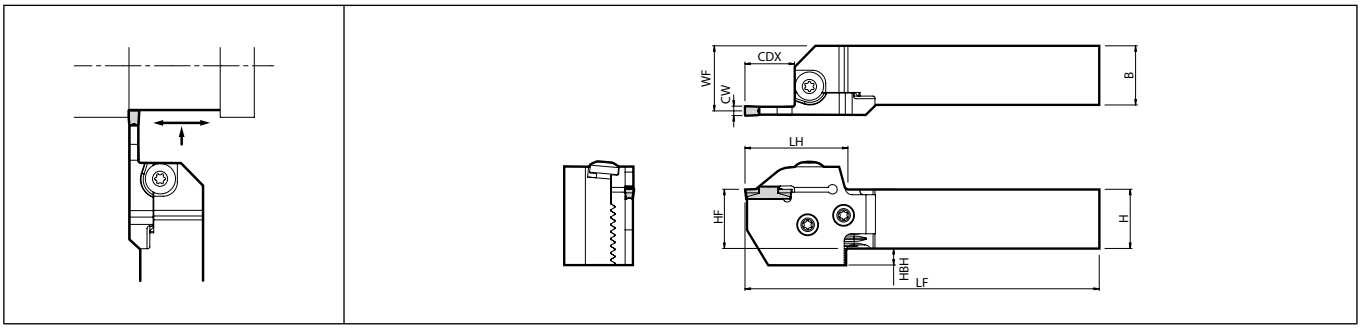
Right-hand shown | KGDR/L 5.72...-JCTM, KGDR/L 12...-JCTM : 2-Rc1/8

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions															Angle (°)	Coolant Hole	Spare Parts				Applicable Inserts ➡ G40~G43
																					Plug	Plug	Screw	Wrench	
		R	L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.	CW max.	GAMP						
Inch	KGDR 5.72-2JCTM	●		0.945	0.500	0.709	0.770	2.125	-	0.331	0.500	0.330	0.825	4.750	1.725	0.500	0.079" (2mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	KGDL 5.72-2JCTM		●							0.303			0.843												
	KGDR 82.5-2JCTM	●		1.260	0.625	1.000	0.965	1.730	2.560	0.480	0.625	0.175	0.825		1.585	0.625									
	KGDL 82.5-2JCTM		●							0.303															
	KGDR 5.72-2.4JCTM	●		0.945	0.500	0.709	0.770	2.125	-	0.331	0.500	0.330	0.825	4.750	1.725	0.500	0.094" (2.4mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GD..2420... GD..2520... GD..3020...
	KGDL 5.72-2.4JCTM		●							0.303			0.843												
	KGDR 82.5-2.4JCTM	●		1.260	0.625	1.000	0.965	1.730	2.560	0.480	0.625	0.175	0.825		1.585	0.625									
	KGDL 82.5-2.4JCTM		●							0.303															
	KGDR 5.72-3JCTM	●		0.945	0.500	0.709	0.770	2.125	-	0.331	0.500	0.330	0.825	4.750	1.725	0.500	0.118" (3mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GD..3020... GD..3520... GD..4020...
	KGDL 5.72-3JCTM		●							0.303			0.843												
	KGDR 82.5-3JCTM	●		1.260	0.625	1.000	0.965	1.730	2.560	0.480	0.625	0.175	0.825		1.585	0.625	0.118" (3mm)	0.157" (4mm)							
	KGDL 82.5-3JCTM		●							0.303															
mm	KGDR 1218JX-2JCTM	●		24	12	18	19.5	54	-	8.4	12	8.5	21	120	44	11.2	0.079" (2mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	KGDL 1218JX-2JCTM		●							7.7			21.5												
	KGDR 1625JX-2JCTM	●		32	16	25	24.5	44	65	12.2	16	4.5	21		40	15.2									
	KGDL 1625JX-2JCTM		●							7.7															
	KGDR 1218JX-2.4JCTM	●		24	12	18	19.5	54	-	8.4	12	8.5	21	120	44	11	0.094" (2.4mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GD..2420... GD..2520... GD..3020...
	KGDL 1218JX-2.4JCTM		●							7.7			21.5												
	KGDR 1625JX-2.4JCTM	●		32	16	25	24.5	44	65	12.2	16	4.5	21		40	15									
	KGDL 1625JX-2.4JCTM		●							7.7															
	KGDR 1218JX-3JCTM	●		24	12	18	19.5	54	-	8.6	12	8.5	21	120	44	10.8	0.118" (3mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GD..3020... GD..3520... GD..4020...
	KGDL 1218JX-3JCTM		●							7.7			21.5												
	KGDR 1625JX-3JCTM	●		32	16	25	24.5	44	65	12.2	16	4.5	21		40	14.8	0.118" (3mm)	0.157" (4mm)							
	KGDL 1625JX-3JCTM		●							7.7															

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD-S (External Grooving / 0° SwitchBlade Type)



Right-hand shown (Right-hand blade and right-hand toolholder)

Toolholder Dimensions (Blade and Toolholder)

Unit	Shank Angle	Width (in)	Max. Depth of Cut (in)	Shank Size (in)	Unit Part Number	Std. Item R	Std. Item L	Blade Part Number G56	Toolholder Part Number G56	Dimensions CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
Inch	0°	0.079" (2mm)	0.669" (17mm)	□0.75	KGD□/L 12X-2T17S	●	●	KGD□/L-2T17-C	KGD□/L 12-C	0.669	0.75	0.75	1.57	0.75	0.472	4.80	0.88	0.079" (2mm)	0.118" (3mm)	BH6X10TR	SB-60120TR	LTW-25
				□1.00	16X-2T17S	●	●		KGD□/L 16-C		1.00	1.00	1.57	1.00	0.276	5.78	1.13					
				□1.25	No Unit Part Number ⇨				KGD□/L 20-C		1.25	1.25	1.57	1.25	-	6.58	1.38					
		0.118" (3mm)	0.394" (10mm)	□0.75	KGD□/L 12X-3T10S	●	●	KGD□/L-3T10-C	KGD□/L 12-C	0.394	0.75	0.75	1.29	0.75	0.472	4.52	0.86	0.118" (3mm)	0.157" (4mm)			
				□1.00	16X-3T10S	●	●		KGD□/L 16-C		1.00	1.00	1.29	1.00	0.276	5.51	1.11					
				□1.25	No Unit Part Number ⇨				KGD□/L 20-C		1.25	1.25	1.29	1.25	-	6.30	1.37					
			0.787" (20mm)	□0.75	KGD□/L 12X-3T20S	●	●	KGD□/L-3T20-C	KGD□/L 12-C	0.787	0.75	0.75	1.68	0.75	0.472	4.92	0.86					
				□1.00	16X-3T20S	●	●		KGD□/L 16-C		1.00	1.00	1.68	1.00	0.276	5.90	1.11					
				□1.25	No Unit Part Number ⇨				KGD□/L 20-C		1.25	1.25	1.68	1.25	-	6.70	1.37					
		0.157" (4mm)	0.394" (10mm)	□0.75	KGD□/L 12X-4T10S	●	●	KGD□/L-4T10-C	KGD□/L 12-C	0.394	0.75	0.75	1.29	0.75	0.472	4.52	0.84	0.157" (4mm)	0.197" (5mm)			
				□1.00	16X-4T10S	●	●		KGD□/L 16-C		1.00	1.00	1.29	1.00	0.276	5.51	1.09					
				□1.25	No Unit Part Number ⇨				KGD□/L 20-C		1.25	1.25	1.29	1.25	-	6.30	1.35					
			0.787" (20mm)	□0.75	KGD□/L 12X-4T20S	●	●	KGD□/L-4T20-C	KGD□/L 12-C	0.787	0.75	0.75	1.68	0.75	0.472	4.92	0.84					
				□1.00	16X-4T20S	●	●		KGD□/L 16-C		1.00	1.00	1.68	1.00	0.276	5.90	1.09					
				□1.25	No Unit Part Number ⇨				KGD□/L 20-C		1.25	1.25	1.68	1.25	-	6.70	1.35					
			0.984" (25mm)	□0.75	KGD□/L 12X-4T25S	●	●	KGD□/L-4T25-C	KGD□/L 12-C	0.984	0.75	0.75	1.88	0.75	0.472	5.11	0.84					
				□1.00	16X-4T25S	●	●		KGD□/L 16-C		1.00	1.00	1.88	1.00	0.276	6.10	1.09					
				□1.25	No Unit Part Number ⇨				KGD□/L 20-C		1.25	1.25	1.88	1.25	-	6.89	1.35					
		0.197" (5mm)	0.394" (10mm)	□0.75	KGD□/L 12X-5T10S	●	●	KGD□/L-5T10-C	KGD□/L 12-C	0.394	0.75	0.75	1.29	0.75	0.472	4.52	0.82	0.197" (5mm)	0.236" (6mm)			
				□1.00	16X-5T10S	●	●		KGD□/L 16-C		1.00	1.00	1.29	1.00	0.276	5.51	1.07					
				□1.25	No Unit Part Number ⇨				KGD□/L 20-C		1.25	1.25	1.29	1.25	-	6.30	1.33					
			0.984" (25mm)	□0.75	KGD□/L 12X-5T25S	●	●	KGD□/L-5T25-C	KGD□/L 12-C	0.984	0.75	0.75	1.89	0.75	0.472	5.12	0.83					
				□1.00	16X-5T25S	●	●		KGD□/L 16-C		1.00	1.00	1.88	1.00	0.276	6.10	1.07					
				□1.25	No Unit Part Number ⇨				KGD□/L 20-C		1.25	1.25	1.88	1.25	-	6.89	1.33					

1. When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
2. The toolholder and blade descriptions are printed on the toolholder body. (Unit Part Number is not printed.)
   KGD-S: Right-hand blade for right-hand toolholder, left-hand blade for left-hand toolholder.
   The toolholder is applicable for all blade with suitable hand.
3. If the unit description is not listed ("No Unit Part Number"), please purchase toolholder and blade separately.
4. CDX: Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm.)
   Above toolholders are applicable to Cut-off, too.

Choose an insert with a width that falls within the CW min. and CW max. parameters shown in table above.
Applicable Inserts G40~G43

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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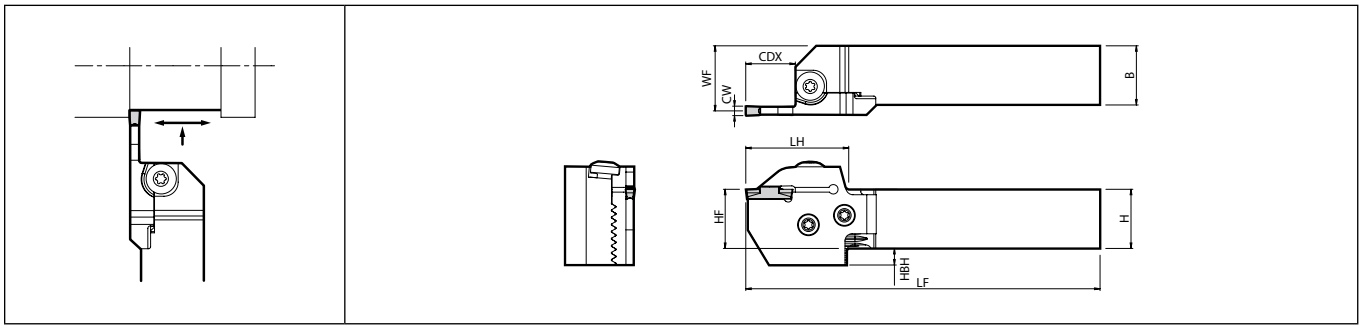
KGD-S (External Grooving / 0° SwitchBlade Type)



Right-hand shown (Right-hand blade and right-hand toolholder)

Toolholder Dimensions (Blade and Toolholder)

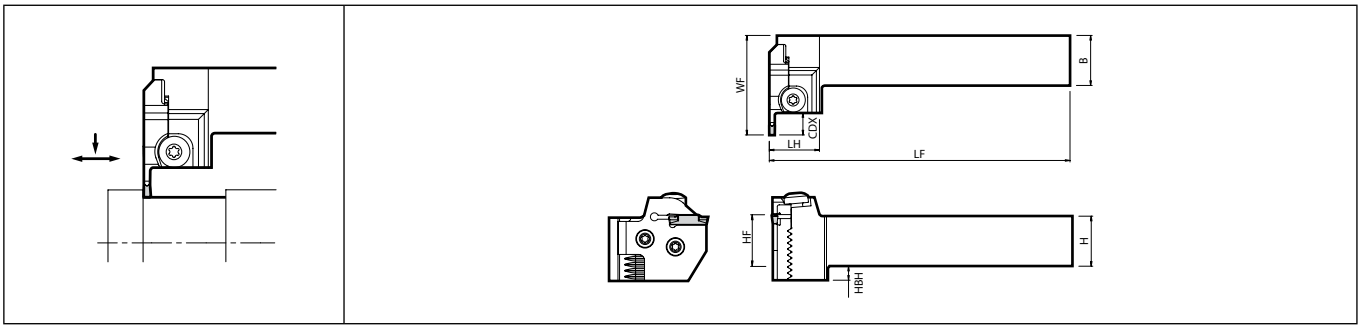
Unit	Shank Angle	Width (mm)	Max. Depth of Cut (mm)	Shank Size (mm)	Unit Part Number	Std. Item R	Std. Item L	Blade Part Number ⇨G56	Toolholder Part Number ⇨G56	Dimensions CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
mm	0°	2	17	□20	KGD□L 2020X-2T17S	●		KGD□L-2T17-C	KGD□L 2020-C	17	20	20	40	20	12	122	23.4	2	3	BH6X10TR	SB-60120TR	LTW-25
				□25	2525X-2T17S	●	●		KGD□L 2525-C		25	25		25	7	147	28.4					
				□32	No Unit Part Number ⇨				KGD□L 3232-C		32	32		32	-	167	35.4					
		3	10	□20	KGDR 2020X-3T10S	●		KGD□L-3T10-C	KGD□L 2020-C	10	20	20	33	20	12	115	23	3	4			
				□25	2525X-3T10S	●			KGD□L 2525-C		25	25		25	7	140	28					
				□32	No Unit Part Number ⇨				KGD□L 3232-C		32	32		32	-	160	35					
			20	□20	KGD□L 2020X-3T20S	●	●	KGD□L-3T20-C	KGD□L 2020-C	20	20	20	43	20	12	125	23					
				□25	2525X-3T20S	●	●		KGD□L 2525-C		25	25		25	7	150	28					
				□32	3232X-3T20S	●			KGD□L 3232-C		32	32		32	-	170	35					
		4	10	□20	KGDR 2020X-4T10S	●		KGD□L-4T10-C	KGD□L 2020-C	10	20	20	33	20	12	115	22.5	4	5			
				□25	2525X-4T10S	●			KGD□L 2525-C		25	25		25	7	140	27.5					
				□32	No Unit Part Number ⇨				KGD□L 3232-C		32	32		32	-	160	34.5					
			20	□20	KGD□L 2020X-4T20S	●		KGD□L-4T20-C	KGD□L 2020-C	20	20	20	43	20	12	125	22.5					
				□25	2525X-4T20S	●	●		KGD□L 2525-C		25	25		25	7	150	27.5					
				□32	3232X-4T20S	●			KGD□L 3232-C		32	32		32	-	170	34.5					
			25	□20	KGD□L 2020X-4T25S	●	●	KGD□L-4T25-C	KGD□L 2020-C	25	20	20	48	20	12	130	22.5					
				□25	2525X-4T25S	●	●		KGD□L 2525-C		25	25		25	7	155	27.5					
				□32	3232X-4T25S	●			KGD□L 3232-C		32	32		32	-	175	34.5					
		5	10	□20	KGD□L 2020X-5T10S	●	●	KGD□L-5T10-C	KGD□L 2020-C	10	20	20	33	20	12	115	22	5	6			
				□25	2525X-5T10S	●			KGD□L 2525-C		25	25		25	7	140	27					
				□32	No Unit Part Number ⇨				KGD□L 3232-C		32	32		32	-	160	34					
			25	□20	No Unit Part Number ⇨			KGD□L-5T25-C	KGD□L 2020-C	25	20	20	48	20	12	130	22					
				□25	KGD□L 2525X-5T25S	●	●		KGD□L 2525-C		25	25		25	7	155	27					
				□32	3232X-5T25S	●			KGD□L 3232-C		32	32		32	-	175	34					

1. When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
2. The toolholder and blade descriptions are printed on the toolholder body. (Unit Part Number is not printed.)
   KGD-S: Right-hand blade for right-hand toolholder, left-hand blade for left-hand toolholder.
   The toolholder is applicable for all blade with suitable hand.
3. If the unit description is not listed ("No Unit Part Number"), please purchase toolholder and blade separately.
4. CDX: Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm.)
   Above toolholders are applicable to Cut-off, too.

Choose an insert with a width that falls within the CW min. and CW max. parameters shown in table above.
Applicable Inserts ⇨G40~G43

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDS-S (External Grooving / 90° SwitchBlade Type)



Right-hand shown (Left-hand blade and right-hand toolholder)

Toolholder Dimensions (Blade and Toolholder)

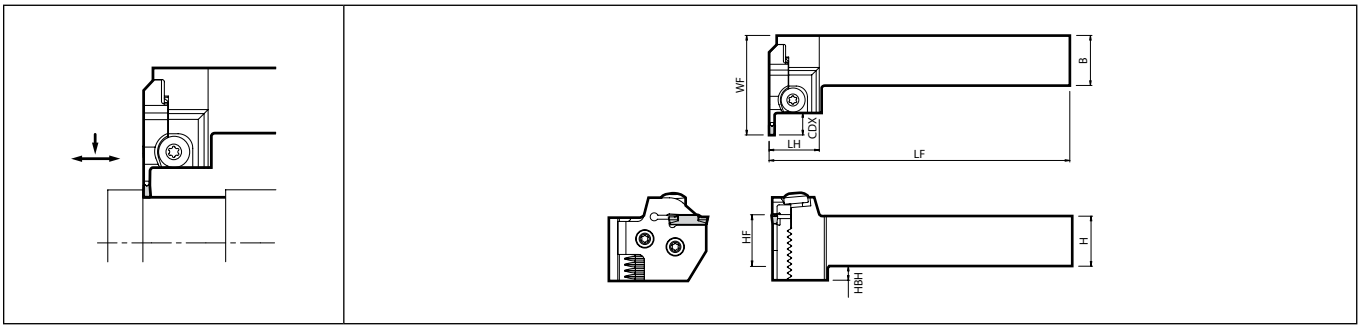
Unit	Shank Angle	Width (in)	Max. Depth of Cut (in)	Shank Size (in)	Unit Part Number	Std. Item R	Std. Item L	Blade Part Number ⇨ G56	Toolholder Part Number ⇨ G56	Dimensions CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
Inch	90°	0.079" (2mm)	0.669" (17mm)	□0.75	No Unit Part Number ⇨			KGD$^{L/R}$-2T17-C	KGDS□ 12-C	0.669	0.75	0.75	1.09	0.75	0.472	4.92	2.19	0.079" (2mm)	0.118" (3mm)	BH6X10TR	SB-60120TR	LTW-25
				□1.00					KGDS□ 16-C		1.00	1.00	1.09	1.00	0.276	5.91	2.25					
		0.118" (3mm)	0.394" (10mm)	□0.75				KGD$^{L/R}$-3T10-C	KGDS□ 12-C	0.394	0.75	0.75	1.09	0.75	0.472	4.92	1.92	0.118" (3mm)	0.157" (4mm)			
				□1.00					KGDS□ 16-C		1.00	1.00	1.09	1.00	0.276	5.91	1.97					
			0.787" (20mm)	□0.75				KGD$^{L/R}$-3T20-C	KGDS□ 12-C	0.787	0.75	0.75	1.09	0.75	0.472	4.92	2.31					
				□1.00					KGDS□ 16-C		1.00	1.00	1.09	1.00	0.276	5.91	2.37					
		0.157" (4mm)	0.394" (10mm)	□0.75				KGD$^{L/R}$-4T10-C	KGDS□ 12-C	0.394	0.75	0.75	1.09	0.75	0.472	4.92	1.92	0.157" (4mm)	0.197" (5mm)			
				□1.00					KGDS□ 16-C		1.00	1.00	1.09	1.00	0.276	5.91	1.97					
			0.787" (20mm)	□0.75				KGD$^{L/R}$-4T20-C	KGDS□ 12-C	0.787	0.75	0.75	1.09	0.75	0.472	4.92	2.31					
				□1.00					KGDS□ 16-C		1.00	1.00	1.09	1.00	0.276	5.91	2.37					
			0.984" (25mm)	□0.75				KGD$^{L/R}$-4T25-C	KGDS□ 12-C	0.984	0.75	0.75	1.09	0.75	0.472	4.92	2.51					
				□1.00					KGDS□ 16-C		1.00	1.00	1.09	1.00	0.276	5.91	2.56					
		0.197" (5mm)	0.394" (10mm)	□0.75				KGD$^{L/R}$-5T10-C	KGDS□ 12-C	0.394	0.75	0.75	1.09	0.75	0.472	4.92	1.92	0.197" (5mm)	0.236" (6mm)			
				□1.00					KGDS□ 16-C		1.00	1.00	1.09	1.00	0.276	5.91	1.97					
			0.984" (25mm)	□0.75				KGD$^{L/R}$-5T25-C	KGDS□ 12-C	0.984	0.75	0.75	1.09	0.75	0.472	4.92	2.51					
				□1.00					KGDS□ 16-C		1.00	1.00	1.09	1.00	0.276	5.91	2.56					

1. When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
2. The toolholder and blade descriptions are printed on the toolholder body. (Unit Part Number is not printed.)
   KGDS-S : Left-hand Blade for Right-hand Toolholder, Right-hand Blade for Left-hand Toolholder.
3. If the unit description is not listed ("No Unit Part Number"), please purchase toolholder and blade separately.
4. CDX: Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm.)

Choose an insert with a width that falls within the CW min. and CW max. parameters shown in table above.
Applicable Inserts ⇨ **G40**~**G43**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDS-S (External Grooving / 90° SwitchBlade Type)



Right-hand shown (Left-hand blade and right-hand toolholder)

Toolholder Dimensions (Blade and Toolholder)

Unit	Shank Angle	Width (mm)	Max. Depth of Cut (mm)	Shank Size (mm)	Unit Part Number	Std. Item R	Std. Item L	Blade Part Number ⇨ G56	Toolholder Part Number ⇨ G56	Dimensions CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
mm	90°	2	17	□20	No Unit Part Number ⇨			KGD$^{L/R}$-2T17-C	KGDS$^{R/L}$ 2020-C	17	20	20	27.7	20	12	125	56.7	2	3	BH6X10TR	SB-60120TR	LTW-25
				□25					KGDS$^{R/L}$ 2525-C		25	25		25	7	150						
		3	10	□20	KGDS$^{R/L}$ 2020X-3T10S	●	●	KGD$^{L/R}$-3T10-C	KGDS$^{R/L}$ 2020-C	10	20	20		20	12	125	49.7	3	4			
				□25	2525X-3T10S	●	●		KGDS$^{R/L}$ 2525-C		25	25		25	7	150						
			20	□20	No Unit Part Number ⇨			KGD$^{L/R}$-3T20-C	KGDS$^{R/L}$ 2020-C	20	20	20		20	12	125	59.7					
				□25					KGDS$^{R/L}$ 2525-C		25	25		25	7	150						
		4	10	□20				KGD$^{L/R}$-4T10-C	KGDS$^{R/L}$ 2020-C	10	20	20		20	12	125	49.7	4	5			
				□25					KGDS$^{R/L}$ 2525-C		25	25		25	7	150						
			20	□20				KGD$^{L/R}$-4T20-C	KGDS$^{R/L}$ 2020-C	20	20	20		20	12	125	59.7					
				□25					KGDS$^{R/L}$ 2525-C		25	25		25	7	150						
			25	□20				KGD$^{L/R}$-4T25-C	KGDS$^{R/L}$ 2020-C	25	20	20		20	12	125	64.7					
				□25					KGDS$^{R/L}$ 2525-C		25	25		25	7	150						
		5	10	□20				KGD$^{L/R}$-5T10-C	KGDS$^{R/L}$ 2020-C	10	20	20		20	12	125	49.7	5	6			
				□25					KGDS$^{R/L}$ 2525-C		25	25		25	7	150						
			25	□20				KGD$^{L/R}$-5T25-C	KGDS$^{R/L}$ 2020-C	25	20	20		20	12	125	64.7					
				□25					KGDS$^{R/L}$ 2525-C		25	25		25	7	150						

1. When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
2. The toolholder and blade descriptions are printed on the toolholder body. (Unit Part Number is not printed.)
   KGDS-S : Left-hand Blade for Right-hand Toolholder, Right-hand Blade for Left-hand Toolholder.
3. If the unit description is not listed ("No Unit Part Number"), please purchase toolholder and blade separately.
4. CDX: Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm.)

Choose an insert with a width that falls within the CW min. and CW max. parameters shown in table above.
Applicable Inserts ⇨ G40~G43

Toolholder identification system

KGD
KGDS

R	2020	X	–	3	T10	S

- R: Toolholder hand — R: Right-hand, L: Left-hand
- 2020: Shank Size — 20 x 20 mm
- X: Toolholder type — Unit Part Number
- 3: Applicable Inserts — GDM / GDMS, 3-4 mm
- T10: Max. Depth of Cut — 10: 10 mm
- S: SwitchBlade Type / unit description

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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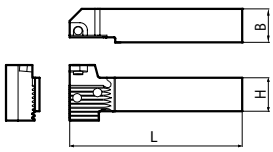
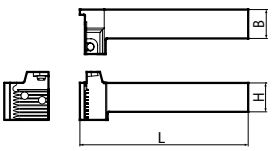
Toolholder Dimensions (Blade and Toolholder)

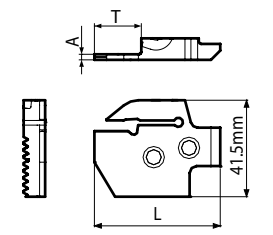
KGD-C (0° SwitchBlade Type)

Drawing of 0° type Right-hand shown	Unit	Toolholder Part Number	Std. Item R	Std. Item L	Dimensions L	Dimensions B	Dimensions H
	Inch	KGD□ 12-C	●	●	4.09	0.75	0.75
		16-C	●	●	5.08	1.00	1.00
		20-C	●	●	5.86	1.25	1.25
	mm	KGD□ 2020-C	●	●	104	20	20
		2525-C	●	●	129	25	25
		3232-C	●	●	149	32	32

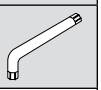
KGDS-C (90° SwitchBlade Type)

Drawing of 90° type Right-hand shown	Unit	Toolholder Part Number	Std. Item R	Std. Item L	Dimensions L	Dimensions B	Dimensions H
	Inch	KGDS□ 12-C	●	●	4.80	0.75	0.75
		16-C	●	●	5.79	1.00	1.00
	mm	KGDS□ 2020-C	●	●	122	20	20
		2525-C	●	●	147	25	25

Blade

Drawing of blade Right-hand shown	Unit	Blade Part Number	Std. Item R	Std. Item L	Dimensions L	Dimensions T	Dimensions A
	mm	KGD□ -2T17-C	●	●	51.2	17.2	1.7
		-3T10-C	●	●	44.2	10.2	2.4
		-3T20-C	●	●	53.2	20.2	
		-4T10-C	●	●	44.2	10.2	3.4
		-4T20-C	●	●	54.2	20.2	
		-4T25-C	●	●	59.2	25.2	
		-5T10-C	●	●	44.2	10.2	4.4
		-5T25-C	●	●	59.2	25.2	

Spare Parts

Unit Part Number	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
			
KGD□ ...S KGDS□ ...S	BH6X10TR	SB-60120TR	LTW-25

* Parts are included with the toolholder and unit.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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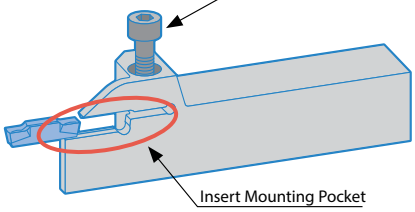
Mounting the Insert

1. Completely eliminate chips from the insert mounting part. (see Fig.1)
2. Put the insert into the toolholder and push until it contacts the holder's surface for fixing the insert's back end. (see Fig.1, Fig.2)
3. Keeping the insert pushed against the toolholder's locating surface, tighten the insert clamp bolt at an appropriate torque.
4. Make sure there is no gap between the insert and the toolholder's locating surface and that the insert is set straight. (see Fig.2, Fig.3)

Fig.1



Clamp Screw (for Automatic Lathe)
Recommended tightening torque : 2.0N・m (SB-40120TR) : 2.5N・m (SE-50125TR)
Clamp Bolt
Recommended tightening torque : 6.5N・m (Width 2 ~ 6mm) : 8.0N・m (Width 8mm)

Fig.2

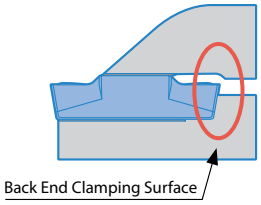
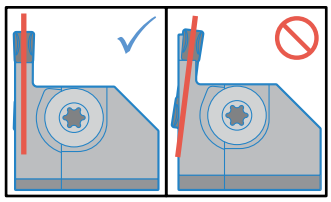


Fig.3



Setting the Blade Into the Toolholder (SwitchBlade Type)

1. Use compressed air or other measures to remove chips and dust from the serrated surface. (See **Fig.1**)
2. Mate and fit the serrations of the blade and toolholder, and also fit the blade end to the toolholder. (See **Fig.2**)
3. Tighten the blade fixing screws at an appropriate torque. You can tighten them in any order. (See **Fig.2**) (Recommended tightening torque : 8Nm)
4. Set the insert after setting the blade.

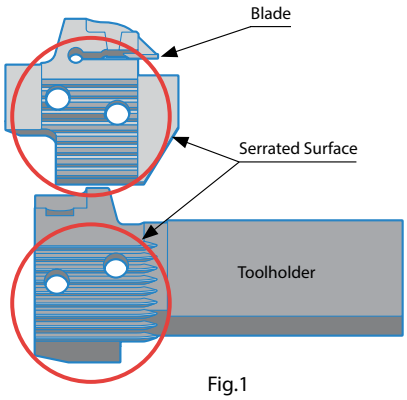
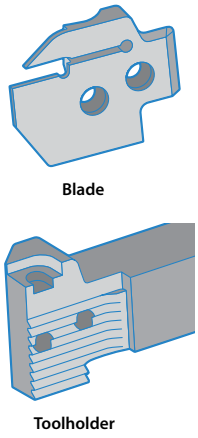


Fig.1



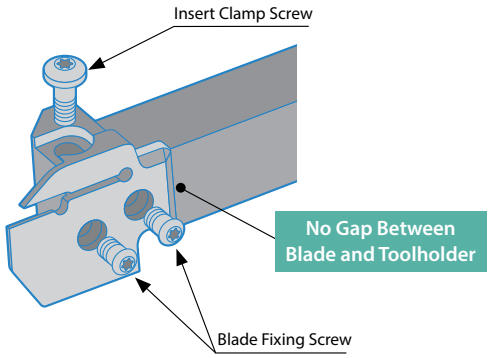
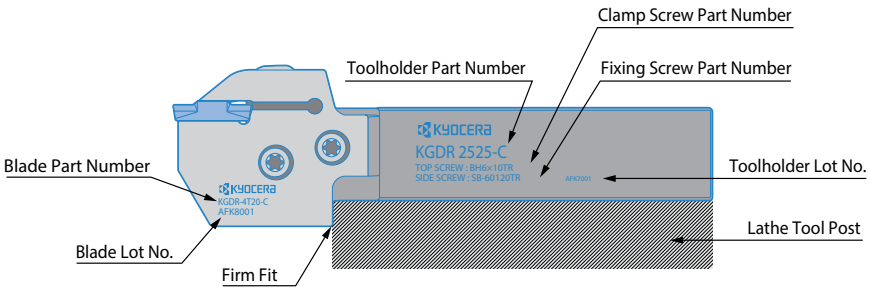


Fig.2

SwitchBlade Toolholder Identification System and Lathe Setting

Firmly fit the lower jaw to the tool post of the lathe.



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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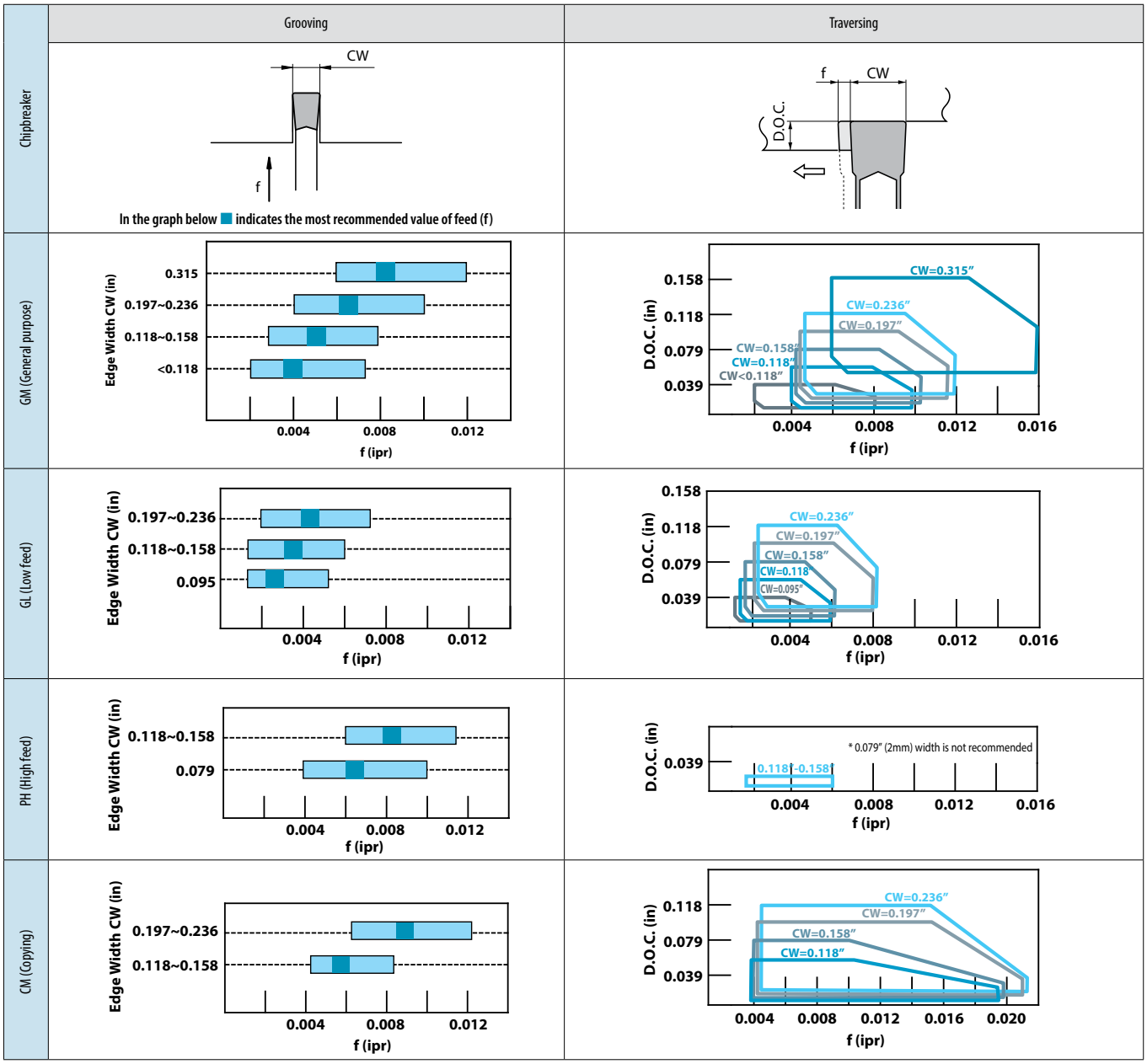
Recommended Cutting Conditions (Cutting Speed Vc)

Workpiece Material	Chipbreaker	Recommended Insert Grades (Vc: sfm)									Notes
		Cermet		MEGACOAT NANO	MEGACOAT		DLC	Carbide	MEGACOAT CBN	CBN	PCD	
		TN620	TN90	PR1535	PR1225	PR1215	PDL025	GW15	KBN05M	KBN570	KPD001	
Carbon Steel	GM GL CM PH GS	☆ 260 - 720	☆ 330 - 720	☆ 260 - 660	★ 260 - 660	☆ 330 - 660	-	-	-	-	-	Coolant
Alloy Steel		☆ 230 - 660	☆ 260 - 660	☆ 230 - 590	★ 230 - 590	☆ 260 - 590	-	-	-	-	-	
Stainless Steel		-	-	★ 200 - 490	☆ 200 - 490	☆ 200 - 490	-	-	-	-	-	
Cast Iron		-	-	-	-	★ 330 - 660	-	-	-	-	-	
Aluminum	GS AM	-	-	-	-	-	★ 660 - 1,640	☆ 660 - 1,480	-	-	★ 490 - 6,560	
Brass	NB	-	-	-	-	-	-	☆ 330 - 660	-	-	★ 660 - 2,620	
Hard Materials	NB	-	-	-	-	-	-	-	★ 260 - 490	-	-	
Powdered Steel		-	-	-	-	-	-	-	-	★ 330 - 820	-	

★:1st recommendation ☆:2nd recommendation

Recommended Cutting Conditions (Feed Rate / D.O.C.)

Workpiece material: 1049



Note 1. The above values reflect a CDX dimension that is 0.669" (17mm) or less.
2. If the toolholder is not for the 0.315" (8mm) width insert and its CDX dimension is over 0.669" (17mm), set the values for traversing to less than 90% of recommended cutting conditions above.

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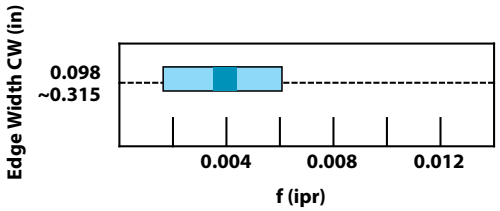
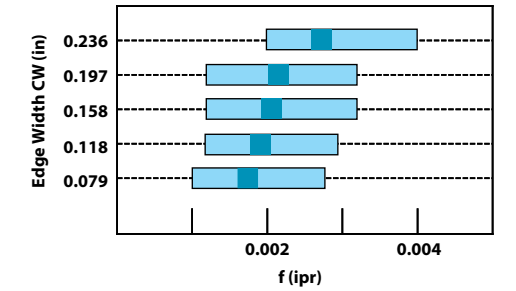
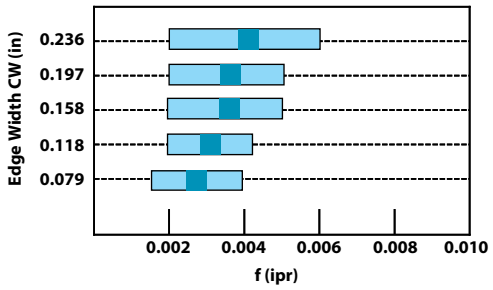
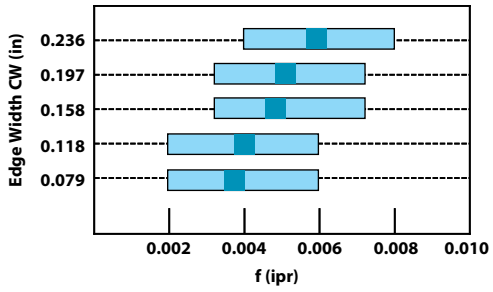
Recommended Cutting Conditions (Feed Rate / D.O.C.)

Workpiece Material: 1049

Chipbreaker	Grooving
GS (Low cutting force)	 When turning: keep ap less than or equal to the corner-R(RE).

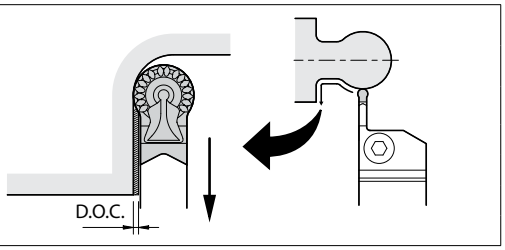
Note 1. The above values reflect a CDX dimension that is 0.669" (17mm) or less.

Workpiece material	Insert grades	Grooving
Hard Materials	KBN05M	
Sintered steel	KBN570	
Non-ferrous metals	KPD001	

CM Chipbreaker [Cutting amount (D.O.C.) for back copying]

Maximum D.O.C. for back copying

Part Number		Maximum D.O.C. (in)				
		Toolholder Part Number				
		KGD…-2T…	KGD…-3T…	KGD…-4T…	KGD…-5T…	KGD…-6T…
GDM	3020N-150R-CM	0.009	0.008	-	-	-
	4020N-200R-CM	-	0.009	0.008	-	-
	5020N-250R-CM	-	-	0.012	0.008	-
	6020N-300R-CM	-	-	-	0.012	0.010



Guide for External Grooving

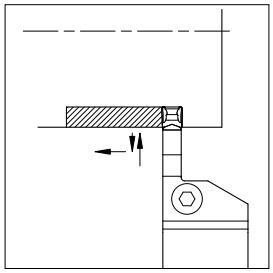
Note 1 - Traversing after Grooving

1. Grooving depths over 0.020" (0.5mm): For roughing - refer to fig. 1
Before traversing, pull the tool back about 0.004" (0.1mm) after grooving, instead of traversing subsequent to grooving.
Failure to pull the tool back before traversing will result in an unbalanced load applied on only one side of the cutting edge.

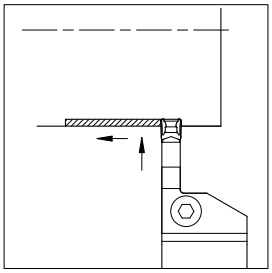
2. Grooving depths under 0.020" (0.5mm): For finishing - refer to fig. 2
Traversing subsequent to grooving is possible because shallow groove depths apply a small load on the cutting edge.
Dwell-motion is not necessary

Note 2

1. When widening the groove width, use "Step Traversing" as shown in Fig.3
2. The widened groove and side walls should be finished last. For better chip control, D.O.C. over 0.020" (0.5mm) is recommended.
Note: If the workpiece is not supported at the center, reduce the feed rate when grooving towards center



Before traversing, pull the tool back about 0.004" (0.1mm) after grooving. Grooving Depth Over 0.020" (0.5mm) : When Roughing



Traversing Subsequent to Grooving. Grooving Depth Under 0.020" (0.5mm) : When Finishing

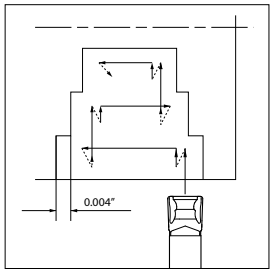
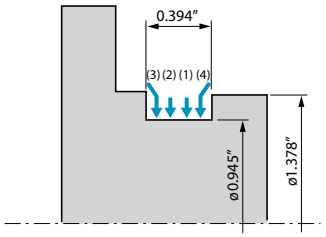


Fig. 3

Case Studies

5120H (Grooving)

Gear
Vc = 370~540 sfm
f = 0.002 ipr
Wet
GDM4020N-040GM
(PR1225)
KGDL2525X-3T10S



GM chipbreaker (PR1225)	1,500 pcs/c
Competitor K (PVD coated carbide)	250 pcs/c

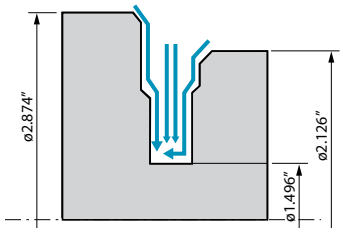
- GM chipbreaker (PR1225) showed 6 times longer tool life than that of Competitor K.
- Good chip control without burned chips.

GM chipbreaker Competitor K

Evaluation by the user

Structural Steel (Grooving / Traversing)

Gear
Vc = 560 sfm
f = 0.006 ipr (Roughing)
0.004 ipr (Finishing)
D.O.C. = 0.008" (Finishing)
Wet
GDM4020N-040GM
(PR1215)
KGDR2525X-4T20S



GM chipbreaker (PR1215)	250 pcs/c
Competitor L (Roughing: PVD coated carbide; Finishing: cermet)	200 pcs/c

- GM chipbreaker reduced occurrence rate of tangle of chips (occurrence rate 80% to 10%). The problem was persistent with Competitor L.
- Machining productivity is improved.

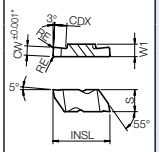
GM Chipbreaker (Finishing)
Smooth chip control

Competitor L (Finishing)
Chips easily tangled

Evaluation by the user

KCGP

Carbon Steel / Alloy Steel	P
Stainless Steel	M
Cast Iron	K
Non-Ferrous Metals	N
Titanium Alloy	S
Hard Materials (~ 40HRC)	H
Hard Materials (40HRC ~)	H

Insert	Part Number	No. of Edges	Dimensions (in) CW in	CW mm	CDX	W1	S	INSL	RE	Tolerance (in) CW min.	CW max.	Carbide PVD PR1625	PVD PR1215	PVD PR930	- KW10	Applicable Toolholder ⇒ G65 G94
2-Edge 	KCGP 2031R	2	0.031	0.79	0.050	0.150	0.219	0.540	0.003	- 0.001	+ 0.001	●	△	△	●	KKCR...-2 A...-KKCL...-2
	2041R		0.041	1.04									●			
	2047R		0.047	1.19								●	△	△	△	
	2058R		0.058	1.47									●			
	2062R		0.062	1.57	0.110	0.150	0.219	0.540	0.008	- 0.001	+ 0.001	●	△	△		
	2094R		0.094	2.39								●	△			
	2125R		0.125	3.18									●		△	
	KCGP 3031R	2	0.031	0.79	0.050	0.195	0.344	0.810	0.008	- 0.001	+ 0.001	●	△	△		KKCR...-3 A...-KKCL...-3
	3047R		0.047	1.19	0.075							●	△	△		
	3062R		0.062	1.57	0.094	0.195	0.344	0.810	0.008	- 0.001	+ 0.001	●	△	△	●	
	3072R		0.072	1.83									●			
	3078R		0.078	1.98								●	△			
	3088R		0.088	2.24								●	△	△		
	3094R		0.094	2.39	0.150	0.195	0.344	0.810	0.008	- 0.001	+ 0.001	●	△	△	●	
	3097R		0.097	2.46								●				
	3105R		0.105	2.67								●		△		
	3110R		0.110	2.79									△			
	3125R		0.125	3.18								●	△	△		
	3142R		0.142	3.61	0.150	0.195	0.344	0.810	0.008	- 0.001	+ 0.001	●		△		
	3156R		0.156	3.96								●				
	3189R		0.189	4.80	0.150	0.195	0.344	0.810	0.008	- 0.001	+ 0.001		●	△		
	KCGP 4125R	2	0.125	3.18	0.150	0.255	0.453	1.272	0.018	- 0.001	+ 0.001		●			KKCR...-4 A...-KKCL...-4
	4189R		0.189	4.80	0.250							●	△	△		
	4250R		0.250	6.35									●	△		

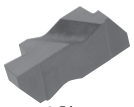
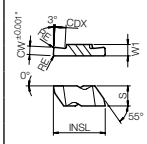
Right-hand shown
CDX : Maximum grooving depth.

Recommended Cutting Conditions ⇒ G65

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KCGP

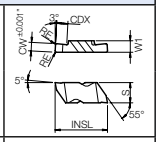
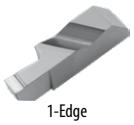
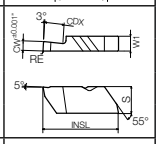
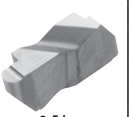
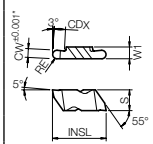
KCG

Insert		Part Number		No. of Edges	Dimensions (in) CW in	CW mm	CDX	W1	S	INSL	RE	Tolerance (in) CW min.	CW max.	Ceramic - A65	Applicable Toolholder G65 G94
Carbon Steel / Alloy Steel															P
Stainless Steel															M
Cast Iron														●	K
Non-Ferrous Metals															N
Titanium Alloy															S
Hard Materials (~ 40HRC)															H
Hard Materials (40HRC ~)														●	
 2-Edge		KCG	2062R	2	0.062	1.57	0.110	0.150	0.219	0.540	0.008	- 0.001	+ 0.001	●	KKCR...-2 A...-KKCL...-2
			3062R		0.062	1.57	0.094	0.195	0.344	0.810	0.008	- 0.001	+ 0.001	●	KKCR...-3 A...-KKCL...-3
			3094R		0.094	2.39	0.150							●	
			3125R		0.125	3.18								●	
			3156R		0.156	3.96								●	
		KCG	2062L	2	0.062	1.57	0.110	0.150	0.219	0.540	0.008	- 0.001	+ 0.001	●	KKCL...-2 A...-KKCR...-2
			2125L		0.125	3.18								●	
			3094L		0.094	2.39	0.150	0.195	0.344	0.810	0.008	- 0.001	+ 0.001	●	KKCL...-3 A...-KKCR...-3
			3156L		0.156	3.96								●	

Right-hand shown
CDX : Maximum grooving depth.

Recommended Cutting Conditions G65

KCGDP / KCRP

Insert		Part Number		No. of Edges	Dimensions (in) CW in	CW mm	CDX	W1	S	INSL	RE	Tolerance (in) CW min.	CW max.	Carbide PVD PR1625	PR1215	PR930	- KW10	Applicable Toolholder G65 G94
Carbon Steel / Alloy Steel														●	○			P
Stainless Steel														●	○			M
Cast Iron																		K
Non-Ferrous Metals																	●	N
Titanium Alloy																		S
Hard Materials (~ 40HRC)																		H
Hard Materials (40HRC ~)																		
2-Edge		KCGDP	3062R	2	0.062	1.57	0.125	0.195	0.344	0.886	0.008	- 0.001	+ 0.001		●			KKCR...-3, A...-KKCL...-3
		KCGDP	3062L	2	0.062	1.57	0.125	0.195	0.344	0.886	0.008	- 0.001	+ 0.001		●			KKCL...-3, A...-KKCR...-3
 1-Edge		KCGDP	3094R	1	0.094	2.39	0.250	0.195	0.344	0.990	0.008	- 0.001	+ 0.001	●	△			KKCR...-3 A...-KKCL...-3
			3125R		0.125	3.18								●	△	△		
		KCGDP	3094L	1	0.094	2.39	0.250	0.195	0.344	0.990	0.008	- 0.001	+ 0.001	●	△	△		KKCL...-3 A...-KKCR...-3
			3125L		0.125	3.18								●	△	△		
 2-Edge		KCRP	2031R	2	0.062	1.57	0.094	0.150	0.219	0.540	0.031	- 0.001	+ 0.001	●	△	△		KKCR...-2 A...-KKCL...-2
			2047R		0.094	2.39	0.150				0.047				●			
			2062R		0.125	3.18	0.150				0.062				●			
			3031R		0.062	1.57	0.094	0.195	0.344	0.810	0.031	- 0.001	+ 0.001		●	△		KKCR...-3 A...-KKCL...-3
			3047R		0.094	2.39	0.150				0.047				●	△		
			3062R		0.125	3.18	0.150				0.062			●	△	△		
			3094R		0.188	4.78	0.150				0.094				●	△		
		KCRP	2031L	2	0.062	1.57	0.094	0.150	0.219	0.540	0.031	- 0.001	+ 0.001		●			KKCR...-2 A...-KKCL...-2
			2047L		0.094	2.39	0.150				0.047				●			
			2062L		0.125	3.18	0.150				0.062				●			
			3031L		0.062	1.57	0.094	0.195	0.344	0.810	0.031	- 0.001	+ 0.001		●	△	△	KKCR...-3 A...-KKCL...-3
			3047L		0.094	2.39	0.150				0.047				●	△		
			3062L		0.125	3.18	0.150				0.062			●	△	△		
			3078L		0.156	3.96	0.150	0.195	0.344	0.810	0.078					△		
			3094L		0.188	4.78	0.150				0.094				●	△		

Right-hand shown
CDX : Maximum grooving depth.

Recommended Cutting Conditions G65

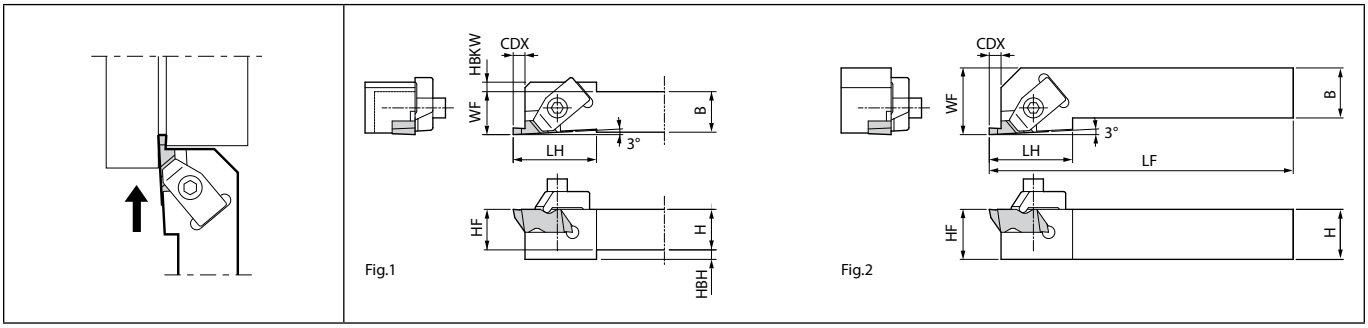
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Vc: sfm)					Carbide Feed Rate f (ipr)	Ceramic Feed Rate f (ipr)	Notes
	MEGACOAT NANO	MEGACOAT	Carbide		Ceramic			
	PR1625	PR1215	PR930	KW10	A65			
Carbon Steel	★ 250~650	☆ 300~800	☆ 250~650	-	-	0.002~0.010	0.003~0.008	Coolant
Alloy Steel	★ 150~550	☆ 300~750	☆ 150~550	-	-			
Stainless Steel	★ 100~550	☆ 300~600	☆ 100~550	-	-			
Tool steel	★ 100~550	☆ 300~600	☆ 100~550	-	-			
Hardened Steel (>45Rc)	-	-	-	-	★ 250~500			
Gray Cast Iron	-	★ 300~700	-	-	★ 500~1000			
Nodular Cast Iron	-	★ 300~600	-	-	★ 500~1000			
Aluminum	-	-	-	★ 500~1,600	-			

Recommendations shown are for external grooving. Reduce parameters by 10% for internal grooving.

KKC (External Grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions									Fig.	Spare Parts			Applicable Inserts ➡ G62~G64
														Clamp	Clamp Screw	Wrench	
		R	L	CDX	H	B	LH	HF	HBH	HBL	LF	WF					
Inch	KKC☐ 6-2CF	●	●	0.138	0.375	0.375	0.750	0.375	0.125	0.125	5.000	0.385	1	CKC-2☐	SKC-2	(7/64 hex)	KCGP2... KCG2... KCRP2...
	8-2X	●			0.500	0.500		0.500	-	-	3.500	0.750	2				
	8-2DF	●									6.000	0.510	1				
	10-2DF	●	●		0.625	0.625		0.625			6.000	0.635					
	12-2B	●	●		0.750	0.750		0.750	-	-	4.500	1.000	2				
	12-2C	●									5.000	1.000					
	16-2C	●	●		1.000	1.000		1.000	-	-	5.000	1.250					
	16-2D	●	●								6.000	1.250					
	KKC☐ 12-3B	●	●	0.210	0.750	0.750	1.250	0.750	-	-	4.500	1.000	2	CKC-3☐	SKC-3	LW-156	KCGP3... KCG3... KCGDP3... KCRP3...
	12-3C	●	●								5.000	1.000					
	16-3C	●	●		1.000	1.000		1.000			5.000	1.250					
	16-3D	●	●								6.000	1.250					
	20-3D	●	●		1.250	1.250		1.250			6.000	1.500					
	KKC☐ 16-4D	●	●	0.294	1.000	1.000	1.380	1.000	-	-	6.000	1.250	2	CKC-3☐	SKC-3	LW-156	KCGP4... KCRP4...
	20-4D	●			1.250	1.250	1.380	1.250				1.500					
mm	KKCR 1212M-2-150F	●		0.669	0.75	0.75	1.28	0.75	-	-	4.92	0.71	1	CKC-2☐	SKC-2	(7/64 hex)	KCGP2..., KCG2..., KCRP2...

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.
Clamp: CKC-OR for Right-hand Toolholder and CKC-OL for Left-hand Toolholder.
Above toolholders are also available for threading. See Page **J35.**

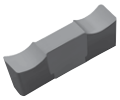
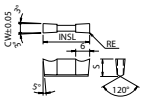
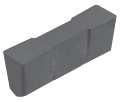
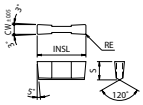
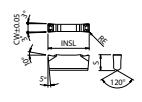
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GH/GHU/GA

Cutting edge preparation

Symbol	Specification	Example	
S	Chamfered and R-honed	S01020	0.10mm × 20° chamfered and R-honed
T	Chamfered	T01020	0.10mm × 20° chamfered

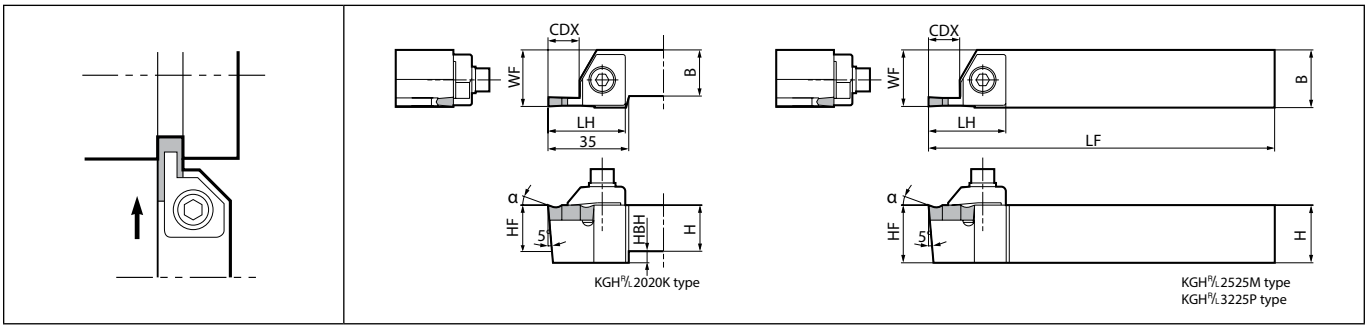
Carbon Steel / Alloy Steel		✱										P
Stainless Steel		●										M
Cast Iron			●		●	○						K
Non-Ferrous Metals			●									N
Titanium Alloy			●									S
Hard Materials (~ 40HRC)		●										H
Hard Materials (40HRC ~)				○	●							

Insert		Part Number	Edge preparation type	No. of Edges	Dimensions					Tolerance (mm)		Carbide			Ceramic			Cermet			Applicable Toolholder ➡ G62~G64
					CW		S	RE	INSL	CW min.	CW max.	CVD	PVD	-	PVD		-	-			
					in	mm						CR9025	PR930	KW10	A66N	PT600M	A65	TC40	TC60	TN60	
		GH 4020-02	-	2	0.157	4	7.5	0.2	20	-0.05	+0.05		●	●							KGH□/L ...4 KGHS□/L ...4
		4020-05						0.5					●	●							
		GH 5020-02	-	2	0.197	5	7.5	0.2	20	-0.05	+0.05		●	●							KGH□/L ...5 KGHS□/L ...5
		5020-05						0.5					●	●							
		GH 6020-02	-	2	0.236	6	7.5	0.2	20	-0.05	+0.05		●	●				●			
		6020-05						0.5					●	●							
		GH 7020-02	-	2	0.276	7	7.5	0.2	20	-0.05	+0.05		●	●							KGH□/L ...7
		7020-05						0.5					●	●							
		GH 8020-02	-	2	0.315	8	7.5	0.2	20	-0.05	+0.05		●	●							
		8020-05						0.5					●	●					●	●	
		GH 10025-05	-	2	0.394	10	7.5	0.5	25	-0.05	+0.05		●	●							KGH□/L ...10
		GH 12025-05	-	2	0.472	12	7.5	0.5	25	-0.05	+0.05		●	●							
		GH 4020-05	S01020	2	0.157	4	7.5	0.5	20	-0.05	+0.05				●						KGH□/L ...4 KGHS□/L ...4
			T01020													●	●				
		GH 5020-05	S01020	2	0.197	5	7.5	0.5	20	-0.05	+0.05				●						KGH□/L ...5 KGHS□/L ...5
			T01020													●	●				
		GH 6020-05	T01020	2	0.236	6	7.5	0.5	20	-0.05	+0.05						●				
		GH 7020-05	T01020	2	0.276	7	7.5	0.5	20	-0.05	+0.05						●				KGH□/L ...7
		GHU 40-20	-	2	0.157	4	7.5	0.25	20	-0.05	+0.05	●								●	KGH□/L ...4 KGHS□/L ...4
		GHU 50-20	-	2	0.197	5	7.5	0.3	20	-0.05	+0.05	●								●	KGH□/L ...5 KGHS□/L ...5
		GHU 60-20	-	2	0.236	6	7.5	0.3	20	-0.05	+0.05	●								●	

Recommended Cutting Conditions ➡ G69

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGH (External Grooving)



Right-hand shown

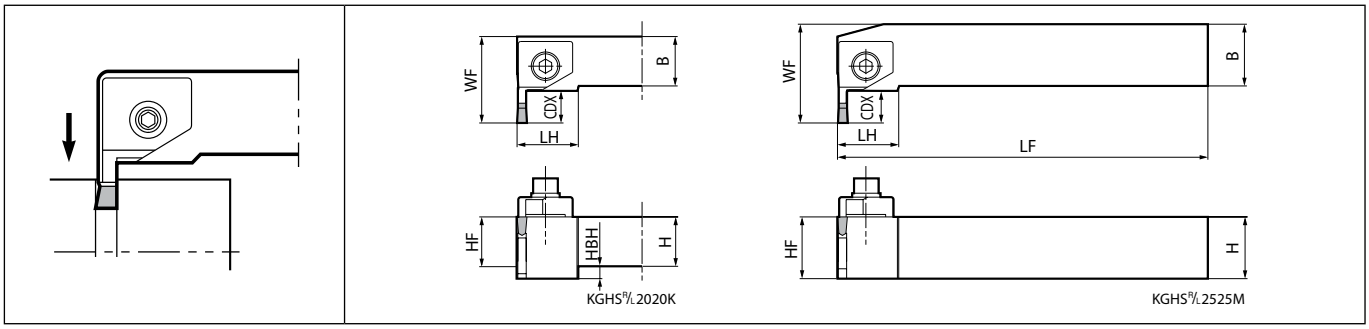
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions									Clamp	Clamp Screw	Spring	Washer	Wrench	Applicable Inserts ➡ G66
		R	L	CDX	H	B	LH	HF	HBH	LF	WF (min.)	WF (max.)						
mm	KGH□/□ 2020K-4	●	●	13	20	20	33.5	20	5	125	24.5	24.8	CGH-1□/□	HH6X25	SP-6	W-6	LW-5	GH4.20-.. GHU40-20
	2525M-4	●	●		25	25		25	-	150								
	KGH□/□ 2020K-5	●	●	13	20	20	33.5	20	5	125	25	25.8	CGH-1□/□	HH6X25	SP-6	W-6	LW-5	GH5.20-.. , GHU50-20 GH6.20-.. , GHU60-20
	2525M-5	●	●		25	25		25	-	150								
	3225P-5	●	●		32			32		170								
	KGH□/□ 2020K-7	●	●	13	20	20	33.5	20	7	125	24.5	25	CGH-2□/□	HH6X25	SP-6	W-6	LW-5	GH7.20-.. GH8020-..
	2525M-7	●	●		25	25		25	-	150								
	KGH□/□ 2525M-10	●	●	17	25	25	41	25	-	150	25.5	26.5	CGH-3□/□	HH6X25	SP-6	W-6	LW-5	GH10025-05 GH12025-05
	3225P-10	●			32			32		170								

CDX shows available grooving depth.
WF of KGH□/□ Toolholder depends on the insert's edge width.
Clamp : CGH-○R for Right-hand Toolholder and CGH-○L for Left-hand Toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGHS (External Grooving)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Spare Parts					Applicable Inserts ➡ G66
												Clamp	Clamp Screw	Spring	Washer	Wrench	
		R	L	CDX	H	B	LH	HF	HBH	LF	WF						
mm	KGHSR/L 2020K-4	●	●	13	20	20	25	20	5	125	35	CGH-1L/R	HH6X25	SP-6	W-6	LW-5	GH4.20-.. GHU40-20
	2525M-4	●	●		25	25		25	-	150	40						
	KGHSR/L 2020K-5	●	●	13	20	20	25	20	5	125	35	CGH-1L/R	HH6X25	SP-6	W-6	LW-5	GH5.20-.. , GHU50-20 GH6.20-.. , GHU60-20
	2525M-5	●	●		25	25		25	-	150	40						

CDX shows available grooving depth.
Clamp : CGH-◯L for Right-hand Toolholder and CGH-◯R for Left-hand Toolholder.

Rake Angle (α) after Installment of GH / GHU insert

When using GHOO-OO		When using GHUOO-OO	
α	Insert Grades	α	Insert Grades
0°	A65, A66N, PT600M	10°	TN60 CR9025
10°	TC40		
20°	TN90, TC60 PR930 KW10		

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

GH inserts - Ground Chipbreaker

Workpiece Material	Recommended Insert Grades (Vc: sfm)							(1) f (feed) during Grooving (ipr) (2) f (feed) during Traversing (ipr) (3) D.O.C. during Traversing (in)				Notes
	Cermet		PVD	Carbide	Ceramic							
	TC40	TC60	PR930	KW10	A65	A66N	PT600M	GH 40~50...	GH 55~70...	GH 75~80...	GH 100~120...	
Carbon Steel	☆ 490~720	☆ 330~490	★ 260~590	-	-	-	-	(1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039	(1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039	(1) 0.0039~0.0098 (2) 0.0039~0.0079 (3) MAX 0.059	(1) 0.0059~0.0118 (2) 0.0059~0.0098 (3) MAX 0.079	Coolant
Alloy Steel	☆ 430~660	☆ 260~430	★ 260~520	-	-	-	-	(1) 0.0028~0.0071 (2) 0.0028~0.0051 (3) MAX 0.039	(1) 0.0028~0.0071 (2) 0.0028~0.0051 (3) MAX 0.039	(1) 0.0039~0.0091 (2) 0.0039~0.0071 (3) MAX 0.059	(1) 0.0059~0.0106 (2) 0.0059~0.0087 (3) MAX 0.079	
Stainless Steel	-	☆ 200~330	★ 200~430	-	-	-	-	(1) 0.0028~0.0063 (2) 0.0028~0.0051 (3) MAX 0.039	(1) 0.0028~0.0063 (2) 0.0028~0.0051 (3) MAX 0.039	(1) 0.0039~0.0083 (2) 0.0039~0.0071 (3) MAX 0.059	(1) 0.0059~0.0098 (2) 0.0059~0.0087 (3) MAX 0.079	
Cast Iron	-	-	-	★ 200~330	☆ 490~980	☆ 490~980	☆ 490~980	KW10 (1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039 A65 / A66N (1) 0.0012~0.0028 (2) Traversing N/A (3) Traversing N/A	KW10 (1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039 A65 / A66N (1) 0.0012~0.0028 (2) Traversing N/A (3) Traversing N/A	KW10 (1) 0.0039~0.0098 (2) 0.0039~0.0079 (3) MAX 0.059 A65 / A66N (1) 0.002~0.0035 (2) Traversing N/A (3) Traversing N/A	KW10 (1) 0.0059~0.0118 (2) 0.0059~0.0098 (3) MAX 0.079 A65 / A66N (1) 0.002~0.0035 (2) Traversing N/A (3) Traversing N/A	
Aluminum	-	-	-	★ 490~1310	-	-	-	(1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039	(1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039	(1) 0.0039~0.0098 (2) 0.0039~0.0079 (3) MAX 0.059	(1) 0.0059~0.0118 (2) 0.0059~0.0098 (3) MAX 0.079	
Brass	-	-	-	★ 490~980	-	-	-	(1) 0.0028~0.0079 (2) 0.0028~0.0059 ③ MAX 0.039	(1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039	(1) 0.0039~0.0098 (2) 0.0039~0.0079 (3) MAX 0.059	(1) 0.0059~0.0118 (2) 0.0059~0.0098 (3) MAX 0.079	
Hardened Materials	-	-	-	-	☆ 130~260	☆ 130~260	☆ 130~260	(1) 0.0008~0.0020 (2) 0.0004~0.0012 (3) MAX 0.004	(1) 0.0008~0.0020 (2) 0.0004~0.0012 (3) MAX 0.008	(1) 0.0008~0.002 (2) 0.0004~0.0016 (3) MAX 0.008		

* Above cutting conditions are for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

★:1st recommendation ☆:2nd recommendation

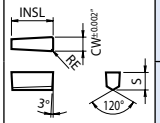
GHU Inserts - Molded Chipbreaker

Workpiece Material	Recommended Insert Grade (Vc sfm)		(1) f (feed) during Grooving (ipr) (2) f (feed) during Traversing (ipr) (3) D.O.C. during Traversing (in)			Notes
	Cermet	CVD				
	TN60	CR9025	GHU 40~20	GHU 50~20	GHU 60~20	
Carbon Steel	☆ 430~660	☆ 260~590	(1) 0.0024~0.0047 (2) 0.0020~0.0039 (3) MAX 0.039	(1) 0.0024~0.0047 (2) 0.0020~0.0039 (3) MAX 0.039	(1) 0.0024~0.0059 (2) 0.0020~0.0047 (3) MAX 0.059	Coolant
Alloy Steel	☆ 330~590	☆ 260~520	(1) 0.0024~0.0047 (2) 0.0020~0.0039 (3) MAX 0.039	(1) 0.0024~0.0047 (2) 0.0020~0.0039 (3) MAX 0.039	(1) 0.0024~0.0059 (2) 0.0020~0.0047 (3) MAX 0.059	
Stainless Steel	-	☆ 200~430	(1) 0.0024~0.0039 (2) 0.0020~0.0031 (3) MAX 0.031	(1) 0.0024~0.0039 (2) 0.0020~0.0031 (3) MAX 0.031	(1) 0.0024~0.0047 (2) 0.0020~0.0039 (3) MAX 0.047	

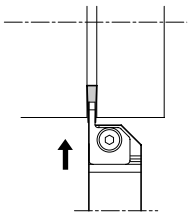
* Above cutting conditions are for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

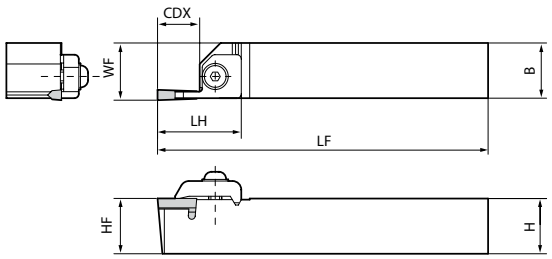
★:1st recommendation ☆:2nd recommendation

GG

Insert		Part Number	Edge Prep	No. of Edges	Dimensions (in)					Tolerance (in)		Ceramic	Applicable Toolholder
					CW		S	RE	INSL	CW min.	CW max.	-	
					in	mm						A65	
		GG 157-20T00320	T00320	2	0.157	4.0	0.197	0.020	0.591	- 0.002	+ 0.002	●	EGTR16-1
		GG 197-32T00320			0.197	5.0	0.197	0.032	0.591	- 0.002	+ 0.002	●	

EGT (External Grooving)





Right-hand shown

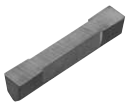
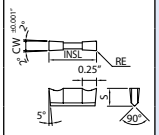
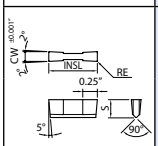
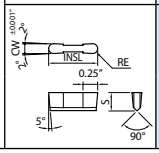
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Spare Parts		Applicable Inserts
											Clamp Set	Wrench	
		R	CDX	H	B	LH	HF	LF	WF (min.)	WF (max.)			
Inch	EGTR 16-1	●	0.63	1.00	1.00	1.34	1.00	6.00	1.0085	1.0285	R: HCL-009 L: HCL-011	LW-156	GG157... GG197...

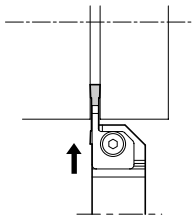
CDX shows available grooving depth.
Clamp Set : HCL-009 for Right-hand Toolholder and HCL-011 for Left-hand Toolholder.
WF of EGTR/L Toolholder depends on the insert's edge width.

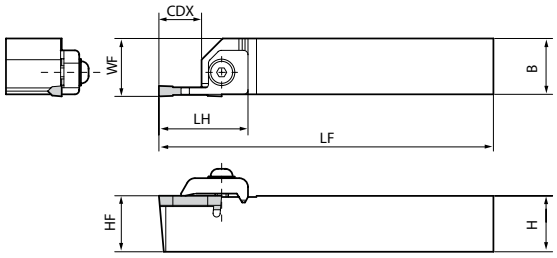
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DB

Insert	Part Number	No. of Edges	Dimensions (in) CW in	CW mm	S	RE	INSL	Tolerance (in) CW min.	CW max.	Cermet - / TN60	Ceramic - / A65	Applicable Toolholder
 	DB 125R15	2	0.125	3.18	0.250	0.015	1.125	-0.001	+0.001	●		KDBR16-1
	187R30		0.187	4.75		0.030				●		
	250R15		0.250	6.35		0.015				●		
	375R30		0.375	9.525		0.030				●		
	DB 125R15T00420	2	0.125	3.18	0.250	0.015	1.125	-0.001	+0.001		●	
	187R30T00420		0.187	4.75		0.030					●	
	DB 125FNRT00420	2	0.125	3.18	0.250	0.063	1.125	-0.001	+0.001		●	
	187FNRT00420		0.187	4.75		0.094					●	

KDB (External Grooving)





Right-hand shown

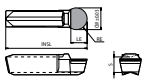
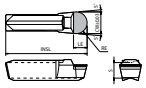
Toolholder Dimensions

Unit	Part Number	Std. Item R	Dimensions CDX	H	B	HF	LF	WF (min.)	WF (max.)	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts
Inch	KDBR 16-1	●	0.75	1.00	1.00	1.00	6.00	1.0050	1.0360	R: HCL-009 L: HCL-011	LW-156	DB...

CDX shows available grooving depth.
Clamp Set : HCL-009 for Right-hand Toolholder and HCL-011 for Left-hand Toolholder.
WF of KDB R/L Toolholder depends on the insert's edge width.

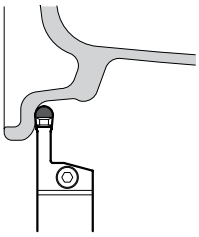
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

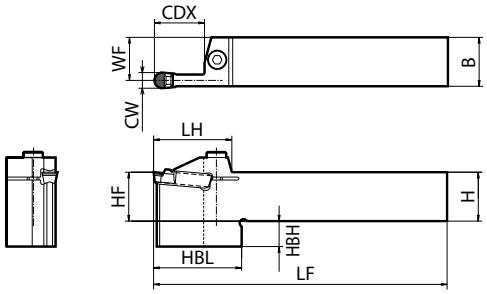
GMGW

													Carbon Steel / Alloy Steel		P
													Stainless Steel		M
													Cast Iron		K
													Non-Ferrous Metals	●	N
													Titanium Alloy	●	S
													Hard Materials (~ 40HRC)		H
													Hard Materials (40HRC ~)		
Insert		Part Number	No. of Edges	Dimensions (mm)						Tolerance (mm)		PCD		Applicable Toolholder	
				CW		S	RE	INSL	LE	CW min.	CW max.	-	KPD001		
				in	mm										
		GMGW 6030-30R	1	0.236	6	5.5	3	30	4.5	- 0.03	+ 0.03		●	KGMWR/L 2525M-6	
		GMGW 8030-40R	1	0.315	8	5.5	4	30	6	- 0.03	+ 0.03		●	-	
		GMGW 8030-40R-HR	1	0.315	8	5.5	4	30	5	- 0.03	+ 0.03		●	-	

GMGW inserts are exclusively used for KGMW toolholder. They cannot be used for other toolholder because of different installation angles.
GMGW inserts Edge Preparation : R-honed Cutting Edge.

KGMW (External Grooving / Face Grooving / Copying)





Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions										Spare Parts		Applicable Inserts
		R	CDX	H	B	LH	HF	HBH	HBL	LF	WF		Clamp Screw	Wrench	
mm	KGMWR 2525M-6	●	25	25	25	40	25	13	55	150	22.8		HH6X25	LW-5	GMGW6030-30R

Recommended Cutting Conditions

Workpiece Material	Recommended insert grades (Vc: sfm)	(1) f for grooving (ipr) (2) f for traversing (ipr) (3) D.O.C. for traversing (in)
	PCD	
	KPD001	
Aluminum	★ 490~8,860	(1) 0.0020 ~ 0.0118 (2) 0.0079 ~ 0.0315 (3) Max. 0.1181

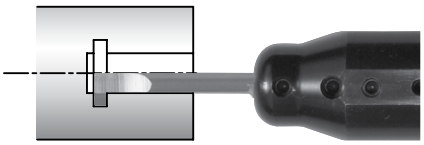
★:1st recommendation

PCD inserrts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

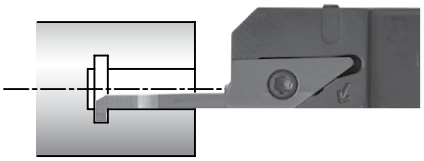
Small Diameter Internal Grooving

Ez Bar and Swiss IQ Bars



Type	EZG
Min. Bore Diameter	0.118"~0.315" (3.00mm~8.00mm)
Edge Width	0.020"~0.079" (0.50mm ~ 2.00mm)
Grooving Depth	0.039"~0.079" (1.00mm ~ 2.00mm)
Ref. Page	G75

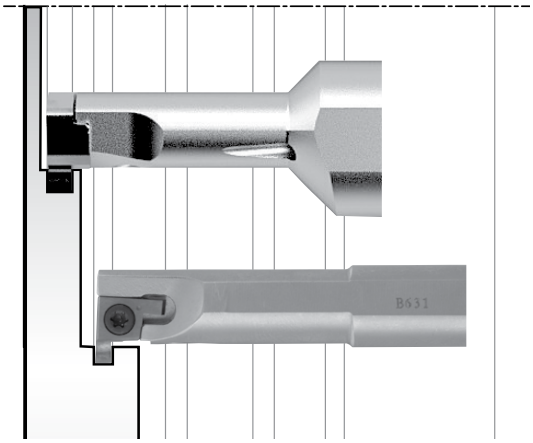
EZ Bars



Type	VNG
Min. Bore Diameter	0.158"~0.276" (4.0mm~7.0mm)
Edge Width	0.039"~0.079" (1.0mm ~ 2.0mm)
Grooving Depth	0.032"~0.079" (0.8mm ~ 2.0mm)
Ref. Page	G77

Swiss IQ Bars

External Shallow Grooving Ø0.315"~ / (Ø8mm)~



Type	SIGC
Min. Bore Diameter	8.0mm~12.00mm
Edge Width	1.0mm ~ 3.0mm
Grooving Depth	1.0mm ~ 3.0mm
Ref. Page	G80

1-Edge

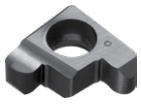
Ground Chipbreaker

Type	SIGE
Min. Bore Diameter	0.315"~0.375" (8.0mm~12.00mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.059"~0.087" (1.5mm ~ 2.2mm)
Ref. Page	G86

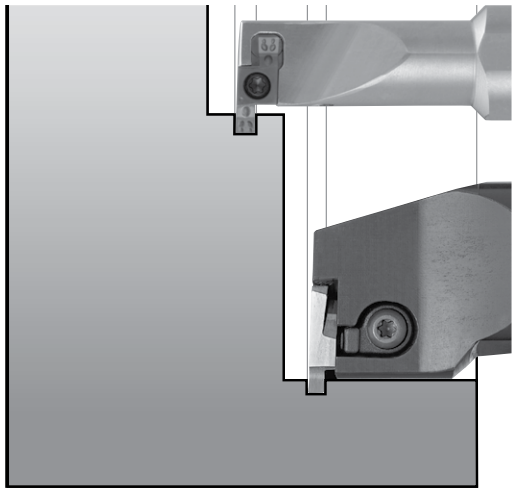
2-Edge

Ground Chipbreaker

2-Edge



Ground Chipbreaker Full-R

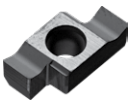


Type	SIGE
Min. Bore Diameter	0.551"~1.575" (14.0mm~40.0mm)
Edge Width	0.039"~0.197" (1.0mm~5.0mm)
Grooving Depth	0.098"~0.256" (2.5mm~6.5mm)
Ref. Page	G34

2-Edge

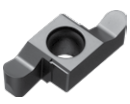
Molded Chipbreaker

2-Edge



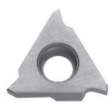
Ground Chipbreaker

2-Edge

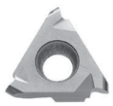


Ground Chipbreaker Full-R

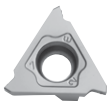
Type	KIGBA
Min. Bore Diameter	1.378"~1.575" (35.0mm~40.0mm)
Edge Width	0.013"~0.189" (0.33mm~4.8mm)
Grooving Depth	0.032"~0.110" (0.8mm~2.8mm)
Ref. Page	G89



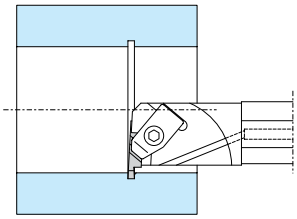
Ground Chipbreaker



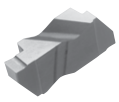
Ground Chipbreaker Full-R



GM Chipbreaker

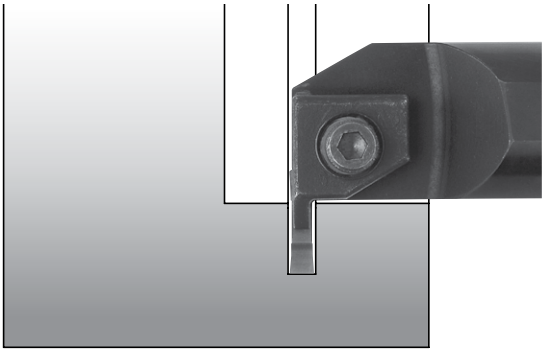


Type	A-KKC
Min. Bore Diameter	1.000"~2.750"
Edge Width	0.031"~0.189"
Grooving Depth	0.040"~0.240"
Ref. Page	G94

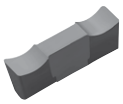


Ground Chipbreaker

Internal Deep Grooving



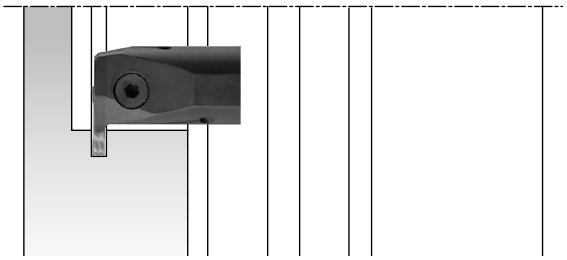
Type	KIGH
Min. Bore Diameter	1.772"~2.559" (45.0mm~65.0mm)
Edge Width	1.575"~0.315" (4.0mm~8.0mm)
Grooving Depth	0.472" (12.0mm)
Ref. Page	G93



Ground Chipbreaker

Molded Chipbreaker

Internal Grooving & Traversing Ø0.787"~ (Ø20mm~)



Type	KGDI
Min. Bore Diameter	0.709"~1.575" (18.0mm~40.0mm)
Edge Width	0.079"~0.197" (2.0mm~5.0mm)
Grooving Depth	0.177"~0.433" (4.5mm~11.0mm)
Ref. Page	G91

GM Chipbreaker

Molded Chipbreaker Full-R

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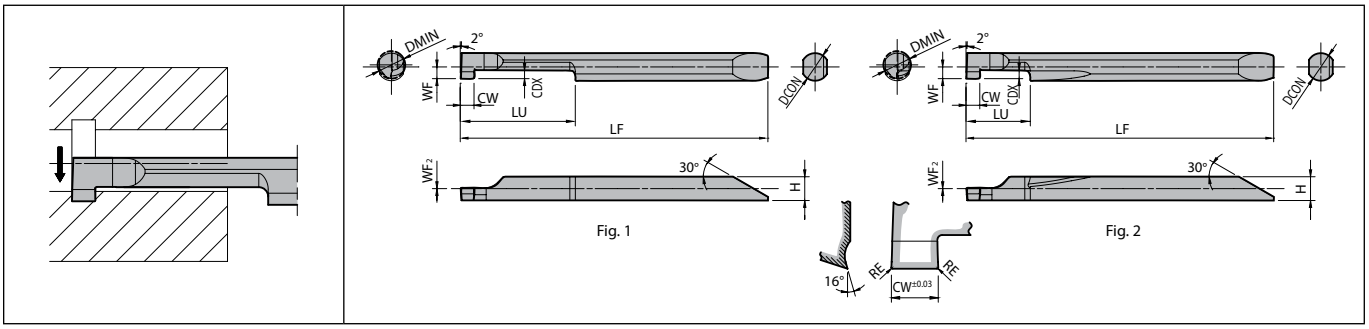
www.kyocera precisiontools.com

EZG (Internal Grooving)



Right-hand shown

Dimensions

Part Number	No. of Edges	Dimensions (mm) DMIN	CW in	CW mm	CDX	RE	DCON	H	LF	LU	WF	WF2	Fig.	Tolerance (mm) CW min.	CW max.	RE min.	RE max.	Carbide PVD PR1225 R	Carbide PVD PR1225 L	Carbide - GW05 R	Applicable Sleeve F40~F45
EZGR/L 040040-050	1	4	0.020	0.5	1	0.05	4	3.45	44.7	12	1.7	0	2	-0.03	+0.03	-0.013	+0.013	●	□	●	EZH040...
040040-100			0.039	1														●	□	●	
040040-150			0.059	1.5														●	□	●	
040040-200			0.079	2														●	□	●	
EZGR/L 050050-100	1	5	0.039	1	1.5	0.05	5	4.3	52.8	20	2.15	0	1	-0.03	+0.03	-0.013	+0.013	●	□	●	EZH050...
050050-150			0.059	1.5														●	□	●	
050050-200			0.079	2														●	□	●	
EZGR/L 060060-100	1	6	0.039	1	2	0.05	6	5.15	60.7	20	2.65	0	1	-0.03	+0.03	-0.013	+0.013	●	□	●	EZH060...
060060-150			0.059	1.5														●	□	●	
060060-200			0.079	2														●	□	●	
EZGR/L 070070-100	1	7	0.039	1	2	0.05	7	6.2	63.7	25	3.05	0	1	-0.03	+0.03	-0.013	+0.013	●	□	●	EZH070...
070070-150			0.059	1.5														●	□	●	
070070-200			0.079	2														●	□	●	
EZGR/L 080070-100	1	8	0.039	1	2	0.05	7	6.2	63.7	25	3.45	0	1	-0.03	+0.03	-0.013	+0.013	●	□	●	
080070-150			0.059	1.5														●	□	●	
080070-200			0.079	2														●	□	●	
EZGR 030030-050S	1	3	0.020	0.5	0.8	0.05	3	2.5	38.7	5	1.25	0	2	-0.03	+0.03	-0.013	+0.013	●			EZH030...
030030-100S			0.039	1														●			
EZGR 040040-050S	1	4	0.020	0.5	1	0.05	4	3.45	44.7	8	1.7	0	2	-0.03	+0.03	-0.013	+0.013	●			EZH040...
040040-100S			0.039	1														●			
040040-150S			0.059	1.5														●			
040040-200S			0.079	2														●			
EZGR 050050-100S	1	5	0.039	1	1.5	0.05	5	4.3	52.8	10	2.15	0	2	-0.03	+0.03	-0.013	+0.013	●			EZH050...
050050-150S			0.059	1.5														●			
050050-200S			0.079	2														●			
EZGR 060060-100S	1	6	0.039	1	2	0.05	6	5.15	60.7	10	2.65	0	2	-0.03	+0.03	-0.013	+0.013	●			EZH060...
060060-150S			0.059	1.5														●			
060060-200S			0.079	2														●			
EZGR 070070-100S	1	7	0.039	1	2	0.05	7	6.2	63.7	10	3.05	0	2	-0.03	+0.03	-0.013	+0.013	●			EZH070...
070070-150S			0.059	1.5														●			
070070-200S			0.079	2														●			
EZGR 080070-100S	1	8	0.039	1	2	0.05	7	6.2	63.7	10	3.45	0	2	-0.03	+0.03	-0.013	+0.013	●			
080070-150S			0.059	1.5														●			
080070-200S			0.079	2														●			

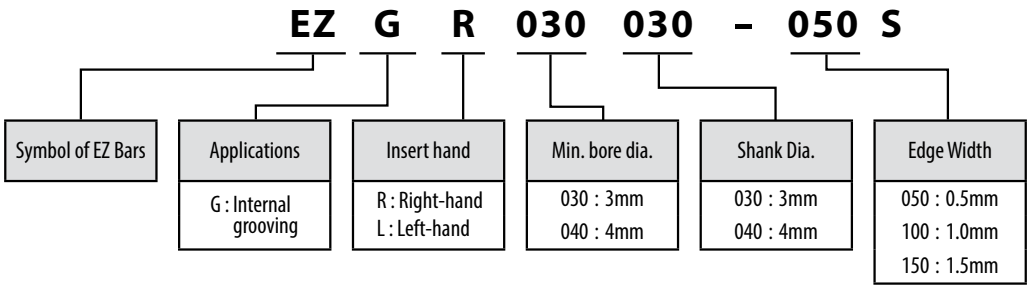
CDX shows available grooving depth.

Recommended Cutting Conditions G155

EZ bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZ Bars Identification System



Applicable Sleeves

Sleeve				Applicable Internal Grooving Bar		
EZH-CT (Adjustable Overhang Length / with Coolant Hole) ➡ F40~F41	EZH-HP (Adjustable Overhang Length) ➡ F42~F43	EZH-ST ➡ F44~F45	Sleeve Shank Dia. DCON (mm)	EZG	EZ Bar Shank Dia. DCON (mm)	Applicable Machine Manufacturer
-	-	EZH 03012ST-80	12	EZG_ 030030-...	3	(General Purpose)
		04012ST-80		EZG_ 040040-...	4	
		05012ST-80		EZG_ 050050-...	5	
		06012ST-80		EZG_ 060060-...	6	
		07012ST-80		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
-	EZH 03016HP-100	EZH 03016ST-100	16	EZG_ 030030-...	3	(General Purpose)
	04016HP-100	04016ST-100		EZG_ 040040-...	4	
	05016HP-100	05016ST-100		EZG_ 050050-...	5	
	06016HP-100	06016ST-100		EZG_ 060060-...	6	
	07016HP-100	07016ST-100		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03019CT-120	EZH 03019HP-120	EZH 03019ST-120	0.750"	EZG_ 030030-...	3	Citizen Machinery
04019CT-120	04019HP-120	04019ST-120		EZG_ 040040-...	4	
05019CT-120	05019HP-120	05019ST-120		EZG_ 050050-...	5	
06019CT-120	06019HP-120	06019ST-120		EZG_ 060060-...	6	
07019CT-120	07019HP-120	07019ST-120		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03020CT-120	EZH 03020HP-120	EZH 03020ST-120	20	EZG_ 030030-...	3	Eguro Tsugami Citizen Machinery (General Purpose)
04020CT-120	04020HP-120	04020ST-120		EZG_ 040040-...	4	
05020CT-120	05020HP-120	05020ST-120		EZG_ 050050-...	5	
06020CT-120	06020HP-120	06020ST-120		EZG_ 060060-...	6	
07020CT-120	07020HP-120	07020ST-120		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03022CT-135	EZH 03022HP-135	EZH 03022ST-135	22	EZG_ 030030-...	3	Star Micronics Nomura DS Tsugami
04022CT-135	04022HP-135	04022ST-135		EZG_ 040040-...	4	
05022CT-135	05022HP-135	05022ST-135		EZG_ 050050-...	5	
06022CT-135	06022HP-135	06022ST-135		EZG_ 060060-...	6	
07022CT-135	07022HP-135	07022ST-135		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03025.0CT-135	EZH 03025.0HP-135	EZH 03025.0ST-135	25	EZG_ 030030-...	3	Eguro Tsugami Citizen Machinery (General Purpose)
04025.0CT-135	04025.0HP-135	04025.0ST-135		EZG_ 040040-...	4	
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZG_ 050050-...	5	
06025.0CT-135	06025.0HP-135	06025.0ST-135		EZG_ 060060-...	6	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03025.4CT-120	EZH 03025.4HP-120	EZH 03025.4ST-120	1.000"	EZG_ 030030-...	3	Citizen Machinery
04025.4CT-120	04025.4HP-120	04025.4ST-120		EZG_ 040040-...	4	
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZG_ 050050-...	5	
06025.4CT-120	06025.4HP-120	06025.4ST-120		EZG_ 060060-...	6	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZG_ 070070-...	7	
				EZG_ 080070-...	8	

- Choose sleeves' (DCON) that match with DCON dimension of Internal Grooving Bars.
- Adjustment Pin cannot be installed to EZH-ST Sleeves. To adjust overhang of the bar, please use EZH-CT/HP Sleeves.
- Machine manufacturers in random order.

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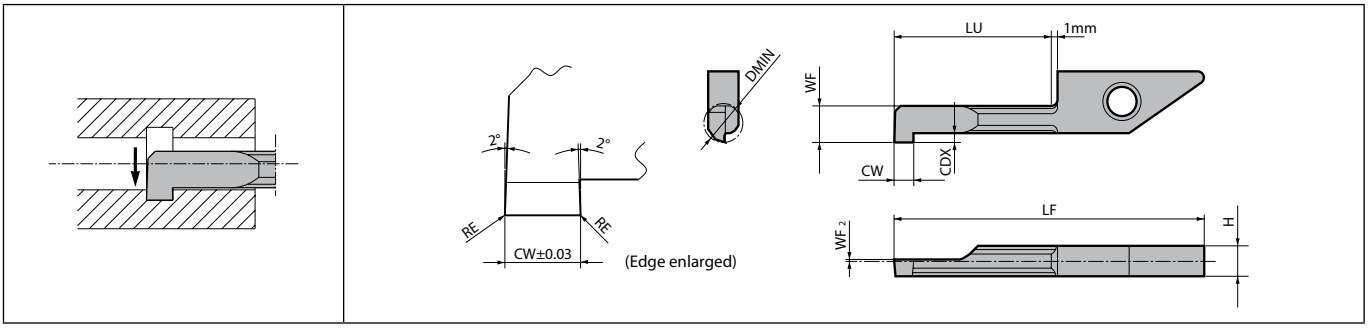
VNG



Right-hand shown

Dimensions

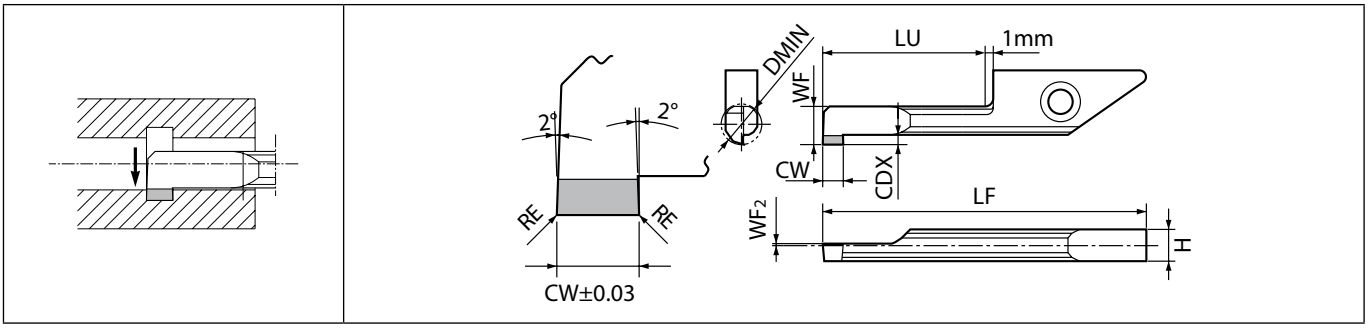
Part Number	No. of Edges	Dimensions (mm)										Tolerance (mm)		Carbide		Applicable Toolholder ➡ F50~F53
		DMIN	CW in	CW mm	CDX	RE	H	LF	LU	WF	WF_2	CW min.	CW max.	PVD PR1225	PVD PR930	- KW10	
VNGR 0410-11	1	4	0.039	1	0.8	0.05	3.9	30.8	11	3.5	0.1	-0.03	+0.03	●	●	●	SVNR...-12N SVNSR...-12-..(N) S...-SVNR12(N) S...-SVNR12SN
0420-11			0.079	2										●	●	●	
VNGR 0510-11	1	5	0.039	1	1	0.05	3.9	30.8	11	4.4	0.1	-0.03	+0.03	●	●	●	
0520-11			0.079	2										●	●	●	
VNGR 0610-20	1	6	0.039	1	1.8	0.05	3.9	39.8	20	5.2	0.3	-0.03	+0.03	●	●	●	
0620-20			0.079	2										●	●	●	
VNGR 0710-20	1	7	0.039	1	2	0.05	3.9	39.8	20	6.2	0.3	-0.03	+0.03	●	●	●	
0720-20			0.079	2										●	●	●	

CDX shows available grooving depth.
WF_2 indicates the cutting edge is above the Tool's Center Position.

Recommended Cutting Conditions ➡ G155

Swiss IQ Bars are sold in 5 piece boxes

VNG-NB



Right-hand shown

Dimensions

Part Number	No. of Edges	Dimensions (mm)										Tolerance (mm)		PCD - KPD001	Applicable Toolholder ➡ F50~F53
		DMIN	CW in	CW mm	CDX	RE	H	LF	LU	WF	WF_2	CW min.	CW max.		
VNGR 0410-11NB	1	4	0.039	1	0.8	0.05	3.9	30.8	11	3.5	0.1	-0.03	+0.03	□	SVNR...-12N SVNSR...-12-..(N) S...-SVNR12(N) S...-SVNR12SN
0420-11NB			0.079	2										□	
VNGR 0510-11NB	1	5	0.039	1	1	0.05	3.9	30.8	11	4.4	0.1	-0.03	+0.03	□	
0520-11NB			0.079	2										□	
VNGR 0610-20NB	1	6	0.039	1	1.8	0.05	3.9	39.8	20	5.2	0.3	-0.03	+0.03	□	
0620-20NB			0.079	2										□	
VNGR 0710-20NB	1	7	0.039	1	2	0.05	3.9	39.8	20	6.2	0.3	-0.03	+0.03	□	
0720-20NB			0.079	2										□	

CDX shows available grooving depth.
WF_2 indicates the cutting edge is above the Tool's Center Position.
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

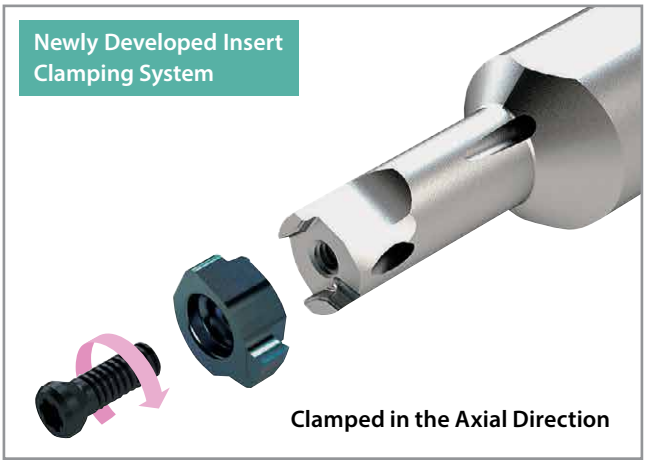
PCD Swiss IQ Bars are sold in 1 piece boxes

SIGC

New Clamping System Ensures a Firm Insert Hold for High-Precision Machining
Excellent Chip Evacuation with Double Coolant Holes
Optimized Flute Shape with a ø8mm Minimum Bore Diameter

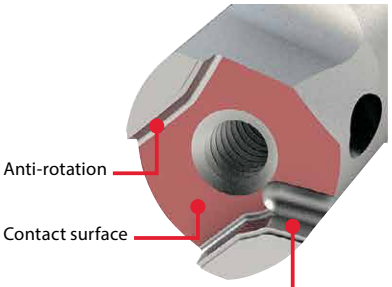
1 Firm Insert Clamping System for High-Precision Machining

High strength clamping action by pulling the bottom surface of the insert in axial direction
Stable machining is achieved by ensuring a firm clamp on the insert

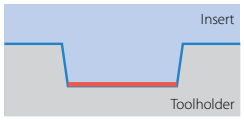


Clamping Part

Large contact surface improves chip stability

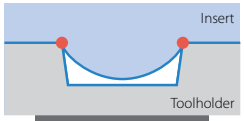


SIGC



Bottom Surface Contact

Competitor A

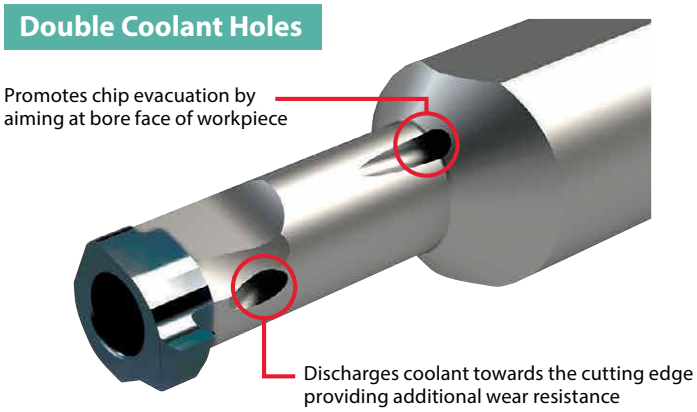


Point Contact

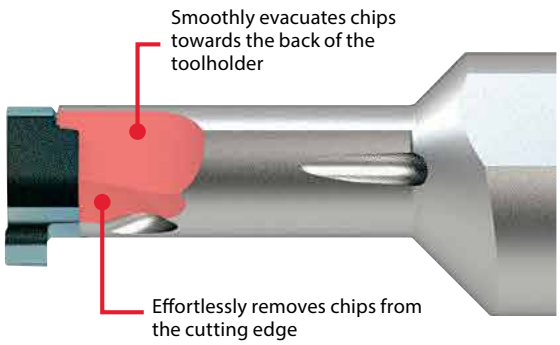
2 Excellent Chip Evacuation

Excellent Chip Evacuation with Double Coolant Holes and Optimized Flute Shape

Double Coolant Holes



Flute Shape



Provides better solutions for chip evacuation in small internal grooving applications
Prevents chip crunching

800.823.7284
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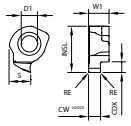
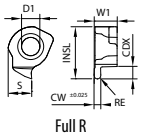
GC

Carbon Steel / Alloy Steel	P
Stainless Steel	M
Cast Iron	K
Non-Ferrous Metals	N
Titanium Alloy	S
Hard Materials (~ 40HRC)	H
Hard Materials (40HRC ~)	H

Insert	Part Number	No. of Edges	Dimensions (mm) CW in	CW mm	CDX	S	D1	RE	INSL	W1	Tolerance (mm) CW min.	CW max.	Carbide PVD PR1535	PR1725	Applicable Toolholder G80~G81
	GC08R 100-005	1	0.039	1	1.5	3.5	2.7	0.05	7.7	3.4	-0.025	+0.025	●	●	SIGCR08...
	120-005		0.047	1.2				0.05					●	●	
	125-005		0.049	1.25				0.05					●	●	
	150-010		0.059	1.5				0.1					●	●	
	200-010		0.079	2				0.1					●	●	
	GC08L 100-005		0.039	1				0.05					●	●	SIGCL08...
	120-005		0.047	1.2				0.05					●	●	
	125-005		0.049	1.25				0.05					●	●	
	150-010		0.059	1.5				0.1					●	●	
	200-010		0.079	2				0.1					●	●	
	GC10R 100-005	1	0.039	1	2.2	4.4	3.5	0.05	9.6	4.7	-0.025	+0.025	●	●	SIGCR10...
	120-005		0.047	1.2				0.05					●	●	
	125-005		0.049	1.25				0.05					●	●	
	145-010		0.057	1.45				0.1					●	●	
	150-010		0.059	1.5				0.1					●	●	
	200-010		0.079	2				0.1					●	●	
	250-020		0.098	2.5				0.2					●	●	
	300-020		0.118	3				0.2					●	●	
	GC10L 100-005		0.039	1				0.05					●	●	SIGCL10...
	120-005		0.047	1.2				0.05					●	●	
	125-005		0.049	1.25				0.05					●	●	
	145-010		0.057	1.45				0.1					●	●	
	150-010		0.059	1.5				0.1					●	●	
	200-010		0.079	2				0.1					●	●	
	250-020		0.098	2.5				0.2					●	●	
	300-020		0.118	3				0.2					●	●	
	GC12R 100-005	1	0.039	1	2.2	5.4	3.5	0.05	11.6	4.7	-0.025	+0.025	●	●	SIGCR12...
	120-005		0.047	1.2				0.05					●	●	
	125-005		0.049	1.25				0.05					●	●	
	145-010		0.057	1.45				0.1					●	●	
	150-010		0.059	1.5				0.1					●	●	
	200-010		0.079	2				0.1					●	●	
	250-020		0.098	2.5				0.2					●	●	
	300-020		0.118	3				0.2					●	●	
	GC12L 100-005		0.039	1				0.05					●	●	SIGCL12...
	120-005		0.047	1.2				0.05					●	●	
	125-005		0.049	1.25				0.05					●	●	
	145-010		0.057	1.45				0.1					●	●	
	150-010		0.059	1.5				0.1					●	●	
	200-010		0.079	2				0.1					●	●	
	250-020		0.098	2.5				0.2					●	●	
	300-020		0.118	3				0.2					●	●	
 Full R	GC08R 100-050R	1	0.039	1	1.5	3.5	2.7	0.5	7.7	3.4	-0.025	+0.025	●	●	SIGCR08...
	200-100R		0.079	2				1					●	●	
	GC10R 100-050R	1	0.039	1	2.2	4.4	3.5	0.5	9.6	4.7	-0.025	+0.025	●	●	SIGCR10...
	200-100R		0.079	2				1					●	●	
	GC12R 100-050R	1	0.039	1	2.2	5.4	3.5	0.5	11.6	4.7	-0.025	+0.025	●	●	SIGCR12...
	200-100R		0.079	2				1					●	●	

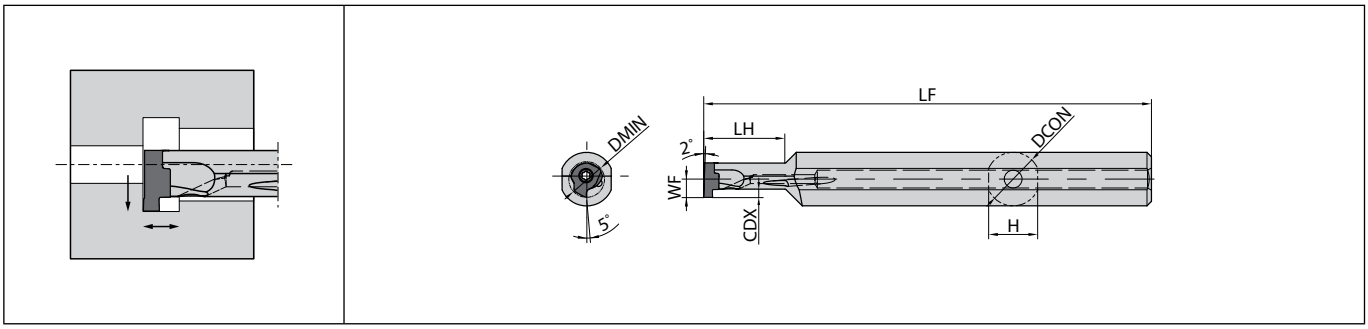
Right-hand shown
CDX shows available grooving depth.

Recommended Cutting Conditions G156

GC type inserts are sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SIGC Excellent Bar (Internal Grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CDX	H	LH	LF	WF	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts ➡ G79
mm	SIGC R/L 0812-EH	●	●	8	12	1.5	11	18	100	4.1	Yes	SB-2270T R/L	FT-7	GC08 R/L ...
mm	SIGC R/L 1016-EH	●	●	10	16	2.2	15	21	100	5	Yes	SB-3070T R/L	FT-8	GC10 R/L ...
mm	SIGC R/L 1216-EH	●	●	12	16	2.2	15	25	110	6	Yes	SB-3070T R/L	FT-8	GC12 R/L ...

Setting the insert

Use compressed air or other measures to remove chips from the insert pocket.

Mount the insert into the toolholder ensure the bottom makes contact with the end of the toolholder's surface.

Keeping the insert seated, tighten the insert clamp screw at an appropriate torque.

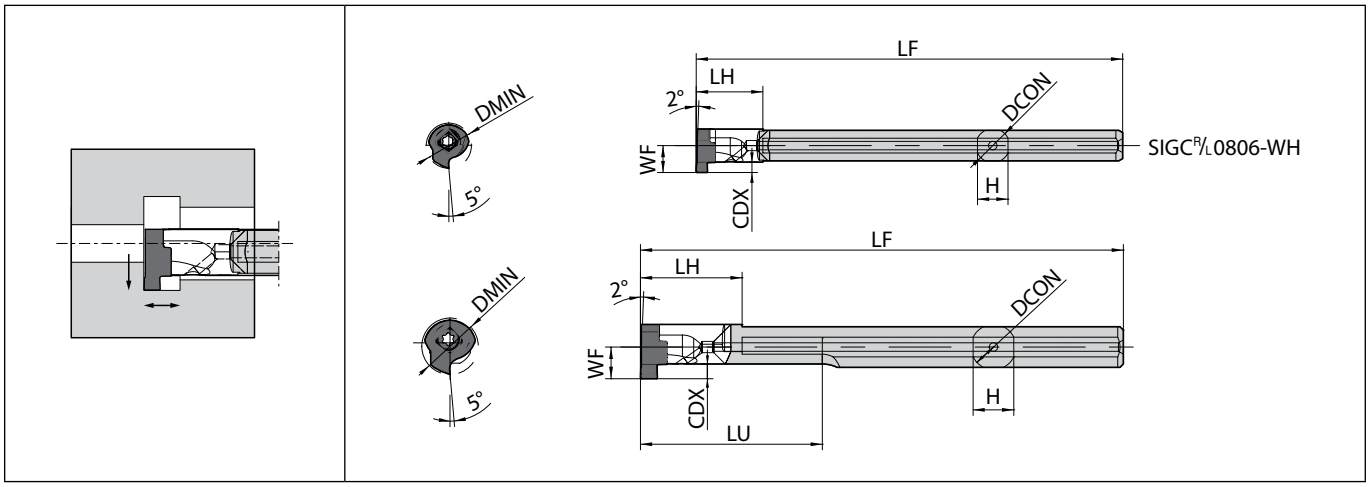
Recommended tightening torque : 0.8 N·m (SB-2270T R/L), 1.2 N·m (SB-3070T R/L)

L-hand clamp screw for L-hand toolholder

GC**R-***	GC**L-***
LOCK Right-hand screw Toolholder : SIGCR....-.. Clamp Screw : SB-....TR	LOCK Left-hand screw Toolholder : SIGCL....-.. Clamp Screw : SB-....TL

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SIGC Carbide Shank Bar (Internal Grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CDX	H	LH	LF	LU	WF	Coolant Hole	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts (G79)
mm	SIGCR/L 0806-WH	●	●	8	6	1.5	5.4	12	75	-	4.8	Yes	SB-2270TR/L	FT-7	GC08R/L...
	SIGCR/L 1008-WH-L85	●	●	10	8	2.2	7.2	18	85	32	5.6	Yes	SB-3070TR/L	FT-8	GC10R/L...
	1008-WH-L100	●							100	45			SB-3070TR		
	SIGCR/L 1210-WH-L95	●		12	10	2.2	9.2	18	95	32	6.6	Yes	SB-3070TR/L	FT-8	GC12R/L...
	1210-WH-L110	●	●						110	45					

Setting the insert
- Use compressed air or other measures to remove chips from the insert pocket.
- Mount the insert into the toolholder ensure the bottom makes contact with the end of the toolholder's surface.
- Keeping the insert seated, tighten the insert clamp screw at an appropriate torque.

Recommended tightening torque : 0.8 N·m (SB-2270TR/L), 1.2 N·m (SB-3070TR/L)
L-hand clamp screw for L-hand toolholder

GC**R-***	GC**L-***
Right-hand screw	Left-hand screw
Toolholder : SIGCR....-.. Clamp Screw : SB-....TR	Toolholder : SIGCL....-.. Clamp Screw : SB-....TL

Applicable Sleeves

Shank Size (Hole Dia.: mm)	06 (6 mm)	08 (8 mm)	10 (10 mm)	12 (12 mm)	16 (16 mm)
Toolholder Part Number	SIGCR/L 0806-WH	SIGCR/L 1008-WH-L85 SIGCR 1008-WH-L100	SIGCR 1210-WH-L95 SIGCR/L 1210-WH-L110	SIGCR/L 0812-EH	SIGCR/L 1016-EH SIGCR/L 1216-EH
SH Sleeves (For Boring Bars)	SH 06…	SH 08…	SH 10…	SH 12…	SH 16…
SHC Sleeves (Coolant Sleeve)	–	SHC 08…	SHC 10…	SHC 12…	SHC 16…
SHA Sleeves	–	SHA 08…	SHA 10…	SHA 12…	–
EZH Sleeves (For EZ Bars)	EZH 06…ST/CT/HP…	EZH 08…ST/CT/HP…	–	–	–

* Remove the positioning pin when mounting SIGC to the EZH-CT/HP Sleeve
Positioning function is not available

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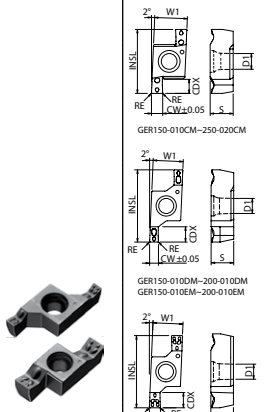
Contact your local Kyocera sales engineer to upgrade old products to new technology

GE

GE

Carbon Steel / Alloy Steel	●	P
Stainless Steel	●	M
Cast Iron		K
Non-Ferrous Metals		N
Titanium Alloy		S
Hard Materials (~ 40HRC)	○	H
Hard Materials (40HRC ~)	●	

Insert	Part Number	No. of Edges	Dimensions (mm) CW in	CW mm	CDX	S	D1	RE	INSL	W1	Tolerance (mm) CW min.	CW max.	Carbide PVD PR2025	PR1225	Applicable Toolholder G86~G88
 GER150-010CM–250-020CM GER150-010DM–200-010DM GER150-010EM–200-010EM GER230-020DM–250-020DM GER250-020EM–400-020EM GER300-020CM–350-020CM GER300-020DM–400-020DM GER450-020EM–500-020EM 2-edge / Molded Chipbreaker	GER 150-010CM	2	0.059	1.5	2.5	4.05	2.8	0.1	11.48	5.8	-0.05	+0.05	●	●	SIGER....C-EH SIGER....C-WH SIGER....C-WH-90
	200-010CM		0.079	2				0.1					●	●	
	250-020CM		0.098	2.5				0.2					●	●	
	300-020CM		0.118	3				0.2					●	●	
	350-020CM		0.138	3.5				0.2					●	●	
	GER 150-010DM	2	0.059	1.5	3	5.05	3.4	0.1	16.44	6.8	-0.05	+0.05	●	●	SIGER...D-EH
	200-010DM		0.079	2	3.2			0.1					●	●	
	230-020DM		0.091	2.3	3.2			0.2					●	●	
	250-020DM		0.098	2.5	3.2			0.2					●	●	
	300-020DM		0.118	3	4.5			0.2					●	●	
	350-020DM		0.138	3.5	4.5			0.2					●	●	
	400-020DM		0.157	4	4.5			0.2					●	●	

Right-hand shown
CDX shows available grooving depth.

Recommended Cutting Conditions G157

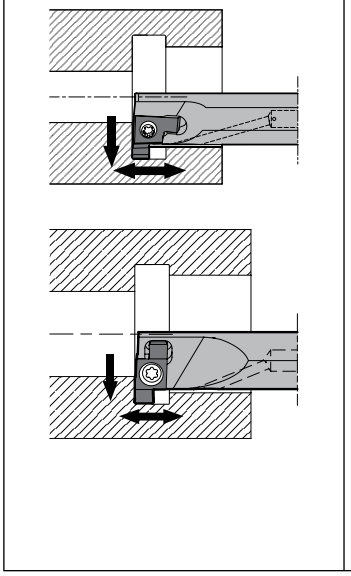
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

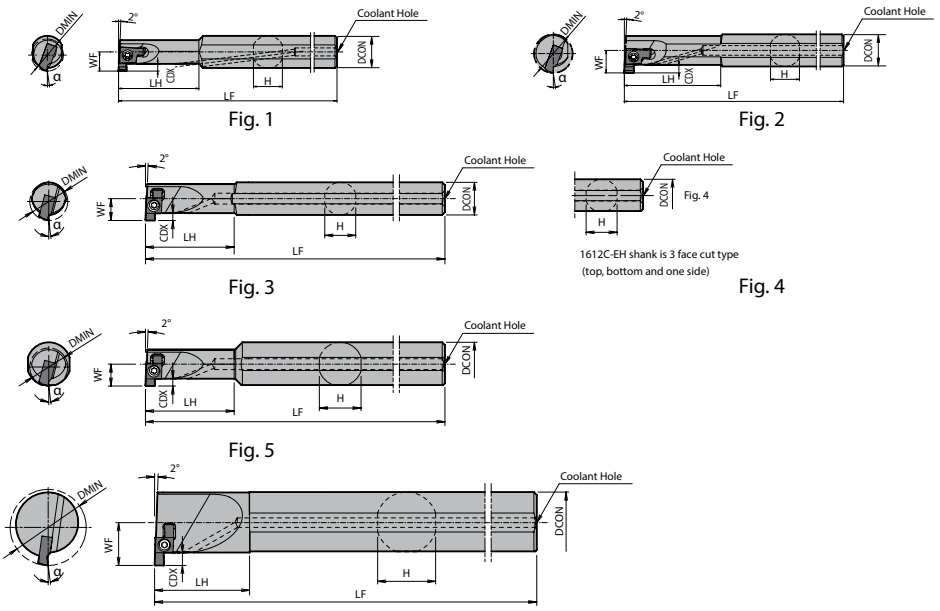
GE

| | | |

GE/GER

SIGE-EH Excellent Bar (Internal Grooving)





Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	CDX	H	LH	LF	WF	Coolant Hole	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts ⇒ G82~G85
Inch	SIGE□ 05EH	●	●	0.313	0.313	0.059	0.283	0.787	3.940	0.177	Yes	1	SB-2045TRN	-	-	FT-6	GE□...A / AR
	SIGE□ 06EH	●	●	0.394	0.375	0.087	0.354	0.984	4.920	0.232	Yes	1	SB-2255TR	-	DTM-7	-	GE□...B, GE□...BR
	SIGE□ 0809C-EH	●	●	0.551	0.500	0.098	0.460	1.300	5.900	0.315	Yes	3	SB-2570TR	-	-	FT-8	GE□...C, GE□...CM GE□...CR
	0810C-EH	●	●	0.630				0.788		0.335							
	SIGE□ 1213D-EH	●	●	0.790	0.750	0.177	0.710	1.575	7.09	0.477	Yes	5	SB-3080TR	-	-	FT-10	GE□...D / DM / DR
	SIGE□ 1616E-EH	●	●	1.000	1.000	0.255	0.960	1.772	7.88	0.614	Yes	5	SB-4085TR	FT-15	-	-	GE□...E GE□...EM
	2020E-EH	●	●	1.250	1.250		1.170	2.166	8.66	0.748							
	2025E-EH	●	●	1.575				1.772	9.84	0.906							
mm	SIGE□ 0808A-EH	●	●	8	8	1.5	7.2	20	100	4.8	Yes	1	SB-2045TRN	-	-	FT-6	GE□...A / AR
	SIGE□ 1010B-EH	●	●	10	10	2.2	9	25	125	6.2	Yes	1	SB-2255TR	-	DTM-7	-	GE□...B GE□...BR
	1210B-EH	●	●	12				30		7		2					
	SIGE□ 1412C-EH	●	●	14	12	2.5	11.4	33	150	8	Yes	3	SB-2570TR	-	-	FT-8	GE□...C GE□...CM GE□...CR
	1612C-EH	●	●	16				20		8.5		4					
	1616C-EH	●	●		16		15	36	160	9		5					
	SIGE□ 2020D-EH	●	●	20	20	4.5	19	40	180	12.1	Yes	5	SB-3080TR	-	-	FT-10	GE□...D / DM / DR
	SIGE□ 2525E-EH	●	●	25	25	6.5	24	45	200	15.6	Yes	5	SB-4085TR	FT-15	-	-	GE□...E GE□...EM
	3232E-EH	●	●	32	32		30.4	55	220	19		5					
	4032E-EH	●	●	40				45	250	23		6					

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

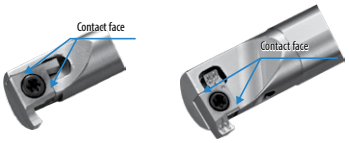
Applicable Sleeve ⇒ F171, F172

Features

Large chip pocket screw clamp toolholder design enables excellent chip evacuation

Cost effective chip control from a molded chipbreaker

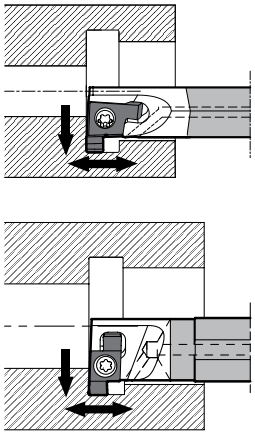
Cutting edge is protected in the pocket



An 8mm minimum bore diameter with a 2-edge design

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SIGE-WH Carbide Shank Bar (Internal Grooving)



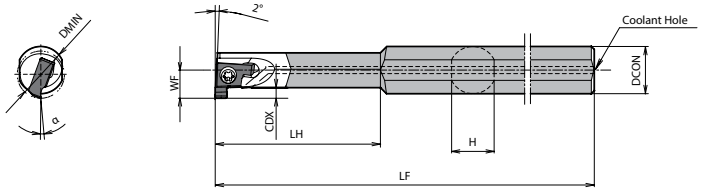


Fig. 1

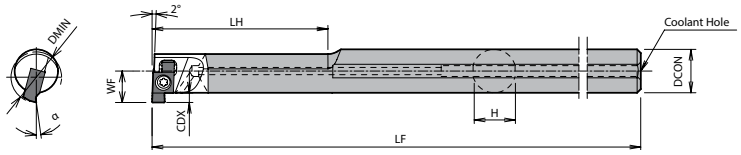


Fig. 2

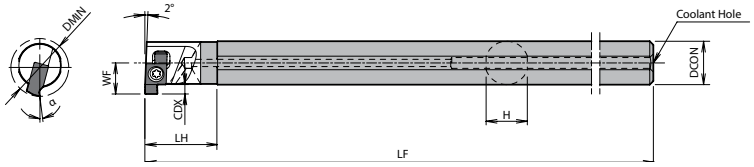


Fig. 3

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

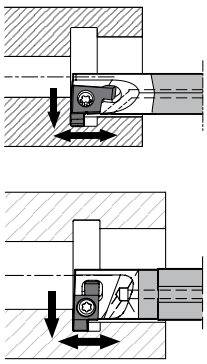
Unit	Part Number	Std. Item		Dimensions							Coolant Hole	Fig.	Spare Parts			Applicable Inserts ⇨ G82~G83
		R	L	DMIN	DCON	CDX	H	LH	LF	WF			Screw	Wrench	Wrench	
mm	SIGE□ 0808A-WH	●	●	8	8	1.5	7.2	28	125	4.8	Yes	1	SB-2045TRN	-	FT-6	GE□...A / AR
	SIGE□ 1010B-WH	●		10	10	2.2	9	35	125	6.2	Yes	1	SB-2255TR	DTM-7	-	GE□...B
	1210B-WH	●	●	12				45	140	7						GE□...BR
	SIGE□ 1412C-WH	●	●	14	12	2.5	11.4	50	150	8.7	Yes	2	SB-2570TR	-	FT-8	GE□...C
	1612C-WH	●	●	16				20	180	8.5		3				GE□...CM GE□...CR

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

Applicable Sleeve ⇨ F171, F172

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SIGE-WH-90 Carbide Shank Bar (Internal Grooving / for Small Parts)



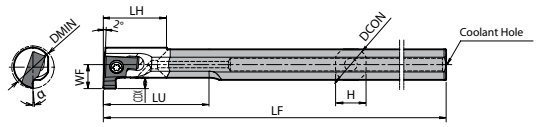


Fig. 1

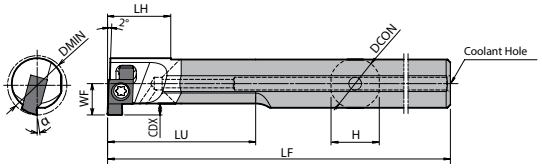


Fig. 2

Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Fig.	Spare Parts		Applicable Inserts ➡ G82~G83
		R	DMIN	DCON	CDX	H	LH	LF	LU	WF			Screw	Wrench	
mm	SIGER 1008B-WH-90	●	10	8	2.2	7.2	15	90	25	5.6	Yes	1	SB-2255TR	FT-7	GE□...B GE□...BR
	1210B-WH-90	●	12	10		9.4			30	6.6					
	SIGER 1412C-WH-90	●	14	12	2.5	11.4	15	90	35	7.4	Yes	2	SB-2570TR	FT-8	GE□...C / CM/ CR

CDX shows the distance from the toolholder to the cutting edge.
LH shows minimum overhang length.

Applicable Sleeve ➡ F171, F172

Applicable Insert & Rake Angle (α) after Installment of Insert

Toolholder		Ground Chipbreaker	α	Molded Chipbreaker	α
SIGE□	05EH	GE□ 100-005A~GE□ 200-010A GER100-050AR~GER200-100AR	5°	-	-
	06EH	GE□ 100-005B~GE□ 300-020B GER100-050BR~GER200-100BR	5°	-	-
SIGE□	0808A-EH	GE□ 100-005A~GE□ 200-010A GER100-050AR~GER200-100AR	5°	-	-
	0809C-EH 0810C-EH	GE□ 100-005C~GE□ 350-020C GER200-100CR~GER300-150CR	8	GER150-010CM~GER350-020CM	10°
	1010B-EH 1210B-EH	GE□ 100-005B~GE□ 300-020B GER100-050BR~GER200-100BR	5°	-	-
	1213D-EH	GE□ 100-005D~GE□ 400-020D GER200-100DR~GER300-150DR	9°	GER150-010DM~GER400-020DM	10°
	1412C-EH 1612C-EH 1616C-EH	GE□ 100-005C~GE□ 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
	1616E-EH	GE□ 100-005E~GE□ 500-020E	10°	GER150-010EM~GER500-020EM	10°
	2020D-EH	GE□ 100-005D~GE□ 400-020D GER200-100DR~GER300-150DR	9°	GER150-010DM~GER400-020DM	10°
	2020E-EH 2025E-EH 2525E-EH 3232E-EH 4032E-EH	GE□ 100-005E~GE□ 500-020E	10°	GER150-010EM~GER500-020EM	10°
SIGE□	0808A-WH	GE□ 100-005A~GE□ 200-010A GER100-050A0.3125 R~GER200-100AR	5°	-	-
	1010B-WH 1210B-WH 1008B-WH-90 1210B-WH-90	GE□ 100-005B~GE□ 300-020B GER100-050BR~GER200-100BR	5°	-	-
	1412C-WH 1612C-WH 1412C-WH-90	GE□ 100-005C~GE□ 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°

α indicates the rake angle at the center of the edge width after installing insert.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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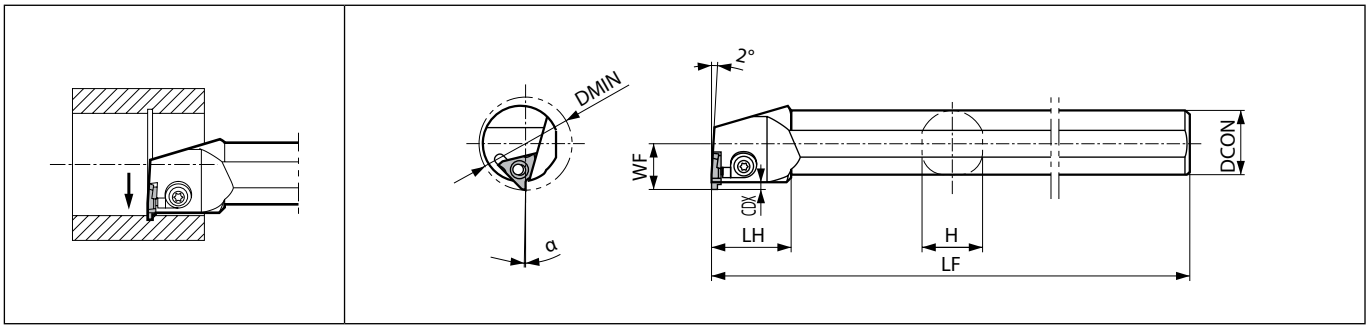
KIGBA (Internal Grooving / Shallow Grooving)

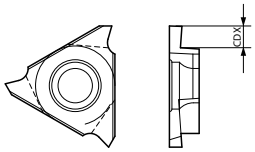


Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Spare Parts		Applicable Inserts G6~G12
		R	L	DMIN	DCON	CDX	H	LH	LF	WF	Clamp Set	Wrench	
Inch	KIGBA R/L 16-3	●	●	1.38	1.00	0.12	0.92	1.18	9.0	0.69	LGBA-16 L/R S	FT-15	GBA32 L/R type
Inch	KIGBA R/L 20-4	●	●	1.57	1.25	0.12	1.18	1.18	10.0	0.90	LGBA-22 L/R S	FT-15	GBA43 L/R type
mm	KIGBA R/L 3525-16	●	●	35	25	2.8	23	30	220	17.5	LGBA-16 L/R S	FT-15	GBA32 L/R type
mm	KIGBA R/L 4032-22	●	●	40	32	3	30	30	250	23	LGBA-22 L/R S	FT-15	GBA43 L/R type

CDX shows the distance from the toolholder to the cutting edge.
Available Grooving Depth depends on the insert.
KIGBA R/L 3525-16 : CDX of the applicable insert (GBA32)
4032-22 : CDX of the applicable insert (GBA43) (1) 2.0 mm (CDX < 3.0 mm) (2) 3.0 mm (CDX ≥ 3.0 mm)
Clamp Set : LGBA-OOLS for Right-hand Toolholder, and LGBA-OORS for Left-hand Toolholder.



Rake Angle (α) after Installment of GBA insert

GBA32 R/L OOO-OOO		GBA43 R/L OOO-OOO		GBA43 R/L OOO-OOOR (Full-R)		
α	Insert Grades	α	Insert Grades	α	Insert Grades	Full-R
+1°	TN620, TN90, PV7040 PR2015, PR2025, PR1215, PR1625 KPD001, KPD010	-9°	KBN510, KBN525	+1°	TN620, TN90, PV7040 PR2015, PR2025, PR1215, PR1625	050R~150R
		+1°	TN620, TC40, TN90, PV7040, PR2015, PR2025, PR1215, PR1625 KPD001, KPD010	+5°	TN620, TN90, PV7040 PR2015, PR2025, PR1215, PR1625	200R
+11°	KW10				KW10	050R~200R
		+11°	KW10			

Rake Angle (α) after Installment of GBA-GM insert

α	Insert Part Number
+1°	GBA43 R/L 150-020GM
+6°	GBA43 R/L 175-020GM ~ GBA43 R/L 265-030GM
+3°	GBA43 R/L 300-030GM ~ GBA43 R/L 400-040GM

α indicates the rake angle at the center of the edge width, after installing insert.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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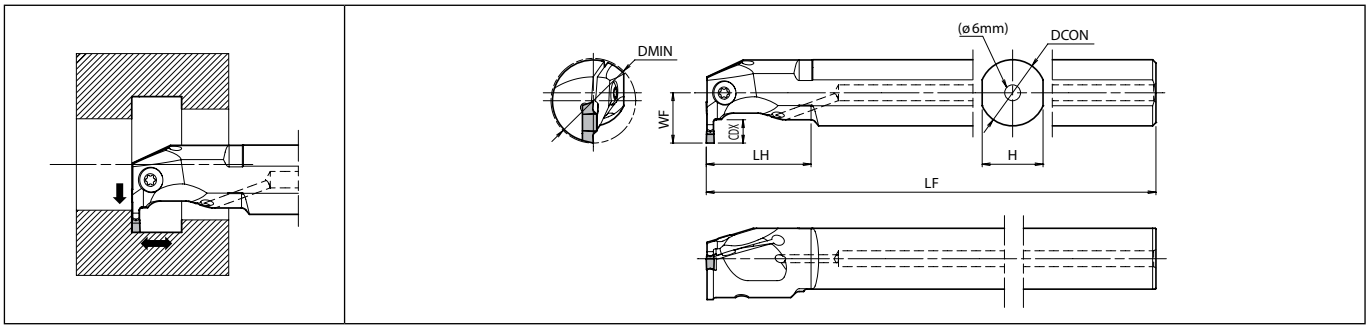
GDM/GDG

KGDI (Internal Grooving)



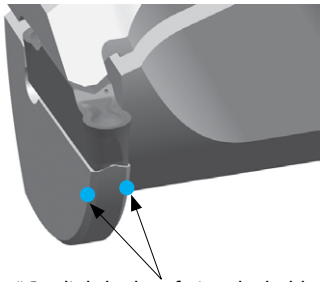
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Dimensions DMIN with GMI/GS	DMIN with CM	DMIN * with CM	DCON	CDX	H	LH	LF	WF	CW min.	CW max.	Coolant Hole	Spare Parts Clamp screw (Torx)	Spare Parts Screw	Spare Parts Wrench	Spare Parts Wrench	Applicable Inserts G90
Inch	KGDIR 10B-2	●		0.709			0.625	0.177	0.591	0.984	6.000	0.374	0.079" (2mm)	0.079" (2mm)	Yes	-	GS-50	LW-3	-	GDM2013N-020GMI
	12B-2	●		0.984	-	-	0.750	0.236	0.709	1.181	7.000	0.571								
	16B-2	●		1.260			1.000	0.276	0.906	1.575	8.000	0.748				SB-5TR	-	-	LTW-20	
	KGDIR 10B-3	●		0.787	0.827		0.625	0.217	0.591	0.984	6.000	0.453	0.118" (3mm)	0.118" (3mm)	Yes	-	GS-50	LW-3	-	GDM3015N-...
	12B-3	●		0.984	1.024	-	0.750	0.236	0.709	1.181	7.000	0.571								
	16B-3	●		1.260	1.299		1.000	0.315	0.906	1.575	8.000	0.748				SB-5TR	-	-	LTW-20	
	KGDIR 16B-4	●		1.260	1.575	1.299	1.000	0.335	0.906	1.575	8.000	0.748	0.157" (4mm)	0.197" 5mm)	Yes	SB-5TR	-	-	LTW-20	GDM4020N-...
	20B-4	●		1.575	1.890	1.614	1.250	0.433	1.142	1.969	8.500	0.925								
	KGDIR 16B-5	●		1.260	1.457	1.338	1.000	0.335	0.906	1.575	8.000	0.748	0.197" 5mm)	0.197" 5mm)	Yes	SB-5TR	-	-	LTW-20	GDM5020N-...
	20B-5	●		1.575	1.772	1.653	1.250	0.433	1.142	1.969	8.500	0.925								
mm	KGDIR/L 1816B-2	●	●	18			16	4.5	15	25	150	9.5	0.079" (2mm)	0.079" (2mm)	Yes	-	GS-50	LW-3	-	GDM2013N-020GMI
	2520B-2	●	●	25	-	-	20	6	18	30	180	14.5								
	3225B-2	●	●	32			25	7	23	40	200	19				SB-5TR	-	-	LTW-20	
	KGDIR/L 2016B-3	●	●	20	21		16	5.5	15	25	150	11.5	0.118" (3mm)	0.118" (3mm)	Yes	-	GS-50	LW-3	-	GDM3015N-...
	2520B-3	●	●	25	26	-	20	6	18	30	180	14.5								
	3225B-3	●	●	32	33		25	8	23	40	200	19				SB-5TR	-	-	LTW-20	
	KGDIR/L 3225B-4	●	●	32	40	34	25	8.5	23	40	200	19	0.157" (4mm)	0.197" 5mm)	Yes	SB-5TR	-	-	LTW-20	GDM4020N-...
	4032B-4	●	●	40	48	42	32	11	29	50	220	23.5								
	KGDIR/L 3225B-5	●	●	32	37	34	25	8.5	23	40	200	19	0.197" 5mm)	0.197" 5mm)	Yes	SB-5TR	-	-	LTW-20	GDM5020N-...
	4032B-5	●	●	40	45	42	32	11	29	50	220	23.5								

* Possible by slightly chamfering toolholder's tip about 0.002" (0.5 mm)

Additional processing of toolholder tip when CM chipbreaker is installed



* By slightly chamfering the holder tip of about 0.5 mm, the cutting diameter can be minimized.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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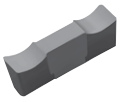
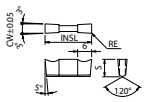
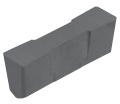
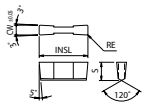
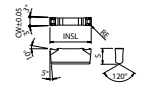
GH/GHU

Cutting edge preparation

Symbol	Specification	Example	
S	Chamfered and R-honed	S01020	0.10mm × 20° chamfered and R-honed
T	Chamfered	T01020	0.10mm × 20° chamfered

Carbon Steel / Alloy Steel		✱										P
Stainless Steel		●										M
Cast Iron			●		●	○						K
Non-Ferrous Metals			●									N
Titanium Alloy			●									S
Hard Materials (~ 40HRC)		●										H
Hard Materials (40HRC ~)				○	●							

Insert	Part Number	Edge Prep (mm)	No. of Edges	Dimensions (mm) CW in	CW mm	S	RE	INSL	Tolerance (mm) CW min.	CW max.	Carbide CVD	Carbide PVD	Carbide -	Ceramic PVD	Ceramic -	Cermet -			Applicable Toolholder ➔ G93
														CR9025	PR930	KW10	A66N PT600M	A65	TC40	TC60	TN60	
		GH 4020-02	-	2	0.157	4	7.5	0.2	20	-0.05	+0.05		●	●					KIGHR4532B-4 KIGHR5540B-4 KIGHR6550B-4
		GH 4020-05						0.5					●	●					
		GH 5020-02	-	2	0.197	5	7.5	0.2	20	-0.05	+0.05		●	●					KIGHR4532B-5 KIGHR5540B-5 KIGHR6550B-5
		GH 5020-05						0.5					●	●					
		GH 6020-02	-	2	0.236	6	7.5	0.2	20	-0.05	+0.05		●	●			●		
		GH 6020-05						0.5					●	●					
		GH 7020-02	-	2	0.276	7	7.5	0.2	20	-0.05	+0.05		●	●					KIGHR5540B-7 KIGHR6550B-7
		GH 7020-05						0.5					●	●					
		GH 8020-02	-	2	0.315	8	7.5	0.2	20	-0.05	+0.05		●	●			●	●	
		GH 8020-05						0.5					●	●					
		GH 4020-05	S01020	2	0.157	4	7.5	0.5	20	-0.05	+0.05				●				KIGHR4532B-4 KIGHR5540B-4 KIGHR6550B-4
			T01020													●	●		
		GH 5020-05	S01020	2	0.197	5	7.5	0.5	20	-0.05	+0.05				●				KIGHR4532B-5 KIGHR5540B-5 KIGHR6550B-5
			T01020													●	●		
		GH 6020-05	T01020	2	0.236	6	7.5	0.5	20	-0.05	+0.05					●			
		GH 7020-05	T01020	2	0.276	7	7.5	0.5	20	-0.05	+0.05					●			KIGHR5540B-7 KIGHR6550B-7
	 Molded Chipbreaker	GHU 40-20	-	2	0.157	4	7.5	0.25	20	-0.05	+0.05	●						●	KIGHR4532B-4 KIGHR5540B-4 KIGHR6550B-4
		GHU 50-20	-	2	0.197	5	7.5	0.3	20	-0.05	+0.05	●						●	KIGHR4532B-5 KIGHR5540B-5 KIGHR6550B-5
		GHU 60-20	-	2	0.236	6	7.5	0.3	20	-0.05	+0.05	●						●	

Recommended Cutting Conditions ➔ G69

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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KIGH (Internal Grooving / Deep Grooving)

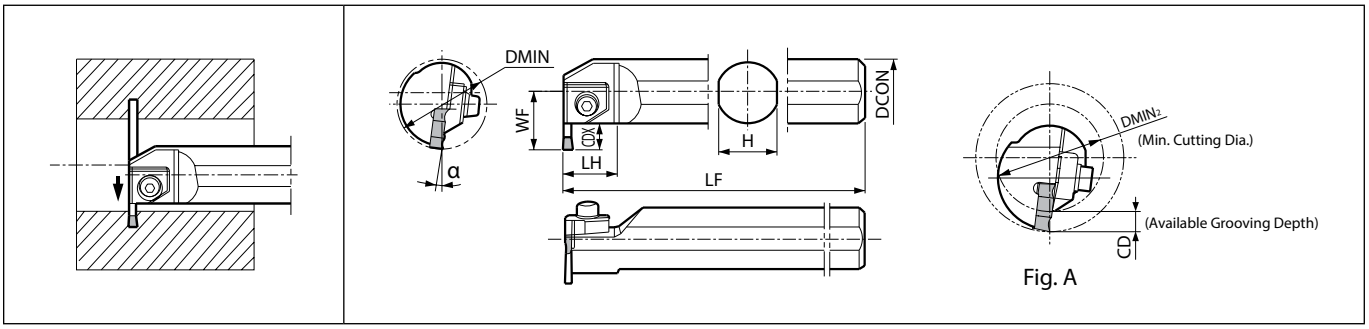

Fig. A

Right-hand shown

Toolholder Dimensions

Unit	Part Number		Std. Item	Dimensions							Spare Parts					Applicable Inserts G92
											Clamp (L)	Clamp Screw	Spring	Washer	Wrench	
			R	DMIN	DCON	CDX	H	LH	LF	WF						
mm	KIGHR	4532B-4	●	45	32		30		200	28.2						
		5540B-4	●	55	40	12	38	27	250	32.3	CGH-1L	HH6X25	SP-6	W-6	LW-5	GH4020-... / GHU40-... GH4520-...
		6550B-4	●	65	50		48		300	37.3						
	KIGHR	4532B-5	●	45	32		30		200	28.2						
		5540B-5	●	55	40	12	38	27	250	32.3	CGH-1L	HH6X25	SP-6	W-6	LW-5	GH5020-... / GHU50-... / GH5520-... GH6020-... / GHU60-... / GH6520-...
		6550B-5	●	65	50		48		300	37.3						
	KIGHR	5540B-7	●	55	40	12	38	27	250	32.3	CGH-2L	HH6X25	SP-6	W-6	LW-5	GH7020-... / GH7520-... / GH8020-...

CDX shows the distance from the toolholder to the cutting edge. For the available grooving depth (CD), ref. to „List of Min. Available Cutting Diameter and Groove Depth".
LH depends on the insert's edge width.

Rake Angle (α) after Installment of GH / GHU insert

GHOOOO-OO		GHUOO-OO	
α	Insert Grades	α	Insert Grades
-5°	A65, A66N, PT600M	+5°	TN60 CR9025
+5°	TC40		
+15°	TN90, TC60 PR930 KW10		

List of the Min. Cutting Diameter and Grooving Depth (Refer to Fig. A)

Toolholder Part Number		DMIN2 (Min. Cutting Dia. mm)					
KIGHR	4532B-O	ø110	ø70	ø65	ø60	ø55	ø45
	5540B-O	ø70	ø60	ø55			
	6550B-O	ø65					
Available Grooving Depth CD (mm)		12	11.5	11	10	9	Under 8

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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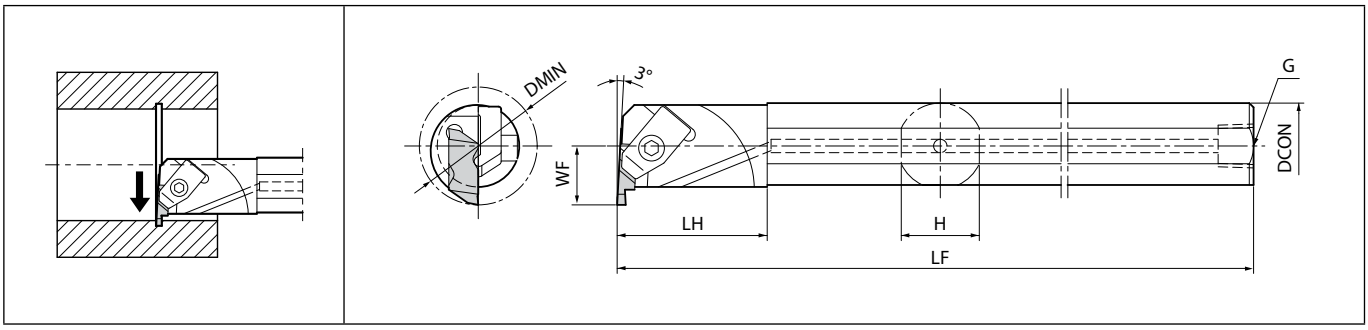
A-KKC (External Grooving)

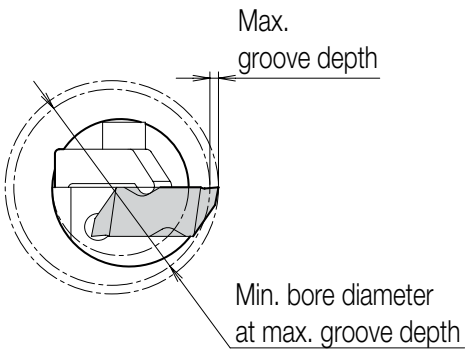


Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	G	Spare Parts: Clamp	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Inserts ➡ G62~G64
Inch	A10M- KKCR-2	●		1.000	0.625	0.596	1.153	6.00	0.500	1/8-27 NPT	CKC-2L	SKC-2	(7/64 Hex)	KCGP2... KCG2... KCRP2...
	A10S- KKCR-2	●						10.00						
	A12R- KKCR-2	●		1.125	0.750	0.728	1.171	8.00	0.562					
	A12S- KKCR-2	●						10.00						
	A16T- KKCR3/8-2	●	●	1.375	1.000	0.910	1.100	12.00	0.688		CKC-3 3/8L	SKC-3	(LW-156)	
	A16X- KKCR-3	●		1.375	1.000	0.910	1.750	9.00	0.688	1/8-27 NPT	CKC-3 3/8L	SKC-3	(LW-156)	KCGP3... KCG3... KCRP3...
	A16T- KKCR3/8-3	●	●					12.00						
	A20U- KKCR-3	●		1.750	1.250	1.138	1.750	14.00	0.875	1/4-18 NPT				
	A24U- KKCR3/8-3	●	●	2.000	1.500	1.366			1.000					
	A28U- KKCR-4	●		2.500	1.750	1.593	1.750	14.00	1.250	1/4-18 NPT	CKC-3 3/8L	SKC-3	(LW-156)	KCGP4... KCRP4...

Clamp: CKC-OL for Right-hand Toolholder and CKC-OR for Left-hand Toolholder.
Above toolholders are also available for threading. See Page **J35.**



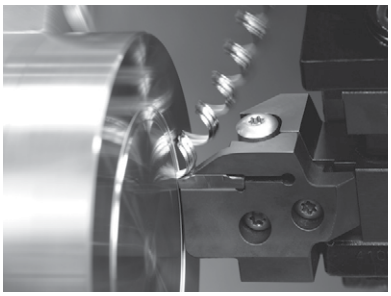
"**CDX**" dimension is same as the "**CDX** dimension" of the available insert.

Insert Size	CDX	Max Groove Depth (in)	Min Bore Dia. (in)
KCG2 KCGP2 KCRP2	0.050	0.040	1.000
	0.110	0.110	2.500
		0.102	1.750
		0.098	1.500
		0.080	1.000
KCG3 KCGP3 KCRP3	0.075	0.050	1.325
	0.094	0.080	1.250
		0.070	1.625
		0.065	1.325
	0.150	0.140	2.375
		0.135	2.125
		0.128	1.875
		0.115	1.625
		0.100	1.375
KCGP4 KCRP4	0.150	0.140	2.750
	0.250	0.240	5.750
		0.235	5.000
		0.230	4.500
		0.208	3.250
		0.190	2.500

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

External Diameter of the Groove DAXN / DAXX

Face grooving diameter DAXN (min) ~ DAXX (max) is the suitable range for the initial grooving plunge on the unprocessed workpiece
(See Fig.1).
Then, you can widen it towards the inside or the outside within the tool's diameter range.



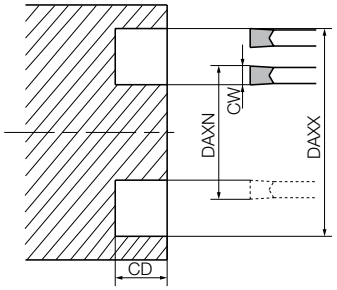
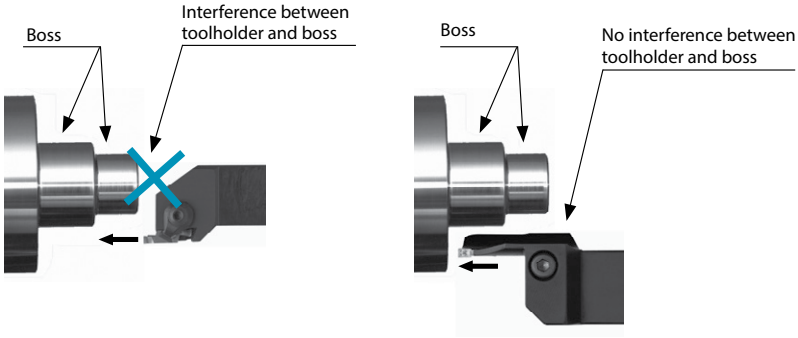


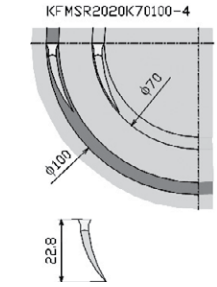
Fig.1

Caution for Face Grooving

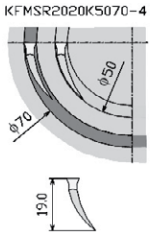
1. When face grooving, the suitable toolholder depends on the length of the boss



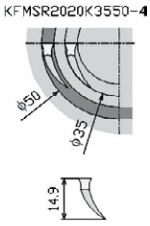
2. Selection of Face Grooving Toolholder



Shape of below Jaw



Shape of below Jaw

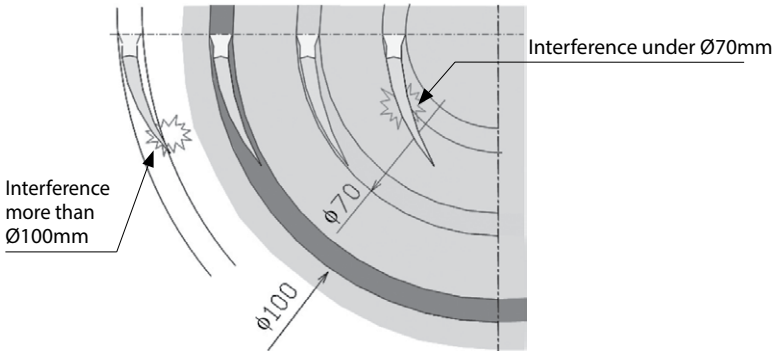


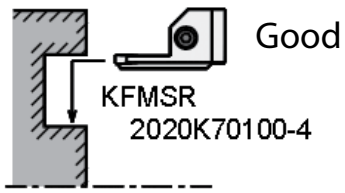
Shape of below Jaw

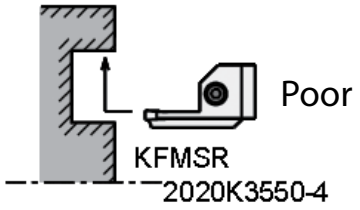
Wider grooving (turning) should be performed from the outside inwards.

3. Interference of Face Grooving Toolholder

e.g.) KFMSR2525M70100-4



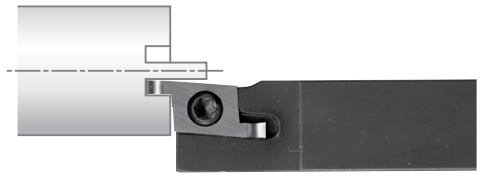




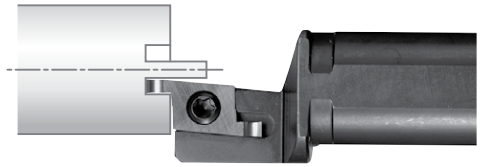
Example of usage for the face grooving toolholder.

When face grooving, KFMSR2525M70100-4 should be plunged between Ø70mm~Ø100mm starting at the outer diameter and moving torwards center. The jaw of toolholder interferes with the workpiece at diameters above Ø100mm or below Ø70mm.

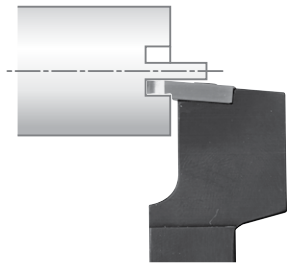
Small Diameter Face Grooving Ø0.236" (Ø6mm)~



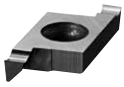
Type	STW
Min. Face Groove Diameter	0.236" (6.0mm)
Edge Width	0.020"~0.079" (0.5mm ~ 2.0mm)
Grooving Depth	0.039"~0.118" (1.0mm ~ 3.0mm)
Ref. Page	G102



Type	S...-STW
Min. Face Groove Diameter	0.236" (6.0mm)
Edge Width	0.020"~0.079" (0.5mm ~ 2.0mm)
Grooving Depth	0.039"~0.118" (1.0mm ~ 3.0mm)
Ref. Page	G103



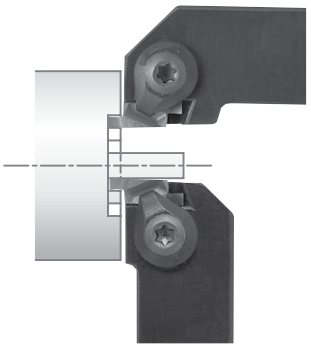
Type	STWS
Min. Face Groove Diameter	0.236" (6.0mm)
Edge Width	0.020"~0.079" (0.5mm ~ 2.0mm)
Grooving Depth	0.039"~0.118" (1.0mm ~ 3.0mm)
Ref. Page	G105



Twin Bar Horizontal Type

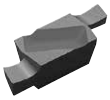
Twin Bar Vertical Type

Small Diameter Face Grooving Ø0.315" (Ø8mm)~



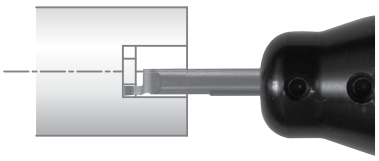
Type	GFVS-AA
Min. Face Groove Diameter	0.315" (8.0mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.0866" (2.2mm)
Ref. Page	G135

Type	GFVT-AA
Min. Face Groove Diameter	0.315" (8.0mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.0866" (2.2mm)
Ref. Page	G135

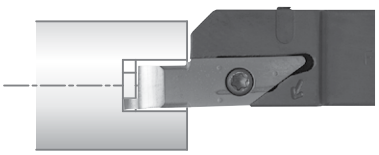


Ground Chipbreaker

Small Diameter Face Grooving Ø0.197"~, Ø0.315"~ (Ø5mm~, Ø8mm~)



Type	EZFG
Min. Face Groove Diameter	0.197", 0.236", 0.315" (5.0mm, 6.0mm, 8.0mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.079"~0.118" (1.5mm ~ 3.0mm)
Ref. Page	G99



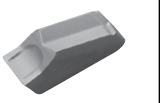
Type	VNFG
Min. Face Groove Diameter	0.315" (8.0mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.079"~0.118" (2.0mm ~ 3.0mm)
Ref. Page	G101

EZ-Bar

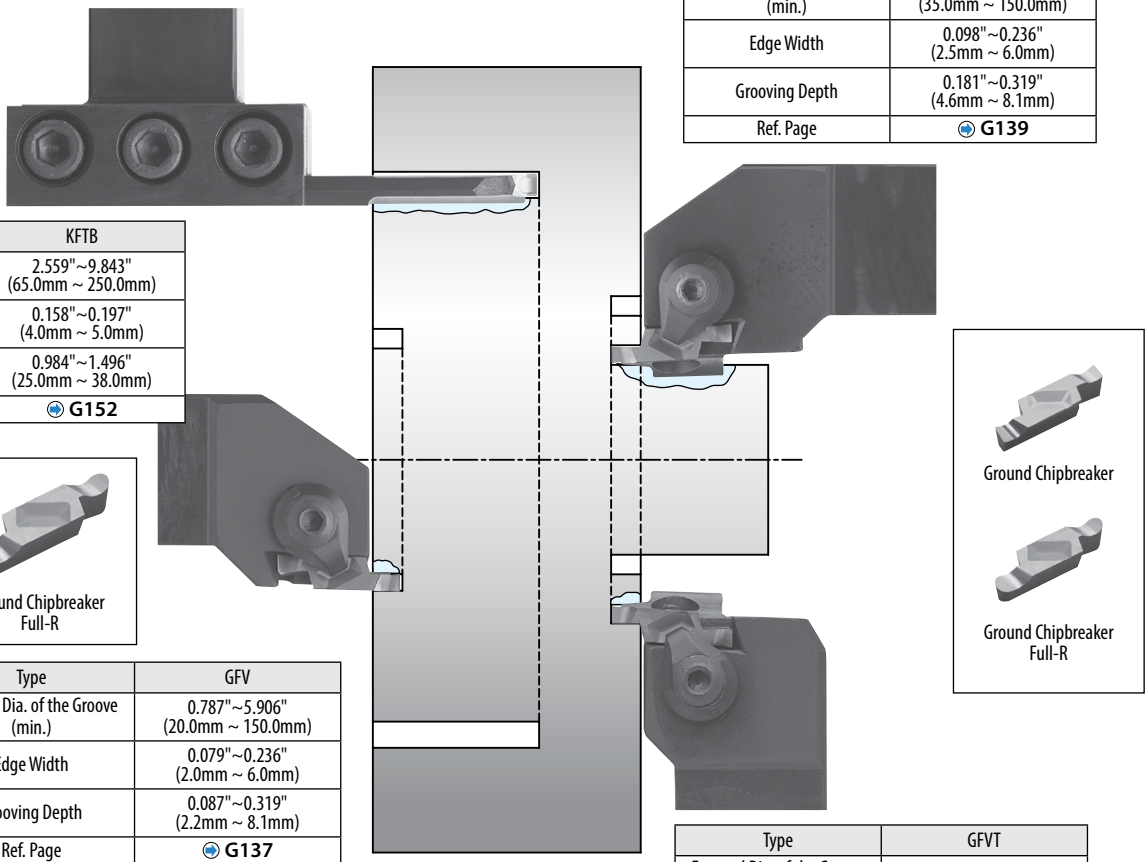
Swiss IQ Bar

800.823.7284
www.kyoceraprecisiontools.com

Face Grooving Ø0.787" (Ø20mm)~

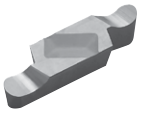


Molded Chipbreaker



Type	KFTB
External Dia. of the Groove (min.)	2.559"~9.843" (65.0mm ~ 250.0mm)
Edge Width	0.158"~0.197" (4.0mm ~ 5.0mm)
Grooving Depth	0.984"~1.496" (25.0mm ~ 38.0mm)
Ref. Page	G152

Ground Chipbreaker



Ground Chipbreaker Full-R

Type	GFV
External Dia. of the Groove (min.)	0.787"~5.906" (20.0mm ~ 150.0mm)
Edge Width	0.079"~0.236" (2.0mm ~ 6.0mm)
Grooving Depth	0.087"~0.319" (2.2mm ~ 8.1mm)
Ref. Page	G137

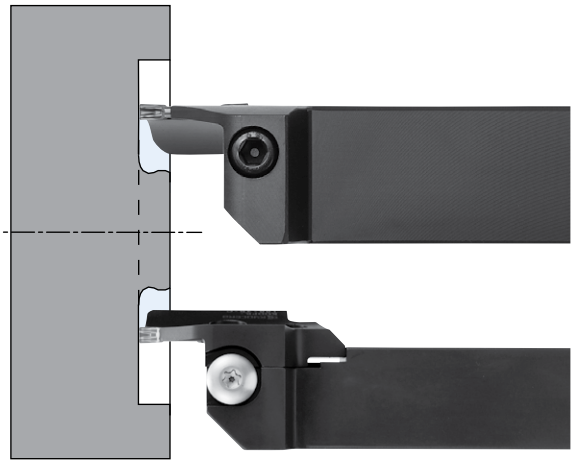
Type	GFVS
External Dia. of the Groove (min.)	1.378"~5.906" (35.0mm ~ 150.0mm)
Edge Width	0.098"~0.236" (2.5mm ~ 6.0mm)
Grooving Depth	0.181"~0.319" (4.6mm ~ 8.1mm)
Ref. Page	G139

Ground Chipbreaker

Ground Chipbreaker Full-R

Type	GFVT
External Dia. of the Groove (min.)	1.378"~5.906" (35.0mm ~ 150.0mm)
Edge Width	0.098"~0.236" (2.5mm ~ 6.0mm)
Grooving Depth	0.181"~0.319" (4.6mm ~ 8.1mm)
Ref. Page	G141

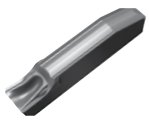
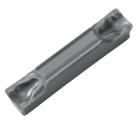
KGDF Face Grooving Ø0.984" (Ø25mm)~



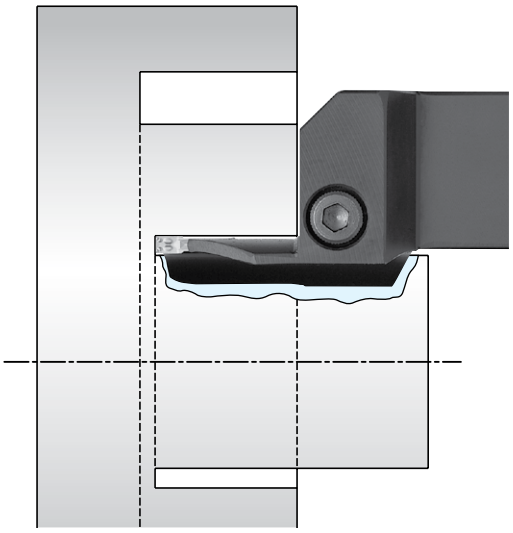
Type	KGDF-Z
External Dia. of the Groove (min.)	1.969"~4.528" (50mm ~ 115mm)
Edge Width	0.118"~0.197" (3.0mm ~ 5.0mm)
Grooving Depth	0.591" (15mm)
Ref. Page	G120

Type	*KGDF
External Dia. of the Groove (min.)	0.984"~9.252" (25mm ~ 235mm)
Edge Width	0.079"~0.236" (2.0mm ~ 6.0mm)
Grooving Depth	0.181"~0.319" (6mm ~ 32mm)
Ref. Page	G110

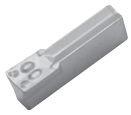
*The SwitchBlade Type toolholders can accept all blades if their hand is matching.

Grooving and Traversing	Deep Grooving and Traversing	High Feed Rate	Full Radius (R)	Non-Ferrous Machining
GM	DM	GH	CM	GS
				

Face Grooving & Traversing Ø0.984" (Ø25mm)~



Type	KFMS
External Dia. of the Groove (min.)	0.984"~9.252" (25.0mm~235.0mm)
Edge Width	0.118"~0.236" (3.0mm ~ 6.0mm)
Grooving Depth	0.512"~1.260" (13.0mm ~ 32.0mm)
Ref. Page	G149

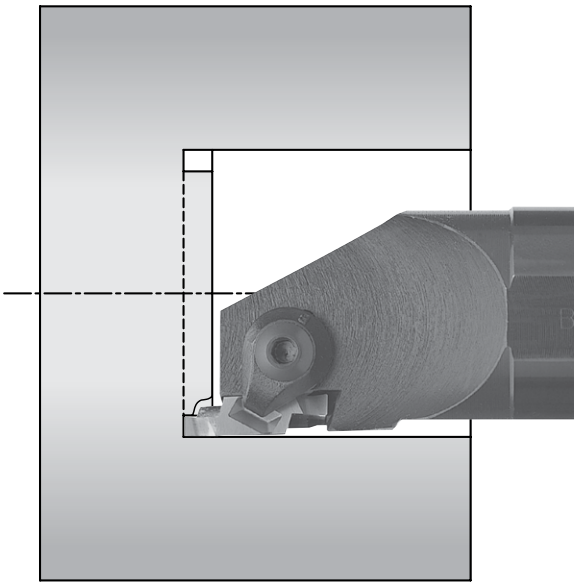


Molded Chipbreaker

Type	KKCE
External Dia. of the Groove (min.)	0.940"~1.630"
Edge Width	0.125"~0.189" (3.15mm~4.80mm)
Grooving Depth	0.060"~0.150" (1.52mm~3.81mm)
Ref. Page	G147

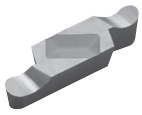
Ground Chipbreaker

Face Grooving Ø1.378" (Ø35mm)~



Type	GIFV
External Dia. of the Groove (min.)	1.378"~1.969" (35.0mm~50.0mm)
Edge Width	0.079"~0.236" (2.0mm~6.0mm)
Grooving Depth	0.087"~0.319" (2.2mm~8.1mm)
Ref. Page	G145

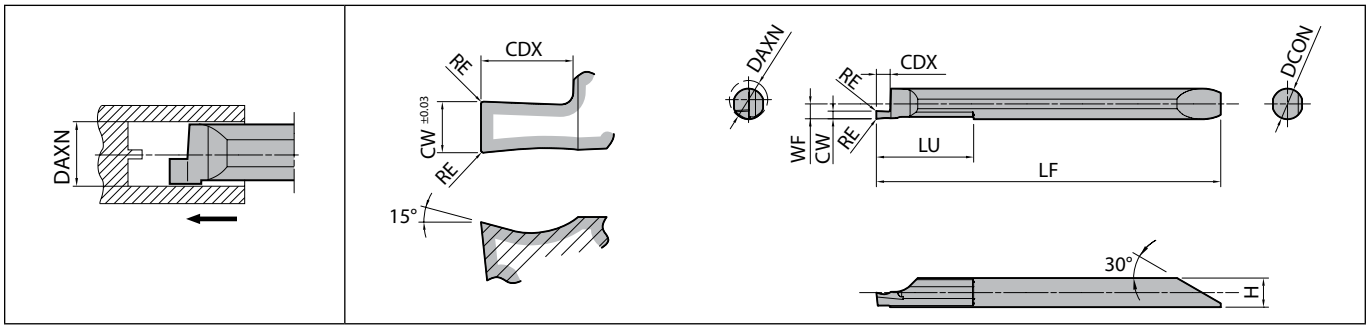
Ground Chipbreaker



Ground Chipbreaker Full-R

800.823.7284
www.kyoceraprecisiontools.com

EZFG (Internal Grooving / Face Grooving)



Right-hand shown

Dimensions

Part Number	No. of Edges	External dia.of the groove (mm)	Dimensions (mm)									Tolerance (mm)				Carbide			Applicable Sleeve F38~F45
																PVD		-	
		DAXN (min.)	CW		CDX	RE	DCON	H	LF	LU	WF	CW min.	CW max.	RE min.	RE max.	PR1225		GW05	
			in	mm												R	L	R	
EZFG R/L 050040-100	1	5	0.039	1	1.5	0.05	4	3.8	45	12	1.9	-0.03	+0.03	-0.013	+0.013	●	●	●	EZH040...
050040-150			0.059	1.5	2											●	●	●	
EZFG R/L 060050-100	1	6	0.039	1	1.5	0.05	5	4.8	53.2	15	2.4	-0.03	+0.03	-0.013	+0.013	●	●	●	EZH050...
060050-150			0.059	1.5	2.5											●	●	●	
060050-200			0.079	2	3											●	●	●	
EZFG R/L 080070-100	1	8	0.039	1	2	0.05	7	6.8	64.2	25	3.4	-0.03	+0.03	-0.013	+0.013	●	●	●	EZH070...
080070-150			0.059	1.5	2.5											●	●	●	
080070-200			0.079	2	3											●	●	●	
080070-300			0.118	3	3											●	●	●	

CDX shows available grooving depth.

Recommended Cutting Conditions G100

EZ Bars Identification System

EZ FG R 050 040 – 100

Symbol of EZ Bars	Applications	Insert hand	External dia. of the groove (min.)	Shank Dia.	Edge Width
	FG : Face Grooving	R : Right-hand L : Left-hand	050 : 5mm 060 : 6mm 080 : 8mm	040 : 4mm 050 : 5mm 070 : 7mm	100 : 1.0mm 150 : 1.5mm 200 : 2.0mm 300 : 3.0mm

EZ Bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Sleeves

Sleeve				Applicable bar for internal face grooving		Applicable machine manufacturer
EZH-CT (Adjustable Overhang Length / with Coolant Hole) ➡ F40~F41	EZH-HP (Adjustable Overhang Length) ➡ F42~F43	EZH-ST ➡ F44~F45	Sleeve shank dia. DCON(mm)	EZFG	Shank dia. DCON(mm)	
-	-	EZH 04012ST-80	12	EZFG R/L 050040-...	4	(General purpose)
		05012ST-80		EZFG R/L 060050-...	5	
		07012ST-80		EZFG R/L 080070-...	7	
-	EZH 04016HP-100	EZH 04016ST-100	16	EZFG R/L 050040-...	4	(General purpose)
	05016HP-100	05016ST-100		EZFG R/L 060050-...	5	
	07016HP-100	07016ST-100		EZFG R/L 080070-...	7	
EZH 04019CT-120	EZH 04019HP-120	EZH 04019ST-120	0.750"	EZFG R/L 050040-...	4	Citizen Machinery
05019CT-120	05019HP-120	05019ST-120		EZFG R/L 060050-...	5	
07019CT-120	07019HP-120	07019ST-120		EZFG R/L 080070-...	7	
EZH 04020CT-120	EZH 04020HP-120	EZH 04020ST-120	20	EZFG R/L 050040-...	4	Eguro Tsugami Citizen Machinery (General purpose)
05020CT-120	05020HP-120	05020ST-120		EZFG R/L 060050-...	5	
07020CT-120	07020HP-120	07020ST-120		EZFG R/L 080070-...	7	
EZH 04022CT-135	EZH 04022HP-135	EZH 04022ST-135	22	EZFG R/L 050040-...	4	Star Micronics Nomura DS Tsugami
05022CT-135	05022HP-135	05022ST-135		EZFG R/L 060050-...	5	
07022CT-135	07022HP-135	07022ST-135		EZFG R/L 080070-...	7	
EZH 04025.0CT-135	EZH 04025.0HP-135	EZH 04025.0ST-135	25	EZFG R/L 050040-...	4	Eguro Tsugami Citizen Machinery (General purpose)
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZFG R/L 060050-...	5	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZFG R/L 080070-...	7	
EZH 04025.4CT-120	EZH 04025.4HP-120	EZH 04025.4ST-120	1.000"	EZFG R/L 050040-...	4	Citizen Machinery
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZFG R/L 060050-...	5	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZFG R/L 080070-...	7	

· Choose sleeves with a DCON dimension that matches the DCB dimension of the EZ Bar.
· Adjustment Pin cannot be installed on **EZH-ST** sleeves. To adjust overhang of the bar, please use **EZH-CT / HP** sleeves.
· Machine manufacturers in random order

Recommended Cutting Conditions

Workpiece Material	Insert Grades (Vc: sfm)		EZFG R/L 050040-100 EZFG R/L 060050-100 EZFG R/L 080070-100	EZFG R/L 050040-150 EZFG R/L 060050-150 EZFG R/L 080070-150	EZFG R/L 060050-200 EZFG R/L 080070-200	EZFG R/L 080070-300	Notes
	MEGACOAT	Carbide					
	PR1225	GW05	f (ipr)				
Carbon Steel / Alloy Steel	★ 100~330	-	~0.0008	~0.0012	~0.0016	~0.0020	Coolant
Stainless Steel	★ 100~260	-	~0.0004	~0.0008	~0.0008	~0.0012	
Non-Ferrous Metals	-	★ ~980	~0.0012	~0.0020	~0.0024	~0.0031	

★: 1st recommendation

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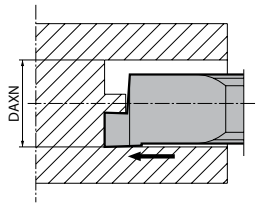
VNFG (Internal Grooving / Face Grooving)



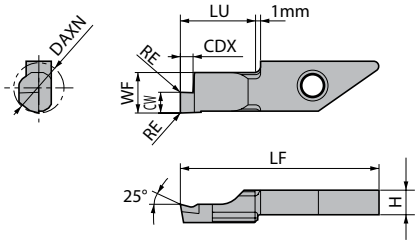


Fig. 1

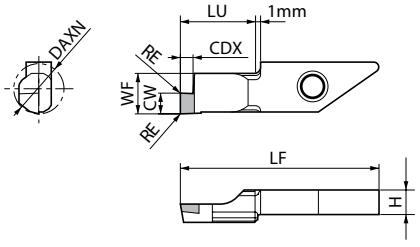


Fig. 2

Right-hand shown

Dimensions

Part Number	No. of Edges	External dia.of the groove (mm)		Dimensions (mm)								Tolerance (mm)		Fig.	Carbide			PCD	Applicable Toolholder ➡ F50~F53
		DAXN (min.)	DAXX (max.)	CW		CDX	RE	H	LF	LU	WF	CW min.	CW max.		PVD		-	-	
				in	mm										PR1225	PR930	KW10	KPD001	
VNFGR 0810-10	1	8 (0)	∞ (∞)	0.039	1	2	0.05	3.9	29.6	10	7.3	-0.03	+0.03	1	●	●	●		SVNR...-12N S...-SVNR12(N) S...-SVNR12SN
VNFGR 0820-10	1			0.079	2	2									●	●	●		
VNFGR 0830-10	1			0.118	3	3									●	●	●		
VNFGR 0820-10NB	1			0.079	2	2	0.05	3.9	29.6	10	7.3	-0.03	+0.03	2				□	
VNFGR 0830-10NB	1			0.118	3	3												□	

CDX shows available grooving depth.
External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.

Recommended cutting conditions

Workpiece Material	Recommended insert grades (Vc: sfm)			VNFG0810	VNFG0820	VNFG0830	Notes
	MEGACOAT	PVD Coated Carbide	Carbide				
	PR1225	PR930	KW10	f (ipr)			
Carbon Steel / Alloy Steel	★ 100~330	☆ 100~330		~0.0008	~0.0016	~0.0020	Coolant
Stainless Steel	★ 100~260	☆ 100~260		~0.0004	~0.0008	~0.0012	
Non-Ferrous Metals			★ ~980	~0.0016	~0.0024	~0.0031	

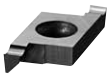
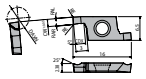
★:1st recommendation ☆:2nd recommendation

Swiss IQ bars are sold in 5 piece boxes

PCD Inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

TWFG (Face Grooving, Horizontal Type)

		Carbon Steel / Alloy Steel										●		P
		Stainless Steel										●		M
		Cast Iron												K
		Non-Ferrous Metals											●	N
		Titanium Alloy												S
		Hard Materials (~ 40HRC)												H
		Hard Materials (40HRC ~)												
Insert		Part Number	No. of Edges	External dia. of the groove (mm) DAXN (min.)	External dia. of the groove (mm) DAXX (max.)	Dimensions (mm) CW in	Dimensions (mm) CW mm	Dimensions (mm) CDX	Dimensions (mm) RE	Tolerance (mm) CW min.	Tolerance (mm) CW max.	Angle (°) RA	Carbide PVD PR1535	Carbide - KW10	Applicable Toolholder ⇒ G102 G103
		TWFGL 050	2	6 (0)	∞ (∞)	0.020	0.5	1	0.05	- 0.03	+ 0.03	1.5	●	●	STWL.....-15 S...-STWL15
		080				0.031	0.8	1.5				1.5	●	●	
		100				0.039	1	2.2				2	●	●	
		125				0.049	1.25	2.2				2	●	●	
		150				0.059	1.5	2.2				2	●	●	
		180				0.071	1.8	3				2	●	●	
		200				0.079	2	3				2	●	●	

CDX shows available grooving depth.
External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.
Left-hand shown

Recommended Cutting Conditions ⇒ G101

STW (Face Grooving, Square Shank for Horizontal Type Insert)

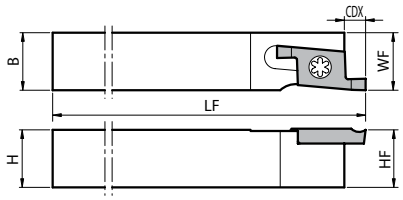


Fig. 1

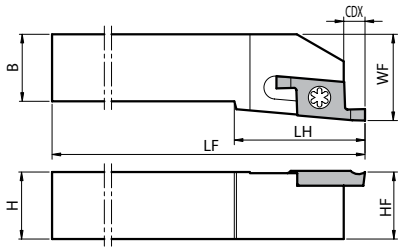


Fig. 2

Left-hand shown | Left-hand Insert for Left-hand Toolholder. | (For right-hand toolholder for boring, See page **F56**.)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions L	CDX	H	B	LH	HF	LF	WF	Fig.	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts
mm	STWL 1616K-15	●	3	16	16	-	16	125	16	1	SB-3080TR	LTW-10S	TWFGL...
	STWL 2020K-15	●	3	20	20	25	20	125	25	2	SB-3080TR	LTW-10S	TWFGL...
	2525M-15	●		25	25		25	150	32				

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

Twin Bars are sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-STW (Face Grooving, Round Shank for Horizontal Type Insert)

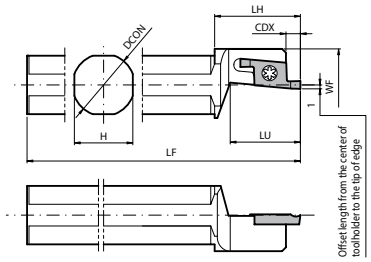


Fig. 1

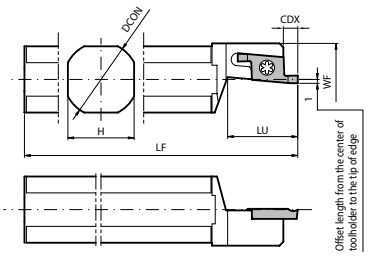


Fig. 2

Left-hand shown | Left-hand Insert for Left-hand Toolholder. | (For right-hand toolholder for boring, See page **F57**.)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Coolant Hole	Fig.	Spare Parts		Applicable Inserts ➔ G102
			L	DCON	CDX	H	LH	LF	LU	WF			Screw	Wrench	
Inch	S19G- STWL15	●	0.750	0.118	0.669	-	3.543	0.709	0.728	No	2	SB-3080TR	LTW-10S	TWFGL...
	S19K- STWL15	●					4.724							
	S25K- STWL15	●	1.000	0.118	0.906		4.724	0.866	0.984					
mm	S12F- STWL15	●	12	3	11	22	80	18	20	No	1	SB-3080TR	LTW-10S	TWFGL...
	S16F- STWL15	●	16		15		100							
	S20K- STWL15	●	20	3	18	-	120	18	19.5	No	2			
	S22K- STWL15	●	22		20		125	22	21.5					
	S25.0J- STWL15	●	25		23		110		24.5					

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

TWFGT (Face Grooving, Vertical Type)

													Carbide			
													PVD	-		
Insert		Part Number	No. of Edges	External dia. of the groove (mm)		Dimensions (mm)				Tolerance (mm)		Angle (°)			Applicable Toolholder ➡ G109	
				DAXN (min.)	DAXX (max.)	CW		CDX	RE	CW min.	CW max.	RA ″/L	PR1535	KW10		
						in	mm									
		TWFGTR 050	2	6 (0)	∞ (∞)	0.020	0.5	1	0.05	- 0.03	+ 0.03	1.5	●	●	STWSR.....-15T	
		080				0.031	0.8	1.5				1.5	●	●		
		100				0.039	1	2.2				2	●	●		
		125				0.049	1.25	2.2				2	●	●		
		150				0.059	1.5	2.2				2	●	●		
		180				0.071	1.8	3				2	●	●		
		200				0.079	2	3				2	●	●		

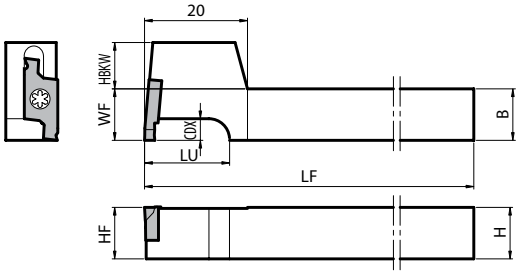
Carbon Steel / Alloy Steel	P
Stainless Steel	M
Cast Iron	K
Non-Ferrous Metals	N
Titanium Alloy	S
Hard Materials (~ 40HRC)	H
Hard Materials (40HRC ~)	

CDX shows available grooving depth.
External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.
Right-hand shown

Recommended Cutting Conditions ➡ G105

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

STWS (Face Grooving, Square Shank for Vertical Type , L-Shape)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Spare Parts		Applicable Inserts G104
			R	H	B	LU	HF	HBKW	LF	CDX	WF	Screw	Wrench	
mm	STWSR 1010F-15T	●	10	10	16	10	9	85	3	10	SB-3080TR	LTW-10S	TWFGTR...
	1010JX-15T	●						120					
	1212F-15T	●	12	12		12	7	85		12			
	1212JX-15T	●						120					
	1616JX-15T	●	16	16	20	16	3			16			

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

Recommended cutting conditions TWFG / TWFGT

Workpiece Material	Recommended insert grades (Vc:sfm)			TWFGL050 TWFGL080 TWFGL100 TWFGTR050 TWFGTR080 TWFGTR100	TWFGL125 TWFGL150 TWFGTR125 TWFGTR150	TWFGL180 TWFGL200 TWFGTR180 TWFGTR200	Notes
	MEGACOAT	PVD coated carbide	Carbide				
	PR1535	PR1025	KW10	f (ipr)			
Carbon Steel / Alloy Steel	★ 100~330	☆ 100~330	-	~0.0008	~0.0012	~0.0016	Coolant
Stainless Steel	★ 100~260	☆ 100~260	-	~0.0004	~0.0008	~0.0008	
Non-Ferrous Metals	-	-	★ ~980	~0.0012	~0.0016	~0.0024	

★:1st recommendation ☆:2nd recommendation

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF: Face Grooving

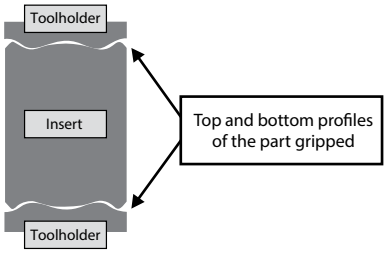
SwitchBlade type toolholder (toolholder + blade) and Integral type toolholder are available.
Adaptable to a wide range of face grooving applications by changing blades

Separate type toolholder

Insert Clamping System "W grip"

Unique "W Grip" (insert anti-slip structure) provides stable machining quality

1. Prevents abnormal machining surface and / or insert breakage resulting from slip of insert.
2. Improves repetitive installation accuracy of insert (GDFM and GDFMS inserts are not applicable to KGD external grooving, cut-off and KGDI internal grooving toolholders.)

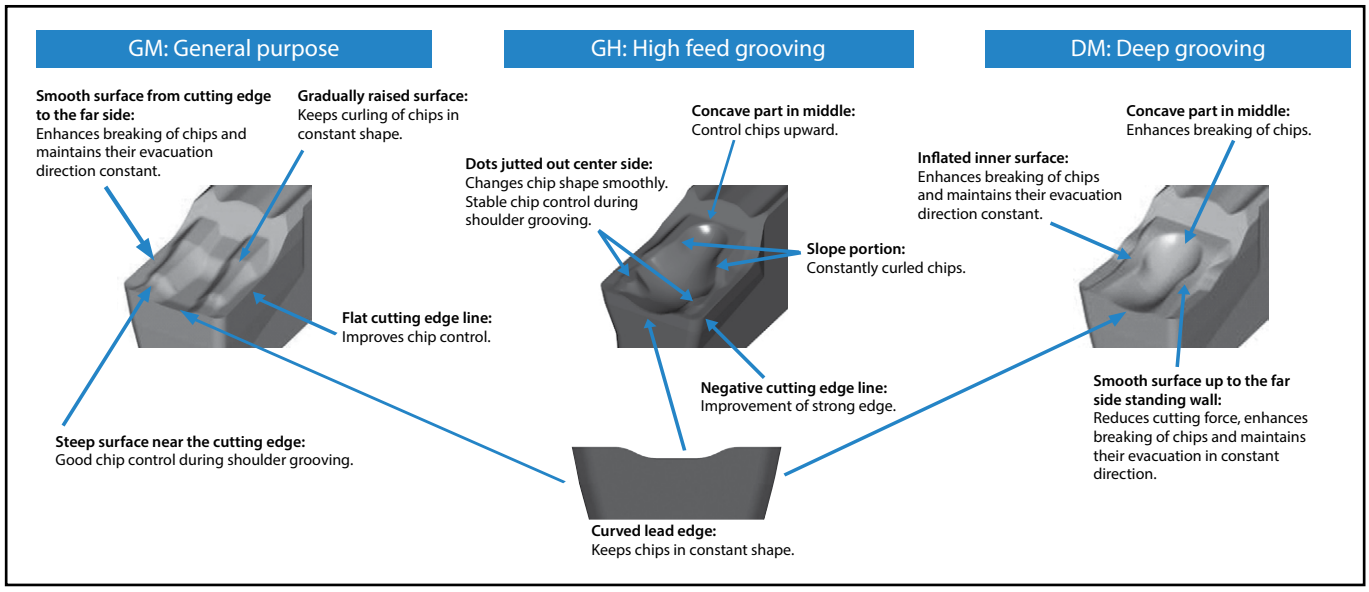


W grip technology

Smooth Chip Control

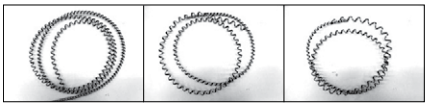
For general purpose GM chipbreaker, for high feed grooving GH chipbreaker, for deep grooving DM chipbreaker

Advantages of chipbreaker



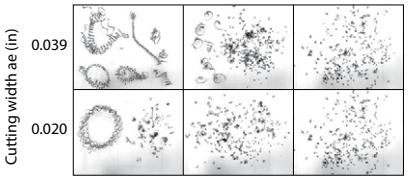
Chip control of GM chipbreaker

Face grooving (ø2.440" / ø62mm)



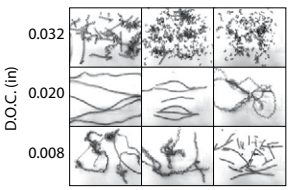
Feed rate f (ipr)

Side grooving



f (ipr)

Traversing



f (ipr)

Cutting Conditions: Vc = 490 sfm, f = 0.002 ~ 0.008 ipr, GDFM5020N-040GM, 4118, wet

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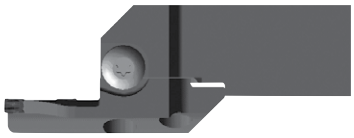
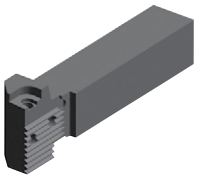
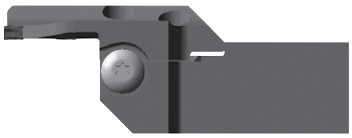
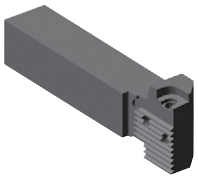
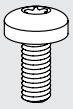
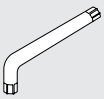
GDFM/GDFMS

KGDF: Toolholder Assembly Identification

Unit Part Number (Unit Part Number is not printed.)	Blade (Blade Part Number is printed.)	Toolholder (Toolholder Part Number is printed.)
Left-hand : KGDFL…S	Left-hand : KGDFL…-C	Right-hand : KGDR…-C
 Left-hand shown	Left-hand shown	 Right-hand shown
Right-hand : KGDFR…S	Right-hand : KGDFR…-C	Left-hand : KGDL…-C
 Right-hand shown	Right-hand shown	 Left-hand shown

- Right-hand blade for left-hand toolholder, left-hand blade for right-hand toolholder.
- The unit description is not printed on the product. It is printed on the box label.
- Combination of the toolholder and blade (both separately sold) can make up the corresponding assembly.
- The insert clamping screw (BH6X10TR), blade fixing screw (SB-60120TR) and wrench (LTW-25) which are included in the toolholder can be used.

Spare Parts (Common among SwitchBlade Holders)

Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
		
BH6X10TR	SB-60120TR	LTW-25

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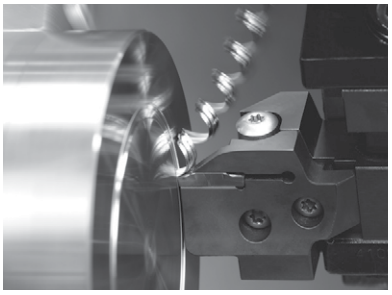
External dia. of the groove DAXN / DAXX

External dia. of the groove within DAXN ~ DAXX are the available range for the initial grooving on the unprocessed workpiece (Ref. to Fig. 1). Then, you can widen it up to the center towards the inside (excluding the models listed in the right table) and towards the outside according to machine limits.



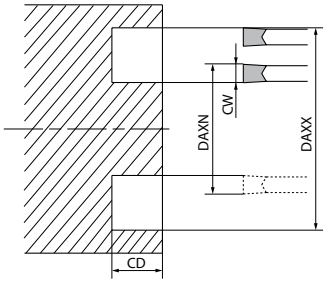
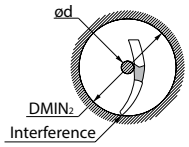


Fig. 1

Limit of Turning toward Center

Turning towards the Center causes the toolholder to interfere with the groove wall depending on the initial cut's diameter.

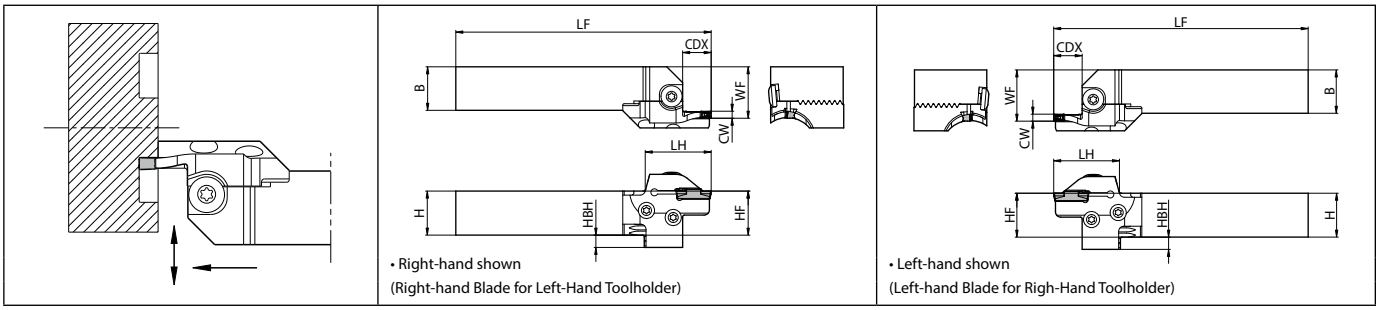


Remaining Boss Dia.ød

Part Number	DMIN2	25	26	27	28 and over
		ød (mm)			
KGDFR/L-25-3A-C + KGDL/R2020-C KGDFR/L-25-3A-C + KGDL/R2525-C		4	2	0	0 (No remaining Boss)
KGDFR/L-25-4A-C + KGDL/R2020-C KGDFR/L-25-4A-C + KGDL/R2525-C		6	3	0	
KGDFR/L-25-5B-C + KGDL/R2020-C KGDFR/L-25-5B-C + KGDL/R2525-C		7	4	1	
KGDFR/L-25-6B-C + KGDL/R2020-C KGDFR/L-25-6B-C + KGDL/R2525-C		9	4	1	

e.g.)
Toolholder assembled from KGDFR-25-3A-C and KGDL2020-C with ø25 as first cut towards the center, it will cause a rubbing with the toolholder cartridge if ød is 4.0mm.

KGDF (Face Grooving / 0° SwitchBlade Type)



Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
Inch	0°	0.079" (2mm)	□0.75	0.236" (6mm)	0.984	1.181	KGDL12-C		●	KGDFR -25-2A-C	●		0.750	0.750	1.299	0.750	0.510	4.528	0.927	BH6X10TR	SB-60120TR	LTW-25
					1.181	1.378				-30-2A-C	●											
					1.378	1.772				-35-2A-C	●											
					1.772	2.362				-45-2A-C	●											
					2.362	3.150				-60-2A-C	●											
					3.150	3.937				-80-2A-C	●											
					3.937	5.118				-100-2A-C	●											
				0.512" (13mm)	0.984	1.181				KGDFR -25-2B-C	●		0.750	0.750	1.417	0.750	0.510	4.646	0.927			
				0.591 (15mm)	1.181	1.378				-30-2B-C	●		0.750	0.750	1.496	0.750	0.510	4.724	0.927			
					1.378	1.772				-35-2B-C	●											
					1.772	2.362				-45-2B-C	●											
					2.362	3.150				-60-2B-C	●											
					3.150	3.937				-80-2B-C	●											
					3.937	5.118				-100-2B-C	●											
			□1.00	0.236" (6mm)	0.984	1.181	KGDL16-C		●	KGDFR -25-2A-C	●		1.000	1.000	1.299	1.000	0.260	5.512	1.177			
					1.181	1.378				-30-2A-C	●											
					1.378	1.772				-35-2A-C	●											
					1.772	2.362				-45-2A-C	●											
					2.362	3.150				-60-2A-C	●											
					3.150	3.937				-80-2A-C	●											
					3.937	5.118				-100-2A-C	●											
				0.512" (13mm)	0.984	1.181				KGDFR -25-2B-C	●		1.000	1.000	1.417	1.000	0.260	5.630	1.177			
				0.591 (15mm)	1.181	1.378				-30-2B-C	●		1.000	1.000	1.496	1.000	0.260	5.709	1.177			
					1.378	1.772				-35-2B-C	●											
					1.772	2.362				-45-2B-C	●											
					2.362	3.150				-60-2B-C	●											
					3.150	3.937				-80-2B-C	●											
					3.937	5.118				-100-2B-C	●											
			□1.25	0.236" (6mm)	0.984	1.181	KGDL20-C		●	KGDFR -25-2A-C	●		1.250	1.250	1.299	1.250	-	6.299	1.427			
					1.181	1.378				-30-2A-C	●											
					1.378	1.772				-35-2A-C	●											
					1.772	2.362				-45-2A-C	●											
					2.362	3.150				-60-2A-C	●											
					3.150	3.937				-80-2A-C	●											
					3.937	5.118				-100-2A-C	●											
				0.512" (13mm)	0.984	1.181				KGDFR -25-2B-C	●		1.250	1.250	1.417	1.250	-	6.417	1.427			
				0.591 (15mm)	1.181	1.378				-30-2B-C	●		1.250	1.250	1.496	1.250	-	6.496	1.427			
					1.378	1.772				-35-2B-C	●											
					1.772	2.362				-45-2B-C	●											
					2.362	3.150				-60-2B-C	●											
					3.150	3.937				-80-2B-C	●											
					3.937	5.118				-100-2B-C	●											

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
3. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
Inch	0°	0.118" (3mm)	□0.75	0.512" (13mm)	0.984	1.181	KGD□ 12-C	●	●	KGDF□ -25-3A-C	●	●	0.750	0.750	1.420	0.750	0.510	4.650	0.927	BH6X10TR	SB-60120TR	LTW-25
					1.181	1.575				-30-3A-C	●	●										
					1.575	1.969				-40-3A-C	●	●										
				0.591" (15mm)	1.969	2.559				-50-3B-C	●	●	0.750	0.750	1.500	0.750	0.510	4.720	0.927			
					2.559	3.346				-65-3B-C	●	●										
					3.346	4.331				-85-3B-C	●	●										
					4.331	5.709				-110-3B-C	●	●										
				0.866" (22mm)	1.969	2.559				KGDF□ -50-3C-C	●	●	0.750	0.750	1.770	0.750	0.510	5.000	0.927			
					2.559	3.346				-65-3C-C	●	●										
				0.984" (25mm)	3.346	4.331				-85-3C-C	●	●	0.750	0.750	1.890	0.750	0.510	5.120	0.927			
					4.331	5.709				-110-3C-C	●	●										
			□1.00	0.512" (13mm)	0.984	1.181	KGD□ 16-C	●	●	KGDF□ -25-3A-C	●	●	1.000	1.000	1.420	1.000	0.260	5.630	1.177			
					1.181	1.575				-30-3A-C	●	●										
					1.575	1.969				-40-3A-C	●	●										
				0.591" (15mm)	1.969	2.559				-50-3B-C	●	●	1.000	1.000	1.500	1.000	0.260	5.710	1.177			
					2.559	3.346				-65-3B-C	●	●										
					3.346	4.331				-85-3B-C	●	●										
					4.331	5.709				-110-3B-C	●	●										
				0.866" (22mm)	1.969	2.559				KGDF□ -50-3C-C	●	●	1.000	1.000	1.770	1.000	0.260	5.980	1.177			
					2.559	3.346				-65-3C-C	●	●										
				0.984" (25mm)	3.346	4.331				-85-3C-C	●	●	1.000	1.000	1.890	1.000	0.260	6.100	1.177			
					4.331	5.709				-110-3C-C	●	●										
			□1.25	0.512" (13mm)	0.984	1.181	KGD□ 20-C	●	●	KGDF□ -25-3A-C	●	●	1.250	1.250	1.417	1.250	-	6.417	1.427			
					1.181	1.575				-30-3A-C	●	●										
					1.575	1.969				-40-3A-C	●	●										
				0.591" (15mm)	1.969	2.559				-50-3B-C	●	●	1.250	1.250	1.496	1.250	-	6.496	1.427			
					2.559	3.346				-65-3B-C	●	●										
					3.346	4.331				-85-3B-C	●	●										
					4.331	5.709				-110-3B-C	●	●										
				0.866" (22mm)	1.969	2.559				KGDF□ -50-3C-C	●	●	1.250	1.250	1.772	1.250	-	6.772	1.427			
					2.559	3.346				-65-3C-C	●	●										
				0.984" (25mm)	3.346	4.331				-85-3C-C	●	●	1.250	1.250	1.890	1.250	-	6.890	1.427			
					4.331	5.709				-110-3C-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
3. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in) DAXN (min.)	DAXX (max.)	Toolholder Part Number ➡ G56	Std. Item R	Std. Item L	Blade Part Number ➡ G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
Inch	0°	0.157" (4mm)	□0.75	0.512" (13mm)	0.984	1.378	KGDR/L 12-C	●	●	KGDFR/L -25-4A-C	●	●	0.750	0.750	1.420	0.750	0.510	4.650	0.927	BH6X10TR	SB-60120TR	LTW-25
				0.591" (15mm)	1.378	1.969				-35-4B-C	●	●	0.750	0.750	1.500	0.750	0.510	4.720	0.927			
					1.969	2.756				-50-4B-C	●	●										
					2.756	3.937				-70-4B-C	●	●										
					3.937	5.906				-100-4B-C	●	●										
					5.906	8.661				-150-4B-C	●	●										
					8.661	∞				-220-4B-C	●	●										
				0.984" (25mm)	1.378	1.969				KGDFR/L -35-4C-C	●	●	0.750	0.750	1.890	0.750	0.510	5.120	0.927			
					1.969	2.756				-50-4C-C	●	●										
					2.756	3.937				-70-4C-C	●	●										
					3.937	5.906				-100-4C-C	●	●										
					5.906	8.661				-150-4C-C	●	●										
					8.661	∞				-220-4C-C	●	●										
			□1.00	0.512" (13mm)	0.984	1.378	KGDR/L 16-C	●	●	KGDFR/L -25-4A-C	●	●	1.000	1.000	1.420	1.000	0.260	5.630	1.177			
				0.591" (15mm)	1.378	1.969				-35-4B-C	●	●	1.000	1.000	1.500	1.000	0.260	5.710	1.177			
					1.969	2.756				-50-4B-C	●	●										
					2.756	3.937				-70-4B-C	●	●										
					3.937	5.906				-100-4B-C	●	●										
					5.906	8.661				-150-4B-C	●	●										
					8.661	∞				-220-4B-C	●	●										
				0.984" (25mm)	1.378	1.969				KGDFR/L -35-4C-C	●	●	1.000	1.000	1.890	1.000	0.260	6.100	1.177			
					1.969	2.756				-50-4C-C	●	●										
					2.756	3.937				-70-4C-C	●	●										
					3.937	5.906				-100-4C-C	●	●										
					5.906	8.661				-150-4C-C	●	●										
					8.661	∞				-220-4C-C	●	●										
			□1.25	0.512" (13mm)	0.984	1.378	KGDR/L 20-C	●	●	KGDFR/L -25-4A-C	●	●	1.250	1.250	1.417	1.250	-	6.417	1.427			
				0.591" (15mm)	1.378	1.969				-35-4B-C	●	●	1.250	1.250	1.496	1.250	-	6.496	1.427			
					1.969	2.756				-50-4B-C	●	●										
					2.756	3.937				-70-4B-C	●	●										
					3.937	5.906				-100-4B-C	●	●										
					5.906	8.661				-150-4B-C	●	●										
					8.661	∞				-220-4B-C	●	●										
				0.984" (25mm)	1.378	1.969				KGDFR/L -35-4C-C	●	●	1.250	1.250	1.890	1.250	-	6.890	1.427			
					1.969	2.756				-50-4C-C	●	●										
					2.756	3.937				-70-4C-C	●	●										
					3.937	5.906				-100-4C-C	●	●										
					5.906	8.661				-150-4C-C	●	●										
					8.661	∞				-220-4C-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
3. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts ➡ G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
Inch	0°	0.197" (5mm)	□0.75	0.591" (15mm)	0.984	1.378	KGDR/L 12-C	●	●	KGDFR/L -25-5B-C	●	●	0.750	0.750	1.500	0.750	0.510	4.720	0.927	BH6X10TR	SB-60120TR	LTW-25
					1.378	1.969				-35-5B-C	●	●										
					1.969	2.953				-50-5B-C	●	●										
					2.953	4.528				-75-5B-C	●	●										
					4.528	7.087				-115-5B-C	●	●										
					7.087	9.252				-180-5B-C	●	●										
					9.252	∞				-235-5B-C	●	●										
				0.787" (20mm)	0.984	1.378				KGDFR/L -25-5C-C	●	●	0.750	0.750	1.690	0.750	0.510	4.920	0.927			
				0.984" (25mm)	1.378	1.969				-35-5C-C	●	●	0.750	0.750	1.890	0.750	0.510	5.120	0.927			
					1.969	2.953				-50-5C-C	●	●										
					2.953	4.528				-75-5C-C	●	●										
					4.528	7.087				-115-5C-C	●	●										
					7.087	9.252				-180-5C-C	●	●										
					9.252	∞				-235-5C-C	●	●										
				1.260" (32mm)	2.953	4.528				KGDFR/L -75-5D-C	●	●	0.750	0.750	2.165	0.750	0.510	5.394	0.927			
					4.528	7.087				-115-5D-C	●	●										
					7.087	9.252				-180-5D-C	●	●										
					9.252	∞				-235-5D-C	●	●										
			□1.00	0.591" (15mm)	0.984	1.378	KGDR/L 16-C	●	●	KGDFR/L -25-5B-C	●	●	1.000	1.000	1.500	1.000	0.260	5.700	1.177			
					1.378	1.969				-35-5B-C	●	●										
					1.969	2.953				-50-5B-C	●	●										
					2.953	4.528				-75-5B-C	●	●										
					4.528	7.087				-115-5B-C	●	●										
					7.087	9.252				-180-5B-C	●	●										
					9.252	∞				-235-5B-C	●	●										
				0.787" (20mm)	0.984	1.378				KGDFR/L -25-5C-C	●	●	1.000	1.000	1.690	1.000	0.260	5.900	1.177			
				0.984" (25mm)	1.378	1.969				-35-5C-C	●	●	1.000	1.000	1.890	1.000	0.260	6.100	1.177			
					1.969	2.953				-50-5C-C	●	●										
					2.953	4.528				-75-5C-C	●	●										
					4.528	7.087				-115-5C-C	●	●										
					7.087	9.252				-180-5C-C	●	●										
					9.252	∞				-235-5C-C	●	●										
				1.260" (32mm)	2.953	4.528				KGDFR/L -75-5D-C	●	●	1.000	1.000	2.165	1.000	0.260	6.378	1.177			
					4.528	7.087				-115-5D-C	●	●										
					7.087	9.252				-180-5D-C	●	●										
					9.252	∞				-235-5D-C	●	●										
			□1.25	0.591" (15mm)	0.984	1.378	KGDR/L 20-C	●	●	KGDFR/L -25-5B-C	●	●	1.250	1.250	1.496	1.250	-	6.496	1.427			
					1.378	1.969				-35-5B-C	●	●										
					1.969	2.953				-50-5B-C	●	●										
					2.953	4.528				-75-5B-C	●	●										
					4.528	7.087				-115-5B-C	●	●										
					7.087	9.252				-180-5B-C	●	●										
					9.252	∞				-235-5B-C	●	●										
				0.787" (20mm)	0.984	1.378				KGDFR/L -25-5C-C	●	●	1.250	1.250	1.693	1.250	-	6.693	1.427			
				0.984" (25mm)	1.378	1.969				-35-5C-C	●	●	1.250	1.250	1.890	1.250	-	6.890	1.427			
					1.969	2.953				-50-5C-C	●	●										
					2.953	4.528				-75-5C-C	●	●										
					4.528	7.087				-115-5C-C	●	●										
					7.087	9.252				-180-5C-C	●	●										
					9.252	∞				-235-5C-C	●	●										
				1.260" (32mm)	2.953	4.528				KGDFR/L -75-5D-C	●	●	1.250	1.250	2.165	1.250	-	7.165	1.427			
					4.528	7.087				-115-5D-C	●	●										
					7.087	9.252				-180-5D-C	●	●										
					9.252	∞				-235-5D-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
3. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

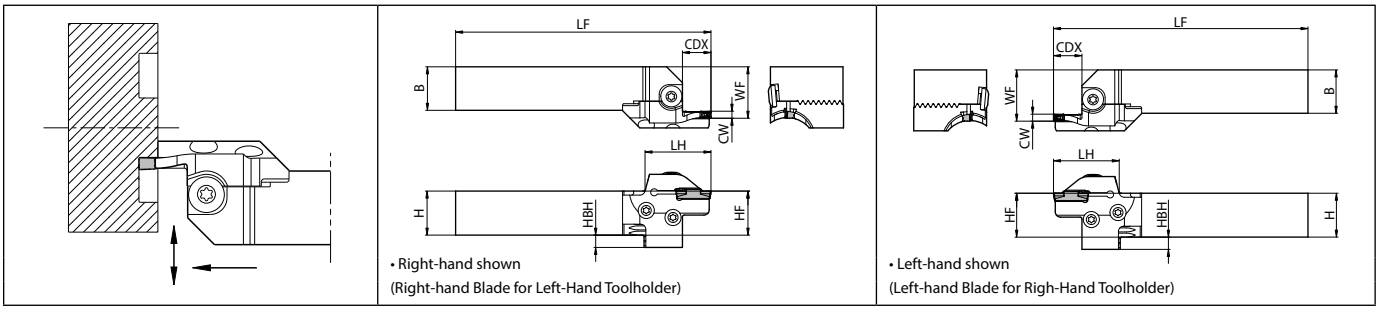
Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in) DAXN (min.)	External dia. of the groove (in) DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	Dimensions (See diagram on G110) H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
Inch	0°	0.236" (6mm)	□0.75	0.591" (15mm)	0.984	1.378	KGDR/L 12-C	●	●	KGDFR/L -25-6B-C	●	●	0.750	0.750	1.500	0.750	0.510	4.720	0.927	BH6X10TR	SB-60120TR	LTW-25
					1.378	1.969				-35-6B-C	●	●										
					1.969	2.953				-50-6B-C	●	●										
					2.953	4.528				-75-6B-C	●	●										
					4.528	7.087				-115-6B-C	●	●										
					7.087	9.252				-180-6B-C	●	●										
					9.252	∞				-235-6B-C	●	●										
				0.787" (20mm)	0.984	1.378				KGDFR/L -25-6C-C	●	●	0.750	0.750	1.690	0.750	0.510	4.920	0.927			
				0.984" (25mm)	1.378	1.969				-35-6C-C	●	●	0.750	0.750	1.890	0.750	0.510	5.120	0.927			
					1.969	2.953				-50-6C-C	●	●										
					2.953	4.528				-75-6C-C	●	●										
					4.528	7.087				-115-6C-C	●	●										
					7.087	9.252				-180-6C-C	●	●										
					9.252	∞				-235-6C-C	●	●										
				1.260" (32mm)	2.953	4.528				KGDFR/L -75-6D-C	●	●	0.750	0.750	2.165	0.750	0.510	5.394	0.927			
					4.528	7.087				-115-6D-C	●	●										
					7.087	9.252				-180-6D-C	●	●										
					9.252	∞				-235-6D-C	●	●										
			□1.00	0.591" (15mm)	0.984	1.378	KGDR/L 16-C	●	●	KGDFR/L -25-6B-C	●	●	1.000	1.000	1.500	1.000	0.260	5.700	1.177			
					1.378	1.969				-35-6B-C	●	●										
					1.969	2.953				-50-6B-C	●	●										
					2.953	4.528				-75-6B-C	●	●										
					4.528	7.087				-115-6B-C	●	●										
					7.087	9.252				-180-6B-C	●	●										
					9.252	∞				-235-6B-C	●	●										
				0.787" (20mm)	0.984	1.378				KGDFR/L -25-6C-C	●	●	1.000	1.000	1.690	1.000	0.260	5.900	1.177			
				0.984" (25mm)	1.378	1.969				-35-6C-C	●	●	1.000	1.000	1.890	1.000	0.260	6.100	1.177			
					1.969	2.953				-50-6C-C	●	●										
					2.953	4.528				-75-6C-C	●	●										
					4.528	7.087				-115-6C-C	●	●										
					7.087	9.252				-180-6C-C	●	●										
					9.252	∞				-235-6C-C	●	●										
				1.260" (32mm)	2.953	4.528				KGDFR/L -75-6D-C	●	●	1.000	1.000	2.165	1.000	0.260	6.378	1.177			
					4.528	7.087				-115-6D-C	●	●										
					7.087	9.252				-180-6D-C	●	●										
					9.252	∞				-235-6D-C	●	●										
			□1.25	0.591" (15mm)	0.984	1.378	KGDR/L 20-C	●	●	KGDFR/L -25-6B-C	●	●	1.250	1.250	1.496	1.250	-	6.496	1.427			
					1.378	1.969				-35-6B-C	●	●										
					1.969	2.953				-50-6B-C	●	●										
					2.953	4.528				-75-6B-C	●	●										
					4.528	7.087				-115-6B-C	●	●										
					7.087	9.252				-180-6B-C	●	●										
					9.252	∞				-235-6B-C	●	●										
				0.787" (20mm)	0.984	1.378				KGDFR/L -25-6C-C	●	●	1.250	1.250	1.693	1.250	-	6.693	1.427			
				0.984" (25mm)	1.378	1.969				-35-6C-C	●	●	1.250	1.250	1.890	1.250	-	6.890	1.427			
					1.969	2.953				-50-6C-C	●	●										
					2.953	4.528				-75-6C-C	●	●										
					4.528	7.087				-115-6C-C	●	●										
					7.087	9.252				-180-6C-C	●	●										
					9.252	∞				-235-6C-C	●	●										
				1.260" (32mm)	2.953	4.528				KGDFR/L -75-6D-C	●	●	1.250	1.250	2.165	1.250	-	7.165	1.427			
					4.528	7.087				-115-6D-C	●	●										
					7.087	9.252				-180-6D-C	●	●										
					9.252	∞				-235-6D-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
3. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 0° SwitchBlade Type)



Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
mm	0°	0.079" (2mm)	□20	0.236" (6mm)	25	30	KGDL2020-C		●	KGDFR -25-2A-C	●		20	20	33	20	12	115	24.5	BH6X10TR	SB-60120TR	LTW-25
					30	35				-30-2A-C	●											
					35	45				-35-2A-C	●											
					45	60				-45-2A-C	●											
					60	80				-60-2A-C	●											
					80	100				-80-2A-C	●											
					100	130				-100-2A-C	●											
				0.512" (13mm)	25	30				KGDFR -25-2B-C	●		20	20	36	20	12	118	24.5			
				0.591" (15mm)	30	35				-30-2B-C	●		20	20	38	20	12	120	24.5			
					35	45				-35-2B-C	●											
					45	60				-45-2B-C	●											
					60	80				-60-2B-C	●											
					80	100				-80-2B-C	●											
					100	130				-100-2B-C	●											
			□25	0.236" (6mm)	25	30	KGDL2525-C		●	KGDFR -25-2A-C	●		25	25	33	25	7	140	29.5			
					30	35				-30-2A-C	●											
					35	45				-35-2A-C	●											
					45	60				-45-2A-C	●											
					60	80				-60-2A-C	●											
					80	100				-80-2A-C	●											
					100	130				-100-2A-C	●											
				0.512" (13mm)	25	30				KGDFR -25-2B-C	●		25	25	36	25	7	143	29.5			
				0.591" (15mm)	30	35				-30-2B-C	●		25	25	38	25	7	145	29.5			
					35	45				-35-2B-C	●											
					45	60				-45-2B-C	●											
					60	80				-60-2B-C	●											
					80	100				-80-2B-C	●											
					100	130				-100-2B-C	●											
			□32	0.236" (6mm)	25	30	KGDL3232-C		●	KGDFR -25-2A-C	●		32	32	33	32	-	160	36.5			
					30	35				-30-2A-C	●											
					35	45				-35-2A-C	●											
					45	60				-45-2A-C	●											
					60	80				-60-2A-C	●											
					80	100				-80-2A-C	●											
					100	130				-100-2A-C	●											
				0.512" (13mm)	25	30				KGDFR -25-2B-C	●		32	32	36	32	-	163	36.5			
				0.591" (15mm)	30	35				-30-2B-C	●		32	32	38	32	-	165	36.5			
					35	45				-35-2B-C	●											
					45	60				-45-2B-C	●											
					60	80				-60-2B-C	●											
					80	100				-80-2B-C	●											
					100	130				-100-2B-C	●											

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
3. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
mm	0°	0.118" (3mm)	□20	0.512" (13mm)	25	30	KGD□2020-C	●	●	KGDF□-25-3A-C	●	●	20	20	36	20	12	118	24.5	BH6X10TR	SB-60120TR	LTW-25
					30	40				-30-3A-C	●	●										
					40	50				-40-3A-C	●	●										
				0.591" (15mm)	50	65				-50-3B-C	●	●	20	20	38	20	12	120	24.5			
					65	85				-65-3B-C	●	●										
					85	110				-85-3B-C	●	●										
					110	145				-110-3B-C	●	●										
				0.866" (22mm)	50	65				KGDF□-50-3C-C	●	●	20	20	45	20	12	127	24.5			
					65	85				-65-3C-C	●	●										
				0.984" (25mm)	85	110				-85-3C-C	●	●	20	20	48	20	12	130	24.5			
					110	145				-110-3C-C	●	●										
			□25	0.512" (13mm)	25	30	KGD□2525-C	●	●	KGDF□-25-3A-C	●	●	25	25	36	25	7	143	29.5			
					30	40				-30-3A-C	●	●										
					40	50				-40-3A-C	●	●										
				0.591" (15mm)	50	65				-50-3B-C	●	●	25	25	38	25	7	145	29.5			
					65	85				-65-3B-C	●	●										
					85	110				-85-3B-C	●	●										
					110	145				-110-3B-C	●	●										
				0.866" (22mm)	50	65				KGDF□-50-3C-C	●	●	25	25	45	25	7	152	29.5			
					65	85				-65-3C-C	●	●										
				0.984" (25mm)	85	110				-85-3C-C	●	●	25	25	48	25	7	155	29.5			
					110	145				-110-3C-C	●	●										
			□32	0.512" (13mm)	25	30	KGD□3232-C	●	●	KGDF□-25-3A-C	●	●	32	32	36	32	-	163	36.5			
					30	40				-30-3A-C	●	●										
					40	50				-40-3A-C	●	●										
				0.591" (15mm)	50	65				-50-3B-C	●	●	32	32	38	32	-	165	36.5			
					65	85				-65-3B-C	●	●										
					85	110				-85-3B-C	●	●										
					110	145				-110-3B-C	●	●										
				0.866" (22mm)	50	65				KGDF□-50-3C-C	●	●	32	32	45	32	-	172	36.5			
					65	85				-65-3C-C	●	●										
				0.984" (25mm)	85	110				-85-3C-C	●	●	32	32	48	32	-	175	36.5			
					110	145				-110-3C-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
3. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
mm	0°	0.157" (4mm)	□20	0.512" (13mm)	25	35	KGD□2020-C	●	●	KGDF□-25-4A-C	●	●	20	20	36	20	12	118	24.5	BH6X10TR	SB-60120TR	LTW-25
				0.591" (15mm)	35	50				-35-4B-C	●	●	20	20	38	20	12	120	24.5			
					50	70				-50-4B-C	●	●										
					70	100				-70-4B-C	●	●										
					100	150				-100-4B-C	●	●										
					150	220				-150-4B-C	●	●										
					220	∞				-220-4B-C	●	●										
				0.984" (25mm)	35	50				KGDF□-35-4C-C	●	●	20	20	48	20	12	130	24.5			
					50	70				-50-4C-C	●	●										
					70	100				-70-4C-C	●	●										
					100	150				-100-4C-C	●	●										
					150	220				-150-4C-C	●	●										
					220	∞				-220-4C-C	●	●										
			□25	0.512" (13mm)	25	35	KGD□2525-C	●	●	KGDF□-25-4A-C	●	●	25	25	36	25	7	143	29.5			
				0.591" (15mm)	35	50				-35-4B-C	●	●	25	25	38	25	7	145	29.5			
					50	70				-50-4B-C	●	●										
					70	100				-70-4B-C	●	●										
					100	150				-100-4B-C	●	●										
					150	220				-150-4B-C	●	●										
					220	∞				-220-4B-C	●	●										
				0.984" (25mm)	35	50				KGDF□-35-4C-C	●	●	25	25	48	25	7	155	29.5			
					50	70				-50-4C-C	●	●										
					70	100				-70-4C-C	●	●										
					100	150				-100-4C-C	●	●										
					150	220				-150-4C-C	●	●										
					220	∞				-220-4C-C	●	●										
			□32	0.512" (13mm)	25	35	KGD□3232-C	●	●	KGDF□-25-4A-C	●	●	32	32	36	32	-	163	36.5			
				0.591" (15mm)	35	50				-35-4B-C	●	●	32	32	38	32	-	165	36.5			
					50	70				-50-4B-C	●	●										
					70	100				-70-4B-C	●	●										
					100	150				-100-4B-C	●	●										
					150	220				-150-4B-C	●	●										
					220	∞				-220-4B-C	●	●										
				0.984" (25mm)	35	50				KGDF□-35-4C-C	●	●	32	32	48	32	-	175	36.5			
					50	70				-50-4C-C	●	●										
					70	100				-70-4C-C	●	●										
					100	150				-100-4C-C	●	●										
					150	220				-150-4C-C	●	●										
					220	∞				-220-4C-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
3. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
mm	0°	0.197" (5mm)	□20	0.591" (15mm)	25	35	KGD□2020-C	●	●	KGDF□-25-5B-C	●	●	20	20	38	20	12	120	24.5	BH6X10TR	SB-60120TR	LTW-25
					35	50				-35-5B-C	●	●										
					50	75				-50-5B-C	●	●										
					75	115				-75-5B-C	●	●										
					115	180				-115-5B-C	●	●										
					180	235				-180-5B-C	●	●										
					235	∞				-235-5B-C	●	●										
				0.787" (20mm)	25	35				KGDF□-25-5C-C	●	●	20	20	43	20	12	125	24.5			
				0.984" (25mm)	35	50				-35-5C-C	●	●	20	20	48	20	12	130	24.5			
					50	75				-50-5C-C	●	●										
					75	115				-75-5C-C	●	●										
					115	180				-115-5C-C	●	●										
					180	235				-180-5C-C	●	●										
					235	∞				-235-5C-C	●	●										
				1.260" (32mm)	75	115				KGDF□-75-5D-C	●	●	20	20	55	20	12	137	24.5			
					115	180				-115-5D-C	●	●										
					180	235				-180-5D-C	●	●										
					235	∞				-235-5D-C	●	●										
			□25	0.591" (15mm)	25	35	KGD□2525-C	●	●	KGDF□-25-5B-C	●	●	25	25	38	25	7	145	29.5			
					35	50				-35-5B-C	●	●										
					50	75				-50-5B-C	●	●										
					75	115				-75-5B-C	●	●										
					115	180				-115-5B-C	●	●										
					180	235				-180-5B-C	●	●										
					235	∞				-235-5B-C	●	●										
				0.787" (20mm)	25	35				KGDF□-25-5C-C	●	●	25	25	43	25	7	150	29.5			
				0.984" (25mm)	35	50				-35-5C-C	●	●	25	25	48	25	7	155	29.5			
					50	75				-50-5C-C	●	●										
					75	115				-75-5C-C	●	●	25	25	48	25	7	155	29.5			
					115	180				-115-5C-C	●	●										
					180	235				-180-5C-C	●	●										
					235	∞				-235-5C-C	●	●										
				1.260" (32mm)	75	115				KGDF□-75-5D-C	●	●	25	25	55	25	7	162	29.5			
					115	180				-115-5D-C	●	●										
					180	235				-180-5D-C	●	●										
					235	∞				-235-5D-C	●	●										
			□32	0.591" (15mm)	25	35	KGD□3232-C	●	●	KGDF□-25-5B-C	●	●	32	32	38	32	-	165	36.5			
					35	50				-35-5B-C	●	●										
					50	75				-50-5B-C	●	●										
					75	115				-75-5B-C	●	●										
					115	180				-115-5B-C	●	●										
					180	235				-180-5B-C	●	●										
					235	∞				-235-5B-C	●	●										
				0.787" (20mm)	25	35				KGDF□-25-5C-C	●	●	32	32	43	32	-	170	36.5			
				0.984" (25mm)	35	50				-35-5C-C	●	●	32	32	48	32	-	175	36.5			
					50	75				-50-5C-C	●	●										
					75	115				-75-5C-C	●	●										
					115	180				-115-5C-C	●	●										
					180	235				-180-5C-C	●	●										
					235	∞				-235-5C-C	●	●										
				1.260" (32mm)	75	115				KGDF□-75-5D-C	●	●	32	32	55	32	-	182	36.5			
					115	180				-115-5D-C	●	●										
					180	235				-180-5D-C	●	●										
					235	∞				-235-5D-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
3. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

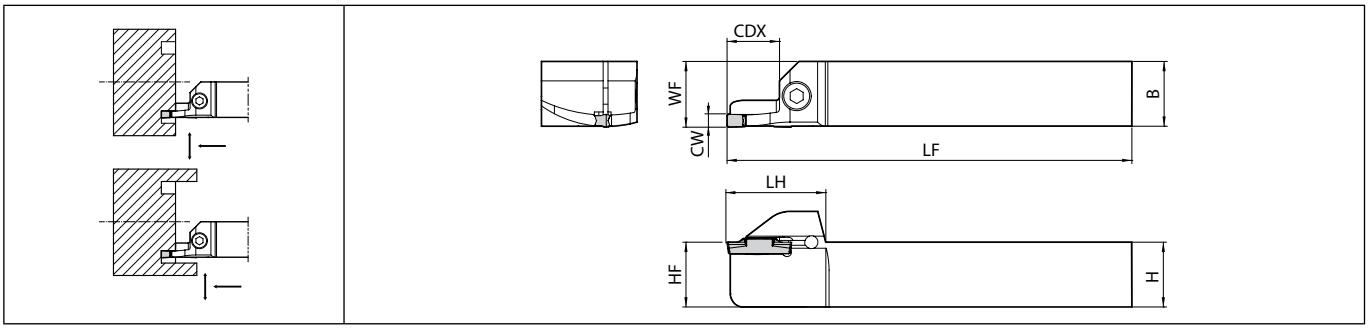
Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
mm	0°	0.236" (6mm)	□20	0.591" (15mm)	25	35	KGD□2020-C	●	●	KGDF□-25-6B-C	●	●	20	20	38	20	12	120	24.5	BH6X10TR	SB-60120TR	LTW-25
					35	50				-35-6B-C	●	●										
					50	75				-50-6B-C	●	●										
					75	115				-75-6B-C	●	●										
					115	180				-115-6B-C	●	●										
					180	235				-180-6B-C	●	●										
					235	∞				-235-6B-C	●	●										
				0.787" (20mm)	25	35				KGDF□-25-6C-C	●	●	20	20	43	20	12	125	24.5			
				0.984" (25mm)	35	50				-35-6C-C	●	●	20	20	48	20	12	130	24.5			
					50	75				-50-6C-C	●	●										
					75	115				-75-6C-C	●	●										
					115	180				-115-6C-C	●	●										
					180	235				-180-6C-C	●	●										
					235	∞				-235-6C-C	●	●										
				1.260" (32mm)	75	115				KGDF□-75-6D-C	●	●	20	20	55	20	12	137	24.5			
					115	180				-115-6D-C	●	●										
					180	235				-180-6D-C	●	●										
					235	∞				-235-6D-C	●	●										
			□25	0.591" (15mm)	25	35	KGD□2525-C	●	●	KGDF□-25-6B-C	●	●	25	25	38	25	7	145	29.5			
					35	50				-35-6B-C	●	●										
					50	75				-50-6B-C	●	●										
					75	115				-75-6B-C	●	●										
					115	180				-115-6B-C	●	●										
					180	235				-180-6B-C	●	●										
					235	∞				-235-6B-C	●	●										
				0.787" (20mm)	25	35				KGDF□-25-6C-C	●	●	25	25	43	25	7	150	29.5			
				0.984" (25mm)	35	50				-35-6C-C	●	●	25	25	48	25	7	155	29.5			
					50	75				-50-6C-C	●	●										
					75	115				-75-6C-C	●	●										
					115	180				-115-6C-C	●	●										
					180	235				-180-6C-C	●	●										
					235	∞				-235-6C-C	●	●										
				1.260" (32mm)	75	115				KGDF□-75-6D-C	●	●	25	25	55	25	7	162	29.5			
					115	180				-115-6D-C	●	●										
					180	235				-180-6D-C	●	●										
					235	∞				-235-6D-C	●	●										
			□32	0.591" (15mm)	25	35	KGD□3232-C	●	●	KGDF□-25-6B-C	●	●	32	32	38	32	-	165	36.5			
					35	50				-35-6B-C	●	●										
					50	75				-50-6B-C	●	●										
					75	115				-75-6B-C	●	●										
					115	180				-115-6B-C	●	●										
					180	235				-180-6B-C	●	●										
					235	∞				-235-6B-C	●	●										
				0.787" (20mm)	25	35				KGDF□-25-6C-C	●	●	32	32	43	32	-	170	36.5			
				0.984" (25mm)	35	50				-35-6C-C	●	●	32	32	48	32	-	175	36.5			
					50	75				-50-6C-C	●	●										
					75	115				-75-6C-C	●	●										
					115	180				-115-6C-C	●	●										
					180	235				-180-6C-C	●	●										
					235	∞				-235-6C-C	●	●										
				1.260" (32mm)	75	115				KGDF□-75-6D-C	●	●	32	32	55	32	-	182	36.5			
					115	180				-115-6D-C	●	●										
					180	235				-180-6D-C	●	●										
					235	∞				-235-6D-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
3. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF-Z (Face Grooving)

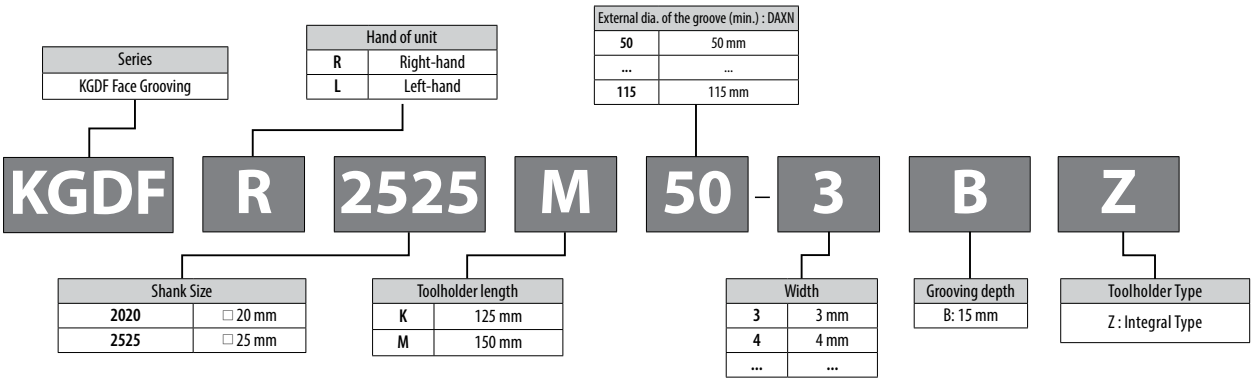


Right-hand shown

Toolholder Dimensions

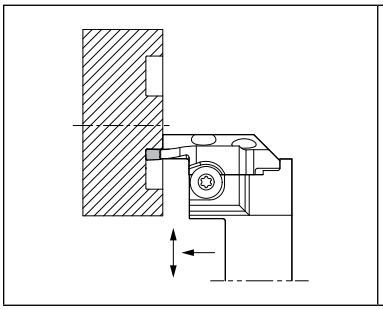
Unit	Part Number	Std. Item R	Std. Item L	External dia.of the groove (mm) DAXN (min.)	External dia.of the groove (mm) DAXX (max.)	Dimensions CW	CDX	H	B	LH	HF	LF	WF	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Inserts G107
mm	KGDF R/L 2020K50-3B-Z	●	●	50	65	3	15	20	20	30.5	20	125	20.3	HH5X16	LW-4	GDFM 3020... GDFMS 3020... GDFG 3020...
	2020K65-3B-Z	●	●	65	85											
	2020K85-3B-Z	●	●	85	110											
	2020K110-3B-Z	●	●	110	145											
	2525M50-3B-Z	●	●	50	65			25	25		25	150	25.3			
	2525M65-3B-Z	●	●	65	85											
	2525M85-3B-Z	●	●	85	110											
	2525M110-3B-Z	●	●	110	145											
	KGDF R/L 2020K50-4B-Z	●	●	50	70	4	15	20	20	30.5	20	125	20.3	HH5X16	LW-4	GDFM 4020... GDFMS 4020... GDFG 4020...
	2020K70-4B-Z	●	●	70	100											
	2020K100-4B-Z	●	●	100	150											
	2525M50-4B-Z	●	●	50	70			25	25		25	150	25.3			
	2525M70-4B-Z	●	●	70	100											
	2525M100-4B-Z	●	●	100	150											
	KGDF R/L 2020K50-5B-Z	●	●	50	75	5	15	20	20	30.5	20	125	20.3	HH5X16	LW-4	GDFM 5020... GDFMS 5020... GDFG 5020...
	2020K75-5B-Z	●	●	75	115											
	2020K115-5B-Z	●	●	115	180											
	2525M50-5B-Z	●	●	50	75			25	25		25	150	25.3			
	2525M75-5B-Z	●	●	75	115											
	2525M115-5B-Z	●	●	115	180											

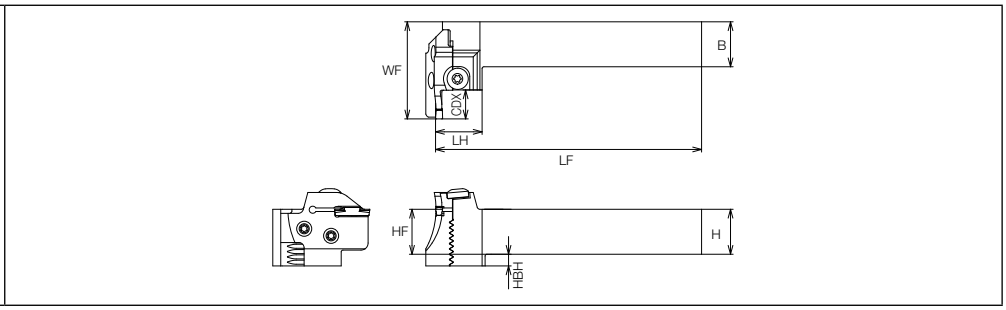
KGDF-Z toolholder identification system



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 90° SwitchBlade Type)



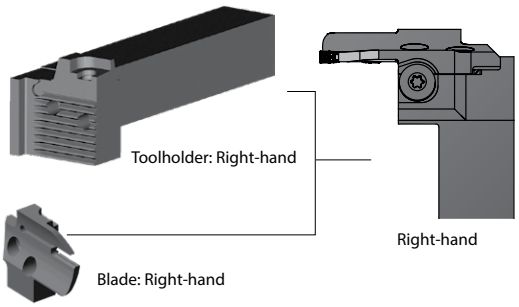


Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
Inch	90°	0.079" (2mm)	□0.75	0.236" (6mm)	0.984	1.181	KGDSR12-C	●		KGDFR -25-2A-C	●		0.750	0.750	0.988	0.750	0.510	4.921	1.957	BH6X10TR	SB-60120TR	LTW-25
					1.181	1.378				-30-2A-C	●											
					1.378	1.772				-35-2A-C	●											
					1.772	2.362				-45-2A-C	●											
					2.362	3.150				-60-2A-C	●											
					3.150	3.937				-80-2A-C	●											
					3.937	5.118				-100-2A-C	●											
				0.512" (13mm)	0.984	1.181				KGDFR -25-2B-C	●		0.750	0.750	0.988	0.750	0.510	4.921	2.075			
				0.591" (15mm)	1.181	1.378				KGDFR -30-2B-C	●		0.750	0.750	0.988	0.750	0.510	4.921	2.154			
					1.378	1.772				-35-2B-C	●											
					1.772	2.362				-45-2B-C	●											
					2.362	3.150				-60-2B-C	●											
					3.150	3.937				-80-2B-C	●											
					3.937	5.118				-100-2B-C	●											
			□1.00	0.236" (6mm)	0.984	1.181	KGDSR16-C	●		KGDFR -25-2A-C	●		1.000	1.000	0.988	1.000	0.260	5.910	1.957			
					1.181	1.378				-30-2A-C	●											
					1.378	1.772				-35-2A-C	●											
					1.772	2.362				-45-2A-C	●											
					2.362	3.150				-60-2A-C	●											
					3.150	3.937				-80-2A-C	●											
					3.937	5.118				-100-2A-C	●											
				0.512" (13mm)	0.984	1.181				KGDFR -25-2B-C	●		1.000	1.000	0.988	1.000	0.260	5.910	2.075			
				0.591" (15mm)	1.181	1.378				KGDFR -30-2B-C	●		1.000	1.000	0.988	1.000	0.260	5.910	2.154			
					1.378	1.772				-35-2B-C	●											
					1.772	2.362				-45-2B-C	●											
					2.362	3.150				-60-2B-C	●											
					3.150	3.937				-80-2B-C	●											
					3.937	5.118				-100-2B-C	●											

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

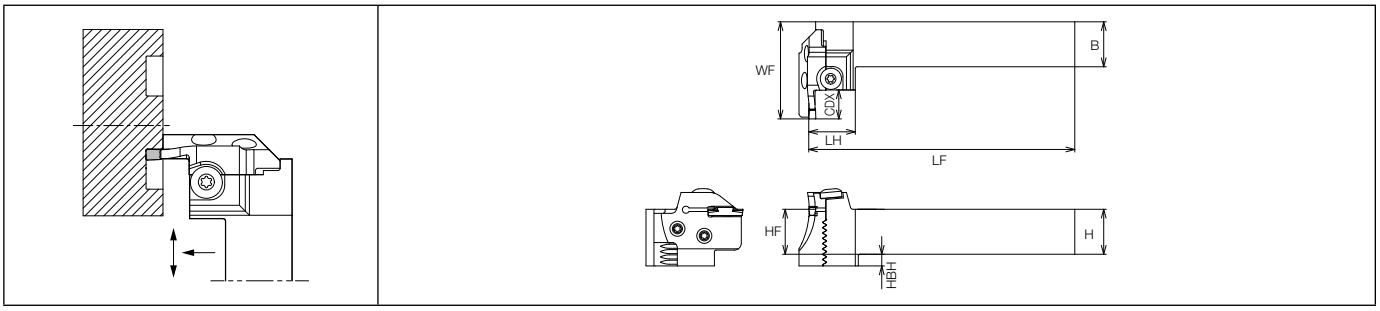
Applicable Inserts G107



- KGDF 90° SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
- **Right-hand** Blade for **Right-hand** Toolholder, **Left-hand** Blade for **Left-hand** Toolholder.
- Insert clamp screw (BH6X10TR), Blade fixing screw (SB-60120TR) and Wrench (LTW-25) come with toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 90° SwitchBlade Type)



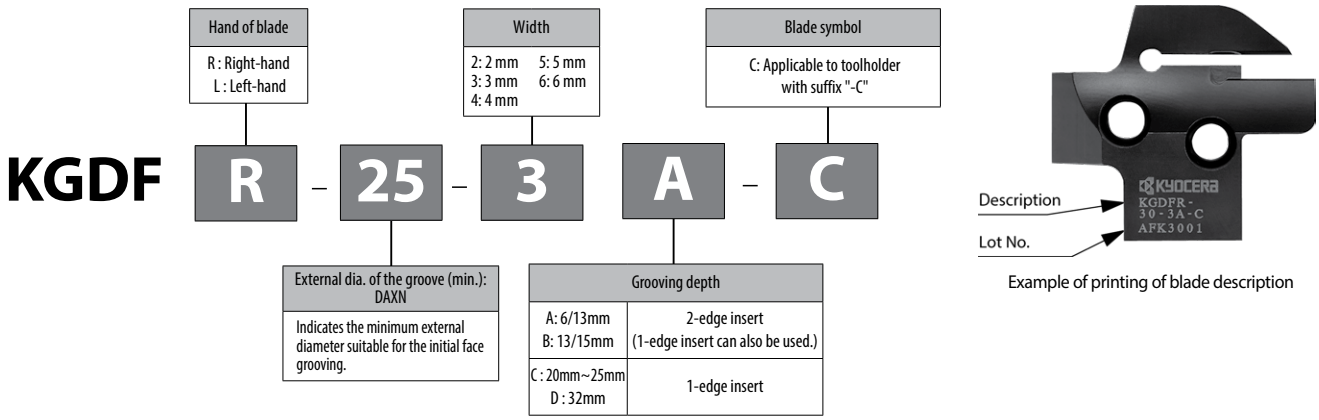
Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	L	Blade Part Number G131	Std. Item R	L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
Inch	90°	0.118" (3mm)	□0.75	0.512" (13mm)	0.984	1.181	KGDS□12-C	●	●	KGDF□-25-3A-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.075	BH6X10TR	SB-60120TR	LTW-25
					1.181	1.575				-30-3A-C	●	●										
					1.575	1.969				-40-3A-C	●	●										
				0.591" (15mm)	1.969	2.559				-50-3B-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.154			
					2.559	3.346				-65-3B-C	●	●										
					3.346	4.331				-85-3B-C	●	●										
					4.331	5.709				-110-3B-C	●	●										
				0.866" (22mm)	1.969	2.559				KGDF□-50-3C-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.350			
					2.559	3.346				-65-3C-C	●	●										
				0.984" (25mm)	3.346	4.331				-85-3C-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.429			
					4.331	5.709				-110-3C-C	●	●										
			□1.00	0.512" (13mm)	0.984	1.181	KGDS□16-C	●	●	KGDF□-25-3A-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.075			
					1.181	1.575				-30-3A-C	●	●										
					1.575	1.969				-40-3A-C	●	●										
				0.591" (15mm)	1.969	2.559				-50-3B-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.154			
					2.559	3.346				-65-3B-C	●	●										
					3.346	4.331				-85-3B-C	●	●										
					4.331	5.709				-110-3B-C	●	●										
				0.866" (22mm)	1.969	2.559				KGDF□-50-3C-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.350			
					2.559	3.346				-65-3C-C	●	●										
				0.984" (25mm)	3.346	4.331				-85-3C-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.429			
					4.331	5.709				-110-3C-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

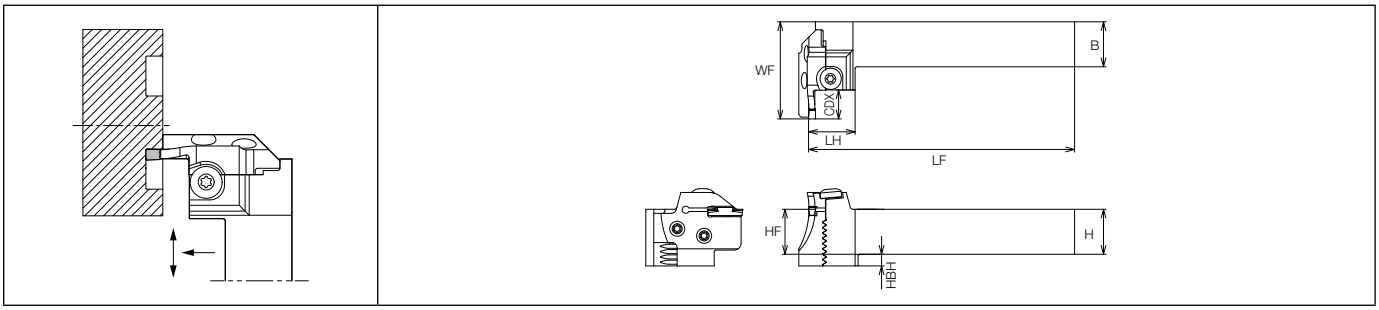
Face Grooving Blade identification system



Example of printing of blade description

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 90° SwitchBlade Type)



Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

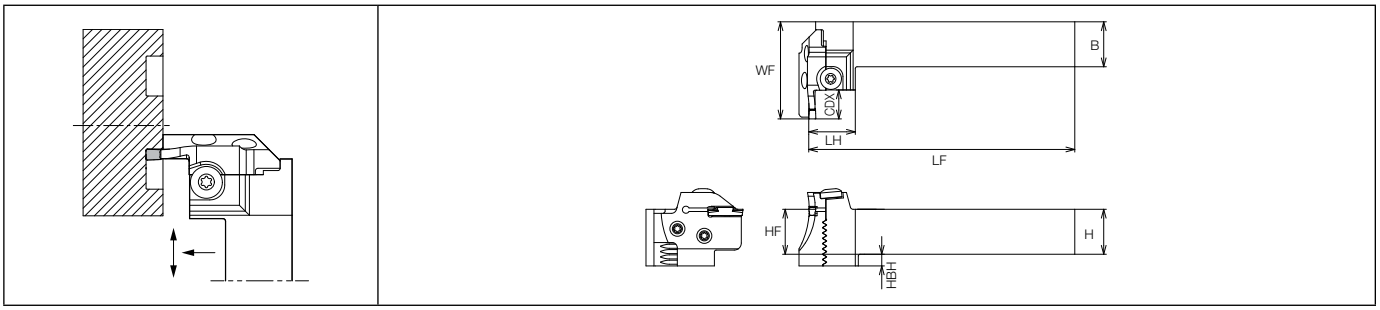
Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
Inch	90°	0.157" (4mm)	□0.75	0.512" (13mm)	0.984	1.378	KGDS R/L 12-C	●	●	KGDF R/L -25-4A-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.075	BH6X10TR	SB-60120TR	LTW-25
				0.591" (15mm)	1.378	1.969				KGDF R/L -35-4B-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.154			
					1.969	2.756				-50-4B-C	●	●										
					2.756	3.937				-70-4B-C	●	●										
					3.937	5.906				-100-4B-C	●	●										
					5.906	8.661				-150-4B-C	●	●										
					8.661	∞				-220-4B-C	●	●										
				0.984" (25mm)	1.378	1.969				KGDF R/L -35-4C-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.550			
					1.969	2.756				-50-4C-C	●	●										
					2.756	3.937				-70-4C-C	●	●										
					3.937	5.906				-100-4C-C	●	●										
					5.906	8.661				-150-4C-C	●	●										
					8.661	∞				-220-4C-C	●	●										
			□1.00	0.512" (13mm)	0.984	1.378	KGDS R/L 16-C	●	●	KGDF R/L -25-4A-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.075			
				0.591" (15mm)	1.378	1.969				KGDF R/L -35-4B-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.154			
					1.969	2.756				-50-4B-C	●	●										
					2.756	3.937				-70-4B-C	●	●										
					3.937	5.906				-100-4B-C	●	●										
					5.906	8.661				-150-4B-C	●	●										
					8.661	∞				-220-4B-C	●	●										
				0.984" (25mm)	1.378	1.969				KGDF R/L -35-4C-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.550			
					1.969	2.756				-50-4C-C	●	●										
					2.756	3.937				-70-4C-C	●	●										
					3.937	5.906				-100-4C-C	●	●										
					5.906	8.661				-150-4C-C	●	●										
					8.661	∞				-220-4C-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 90° SwitchBlade Type)



Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
Inch	90°	0.197" (5mm)	□0.75	0.591" (15mm)	0.984	1.378	KGDS□ 12-C	●	●	KGDF□ -25-5B-C	●	●	0.750	0.750	0.927	0.750	0.510	4.921	2.154	BH6X10TR	SB-60120TR	LTW-25
					1.378	1.969				-35-5B-C	●	●										
					1.969	2.953				-50-5B-C	●	●										
					2.953	4.528				-75-5B-C	●	●										
					4.528	7.087				-115-5B-C	●	●										
					7.087	9.252				-180-5B-C	●	●										
					9.252	∞				-235-5B-C	●	●										
				0.787" (20mm)	0.984	1.378				KGDF□ -25-5C-C	●	●	0.750	0.750	0.927	0.750	0.510	4.921	2.35			
				0.984" (25mm)	1.378	1.969				-35-5C-C	●	●	0.750	0.750	0.927	0.750	0.510	4.921	2.547			
					1.969	2.953				-50-5C-C	●	●										
					2.953	4.528				-75-5C-C	●	●										
					4.528	7.087				-115-5C-C	●	●										
					7.087	9.252				-180-5C-C	●	●										
					9.252	∞				-235-5C-C	●	●										
				1.260" (32mm)	2.953	4.528				KGDF□ -75-5D-C	●	●	0.750	0.750	0.927	0.750	0.510	4.921	2.823			
					4.528	7.087				-115-5D-C	●	●										
					7.087	9.252				-180-5D-C	●	●										
					9.252	∞				-235-5D-C	●	●										
			□1.00	0.591" (15mm)	0.984	1.378	KGDS□ 16-C	●	●	KGDF□ -25-5B-C	●	●	1.000	1.000	1.177	1.000	0.260	5.906	2.154			
					1.378	1.969				-35-5B-C	●	●										
					1.969	2.953				-50-5B-C	●	●										
					2.953	4.528				-75-5B-C	●	●										
					4.528	7.087				-115-5B-C	●	●										
					7.087	9.252				-180-5B-C	●	●										
					9.252	∞				-235-5B-C	●	●										
				0.787" (20mm)	0.984	1.378				KGDF□ -25-5C-C	●	●	1.000	1.000	1.177	1.000	0.260	5.906	2.35			
				0.984" (25mm)	1.378	1.969				-35-5C-C	●	●	1.000	1.000	1.177	1.000	0.260	5.906	2.547			
					1.969	2.953				-50-5C-C	●	●										
					2.953	4.528				-75-5C-C	●	●										
					4.528	7.087				-115-5C-C	●	●										
					7.087	9.252				-180-5C-C	●	●										
					9.252	∞				-235-5C-C	●	●										
				1.260" (32mm)	2.953	4.528				KGDF□ -75-5D-C	●	●	1.000	1.000	1.177	1.000	0.260	5.906	2.823			
					4.528	7.087				-115-5D-C	●	●										
					7.087	9.252				-180-5D-C	●	●										
					9.252	∞				-235-5D-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

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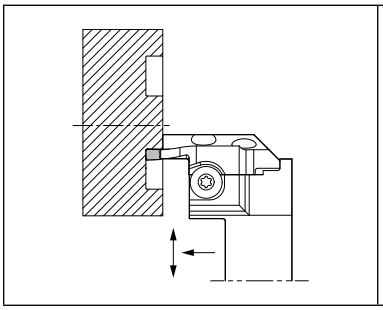
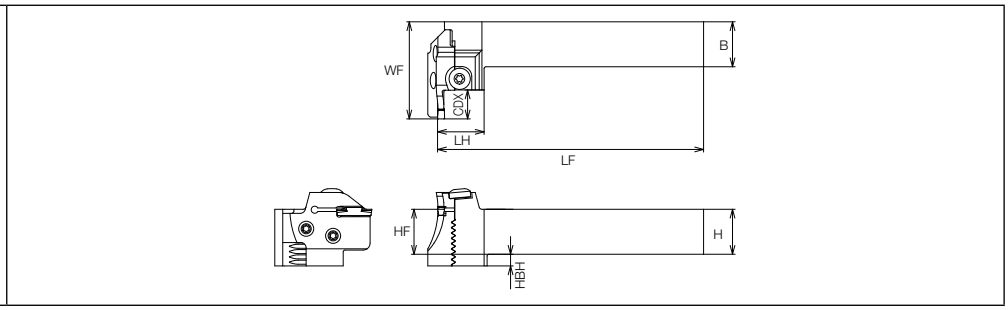
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 90° SwitchBlade Type)





Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

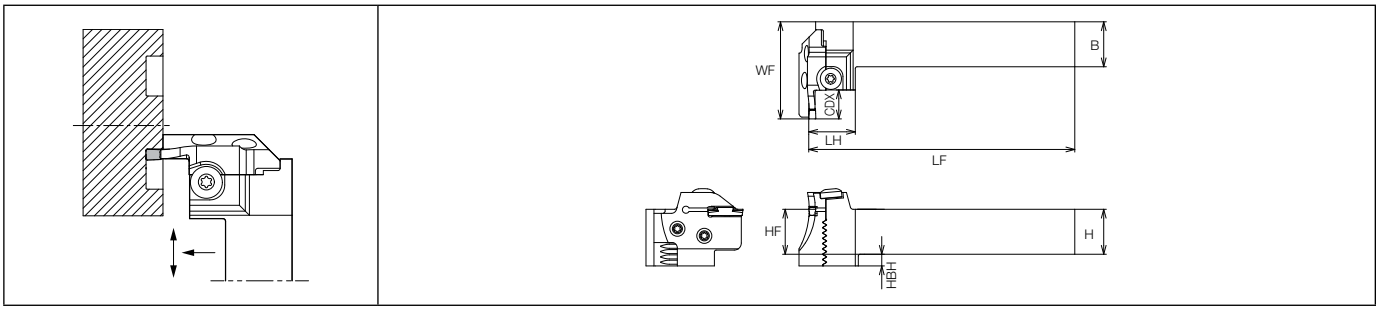
Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
Inch	90°	0.236" (6mm)	□0.75	0.591" (15mm)	0.984	1.378	KGDS R/L 12-C	●	●	KGDF R/L -25-6B-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.154	BH6X10TR	SB-60120TR	LTW-25
					1.378	1.969				-35-6B-C	●	●										
					1.969	2.953				-50-6B-C	●	●										
					2.953	4.528				-75-6B-C	●	●										
					4.528	7.087				-115-6B-C	●	●										
					7.087	9.252				-180-6B-C	●	●										
					9.252	∞				-235-6B-C	●	●										
				0.787" (20mm)	0.984	1.378				KGDF R/L -25-6C-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.350			
				0.984" (25mm)	1.378	1.969				-35-6C-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.547			
					1.969	2.953				-50-6C-C	●	●										
					2.953	4.528				-75-6C-C	●	●										
					4.528	7.087				-115-6C-C	●	●										
					7.087	9.252				-180-6C-C	●	●										
					9.252	∞				-235-6C-C	●	●										
				1.260" (32mm)	2.953	4.528				KGDF R/L -75-6D-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.823			
					4.528	7.087				-115-6D-C	●	●										
					7.087	9.252				-180-6D-C	●	●										
					9.252	∞				-235-6D-C	●	●										
			□1.00	0.591" (15mm)	0.984	1.378	KGDS R/L 16-C	●	●	KGDF R/L -25-6B-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.154			
					1.378	1.969				-35-6B-C	●	●										
					1.969	2.953				-50-6B-C	●	●										
					2.953	4.528				-75-6B-C	●	●										
					4.528	7.087				-115-6B-C	●	●										
					7.087	9.252				-180-6B-C	●	●										
					9.252	∞				-235-6B-C	●	●										
				0.787" (20mm)	0.984	1.378				KGDF R/L -25-6C-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.350			
				0.984" (25mm)	1.378	1.969				-35-6C-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.547			
					1.969	2.953				-50-6C-C	●	●										
					2.953	4.528				-75-6C-C	●	●										
					4.528	7.087				-115-6C-C	●	●										
					7.087	9.252				-180-6C-C	●	●										
					9.252	∞				-235-6C-C	●	●										
				1.260" (32mm)	2.953	4.528				KGDF R/L -75-6D-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.823			
					4.528	7.087				-115-6D-C	●	●										
					7.087	9.252				-180-6D-C	●	●										
					9.252	∞				-235-6D-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 90° SwitchBlade Type)



Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
mm	90°	0.079" (2mm)	□20	0.236" (6mm)	25	30	KGDSR2020-C	●		KGDFR -25-2A-C	●		20	20	27.7	20	12	125	49.7	BH6X10TR	SB-60120TR	LTW-25
					30	35				-30-2A-C	●											
					35	45				-35-2A-C	●											
					45	60				-45-2A-C	●											
					60	80				-60-2A-C	●											
					80	100				-80-2A-C	●											
					100	130				-100-2A-C	●											
				0.512" (13mm)	25	30				KGDFR -25-2B-C	●		20	20	27.7	20	12	125	52.7			
				0.591" (15mm)	30	35				KGDFR -30-2B-C	●		20	20	27.7	20	12	125	54.7			
					35	45				-35-2B-C	●											
					45	60				-45-2B-C	●											
					60	80				-60-2B-C	●											
					80	100				-80-2B-C	●											
					100	130				-100-2B-C	●											
			□25	0.236" (6mm)	25	30	KGDSR2525-C	●		KGDFR -25-2A-C	●		25	25	27.7	25	7	150	49.7			
					30	35				-30-2A-C	●											
					35	45				-35-2A-C	●											
					45	60				-45-2A-C	●											
					60	80				-60-2A-C	●											
					80	100				-80-2A-C	●											
					100	130				-100-2A-C	●											
				0.512" (13mm)	25	30				KGDFR -25-2B-C	●		25	25	27.7	25	7	150	52.7			
				0.591" (15mm)	30	35				KGDFR -30-2B-C	●		25	25	27.7	25	7	150	54.7			
					35	45				-35-2B-C	●											
					45	60				-45-2B-C	●											
					60	80				-60-2B-C	●											
					80	100				-80-2B-C	●											
					100	130				-100-2B-C	●											

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2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

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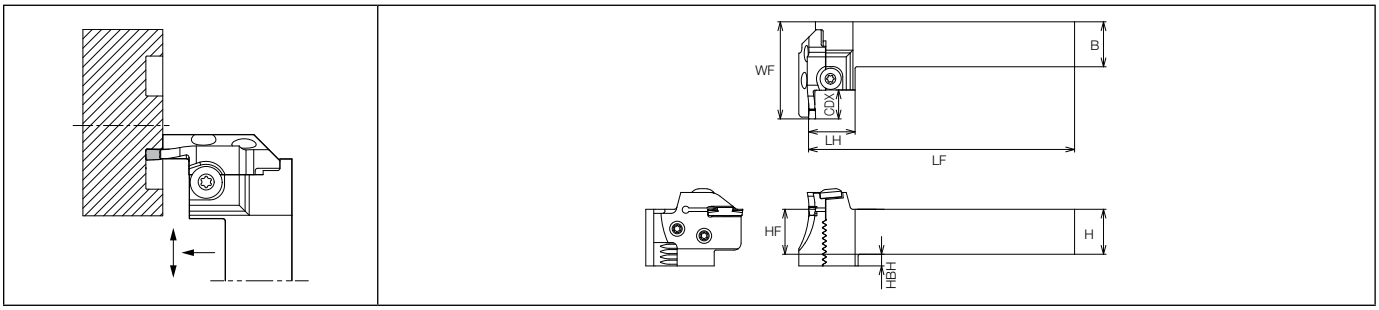
KGDF (Face Grooving / 90° SwitchBlade Type)



Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
mm	90°	0.118" (3mm)	□20	0.512" (13mm)	25	30	KGDS□2020-C	●	●	KGDF□-25-3A-C	●	●	20	20	27.7	20	12	125	52.7	BH6X10TR	SB-60120TR	LTW-25
					30	40				-30-3A-C	●	●										
					40	50				-40-3A-C	●	●										
				0.591" (15mm)	50	65				KGDF□-50-3B-C	●	●	20	20	27.7	20	12	125	54.7			
					65	85				-65-3B-C	●	●										
					85	110				-85-3B-C	●	●										
					110	145				-110-3B-C	●	●										
				0.866" (22mm)	50	65				KGDF□-50-3C-C	●	●	20	20	27.7	20	12	125	59.7			
					65	85				-65-3C-C	●	●										
				0.984" (25mm)	85	110				-85-3C-C	●	●	20	20	27.7	20	12	125	61.7			
					110	145				-110-3C-C	●	●										
			□25	0.512" (13mm)	25	30	KGDS□2525-C	●	●	KGDF□-25-3A-C	●	●	25	25	27.7	25	7	150	52.7			
					30	40				-30-3A-C	●	●										
					40	50				-40-3A-C	●	●										
				0.591" (15mm)	50	65				KGDF□-50-3B-C	●	●	25	25	27.7	25	7	150	54.7			
					65	85				-65-3B-C	●	●										
					85	110				-85-3B-C	●	●										
					110	145				-110-3B-C	●	●										
				0.866" (22mm)	50	65				KGDF□-50-3C-C	●	●	25	25	27.7	25	7	150	59.7			
					65	85				-65-3C-C	●	●										
				0.984" (25mm)	85	110				-85-3C-C	●	●	25	25	27.7	25	7	150	61.7			
					110	145				-110-3C-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

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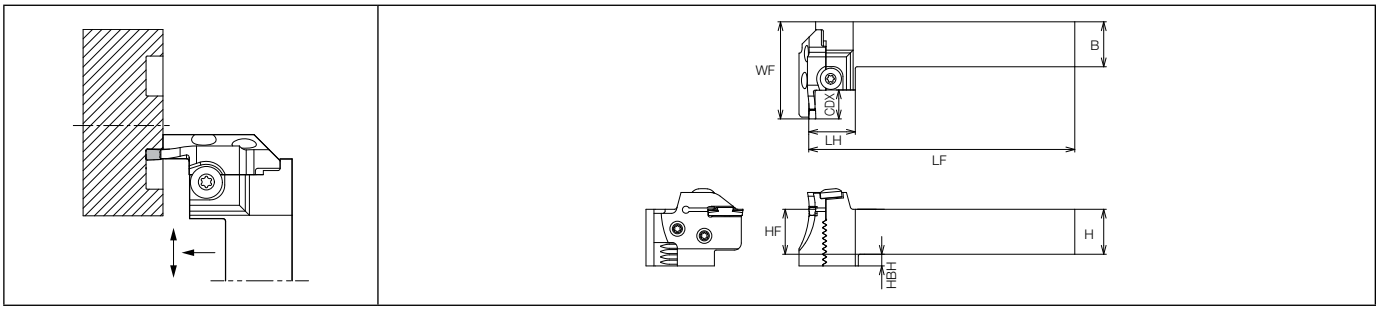
KGDF (Face Grooving / 90° SwitchBlade Type)



Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
mm	90°	0.157" (4mm)	□20	0.512" (13mm)	25	35	KGDS□ 2020-C	●	●	KGDF□ -25-4A-C	●	●	20	20	27.7	20	12	125	52.7	BH6X10TR	SB-60120TR	LTW-25
				0.591" (15mm)	35	50				KGDF□ -35-4B-C	●	●	20	20	27.7	20	12	125	54.7			
					50	70				-50-4B-C	●	●										
					70	100				-70-4B-C	●	●										
					100	150				-100-4B-C	●	●										
					150	220				-150-4B-C	●	●										
					220	∞				-220-4B-C	●	●										
				0.984" (25mm)	35	50				KGDF□ -35-4C-C	●	●	20	20	27.7	20	12	125	64.7			
					50	70				-50-4C-C	●	●										
					70	100				-70-4C-C	●	●										
					100	150				-100-4C-C	●	●										
					150	220				-150-4C-C	●	●										
					220	∞				-220-4C-C	●	●										
			□25	0.512" (13mm)	25	35	KGDS□ 2525-C	●	●	KGDF□ -25-4A-C	●	●	25	25	27.7	25	7	150	52.7			
				0.591" (15mm)	35	50				KGDF□ -35-4B-C	●	●	25	25	27.7	25	7	150	54.7			
					50	70				-50-4B-C	●	●										
					70	100				-70-4B-C	●	●										
					100	150				-100-4B-C	●	●										
					150	220				-150-4B-C	●	●										
					220	∞				-220-4B-C	●	●										
				0.984" (25mm)	35	50				KGDF□ -35-4C-C	●	●	25	25	27.7	25	7	150	64.7			
					50	70				-50-4C-C	●	●										
					70	100				-70-4C-C	●	●										
					100	150				-100-4C-C	●	●										
					150	220				-150-4C-C	●	●										
					220	∞				-220-4C-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

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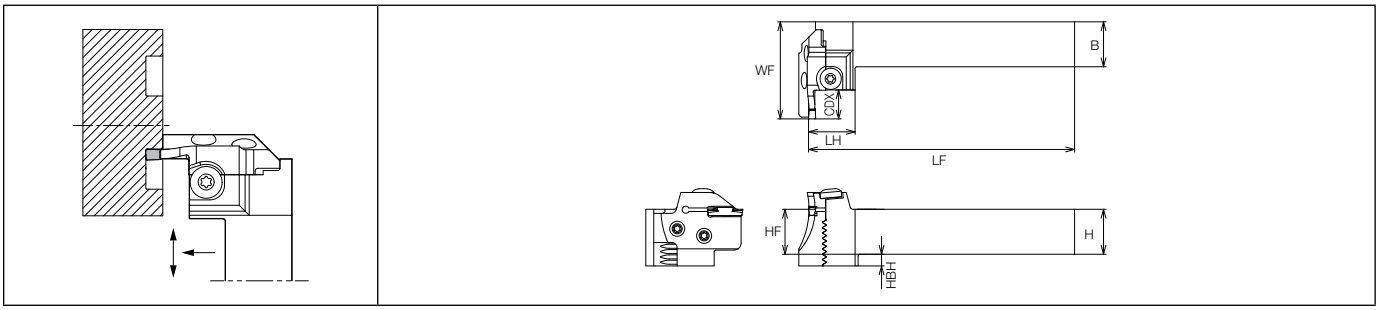
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 90° SwitchBlade Type)



Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
mm	90°	0.197" (5mm)	□20	0.591" (15mm)	25	35	KGDS□2020-C	●	●	KGDF□-25-5B-C	●	●	20	20	27.7	20	12	125	54.7	BH6X10TR	SB-60120TR	LTW-25
					35	50				-35-5B-C	●	●										
					50	75				-50-5B-C	●	●										
					75	115				-75-5B-C	●	●										
					115	180				-115-5B-C	●	●										
					180	235				-180-5B-C	●	●										
					235	∞				-235-5B-C	●	●										
				0.787" (20mm)	25	35				KGDF□-25-5C-C	●	●	20	20	27.7	20	12	125	59.7			
				0.984" (25mm)	35	50				-35-5C-C	●	●	20	20	27.7	20	12	125	64.7			
					50	75				-50-5C-C	●	●										
					75	115				-75-5C-C	●	●										
					115	180				-115-5C-C	●	●										
					180	235				-180-5C-C	●	●										
					235	∞				-235-5C-C	●	●										
				1.260" (32mm)	75	115				KGDF□-75-5D-C	●	●	20	20	27.7	20	12	125	71.7			
					115	180				-115-5D-C	●	●										
					180	235				-180-5D-C	●	●										
					235	∞				-235-5D-C	●	●										
			□25	0.591" (15mm)	25	35	KGDS□2525-C	●	●	KGDF□-25-5B-C	●	●	25	25	27.7	25	7	150	54.7			
					35	50				-35-5B-C	●	●										
					50	75				-50-5B-C	●	●										
					75	115				-75-5B-C	●	●										
					115	180				-115-5B-C	●	●										
					180	235				-180-5B-C	●	●										
					235	∞				-235-5B-C	●	●										
				0.787" (20mm)	25	35				KGDF□-25-5C-C	●	●	25	25	27.7	25	7	150	59.7			
				0.984" (25mm)	35	50				-35-5C-C	●	●	25	25	27.7	25	7	150	64.7			
					50	75				-50-5C-C	●	●										
					75	115				-75-5C-C	●	●										
					115	180				-115-5C-C	●	●										
					180	235				-180-5C-C	●	●										
					235	∞				-235-5C-C	●	●										
				1.260" (32mm)	75	115				KGDF□-75-5D-C	●	●	25	25	27.7	25	7	150	71.7			
					115	180				-115-5D-C	●	●										
					180	235				-180-5D-C	●	●										
					235	∞				-235-5D-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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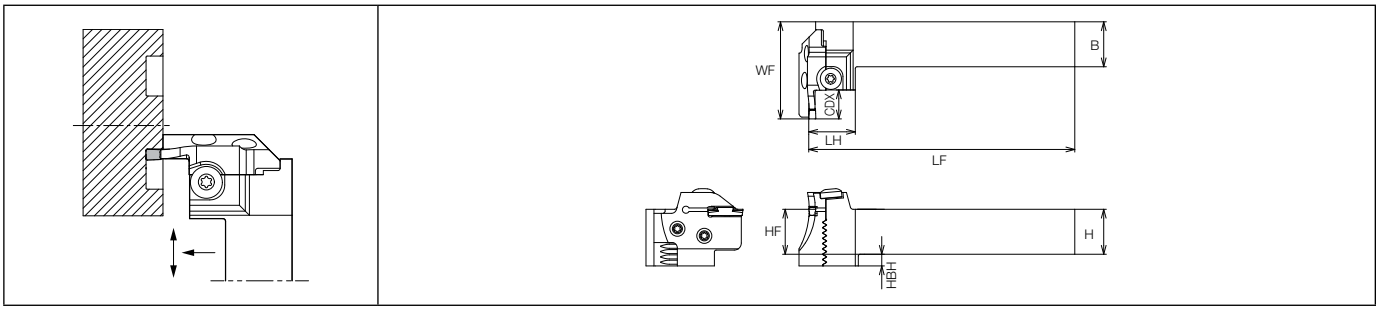
KGDF (Face Grooving / 90° SwitchBlade Type)



Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Toolholder Part Number G56	Std. Item R	Std. Item L	Blade Part Number G131	Std. Item R	Std. Item L	H	B	LH	HF	HBH	LF	WF	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
mm	90°	0.236" (6mm)	□20	0.591" (15mm)	25	35	KGDS□ 2020-C	●	●	KGDF□ -25-6B-C	●	●	20	20	27.7	20	12	125	54.7	BH6X10TR	SB-60120TR	LTW-25
					35	50				-35-6B-C	●	●										
					50	75				-50-6B-C	●	●										
					75	115				-75-6B-C	●	●										
					115	180				-115-6B-C	●	●										
					180	235				-180-6B-C	●	●										
					235	∞				-235-6B-C	●	●										
				0.787" (20mm)	25	35				KGDF□ -25-6C-C	●	●	20	20	27.7	20	12	125	59.7			
				0.984" (25mm)	35	50				-35-6C-C	●	●	20	20	27.7	20	12	125	64.7			
					50	75				-50-6C-C	●	●										
					75	115				-75-6C-C	●	●										
					115	180				-115-6C-C	●	●										
					180	235				-180-6C-C	●	●										
					235	∞				-235-6C-C	●	●										
				1.260" (32mm)	75	115				KGDF□ -75-6D-C	●	●	20	20	27.7	20	12	125	71.7			
					115	180				-115-6D-C	●	●										
					180	235				-180-6D-C	●	●										
					235	∞				-235-6D-C	●	●										
			□25	0.591" (15mm)	25	35	KGDS□ 2525-C	●	●	KGDF□ -25-6B-C	●	●	25	25	27.7	25	7	150	54.7			
					35	50				-35-6B-C	●	●										
					50	75				-50-6B-C	●	●										
					75	115				-75-6B-C	●	●										
					115	180				-115-6B-C	●	●										
					180	235				-180-6B-C	●	●										
					235	∞				-235-6B-C	●	●										
				0.787" (20mm)	25	35				KGDF□ -25-6C-C	●	●	25	25	27.7	25	7	150	59.7			
				0.984" (25mm)	35	50				-35-6C-C	●	●	25	25	27.7	25	7	150	64.7			
					50	75				-50-6C-C	●	●										
					75	115				-75-6C-C	●	●										
					115	180				-115-6C-C	●	●										
					180	235				-180-6C-C	●	●										
					235	∞				-235-6C-C	●	●										
				1.260" (32mm)	75	115				KGDF□ -75-6D-C	●	●	25	25	27.7	25	7	150	71.7			
					115	180				-115-6D-C	●	●										
					180	235				-180-6D-C	●	●										
					235	∞				-235-6D-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

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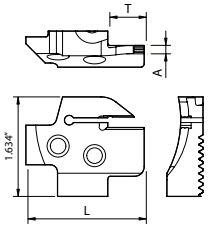
Blade Dimensions

Shape	Blade Part Number	Std. Item R	Std. Item L	External dia. of the groove (in) DAXN (min.)	External dia. of the groove (in) DAXX (max.)	Dimensions (in) L	Dimensions (in) T	Dimensions (in) A	Cutting Width CW	Applicable Inserts G107	Applicable Toolholder G56
	KGDFR -25-2A-C	●		0.984	1.181	1.746	0.236	0.059	0.079 (2mm)	GDFM 2020N-020GM	KGD$^{L}_{R}$....-C KGDS$^{R}_{L}$ ....-C
	-30-2A-C	●		1.181	1.378						
	-35-2A-C	●		1.378	1.772						
	-45-2A-C	●		1.772	2.362						
	-60-2A-C	●		2.362	3.150						
	-80-2A-C	●		3.150	3.937						
	-100-2A-C	●		3.937	5.118						
	KGDFR -25-2B-C	●		0.984	1.181	1.864	0.512				
	-30-2B-C	●		1.181	1.378	1.943	0.591				
	-35-2B-C	●		1.378	1.772						
	-45-2B-C	●		1.772	2.362						
	-60-2B-C	●		2.362	3.150						
	-80-2B-C	●		3.150	3.937						
	-100-2B-C	●		3.937	5.118						
	KGDF$^{R}_{L}$ -25-3A-C	●	●	0.984	1.181	1.864	0.512	0.079	0.118 (3mm)	GDFM 3020... GDFMS 3020... GDFG 3020...	
	-30-3A-C	●	●	1.181	1.575						
	-40-3A-C	●	●	1.575	1.969						
	-50-3B-C	●	●	1.969	2.559	1.943	0.591				
	-65-3B-C	●	●	2.559	3.346						
	-85-3B-C	●	●	3.346	4.331						
	-110-3B-C	●	●	4.331	5.709						
	KGDF$^{R}_{L}$ -50-3C-C	●	●	1.969	2.559	2.219	0.866				
	-65-3C-C	●	●	2.559	3.346						
	-85-3C-C	●	●	3.346	4.331	2.337	0.984				
	-110-3C-C	●	●	4.331	5.709						
	KGDF$^{R}_{L}$ -25-4A-C	●	●	0.984	1.378	1.864	0.512	0.118	0.157 (4mm)	GDFM 4020... GDFMS 4020... GDFG 4020...	
	-35-4B-C	●	●	1.378	1.969	1.943	0.591				
	-50-4B-C	●	●	1.969	2.756						
	-70-4B-C	●	●	2.756	3.937						
	-100-4B-C	●	●	3.937	5.906						
	-150-4B-C	●	●	5.906	8.661						
	-220-4B-C	●	●	8.661	∞						
	KGDF$^{R}_{L}$ -35-4C-C	●	●	1.378	1.969	2.337	0.984				
	-50-4C-C	●	●	1.969	2.756						
	-70-4C-C	●	●	2.756	3.937						
	-100-4C-C	●	●	3.937	5.906						
	-150-4C-C	●	●	5.906	8.661						
	-220-4C-C	●	●	8.661	∞						
	KGDF$^{R}_{L}$ -25-5B-C	●	●	0.984	1.378	1.943	0.591	0.157	0.197 (5mm)	GDFM 5020... GDFMS 5020... GDFG 5020...	
	-35-5B-C	●	●	1.378	1.969						
	-50-5B-C	●	●	1.969	2.953						
	-75-5B-C	●	●	2.953	4.528						
	-115-5B-C	●	●	4.528	7.087						
	-180-5B-C	●	●	7.087	9.252						
	-235-5B-C	●	●	9.252	∞						
	-25-5C-C	●	●	0.984	1.378	2.140	0.787				
	-35-5C-C	●	●	1.378	1.969	2.337	0.984				
	-50-5C-C	●	●	1.969	2.953						
	-75-5C-C	●	●	2.953	4.528						
	-115-5C-C	●	●	4.528	7.087						
	-180-5C-C	●	●	7.087	9.252						
	-235-5C-C	●	●	9.252	∞						
	-75-5D-C	●	●	2.953	4.528	2.612	1.260				
	-115-5D-C	●	●	4.528	7.087						
	-180-5D-C	●	●	7.087	9.252						
	-235-5D-C	●	●	9.252	∞						
	KGDF$^{R}_{L}$ -25-6B-C	●	●	0.984	1.378	1.943	0.591	0.197	0.236 (6mm)	GDFM 6020... GDFMS 6020... GDFG 6020...	
	-35-6B-C	●	●	1.378	1.969						
	-50-6B-C	●	●	1.969	2.953						
	-75-6B-C	●	●	2.953	4.528						
	-115-6B-C	●	●	4.528	7.087						
	-180-6B-C	●	●	7.087	9.252						
	-235-6B-C	●	●	9.252	∞						
	-25-6C-C	●	●	0.984	1.378	2.140	0.787				
	-35-6C-C	●	●	1.378	1.969	2.337	0.984				
	-50-6C-C	●	●	1.969	2.953						
	-75-6C-C	●	●	2.953	4.528						
	-115-6C-C	●	●	4.528	7.087						
	-180-6C-C	●	●	7.087	9.252						
	-235-6C-C	●	●	9.252	∞						
	-75-6D-C	●	●	2.953	4.528	2.612	1.260				
	-115-6D-C	●	●	4.528	7.087						
	-180-6D-C	●	●	7.087	9.252						
	-235-6D-C	●	●	9.252	∞						

Applicable Inserts G107

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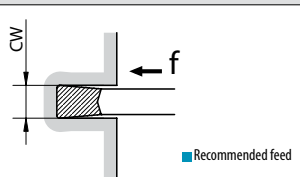
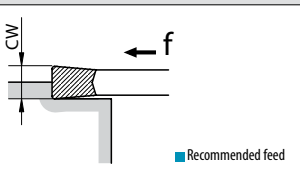
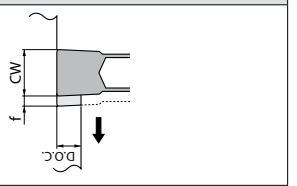
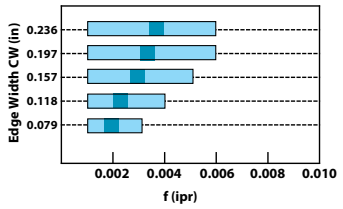
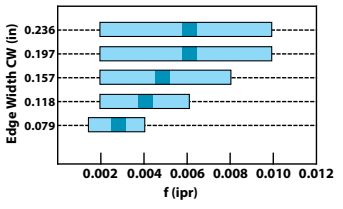
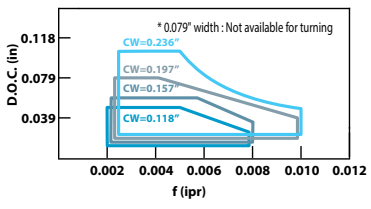
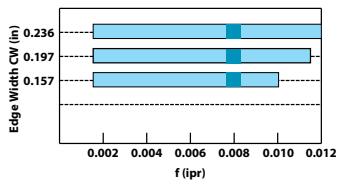
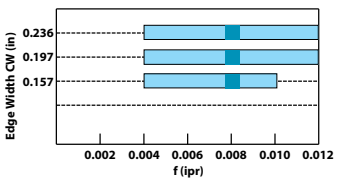
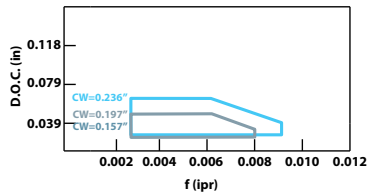
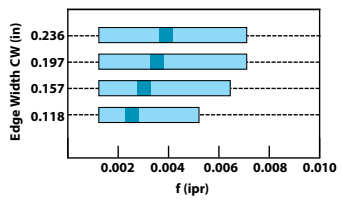
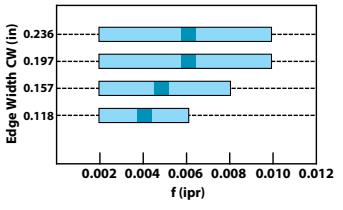
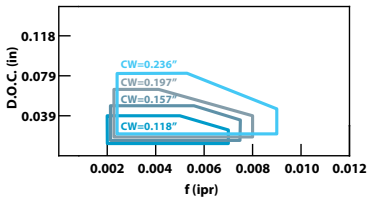
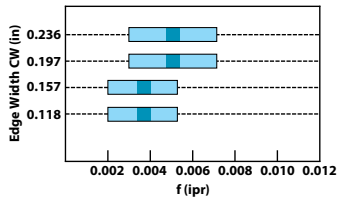
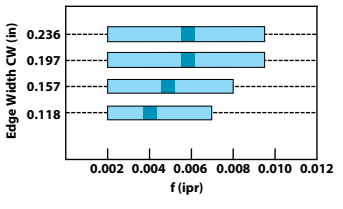
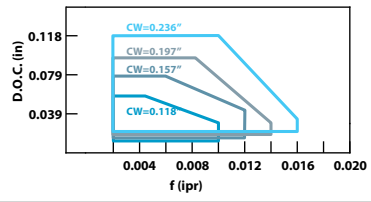
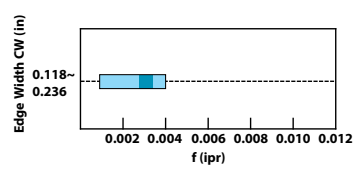
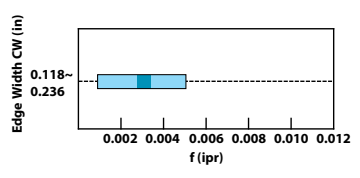
Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Vc: sfm)				Notes
	Cermet		MEGACOAT		
	TN620	TN90	PR1225	PR1215	
Carbon Steel	☆ 200~660	☆ 260~660	★ 200~520	☆ 260~520	Coolant
Alloy Steel	☆ 200~520	☆ 230~520	★ 200~490	☆ 200~490	
Stainless Steel	-	-	★ 160~390	☆ 160~390	
Cast Iron	-	-	-	★ 260~520	

★: 1st recommendation ☆: 2nd recommendation

Workpiece Material	Recommended Insert Grades (Vc: sfm)	Notes
	Carbide	
	GW15	
Aluminum alloy	★ 520~1,310	Coolant
Brass	★ 260~520	

★: 1st recommendation

	Grooving	Shoulder grooving (side grooving)	Turning
Chipbreaker			
GM (Grooving, turning)			
GH (Grooving, turning, high feed grooving)			
DM (Deep grooving, turning)			
CM (Copying)			
GS (Aluminum / Non-ferrous)			

When shoulder grooving
- If D.O.C. is set smaller, set feed higher.
- If D.O.C. is set larger, set feed lower.

Workpiece material: 1049

1. The above values are based on the condition that the CDX of toolholder is 0.591" (15mm) or less.
2. If the toolholder's CDX is over 15 mm, set the values for turning to 90% or less of those above.

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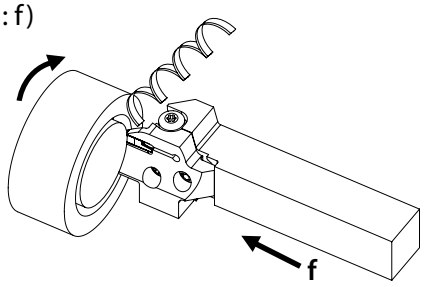
Face Grooving Guide

1 Toolholder Selection

Check the range of applicable face grooving diameter as well as the groove width and depth.

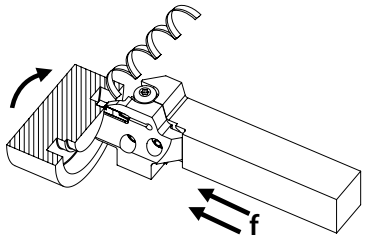
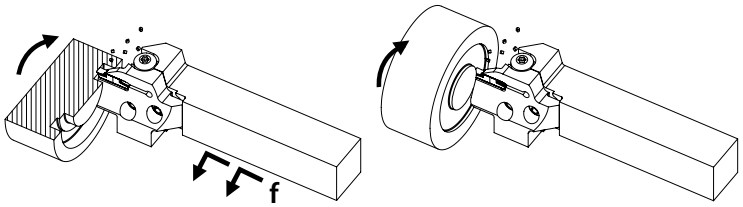
2 Cutting conditions (Feed rate : f)

When machining steel, set the feed rate (f) so that chips are created in a helical form when plunging.



3 Expanding Groove Width (Plunging and Turning)

Start machining from the outside and then proceed to the inside.
Chip control will be better in this way.

Plunging (Grooving + Side Grooving)	Turning
	

4 Guide for Turning

A. When the cutting amount (D.O.C.) is over 0.020"(0.5mm)

(1) Use plunging
(2) Return the cutting by 0.004" (1mm)
(Failure to pull the tool back before traverse cutting will result in an unbalanced load applied on only one side of the cutting edge.)
(3) Perform turning (see Fig.1)

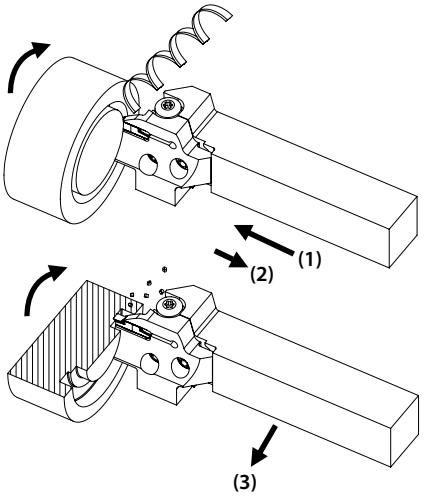
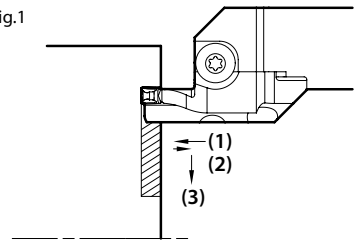
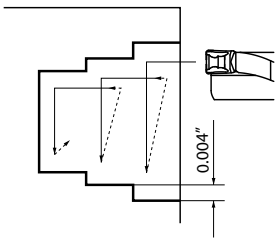


Fig.1



● When widening the face groove width (see Fig.2)
Use "Step Turning".
Then perform finishing.

Fig.2



B. When the cutting amount (D.O.C.) is under 0.5mm

(1) Use Plunging
(2) Perform turning
Machining without interruption is possible. (see Fig.3)

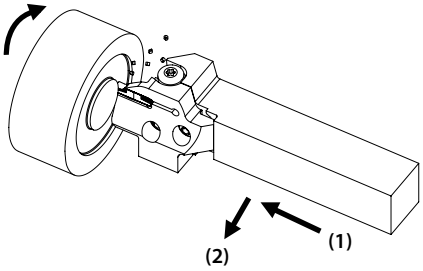
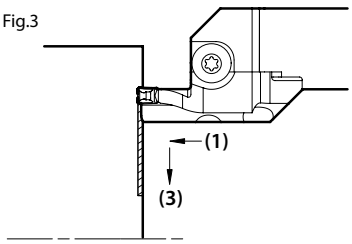
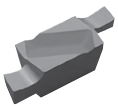
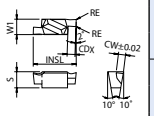


Fig.3



GVF-AA

															Carbon Steel / Alloy Steel	●	○		P
															Stainless Steel	●	○		M
															Cast Iron			●	K
															Non-Ferrous Metals			●	N
															Titanium Alloy			●	S
															Hard Materials (~ 40HRC)	●	○		H
															Hard Materials (40HRC ~)				

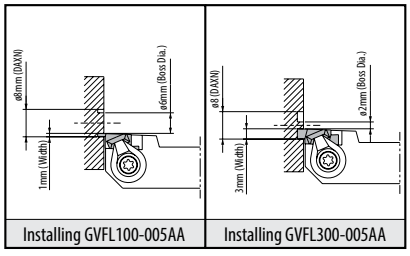
Insert		Part Number (Use with grade PR1225)	Previous Part Number (Use with grades PR930 / KW10)	No. of Edges	Dimensions (mm) CW in	CW mm	CDX	S	RE	INSL	W1	Tolerance (mm) CW min.	CW max.	Carbide PVD PR1225	PVD PR930	- KW10	Applicable Toolholder ⇒ G135
		GVFR 100-005AA 200-005AA 300-005AA	GVFR 100AA 200AA 300AA	2	0.039 0.079 0.118	1 2 3	2.2	4.5	0.05	12	4.3	- 0.02	+ 0.02	● ● ●	● ● ●	● ● ●	GFVSL....-08AA GFVTL....-08AA
		GVFL 100-005AA 200-005AA 300-005AA	GVFL 100AA 200AA 300AA		0.039 0.079 0.118	1 2 3								● ● ●	● ● ●	● ● ●	GFVSR....-08AA GFVTR....-08AA

CDX shows available grooving depth.
GVF R/L ...005AA inserts are not compatible with GVF R/L ...—OOOA (See Page **G126**) inserts because their Side Relief Angle is 10°.

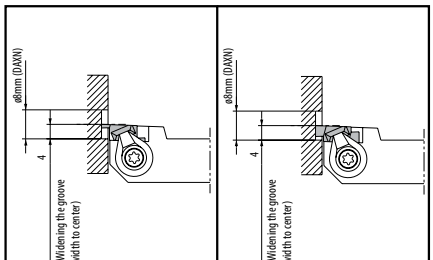
External dia. of the groove of GFVS-AA (also GFVT-AA)

Description	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Applicable inserts
GFVS R/L 2020K-08AA 2525M-08AA	8 (0)	∞ (∞)*	GVF L/R...-...AA

- Maximum diameter of initial groove plunge (no limit).
- When machining towards the outer diameter then there is no MAX. limit to the groove diameter.
- Minimum diameter of the initial groove plunge DAXN ø8mm
  If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
- When widening the groove to center, this is the minimum diameter.
  For machining up to the center of the workpiece regardless of insert width.



Installing GVFL100-005AA | Installing GVFL300-005AA



Installing GVFL100-005AA | Installing GVFL300-005AA

Recommended Cutting Conditions GFVS-AA / GFVT-AA

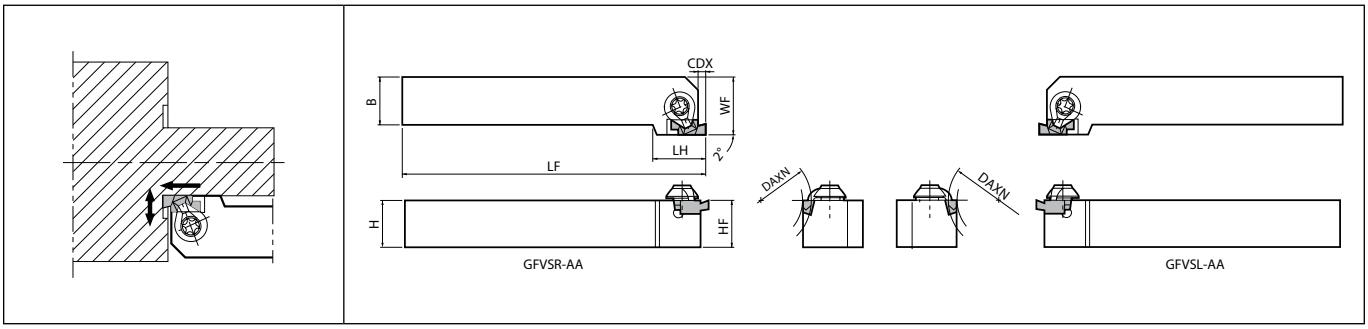
Workpiece Material	Recommended insert grades (Vc: sfm) MEGACOAT PR1225	PVD coated carbide PR930	Carbide KW10	Grooving f (ipr)	Turning* D.O.C. (in)	Turning* f (ipr)	Notes
Carbon Steel / Alloy Steel	★ 160~330	☆ 160~330		0.0004~0.0020	Max 0.0197	0.0004~0.0020	Coolant
Stainless Steel	★ 160~260	☆ 160~260		0.0004~0.0012	Max 0.0118	0.0004~0.0008	
Non-Ferrous Metals			★ ~660	0.0004~0.0031	Max 0.0197	0.0004~0.0031	

* D.O.C. has to be set for less than corner-R(RE) when turning of edge width 0.039" (1.0mm) (GVF R/L 100-005AA).

★:1st recommendation ☆:2nd recommendation

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GFVS-AA (Face Grooving)



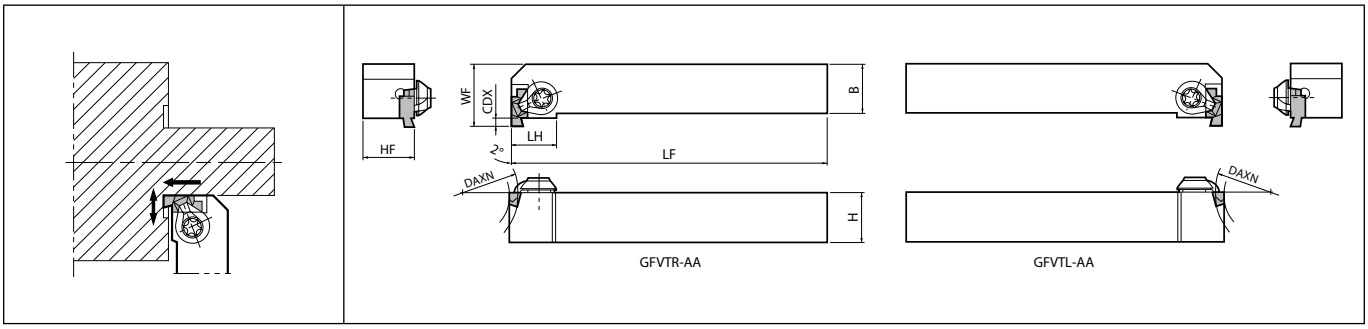
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	External dia. of the groove (mm) DAXN (min.)	External dia. of the groove (mm) DAXX (max.)	Dimensions CDX	H	B	LH	HF	LF	WF	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts ➡ G134
mm	GFVSR/L 2020K-08AA	●	●	8	∞	2.2	20	20	18	20	125	25	CPS-5V	FT-15	GVFL/R...-...AA
	2525M-08AA	●	●	(0)	(∞)		25	25		25	150	32			

CDX shows available grooving depth.
The value ( ) of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).
The value ( ) of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.

GFVT-AA (Face Grooving)



Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

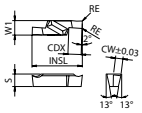
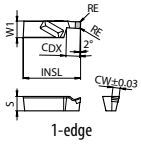
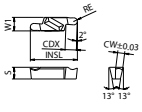
Unit	Part Number	Std. Item R	Std. Item L	External dia. of the groove (mm) DAXN (min.)	External dia. of the groove (mm) DAXX (max.)	Dimensions CDX	H	B	LH	HF	LF	WF	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts ➡ G134
mm	GFVTR/L 2020K-08AA	●	●	8	∞	2.2	20	20	14	20	125	25	CPS-5V	FT-15	GVFL/R...-...AA
	2525M-08AA	●	●	(0)	(∞)		25	25		25	150	32			

CDX shows available grooving depth.
The value ( ) of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).
The value ( ) of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GVF

	P	M	K	N	S	H
Carbon Steel / Alloy Steel	●	◌				
Stainless Steel	●	◌				
Cast Iron			●			
Non-Ferrous Metals			●	●		
Titanium Alloy			●		●	
Hard Materials (~ 40HRC)	●	○				
Hard Materials (40HRC ~)						

Insert	Part Number (Use with grade PR1225)	Previous Part Number (Use with grades PR930, KW10, TC40, TC60, KPD010)	No. of Edges	Dimensions (mm) CW in	CW mm	CDX	S	RE	INSL	W1	Tolerance (mm) CW min.	CW max.	Carbide PVD PR1225	Carbide PVD PR930	Carbide - KW10	Cermet - TC40	Cermet - TC60	PCD - KPD010	Applicable Toolholder G137~G145
	GVFR 200-020A	GVFR 200A	2	0.079	2	2.3	4.5	0.2	12	4.3	-0.03	+0.03	●	●	●				GFVR....-201A GIFVR....-201A
	230-020A	230A		0.091	2.3								●		●				
	250-020A	250A		0.098	2.5								●	●	●				
	270-020A	270A		0.106	2.7								●		●				
	290-020A	290A		0.114	2.9								●	●	●				
	340-020A	340A		0.134	3.4								●	●	●				
	GVFL 200-020A	GVFL 200A		0.079	2								●	●	●				GFVL.....-201A GIFVL....-201A
	230-020A	230A		0.091	2.3								●		●				
	250-020A	250A		0.098	2.5								●	●	●				
	270-020A	270A		0.106	2.7								●		●				
	290-020A	290A		0.114	2.9								●		●				
	340-020A	340A		0.134	3.4								●	●	●				
	GVFR 250-020B	GVFR 250B	2	0.098	2.5	4.8	5	0.2	20	5.8	-0.03	+0.03	●	●	●				GFVR....-..1B *1 GFVSL....-..1B GFVTL....-..1B GIFVR....-..1B
	300-020B	300B		0.118	3	4.8							●	●	●				
	350-020B	350B		0.138	3.5	4.8							●	●	●				
	400-020B	400B		0.157	4	5.3							●	●	●				GFVR....-..2B *2 GFVSL....-..2B GFVTL....-..2B GIFVR....-..2B
	430-020B	430B		0.169	4.3	5.3							●		●				
	460-020B	460B		0.181	4.6	5.3							●		●				
	490-020B	490B		0.193	4.9	5.3							●	●	●				
	GVFL 250-020B	GVFL 250B	2	0.098	2.5	4.8	5	0.2	20	5.8	-0.03	+0.03	●	●	●		●		GFVL....-..1B *3 GFVSR....-..1B GFVTR....-..1B GIFVL....-..1B
	300-020B	300B		0.118	3	4.8							●	●	●	△			
	350-020B	350B		0.138	3.5	4.8							●	●	●				
	400-020B	400B		0.157	4	5.3							●	●	●				GFVL....-..2B *4 GFVSR....-..2B GFVTR....-..2B GIFVL....-..2B
	430-020B	430B		0.169	4.3	5.3							●	●	●				
	460-020B	460B		0.181	4.6	5.3							●		●				
	490-020B	490B		0.193	4.9	5.3							●	●	●				
	GVFR 350-040C	GVFR 350C	2	0.138	3.5	6.8	7	0.4	27	7	-0.03	+0.03	●	●	●				GFVR....-..1C *5 GFVSL....-..1C GFVTL....-..1C GIFVR....-..1C
	400-040C	400C		0.157	4	6.8							●	●	●				
	450-040C	450C		0.177	4.5	6.8							●	●	●				
	500-040C	500C		0.197	5	8.3							●	●	●				GFVR....-..2C GFVSL....-..2C GFVTL....-..2C GIFVR....-..2C
	550-040C	550C		0.217	5.5	8.3							●	●	●				
	600-040C	600C		0.236	6	8.3							●	●	●				
	GVFL 350-040C	GVFL 350C	2	0.138	3.5	6.8	7	0.4	27	7	-0.03	+0.03	●	●	●	●	△		GFVL....-..1C GFVSR....-..1C GFVTR....-..1C GIFVL....-..1C
	400-040C	400C		0.157	4	6.8							●	●	●				
	450-040C	450C		0.177	4.5	6.8							●	●	●				
	500-040C	500C		0.197	5	8.3							●	●	●				GFVL....-..2C GFVSR....-..2C GFVTR....-..2C GIFVL....-..2C
	550-040C	550C		0.217	5.5	8.3							●	●	●				
	600-040C	600C		0.236	6	8.3							●	●	●				
 1-edge	GVFR 250-020B	GVFR 250B	1	0.098	2.5	4.8	5	0.2	20	5.8	-0.03	+0.03						●	See *1 Above
	300-020B	300B		0.118	3	4.8												●	
	400-020B	400B		0.157	4	5.3												□	See *2 Above
	GVFL 250-020B	GVFL 250B		0.098	2.5	4.8												●	See *3 Above
	300-020B	300B		0.118	3	4.8												●	
	400-020B	400B		0.157	4	5.3												□	See *4 Above
	GVFR 350-040C	GVFR 350C	1	0.138	3.5	6.8	7	0.4	27	7	-0.03	+0.03						□	See *5 Above
 Full R	GVFR 200-100AR	GVFR 100AR	2	0.079	2	2.3	4.5	1	12	4.3	-0.03	+0.03	●	●	●				GFVR.....-201A GIFVR....-201A
	250-125AR	125AR		0.098	2.5			1.25					●	●	●				
	300-150AR	150AR		0.118	3			1.5					●	●	●				
	GVFL 200-100AR	GVFL 100AR		0.079	2			1					●	●	●				GFVL.....-201A GIFVL....-201A
	250-125AR	125AR		0.098	2.5			1.25					●	●	●				
	300-150AR	150AR		0.118	3			1.5					●	●	●				
	GVFR 300-150BR	GVFR 150BR	2	0.118	3	4.8	5	1.5	20	5.8	-0.03	+0.03	●	●	●				See *1 Above
	400-200BR	200BR		0.157	4	5.3		2					●	●	●				See *2 Above
	GVFL 300-150BR	GVFL 150BR		0.118	3	4.8		1.5					●	●	●				See *3 Above
	400-200BR	200BR		0.157	4	5.3		2					●	●	●				See *4 Above

Right-hand shown
CDX shows available grooving depth.

Recommended Cutting Conditions G158

Inserts are sold in 10 piece boxes

PCD Inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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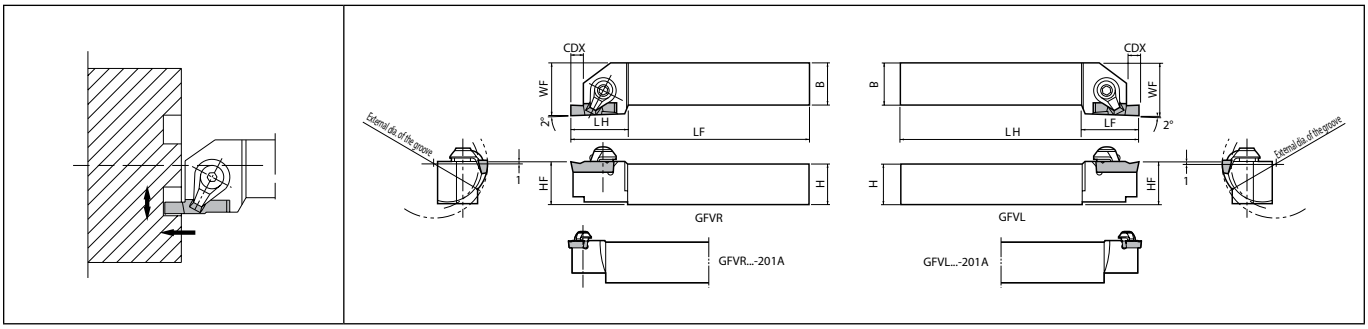
GFV (Face Grooving)



Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

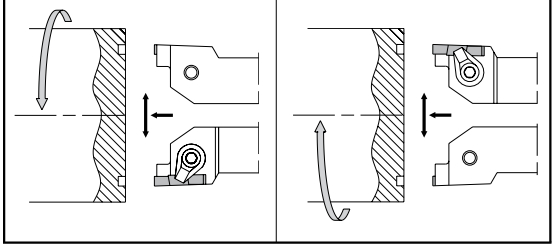
Unit	Part Number	Std. Item R	Std. Item L	External dia. of the groove (mm) DAXN (min.)	External dia. of the groove (mm) DAXX (max.)	Dimensions CDX	H	B	LH	HF	LF	WF	Spare Parts: Clamp Set	Spare Parts: Clamp Set	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts G136
mm	GFV R/L 2020K-201A	●	●	20 (12)	∞ (∞)	2.2	20	20	20	21	125	25	CPS-5V	-	-	FT-15	GVF R/L 200 ~ 340-...A
	2525M-201A	●	●				25	25	23	26	150	32					GVF R/L 200 ~ 300-...AR
	GFV R/L 2020K-351B	●	●	35 (25)	50 (∞)	4.6	20	20	28	21	125	25	-	CPS-6V	LW-3	-	GVF R/L 250 ~ 350-...B
	2525M-351B	●	●				25	25	30	26	150	32					GVF R/L 300-150BR
	2020K-352B	●	●			5.1	20	20	28	21	125	25					GVF R/L 400 ~ 490-...B
	2525M-352B	●	●				25	25	30	26	150	32					GVF R/L 400-200BR
	2020K-501B	●	●	50 (25)	70 (∞)	4.6	20	20	28	21	125	25					GVF R/L 250 ~ 350-...B
	2525M-501B	●	●				25	25	30	26	150	32					GVF R/L 300-150BR
	2020K-502B	●	●			5.1	20	20	28	21	125	25					GVF R/L 400 ~ 490-...B
	2525M-502B	●	●				25	25	30	26	150	32					GVF R/L 400-200BR
	2020K-701B	●	●	70 (25)	100 (∞)	4.6	20	20	28	21	125	25					GVF R/L 250 ~ 350-...B
	2525M-701B	●	●				25	25	30	26	150	32					GVF R/L 300-150BR
	2020K-702B	●	●			5.1	20	20	28	21	125	25					GVF R/L 400 ~ 490-...B
	2525M-702B	●	●				25	25	30	26	150	32					GVF R/L 400-200BR
	GFV R/L 2525M-501C	●	●	50 (25)	70 (∞)	6.6	25	25	35	26	150	32	-	CPS-8V	LW-4	-	GVF R/L 350 ~ 450-...C
	2525M-502C	●	●			8.1											GVF R/L 500 ~ 600-...C
	2525M-701C	●	●	70 (25)	100 (∞)	6.6											GVF R/L 350 ~ 450-...C
	2525M-702C	●	●			8.1											GVF R/L 500 ~ 600-...C
	2525M-1001C	●	●	100 (25)	150 (∞)	6.6											GVF R/L 350 ~ 450-...C
	2525M-1002C	●	●			8.1											GVF R/L 500 ~ 600-...C
	2525M-1501C	●	●	150 (25)	250 (∞)	6.6											GVF R/L 350 ~ 450-...C
	2525M-1502C	●	●			8.1											GVF R/L 500 ~ 600-...C

CDX shows available grooving depth.
The value ( ) of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).
The value ( ) of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.
Standard toolholders are designed with the edge position 1.0 mm above the center. When using non-standard toolholders, set the edge position 0.039" (1.0mm) above the center.

Selection of Toolholder & Insert

Toolholder	Right-hand
Insert	Right-hand

Toolholder	Left-hand
Insert	Left-hand



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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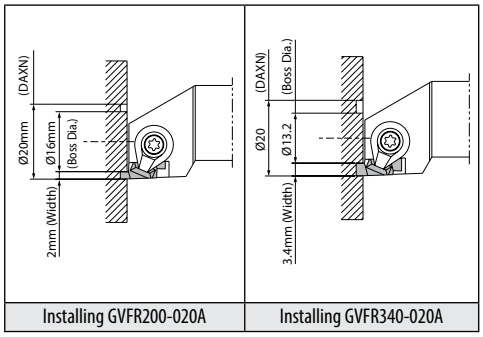
External diameter of the groove for GFV

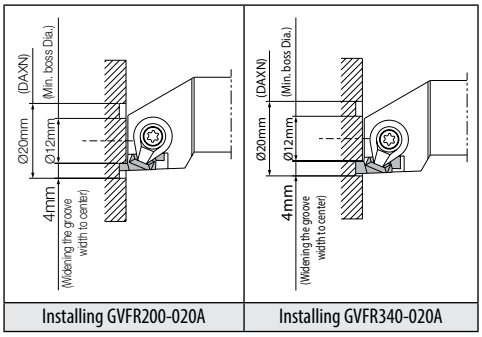
(1) e.g.) GFV R/L…-201A

Part Number	External Dia. of the Groove (mm) DAXN (min)	DAXX (min)	Applicable Inserts
GFV R/L 2020K-201A 2525M-201A	20 (12)	∞ (∞)	GFV R/L 200~340-020A GVF R/L 200-…~300-…AR

- Maximum diameter (DAXX) of initial groove plunge.
- When machining towards the outer diameter, there is no maximum limit to the grooving diameter.
- When widening the groove to center, this is the minimum diameter.
- Minimum Dia. (DAXN: Ø20mm) of Initial Groove Plunge
  If the initial groove is made smaller than this, the toolholder interferes with the workpiece.



Installing GVFR200-020A | Installing GVFR340-020A

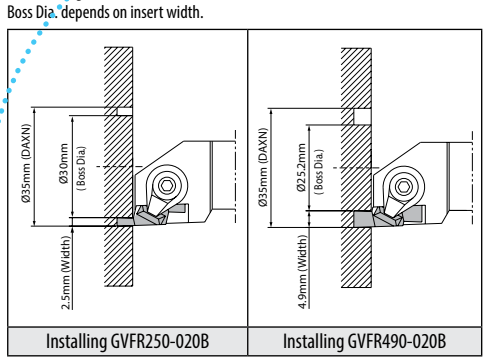


Installing GVFR200-020A | Installing GVFR340-020A

(2) e.g.) GFV R/L…-351B/352B (same as GFV R/L…-○○○B or GFV R/L…-○○○C)

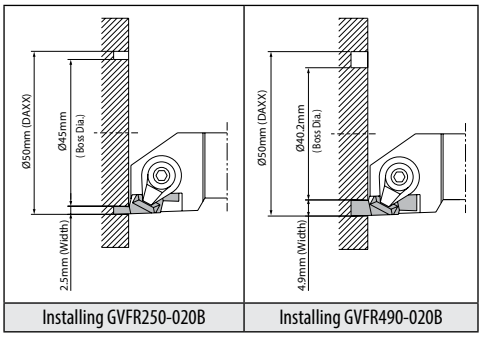
Part Number	External Dia. of the Groove (mm) DAXN (min)	DAXX (min)	Applicable Inserts
GFV R/L 2020K-351B 2525M-351B 2020K-352B 2525M-352B	35 (25)	50 (∞)	GFV R/L 200~340-020A GVF R/L 200-…~300-…AR

- It is possible to widen the groove to infinity ∞ when machining the initial groove within DAXN ~ DAXX and then widening to outer diameter.
- When machining the initial groove on the face at (DAXN: Ø35mm)
  If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
  Boss Dia. depends on insert width.



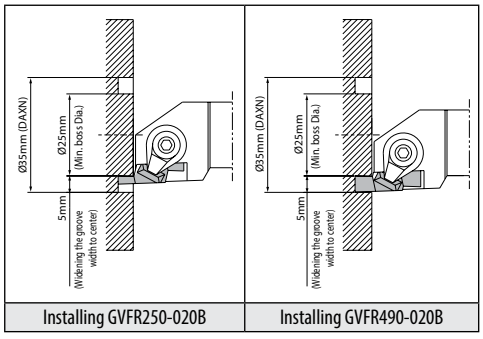
Installing GVFR250-020B | Installing GVFR490-020B

- When machining the initial groove on the face at (DAXX: Ø50mm).
  If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
  Boss Dia. depends on insert width.

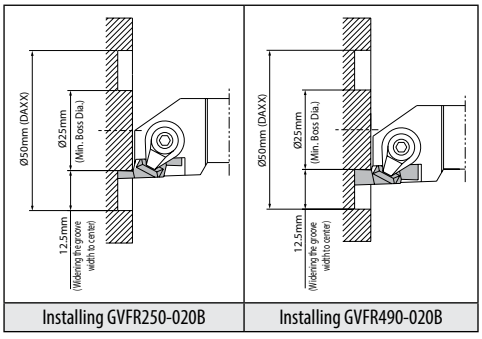


Installing GVFR250-020B | Installing GVFR490-020B

- When widening the groove width to inner diameter.
  Face Grooving Dia. (Ø25mm Boss Dia.) is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at (DAXN: Ø35mm) or (DAXX: Ø50mm). The toolholder interferes with the workpiece when closer to the center.



Installing GVFR250-020B | Installing GVFR490-020B



Installing GVFR250-020B | Installing GVFR490-020B

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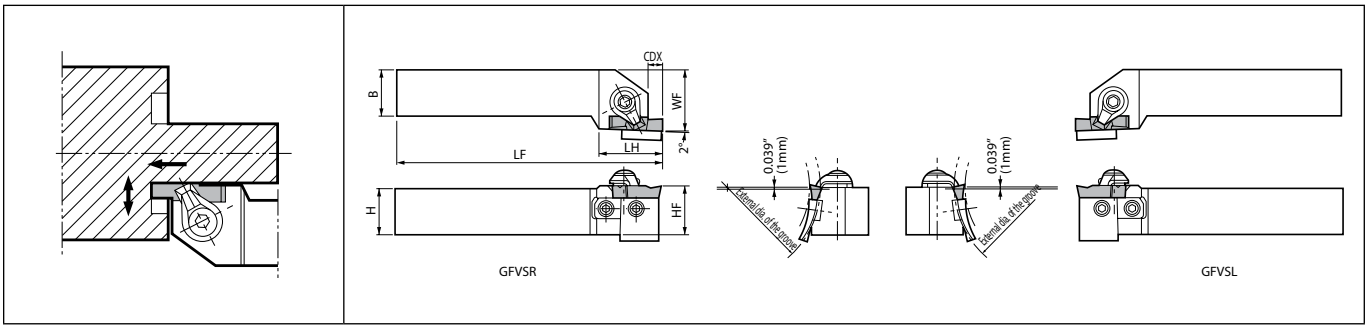
GFVS (Face Grooving)



Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.
This toolholder can machine various face grooving diameters by switching out the blade.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	External dia.of the groove (in) DAXN (min.)	External dia.of the groove (in) DAXX (max.)	Dimensions CDX	H	B	LH	HF	LF	WF	Spare Parts: Blade	Spare Parts: Bolt	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts ⇒ G136
Inch	GFVS R/L 12-351B	●	●	1.378 (0.984)	1.969 (∞)	5.1 (4.6)	0.75	0.75	1.18	0.79	5.00	1.00	SFR/L-351B	HH4X12	CPS-6V	LW-3	GVFL/R250 ~ 350-...B
	16-351B	●	●				1.00	1.00	1.26	1.04	6.00	1.25					GVFL/R300-150BR
	12-352B	●	●			5.1 (5.1)	0.75	0.75	1.18	0.79	5.00	1.00	SFR/L-352B				GVFL/R400 ~ 490-...B
	16-352B	●	●				1.00	1.00	1.26	1.04	6.00	1.25					GVFL/R400-200BR
	12-501B	●	●	1.969 (0.984)	2.756 (∞)	5.1 (4.6)	0.75	0.75	1.18	0.79	5.00	1.00	SFR/L-501B				GVFL/R250 ~ 350-...B
	16-501B	●	●				1.00	1.00	1.26	1.04	6.00	1.25					GVFL/R300-150BR
	12-502B	●	●			5.1 (5.1)	0.75	0.75	1.18	0.79	5.00	1.00	SFR/L-502B				GVFL/R400 ~ 490-...B
	16-502B	●	●				1.00	1.00	1.26	1.04	6.00	1.25					GVFL/R400-200BR
	12-701B	●	●	2.756 (0.984)	3.937 (∞)	5.1 (4.6)	0.75	0.75	1.18	0.79	5.00	1.00	SFR/L-701B				GVFL/R250 ~ 350-...B
	16-701B	●	●				1.00	1.00	1.26	1.04	6.00	1.25					GVFL/R300-150BR
	12-702B	●	●			5.1 (5.1)	0.75	0.75	1.18	0.79	5.00	1.00	SFR/L 702B				GVFL/R400 ~ 490-...B
	16-702B	●	●				1.00	1.00	1.26	1.04	6.00	1.25					GVFL/R400-200BR
	GFVS R/L 16-501C	●	●	1.969 (0.984)	2.756 (∞)	0.32 (*0.26)	1.00	1.00	1.38	1.04	6.00	1.25	SFR/L-501C	HH4X12	CPS-8V	LW-4	GVFL/R350 ~ 450-...C
	16-502C	●	●			0.32 (0.32)							SFR/L-502C				GVFL/R500 ~ 600-...C
	16-701C	●	●	2.756 (0.984)	3.937 (∞)	0.32 (*0.26)							SFR/L-701C				GVFL/R350 ~ 450-...C
	16-702C	●	●			0.32 (0.32)							SFR/L-702C				GVFL/R500 ~ 600-...C
	16-1001C	●	●	3.937 (0.984)	5.906 (∞)	0.32 (*0.26)							SFR/L-1001C				GVFL/R350 ~ 450-...C
	16-1002C	●	●			0.32 (0.32)							SFR/L-1002C				GVFL/R500 ~ 600-...C
	16-1501C	●	●	5.906 (0.984)	9.843 (∞)	0.32 (*0.26)							SFR/L-1501C				GVFL/R350 ~ 450-...C
	16-1502C	●	●			0.32 (0.32)							SFR/L-1502C				GVFL/R500 ~ 600-...C

CDX shows available grooving depth.
The value ( ) of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).
The value ( ) of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.
Standard toolholders are designed with the edge position 0.039" (1.0mm) above the center. When using non-standard toolholders, set the edge position 0.039" (1.0mm) above the center.
CDX shows the distance from the toolholder to the cutting edge. The grooving depth is mentioned in ( ).
GFVS is composed of a base-holder and a blade. If the blade should be damaged, replace it with a new blade as listed in the table on **G143**.
(e.g.) GFVSR12-HB + SFR-351B = GFVSR12-351B
*GVFL/R400~450-040C: CDX is 0.260" (6.6mm)

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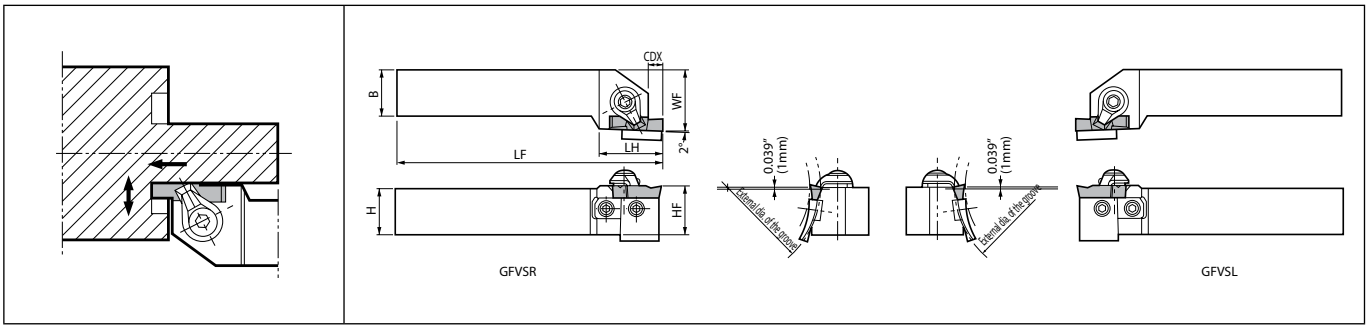
Contact your local Kyocera sales engineer to upgrade old products to new technology

GFVS (Face Grooving)



Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.
This toolholder can machine various face grooving diameters by switching out the blade.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Dimensions CDX	H	B	LH	HF	LF	WF	Spare Parts: Blade	Bolt	Clamp Set	Wrench	Applicable Inserts ➡ G136
mm	GFVSR/L 2020K-351B	●	●	35 (25)	50 (∞)	5.1 (4.6)	20	20	30	21	125	25	SFR/L-351B	HH4X12	CPS-6V	LW-3	GVFL/R250 ~ 350-...B
	2525M-351B	●	●				25	25	32	26	150	32					GVFL/R300-150BR
	2020K-352B	●	●			5.1 (5.1)	20	20	30	21	125	25	SFR/L-352B				GVFL/R400 ~ 490-...B
	2525M-352B	●	●				25	25	32	26	150	32					GVFL/R400-200BR
	2020K-501B	●	●	50 (25)	70 (∞)	5.1 (4.6)	20	20	30	21	125	25	SFR/L-501B				GVFL/R250 ~ 350-...B
	2525M-501B	●	●				25	25	32	26	150	32					GVFL/R300-150BR
	2020K-502B	●	●			5.1 (5.1)	20	20	30	21	125	25	SFR/L-502B				GVFL/R400 ~ 490-...B
	2525M-502B	●	●				25	25	32	26	150	32					GVFL/R400-200BR
	2020K-701B	●	●	70 (25)	100 (∞)	5.1 (4.6)	20	20	30	21	125	25	SFR/L-701B				GVFL/R250 ~ 350-...B
	2525M-701B	●	●				25	25	32	26	150	32					GVFL/R300-150BR
	2020K-702B	●	●			5.1 (5.1)	20	20	30	21	125	25	SFR/L 702B				GVFL/R400 ~ 490-...B
	2525M-702B	●	●				25	25	32	26	150	32					GVFL/R400-200BR
	GFVSR/L 2525M-501C	●	●	50 (25)	70 (∞)	8.1 (*5.1)	25	25	32	26	150	32	SFR/L-501C	HH4X12	CPS-8V	LW-4	GVFL/R350 ~ 450-...C
	2525M-502C	●	●			8.1 (8.1)							SFR/L-502C				GVFL/R500 ~ 600-...C
	2525M-701C	●	●	70 (25)	100 (∞)	8.1 (*5.1)							SFR/L-701C				GVFL/R350 ~ 450-...C
	2525M-702C	●	●			8.1 (8.1)							SFR/L-702C				GVFL/R500 ~ 600-...C
	2525M-1001C	●	●	100 (25)	150 (∞)	8.1 (*5.1)							SFR/L-1001C				GVFL/R350 ~ 450-...C
	2525M-1002C	●	●			8.1 (8.1)							SFR/L-1002C				GVFL/R500 ~ 600-...C
	2525M-1501C	●	●	150 (25)	250 (∞)	8.1 (*5.1)							SFR/L-1501C				GVFL/R350 ~ 450-...C
	2525M-1502C	●	●			8.1 (8.1)							SFR/L-1502C				GVFL/R500 ~ 600-...C

CDX shows available grooving depth.
The value ( ) of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).
The value ( ) of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.
Standard toolholders are designed with the edge position 0.039" (1.0mm) above the center. When using non-standard toolholders, set the edge position 0.039" (1.0mm) above the center.
CDX shows the distance from the toolholder to the cutting edge. The grooving depth is mentioned in ( ).
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(e.g.) GFVSR2020K-HB + SFR-351B = GFVSR2020K-351B
*GVFL/R400~450-040C: CDX is 0.260" (6.6mm)

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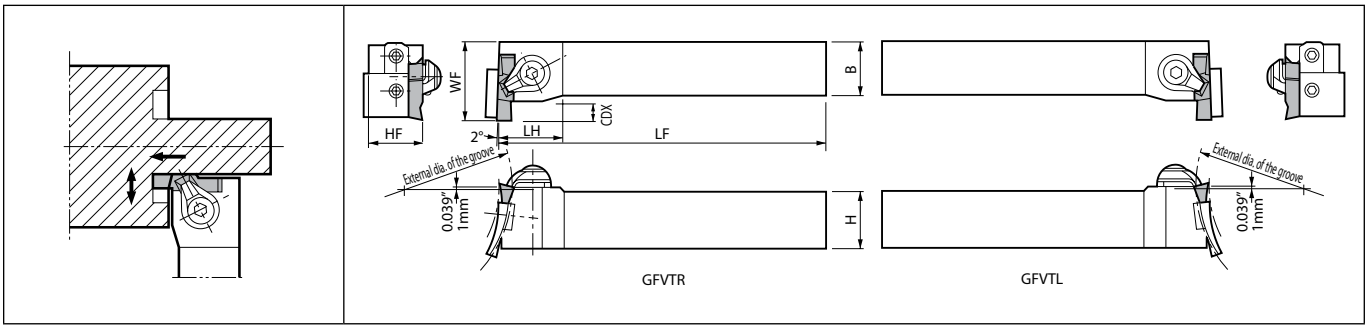
GFVT (Face Grooving)



Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.
This toolholder can machine various face grooving diameters by replacing the blade.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	External dia.of the groove (in) DAXN (min.)	DAXX (max.)	Dimensions CDX	H	B	LH	HF	LF	WF	Spare Parts: Blade	Bolt	Clamp Set	Wrench	Applicable Inserts G136
Inch	GFVTR/L 12-351B	●	●	1.378 (0.984)	1.969 (∞)	0.20 (0.18)	0.75	0.75	0.87	0.79	5.00	1.18	SFR/L-351B	HH4X12	CPS-6V	LW-3	GVFL/R250 ~ 350-...B
	16-351B	●	●				1.00	1.00	0.98	1.04	6.00	1.38					GVFL/R300-150BR
	12-352B	●	●			0.20 (0.20)	0.75	0.75	0.87	0.79	5.00	1.18	SFR/L-352B				GVFL/R400 ~ 490-...B
	16-352B	●	●				1.00	1.00	0.98	1.04	6.00	1.38					GVFL/R400-200BR
	12-501B	●	●	1.969 (0.984)	2.756 (∞)	0.20 (0.18)	0.75	0.75	0.87	0.79	5.00	1.18	SFR/L-501B				GVFL/R250 ~ 350-...B
	16-501B	●	●				1.00	1.00	0.98	1.04	6.00	1.38					GVFL/R300-150BR
	12-502B	●	●			0.20 (0.20)	0.75	0.75	0.87	0.79	5.00	1.18	SFR/L-502B				GVFL/R400 ~ 490-...B
	16-502B	●	●				1.00	1.00	0.98	1.04	6.00	1.38					GVFL/R400-200BR
	12-701B	●	●	2.756 (0.984)	3.937 (∞)	0.20 (0.18)	0.75	0.75	0.87	0.79	5.00	1.18	SFR/L-701B				GVFL/R250 ~ 350-...B
	16-701B	●	●				1.00	1.00	0.98	1.04	6.00	1.38					GVFL/R300-150BR
	12-702B	●	●			0.20 (0.20)	0.75	0.75	0.87	0.79	5.00	1.18	SFR/L-702B				GVFL/R400 ~ 490-...B
	16-702B	●	●				1.00	1.00	0.98	1.04	6.00	1.38					GVFL/R400-200BR
	GFVTR/L 16-501C	●	●	1.969 (0.984)	2.756 (∞)	0.32 (*0.26)	1.00	1.00	1.06	1.04	6.00	1.50	SFR/L-501C	HH4X12	CPS-8V	LW-4	GVFL/R350 ~ 450-...C
	16-502C	●	●			0.32 (0.32)							SFR/L-502C				GVFL/R500 ~ 600-...C
	16-701C	●	●	2.756 (0.984)	3.937 (∞)	0.32 (*0.26)							SFR/L-701C				GVFL/R350 ~ 450-...C
	16-702C	●	●			0.32 (0.32)							SFR/L-702C				GVFL/R500 ~ 600-...C
	16-1001C	●	●	3.937 (0.984)	5.906 (∞)	0.32 (*0.26)							SFR/L-1001C				GVFL/R350 ~ 450-...C
	16-1002C	●	●			0.32 (0.32)							SFR/L-1002C				GVFL/R500 ~ 600-...C
	16-1501C	●	●	5.906 (0.984)	9.843 (∞)	0.32 (*0.26)							SFR/L-1501C				GVFL/R350 ~ 450-...C
	16-1502C	●	●			0.32 (0.32)							SFR/L-1502C				GVFL/R500 ~ 600-...C

CDX shows available grooving depth.
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CDX shows the distance from the toolholder to the cutting edge. The grooving depth is mentioned in ( ).
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(e.g.) GFVTR12-HB + SFR-351B = GFVTR12-351B
*GVFL/R400~450-040C: CDX is 0.260" (6.6mm)

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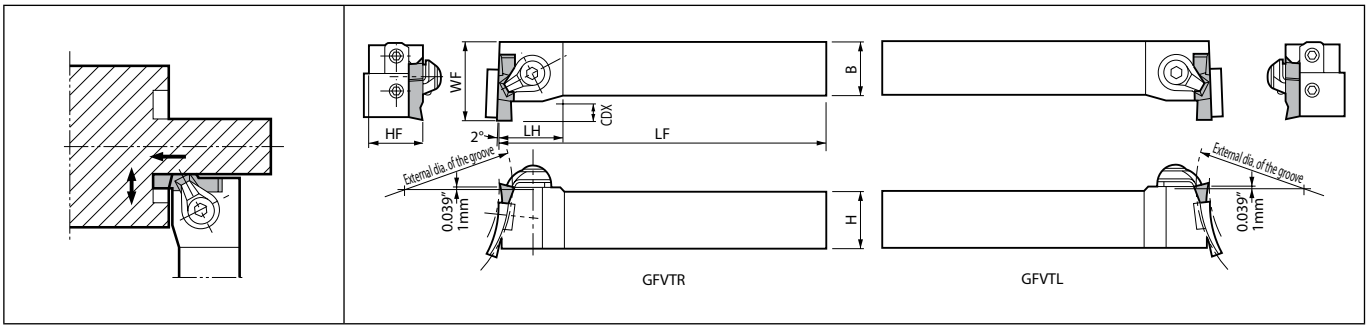
GFVT (Face Grooving)



Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.
This toolholder can machine various face grooving diameters by replacing the blade.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	External dia. of the groove (mm) DAXN (min.)	External dia. of the groove (mm) DAXX (max.)	Dimensions CDX	H	B	LH	HF	LF	WF	Spare Parts: Blade	Spare Parts: Bolt	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts G136
mm	GFVTR/L 2020K-351B	●	●	35 (25)	50 (∞)	5.1 (4.6)	20	20	22	21	125	30	SFR/L-351B	HH4X12	CPS-6V	LW-3	GVFL/R250 ~ 350-...B
	2525M-351B	●	●				25	25	25	26	150	35					GVFL/R300-150BR
	2020K-352B	●	●			5.1 (5.1)	20	20	22	21	125	30	SFR/L-352B				GVFL/R400 ~ 490-...B
	2525M-352B	●	●				25	25	25	26	150	35					GVFL/R400-200BR
	2020K-501B	●	●	50 (25)	70 (∞)	5.1 (4.6)	20	20	22	21	125	30	SFR/L-501B				GVFL/R250 ~ 350-...B
	2525M-501B	●	●				25	25	25	26	150	35					GVFL/R300-150BR
	2020K-502B	●	●			5.1 (5.1)	20	20	22	21	125	30	SFR/L-502B				GVFL/R400 ~ 490-...B
	2525M-502B	●	●				25	25	25	26	150	35					GVFL/R400-200BR
	2020K-701B	●	●	70 (25)	100 (∞)	5.1 (4.6)	20	20	22	21	125	30	SFR/L-701B				GVFL/R250 ~ 350-...B
	2525M-701B	●	●				25	25	25	26	150	35					GVFL/R300-150BR
	2020K-702B	●	●			5.1 (5.1)	20	20	22	21	125	30	SFR/L-702B				GVFL/R400 ~ 490-...B
	2525M-702B	●	●				25	25	25	26	150	35					GVFL/R400-200BR
	GFVTR/L 2525M-501C	●	●	50 (25)	70 (∞)	8.1 (*5.1)	25	25	27	26	150	38	SFR/L-501C	HH4X12	CPS-8V	LW-4	GVFL/R350 ~ 450-...C
	2525M-502C	●	●			8.1 (8.1)							SFR/L-502C				GVFL/R500 ~ 600-...C
	2525M-701C	●	●	70 (25)	100 (∞)	8.1 (*5.1)							SFR/L-701C				GVFL/R350 ~ 450-...C
	2525M-702C	●	●			8.1 (8.1)							SFR/L-702C				GVFL/R500 ~ 600-...C
	2525M-1001C	●	●	100 (25)	150 (∞)	8.1 (*5.1)							SFR/L-1001C				GVFL/R350 ~ 450-...C
	2525M-1002C	●	●			8.1 (8.1)							SFR/L-1002C				GVFL/R500 ~ 600-...C
	2525M-1501C	●	●	150 (25)	250 (∞)	8.1 (*5.1)							SFR/L-1501C				GVFL/R350 ~ 450-...C
	2525M-1502C	●	●			8.1 (8.1)							SFR/L-1502C				GVFL/R500 ~ 600-...C

CDX shows available grooving depth.
The value ( ) of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).
The value ( ) of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.
Standard toolholders are designed with the edge position 0.039" (1.0mm) above the center. When using non-standard toolholders, set the edge position 0.039" (1.0mm) above the center.
CDX shows the distance from the toolholder to the cutting edge. The grooving depth is mentioned in ( ).
GFVS is composed of a base-holder and a blade. If the blade should be damaged, replace it with a new blade as listed in the table on **G143**.
(e.g.) GFVTR2020K-HB + SFR-351B = GFVTR2020K-351B
*GVFL/R400~450-040C: CDX is 0.260" (6.6mm)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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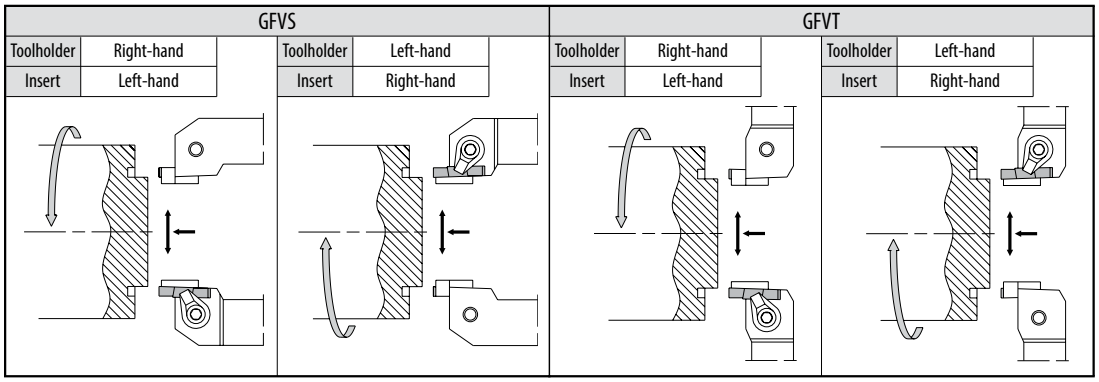
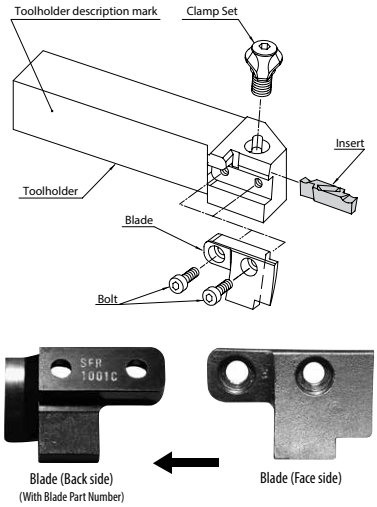
Selection of Toolholder & Insert



Combination of Base-Holder & Blade

	Toolholder Part Number (Stamped below)	Std. Item R	Std. Item L	Blade Part Number	Toolholder Part Number (Unit Part Number)	Example of installation (GFVS)	How to refer to the face grooving toolholder and blade
Inch	GFVS R/L 12-HB GFVT R/L 12-HB	● ●	● ●	SF R/L -351B -352B -501B -502B -701B -702B	GFVS R/L 12 -351B GFVT R/L 12 -352B -501B -502B -701B -702B		Q : Though "GFVSR16-HC" is marked on the face grooving toolholder, the size of cutting dia. is unknown. How could it be found out? A : Take off the blade. Part Number of the blade is listed on the back of the blade. Using the description, check the description of the toolholder in the catalog. If "SFR-1001C" is integrated to "GFVSR16-HC", the description of the toolholder is "GVFSR16-1001C".
Inch	GFVS R/L 16-HB GFVT R/L 16-HB	● ●	● ●	SF R/L -351B -352B -501B -502B -701B -702B	GFVS R/L 16 -351B GFVT R/L 16 -352B -501B -502B -701B -702B		
Inch	GFVS R/L 16-HC GFVT R/L 16-HC	● ●	● ●	SF R/L -501C -502C -701C -702C -1001C -1002C -1501C -1502C	GFVS R/L 16 -501C GFVT R/L 16 -502C -701C -702C -1001C -1002C -1501C -1502C		
mm	GFVS R/L 2020K-HB GFVT R/L 2020K-HB	● ●	● ●	SF R/L -351B -352B -501B -502B -701B -702B	GFVS R/L 2020K -351B GFVT R/L 2020K -352B -501B -502B -701B -702B		
mm	GFVS R/L 2525M-HB GFVT R/L 2525M-HB	● ●	● ●	SF R/L -351B -352B -501B -502B -701B -702B	GFVS R/L 2525M -351B GFVT R/L 2525M -352B -501B -502B -701B -702B		
mm	GFVS R/L 2525M-HC GFVT R/L 2525M-HC	● ●	● ●	SF R/L -501C -502C -701C -702C -1001C -1002C -1501C -1502C	GFVS R/L 2525M -501C GFVT R/L 2525M -502C -701C -702C -1001C -1002C -1501C -1502C		

· Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.
· Installation of GFVT is also pursuing example of installation of GFVS.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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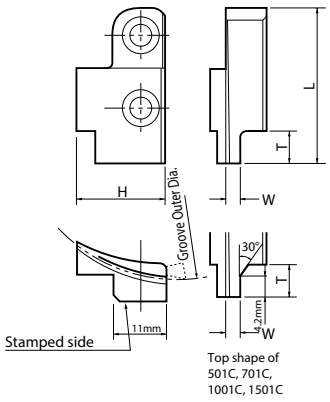
Blade Dimensions

Unit	Shape	Blade Part Number	Std. Item R	Std. Item L	Dimensions (mm) L	H	T	W	External dia. of the groove (mm) DAXN (min)	DAXX (max)	Applicable Inserts	Applicable Toolholders
mm		SF□L-351B	●	●	30.5	11	4.7	2.0	35	50	GVF□L 250~350-020B GVF□L 300-150BR	GFV(S/T)□L○○○○□ -○○○B (Toolholder Stamp (GFV(S/T)□L○○○○□-HB))
		-352B	●	●				3.4			GVF□L 400~490-020B GVF□L 400-200BR	
		SF□L-501B	●	●		15		2.0	50	70	GVF□L 250~350-020B GVF□L 300-150BR	
		-502B	●	●				3.4			GVF□L 400~490-020B GVF□L 400-200BR	
		SF□L-701B	●	●		17		2.0	70	100	GVF□L 250~350-020B GVF□L 300-150BR	
		-702B	●	●				3.4			GVF□L 400~490-020B GVF□L 400-200BR	
		SF□L-501C	●	●	35.0	15	7.5	2.8	50	70	GVF□L 350~450-040C	GFV(S/T)□L○○○○□ -○○○C (Toolholder Stamp (GFV(S/T)□L○○○○□-HC))
		-502C	●	●				4.3			GVF□L 500~600-040C	
		SF□L-701C	●	●		20		2.8	70	100	GVF□L 350~450-040C	
		-702C	●	●				4.3			GVF□L 500~600-040C	
		SF□L-1001C	●	●		23		2.8	100	150	GVF□L 350~450-040C	
		-1002C	●	●				4.3			GVF□L 500~600-040C	
		SF□L-1501C	●	●		23		2.8	150	250	GVF□L 350~450-040C	
		-1502C	●	●				4.3			GVF□L 500~600-040C	

Right-hand shown

- Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.

External dia. of the groove for GFVS / GFVT

e.g.) GFVS□L…-351B/352B

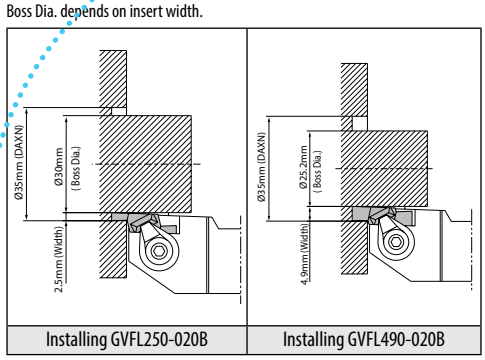
(same as GFVS□L…-○○○B, …-○○○C G139~G140

GFVT□L…-○○○B, …-○○○C G141~G142

Part Number	External dia. of the groove (mm) DAXN (min)	DAXX (min)	Applicable Inserts
GFVS□L 2020K-351B 2525M-351B 2020K-352B 2525M-352B	35 (25)	50 (∞)	GVF□L 250~350-020B GVF□L 300-150BR
			GVF□L 400~490-020B GVF□L 400-200BR

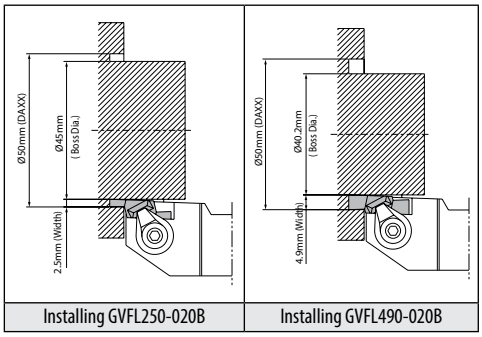
- It is possible to widen the groove to infinity ∞ when machining the initial groove within DAXN ~ DAXX and then widening to outer diameter.

- When machining the initial groove on the face at (DAXN: Ø35mm)
  If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
  Boss Dia. depends on insert width.



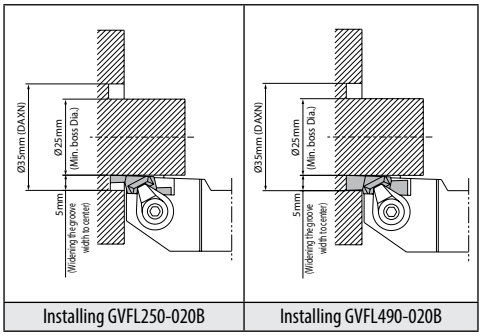
Installing GVFL250-020B | Installing GVFL490-020B

- When machining the initial groove on the face at (DAXX: Ø50mm).
  If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
  Boss Dia. depends on insert width.

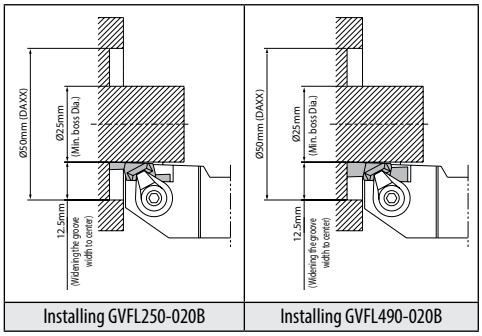


Installing GVFL250-020B | Installing GVFL490-020B

- When widening the groove width to inner diameter.
  Face Grooving Dia. (Ø25mm Boss Dia.) is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at (DAXN: Ø35mm) or (DAXX: Ø50mm). The toolholder interferes with the workpiece when closer to the center.



Installing GVFL250-020B | Installing GVFL490-020B



Installing GVFL250-020B | Installing GVFL490-020B

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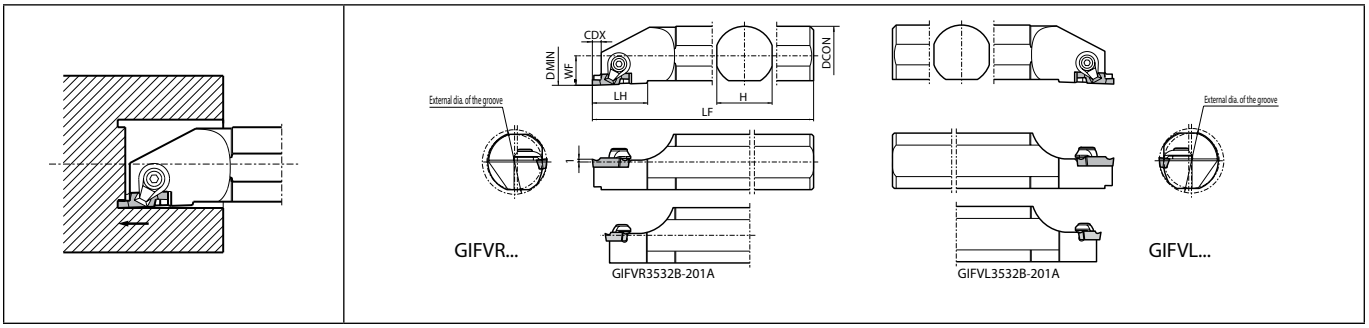
GIFV (Face Grooving)



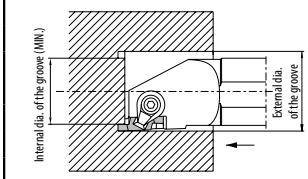
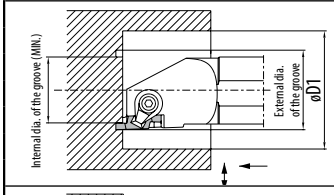
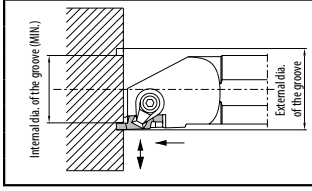
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	External dia. of the groove (mm) DAXN (min.)	DAXX (max.)	Dimensions DMIN	DCON	CDX	H	LH	LF	WF	Spare Parts Clamp Set	Clamp Set	Wrench	Wrench	Applicable Inserts G136
mm	GIFV R/L 3532B-201A	●	●	35 (12)	∞ (∞)	35	32	2.2	30	23	250	16	CPS-5V	-	-	FT-15	GVF R/L ...-...A(R)
	GIFV R/L 3532B-351B	●	●	35 (25)	50 (∞)	35	32	4.6	30	30	250	16	-	CPS-6V	LW-3	-	GVF R/L 250 ~ 350-...B(R)
	3532B-352B	●	●					5.1									GVF R/L 400 ~ 490-...B(R)
	5032B-501B	●	●	50 (25)	70 (∞)	50		4.6									GVF R/L 250 ~ 350-...B(R)
	5032B-502B	●						5.1									GVF R/L 400 ~ 490-...B(R)
	GIFV R/L 5032B-501C	●	●	50 (25)	70 (∞)	50	32	6.6	30	35	250	16	-	CPS-8V	LW-4	-	GVF R/L 350 ~ 450-040C
	5032B-502C	●						8.1									GVF R/L 500 ~ 600-040C

CDX shows available grooving depth.
Standard toolholders are designed with the edge position 0.039" (1.0mm) above the center.

External dia. of the groove depends on the application.

Applications	Part Number	Internal dia. of the groove (min.)	External dia. of the groove DAXN [min.]	DAXX [max.]	(max.)	Notes
	GIFV R/L 3532B-201A	-	35	∞	∞	-
	GIFV R/L 3532B-351B			50		
	3532B-352B					
	5032B-501B		50	70		
	5032B-502B					
	GIFV R/L 5032B-501C					
	5032B-502C					
	GIFV R/L 3532B-201A	12	35	∞	∞	If øD1 ≥ 58-2CW, the Face Grooving Dia. can be expanded to Internal dia. of the groove (min.) toward the Center. CW = Edge Width If øD1 ≥ 75-2CW, the Face Grooving Dia. can be expanded to Internal dia. of the groove (min.) toward the Center. CW = Edge Width
	GIFV R/L 3532B-351B	25		50		
	3532B-352B					
	5032B-501B		50	70		
	5032B-502B					
	GIFV R/L 5032B-501C					
	5032B-502C					
	GIFV R/L 3532B-201A	12	35	∞	∞	-
	GIFV R/L 3532B-351B	25		50		
	3532B-352B					
	5032B-501B		50	70		
	5032B-502B					
	GIFV R/L 5032B-501C					
	5032B-502C					

The value ( ) of External dia. of the groove (max.) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX (It is possible to widen the groove to infinity ∞).
The value ( ) of Internal dia. of the groove (min.) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.

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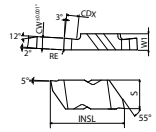
KCFP

		Carbon Steel / Alloy Steel										●	○	P
		Stainless Steel										●	○	M
		Cast Iron												K
		Non-Ferrous Metals												N
		Titanium Alloy												S
		Hard Materials (~ 40HRC)												H
		Hard Materials (40HRC ~)												
Insert		Part Number	No. of Edges	Dimensions (in)								Tolerance (in)		Carbide		Applicable Toolholder ⇒ G146
				CW		CDX	W1	S	INSL	RE		CW min.	CW max.	PVD		
				in	mm									PR1625	PR930	
		KCFP 3125R	1	0.125	3.15	0.150	0.195	0.344	0.886	0.008		- 0.001	+ 0.001		●	KKCEL...-3..
		KCFP 3125L	1	0.125	3.15	0.150	0.195	0.344	0.886	0.008		- 0.001	+ 0.001	●	△	KKCER...-3..
		3156L		0.156	3.97										△	

Right-hand shown
CDX : Maximum grooving depth.

Recommended Cutting Conditions

Workpiece Material	Recommended insert grades (Vc: sfm)		Feed Rate f (ipr)	Notes
	MEGACOAT NANO	Carbide		
	PR1625	PR930		
Carbon Steel	★ 250~650	☆ 250~650	0.002~0.010	Coolant
Alloy Steel	★ 150~550	☆ 150~550		
Stainless Steel	★ 100~550	☆ 100~550		
Tool steel	★ 100~550	☆ 100~550		

Speeds and Feeds listed are for grooving. ★:1st recommendation ☆:2nd recommendation

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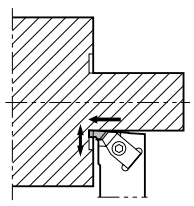
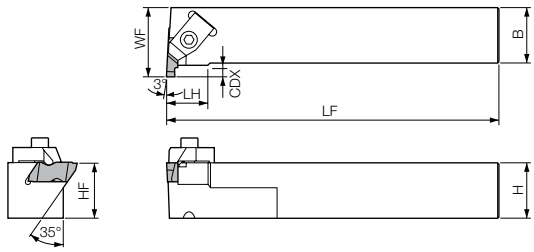
KKCE (Face Grooving)





Right-hand Insert for Left-hand Toolholder, Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

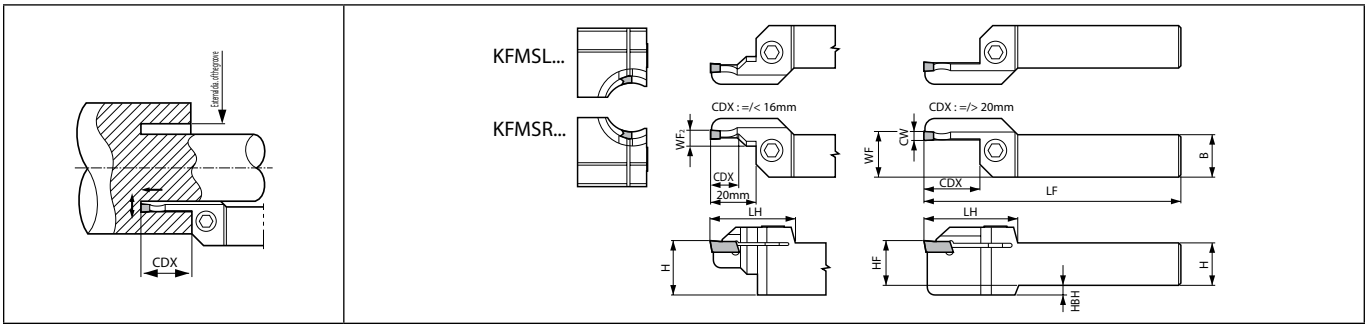
Unit	Part Number	Std. Item		Dimensions							Spare Parts			Applicable Inserts G145
		R	L	CDX	H	B	LH	HF	LF	WF	Clamp	Clamp Screw	Wrench	
Inch	KKCE□□ 12-3B	●	●	0.210	0.750	0.750	0.750	0.750	4.500	1.125	CKC-3□□	HH5X25	LW-4	KCFP3...
	16-3D	●			1.000	1.000		1.000	6.000	1.250				

CDX shows available grooving depth.
Clamp: CKC-3L for Right-hand Toolholder and CKC-3R for Left-hand Toolholder.

Face Grooving Limits		
Insert Part Number	Maximum Groove Depth	Minimum Groove Diameter
KCFP3...	0.060	0.940
	0.094	1.200
	0.125	1.420
	0.150	1.630

FMM/FMN

KFMS (Face Grooving)



Toolholder Dimensions

Part Number	Unit	Std. Item R	Std. Item L	External dia.of the groove DAXN (min.)	External dia.of the groove DAXX (max.)	Dimensions CDX	H	B	LH	HF	HBH	LF	WF	WF_2	CW	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Inserts G148
KFMSR 16-3-4050	inch	△		1.575	1.969	0.512	1.000	1.000	1.539	1.000	-	6.000	1.027	0.240	0.118	HH5X25	LW-4	FMM30-03 FMN3
16-3-5065	inch	△		1.969	2.559	0.866			1.618					-				
KFMSR 2020K2530-3	mm	△		25	30	13	20	20	39	20	-	125	20.7	6.1	3	HH5X20	LW-4	FMM30-03 FMN3
2020K3040-3	mm	△		30	40													
2020K4050-3	mm	△		40	50													
2020K5065-3	mm	△		50	65	22			41					-				
2020K6585-3	mm	△		65	85													
2020K85110-3	mm	△		85	110	25			44		5							
2020K110145-3	mm	△		110	145				44									
KFMS□L 2525M2530-3	mm	△	△	25	30	13	25	25	39	25	-	150	25.7	6.1		HH5X25		
2525M3040-3	mm	△	△	30	40													
2525M4050-3	mm	△	△	40	50													
2525M5065-3	mm	△	△	50	65	22			41					-				
2525M6585-3	mm	△	△	65	85													
2525M85110-3	mm	△	△	85	110	25			44									
2525M110145-3	mm	△	△	110	145													
KFMSR 2020K2535-4	mm	△		25	35	12	20	20	39	20	-	125	20.7	7.1	4	HH5X20	LW-4	FMM40-04 FMN4
2020K3550-4	mm	△		35	50	20								-				
2020K5070-4	mm	△		50	70	25			44		5							
2020K70100-4	mm	△		70	100													
2020K100150-4	mm	△		100	150													
2020K150220-4	mm	△		150	220													
2020K220800-4	mm	△		220	∞													
KFMS□L 2525M2535-4	mm	△	△	25	35	12	25	25	39	25	-	150	25.7	7.1		HH5X25		
2525M3550-4	mm	△	△	35	50	20								-				
2525M5070-4	mm	△	△	50	70	25			44									
2525M70100-4	mm	△	△	70	100													
2525M100150-4	mm	△	△	100	150													
2525M150220-4	mm	△	△	150	220													
2525M220800-4	mm	△	△	220	∞													

CDX shows available grooving depth.
External dia. of the groove : The diameter range of the initial plunge.
KFMS will be switched to KGDF=> **G114 ~ G118**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

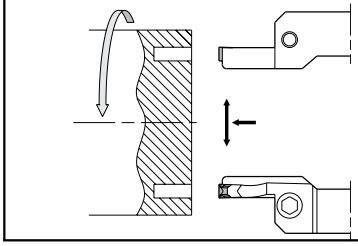
Toolholder Dimensions

Part Number	Unit	Std. Item R	Std. Item L	External dia.of the groove DAXN (min.)	External dia.of the groove DAXX (max.)	Dimensions CDX	H	B	LH	HF	HBH	LF	WF	WF_2	CW	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Inserts ⇒ G148
KFMSR 16-5-75115	Inch	△		2.953	4.528	1.260	1.000	1.000	2.012	1.000	-	6.000	1.027 (1.047)	-	0.197 (0.236)	HH5X25	LW-4	FMM50-04 FMN5 FMM60-04 FMN6
16-5-115180	Inch	△		4.528	7.087													
KFMSR 2020K2535-5	mm	△		25	35	20	20	20	39	20	-	125	20.7 (21.2)	-	5 (6)	HH5X20	LW-4	FMM50-04 FMN5 FMM60-04 FMN6
2020K3550-5	mm	△		35	50													
2020K5075-5	mm	△		50	75	25			44		5							
2020K75115-5	mm	△		75	115													
2020K115180-5	mm	△		115	180													
2020K180235-5	mm	△		180	235													
2020K235800-5	mm	△		235	∞													
KFMS R/L 2525M2535-5	mm	△	△	25	35	20	25	25	39	25	-	150	25.7 (26.2)			HH5X25		
2525M3550-5	mm	△	△	35	50													
2525M5075-5	mm	△	△	50	75	25			44									
2525M75115-5	mm	△	△	75	115	32			51									
2525M115180-5	mm	△	△	115	180													
2525M180235-5	mm	△	△	180	235													
2525M235800-5	mm	△	△	235	∞													

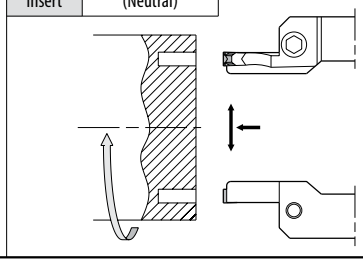
CDX shows available grooving depth.
External dia. of the groove : The diameter range of the initial plunge.
For KFMS R/L ...-5 toolholder can hold a 0.236" (6mm) width insert. ( ) value shows the dimension of a 0.236" (6mm) width insert.
KFMS will be phased out. Switch to KGDF=> ⇒ **G110~G131**

Selection of Toolholder & Insert

Toolholder	Right-hand
Insert	(Neutral)

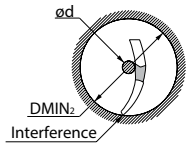


Toolholder	Left-hand
Insert	(Neutral)



Limit of Turning toward Center

Turning towards the Center causes the toolholder to interfere with the groove wall depending on the initial cut's diameter.



Remaining Boss Dia. ød

Part Number \ DMIN2	25	26	27	28 and over
	ød (mm)			
KFMS R/L 2020K2530-3 / KFMS R/L 2525M2530-3	4	2	0	0
KFMS R/L 2020K2535-4 / KFMS R/L 2525M2535-4	6	3	0	(No remaining Boss)
KFMS R/L 2020K2535-5 / KFMS R/L 2525M2535-5	7 *(5)	4 *(2)	1 *(0)	

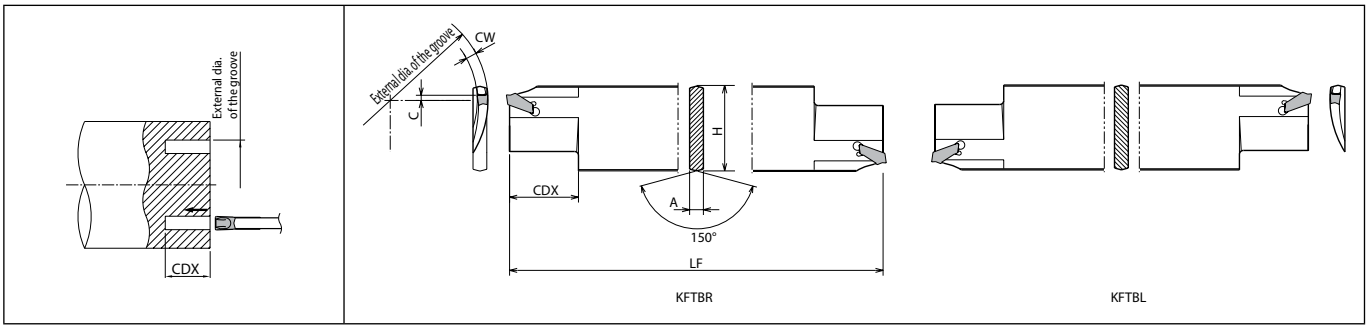
e.g.)
KFMSR 2525M2530-3 with ø25mm as first cut towards the center, it will cause a rubbing with the toolholder cartridge if ød is 4.0mm.

*( ) value shows the Dimension using FMM60-04 Insert.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

FTK

KFTB (Face Grooving Blade)



Toolholder Dimensions

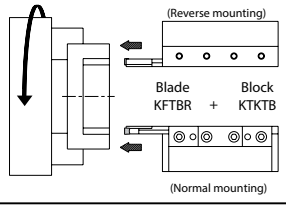
Unit	Part Number	Std. Item R	Std. Item L	External dia.of the groove (mm) DAXN (min.)	External dia.of the groove (mm) DAXX (max.)	Dimensions CDX	Dimensions H	Dimensions A	Dimensions C	Dimensions LF	Dimensions CW	Applicable Inserts G151	Applicable tool block G56, H57
mm	KFTB□ 65100-4S	●	●	65	100	25	32	5.2	4	150	4	FTK4	KPKTB..-32JCT KTKTB..-32 KTKTBF..-32
	90150-4S	●	●	90	150	30			0				
	150250-4S	●	●	140	250	30							
	250800-4S	●	●	230	∞			3.2					
	KFTB□ 90150-5S	●	●	90	150	30	32	5.2	0	150	5	FTK5	
	150250-5S	●	●	150	250	32							
	250800-5S	●	●	250	∞	38		4					

CDX shows available grooving depth.
External dia. of the groove : The diameter range of the initial plunge.
The insert has Self-Clamping system and it is not suitable for tight tolerance grooves (tolerance±0.05mm).
Lightly tap an Insert with a Plastic hammer. (End of insert does not touch toolholder.)
KFTB□ 65100-4S toolholder is designed with the edge position 4mm above the Center.
Dimension H shows virtual apex distance.

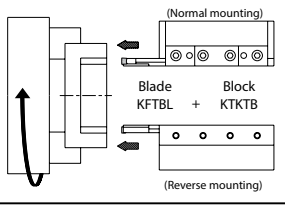
Selection of Blade and Insert

Combination of Blade + KTKTB

Blade	Right-hand
Insert	Neutral

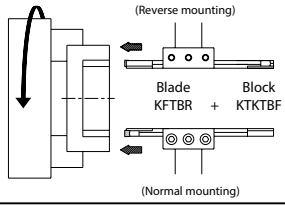


Blade	Left-hand
Insert	Neutral

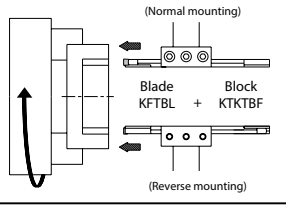


Combination of Blade + KTKTBF

Blade	Right-hand
Insert	Neutral



Blade	Left-hand
Insert	Neutral



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GBA Inserts - Ground Chipbreaker

Workpiece Material	Recommended Insert Grades (Vc: sfm)											(1) f for grooving (ipr) (2) f for traversing (ipr) (3) D.O.C. for traversing (mm)					Notes
	MEGACOAT NANO EX		MEGA COAT	MEGA COAT NANO	MEGA COAT Cermet	Cermet			Carbide	CBN	PCD						
	PR2015	PR2025	PR1215	PR1625	PV7040	TN620	TC40	TN90	KW10	KBN510 KBN525	KPD001 (KPD010)	GBA○○R/L 033~120-...	GBA○○R/L 125~225-...	GBA○○R/L 230~325-...	GBA○○R/L 330~350-...	GBA○○R/L 400~480-...	
Carbon Steel	★ 260~660	★ 260~590	☆ 260~660	☆ 260~590	☆ 490~790	★ 260~720	☆ 490~720	☆ 490~720	-	-	-	(1) 0.0012~0.0031 (2) Not Recomm. (3) Not Recomm.	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) Max. 0.0118	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0315	Coolant
Alloy Steel	★ 260~590	☆ 260~520	☆ 260~590	☆ 260~520	☆ 430~720	★ 260~660	☆ 430~660	☆ 430~660	-	-	-	(1) 0.0012~0.0028 (2) Not Recomm. (3) Not Recomm.	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) Max. 0.0118	(1) 0.0020~0.0035 (2) 0.0020~0.0035 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0315	
Stainless Steel	☆ 200~490	★ 200~430	☆ 200~490	☆ 200~430	-	-	-	☆ 230~490	-	-	-	(1) 0.0012~0.0028 (2) Not Recomm. (3) Not Recomm.	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) Max. 0.0118	(1) 0.0020~0.0035 (2) 0.0020~0.0035 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0315	
Cast Iron	★ 260~590	-	-	-	-	-	-	-	☆ 200~390	★ 490~1,310	-	(1) 0.0012~0.0031 (2) Not Recomm. (3) Not Recomm.	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) Max. 0.0118	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0315	
Aluminum Alloys	-	-	-	-	-	-	-	-	★ 490~1,310	-	★ 490~6,560	(1) 0.0020~0.0047 (2) Not Recomm. (3) Not Recomm.	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0197	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	
Brass	-	-	-	-	-	-	-	-	★ 490~980	-	★ 660~2,620	(1) 0.0020~0.0047 (2) Not Recomm. (3) Not Recomm.	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0197	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0315	(1) 0.0031~0.15 (2) 0.0031~0.15 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	
Hard Materials	-	-	-	-	-	-	-	-	-	★ 260~390	-	-	(1) 0.0008~0.0020 (2) Not Recomm. (3) Not Recomm.	(1) 0.0012~0.0028 (2) 0.0004~0.0016 (3) Max. 0.0039	-	-	

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

★:1st recommendation ☆:2nd recommendation

GBA Inserts - GM Chipbreaker

Workpiece Material	Recommended Insert Grades (Vc: sfm)					(1) f for grooving (ipr) (2) f for traversing (ipr) (3) D.O.C. for traversing (mm)					Notes
	MEGACOAT NANO EX		MEGACOAT	MEGACOAT NANO	Cermet						
	PR2015	PR2025	PR1215	PR1625	TN620	GBA43R/L 140-010GM	GBA43R/L 150-020GM	GBA43R/L 175-020GM~230-020GM	GBA43R/L 250-030GM~350-030GM	GBA43R/L 400-040GM	
Carbon Steel	★ 260~720	★ 260~720	☆ 260~720	☆ 260~720	★ 260~790	(1) 0.0012 - 0.0039 (2) 0.0012 - 0.0031 (3) Max. 0.0079	(1) 0.0012 - 0.0047 (2) 0.0012 - 0.0031 (3) Max. 0.0118	(1) 0.0012 - 0.0047 (2) 0.0012 - 0.0035 (3) Max. 0.0118	(1) 0.0016 - 0.0059 (2) 0.0020 - 0.0039 (3) Max. 0.0197	(1) 0.0020 - 0.0059 (2) 0.0020 - 0.0039 (3) Max. 0.0315	Coolant
Alloy Steel	★ 260~660	★ 260~660	☆ 260~660	☆ 260~660	★ 260~720	(1) 0.0012 - 0.0039 (2) 0.0012 - 0.0031 (3) Max. 0.0079	(1) 0.0012 - 0.0047 (2) 0.0012 - 0.0031 (3) Max. 0.0118	(1) 0.0012 - 0.0047 (2) 0.0012 - 0.0035 (3) Max. 0.0118	(1) 0.0016 - 0.0059 (2) 0.0020 - 0.0039 (3) Max. 0.0197	(1) 0.0020 - 0.0059 (2) 0.0020 - 0.0039 (3) Max. 0.0315	
Stainless Steel	☆ 200~490	★ 200~490	☆ 200~490	☆ 200~490	-	(1) 0.0012 - 0.0039 (2) 0.0012 - 0.0031 (3) Max. 0.0079	(1) 0.0012 - 0.0039 (2) 0.0012 - 0.0031 (3) Max. 0.0118	(1) 0.0012 - 0.0039 (2) 0.0012 - 0.0035 (3) Max. 0.0118	(1) 0.0016 - 0.0047 (2) 0.0020 - 0.0039 (3) Max. 0.0197	(1) 0.0016 - 0.0047 (2) 0.0020 - 0.0039 (3) Max. 0.0315	
Cast Iron	★ 260~660	-	-	-	-	(1) 0.0012 - 0.0039 (2) 0.0012 - 0.0031 (3) Max. 0.0079	(1) 0.0012 - 0.0047 (2) 0.0012 - 0.0031 (3) Max. 0.0118	(1) 0.0012 - 0.0047 (2) 0.0012 - 0.0035 (3) Max. 0.0118	(1) 0.0016 - 0.0059 (2) 0.0020 - 0.0039 (3) Max. 0.0197	(1) 0.0016 - 0.0047 (2) 0.0020 - 0.0039 (3) Max. 0.0315	

* Above cutting condition is for external grooving. Set both cutting speed and feed 20% lower for internal grooving.

★:1st recommendation ☆:2nd recommendation

GBF inserts

Workpiece	Recommended Insert Grade (Cutting Speed Vc: sfm)			(1) Grooving Feed Rate (ipr) (2) Traversing Feed Rate (ipr) (3) Max D.O.C. for Traversing (in)				Notes
	MEGACOAT	MEGACOAT NANO	Carbide					
	PR1215	PR1535	GW15	GBF32R/L 025~053	GBF32R/L 065~095	GBF32R/L 100~145	GBF32R/L 150~300	
Carbon Steel	★ 260 - 590	☆ 230 - 530	-	(1) 0.0004 – 0.0020 (2) Not Recommended (3) Not Recommended	(1) 0.0008 – 0.0028 (2) Not Recommended (3) Not Recommended	(1) 0.0012 – 0.0031 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0012 – 0.0031 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	Coolant
Alloy Steel	★ 260 - 590	☆ 230 - 530	-	(1) 0.0004 – 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0008 – 0.0024 (2) Not Recommended (3) Not Recommended	(1) 0.0012 – 0.0028 (2) 0.0008 – 0.0020 (3) MAX. 0.0079	(1) 0.0012 – 0.0028 (2) 0.0008 – 0.0020 (3) MAX. 0.0079	
Stainless Steel	☆ 200 - 430	★ 160 - 390	-	(1) 0.0004 – 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0008 – 0.0024 (2) Not Recommended (3) Not Recommended	(1) 0.0012 – 0.0028 (2) 0.0008 – 0.0020 (3) MAX. 0.0079	(1) 0.0012 – 0.0028 (2) 0.0008 – 0.0020 (3) MAX. 0.0079	
Cast Iron	-	-	★ 200 - 330	(1) 0.0004 – 0.0020 (2) Not Recommended (3) Not Recommended	(1) 0.0008 – 0.0028 (2) Not Recommended (3) Not Recommended	(1) 0.0012 – 0.0031 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0012 – 0.0031 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	
Aluminum Alloy	-	-	★ 490 - 1,310	(1) 0.0004 – 0.0020 (2) Not Recommended (3) Not Recommended	(1) 0.0008 – 0.0028 (2) Not Recommended (3) Not Recommended	(1) 0.0012 – 0.0031 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0012 – 0.0031 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	
Brass	-	-	★ 490 - 980	(1) 0.0004 – 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0008 – 0.0028 (2) Not Recommended (3) Not Recommended	(1) 0.0012 – 0.0028 (2) 0.0008 – 0.0020 (3) MAX. 0.0079	(1) 0.0012 – 0.0028 (2) 0.0008 – 0.0020 (3) MAX. 0.0079	

★:1st recommendation ☆:2nd recommendation

GBF32...-000F inserts (RE = 0.00)

Workpiece	Recommended Insert Grade (Cutting Speed Vc: sfm)			(1) Grooving Feed Rate (ipr) (2) Traversing Feed Rate (ipr) (3) Max D.O.C. for Traversing (in)				Notes
	MEGACOAT	MEGACOAT NANO	Carbide					
	PR1215	PR1535	GW15	GBF32R/L 025 ~ 053 - 000F	GBF32R/L 065 ~ 095 - 000F	GBF32R/L 100 ~ 145 - 000F	GBF32R/L 150 ~ 200 - 000F	
Carbon Steel	★ 260 - 590	☆ 230 - 530	-	(1) 0.0002 – 0.0012 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	Coolant
Alloy Steel	★ 260 - 590	☆ 230 - 530	-	(1) 0.0002 – 0.0010 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0012 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0016 (2) 0.0004 – 0.0012 (3) MAX. 0.0079	(1) 0.0004 – 0.0016 (2) 0.0004 – 0.0012 (3) MAX. 0.0079	
Stainless Steel	☆ 200 - 430	★ 160 - 390	-	(1) 0.0002 – 0.0008 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0010 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0012 (2) 0.0004 – 0.0010 (3) MAX. 0.0079	(1) 0.0004 – 0.0012 (2) 0.0004 – 0.0010 (3) MAX. 0.0079	
Cast Iron	-	-	★ 200 - 330	(1) 0.0002 – 0.0012 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	
Aluminum Alloy	-	-	★ 490 - 1,310	(1) 0.0002 – 0.0012 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	
Brass	-	-	★ 490 - 980	(1) 0.0004 – 0.0012 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	

★:1st recommendation ☆:2nd recommendation

GBF-GL inserts

Workpiece	Recommended Insert Grade (Cutting Speed Vc: sfm)		(1) Grooving Feed Rate (ipr) (2) Traversing Feed Rate (ipr) (3) Max D.O.C. for Traversing (in)				Notes
	MEGACOAT	MEGACOAT NANO					
	PR1215	PR1535	GBF32R075~005GL	GBF32R095 ~ 100-005GL	GBF32R 150 – 200 (GL)	GBF32R 300 (GL)	
Carbon Steel	★ 260 - 590	☆ 230 - 530	(1) 0.0008 – 0.0028 (2) Not Recommended (3) Not Recommended	(1) 0.0012 – 0.0031 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0012 – 0.0031 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0016 – 0.0039 (2) 0.0016 – 0.0031 (3) MAX. 0.0197	Coolant
Alloy Steel	★ 260 - 590	☆ 230 - 530	(1) 0.0008 – 0.0024 (2) Not Recommended (3) Not Recommended	(1) 0.0012 – 0.0028 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0012 – 0.0028 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0016 – 0.0035 (2) 0.0016 – 0.0031 (3) MAX. 0.0197	
Stainless Steel	☆ 200 - 430	★ 160 - 390	(1) 0.0008 – 0.0024 (2) Not Recommended (3) Not Recommended	(1) 0.0012 – 0.0028 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0012 – 0.0028 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0016 – 0.0035 (2) 0.0016 – 0.0031 (3) MAX. 0.0197	

★:1st recommendation ☆:2nd recommendation

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EZG

Workpiece Material	Recommended Insert Grade (Vc sfm)		EZGR030030-...S	EZG□L 040040-... EZG□L 050050-... EZG□L 040040-...S EZG□L 050050-...S	EZG□L 060060-... EZG□L 070070-... EZG□L 080070-... EZG□L 060060-...S EZG□L 070070-...S EZG□L 080070-...S	Notes
	MEGACOAT	Carbide				
	PR1225	GW05	Feed Rate (ipr)			
Carbon Steel / Alloy Steel	★ 100~330	-	~0.0008	~0.0012	~0.0020	Coolant
Stainless Steel	★ 100~260	-	~0.0004	~0.0008	~0.0012	
Non-Ferrous	-	★ ~980	-	~0.0020	~0.0031	

★:1st recommendation

VNG

Workpiece Material	Recommended Insert Grade (Vc sfm)			VNG04 VNG05	VNG06 VNG07	Notes
	MEGACOAT	PVD	Carbide			
	PR1225	PR930	KW10	Feed Rate (ipr)		
Carbon Steel / Alloy Steel	★ 100~325	☆ 100~325	-	~0.0012	~0.0020	Coolant
Stainless Steel	★ 100~250	☆ 100~250	-	~0.0008	~0.0012	
Non-Ferrous Metals	-	-	★ ~975	~0.0020	~0.0031	

★:1st recommendation ☆:2nd recommendation

SIGC

Workpiece Material	Recommended Insert Grade (Vc : sfm)		(1) Feed Rate for Grooving (ipr) (2) Feed Rate for Traversing (ipr) (3) D.O.C. for Traversing (in)			Notes
	MEGACOAT NANO PLUS	MEGACOAT NANO				
	PR1725	PR1535	GC08□□...	GC10□□, GC12□□ 100 ~ 200...	GC10□□, GC12□□ 250 ~ 300...	
Carbon Steel	★ 160 - 260	☆ 160 - 260	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	Coolant
Alloy Steel	★ 160 - 260	☆ 160 - 260	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	
Stainless Steel	☆ 160 - 260	★ 160 - 260	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0039	

★:1st recommendation ☆:2nd recommendation

Ground Chipbreaker: GE R/L...A(R), GE R/L...B(R)

Workpiece Material	Recommended insert grades (Vc : sfm)				(1) f for Grooving (ipr) (2) f for Traversing (ipr) (3) D.O.C. for Traversing (in)			Notes
	MEGACOAT NANO EX	MEGACOAT	Cermet	Carbide				
	PR2025	PR1225	TN6020	KW10	GE R/L 100 ~ 200 - 010A 100 ~ 200 - 100AR	GE R/L 100 ~ 200 - 010B 100 ~ 200 - 100BR	GE R/L 250 ~ 300 - 020B	
Carbon Steel	★ 160 ~ 260	☆ 160 ~ 260	☆ 160 ~ 260	-	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	Coolant
Alloy Steel	★ 160 ~ 260	☆ 160 ~ 260	☆ 160 ~ 260	-	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	
Stainless Steel	★ 160 ~ 260	☆ 160 ~ 260	-	-	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0039	
Cast Iron	-	-	-	★ 160 ~ 260	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	
Aluminum	-	-	-	★ 160 ~ 330	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0039	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0079	
Brass	-	-	-	★ 160 ~ 330	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0039	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0079	

*Use PR2025, PR1225, KW10 for traversing with edge width 0.039" (1mm). (GE R/L100-005A/100-005B)

★:1st recommendation ☆:2nd recommendation

Ground Chipbreaker: GE R/L...C(R), GE R/L...D(R), GE R/L...E

Workpiece Material	Recommended Insert Grades (Vc : sfm)				(1) f for Grooving (ipr) (2) f for Traversing (ipr) (3) D.O.C. for Traversing (in)							Notes
	MEGACOAT NANO EX	MEGACOAT	Cermet	Carbide								
	PR2025	PR1225	TN6020	GW15	GE R/L 100~200-010C 200-100CR	GE R/L 250~350-020C 250~300-150CR						
					GE R/L 100~145-010D	GE R/L 150~195-010D	GE R/L 200~280-020D 200-100DR		GE R/L 300~400-020D 300-150DR			
					GE R/L 100-010E	GE R/L 150~195-010E	GE R/L 200~225-010E 230-020E	GE R/L 250~330-020E		GE R/L 350~430-020E	GE R/L 450~500-020E	
Carbon Steel	★ 200 ~ 460	☆ 200 ~ 460	☆ 390 ~ 590	-	(1) 0.0012~0.0031 (2) 0.0012~0.0031 (3) Max. 0.0118	(1) 0.0012~0.0031 (2) 0.0012~0.0031 (3) Max. 0.0118	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) Max. 0.0118	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) Max. 0.0118	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	Coolant
Alloy Steel	★ 200 ~ 390	☆ 200 ~ 390	☆ 330 ~ 520	-	(1) 0.0012~0.0028 (2) 0.0012~0.0039 (3) Max. 0.0118	(1) 0.0012~0.0028 (2) 0.0012~0.0039 (3) Max. 0.0118	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) Max. 0.0118	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) Max. 0.0118	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	
Stainless Steel	★ 200 ~ 360	☆ 200 ~ 360	☆ 230 ~ 430	-	(1) 0.0012~0.0028 (2) 0.0012~0.0039 (3) Max. 0.0118	(1) 0.0012~0.0028 (2) 0.0012~0.0039 (3) Max. 0.0118	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) Max. 0.0118	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) Max. 0.0118	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	
Cast Iron	-	-	-	★ 200 ~ 330	(1) 0.0012~0.0031 (2) 0.0012~0.0031 (3) Max. 0.0118	(1) 0.0012~0.0031 (2) 0.0012~0.0031 (3) Max. 0.0118	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) Max. 0.0118	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) Max. 0.0118	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	
Aluminum	-	-	-	★ 490 ~ 980	(1) 0.0020~0.0047 (2) 0.0020~0.0047 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0047 (3) Max. 0.0197	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0197	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0197	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	
Brass	-	-	-	★ 330 ~ 820	(1) 0.0020~0.0047 (2) 0.0020~0.0047 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0047 (3) Max. 0.0197	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0197	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0197	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	

*Use PR2025, PR1225, KW10 for traversing with edge width 0.039" (1mm). (GE R/L100-005A/100-005B)

★:1st recommendation ☆:2nd recommendation

Molded Chipbreaker: GER...CM, GER...DM, GER...EM

Workpiece Material	Recommended Insert Grades (Vc : sfm)		(1) f for Grooving (ipr) (2) f for Traversing (ipr) (3) D.O.C. for Traversing (in)						Notes
	MEGACOAT NANO EX	MEGACOAT							
	PR2025	PR1225	GER 150 ~ 200 - 010CM	GER 250 ~ 350 - 020CM					
			GER 150 ~ 200 - 010DM		GER 230 ~ 250 - 020DM	GER 300 ~ 400 - 020DM			
			GER 150 ~ 200 - 010EM			GER 250 ~ 300 - 020EM	GER 350 ~ 400 - 020EM	GER 450 ~ 500 - 020EM	
Carbon Steel	★ 200 ~ 520	☆ 200 ~ 520	(1) 0.0012 ~ 0.0039 (2) 0.0012 ~ 0.0039 (3) Max. 0.0394	(1) 0.0012 ~ 0.0047 (2) 0.0012 ~ 0.0039 (3) Max. 0.0591	(1)0.0016 ~ 0.0047 (2) 0.0016 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0047 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0047 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0047 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	Coolant
Alloy Steel	★ 200 ~ 460	☆ 200 ~ 460	(1) 0.0012 ~ 0.0039 (2) 0.0012 ~ 0.0039 (3) Max. 0.0394	(1) 0.0012 ~ 0.0039 (2) 0.0012 ~ 0.0039 (3) Max. 0.0591	(1) 0.0016 ~ 0.0047 (2) 0.0016 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0047 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0047 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0047 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	
Stainless Steel	★ 200 ~ 360	☆ 200 ~ 360	(1) 0.0012 ~ 0.0031 (2) 0.0012 ~ 0.0039 (3) Max. 0.0394	(1) 0.0012 ~ 0.0031 (2) 0.0012 ~ 0.0039 (3) Max. 0.0591	(1) 0.0016 ~ 0.0031 (2) 0.0016 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0039 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0039 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0039 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	

★:1st recommendation ☆:2nd recommendation

GVF (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)						(1) f (feed) during Grooving (ipr), (2) f (feed) during Traversing (ipr) (3) D.O.C. during Traversing (in)					Notes
	Cermet			MEGACOAT	PVD	Carbide	GVF R/L 200~340...A	GVF R/L 250~350...B	GVF R/L 400~490...B	GVF R/L 350~450...C	GVF R/L 500~600...C	
	TN90	TC40	TC60	PR1225	PR930	KW10	GVF R/L 200-100AR ~300-150AR	GVF R/L 300-150BR	GVF R/L 400-200BR			
Carbon Steel	☆ 490~720	☆ 490~720	☆ 330~490	★ 260~660	☆ 260~590	-	(1) 0.0012~0.0031 (2) 0.0012~0.0031 (3) MAX 0.012	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) MAX 0.012	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) MAX 0.020	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) MAX 0.020	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) MAX 0.031	Coolant
Alloy Steel	☆ 430~660	☆ 430~660	☆ 260~430	★ 260~590	☆ 260~520	-	(1) 0.0012~0.0028 (2) 0.0012~0.0039 (3) MAX 0.012	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) MAX 0.012	(1) 0.0020~0.0035 (2) 0.0020~0.0035 (3) MAX 0.020	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) MAX 0.020	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) MAX 0.031	
Stainless Steel	☆ 230~490	-	☆ 200~330	★ 260~490	☆ 200~430	-	(1) 0.0012~0.0028 (2) 0.0012~0.0039 (3) MAX 0.012	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) MAX 0.012	(1) 0.0020~0.0035 (2) 0.0020~0.0035 (3) MAX 0.020	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) MAX 0.020	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) MAX 0.031	
Cast Iron	-	-	-	-	-	★ 200~330	(1) 0.0012~0.0031 (2) 0.0012~0.0031 (3) MAX 0.012	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) MAX 0.012	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) MAX 0.020	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) MAX 0.020	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) MAX 0.031	
Aluminum	-	-	-	-	-	★ 490~1310	(1) 0.0020~0.0047 (2) 0.0020~0.0047 (3) MAX 0.020	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) MAX 0.020	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) MAX 0.031	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) MAX 0.031	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) MAX 0.031	
Brass	-	-	-	-	-	★ 490~980	(1) 0.0020~0.0047 (2) 0.0020~0.0047 (3) MAX 0.020	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) MAX 0.020	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) MAX 0.031	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) MAX 0.031	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) MAX 0.031	

Apply a sufficient amount of coolant.
The D.O.C. should be under 0.020" (0.5mm) if a good surface finish is required.

★:1st recommendation ☆:2nd recommendation

FTK

Workpiece Material	Recommended Insert Grade (Vc sfm)				Edge Width (in)		Notes
	Cermet	CVD		Carbide	0.1575	0.1969	
	TN90	CR9025	PR930	KW10	Feed Rate (ipr)		
Carbon Steel	☆ 390~660	★ 260~590	☆ 200~430	-	0.0020~0.0059	0.0020~0.0059	Coolant
Alloy Steel	☆ 330~520	★ 230~490	☆ 200~430	-	0.0020~0.0059	0.0020~0.0059	
Stainless Steel	☆ 260~490	☆ 200~460	☆ 160~390	-	0.0020~0.0059	0.0020~0.0059	
Cast Iron	-	-	-	★ 160~330	0.0039~0.0118	0.0039~0.0118	
Aluminum	-	-	-	★ 660~1480	0.0020~0.0098	0.0020~0.0098	
Brass	-	-	-	★ 330~660	0.0020~0.0098	0.0020~0.0098	

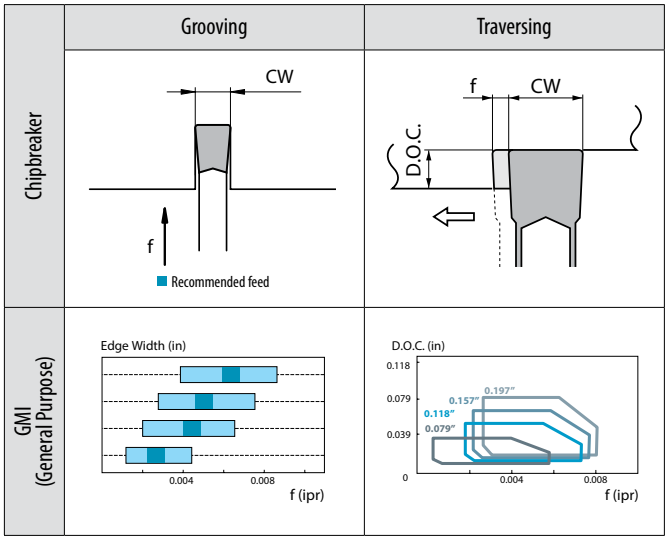
★:1st recommendation ☆:2nd recommendation

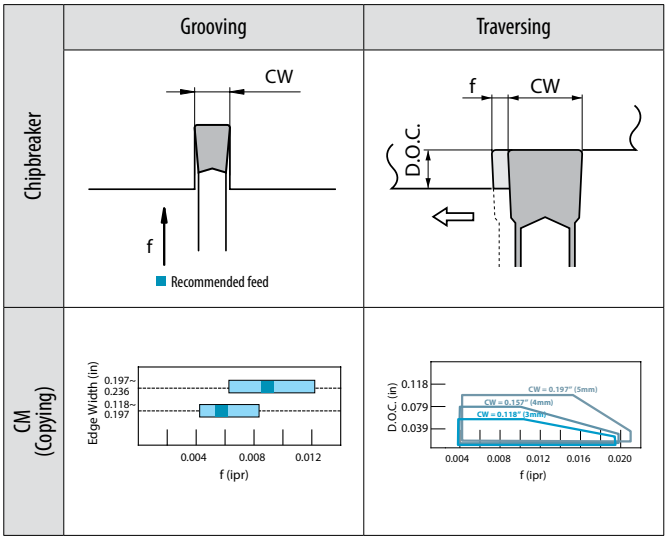
KGDI - Recommended Cutting Conditions (Vc)

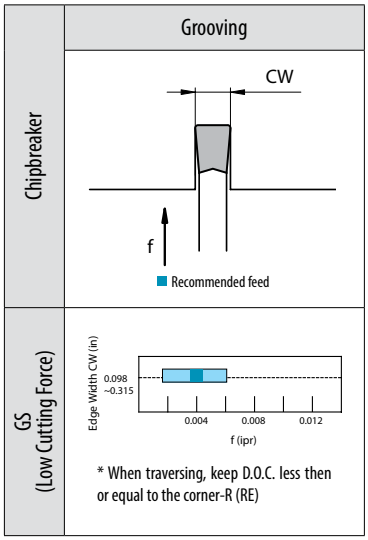
Workpiece Material	Chipbreaker	Recommended Insert Grade (Vc: sfm)						Notes
		Cermet		MEGACOAT NANO	MEGACOAT		Uncoated Carbide	
		TN620	TN90	PR1535	PR1225	PR1215	GW15	
Carbon Steel	GMI CM GS	☆ 330 ~ 720	☆ 330 ~ 720	☆ 260 ~ 490	★ 260 ~ 660	☆ 330 ~ 660	-	Coolant
Alloy Steel		☆ 260 ~ 660	☆ 260 ~ 660	☆ 230 ~ 490	★ 230 ~ 590	☆ 260 ~ 590	-	
Stainless Steel		☆ 230 ~ 590	☆ 230 ~ 590	★ 200 ~ 490	★ 200 ~ 490	☆ 200 ~ 490	-	
Cast Iron		-		-	-	★ 330 ~ 660	-	
Aluminum Alloys							★ 660 ~ 1,640	
Brass		-		-	-	-	★ 330 ~ 660	

★:1st recommendation ☆:2nd recommendation

KGDI - Recommended Cutting Conditions (f and D.O.C.)

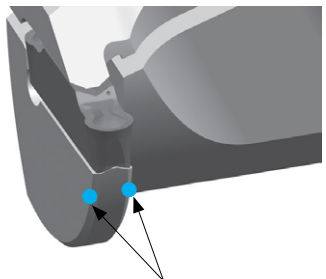






* When traversing, keep D.O.C. less then or equal to the corner-R (RE)

Additional processing of toolholder tip when CM chipbreaker is installed



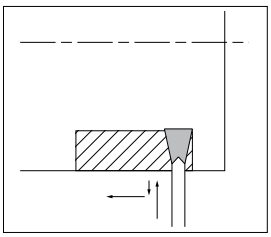
* By slightly chamfering the holder tip of about 0.5 mm, the cutting diameter can be minimized.

Guide for External Grooving

(1) (Traversing after Grooving)

1) Grooving Depth Over 0.5mm: At roughing (Refer to Fig.1)
Before Traversing, pull the tool back about 0.1mm after grooving.
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)

2) Grooving Depth under 0.5mm: At finishing (Refer to Fig.2)
Traversing subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Dwell time is not necessary.)



Before Traversing, pull the tool back about 0.1mm after grooving.
(Grooving Depth Over 0.5mm: At roughing)

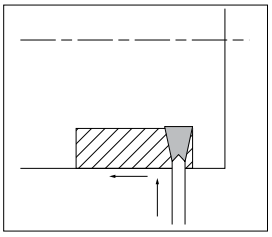
Fig.1

(2)

1) When widening the groove width
(Refer to Fig.3), apply the "Step Traversing" as shown in Fig.3.

2) The side walls should be finished with a plunging pass.
(For better chip control, ap over 0.5mm is recommended.)

Note) If the workpiece is not supported at the center, reduce the feed rate when grooving towards center.



Traversing subsequent to grooving is possible because there is only a small force on the cutting edge.
(Grooving Depth under 0.5mm: At finishing)

Fig.2

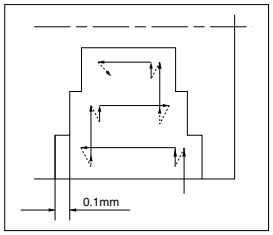


Fig.3

Guide for Face Grooving

<Toolholder Selection>

(1) Choose the best tool depending on the groove width.
The Cutting Dia. ØD listed in the catalog indicates the depth of the first plunge of face grooving as shown in Fig.1.

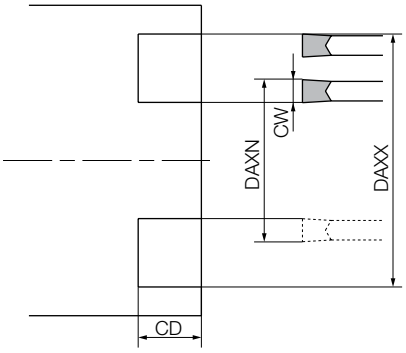


Fig.1

(2) Confirm Grooving Depth (dimension CDX)

(3) It is recommended to install the toolholder in the reverse position. (Fig. 2)
(This will provide smooth chip flow and chip clearance.)

Toolholder	Right-hand (R)	Toolholder	Left-hand (L)
Insert	(Neutral)	Insert	(Neutral)

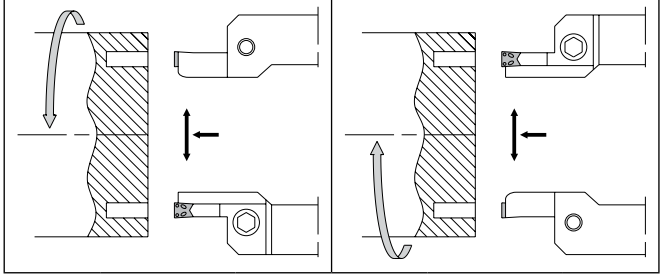


Fig.2 Toolholder's Hand and Rotation

<Guide for Traversing>

Traversing direction should be from the outer diameter to the inner diameter as shown in Fig.3
This improves chip evacuation.

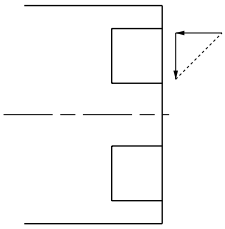
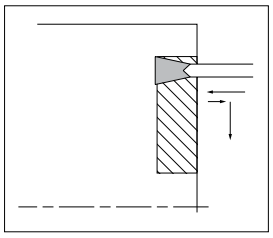


Fig.3

Guide for Face Grooving (Continued)

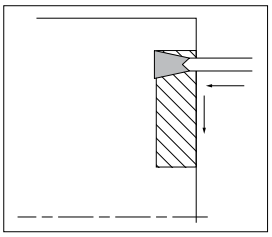
(1) (Traversing after Grooving)

1) Grooving Depth Over 0.020" (0.5mm): At roughing (Refer to Fig.4)
Before Traversing, pull the tool back about 0.004" (0.1mm) after grooving.
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)



Before Traversing, pull the tool back about 0.1mm after grooving.
(Grooving Depth Over 0.020": At roughing)
Fig.4

2) Grooving Depth under 0.020" (0.5mm): At finishing (Refer to Fig.5)
Traversing subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Dwell time is not necessary.)



Traversing subsequent to grooving is possible because there is only a small force on the cutting edge.
(Grooving Depth under 0.020": At finishing)
Fig.5

(2)

1) When widening the groove width, apply the "Step Traversing" as shown in Fig. 6.
2) The side walls should be finished with a plunging pass.
(For better chip control, D.O.C. over 0.020" (0.5mm) is recommended.)

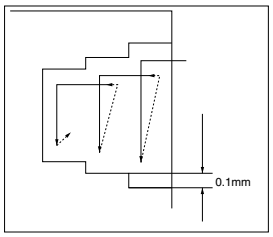
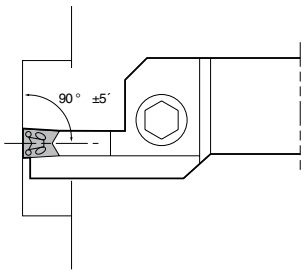


Fig.6

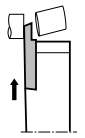
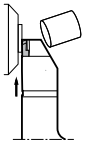
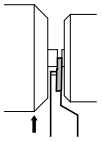
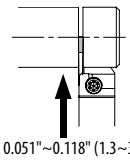
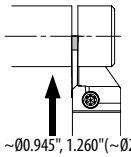
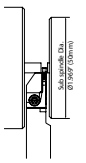
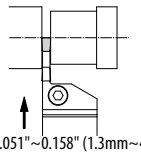
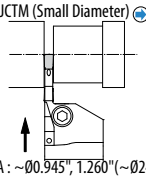
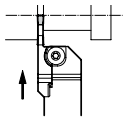
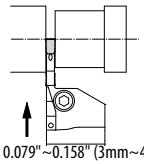
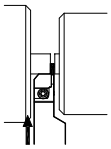
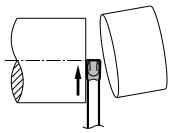
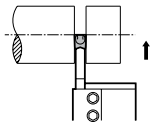
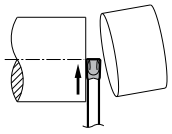
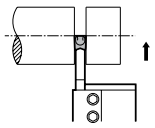
Troubleshooting

Trouble	Countermeasures
Whitish trace remains at the groove bottom.	(1) Increase the cutting speed for finishing process only. (This can handle most of the cases.) If the method is not successful, try (2) as follows. (2) Check the insert edge's parallelness. [Adjustment: Apply the insert edge to the work face and adjust the toolholder within the angle of ±5'. (Fig.7)]  Fig.7
Chips are entangled.	(1) Install the toolholder in the reverse position. Adjust the coolant flow to the cutting edge. (2) When widening the groove, do not machine one deep groove. Instead, repeat shallow grooving and Traversing.
Insert cracks when Traversing.	Reverse the facing direction.
Groove is not straight.	Check the edge's parallelness. Decrease the feed rate.

H

Overview		H2~H5
KTKF (Small Diameter)		H6~H19
Inserts	TKF	H6
Toolholders	KTKF	H9
	KTKF (Goose-Neck)	H10
	KTKF (Y-Axis)	H12
	KTKF-JCTM (Coolant-Through)	H14
	KTKF-S (Sub-Spindle)	H18
KGZ (Small Diameter)		H20~H31
Inserts	GZM / GZG / GZMS	H22
Toolholders	KGZ-JCTM (Coolant-Through)	H24
	KGZ (Standard)	H26
	KGZS (Sub-Spindle)	H28
KGD		H32~H49
Inserts	GDM / GDG / GDMS	H32
Toolholders	KGD (for Small Parts)	H34
	KGDS (Sub-Spindle)	H36
	KGD-JCTM (for Small Parts, Coolant-Through)	H39
	KGD (Integral Type)	H41
	KGD-S (0° SwitchBlade Type)	H43
	KGD-JCT (Coolant-Through)	H46
KPK		H50~H62
Inserts	PKM	H52
Blades	KPKB-JCT (Coolant-Through Blades)	H54
	KPKB (Blades)	H55
Tool Blocks	KPKTB-JCT (Coolant-Through Tool Blocks)	H56
	KTKTB / KTKTBF (Tool Blocks)	H57
Shank Type Toolholders	KPKH-JCT (Coolant-Through Toolholders)	H61
	KPKH (Standard Toolholders)	H62
KTK		H63~H69
Inserts	TKN / TK	H64
Blades	KTKB-SS / KTKB-S	H66
Shank Type Toolholders	KTKH (for Small Parts, Long Shank)	H67
	KTKH (Standard Toolholders)	H68

Product Lineup

Small Diameter Cut-Off CUTDIA Ø0.197"~Ø0.630" (Ø5mm~Ø16mm)	KTKF H9~H12  CW : (0.020"~0.079") CW : (0.5mm~2.0mm)	KTKF-JCTM H15  CW : (0.020"~0.079") CW : (0.5mm~2.0mm)		Sub Spindle Tooling	KTKF-S H18  CW : (0.039"~0.079") CW : (1.0mm~2.0mm)	
KGZ (Screw Clamp) CUTDIA Ø0.472"~Ø2.008" (Ø12mm~Ø51mm)	KGZ H26~H27  CW : 0.051"~0.118" (1.3~3mm)	KGZ-JCTM H24~H25  CUTDIA : ~Ø0.945", 1.260"(~Ø24,Ø32) CW : 0.051"~0.118" (1.3~3mm)			Sub Spindle Tooling	KGZS H28  CW : 0.051"~0.118" (1.3~3mm)
KGD (Bolt Clamp) CUTDIA Ø0.472"~Ø1.575" (Ø12mm~Ø50mm)	KGD H34~H35, H41~H42  CW : 0.051"~0.158" (1.3mm~4mm)	KGD-JCTM (Small Diameter) H39  CUTDIA : ~Ø0.945", 1.260"(~Ø24,Ø32) CW : 0.079"~0.158" (2mm~4mm)	KGD-S H43~H44  CW : 0.079"~0.158" (2mm~4mm)	KGD-JCT H46  CW : 0.079"~0.158" (3mm~4mm)	Sub Spindle Tooling	KGDS H36  CW : 0.051"~0.118" (1.3~3mm)
KPK (1-edge Insert) CUTDIA ~Ø4.724" (~Ø120mm)	Toolholder Type CUTDIA Ø1.378"~Ø2.441" (Ø35mm~Ø79mm)	KPKH (-JCT) H61~H62  CW : (0.079"~0.197") CW : (2.0mm~5.0mm)		Blade Type CUTDIA Ø1.378"~Ø2.441" (Ø32mm~Ø120mm)		KPKB (-JCT) H54~H55  CW : (0.063"~0.378") CW : (1.6mm~9.6mm)
KTKB KTKH (1-edge Insert) CUTDIA ~Ø4.724" (~Ø120mm)	Toolholder Type CUTDIA Ø1.181"~Ø2.441" (Ø30mm~Ø79mm)	KTKH-S H68  CW : (0.020"~0.079") CW : (2.2mm~5.1mm)		Blade Type CUTDIA Ø1.378"~Ø2.441" (Ø32mm~Ø120mm)		KTKB-S(S) H66~H67  CW : (0.063"~0.378") CW : (1.6mm~9.6mm)

Cut-Off Tools

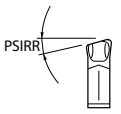
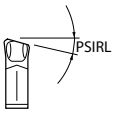
Series Name	Shape	Advantage	Applications
KTKF		1) Insert clamp is side screw type from the side 2) 2-edge insert 3) Max. Cut-Off Dia. : Ø0.630" (Ø16mm)	1) For cut-off and grooving of small workpieces 2) For small parts machining
KGZ		1) Insert is clamped from top side 2) 1-edge and 2-edge inserts available 3) Max. Cut-Off Dia. : Ø1.260" (Ø32mm) 4) JCTM jet coolant-through styles available	1) PF Chipbreaker ··· For low feed cut-off / grooving 2) PM Chipbreaker ··· For medium feed cut-off / grooving 3) PH Chipbreaker ··· For high feed cut-off / grooving 4) PG Chipbreaker ··· Sharp edge for low cutting force cut-off / grooving
KGD		1) Insert is clamped from top side 2) 1-edge and 2-edge inserts available 3) Integral Type and separate type are available 4) Max. Cut-Off Dia. : Ø1.969" (Ø50mm) 5) JCT / JCTM jet coolant-through styles available	1) PM Chipbreaker ··· For Cut-Off 2) PH Chipbreaker ··· For Cut-Off (High Feed Rate) / For Grooving 3) PG Chipbreaker ··· For Cut-Off (for Small Parts Machining) / Sharp-Cutting Oriented 4) PF Chipbreaker ··· For Cut-Off (for Small Parts Machining) / Low Feed 5) PQ Chipbreaker ··· For Cut-Off (for Small Parts Machining) / Medium Feed
KPK		1) Self-clamping system that opens/closes with key wrench 2) 1-edge insert 3) Molded chipbreaker 4) Blade Type, 5) Max. Cut-Off Dia.: Ø4.724" (Ø120mm)	1) For cut-off and deep grooving 2) PM Chipbreaker ··· General Purpose Cut-Off (Lead angle styles available) 3) PH Chipbreaker ··· Tough Edge / High Feed Rate
KTKB KTKH		1) Self-Clamping System Tap the insert lightly with a plastic hammer to set it in the pocket 2) 1-edge insert 3) Blade type and Integral Shank type 4) Max. Cut-Off Dia. : Ø4.724" (Ø120mm)	1) For cut-off and deep grooving 2) Standard chipbreaker is general cut-off type Feed rate: over 0.004ipr P Chipbreaker is for cut-off at low feed rates Feed rate: 0.001~0.003ipr

Tool Selection

		Small Diameter Cut-Off	KGZ	KGD	KPK	KTKB / KTKH
Insert	1. Insert's Edge Number	-	-	-	✓	✓
	1-edge Insert··· For Larger Dia. Workpiece (Max. 4.724" / Ø120mm)					
	2-edge Insert··· For Smaller Dia. Workpiece Cost per corner is reduced	✓	✓	✓	ŋ	-
	2. Use a neutral angle insert if there is no restriction to the size of boss left on part. (See Fig.3 Below)	TKF...S TKF...NB TKFS...S	GZM GZMS	GDM GDMS	PKM	TKN
	3. Use an angled insert to reduce the size of the remaining boss.	TKF...DR	GZM-R/L (Fig. 2)	GDM-R/L (Fig. 2)	PKMR/L (Fig. 1)	TKR/L (Fig. 1)
	4. Use a sharp-cornered lead-angled insert to make the remaining boss much smaller when machining small parts and thin parts.	TKF...DR	-	-	GMM-§ (Fig. 2)	-
	5. Use the minimum width insert suitable for the machining.	✓	✓	✓	✓	✓
Toolholder	1. Use a suitable toolholder (blade) for the workpiece dia.	✓	✓	✓	✓	✓
	2. Use a more rigid toolholder (blade).	✓	✓	✓	✓	✓
	3. Use a side screw or self clamp toolholder if there is no space for clamping tools from top side (for small tools).	✓	-	-	-	-

How to select cut-off inserts with / without lead angle

1) Use a neutral angle insert, when remaining boss is not a concern
2) Use an angled insert to reduce the remaining boss. (See Fig.2)
3) Use a sharp-edged insert with lead angle to minimize the remaining boss when cutting small parts and thin parts. (See Fig.3)

Lead Angle Hand	N (Neutral)	R (Right-Hand)	L (Left-Hand)
			
	• Angled insert can reduce burr when cutting off. • When using a larger lead angle, cutting resistance becomes smaller. The feed rate should be reduced.		

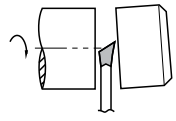
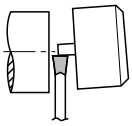
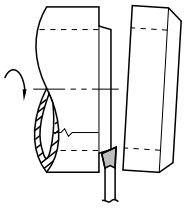
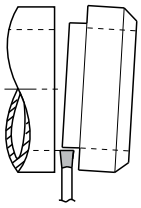
	With Lead Angle (Right-Hand)	Without Lead Angle (Neutral)
Solid Workpiece Example		
Hollow Workpiece Example (Pipe)		

Fig.1

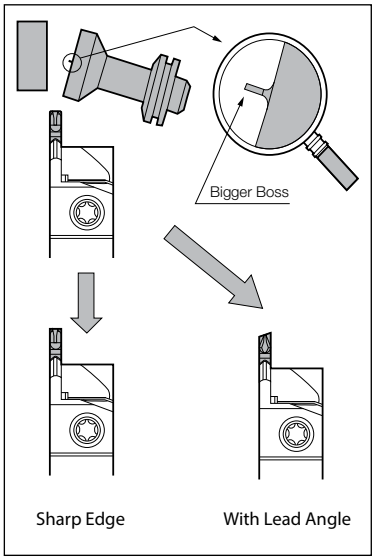


Fig.2

Caution

1) For PKM, PKM-R/L, TKN, and TNR/L, set the cutting edge height 0.004"-0.008" (0.1-0.2mm) above the center height (Fig.3)
   For other toolholders, set the cutting edge to the center height
2) Always apply sufficient coolant to the cutting edge
3) Constant spindle revolution is recommended to obtain stable tool life
4) Cut-off as close to the chuck as possible
5) Decrease the feed rate from 1/2 to 1/3 when diameter is same as cut-off width

Overuse of insert and toolholder (blade) may cause insert breakage and toolholder (blade) damage
Do not rework the insert and toolholder (blade) to prevent damage
Clean the insert pocket well with compressed air when replacing insert

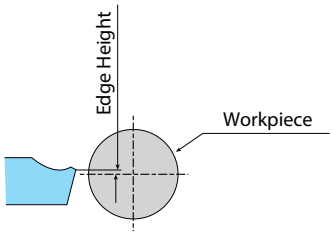
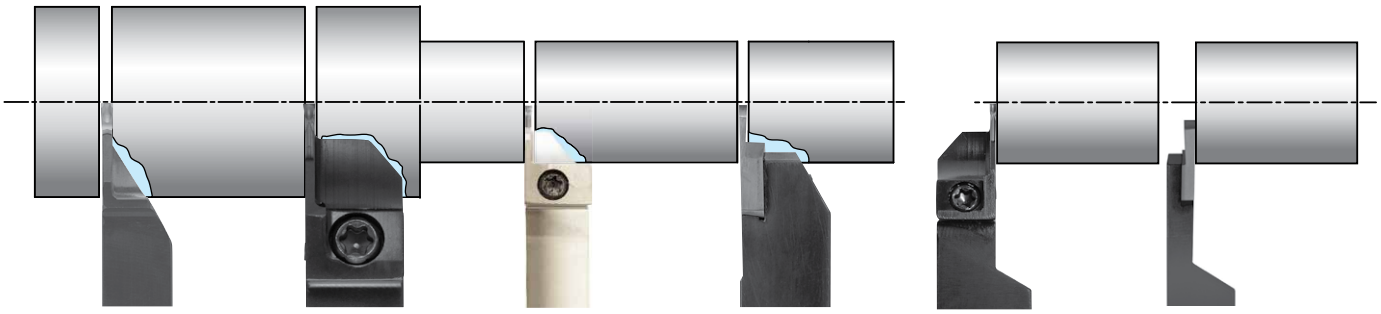


Fig.3 (PKM, PKM-R/L, TKN, and TNR/L)

Small Diameter Cut-Off ~Ø2.008" / ~51mm

Small Shank



KPKH / KTKH-S	KGD / KGD-JCTM	KGZ / KGZ-JCTM	KTKF / KTKF-JCTM	KGZS / KGDS	KTKF-S
CUTDIA ~Ø1.300" (~Ø45mm) Shank: 0.375"~0.500" (10mm~25mm) CW: 0.063"~0.094" (2.2mm~4.1mm) Self Clamp	CUTDIA ~Ø1.653" / ~Ø42mm Shank: 0.0.375"~0.750" 10mm~20mm CW: 0.059"~0.157" 1.3mm~4.0mm Top Clamp	CUTDIA ~Ø2.008" / ~Ø51mm Shank: 0.375"~0.750" 10mm~25mm CW: 0.051"~0.118" 1.3mm~3.0mm Top Clamp	CUTDIA ~Ø0.625" / ~Ø16mm Shank: 0.375"~0.625" 10mm~25mm CW: 0.020"~0.079" 0.5mm~2.0mm Side Screw Clamp	CUTDIA ~Ø24mm Shank: 16mm CW: 1.3mm~3.0mm Top Clamp	CUTDIA ~Ø0.630" / ~Ø16mm Shank: 0.375"~0.500" 10mm~12mm CW: 0.5mm~2.0mm (KTKF-S) 0.059"~0.098" (KTKFS) 1.0mm~2.0mm (KTKFS) Side Screw Clamp

H61
H62
H67

H34~H35
H39~H40

H24~H27

H9, H10, H12, H15

H28
H36

H18

For KGZ

PF Chipbreaker
Low Feed

PM Chipbreaker
Medium Feed

PH Chipbreaker
High Feed

PG Chipbreaker
Low Cutting Force

For KTKF / KTKF-S

2-Edge

Low Resistance
Cut-Off Chipbreaker

For KPKH

PM Chipbreaker
for General Cut-Off

PH Chipbreaker
Tough Edge

For KTKH-S

Chipbreaker for
General Cut-Off

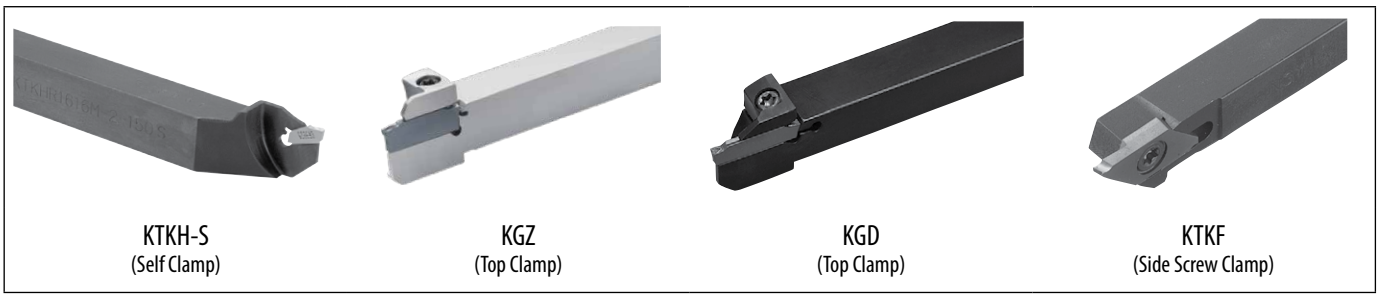
Chipbreaker for
Low Feed Cut-Off

For KGD

Sharp Cutting
PG Chipbreaker

Low Feed
PF Chipbreaker

Medium Feed
PQ Chipbreaker



KTKH-S
(Self Clamp)

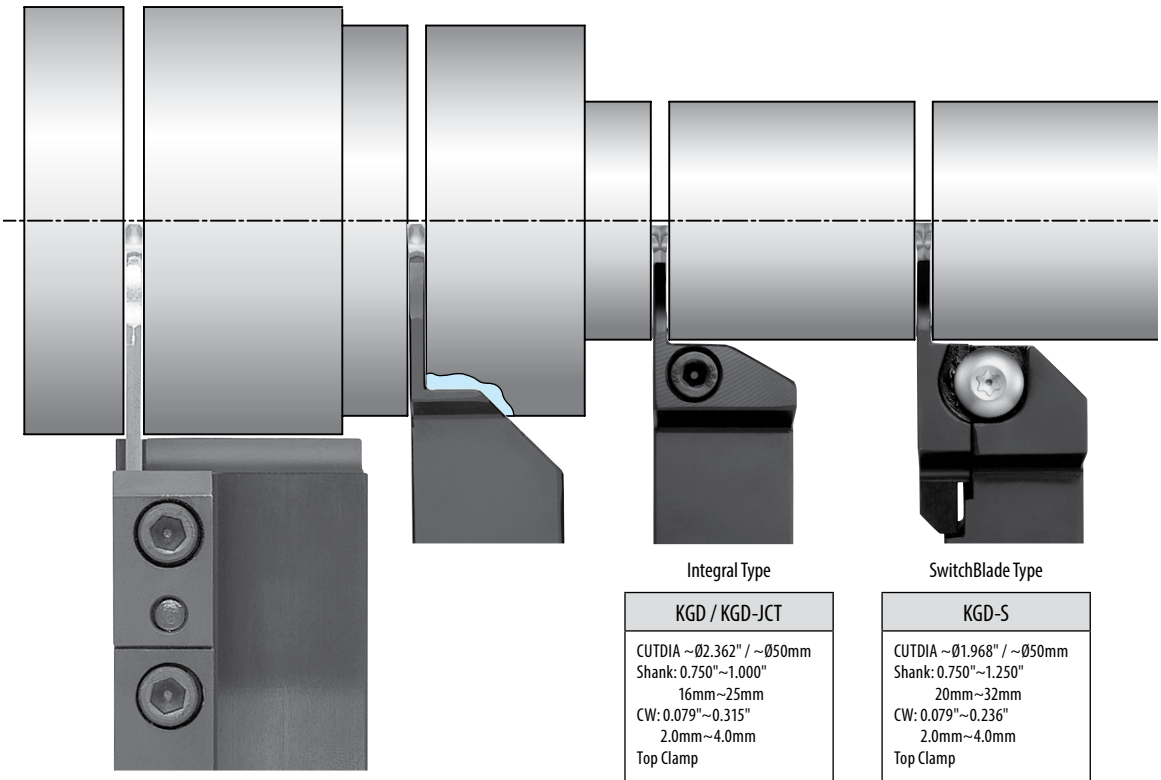
KGZ
(Top Clamp)

KGD
(Top Clamp)

KTKF
(Side Screw Clamp)

800.823.7284
www.kyocera precisiontools.com

General Cut-Off ~Ø3.100" / ~120mm



Blade + Toolblock

KPKB / KTKB

CUTDIA ~Ø120mm
Toolblock: 16mm~32mm
CW: 0.063"~0.236" (KPKB)
1.6mm~6.0mm (KPKB)
0.063"~0.378" (KTKB)
1.6mm~9.6mm (KTKB)
Self Clamp

Integral Type

KPKH / KTKH-S

CUTDIA ~Ø3.100" / ~Ø79mm
Shank: 0.750"~1.000"
20mm~25mm
CW: 0.079"~0.197" (KPKH)
2mm~5mm (KPKH)
0.087"~0.201" (KTKH-S)
3.1mm~5.1mm (KTKH-S)
Self Clamp

H54, H55, H66

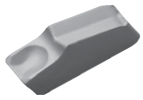
H61, H62, H67

For KPKB / KPKH

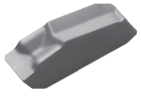
PM Chipbreaker for General Cut-Off

PH Chipbreaker Tough Edge

For KTKB / KTKH



Chipbreaker for General Cut-Off



Chipbreaker for Low Feed Cut-Off

Integral Type

KGD / KGD-JCT

CUTDIA ~Ø2.362" / ~Ø50mm
Shank: 0.750"~1.000"
16mm~25mm
CW: 0.079"~0.315"
2.0mm~4.0mm
Top Clamp

SwitchBlade Type

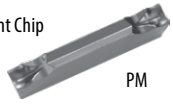
KGD-S

CUTDIA ~Ø1.968" / ~Ø50mm
Shank: 0.750"~1.250"
20mm~32mm
CW: 0.079"~0.236"
2.0mm~4.0mm
Top Clamp

H41, H42, H46

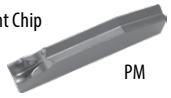
H43, H44

2-Edge
Excellent Chip Control



PM

1-Edge
Excellent Chip Control

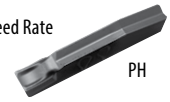


PM

2-Edge
High Feed Rate

PH

1-Edge
High Feed Rate



PH

Blade + Toolblock		SwitchBlade Type	Integral Type		
KPKB	KTKB	KGD-S	KPKH	KTKH-S	KGD / KGD-JCT

TKF12

Insert		Part Number	No. of Edges	Dimensions (mm) CW in	CW mm	S	D1	RE	W1	CUTDIA	Angle (°) PSIRR	Tolerance (mm) CW min.	CW max.	Carbide DLC PDL025	PVD PR1225	PR1535	PR1725	- KW10	Applicable Toolholder H9, H10 H12, H15 H18
Carbon Steel / Alloy Steel															○	○	●		P
Stainless Steel															○	●	○		M
Cast Iron																		●	K
Non-Ferrous Metals														●				○	N
		TKF12R 050-S	2	0.020	0.5	8.7	5	0.03	3	5	0	- 0.03	+ 0.03	●	●	●	●	●	KTKFR...-12 KTKFR...-12-Y KTKFR-12JCTM KTKFR...-12SA KTKFR...-12SB
		070-S		0.028	0.7					8				●	●	●	●	●	
		100-S		0.039	1					12				●	●	●	●	●	
		125-S		0.049	1.25					12				●	●	●	●		
		150-S		0.059	1.5					12				●	●	●	●	●	
		200-S		0.079	2					12				●	●	●	●	●	
		TKF12L 050-S		0.020	0.5					5						●	●	●	KTKFL...-12 KTKFL-12JCTM KTKFL...-12SA KTKFL...-12SB
		070-S		0.028	0.7					8				●		●	●	●	
		100-S		0.039	1					12				●	●	●	●	●	
		125-S		0.049	1.25					12				●		●	●		
		150-S		0.059	1.5					12				●	●	●	●	●	
		200-S		0.079	2					12				●	●	●	●	●	
		TKF12R 100-T	2	0.039	1	8.7	5	0.08	3	12	0	- 0.03	+ 0.03		●	●	●		KTKFR...-12 KTKFR...-12-Y KTKFR-12JCTM KTKFR...-12SA KTKFR...-12SB
		150-T		0.059	1.5										●	●	●		
		200-T		0.079	2										●	●	●		
		TKF12L 100-T		0.039	1										●	●	●		KTKFL...-12 KTKFL-12JCTM KTKFL...-12SA KTKFL...-12SB
		150-T		0.059	1.5										●	●	●		
		200-T		0.079	2											●	●		
		TKF12R 050-S-16DR	2	0.020	0.5	8.7	5	0.03	3	5	16	- 0.03	+ 0.03			●	●	●	KTKFR...-12 KTKFR...-12-Y KTKFR-12JCTM KTKFR...-12SA KTKFR...-12SB
		070-S-16DR		0.028	0.7					8					●	●	●	●	
		100-S-16DR		0.039	1					12				●	●	●	●	●	
		125-S-16DR		0.049	1.25					12				●	●	●	●		
		150-S-16DR		0.059	1.5					12				●	●	●	●	●	
		200-S-16DR		0.079	2					12				●	●	●	●	●	
		TKF12L 050-S-16DR		0.020	0.5					5						●	●	●	KTKFL...-12 KTKFL-12JCTM KTKFL...-12SA KTKFL...-12SB
		070-S-16DR		0.028	0.7					8						●	●	●	
		100-S-16DR		0.039	1					12				●	●	●	●	●	
		125-S-16DR		0.049	1.25					12				●		●	●		
		150-S-16DR		0.059	1.5					12				●	●	●	●	●	
		200-S-16DR		0.079	2					12				●		●	●	●	
		TKF12R 100-T-16DR	2	0.039	1	8.7	5	0.08	3	12	16	- 0.03	+ 0.03		●	●	●		KTKFR...-12 KTKFR...-12-Y KTKFR-12JCTM KTKFR...-12SA KTKFR...-12SB
		150-T-16DR		0.059	1.5										●	●	●		
		200-T-16DR		0.079	2										●	●	●		
		TKF12L 100-T-16DR		0.039	1										●	●	●		KTKFL...-12 KTKFL-12JCTM KTKFL...-12SA KTKFL...-12SB
		150-T-16DR		0.059	1.5										●	●	●		
		200-T-16DR		0.079	2											●	●		
		TKF12R 050-NB	2	0.020	0.5	8.7	5	0	3	5	0	- 0.03	+ 0.03			●	●	●	KTKFR...-12 KTKFR...-12-Y KTKFR-12JCTM KTKFR...-12SA KTKFR...-12SB
		070-NB		0.028	0.7					8						●	●	●	
		100-NB		0.039	1					12						●	●	●	
		150-NB		0.059	1.5					12						●	●	●	
		200-NB		0.079	2					12						●	●	●	
		TKF12L 050-NB		0.020	0.5					5						●	●	●	KTKFL...-12 KTKFL-12JCTM KTKFL...-12SA KTKFL...-12SB
		070-NB		0.028	0.7					8						●	●	●	
		100-NB		0.039	1					12						●	●	●	
		150-NB		0.059	1.5					12						●	●	●	
		200-NB		0.079	2					12						●	●	●	

Tough edge

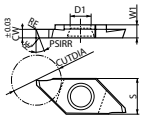
Tough edge

Without Chipbreaker

Lead angle (PSIRR) shows the angle when installed in toolholder.
As Fig. 1 of **H11** shows, the cut-off diameter of the insert (CUTDIA) is indicated when the top of the cut-off edge progresses 0.039" (1mm) from the center.
Right-hand shown

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

TKF12

Insert		Part Number	No. of Edges	Dimensions (mm) CW in	CW mm	S	D1	RE	W1	CUTDIA	Angle (°) PSIRR	Tolerance (mm) CW min.	CW max.	Carbide PVD PR1535	PVD PR1725	- KW10	Applicable Toolholder H9, H10 H12, H15 H18
	 Without Chipbreaker	TKF12R 050-NB-20DDR	2	0.020	0.5	8.7	5	0	3	5	20	- 0.03	+ 0.03	●	●	●	KTKFR...-12
		070-NB-20DDR		0.028	0.7					8				●	●	●	KTKFR...-12-Y
		100-NB-20DDR		0.039	1					12				●	●	●	KTKFR-12JCTM
		150-NB-20DDR		0.059	1.5					12				●	●	●	KTKFR...-12SA
		200-NB-20DDR		0.079	2					12				●	●	●	KTKFR...-12SB
		TKF12L 050-NB-20DDR		0.020	0.5					5				●	●	●	KTKFL...-12
		070-NB-20DDR		0.028	0.7					8				●	●	●	
		100-NB-20DDR		0.039	1					12				●	●	●	KTKFL-12JCTM
		150-NB-20DDR		0.059	1.5					12				●	●	●	KTKFL...-12SA
		200-NB-20DDR		0.079	2					12				●	●	●	KTKFL...-12SB

Carbon Steel / Alloy Steel	P
Stainless Steel	M
Cast Iron	K
Non-Ferrous Metals	N

Lead angle (PSIRR) shows the angle when installed in toolholder.
As Fig. 1 of **H11** shows, the cut-off diameter of the insert (CUTDIA) is indicated when the top of the cut-off edge progresses 0.039" (1mm) from the center.
Right-hand shown

Inserts Identification System

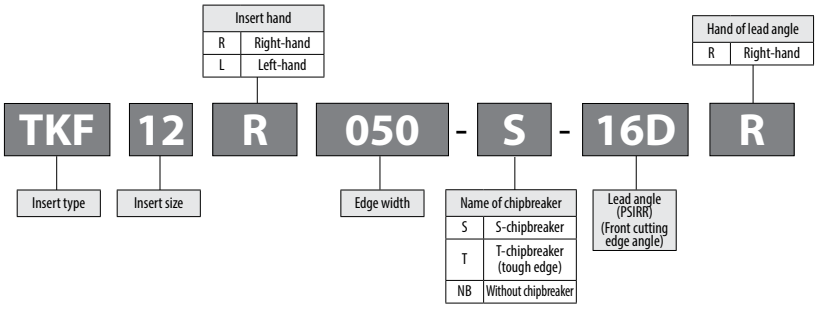
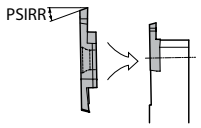
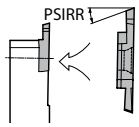
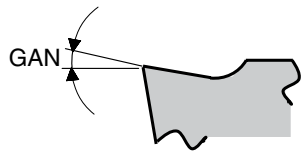


Table 1

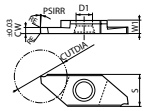
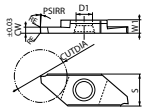
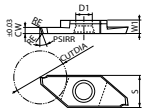
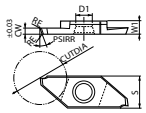
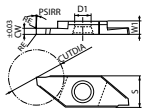
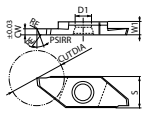
Toolholder	Right-hand	Toolholder	Left-hand
Insert	Right-hand	Insert	Left-hand
Lead angle	Right-hand	Lead angle	Right-hand
			

Descriptions of Chipbreaker Edge Shape

Edge Shape \ Chipbreaker	S Chipbreaker GAN	S Chipbreaker Part Number	T Chipbreaker (Tough Edge) GAN	T Chipbreaker (Tough Edge) Part Number	NB (Without Chipbreaker) GAN	NB (Without Chipbreaker) Part Number
	15°	TKF12...-S	12°	TKF...-T TKF...-T-16DR	0°	TKF...-NB TKF...-NB-20DR
	20°	TKF16...-S TKF16...-S-16DR				
	25°	TKF12...-S-16DR				

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

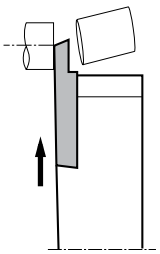
TKF16

Insert		Part Number	No. of Edges	Dimensions (mm) CW in	CW mm	S	D1	RE	W1	CUTDIA	Angle (°) PSIRR	Tolerance (mm) CW min.	CW max.	Carbide DLC PDL025	PVD PR1225	PVD PR1535	PVD PR1725	- KW10	Applicable Toolholder H9, H15 H18
Carbon Steel / Alloy Steel															○	○	●		P
Stainless Steel															○	●	○		M
Cast Iron																		●	K
Non-Ferrous Metals														●				○	N
		TKF16R 150-S	2	0.059	1.5	9.5	5	0.05	4	16	0	- 0.03	+ 0.03	●	●	●	●	●	KTKFR...-16 KTKFR-16JCTM KTKFR...-16SA KTKFR...-16SB
		200-S		0.079	2									●	●	●	●	●	
		TKF16L 150-S		0.059	1.5									●	●	●	●	●	KTKFL...-16 KTKFL-16JCTM KTKFL...-16SA KTKFL...-16SB
		200-S		0.079	2									●	●	●	●	●	
	 Tough edge	TKF16R 150-T	2	0.059	1.5	9.5	5	0.08	4	16	0	- 0.03	+ 0.03		●	●	●		KTKFR...-16 KTKFR-16JCTM KTKFR...-16SA KTKFR...-16SB
		200-T		0.079	2										●	●	●		
		TKF16L 150-T		0.059	1.5										●	●	●		KTKFL...-16 KTKFL-16JCTM KTKFL...-16SA KTKFL...-16SB
		200-T		0.079	2										●	●	●		
		TKF16R 150-S-16DR	2	0.059	1.5	9.5	5	0.05	4	16	16	- 0.03	+ 0.03	●	●	●	●	●	KTKFR...-16 KTKFR-16JCTM KTKFR...-16SA KTKFR...-16SB
		200-S-16DR		0.079	2									●	●	●	●	●	
		TKF16L 150-S-16DR		0.059	1.5									●	●	●	●	●	KTKFL...-16 KTKFL-16JCTM KTKFL...-16SA KTKFL...-16SB
		200-S-16DR		0.079	2									●	●	●	●	●	
	 Tough edge	TKF16R 150-T-16DR	2	0.059	1.5	9.5	5	0.08	4	16	16	- 0.03	+ 0.03		●	●	●		KTKFR...-16 KTKFR-16JCTM KTKFR...-16SA KTKFR...-16SB
		200-T-16DR		0.079	2										●	●	●		
		TKF16L 150-T-16DR		0.059	1.5										●	●	●		KTKFL...-16 KTKFL-16JCTM KTKFL...-16SA KTKFL...-16SB
		200-T-16DR		0.079	2										●	●	●		
	 Without Chipbreaker	TKF16R 150-NB	2	0.059	1.5	9.5	5	0	4	16	0	- 0.03	+ 0.03			●	●	●	KTKFR...-16 KTKFR-16JCTM KTKFR...-16SA KTKFR...-16SB
		200-NB		0.079	2											●	●	●	
		TKF16L 150-NB		0.059	1.5											●	●	●	KTKFL...-16 KTKFL-16JCTM KTKFL...-16SA KTKFL...-16SB
		200-NB		0.079	2											●	●	●	
	 Without Chipbreaker	TKF16R 150-NB-20DR	2	0.059	1.5	9.5	5	0	4	16	20	- 0.03	+ 0.03			●	●	●	KTKFR...-16 KTKFR-16JCTM KTKFR...-16SA KTKFR...-16SB
		200-NB-20DR		0.079	2											●	●	●	
		TKF16L 150-NB-20DR		0.059	1.5											●	●	●	KTKFL...-16 KTKFL-16JCTM KTKFL...-16SA KTKFL...-16SB
		200-NB-20DR		0.079	2											●	●	●	

Lead angle (PSIRR) shows the angle when installed in toolholder.
As Fig. 1 of **H11** shows, the cut-off diameter of the insert (CUTDIA) is indicated when the top of the cut-off edge progresses 0.039" (1mm) from the center.
Right-hand shown

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KTKF



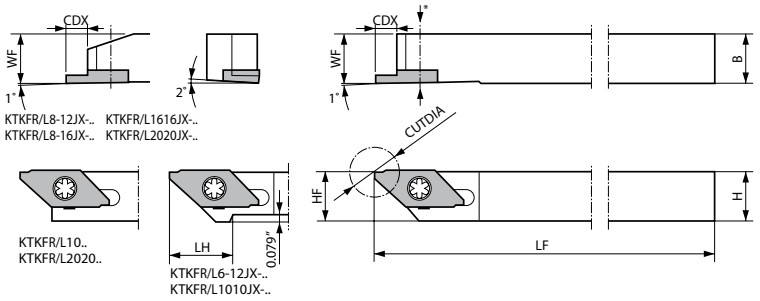


Fig. 1

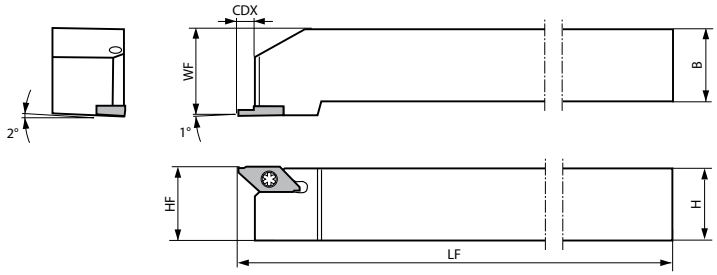


Fig. 2

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

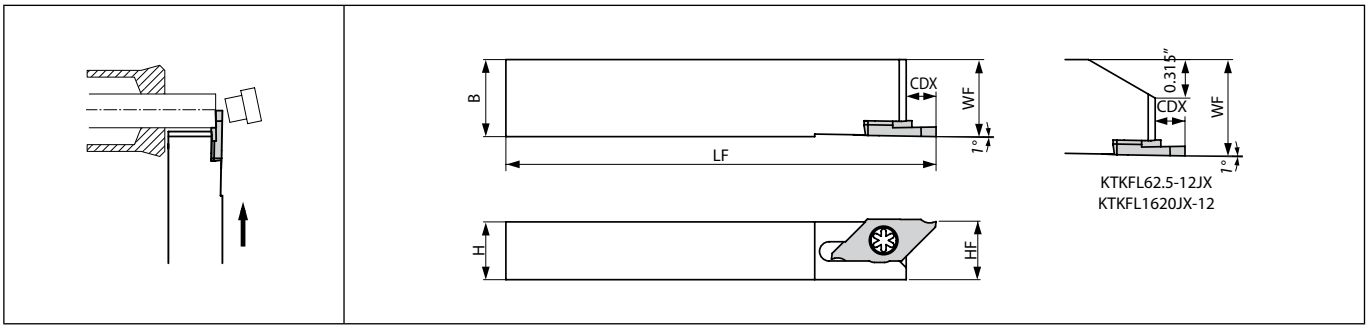
Unit	Part Number	Std. Item R	Std. Item L	CDX	H	B	LH	HF	LF	WF	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts ➡ H6~H8
Inch	KTKF R/L 6-12JX	●	●	0.236	0.375	0.375	0.590	0.375	4.750	0.375	1	SB-4590TRWN	FT-10	TKF12 R/L ...
	8-12JX	●	●		0.500	0.500	-	0.500		0.500				
	10-12JX	●	●		0.625	0.625	-	0.625		0.625				
	KTKF R/L 6-16JX	●	●	0.315	0.375	0.375	0.787	0.375	4.750	0.375				TKF16 R/L ...
	8-16JX	●	●		0.500	0.500	-	0.500		0.500				
	10-16JX	●	●		0.625	0.625	-	0.625		0.625				
mm	KTKF R/L 1010JX-12	●	●	6	10	10	15	10	120	10	1	SB-4590TRWN	FT-10	TKF12 R/L ...
	1212F-12	●	●		12	12	-	12	85	12				
	1212JX-12	●	●						120					
	1616JX-12	●	●		16	16		16		16				
	2020JX-12	●	●		20	20		20		20				
	2525M-12	●			25	25		25	150	30	2			TKF12R...
	KTKF R/L 1010JX-16	●	●	8	10	10	20	10	120	10	1	SB-4590TRWN	FT-10	TKF16 R/L ...
	1212F-16	●	●		12	12	-	12	85	12				
	1212JX-16	●	●						120					
	1616JX-16	●	●		16	16		16		16				
	2020JX-16	●	●		20	20		20		20				
	2525M-16	●			25	25		25	150	30	2			TKF16R...

CDX shows the distance from the toolholder to the cutting edge.

Recommended Cutting Conditions ➡ H19

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KTKF (Goose-Neck Toolholder)



Left-hand shown | Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Spare Parts		Applicable Inserts ➡ H6, H7
			L	CDX	H	B	HF	LF	WF	Screw	Wrench	
Inch	KTKFL 52-12JX	●	0.236		0.500	0.625	0.500	4.750	0.625	SB-4590TRWN	FT-10	TKF12L...
	62.5-12JX	●			0.625	0.750	0.625		0.750			
mm	KTKFL 1216JX-12	●	6		12	16	12	120	16	SB-4590TRWN	FT-10	TKF12L...
	1620JX-12	●			16	20	16		20			

CDX shows the distance from the toolholder to the cutting edge.

Recommended Cutting Conditions ➡ H19

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

How to Use

1) When using main spindle only

Workpiece maximum CUTDIA (Fig.1) = CUTDIA in toolholder table
Even if the cutting edge runs beyond the center line (Fig.2),
the insert does not contact the workpiece, since the workpiece falls off.
(The clearance between the insert and the workpiece is 0.008")

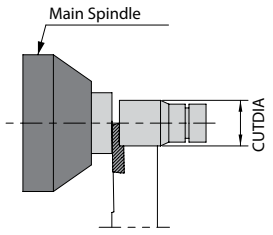


Fig.1
(When the edge is at the center)

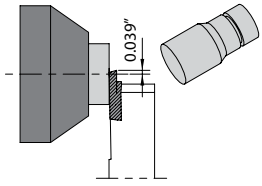


Fig.2
(When the edge is 0.008" beyond the center)

2) When using both Main and Sub spindles

In this case, when the cutting edge runs beyond the center line, the insert will contac
the workpiece, since the workpiece does not fall off.
Therefore the programmed distance beyond the center must be considered.
e.g. When the cutting edge is programmed to run 1mm beyond the center.
Workpiece maximum, CUTDIA2 (Fig.4) = [CUTDIA - 0.039"×2] (in)
(The clearance between the insert and the workpiece is 0.008")

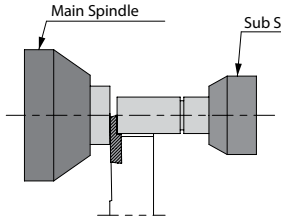


Fig.3
(When the edge is at the center)

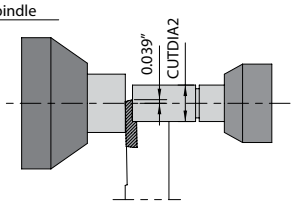
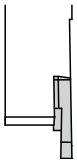
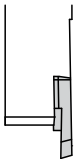
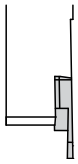
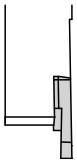
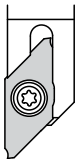
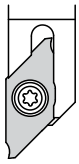
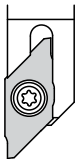


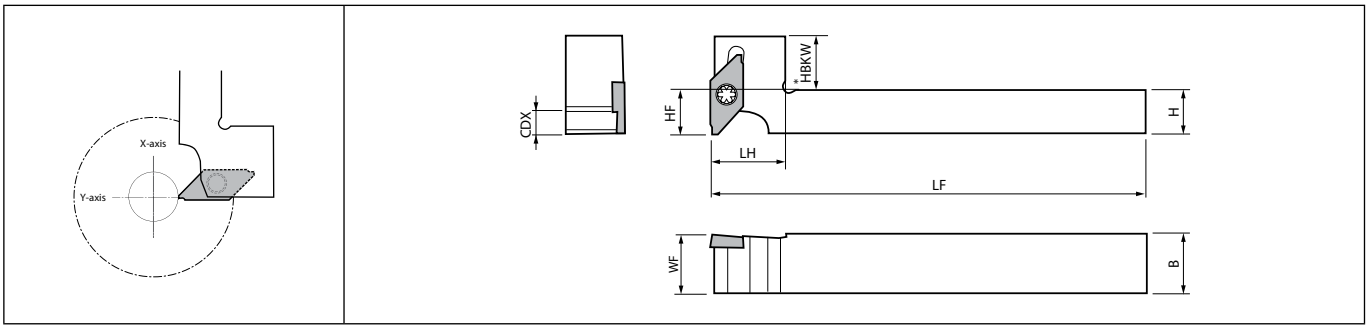
Fig.4
(When the edge is 0.008" beyond the center)

How to Select Edge Preparation

Troubleshooting

Problems	Countermeasures	Countermeasures						
		Lead Angle (PSIRR)		Edge Width		Name of Chipbreaker		
		No (0°)	Yes	Narrower	Wider	S	T	NB
								
Insert Fracture	Insert Fracture Prevention	Effective			Effective		Effective	Effective
Long Cutting Time	Cutting Time Reduction	Effective			Effective		Effective	Effective
Entangled Chips	Chip Entanglement Prevention	Effective		Effective		Effective		
Large Boss Remains	Small Boss Remains		Effective	Effective		Effective		
Ring Remains (Hollow Workpiece)	Prevention of Ring		Effective	Effective		Effective		
Deformation of thin walled workpiece (pipe)	Preventing Deformation		Effective	Effective		Effective		

KTKF (Y-Sxis Toolholder)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Spare Parts		Applicable Inserts ➡ H6, H7
			R	CDX	H	B	LH	HF	HBKW	LF	WF	Screw	Wrench	
mm	KTKFR 1216JX-12-Y	●	6	12	16	20	12	15	120	16	SB-4590TRWN	FT-10	TKF12R...
	1616JX-12-Y	●		16		25	16	11					

CDX shows the distance from the toolholder to the cutting edge.

Recommended Cutting Conditions ➡ H19

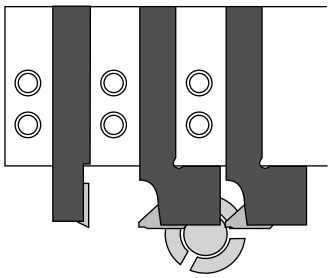
H CUT-OFF

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

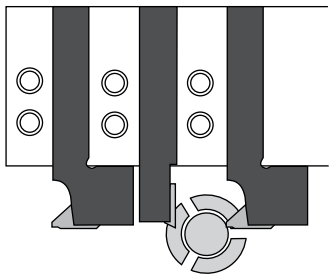
Precautions for Using Y-Axis Toolholders

Do not use Y-axis toolholders side-by-side to prevent interference (Only two Y-axis holders can be used at the same time)

With Interference

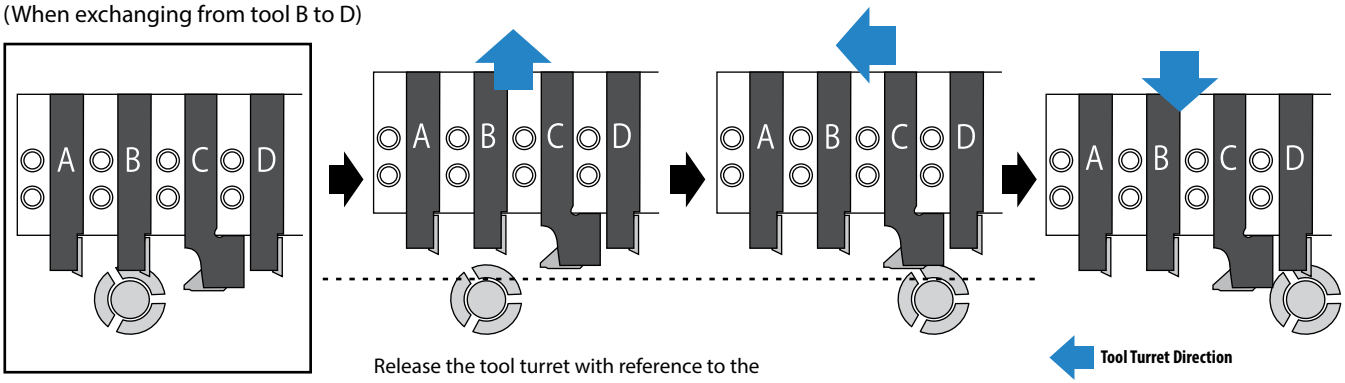


Without Interference



Standard toolholders may be mounted between two Y-axis toolholders

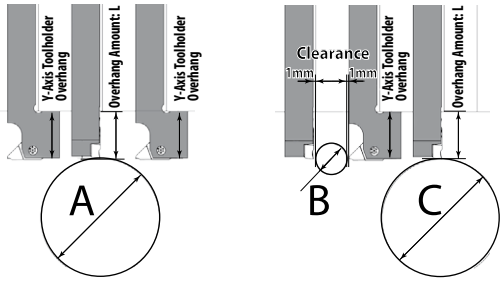
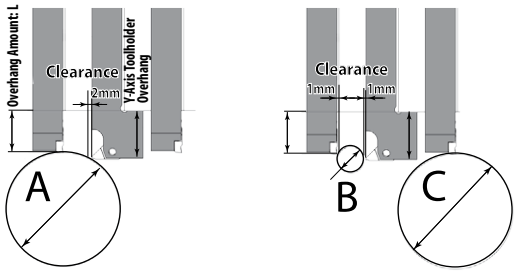
When changing the tool, set the retracted position with reference to the cutting edge of the Y-axis holder
(When exchanging from tool B to D)



Release the tool turret with reference to the overhang amount of the Y-axis toolholder

Note that using other toolholder styles together will result in different outside diameters

(Unit: mm)

Y-axis Toolholder Overhang	Examples	Overhang Amount : L / Available Outside Cutting Dia. (Ø)	20	22	25
20		A	Without Restriction	Without Restriction	Without Restriction
		B	13.0	13.0	13.0
		C	Without Restriction	Without Restriction	Without Restriction
25		A	38.0	58.0	Without Restriction
		B	14.9	13.6	13.0
		C	45.0	60.0	Without Restriction

KTKFR-JCTM (Coolant-Through Toolholders / Right-Hand(R))

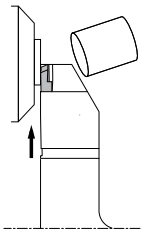


Fig. 1

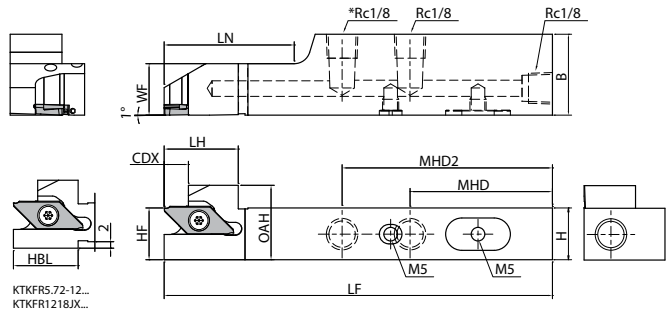
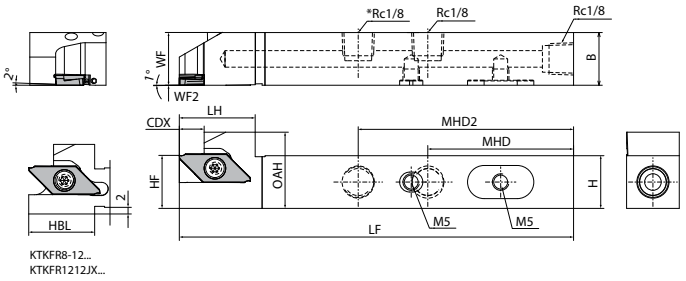


Fig. 2



Right-hand shown | Right-hand Insert for Right-hand Toolholder.
KTKFR5.72-..., KTKFR8-... : 2-Rc1/8
KTKFR1218-..., KTKFR1212-... : 2-Rc1/8

Toolholder Dimensions

H CUT-OFF

Unit	Part Number	Std. Item	Dimensions												Fig.	Coolant Hole	Spare Parts				Applicable Inserts ⇒ H6~H8
																	Plug	Plug	Screw	Wrench	
		R	CDX	H	B	LH	OAH	MHD	MHD2	HF	HBL	LF	LN	WF							
Inch	KTKFR 5.72-12JCTM	●	0.295	0.500	0.709	0.787	0.776	2.126	-	0.500	0.787	4.750	1.110	0.500	1	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF12R...
	82.5-12JCTM	●		0.625	1.000	0.906	0.901	1.732	2.559	0.625	-		1.585	0.625							
	KTKFR 82.5-16JCTM	●	0.378	0.625	1.000	0.906	0.901	1.732	2.559	0.625	-	4.750	1.585	0.625				HS5X4LP			TKF16R...
	KTKFR 8-12JCTM	●	0.295	0.500	0.500	0.787	0.776	2.323	-	0.500	0.787	4.750	-	0.500	2	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF12R...
	10-12JCTM	●		0.625	0.625	0.906	0.901	1.732	2.559	0.625	-			0.625							
	12-12JCTM	●		0.750	0.750		1.026			0.750				0.750				-			
	KTKFR 10-16JCTM	●	0.378	0.625	0.625	0.906	0.901	1.732	2.559	0.625	-	4.750	-	0.625		Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF16R...
	12-16JCTM	●		0.750	0.750		1.026			0.750				0.750							
mm	KTKFR 1218JX-12JCTM	●	7.5	12	18	20	19	54	-	12	20	120	28	12	1	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF12R...
	1625JX-12JCTM	●		16	25	23	23	44	65	16	-		40	16							
	2025JX-12JCTM	●		20			27			20				20				-			
	KTKFR 1625JX-16JCTM	●	9.6	16	25	23	23	44	65	16	-	120	40	16		Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF16R...
	2025JX-16JCTM	●		20			27			20			41	20							
	KTKFR 1212JX-12JCTM	●	7.5	12	12	20	19	59	-	12	20	120	-	12	2	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF12R...
	1616JX-12JCTM	●		16	16	23	23	44	65	16	-			16							
	2020JX-12JCTM	●		20	20		27			20				20				-			
	KTKFR 1616JX-16JCTM	●	9.6	16	16	23	23	44	65	16	-	120	-	16		Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF16R...
	2020JX-16JCTM	●		20	20		27			20				20							

Recommended Cutting Conditions ⇒ H19

800.823.7284
www.kyocera precisiontools.com

KTKFL-JCTM (Coolant-Through Toolholders / Left-Hand(L))

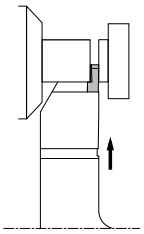


Fig. 1

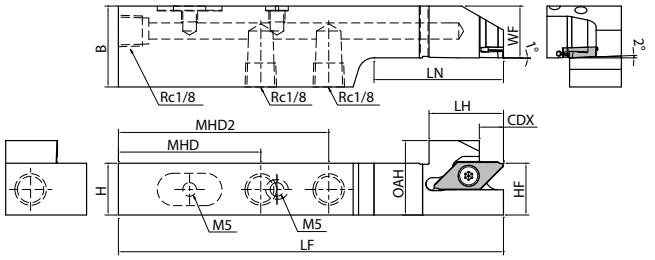
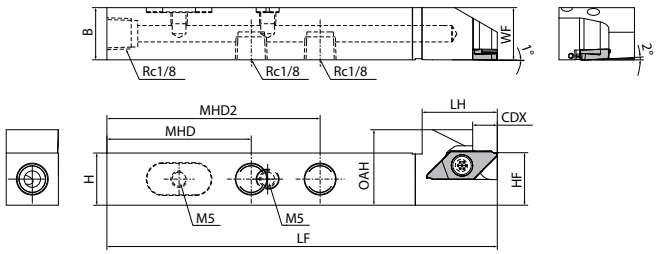


Fig. 2



Left-hand shown | Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions												Fig.	Coolant Hole	Spare Parts				Applicable Inserts ➡ H6~H8
			L	CDX	H	B	LH	OAH	MHD	MHD2	HF	LF	LN	WF			Plug	Plug	Screw	Wrench	
Inch	KTKFL 82.5-12JCTM	●	0.295	0.625	1.000	0.906	0.901	1.732	2.559	0.625	4.750	1.585	0.625	1	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF12L...
	KTKFL 82.5-16JCTM	●	0.378	0.625	1.000	0.906	0.901	1.732	2.559	0.625	4.750	1.585	0.625							TKF16L...
	KTKFL 10-12JCTM	●	0.295	0.625	0.625	0.906	0.901	1.732	2.559	0.625	4.750	-	0.625	2	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF12L...
	12-12JCTM	●		0.750	0.750		1.026			0.750			0.750				-			
	KTKFL 10-16JCTM	●	0.378	0.625	0.625	0.906	0.901	1.732	2.559	0.625	4.750	-	0.625		Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF16L...
	12-16JCTM	●		0.750	0.750		1.026			0.750			0.750							
mm	KTKFL 1625JX-12JCTM	●	7.5	16	25	23	23	44	65	16	120	40	16	1	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF12L...
	2025JX-12JCTM	●		20			27			20			20				-			
	KTKFL 1625JX-16JCTM	●	9.6	16	25	23	23	44	65	16	120	40	16		Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF16L...
	2025JX-16JCTM	●		20			27			20		41	20							
	KTKFL 1616JX-12JCTM	●	7.5	16	16	23	23	44	65	16	120	-	16	2	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF12L...
	2020JX-12JCTM	●		20	20		27			20			20				-			
	KTKFL 1616JX-16JCTM	●	9.6	16	16	23	23	44	65	16	120		16		Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF16L...
	2020JX-16JCTM	●		20	20		27			20			20							

Recommended Cutting Conditions ➡ H19

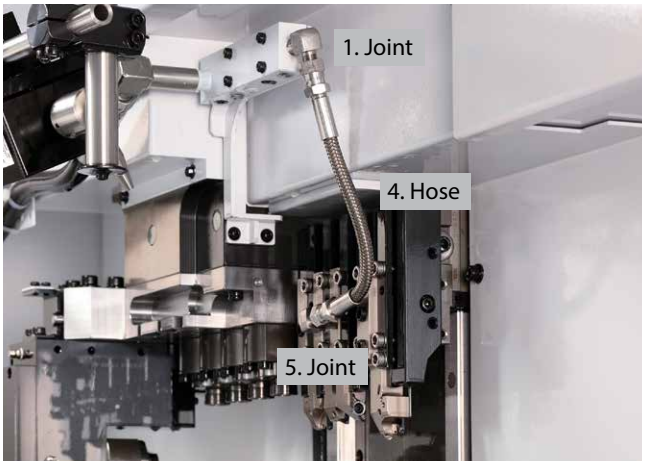
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Coolant Piping Parts

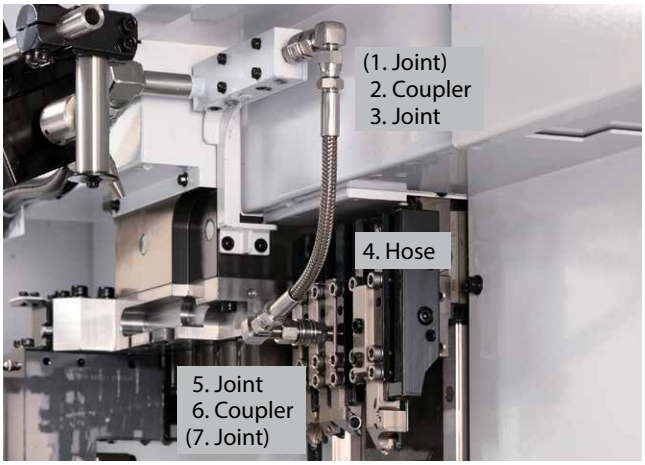
Pipe parts will be required separately if internal coolant is used

Pump Pressure: up to 2,900 psi
Pump Pressure: up to 1,090 psi if couplers are used

Without Coupler (Pump Pressure: up to 2,900 psi)



With Coupler (Pump Pressure: Up to 1,090 psi)



Combination Part Number (Example)

Part	Part Number
1. Joint	J-ST-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-500
5. Joint	J-ST-R1/8-G1/8

Convert the thread standards on the machine's side (Rc1/4, Rc1/8, NPT1/8, etc.) to the thread standard on the hose side (G1/8) for use.
Use sealing agents such as seal tapes when installing piping parts.

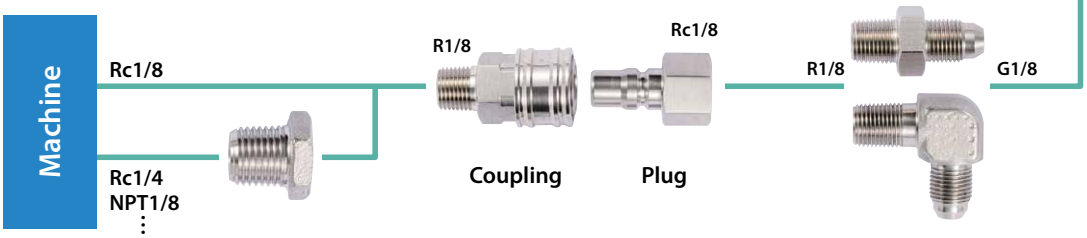
Combination Part Number (Example)

Part	Part Number
(1. Joint)	-
2. Coupler	CP-ST-R1/8, P-ST-RC1/8
3. Joint	J-AN-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-200
5. Joint	J-AN-R1/8-G1/8
6. Coupler	P-ST-RC1/8, CP-ST-R1/8
(7. Joint)	-

Convert the thread standards on the machine's side (Rc1/4, Rc1/8, NPT1/8, etc.) to thread standards of the coupler (Rc1/8, etc.) or hose (G1/8) for use.
Use sealing agents such as seal tapes when installing piping parts.

Without Coupler (Pump Pressure: up to 2,900 psi)

With Coupler (Pump Pressure: up to 1,090 psi)



1. Joint 2. Coupler 3. Joint 4. Hose

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Piping Installation Parts Part Number

Joint [(1)(3)(5)(7)]

Pressure Resistance: up to 2,900 psi

Shape	Part Number	Thread Standard	Std. Item
	J-ST-R1/4-G1/8	R1/4 ⇔ G1/8	●
	J-ST-NPT1/8-G1/8	NPT1/8 ⇔ G1/8	●
	J-ST-R1/8-G1/8	R1/8 ⇔ G1/8	●
	J-ST-R1/8-G1/8-L		●
	J-AN-R1/8-G1/8		●
	J-AN-R1/8-G1/8-L		●
	J-ST-R1/4-RC1/8	R1/4 ⇔ Rc1/8	●
	J-ST-NPT1/8-RC1/8	NPT1/8 ⇔ Rc1/8	●
	J-ST-R1/8-RC1/8	Rc1/8 ⇔ R1/8 (Extension Joint)	●

Elbow piping (J-AN-R1/8-G1/8) is recommended.

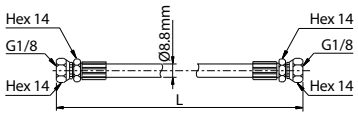
Coupler [(2)(6)]

Pressure Resistance: up to 1,090 psi

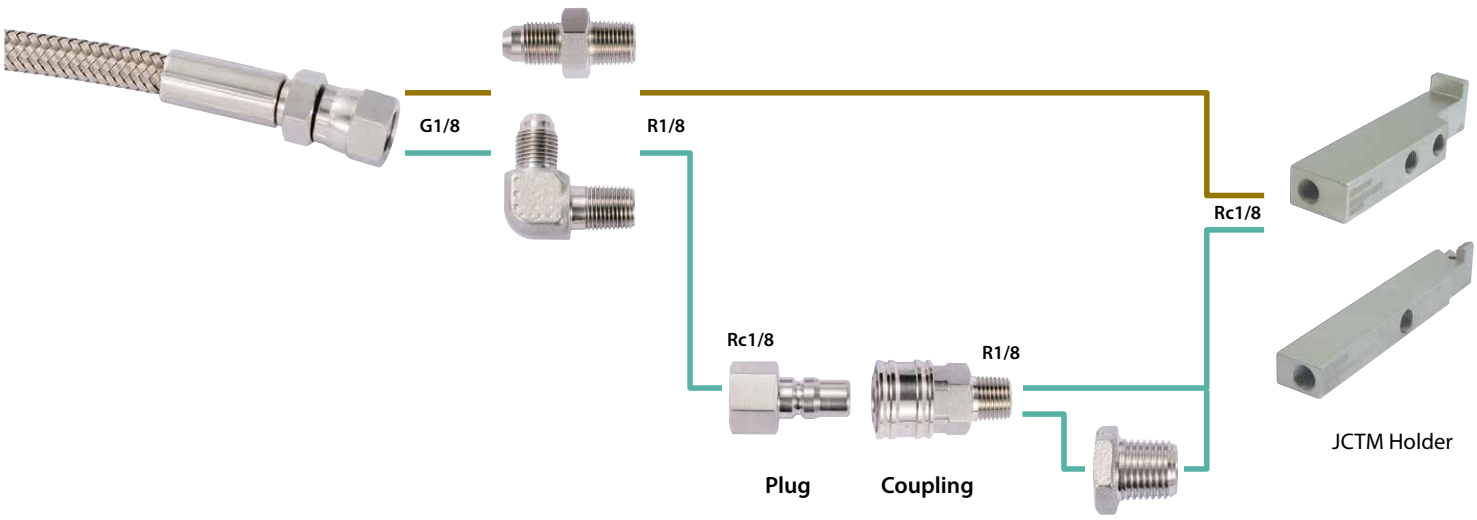
Shape	Part Number	Thread Standard	Std. Item
	CP-ST-R1/8	R1/8	●
	P-ST-RC1/8	Rc1/8	●

Hose (4)

Pressure Resistance: up to 2,900 psi

Shape	Part Number	Thread Standard	Total Length (mm)	Std. Item
	HS-G1/8-G1/8-200	G1/8	200	●
	HS-G1/8-G1/8-300		300	●
	HS-G1/8-G1/8-400		400	●
	HS-G1/8-G1/8-500		500	●
	HS-G1/8-G1/8-600		600	●
	HS-G1/8-G1/8-800		800	●

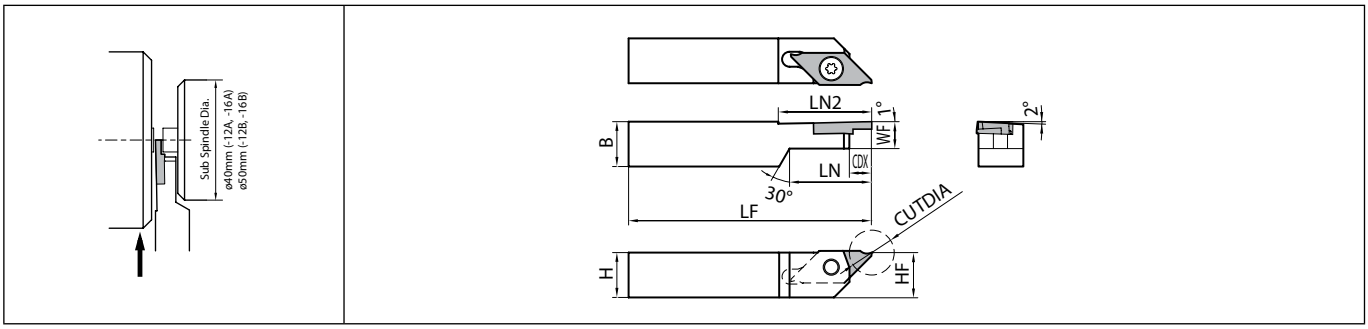
1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure.
   Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.



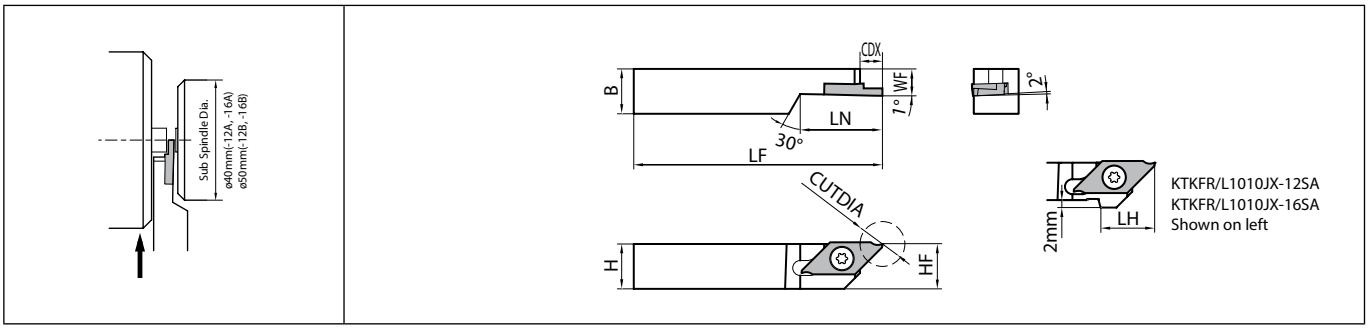
4. Hose 5. Joint 6. Coupler 7. Joint (Extension Joint)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KTKF-S (Cut-Off / for Sub-Spindle Tooling)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.



Left-hand shown | Left-hand Insert for Left-hand Toolholder.

H CUT-OFF

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions									Spare Parts		Applicable Inserts ➡ H6~H8
		R	L	CDX	H	B	LH	HF	LF	LN	LN2	WF	Screw	Wrench	
mm	KTKF□□ 1010JX-12SA	●	●	6	10	10	15	10	120	22	26	7.2	SB-4570TRN	FT-10	TKF12□□...
	KTKF□□ 1212F-12SA	●	●		12	12	-	12	85						
	KTKF□□ 1212JX-12SB	●	●						120	26					
	KTKF□□ 1010JX-16SA	●	●	8	10	10	20	10	120	22	30	7.2	SB-4570TRN	FT-10	TKF16□□...
	KTKF□□ 1212F-16SA	●	●		12	12	-	12	85						
	KTKF□□ 1212JX-16SB	●	●						120	26					

CDX shows the distance from the toolholder to the cutting edge.
Cut-Off diameter (CUTDIA) depends on the insert edge width.
LN2 dimensions only apply to right-hand toolholders.

Recommended Cutting Conditions ➡ H19

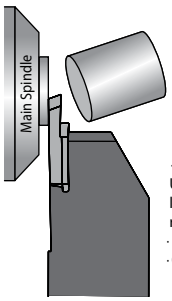
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KTKF / KTKF-S Selection Reference

KTKF

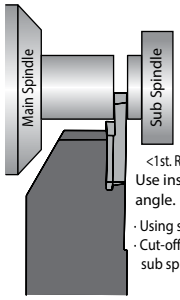
· Both Right-hand and Left-hand types are applicable to gang tool post.
· Left-hand type is used for cut-off operation using a sub spindle.

KTKFR (Right-hand toolholder)



<1st. Recommendation>
Use insert with lead angle to remove boss.
· Not using sub spindle
· Cut-off operation near main spindle side

KTKFL (Left-hand toolholder)

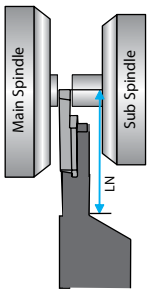


<1st. Recommendation>
Use insert without lead angle.
· Using sub spindle
· Cut-off operation near sub spindle side

KTKF-S

· When machining workpiece with small diameter, use KTKF-S to reduce overhang distance from the main spindle.

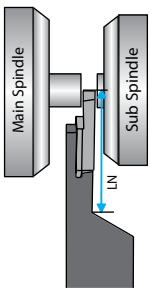
KTKFR-SA/B (Right-hand toolholder)



<How to select> Hand of Toolholder
· Long workpiece and more rigidity
· Cut-Off operation near main spindle side

<How to select> LN dimension
· Sub Spindle Dia.
ø40→22 (SA type)
ø50→26 (SB type)

KTKFL-SA/B (Left-hand toolholder)



<How to select> Hand of Toolholder
· Short workpiece and less rigidity
· Cut-Off operation near sub spindle side

<How to select> LN dimension
· Sub Spindle Dia.
ø40→22 (SA type)
ø50→26 (SB type)

Recommended Cutting Conditions

TKF12

Workpiece Material	Recommended Grade (Vc sfm)					TKF12 Width (CW)						Notes
	MEGACOAT NANO		MEGACOAT	DLC	Carbide	0.020" (0.50mm)	0.028" (0.70mm)	0.039" (1.00mm)	0.049" (1.25mm)	0.059" (1.50mm)	0.079" (2.00mm)	
	PR1725	PR1535	PR1225	PDL025	KW10	Feed Rate (ipr)						
Carbon Steel	★ 230~560 (160~460)	☆ 230~500 (160~400)	☆ 225~500 (175~400)	-	-	0.0004~0.0008	0.0004~0.0012	0.0004~0.0016 (0.0004~0.0020)	0.0004~0.0016	0.0004~0.0016 (0.0008~0.0039)	0.0004~0.0016 (0.0008~0.0039)	Wet
Alloy Steel	★ 230~560 (160~460)	☆ 230~500 (160~400)	☆ 225~500 (175~400)	-	-	0.0004~0.0008	0.0004~0.0012	0.0004~0.0016 (0.0004~0.0020)	0.0004~0.0016	0.0004~0.0016 (0.0008~0.0039)	0.0004~0.0016 (0.0008~0.0039)	
Stainless Steel	☆ 200~460 (130~390)	★ 200~400 (130~330)	☆ 200~400 (125~325)	-	-	0.0002~0.0006	0.0004~0.0008	0.0004~0.0008 (0.0004~0.0012)	0.0004~0.0008	0.0004~0.0008 (0.0004~0.0020)	0.0004~0.0008 (0.0004~0.0020)	
Cast Iron	-	-	-	-	★ 175~325	0.0004~0.0012	0.0004~0.0016	0.0004~0.0020	0.0004~0.0020	0.0004~0.0020	0.0004~0.0020	
Aluminum	-	-	-	★ 660~1640	☆ 650~1475	0.0004~0.0012	0.0004~0.0016	0.0004~0.0020	0.0004~0.0020	0.0004~0.0020	0.0004~0.0020	
Brass	-	-	-		★ 325~650	0.0004~0.0012	0.0004~0.0016	0.0004~0.0024	0.0004~0.0024	0.0004~0.0024	0.0004~0.0024	

Values in parentheses ( ) are cutting conditions for tough edge inserts style TKF..T..

★ : 1st Recommendation ☆ : 2nd Recommendation

TKF16

Workpiece Material	Recommended Grade (Vc sfm)					TKF16 Width (CW)		Notes
	MEGACOAT NANO		MEGACOAT	DLC	Carbide	0.059" (1.50mm)	0.079" (2.00mm)	
	PR1725	PR1535	PR1225	PDL025	KW10	Feed Rate (ipr)		
Carbon Steel	★ 230~560 (160~460)	☆ 230~500 (160~400)	☆ 225~500 (175~400)	-	-	0.0008~0.0028 (0.0008~0.0039)	0.0008~0.0028 (0.0008~0.0039)	Wet
Alloy Steel	★ 230~560 (160~460)	☆ 230~500 (160~400)	☆ 225~500 (175~400)	-	-	0.0008~0.0028 (0.0008~0.0039)	0.0008~0.0028 (0.0008~0.0039)	
Stainless Steel	☆ 200~460 (130~390)	★ 200~400 (130~330)	☆ 200~400 (125~325)	-	-	0.0004~0.0016 (0.0004~0.0020)	0.0004~0.0016 (0.0004~0.0020)	
Cast Iron	-	-	-	-	★ 175~325	0.0008~0.0032	0.0008~0.0032	
Aluminum	-	-	-	★ 660~1640	☆ 650~1475	0.0008~0.0032	0.0008~0.0032	
Brass	-	-	-		★ 325~650	0.0008~0.0039	0.0008~0.0039	

Values in parentheses ( ) are cutting conditions for tough edge inserts style TKF..T..

★ : 1st Recommendation ☆ : 2nd Recommendation

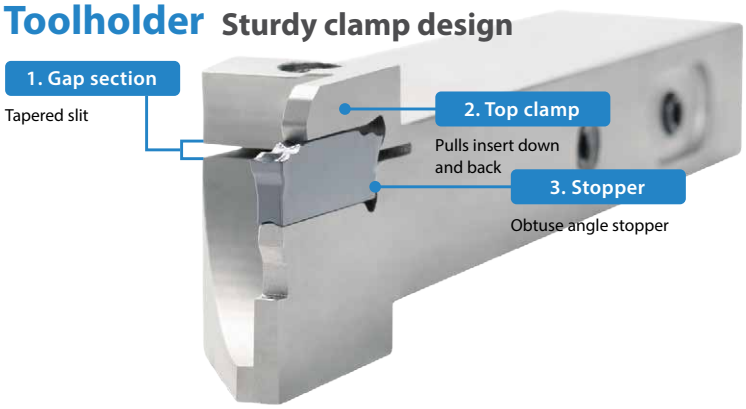
KGZ

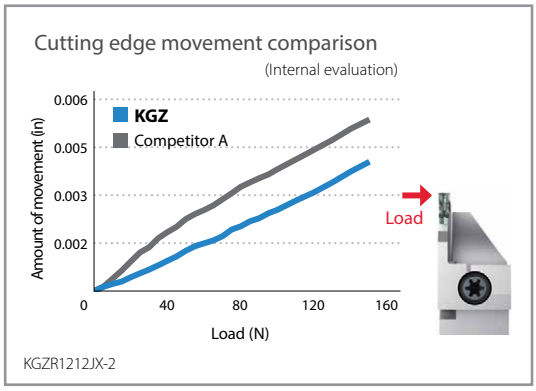
Grooving and Cut-Off Solutions for Small Parts Machining

Provides stable machining and is easy to use with unique clamp design
New coating PR20 series provides longer tool life and supports a wide range of applications

1 Achieve stable machining with newly developed clamp structure

Toolholder Sturdy clamp design





H CUT-OFF

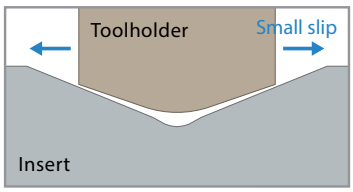
Insert Ease insert installation

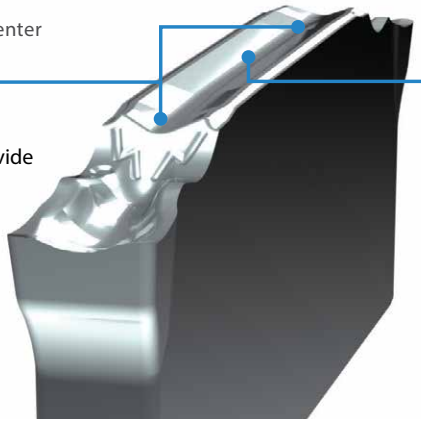
Top V Shape Different groove angles at ends and center

Groove End

Small groove angle on top of insert

These grooves prevent the insert from shifting and provide fast and accurate insert mounts

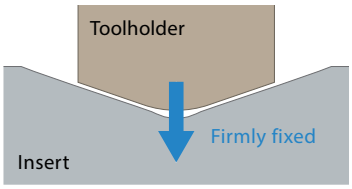




Groove Center

Large groove angle on top of insert

firmly engages the toolholder to increase hold



Excellent chatter resistance

Machined surface comparison (Internal evaluation)

Cutting conditions : Vc = ~ 200 sfm, f = 0.005 ipt
Workpiece : 303 (ø0.551") Wet (External coolant) KGZR1212JX-2
Edge width 0.079" (2mm) (PM Chipbreaker)

800.823.7284
www.kyoceraprecisiontools.com

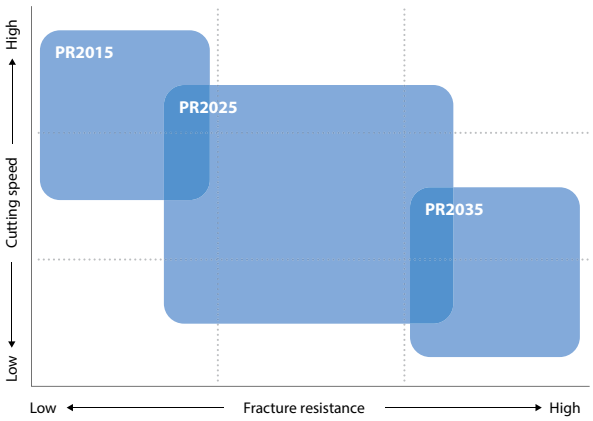
2 New insert grades PR20 series with MEGACOAT NANO EX coating technology provides longer tool life

PR20 Series

PR2015 **1st recommendation for cast iron**
Also available for steel and stainless steel

PR2025 **1st recommendation for steel**
Also available for stainless steel

PR2035 **1st recommendation for stainless steel**
Also available for steel

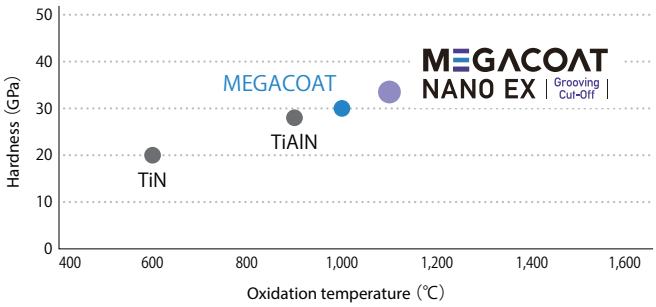


New coating for grooving and cut-off machining

MEGACOAT NANO EX Grooving Cut-Off

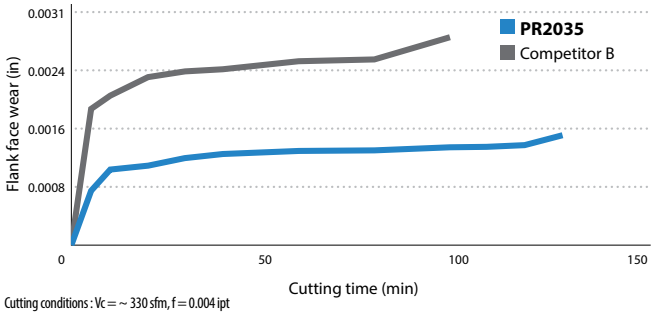
Achieve long tool life and high stability with
the combination of high content aluminum nano coating layer

Coating characteristics (Internal evaluation)



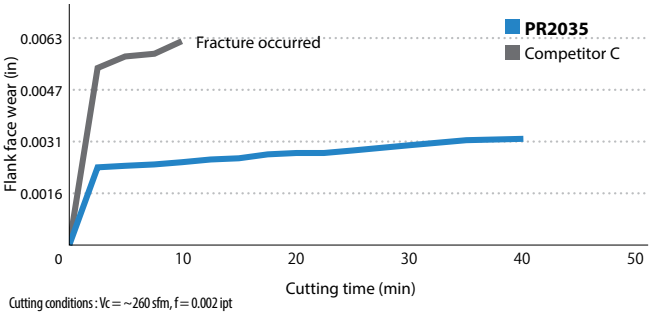
Cutting Performance

1045 Wear resistance comparison (Internal evaluation)



Cutting conditions : Vc = ~ 330 sfm, f = 0.004 ipt
Workpiece : 1045 (ø0.787") Wet (External coolant) GZM2020N-020PM

304 Wear resistance comparison (Internal evaluation)



Cutting conditions : Vc = ~ 260 sfm, f = 0.002 ipt
Workpiece : 304 (ø0.787") Wet (External coolant) GZM2020N-020PM

3 Large variety of insert and chipbreaker combinations for a wide range of applications

Insert

Cut-off (H22)

Low feed	Medium feed	High feed	Low cutting force
PF	**PM**	**PH**	**PG**

Grooving (G28)

General purpose	Low feed	High feed	Copying	Low cutting force	PCD
GM	**GL**	**PH**	**CM**	**GS**	**NB**

Grades

PVD coating P M K
PR2015 / PR2025 / PR2035

Cermet P
TN620

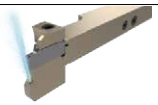
DLC coating N
PDL025

Non-coated carbide K N
GW15

PCD N
KPD001

Tool holder

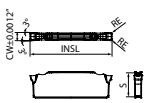
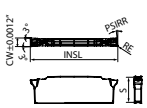
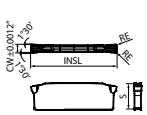
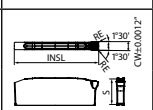
Internal coolant
JCTM Series for direct coolant



External coolant
Standard type / for Sub-spindle tooling

GZM/GZG

GZM/GZMS

Insert		Part Number	No. of Edges	Dimensions (mm) CW in	CW mm	S	RE	INSL	Angle (°) PSIR R/L	Tolerance (mm) CW min.	CW max.	Carbide PVD PR2015	PR2025	PR2035	Applicable Toolholder ➡ H24~H28
Carbon Steel / Alloy Steel															P
Stainless Steel															M
Cast Iron															K
Non-Ferrous Metals															N
	 Medium Feed	GZM 2020N-020PM	2	0.079	2	5.9	0.2	20	-	- 0.03	+ 0.03	●	●	●	KGZ R/L ...-2(...) KGZS R/L ...-2A/B
		GZM 2520N-020PM		0.098	2.5							●	●	●	KGZ R/L ...-2(...), KGZ R/L ...-2.4(...) KGZS R/L ...-2A/B
		GZM 3020N-025PM		0.118	3		0.25					●	●	●	KGZ R/L ...-2(...) KGZ R/L ...-2.4(...) KGZ R/L ...-3(...) GZS R/L ...-2A/B
	 Medium Feed	GZM 2020R-020PM-6D	2	0.079	2		0.2		6			●	●	●	KGZ R/L ...-2(...) KGZS R/L ...-2A/B
		GZM 2520R-020PM-6D		0.098	2.5							●	●	●	KGZ R/L ...-2(...), KGZ R/L ...-2.4(...) KGZS R/L ...-2A/B
		GZM 3020R-025PM-6D		0.118	3		0.25					●	●	●	KGZ R/L ...-2(...) KGZ R/L ...-2.4(...) KGZ R/L ...-3(...) KGZS R/L ...-2A/B
	 High Feed	GZM 2020N-020PH	2	0.079	2	5.9	0.2	20	-	- 0.03	+ 0.03	●	●	●	KGZ R/L ...-2(...) KGZS R/L ...-2A/B
		GZM 2520N-020PH		0.098	2.5							●	●	●	KGZ R/L ...-2(...) KGZ R/L ...-2.4(...) KGZS R/L ...-2A/B
		GZM 3020N-030PH		0.118	3		0.3					●	●	●	KGZ R/L ...-2(...) KGZ R/L ...-3(...) KGZS R/L ...-2A/B
	 1-edge / High Feed	GZMS 2020N-020PH	1	0.079	2		0.2					●	●	●	KGZ R/L ...-2(...) KGZS R/L ...-2A/B
		GZMS 3020N-030PH		0.118	3		0.3					●	●	●	KGZ R/L ...-2(...) KGZ R/L ...-2.4(...) KGZ R/L ...-3(...) KGZS R/L ...-2A/B

Handed insert shows Right-hand
Using the PF / PM chipbreaker (for cut-off) for grooving cannot create a flat bottom (Ref. to the right figure).
GZM and GZG inserts cannot be used in KGM or KGD holders.

Groove bottom created by PF / PM chipbreaker

Recommended Cutting Conditions ➡ H30

Inserts Identification System

Tolerance symbol	
G	Ground insert
M	M class

Edge width			
13	1.3 mm	25	2.5 mm
15	1.5 mm	30	3 mm
20	2 mm		

Hand of tool	
R	Right-hand
L	Left-hand
N	Neutral

Chipbreaker symbol			
PF	Low feed	PH	High feed
PM	Medium feed	PG	Low cutting force

GZ **M** **S** **20** **20** **N** - **020** **PM** - **6D**

Series
Grooving / Cut-Off
GZ Series

No. of edge	
No indication	2-edge
S	1-edge

Insert length	
16	16 mm
20	20 mm

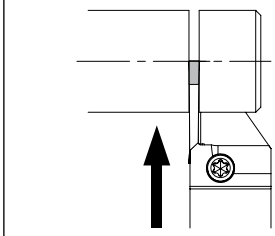
Corner-R (RE)			
003	0.03 mm	020	0.2 mm
005	0.05 mm	025	0.25 mm
015	0.15 mm	030	0.3 mm

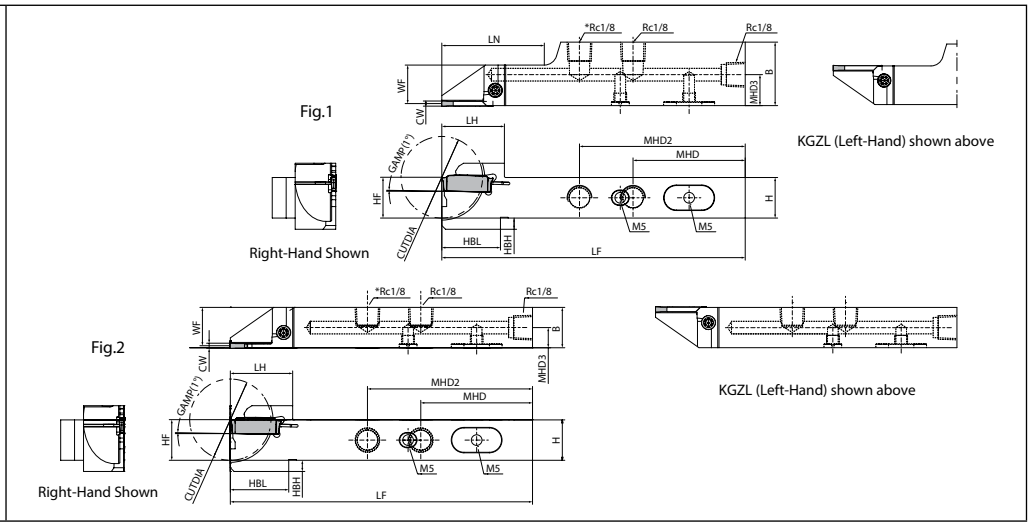
Lead angle	
No indication	0°
6D	6°
15D	15°

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGZ-JCTM (Coolant-Through Toolholders)

Coolant Piping Parts ➡ H16~H17





Right-hand shown | KGZ□5.72...-JCTM, KGZ□8-...-JCTM : 2-Rc1/8

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.	CW max.	Angle GAMP (°)	Fig.	Coolant Hole	Spare Parts: Plug	Spare Parts: Plug	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts ➡ H22 H23
Inch	KGZR 5.72-2JCTM	●		0.945	0.500	0.709	0.780	2.126	-	0.331	0.500	0.335	0.778	4.750	1.717	0.469	0.079" (2mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	KGZL 5.72-2JCTM		●							0.303																
	KGZR 82.5-2JCTM	●		1.260	0.625	1.000	0.976	1.732	2.559	0.480	0.625	0.177	0.913		1.575	0.594										
	KGZL 82.5-2JCTM		●							0.303																
	KGZR 5.72-2.4JCTM	●		0.945	0.500	0.709	0.780	2.126	-	0.331	0.500	0.335	0.778	4.750	1.717	0.461	0.095" (2.4mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	KGZL 5.72-2.4JCTM		●							0.303																
	KGZR 82.5-2.4JCTM	●		1.260	0.625	1.000	0.976	1.732	2.559	0.480	0.625	0.177	0.913		1.575	0.586										
	KGZL 82.5-2.4JCTM		●							0.303																
	KGZR 5.72-3JCTM	●		0.945	0.500	0.709	0.780	2.126	-	0.339	0.500	0.335	0.778	4.750	1.717	0.453	0.118" (3mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...3020...
	KGZL 5.72-3JCTM		●							0.303																
	KGZR 82.5-3JCTM	●		1.260	0.625	1.000	0.976	1.732	2.559	0.480	0.625	0.177	0.913		1.575	0.578										
	KGZL 82.5-3JCTM		●							0.303																
	KGZ□ 8-2JCTM	●	●	0.945	0.500	0.500	0.780	2.323	-	0.236	0.500	0.236	0.780	4.750	-	0.469	0.079" (2mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	KGZ□ 10-2D26JCTM	●	●	1.024	0.625	0.625	0.976	1.732	2.559	0.315	0.625	0.039	0.913			0.594										
	KGZ□ 10-2JCTM	●	●	1.260								0.177														
	KGZ□ 8-2.4JCTM	●	●	0.945	0.500	0.500	0.780	2.323	-	0.236	0.500	0.236	0.780	4.750	-	0.461	0.095" (2.4mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	KGZ□ 10-2.4D26JCTM	●	●	1.024	0.625	0.625	0.976	1.732	2.559	0.315	0.625	0.039	0.913			0.586										
	KGZ□ 10-2.4JCTM	●	●	1.260								0.177														
	KGZ□ 8-3JCTM	●	●	0.945	0.500	0.500	0.780	2.323	-	0.236	0.500	0.236	0.780	4.750		0.453	0.118" (3mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...3020...
	KGZ□ 10-3D26JCTM	●	●	1.024	0.625	0.625	0.976	1.732	2.559	0.315	0.625	0.039	0.913			0.578										
	KGZ□ 10-3JCTM	●	●	1.260								0.177														

Recommended tightening torque : 2.0N · m(SB-40120TR)

GM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KGZ-JCTM (Coolant-Through Toolholders)

Coolant Piping Parts ➡ H16~H17

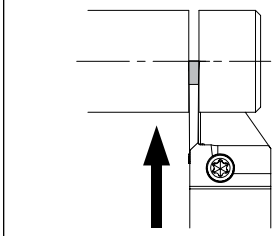
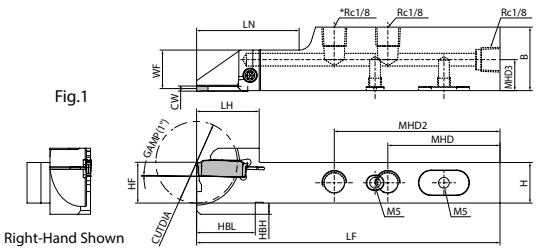
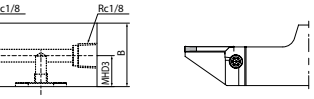


Fig.1

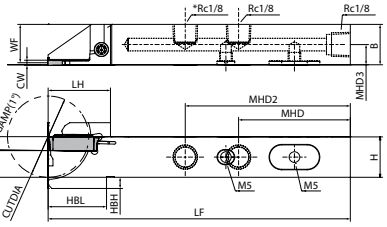


Right-Hand Shown

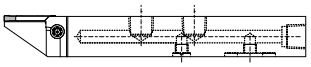


KGZL (Left-Hand) shown above

Fig.2



Right-Hand Shown



KGZL (Left-Hand) shown above

Right-hand shown | KGZ□12...-JCTM : 2-Rc1/8

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.	CW max.	GAMP (°)	Fig.	Coolant Hole	Spare Parts: Plug	Spare Parts: Plug	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts ➡ H22 H23
mm	KGZR 1218JX-2JCTM	●		24	12	18	19.8	54	-	8.4	12	8.5	19.8	120	43.7	11.2	0.079" (2mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	KGZL 1218JX-2JCTM		●							7.7																
	KGZR 1625JX-2JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2		40.0	15.2										
	KGZL 1625JX-2JCTM		●							7.7																
	KGZR 1218JX-2.4JCTM	●		24	12	18	19.8	54	-	8.4	12	8.5	19.8	120	43.7	11.0	0.095" (2.4mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	KGZL 1218JX-2.4JCTM		●							7.7																
	KGZR 1625JX-2.4JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2		40.0	15.0										
	KGZL 1625JX-2.4JCTM		●							7.7																
	KGZR 1218JX-3JCTM	●		24	12	18	19.8	54	-	8.6	12	8.5	19.8	120	43.7	10.8	0.118" (3mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...3020...
	KGZL 1218JX-3JCTM		●							7.7																
	KGZR 1625JX-3JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2		40.0	14.8										
	KGZL 1625JX-3JCTM		●							7.7																
	KGZ□ 1212JX-2JCTM	●	●	24	12	12	19.8	59	-	6	12	5	19.8	120		11.2	0.079" (2mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	KGZ□ 1616JX2D26JCTM	●	●	26	16	16	24.8	44	65	8	16	1	23.2			15.2										
	KGZ□ 1616JX-2JCTM	●	●	32								4.5														
	KGZ□ 1212JX-2.4JCTM	●	●	24	12	12	19.8	59	-	6	12	5	19.8	120	-	11.0	0.095" (2.4mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	KGZ□ 1616JX2.4D26JCTM	●	●	26	16	16	24.8	44	65	8	16	1	23.2													
	KGZ□ 1616JX-2.4JCTM	●	●	32								4.5				15.0										
	KGZ□ 1212JX-3JCTM	●	●	24	12	12	19.8	59	-	6	12	5	19.8	120		10.8	0.118" (3mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GZ...3020...
	KGZ□ 1616JX3D26JCTM	●	●	26	16	16	24.8	44	65	8	16	1	23.2			14.8										
	KGZ□ 1616JX-3JCTM	●	●	32								4.5														

Recommended tightening torque : 2.0N · m(SB-40120TR)

GM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

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Contact your local Kyocera sales engineer to upgrade old products to new technology

KGZ (Standard Toolholders)

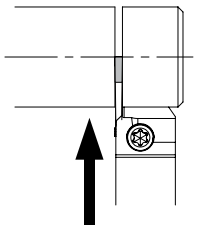


Fig.1

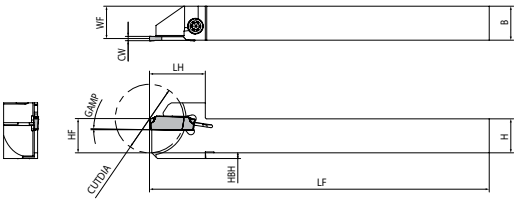
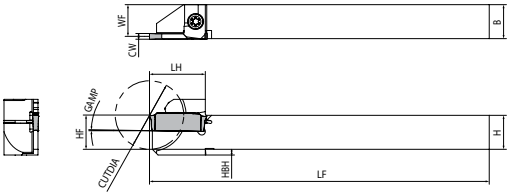


Fig.2



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	GAMP (°)	Fig.	Spare Parts: Screw	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts (H22 H23)
Inch	KGZ R/L 6-1.3JX	●	●	0.787	0.375	0.375	0.736	0.375	0.101	4.750	0.356	0.051" (1.3mm)	0.051" (1.3mm)	1	1	SB-40120TR	-	LTW-15S	GZ...1316...
	8-1.3JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055		0.481								
	KGZ R/L 6-1.5JX	●	●	0.787	0.375	0.375	0.736	0.375	0.101	4.750	0.352	0.059" (1.5mm)	0.059" (1.5mm)	1		SB-40120TR	-	LTW-15S	GZ...1516...
	8-1.5JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055		0.477								
	KGZ R/L 6-2JX	●	●	0.787	0.375	0.375	0.736	0.375	0.101	4.750	0.344	0.079" (2mm)	0.118" (3mm)	2	2	SB-40120TR	-	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	8-2JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055		0.469								
	10-2JX	●	●	1.260	0.625	0.625	0.976	0.625	-		0.594								
	KGZ R/L 6-2.4JX	●	●	0.787	0.375	0.375	0.736	0.375	0.101	4.750	0.336	0.095" (2.4mm)	0.118" (3mm)	2		SB-40120TR	-	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	8-2.4JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055		0.461								
	10-2.4JX	●	●	1.260	0.625	0.625	0.976	0.625	-		0.586								
	KGZ R/L 8-3JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055	4.750	0.453	0.118" (3mm)	0.118" (3mm)	1		SB-40120TR	-	LTW-15S	GZ...3020...
	10-3JX	●	●	1.260	0.625	0.625	0.976	0.625	-		0.578								
	10-3D38JX	●	●	1.496	0.625	0.625	1.134	0.625			0.578					-	SE-50125TR	LTW-20	
	12-3D42JX	●	●	1.654	0.750	0.750	1.217	0.750			0.703								
	43-3D42JX	●	●	1.654	0.750	0.750	1.217	0.750			0.453								

Recommended tightening torque : 2.0N · m (SB-40120TR), 2.5N · m (SE-50125TR)
When machining large cutting dia. (over 1.417" (36mm)) with KGZ R/L....-3D38 or KGZ R/L...-3D42, please follow the instructions below
· Use 1-edge inserts
· Maximum workpiece diameter for 2-edge inserts is ø1.417" (36mm)
KGM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

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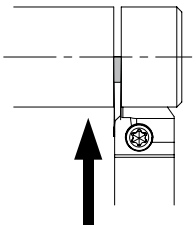
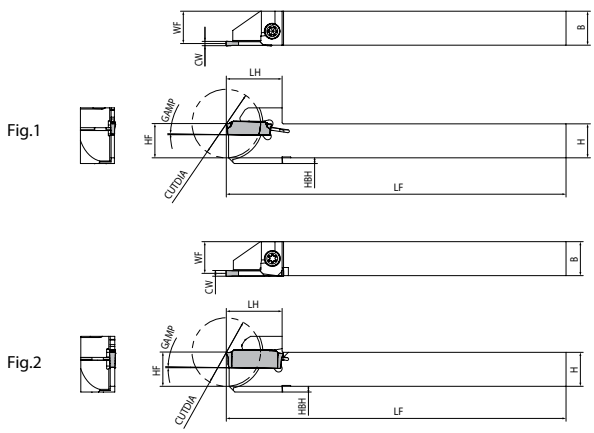
KGZ (Standard Toolholders)





Right-hand shown

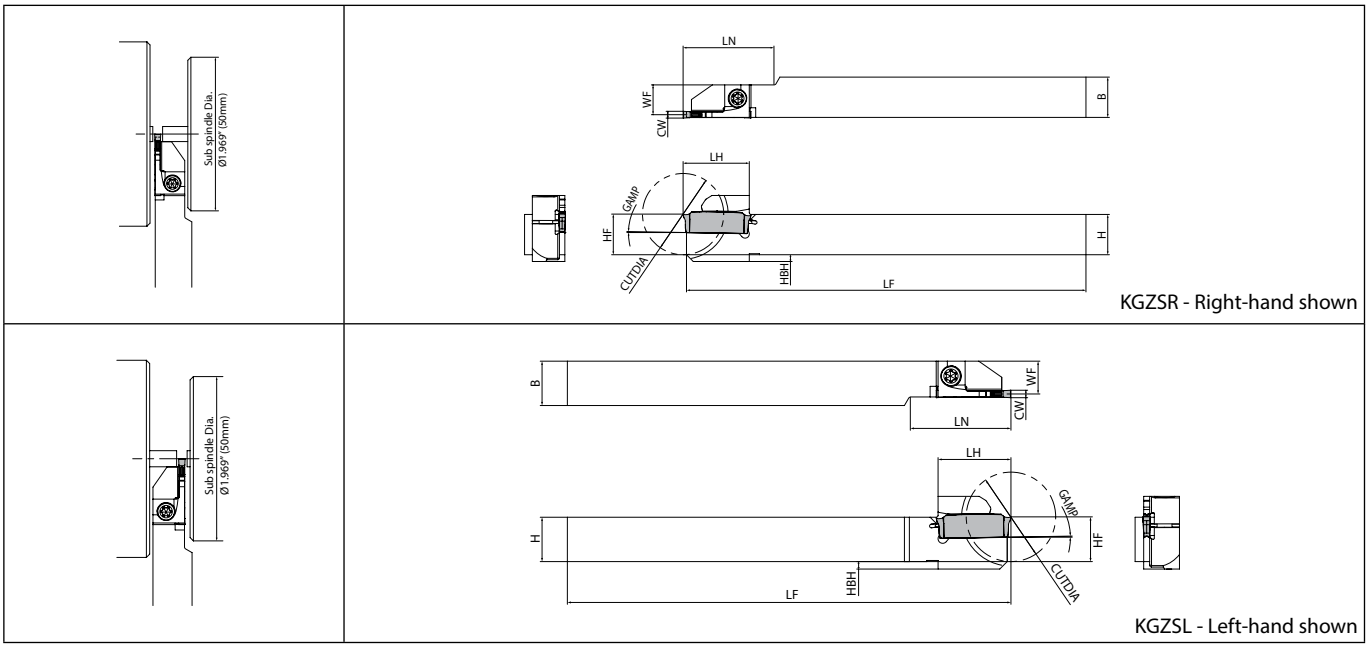
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Angle GAMP (°)	Fig.	Spare Parts: Clamp Bolt	Spare Parts: Screw	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts (H22 H23)
mm	KGZ R/L 1010JX-1.3D16	●	●	16	10	10	17.8	10	2.1	120	9.5	0.051" (1.3mm)	0.051" (1.3mm)	1	1	-	SB-40120TR	-	-	LTW-15S	GZM1316...
	1010JX-1.3	●	●	20			18.7														
	1212F-1.3D16	●	●	16	12	12	17.8	12		85	11.5										
	1212JX-1.3D16	●	●							120											
	1212F-1.3	●	●	24			19.8			85											
	1212JX-1.3	●	●							120											
	KGZ R/L 1010JX-1.5D16	●	●	16	10	10	17.8	10	2.1	120	9.4	0.059" (1.5mm)	0.059" (1.5mm)								GZM1516...
	1010JX-1.5	●	●	20			18.7														
	1212F-1.5D16	●	●	16	12	12	17.8	12		85	11.4										
	1212JX-1.5D16	●	●							120											
	1212F-1.5	●	●	24			19.8			85											
	1212JX-1.5	●	●							120											
	KGZ R/L 1010JX-2	●	●	20	10	10	18.7	10	2.1	120	9.2	0.079" (2mm)	0.118" (3mm)	2	2	-	SB-40120TR	-	-	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	1212F-2	●	●	24	12	12	19.8	12		85	11.2			1							
	1212JX-2	●	●							120											
	1616JX-2	●	●	32	16	16	24.8	16	-	120	15.2										
	2012K-2D34	●	●	34	20	12	26.8	20		125	11.2					-	-	SE-50125TR	-	LTW-20	
	2020K-2D34	●	●			20					19.2										
	2525K-2D34	●	●		25	25	32.7	25			24.2					HH5X16	-	-	LW-4	-	
	KGZ R/L 1010JX-2.4	●	●	20	10	10	18.7	10	2.1	120	9	0.094" (2.4mm)	0.118" (3mm)	2							GZ...2420... GZ...2520... GZ...3020...
	1212F-2.4	●	●	24	12	12	19.8	12		85	11			1		-	SB-40120TR	-	-	LTW-15S	
	1212JX-2.4	●	●							120											
	1616JX-2.4	●	●	32	16	16	24.6	16	-	120	15										
	2012K-2.4D34	●	●	34	20	12	26.6	20		125	11					-	-	SE-50125TR	-	LTW-20	
	2020K-2.4D34	●	●			20					19										
	2525K-2.4D34	●	●		25	25	32.7	25			24					HH5X16	-	-	LW-4	-	
	KGZ R/L 1212JX-3	●	●	24	12	12	19.8	12	2.1	120	10.8	0.118" (3mm)	0.118" (3mm)	1		-	SB-40120TR	-	-	LTW-15S	GZ...3020...
	1616JX-3	●	●	32	16	16	24.6	16	-		14.8										
	1616JX-3D38	●	●	38			28.6									-	-	SE-50125TR	-	LTW-20	
	1913K-3D38	●	●		19	13		19		125	11.8										
	2012JX-3D42	●	●	42	20	12	30.7	20		120	10.8										
	2012JX-3D51	●	●	51			35.2														
	2020JX-3D42	●	●	42		20	30.7				18.8										
	2020JX-3D51	●	●	51			35.2														
	2525K-3D51	●	●		25	25	41.7	25		125	23.8					HH5X16	-	-	LW-4	-	

Recommended tightening torque : 2.0N · m (SB-40120TR), 2.5N · m (SE-50125TR)
When machining large cutting dia. (over 1.417" (36mm)) with KGZ R/L...-3D38 or KGZ R/L...-3D42, please follow the instructions below
· Use 1-edge inserts
· Maximum workpiece diameter for 2-edge inserts is ø1.417" (36mm)
KGM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGZS (Cut-Off / for Sub-Spindle Tooling)



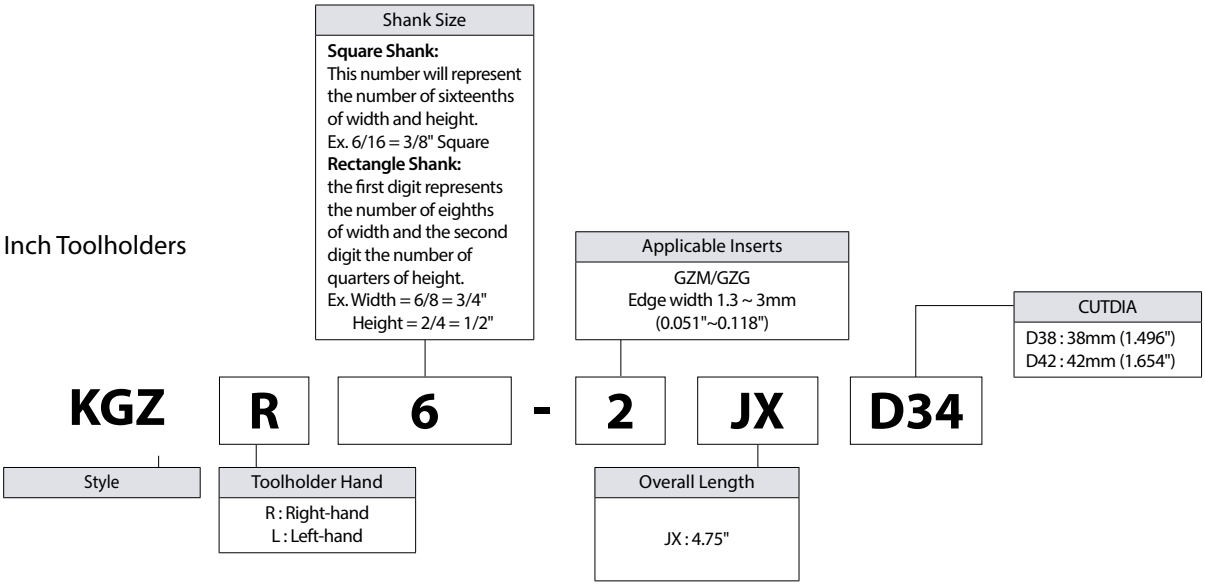
Toolholder Dimensions

Unit	Part Number		Std. Item		Dimensions											Angle	Spare Parts		Applicable Inserts
																	Screw	Wrench	
			R	L	CUTDIA	H	B	LH	HF	HBH	LF	LN	WF	CW min.	CW max.	GAMP (°)			
mm	KGZS R/L	1212F-1.3A	●	●	24	12	12	19.8	12	2.1	85	22	8.4	0.051" (1.3mm)	0.051" (1.3mm)	1	SB-40120TR	LTW-15S	GZ...1316...
		1212JX-1.3B	●	●							120	27							
		1616JX-1.3B	●	●		16	16		16	-									
		1212F-1.5A	●	●		12	12		12	2.1	85	22	8.4	0.059" (1.5mm)	0.059" (1.5mm)				GZ...1516...
		1212JX-1.5B	●	●							120	27							
		1616JX-1.5B	●	●		16	16		16	-									
		1212F-2A	●	●		12	12		12	2.1	85	22	8.7	0.079" (2mm)	0.118" (3mm)				GZ...2020... GZ...2520... GZ...3020...
		1212JX-2B	●	●							120	27							
		1616JX-2B	●	●		16	16		16	-									

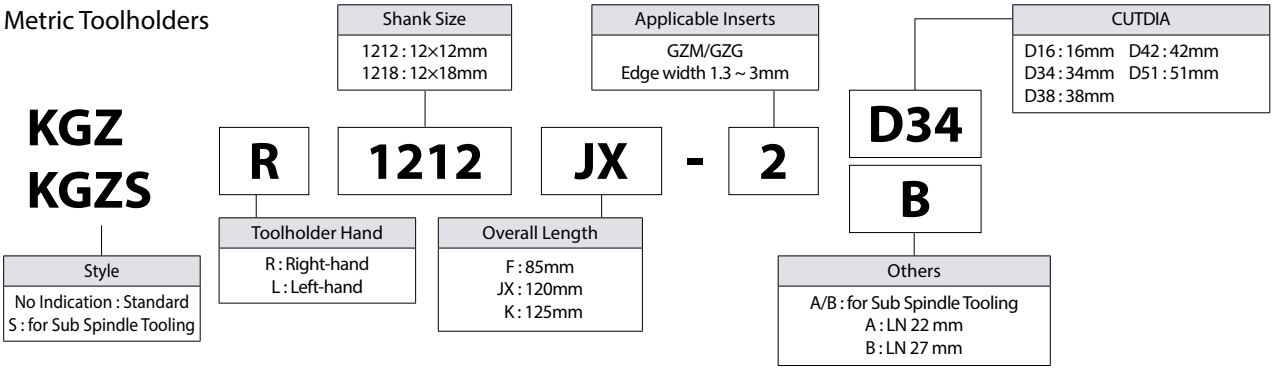
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Identification System

Inch Toolholders



Metric Toolholders



KGZ Recommended Cutting Conditions

PF Chipbreaker

Workpiece Material	Recommended Insert Grade (Vc : sfm)					f (ipr)						Notes
						PF (RE = 0.0012")			PF (RE = 0.0059")			
	MEGACOAT NANO EX			DLC	Carbide	CW						
	PR2015	PR2025	PR2035	PDL025	GW15	0.051"~0.059" (1.3mm~1.5mm)	0.079" (2mm)	0.098"~0.118" (2.5mm~3.0mm)	0.051~0.059 (1.3mm~1.5mm)	0.079" (2mm)	0.098"~0.118" (2.5mm~3.0mm)	
Carbon Steel	☆ 230~590	★ 230~590	☆ 230~490	-	-	0.0004~0.0016	0.0008~0.0024	0.0008~0.0031	0.0004~0.002	0.0012~0.0031	0.0016~0.0031	Coolant
Alloy Steel	☆ 230~590	★ 230~590	☆ 230~490	-	-							
Stainless Steel	☆ 200~490	☆ 200~390	★ 200~390	-	-	0.0004~0.0012	0.0004~0.0016	0.0004~0.0020	0.0004~0.0016	0.0012~0.0028	0.0016~0.0031	
Cast Iron	★ 260~660	-	-	-	☆ 160~330	0.0004~0.0020	0.001~0.0028	0.0012~0.0031	0.0004~0.0024	0.0012~0.0035	0.0016~0.0039	
Aluminum Alloy	-	-	-	★ 660~1640	☆ 660~1480	-	-	-	-	-	-	
Brass	-	-	-	-	★ 330~660	-	-	-	-	-	-	

★:1st Recommendation ☆:2nd Recommendation

PM / PH / PG Chipbreaker

Workpiece Material	Recommended Insert Grade (Vc : sfm)					f (ipr)				Notes
						PM	PH	PG		
	MEGACOAT NANO EX			DLC	Carbide	CW				
	PR2015	PR2025	PR2035	PDL025	GW15	0.079~0.118" (2mm~3mm)	0.079~0.118" (2mm~3mm)	0.079" (2mm)	0.098"~0.118" (2.5mm~3.0mm	
Carbon Steel	☆ 230~590	★ 230~590	☆ 230~490	-	-	0.0020~0.0059	0.0039~0.0079	0.0004~0.0016	0.0004~0.002	Coolant
Alloy Steel	☆ 230~590	★ 230~590	☆ 230~490	-	-					
Stainless Steel	☆ 200~490	☆ 200~390	★ 200~390	-	-	0.0016~0.0047	0.0031~0.0063	0.0004~0.0012	0.0004~0.0016	
Cast Iron	★ 260~660	-	-	-	☆ 160~330	0.002~0.0059	0.0039~0.0079	0.0004~0.0016	0.0004~0.002	
Aluminum Alloy	-	-	-	★ 660~1640	☆ 660~1480	-	-	0.0004~0.0020	0.0004~0.0024	
Brass	-	-	-	-	★ 330~660	-	-	0.0004~0.0028	0.0004~0.0031	

★:1st Recommendation ☆:2nd Recommendation

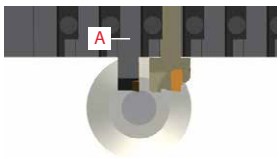
800.823.7284
www.kyocera precisiontools.com

Precautions

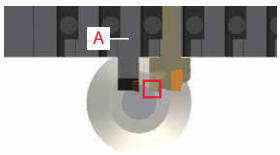
Maximum D.O.C. of the next tool (indicated as tool A) and holder interference

When using JCTM holder 1218/1212 , note maximum D.O.C. of the next tool to avoid interference.

No interference



Interference



Estimated maximum D.O.C. of tool A (mm)

Workpiece Dia. / JCTM Part Number	ø12mm	ø16mm	ø20mm
KGZ R/L 1218JX-*JCTM	2.4	2.0	1.7
KGZ R/L 1212JX-*JCTM	-	-	3.8

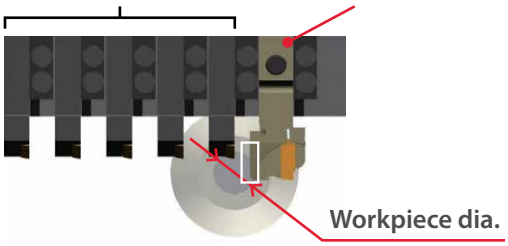
When using the JCTM holder 1218/1625/1616 for T01 on the following models, please check the workpiece diameter in advance to avoid interference.

<Target Models>

T01: Machines where both □16mm (or Spacer plate +□12mm) holders can be mounted

Non-T01: Machines where only □12mm holders can be mounted

Non-T01: □12mm **T01 : □16mm (or Spacer plate +□12mm)**



KGZ Compatibility

Workpiece Dia. / JCTM Part Number	ø14mm or smaller	ø14mm or larger
KGZ R/L 1218JX-*JCTM	Compatible	Please use KGZ R/L 1212JX-*JCTM or KGZ R/L 1616JX*D26JCTM
KGZ R/L 1625JX-*JCTM		
KGZ R/L 1616JX-*JCTM		

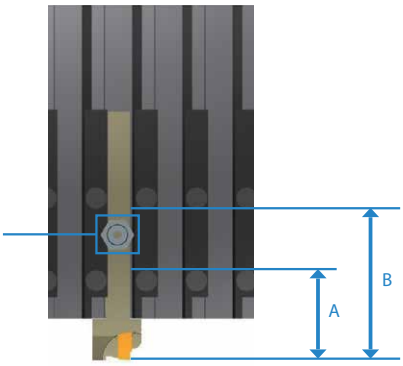
Piping part interference avoidance

Rectangular shank are recommended for use with piping parts connected to JCTM holders.

When connecting the J-**-R1/8-G1/8-L piping parts to the rectangular shank, please check for any potential interference with the machine in advance.

When connecting piping parts to the JCTM square shank, check the lengths of A and B below to avoid interference with the screws of the tool turret.

Adjust the piping part to fit between the top and bottom screws.

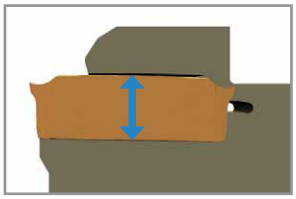


Shank Size	Square Shank Use
□0.500" □12mm	"A" shorter than 51.5mm and "B" longer than 68.5mm → Available Other than the above conditions → Use J-**-R1/8-G1/8-L or a rectangular shank
□0.625" □16mm	Available

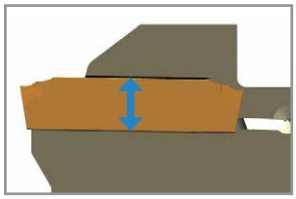
Compatibility with Conventional Tools

KGZ is not compatible with the conventional tools (KGD/KGM)

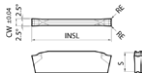
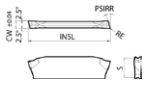
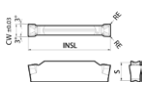
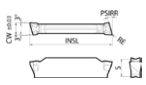
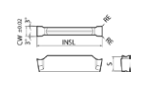
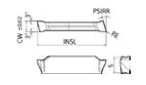
KGZ



Conventional



GDM/GDMS/GDG

			Carbon Steel / Alloy Steel									○	●	○		P
			Stainless Steel									○	○	●		M
			Cast Iron													K
			Non-Ferrous Metals									●			○	N
Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)	Tolerance (mm)		Carbide				Applicable Toolholder ⇨ H34~H36, H39~H44 H46
				CW		S	RE	INSL	PSIR R/L	CW min.	CW max.	DLC	PVD		-	
				in	mm							PDL025	PR1215	PR1225 PR1535	GW15	
	 Low Feed	GDM 1316N-003PF 1316N-015PF	2	0.051	1.3	3.7	0.03 0.15	16	-	- 0.04	+ 0.04		●●● ●●●			KGD R/L ...-1.3(D16) KGDS R/L ...-1.3B
		GDM 1516N-003PF 1516N-015PF		0.059	1.5		0.03 0.15						●●● ●●●			KGD R/L ...-1.5(D16) KGDS R/L ...-1.5B
		GDM 2020N-003PF 2020N-015PF		0.079	2		0.03 0.15						●●● ●●●			KGD R/L ...-2(...) KGDS R/L ...-2B
		GDM 2520N-003PF 2520N-015PF		0.098	2.5	4.3	0.03 0.15	20					●●● ●●●			KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGDS R/L ...-2B
		GDM 3020N-003PF 3020N-015PF		0.118	3		0.03 0.15						●●● ●●●			KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGD R/L ...-3(...), KGDS R/L ...-2B
	 Low Feed	GDM 1316R-003PF-15D 1316L-003PF-15D	2	0.051	1.3	3.7	0.03 0.03	16	15	- 0.04	+ 0.04		●●● ●●●			KGD R/L ...-1.3(D16) KGDS R/L ...-1.3B
		GDM 1516R-003PF-15D 1516L-003PF-15D 1516R-015PF-15D		0.059	1.5		0.03 0.03 0.15						●●● ●●● ●●●			KGD R/L ...-1.5(D16) KGDS R/L ...-1.5B
		GDM 2020R-003PF-15D 2020L-003PF-15D 2020R-015PF-15D		0.079	2		0.03 0.03 0.15						●●● ●●● ●●●			KGD R/L ...-2(...) KGDS R/L ...-2B
		GDM 2520R-003PF-15D 2520L-003PF-15D 2520R-015PF-15D		0.098	2.5	4.3	0.03 0.03 0.15	20					●●● ●●● ●●●			KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGDS R/L ...-2B
		GDM 3020R-003PF-15D 3020L-003PF-15D 3020R-015PF-15D		0.118	3		0.03 0.03 0.15						●●● ●●● ●●●			KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGD R/L ...-3(...), KGDS R/L ...-2B
	 Medium Feed	GDM 2020N-010PQ	2	0.079	2	4.3	0.1	20	-	- 0.03	+ 0.03		●●●			KGD R/L ...-2(...) KGDS R/L ...-2B
		GDM 2520N-010PQ		0.098	2.5								●●●			KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGDS R/L ...-2B
		GDM 3020N-010PQ		0.118	3								●●●			KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGD R/L ...-3(...), KGDS R/L ...-2B
	 Medium Feed	GDM 2020R-010PQ-15D	2	0.079	2	4.3	0.1	20	15	- 0.03	+ 0.03		●●●			KGD R/L ...-2(...) KGDS R/L ...-2B
		GDM 2520R-010PQ-15D		0.098	2.5								●●●			KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGDS R/L ...-2B
		GDM 3020R-010PQ-15D		0.118	3								●●●			KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGD R/L ...-3(...), KGDS R/L ...-2B
	 Low Cutting Force	GDG 2020N-005PG	2	0.079	2	4.3	0.05	20	-	- 0.02	+ 0.02	●		●●	●	KGD R/L ...-2(...) KGDS R/L ...-2B
		GDG 2520N-005PG		0.098	2.5							●		●●	●	KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGDS R/L ...-2B
		GDG 3020N-005PG		0.118	3							●		●●	●	KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGD R/L ...-3(...), KGDS R/L ...-2B
	 Low Cutting Force	GDG 2020R-005PG-15D	2	0.079	2	4.3	0.05	20	15	- 0.02	+ 0.02	●		●●	●	KGD R/L ...-2(...) KGDS R/L ...-2B
		GDG 2520R-005PG-15D		0.098	2.5							●		●●	●	KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGDS R/L ...-2B
		GDG 3020R-005PG-15D		0.118	3							●		●●	●	KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGD R/L ...-3(...), KGDS R/L ...-2B

Handed insert shows Right-hand
Using the PF / PM chipbreaker (for cut-off) for grooving cannot create a flat bottom (Ref. to the right figure).

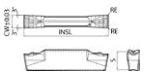
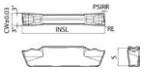
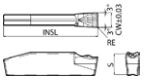
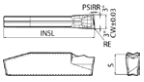
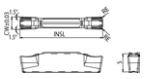
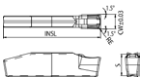
Groove bottom created by PF / PM chipbreaker

Recommended Cutting Conditions ⇨ H48~H49

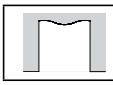
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GDM/GDMS/GDG

Carbon Steel / Alloy Steel	P
Stainless Steel	M
Cast Iron	K
Non-Ferrous Metals	N

Insert		Part Number		No. of Edges	Dimensions (mm) CW in	CW mm	S	RE	INSL	Angle (°) PSIR R/L	Tolerance (mm) CW min.	CW max.	Carbide PVD PR1215	PR1225	PR1535	Applicable Toolholder ➡ H34~H36, H39~H44 H46
	 General Purpose	GDM	2020N-020PM	2	0.079	2	4.3	0.2	20	-	- 0.03	+ 0.03	●	●	●	KGD R/L ...-2(...) KGDS R/L ...-2B
		GDM	2520N-020PM		0.098	2.5							●	●	●	KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGDS R/L ...-2B
		GDM	3020N-025PM		0.118	3		0.25					●	●	●	KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGD R/L ...-3(...), KGDS R/L ...-2B
		GDM	4020N-030PM		0.157	4		0.3					●	●	●	KGD R/L ...-3(...), KGD R/L ...-3... KGD R/L ...-4T...
	 General Purpose	GDM	2020R-020PM-6D	2	0.079	2	4.3	0.2	20	6	- 0.03	+ 0.03	●	●	●	KGD R/L ...-2(...) KGDS R/L ...-2B
		GDM	2520R-020PM-6D		0.098	2.5							●	●	●	KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGDS R/L ...-2B
		GDM	3020R-025PM-6D		0.118	3		0.25					●	●	●	KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGD R/L ...-3(...), KGDS R/L ...-2B
	 1-edge / General Purpose	GDMS	2020N-020PM	1	0.079	2	4.3	0.2	20	-	- 0.03	+ 0.03	●	●	●	KGD R/L ...-2(...) KGDS R/L ...-2B
		GDMS	3020N-025PM		0.118	3		0.25					●	●	●	KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGD R/L ...-3(...), KGDS R/L ...-2B
		GDMS	4020N-030PM		0.157	4		0.3					●	●	●	KGD R/L ...-3(...), KGD R/L ...-3... KGD R/L ...-4T...
	 General Purpose	GDMS	2020R-020PM-6D	1	0.079	2	4.3	0.2	20	6	- 0.03	+ 0.03	●	●	●	KGD R/L ...-2(...) KGDS R/L ...-2B
		GDMS	3020R-025PM-6D		0.118	3		0.25					●	●	●	KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGD R/L ...-3(...), KGDS R/L ...-2B
		GDMS	4020R-030PM-6D		0.157	4		0.3					●	●	●	KGD R/L ...-3(...), KGD R/L ...-3... KGD R/L ...-4T...
	 High Feed	GDM	2020N-020PH	2	0.079	2	4.3	0.2	20	-	- 0.03	+ 0.03	●	●	●	KGD R/L ...-2(...) KGDS R/L ...-2B
		GDM	3020N-030PH		0.118	3		0.3					●	●	●	KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGD R/L ...-3(...), KGDS R/L ...-2B
		GDM	4020N-030PH		0.157	4		0.3					●	●	●	KGD R/L ...-3(...), KGD R/L ...-3... KGD R/L ...-4T...
	 1-edge / High Feed	GDMS	2020N-020PH	1	0.079	2	4.3	0.2	20	-	- 0.03	+ 0.03	●	●	●	KGD R/L ...-2(...) KGDS R/L ...-2B
		GDMS	3020N-030PH		0.118	3		0.3					●	●	●	KGD R/L ...-2(...), KGD R/L ...-2.4(...) KGD R/L ...-3(...), KGDS R/L ...-2B
		GDMS	4020N-030PH		0.157	4		0.3					●	●	●	KGD R/L ...-3(...), KGD R/L ...-3... KGD R/L ...-4T...

Handed insert shows Right-hand
Using the PF / PM chipbreaker (for cut-off) for grooving cannot create a flat bottom (Ref. to the right figure).


Groove bottom created by PF / PM chipbreaker

Inserts Identification System

Recommended Cutting Conditions ➡ H48~H49

Tolerance symbol	
G	Ground insert
M	M class

Edge width			
13	1.3 mm	25	2.5 mm
15	1.5 mm	30	3 mm
20	2 mm	40	4 mm

Hand of tool	
R	Right-hand
L	Left-hand
N	Neutral

Chipbreaker symbol			
PF	Cut-Off (Low feed)	PM	Cut-Off (General purpose)
PQ	Cut-Off (Medium feed)	PH	Grooving and cut-off (High feed rate)
PG	Cut-Off (Low cutting force)		

GD	M	S	30	20	R	-	025	PM	-	6D

Series
Grooving / Cut-Off
GD Series

No. of edge	
No indication	2-edge
S	1-edge

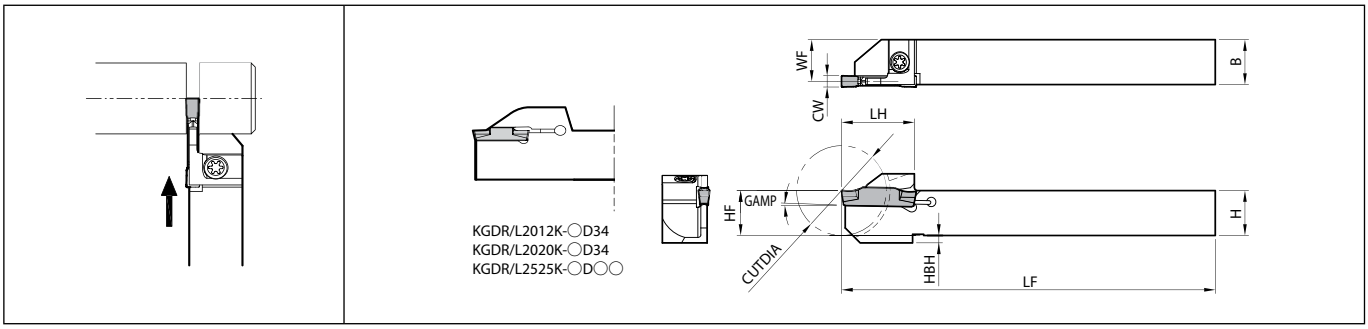
Insert length	
16	16 mm
20	20 mm

Corner-R (RE)			
003	0.03 mm	020	0.2 mm
005	0.05 mm	025	0.25 mm
010	0.1 mm	030	0.3 mm
015	0.15 mm		

Lead angle	
No indication	0°
6D	6°
15D	15°

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD (for Small Part Machining)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Angle GAMP (°)	Screw	Screw	Wrench	Applicable Inserts ⇒ H32, H33
Inch	KGD□ 6-1.3JX	●	●	0.787	0.375	0.375	0.709	0.375	0.098	4.75	0.356	0.051" (1.3mm)	0.051" (1.3mm)	1	SB-40120TR	-	LTW-15S	GDM1316...
	8-1.3JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051		0.481							
	KGD□ 6-1.5JX	●	●	0.787	0.375	0.375	0.709	0.375	0.098	4.75	0.351	0.059" (1.5mm)	0.059" (1.5mm)	1	SB-40120TR	-	LTW-15S	GDM1516...
	8-1.5JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051		0.476							
	KGD□ 6-2JX	●	●	0.787	0.375	0.375	0.709	0.375	0.098	4.75	0.342	0.079" (2mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GDG2020..., GDM2020... GDMS2020..., GDG2520... GDM2520..., GDG3020... GDM3020..., GDMS3020...
	8-2JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051		0.467							
	10-2JX	●	●	1.259	0.625	0.625	0.965	0.625	-		0.592							
	KGD□ 6-2.4JX	●	●	0.787	0.375	0.375	0.709	0.375	0.098	4.75	0.336	0.094" (2.4mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GDG2520..., GDM2520... GDG3020..., GDM3020... GDMS3020...
	8-2.4JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051		0.461							
	10-2.4JX	●	●	1.259	0.625	0.625	0.965	0.625	-		0.586							
	KGD□ 8-3JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051	4.75	0.453	0.118" (3mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GDG3020... GDM3020... GDMS3020...
	KGD□ 10-3JX	●	●	1.259	0.625	0.625	0.965	0.625	-	4.75	0.578	0.118" (3mm)	0.157" (4mm)	1	SB-40120TR	-	LTW-15S	GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...
	10-3D38JX	●	●	1.496			1.142								-	SE-50125TR	LTW-20	
	12-3D42JX	●	●	1.653	0.750	0.750	1.220	0.750			0.703							
	43-3D42JX	●	●			0.500					0.453			0				

0.157" (4mm) width insert cannot be installed in KGD□ 8-3JX or KGD□ 1212JX-3
Recommended tightening torque of clamp screw : 2.0N·m (SB-40120TR), 2.5N·m (SE-50125TR), 6.5N·m (HH5X16)
When machining the material greater than ø1.417" (ø36mm) with KGD□ ...-3D38, KGD□ ...-3D42 and KGD□ ...-3D51 toolholders, please use 1-edge inserts.
Maximum cutting diameter for 2-edge inserts is ø36mm.

Toolholder Identification System

Inch Size KGD / KGDS
(for small parts)

KGD **R** **6** – **3** **1.3** **JX** **D38** **B**

Toolholder hand	
R	Right-hand
L	Left-hand

Shank size
Square Shank: This number will represent the number of sixteenths of width and height. Ex. 6/16 = 3/8" Square **Rectangle Shank:** the first digit represents the number of eighths of width and the second digit the number of quarters of height. Ex. Width = 6/8 = 3/4" Height = 2/4 = 1/2"

Applicable Inserts
GDM/GDMS Edge width: 3~4 mm

Applicable Inserts
GDM/GDMS Edge width: 1.3 mm

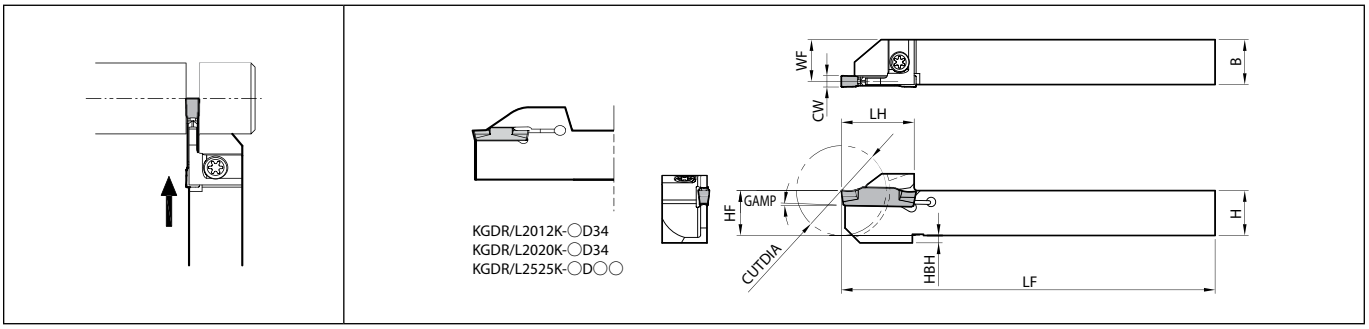
Overall Length
4.75"

Others	
D38	CUTDIA 38 mm

Others	
B	For Sub-Spindle Tooling

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD (for Small Part Machining)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Angle GAMP (°)	Spare Parts: Clamp Bolt	Spare Parts: Screw	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts (H32, H33)
mm	KGD□□ 1010JX-1.3D16	●	●	16	10	10	18	10	2	120	9.9	0.051" (1.3mm)	0.051" (1.3mm)	5	-	SB-40120TR	-	-	LTW-15S	GDM1316...
	1010JX-1.3	●	●	20							9.5									
	1212F-1.3D16	●	●	16	12	12	19.5	12		85	11.9									
	1212JX-1.3D16	●	●							120										
	1212F-1.3	●	●	24						85	11.5									
	1212JX-1.3	●	●							120										
	KGD□□ 1010JX-1.5D16	●	●	16	10	10	18	10	2	120	9.7	0.059" (1.5mm)	0.059" (1.5mm)	5	-	SB-40120TR	-	-	LTW-15S	GDM1516...
	1010JX-1.5	●	●	20							9.4									
	1212F-1.5D16	●	●	16	12	12	19.5	12		85	11.7									
	1212JX-1.5D16	●	●							120										
	1212F-1.5	●	●	24						85	11.4									
	1212JX-1.5	●	●							120										
	KGD□□ 1010JX-2	●	●	20	10	10	18	10	2	120	9.2	0.079" (2mm)	0.118" (3mm)	1	-	SB-40120TR	-	-	LTW-15S	GDG2020... GDM2020... GDMS2020... GDG2520... GDM2520... GDG3020... GDM3020... GDMS3020...
	1212F-2	●	●	24	12	12	19.5	12		85	11.2									
	1212JX-2	●	●							120										
	1616JX-2	●	●	32	16	16	24.5	16	-		15.2									
	2012K-2D34	●	●	34	20	12	32.5	20		125	11.2			0	HH5X16	-		LW-4	-	
	2020K-2D34	●	●			20					19.2									
	KGD□□ 1010JX-2.4	●	●	20	10	10	18	10	2	120	9	0.094" (2.4mm)	0.118" (3mm)	1	-	SB-40120TR	-	-	LTW-15S	GDG2520... GDM2520... GDG3020... GDM3020... GDMS3020...
	1212F-2.4	●	●	24	12	12	19.5	12		85	11									
	1212JX-2.4	●	●							120										
	1616JX-2.4	●	●	32	16	16	24.5	16	-		15									
	2012K-2.4D34	●	●	34	20	12	32.5	20		125	11			0	HH5X16	-		LW-4	-	
	2020K-2.4D34	●	●			20					19									
	KGD□□ 1212JX-3	●	●	24	12	12	19.5	12	2	120	10.8	0.118" (3mm)	0.118" (3mm)	1	-	SB-40120TR	-	-	LTW-15S	GDG3020... GDM3020... GDMS3020...
	KGD□□ 1616JX-3	●	●	32	16	16	24.5	16	-	120	14.8	0.118" (3mm)	0.157" (4mm)	1	-	SB-40120TR	-	-	LTW-15S	GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...
	1616JX-3D38	●	●	38			29									-	SE-50125TR		LTW-20	
	1913K-3D38	●	●		19	13		19		125	11.8									
	2012JX-3D42	●	●	42	20	12	31	20		120	10.8									
	2012JX-3D51	●	●	51			36													
	2020JX-3D42	●	●	42		20	31				18.8									
	2020JX-3D51	●	●	51			36													

0.157" (4mm) width insert cannot be installed in KGD□□ 8-3JX or KGD□□ 1212JX-3
Recommended tightening torque of clamp screw : 2.0N·m (SB-40120TR), 2.5N·m (SE-50125TR), 6.5N·m (HH5X16)
When machining the material greater than ø1.417" (ø36mm) with KGD□□ ...-3D38, KGD□□ ...-3D42 and KGD□□ ...-3D51 toolholders, please use 1-edge inserts.
Maximum cutting diameter for 2-edge inserts is ø36mm.

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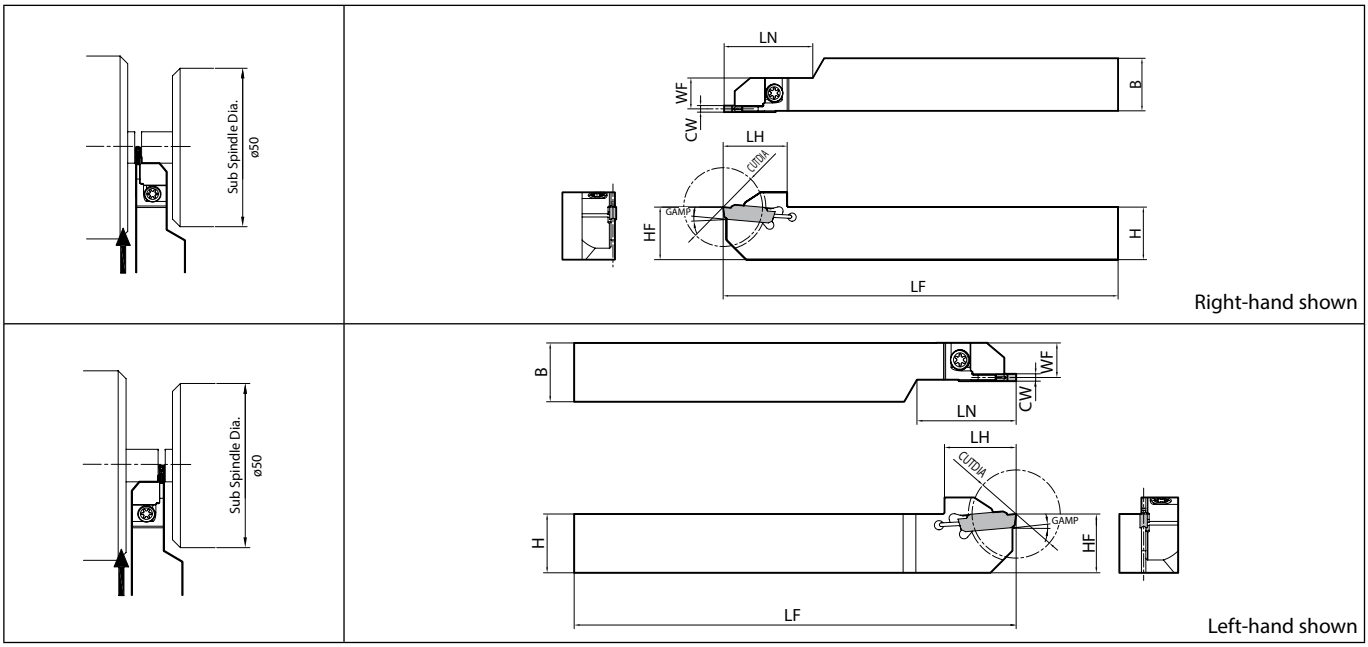
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDS (Cut-Off / for Sub-Spindle Tooling)



Toolholder Dimensions

Unit	Part Number		Std. Item R	Std. Item L	Dimensions CUTDIA	H	B	LH	HF	LF	LN	WF	CW min.	CW max.	Angle GAMP (°)	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts
mm	KGDS R/L	1616JX-1.3B	●	●	24	16	16	19.5	16	120	27	9.5	1.3	1.3	5	SB-40120TR	LTW-15S	GDM1316...
		1616JX-1.5B	●	●								9.4	1.5	1.5				GDM1516...
		1616JX-2B	●	●								9.2	2	3	1			GDG2020..., GDM2020..., GDMS2020..., GDG2520... GDM2520..., GDG3020..., GDM3020..., GDMS3020...

Applicable Inserts: H32, H33

Toolholder Identification System

Metric Size KGD / KGDS
(for Small Parts)

KGD
KGDS

R	1616	JX	–	3	D38
				1.3	B

Toolholder hand	
R	Right-hand
L	Left-hand

Shank size
16 x 16 mm

Toolholder length
120 mm

Applicable Inserts
GDM/GDMS Edge width: 1.3 mm

Others	
B	For Sub-Spindle Tooling

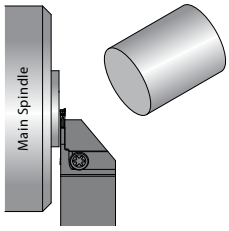
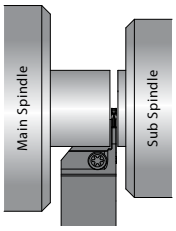
Applicable Inserts
GDM/GDMS Edge width: 3~4 mm

Others	
D38	CUTDIA 38 mm

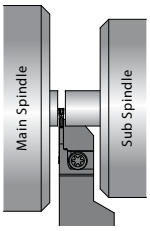
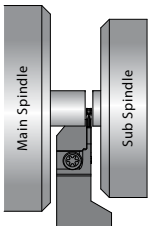
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD / KGDS Selection Reference

KGD

Standard type	
· Both Right-hand and Left-hand types are applicable to gang tool post. · Basically Left-hand type is used for cut-off operation using a sub spindle.	
KGDR (Right-hand toolholder)	KGDL (Left-hand toolholder)
	
<1st. Recommendation> Use insert with lead angle to remove boss. · Not using sub spindle · Cut-Off operation near main spindle side	<1st. Recommendation> Use insert without lead angle. · Using sub spindle · Cut-Off operation near sub spindle side

KGDS

Sub spindle type	
· When machining workpiece with small diameter, use KGDS to reduce overhang distance from the main spindle.	
KGDSR (Right-hand toolholder)	KGDSL (Left-hand toolholder)
	
· Long workpiece and more rigidity · Cut-Off operation near main spindle side	· Short workpiece and less rigidity · Cut-Off operation near sub spindle side

KGD-JCTM

Direct Coolant-Through Cut-Off Toolholders for Small Parts Machining

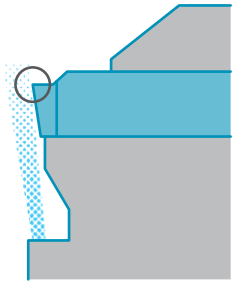
1 Optimized coolant hole position

2 Discharges coolant towards the flank face of the insert

Coolant Discharge

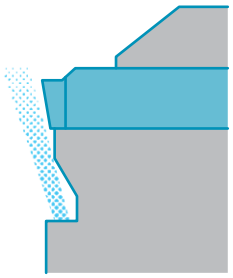
KGD-JCTM

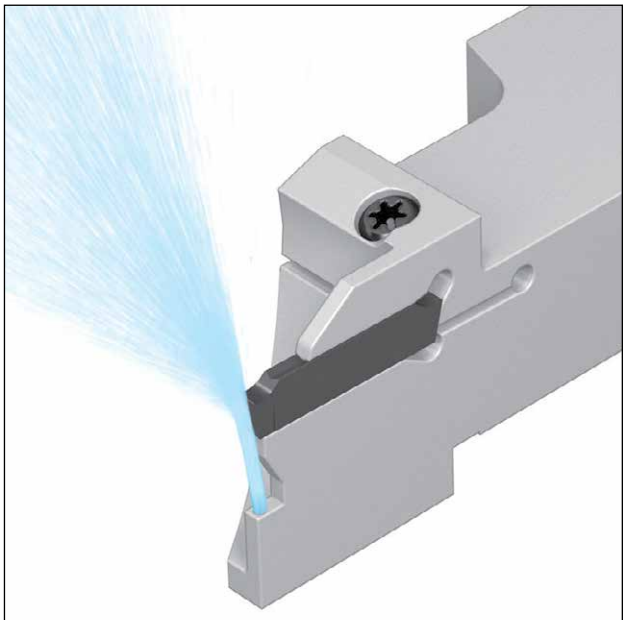
Sufficient cooling towards the cutting edge



Competitor A

Coolant does not flow directly towards the cutting edge

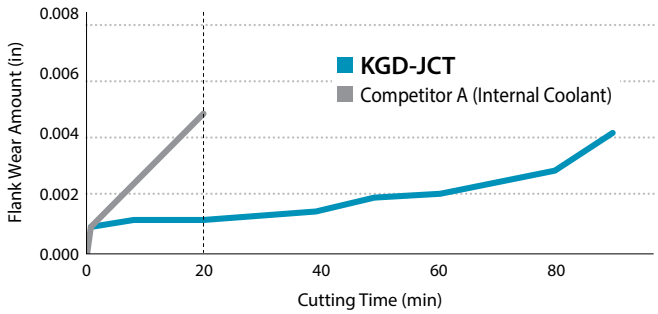




Effective Cooling of the Cutting Edge

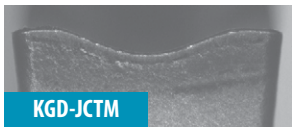
Wear Resistance Comparison

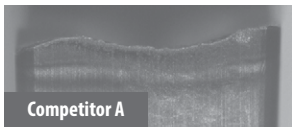
(Internal Evaluation)



Cutting Conditions : Vc = 260 sfm, f=0.0024 ipr (at~Ø 0.079" : f = 0.0007 (ipr)
KGDR1625H-2JCT, GDM2020N-015PF PR1535 (Insert Width : 0.079") Workpiece : 304 (Ø0.984")
Internal Coolant(218 psi) Cut-off

Cutting Edge (After Machining 20 min)





High density and high speeds coolant provides effective cooling of the cutting edge

Superior cooling action improves tool life

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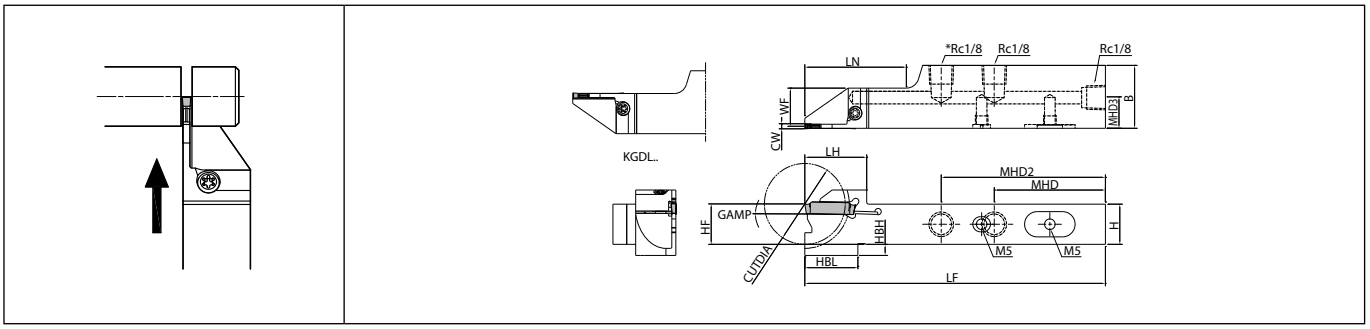
www.kyoceraprecisiontools.com

KGD-JCTM (Coolant-Through Toolholders)

Coolant Piping Parts ➡ H16~H17



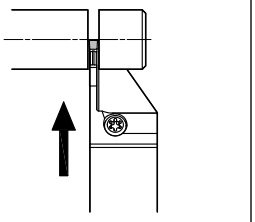
Right-hand shown | KGDR/L 5.72...-JCTM : 2-Rc1/8

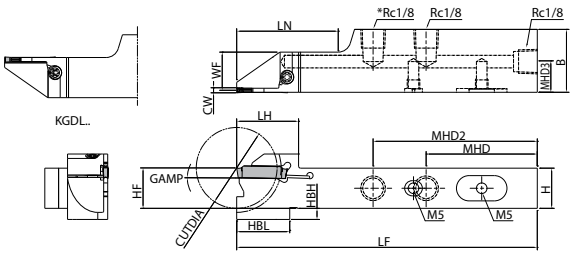
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions															Angle	Coolant Hole	Spare Parts				Applicable Inserts ➡ H32, H33
																					Plug	Plug	Screw	Wrench	
		R	L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.	CW max.	GAMP (°)						
Inch	KGDR 5.72-2JCTM	●		0.945	0.500	0.709	0.770	2.125	-	0.331	0.500	0.330	0.825	4.750	1.725	0.500	0.079" (2mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GDG2020... GDM2020... GDMS2020... GDG2520... GDM2520... GDG3020... GDM3020... GDMS3020...
	KGDL 5.72-2JCTM		●							0.303			0.843												
	KGDR 82.5-2JCTM	●		1.260	0.625	1.000	0.965	1.730	2.560	0.480	0.625	0.175	0.825		1.585	0.625									
	KGDL 82.5-2JCTM		●							0.303															
	KGDR 5.72-2.4JCTM	●		0.945	0.500	0.709	0.770	2.125	-	0.331	0.500	0.330	0.825	4.750	1.725	0.500	0.094" (2.4mm)	0.118" (3mm)	1	Yes					GDG2520... GDM2520... GDG3020... GDM3020... GDMS3020...
	KGDL 5.72-2.4JCTM		●							0.303			0.843												
	KGDR 82.5-2.4JCTM	●		1.260	0.625	1.000	0.965	1.730	2.560	0.480	0.625	0.175	0.825		1.585	0.625									
	KGDL 82.5-2.4JCTM		●							0.303															
	KGDR 5.72-3JCTM	●		0.945	0.500	0.709	0.770	2.125	-	0.331	0.500	0.330	0.825	4.750	1.725	0.500	0.118" (3mm)	0.118" (3mm)	1	Yes					GDG3020... GDM3020... GDMS3020...
	KGDL 5.72-3JCTM		●							0.303			0.843												
	KGDR 82.5-3JCTM	●		1.260	0.625	1.000	0.965	1.730	2.560	0.480	0.625	0.175	0.825		1.585	0.625		0.157" (4mm)							GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...
	KGDL 82.5-3JCTM		●							0.303															

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD-JCTM (Coolant-Through Toolholders)





Right-hand shown | KGD□12...-JCTM : 2-Rc1/8

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions															Angle	Coolant Hole	Spare Parts				Applicable Inserts ➡ H32, H33
																					Plug	Plug	Screw	Wrench	
		R	L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.	CW max.	GAMP (°)						
mm	KGDR 1218JX-2JCTM	●		24	12	18	19.5	54	-	8.4	12	8.5	21	120	44	11.2	0.079" (2mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GDG2020... GDM2020... GDMS2020... GDG2520... GDM2520... GDG3020... GDM3020... GDMS3020...
	KGDL 1218JX-2JCTM		●							7.7			21.5												
	KGDR 1625JX-2JCTM	●		32	16	25	24.5	44	65	12.2	16	4.5	21		40	15.2									
	KGDL 1625JX-2JCTM		●							7.7															
	KGDR 1218JX-2.4JCTM	●		24	12	18	19.5	54	-	8.4	12	8.5	21	120	44	11	0.094" (2.4mm)	0.118" (3mm)	1	Yes					GDG2520... GDM2520... GDG3020... GDM3020... GDMS3020...
	KGDL 1218JX-2.4JCTM		●							7.7			21.5												
	KGDR 1625JX-2.4JCTM	●		32	16	25	24.5	44	65	12.2	16	4.5	21		40	15									
	KGDL 1625JX-2.4JCTM		●							7.7															
	KGDR 1218JX-3JCTM	●		24	12	18	19.5	54	-	8.6	12	8.5	21	120	44	10.8	0.118" (3mm)	0.118" (3mm)	1	Yes					GDG3020... GDM3020... GDMS3020...
	KGDL 1218JX-3JCTM		●							7.7			21.5												
	KGDR 1625JX-3JCTM	●		32	16	25	24.5	44	65	12.2	16	4.5	21		40	14.8		0.157" (4mm)							GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...
	KGDL 1625JX-3JCTM		●							7.7															

Toolholder Identification System

Metric Size KGD-JCTM (Coolant-Through Toolholders)

KGD **R** **1218** **JX** - **2** **JCTM**

Toolholder hand	
R	Right-hand
L	Left-hand

Shank size
12 x 18 mm

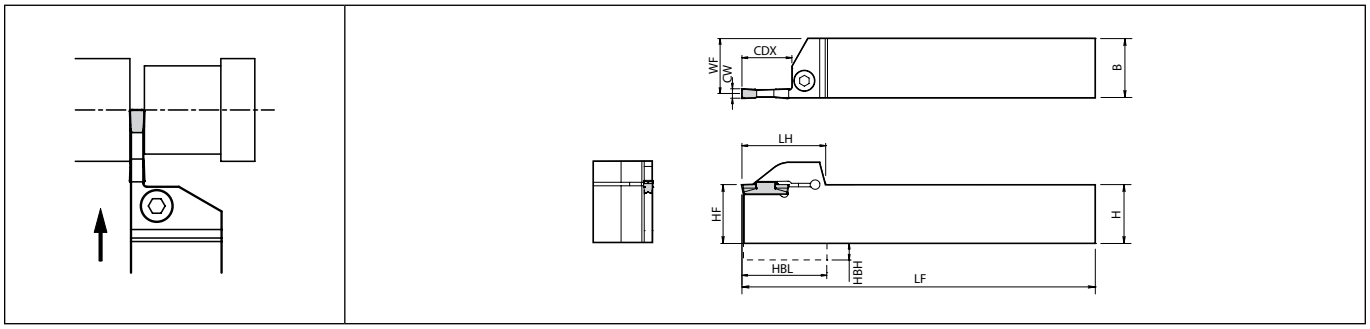
Toolholder length
120 mm

Applicable Inserts
GDM/GDMS 2~3 mm

Others
Coolant-Through Toolholders

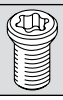
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD (Integral Type)



Right-hand shown

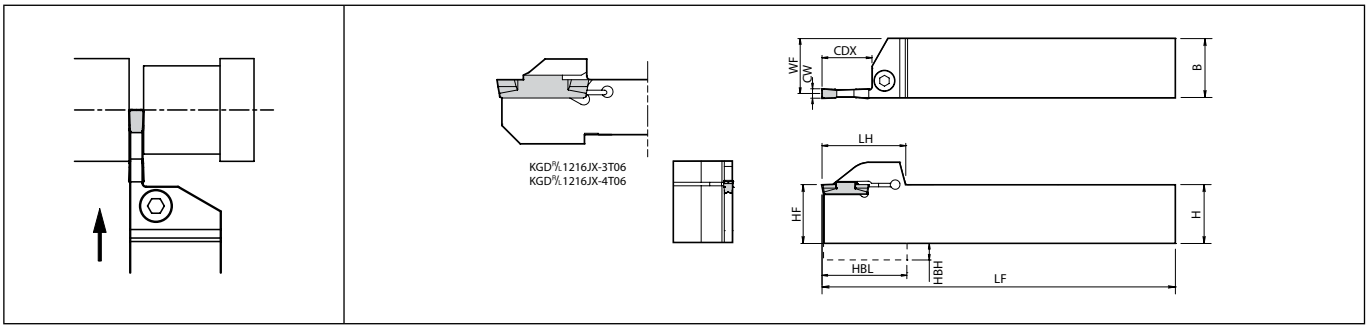
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions											Spare Parts				Applicable Inserts ➡ H32, H33
															Clamp Bolt	Screw	Wrench	Wrench	
		R	L	CDX	H	B	LH	HF	HBH	HBL	LF	WF	CW min.	CW max.					
Inch	KGD□L 12-2T17	●	●	0.669	0.75	0.75	1.28	0.75	-	-	4.92	0.71	0.079" (2mm)	0.118" (3mm)	HH5X16	-	LW-4	-	GDG2020..., GDM2020... GDMS2020..., GDG2520... GDM2520..., GDG3020... GDM3020..., GDMS3020...
	16-2T17	●	●		1.00	1.00		1.00	-	-	5.90	0.96			HH5X25				
	KGD□L 12-3T10	●	●	0.393	0.75	0.75	1.20	0.75	-	-	4.92	0.70	0.118" (3mm)	0.157" (4mm)	HH5X16	-	LW-4		GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...
	12-3T20	●	●	0.787			1.35												
	12-3T254	●	●	1.000			1.52												
	16-3T10	●	●	0.393	1.00	1.00	1.20	1.00	-	-	5.90	0.95			HH5X25				
	16-3T20	●	●	0.787			1.39												
	16-3T254	●	●	1.000			1.52												
	KGD□L 12-4T10	●	●	0.393	0.75	0.75	1.20	0.75	-	-	4.92	0.68	0.157" (4mm)	0.197" (5mm)	HH5X16	-	LW-4	-	GDM4020... GDMS4020...
	12-4T20	●	●	0.787			1.35												
	16-4T10	●	●	0.393	1.00	1.00	1.20	1.00	-	-	5.90	0.93			HH5X25				
	16-4T20	●	●	0.787			1.39												
	16-4T25	●	●	0.984			1.59												

CDX : Maximum grooving depth. (If the CDX is 0.0787" (20mm) or more, the maximum groove depth made by a 2-edge insert will be 0.709" (18 mm).
Recommended tightening torque of clamp bolt : 6.5N·m (HH5X○○), 8.0N·m (HH6X25), 2.5N·m (SE-50125TR)
Above toolholders are applicable to external grooving, too.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD (Integral Type)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CDX	H	B	LH	HF	HBH	HBL	LF	WF	CW min.	CW max.	Spare Parts: Clamp Bolt	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts ⇒ H32, H33
mm	KGD□ 1616H-2T06	●	●	6	16	16	27.7	16	4	28	100	15.2	0.079" (2mm)	0.118" (3mm)	HH5X16	-	LW-4	-	GDG2020... GDM2020... GDMS2020... GDG2520... GDM2520... GDG3020... GDM3020... GDMS3020...
	1616H-2T10	●	●	10			30.2			30.5									
	1616H-2T17	●	●	17			31.2			31.5									
	2012K-2T17	●	●		20	12	32.5	20	-	-	125	11.2							
	2020K-2T06	●	●	6		20	28					19.2							
	2020K-2T10	●	●	10			30.5												
	2020K-2T17	●	●	17			32.5												
	2525M-2T06	●	●	6	25	25	28	25			150	24.2			HH5X25				
	2525M-2T10	●	●	10			30.5												
	2525M-2T17	●	●	17			32.5												
	KGD□ 2012K-2.4T17	●	●	17	20	12	32.5	20	-	-	125	11	0.094" (2.4mm)	0.118" (3mm)	HH5X16	-	LW-4	-	GDG2520..., GDM2520..., GDG3020... GDM3020..., GDMS3020...
	2020K-2.4T17	●	●			20						19							
	KGD□ 1216JX-3T06	●	●	6	12	16	19.5	12	2	19	120	14.8	0.118" (3mm)	0.157" (4mm)	-	SE-50125TR	-	LTW-20	GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...
	1616H-3T06	●	●		16		27.7	16	4	28	100				HH5X16	-	LW-4	-	
	1616H-3T10	●	●	10			30.2			30.5									
	1616H-3T20	●	●	20			34.2			34.5									
	2012K-3T20	●	●		20	12	34.5	20	-	-	125	10.8							
	2020K-3T06	●	●	6		20	28					18.8							
	2020K-3T10	●	●	10			30.5												
	2020K-3T20	●	●	20			34.5												
	2525M-3T06	●	●	6	25	25	28	25			150	23.8			HH5X25				
	2525M-3T10	●	●	10			30.5												
	2525M-3T20	●	●	20			35.5												
	KGD□ 1216JX-4T06	●	●	6	12	16	19.5	12	2	19	120	14.3	0.157" (4mm)	0.197" (5mm)	-	SE-50125TR	-	LTW-20	GDM4020... GDMS4020...
	2020K-4T10	●	●	10	20	20	30.5	20	-	-	125	18.3			HH5X16	-	LW-4	-	
	2020K-4T20	●	●	20			34.5												
	2525M-4T10	●	●	10	25	25	30.5	25			150	23.3			HH5X25				
	2525M-4T20	●	●	20			35.5												
	2525M-4T25	●	●	25			40.5												

CDX : Maximum grooving depth. (If the CDX is 0.0787" (20mm) or more, the maximum groove depth made by a 2-edge insert will be 0.709" (18 mm).
Recommended tightening torque of clamp bolt : 6.5N·m (HH5X○○), 8.0N·m (HH6X25), 2.5N·m (SE-50125TR)
Above toolholders are applicable to external grooving, too.

Toolholder Identification System

Metric KGD (Integral Type)

KGD | R | 1616 | H | - | 2 | T | 06 |

Toolholder hand	
R	Right-hand
L	Left-hand

Shank size
16 × 16 mm

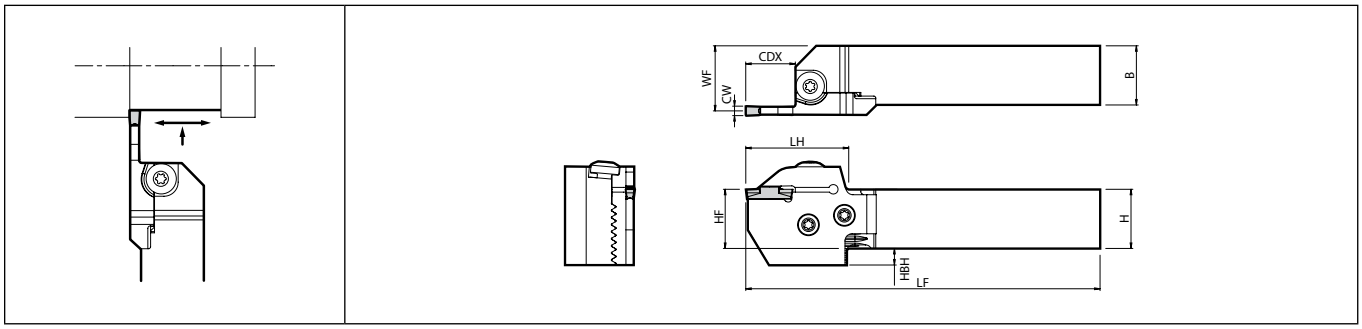
Toolholder length
100mm

Applicable Inserts
GDM/GDMS 2~3 mm

Max. depth of cut
06: 6 mm

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD-S (0° SwitchBlade Type)



Right-hand shown (Right-hand blade and right-hand toolholder)

Toolholder Dimensions (Blade and Toolholder)

Unit	Shank angle	Width (in)	Max. depth of cut (in)	Shank size (in)	Unit Part Number	Std. Item R	Std. Item L	Blade Part Number ⇨ G56	Toolholder Part Number ⇨ G56	Dimensions CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Spare Parts: Clamp Screw (for insert clamp)	Spare Parts: Screw (for blade)	Spare Parts: Wrench
Inch	0°	0.079" (2mm)	0.669" (17mm)	□0.75	KGD□ 12X-2T17S	●	●	KGD□ -2T17-C	KGD□ 12-C	0.669	0.75	0.75	1.57	0.75	0.472	4.80	0.88	0.079" (2mm)	0.118" (3mm)	BH6X10TR	SB-60120TR	LTW-25
				□1.00	16X-2T17S	●	●		KGD□ 16-C		1.00	1.00	1.57	1.00	0.276	5.78	1.13					
				□1.25	No unit description ⇨				KGD□ 20-C		1.25	1.25	1.57	1.25	-	6.58	1.38					
		0.118" (3mm)	0.394" (10mm)	□0.75	KGD□ 12X-3T10S	●	●	KGD□ -3T10-C	KGD□ 12-C	0.394	0.75	0.75	1.29	0.75	0.472	4.52	0.86	0.118" (3mm)	0.157" (4mm)			
				□1.00	16X-3T10S	●	●		KGD□ 16-C		1.00	1.00	1.29	1.00	0.276	5.51	1.11					
				□1.25	No unit description ⇨				KGD□ 20-C		1.25	1.25	1.29	1.25	-	6.30	1.37					
			0.787" (20mm)	□0.75	KGD□ 12X-3T20S	●	●	KGD□ -3T20-C	KGD□ 12-C	0.787	0.75	0.75	1.68	0.75	0.472	4.92	0.86					
				□1.00	16X-3T20S	●	●		KGD□ 16-C		1.00	1.00	1.68	1.00	0.276	5.90	1.11					
				□1.25	No unit description ⇨				KGD□ 20-C		1.25	1.25	1.68	1.25	-	6.70	1.37					
		0.157" (4mm)	0.394" (10mm)	□0.75	KGD□ 12X-4T10S	●	●	KGD□ -4T10-C	KGD□ 12-C	0.394	0.75	0.75	1.29	0.75	0.472	4.52	0.84	0.157" (4mm)	0.197" (5mm)			
				□1.00	16X-4T10S	●	●		KGD□ 16-C		1.00	1.00	1.29	1.00	0.276	5.51	1.09					
				□1.25	No unit description ⇨				KGD□ 20-C		1.25	1.25	1.29	1.25	-	6.30	1.35					
			0.787" (20mm)	□0.75	KGD□ 12X-4T20S	●	●	KGD□ -4T20-C	KGD□ 12-C	0.787	0.75	0.75	1.68	0.75	0.472	4.92	0.84					
				□1.00	16X-4T20S	●	●		KGD□ 16-C		1.00	1.00	1.68	1.00	0.276	5.90	1.09					
				□1.25	No unit description ⇨				KGD□ 20-C		1.25	1.25	1.68	1.25	-	6.70	1.35					
			0.984" (25mm)	□0.75	KGD□ 12X-4T25S	●	●	KGD□ -4T25-C	KGD□ 12-C	0.984	0.75	0.75	1.88	0.75	0.472	5.11	0.84					
				□1.00	16X-4T25S	●	●		KGD□ 16-C		1.00	1.00	1.88	1.00	0.276	6.10	1.09					
				□1.25	No unit description ⇨				KGD□ 20-C		1.25	1.25	1.88	1.25	-	6.89	1.35					

1. When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
2. The toolholder and blade descriptions are printed on the toolholder body. (Unit Part Number is not printed.)
   KGD-S: Right-hand blade for right-hand toolholder, left-hand blade for left-hand toolholder.
   The toolholder is applicable for all blade with suitable hand.
3. If the unit description is not listed ("No unit description"), please purchase toolholder and blade separately.
4. CDX: Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm.)
5. Recommended tightening torque for insert clamp screw : 6.5 Nm (Groove width 0.079" ~ 0.157" (2 ~ 4mm))
6. Above toolholders are applicable to external grooving, too.

Choose an insert with a width that falls within the CW min. and CW max. parameters shown in table above.
Applicable Inserts ⇨ H32~H33

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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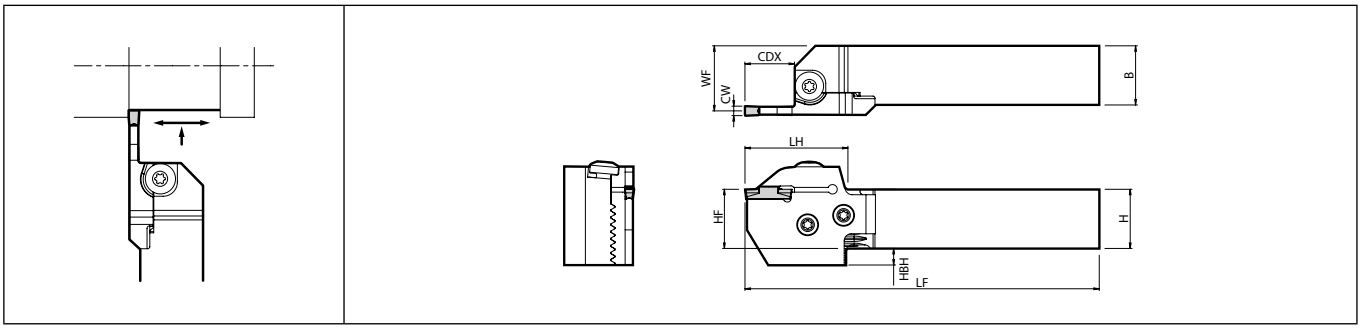
KGD-S (0° SwitchBlade Type)



Right-hand shown (Right-hand blade and right-hand toolholder)

Toolholder Dimensions (Blade and Toolholder)

Unit	Shank angle	Width (mm)	Max. depth of cut (mm)	Shank size (mm)	Unit Part Number	Std. Item R	Std. Item L	Blade Part Number ⇨ G56	Toolholder Part Number ⇨ G56	Dimensions CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Spare Parts: Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
mm	0°	2	17	□20	KGD□L 2020X-2T17S	●		KGD□L-2T17-C	KGD□L 2020-C	17	20	20	40	20	12	122	23.4	0.079" (2mm)	0.118" (3mm)	BH6X10TR	SB-60120TR	LTW-25
				□25	2525X-2T17S	●	●		KGD□L 2525-C		25	25		25	7	147	28.4					
				□32	No unit description ⇨				KGD□L 3232-C		32	32		32	-	167	35.4					
		3	10	□20	KGDR 2020X-3T10S	●		KGD□L-3T10-C	KGD□L 2020-C	10	20	20	33	20	12	115	23	0.118" (3mm)	0.157" (4mm)			
				□25	2525X-3T10S	●			KGD□L 2525-C		25	25		25	7	140	28					
				□32	No unit description ⇨				KGD□L 3232-C		32	32		32	-	160	35					
			20	□20	KGD□L 2020X-3T20S	●	●	KGD□L-3T20-C	KGD□L 2020-C	20	20	20	43	20	12	125	23					
				□25	2525X-3T20S	●	●		KGD□L 2525-C		25	25		25	7	150	28					
				□32	3232X-3T20S	●			KGD□L 3232-C		32	32		32	-	170	35					
		4	10	□20	KGDR 2020X-4T10S	●		KGD□L-4T10-C	KGD□L 2020-C	10	20	20	33	20	12	115	22.5	0.157" (4mm)	0.197" (5mm)			
				□25	2525X-4T10S	●			KGD□L 2525-C		25	25		25	7	140	27.5					
				□32	No unit description ⇨				KGD□L 3232-C		32	32		32	-	160	34.5					
			20	□20	KGD□L 2020X-4T20S	●		KGD□L-4T20-C	KGD□L 2020-C	20	20	20	43	20	12	125	22.5					
				□25	2525X-4T20S	●	●		KGD□L 2525-C		25	25		25	7	150	27.5					
				□32	3232X-4T20S	●			KGD□L 3232-C		32	32		32	-	170	34.5					
			25	□20	KGD□L 2020X-4T25S	●	●	KGD□L-4T25-C	KGD□L 2020-C	25	20	20	48	20	12	130	22.5					
				□25	2525X-4T25S	●	●		KGD□L 2525-C		25	25		25	7	155	27.5					
				□32	3232X-4T25S	●			KGD□L 3232-C		32	32		32	-	175	34.5					

1. When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
2. The toolholder and blade descriptions are printed on the toolholder body. (Unit Part Number is not printed.)
   KGD-S: Right-hand blade for right-hand toolholder, left-hand blade for left-hand toolholder.
   The toolholder is applicable for all blade with suitable hand.
3. If the unit description is not listed ("No unit description"), please purchase toolholder and blade separately.
4. CDX: Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm.)
5. Recommended tightening torque for insert clamp screw : 6.5 Nm (Groove width 0.079" ~ 0.157" (2 ~ 4mm))
6. Above toolholders are applicable to external grooving, too.

Choose an insert with a width that falls within the CW min. and CW max. parameters shown in table above.
Applicable Inserts ⇨ **H32~H33**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD-JCT

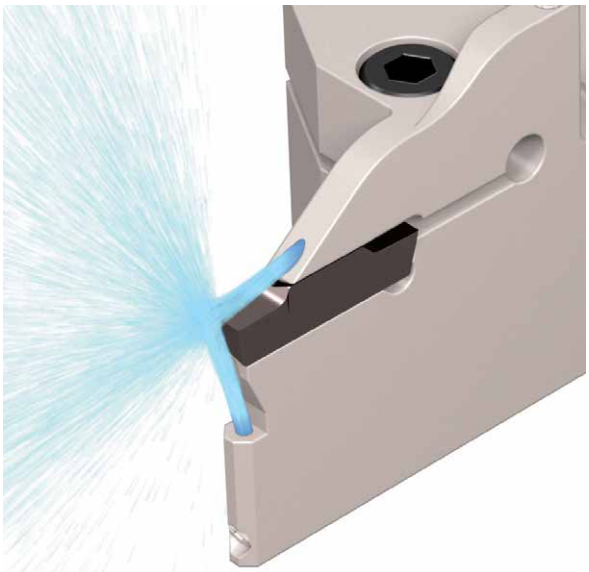
Coolant-Through Holders for External Grooving and Cut-Off

Coolant is directed from the rake surface and the flank face of the insert
Improved chip control and longer tool life for external grooving and cut-off

1 Excellent Chip Control

Coolant towards the rake face

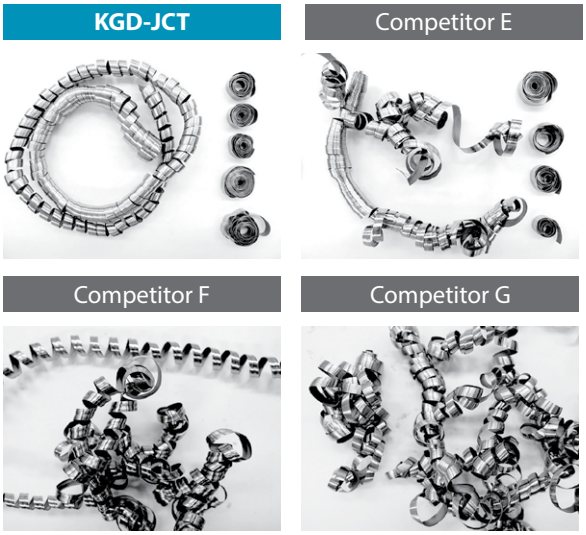
Coolant Hole position and angle improve chip control



Chip Control Comparison (Internal Evaluation)

KGD-JCT showed better chip control performance even at lower feed rates

f = 0.002 ipr (218 psi)

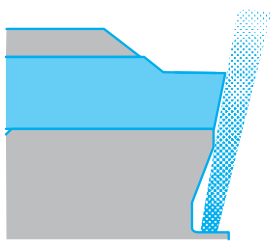


Cutting Conditions: Vc = 490 sfm, f = 0.002 ipr, d = 0.315", Wet
Edge Width 4 mm (0.157") Workpiece: 4131 Grooving

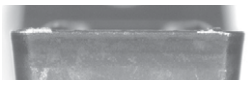
2 Keeps the Cutting Edge Cool for Longer Tool Life

Coolant towards the rake surface and the flank face of the insert
Directing coolant towards the cutting edge lengthens tool life

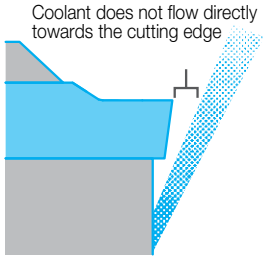
KGD-JCT



After Machining 39 min

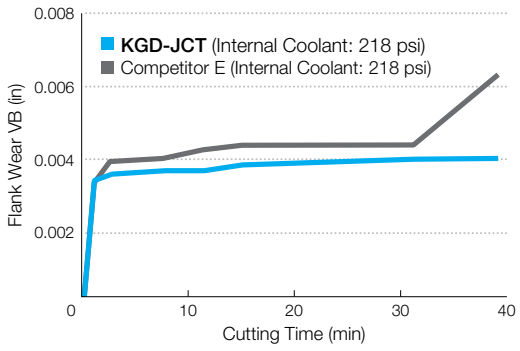


Competitor E



Defect

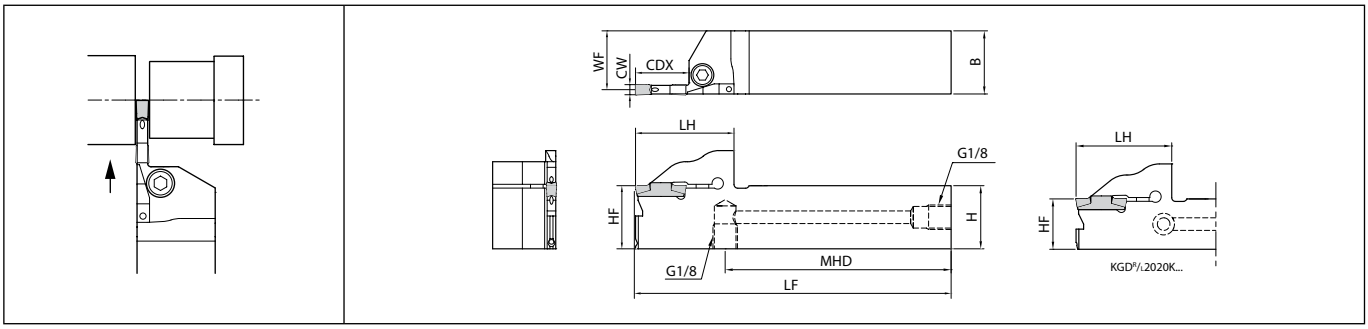
Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions: Vc = 590 sfm, f = 0.006 ipr, d = 0.354", Wet
Edge Width 0.158" Workpiece: 4131 Grooving

KGD-JCT Minimizes Wear and Provides Longer Tool Life without Insert Fracturing

KGD-JCT (Coolant-Through Toolholders)



Right-hand shown | Pressure Resistance : ~2,175 psi

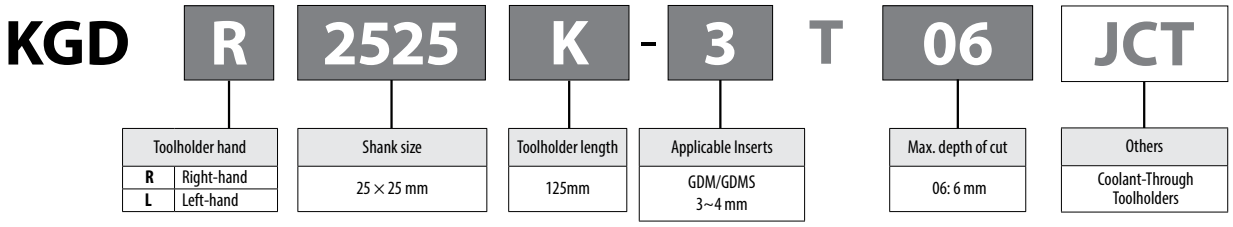
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CDX	H	B	LH	MHD	HF	LF	WF	CW min.	CW max.	Coolant Hole	Spare Parts: Clamp Screw	Spare Parts: Plug	Spare Parts: Wrench	Applicable Inserts ➡ H32, H33
Inch	KGD□ 12-3T20JCT	●	●	0.787	0.750	0.750	1.496	3.590	0.750	5.000	0.702	0.118" (3mm)	0.157" (4mm)	Yes	HH5X16	HSG1/8X8.0	LW-4	GDG3020..., GDM3020... GDMS3020..., GDM4020... GDMS4020...
	16-3T20JCT	●	●		1.000	1.000	1.535	3.551	1.000		0.952				HH5X25			
	KGD□ 12-4T20JCT	●		0.787	0.750	0.750	1.496	3.590	0.750	5.000	0.683	0.157" (4mm)	0.197" (5mm)	Yes	HH5X16	HSG1/8X8.0	LW-4	GDM4020... GDMS4020...
	16-4T20JCT	●	●		1.000	1.000	1.535	3.551	1.000		0.933				HH5X25			
	16-4T25.4JCT	●	●	1.000	1.000	1.000	1.732	3.354	1.000	5.000	0.933							
mm	KGD□ 2020K-3T06JCT	●	●	6	20	20	31.5	96.2	20	125	18.8	0.118" (3mm)	0.157" (4mm)	Yes	HH5X16	HSG1/8X8.0	LW-4	GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...
	2020K-3T10JCT	●	●	10			34	94.2										
	2020K-3T20JCT	●	●	20			38	90.2										
	2525K-3T06JCT	●	●	6	25	25	31.5	96.5	25		23.8				HH5X25			
	2525K-3T10JCT	●	●	10			34	94.5										
	2525K-3T20JCT	●	●	20			39	89.5										
	KGD□ 2020K-4T10JCT	●	●	10	20	20	34	94.2	20	125	18.3	0.157" (4mm)	0.197" (5mm)	Yes	HH5X16	HSG1/8X8.0	LW-4	GDM4020... GDMS4020...
	2020K-4T20JCT	●	●	20			38	90.2										
	2525K-4T10JCT	●	●	10	25	25	34	94.5	25		23.3				HH5X25			
	2525K-4T20JCT	●	●	20			39	89.5										
	2525K-4T25JCT	●	●	25			44	84.5										

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Identification System

Metric KGD (Integral Type)



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD Recommended Cutting Conditions (Cut-Off)

PF Chipbreaker

Workpiece Material	Recommended Insert Grade (Vc : sfm)				Feed Rate (f : ipr)						Notes
					PF Corner-R (RE) = 0.001			PF Corner-R (RE) = 0.006			
	MEGACOAT NANO	MEGACOAT		Carbide	Insert Width CW			Insert Width CW			
	PR1535	PR1225	PR1215	GW15	0.051" - 0.059" 1.3mm - 1.5mm	0.079" 2.0mm	0.098" - 0.118" 2.5mm - 3.0mm	0.051" - 0.059" 1.3mm - 1.5mm	0.079" 2.0mm	0.098" - 0.118" 2.5mm - 3.0mm	
Carbon Steel	☆ 230 - 490	★ 230 - 490	☆ 230 - 590	-	0.0004 - 0.0016	0.0008 - 0.0024	0.0008 - 0.0031	0.0004 - 0.0020	0.0012 - 0.0031	0.0016 - 0.0039	Coolant
Alloy Steel	☆ 230 - 490	★ 230 - 490	☆ 230 - 590	-							
Stainless Steel	★ 200 - 390	☆ 200 - 390	☆ 200 - 490	-	0.0004 - 0.0012	0.0004 - 0.0016	0.0004 - 0.0020	0.0004 - 0.0016	0.0012 - 0.0028	0.0016 - 0.0031	
Cast Iron	-	-	★ 260 - 660	☆ 160 - 330	0.0004 - 0.0020	0.0008 - 0.0028	0.0012 - 0.0031	0.0004 - 0.0024	0.0012 - 0.0035	0.0016 - 0.0039	

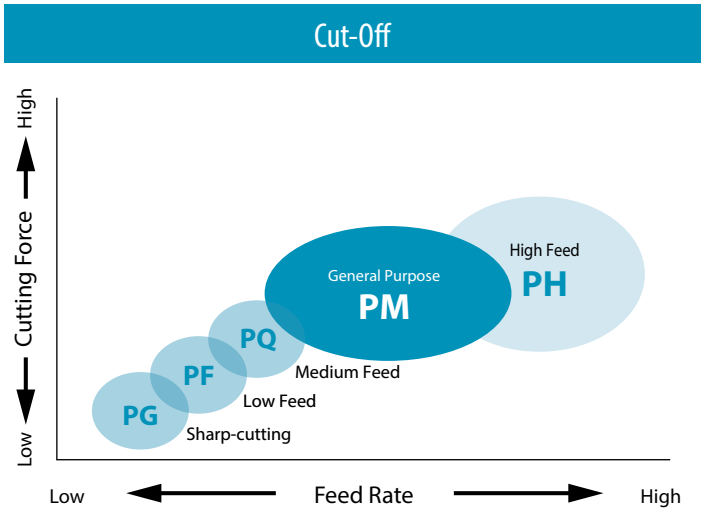
★:1st Recommendation ☆:2nd Recommendation

PQ / PG Chipbreaker

Workpiece Material	Recommended Insert Grade (Vc : sfm)					Feed Rate (f : ipr)				Notes
						PQ		PG		
	MEGACOAT NANO	MEGACOAT		DLC Coated Carbide	Carbide	Insert Width CW		Insert Width CW		
	PR1535	PR1225	PR1215	PDL025	GW15	0.079" 2.0mm	0.098" - 0.118" 2.5mm - 3.0mm	0.079" 2.0mm	0.098" - 0.118" 2.5mm - 3.0mm	
Carbon Steel	☆ 230 - 490	★ 230 - 490	☆ 230 - 590	-	-	0.0012 - 0.0039	0.0016 - 0.0047	0.0004 - 0.0016	0.0004 - 0.0020	Coolant
Alloy Steel	☆ 230 - 490	★ 230 - 490	☆ 230 - 590	-	-					
Stainless Steel	★ 200 - 390	☆ 200 - 390	☆ 200 - 490	-	-	0.0008 - 0.0028	0.0008 - 0.0031	0.0004 - 0.0012	0.0004 - 0.0016	
Cast Iron	-	-	☆ 260 - 660	-	☆ 160 - 330	0.0016 - 0.0039	0.0016 - 0.0047	0.0004 - 0.0016	0.0004 - 0.0020	
Aluminum Alloy	-	-	-	★ 660 - 1,640	☆ 660 - 1,480	-	-	0.0004 - 0.0020	0.0004 - 0.0024	
Brass	-	-	-	-	★ 330 - 660	-	-	0.0004 - 0.0028	0.0004 - 0.0031	

★:1st Recommendation ☆:2nd Recommendation

Application Map



KGD Recommended Cutting Conditions (Cut-Off)

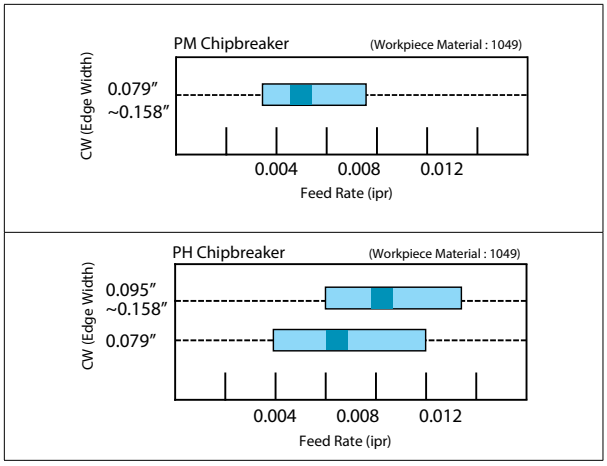
PM / PH Chipbreaker

Workpiece Material	Cutting Conditions (Vc : sfm)			Feed Rate (f : ipr)			Notes
	Recommended Insert Grade			PM	PH		
	MEGACOAT NANO	MEGACOAT		Insert Width CW	Insert Width CW		
	PR1535	PR1225	PR1215	0.079" - 0.158" 2.0mm - 4.0mm	0.079" 2.0mm	0.095" - 0.158" 3.0mm - 4.0mm	
Carbon Steel	☆ 260 - 660	★ 260 - 660	☆ 330 - 660	0.0031 - 0.0071	0.0039 - 0.0098	0.0059 - 0.0110	Coolant
Alloy Steel	☆ 230 - 590	★ 230 - 590	☆ 260 - 590				
Stainless Steel	★ 200 - 490	☆ 200 - 490	☆ 200 - 490	0.0024 - 0.0047	0.0020 - 0.0047	0.0031 - 0.0059	
Cast Iron	-	-	★ 330 - 660	0.0031 - 0.0071	0.0039 - 0.0098	0.0059 - 0.0110	

★:1st Recommendation ☆:2nd Recommendation

Feed Examples

■ : Recommended Feed (f)



Caution During Cut-Off

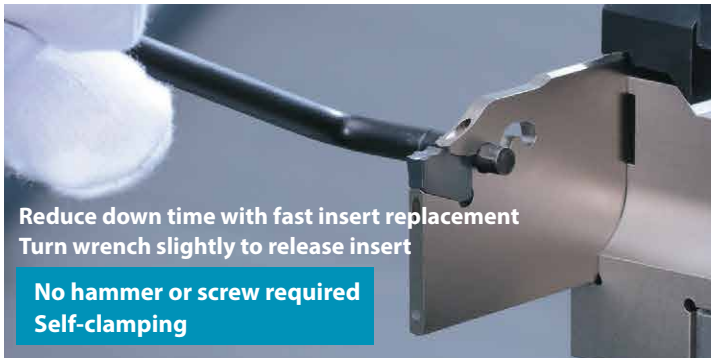
1. Flood coolant is recommended. Apply enough coolant to the cutting edge
2. Keep spindle revolution constant during processing to achieve longer tool life
3. Cut off as close to the chuck as possible
4. Reduce feed rate by 30-50% when diameter is same as cut-off insert width to prevent impact

KPK Series

High Performance Cut-Off Solutions

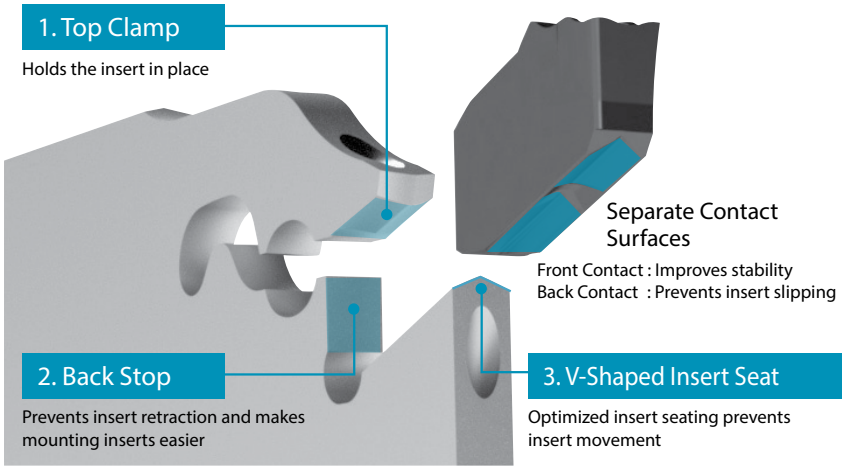
Easy Insert Replacement Reduces Downtime
High-Performance, Long Tool Life and Stable Machining with Strong Clamping Mechanism

1 Easy Insert Replacement

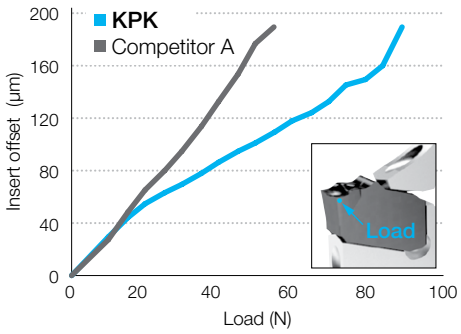


2 Firm Insert Clamp Ensures Added Safety and Security

The firmly secured insert uses three contact surfaces to eliminate sliding or chattering

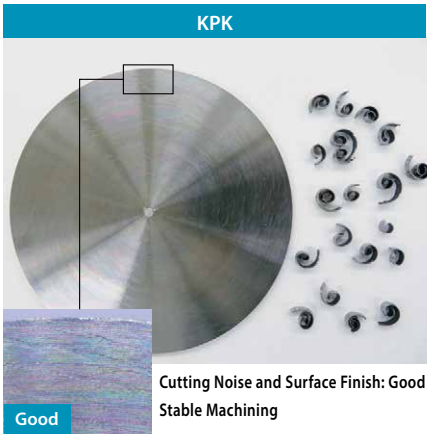


Insert Deviation Comparison (Internal Evaluation)

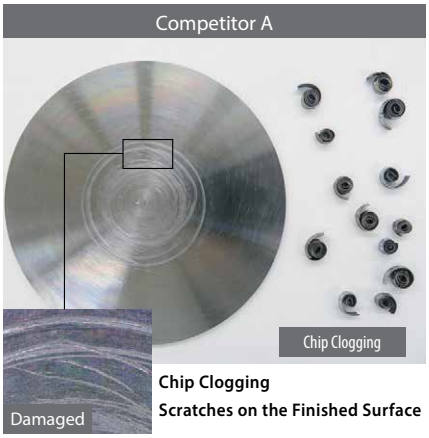


Measured tool : KPKB32-3 PKM30N-025PM

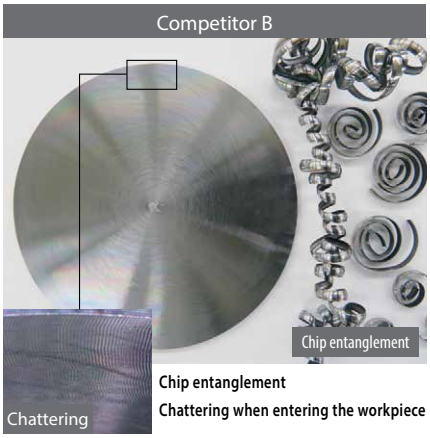
Cutting Performance Comparison (Internal Evaluation)



Cutting Noise and Surface Finish: Good
Stable Machining



Chip Clogging
Scratches on the Finished Surface



Chip entanglement
Chattering when entering the workpiece

Cutting Conditions : n = 320 RPM (constant) , Vc = ~ 330 sfm, f = 0.005 ipr, Wet (External coolant) Workpiece : 4137 (ø 3.937") Cutting Edge Width : 0.118" (3mm), PM Chipbreaker

3 Unique Chipbreaker Designs for Long Tool Life and Stable Machining

Advanced chipbreaker technology inherited from KGD lineup provides excellent chip control

PM Chipbreaker
General Purpose

Insert Grades

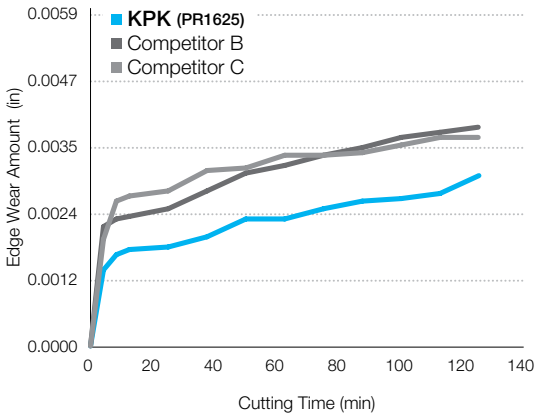
Steel	: PR1625
Stainless Steel	: PR1535
Cast Iron and Aluminum	: GW15

PH Chipbreaker
Tough Edge
High-Feed

Insert Grades

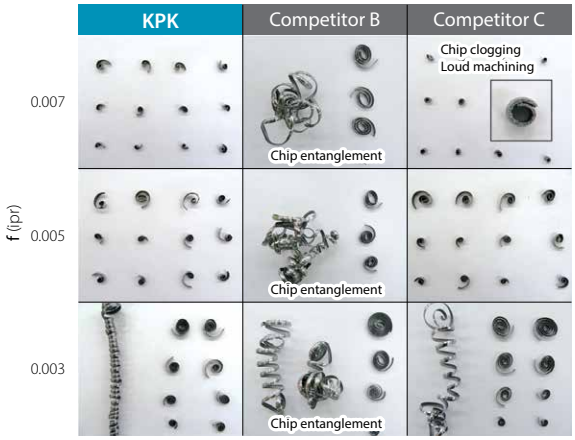
Steel	: PR1625
Stainless Steel	: PR1535

Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions : n = 955 RPM (constant), Vc = ~ 490 sfm
f = 0.005 ipr (~ ø0.394" : f = 0.002 ipr) Wet (External Coolant)
Workpiece : 4131 (ø1.969") Cutting Width : 0.118" (3mm), PM Chipbreaker

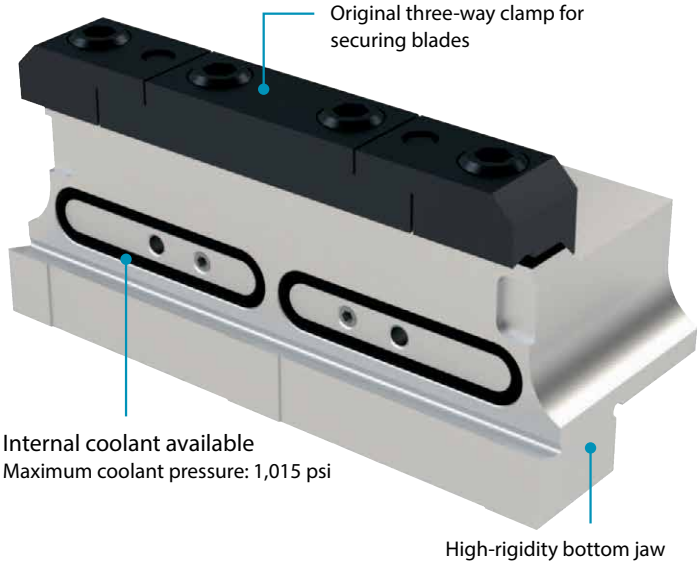
Chip Control Comparison (Internal Evaluation)



Cutting Conditions : n = RPM (constant) , Vc = ~ 390 sfm , Wet (External Coolant)
Workpiece : 4131 (ø1.969") Cutting Width : 0.118" (3mm), PM Chipbreaker

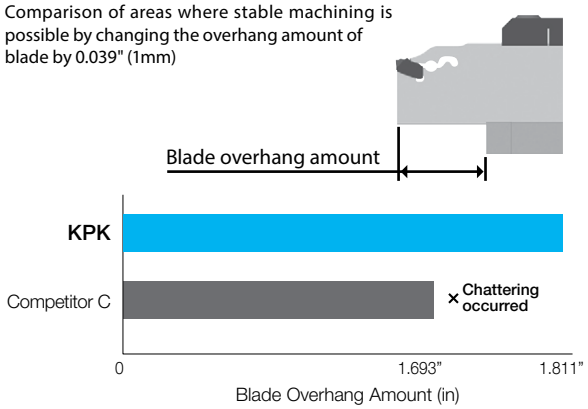
4 Rigid Tool Holder Block Prevents Chattering and Provides Internal Coolant

KPKTB-JCT



Chatter Resistance Comparison (Internal evaluation)

Comparison of areas where stable machining is possible by changing the overhang amount of blade by 0.039" (1mm)

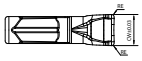
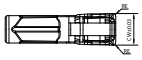
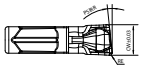


Cutting Conditions : n = 650 RPM (Constant), Vc = ~ 330 sfm, f = 0.005 ipr
Wet (Internal Coolant : Normal Pressure), Workpiece : 4137 (ø1.969")
Cutting Width : 0.118" (3mm), PM Chipbreaker

KTKTB block is compatible with internal coolant with an optional internal connector. (~145 psi)

See Coolant Supply Method (Type C) page **H59**

PKM

			Carbon Steel / Alloy Steel							●	●		P
			Stainless Steel							●	●		M
			Cast Iron									●	K
			Non-Ferrous Metals									●	N
Insert		Part Number	No. of Edges	Dimensions (mm) CW in	Dimensions (mm) CW mm	Dimensions (mm) RE	Angle (°) PSIR	Tolerance (mm) CW min.	Tolerance (mm) CW max.	Carbide PVD PR1535	Carbide PVD PR1625	Carbide - GW15	Applicable Toolholder ⇒ H54~H55, H61~H62
	 General purpose	PKM 16N-015PM	1	0.063	1.6	0.15	-	-0.03	+0.03	●	●	●	KPKB19-1, KPKB26-1(JCT) KPKB32-1(JCT)
		PKM 20N-020PM		0.079	2	0.2				●	●	●	KPKB19-2, KPKB26-2(JCT) KPKB32-2(JCT), KPKH□ 2020K-2(JCT)
		PKM 24N-020PM		0.094	2.4	0.2				●	●	●	KPKB19-2, KPKB26-2(JCT) KPKB32-2(JCT), KPKH□ 2020K-2(JCT)
		PKM 30N-025PM		0.118	3	0.25				●	●	●	KPKB26-3(JCT), KPKB32-3(JCT) KPKH□...-3(JCT), KPKH□...-3D45
		PKM 40N-030PM		0.157	4	0.3				●	●	●	KPKB26-4(JCT), KPKB32-4(JCT) KPKH□...-4(JCT), KPKH□...-4D45
		PKM 48N-030PM		0.189	4.8	0.3				●	●	●	KPKB26-5(JCT), KPKB32-5(JCT) KPKH□ 2525M-5
		PKM 50N-030PM		0.197	5	0.3				●	●	●	KPKB26-5(JCT), KPKB32-5(JCT) KPKH□ 2525M-5
		PKM 60N-035PM		0.236	6	0.35				●	●	●	KPKB32-6(JCT)
	 High feed	PKM 20N-020PH	1	0.079	2	0.2	-	-0.03	+0.03	●	●		KPKB19-2, KPKB26-2(JCT) KPKB32-2(JCT), KPKH□ 2020K-2(JCT)
		PKM 30N-030PH		0.118	3	0.3				●	●		KPKB26-3(JCT), KPKB32-3(JCT) KPKH□...-3(JCT), KPKH□...-3D45
		PKM 40N-030PH		0.157	4	0.3				●	●		KPKB26-4(JCT), KPKB32-4(JCT) KPKH□...-4(JCT), KPKH□...-4D45
		PKM 50N-030PH		0.197	5	0.3				●	●		KPKB26-5(JCT), KPKB32-5(JCT) KPKH□ 2525M-5
		PKM 60N-040PH		0.236	6	0.4				●	●		KPKB32-6(JCT)
	 General purpose with lead angle	PKM 16R-015PM-6D 16L-015PM-6D	1	0.063	1.6	0.15	6	-0.03	+0.03	● ●	● ●	● ●	KB19-1, KPKB26-1(JCT) KPKB32-1(JCT)
		PKM 20R-020PM-6D 20L-020PM-6D		0.079	2	0.2				● ●	● ●	● ●	KPKB19-2, KPKB26-2(JCT) KPKB32-2(JCT), KPKH□ 2020K-2(JCT)
		PKM 24R-020PM-6D 24L-020PM-6D		0.094	2.4	0.2				● ●	● ●	● ●	KPKB19-2, KPKB26-2(JCT) KPKB32-2(JCT), KPKH□ 2020K-2(JCT)
		PKM 30R-025PM-6D 30L-025PM-6D		0.118	3	0.25				● ●	● ●	● ●	KPKB26-3(JCT), KPKB32-3(JCT) KPKH□...-3(JCT), KPKH□...-3D45
		PKM 40R-030PM-6D 40L-030PM-6D		0.157	4	0.3				● ●	● ●	● ●	KPKB26-4(JCT), KPKB32-4(JCT) KPKH□...-4(JCT), KPKH□...-4D45
		PKM 50R-030PM-6D 50L-030PM-6D		0.197	5	0.3				● ●	● ●	● ●	KPKB26-5(JCT), KPKB32-5(JCT) KPKH□ 2525M-5

Handed insert shows Right-hand

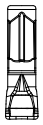
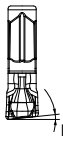
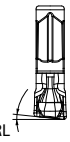
Recommended Cutting Conditions ⇒ H63

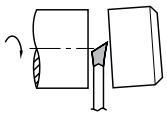
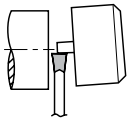
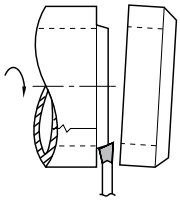
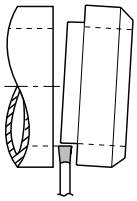
H CUT-OFF

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Lead Angle Direction and Usage

1. If there is no restriction on the finished shape, use an insert without lead angle.
2. Insert with lead angle is recommended to prevent remaining boss.
3. If you want to make the remaining boss smaller when machining small or thin parts, use insert with lead angle.

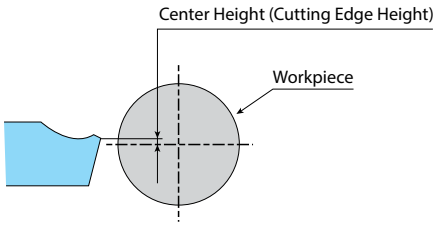
Handed insert with lead angle	N (Neutral)	R (Right hand)	L (Left hand)
		 PSIRR	 PSIRL
	· Inserts with lead angle (PSIR R/L) reduce burrs at cut-off machining. · The larger the lead angle (PSIR R/L), the smaller the cutting force. The feed also needs to be smaller.		

	Right hand (R) Lead Neutral	Neutral		Right hand (R) Lead Neutral	Neutral
Solid Workpiece			Hollow Workpiece (Pipe)		

Machining Precautions

1. Set cutting edge height 0.004" (0.1mm) above core height.
2. Machining with ample supply of coolant is recommended
3. Machine at constant speeds to gain stable tool life
4. Make the cut-off as close as possible to the chuck
5. To prevent impacts, reduce feed rate by 1/2 ~ 1/3 when nearing the center of the workpiece

Excessive use of the insert may cause chipping or damage to the holder



KPKB-JCT (Coolant-Through Blades)

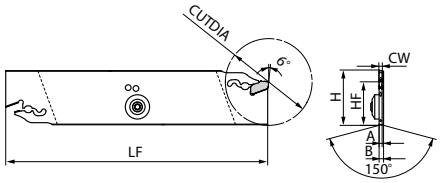


Fig. 1

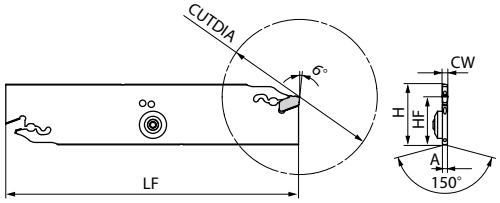


Fig. 2

with coolant supply | Applicable Pressure : ~7MPa

Toolholder Dimensions

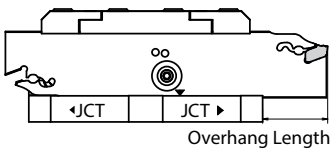
Unit	Part Number	Std. Item	Dimensions CUTDIA	A	B	H	HF	LF	CW	Coolant Hole	Fig.	Spare Parts: Coolant Cap	Insert Wrench	Screw	Wrench	Applicable Inserts ⇒ H52	Applicable Tool Block ⇒ H56, H57
mm	KPKB 26-1JCT	●	35	1.4	2.6	26	21.4	110	1.6	Yes	1	CCP-4	LPW-5	SB-4065TR	FT-15	PKM16...	KPKTB..-26JCT KTKTB..-26
	26-2JCT	●	50	1.8					2 2.4							PKM20... PKM24...	
	26-3JCT	●	75	2.6	-				3		2					PKM30...	
	26-4JCT	●	80	3.4					4							PKM40...	
	26-5JCT	●		4.2					4.8 5							PKM48... PKM50...	
	KPKB 32-1JCT	●	35	1.4	2.6	32	25	150	1.6	Yes	1	CCP-4	LPW-5	SB-4065TR	FT-15	PKM16...	KPKTB..-32JCT KTKTB..-32 KTKTBF..-32
	32-2JCT	●	50	1.8					2 2.4							PKM20... PKM24...	
	32-3JCT	●	100	2.6	-				3		2					PKM30...	
	32-4JCT	●		3.4					4							PKM40...	
	32-5JCT	●	120	4.2					4.8 5							PKM48... PKM50...	
	32-6JCT	●		5.4					6							PKM60...	

Coolant cap screw Tightening torque 3.0 N·m

See page **H58** for insert mounting and removal instructions
When using internal coolant with KTKTB, KTKTBF type toolblocks, coolant supply piping (CCN -5) sold separately.
H: Length between virtual vertices

Recommended Cutting Conditions ⇒ **H63**

Minimum / Maximum Overhang Length while using Internal Coolant



Part Number: Blade	Part Number: Toolblocks	Overhang Length (mm): min.	Overhang Length (mm): max.
KPKB26-1JCT	KPKTB20-26JCT	15	34.5
KPKB26-2/3/4JCT		20	40
KPKB26-5JCT		23	43
KPKB32-1JCT	KPKTB20-32JCT	18	49
	KPKTB25-32JCT	13	
	KPKTB32-32JCT		
KPKB32-2/3/4JCT	KPKTB20-32JCT	27.5	59
	KPKTB25-32JCT	22.5	
	KPKTB32-32JCT		
KPKB32-5/6JCT	KPKTB20-32JCT	31.5	63
	KPKTB25-32JCT	26.5	
	KPKTB32-32JCT		

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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KPKB

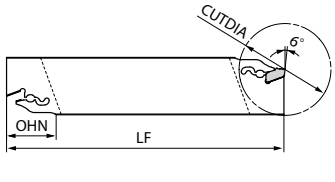


Fig. 1

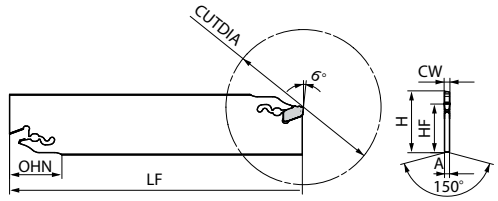


Fig. 2

Toolholder Dimensions

Unit	Part Number		Std. Item	Dimensions							Coolant Hole	Fig.	Spare Parts	Applicable Inserts ➡ H52	Applicable Tool Block ➡ H56, H57
				CUTDIA	A	B	H	HF	LF	CW			Insert Wrench		
mm	KPKB	19-1	●	32	1.4	2.6	19	15.7	86	1.6	No	1	LPW-5	PKM16...	KTKTB..-19
		19-2	●	40	1.8	-				2 2.4		2		PKM20... PKM24...	
	KPKB	26-1	●	35	1.4	2.6	26	21.4	110	1.6	No	1	LPW-5	PKM16...	KPKTB..-26JCT KTKTB..-26
		26-2	●	50	1.8	-				2 2.4		2		PKM20... PKM24...	
		26-3	●	75	2.6					3				PKM30...	
		26-4	●	80	3.4					4				PKM40...	
		26-5	●		4.2					4.8 5				PKM48... PKM50...	
	KPKB	32-1	●	35	1.4	2.6	32	25	150	1.6	No	1	LPW-5	PKM16...	KPKTB..-32JCT KTKTB..-32 KTKTBF..-32
		32-2	●	50	1.8					2 2.4				PKM20... PKM24...	
		32-3	●	100	2.6	-				3		2		PKM30...	
		32-4	●		3.4					4				PKM40...	
		32-5	●	120	4.2					4.8 5				PKM48... PKM50...	
		32-6	●		5.4					6				PKM60...	

See page **H58** for insert mounting and removal instructions

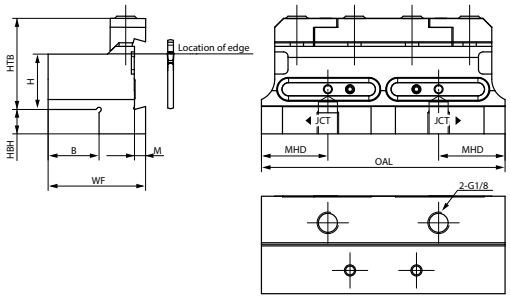
H: Length between virtual vertices

Recommended Cutting Conditions ➡ **H63**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KPKTB-JCT (Coolant-Through Type)

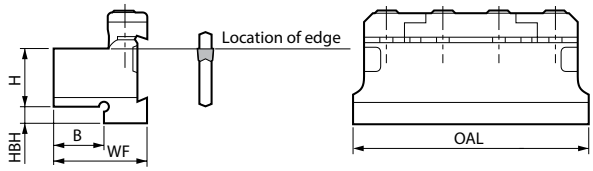


Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts						Applicable Blade ➡ H54 H55 H66 G152
			H	B	HBH	HTB	M	MHD	OAL	WF		Clamp Bolt	Clamp Set (separate type)	O-ring	Plug	Screw	Wrench	
Inch	KPKTB 19-26JCT	●	0.75	0.720	0.525	1.260	0.157	0.925	3.386	1.508	Yes	HH6x16	BCS-2	GR-020	HSG1/8X8.0	HS3x4	LW-5	KPKB26-_JCT, KTKB26-_
	19-32JCT	●			0.667	1.299	0.197	0.984	3.937	1.547			BCS-3	GR-026		HS4x4		KPKB32-_JCT KTKB32-_ KFTB R/L ...-4S KFTB R/L ...-5S
	25.4-32JCT	●	1.00	0.906	0.417	1.614	0.197	1.181	4.331	1.732			BCS-4	GR-029				
	31.8-32JCT	●	1.25	1.142	0.207	1.850				1.969								
mm	KPKTB 20-26JCT	●	20	19	12.4	33	4	23.5	86	39	Yes	HH6X16	BCS-2	GR-020	HSG1/8X8.0	HS3X4	LW-5	KPKB26-_JCT, KTKB26-_
	20-32JCT	●			16	41	5	25	100	40			BCS-3	GR-026		HS4X4		KPKB32-_JCT KTKB32-_ KFTB R/L ...-4S KFTB R/L ...-5S
	25-32JCT	●	25	23	11			30	110	44			BCS-4	GR-029				
	32-32JCT	●	32	29	5					50								

Includes only one HSG1/8X8.0 plug.
KPKTB-JCT type block is also compatible with conventional KTKB type blades.
See page **H60** for coolant piping parts.
When using internal coolant, the coolant may appear to leak slightly, but this should not affect machining performance.
(If the O-ring is damaged, order separately.)

KTKTB

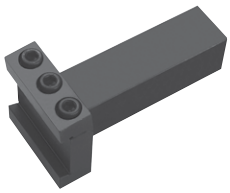


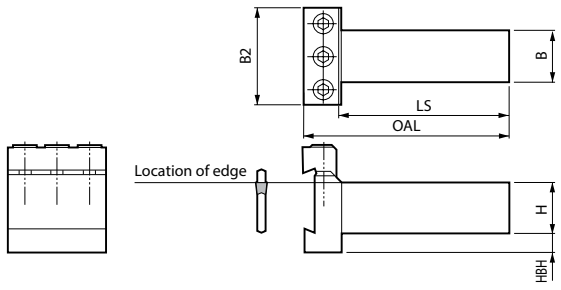
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Spare Parts: Clamp Bolt	Spare Parts: Clamp Set (integral type)	Spare Parts: Clamp Set (separate type)	Spare Parts: Wrench	Applicable Blade H54 H55 H66 G152: Cut-Off	Applicable Blade H54 H55 H66 G152: Face Grooving
			H	B	HBH	OAL	WF						
Inch	KTKTB 19-26	●	0.75	0.720	0.39	3.39	1.39	HH6x30	-	BCS-2	LW-5	KPKB26-_(JCT) KTKB26-1SS, KTKB26-_S	-
	25.4-32	●	1.00	0.905	0.30	4.33	1.65			BCS-4		KPKB32-_(JCT) KTKB32-1SS, KTKB32-_ KTKB□32-_S	KFTB□...-4S KFTB□...-5S
mm	KTKTB 16-19	●	16	15.5	4	76	29.5	HH5X25	BCS-1	-	LW-4	KPKB19-_ KTKB19-1SS, KTKB19-2S	-
	20-19	●	20	19			34						
	KTKTB 16-26	●	16	15.5	13	86	31.5	HH6X30	-	BCS-2	LW-5	KPKB26-_(JCT) KTKB26-1SS, KTKB26-_S	-
	20-26	●	20	19	9		36						
	KTKTB 20-32	●	20	19	13	100	38	HH6X30	-	BCS-3	LW-5	KPKB32-_(JCT) KTKB32-1SS, KTKB32-_ KTKB□32-_S	KFTB□...-4S KFTB□...-5S
	25-32	●	25	23	8	110	42			BCS-4			
	32-32	●	32	29	5		48						

Can be used with internal coolant by utilizing compatible coolant piping (**CCN-5**).

KTKTBF





Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Spare Parts: Clamp Bolt	Spare Parts: Clamp Set (integral type)	Spare Parts: Wrench	Applicable Blade H54 H55 H66 G152: Cut-Off	Applicable Blade H54 H55 H66 G152: Face Grooving
			H	B	B2	HBH	LS	OAL					
mm	KTKTBF 25-32	●	25	25	48	9.5	84.5	102	HH6X30	BCS-5	LW-5	KPKB32-_(JCT) KTKB32-1SS, KTKB32-_ KTKB□32-_S	KFTB□...-4S KFTB□...-5S
	32-32	●	32	32		2.5	99.5	117					

Can be used with internal coolant by utilizing compatible coolant piping (**CCN-5**).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

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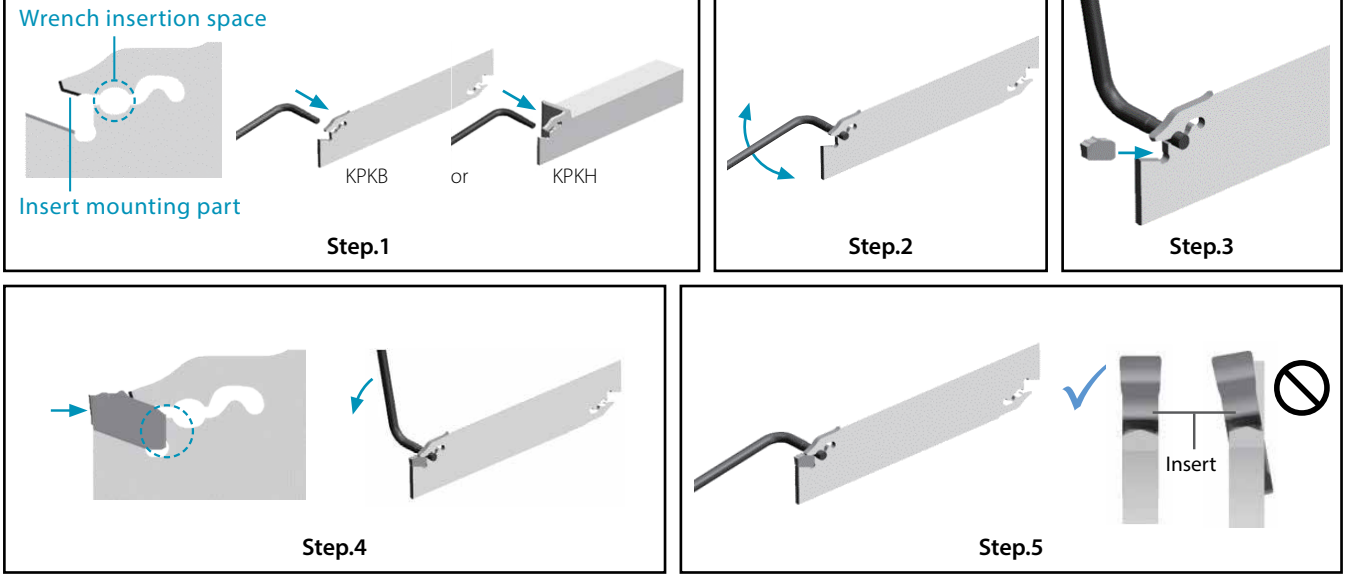
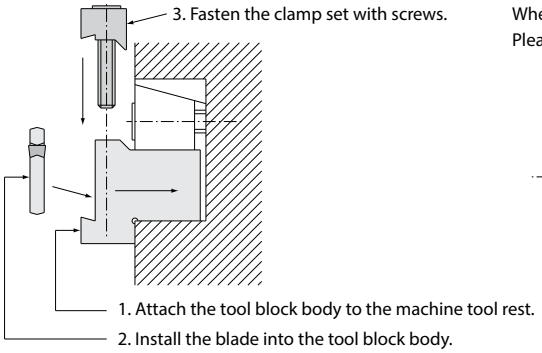
How to Mount and Remove Inserts from Holder or Blade

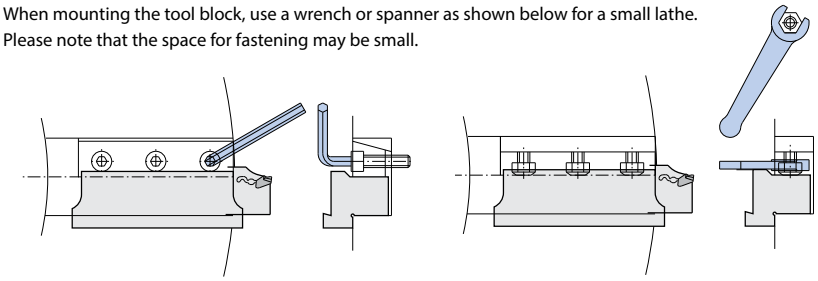
1. Use compressed air or other measures to remove chips from the insert mounting area and slide wrench into hole shown.
2. Turn the wrench.
3. Slide the insert into the insert pocket. (When removing the insert, follow the same procedure and remove it at step 3.)
4. Push insert in until the back of the insert contacts the blade's back stop surface.
5. Make sure that the insert is set straight.



Tool Block and Blade Installation Guide

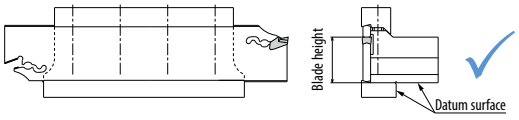


When mounting the tool block, use a wrench or spanner as shown below for a small lathe.
Please note that the space for fastening may be small.

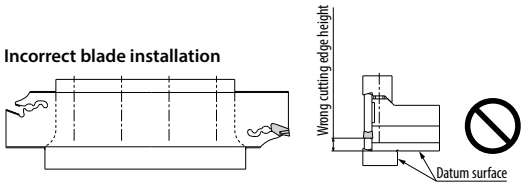


How to Install the Tool Block and Blade

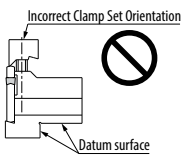
Correct blade installation



Incorrect blade installation



Incorrect Clamp Set Orientation



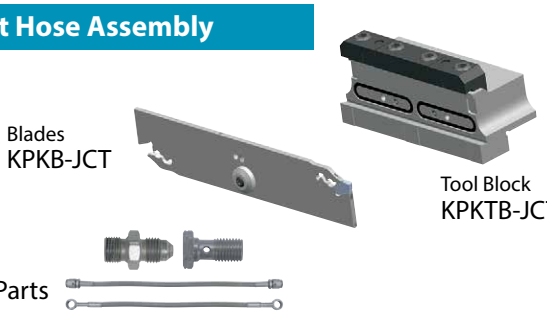
If the clamp set is mounted in the reverse direction, a large gap is created between the tool block main body and the clamp set as shown in the left figure.
If you continue to use the product, the blade may break off.
Reinstall in the correct orientation.

Internal Coolant Connection Methods (Method will be determined by machine specifications and requirements)

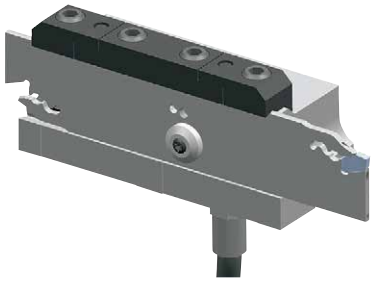
A : Coolant Hose Assembly

See Page **H60**

Maximum coolant pressure: 1,015 psi



Complete Installation

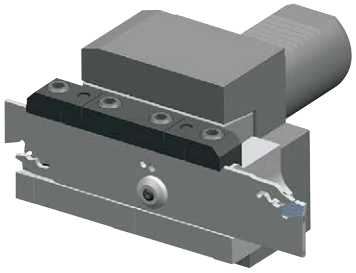


B : VDI Holder Assembly

(Internal coolant type)

Maximum coolant pressure: 1,015 psi

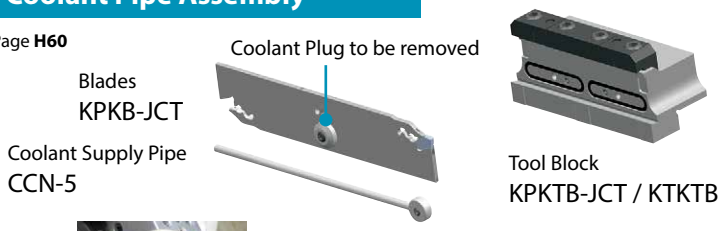
Complete Installation



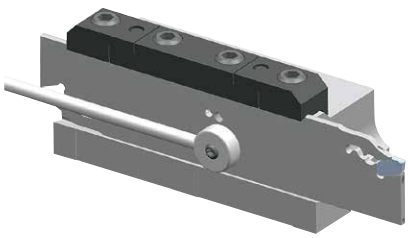
C: Coolant Pipe Assembly

See Page **H60**

Maximum coolant pressure: 145 psi



Complete Installation



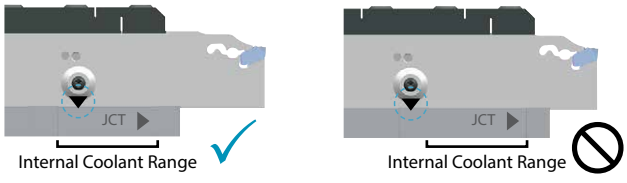
Coolant Supply Pipe Mounting Method

Attach to the blade with the supplied screw
Form pipe to the required shape and connect it to the piping of the machine.

Precautions

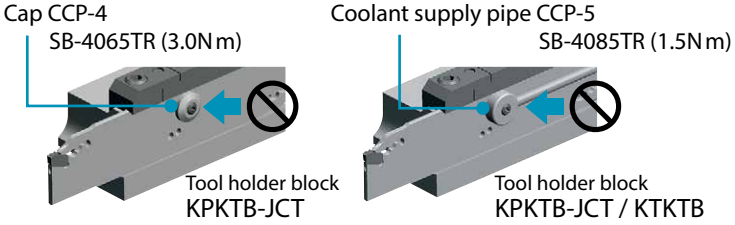
When mounting KPKB-JCT blade

When using internal coolant, keep the arrow (▼) on the blade within the range marked on the tool holder block.



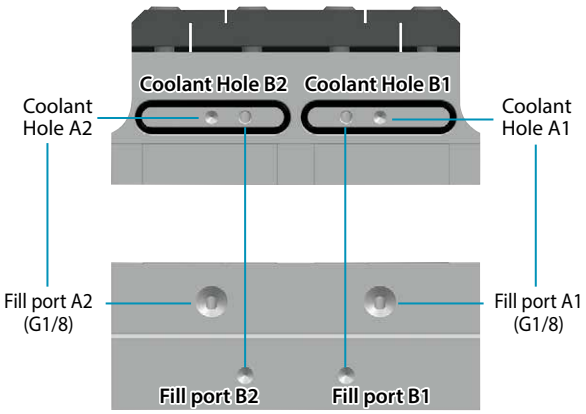
When the cap and coolant supply pipe are mounted

Coolant cannot be supplied correctly if it is mounted in the wrong position.



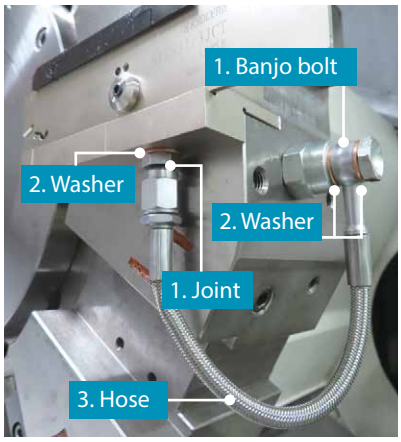
When using a tool block

When using the discharge port B1 (B2), use a sealant for the filler cap (HSG 1/8 X 8.0) of the accessory part of the coolant supply port A1 (A2).



A : Coolant Hose Assembly

Connection Method and Piping Parts

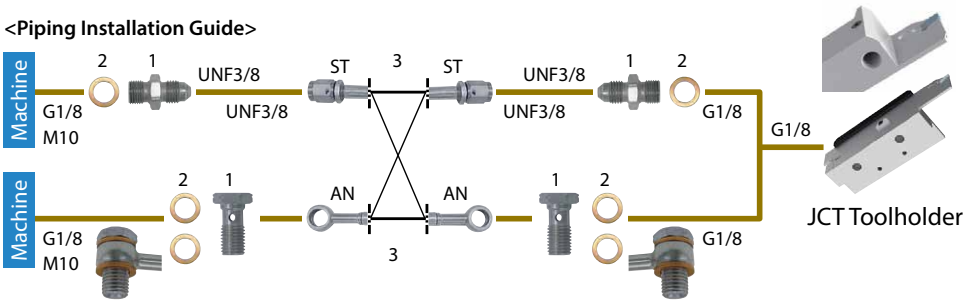


Easy to use with high-pressure hose and joint

Can be used for internal coolant at normal pressure without a high pressure pump unit

Banjo bolts (for angled hoses) are also available.

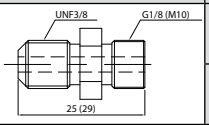
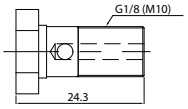
<Piping Installation Guide>



Depending on machine specifications and piping methods, 1.Joint/Banjo bolt x2 2.Washer x2-4 3.Hose x1

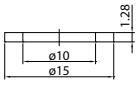
1. Joint / Banjo Bolt (Sold Separately)

Pressure Resistance: ~ 4,350 psi

Shape		Part Number	Std. Item	Thread Standard: Toolholder Machine Connection Side
		J-G1/8-UNF3/8	●	G1/8
		J-M10X1.5-UNF3/8	●	M10X1.5
Banjo Bolt (for Angled Hoses)		BB-G1/8	●	G1/8
		BB-M10X1.5	●	M10X1.5

2. Washer (Sold Separately)

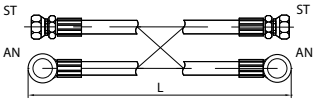
Pressure Resistance: ~ 4,350 psi

Shape		Part Number	Std. Item
		WS-10	●

*If you are using a banjo bolt, two washers are needed.

3. Hose (Sold Separately)

Pressure Resistance: ~ 4,350 psi

Shape		Part Number	Std. Item	Thread Standard		Dimensions (mm) L
Straight/Straight		HS-ST-ST-200	●	UNF3/8	UNF3/8	200
		HS-ST-ST-250	●			250
Straight/Angled		HS-ST-AN-200	●	UNF3/8	– (Banjo Bolt)	200
		HS-ST-AN-250	●			250
Angled/Angled		HS-AN-AN-200	●	– (Banjo Bolt)	– (Banjo Bolt)	200
		HS-AN-AN-250	●			250

Precautions

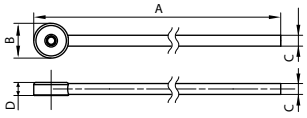
1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure. Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

C: Coolant Pipe Assembly

Piping Parts

Coolant Supply Pipe (Sold Separately)

Pressure Resistance: 145 psi

Shape		Part Number	Std. Item	Dimensions (mm) A	B	C	D	Spare Parts (Screw)
		CCN-5	●	190	16	5	6	SB-4085TR

Use wrench (**FT -15**) supplied with the blade when connecting.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KPKH-JCT (Coolant-Through Toolholders)

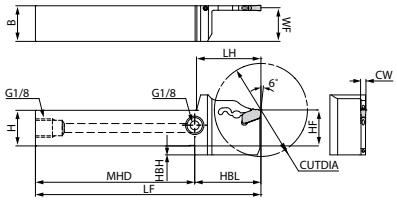
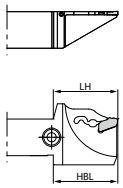


Fig. 1



KPKH$^{R/L}$12-2JCT
KPKH$^{R/L}$2020K-2JCT

Fig. 2

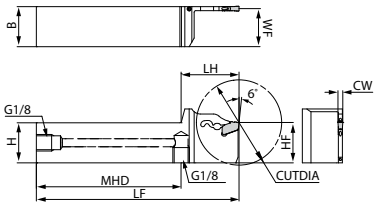


Fig. 3

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	CUTDIA	H	B	LH	MHD	HF	HBH	HBL	LF	WF	CW	Coolant Hole	Fig.	Spare Parts: Plug	Spare Parts: Insert Wrench	Applicable Inserts ⇒ H52
Inch	KPKH$^{R/L}$ 12-2JCT	●	●	1.500	0.750	0.750	1.382	3.583	0.750	0.234	1.358	5.000	0.717	0.079 0.094	Yes	2	HSG1/8X8.0	LPW-5	PKM20... PKM24...
	KPKH$^{R/L}$ 12-3JCT	●	●	2.000	0.750	0.750	1.417	3.543	0.750	0.234	1.433	5.000	0.701	0.118	Yes	1	HSG1/8X8.0	LPW-5	PKM30...
	16-3JCT	●	●	2.100	1.000	1.000		3.583	1.000	-	-		0.951			3			
	KPKH$^{R/L}$ 12-4JCT	●	●	2.400	0.750	0.750	1.673	3.346	0.750	0.234	1.630	5.000	0.685	0.157	Yes	1	HSG1/8X8.0	LPW-5	PKM40...
	16-4JCT	●	●	2.600	1.000	1.000		3.346	1.000	-	-		0.935			3			
mm	KPKH$^{R/L}$ 2020K-2JCT	●	●	38	20	20	35.1	89	20	5	35.1	125	19.15	2 2.4	Yes	2	HSG1/8X8.0	LPW-5	PKM20... PKM24...
	KPKH$^{R/L}$ 2020K-3JCT	●	●	52	20	20	36	88	20	5	37	125	18.75	3	Yes	1	HSG1/8X8.0	LPW-5	PKM30...
	2525K-3JCT	●	●	53	25	25		89	25	-	-		23.75			3			
	KPKH$^{R/L}$ 2020K-4JCT	●	●	62	20	20	42.5	83	20	5	42	125	18.35	4	Yes	1	HSG1/8X8.0	LPW-5	PKM40...
	2525K-4JCT	●	●	68	25	25		82	25	-	-		23.35			3			

See page **H58** for insert mounting and removal instructions
See page **H60** for coolant piping parts.

Recommended Cutting Conditions ⇒ **H63**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KPKH

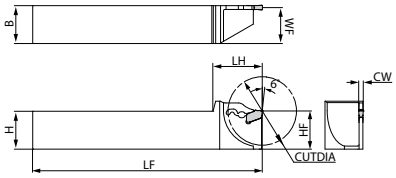
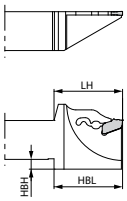


Fig. 1



KPKH R/L 12-2
KPKH R/L 2020K-2

Fig. 2

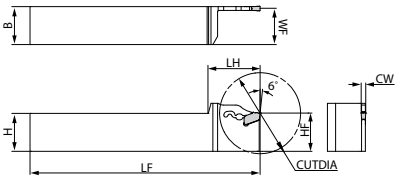


Fig. 3

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Dimensions CUTDIA	H	B	LH	HF	HBH	HBL	LF	WF	CW	Coolant Hole	Fig.	Spare Parts Insert Wrench	Applicable Inserts ➡ H52
Inch	KPKH R/L 12-2	●	●	1.500	0.750	0.750	1.303	0.750	0.234	1.303	5.000	0.717	0.079 0.094	No	2	LPW-5	PKM20... PKM24...
	KPKH R/L 12-3	●	●	2.000	0.750	0.750	1.339	0.750	-	-	5.000	0.701	0.118	No	3		PKM30...
	16-3	●	●	2.100	1.000	1.000		1.000			6.000	0.951					
	KPKH R/L 12-4	●	●	2.400	0.750	0.750	1.594	0.750			5.000	0.685	0.157	No			PKM40...
	16-4	●	●	2.600	1.000	1.000		1.000			6.000	0.935					
	KPKH R/L 16-5	●	●	3.100	1.000	1.000	1.807	1.000			6.000	0.919	0.189 0.197	No			PKM48... PKM50...
mm	KPKH R/L 2020K-2	●	●	38	20	20	33.1	20	5	33.1	125	19.15	2 2.4	No	2	LPW-5	PKM20... PKM24...
	KPKH R/L 2020K-3	●	●	52	20	20	34	20	-	-	125	18.75	3	No	3		PKM30...
	2525M-3	●	●	53	25	25		25			150	23.75					
	KPKH R/L 2020K-4	●	●	62	20	20	40.5	20			125	18.35	4	No			PKM40...
	2525M-4	●	●	68	25	25		25			150	23.35					
	KPKH R/L 2525M-5	●	●	79	25	25	45.9	25			150	22.95	4.8 5	No			PKM48... PKM50...
	KPKH R/L 2020K-3D35	●	●	35	20	20	32.5	20	-	-	125	18.75	3	No	1	LPW-5	PKM30...
	2525M-3D45	●	●	45	25	25		25			150	23.75					
	KPKH R/L 2020K-4D45	●	●	45	20	20	35	20			125	18.35	4	No			PKM40...
	2525M-4D45	●	●	45	25	25		25			150	23.35					

See page **H58** for insert mounting and removal instructions

Recommended Cutting Conditions ➡ **H63**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

PM Chipbreaker

Workpiece Material	Recommended Insert Grades Vc (sfm)			Feed f (ipr)			Notes
	MEGACOAT NANO		Carbide	Edge Width CW (mm)			
	PR1625	PR1535	GW15	1.6	2 ~ 4	4.8 ~ 6	
Carbon Steel	★ 260 - 720	☆ 260 - 720	–	0.001 - 0.005	0.003 - 0.007	0.004 - 0.009	Coolant
Alloy Steel	★ 230 - 660	☆ 230 - 660	–				
Stainless Steel	☆ 200 - 490	★ 200 - 490	–	0.001 - 0.003	0.002 - 0.005	0.003 - 0.006	
Cast Iron	–	–	★ 160 - 330	0.001 - 0.003	0.003 - 0.007	0.004 - 0.009	
Aluminum Alloy	–	–	★ 660 - 1480	0.001 - 0.003	0.003 - 0.007	0.004 - 0.009	
Brass	–	–	★ 330 - 660				

Reduce feed to 1/2 ~ 1/3 at the center of the workpiece.

★: 1st Recommendation ☆: 2nd Recommendation

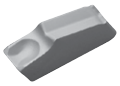
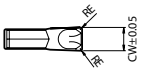
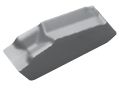
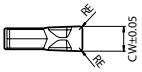
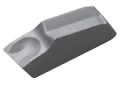
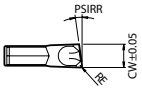
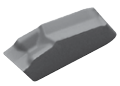
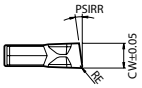
PH Chipbreaker

Workpiece Material	Recommended Insert Grades Vc (sfm)			Feed f (ipr)			Notes
	MEGACOAT NANO		Carbide	Edge Width CW (mm)			
	PR1625	PR1535	GW15	2	3 ~ 4	5 ~ 6	
Carbon Steel	★ 260 - 720	☆ 260 - 720	–	0.004 - 0.009	0.006 - 0.011	0.006 - 0.014	Coolant
Alloy Steel	★ 230 - 660	☆ 230 - 660	–				
Stainless Steel	☆ 200 - 490	★ 200 - 490	–	0.002 - 0.005	0.003 - 0.006	0.003 - 0.007	
Cast Iron	–	–	–	–	–	–	
Aluminum Alloy	–	–	–	–	–	–	
Brass	–	–	–				

Reduce feed to 1/2 ~ 1/3 at the center of the workpiece.

★: 1st Recommendation ☆: 2nd Recommendation

TKN/TK

			Carbon Steel / Alloy Steel					●		○		○		P					
			Stainless Steel					○	●	○				M					
			Cast Iron								●			K					
			Non-Ferrous Metals								●			N					
Insert		Part Number	No. of Edges	Dimensions (mm)			Angle (°)	Tolerance (mm)		Carbide				Cermet		Applicable Toolholder ⇒ H66~H68			
				CW		RE	PSIR	CW min.	CW max.	CVD	PVD		-	-					
				in	mm					CR9025	PR1535	PR930	KW10	TN620	TN90				
		TKN 1.6	1	0.063	1.6	0.15	-	- 0.05	+ 0.05	●	●	●	●		●	KTKB..-1SS			
		TKN 2	1	0.087	2.2	0.2				●	●	●	●	●	●	KTKB19-2S, KTKB26-2S, KTKB32-2S, KTKH□□...-2S			
		TKN 2.4	1	0.094	2.4	0.2				●	●	●	●	●	●				
		TKN 3	1	0.122	3.1	0.25				●	●	●	●	●	●	KTKB26-3S, KTKB32-3S,KTKH□□...-3S, KTKH□□...-3T..S			
		TKN 4	1	0.161	4.1	0.3				●	●	●	●	●	●	KTKB26-4S, KTKB32-4S,KTKH□□...-4S, KTKH□□...-4T22S			
		TKN 4.8	1	0.189	4.8	0.3				●	●					KTKB26-5S, KTKB32-5S, KTKH□□2525M-5S			
		TKN 5	1	0.201	5.1	0.3				●	●	●	●						
		TKN 6	1	0.252	6.4	0.35				●	●		●			KTKB32-6S			
		TKN 8	1	0.315	8	0.4				●	●					KTKB□□32-8S			
		TKN 9	1	0.378	9.6	0.45				●	●					KTKB□□32-9S			
		TKN 1.6-P	1	0.063	1.6	0.2	-	- 0.05	+ 0.05	●	●		●			KTKB..-1SS			
		TKN 2-P	1	0.087	2.2	0.2				●	●	●	●	●	●	KTKB19-2S, KTKB26-2S, KTKB32-2S, KTKH□□...-2S			
	Low feed	TKN 3-P	1	0.122	3.1	0.25				●	●	●	●	●	●	KTKB26-3S, KTKB32-3S,KTKH□□...-3S, KTKH□□...-3T..S			
		TKR 1.6 TKL 1.6	1	0.063	1.6	0.15	8	- 0.05	+ 0.05	● ○	● ●	● ○	● ●			KTKB..-1SS			
		TKR 2 TKL 2	1	0.087	2.2	0.2	8	- 0.05	+ 0.05	● ●	● ●	● ○	● ●	● ○	● ○	KTKB19-2S, KTKB26-2S, KTKB32-2S, KTKH□□...-2S			
		TKR 2.4 TKL 2.4	1	0.094	2.4	0.2	8	- 0.05	+ 0.05	● ●	● ●	● ○	● ●						
		TKR 3 TKL 3	1	0.122	3.1	0.25	8	- 0.05	+ 0.05	● ●	● ●	● ●	● ●	● ○	● ○	KTKB26-3S, KTKB32-3S,KTKH□□...-3S, KTKH□□...-3T..S			
		TKR 4 TKL 4	1	0.161	4.1	0.3	8	- 0.05	+ 0.05	● ●	● ●		● ●	● ○	● ○	KTKB26-4S, KTKB32-4S,KTKH□□...-4S, KTKH□□...-4T22S			
		TKR 5 TKL 5	1	0.201	5.1	0.3	8	- 0.05	+ 0.05	● ○	● ●		● ○			KTKB26-5S, KTKB32-5S, KTKH□□2525M-5S			
		TKR 1.6-P	1	0.063	1.6	0.2	8	- 0.05	+ 0.05	○	●	○	○			KTKB..-1SS			
		TKR 2-P TKL 2-P	1	0.087	2.2	0.2	8	- 0.05	+ 0.05	● ○	● ●	● ○	● ○			KTKB19-2S, KTKB26-2S, KTKB32-2S, KTKH□□...-2S			
	Low feed	TKR 3-P TKL 3-P	1	0.122	3.1	0.25	8	- 0.05	+ 0.05	● ○	● ●	● ○	● ●	● ○	● ○	KTKB26-3S, KTKB32-3S,KTKH□□...-3S, KTKH□□...-3T..S			

Handed insert shows Right-hand

Cut-Off Tools

Name	Chipbreaker		Advantages
General Cut-Off	Standard (No Indication)		General cut-off type for feed rates over 0.004ipr Superior chip evacuation
Low Feed Cut-Off	P		Chipbreaker specially designed for low feed machining on automatic lathes, etc. Chips are controlled at feed rates between 0.0012~0.0032ipr

Insert's Edge Shape (CERACUT Cut-Off)

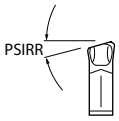
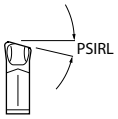
	Chamfered + Honed	Sharp Edge	Honed Cutting Edge
Edge Preparation			
Standard Chipbreaker	TN90 / PR1535 / CR9025 / PR660	PR930 / KW10	-
P-Chipbreaker	-	-	TN620 / TN90 / CR9025 / PR1535 PR660 / PR930 / KW10

Sharp edge can reduce cutting resistance by 40%, compared with chamfered edge.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

How to select cut-off inserts with / without lead angle (Including sharp corner)

1. Use a neutral angle insert if there is no limit to the finished shape.
2. Use an angled insert to reduce the size of the remaining boss.
3. Use a sharp-cornered lead-angled insert to make the remaining boss much smaller when machining small parts and thin parts.

Hand of lead angle	N (Neutral)	R (Right-hand)	L (Left-hand)
			
Angled insert can reduce the burr size when cutting off. When using a larger lead angle , cutting force becomes smaller, but the feed rate should be reduced.			

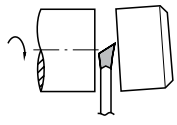
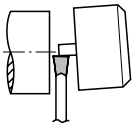
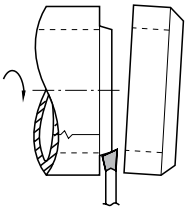
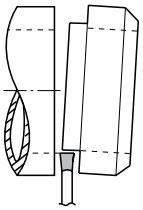
	Right-hand (R) Lead angle	Neutral
Example: Solid workpiece		
Example: Hollow workpiece (Pipe)		

Fig.1

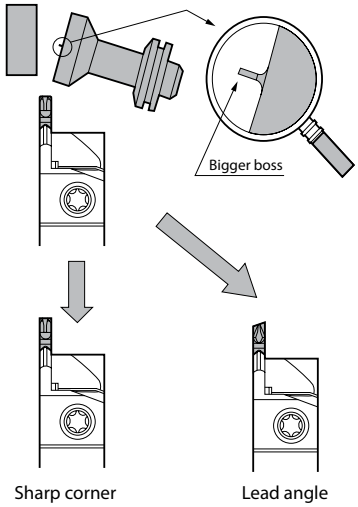


Fig.2

Caution

1. For TKN and TK$^{R}/_{L}$, set the cutting edge height 0.1~0.2 mm above the center height (Fig. 3)
   For other toolholders, set the cutting edge to the center height.
2. Be sure to perform wet processing. Apply enough coolant to the cutting edge.
3. Keep a constant rate during processing so that optimum product life will be achieved.
4. Cut off as close to the chuck as possible.
5. Lower the feed rate to 1/2 to 1/3 at the near center to prevent impact caused by machining.

Overuse of insert and toolholder (blade) may cause insert breakage and toolholder (blade) damage.
Do not rework the insert and toolholder (blade) to prevent damage.
Clean the insert pocket well with compressed air when replacing insert.

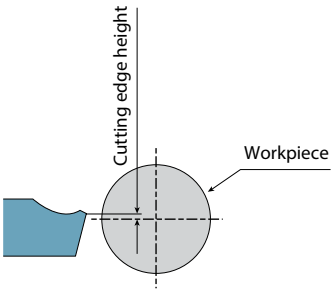


Fig. 3 (TKN, TK$^{R}/_{L}$)

Set up (TKN / TK$^{R}/_{L}$)

1. Tap the insert lightly with a plastic hammer to push it into the extent that it cannot be removed by hand. (Fig.1)
   (Pull it to the point where it does not fall out when picked up lightly with fingers)
2. Remove the insert with the supplied wrench. (Fig.2)

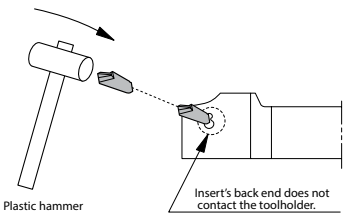


Fig.1: How to attach inserts

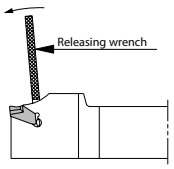
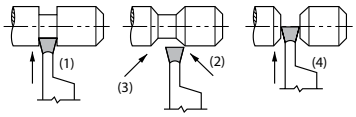


Fig.2: How to detach inserts

Application example of cut-off

1. Cut-off after chamfering

(1) Grooving (2)(3) Chamfering (4) Cut-off

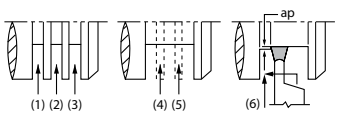


2. Wide grooving

(1)~(5) Groove widening

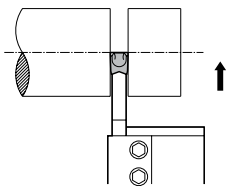
(6) Finishing

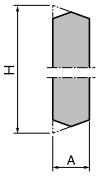
(Value of "ap" shall be under the value of Corner-R)



(In order to prevent both corners' unequal wear)

KTKB





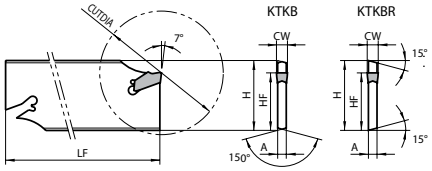


Fig. 1

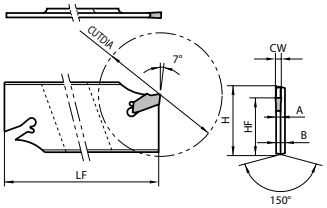


Fig. 2

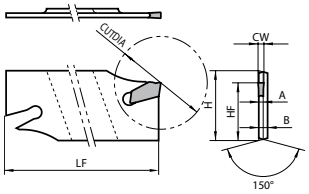


Fig. 3

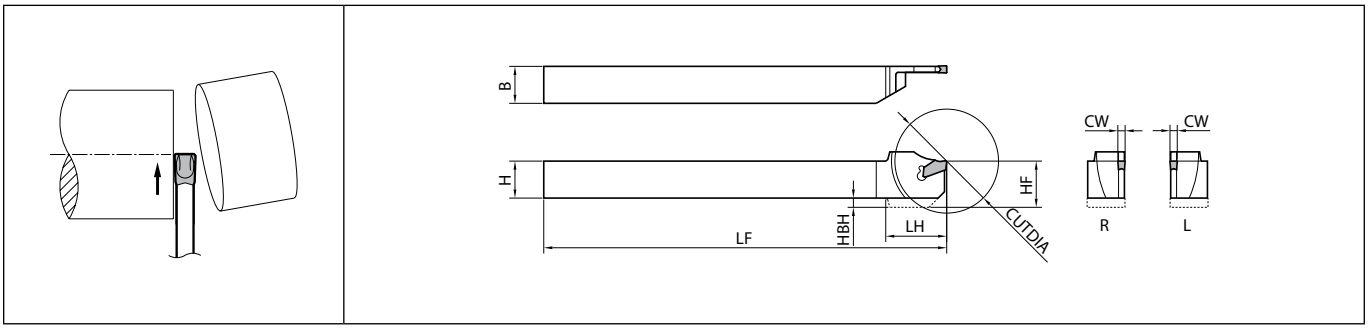
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Fig.	Spare Parts	Applicable Inserts ⇨ H64	Applicable Tool Block ⇨ H56, H57
			CUTDIA	A	B	H	HF	LF	CW		Insert Wrench		
mm	KTKB 19-1SS	●	32	1.2	2.4	19	15.7	86	1.6	3	LTK-5	TKN1.6, TKN1.6-P TK□□1.6, TKR1.6-P	KTKTB16-19, KTKTB20-19
	KTKB 26-1SS	●	35			26	21.4	110					KTKTB16-26, KTKTB20-26, KPKTB20-26JCT
	KTKB 32-1SS	●				32	25	150					KTKTB20-32, KTKTB25-32, KTKTB32-32 KTKTBF25-32, KTKTBF32-32, KPKTB20-32JCT KPKTB25-32JCT, KPKTB32-32JCT
	KTKB 19-2S	●	40	1.8	-	19	15.7	86	2.2 2.4	1		TKN2, TKN2-P TK□□2, TK□□2-P TKN2.4, TK□□2.4	KTKTB16-19, KTKTB20-19
	KTKB 26-2S	●	50	1.8	-	26	21.4	110	2.2 2.4	1			KTKTB16-26 KTKTB20-26 KPKTB20-26JCT
	26-3S	●	75	2.6					3.1			TKN3, TKN3-P, TK□□3, TK□□3-P	
	26-4S	●	80	3.4					4.1			TKN4, TK□□4	
	26-5S	●		4.2					4.8 5.1			TKN5, TK□□5	
	KTKB 32-2S	●	50	1.8	2.6	32	25	150	2.2 2.4	2		TKN2, TKN2-P, TK□□2, TK□□2-P TKN2.4, TK□□2.4	KTKTB20-32 KTKTB25-32 KTKTB32-32 KTKTBF25-32 KTKTBF32-32 KPKTB20-32JCT KPKTB25-32JCT KPKTB32-32JCT
	32-3S	●	100	2.6	-				3.1	1		TKN3, TKN3-P, TK□□3, TK□□3-P	
	32-4S	●		3.4					4.1			TKN4, TK□□4	
	32-5S	●	120	4.2					4.8 5.1			TKN5, TK□□5	
	32-6S	●		5.4					6.4			TKN6	
	KTKBR 32-8S	●	120	6.8	-	32	25	150	8	1	LTK-5	TKN8	
	KTKBL 32-8S	●											
	KTKBR 32-9S	●	120	8	-	32	25	150	9.6	1		TKN9	

Suffix "-SS" means hard coating.
Insert wrench is "LTK-5".
How to mount inserts, See Page **H65**.
Dimension H shows virtual apex distance.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KTKH (for Small Parts - Long Shank)



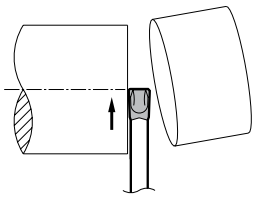
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Spare Parts	Applicable Inserts ➡ H64
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	CW	Insert Wrench	
Inch	KTKHR 12-2S	●		1.100	0.500	0.500	0.670	0.500	0.000	6.000	0.063	LTK-5	TKN1.6, TKN1.6-P, TK□L 1.6, TK□L 1.6-P
	KTKH□L 12-3S	●	●	1.100	0.375	0.375	0.690	0.375	0.200	5.000	0.087		TKN2, TKN2-P, TK□L 2, TK□L 2-P, TKN2.4, TK□L 2.4
	16-3S	●		1.100	0.500	0.500	0.700	0.500	0.160	6.000	0.094		

How to mount inserts, See Page **H65**.

KTKH (General cut-off)



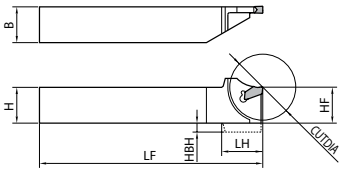


Fig. 1

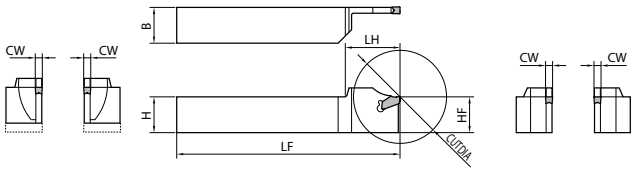


Fig. 2

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Dimensions CUTDIA	H	B	LH	HF	HBH	LF	CW	Fig.	Spare Parts Insert Wrench	Applicable Inserts ➡ H64
Inch	KTKHR 12-2S	●		1.400	0.750	0.750	0.870	0.750	0.000	5.000	0.087 0.094	1	LTK-5	TKN2, TKN2-P, TKP/L 2, TKP/L 2-P, TKN2.4, TKP/L 2.4
	KTKHP/L 12-3S	●	●	2.000	0.750	0.750	1.190	0.750	-	5.000	0.122	2		TKN3, TKN3-P, TKP/L 3, TKP/L 3-P
	16-3S	●		2.000	1.000	1.000	1.210	1.000		6.000	0.122			
	KTKHR 12-4S	●		2.300	0.750	0.750	1.350	0.750		5.000	0.161			TKN4 TKP/L 4
	16-4S	●		2.600	1.000	1.000	1.360	1.000		6.000	0.161			
	KTKHR 16-5S	●		3.000	1.000	1.000	1.560	1.000		6.000	0.189 0.201			TKN5 TKP/L 5
mm	KTKHP/L 1010F-2S	●	●	28	10	10	18.6	10	5	80	2.2 2.4	1	LTK-5	TKN2 TKN2-P TKP/L 2 TKP/L 2-P TKN2.4 TKP/L 2.4
	1212H-2S	●	●	31	12	12	19.8	12	4	100				
	1612H-2S	●	●		16			16	-					
	1616H-2S	●	●			16								
	2012K-2S	●	●	36	20	12	22.8	20		125				
	2020K-2S	●	●			20								
	KTKHP/L 1612H-3S	●	●	35	16	12	21.7	16	4	100	3.1	1		TKN3 TKN3-P TKP/L 3 TKP/L 3-P
	1616H-3S	●	●			16								
	2012K-3S	●	●	40	20	12	25.3	20	-	125		2		
	2020K-3S	●	●	51		20	31							
	2525M-3S	●	●	52	25	25	31.5	25		150				
	KTKHP/L 2012K-4S	●	●	43	20	12	26.3	20	-	125	4.1	1		TKN4 TKP/L 4
	2020K-4S	●	●	59		20	35					2		
	2525M-4S	●	●	66	25	25	38	25		150				
	KTKHP/L 2525M-5S	●	●	77	25	25	43.5	25	-	150	4.8 5.1	2		TKN5 TKP/L 5
	KTKHP/L 2020K-3T17S	●	●	33	20	20	21.8	20	-	125	3.1	1	LTK-5	TKN3, TKN3-P TKP/L 3, TKP/L 3-P
	2525M-3T22S	●	●	43	25	25	26.8	25		150				
	KTKHP/L 2020K-4T22S	●	●	44	20	20	26.8	20	-	125	4.1			TKN4 TKP/L 4
	2525M-4T22S	●	●		25	25		25		150				

How to mount inserts, See Page **H65**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions (TKN, TKR/L)

Workpiece Material	Recommended Insert Grades (Vc: sfm)						Edge Width CW (mm)					Notes
	Cermet		CVD coated carbide	MEGACOAT NANO	PVD coated carbide	Carbide	1.6	2.2 / 2.4	3.1	4.1	4.8 ~ 9.6	
	TN620	TN90	CR9025	PR1535	PR930	KW10	f (ipr)					
Carbon Steel	☆ 200~660	☆ 400~650	★ 250~600	☆ 200~490	☆ 200~425	-	0.0008~0.0032	0.0016~0.0071	0.0020~0.0098	0.0032~0.0118	0.0059~0.0157	Coolant
Alloy Steel	☆ 200~530	☆ 325~525	★ 225~500	☆ 200~490	☆ 200~425	-	0.0008~0.0032	0.0016~0.0071	0.0020~0.0098	0.0032~0.0118	0.0059~0.0157	
Stainless Steel	☆ 200~490	☆ 250~500	☆ 200~450	★ 160~390	☆ 200~450	-	0.0008~0.0012	0.0016~0.0047	0.0020~0.0071	0.0032~0.0098	0.0039~0.0118	
Cast Iron			-		-	★ 175~325	0.0008~0.0032	0.0020~0.0047	0.0039~0.0098	0.0039~0.0118	0.0059~0.0138	
Aluminum alloys			-		-	★ 325~1475	0.0008~0.0039	0.0020~0.0039	0.0020~0.0079	0.0020~0.0098	0.0039~0.0787	
Brass			-		-	★ 325~650	0.0008~0.0039	0.0020~0.0039	0.0020~0.0059	0.0020~0.0079	0.0039~0.0787	

★: 1st Recommendation ☆: 2nd Recommendation

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Threading

J

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Unified (UN)		J8
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Tapered Pipe (R/Rc(PT)(BSPT))		J12
American National Tapered Pipe (NPT)		J14
60° (Partial Profile/M, UN)		J16
55° (Partial Profile/G, R, Rc, W)		J18
30° (Trapezoidal/Tr)		J20
Threading Toolholders (External / Internal)		J22~J27
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	S-KTN	J25
Internal Threading	S...SIN / SIN / CIN	J26
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Inserts	TKFT	J28
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Multi-Purpose Threading Tools - Cera-Notch		J34~J37
Inserts	KCT / KCTP / KCTK	J34
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External Threading Tools - TT		J40~J41
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Internal Threading Tools - TT		J42~J43
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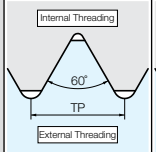
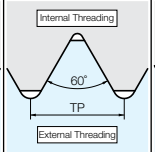
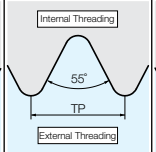
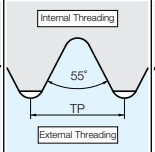
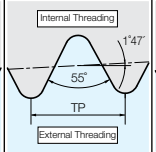
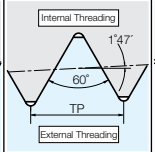
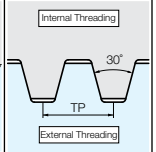
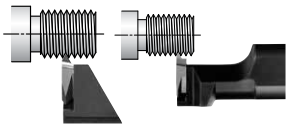
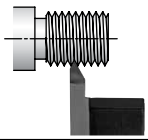
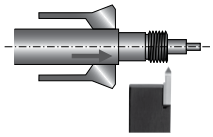
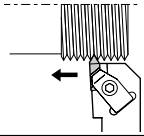
Thread Types and Basic Profiles		J69

Tooling Application (External Thread)

Thread Types		Metric	Unified	Parallel Pipe	Whitworth	Tapered Pipe	American National Tapered Pipe	30° Trapezoidal
		M	UN, UNC UNF, UNEF	G (PF)	W	R (PT) (BSPT)	NPT	Tr
Thread Shape								
Toolholder Shape \ Pitch		mm	TPI	TPI	TPI	TPI	TPI	mm
KTN ➡ **J22** (KTN-JCT) ➡ **J23**	Full Profile	0.5~5.0 (0.5~3.0) ➡ **J6**	24~8 (24~8) ➡ **J8**	19~11 (19~11) ➡ **J10**	16~11 (16~11) ➡ **J10**	28~11 (28~11) ➡ **J12**	18.0~11.5 (18.0~11.5) ➡ **J14**	-
	Partial Profile	0.5~5.0 (0.5~3.0) ➡ **J16**	48~5 (48~8) ➡ **J16**	28~11 (28~11) ➡ **J18**	40~5 (40~8) ➡ **J18**	28~11 (28~11) ➡ **J18**	-	2.0~5.0 (2.0~3.0) ➡ **J20**
KTNS ➡ **J24** S-KTN Sleeve Holder ➡ **J25**	Full Profile	0.5~3.0 ➡ **J6**	24~8 ➡ **J8**	19~11 ➡ **J10**	16~11 ➡ **J10**	28~11 ➡ **J12**	18.0~11.5 ➡ **J14**	-
	Partial Profile	0.5~3.0 ➡ **J16**	48~8 ➡ **J16**	28~11 ➡ **J18**	40~8 ➡ **J18**	28~11 ➡ **J18**	-	2.0~3.0 ➡ **J20**
KTT ➡ **J41**	Full Profile	1.0~2.0 ➡ **J40**	-	-	-	-	-	-
	Partial Profile	0.5~3.5 ➡ **J40**	56~8 ➡ **J40**	28~11 ➡ **J40**	24~7 ➡ **J40**	28~11 ➡ **J40**	-	-
KTTX ➡ **J39** S-KTTX ➡ **J39** 	Partial Profile	0.5~2.0 ➡ **J38**	56~14 ➡ **J38**	28~11 ➡ **J38**	24~11 ➡ **J38**	28~11 ➡ **J38**	-	-
KTKF ➡ **J29**  KTKF ➡ **J30** (Goose-neck holder / Y-axis holder) 	Partial Profile	0.2~1.5 ➡ **J28**	64~18 ➡ **J28**	28~19 ➡ **J28**	40~16 ➡ **J28**	28~19 ➡ **J28**	-	-
KKC ➡ **J35** 	Partial Profile	0.7~4.0 ➡ **J34**	44~5 ➡ **J34**	-	-	-	-	-

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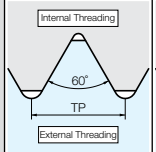
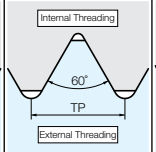
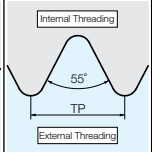
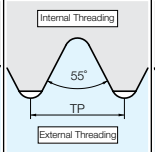
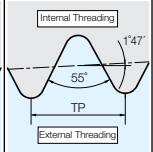
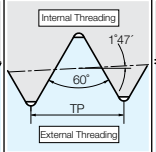
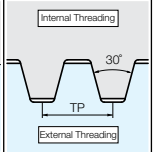
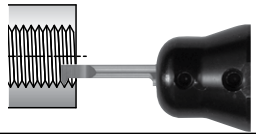
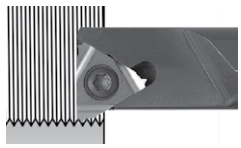
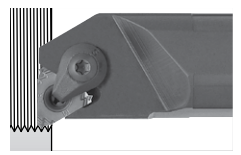
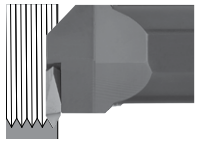
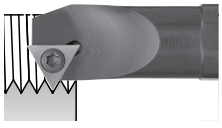
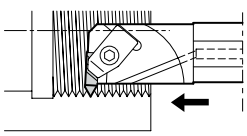
Tooling Application (Internal Thread)

Thread Types		Metric	Unified	Parallel Pipe	Whitworth	Tapered Pipe	American National Tapered Pipe	30° Trapezoidal
		M	UN, UNC UNF, UNEF	G (PF) Rp (PS)	W	Rc (PT) (BSPT)	NPT	Tr
Thread Shape								
Toolholder Shape	Pitch	mm	TPI	TPI	TPI	TPI	TPI	mm
EZT ⇒ J44 	Partial Profile	0.5~1.75 ⇒ J44	36~16 ⇒ J44	28~19 ⇒ J44	24~18 ⇒ J44	28~19 ⇒ J44	18~14 ⇒ J44	-
VNT ⇒ J48	Partial Profile	0.75~1.5 ⇒ J48	28~18 ⇒ J48	-	-	-	-	-
SIN ⇒ J26	Full Profile	0.5~5.0 ⇒ J7	24~8 ⇒ J9	19~11 ⇒ J11	16~11 ⇒ J11	28~11 ⇒ J13	18~11.5 ⇒ J15	-
	Partial Profile	0.5~5.0 ⇒ J17	48~5 ⇒ J17	28~11 ⇒ J19	40~5 ⇒ J19	28~11 ⇒ J19	-	2.0~5.0 ⇒ J21
CIN ⇒ J27 	Full Profile	1.0~5.0 ⇒ J7	24~8 ⇒ J9	19~11 ⇒ J11	16~11 ⇒ J11	28~11 ⇒ J13	18~11.5 ⇒ J15	-
	Partial Profile	0.5~5.0 ⇒ J17	48~5 ⇒ J17	28~11 ⇒ J19	40~5 ⇒ J19	28~11 ⇒ J19	-	2.0~5.0 ⇒ J21
KITG ⇒ J43 	Partial Profile	0.5~3.0 ⇒ J42	48~8 ⇒ J42	28~11 ⇒ J42	24~8 ⇒ J42	28~11 ⇒ J42	-	-
STWP ⇒ J51 	Partial Profile	0.75~3.5 ⇒ J50	28~8 ⇒ J50	-	-	-	-	-
A-KKC ⇒ J36 	Partial Profile	2.50~3.5 ⇒ J34	44~5 ⇒ J34	-	-	-	-	-

Threading insert with molded chipbreaker

TQ Chipbreaker

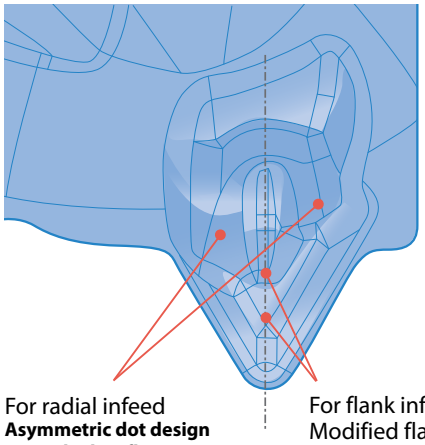
Advanced Productivity with Chip Control Improvements
Prolonged Tool Life with Newly Added Grades

1 Stable Chip Control

Stable Chip Control with Asymetrical Chipbreaker Design

Chipbreaker Geometry

Stable chip control regardless of cutting direction

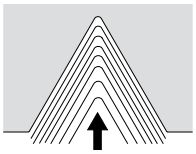


For radial infeed
Asymmetric dot design controls chip-flow direction

For flank infeed / Modified flank infeed
Breaks chips easily with shallow breaker depth

Chip Control Comparison (Internal Evaluation)

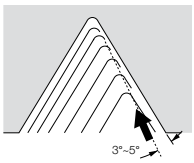
Radial Infeed



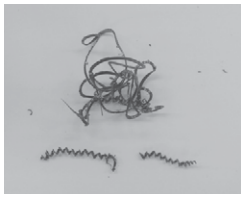
TQ Chipbreaker

Competitor A

Flank Compound Infeed



TQ Chipbreaker



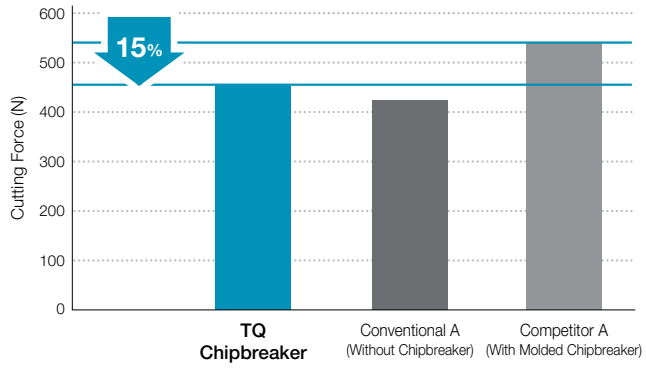
Competitor A

Cutting Conditions: Vc = 490 sfm, D.O.C. = 0.005" (4th pass), L = 0.984", Wet,
16ER150ISO type, M45 × TP1.5 Workpiece Material: 4115

2 Low Cutting Force and Resists Vibration

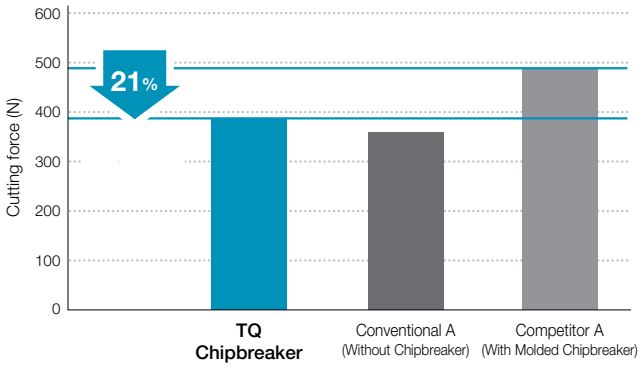
Strong Edge and Low Cutting Forces

Cutting Force Comparison with Radial Infeed (Internal Evaluation)



Cutting Conditions: Vc = 490 sfm, Wet, 16ER150ISO type
Cutting force is average of total passes (6 passes), M35 × TP1.5 Workpiece Material: 4115

Cutting Force Comparison with Flank Compound Infeed (Internal Evaluation)



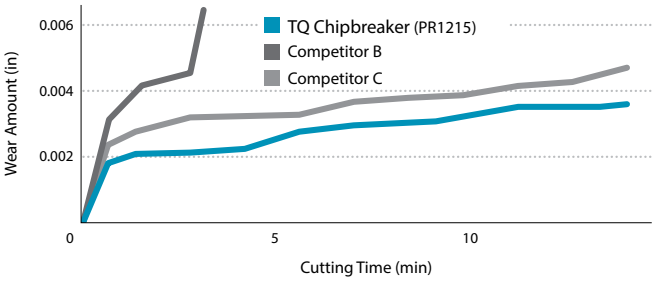
Cutting Conditions: Vc = 490 sfm, Adjusted Angle 5°, Wet, 16ER150ISO type
Cutting force is average of total passes (6 passes), M35 × TP1.5 Workpiece Material: 4115

3 Improved tool life with new insert grades

For steel machining **PR1215**
For stainless steel machining **PR1515 (First recommendation)** **PR1535 (Stability focused)**

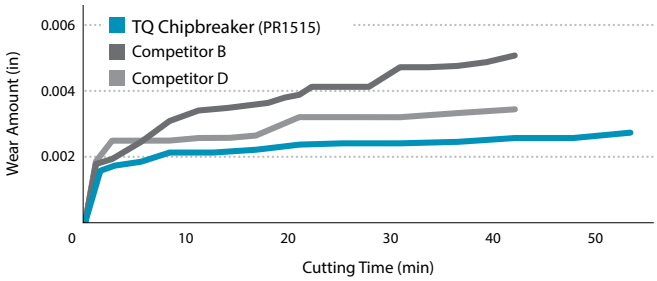
Wear Resistance Comparison (Internal evaluation)

Workpiece material : 4137



Cutting Conditions: Vc = 490 sfm, TP = 1.5 mm, No. of Passes = 6, Wet, 16ER150ISO type Radial Infeed

Workpiece material : 304



Cutting Conditions: Vc = 330 sfm, TP = 1.5 mm, No. of Passes = 8, Wet, 16ER150ISO type Radial Infeed

KTKF

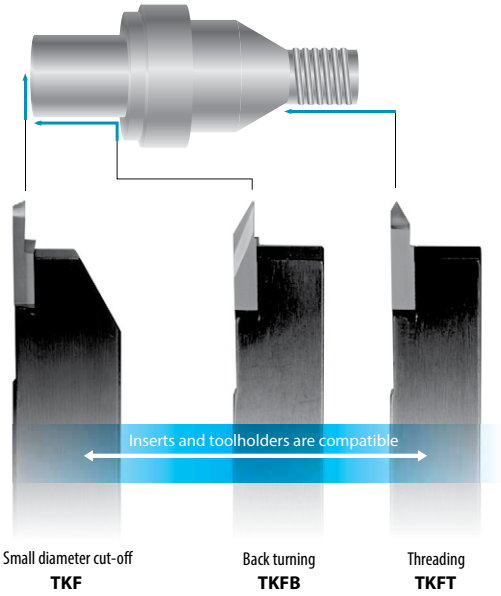
"Threading" is added to small parts machining special tool series

For threading

TKFT

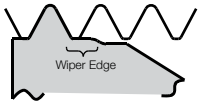
Applicable for various type of threading

Metric (M)	Parallel Pipe [G(PF)]
Unified (UN)	Tapered Pipe [R(PT) (BSPT)]



Threading Insert Features

Full Profile and Partial Profile

	Shape	Function	Advantages
Full Profile			(1) Burr-free thread surface; high quality (smooth feeling) (2) Leave the workpiece diameter slightly oversized for full topping (3) Every pitch size requires a specific insert
Partial Profile			(1) Threads crest tends to be sharp edged (2) Thread's O.D. or I.D. needs to be finished to the size before threading (3) One insert can machine various pitch sizes

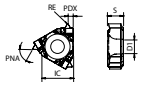
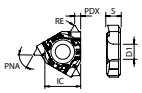
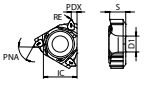
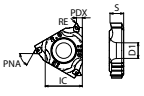
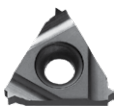
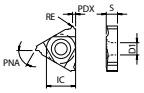
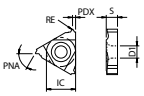
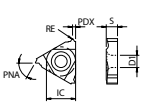
Thread Precision

Thread Type		Thread Precision Tight ← → Loose		
Metric	External Threading	4h (1st Class)	6g (2nd Class)	8g (3rd Class)
	Internal Threading	5h (1st Class)	6h (2nd Class)	7h (3rd Class)
Unified	External Threading	3A	2A	1A
	Internal Threading	3B	2B	1B
Applicable Accuracy with Wiper Edge		*X	✓	✓

* Not recommended if tight thread precision is required

External Threading (Metric)

Internal Threading (Metric)

Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (mm)	Profile	Thread Angle PNA (°)	Dimensions (mm) IC	S	D1	RE	PDX	Carbide PVD PR1115	PR1215	PR1515	PR1535	Carbide - GW15	Cermet - TC60	Applicable Toolholder ➡ J26, J27
Carbon Steel / Alloy Steel														○	●					P
Stainless Steel																	●			M
Cast Iron																		●		K
Non-Ferrous Metals																		●		N
mm			11IR 100ISO-TF 125ISO-TF 150ISO-TF 175ISO-TF	Metric	M	1 1.25 1.5 1.75	Full Profile	60	6.35	3.18	3	0.07 0.08 0.11 0.12	0.8 1.1 1.1 1.1	● ● ● ●		● ● ● ●	● ● ● ●			SINR..-11E SINR..-11
			16IR 100ISO-TF 125ISO-TF 150ISO-TF 175ISO-TF 200ISO-TF 250ISO-TF 300ISO-TF	Metric	M	1 1.25 1.5 1.75 2 2.5 3	Full Profile	60	9.525	3.68	4	0.07 0.08 0.11 0.12 0.14 0.17 0.19	0.8 1.1 1.1 1.1 1.5 1.5 1.6	 ● ● ●		● ● ● ● ● ● ●	● ● ● ● ● ● ●			SINR..-16 CINR..-16
		 Molded Chipbreaker	11IR 100ISO-TQ 125ISO-TQ 150ISO-TQ 175ISO-TQ	Metric	M	1 1.25 1.5 1.75	Full Profile	60	6.35	3.18	3	0.07 0.08 0.11 0.12	0.8 1.1 1.1 1.1			● ● ● ●	● ● ● ●			SINR..-11E SINR..-11
		 Molded Chipbreaker	16IR 100ISO-TQ 125ISO-TQ 150ISO-TQ 175ISO-TQ 200ISO-TQ 250ISO-TQ 300ISO-TQ	Metric	M	1 1.25 1.5 1.75 2 2.5 3	Full Profile	60	9.525	3.68	4	0.07 0.08 0.11 0.12 0.14 0.17 0.19	0.8 1.1 1.1 1.1 1.5 1.5 1.6	 ● 	● ● ● ● ● ● ●	● ● ● ● ● ● ●	● ● ● ● ● ● ●			SINR..-16 CINR..-16
			11IR 050ISO 075ISO 100ISO 125ISO 150ISO 200ISO	Metric	M	0.5 0.75 1 1.25 1.5 2	Full Profile	60	6.35	3.18	3	0.03 0.05 0.07 0.08 0.11 0.14	0.55 0.68 0.8 1.1 1.1 0.9	● ● ●				●	● △ 	SINR..-11E SINR..-11
			11IL 100ISO 150ISO			1 1.5						0.07 0.11	0.8 1.1	● ●						SINL..-11E SINL..-11
			16IR 100ISO 150ISO 200ISO 250ISO 300ISO	Metric	M	1 1.5 2 2.5 3	Full Profile	60	9.525	3.68	4	0.07 0.11 0.14 0.16 0.19	0.8 1.1 1.5 1.5 1.6					● ● ● ● ●		SINR..-16 CINR..-16
			16IL 100ISO 150ISO 200ISO			1 1.5 2						0.07 0.11 0.14	0.8 1.1 1.5	● ● ●						SINL..-16 CINL..-16
			22IR 350ISO 400ISO 450ISO 500ISO	Metric	M	3.5 4 4.5 5	Full Profile	60	12.7	4.9	4.85	0.23 0.26 0.3 0.34	2.1 2.8 2.8 2.8	● ● ● ●						SINR..-22 CINR..-22

Right-hand shown

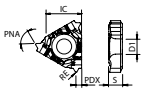
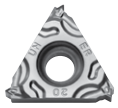
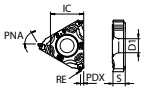
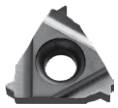
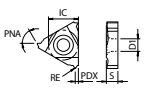
Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J53

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

External Threading (Unified)

								Carbon Steel / Alloy Steel									○	●				P
								Stainless Steel												●		M
								Cast Iron														K
								Non-Ferrous Metals														N
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (TPI)	Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide				Cermet	Applicable Toolholder ➡ J22~J25
									IC	S	D1	RE	PDX	PVD				-	
														PR1115	PR1215	PR1515	PR1535	TC60	
Inch			16ER 08UN-TF	Unified	UN UNF UNEF	8	Full Profile	60	3/8	0.145	0.157	0.0169	0.0689	●		●	●		
			10UN-TF			10						0.0134	0.0591	●		●	●		
			12UN-TF			12						0.0106	0.0591	●		●	●		
			13UN-TF			13						0.0098	0.0591	●		●	●		
			14UN-TF			14						0.0091	0.0591	●		●	●		
			16UN-TF			16						0.0079	0.0433	●		●	●		
			18UN-TF			18						0.0071	0.0394	●		●	●		
			20UN-TF			20						0.0059	0.0394	●		●	●		
			24UN-TF			24						0.0047	0.0315	●		●	●		
		 Molded Chipbreaker	16ER 08UN-TQ	Unified	UN UNF UNEF	8	Full Profile	60	3/8	0.145	0.157	0.0169	0.0689		●	●	●		KTNR...-16 KTNR...-16F KTNR...-16JCT KTNSR...-16 S...-KTNL16
			10UN-TQ			10						0.0134	0.0591		●	●	●		
			12UN-TQ			12						0.0106	0.0591		●	●	●		
			13UN-TQ			13						0.0098	0.0591		●	●	●		
			14UN-TQ			14						0.0091	0.0591		●	●	●		
			16UN-TQ			16						0.0079	0.0433		●	●	●		
			18UN-TQ			18						0.0071	0.0394		●	●	●		
			20UN-TQ			20						0.0059	0.0394		●	●	●		
			24UN-TQ			24						0.0047	0.0315		●	●	●		
			16ER 12UN	Unified	UN UNF UNEF	12	Full Profile	60	3/8	0.145	0.157	0.0106	0.0591					●	
			16UN			16						0.0079	0.0433					●	
			18UN			18						0.0071	0.0394					●	
			20UN			20						0.0063	0.0394					●	
			22ER 08UN			8			1/2	0.193	0.191	0.0169	0.0827	●					KTNR...-22

Right-hand shown

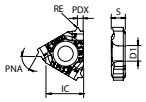
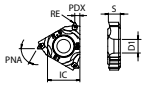
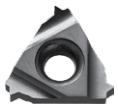
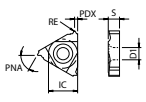
Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J53

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Internal Threading (Unified)

Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (TPI)	Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide		Applicable Toolholder ➔ J26, J27
									IC	S	D1	RE	PDX	PVD		
														PR1115	PR1215	PR1515	PR1535	
Inch			16IR 08UN-TF	Unified	UN UNF UNEF	8	Full Profile	60	3/8	0.145	0.157	0.0083	0.0709			●	●	SINR..-16 CINR..-16
			10UN-TF			10						0.0067	0.0591			●	●	
			12UN-TF			12						0.0055	0.0591	●		●	●	
			13UN-TF			13						0.0051	0.0591			●	●	
			14UN-TF			14						0.0047	0.0591	●		●	●	
			16UN-TF			16						0.0039	0.0433	●		●	●	
			18UN-TF			18						0.0035	0.0394			●	●	
			20UN-TF			20						0.0031	0.0394			●	●	
			24UN-TF			24						0.0024	0.0315			●	●	
		 Molded Chipbreaker	16IR 08UN-TQ	Unified	UN UNF UNEF	8	Full Profile	60	3/8	0.145	0.157	0.0083	0.0709		●	●	●	
			10UN-TQ			10						0.0067	0.0591		●	●	●	
			12UN-TQ			12						0.0055	0.0591		●	●	●	
			13UN-TQ			13						0.0051	0.0591		●	●	●	
			14UN-TQ			14						0.0047	0.0591		●	●	●	
			16UN-TQ			16						0.0039	0.0433		●	●	●	
			18UN-TQ			18						0.0035	0.0394		●	●	●	
			20UN-TQ			20						0.0031	0.0394		●	●	●	
			24UN-TQ			24						0.0024	0.0315		●	●	●	
			22IR 08UN	Unified	UN UNF UNEF	8	Full Profile	60	1/2	0.193	0.191	0.0079	0.0709	●				SINR..-22 CINR..-22

Carbon Steel / Alloy Steel ○ ● P
Stainless Steel ● M
Cast Iron K
Non-Ferrous Metals N

Right-hand shown

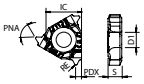
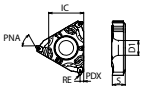
Recommended Cutting Conditions ➔ J52
Depth of Cut & Number of Passes ➔ J53

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

External Threading (Parallel Pipe G(PF), Whitworth W)

				Carbon Steel / Alloy Steel									○	●			P			
				Stainless Steel												●	M			
				Cast Iron													K			
				Non-Ferrous Metals													N			
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (TPI)		Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide				Applicable Toolholder ➡ J22~J25
						G(PF)	W			IC	S	D1	RE	PDX	PVD				
															PR1115	PR1215	PR1515	PR1535	
Inch			16ER 11W-TF	Parallel Pipe Whitworth	G(PF) W	11	11	Full Profile	55	3/8	0.145	0.157	0.0118	0.0591			●	●	KTNR...-16 KTNR...-16F
			14W-TF			14	14						0.0091	0.0591			●	●	
			16W-TF			-	16						0.0075	0.0433	●		●	●	
			19W-TF			19	-						0.0063	0.0394			●	●	
		 Molded Chipbreaker	16ER 11W-TQ	Parallel Pipe Whitworth	G(PF) W	11	11	Full Profile	55	3/8	0.145	0.157	0.0118	0.0591		●	●	●	KTNR...-16JCT KTNSR...-16 S...-KTNL16
			14W-TQ			14	14						0.0091	0.0591		●	●	●	
			16W-TQ			-	16						0.0075	0.0433			●	●	
			19W-TQ			19	-						0.0063	0.0394		●	●	●	

Right-hand shown

Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J54

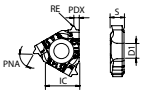
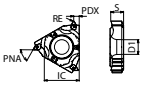
J THREADING

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Internal Threading (Parallel Pipe G(PF), Whitworth W)

Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (TPI) G(PF)	Pitch (TPI) W	Profile	Thread Angle PNA (°)	Dimensions (in) IC	S	D1	RE	PDX	Carbide PVD PR1115	PR1215	PR1515	PR1535	Applicable Toolholder
Carbon Steel / Alloy Steel															○	●			P
Stainless Steel																		●	M
Cast Iron																			K
Non-Ferrous Metals																			N
Inch			16IR 11W-TF	Parallel Pipe Whitworth	G(PF) W	11	11	Full Profile	55	3/8	0.145	0.157	0.0118	0.0591			●	●	SINR..-16 CINR..-16
			14W-TF			14	14						0.0091	0.0591			●	●	
			16W-TF			-	16						0.0075	0.0433	●		●	●	
			19W-TF			19	-						0.0063	0.0394	●		●	●	
		 Molded Chipbreaker	16IR 11W-TQ	Parallel Pipe Whitworth	G(PF) W	11	11	Full Profile	55	3/8	0.145	0.157	0.0118	0.0591		●	●	●	
			14W-TQ			14	14						0.0091	0.0591		●	●	●	
			16W-TQ			-	16						0.0075	0.0433			●	●	
			19W-TQ			19	-						0.0063	0.0394			●	●	

No wiper effect is expected when threading the internal whitworth screw using 16IR○○W insert.
Right-hand shown

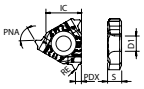
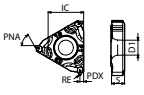
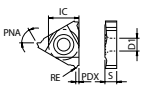
Recommended Cutting Conditions J52
Depth of Cut & Number of Passes J54

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

External Threading (Tapered Pipe R(PT)(BSPT))

							Carbon Steel / Alloy Steel							○	●					P
							Stainless Steel											●		M
							Cast Iron												●	K
							Non-Ferrous Metals												●	N
Unit	Insert		Part Number		Thread Type	Symbol Thread Type	Pitch (TPI)	Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide					Applicable Toolholder J22~J25
										IC	S	D1	RE	PDX	PVD				-	
															PR1115	PR1215	PR1515	PR1535	GW15	
Inch			16ER	11BSPT-TF	Tapered Pipe	R,(PT) (BSPT)	11	Full Profile	55	3/8	0.145	0.157	0.0114	0.0630			●	●		
				14BSPT-TF			14						0.0087	0.0630			●	●		
				19BSPT-TF			19						0.0063	0.0394			●	●		
				28BSPT-TF			28						0.0039	0.0315	●		●	●		
		 Molded Chipbreaker	16ER	11BSPT-TQ	Tapered Pipe	R,(PT) (BSPT)	11	Full Profile	55	3/8	0.145	0.157	0.0114	0.0630		●	●	●		KTNR...-16 KTNR...-16F KTNR...-16JCT KTNSR...-16 S...-KTNL16
				14BSPT-TQ			14						0.0087	0.0630		●	●	●		
				19BSPT-TQ			19						0.0063	0.0394		●	●	●		
				28BSPT-TQ			28						0.0039	0.0315			●	●		
			16ER	11BSPT	Tapered Pipe	R,(PT) (BSPT)	11	Full Profile	55	3/8	0.145	0.157	0.0114	0.0630					●	
				14BSPT			14						0.0087	0.0630					●	
				19BSPT			19						0.0063	0.0394					●	
				28BSPT			28						0.0039	0.0315					●	

Right-hand shown

Recommended Cutting Conditions J52
Depth of Cut & Number of Passes J54

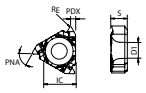
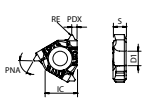
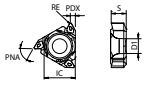
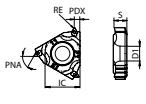
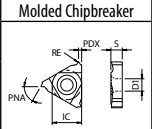
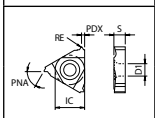
J THREADING

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Internal Threading (Tapered Pipe Rc(PT)(BSPT))

Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (TPI)	Profile	Thread Angle PNA (°)	Dimensions (in) IC	S	D1	RE	PDX	Carbide PVD PR1115	PR1215	PR1515	PR1535	- GW15	Applicable Toolholder ➡ J26, J27
			Carbon Steel / Alloy Steel											○	●				P
			Stainless Steel														●		M
			Cast Iron															●	K
			Non-Ferrous Metals															●	N
Inch			11IR 14BSPT-TF 19BSPT-TF 28BSPT-TF	Tapered Pipe	Rc,(PT) (BSPT)	14 19 28	Full Profile	55	1/4	0.125	0.118	0.0087 0.0063 0.0039	0.0382 0.0307 0.0236	 ●	 	 ● ●	 ● ●	 	SINR..-11E SINR..-11
			16IR 11BSPT-TF 14BSPT-TF	Tapered Pipe	Rc,(PT) (BSPT)	11 14	Full Profile	55	3/8	0.145	0.157	0.0114 0.0087	0.0591 0.0382	 	 	● ●	● ●	 	SINR..-16 CINR..-16
		 Molded Chipbreaker	11IR 14BSPT-TQ 19BSPT-TQ 28BSPT-TQ	Tapered Pipe	Rc,(PT) (BSPT)	14 19 28	Full Profile	55	1/4	0.125	0.118	0.0087 0.0063 0.0039	0.0382 0.0307 0.0236	 	● ● 	● ● ●	● ● ●	 	SINR..-11E SINR..-11
		 Molded Chipbreaker	16IR 11BSPT-TQ 14BSPT-TQ	Tapered Pipe	Rc,(PT) (BSPT)	11 14	Full Profile	55	3/8	0.145	0.157	0.0114 0.0087	0.0591 0.0382	 	● ●	● ●	● ●	 	SINR..-16 CINR..-16
			11IR 14BSPT 19BSPT 28BSPT	Tapered Pipe	Rc,(PT) (BSPT)	14 19 28	Full Profile	55	1/4	0.125	0.118	0.0087 0.0063 0.0039	0.0382 0.0307 0.0236	 	 	 	 	● ● ●	SINR..-11E SINR..-11
			16IR 11BSPT 14BSPT	Tapered Pipe	Rc,(PT) (BSPT)	11 14	Full Profile	55	3/8	0.145	0.157	0.0114 0.0087	0.0591 0.0382	 	 	 	 	● ●	SINR..-16 CINR..-16

Right-hand shown

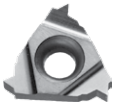
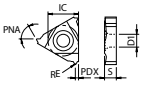
Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J54

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

External Threading (American National Tapered Pipe NPT)

			Carbon Steel / Alloy Steel										●		P			
			Stainless Steel										●		M			
			Cast Iron											●	K			
			Non-Ferrous Metals											●	N			
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (TPI)	Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide				
									IC	S	D1	RE	PDX	PVD	-	Applicable Toolholder ➡ J22~J25		
														PR1115	GW15			
Inch			16ER 11.5NPT	American National Tapered Pipe	NPT	11.5	Full Profile	60	3/8	0.145	0.157	0.0024	0.0591	●	●	KTNR...-16 KTNR...-16F		
			14NPT			14						0.0020	0.0591	●	●	KTNR...-16JCT KTNSR...-16		
			18NPT			18						0.0016	0.0354	●	●	S...-KTNL16		

Right-hand shown

Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J54

J THREADING

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

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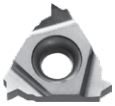
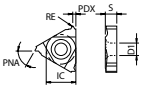
Contact your local Kyocera sales engineer to upgrade old products to new technology

Internal Threading (American National Tapered Pipe NPT)

			Carbon Steel / Alloy Steel									●		P
			Stainless Steel									●		M
			Cast Iron										●	K
			Non-Ferrous Metals										●	N
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (TPI)	Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide		Applicable Toolholder ➡ J26, J27
									IC	S	D1	RE	PDX	PVD PR1115	- GW15	
Inch			16IR 11.5NPT 14NPT 18NPT	American National Tapered Pipe	NPT	11.5 14 18	Full Profile	60	3/8	0.145	0.157	0.0024 0.0020 0.0016	0.0591 0.0591 0.0354	● ● ●	● ● ●	SINR..-16 CINR..-16

Right-hand shown

Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J54

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

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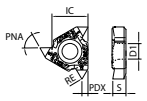
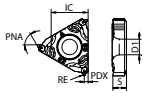
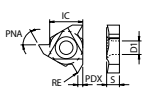
External Threading (60° Partial Profile / Metric, Unified)

Insert		Part Number	Thread Type	Symbol Thread Type	Pitch Unit	Pitch Metric (mm) min.	Pitch Metric (mm) max.	Pitch Unit	Pitch Unified (TPI) min.	Pitch Unified (TPI) max.	Profile	Thread Angle PNA (°)	Dimensions (in) IC	S	D1	RE	PDX	Carbide PVD PR1115	PR1215	PR1515	PR1535	Carbide - GW15	Cermet - TC60	Applicable Toolholder
Carbon Steel / Alloy Steel																		○	●					P
Stainless Steel																					●			M
Cast Iron																					●	●		K
Non-Ferrous Metals																						●		N
		16ER A60-TF	Metric Unified	M UN/UNF	mm	0.5	1.5	Inch	48	16	Partial Profile	60	3/8	0.145	0.157	0.0024	0.0394	●		●	●			
		AG60-TF				0.5	3		48	8						0.0024	0.0630	●	●	●	●			
		G60-TF				1.75	3		14	8						0.0087	0.0630	●		●	●			
	 Molded Chipbreaker	16ER A60-TQ	Metric Unified	M UN/UNF		0.5	1.5		48	16	Partial Profile	60	3/8	0.145	0.157	0.0024	0.0394		●	●	●			KTNR...-16 KTNR...-16F KTNR...-16JCT KTNSR...-16 S...-KTNL16
		AG60-TQ				0.5	3		48	8						0.0024	0.0630		●	●	●			
		G60-TQ				1.75	3		14	8						0.0087	0.0630		●	●	●			
		16ER 6001	Metric Unified	M UN/UNF		1	2.5		24	11	Partial Profile	60	3/8	0.145	0.157	0.0039	0.0591						●	
		A60				0.5	1.5		48	16						0.0024	0.0394					●		
		AG60				0.5	3		48	8						0.0024	0.0669					●		
		G60				1.75	3		14	8						0.0087	0.0669					●		
		22ER N60	Metric Unified	M UN/UNF		3.5	5		7	5	Partial Profile	60	1/2	0.193	0.191	0.0189	0.0984	●				●		KTNR...-22

Right-hand shown

Recommended Cutting Conditions ➡ **J52**
Depth of Cut & Number of Passes ➡ **J54, J55, J58**

Threading Inserts Identification System (Partial Profile)

External / Internal	
E	External Threading
I	Internal Threading

Insert hand	
R	Right-hand
L	Left-hand

Manufacture's option	
-TF	TF cutting edge
-TQ	With molded chipbreaker

16 **E** **R** **A60** - **TF**

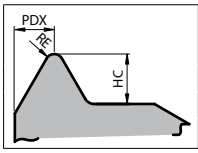
Insert size	
06	5/32" (3.97mm)
08	3/16" (4.76mm)
11	1/4" (6.35mm)
16	3/8" (9.525mm)
22	1/2" (12.70mm)
Symbol	I.C. Size

Pitch		
60°	**A60**	60° Type (Partial Profile) 0.5~1.5mm
	G60	60° Type (Partial Profile) 1.75~3mm
	AG60	60° Type (Partial Profile) 0.5~3mm
55°	**A55**	55° Type (Partial Profile) 40~16 TPI
	G55	55° Type (Partial Profile) 14~8 TPI
	AG55	55° Type (Partial Profile) 40~8 TPI
Vertex angle	Partial Profile	

Pitch		
60°	**6001**	60° Type (Partial Profile) Corner-R(RE)=0.1mm 1.0~2.5mm
55°	**5501**	55° Type (Partial Profile) Corner-R(RE)=0.1mm 28~11 TPI
Vertex angle	Partial Profile	

Note) Pitch and threads per inch of an insert without wiper depend on the size of insert.

Example of shape of A, G and AG



Part Number	Dimensions (in) RE	PDX	HC
16ER A60-TF	0.0024	0.0394	0.0591
16ER G60-TF	0.0087	0.0630	0.1024
16ER AG60-TF	0.0024	0.0630	0.1063

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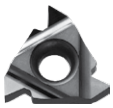
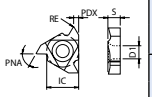
Internal Threading (60° Partial Profile / Metric, Unified)

Insert		Part Number	Thread Type	Symbol Thread Type	Pitch: Unit	Pitch: Metric (mm) min.	Pitch: Metric (mm) max.	Pitch: Unit	Pitch: Unified (TPI) min.	Pitch: Unified (TPI) max.	Profile	Thread Angle PNA (°)	Dimensions (in) IC	S	D1	RE	PDX	Carbide PVD PR1115	Carbide - GW15	Cermet - TC60	Applicable Toolholder
Carbon Steel / Alloy Steel																		●			P
Stainless Steel																		●			M
Cast Iron																			●		K
Non-Ferrous Metals																			●		N
		06IR 60005	Metric Unified	M UN/UNF	mm	0.75	1.25	Inch	28	20	Partial Profile	60	5/32	0.075	0.091	0.0020	0.0236	●			SINR..-06E
		08IR 60007				1	1.75		20	16			3/16	0.094	0.091	0.0028	0.0315	●			SINR..-08E
		11IR 60005				0.75	1.5		32	16			1/4	0.125	0.118	0.0020	0.0394				SINR..-11E
		A60				0.5	1.5		48	16						0.0008	0.0394	●	●		SINR..-11
		16IR 6001				1.5	2.5		16	10			3/8	0.145	0.157	0.0039	0.0591			△	
		A60				0.5	1.5		48	16						0.0008	0.0394	●	●		SINR..-16
		AG60				0.5	3		48	8						0.0008	0.0669	●	●		CINR..-16
		G60				1.75	3		14	8						0.0043	0.0669	●	●		
		22IR N60				3.5	5		7	5			1/2	0.193	0.191	0.0087	0.0984	●	●		SINR..-22 CINR..-22

Right-hand shown

Recommended Cutting Conditions J52
Depth of Cut & Number of Passes J55, J56, J58

Corner-R(RE) Selection for Partial Profiling Inserts

	External Threading	Internal Threading
Metric Unified	RE ≤ 0.1443TP	RE ≤ 0.0720TP
Parallel Pipe (Whitworth) Tapered Pipe	(For both external and Internal thread) RE ≤ 0.1373TP	

RE: Corner-R TP: Pitch (= $\frac{25.4}{n}$) n: TPI

Metric, Unified Thread

Corner-R(RE) for Internal Threading is almost half of that of External

Parallel Pipe, Tapered Pipe, Whitworth thread

Same Corner-R(RE) for both External and Internal Threading

Threading inserts are sold in 5 piece boxes

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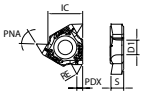
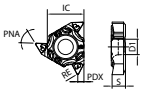
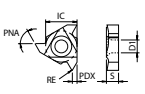
External Threading (55° Partial Profile / G, R, W)

					Carbon Steel / Alloy Steel											○		●			P
					Stainless Steel														●		M
					Cast Iron															●	K
					Non-Ferrous Metals															●	N
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch				Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide						Applicable Toolholder J22~J25
						G(PF), R(PT) (TPI)		W (TPI)									PVD				-		
						min.	max.	min.	max.			IC	S	D1	RE	PDX	PR1115	PR1215	PR1515	PR1535	GW15		
Inch			16ER A55-TF	Parallel / Tapered Pipe Whitworth	G(PF)	28	19	40	16	Partial Profile	55	3/8	0.145	0.157	0.0024	0.0394	●		●	●		KTNR...-16 KTNR...-16F KTNR...-16JCT KTNSR...-16 S...-KTNL16
			AG55-TF		R(PT)	28	11	40	8						0.0024	0.0630	●		●	●			
			G55-TF		W	14	11	14	8						0.0087	0.0630	●		●	●			
		 Molded Chipbreaker	16ER A55-TQ	Parallel / Tapered Pipe Whitworth	G(PF)	28	19	40	16	Partial Profile	55	3/8	0.145	0.157	0.0024	0.0394			●	●			
			AG55-TQ		R(PT)	28	11	40	8						0.0024	0.0630			●	●			
			G55-TQ		W	14	11	14	8						0.0087	0.0630			●	●			
			16ER A55	Parallel / Tapered Pipe Whitworth	G(PF)	28	19	40	16	Partial Profile	55	3/8	0.145	0.157	0.0024	0.0394					●		
			AG55		R(PT)	28	11	40	8						0.0024	0.0669					●		
			G55			14	11	14	8						0.0087	0.0669					●		
			22ER N55		W	-	-	7	5		55	1/2	0.193	0.191	0.0189	0.0984	●				●	KTNR...-22	

Right-hand shown

Recommended Cutting Conditions J52
Depth of Cut & Number of Passes J56~J58

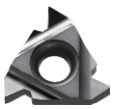
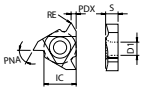
J THREADING

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Internal Threading (55° Partial Profile / G, Rc, W)

					Carbon Steel / Alloy Steel									●		P
					Stainless Steel									●		M
					Cast Iron										●	K
					Non-Ferrous Metals										●	N
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch				Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide		Applicable Toolholder ➡ J26, J27
						G(PF), Rc(PT) (TPI)		W (TPI)				IC	S	D1	RE	PDX	PVD	-	
						min.	max.	min.	max.								PR1115	GW15	
Inch			06IR 5501	Parallel / Tapered Pipe Whitworth	G(PF) Rc(PT) W	28		24		Partial Profile	55	5/32	0.075	0.091	0.0039	0.0236	●		SINR..-06E
			08IR 5501			28	19	24	20		55	3/16	0.094	0.091	0.0039	0.0315	●		SINR..-08E
			11IR A55			28	19	40	16		55	1/4	0.125	0.118	0.0024	0.0433	●	●	SINR..-11E SINR..-11
			16IR A55 AG55 G55			28 28 14	19 11 11	40 40 14	16 8 8		55	3/8	0.145	0.157	0.0024 0.0024 0.0087	0.0394 0.0669 0.0669	● ● ●	● ● ●	SINR..-16 CINR..-16
			22IR N55			-	-	7	5		55	1/2	0.193	0.191	0.0185	0.0984	●	●	SINR..-22 CINR..-22

Right-hand shown

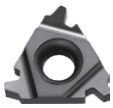
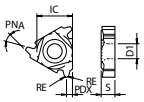
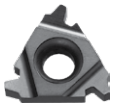
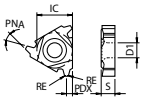
Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J56~J58

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

External Threading (30° Trapezoidal Tr)

				Carbon Steel / Alloy Steel										●		P
				Stainless Steel										●		M
				Cast Iron												K
				Non-Ferrous Metals												N
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (mm)	Profile	Thread Angle PNA (°)	Dimensions (mm)					Carbide		Applicable Toolholder ➡ J22~J25
									IC	S	D1	RE	PDX	PVD	PR1115	
mm			16ER 200TR 300TR	30° type (Trapezoidal)	Tr	2 3	Partial Profile	30	9.525	3.68	4	0.2	1.6	● ●		KTNR...-16 KTNR...-16F KTNR...-16JCT KTNSR...-16 S...-KTNL16
			22ER 400TR 500TR	30° type (Trapezoidal)	Tr	4 5	Partial Profile	30	12.7	4.9	4.85	0.2	2.5	● ●		KTNR...-22

Right-hand shown

Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J57

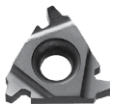
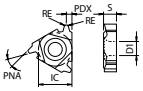
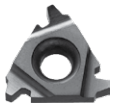
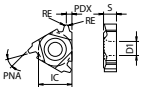
J THREADING

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Internal Threading (30° Trapezoidal Tr)

Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (mm)	Profile	Thread Angle PNA (°)	Dimensions (mm) IC	S	D1	RE	PDX	Carbide PVD PR1115	Applicable Toolholder ➔ J26, J27
Carbon Steel / Alloy Steel														●	P
Stainless Steel														●	M
Cast Iron															K
Non-Ferrous Metals															N
mm			16IR 200TR 300TR	30° type (Trapezoidal)	Tr	2 3	Partial Profile	30	9.525	3.68	4	0.2	1.6	● ●	SINR..-16 CINR..-16
mm			22IR 400TR 500TR	30° type (Trapezoidal)	Tr	4 5	Partial Profile	30	12.7	4.9	4.85	0.2	2.5	● ●	SINR..-22 CINR..-22

Right-hand shown

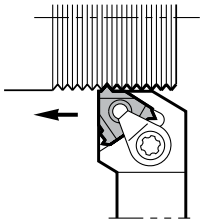
Recommended Cutting Conditions ➔ J52
Depth of Cut & Number of Passes ➔ J57

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KTN (External Threading)



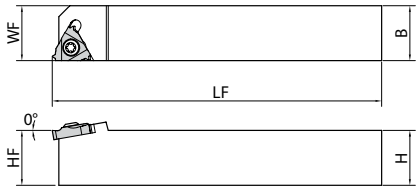


Fig. 1

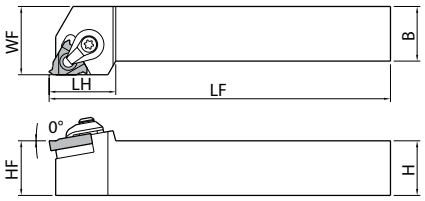
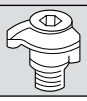
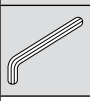
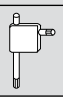
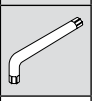


Fig. 2

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

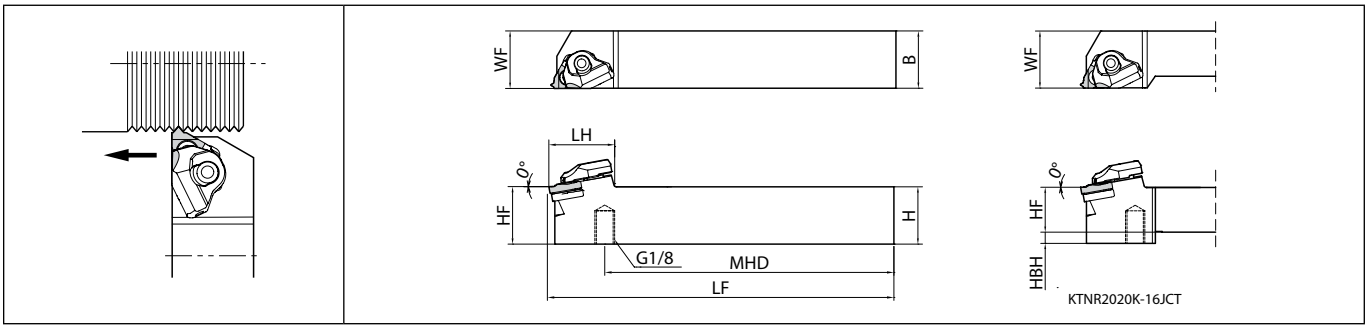
Unit	Part Number	Std. Item R	Std. Item L	Dimensions H	Dimensions B	Dimensions LH	Dimensions HF	Dimensions LF	Dimensions WF	Fig.	Applicable Inserts
Inch	KTNR 12-3	●		0.750	0.750	0.870	0.750	5.00	0.875	2	16E□...
	16-3	●		1.000	1.000		1.000	6.00	1.250		
mm	KTN□ 1216JX-16F	●	●	12	16	-	12	120	16	1	16E□...
	1616H-16	●	●	16		25	16	100	20	2	
	1616JX-16F	●	●			-		120	16	1	
	2020H-16	●		20	20	25	20	100	25	2	
	2020JX-16F	●	●			-		120	20	1	
	2020K-16	●	●			25		125	25	2	
	2525M-16	●	●	25	25		25	150	30		
	KTNR 2525M-22	●		25	25	29	25	150	32	2	22ER...
	3225P-22	●		32		34	32	170			

Unit	Part Number	Spare Parts: Clamp Set	Clamp Set	Screw	Shim Screw	Shim	Wrench	Wrench	Wrench
									
Inch	KTN□ 12-3	CPS-5S	-	-	SP3X8	TN-32	-	FT-15	-
	16-3								
mm	KTN□ 1216JX-16F	-	-	SB-3.5TR	-	-	-	-	LTW-15S
	1616H-16	CPS-5S		-	SP3X8	TN-32		FT-15	-
	1616JX-16F	-		SB-3.5TR	-	-		-	LTW-15S
	2020H-16	CPS-5S		-	SP3X8	TN-32		FT-15	-
	2020JX-16F	-		SB-3.5TR	-	-		-	LTW-15S
	2020K-16	CPS-5S		-	SP3X8	TN-32		FT-15	-
	2525M-16								
	KTNR 2525M-22	-	CPS-6S	-	SP3X8	TN-43	LW-3	-	-
	3225P-22								

J THREADING

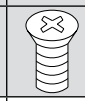
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KTN-JCT (External Threading, Coolant-Through Toolholders)



Right-hand shown | Right-hand Insert for Right-hand Toolholder. | Pressure Resistance : ~15MPa

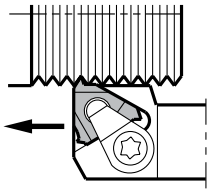
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts					Applicable Inserts
			R	H	B	LH	MHD	HF	HBH	LF	WF		Clamp Set	Pipe Connection (w/*O-Ring)	Shim Screw	Shim	Wrench	
																		➡ J6, J8, J10 J12, J14, J16 J18, J20
Inch	KTNR 12-16JCT	●	0.75	0.75	1.122	4.042	0.750	0.234	5.000	0.875	Yes	CPS-5S-R-JCT	FP-12	SP3X8	TN-32	FT-15	16ER...
	16-16JCT	●	1	1	1.122	5.042	1.000	-	6.000	1.000							
mm	KTNR 2020K-16JCT	●	20	20	33.3	100.7	20	5	125	25	Yes	CPS-5S-R-JCT	FP-12	SP3X8	TN-32	FT-15	16ER...
	2525M-16JCT	●	25	25	-	125.7	25	-	150								

Please see page **D13** for piping parts of coolant-through holders.
*O-ring (SS-035) is available to order separately.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KTNS (External Threading)



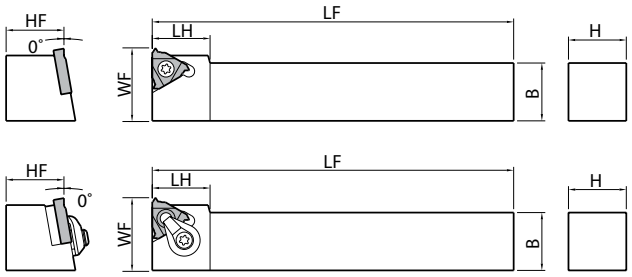


Fig. 1

Fig. 2

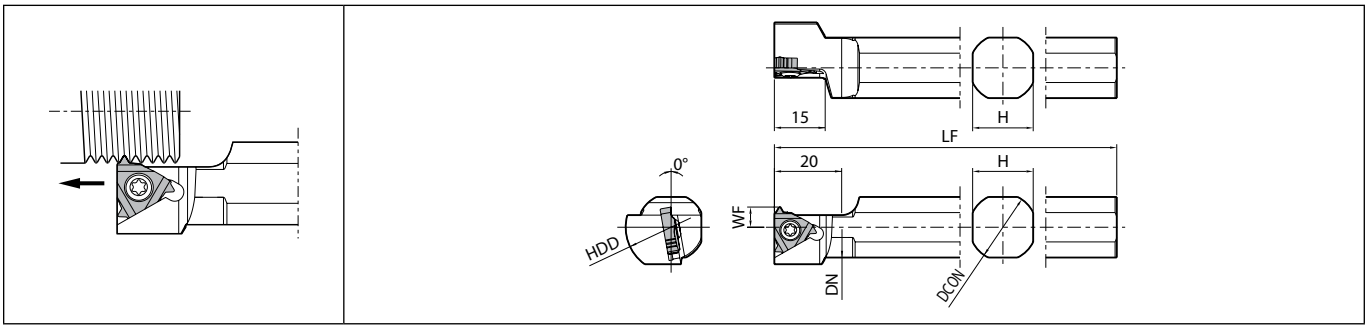
Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Fig.	Spare Parts					Applicable Inserts ➡ J6, J8, J10 J12, J14, J16 J18, J20
			R	H	B	LH	HF	LF	WF		Clamp Set	Screw	Shim Screw	Shim	Wrench	
mm	KTNSR 1010H-16	●	10	10	16	10	100	16		1	-	SB-3.5TR	-	-	FT-15	16ER...
	1212K-16	●	12	12	18	12	125	18								
	1616K-16	●	16	16		16		22		2	CPS-5S	-	SP3X8	TN-32		
	2020K-16	●	20	20	20	20		27.4								

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-KTN (External Threading)



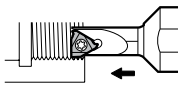
Left-hand shown | Right-hand Insert for Left-hand Toolholder.

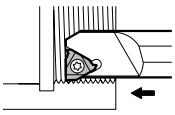
Toolholder Dimensions

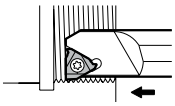
Unit	Part Number	Std. Item	Dimensions						Spare Parts		Applicable Inserts
									Screw	Wrench	J6, J8, J10 J12, J14, J16 J18, J20
		L	DCON	H	DN	HDD	LF	WF			
Inch	S19K- KTNL16	●	0.750	0.669	0.709	1.063	4.724	0.236	SB-3.5TR	LTW-15S	16ER...
Inch	S25K- KTNL16	●	1.000	0.906	0.945	1.260		0.394			
mm	S16F- KTNL16	●	16	15	15	27	85	6	SB-3.5TR	LTW-15S	16ER...
mm	S20K- KTNL16	●	20	18	19		120				
mm	S22K- KTNL16	●	22	20	21						
mm	S25.0H- KTNL16	●	25	23	24	32	100	10			

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S...SIN / SIN (Internal Threading)







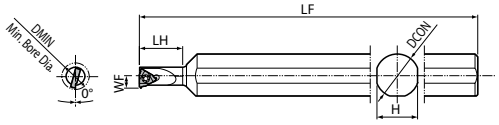


Fig. 1

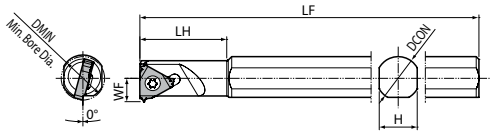


Fig. 2

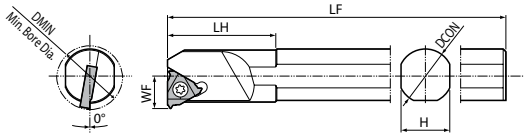
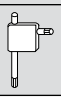


Fig. 3

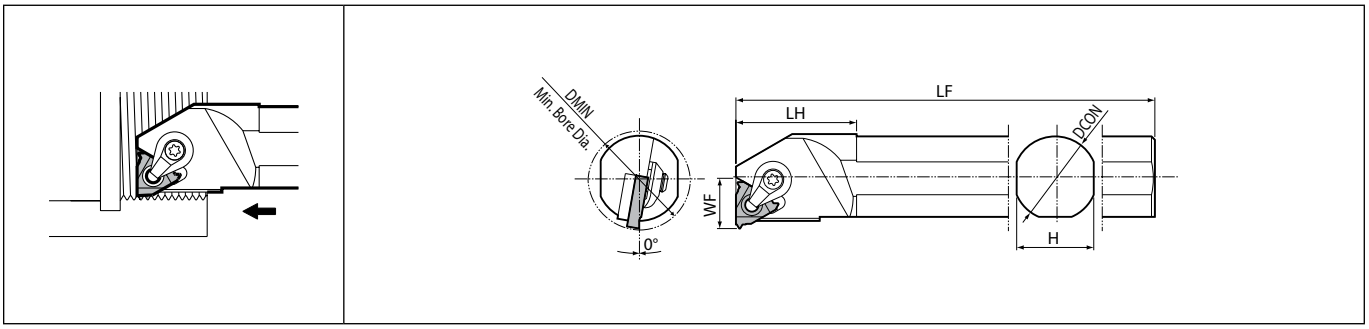
Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Fig.	Spare Parts			Applicable Inserts
											Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF					
Inch	S10M- SINR-2	●		0.590	0.625	0.560	1.180	5.910	0.295	1	SB-2TR	-	FT-6	11IR/L...
Inch	S10M- SINR-3	●		0.790		0.584	1.460		0.369	3	SB-3.5TR	FT-15	-	16IR/L...
Inch	S12X- SINR-3	●		0.940	0.750	0.710	1.570	7.09	0.456					
mm	SINR 0612S-06E	●		6.4	12	11	10	100	3.8	1	SB-2040TR	-	FT-6	06IR...
mm	SINR 0816S-08E	●		7.8	16	15	16	125	4	1	SB-2050TR	-	FT-6	08IR...
mm	SINR/L 1216S-11E	●	●	12	16	14	25	150	6.3	1	SB-2TR	-	FT-8	11IR/L...
mm	1516S-11	●	●	15			30		7.5					
mm	SINR/L 1616S-16	●	●	16	16	14	32	150	8.6	2	SB-3.5TR	FT-15	-	16IR/L...
mm	2016S-16	●	●	20			37		10	3				
mm	2420S-16	●	●	24	20	18	40	180	12					
mm	SINR 2420S-22	●		24	20	18	40	180	13.5	3	SB-4085TR	FT-15	-	22IR...

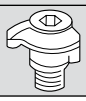
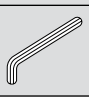
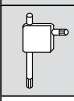
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CIN (Internal Threading)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Spare Parts						Applicable Inserts
										Clamp Set	Clamp Set	Shim Screw	Shim	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF							
mm	CINﾊﾟﾙ 3025S-16	●	●	30	25	23	36	200	15	CPS-5S	-	SP3X8	TN-32	-	FT-15	16Iﾊﾟﾙ...
	3732S-16	●		37	32	30	45	250	18.5							
	CINR 3025S-22	●		30	25	23	40	200	16.5	-	CPS-6S	SP3X8	TN-43	LW-3	-	22IR...
	3732S-22	●		37	32	30	45	250	20							

Guide for internal threading

For internal threading, pay extra attention to "stabilizing bore dia." and "chip evacuation".

1. "Stabilizing bore dia."

Because small pitch Internal Threading has small corner-R (RE), there is variation in the bore dia. which may greatly influence the tool life of an insert.
In order to eliminate the variation in the bore dia., "0" Cutting (zero cutting) should be performed as the zero pass, before the first pass in threading.
The bore dia. is cut with the specified dimension, and the first pass of threading becomes stable.

2. "Chip evacuation"

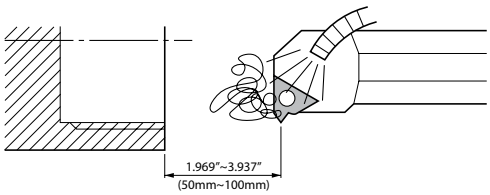
If machining process is continued when chips are tangled with a toolholder and other parts of the machine, it may cause damages to the insert.
Therefore, please ensure that there are no tangled chips in the machine by the following method.

<When processing the first workpiece>

Set the program with the "single block"
Keep the threading starting point 1.969"~3.937" (50mm~100mm) away from the side of workpiece, and confirm that coolant is flushing down the chips for each pass.

<When processing the second workpiece and later>

Ensure that chips are not tangled; then, start the continuous run.



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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TKFT (External Threading)

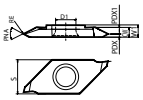
		Carbon Steel / Alloy Steel																	○	○	●		P
		Stainless Steel																	○	●	○		M
		Cast Iron																				●	K
		Non-Ferrous Metals																				●	N
Insert		Part Number	Thread Type	Symbol Thread Type	Pitch					Profile	Thread Angle PNA (°)	Dimensions (in)							Carbide				Applicable Toolholder ⇨ J29~J31
					Unit	M (mm)		Unit	UN, G, R, W (TPI)										PVD			-	
						min.	max.		min.	max.			CW	S	D1	RE	W1	PDX	PDX1	PR1225	PR1535	PR1725	KW10	
	Right-hand shown	TKFT12 RA6000 TKFT12 RB6000	Metric Unified	M UN	mm	0.2	0.6	Inch	64	48	Partial Profile	60	0.098	0.343	0.205	Max. 0.002 or Flat	0.118	0.016 0.083	0.083 0.016	●	●	●	●	KTKFR...12(-Y)
		TKFT12 RA60005 TKFT12 RB60005				0.5	1.25		48	24			0.098	0.343	0.205	0.002	0.118	0.031 0.067	0.067 0.031	●	●	●	●	
		TKFT12 RN6001				1	1.5		24	18			0.098	0.343	0.205	0.004	0.118	0.049	0.049	●	●	●	●	
		TKFT12 RA55005 TKFT12 RB55005	Parallel/ Tapered Pipe Whitworth	G, R, W		-	-		40	16		55	0.098	0.343	0.205	0.002	0.118	0.031 0.067	0.067 0.031	●	●	●	●	
	 Left-hand shown	TKFT12 LA6000 TKFT12 LB6000	Metric Unified	M UN		0.2	0.6		64	48	Partial Profile	60	0.098	0.343	0.205	Max. 0.002 or Flat	0.118	0.083 0.016	0.016 0.083		●	●	●	KTKFL...12
		TKFT12 LA60005 TKFT12 LB60005				0.5	1.25		48	24			0.098	0.343	0.205	0.002	0.118	0.067 0.031	0.031 0.067	●	●	●	●	
		TKFT12 LN6001				1	1.5		24	18			0.098	0.343	0.205	0.004	0.118	0.049	0.049	●	●	●	●	
		TKFT12 LA55005 TKFT12 LB55005	Parallel/ Tapered Pipe Whitworth	G, R, W		-	-		40	16		55	0.098	0.343	0.205	0.002	0.118	0.067 0.031	0.031 0.067		●	●	●	

Photo shows Right-hand

Recommended Cutting Conditions ⇨ J33
Depth of Cut & Number of Passes ⇨ J33

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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KTKF (External Threading)

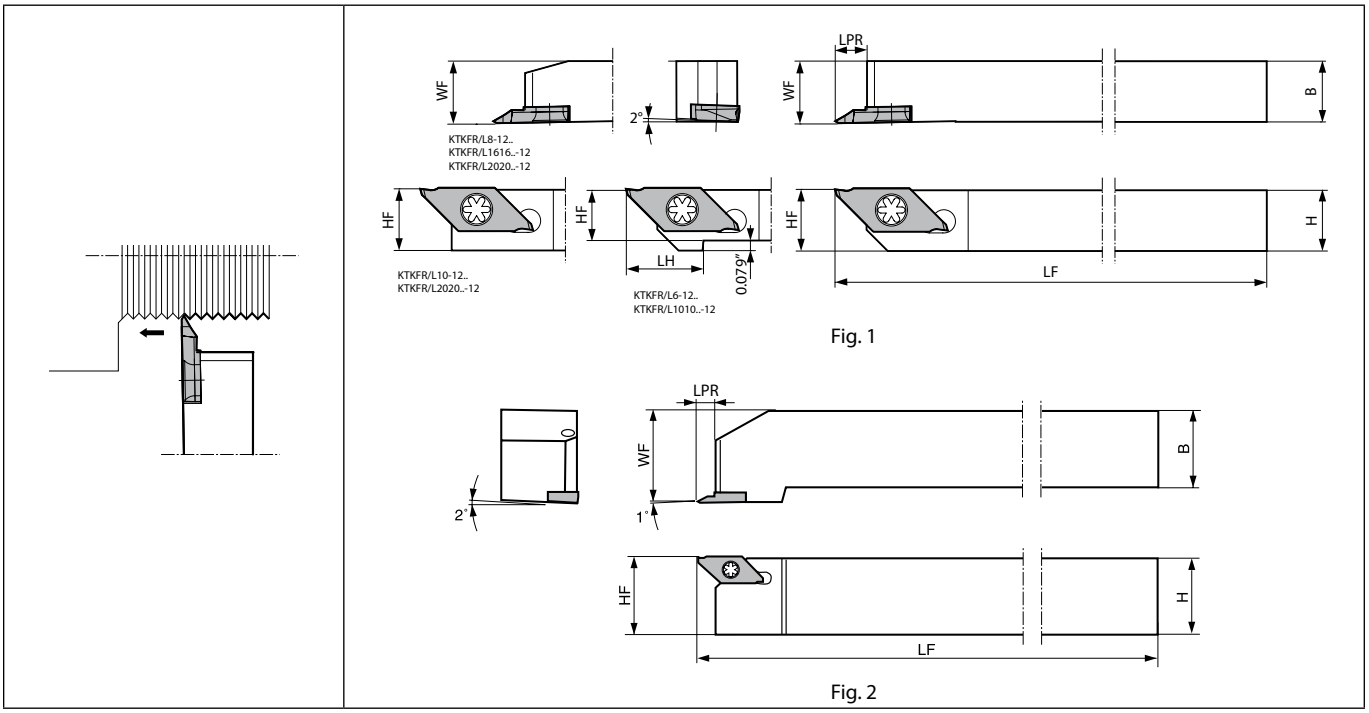


Fig. 1

Fig. 2

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Dimensions H	B	LH	LPR	HF	LF	WF	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
Inch	KTKF□R/L 6-12JX	●	●	0.375	0.375	0.590	0.236	0.375	4.750	0.375	1	SB-4590TRWN	FT-10	TKFT12□R/L...
	8-12JX	●	●	0.500	0.500	-		0.500		0.500				
	10-12JX	●	●	0.625	0.625			0.625		0.625				
mm	KTKF□R/L 1010JX-12	●	●	10	10	15	6	10	120	10	1	SB-4590TRWN	FT-10	TKFT12□R/L...
	1212F-12	●	●	12	12	-		12	85	12				
	1212JX-12	●	●						120					
	1616JX-12	●	●	16	16			16		16				
	2020JX-12	●	●	20	20			20		20				
	2525M-12	●		25	25			25	150	30	2			TKFT12R...

LPR shows the distance from the toolholder to the cutting edge.
See Page **H16** for internal coolant type (coolant-through holders)

Threading Inserts Identification System (Ref. to Table 1)

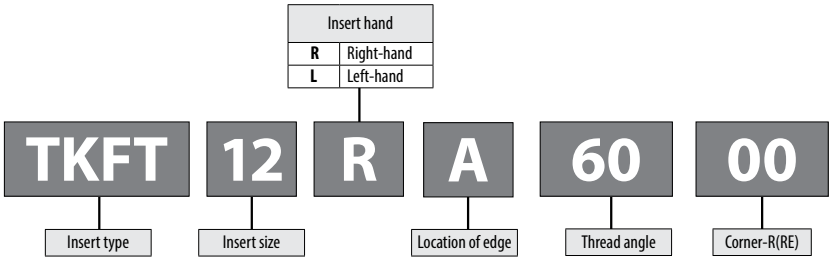
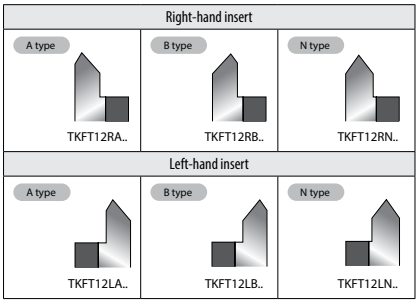


Table 1



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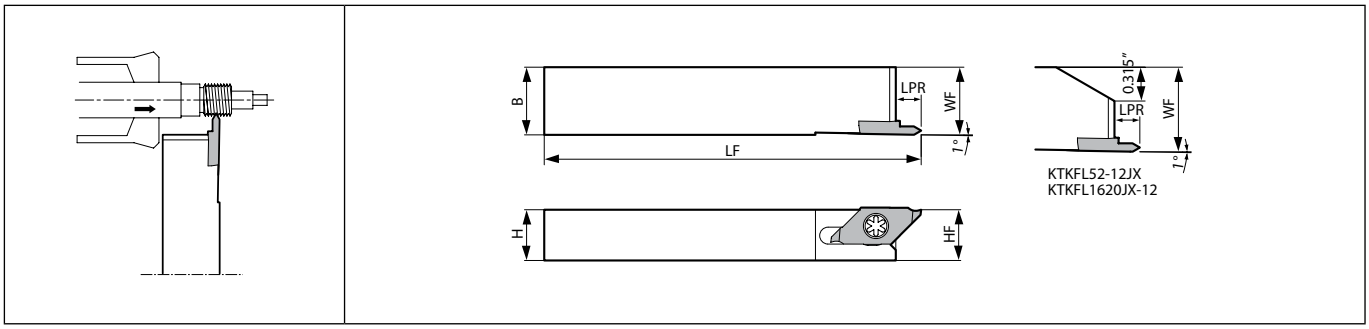
KTKF (External Threading, Goose-Neck Toolholder)



Left-hand shown | Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Spare Parts		Applicable Inserts ➡ J28
			L	H	B	LPR	HF	LF	WF	Screw	Wrench	
Inch	KTKFL 52-12JX	●	0.500	0.625	0.236	0.500	4.750	0.625	SB-4590TRWN	FT-10	TKFT12L...
	62.5-12JX	●	0.625	0.750		0.625		0.750			
mm	KTKFL 1216JX-12	●	12	16	6	12	120	16	SB-4590TRWN	FT-10	TKFT12L...
	1620JX-12	●	16	20		16		20			

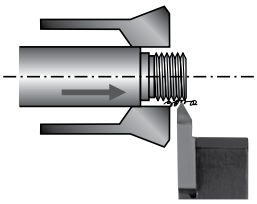
LPR shows the distance from the toolholder to the cutting edge.

J THREADING

Swiss Tool Small Parts Machining (Guide Bush System)

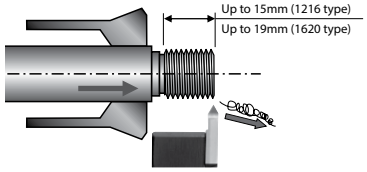
Goose-neck holder is applicable to automatic lathes where toolholder does not move in the longitudinal direction (Z-axis direction).

Conventional tool



Chips may come into the guide bush and scratch the thread surface.

Goose-neck holder



Goose-neck holder is capable of threading without returning the thread part into the guide bush (thread length up to 15mm or 19mm).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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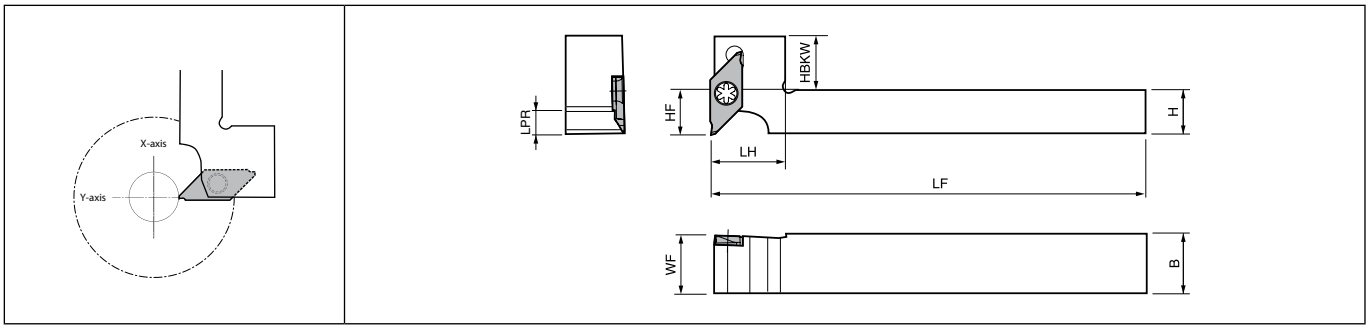
KTKF-Y (External Threading, Y-Axis Toolholder)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Spare Parts		Applicable Inserts
											Screw	Wrench	
		R	H	B	LH	HF	LPR	HBKW	LF	WF			J28
mm	KTKFR 1216JX-12-Y	●	12	16	20	12	6	15	120	16	SB-4590TRWN	FT-10	TKFT12R...
	1616JX-12-Y	●	16		25	16		11					

LPR shows the distance from the toolholder to the cutting edge.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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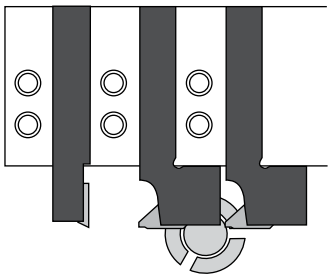
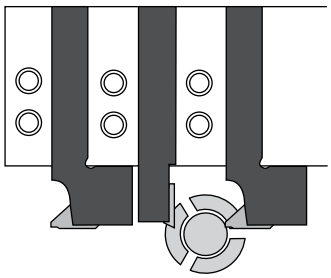
Precautions for Using Y-Axis Toolholders

Do not use Y-axis toolholders side-by-side to prevent interference (Only two Y-axis holders can be used at the same time)

WIth Interference

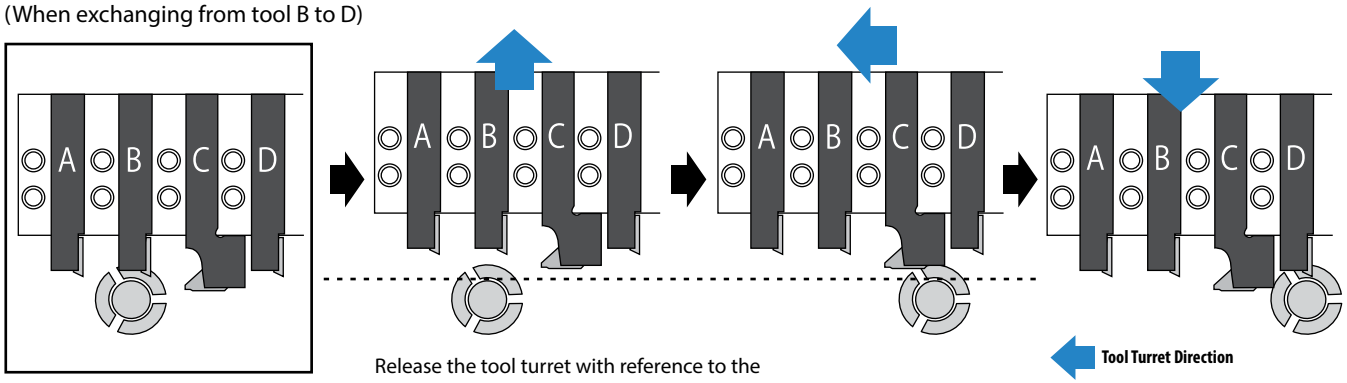


Without Interference



Standard toolholders may be mounted between two Y-axis toolholders

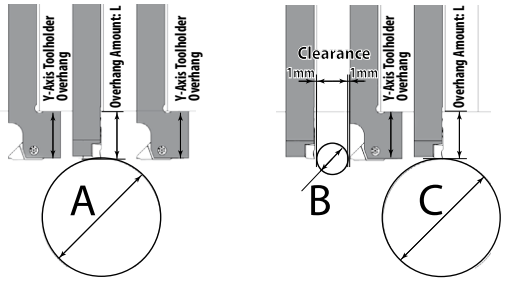
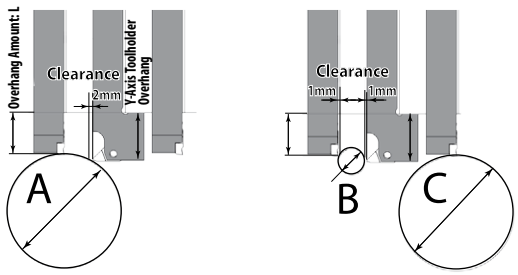
When changing the tool, set the retracted position with reference to the cutting edge of the Y-axis holder
(When exchanging from tool B to D)



Release the tool turret with reference to the overhang amount of the Y-axis toolholder

Note that using other toolholder styles together will result in different outside diameters

(Unit: mm)

Y-axis Toolholder Overhang	Examples	Overhang Amount : L / Available Outside Cutting Dia. (Ø)	20	22	25
20		A	Without Restriction	Without Restriction	Without Restriction
		B	13.0	13.0	13.0
		C	Without Restriction	Without Restriction	Without Restriction
25		A	38.0	58.0	Without Restriction
		B	14.9	13.6	13.0
		C	45.0	60.0	Without Restriction

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Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades			
	MEGACOAT NANO PLUS	MEGACOAT NANO	MEGACOAT	Carbide
	PR1725	PR1535	PR1225	KW10
Carbon Steel	Vc = 230~560 sfm			-
	First D.O.C. (Radial): under 0.0079" (0.2mm)			
Alloy Steel	Vc = 230~560 sfm			-
	First D.O.C. (Radial): under 0.0079" (0.2mm)			
Stainless Steel	Vc = 200~330 sfm			-
	First D.O.C. (Radial): under 0.0079" (0.2mm)			
Cast Iron	-			Vc = 330 sfm
				First D.O.C. (Radial): under 0.0079" (0.2mm)
Aluminum	-			Vc = 490~1310 sfm
				First D.O.C. (Radial): under 0.0079" (0.2mm)
Brass	-			Vc = 490~980 sfm
				First D.O.C. (Radial): under 0.0079" (0.2mm)

Coolant is recommended.
When threading stainless steel, please set two to three passes more than <D.O.C. - passes> listed above.

Depth of Cut & Number of Passes

TKFT 60° / 55° Partial Profile

(D.O.C. shows the value of radial ap.)

Thread Type		Pitch (mm/TPI)	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass
Metric	External Threading	0.20mm	TKFT 12R/L A/B6000	Max 0.05 Flat	0.15	4	0.06	0.04	0.03	0.02								
		0.25mm			0.19	4	0.07	0.06	0.04	0.02								
		0.30mm			0.23	4	0.08	0.07	0.06	0.02								
		0.35mm			0.27	5	0.08	0.07	0.06	0.04	0.02							
		0.40mm			0.30	5	0.10	0.08	0.06	0.04	0.02							
		0.45mm			0.34	6	0.10	0.08	0.06	0.04	0.04	0.02						
		0.50mm	TKFT 12R/L A/B6000	Max 0.05 Flat	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02						
			12R/L A/B60005	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02							
		0.60mm	TKFT 12R/L A/B6000	Max 0.05 Flat	0.45	7	0.10	0.10	0.08	0.06	0.05	0.04	0.02					
			12R/L A/B60005	0.05	0.40	6	0.10	0.10	0.08	0.06	0.04	0.02						
		0.70mm	TKFT 12R/L A/B60005	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02						
		0.75mm		0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02					
		0.80mm		0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02					
		1.00mm	TKFT 12R/L A/B60005 12R/L N6001	0.05	0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02				
				0.10	0.66	7	0.18	0.15	0.12	0.10	0.06	0.03	0.02					
		1.25mm		0.05	0.90	9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02			
				0.10	0.85	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02				
		1.50mm	TKFT 12R/L N6001	0.10	1.04	10	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02		
Parallel Pipe	External Threading	28 TPI	TKFT 12R/L A/B55005	0.0020	0.0264	7	0.007	0.006	0.005	0.004	0.002	0.002	0.001					
		19 TPI		0.0020	0.0398	9	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.001			
Whitworth	External Threading	24 TPI	TKFT 12R/L A/B55005	0.0020	0.0311	8	0.007	0.007	0.005	0.004	0.003	0.003	0.002	0.001				
		20 TPI		0.0020	0.0378	9	0.008	0.008	0.006	0.004	0.004	0.003	0.002	0.002	0.001			
		18 TPI		0.0020	0.0421	10	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.001		
		16 TPI		0.0020	0.0476	11	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.001	

KCT / KCTP / KCTK (External/Internal Threading)

			Carbon Steel / Alloy Steel																								●	P			
			Stainless Steel																								●	M			
			Cast Iron																								●	K			
			Non-Ferrous Metals																									N			
Insert		Part Number	Thread Type	Symbol Thread Type	Pitch												Profile	Thread Angle PNA (°)	Dimensions (in)				Carbide	PVD	Applicable Toolholder ➡ J35~J36							
					Unit	Metric (mm)				Unit	Unified (TPI)																					
						External		Internal			External		Internal						S	W1	RE	PDX										
						min.	max.	min.	max.		min.	max.	min.	max.									PR1215									
		KCT 2R	Metric Unified	M UN	mm	0.75	3	1.25	3.5	Inch	36	8	20	7	Partial Profile	60	0.219	0.150	0.004	0.075	△		KKCR...-2, A...KKCL2								
		3R				1.25	4.25	2	5		20	6	12	5			0.344	0.195	0.007	0.098	●		KKCR...-3, A...KKCL3								
		4R				1.25	6.35	2	6.35		20	4	12	4			0.453	0.255	0.008	0.128	●		KKCR...-4, A...KKCL4								
		KCT 2L	Metric Unified	M UN		0.75	3	1.25	3.5		36	8	20	7	Partial Profile	60	0.219	0.150	0.004	0.075	●		KKCL...-2, A...KKCR2								
		3L				1.25	4.25	2	5		20	6	12	5			0.344	0.195	0.007	0.098	●		KKCL...-3, A...KKCR3								
		4L				1.25	6.35	2	6.35		20	4	12	4			0.453	0.255	0.008	0.128	●		KKCL...-4, A...KKCR4								
		KCTP 2R	Metric Unified	M UN		0.75	3	1.25	3.5		36	8	20	7	Partial Profile	60	0.219	0.150	0.004	0.075	●		KKCR...-2, A...KKCL2								
		3R				1.25	4.25	2	5		20	6	12	5			0.344	0.195	0.007	0.098	●		KKCR...-3, A...KKCL3								
		4R				1.25	6.35	2	6.35		20	4	12	4			0.459	0.255	0.008	0.128	△		KKCR...-4, A...KKCL4								
		KCTP 2L	Metric Unified	M UN		0.75	3	1.25	3.5		36	8	20	7	Partial Profile	60	0.219	0.150	0.004	0.075	●		KKCL...-2, A...KKCR2								
		3L				1.25	4.25	2	5		20	6	12	5			0.344	0.195	0.007	0.098	●		KKCL...-3, A...KKCR3								
		4L				1.25	6.35	2	6.35		20	4	12	4			0.459	0.255	0.008	0.128	△		KKCL...-4, A...KKCR4								
		KCTK 2R	Metric Unified	M UN		0.5	1.75	1	2		44	14	24	12	Partial Profile	60	0.219	0.150	0.003	0.110	●		KKCR...-2, A...KKCL2								
		3R				0.5	2.5	1	2.8		44	10	24	9			0.344	0.195	0.003	0.141	●		KKCR...-3, A...KKCL3								
		KCTK 2L	Metric Unified	M UN		0.5	1.75	1	2		44	14	24	12	Partial Profile	60	0.219	0.150	0.003	0.110	●		KKCL...-2, A...KKCR2								
		3L				0.5	2.5	1	2.8		44	10	24	9			0.344	0.195	0.003	0.141	●		KKCL...-3, A...KKCR3								

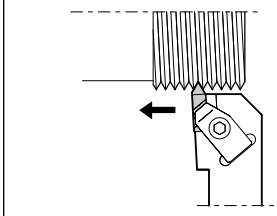
Right-hand shown

Recommended Cutting Conditions ➡ J37
Cera-Notch Conversion Table ➡ R35

KC.. Threading inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KKC (External Threading)



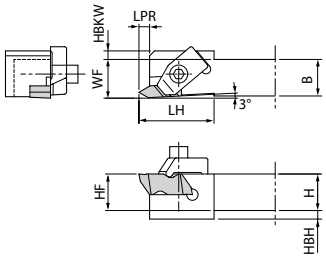


Fig. 1

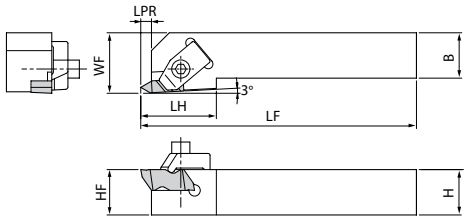


Fig. 2

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

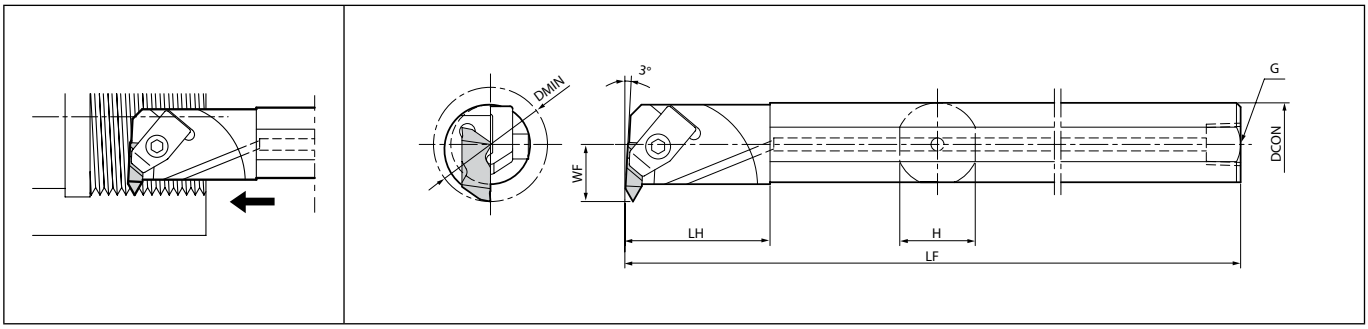
Unit	Part Number	Std. Item R	Std. Item L	H	B	LH	LPR	HBH	HBKW	HF	LF	WF	Fig.	Spare Parts: Clamp	Spare Parts: Clamp Bolt	Spare Parts: Wrench	Applicable Inserts ⇒ J34
Inch	KKC□ 6-2CF	●	●	0.375	0.375	0.750	0.138	0.125	0.125	0.375	5.00	0.385	1	CKC-2□L	SKC-2	(7/64 hex)	KCT2□L KCTP2□L KCTK2□L
	8-2X	●		0.500	0.500			-	-	0.500	3.50	0.750	2				
	8-2DF	●									6.00	0.510	1				
	10-2DF	●	●	0.625	0.625					0.625	6.00	0.635					
	12-2B	●	●	0.750	0.750					0.750	4.50	1.000	2				
	12-2C	●									5.00						
	16-2C	●	●	1.000	1.000					1.000	5.00	1.250					
	16-2D	●	●								6.00						
	KKC□ 12-3B	●	●	0.750	0.750	1.250	0.210	-	-	0.750	4.50	1.000	2	CKC-3□L	SKC-3	(LW-156)	KCT3□L KCTP3□L KCTK3□L
	12-3C	●	●								5.00						
	16-3C	●	●	1.000	1.000					1.000	5.00	1.250					
	16-3D	●	●								6.00						
	20-3D	●	●	1.250	1.250					1.250	6.00	1.500					
	KKC□ 16-4D	●	●	1.000	1.000	1.380	0.294	-	-	1.000	6.00	1.250	2	CKC-3□L	SKC-3	(LW-156)	KCT4□L KCTP4□L
	20-4D	●		1.250	1.250					1.250		1.500					
mm	KKCR 1212M-2-150F	●		12	12	19.05	3.5	-	-	12	150	12.25	1	CKC-2R	SKC-2	(7/64 hex)	KCT2□L , KCTP2□L KCTK2□L

LPR shows the distance from the toolholder to the cutting edge.
CKC-○R for Right-hand toolholder and CKC-○L for Left-hand toolholder
Spare Parts in parentheses ( ) are not included with toolholder. Please order separately.

Toolholders also available for Grooving ⇒ G65

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A-KKC (Internal Threading)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	DMIN	DCON	H	LH	LF	WF	G	Spare Parts: Clamp	Spare Parts: Clamp Bolt	Wrench	Applicable Inserts ➡ J34
Inch	A10M- KKCR-2	●		1.000	0.625	0.596	1.153	6.00	0.500	1/8-27 NPT	CKC-2L	SKC-2	(7/64Hex)	KCT2□, KCTP2□, KCTK2□
	A10S- KKCR-2	●						10.00						
	A12R- KKCR-2	●		1.125	0.750	0.728	1.171	8.00	0.562					
	A12S- KKCR-2	●						10.00						
	A16T- KKC□-2	●	●	1.375	1.000	0.910	1.100	12.00	0.688		CKC-2□			
	A16X- KKCR-3	●		1.375	1.000	0.910	1.750	9.00	0.688	1/8-27 NPT	CKC-3□	SKC-3	(LW-156)	KCT3□, KCTP3□, KCTK3□
	A16T- KKC□-3	●	●					12.00		1/4-18 NPT				
	A20U- KKCR-3	●		1.750	1.250	1.138	1.750	14.00	0.875					
	A24U- KKC□-3	●	●	2.000	1.500	1.366			1.000					
	A28U- KKCR-4	●		2.500	1.750	1.593	1.750	14.00	1.250	1/4-18 NPT	CKC-3□	SKC-3	(LW-156)	KCT4□, KCTP4□

CKC-○L for Right-hand toolholder and CKC-○R for Left-hand toolholder
Spare Parts in parentheses ( ) are not included with toolholder. Please order separately.

Toolholders also available for Grooving ➡ G94

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

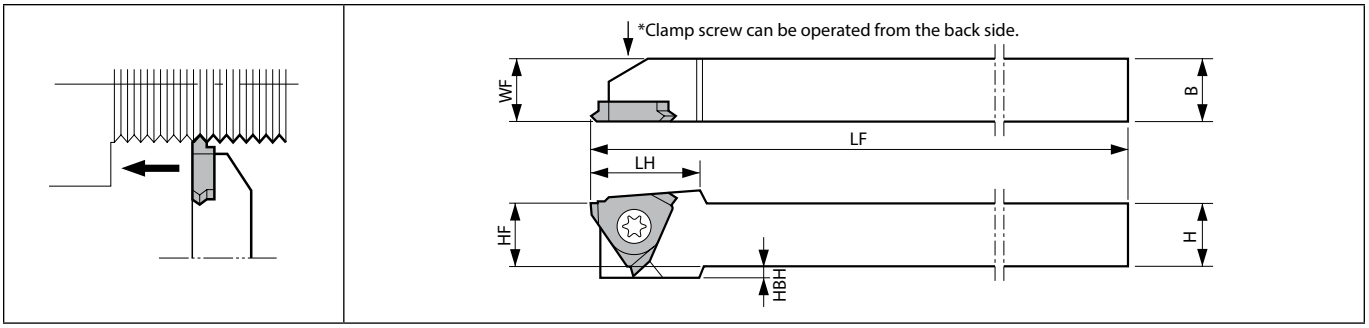
Workpiece Material	Insert Grade Vc (sfm) MEGACOAT PR1215	Initial D.O.C. (Radial)
Carbon Steel	★ 300~550	0.012" Max
Alloy Steel	★ 300~500	0.012" Max
Stainless Steel	★ 200~300	0.010" Max
Cast Iron	★ 150~350	0.012" Max
Heat-Resistant Alloy	★ 25~150	0.010" Max

★ : 1st Recommendation

- Coolant is recommended.
- For stainless steel threading, please set smaller initial D.O.C. and two or three more passes than threading for carbon steel.

TTX (External Threading)

KTTX (External Threading)

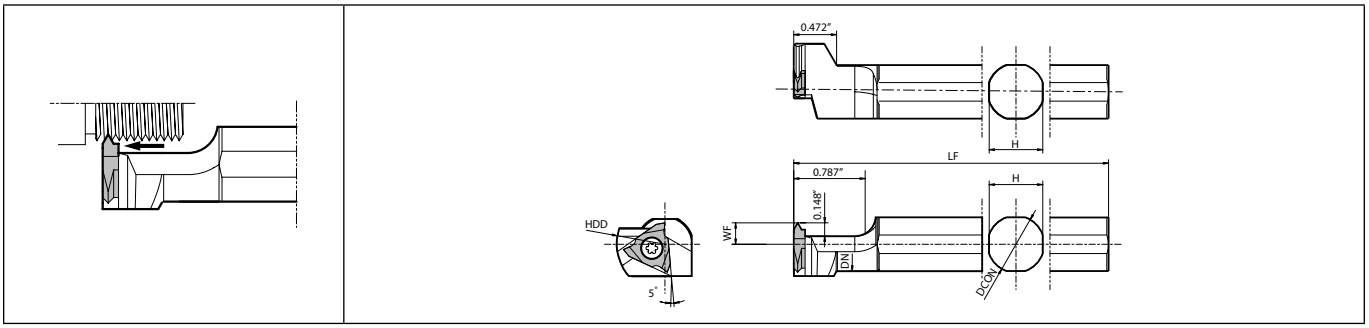


Toolholder Dimensions

Thread to shoulder | Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Unit	Part Number	Std. Item	Dimensions							Spare Parts		Applicable Inserts J38
										Screw	Wrench	
		R	H	B	LH	HF	HBH	LF	WF			
Inch	KTTXR 6-3JXF	●	0.375	0.375	0.693	0.375	0.079	4.750	0.383	SB-4070TRW	FT-8	TTX32R...
	8-3JXF	●	0.500	0.500		0.500	-		0.508			
	10-3JXF	●	0.625	0.625		0.625			0.633			
mm	KTTXR 1010JX-16F	●	10	10	17.6	10	2	120	10	SB-4070TRW	FT-8	TTX32R...
	1212F-16F	●	12	12		12	-	85	12			
	1212JX-16F	●						120				
	1616JX-16F	●	16	16		16			16			
	2020K-16F	●	20	20		20		125	20			

S-KTTX (External Threading)



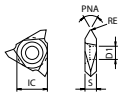
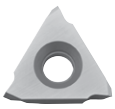
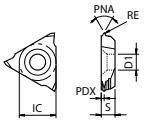
Toolholder Dimensions

Thread to shoulder | Left-hand shown | Right-hand Insert for Left-hand Toolholder.

Unit	Part Number	Std. Item	Dimensions						Spare Parts		Applicable Inserts J38
									Screw	Wrench	
		L	DCON	H	DN	HDD	LF	WF			
Inch	S15F- KTTXL16	●	0.625	0.591	0.575	1.063	3.346	0.236	SB-4070TRW	FT-8	TTX32R...
	S19G- KTTXL16	●	0.750	0.669	0.693	1.063	3.543	0.236			
	S19K- KTTXL16	●					4.724				
	S25K- KTTXL16	●	1.000	0.906	0.929	1.260	4.724	0.394			
mm	S12F- KTTXL16	●	12	11	11	27	80	6	SB-4070TRW	FT-8	TTX32R...
	S14H- KTTXL16	●	14	13	13		100				
	S16F- KTTXL16	●	16	15	14.6		85				
	S20G- KTTXL16	●	20	18	18.6		90				
	S20K- KTTXL16	●					120				
	S25.0H- KTTXL16	●	25	23	23.6	32	100	10			

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

TT (External Threading)

Insert		Part Number	Thread Type	Symbol Thread Type	Pitch Unit	Pitch M(mm) G, PT (TPI) min.	Pitch M(mm) G, PT (TPI) max.	Pitch Unit	Pitch UN, W (TPI) min.	Pitch UN, W (TPI) max.	Profile	Thread Angle PNA (°)	Dimensions (in) IC	S	D1	RE	PDX	Carbide PVD PR1115	Carbide PVD PR930	Carbide - KW10	Cermet - TC60	Applicable Toolholder ⇒ J41
Carbon Steel / Alloy Steel ● ○ ○ P																						
Stainless Steel ● ○ M																						
Cast Iron ● K																						
Non-Ferrous Metals ● N																						
		TT32R 6000	Metric Unified	M UN	mm	0.5	2.5	Inch	56	10	Partial Profile	60	3/8	1/8	0.173	0	-	●	●			KTTR...-16
		6001				1			24							0.004		●	●	●		
		6002				1.5			16							0.012		●	●	●		
		6003				2.5			11							0.012		●	●			
		TT32L 6000				0.5	2.5		56	10		60				0		●	●		●	KTTL...-16
		6001				1			24							0.004		●	●	●	△	
		6002				1.5			16							0.012		●	●	●		
		TT32R 5501	Parallel/ Tapered Pipe Whitworth	G PT W	Inch	28	11		24	10		55				0.004		●	●	●		KTTR...-16
		5502				14	11		14	10						0.008		●	●	●		
		TT32L 5501				28	11		24	10						0.004			●	●		KTTL...-16
		5502				14	11		14	10						0.008			●	●		
		TT43R 6001	Metric Unified	M UN	mm	1	3.5		24	8		60	1/2	3/16	0.217	0.004		●	●	●		KTTR...-22
		6002				1.5			16							0.008		●	●	●		
		6003				2.5			11							0.012		●	●			
		6004				3			8							0.016		●	●			
		TT43L 6001				1	3.5		24	8						0.004		●	●	●		KTTL...-22
		6002				1.5			16							0.008		●	●	●		
		6003				2.5			11							0.012			●			
		6004				3			8							0.016			●			
		TT43R 5501	Parallel/ Tapered Pipe Whitworth	G PT W	Inch	28	11		24	7		55	1/2	3/16	0.217	0.004		●	●	●		KTTR...-22
		5502				14	11		16							0.008		●	●	●		
		5503				11	11		10							0.012		●	●			
		TT43L 5501				28	11		24	7			1/2	3/16	0.217	0.004				●		KTTL...-22
		5502				14	11		16							0.008				●		
		TT43ER 100M	Metric	M	mm	1			-		Full Profile	60	1/2	3/16	0.217	0.005	0.031	●	●			KTTR...-22
		125M				1.25										0.006	0.035	●	●			
		150M				1.5										0.007	0.039	●	●			
		200M				2										0.010	0.067	●	●			

Right-hand shown

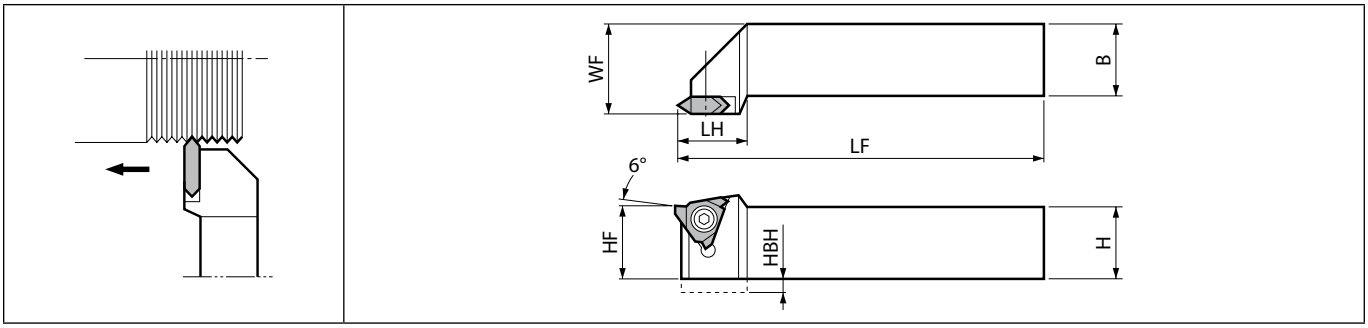
Recommended Cutting Conditions ⇒ J52
Depth of Cut & Number of Passes ⇒ J59, J60

PR930 / PR1115 (Threading inserts) are sold in 5 piece boxes

KW10 / TC60 (Threading inserts) are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KTT (External Threading)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

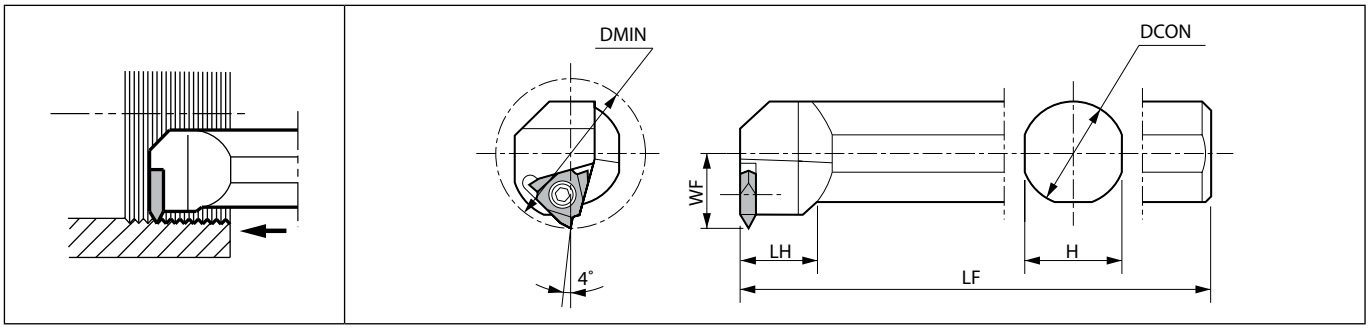
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Spare Parts					Applicable Inserts ➡ J40
											Screw	Screw	Wrench	Wrench	Wrench	
		R	L	H	B	LH	HF	HBH	LF	WF						
mm	KTT☐ 1010F-16	●	●	10	10	18	10	4	80	12	SB-4070TRS	-	-	-	FT-10	TT32☐...
	1212H-16	●	●	12	12		12	2	100	16						
	1616H-16	●	●	16	16		16	-		20						
	2020K-16	●	●	20	20		20		125	25	SB-4TR			FT-15	-	
	2525M-16	●	●	25	25		25		150	30						
	KTT☐ 2020K-22	●	●	20	20	25	20	-	125	25	-	GS-50	LW-3	-	-	TT43☐... TT43ER...M
	2525M-22	●	●	25	25		25		150	30						

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

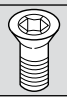
TT (Internal Threading)

KITG (Internal Threading)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

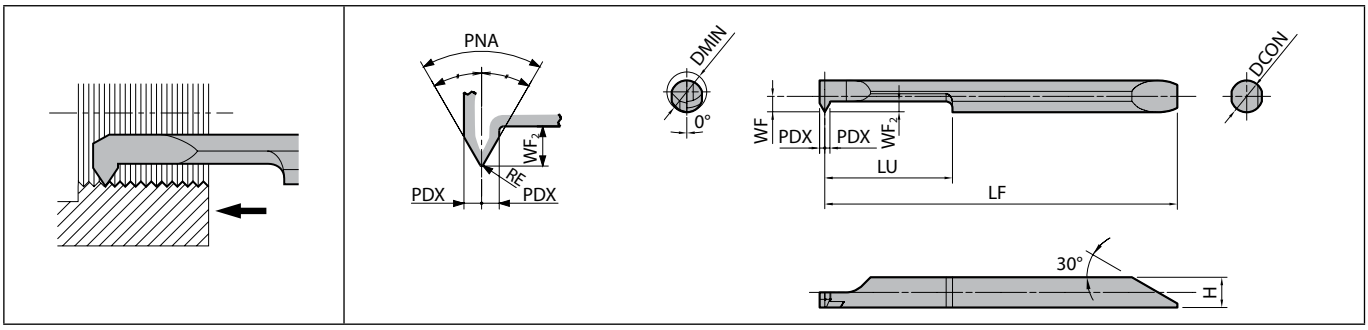
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Spare Parts				Applicable Inserts ⇒ J42
										Screw	Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF					
mm	KITG□□ 3525T-16	●	●	35	25	23	18	220	17.5	SB-4TR	-	-	FT-15	TT32$^{L}/_{R}$...
mm	KITG□□ 4532T-22	●	●	45	32	30	20	250	22.5	-	GS-50	LW-3	-	TT43$^{L}/_{R}$...

Max. available Pitch : KITG□□ 3525T-16···TP 2.5mm or 10TPI, KITG□□ 4532T-22···TP 3.0mm or 8TPI.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EZT (Internal Threading)



Right-hand shown

Dimensions

Part Number	No. of edges	Dimensions (mm)									Thread Angle PNA (°)	Tolerance (mm)		Carbide		Applicable Thread					
		DMIN	DCON	H	LF	LU	WF	WF_2	PDX	RE		RE min.	RE max.	PVD	-	Metric		Unified		American National Tapered Pipe	
														PR1225	GW05	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)	Nominal Thread	Pitch (TPI)
EZTR 030025-60-002	1	3	2.5	2.3	34.5	6	1.19	1	0.5	0.02	60°	0.01	0.01	●	●	M4 and over (Fine Thread : M3.5 and over)	0.35~0.8	No.8-32UNC No.8-36UNF and over	36~32	-	-
035030-60-002		3.5	3	2.8	38.4	8.4	1.44	1.2	0.6					●	●	M4.5 and over (Fine Thread : M4.5 and over)	0.5~1.0	No.10-24UNC No.8-36UNF and over	36~24	-	-
040035-60-004		4	3.5	3.3	41.4	10.4	1.69			0.04				●	●	M5 and over (Fine Thread : M6 and over)	0.75~1.25	No.12-24UNC No.12-28UNF and over	28~20	-	-
050040-60-004		5	4	3.8	44.35	15.35	1.94	1.3	0.65					●	●	M7 and over (Fine Thread : M6 and over)	0.75~1.5	1/4-20UNC 1/4-28UNF and over	28~18	-	-
060050-60-004		6	5	4.8	52.4	19.2	2.44	1.6	0.8					●	●	M8 and over (Fine Thread : M7 and over)	0.75~1.5	5/16-18UNC 5/16-24UNF and over	24~16	1/4NPT 3/8NPT	18
070060-60-004		7	6	5.8	60.2	24	2.94	2	1					●	●	M9 and over (Fine Thread : M8 and over)	0.75~1.75	3/8-16UNC 3/8-24UNF and over	24~16	1/4NPT and over	18,14
																Whitworth		Parallel Pipe / Tapered Pipe			
EZTR 060050-55-008	1	6	5	4.8	52.4	19.2	2.44	1.6	0.8	0.085	55°	0.015	0.015	●	●	W10 TPI24 and over	24~20	G1/16 and over R1/16 and over	28	-	-
080070-55-008		8	7	6.8	63.2	24	3.44	2	1					●	●	W11 TPI20 and over	20~18	G1/8 and over R1/8 and over	28,19	-	-

For American National Tapered Pipe (NPT), use EZTR..-60-004. J47

Applicable sleeves J45
Recommended Cutting Conditions J46
Depth of Cut & Number of Passes J46~J47

EZ bars are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Sleeves

Sleeve Part Number							EZ Bar Part Number		Applicable Machine Manufacturer
EZH-CT (Adjustable Overhang Length / with Coolant Hole) F40~F41		EZH-HP (Adjustable Overhang Length) F42~F43		EZH-ST F44~F45		Sleeve Shank Dia DCON (mm)	EZT	EZ Bar Shank Dia DCON (mm)	
-		-		EZH	02512ST-80	12.00	EZTR 030025-...	2.5	General Machines
					03012ST-80		EZTR 035030-...	3.0	
					03512ST-80		EZTR 040035-...	3.5	
					04012ST-80		EZTR 050040-...	4.0	
					05012ST-80		EZTR 060050-...	5.0	
					06012ST-80		EZTR 070060-...	6.0	
					07012ST-80		EZTR 080070-...	7.0	
-		EZH	02516HP-100	EZH	02516ST-100	16.00	EZTR 030025-...	2.5	General Machines
			03016HP-100		03016ST-100		EZTR 035030-...	3.0	
			03516HP-100		03516ST-100		EZTR 040035-...	3.5	
			04016HP-100		04016ST-100		EZTR 050040-...	4.0	
			05016HP-100		05016ST-100		EZTR 060050-...	5.0	
			06016HP-100		06016ST-100		EZTR 070060-...	6.0	
			07016HP-100		07016ST-100		EZTR 080070-...	7.0	
EZH	02519CT-120	EZH	02519HP-120	EZH	02519ST-120	0.750"	EZTR 030025-...	2.5	Citizen Machinery
	03019CT-120		03019HP-120		03019ST-120		EZTR 035030-...	3.0	
	03519CT-120		03519HP-120		03519ST-120		EZTR 040035-...	3.5	
	04019CT-120		04019HP-120		04019ST-120		EZTR 050040-...	4.0	
	05019CT-120		05019HP-120		05019ST-120		EZTR 060050-...	5.0	
	06019CT-120		06019HP-120		06019ST-120		EZTR 070060-...	6.0	
	07019CT-120		07019HP-120		07019ST-120		EZTR 080070-...	7.0	
EZH	02520CT-120	EZH	02520HP-120	EZH	02520ST-120	20.00	EZTR 030025-...	2.5	Amada Machine Tools Eguro Tsugami Citizen Machinery General Machines
	03020CT-120		03020HP-120		03020ST-120		EZTR 035030-...	3.0	
	03520CT-120		03520HP-120		03520ST-120		EZTR 040035-...	3.5	
	04020CT-120		04020HP-120		04020ST-120		EZTR 050040-...	4.0	
	05020CT-120		05020HP-120		05020ST-120		EZTR 060050-...	5.0	
	06020CT-120		06020HP-120		06020ST-120		EZTR 070060-...	6.0	
	07020CT-120		07020HP-120		07020ST-120		EZTR 080070-...	7.0	
EZH	02522CT-135	EZH	02522HP-135	EZH	02522ST-135	22.00	EZTR 030025-...	2.5	Star Micronics Nomura DS Tsugami
	03022CT-135		03022HP-135		03022ST-135		EZTR 035030-...	3.0	
	03522CT-135		03522HP-135		03522ST-135		EZTR 040035-...	3.5	
	04022CT-135		04022HP-135		04022ST-135		EZTR 050040-...	4.0	
	05022CT-135		05022HP-135		05022ST-135		EZTR 060050-...	5.0	
	06022CT-135		06022HP-135		06022ST-135		EZTR 070060-...	6.0	
	07022CT-135		07022HP-135		07022ST-135		EZTR 080070-...	7.0	
EZH	02525.0CT-135	EZH	02525.0HP-135	EZH	02525.0ST-135	25.00	EZTR 030025-...	2.5	Amada Machine Tools Eguro Tsugami Citizen Machinery General Machines
	03025.0CT-135		03025.0HP-135		03025.0ST-135		EZTR 035030-...	3.0	
	03525.0CT-135		03525.0HP-135		03525.0ST-135		EZTR 040035-...	3.5	
	04025.0CT-135		04025.0HP-135		04025.0ST-135		EZTR 050040-...	4.0	
	05025.0CT-135		05025.0HP-135		05025.0ST-135		EZTR 060050-...	5.0	
	06025.0CT-135		06025.0HP-135		06025.0ST-135		EZTR 070060-...	6.0	
	07025.0CT-135		07025.0HP-135		07025.0ST-135		EZTR 080070-...	7.0	
EZH	02525.4CT-120	EZH	02525.4HP-120	EZH	02525.4ST-120	1.000"	EZTR 030025-...	2.5	Citizen Machinery
	03025.4CT-120		03025.4HP-120		03025.4ST-120		EZTR 035030-...	3.0	
	03525.4CT-120		03525.4HP-120		03525.4ST-120		EZTR 040035-...	3.5	
	04025.4CT-120		04025.4HP-120		04025.4ST-120		EZTR 050040-...	4.0	
	05025.4CT-120		05025.4HP-120		05025.4ST-120		EZTR 060050-...	5.0	
	06025.4CT-120		06025.4HP-120		06025.4ST-120		EZTR 070060-...	6.0	
	07025.4CT-120		07025.4HP-120		07025.4ST-120		EZTR 080070-...	7.0	

Choose sleeves (DCB) to meet with DCON dimension of bar.
Adjustment Pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT/HP sleeves.
Machine manufacturers in random order.

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfm)	
	MEGACOAT	Carbide
	PR1225	GW05
Carbon Steel/Alloy Steel	★ 100-160	-
Stainless Steel	★ 100-160	-
Non-ferrous Metals	-	★ 100-160

★ : 1st Recommendation

Note:
1) The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds. Variable RPMs due to constant surface speed can result in inaccurate threads. Constant RPM programming is recommended.

2) Coolant is recommended.

Depth of Cut & Number of Passes (Metric)

Pitch (mm)	Total D.O.C. (mm)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass	20 Pass
0.50	0.30	9	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02											
0.70	0.42	10	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02										
0.75	0.45	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03										
0.80	0.48	11	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03									
1.00	0.61	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03								
1.25	0.77	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03						
1.50	0.93	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03			
1.75	1.10	20	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03

Depth of Cut & Number of Passes (Whitworth)

TPI	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass
24	0.0256	13	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001				
20	0.0319	15	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001		
18	0.0358	17	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001

Depth of Cut & Number of Passes (Unified: UN, UNC, UNF, UNEF)

TPI	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass
36	0.0173	8	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001								
32	0.0197	10	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001							
28	0.0217	12	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001						
24	0.0256	12	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001						
20	0.0307	14	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001				
18	0.0346	17	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	
16	0.0390	18	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001

Application of Parallel Pipe and Tapered Pipe Thread

Parallel Pipe: G (PF), Rp (PS)

Applicable Thread Symbol	TPI	Internal Threading (G, Rp) Insert	Min. Bore Dia. (mm)	Same Root Radius
G 1⁄16 (-)	28	EZTR 06005-55-008	6.56	0.12
G 1/8 (PF 1/8)	28	08007-55-008	8.57	
G 1/4 (PF 1/4)	19	EZTR 08007-55-008	11.45	0.18
G 3/8 (PF 3/8)	19	08007-55-008	14.95	

Tapered Pipe: R, Rc (PT) (BSPT)

Applicable Thread Symbol	TPI	Internal Threading (Rc) Insert	Min. Bore Dia. (mm)	Same Root Radius
R 1/16, Rc 1/16 (-)	28	EZTR 06005-55-008	-	0.12
R 1/8, Rc 1/8 (PT 1/8)		08007-55-008	-	
R 1/4, Rc 1/4 (PT 1/4)	19	EZTR 08007-55-008	-	0.18
R 3/8, Rc 3/8 (PT 3/8)		08007-55-008	-	

When using "EZT type" for Parallel Pipe / Tapered Pipe threading, the thread's corners become sharp edged due to its partial profile, and the shape will not be the same as the standard shape for Parallel Pipe / Tapered Pipe.

Depth of Cut & Number of Passes (Parallel Pipe / G(PF), Tapered Pipe / BSPT (PT) (Rc))

TPI	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass
28	0.0240	12	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001						
19	0.0374	18	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001

Application of American National Tapered Pipe Thread (NPT)

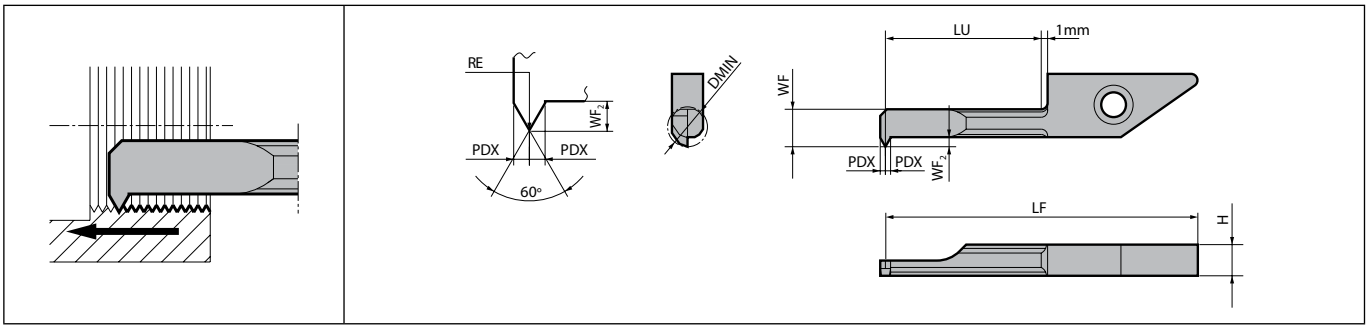
Applicable Thread	TPI	Internal Threading Toolholder	Insert Partial Profile	Insert Full Profile
1/16 NPT	27	No Tools Available		
1/8 NPT				
1/4 NPT	18	EZH Sleeve	EZTR060050-60-004 EZTR070060-60-004	-
3/8 NPT				
1/2 NPT	14	EZH Sleeve	EZTR070060-60-004	-
3/4 NPT				
1/2 NPT	14	SINR1616S-16	-	16IR14NPT
3/4 NPT		SINR2016S-16		16IR14NPT

Application of NPTF Thread
NPTF is the thread for sealing pipes without using any sealing material.
Thread symbol is similar to NPT but the Tolerance is different from that of NPT and the above inserts are not applicable to NPTF.

Depth of Cut & Number of Passes (American National Tapered Pipe (NPT))

TPI	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass
18	0.0484	16	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001			
14	0.0614	19	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001

VNT (Internal Threading)



Right-hand shown

Dimensions

Part Number	No. of edges	Dimensions (mm)								Tolerance (mm)		Carbide			Applicable Thread				Applicable Toolholder F50~F53
		DMIN	H	LF	LU	WF	WF_2	PDX	RE	RE min.	RE max.	PVD		-	Metric		Unified		
												PR1225	PR930	KW10	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)	
VNTR 045-11	1	4.5	3.9	30.2	10.4	3.6	1.3	0.6	0.05	0.02	0	●	●	●	M6 and over	0.75~1.25	1/4-20UNC, 1/4-28UNF and over	28~20	SVNR...-12N SVNSR-12-11(N) S...-SVNR12(N) S...-SVNR12SN
060-11		6		30	10.2	4.6	1.6	0.8				●	●	●	M8 and over	0.75~1.50	5/16-18UNC, 5/16-24UNF and over	24~18	

Recommended Cutting Conditions **J49**
Depth of Cut & Number of Passes **J49**

J THREADING

Swiss IQ bars are sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

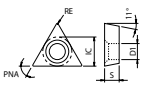
Workpiece material	Recommended insert grades (Vc: sfm)		
	MEGACOAT	PVD coated carbide	Carbide
	PR1225	PR930	KW10
Carbon Steel	★ 100~160	☆ 100~160	-
Stainless Steel	★ 100~160	☆ 100~160	-
Non-Ferrous Metals	-	-	★ 100~160

<Note>
1) The standard cutting speed is Vc=100~160 sfm. The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.
2) Coolant is recommended.

Depth of Cut & Number of Passes (Metric: M)

Pitch (mm)	Total D.O.C. (mm)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass
0.75	0.44	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03							
1.00	0.60	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.03					
1.25	0.76	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03			
1.50	0.92	17	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03

TPGB (Internal Threading)

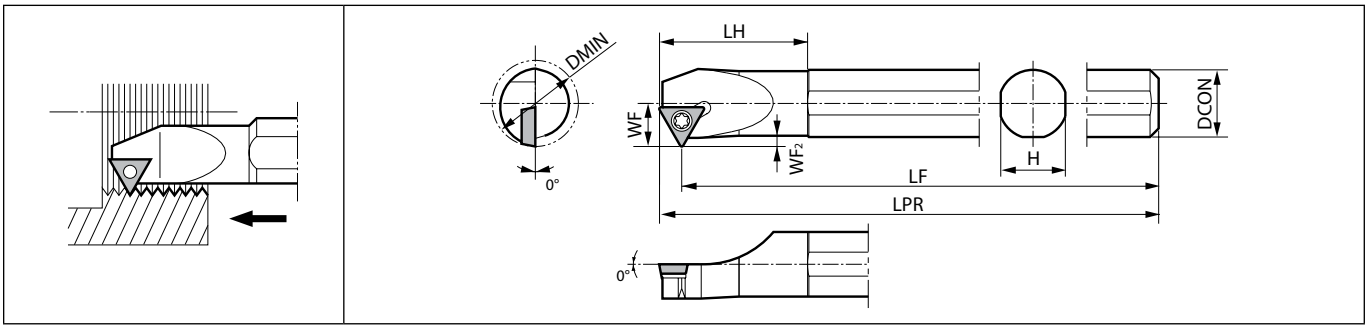
		Carbon Steel / Alloy Steel																	●			○			P
		Stainless Steel																							M
		Cast Iron																	●						K
		Non-Ferrous Metals																	●						N
Insert		Part Number	No. of edges	Dimensions (in)				Angle (°)		Pitch						Profile	Thread Type	Symbol Thread Type	Carbide	Cermet				Applicable Toolholder ➡ J51
				IC	S	D1	RE	AN	PNA	Unit	M (mm)		Unit	UN (TPI)					-	PVD		-		
											min.	max.		min.	max.				KW10	PV720	PV730	TN60	TN620	
	 Without Chipbreaker	TPGB 21502	3	1/4	3/32	0.138	0.002	11	60	mm	0.75	1.5	Inch	28	16	Partial Profile	Metric Unified	M UN	●			●		...STWP□L-2 ...STWP□L 11-12(E)
		TPGB 22013	3	1/4	1/8	0.130	0.002	11	60		0.75	3.5		28	11				●			●		...STWP□L 11-16(E)
		2202					0.004				1.5			16	8							●		...STWP□L 11-20(E)
		2205					0.008				3			8	8				●	●	●	●	●	...STWP□L 11-25(E)

Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J61

J THREADING

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-STWP (Internal Threading)



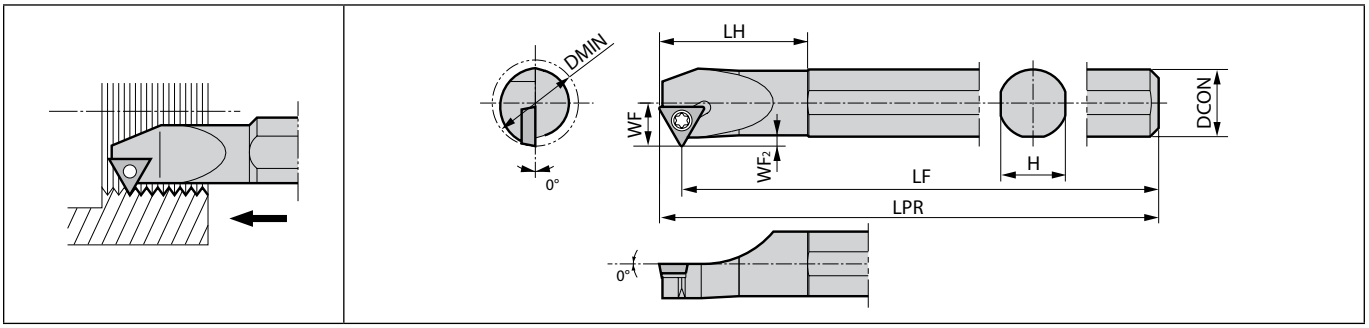
This toolholder is also available for boring. | Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								GAMO (°)	Coolant Hole	Available Pitch (TPI / mm)	Spare Parts		Applicable Inserts J50
		R	DMIN	DCON	H	LH	LPR	LF	WF	WF2				Screw	Wrench	
Inch	S06M- STWPR-2	●	0.476	0.375	0.340	0.910	6.00	5.783	0.238	0.050	0	No	14-32 TPI	SB-3STR	FT-10	TPGB215..
Inch	S12R- STWPR-2	●	0.970	0.750	0.720	1.600	8.00	7.783	0.485	0.110	0	No	8-32 TPI	SB-3STR	FT-10	TPGB215..
mm	S10M- STWPR11-12	●	12	10	9.2	23	150	144.5	6	1	0	No	≤ 1.5	SB-3STR	FT-10	TPGB215..
mm	S12M- STWPR11-16	●	16	12	11	30	150	144.5	8	1.5	0	No	≤ 2	SB-3STR	FT-10	TPGB22..
mm	S16Q- STWPR11-20	●	20	16	15	35	180	174.5	10	2	0	No	≤ 3	SB-3TR	FT-10	TPGB22..
mm	S20R- STWPR11-25	●	25	20	19	40	200	194.5	12.5	2.5	0	No	≤ 3.5	SB-3TR	FT-10	TPGB22..

WF_2 : shows the Max. available D.O.C.

S-STWP-E (Internal Threading, Excellent Bar)



This toolholder is also available for boring. | Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Coolant Hole	Pitch max (mm)	Spare Parts		Applicable Inserts J50
		R	L	DMIN	DCON	H	LH	LPR	LF	WF	WF2				Screw	Wrench	
mm	S10M- STWP□11-12E	●	●	12	10	9.2	23	150	144.5	6	1	0	No	1.5	SB-3STR	FT-10	TPGB215..
mm	S12M- STWP□11-16E	●	●	16	12	11	30	150	144.5	8	1.5	0	No	2	SB-3STR	FT-10	TPGB22..
mm	S16R- STWP□11-20E	●	●	20	16	15	35	200	194.5	10	2	0	No	3	SB-3TR	FT-10	TPGB22..
mm	S20X- STWP□11-25E	●	●	25	20	19	40	220	214.5	12.5	2.5	0	No	3.5	SB-3TR	FT-10	TPGB22..

WF_2 : shows the Max. available D.O.C.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KTN / KTNS / SIN / CIN

Workpiece Material	Recommended Insert Grade (Vc sfm)					
	Cermet	MEGACOAT	MEGACOAT NANO		PVD Coated Carbide	Carbide
	TC60	PR1215	PR1515	PR1535	PR1115	GW15
Carbon Steel	☆ 330-490	★ 330-490	-	-	☆ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	-	-	0.0118" or less	-
Alloy Steel	☆ 330-490	★ 330-490	-	-	☆ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	-	-	0.0118" or less	-
Stainless Steel	☆ 200-260	-	★ 200-330	☆ 130-260	☆ 200-260	-
Initial D.O.C. (Radial)	0.0098" or less	-	0.0098" or less	0.0098" or less	0.0098" or less	-
Cast Iron	-	-	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	-	-	0.0118" or less
Aluminum	-	-	-	-	-	★ 490~1310
Initial D.O.C. (Radial)	-	-	-	-	-	0.0118" or less
Brass	-	-	-	-	-	★ 490~980
Initial D.O.C. (Radial)	-	-	-	-	-	0.0118" or less

For 06IR / 08IR inserts, we recommend 40% lower sfm.

KTT

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	PR930	PR1115	KW10
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Stainless Steel	☆ 200-260	☆ 200-260	★ 200-260	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Aluminum	-	-	-	★ 490~1310
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Brass	-	-	-	★ 490~980
Initial D.O.C. (Radial)	-	-	-	0.0118" or less

S-STWP (-E)

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TN6020	TN60	PV7020	KW10
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Stainless Steel	-	-	-	-
Initial D.O.C. (Radial)	-	-	-	-
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	0.0098" or less
Aluminum	-	-	-	★ 490~1310
Initial D.O.C. (Radial)	-	-	-	0.0098" or less
Brass	-	-	-	★ 490~980
Initial D.O.C. (Radial)	-	-	-	0.0098" or less

KTTX / S-KTTX

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	PR930	PR1115	GW15
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Stainless Steel	☆ 200-260	☆ 200-260	★ 200-260	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Aluminum	-	-	-	★ 490~1310
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Brass	-	-	-	★ 490~980
Initial D.O.C. (Radial)	-	-	-	0.0118" or less

KITG

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	PR930	PR1115	GW15
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Stainless Steel	☆ 200-260	☆ 200-260	★ 200-260	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Aluminum	-	-	-	★ 490~1310
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Brass	-	-	-	★ 490~980
Initial D.O.C. (Radial)	-	-	-	0.0118" or less

KKC / A-KKC (Cera-Notch)

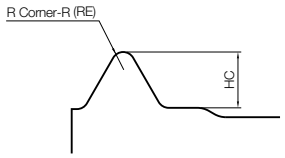
Workpiece Material	Recommended Insert Grade (Vc sfm)	Initial D.O.C. (Radial)
	MEGACOAT	
	PR1215	
Carbon Steel	★ 300-550	0.012" Max
Alloy Steel	★ 300-500	0.012" Max
Stainless Steel	★ 200-300	0.010" Max
Cast Iron	★ 150-350	0.012" Max
Heat-Resistant Alloy	★ 25-150	0.010" Max

★ : 1st Recommendation ☆ : 2nd Recommendation

- Coolant is recommended.
- When using cermet inserts if edge chipping occurs lightly hone cutting edge with diamond file.
- For stainless steel threading, please set smaller initial D.O.C. and two or three more passes than threading for carbon steel.

Usage caution for Full Profile insert.

1) Max. D.O.C. is based on the value of (HC+0.0020")-(HC+0.0031").
2) Final D.O.C. for Finishing should be 0.0008"-0.0020".
3) To improve insert life, pre chamfer to thread minor diameter.
4) Coolant is recommended.



(D.O.C. shows the value of radial D.O.C.)

11 / 16 / 22 (Full Profile)

Thread Type		Pitch / TPI mm / TPI	Part Number	HC (mm)	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass
Metric	External Thread	1.00mm	16ER 100ISO-TF/TQ	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05														
		1.25mm	125ISO-TF/TQ	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05													
		1.50mm	150ISO-TF/TQ	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05													
		1.75mm	175ISO-TF/TQ	1.11	1.19	8	0.26	0.22	0.19	0.16	0.13	0.10	0.08	0.05											
		2.00mm	200ISO-TF/TQ	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05									
		2.50mm	250ISO-TF/TQ	1.57	1.65	12	0.26	0.23	0.21	0.18	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05							
		3.00mm	300ISO-TF/TQ	1.87	1.95	14	0.26	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.02					
		0.50mm	16E§ 050ISO	0.33	0.38	4	0.14	0.12	0.08	0.04															
		0.75mm	075ISO	0.48	0.53	5	0.17	0.14	0.10	0.08	0.04														
		1.00mm	100ISO	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05														
		1.25mm	125ISO	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05													
		1.50mm	150ISO	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05													
		2.00mm	200ISO	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05									
		2.50mm	250ISO	1.57	1.65	12	0.26	0.23	0.21	0.18	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05							
		3.00mm	22ER 300ISO	1.87	1.95	14	0.26	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.02					
		3.50mm	350ISO	2.18	2.26	15	0.28	0.25	0.22	0.20	0.20	0.18	0.16	0.15	0.15	0.12	0.10	0.10	0.08	0.05	0.02				
		4.00mm	400ISO	2.48	2.56	17	0.28	0.25	0.24	0.22	0.20	0.18	0.16	0.15	0.15	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02		
		4.50mm	450ISO	2.79	2.87	18	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.16	0.16	0.14	0.14	0.13	0.12	0.10	0.10	0.07	0.05	0.02	
		5.00mm	500ISO	3.10	3.18	19	0.30	0.28	0.27	0.26	0.23	0.20	0.18	0.18	0.17	0.16	0.16	0.15	0.15	0.13	0.12	0.10	0.07	0.05	0.02
	Internal Thread	1.00mm	11IR 100ISO-TF/TQ	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.25mm	125ISO-TF/TQ	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
		1.50mm	150ISO-TF/TQ	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08	0.07	0.05											
		1.75mm	175ISO-TF/TQ	1.02	1.10	9	0.24	0.18	0.16	0.14	0.10	0.10	0.08	0.05	0.05										
		0.50mm	11I§ 050ISO	0.31	0.36	4	0.14	0.10	0.08	0.04															
		0.75mm	075ISO	0.45	0.50	5	0.15	0.14	0.10	0.07	0.04														
		1.00mm	100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.25mm	125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
		1.50mm	150ISO	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08	0.07	0.05											
		1.75mm	175ISO	1.02	1.10	9	0.24	0.18	0.16	0.14	0.10	0.10	0.08	0.05	0.05										
		2.00mm	200ISO	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05									
		1.00mm	16IR 100ISO-TF/TQ	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.25mm	125ISO-TF/TQ	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
		1.50mm	150ISO-TF/TQ	0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08	0.07	0.05											
		1.75mm	175ISO-TF/TQ	1.02	1.10	9	0.22	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05										
		2.00mm	200ISO-TF/TQ	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05									
		2.50mm	250ISO-TF/TQ	1.46	1.54	12	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.05							
		3.00mm	300ISO-TF/TQ	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15	0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.02					
		1.00mm	16I§ 100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.25mm	125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
		1.50mm	150ISO	0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08	0.07	0.05											
		2.00mm	200ISO	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05									
		2.50mm	250ISO	1.46	1.54	12	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.05							
		3.00mm	300ISO	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15	0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.02					
		3.00mm	22IR 300ISO	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15	0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.02					
		3.50mm	350ISO	2.05	2.13	15	0.26	0.24	0.22	0.20	0.17	0.17	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02				
		4.00mm	400ISO	2.34	2.42	17	0.26	0.24	0.22	0.20	0.18	0.18	0.16	0.15	0.14	0.13	0.12	0.12	0.10	0.10	0.05	0.05	0.02		
		4.50mm	450ISO	2.63	2.71	18	0.26	0.25	0.24	0.22	0.22	0.20	0.18	0.17	0.15	0.13	0.13	0.12	0.12	0.10	0.10	0.05	0.05	0.02	
		5.00mm	500ISO	2.92	3.00	19	0.28	0.26	0.24	0.22	0.20	0.20	0.18	0.18	0.16	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.05	0.02
Unified	External Thread	24 TPI	16ER 24UN-TF/TQ	0.0264	0.0295	5	0.009	0.008	0.006	0.004	0.002														
		20 TPI	20UN-TF/TQ	0.0315	0.0346	6	0.009	0.008	0.006	0.005	0.004	0.002													
		18 TPI	18UN-TF/TQ	0.0350	0.0382	6	0.010	0.009	0.007	0.006	0.004	0.002													
		16 TPI	16UN-TF/TQ	0.0398	0.0429	7	0.010	0.009	0.007	0.006	0.005	0.004	0.002												
		14 TPI	14UN-TF/TQ	0.0453	0.0484	8	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.002											
		13 TPI	13UN-TF/TQ	0.0488	0.0520	9	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.003	0.002										
		12 TPI	12UN-TF/TQ	0.0528	0.0559	11	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002								
		10 TPI	10UN-TF/TQ	0.0626	0.0657	12	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.002							
		8 TPI	08UN-TF/TQ	0.0780	0.0811	14	0.010	0.009	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.002					
		24 TPI	16ER 24UN	0.0264	0.0295	5	0.009	0.008	0.006	0.004	0.002														
		20 TPI	20UN	0.0315	0.0346	6	0.009	0.008	0.006	0.005	0.004	0.002													
		18 TPI	18UN	0.0350	0.0382	6	0.010	0.009	0.007	0.006	0.004	0.002													
		16 TPI	16UN	0.0398	0.0429	7	0.010	0.009	0.007	0.006	0.005	0.004	0.002												
		14 TPI	14UN	0.0453	0.0484	8	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.002											
		12 TPI	12UN	0.0528	0.0559	11	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002								
		8 TPI	22ER 08UN	0.0780	0.0811	15	0.012	0.010	0.009	0.008	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.002	0.002	0.001				
	Internal Thread	24 TPI	16IR 24UN-TF/TQ	0.0244	0.0276	5	0.009	0.008	0.006	0.004	0.002														
		20 TPI	20UN-TF/TQ	0.0295	0.0327	6	0.009	0.008	0.006	0.005	0.003	0.002													
		18 TPI	18UN-TF/TQ	0.0327	0.0358	6	0.009	0.008	0.007	0.006	0.004	0.002													
		16 TPI	16UN-TF/TQ	0.0370	0.0402	7	0.009	0.008	0.007	0.006	0.004	0.004	0.002												
		14 TPI	14UN-TF/TQ	0.0421	0.0453	8	0.009	0.009	0.007	0.006	0.005	0.004	0.004	0.002											
		13 TPI	13UN-TF/TQ	0.0453	0.0484	9	0.009	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.002										
		12 TPI	12UN-TF/TQ	0.0488	0.0520	11	0.009	0.009	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002								
		10 TPI	10UN-TF/TQ	0.0583	0.0614	12	0.009	0.009	0.008	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002							
		8 TPI	08UN-TF/TQ	0.0732	0.0764	14	0.009	0.009	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.002					
		24 TPI	16IR 24UN	0.0244	0.0276	5	0.009	0.008	0.006	0.004	0.002														
		20 TPI	20UN	0.0295	0.0327	6	0.009	0.008	0.006	0.005	0.003	0.002													
		18 TPI	18UN	0.0327	0.0358	6	0.009	0.007	0.006	0.006	0.004	0.002													
		16 TPI	16UN	0.0370	0.0402	7	0.009	0.008	0.007	0.006	0.004	0.004	0.002												
		14 TPI	14UN	0.0421	0.0453	8	0.009	0.009	0.007	0.006	0.005	0.004	0.004	0.002											
		12 TPI	12UN	0.0488	0.0520	11	0.009	0.009	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002								
		8 TPI	22IR 08UN	0.0724	0.0756	15	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.002	0.002	0.001				

11 / 16 (Full Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type		Pitch TPI	Part Number		HC (mm)	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass
Parallel Pipe	External Thread	19 TPI	16ER	19W-TF/TQ	0.0350	0.0382	6	0.011	0.009	0.007	0.006	0.004	0.002										
		14 TPI		14W-TF/TQ	0.0469	0.0500	9	0.011	0.009	0.007	0.006	0.004	0.004	0.004	0.003	0.002							
		11 TPI		11W-TF/TQ	0.0591	0.0622	12	0.011	0.009	0.007	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.002				
	Internal Thread	19 TPI	16IR	19W-TF/TQ	0.0346	0.0378	6	0.010	0.008	0.008	0.006	0.004	0.002										
		14 TPI		14W-TF/TQ	0.0469	0.0500	9	0.011	0.009	0.007	0.006	0.004	0.004	0.004	0.003	0.002							
		11 TPI		11W-TF/TQ	0.0591	0.0622	12	0.011	0.009	0.007	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.002				
Whitworth	External Thread	16 TPI	16ER	16W-TF/TQ	0.0413	0.0445	8	0.010	0.008	0.007	0.006	0.005	0.003	0.003	0.002								
		14 TPI		14W-TF/TQ	0.0469	0.0500	9	0.011	0.009	0.007	0.006	0.004	0.004	0.004	0.003	0.002							
		11 TPI		11W-TF/TQ	0.0591	0.0622	12	0.011	0.009	0.007	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.002				
	Internal Thread	16 TPI	16IR	16W-TF/TQ	0.0413	0.0445	8	0.010	0.008	0.007	0.006	0.005	0.003	0.003	0.002								
		14 TPI		14W-TF/TQ	0.0469	0.0500	9	0.011	0.009	0.007	0.006	0.004	0.004	0.004	0.003	0.002							
		11 TPI		11W-TF/TQ	0.0591	0.0622	12	0.011	0.009	0.007	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.002				
Tapered Pipe	External Thread	28 TPI	16ER	28BSPT-TF/TQ	0.0228	0.0248	5	0.008	0.006	0.005	0.004	0.002											
		19 TPI		19BSPT-TF/TQ	0.0339	0.0370	6	0.010	0.008	0.007	0.006	0.004	0.002										
		14 TPI		14BSPT-TF/TQ	0.0457	0.0488	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002							
		11 TPI		11BSPT-TF/TQ	0.0583	0.0614	12	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.002				
		28 TPI	16ER	28BSPT	0.0228	0.0248	5	0.008	0.006	0.005	0.004	0.002											
		19 TPI		19BSPT	0.0339	0.0370	6	0.010	0.008	0.007	0.006	0.004	0.002										
		14 TPI		14BSPT	0.0457	0.0488	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002							
		11 TPI		11BSPT	0.0583	0.0614	12	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.002				
	Internal Thread	28 TPI	11IR	28BSPT-TF/TQ	0.0228	0.0248	5	0.008	0.006	0.005	0.004	0.002											
		19 TPI		19BSPT-TF/TQ	0.0339	0.0370	7	0.009	0.008	0.007	0.006	0.004	0.002	0.002									
		14 TPI		14BSPT-TF/TQ	0.0457	0.0488	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002							
		28 TPI	11IR	28BSPT	0.0228	0.0248	5	0.008	0.006	0.005	0.004	0.002											
		19 TPI		19BSPT	0.0339	0.0370	7	0.009	0.008	0.007	0.006	0.004	0.002	0.002									
		14 TPI		14BSPT	0.0457	0.0488	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002							
		14 TPI	16IR	14BSPT-TF/TQ	0.0457	0.0488	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002							
		11 TPI		11BSPT-TF/TQ	0.0583	0.0614	12	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.002				
		14 TPI	16IR	14BSPT	0.0457	0.0488	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002							
		11 TPI		11BSPT	0.0583	0.0614	12	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.002				
American National Tapered Pipe	External Thread	18 TPI	16ER	18NPT	0.0449	0.0480	13	0.008	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.001			
		14 TPI		14NPT	0.0575	0.0606	15	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	
		11.5 TPI		11.5NPT	0.0697	0.0728	16	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.001
	Internal Thread	18 TPI	16IR	18NPT	0.0449	0.0480	13	0.008	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.001			
		14 TPI		14NPT	0.0575	0.0606	15	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	
		11.5 TPI		11.5NPT	0.0697	0.0728	16	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.001

60° / 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type		Pitch mm	Part Number		RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass
Metric	External Thread	0.50mm	16ER	A60-TF/TQ	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03										
				AG60-TF/TQ	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03										
		0.75mm	16ER	A60-TF/TQ	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04									
				AG60-TF/TQ	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04									
		1.00mm	16ER	A60-TF/TQ	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04								
				AG60-TF/TQ	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04								
		1.25mm	16ER	A60-TF/TQ	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05							
				AG60-TF/TQ	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05							
		1.50mm	16ER	A60-TF/TQ	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05						
				AG60-TF/TQ	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05						
		1.75mm	16ER	G60-TF/TQ	0.22	1.11	8	0.24	0.20	0.18	0.16	0.13	0.10	0.06	0.04							
				AG60-TF/TQ	0.06	1.27	11	0.22	0.20	0.18	0.13	0.11	0.09	0.09	0.08	0.07	0.06	0.04				
		2.00mm	16ER	G60-TF/TQ	0.22	1.30	10	0.24	0.20	0.18	0.16	0.14	0.12	0.09	0.07	0.06	0.04					
				AG60-TF/TQ	0.06	1.46	11	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.06	0.04				
		2.50mm	16ER	G60-TF/TQ	0.22	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.08	0.06	0.04			
				AG60-TF/TQ	0.06	1.84	13	0.25	0.22	0.20	0.19	0.17	0.16	0.14	0.11	0.10	0.09	0.09	0.07	0.05		
		3.00mm	16ER	G60-TF/TQ	0.22	2.05	14	0.25	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05	
				AG60-TF/TQ	0.06	2.22	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.09	0.08	0.05
		0.50mm	16ER	A60	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03										
				AG60	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03										
		0.75mm	16ER	A60	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04									
				AG60	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04									
		1.00mm	16ER	A60	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04								
				AG60	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04								
		1.25mm	16ER	A60	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05							
				AG60	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05							
		1.50mm	16ER	A60	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05						
				AG60	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05						
		1.75mm	16ER	G60	0.22	1.11	8	0.24	0.20	0.18	0.16	0.13	0.10	0.06	0.04							
				AG60	0.06	1.27	11	0.22	0.20	0.18	0.13	0.11	0.09	0.09	0.08	0.07	0.06	0.04				
		2.00mm	16ER	G60	0.22	1.30	10	0.24	0.20	0.18	0.16	0.14	0.12	0.09	0.07	0.06	0.04					
				AG60	0.06	1.46	11	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.06	0.04				
		2.50mm	16ER	G60	0.22	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.08	0.06	0.04			
				AG60	0.06	1.84	13	0.25	0.22	0.20	0.19	0.17	0.16	0.14	0.11	0.10	0.09	0.09	0.07	0.05		
		3.00mm	16ER	G60	0.22	2.05	14	0.25	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05	
				AG60	0.06	2.22	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.09	0.08	0.05

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60° / 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type		Pitch mm / TPI	Part Number		RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass
Metric	External Thread	3.50mm	22ER	N60	0.48	2.17	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.05				
		4.00mm				2.55	17	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05		
		4.50mm				2.93	18	0.30	0.28	0.26	0.25	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05	
		5.00mm				3.31	19	0.30	0.28	0.27	0.26	0.25	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.09	0.08	0.07	0.06	0.05
	Internal Thread	0.75mm	06IR	60005	0.05	0.44	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03									
		1.00mm	06IR	60005	0.05	0.60	12	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.03							
			08IR	60007	0.07	0.58	12	0.07	0.06	0.06	0.06	0.06	0.05	0.04	0.04	0.04	0.04	0.03	0.03							
		1.25mm	06IR	60005	0.05	0.76	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03					
			08IR	60007	0.07	0.74	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03					
		1.50mm	08IR	60007	0.07	0.90	17	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03		
		1.75mm		60007	0.07	1.07	19	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03
		0.50mm				0.30	5	0.08	0.07	0.06	0.05	0.04														
		1.00mm	11IR	A60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
		1.50mm				0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04										
		0.50mm	16IR	A60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04														
				AG60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04														
		0.75mm	16IR	A60	0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04													
				AG60	0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04													
		1.00mm	16IR	A60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
				AG60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
		1.25mm	16IR	A60	0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04												
				AG60	0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04												
		1.50mm	16IR	A60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04										
				AG60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04										
		1.75mm	16IR	G60	0.11	1.03	9	0.20	0.17	0.15	0.13	0.11	0.10	0.08	0.05	0.04										
				AG60	0.02	1.12	10	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.06	0.05	0.04									
		2.00mm	16IR	G60	0.11	1.19	10	0.20	0.18	0.17	0.15	0.13	0.11	0.08	0.07	0.06	0.04									
				39G60	0.02	1.28	12	0.20	0.17	0.15	0.13	0.12	0.11	0.10	0.09	0.07	0.06	0.04	0.04							
		2.50mm	16IR	G60	0.11	1.51	14	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.04	0.02					
				AG60	0.02	1.6	16	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.05	0.04	0.04	0.02			
		3.00mm	16IR	G60	0.11	1.84	16	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.10	0.10	0.08	0.07	0.06	0.04	0.02			
				AG60	0.02	1.93	18	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.13	0.12	0.10	0.10	0.08	0.07	0.06	0.05	0.04	0.03	0.02	
		3.50mm	22IR	N60	0.22	2.05	14	0.26	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.08	0.06	0.05					
		4.00mm				2.38	16	0.26	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05			
		4.50mm				2.70	18	0.26	0.24	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05	
		5.00mm				3.03	19	0.30	0.27	0.25	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05
Unified (inch)	External Thread	48 TPI	16ER	A60-TF	0.0024	0.0138	5	0.004	0.003	0.003	0.002	0.002														
				AG60-TF	0.0024	0.0138	5	0.004	0.003	0.003	0.002	0.002														
		24 TPI	16ER	A60-TF	0.0024	0.0295	7	0.007	0.006	0.005	0.004	0.003	0.003	0.002												
				AG60-TF	0.0024	0.0295	7	0.007	0.006	0.005	0.004	0.003	0.003	0.002												
		20 TPI	16ER	A60-TF	0.0024	0.0358	8	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002											
				AG60-TF	0.0024	0.0358	8	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002											
		18 TPI	16ER	A60-TF	0.0024	0.0398	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002											
				AG60-TF	0.0024	0.0398	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002											
		16 TPI	16ER	A60-TF	0.0024	0.0453	10	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002									
				AG60-TF	0.0024	0.0453	10	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002									
		14 TPI	16ER	G60-TF	0.0087	0.0453	9	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002										
				AG60-TF	0.0024	0.0520	11	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002								
		13 TPI	16ER	G60-TF	0.0087	0.0496	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002										
				AG60-TF	0.0024	0.0563	11	0.010	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002								
		12 TPI	16ER	G60-TF	0.0087	0.0543	10	0.010	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002									
				AG60-TF	0.0024	0.0610	12	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002							
		10 TPI	16ER	G60-TF	0.0087	0.0673	12	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.002							
				AG60-TF	0.0024	0.0736	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002						
		9 TPI	16ER	G60-TF	0.0087	0.0756	13	0.011	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002						
				AG60-TF	0.0024	0.0819	14	0.011	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002					
		8 TPI	16ER	G60-TF	0.0087	0.0862	15	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002					
				AG60-TF	0.0024	0.0925	16	0.012	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002			
		48 TPI	16ER	A60	0.0024	0.0138	5	0.004	0.003	0.003	0.002	0.002														
				AG60	0.0024	0.0138	5	0.004	0.003	0.003	0.002	0.002														
		24 TPI	16ER	A60	0.0024	0.0295	7	0.007	0.006	0.005	0.004	0.003	0.003	0.002												
				AG60	0.0024	0.0295	7	0.007	0.006	0.005	0.004	0.003	0.003	0.002												
		20 TPI	16ER	A60	0.0024	0.0358	8	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002											
				AG60	0.0024	0.0358	8	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002											
		18 TPI	16ER	A60	0.0024	0.0398	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002											
				AG60	0.0024	0.0398	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002											
		16 TPI	16ER	A60	0.0024	0.0453	10	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002									
				AG60	0.0024	0.0453	10	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002									
		14 TPI	16ER	G60	0.0087	0.0453	9	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002										
				AG60	0.0024	0.0520	11	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002								
		13 TPI	16ER	G60	0.0087	0.0496	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002										
				AG60	0.0024	0.0563	11	0.010	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002								
		12 TPI	16ER	G60	0.0087	0.0543	10	0.010	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002									
				AG60	0.0024	0.0610	12	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002							
		10 TPI	16ER	G60	0.0087	0.0673	12	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.002							
				AG60	0.0024	0.0736	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002						
		9 TPI	16ER	G60	0.0087	0.0756	13	0.011	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002						
				AG60	0.0024	0.0819	14	0.011	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002					
		8 TPI	16ER	G60	0.0087	0.0862	15	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.002				
				AG60	0.0024	0.0925	16	0.012	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002			
		7 TPI	22ER	N60	0.0189	0.0894	15	0.011	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002				
		6 TPI				0.1075	18	0.011	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.002	0.002	
		5 TPI				0.1327	19	0.012	0.011	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002
	Internal Thread	28 TPI	06IR	60005	0.0020	0.0213	12	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001								
		24 TPI			0.0020	0.0252	12	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001							
		20 TPI	06IR	60005	0.0020	0.0303	14	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001					
			08IR	60007	0.0028	0.0295	14	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001					

60° / 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type		Pitch TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass
Unified (inch)	Internal Thread	18 TPI	08IR 60007	0.0028	0.0335	17	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001		
		16 TPI	08IR 60007	0.0028	0.0378	18	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	
		48 TPI	11IR A60	0.0008	0.0126	5	0.003	0.003	0.003	0.002	0.002														
		24 TPI			0.0264	7	0.006	0.005	0.005	0.004	0.003	0.002	0.002												
		20 TPI			0.0315	8	0.006	0.005	0.005	0.005	0.004	0.003	0.002	0.002											
		18 TPI			0.0354	9	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002										
		16 TPI			0.0398	10	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002									
		48 TPI	16IR A60	0.0008	0.0126	5	0.003	0.003	0.003	0.002	0.002														
			AG60	0.0008	0.0126	5	0.003	0.003	0.003	0.002	0.002														
		24 TPI	16IR A60	0.0008	0.0264	7	0.006	0.005	0.005	0.004	0.003	0.002	0.002												
			AG60	0.0008	0.0264	7	0.006	0.005	0.005	0.004	0.003	0.002	0.002												
		20 TPI	16IR A60	0.0008	0.0315	8	0.006	0.005	0.005	0.005	0.004	0.003	0.002	0.002											
			AG60	0.0008	0.0315	8	0.006	0.005	0.005	0.005	0.004	0.003	0.002	0.002											
		18 TPI	16IR A60	0.0008	0.0354	9	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002										
			AG60	0.0008	0.0354	9	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002										
		16 TPI	16IR A60	0.0008	0.0398	10	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002									
			AG60	0.0008	0.0398	10	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002									
		14 TPI	16IR G60	0.0043	0.0421	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002										
			AG60	0.0008	0.0457	11	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002								
		13 TPI	16IR G60	0.0043	0.0457	10	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002									
			AG60	0.0008	0.0492	12	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002	0.002							
		12 TPI	16IR G60	0.0043	0.0496	11	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.002								
			AG60	0.0008	0.0531	13	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002						
		10 TPI	16IR G60	0.0043	0.0606	14	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.001					
			AG60	0.0008	0.0642	16	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001			
		9 TPI	16IR G60	0.0043	0.0677	16	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.001			
			AG60	0.0008	0.0713	17	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001		
		8 TPI	16IR G60	0.0043	0.0768	17	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001		
			AG60	0.0008	0.0803	19	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.001	0.001
		7 TPI			0.0843	14	0.010	0.009	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002					
		6 TPI	22IR N60	0.0087	0.0996	17	0.011	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002		
		5 TPI			0.1213	18	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002
Parallel Pipe / Tapered Pipe	External Thread	28 TPI	16ER A55-TF/TQ	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002												
			AG55-TF/TQ	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002												
		19 TPI	16ER A55-TF/TQ	0.0024	0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002											
			AG55-TF/TQ	0.0024	0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002											
		14 TPI	16ER G55-TF/TQ	0.0087	0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002										
			AG55-TF/TQ	0.0024	0.0551	11	0.009	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002								
		11 TPI	16ER G55-TF/TQ	0.0087	0.0630	12	0.009	0.009	0.008	0.007	0.006	0.006	0.006	0.004	0.003	0.002	0.002	0.002							
			AG55-TF/TQ	0.0024	0.0705	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.001						
		28 TPI	16ER A55	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002												
			AG55	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002												
		19 TPI	16ER A55	0.0024	0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002											
			AG55	0.0024	0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002											
		14 TPI	16ER G55	0.0087	0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002										
			AG55	0.0024	0.0551	11	0.009	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002								
		11 TPI	16ER G55	0.0087	0.0630	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002							
			AG55	0.0024	0.0705	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.001						
	Internal Thread	28 TPI	06IR 5501	0.0039	0.0240	12	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001							
			08IR 5501	0.0039	0.0240	12	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001							
		19 TPI	08IR 5501	0.0039	0.0374	18	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	
		28 TPI	11IR A55	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002												
		19 TPI	11IR A55	0.0024	0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002											
		28 TPI	16IR A55	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002												
			AG55	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002												
		19 TPI	16IR A55	0.0024	0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002											
			AG55	0.0024	0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002											
		14 TPI	16IR G55	0.0087	0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002										
			AG55	0.0024	0.0551	11	0.009	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002								
		11 TPI	16IR G55	0.0087	0.0630	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002							
			AG55	0.0024	0.0705	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.001						
Whitworth	External Thread	48 TPI	16ER A55-TF/TQ	0.0024	0.0146	5	0.005	0.004	0.003	0.002	0.002														
			AG55-TF/TQ	0.0024	0.0146	5	0.005	0.004	0.003	0.002	0.002														
		24 TPI	16ER A55-TF/TQ	0.0024	0.0311	7	0.007	0.006	0.006	0.004	0.003	0.003	0.002												
			AG55-TF/TQ	0.0024	0.0311	7	0.007	0.006	0.006	0.004	0.003	0.003	0.002												
		20 TPI	16ER A55-TF/TQ	0.0024	0.0378	8	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002											
			AG55-TF/TQ	0.0024	0.0378	8	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002											
		18 TPI	16ER A55-TF/TQ	0.0024	0.0421	9	0.008	0.007	0.006	0.006	0.004	0.004	0.003	0.003	0.002										
			AG55-TF/TQ	0.0024	0.0421	9	0.008	0.007	0.006	0.006	0.004	0.004	0.003	0.003	0.002										
		16 TPI	16ER A55-TF/TQ	0.0024	0.0480	11	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002								
			AG55-TF/TQ	0.0024	0.0480	11	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002								
		14 TPI	16ER G55-TF/TQ	0.0087	0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002										
			AG55-TF/TQ	0.0024	0.0551	11	0.009	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002								
		12 TPI	16ER G55-TF/TQ	0.0087	0.0567	10	0.009	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002									
			AG55-TF/TQ	0.0024	0.0646	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002							
		11 TPI	16ER G55-TF/TQ	0.0087	0.0630	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002							
			AG55-TF/TQ	0.0024	0.0705	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.001						
		10 TPI	16ER G55-TF/TQ	0.0087	0.0701	12	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002							
			AG55-TF/TQ	0.0024	0.0780	14	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002					
		9 TPI	16ER G55-TF/TQ	0.0087	0.0791	14	0.009	0.009	0.008	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002					
			AG55-TF/TQ	0.0024	0.0866	15	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.002				
		8 TPI	16ER G55-TF/TQ	0.0087	0.0902	15	0.011	0.010	0.009	0.009	0.008	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.002				
			AG55-TF/TQ	0.0024	0.0980	16	0.012	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002			
		48 TPI	16ER A55	0.0024	0.0146	5	0.005	0.004	0.003	0.002	0.002														
			AG55	0.0024	0.0146	5	0.005	0.004	0.003	0.002	0.002														

60° / 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type		Pitch mm / TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass
Whitworth	External Thread	24 TPI	16ER A55	0.0024	0.0311	7	0.007	0.006	0.006	0.004	0.003	0.003	0.002												
			AG55	0.0024	0.0311	7	0.007	0.006	0.006	0.004	0.003	0.003	0.002												
		20 TPI	16ER A55	0.0024	0.0378	8	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002											
			AG55	0.0024	0.0378	8	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002											
		18 TPI	16ER A55	0.0024	0.0421	9	0.008	0.007	0.006	0.006	0.004	0.004	0.003	0.003	0.002										
			AG55	0.0024	0.0421	9	0.008	0.007	0.006	0.006	0.004	0.004	0.003	0.003	0.002										
		16 TPI	16ER A55	0.0024	0.0480	11	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002								
			AG55	0.0024	0.0480	11	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002								
		14 TPI	16ER G55	0.0087	0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002										
			AG55	0.0024	0.0551	11	0.009	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002								
		12 TPI	16ER G55	0.0087	0.0567	10	0.009	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002									
			AG55	0.0024	0.0646	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002							
		11 TPI	16ER G55	0.0087	0.0630	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002							
			AG55	0.0024	0.0705	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.001						
		10 TPI	16ER G55	0.0087	0.0701	12	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002							
			AG55	0.0024	0.0780	14	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002					
		9 TPI	16ER G55	0.0087	0.0791	14	0.009	0.009	0.008	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002					
			AG55	0.0024	0.0866	15	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.002				
		8 TPI	16ER G55	0.0087	0.0902	15	0.011	0.010	0.009	0.009	0.008	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.002				
			AG55	0.0024	0.0980	16	0.012	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002			
		7 TPI	22ER N55	0.0185	0.0957	16	0.012	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.004	0.004	0.003					
		6 TPI			0.1150	18	0.012	0.011	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002		
		5 TPI			0.1417	21	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.003
							0.002	0.002																	
	Internal Thread	28 TPI	06IR 5501	0.0039	0.0256	13	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001						
			08IR 5501																						
		19 TPI	08IR 5501	0.0039	0.0319	15	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001				
		24 TPI	11IR A55	0.0024	0.0283	7	0.006	0.006	0.005	0.004	0.003	0.003	0.002												
		20 TPI			0.0343	8	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.002											
		18 TPI			0.0382	8	0.008	0.007	0.006	0.006	0.004	0.003	0.002	0.002											
		16 TPI			0.0433	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002										
		24 TPI	16IR A55	0.0024	0.0283	7	0.006	0.006	0.005	0.004	0.003	0.003	0.002												
			AG55	0.0024	0.0283	7	0.006	0.006	0.005	0.004	0.003	0.003	0.002												
		20 TPI	16IR A55	0.0024	0.0343	8	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.002											
			AG55	0.0024	0.0343	8	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.002											
		18 TPI	16IR A55	0.0024	0.0382	8	0.008	0.007	0.006	0.006	0.004	0.003	0.002	0.002											
			AG55	0.0024	0.0382	8	0.008	0.007	0.006	0.006	0.004	0.003	0.002	0.002											
		16 TPI	16IR A55	0.0024	0.0433	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002										
			AG55	0.0024	0.0433	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002										
		14 TPI	16IR G55	0.0087	0.0417	8	0.008	0.008	0.007	0.006	0.005	0.004	0.003	0.002											
			AG55	0.0024	0.0500	11	0.008	0.007	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002								
		12 TPI	16IR G55	0.0087	0.0504	9	0.009	0.008	0.008	0.007	0.006	0.005	0.004	0.003	0.002										
			AG55	0.0024	0.0583	11	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.002	0.002	0.002								
		11 TPI	16IR G55	0.0087	0.0559	10	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002									
			AG55	0.0024	0.0638	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002							
		10 TPI	16IR G55	0.0087	0.0626	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002							
			AG55	0.0024	0.0705	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.001						
		9 TPI	16IR G55	0.0087	0.0705	12	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002							
			AG55	0.0024	0.0783	14	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002					
		8 TPI	16IR G55	0.0087	0.0807	14	0.009	0.009	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002					
			AG55	0.0024	0.0886	15	0.011	0.01	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.002				
		7 TPI	22IR N55	0.0185	0.0823	14	0.009	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002					
		6 TPI			0.0996	16	0.012	0.011	0.010	0.009	0.008	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.004	0.003	0.002	0.002			
		5 TPI			0.1236	19	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002
30° Trapezoidal	External Thread	2.00mm	16ER 200TR	-	1.25	10	0.22	0.20	0.17	0.16	0.13	0.12	0.10	0.07	0.05	0.03									
		3.00mm	16ER 300TR	-	1.75	14	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.10	0.07	0.05	0.03					
		4.00mm	22ER 400TR	-	2.24	15	0.26	0.23	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03				
		5.00mm	22ER 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03		
	Internal Thread	2.00mm	16IR 200TR	-	1.25	10	0.22	0.20	0.17	0.16	0.13	0.12	0.10	0.07	0.05	0.03									
		3.00mm	16IR 300TR	-	1.75	14	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.10	0.07	0.05	0.03					
		4.00mm	22IR 400TR	-	2.24	15	0.26	0.23	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03				
		5.00mm	22IR 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03		

Corner-R (R) Selection for Partial Profiling Inserts

	External Thread	Internal Thread
Metric Unified	RE ≤ 0.1443TP	RE ≤ 0.0720TP
Parallel Pipe Whitworth Tapered Pipe	For Both External and Internal Thread RE ≤ 0.1373TP	

Metric, Unified Thread
Corner-R(RE) at Internal Threading is almost half of that of External.

Parallel Pipe, Tapered Pipe, Whitworth Thread
Same Corner-R(RE) for both External and Internal Threading.

RE : Corner-RE TP : Pitch (TPI) = $(\frac{1}{n})$ n : TPI

TP : Pitch (Metric) = $(\frac{25.4}{n})$

11 / 16 (60° / 55° Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type		Pitch mm § TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass
Metric (60°)	External Thread	1.00mm	16ER 6001	0.10	0.66	5	0.20	0.18	0.12	0.09	0.05									
		1.25mm	16ER 6001	0.10	0.85	6	0.23	0.20	0.14	0.12	0.07	0.05								
		1.50mm	16ER 6001	0.10	1.04	8	0.23	0.21	0.19	0.15	0.11	0.06	0.05	0.04						
			6002	0.20	0.94	7	0.23	0.20	0.18	0.14	0.10	0.05	0.04							
		1.75mm	16ER 6001	0.10	1.23	9	0.25	0.22	0.20	0.17	0.14	0.09	0.07	0.05	0.04					
			6002	0.20	1.13	8	0.25	0.22	0.20	0.16	0.14	0.07	0.05	0.04						
		2.00mm	16ER 6001	0.10	1.42	11	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04			
			6002	0.20	1.32	10	0.25	0.22	0.20	0.16	0.14	0.12	0.08	0.07	0.04	0.04				
		2.50mm	16ER 6001	0.10	1.79	13	0.25	0.22	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.09	0.08	0.05	0.04	
			6002	0.20	1.69	12	0.25	0.22	0.20	0.18	0.16	0.16	0.12	0.12	0.10	0.08	0.06	0.04		
	Internal Thread	0.75mm	11IR 60005	0.05	0.44	5	0.14	0.12	0.10	0.06	0.02									
		1.00mm	11IR 60005	0.05	0.60	6	0.18	0.15	0.10	0.08	0.05	0.04								
		1.25mm	11IR 60005	0.05	0.76	7	0.18	0.15	0.12	0.10	0.10	0.07	0.04							
		1.50mm	11IR 60005	0.05	0.92	9	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.06	0.04					
			16IR 6001	0.10	0.87	8	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.05						
		1.75mm	16IR 6001	0.10	1.04	9	0.20	0.18	0.15	0.12	0.12	0.10	0.08	0.05	0.04					
		2.00mm	16IR 6001	0.10	1.20	11	0.20	0.18	0.15	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.04			
		2.50mm	16IR 6001	0.10	1.52	14	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.06	0.04	0.02
			60015	0.15	1.47	13	0.20	0.18	0.16	0.15	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.04	0.02	
Parallel Pipe / Tapered Pipe (55°)	External Thread	28 TPI	16ER 5501	0.0039	0.0240	5	0.008	0.006	0.005	0.003	0.002									
		19 TPI	16ER 5501	0.0039	0.0374	7	0.009	0.008	0.006	0.006	0.004	0.003	0.002							
		14 TPI	16ER 5501	0.0039	0.0528	10	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.002				
			5502	0.0079	0.0480	9	0.009	0.008	0.007	0.006	0.004	0.004	0.004	0.003	0.002					
		11 TPI	16ER 5501	0.0039	0.0681	13	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.001	
			5502	0.0079	0.0638	12	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.001		
	Internal Thread	28 TPI	11IR 55005	0.0020	0.0264	7	0.007	0.006	0.005	0.003	0.002	0.002	0.001							
			16IR 5501	0.0039	0.0240	6	0.007	0.006	0.005	0.003	0.002	0.001								
		19 TPI	11IR 55005	0.0020	0.0398	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002						
			16IR 5501	0.0039	0.0374	7	0.008	0.007	0.006	0.006	0.005	0.004	0.002							
		14 TPI	11IR 55005	0.0020	0.0547	11	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002			
			16IR 5501	0.0039	0.0528	10	0.008	0.007	0.007	0.006	0.006	0.006	0.004	0.004	0.003	0.002				
			5502	0.0079	0.0480	9	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.002					
		11 TPI	16IR 5501	0.0039	0.0681	12	0.010	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.002		
			5502	0.0079	0.0638	11	0.010	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.003	0.002			
Whitworth (55°)	External Thread	24 TPI	16ER 5501	0.0039	0.0287	6	0.009	0.007	0.005	0.004	0.003	0.002								
		20 TPI	16ER 5501	0.0039	0.0354	6	0.009	0.007	0.007	0.006	0.005	0.002								
		18 TPI	16ER 5501	0.0039	0.0398	7	0.009	0.008	0.007	0.006	0.004	0.003	0.002							
		16 TPI	16ER 5501	0.0039	0.0453	9	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002					
			5502	0.0079	0.0409	8	0.009	0.008	0.006	0.006	0.004	0.003	0.003	0.002						
		14 TPI	16ER 5501	0.0039	0.0528	10	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.002				
			5502	0.0079	0.0480	9	0.009	0.008	0.007	0.006	0.004	0.004	0.004	0.003	0.002					
		12 TPI	16ER 5501	0.0039	0.0622	12	0.010	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.003	0.003	0.002		
			5502	0.0079	0.0575	11	0.010	0.008	0.007	0.006	0.006	0.006	0.004	0.003	0.003	0.003	0.002			
		11 TPI	16ER 5501	0.0039	0.0681	12	0.010	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.002		
			5502	0.0079	0.0638	11	0.010	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002			
		10 TPI	16ER 5501	0.0039	0.0756	14	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.001
			5502	0.0079	0.0709	13	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.001	
		9 TPI	16ER 5502	0.0079	0.0799	14	0.010	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.001
	Internal Thread	24 TPI	11IR 55005	0.0020	0.0280	7	0.007	0.006	0.005	0.004	0.003	0.002	0.001							
			16IR 5501	0.0039	0.0256	6	0.007	0.006	0.005	0.004	0.003	0.001								
		20 TPI	11IR 55005	0.0020	0.0343	8	0.007	0.006	0.006	0.005	0.004	0.002	0.002	0.002						
			16IR 5501	0.0039	0.0319	7	0.007	0.006	0.006	0.005	0.004	0.002	0.002							
		18 TPI	11IR 55005	0.0020	0.0382	8	0.008	0.007	0.006	0.006	0.004	0.003	0.002	0.002						
			16IR 5501	0.0039	0.0358	7	0.008	0.007	0.006	0.006	0.004	0.003	0.002							
		16 TPI	11IR 55005	0.0020	0.0429	9	0.008	0.007	0.006	0.006	0.004	0.004	0.003	0.003	0.002					
			16IR 5501	0.0039	0.0409	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002						
			5502	0.0079	0.0362	7	0.008	0.007	0.006	0.006	0.004	0.003	0.002							
		14 TPI	11IR 55005	0.0020	0.0496	10	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002				
			16IR 5501	0.0039	0.0472	9	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.002					
			5502	0.0079	0.0425	8	0.008	0.007	0.007	0.006	0.005	0.004	0.003	0.002						
		12 TPI	16IR 5501	0.0039	0.0559	10	0.010	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002				
			5502	0.0079	0.0512	9	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.003	0.002					
		11 TPI	16IR 5501	0.0039	0.0614	11	0.010	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.002			
			5502	0.0079	0.0567	10	0.010	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002				

<How to use>

1) Select the insert with suitable corner-R (RE) determined by the pitch.
2) Do not exceed 0.0118" for the 1st D.O.C.
3) Final D.O.C. for Finishing should be 0.0008" - 0.0020".
4) To improve insert life, pre chamfer to thread minor diameter.
5) Coolant is recommended.

TT (60° / 55° Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type		Pitch mm / TPI	Part Number		RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass
Metric (60°)	External Thread	0.50mm	TT32 R/L	6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02										
		0.70mm	TT32 R/L	6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02									
		0.75mm	TT32 R/L	6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02								
		0.80mm	TT32 R/L	6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02								
		1.00mm	TT32 R/L	6000	0.00	0.76	8	0.15	0.12	0.12	0.11	0.10	0.08	0.06	0.02								
			TT32/43 R/L	6001	0.10	0.66	6	0.20	0.15	0.12	0.10	0.07	0.02										
		1.25mm	TT32 R/L	6000	0.00	0.95	9	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.05	0.02							
			TT32/43 R/L	6001	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02									
		1.50mm	TT32 R/L	6000	0.00	1.14	10	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.07	0.05	0.02						
			TT32/43 R/L	6001	0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02							
				6002	0.20	0.94	8	0.25	0.18	0.14	0.12	0.10	0.08	0.05	0.02								
		1.75mm	TT32 R/L	6000	0.00	1.33	11	0.25	0.23	0.20	0.13	0.10	0.10	0.10	0.08	0.07	0.05	0.02					
			TT32/43 R/L	6001	0.10	1.23	10	0.25	0.23	0.20	0.13	0.10	0.10	0.08	0.07	0.05	0.02						
				6002	0.20	1.13	9	0.25	0.23	0.20	0.13	0.10	0.08	0.07	0.05	0.02							
		2.00mm	TT32 R/L	6000	0.00	1.52	12	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.10	0.08	0.05	0.02				
			TT32/43 R/L	6001	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02					
				6002	0.20	1.32	10	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.08	0.05	0.02						
		2.50mm	TT32 R/L	6000	0.00	1.89	13	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.14	0.13	0.10	0.08	0.06	0.02			
			TT32/43 R/L	6001	0.10	1.79	12	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.10	0.06	0.02				
				6002	0.20	1.69	11	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.13	0.10	0.08	0.02					
				6003	0.30	1.59	11	0.27	0.25	0.20	0.18	0.17	0.15	0.12	0.10	0.08	0.05	0.02					
		3.00mm	TT43 R/L	6001	0.10	2.17	14	0.30	0.25	0.23	0.20	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.05	0.02		
				6002	0.20	2.07	13	0.30	0.25	0.23	0.20	0.20	0.18	0.15	0.14	0.13	0.12	0.10	0.05	0.02			
				6003	0.30	1.97	12	0.30	0.25	0.23	0.20	0.20	0.18	0.15	0.14	0.12	0.10	0.08	0.02				
				6004	0.40	1.87	12	0.30	0.25	0.23	0.20	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.02				
		3.50mm	TT43 R/L	6001	0.10	2.55	16	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.05	0.02
				6002	0.20	2.45	15	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.10	0.10	0.05	0.02	
				6003	0.30	2.35	14	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.02		
				6004	0.40	2.25	14	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.02		
	Internal Thread	0.50mm	TT32 R/L	6000	0.00	0.32	5	0.12	0.08	0.06	0.04	0.02											
		0.70mm	TT32 R/L	6000	0.00	0.45	6	0.15	0.10	0.08	0.06	0.04	0.02										
		0.75mm	TT32 R/L	6000	0.00	0.49	6	0.15	0.12	0.08	0.07	0.05	0.02										
		0.80mm	TT32 R/L	6000	0.00	0.52	6	0.15	0.12	0.10	0.08	0.05	0.02										
		1.00mm	TT32 R/L	6000	0.00	0.65	7	0.15	0.14	0.12	0.10	0.08	0.04	0.02									
		1.25mm	TT32 R/L	6000	0.00	0.81	8	0.18	0.16	0.14	0.12	0.10	0.05	0.04	0.02								
		1.50mm	TT32 R/L	6000	0.00	0.97	9	0.20	0.18	0.16	0.14	0.10	0.08	0.05	0.04	0.02							
			TT32/43 R/L	6001	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02								
		1.75mm	TT32 R/L	6000	0.00	1.14	10	0.20	0.18	0.16	0.13	0.12	0.10	0.10	0.08	0.05	0.02						
			TT32/43 R/L	6001	0.10	1.04	9	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.05	0.02							
		2.00mm	TT32 R/L	6000	0.00	1.30	12	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.10	0.08	0.05	0.03	0.02				
			TT32/43 R/L	6001	0.10	1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02					
		2.50mm	TT32 R/L	6000	0.00	1.62	14	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.03	0.02		
			TT32/43 R/L	6001	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02			
		3.00mm	TT43 R/L	6001	0.10	1.85	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.05	0.02	
				6002	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05	0.02		
Parallel Pipe / Tapered Pipe (55°)	External Thread	28 TPI	TT32 R/L	5501	0.0039	0.0240	5	0.008	0.007	0.006	0.002	0.001											
		19 TPI	TT32/43 R/L	5501	0.0039	0.0374	8	0.008	0.007	0.006	0.005	0.005	0.004	0.002	0.001								
		14 TPI	TT32/43 R/L	5501	0.0039	0.0528	10	0.010	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.001						
				5502	0.0079	0.0480	9	0.010	0.009	0.008	0.007	0.005	0.004	0.003	0.002	0.001							
		11 TPI	TT32/43 R/L	5501	0.0039	0.0681	13	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.001			
				5502	0.0079	0.0638	12	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.001				
				5503	0.0118	0.0591	11	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.001					
	Internal Thread	28 TPI	TT32/43 R/L	5501	0.0039	0.0240	6	0.007	0.006	0.005	0.003	0.002	0.001										
		19 TPI	TT32/43 R/L	5501	0.0039	0.0374	7	0.008	0.007	0.006	0.006	0.005	0.004	0.002									
		14 TPI	TT32/43 R/L	5501	0.0039	0.0528	10	0.008	0.007	0.007	0.006	0.006	0.006	0.004	0.004	0.003	0.002						
				5502	0.0079	0.0480	9	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.002							
		11 TPI	TT32/43 R/L	5501	0.0039	0.0681	13	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.001			
				5502	0.0079	0.0638	12	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.001				
				5503	0.0118	0.0591	11	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.001					
Whitworth (55°)	External Thread	24 TPI	TT32/43 R/L	5501	0.0039	0.0287	6	0.008	0.007	0.006	0.005	0.002	0.001										
		20 TPI	TT32/43 R/L	5501	0.0039	0.0354	7	0.008	0.007	0.006	0.006	0.005	0.003	0.001									
		18 TPI	TT32/43 R/L	5501	0.0039	0.0398	8	0.008	0.007	0.007	0.006	0.005	0.004	0.002	0.001								
		16 TPI	TT32/43 R/L	5501	0.0039	0.0453	9	0.010	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.001							
				5502	0.0079	0.0409	8	0.010	0.008	0.007	0.006	0.004	0.003	0.003	0.001								
		14 TPI	TT32/43 R/L	5501	0.0039	0.0528	10	0.010	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.001						
				5502	0.0079	0.0480	9	0.010	0.009	0.008	0.007	0.005	0.004	0.003	0.002	0.001							
		12 TPI	TT32/43 R/L	5501	0.0039	0.0622	12	0.010	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.001				
				5502	0.0079	0.0575	11	0.010	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.001					
		11 TPI	TT32/43 R/L	5501	0.0039	0.0681	13	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.001			
				5502	0.0079	0.0638	12	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.001				
			TT43 R/L	5503	0.0118	0.0591	11	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.001					
		10 TPI	TT32/43 R/L	5501	0.0039	0.0756	14	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.001		
				5502	0.0079	0.0709	13	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.001			
			TT43 R/L	5503	0.0118	0.0661	12	0.010	0.009	0.008	0.007	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.001				
		9 TPI	TT43 R/L	5501	0.0039	0.0843	14	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.001		
				5502	0.0079	0.0799	13	0.010	0.009	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.001			
				5503	0.0118	0.0752	12	0.012	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.001				
		8 TPI	TT43 R/L	5501	0.0039	0.0957	15	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.002	0.001	
				5502	0.0079	0.0909	14	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.002	0.001		
				5503	0.0118	0.0862	13	0.012	0.011	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.002	0.001			
				5504	0.0157	0.0819	12	0.012	0.011	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.003	0.002	0.001				

TT (60° / 55° Partial Profile) Continued...

(D.O.C. shows the value of radial ap.)

Thread Type		Pitch mm / TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass
Whitworth (55°)	Internal Thread	24 TPI	TT32/43R/L 5501	0.0039	0.026	0.236	0.008	0.006	0.005	0.004	0.002	0.001									
		20 TPI	TT32/43R/L 5501	0.0039	0.032	0.276	0.008	0.007	0.006	0.005	0.003	0.002	0.001								
		18 TPI	TT32/43R/L 5501	0.0039	0.036	0.315	0.008	0.007	0.006	0.006	0.004	0.002	0.002	0.001							
		16 TPI	TT32/43R/L 5501	0.0039	0.041	0.354	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.001						
			5502	0.0079	0.036	0.315	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.001							
		14 TPI	TT32/43R/L 5501	0.0039	0.047	0.394	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.001					
			5502	0.0079	0.043	0.354	0.008	0.007	0.006	0.006	0.006	0.004	0.003	0.002	0.001						
		12 TPI	TT32/43R/L 5501	0.0039	0.056	0.394	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001					
			5502	0.0079	0.051	0.354	0.010	0.009	0.008	0.007	0.006	0.005	0.004	0.002	0.001						
		11 TPI	TT32/43R/L 5501	0.0039	0.061	0.433	0.010	0.009	0.009	0.007	0.006	0.006	0.005	0.004	0.004	0.002	0.001				
			5502	0.0079	0.057	0.394	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001					
			TT43R/L 5503	0.0118	0.052	0.354	0.010	0.009	0.008	0.007	0.006	0.006	0.004	0.002	0.001						
		10 TPI	TT32/43R/L 5501	0.0039	0.068	0.472	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.004	0.002	0.001			
			5502	0.0079	0.063	0.433	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.002	0.001				
			TT43R/L 5503	0.0118	0.059	0.394	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.002	0.001					
		9 TPI	TT43R/L 5501	0.0039	0.076	0.512	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.001		
			5502	0.0079	0.072	0.472	0.010	0.009	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.002	0.001			
			5503	0.0118	0.067	0.433	0.010	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.004	0.002	0.001				
		8 TPI	TT43R/L 5501	0.0039	0.086	0.591	0.011	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.001
			5502	0.0079	0.081	0.551	0.011	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.001	
			5503	0.0118	0.077	0.512	0.012	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.001		
			5504	0.0157	0.072	0.472	0.012	0.010	0.009	0.008	0.008	0.007	0.006	0.005	0.003	0.002	0.002	0.001			

TT (60° / 55° Full Profile)

(D.O.C. shows the value of radial ap.)

Thread Type		Pitch mm / TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass
Metric	External Thread	1.00mm	TT43ER/L 100M	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05							
		1.25mm	125M	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05						
		1.50mm	150M	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05						
		2.00mm	200M	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05		

TTX (60° / 55° Partial Profile)

(D.O.C. shows the value of radial ap.)

Thread Type		Pitch mm § TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass
Metric (60°)	External Thread	0.50mm	TTX32R 6000 / 6000S	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02						
			6000S / 60005S	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02							
		0.70mm	TTX32R 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02					
			6000S	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02						
		0.75mm	TTX32R 6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02				
			6000S	0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02					
		0.80mm	TTX32R 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02				
			6000S	0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02					
		1.00mm	TTX32R 6000	0.00	0.76	8	0.15	0.13	0.12	0.12	0.10	0.08	0.04	0.02				
			6000S	0.05	0.71	7	0.18	0.15	0.12	0.10	0.08	0.06	0.02					
			6001	0.10	0.66	6	0.20	0.15	0.12	0.10	0.07	0.02						
		1.25mm	TTX32R 6001	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02					
		1.50mm		0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02			
		1.75mm		0.10	1.23	10	0.25	0.23	0.20	0.13	0.10	0.10	0.08	0.07	0.05	0.02		
		2.00mm		0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02	0.02
Parallel Pipe (55°)	External Thread	28 TPI	TTX32R 5501	0.0039	0.0240	5	0.008	0.007	0.006	0.002	0.001							
		19 TPI	TTX32R 5501	0.0039	0.0374	8	0.008	0.007	0.006	0.005	0.005	0.004	0.002	0.001				
			55015	0.0059	0.0354	7	0.008	0.007	0.006	0.006	0.005	0.003	0.001					
		14 TPI	TTX32R 55015	0.0059	0.0504	10	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.001		
		11 TPI	55015	0.0059	0.0657	12	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.001
Whitworth (55°)	External Thread	24 TPI	TTX32R 5501	0.0039	0.0287	6	0.008	0.007	0.006	0.005	0.002	0.001						
		20 TPI	TTX32R 5501	0.0039	0.0354	7	0.008	0.007	0.006	0.006	0.005	0.003	0.001					
			TTX32R 55015	0.0059	0.0331	7	0.008	0.007	0.006	0.005	0.004	0.002	0.001					
		18 TPI	TTX32R 55015	0.0059	0.0374	8	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001				
		16 TPI		0.0059	0.0433	9	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.002	0.001			
		14 TPI		0.0059	0.0504	10	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.001		
		12 TPI		0.0059	0.0598	11	0.010	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.004	0.002	0.001	
		11 TPI		0.0059	0.0657	12	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.001

<How to use>

1) Select the insert with suitable corner-R (RE) determined by the pitch.
2) Do not exceed 0.0118" for the 1st D.O.C.
3) Final D.O.C. for Finishing should be 0.0008" - 0.0020".
4) To improve insert life, pre chamfer to thread minor diameter.
5) Coolant is recommended.

TTX Type

Suitable for threading to the shoulder.

Insert Part Number \ Thread Type		Metric (mm)	Unified (TPI)	Parallel Pipe (TPI)	Whitworth (TPI)
TTX32R	6000	0.5~1.0	56~32	-	-
	6000S	0.5~1.0	48~32	-	-
	6001	1.0~2.0	28~14	-	-
TTX32R	6000S	0.5	56~48	-	-
	60005S	0.5	48	-	-
TTX32R	5501	-	-	28~19	24~20
	55015	-	-	19~11	20~14

TPGB Type (60° Partial Profile)

(D.O.C. shows the value of radial ap.)

Thread Type		Pitch mm / TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass
Metric (60°)	Internal Thread	0.75mm	TPGB 21501 2201	0.05	0.44	5	0.15	0.12	0.10	0.05	0.02												
		0.80mm	TPGB 21501 2201	0.05	0.47	5	0.15	0.14	0.10	0.06	0.02												
		1.00mm	TPGB 21501 2201	0.05	0.60	6	0.18	0.14	0.12	0.10	0.04	0.02											
		1.25mm	TPGB 21501 2201	0.05	0.76	7	0.18	0.16	0.14	0.12	0.10	0.04	0.02										
		1.50mm	TPGB 21501 2201	0.05	0.92	8	0.20	0.18	0.16	0.14	0.10	0.08	0.04	0.02									
			21502 2202	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02									
		1.75mm	TPGB 21501 2201	0.05	1.09	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.04	0.02								
			2202	0.10	1.04	9	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.05	0.02								
		2.00mm	TPGB 21501 2201	0.05	1.25	11	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.10	0.06	0.04	0.02						
			2202	0.10	1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02						
		2.50mm	TPGB 21501 2201	0.05	1.57	13	0.23	0.20	0.18	0.18	0.14	0.13	0.12	0.10	0.08	0.07	0.07	0.05	0.02				
			2202	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02				
		3.00mm	TPGB 21501 2201	0.05	1.90	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.12	0.10	0.08	0.08	0.07	0.05	0.02		
			2202	0.10	1.85	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.05	0.02		
			2205	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05	0.02			
		3.50mm	TPGB 21501 2201	0.05	2.22	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02	
			2202	0.10	2.17	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.10	0.08	0.07	0.05	0.02	
			2205	0.20	2.07	15	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.07	0.05	0.02		

Guide for Internal Threading

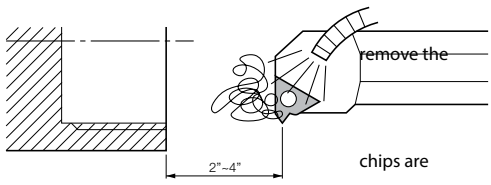
For internal threading, ensure consistent diameter and pay attention to chip evacuation.

1. Stabilizing diameters of pre-drilled holes
   Because small pitch internal threads have a small corner radius any variation in the diameter of pre drilled holes will greatly affect the tool life of the insert. Please minimize any variation of pre drilled holes and add an air pass to the first thread pass for safety.

2. Chip evacuation
   If the threading cycle continues with chips tangled on the holder or in the part it may damage the insert. We suggest starting each thread pass at least 2" from the part to allow room for the coolant to remove chips from the tool on each pass.

< 1 When running the first part of a setup>
Run the program in single block to make sure coolant can chips from the tool after each threading pass.

< 2 When running the second part of a setup>
Run through the full threading cycle and again check that removed from the tool before going into production.



The standard specification of the inch size thread is based on the dimension of 1/8".

In Applicable Toolholders and Inserts Lists on **J34~J37**, Right-hand Insert / Right-hand Toolholder descriptions are listed based on the previous TNN type inserts.
For other applicable inserts / toolholders or stock availability of Left-hand, see each relevant page and **J40**.

Parallel Pipe : G (PF), Rp (PS)

Nominal Thread		TPI	External Thread (G)			Internal Thread (G,Rp)				Root Radius Ext./Int. (mm)
Inch	Symbol (Previous Symbol)		Toolholder	Insert		Toolholder	Insert		Min. Bore Dia. (mm)	
				Partial Profile	Full Profile		Partial Profile	Full Profile		
-	G 1/16 (-)	28	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ERA55-TF/TQ 16ERAG55-TF/TQ 16ERA55 16ERAG55	-	SINR0612S-06E (EZT ⇒ **J44**)	06IR5501	-	6.56	0.12
'1/8	G 1/8 (PF 1/8)							-	8.57	
'2/8	G 1/4 (PF 1/4)	19	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ERA55-TF/TQ 16ERAG55-TF/TQ 16ERA55 16ERAG55	16ER19W-TF/TQ 16ER19W	SINR0816S-08E (EZT ⇒ **J44**)	08IR5501	-	11.45	0.18
'3/8	G 3/8 (PF 3/8)					SINR1216S-11E (EZT ⇒ **J44**)	11IRA55 11IR55005	-	14.95	
'4/8	G 1/2 (PF 1/2)	14	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ERAG55-TF/TQ 16ERG55-TF/TQ 16ERAG55 16ERG55	16ER14W-TF/TQ 16ER14W	SINR1516S-11	11IR55005	-	18.63	0.25
						SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR14W-TF/TQ 16IR14W		
'5/8	G 5/8 (PF 5/8)					SINR2016S-16			20.59	
'6/8	G 3/4 (PF 3/4)								24.12	
'7/8	G 7/8 (PF 7/8)					SINR2420S-16			27.88	
'8/8	G 1 (PF 1)	11	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ERAG55-TF/TQ 16ERG55-TF/TQ 16ERAG55 16ERG55	16ER11W-TF/TQ 16ER11W	SINR2420S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR11W-TF/TQ 16IR11W	30.29	0.32
'9/8	G 1 1/8 (PF 1 1/8)					CINR3025S-16			34.95	
'10/8	G 1 1/4 (PF 1 1/4)					CINR3732S-16			38.95	
			Hereafter, all the threads are 11 TPI and the root radius 0.32. The same tool for G 1 1/4 is recommended.							

Tapered Pipe : R, Rc(PT), (BSPT)

Nominal Thread		TPI	External Thread (G)			Internal Thread (Rc)			Root Radius Ext./Int. (mm)
Inch	Symbol (Previous Symbol)		Toolholder	Insert		Toolholder	Insert		
				Partial Profile	Full Profile		Partial Profile	Full Profile	
-	R 1/16, Rc 1/16 (-)	28	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	(16ERA55-TF/TQ) (16ERAG55-TF/TQ) (16ERA55) (16ERAG55)	16ER28BSPT-TF/TQ 16ER28BSPT	SINR0612S-06E (EZT ⇒ **J44**)	06IR5501	-	0.12
'1/8	R 1/8, Rc 1/8 (PT 1/8)	28							
'2/8	R 1/4, Rc 1/4 (PT 1/4)	19	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	(16ERA55-TF/TQ) (16ERAG55-TF/TQ) (16ERA55) (16ERAG55)	16ER19BSPT-TF/TQ 16ER19BSPT	SINR0816S-08E (EZT ⇒ **J44**)	08IR5501	-	0.18
'3/8	R 3/8, Rc 3/8 (PT 3/8)	19				SINR1216S-11E (EZT ⇒ **J44**)	(11IRA55) (11IR55005)	11IR19BSPT-TF/TQ 11IR19BSPT	
'4/8	R 1/2, Rc 1/2 (PT 1/2)	14	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	(16ERAG55-TF/TQ) (16ERG55-TF/TQ) (16ERAG55) (16ERG55)	16ER14BSPT-TF/TQ 16ER14BSPT	SINR1516S-11	(11IR55005)	11IR14BSPT-TF/TQ 11IR14BSPT	0.25
						SINR1616S-16	(16IRAG55) (16IRG55) (16IR5501) (16IR5502)	16IR14BSPT-TF/TQ 16IR14BSPT	
'6/8	R 3/4, Rc 3/4 (PT 3/4)	14				SINR2016S-16			
'8/8	R 1, Rc 1 (PT 1)	11	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	(16ERAG55-TF/TQ) (16ERG55-TF/TQ) (16ERAG55) (16ERG55)	16ER11BSPT-TF/TQ 16ER11BSPT	SINR2420S-16		16IR11BSPT-TF/TQ 16IR11BSPT	0.32
'10/8	R 1 1/4, Rc 1 1/4 (PT 1 1/4)					CINR3025S-16			
'12/8	R 1 1/2, Rc 1/2 (PT 1/2)					CINR3732S-16			
			Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for G 1 1/2 is recommended.			Hereafter, all the threads are 11 TPI and the root radius 0.32. The same tool for G 1 1/4 is recommended.			

1) The largest toolholder available for the minimum bore dia. is recommended for the female threading in these tables.
Then, the toolholder whose min. bore dia. is smaller than the recommended toolholder can be used for threading
2) When using "Partial Profile" for Tapered Pipe threading, thread's corners become sharp edged, and the shape will not be the same as the standard shape for Tapered Pipe.

American National Pipe (NPT)

Nominal Thread	TPI	External Thread			Internal Thread		
		Toolholder	Insert		Toolholder	Insert	
			Partial Profile	Full Profile		Partial Profile	Full Profile
1/16 NPT 1/8 NPT	27	KTTR○○○○□-16 KTTXR○○○○□-16F	TT32R6000 TTX32R6000	-	No Tools Available		
1/4 NPT 3/8 NPT	18	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	-	16ER18NPT	EZH Sleeve (EZT ➡ J44)	EZTR060050-60-004 EZTR070060-60-004	-
1/2 NPT 3/4 NPT	14	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	-	16ER14NPT	EZH Sleeve (EZT ➡ J44)	EZTR070060-60-004	-
1/2 NPT	14	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	-	16ER14NPT	SINR1616S-16	-	16IR14NPT
3/4 NPT					SINR2016S-16		
1 NPT	11.5	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	-	16ER11.5NPT	SINR2420S-16	-	16IR11.5NPT
1 1/4 NPT					CINR3025S-16		
1 1/2 NPT 2 NPT					CINR3732S-16		

Application of NPTF Thread
NPTF is the thread for sealing pipes without using any sealing material.
Thread symbol is similar to NPT but the Tolerance is different from that of NPT and the above Inserts are not available to NPTF.

30° Trapezoidal (Tr)

The JIS Standard Trapezoidal Size to be machined by TNN Insert are shown.

Nominal Thread	Pitch (mm)	External Thread			Internal Thread			Min. Bore Dia.(mm)
		Toolholder	Insert		Toolholder	Insert		
			Partial Profile	Full Profile		Partial Profile	Full Profile	
Tr 16X2	2	No Tools Available			No Tools Available	-	-	14.00
Tr 18X2 Tr 20X2		KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ER200TR	-	SINR1616S-16	16IR200TR	-	16.00 18.00
Tr 22X3	3	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ER300TR	-	SINR1616S-16	16IR300TR	-	19.00
Tr 24X3 Tr 26X3	3				SINR2016S-16		-	21.00 23.00
Tr 28X3 Tr 30X3 Tr 32X3 Tr 34X3 Tr 36X3 Tr 38X3 Tr 40X3	3				SINR2420S-16	16IR300TR	-	25.00 27.00 29.00
					SINR3025S-16	16IR300TR	-	31.00 33.00 35.00 37.00
Tr 42X3 Tr 44X3 Tr 46X3 Tr 48X3 Tr 50X3 Tr 52X3 Tr 55X3 Tr 60X3 Tr 65X3	3				CINR3732S-16	16IR300TR	-	39.00 41.00 43.00 45.00 47.00 49.00 52.00 57.00 62.00
Tr 70X3 Tr 75X3 Tr 80X3 Tr 90X3 Tr 95X3 Tr 100X3 Tr 105X3 Tr 110X3	4	KTNR○○○○□-22	22ER400TR	-	CINR3732S-22	22IR400TR	-	66.00 71.00 76.00 86.00 91.00 96.00 101.00 106.00

TM Thread: TM Thread of old JIS 30°Trapezoidal Thread has been discontinued. But if the Nominal Dia. X Pitch is the same, the above Tr Thread can be used.
TW Thread: TW Thread is 29° Trapezoidal Thread and the above Inserts are not available.

Metric Coarse Thread : M

Nominal Thread	Pitch (mm)	Internal Threading			Min. Bore Dia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
M1 • • • M3	0.25 0.50	No Tools Available	-	-	0.73 • • • 2.46
M4	0.70		EZTR030025-60-002		3.24
M5	0.80		EZTR040035-60-004		4.13
M6	1.00	-	VNTR045-11	-	4.92
M7	1.00		EZTR050040-60-004	-	5.92
			VNTR045-11	-	
M8	1.25	-	EZTR060050-60-004	-	6.65
			VNTR060-11	-	
		SINR0612S-06E	06IR60005	-	
M9	1.25	-	EZTR070060-60-004	-	7.65
		SINR0612S-06E	06IR60005	-	
M10	1.50	SINR0816S-08E	08IR60007	-	8.38
M11	1.50				9.38
M12	1.75	SINR0816S-08E	08IR60007	-	10.11
M16	2.00	SINR1216S-11E	-	11IR200ISO	13.84
M18	2.50	No Tools Available			15.29
M20	2.50	SINR1616S-16	Table 5	16IR250ISO-^{00}	17.29
M22	2.50				19.29
M24	3.00	SINR2016S-16	Table 4	16IR300ISO-^{00}	20.75
M27	3.00				23.75
M30	3.5	SINR2420S-22	22IRN60	22IR350ISO	26.21
M33	3.5				29.21
M36	4.0	CINR3025S-22		22IR400ISO	31.67
M39	4.0				34.67
M42	4.5	CINR3732S-22		22IR450ISO	37.13
M45	4.5				40.13
M48	5.0	CINR3732S-22		22IR500ISO	42.59
M52	5.0				46.59
M56 • • •	5.5	* Threading of M56 and over is not available due to too large pitch size.			50.05 • • •

Metric Fine Thread : M

Part 1

Nominal Thread	Pitch (mm)	Internal Threading			Min. BoreDia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
M1.0×0.20 • • • M3.0×0.35	0.20 0.35	No Tools Available	-	-	0.78 • • • 4.96
M3.5×0.35	0.35	-	EZTR030025-60-002	-	5.19
M4.5×0.50	0.50	-	EZTR035030-60-002	-	5.19
M5.0×0.50	0.50	-		-	
M6.0×0.75	0.75	-	VNTR045-11	-	5.19
M7.0×0.75	0.75	-	EZTR050040-60-004	-	6.20
			VNTR045-11	-	
M8.0×1.00	1.00	-	EZTR060050-60-004	-	6.92
			VNTR060-11	-	
		SINR0612S-06E	06IR60005	-	
M8.0×0.75	0.75	-	EZTR060050-60-004	-	7.19
			VNTR060-11	-	
		SINR0612S-06E	06IR60005	-	
M9.0×1.00	1.00	-	EZTR070060-60-004	-	7.92
			VNTR060-11	-	
		SINR0612S-06E	06IR60005	-	
		SINR0816S-08E	08IR60007	-	
M9.0×0.75	0.75	-	EZTR070060-60-004	-	8.19
			VNTR060-11	-	
		SINR0612S-06E	06IR60005	-	
M10.0×1.25	1.25	-	VNTR060-11	-	8.65
		SINR0816S-08E	08IR60007	-	
M10.0×1.00	1.00	-	VNTR060-11	-	8.92
		SINR0816S-08E	08IR60007	-	
M10.0×0.75	0.75	-	VNTR060-11	-	9.19
		SINR0612S-06E	06IR600005	-	
M11.0×1.00	1.00	-	VNTR060-11	-	9.92
		SINR0816S-08E	08IR60007	-	
M11.0×0.75	0.75	-	VNTR060-11	-	10.19
		SINR0612S-06E	06IR60005	-	

• Above shows the usage example of applicable Toolholders / Inserts.

Metric Fine Thread : M

Part 2

Nominal Thread	Pitch (mm)	Internal Threading			Min. Bore Dia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
M12.0×1.50	1.50	SINR0816S-08E	08IR60007	-	10.38
M12.0×1.25	1.25				10.65
M12.0×1.00	1.00				10.92
M14.0×1.50	1.50	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□	12.38
M14.0×1.25	1.25			11IR125ISO-□□	12.65
M14.0×1.00	1.00			11IR100ISO-□□	12.92
M15.0×1.50	1.50	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□	13.38
M15.0×1.00	1.00			11IR100ISO-□□	13.92
M16.0×1.50	1.50	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□	14.38
M16.0×1.00	1.00			11IR100ISO-□□	14.92
M17.0×1.50	1.50	SINR1516S-11E	11IRA60 11IR60005	11IR150ISO-□□	15.38
M17.0×1.00	1.00			11IR100ISO-□□	15.92
M18.0×2.00	2.00	SINR1516S-11E	-	11IR200ISO	15.84
M18.0×1.50	1.50	SINR1616S-16	Table 2	16IR150ISO-□□	16.38
M18.0×1.00	1.00		Table 3	16IR100ISO-□□	16.92
M20.0×2.00	2.00	SINR1616S-16	Table 1	16IR200ISO-□□	17.84
M20.0×1.50	1.50		Table 2	16IR150ISO-□□	18.38
M20.0×1.00	1.00		Table 3	16IR100ISO-□□	18.92
M22.0×2.00	2.00	SINR1616S-16	Table 1	16IR200ISO-□□	19.84
M22.0×1.50	1.50	SINR2016S-16	Table 2	16IR150ISO-□□	20.38
M22.0×1.00	1.00		Table 3	16IR100ISO-□□	20.92
M24.0×2.00	2.00	SINR2016S-16	Table 1	16IR200ISO-□□	21.84
M24.0×1.50	1.50		Table 2	16IR150ISO-□□	22.38
M24.0×1.00	1.00		Table 3	16IR100ISO-□□	22.92
M25.0×2.00	2.00	SINR2016S-16	Table 1	16IR200ISO-□□	22.84
M25.0×1.50	1.50		Table 2	16IR150ISO-□□	23.38
M25.0×1.00	1.00		Table 3	16IR100ISO-□□	23.92
M26.0×1.50	1.50	SINR2420S-16	Table 2	16IR150ISO-□□	24.38
M27.0×2.00	2.00	SINR2420S-16	Table 1	16IR200ISO-□□	24.84
M27.0×1.50	1.50		Table 2	16IR150ISO-□□	25.38
M27.0×1.00	1.00		Table 3	16IR100ISO-□□	25.92
M28.0×2.00	2.00	SINR2420S-16	Table 1	16IR200ISO-□□	25.84
M28.0×1.50	1.50		Table 2	16IR150ISO-□□	26.38
M28.0×1.00	1.00		Table 3	16IR100ISO-□□	26.92
M30.0×3.00	3.00	SINR2420S-22	-	22IR300ISO	26.75
		SINR2420S-16	Table 4	16IR300ISO-□□	
M30.0×2.00	2.00	SINR2420S-16	Table 1	16IR200ISO-□□	27.84
M30.0×1.50	1.50		Table 2	16IR150ISO-□□	28.38
M30.0×1.00	1.00		Table 3	16IR100ISO-□□	28.92
M32.0×2.00	2.00	SINR2420S-16	Table 1	16IR200ISO-□□	29.84
M32.0×1.50	1.50	CINR3025S-16	Table 2	16IR150ISO-□□	30.38
M33×3.0	3.0	SINR2420S-22	-	22IR300ISO	29.75
		SINR2420S-16	Table 4	16IR300ISO-□□	
M33×2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	30.84
M33×1.5	1.5		Table 2	16IR150ISO-□□	31.38
M35×1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	33.38
M36×3.0	3.0	CINR3025S-22	-	22IR300ISO	32.75
		CINR3025S-16	Table 4	16IR300ISO-□□	
M36×2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	33.84
M36×1.5	1.5		Table 2	16IR150ISO-□□	34.38
M38×1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	36.38
M39×3.0	3.0	CINR3025S-22	-	22IR300ISO	35.75
		CINR3025S-16	Table 4	16IR300ISO-□□	
M39×2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	36.84
M39×1.5	1.5	CINR3732S-16	Table 2	16IR150ISO-□□	37.38
M40×3.0	3.0	CINR3025S-22	-	22IR300ISO	36.75
		CINR3025S-16	Table 4	16IR300ISO-□□	
M40×2.0	2.0	CINR3732S-16	Table 1	16IR200ISO-□□	37.84
M40×1.5	1.5		Table 2	16IR150ISO-□□	38.38
M42×4.0	4.0	CINR3732S-22	22IRN60	22IR400ISO	37.67
M42×3.0	3.0		-	22IR300ISO	38.75
		CINR3732S-16	Table 4	16IR300ISO-□□	
M42×2.0	2.0	CINR3732S-16	Table 1	16IR200ISO-□□	39.84
M42×1.5	1.5		Table 2	16IR150ISO-□□	40.38
M45×4.0 • • •	4.0	* Threading of M45 and over can be machined by the same tool for M42. (P=4.0, 3.0, 2.0, 1.5)			40.67 • • •

Table 1 (P=2.0mm)

16IRG60
16IRAG60
16IR6001

Table 2 (P=1.5mm)

16IRA60
16IRAG60
16IR6001

Table 3 (P=1.0mm)

16IRA60
16IRAG60

Table 4 (P=3.0mm)

16IRG60
16IRAG60

Table 5 (P=2.5mm)

16IRG60
16IRAG60
16IR6001
16IR60015

Unified Coarse Thread : UNC

Nominal Thread	TPI	Internal Threading			Min. Bore Dia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
2-56 UNC • • • 6-32 UNC	56 32	No Tools Available	-	-	1.69 • • • 2.65
8-32 UNC	32	-	EZTR030025-60-002	-	3.31
10-24 UNC	24	-	EZTR035030-60-002	-	3.68
1/4-20 UNC	20	-	EZTR050040-60-004	-	4.98
		-	VNTR045-11	-	
5/16-18 UNC	18	-	EZTR060050-60-004	-	6.41
		-	VNTR060-11	-	
3/8-16 UNC	16	-	EZTR070060-60-004	-	7.81
		-	HPTR07507-60-005	-	
7/16-14 UNC	14	No Tools Available			9.15
1/2-13 UNC	13				10.58
9/16-12 UNC	12				12.00
5/8-11 UNC	11				13.38
3/4-10 UNC	10	SINR1616S-16	16IRG60 16IRAG60	16IR10UN-□□	16.30
7/8- 9 UNC	9			-	19.17
1-8 UNC	8	SINR2016S-16		16IR08UN-□□	21.96
1 1/8- 7 UNC	7	SINR2420S-22	22IRN60	-	24.65
1 1/4- 7 UNC					27.82
1 3/8- 6 UNC	6	CINR3025S-22			30.34
1 1/2- 6 UNC					33.52
1 3/4- 5 UNC	5	CINR3732S-22			38.95
2-4 1/2 UNC • • •	4 1/2	* 2-4 1/2 UNC and over cannot be machined, because no inserts are available for the TPI.			44.69 • • •

Unified Fine Thread : UNF

Nominal Thread	TPI	Internal Threading			Min. Bore Dia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
0-80 UNF • • • 6-40 UNF	80 40	No Tools Available	-	-	1.18 • • • 2.82
8-36 UNF	36	-	EZTR030025-60-002	-	3.4
10-32 UNF	32	-	EZTR030025-60-002	-	3.97
1/4-28 UNF	28	-	EZTR050040-60-004	-	5.37
		-	VNTR045-11	-	
5/16-24 UNF	24	-	VNTR060-11	-	6.79
		SINR0612S-06E	06IR60005	-	
3/8-24 UNF	24	-	EZTR070060-60-004	-	8.38
		SINR0612S-06E	06IR60005	-	
7/16-20 UNF	20	SINR0816S-08E	08IR60007	-	9.74
1/2-20 UNF	20				11.33
9/16-18 UNF	18	SINR1216S-11E	11IRA60 11IR60005	-	12.76
5/8-18 UNF	18				14.35
3/4-16 UNF	16	SINR1516S-11	11IRA60 11IR60005	-	17.33
		SINR1616S-16	16IRAG60 16IRG60 16IR6001	16IR16UN(-□□)	
7/8-14 UNF	14	SINR2016S-16		16IR14UN(-□□)	20.26
1-12 UNF	12	SINR2016S-16		16IR12UN(-□□)	23.10
1 1/8-12 UNF	12	SINR2420S-16			26.28
1 1/4-12 UNF					29.46
1 3/8-12 UNF	12	CINR3025S-16			32.63
1 1/2-12 UNF					36.81

Unified Extra Fine Thread : UNEF

Nominal Thread	TPI	Internal Threading			Min. Bore Dia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
12-32UNEF 1/4-32UNEF 5/16-32UNEF 3/8-32UNEF	32	-	EZTR035030-60-002	-	4.63 5.49 7.08 8.67
7/16-28UNEF 1/2-28UNEF	28	SINR0612S-06E	06IR60005		10.13 11.72
9/16-24UNEF 5/8-24UNEF	24	SINR1216S-11E	11IRA60 11IR60005		13.14 14.73
11/16-24UNEF		SINR1516S-11			16.32
3/4-20UNEF	20	SINR1616S-16	16IRA60 16IRAG60	16IR24UN(-□□)	17.68
13/16-20UNEF				16IR20UN(-□□)	19.26
7/8-20UNEF		SINR2016S-16			20.85
15/16-20UNEF					22.44
1-20UNEF					24.03
1 1/16 -18UNEF 1 1/8-18UNEF 1 3/16 -18UNEF 1 1/4-18UNEF 1 5/16 -18UNEF 1 3/8-18UNEF 1 7/16 -18UNEF 1 1/2-18UNEF	18	SINR2416S-16 CINR3025S-16		16IR18UN(-□□)	25.46 27.05 28.63 30.22 31.81 33.40 34.98 36.57
1 9/16 -18UNEF 1 5/8 -18UNEF 1 11/16 -18UNEF		CINR3732S-16			38.16 39.75 41.33

Whitworth Coarse Thread : W

Nominal Thread	TPI	Internal Threading			Min. Bore Dia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
W 1/4	20	No Tools Available	-	-	4.91
W 5/16	18				6.34
W 3/8	16	No Tools Available			7.73
W 7/16	14				9.06
W 1/2	12				10.30
W 9/16					11.89
W 5/8	11				13.26
W 3/4	10	SINR1616S-16	16IRAG55	-	16.17
W 7/8	9		16IRG55		19.03
W 1	8	SINR2016S-16		-	21.08
W 1 1/8	7	SINR2420S-22	22IRN55	-	24.47
W 1 1/4					27.64
W 1 3/8	6	CINR3025S-22	22IRN55	-	30.13
W 1 1/2					33.30
W 1 5/8	5				35.52
W 1 3/4	5	CINR3732S-22	22IRN55	-	38.69
W 1 7/8	4 1/2	No Tools Available			41.23
W 2					44.41
W 2 1/4	4				49.96

• Above shows the usage example of applicable Toolholders / Inserts.

Whitworth Fine Thread : W

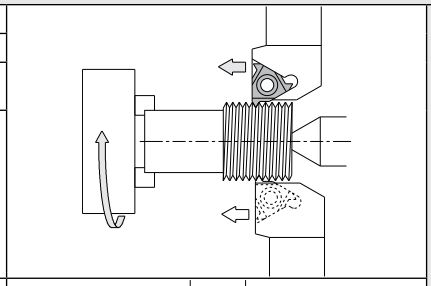
Nominal Thread	TPI	Internal Threading			Min. Bore Dia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
W9.5 TPI 24	24	SINR0816S-08E	08IR5501	-	8.30
W10 TPI 24		-	EZTR060050-55-008		8.80
W10.5 TPI 24					9.30
W9.5 TPI 20	20	SINR0816S-08E	08IR5501	-	8.06
W10 TPI 20		-	EZTR060050-55-008 EZTR080070-55-008		8.56
W10.5 TPI 20					9.06
W11 TPI 20					9.56
W11.5 TPI 20					10.06
W12 TPI 20					10.56
W12.5 TPI 20					11.06
W13 TPI 20					11.56
W13.5 TPI 20	20	SINR1216S-11E	11IRA55 11IR5500S	-	12.06
W11 TPI 18	18	No Tools Available			9.40
W11.5 TPI 18					9.90
W12 TPI 18					10.40
W12.5 TPI 18					10.90
W14 TPI 18	18	SINR1216S-11E	11IRA55 11IR5500S	-	12.40
W14.5 TPI 18					12.90
W15 TPI 18					13.40
W16 TPI 18					14.40
W13 TPI 16	16	No Tools Available			11.20
W13.5 TPI 16					11.70
W14 TPI 16	16	SINR1216S-11E	11IRA55 11IR5500S	-	12.20
W14.5 TPI 16					12.70
W15 TPI 16					13.20
W17 TPI 16		SINR1516S-11E			15.20
W18 TPI 16	16	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	(16IR16W-^{00})	16.20
W19 TPI 16					17.20
W20 TPI 16					18.20
W16 TPI 14	14	SINR1216S-11E	11IRA55 11IR5500S	-	13.94
W17 TPI 14					14.94
W18 TPI 14	14	SINR1516S-11			15.94
W21 TPI 14	14	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	(16IR14W-^{00}) (16IR14W)	18.94
W22 TPI 14					19.94
W23 TPI 14	14	SINR2016S-16			20.94
W24 TPI 14					21.94
W25 TPI 14					22.94
W26 TPI 14					23.94
W19 TPI 12	12	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	-	16.60
W20 TPI 12					17.60
W21 TPI 12					18.60
W22 TPI 12					19.60
W28 TPI 12	12	SINR2420S-16		-	25.60
W30 TPI 12					27.60
W32 TPI 12					29.60
W34 TPI 12	12	CINR3025S-16		-	31.60
W35 TPI 12					32.60
W36 TPI 12					33.60
W38 TPI 12					35.60
W40 TPI 12	12	CINR3732S-16		-	37.60
W42 TPI 12					39.60
W44 TPI 12					41.60
W45 TPI 12					42.60
W46 TPI 12					43.60
W48 TPI 12					45.60
W50 TPI 12					47.60
•		Hereafter, 12 TPI Whitworth Fine Thread can be machined by the same tool as above.			•
•					•
•					•
W23 TPI 10	10	SINR2016S-16	16IRAG55 16IRG55	-	20.12
W24 TPI 10					21.12
W25 TPI 10					22.12
W26 TPI 10					23.12
W28 TPI 9	9	SINR2420S-16		-	24.80
W30 TPI 9					26.80
W32 TPI 9					28.80
W34 TPI 8	8	CINR3025S-16		-	30.40
W35 TPI 8					31.40
W36 TPI 8					32.40
W38 TPI 8					34.40
W40 TPI 8					36.40
W42 TPI 8					38.40
W44 TPI 7	7	CINR3732S-22	22IRN55	-	39.89
W45 TPI 7					40.89
W46 TPI 7					41.89
W48 TPI 7					43.89
W50 TPI 7					45.89
W52 TPI 7					47.89
W55 TPI 6	6	CINR3732S-22	22IRN55	-	50.20
W58 TPI 6					53.20
W60 TPI 6					55.20
W62 TPI 6					57.20
•					•
W72 TPI 6					67.20
W75 TPI 5	5	CINR3732S-22	22IRN55	-	69.24
•					•
•					•
W105 TPI 5					99.24
W110 TPI 4	4	No Tools Available			102.8
•					•
•					•

External Threading (R-hand Thread / L-hand Thread)

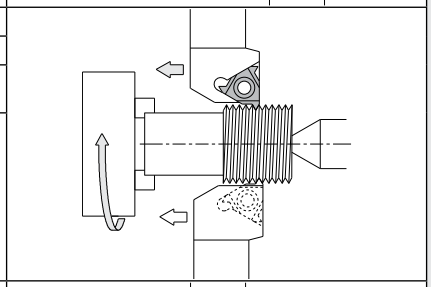
External Threading

Left-hand Thread

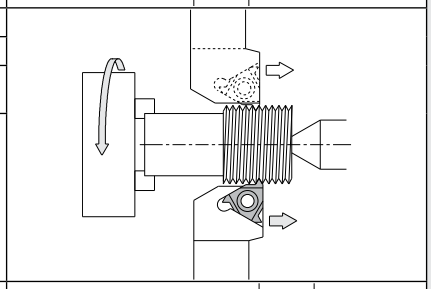
Toolholder	Left-Hand
Insert	Left-Hand
The direction of spindle revolution	M04



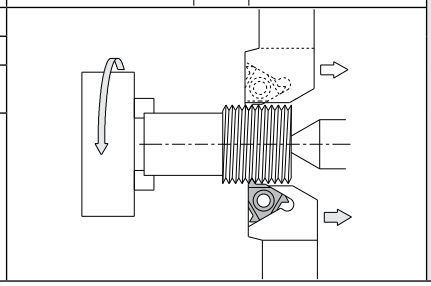
Toolholder	Right-Hand
Insert	Right-Hand
The direction of spindle revolution	M04



Toolholder	Left-Hand
Insert	Left-Hand
The direction of spindle revolution	M03

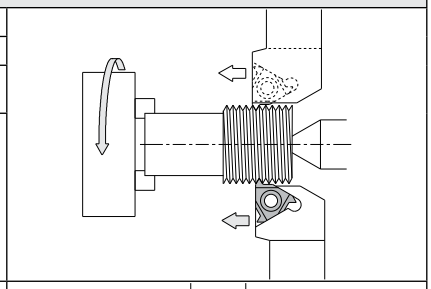


Toolholder	Right-Hand
Insert	Right-Hand
The direction of spindle revolution	M03

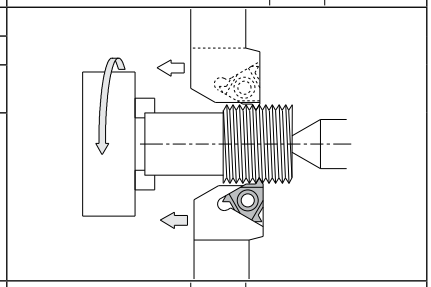


Right-hand Thread

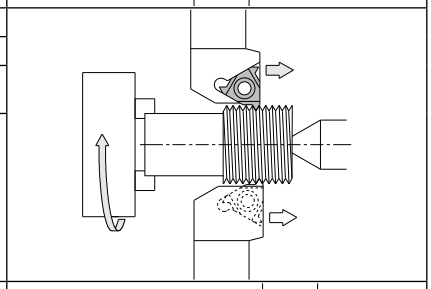
Toolholder	Right-Hand
Insert	Right-Hand
The direction of spindle revolution	M03



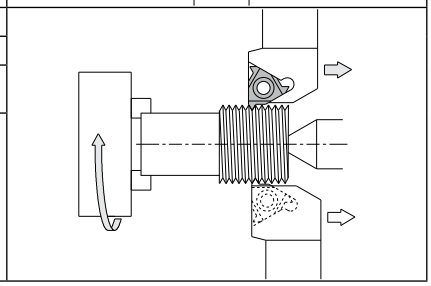
Toolholder	Left-Hand
Insert	Left-Hand
The direction of spindle revolution	M03



Toolholder	Right-Hand
Insert	Right-Hand
The direction of spindle revolution	M04



Toolholder	Left-Hand
Insert	Left-Hand
The direction of spindle revolution	M04

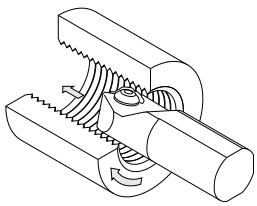


These tables are based on KTN / KTNS / KTT / KTTX Toolholder.

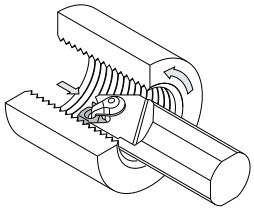
Internal Threading (R-hand Thread / L-hand Thread)

Internal Threading

Left-hand Thread

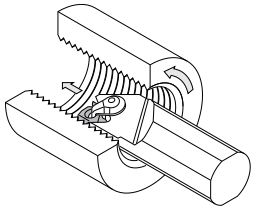


Toolholder	Left-Hand
Insert	Left-Hand
The direction of spindle revolution	M04

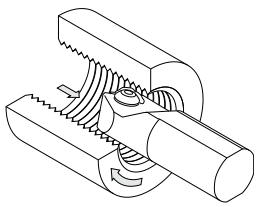


Toolholder	Right-Hand
Insert	Right-Hand
The direction of spindle revolution	M03

Right-hand Thread



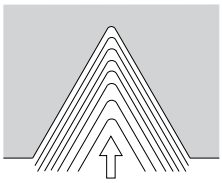
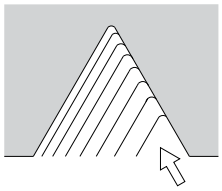
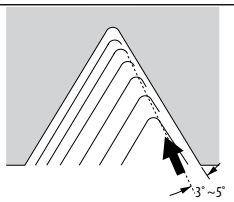
Toolholder	Right-Hand
Insert	Right-Hand
The direction of spindle revolution	M03



Toolholder	Left-Hand
Insert	Left-Hand
The direction of spindle revolution	M04

These tables are based on SIN / CIN type Toolholder.
For KITG type (for large internal threading), Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Infeed Methods

Infeed Methods	Features
 Radial Infeed	• The cutting edge moves toward the center of the workpiece every pass. • Suitable for relatively small pitch size threading. • V-shape chips are generated and chip control may be difficult depending on workpiece material. • Chips prevent coolant from reaching tool tip causing poor tool life.
 Flank Infeed	• Used for large pitch size threading. • No DOC on right side of the figure causes insert wear and on materials that work harden will cause hardening of this surface. • Chips flow to one side.
 Flank Compound Infeed	• Recommended method to reduce work hardening and improve insert life. • 3-5 degrees for steel and up to 12 degrees for stainless materials. • Chips flow to one side allowing coolant to reach insert tip. • This method is recommended to threading by 2-thread insert.

Lead angle of thread

Thread's lead angle β as shown in Fig. 1 decides from the workpiece diameter "D" (Pitch dia.) And the lead "L" (In case of single-start thread, it is the same as pitch "TP"). By rolling a right-angled triangle around a cylinder and the angle ACB in Fig. 2 becomes the lead angle β. The calculation formula is shown as follows.

$$\tan\beta = \frac{L}{\pi D} = \frac{nTP}{\pi D}$$

β: Lead angle D: Pitch dia. n: Number of thread TP: Pitch

L: Lead (In case of single-start thread, it is equal to TP. In case of n-start thread, it is equal to n x TP.)

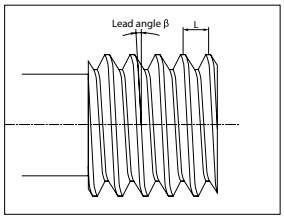


Fig. 1

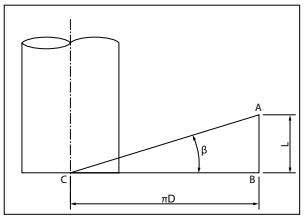


Fig. 2

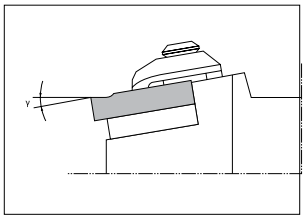


Fig. 3

Relief angle of thread

Against this lead angle, the threading insert requires side relief angle α. Negative type threading insert has no relief angle. When installing the negative type insert in the toolholder, the edge inclination angle γ (Fig. 3) is set, and at the same time front relief angle as well as side relief angle are generated to the insert. Side relief angle is described by the following formula. (Fig. 4)

$$\tan\alpha = \tan\gamma \times \tan\left(\frac{\theta}{2}\right)$$

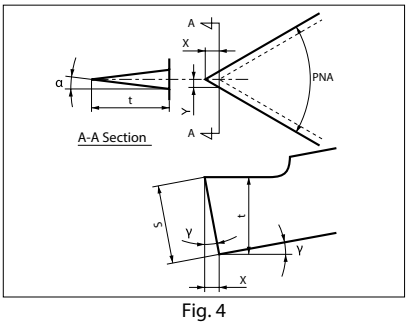


Fig. 4

Symbol	e.g.)
α: Side relief angle	
γ: Inclination angle after installing insert	External insert:10° Internal insert:15°
PNA: Insert's thread angle	Metric: 60° Tapered pipe: 55° 30° trapezoidal: 30°
S: Insert thickness	

$X = S \cdot \sin\gamma$
$Y = X \cdot \tan(\theta/2) = t \cdot \tan\alpha$
$t = S \cdot \cos\gamma$

Table 1

Inserts	Side relief angle α	
	External	Internal
60° thread (M, UN, NPT)	5° 49′	8° 47′
55° thread (W, G, PT)	5° 14′	7° 56′
30° trapezoidal (Tr)	2° 43′	5° 7′

Ref. to Table 1 for the side relief angle depending on the insert type.
However, the side relief angle is set for 1° in the traveling direction by the toolholder itself, so that the actual side relief angle becomes α+1°.

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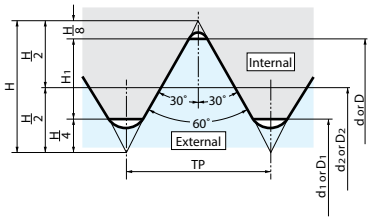
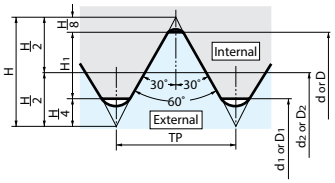
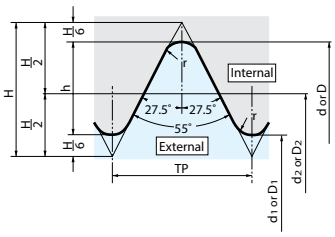
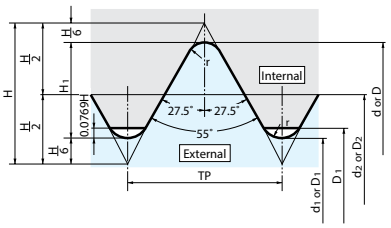
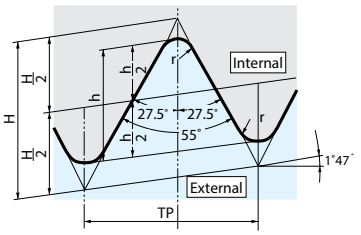
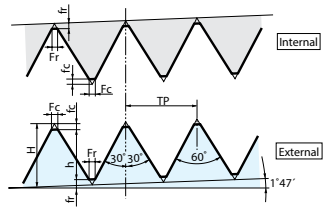
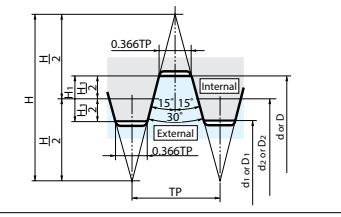
Thread types & basic profile / Applicable toolholders & inserts

	Basic profile	Symbol (Previous symbol)	Type	Applicable inserts	Applicable toolholders
Metric		M e.g.) M30	External	○○E R/L○○○ISO(-TF/TQ) ○○ER□□60(-TF/TQ) 16ER60○○	KTN R/L○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
				TT43E R/L○○○M TT○○R/L60○○	KTT R/L○○○○□-○○
				TTX32R60○○	KTTXR○○○○□-16F, S○○□-KTTXL16
			Internal	○○IR/L○○○ISO(-TF/TQ) ○○IR□□60 ○○IR60○○(○)	SIN R/L○○○○S-○○(E) CIN R/L○○○○S-○○
				TT○○1/16R60○○	KITG R/L○○○○T-○○
				TPGB11○○○○(○)	S○○□-STWP R/L11-○○(E)
Unified		UN UNC UNF UNEF e.g.) ¾ -16 UNF	External	○○ER○○UN(-TF/TQ) ○○ER□□60(-TF/TQ) 16ER60○○	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
				TT○○R/L60○○	KTT R/L○○○○□-○○
				TTX32R60○○	KTTXR○○○○□-16F, S○○□-KTTXL16
			Internal	○○IR○○UN-(TF/TQ) ○○IR□□60 ○○IR60○○(○)	SINR○○○○S-○○(E) CINR○○○○S-○○
				TT○○1/16R60○○	KITG R/L○○○○T-○○
				TPGB11○○○○(○)	S○○□-STWP R/L11-○○(E)
Parallel pipe		External: G(PF) Internal: G(PF) Rp(PS) e.g.) G ¾ (PF ¾)	External	○○ER○○W(-TF/TQ) ○○ER□□55 16ER55○○	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
				TT○○R/L55○○	KTT R/L○○○○□-○○
				TTX32R55○○	KTTXR○○○○□-16F, S○○□-KTTXL16
			Internal	○○IR○○W(-TF/TQ) ○○IR□□55 ○○IR55○○(○)	SINR○○○○S-○○(E) CINR○○○○S-○○
				TT○○1/16R55○○	KITG R/L○○○○T-○○
Whitworth		W e.g.) W ⅜	External	○○ER○○W(-TF/TQ) ○○ER□□55 16ER55○○	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
				TT○○R/L55○○	KTT R/L○○○○□-○○
				TTX32R55○○	KTTXR○○○○□-16F, S○○□-KTTXL16
			Internal	○○IR○○W(-TF/TQ) ○○IR□□55 ○○IR55○○(○)	SINR○○○○S-○○(E) CINR○○○○S-○○
				TT○○1/16R55○○	KITG R/L○○○○T-○○
Tapered pipe		External: R(PT) (BSPT) Internal: Rc(PT) (BSPT) e.g.) R ½ (PT ½)	External	16ER○○BSPT(-TF/TQ)	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
				TT○○R/L55○○*	KTT R/L○○○○□-○○
				TTX32R55○○*	KTTXR○○○○□-16F, S○○□-KTTXL16
			Internal	○○IR○○BSPT(-TF/TQ)	SINR○○○○S-○○(E) CINR○○○○S-○○
				TT○○1/16R55○○*	KITG R/L○○○○T-○○
American national tapered pipe		NPT e.g.) ⅜ -18 NPT	External	16ER○○(.○)NPT	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			Internal	16IR○○(.○)NPT	SINR○○○○S-○○ CINR○○○○S-○○
30° Trapezoidal		Tr e.g.) Tr 26x3	External	○○ER○○○TR	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			Internal	○○IR○○○TR	SINR○○○○S-○○ CINR○○○○S-○○

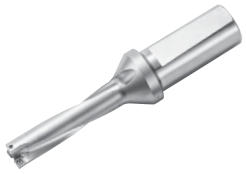
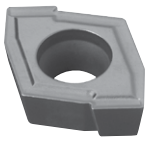
Above shows the usage example of applicable Toolholder / Insert.

* For the case when the thread root's corner-R(RE) can be smaller than the standard.

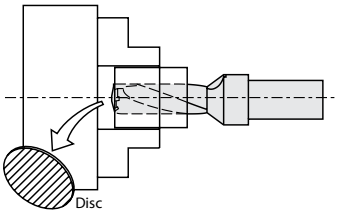
K

Overview		**K2~K3**
DRA Magic Drill		**K4~K43**
Inserts	GM - General Purpose	K6
	FTP - Flat Bottom / Counterboring	K8
	FTP-H - Steel Beam Drilling	K11
	HQP - Precision / for Carbon Steel	K13
	HQS - For Difficult-to-Cut Materials / Stainless Steel	K16
Inch Toolholders	SF-DRA (Flange Shank) 1.5D / 3D / 5D / 8D	K18
	SS-DRA (Straight Shank) 1.5D / 3D / 5D / 8D	K22
Metric Toolholders	SF-DRA (Flange Shank) 1.5D / 3D / 5D / 8D / 12D	K26
	SS-DRA (Straight Shank) 1.5D / 3D / 5D / 8D	K31
Chamfering Attachment for SS-DRA	S-CH-DRA	K36
DRV Magic Drill		**K44~K73**
Inserts	LCMT / SCMT (Outer Edge)	K46
	LCMT / SCMT (Inner Edge)	K48
Inch Toolholders	DRV 2D / 3D / 4D / 5D / 6D	K50
Metric Toolholders	DRV 2D / 3D / 4D / 5D / 6D	K56
Chamfering Attachement for DRV	DRV-CH	K68
Adjustable Sleeve (DRV / DRZ)		**K74~K75**
DRZ Magic Drill		**K78~K97**
Inserts	ZCMT	K78
Inch Toolholders	DRZ 2D / 3D / 4D / 5D	K80
Metric Dia. / Inch Shank Toolholders	DRZ 3D	K84
Metric Toolholders	DRZ 2D / 3D / 4D / 5D / 6D	K86
HOLESHOT Drill		**K98~K105**
Inserts	WCMT / WCMX	K99
Toolholders	DR	K100
Coremaster Coredrill		**K106~K109**
Inserts	WCMT / WCMX	K106
Toolholders	CD / CD-C / CD-XL / CD-LC	K107
Counterbores		**K110~K111**
Inserts	TCMT	K110
Toolholders	SHCS-CB	K111
Countersinks		**K112~K113**
Inserts	TCMT	K112
Toolholders	CS	K113

Product Lineup

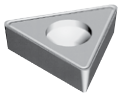
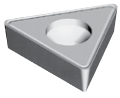
Series Name	Image	Drill Dia. (Drilling Depth)	Cutting Edge	Notes
DRA Magic Drill K4	 Screw Clamp	Ø0.313"~Ø1.004" Ø7.94mm~Ø25.5mm (1.5D) Ø0.313"~Ø1.004" Ø7.94mm~Ø33.0mm (3D / 5D / 8D) Ø12mm~Ø25.5mm (12D)	Replaceable Insert Tip with Double Margins 	Lineup SS-DRA SF-DRA Chamfering Attachment
DRV Magic Drill K44	 Silver Coating	Ø0.500"~Ø2.000" Ø12mm~Ø60mm (2D / 3D / 4D / 5D / 6D)	Individually Designed Inner & Outer Edges Outer Edge Inside Edge	Chip Shape (Workpiece: 1049) Drill Dia. Ø20mm Chip from Outer Edge Chip from Inside Edge
DRZ Magic Drill K78		Ø0.562"~Ø2.000" Ø13mm~Ø59mm (2D / 3D) Ø0.562"~Ø2.000" Ø13mm~Ø50mm (4D) Ø0.1.062"~Ø2.000" Ø27mm~Ø50mm (5D)	Inside and Outside Edge on One Insert 	Chip Shape (Workpiece: 1049) Drill Dia. Ø23mm Chip from Outer Edge Chip from Inside Edge

Caution



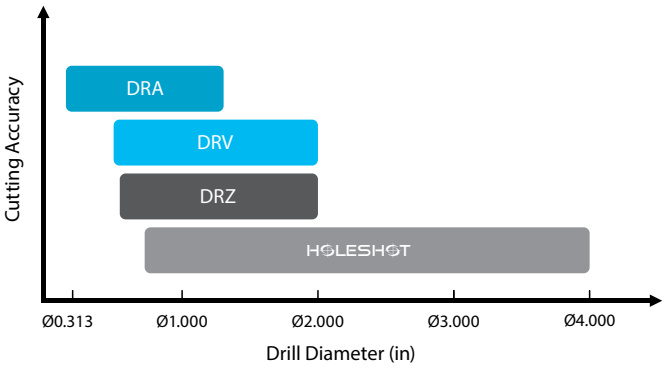
When drilling through the workpiece, a disk may be ejected.
Proper machine guarding is necessary to prevent injury.
The safety cover is necessary for the conventional lathe machines to prevent any accidents.

Product Lineup

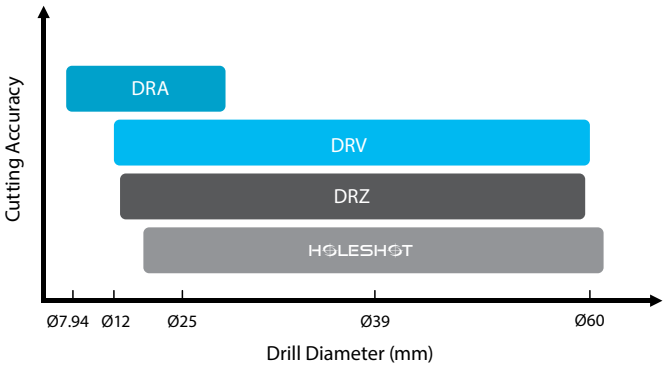
Series Name	Image	Drill Dia. (Drilling Depth)	Cutting Edge	Notes
DR HOLESHOT K98		Ø0.688"~Ø4.000"	WCMX	• Flute design optimized for maximum rigidity and good chip evacuation • Swept back design enables drilling of stacked plates and welded assemblies
CD Coremaster Coredrill K106		Ø0.825"~Ø3.150"	WCMX	• Available in both fixed pocket and adjustable cartridge providing 0.150" adjustment capability on diameter. • Fast, effective way to expand pre-existing holes. • Two effective flutes allow high feed-rates for improved productivity.
Counterbore K110			Three cutting edges per insert  TCMT	Counterbores • For socket head cap screws 1/4" to 3/4" and 6mm to 16mm
Countersink K112			Three cutting edges per insert  TCMT	Countersinks • For flat head cap screw sizes #10 to 3/4"

Drill Series Application Map

Inch Size Lineup



Metric Size Lineup



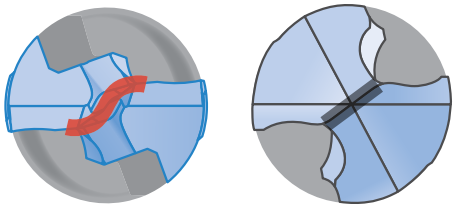
DRA Magic Drill

Excellent Hole Accuracy with a Low Cutting Force Design
5 Advantages to Efficiently Solve Common Drilling Difficulties

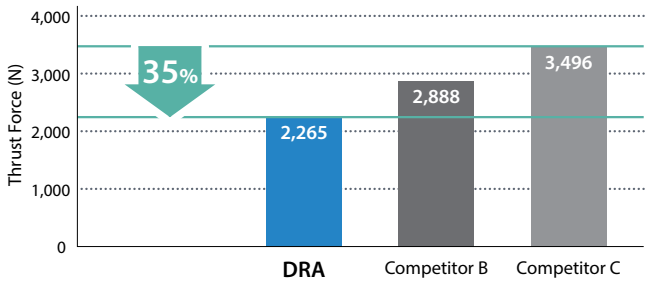
1 Low Cutting Force Design Improves Hole Accuracy

The special chisel edge with S-curve reduces thrust force and controls vibration

Cutting Edge Image



Cutting Force Comparison
(Internal Evaluation)

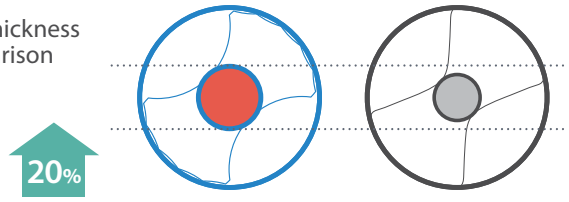


Cutting Conditions : Vc = 390 sfm, f = 0.010 ipr,
Drilling Diameter Ø0.551", Drilling Depth 1.772", Wet , Workpiece : 1049 Steel

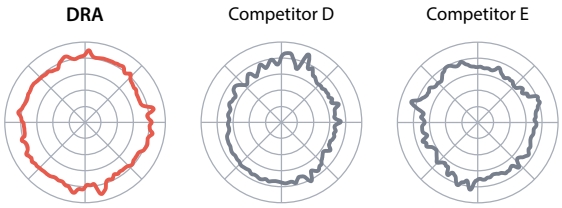
2 Optimal Web Thickness Limits Deflection

The hole accuracy is improved by controlling drill deflection with a 20% thicker web compared with Competitor A

Web Thickness Comparison



Roundness · Cylindricity Comparison
(Internal Evaluation)



	DRA	Competitor D	Competitor E
Roundness	18.7 µm	31.1 µm	27.3 µm
Cylindricity	23.6 µm	34.3 µm	30.1 µm

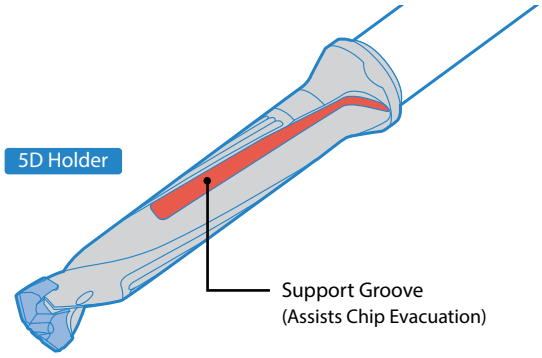
Cutting Conditions : Vc = 390 sfm, f = 0.012 ipr
Drilling Diameter Ø0.551", Measurement Position 2.165", Wet Workpiece : 1049 Steel

3 Fine Chip Breaking Even in Deep Hole Drilling Applications

Optimized chip thinning for stable chip evacuation
Support groove with wider flute (5D, 8D, and 12D) enables smooth chip evacuation

Chip Comparison
(Internal Evaluation)

Cutting Conditions : Vc = 200 sfm, f = 0.008 ipr, Drilling Diameter 0.551"
Drilling Depth 2.756", Wet Workpiece : 304 Stainless Steel



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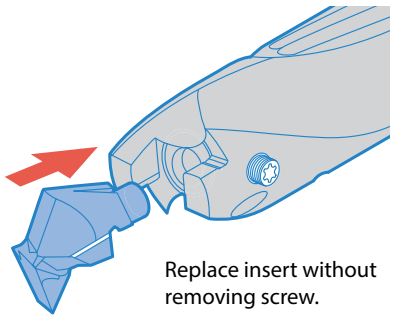
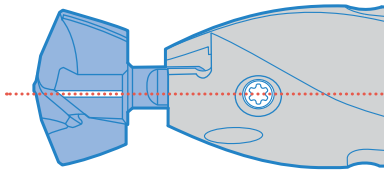
4 Easy Insert Replacement

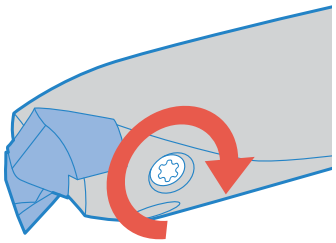
Replace insert without removing screw



Replace insert without removing screw.



Install the insert onto toolholder.
(Align insert guide line with screw position)



Fix the insert by tightening the screw.

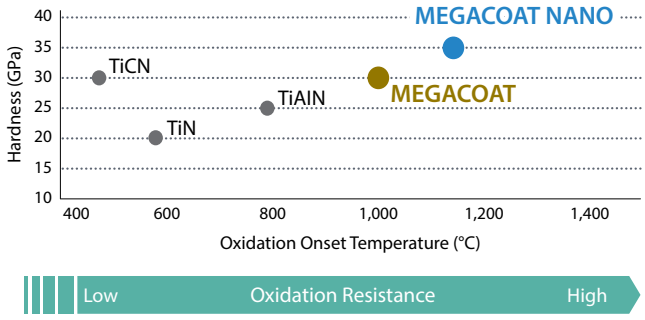
5 Long Tool Life and Stable Machining of Various Workpieces

MEGACOAT NANO grade PR1535 is used to machine various materials from steel to stainless steel, with the combination of a tough substrate and a special nano layer coating

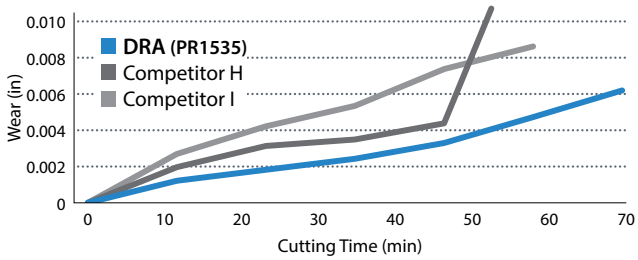
1st Recommendation

Steel	Cast Iron
PR1535	PR1525

Coating Properties



Wear Resistance Comparison
(Internal Evaluation)

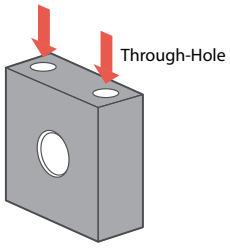


Cutting Conditions : Vc = 330 sfm, f = 0.010 ipr,
Cutting Diameter Ø0.551", Cutting Depth 1.772", Wet
Workpiece : 4140H

Case Studies

Attachment - Structural Steel

Vc = 230 sfm (n = 1,240 rpm)
f = 0.009 ipr (Vf = 11.221in/min)
Cutting Depth 3.937"
Wet (Internal Coolant)
With Center Hole Drilling
SF0750-DRA180M-8
DA1800M-GM PR1535



Cutting Time

DRA Ø0.709"-8D — **45 sec**

30% Cutting Time

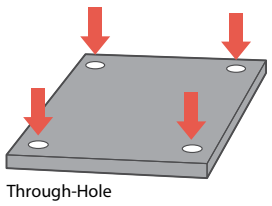
Competitor J
Ø0.709"-7D — **65 sec**

Competitor J applied a peck cycle to avoid chip clogging.
DRA controlled chip evacuation without pecking.

(User Evaluation)

Plate - Stainless Steel

Vc = 195 sfm (n = 2,120 rpm)
f = 0.005 ipr (Vf = 10 in/min)
Cutting Depth 0.591"
Wet (Internal Coolant)
SS0375-DRA090M-3
DA0900M-GM PR1535



No. of Holes

DRA Ø0.354"-3D — **500**

Tool Life X5

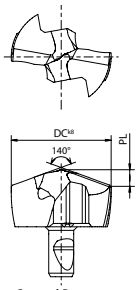
Competitor K
Ø0.354"-3D — **100**

DRA extended the tool life by 5 times compared to Competitor K.
DRA maintained stable machining and excellent surface finish with less cutting noise.

(User Evaluation)

DRA Insert (GM - General Purpose)

			Dimensions			Tolerance (mm)		Carbide		
			DC		PL (mm)	k8 (min.)	k8 (max.)	PVD		
Insert		Part Number	in	mm				PR1525	PR1535	Applicable Toolholder ➡ K18~K34
		DA 0794M-GM	0.313	7.94	1.34			●	●	
		0800M-GM	0.315	8.00	1.35			●	●	
		0810M-GM	0.319	8.10	1.37			●	●	
		0818M-GM	0.322	8.18	1.38	0	+0.022	□	●	SF...-DRA080M-○ SS...-DRA080M-○
		0820M-GM	0.323	8.20	1.38			●	●	
		0830M-GM	0.327	8.30	1.40			●	●	
		0840M-GM	0.331	8.40	1.42			●	●	
		DA 0850M-GM	0.335	8.50	1.44			●	●	
		0860M-GM	0.339	8.60	1.46			●	●	
		0870M-GM	0.343	8.70	1.48	0	+0.022	●	●	SF...-DRA085M-○ SS...-DRA085M-○
		0880M-GM	0.346	8.80	1.49			●	●	
		0890M-GM	0.350	8.90	1.51			●	●	
		DA 0900M-GM	0.354	9.00	1.52			●	●	
		0910M-GM	0.358	9.10	1.54			●	●	
		0920M-GM	0.362	9.20	1.56	0	+0.022	●	●	SF...-DRA090M-○ SS...-DRA090M-○
		0930M-GM	0.366	9.30	1.58			●	●	
		0940M-GM	0.370	9.40	1.59			●	●	
		DA 0950M-GM	0.374	9.50	1.61			●	●	
		0953M-GM	0.375	9.53	1.62			□	●	
		0960M-GM	0.378	9.60	1.63	0	+0.022	●	●	SF...-DRA095M-○ SS...-DRA095M-○
		0970M-GM	0.382	9.70	1.65			●	●	
		0980M-GM	0.386	9.80	1.67			●	●	
		0990M-GM	0.390	9.90	1.68			●	●	
		DA 1000M-GM	0.394	10.00	1.70		+0.022	●	●	
		1010M-GM	0.398	10.10	1.72		+0.027	●	●	
		1020M-GM	0.402	10.20	1.74	0	+0.027	●	●	SF...-DRA100M-○ SS...-DRA100M-○
		1030M-GM	0.406	10.30	1.75		+0.027	●	●	
		1040M-GM	0.409	10.40	1.77		+0.027	●	●	
		DA 1050M-GM	0.413	10.50	1.79			●	●	
		1060M-GM	0.417	10.60	1.81			●	●	
		1070M-GM	0.421	10.70	1.83	0	+0.027	●	●	SF...-DRA105M-○ SS...-DRA105M-○
		1072M-GM	0.422	10.72	1.84			□	●	
		1080M-GM	0.425	10.80	1.85			●	●	
		1090M-GM	0.429	10.90	1.86			●	●	
		DA 1100M-GM	0.433	11.00	1.87			●	●	
		1110M-GM	0.437	11.10	1.89			●	●	
		1120M-GM	0.441	11.20	1.91	0	+0.027	●	●	SF...-DRA110M-○ SS...-DRA110M-○
		1130M-GM	0.445	11.30	1.92			●	●	
		1140M-GM	0.449	11.40	1.94			●	●	
		DA 1150M-GM	0.453	11.50	1.96			●	●	
		1160M-GM	0.457	11.60	1.98			●	●	
		1170M-GM	0.461	11.70	2.00	0	+0.027	●	●	SF...-DRA115M-○ SS...-DRA115M-○
		1180M-GM	0.465	11.80	2.01			●	●	
		1190M-GM	0.469	11.90	2.03			●	●	
		DA 1200M-GM	0.472	12.00	2.03			●	●	
		1210M-GM	0.476	12.10	2.05			●	●	
		1220M-GM	0.480	12.20	2.07	0	+0.027	●	●	SF...-DRA120M-○ SS...-DRA120M-○
		1230M-GM	0.484	12.30	2.08			●	●	
		1240M-GM	0.488	12.40	2.10			●	●	



General Purpose

k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

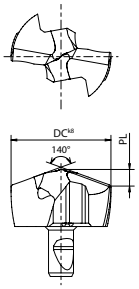
Recommended Cutting Conditions ➡ K38

DA inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRA Insert (GM - General Purpose)

Insert		Part Number	Dimensions DC in	Dimensions DC mm	Dimensions PL (mm)	Tolerance (mm) k8 (min.)	Tolerance (mm) k8 (max.)	Carbide PVD PR1525	Carbide PVD PR1535	Applicable Toolholder ➡ K18~K34
		DA 1250M-GM	0.492	12.50	2.12			●	●	
		1260M-GM	0.496	12.60	2.14			●	●	
		1270M-GM	0.500	12.70	2.16	0	+0.027	●	●	SF...-DRA125M-○ SS...-DRA125M-○
		1280M-GM	0.504	12.80	2.17			●	●	
		1290M-GM	0.508	12.90	2.19			●	●	
		DA 1300M-GM	0.512	13.00	2.20			●	●	
		1310M-GM	0.516	13.10	2.22			●	●	
		1320M-GM	0.520	13.20	2.24	0	+0.027	●	●	SF...-DRA130M-○ SS...-DRA130M-○
		1330M-GM	0.524	13.30	2.25			●	●	
		1340M-GM	0.528	13.40	2.27			●	●	
		DA 1350M-GM	0.531	13.50	2.29			●	●	
		1360M-GM	0.535	13.60	2.31			●	●	
		1370M-GM	0.539	13.70	2.33	0	+0.027	●	●	SF...-DRA135M-○ SS...-DRA135M-○
		1380M-GM	0.543	13.80	2.35			●	●	
		1390M-GM	0.547	13.90	2.36			●	●	
		DA 1400M-GM	0.551	14.00	2.33			●	●	
		1410M-GM	0.555	14.10	2.34			●	●	
		1420M-GM	0.559	14.20	2.36	0	+0.027	●	●	SF...-DRA140M-○ SS...-DRA140M-○
		1430M-GM	0.563	14.30	2.38			●	●	
		1440M-GM	0.567	14.40	2.40			●	●	
		DA 1450M-GM	0.571	14.50	2.42			●	●	
		1460M-GM	0.575	14.60	2.43			●	●	
		1468M-GM	0.578	14.68	2.44	0	+0.027	□	●	SF...-DRA145M-○ SS...-DRA145M-○
		1470M-GM	0.579	14.70	2.45			●	●	
		1480M-GM	0.583	14.80	2.47			●	●	
		1490M-GM	0.587	14.90	2.49			●	●	
		DA 1500M-GM	0.591	15.00	2.52			●	●	
		1510M-GM	0.594	15.10	2.54			●	●	
		1520M-GM	0.598	15.20	2.55			●	●	
		1530M-GM	0.602	15.30	2.57			●	●	
		1540M-GM	0.606	15.40	2.59			●	●	
		1550M-GM	0.610	15.50	2.61	0	+0.027	●	●	SF...-DRA150M-○ SS...-DRA150M-○
		1560M-GM	0.614	15.60	2.63			●	●	
		1570M-GM	0.618	15.70	2.65			●	●	
		1580M-GM	0.622	15.80	2.66			●	●	
		1588M-GM	0.625	15.88	2.69			□	●	
		1590M-GM	0.626	15.90	2.68			●	●	
		DA 1600M-GM	0.630	16.00	2.69			●	●	
		1610M-GM	0.634	16.10	2.71			●	●	
		1620M-GM	0.638	16.20	2.73			●	●	
		1630M-GM	0.642	16.30	2.75			●	●	
		1640M-GM	0.646	16.40	2.76			●	●	
		1650M-GM	0.650	16.50	2.78	0	+0.027	●	●	SF...-DRA160M-○ SS...-DRA160M-○
		1660M-GM	0.654	16.60	2.80			●	●	
		1667M-GM	0.656	16.67	2.81			□	●	
		1670M-GM	0.657	16.70	2.82			●	●	
		1680M-GM	0.661	16.80	2.84			●	●	
		1690M-GM	0.665	16.90	2.86			●	●	



General Purpose

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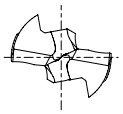
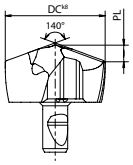
DRA Insert (GM - General Purpose)

							Carbon Steel / Alloy Steel	○	●	P
							Mold and Die Steel			
							Stainless Steel	○	●	M
							Cast Iron	●	○	K
							Non-Ferrous Metals			N
Insert		Part Number		Dimensions			Tolerance (mm)		Carbide		Applicable Toolholder ➡ K18~K34
				DC		PL (mm)	k8 (min.)	k8 (max.)	PVD		
				in	mm				PR1525	PR1535	
	  General Purpose	DA	1700M-GM	0.669	17.00	2.86			●	●	SF...-DRA170M-○ SS...-DRA170M-○
			1710M-GM	0.673	17.10	2.88			●	●	
			1720M-GM	0.677	17.20	2.90			●	●	
			1730M-GM	0.681	17.30	2.92			●	●	
			1740M-GM	0.685	17.40	2.93			●	●	
			1746M-GM	0.687	17.46	2.94	0	+0.027	□	●	
			1750M-GM	0.689	17.50	2.95			●	●	
			1760M-GM	0.693	17.60	2.97			●	●	
			1770M-GM	0.697	17.70	2.99			●	●	
			1780M-GM	0.701	17.80	3.01			●	●	
			1790M-GM	0.705	17.90	3.03			●	●	
		DA	1800M-GM	0.709	18.00	3.04	0	+0.027	●	●	SF...-DRA180M-○ SS...-DRA180M-○
			1810M-GM	0.713	18.10	3.06	0	+0.033	●	●	
			1820M-GM	0.717	18.20	3.07	0	+0.033	●	●	
			1830M-GM	0.720	18.30	3.09	0	+0.033	●	●	
			1840M-GM	0.724	18.40	3.11	0	+0.033	●	●	
			1850M-GM	0.728	18.50	3.13	0	+0.033	●	●	
			1860M-GM	0.732	18.60	3.15	0	+0.033	●	●	
			1870M-GM	0.736	18.70	3.17	0	+0.033	●	●	
			1880M-GM	0.740	18.80	3.18	0	+0.033	●	●	
			1890M-GM	0.744	18.90	3.20	0	+0.033	●	●	
		DA	1900M-GM	0.748	19.00	3.21			●	●	SF...-DRA190M-○ SS...-DRA190M-○
			1905M-GM	0.750	19.05	0.13			□	●	
			1910M-GM	0.752	19.10	3.23			●	●	
			1920M-GM	0.756	19.20	3.25			●	●	
			1930M-GM	0.760	19.30	3.27			●	●	
			1940M-GM	0.764	19.40	3.29	0	+0.033	●	●	
			1950M-GM	0.768	19.50	3.30			●	●	
			1960M-GM	0.772	19.60	3.32			●	●	
			1970M-GM	0.776	19.70	3.34			●	●	
			1980M-GM	0.780	19.80	3.36			●	●	
			1990M-GM	0.783	19.90	3.38			●	●	
		DA	2000M-GM	0.787	20.00	3.37			●	●	SF...-DRA200M-○ SS...-DRA200M-○
			2010M-GM	0.791	20.10	3.39			●	●	
			2020M-GM	0.795	20.20	3.41			●	●	
			2030M-GM	0.799	20.30	3.43			●	●	
			2040M-GM	0.803	20.40	3.45			●	●	
			2050M-GM	0.807	20.50	3.46	0	+0.033	●	●	
			2060M-GM	0.811	20.60	3.48			●	●	
			2064M-GM	0.813	20.64	3.48			□	●	
			2070M-GM	0.815	20.70	3.50			●	●	
			2080M-GM	0.819	20.80	3.52			●	●	
			2090M-GM	0.823	20.90	3.54			●	●	

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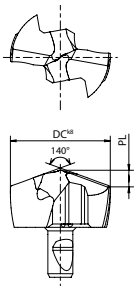
DRA Insert (GM - General Purpose)

Insert		Part Number	Dimensions DC in	Dimensions DC mm	Dimensions PL (mm)	Tolerance (mm) k8 (min.)	Tolerance (mm) k8 (max.)	Carbide PVD PR1525	Carbide PVD PR1535	Applicable Toolholder ➡ K18~K34
		DA 2100M-GM	0.827	21.00	3.54	0	+0.033	●	●	SF...-DRA210M-○
		2150M-GM	0.846	21.50	3.63			●	●	SS...-DRA210M-○
		DA 2200M-GM	0.866	22.00	3.71	0	+0.033	●	●	SF...-DRA220M-○
		2223M-GM	0.875	22.23	3.76			●	●	SS...-DRA220M-○
		2250M-GM	0.886	22.50	3.80			●	●	
		DA 2300M-GM	0.906	23.00	3.87	0	+0.033	●	●	SF...-DRA230M-○
		2350M-GM	0.925	23.50	3.96			●	●	SS...-DRA230M-○
		2381M-GM	0.937	23.81	4.01			●	●	
		DA 2400M-GM	0.945	24.00	4.04	0	+0.033	●	●	SF...-DRA240M-○
		2450M-GM	0.965	24.50	4.13			●	●	SS...-DRA240M-○
		DA 2500M-GM	0.984	25.00	4.20	0	+0.033	●	●	SF...-DRA250M-○
		2540M-GM	1.000	25.40	4.27			□	●	SS...-DRA250M-○
		2550M-GM	1.004	25.50	4.29			●	●	
		DA 2600M-GM	1.024	26.00	4.80	0	+0.033	●	●	SF...-DRA260M-○
		2650M-GM	1.043	26.50	4.90			●	●	
		DA 2700M-GM	1.063	27.00	4.99	0	+0.033	●	●	SF...-DRA270M-○
		2750M-GM	1.083	27.50	5.09			●	●	
		DA 2800M-GM	1.102	28.00	4.73	0	+0.033	●	●	SF...-DRA280M-○
		2850M-GM	1.122	28.50	4.83			●	●	
		DA 2900M-GM	1.142	29.00	4.90	0	+0.033	●	●	SF...-DRA290M-○
		2950M-GM	1.161	29.50	5.01			●	●	
		DA 3000M-GM	1.181	30.00	5.07	0	+0.033	●	●	SF...-DRA300M-○
		3050M-GM	1.201	30.50	5.17	0	+0.039	●	●	
		DA 3100M-GM	1.220	31.00	5.26	0	+0.039	●	●	SF...-DRA310M-○
		3150M-GM	1.240	31.50	5.37			●	●	
		DA 3200M-GM	1.260	32.00	5.41	0	+0.039	●	●	SF...-DRA320M-○
		3250M-GM	1.280	32.50	5.51			●	●	
		3300M-GM	1.299	33.00	5.62			●	●	

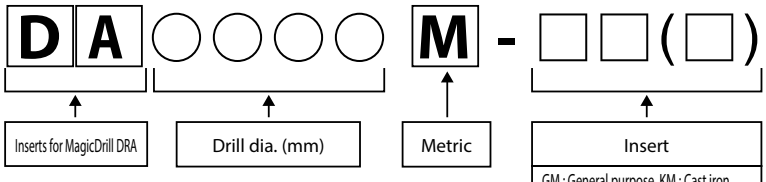


General Purpose

k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

Recommended Cutting Conditions ➡ K38

Part Number Identification System (Insert)

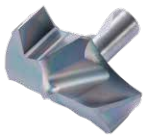
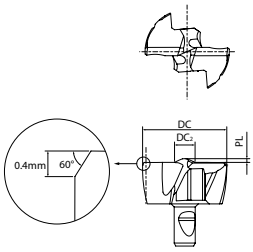


DA inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRA Insert (FTP - Flat Bottom / Counterboring)

Carbon Steel / Alloy Steel	○	●	P
Mold and Die Steel			
Stainless Steel	○	●	M
Cast Iron	●	○	K
Non-Ferrous Metals			N

Insert		Part Number	Dimensions					Tolerance (mm)		Carbide		Applicable Toolholder ⇒ K18~K34
			DC		DC2		PL (mm)	k8 (min.)	k8 (max.)	PVD		
			in	mm	in	mm				PR1525	PR1535	
	 Flat Bottom / Counterboring	DA 0800M-FTP 0830M-FTP	0.315 0.327	8.00 8.30	0.114	2.90	0.40	0	+0.022	● ●	● ●	SF...-DRA080M-○ SS...-DRA080M-○
		DA 0850M-FTP 0880M-FTP	0.335 0.346	8.50 8.80	0.114	2.90	0.40	0	+0.022	● ●	● ●	SF...-DRA085M-○ SS...-DRA085M-○
		DA 0900M-FTP 0930M-FTP	0.354 0.366	9.00 9.30	0.118	3.00	0.43	0	+0.022	● ●	● ●	SF...-DRA090M-○ SS...-DRA090M-○
		DA 0950M-FTP	0.374	9.50	0.118	3.00	0.43	0	+0.022		●	SF...-DRA095M-○ SS...-DRA095M-○
		DA 1000M-FTP 1030M-FTP	0.394 0.406	10.00 10.30	0.130	3.30	0.46	0	+0.022 +0.027	● ●	● ●	SF...-DRA100M-○ SS...-DRA100M-○
		DA 1050M-FTP 1080M-FTP	0.413 0.425	10.50 10.80	0.130	3.30	0.46	0	+0.027	● ●	● ●	SF...-DRA105M-○ SS...-DRA105M-○
		DA 1100M-FTP	0.433	11.00	0.134	3.40	0.50	0	+0.027		●	SF...-DRA110M-○ SS...-DRA110M-○
		DA 1150M-FTP	0.453	11.50	0.134	3.40	0.50	0	+0.027		●	SF...-DRA115M-○ SS...-DRA115M-○
		DA 1200M-FTP	0.472	12.00	0.146	3.70	0.53	0	+0.027		●	SF...-DRA120M-○ SS...-DRA120M-○
		DA 1250M-FTP 1270M-FTP	0.492 0.500	12.50 12.70	0.146	3.70	0.53	0	+0.027	● ●	● ●	SF...-DRA125M-○ SS...-DRA125M-○
		DA 1300M-FTP	0.512	13.00	0.154	3.90	0.56	0	+0.027		●	SF...-DRA130M-○ SS...-DRA130M-○
		DA 1350M-FTP	0.531	13.50	0.154	3.90	0.56	0	+0.027		●	SF...-DRA135M-○ SS...-DRA135M-○
		DA 1400M-FTP	0.551	14.00	0.165	4.20	0.60	0	+0.027		●	SF...-DRA140M-○ SS...-DRA140M-○
		DA 1450M-FTP	0.571	14.50	0.165	4.20	0.60	0	+0.027		●	SF...-DRA145M-○ SS...-DRA145M-○
		DA 1500M-FTP 1550M-FTP	0.591 0.610	15.00 15.50	0.173	4.40	0.65	0	+0.027	● ●	● ●	SF...-DRA150M-○ SS...-DRA150M-○
		DA 1600M-FTP 1650M-FTP	0.630 0.650	16.00 16.50	0.181	4.60	0.70	0	+0.027	● ●	● ●	SF...-DRA160M-○ SS...-DRA160M-○
		DA 1700M-FTP 1750M-FTP	0.669 0.689	17.00 17.50	0.197	5.00	0.75	0	+0.027	● ●	● ●	SF...-DRA170M-○ SS...-DRA170M-○
		DA 1800M-FTP 1850M-FTP	0.709 0.728	18.00 18.50	0.197	5.00	0.80	0	+0.027 +0.033	● ●	● ●	SF...-DRA180M-○ SS...-DRA180M-○
		DA 1900M-FTP 1950M-FTP	0.748 0.768	19.00 19.50	0.209	5.30	0.85	0	+0.033	● ●	● ●	SF...-DRA190M-○ SS...-DRA190M-○
		DA 2000M-FTP 2050M-FTP	0.787 0.807	20.00 20.50	0.224	5.70	0.90	0	+0.033	● ●	● ●	SF...-DRA200M-○ SS...-DRA200M-○
		DA 2100M-FTP 2150M-FTP	0.827 0.846	21.00 21.50	0.236	6.00	0.95	0	+0.033	● ●	● ●	SF...-DRA210M-○ SS...-DRA210M-○
		DA 2200M-FTP 2250M-FTP	0.866 0.886	22.00 22.50	0.252	6.40	1.00	0	+0.033	● ●	● ●	SF...-DRA220M-○ SS...-DRA220M-○
		DA 2300M-FTP 2350M-FTP	0.906 0.925	23.00 23.50	0.260	6.60	1.05	0	+0.033	● ●	● ●	SF...-DRA230M-○ SS...-DRA230M-○
		DA 2400M-FTP 2450M-FTP	0.945 0.965	24.00 24.50	0.268	6.80	1.10	0	+0.033	● ●	● ●	SF...-DRA240M-○ SS...-DRA240M-○
		DA 2500M-FTP 2540M-FTP	0.984 1.000	25.00 25.40	0.276	7.00	1.20	0	+0.033	● ●	● ●	SF...-DRA250M-○ SS...-DRA250M-○

k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.
Applicable to 1.5D,3D,5D,8D and 12D holders, Prepared hole (0.5xDC) is needed when using 8D/12D holder.

DA inserts are sold in 1 piece boxes

Recommended Cutting Conditions ⇒ K39

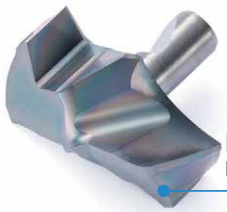
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

FTP-H Insert

Specialized high-performance in steel beam drilling

1 **Optimized chip control**

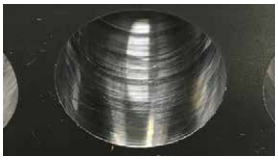
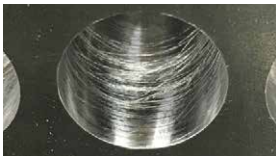
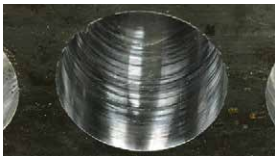
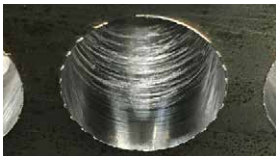
2 **Excellent surface finish**



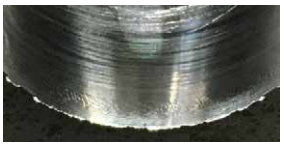
Reinforced chamfer
Higher rigidity of insert

Controlled chips reduce scratches on the hole wall

Hole quality comparison (Internal evaluation)

	DRA (FTP-H)	Competitor K
Hole Entrance		
	Good	Rifling
Hole Exit		
	Good	Burrs and chattering marks

Cutting Conditions:
Vc = 260 sfm, f = 0.008 ipr
Drilling diameter ø26mm (1.024") (3D)
Drilling depth 40mm (1.575")
Through spindle coolant
Workpiece: structural steel St52
BT50 M/C



Case Study

Structure Part S355

Vc = 260 sfm (n = 979 rpm),
f = 0.008 ipr (Vf = 7.717 ipm),

Drilling depth 0.591" through-hole
Coolant = Oil mist lubrication

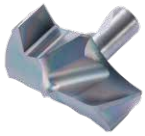
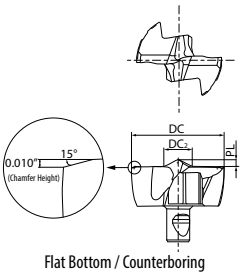
SF25-DRA250M-3
DA2600M-XFTP PR1535

Competitor K: ø26mm-3D

FTP-H acchieved tool life of 45 m with no issues.

Shortened process time.
Good chip control.

DRA Insert (FTP-H - Steel Beam Drilling)

Insert		Part Number	Dimensions DC in	DC mm	DC2 in	DC2 mm	PL (mm)	Tolerance (mm) k8 (min.)	k8 (max.)	Carbide PVD PR1535	Applicable Toolholder ➔ K18~K34
Carbon Steel / Alloy Steel ● / Mold and Die Steel											P
Stainless Steel											M
Cast Iron											K
Non-Ferrous Metals											N
	 Flat Bottom / Counterboring	DA 1400M-FTP-H	0.551	14.00	0.165	4.20	0.60	0	+0.022	●	SF...-DRA140M-○ SS...-DRA140M-○
		DA 1600M-FTP-H	0.630	16.00	0.181	4.60	0.70	0	+0.027	●	SF...-DRA160M-○ SS...-DRA160M-○
		DA 1800M-FTP-H	0.709	18.00	0.197	5.00	0.80	0	+0.027	●	SF...-DRA180M-○ SS...-DRA180M-○
		DA 2000M-FTP-H	0.787	20.00	0.224	5.70	0.90	0	+0.027	●	SF...-DRA200M-○ SS...-DRA200M-○
		DA 2100M-FTP-H	0.827	21.00	0.236	6.00	0.95	0	+0.027	●	SF...-DRA210M-○ SS...-DRA210M-○
		DA 2200M-FTP-H	0.866	22.00	0.252	6.40	1.00	0	+0.027	●	SF...-DRA220M-○ SS...-DRA220M-○
		DA 2400M-FTP-H	0.945	24.00	0.268	6.80	1.10	0	+0.027	●	SF...-DRA240M-○ SS...-DRA240M-○
		DA 2600M-FTP-H	1.024	26.00	0.276	7.00	1.20	0	+0.027	●	SF...-DRA260M-○

k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.
Applicable to 1.5D,3D,5D,8D and 12D holders, Prepared hole (0.5xDC) is needed when using 8D/12D holder.

Recommended Cutting Conditions ➔ K39

DA inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Double Margin Design

High-precision insert for steel machining

PR1525

Drilling Diameter
ø0.313" ~ ø0.783"
ø7.94 ~ ø19.90mm

HQP

Special two-step bottom and double margin
Reduces shock for higher-precision machining of steel

For difficult-to-cut materials / stainless steel machining

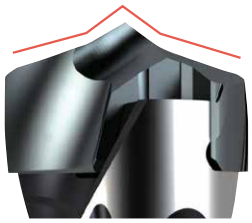
PR1535

Drilling Diameter
ø0.315" ~ ø0.768"
ø8.00 ~ ø19.50mm

HQS

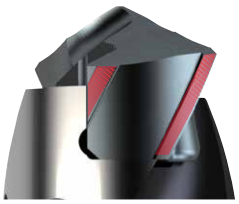
Special two-step bottom and double margin
Improving stability of difficult-to-cut materials and stainless steel during machining operations

Special Two-step Tip Edge



- Supresses sudden fractures from occuring when entering the workpiece
- Improvement of cutting edge strength

Double Margin



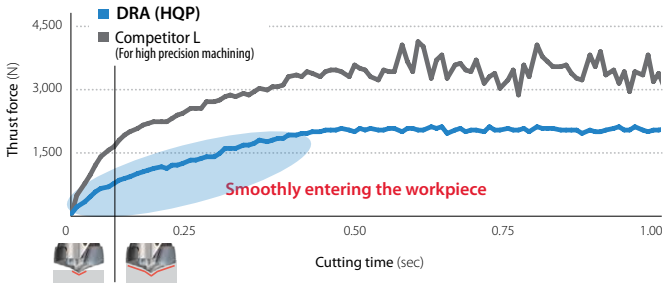
- Optimized for difficult-to-cut materials
- Improvement of heat resistance

Unique Flute Shape

- Superior chip control
- Prevents damage to hole walls
- Excellent finished surface

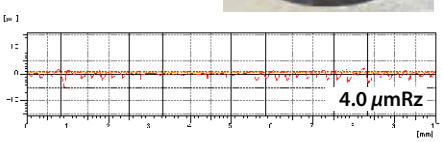
HQP High-precision insert for steel machining

Cutting Force Comparison when Entering Workpiece
(Internal Evaluation)



Cutting Conditions: Vc = 330 sfm, f = 0.010 ipr, H = 1.181", Wet Workpiece : 1049 Ø0.630" (3D)

Hole Wall Surface Finish Comparison
(Internal Evaluation)

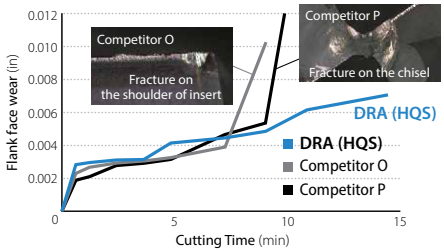


Cutting Conditions: Vc = 330 sfm, f = 0.010 ipr, H = 3.150", Wet
Workpiece: 1049 Ø0.630" (5D)

HQS For difficult-to-cut materials / stainless steel machining

Inconel

Wear Resistance Comparison (Internal evaluation)



Shoulder part

Normal wear condition

Chisel part

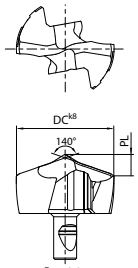
Good without fracture

DRA (HQS) | **Competitor Q**

Cutting Conditions: Vc = 70 sfm, f = 0.006 ipr, Drilling Diameter Ø14.5mm (0.571") (3xD)
Drilling Depth 1.575", Wet (internal/external), Workpiece: Inconel 718, BT50 M/C

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRA Insert (HQP - Precision / for Carbon Steel)

							Carbon Steel / Alloy Steel	●	P	
							Mold and Die Steel			
							Stainless Steel		M	
							Cast Iron		K	
							Non-Ferrous Metals		N	
Insert		Part Number		Dimensions			Tolerance (mm)		Carbide	Applicable Toolholder ➡ K18~K34
				DC		PL (mm)	k8 (min.)	k8 (max.)	PVD	
				in	mm				PR1525	
	 Precision	DA	0794M-HQP	0.313	7.94	1.90	0	+0.022	●	SF...-DRA080M-◯ SS...-DRA080M-◯
			0800M-HQP	0.315	8.00	1.91			●	
			0810M-HQP	0.319	8.10	1.93			●	
			0820M-HQP	0.323	8.20	1.94			●	
			0830M-HQP	0.327	8.30	1.96			●	
			0840M-HQP	0.331	8.40	1.98			●	
		DA	0850M-HQP	0.335	8.50	1.99	0	+0.022	●	SF...-DRA085M-◯ SS...-DRA085M-◯
			0860M-HQP	0.339	8.60	2.01			●	
			0870M-HQP	0.343	8.70	2.03			●	
			0880M-HQP	0.346	8.80	2.05			●	
			0890M-HQP	0.350	8.90	2.06			●	
		DA	0900M-HQP	0.354	9.00	2.19	0	+0.022	●	SF...-DRA090M-◯ SS...-DRA090M-◯
			0910M-HQP	0.358	9.10	2.21			●	
			0920M-HQP	0.362	9.20	2.22			●	
			0930M-HQP	0.366	9.30	2.24			●	
			0940M-HQP	0.370	9.40	2.26			●	
		DA	0950M-HQP	0.374	9.50	2.27	0	+0.022	●	SF...-DRA095M-◯ SS...-DRA095M-◯
			0960M-HQP	0.378	9.60	2.29			●	
			0970M-HQP	0.382	9.70	2.31			●	
			0980M-HQP	0.386	9.80	2.32			●	
			0990M-HQP	0.390	9.90	2.34			●	
		DA	1000M-HQP	0.394	10.00	2.35	0	+0.022	●	SF...-DRA100M-◯ SS...-DRA100M-◯
			1010M-HQP	0.398	10.10	2.36		+0.027	●	
			1020M-HQP	0.402	10.20	2.38		+0.027	●	
			1030M-HQP	0.406	10.30	2.40		+0.027	●	
			1040M-HQP	0.409	10.40	2.41		+0.027	●	
		DA	1050M-HQP	0.413	10.50	2.43	0	+0.027	●	SF...-DRA105M-◯ SS...-DRA105M-◯
			1060M-HQP	0.417	10.60	2.44			●	
			1070M-HQP	0.421	10.70	2.46			●	
			1080M-HQP	0.425	10.80	2.47			●	
			1090M-HQP	0.429	10.90	2.49			●	
		DA	1100M-HQP	0.433	11.00	2.65	0	+0.027	●	SF...-DRA110M-◯ SS...-DRA110M-◯
			1110M-HQP	0.437	11.10	2.67			●	
			1120M-HQP	0.441	11.20	2.68			●	
			1130M-HQP	0.445	11.30	2.70			●	
			1140M-HQP	0.449	11.40	2.72			●	
		DA	1150M-HQP	0.453	11.50	2.73	0	+0.027	●	SF...-DRA115M-◯ SS...-DRA115M-◯
			1160M-HQP	0.457	11.60	2.75			●	
			1170M-HQP	0.461	11.70	2.76			●	
			1180M-HQP	0.465	11.80	2.78			●	
			1190M-HQP	0.469	11.90	2.80			●	
		DA	1200M-HQP	0.472	12.00	2.79	0	+0.027	●	SF...-DRA120M-◯ SS...-DRA120M-◯
			1210M-HQP	0.476	12.10	2.81			●	
			1220M-HQP	0.480	12.20	2.82			●	
			1230M-HQP	0.484	12.30	2.84			●	
			1240M-HQP	0.488	12.40	2.86			●	
		DA	1250M-HQP	0.492	12.50	2.87	0	+0.027	●	SF...-DRA125M-◯ SS...-DRA125M-◯
			1260M-HQP	0.496	12.60	2.89			●	
			1270M-HQP	0.500	12.70	2.91			●	
			1280M-HQP	0.504	12.80	2.92			●	
			1290M-HQP	0.508	12.90	2.94			●	

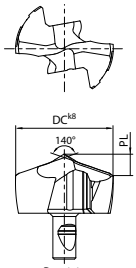
k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

Recommended Cutting Conditions ➡ K40

DA inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRA Insert (HQP - Precision / for Carbon Steel)

			Carbon Steel / Alloy Steel					●	P
			Mold and Die Steel						
			Stainless Steel						M
			Cast Iron						K
			Non-Ferrous Metals						N
Insert		Part Number	Dimensions			Tolerance (mm)		Carbide	Applicable Toolholder ➡ K18~K34
			DC		PL (mm)	k8 (min.)	k8 (max.)	PVD	
			in	mm				PR1525	
	 Precision	DA 1300M-HQP	0.512	13.00	2.98	0	+0.027	●	SF...-DRA130M-◯ SS...-DRA130M-◯
		1310M-HQP	0.516	13.10	2.99			●	
		1320M-HQP	0.520	13.20	3.01			●	
		1330M-HQP	0.524	13.30	3.02			●	
		1340M-HQP	0.528	13.40	3.04			●	
		DA 1350M-HQP	0.531	13.50	3.06	0	+0.027	●	SF...-DRA135M-◯ SS...-DRA135M-◯
		1360M-HQP	0.535	13.60	3.07			●	
		1370M-HQP	0.539	13.70	3.09			●	
		1380M-HQP	0.543	13.80	3.10			●	
		1390M-HQP	0.547	13.90	3.12			●	
		DA 1400M-HQP	0.551	14.00	3.11	0	+0.027	●	SF...-DRA140M-◯ SS...-DRA140M-◯
		1410M-HQP	0.555	14.10	3.12			●	
		1420M-HQP	0.559	14.20	3.14			●	
		1430M-HQP	0.563	14.30	3.16			●	
		1440M-HQP	0.567	14.40	3.17			●	
		DA 1450M-HQP	0.571	14.50	3.19	0	+0.027	●	SF...-DRA145M-◯ SS...-DRA145M-◯
		1460M-HQP	0.575	14.60	3.21			●	
		1470M-HQP	0.579	14.70	3.22			●	
		1480M-HQP	0.583	14.80	3.24			●	
		1490M-HQP	0.587	14.90	3.25			●	
		DA 1500M-HQP	0.591	15.00	3.33	0	+0.027	●	SF...-DRA150M-◯ SS...-DRA150M-◯
		1510M-HQP	0.594	15.10	3.35			●	
		1520M-HQP	0.598	15.20	3.36			●	
		1530M-HQP	0.602	15.30	3.38			●	
		1540M-HQP	0.606	15.40	3.39			●	
		1550M-HQP	0.610	15.50	3.41			●	
		1560M-HQP	0.614	15.60	3.42			●	
		1570M-HQP	0.618	15.70	3.44			●	
		1580M-HQP	0.622	15.80	3.46			●	
		1590M-HQP	0.626	15.90	3.47			●	
		DA 1600M-HQP	0.630	16.00	3.55	0	+0.027	●	SF...-DRA160M-◯ SS...-DRA160M-◯
		1610M-HQP	0.634	16.10	3.57			●	
		1620M-HQP	0.638	16.20	3.58			●	
		1630M-HQP	0.642	16.30	3.60			●	
		1640M-HQP	0.646	16.40	3.62			●	
		1650M-HQP	0.650	16.50	3.63			●	
		1660M-HQP	0.654	16.60	3.65			●	
		1670M-HQP	0.657	16.70	3.66			●	
		1680M-HQP	0.661	16.80	3.68			●	
		1690M-HQP	0.665	16.90	3.69			●	
		DA 1700M-HQP	0.669	17.00	3.73	0	+0.027	●	SF...-DRA170M-◯ SS...-DRA170M-◯
		1710M-HQP	0.673	17.10	3.75			●	
		1720M-HQP	0.677	17.20	3.77			●	
		1730M-HQP	0.681	17.30	3.78			●	
		1740M-HQP	0.685	17.40	3.80			●	
		1750M-HQP	0.689	17.50	3.81			●	
		1760M-HQP	0.693	17.60	3.83			●	
		1770M-HQP	0.697	17.70	3.84			●	
		1780M-HQP	0.701	17.80	3.86			●	
		1790M-HQP	0.705	17.90	3.88			●	

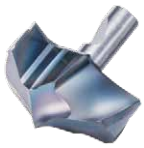
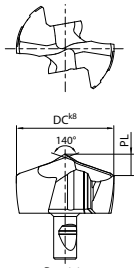
k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

Recommended Cutting Conditions ➡ K40

DA inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRA Insert (HQP - Precision / for Carbon Steel)

							Carbon Steel / Alloy Steel	●		P
							Mold and Die Steel			
							Stainless Steel			M
							Cast Iron			K
							Non-Ferrous Metals			N
Insert		Part Number		Dimensions			Tolerance (mm)		Carbide	Applicable Toolholder ➡ K18~K34
				DC		PL (mm)	k8 (min.)	k8 (max.)	PVD	
				in	mm				PR1525	
	 Precision	DA	1800M-HQP	0.709	18.00	3.97	0	+0.027	●	SF...-DRA180M-◯ SS...-DRA180M-◯
			1810M-HQP	0.713	18.10	3.98		+0.033	●	
			1820M-HQP	0.717	18.20	4.00		+0.033	●	
			1830M-HQP	0.720	18.30	4.02		+0.033	●	
			1840M-HQP	0.724	18.40	4.03		+0.033	●	
			1850M-HQP	0.728	18.50	4.05		+0.033	●	
			1860M-HQP	0.732	18.60	4.06		+0.033	●	
			1870M-HQP	0.736	18.70	4.08		+0.033	●	
			1880M-HQP	0.740	18.80	4.09		+0.033	●	
			1890M-HQP	0.744	18.90	4.11		+0.033	●	
		DA	1900M-HQP	0.748	19.00	4.20	0	+0.033	●	SF...-DRA190M-◯ SS...-DRA190M-◯
			1910M-HQP	0.752	19.10	4.22			●	
			1920M-HQP	0.756	19.20	4.23			●	
			1930M-HQP	0.760	19.30	4.25			●	
			1940M-HQP	0.764	19.40	4.26			●	
			1950M-HQP	0.768	19.50	4.28			●	
			1960M-HQP	0.772	19.60	4.29			●	
			1970M-HQP	0.776	19.70	4.31			●	
			1980M-HQP	0.780	19.80	4.33			●	
			1990M-HQP	0.783	19.90	4.34			●	

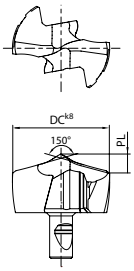
k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

Recommended Cutting Conditions ➡ K40

DA inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRA Insert (HQS - For Difficult-to-Cut Materials / Stainless Steel)

			Carbon Steel / Alloy Steel						P
			Mold and Die Steel						P
			Stainless Steel					●	M
			Cast Iron						K
			Non-Ferrous Metals						N
Insert		Part Number	Dimensions DC in	Dimensions DC mm	Dimensions PL (mm)	Tolerance (mm) k8 (min.)	Tolerance (mm) k8 (max.)	Carbide PVD PR1535	Applicable Toolholder ➡ K18~K34
		DA 0800M-HQS	0.315	8.00	1.76	0	+0.022	●	SF...-DRA080M-◯
		0820M-HQS	0.323	8.20	1.78			●	SS...-DRA080M-◯
		DA 0850M-HQS	0.335	8.50	1.82	0	+0.022	●	SF...-DRA085M-◯
		0870M-HQS	0.343	8.70	1.85			●	SS...-DRA085M-◯
		0880M-HQS	0.346	8.80	1.86			●	
		DA 0900M-HQS	0.354	9.00	1.97	0	+0.022	●	SF...-DRA090M-◯
		0930M-HQS	0.366	9.30	2.01			●	SS...-DRA090M-◯
		0940M-HQS	0.370	9.40	2.02			●	
		DA 0950M-HQS	0.374	9.50	2.03	0	+0.022	●	SF...-DRA095M-◯
		0970M-HQS	0.382	9.70	2.05			●	SS...-DRA095M-◯
		0980M-HQS	0.386	9.80	2.06			●	
		DA 1000M-HQS	0.394	10.00	2.17	0	+0.022	●	SF...-DRA100M-◯
		1030M-HQS	0.406	10.30	2.21		+0.027	●	SS...-DRA100M-◯
		1040M-HQS	0.409	10.40	2.22		+0.027	●	
		DA 1050M-HQS	0.413	10.50	2.23	0	+0.027	●	SF...-DRA105M-◯
		1080M-HQS	0.425	10.80	2.27			●	SS...-DRA105M-◯
		DA 1100M-HQS	0.433	11.00	2.38	0	+0.027	●	SF...-DRA110M-◯ SS...-DRA110M-◯
		DA 1150M-HQS	0.453	11.50	2.44	0	+0.027	●	SF...-DRA115M-◯ SS...-DRA115M-◯
		DA 1200M-HQS	0.472	12.00	2.50	0	+0.027	●	SF...-DRA120M-◯ SS...-DRA120M-◯
		DA 1250M-HQS	0.492	12.50	2.57	0	+0.027	●	SF...-DRA125M-◯
		1260M-HQS	0.496	12.60	2.58			●	SS...-DRA125M-◯
		DA 1300M-HQS	0.512	13.00	2.68	0	+0.027	●	SF...-DRA130M-◯ SS...-DRA130M-◯
		DA 1350M-HQS	0.531	13.50	2.74	0	+0.027	●	SF...-DRA135M-◯
		1390M-HQS	0.547	13.90	2.78			●	SS...-DRA135M-◯
		DA 1400M-HQS	0.551	14.00	2.79	0	+0.027	●	SF...-DRA140M-◯
		1420M-HQS	0.559	14.20	2.81			●	SS...-DRA140M-◯
		DA 1450M-HQS	0.571	14.50	2.85	0	+0.027	●	SF...-DRA145M-◯ SS...-DRA145M-◯

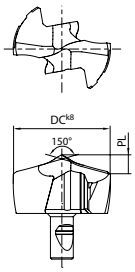
k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

Recommended Cutting Conditions ➡ K40

DA inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRA Insert (HQS - For Difficult-to-Cut Materials / Stainless Steel)

			Carbon Steel / Alloy Steel						P
			Mold and Die Steel						
			Stainless Steel					●	M
			Cast Iron						K
			Non-Ferrous Metals						N
Insert		Part Number	Dimensions			Tolerance (mm)		Carbide	Applicable Toolholder ➡ K18~K34
			DC		PL (mm)	k8 (min.)	k8 (max.)	PVD	
			in	mm				PR1535	
		DA 1500M-HQS	0.591	15.00	2.96			●	SF...-DRA150M-◯ SS...-DRA150M-◯
		1520M-HQS	0.598	15.20	2.99			●	
		1530M-HQS	0.602	15.30	3.00	0	+0.027	●	
		1550M-HQS	0.610	15.50	3.02			●	
		1570M-HQS	0.618	15.70	3.04			●	
		DA 1600M-HQS	0.630	16.00	3.18			●	SF...-DRA160M-◯ SS...-DRA160M-◯
		1610M-HQS	0.634	16.10	3.20			●	
		1620M-HQS	0.638	16.20	3.21	0	+0.027	●	
		1630M-HQS	0.642	16.30	3.22			●	
		1650M-HQS	0.650	16.50	3.25			●	
		DA 1700M-HQS	0.669	17.00	3.38			●	SF...-DRA170M-◯ SS...-DRA170M-◯
		1750M-HQS	0.689	17.50	3.44	0	+0.027	●	
		1770M-HQS	0.697	17.70	3.46			●	
		DA 1800M-HQS	0.709	18.00	3.59		+0.027	●	SF...-DRA180M-◯ SS...-DRA180M-◯
		1810M-HQS	0.713	18.10	3.60	0	+0.033	●	
		1850M-HQS	0.728	18.50	3.65		+0.033	●	
		DA 1900M-HQS	0.748	19.00	3.79			●	SF...-DRA190M-◯ SS...-DRA190M-◯
		1930M-HQS	0.760	19.30	3.82	0	+0.033	●	
		1950M-HQS	0.768	19.50	3.84			●	

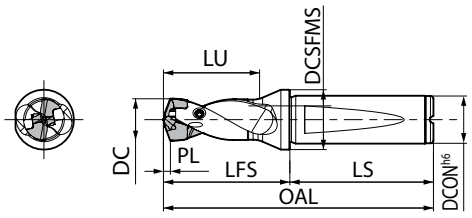
k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

Recommended Cutting Conditions ➡ K40

DA inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SF-DRA (Drilling Depth : 1.5 x DC)



1.5D

For PL indicates distance from drill point to corner edge **K6~K17**

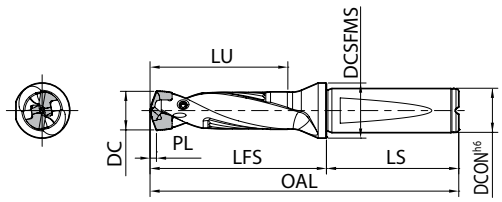
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS		Screw	Wrench	Wrench	
Inch	SF0500- DRA080M-1.5	●	0.313	0.334	0.500	2.805	1.033	0.504	1.772	0.630	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
	DRA085M-1.5	●	0.335	0.353		2.854	1.083	0.531							DA0850M-... ~ DA0890M-...
	DRA090M-1.5	●	0.354	0.373		2.904	1.132	0.563							DA0900M-... ~ DA0940M-...
	DRA095M-1.5	●	0.374	0.393		2.953	1.181	0.591							DA0950M-... ~ DA0990M-...
	SF0625- DRA100M-1.5	●	0.394	0.412	0.625	3.120	1.230	0.622	1.890	0.787	Yes	HS-2534TRP	-	FTP-5	DA1000M-... ~ DA1040M-...
	DRA105M-1.5	●	0.413	0.432		3.169	1.280	0.650							DA1050M-... ~ DA1090M-...
	DRA110M-1.5	●	0.433	0.452		3.258	1.368	0.681							DA1100M-... ~ DA1140M-...
	DRA115M-1.5	●	0.453	0.471		3.307	1.417	0.709							DA1150M-... ~ DA1190M-...
	DRA120M-1.5	●	0.472	0.491		3.356	1.467	0.740							DA1200M-... ~ DA1240M-...
	DRA125M-1.5	●	0.492	0.511		3.406	1.516	0.768							DA1250M-... ~ DA1290M-...
	DRA130M-1.5	●	0.512	0.530		3.455	1.565	0.799							DA1300M-... ~ DA1340M-...
	DRA135M-1.5	●	0.531	0.550		3.504	1.614	0.827							DA1350M-... ~ DA1390M-...
	DRA140M-1.5	●	0.551	0.570		3.553	1.663	0.858				HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
	DRA145M-1.5	●	0.571	0.590		3.602	1.713	0.886							DA1450M-... ~ DA1490M-...
	SF0750- DRA150M-1.5	●	0.591	0.629	0.750	3.819	1.850	0.917	1.969	0.984	Yes	HS-3048TRP	DTP-6	-	DA1500M-... ~ DA1590M-...
	DRA160M-1.5	●	0.630	0.668		3.957	1.988	0.976							DA1600M-... ~ DA1690M-...
	DRA170M-1.5	●	0.669	0.708		4.055	2.087	1.035							DA1700M-... ~ DA1790M-...
	DRA180M-1.5	●	0.709	0.747		4.193	2.224	1.094				HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
	DRA190M-1.5	●	0.748	0.786		4.291	2.323	1.154							DA1900M-... ~ DA1990M-...
	SF1000- DRA200M-1.5	●	0.787	0.826	1.000	4.626	2.421	1.213	2.205	1.260	Yes	HS-4067TRP	DTP-7	-	DA2000M-... ~ DA2090M-...
	DRA210M-1.5	●	0.827	0.865		4.724	2.520	1.272							DA2100M-... ~ DA2150M-...
	DRA220M-1.5	●	0.866	0.905		4.862	2.657	1.331							DA2200M-... ~ DA2250M-...
	DRA230M-1.5	●	0.906	0.944		4.961	2.756	1.390							DA2300M-... ~ DA2381M-...
	DRA240M-1.5	●	0.945	0.983		5.059	2.854	1.449							DA2400M-... ~ DA2450M-...
	DRA250M-1.5	●	0.984	1.004		5.157	2.953	1.508							DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SF-DRA (Drilling Depth : 3 x DC)



3D

For PL indicates distance from drill point to corner edge **K6~K17**

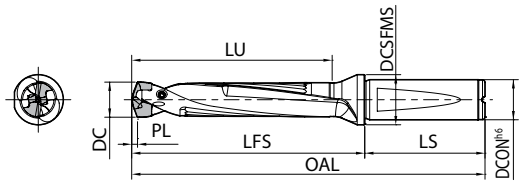
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS		Screw	Wrench	Wrench	
Inch	SF0500- DRA080M-3	●	0.313	0.334	0.500	3.307	1.535	1.004	1.772	0.630	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
	DRA085M-3	●	0.335	0.353		3.386	1.614	1.063							DA0850M-... ~ DA0890M-...
	DRA090M-3	●	0.354	0.373		3.465	1.693	1.122							DA0900M-... ~ DA0940M-...
	DRA095M-3	●	0.374	0.393		3.543	1.772	1.181							DA0950M-... ~ DA0990M-...
	SF0625- DRA100M-3	●	0.394	0.412	0.625	3.740	1.850	1.240	1.890	0.787	Yes	HS-2534TRP	-	FTP-5	DA1000M-... ~ DA1040M-...
	DRA105M-3	●	0.413	0.432		3.819	1.929	1.299							DA1050M-... ~ DA1090M-...
	DRA110M-3	●	0.433	0.452		3.937	2.047	1.358							DA1100M-... ~ DA1140M-...
	DRA115M-3	●	0.453	0.471		4.016	2.126	1.417							DA1150M-... ~ DA1190M-...
	DRA120M-3	●	0.472	0.491		4.094	2.205	1.476							DA1200M-... ~ DA1240M-...
	DRA125M-3	●	0.492	0.511		4.173	2.283	1.535							DA1250M-... ~ DA1290M-...
	DRA130M-3	●	0.512	0.530		4.252	2.362	1.594							DA1300M-... ~ DA1340M-...
	DRA135M-3	●	0.531	0.550		4.331	2.441	1.654							DA1350M-... ~ DA1390M-...
	DRA140M-3	●	0.551	0.570		4.409	2.520	1.713				HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
	DRA145M-3	●	0.571	0.590		4.488	2.598	1.772							DA1450M-... ~ DA1490M-...
	SF0750- DRA150M-3	●	0.591	0.629	0.750	4.764	2.795	1.890	1.969	0.984	Yes	HS-3048TRP	DTP-6	-	DA1500M-... ~ DA1590M-...
	DRA160M-3	●	0.630	0.668		4.961	2.992	2.008							DA1600M-... ~ DA1690M-...
	DRA170M-3	●	0.669	0.708		5.118	3.150	2.126							DA1700M-... ~ DA1790M-...
	DRA180M-3	●	0.709	0.747		5.315	3.346	2.244				HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
	DRA190M-3	●	0.748	0.786		5.472	3.504	2.362							DA1900M-... ~ DA1990M-...
	SF1000- DRA200M-3	●	0.787	0.826	1.000	5.866	3.661	2.480	2.205	1.260	Yes	HS-4067TRP	DTP-7	-	DA2000M-... ~ DA2090M-...
	DRA210M-3	●	0.827	0.865		6.024	3.819	2.598							DA2100M-... ~ DA2150M-...
	DRA220M-3	●	0.866	0.905		6.220	4.016	2.717							DA2200M-... ~ DA2250M-...
	DRA230M-3	●	0.906	0.944		6.378	4.173	2.835							DA2300M-... ~ DA2381M-...
	DRA240M-3	●	0.945	0.983		6.535	4.331	2.953							DA2400M-... ~ DA2450M-...
	DRA250M-3	●	0.984	1.004		6.693	4.488	3.071							DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SF-DRA (Drilling Depth : 5 x DC)



5D

For PL indicates distance from drill point to corner edge **K6~K17**

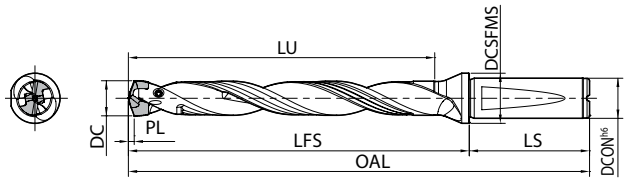
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS		Screw	Wrench	Wrench	
Inch	SF0500- DRA080M-5	●	0.313	0.334	0.500	3.976	2.205	1.673	1.772	0.630	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
	DRA085M-5	●	0.335	0.353		4.094	2.323	1.772							DA0850M-... ~ DA0890M-...
	DRA090M-5	●	0.354	0.373		4.213	2.441	1.870							DA0900M-... ~ DA0940M-...
	DRA095M-5	●	0.374	0.393		4.331	2.559	1.969							DA0950M-... ~ DA0990M-...
	SF0625- DRA100M-5	●	0.394	0.412	0.625	4.567	2.677	2.067	1.890	0.787	Yes	HS-2534TRP	-	FTP-5	DA1000M-... ~ DA1040M-...
	DRA105M-5	●	0.413	0.432		4.685	2.795	2.165							DA1050M-... ~ DA1090M-...
	DRA110M-5	●	0.433	0.452		4.843	2.953	2.264							DA1100M-... ~ DA1140M-...
	DRA115M-5	●	0.453	0.471		4.961	3.071	2.362							DA1150M-... ~ DA1190M-...
	DRA120M-5	●	0.472	0.491		5.079	3.189	2.461							DA1200M-... ~ DA1240M-...
	DRA125M-5	●	0.492	0.511		5.197	3.307	2.559							DA1250M-... ~ DA1290M-...
	DRA130M-5	●	0.512	0.530		5.315	3.425	2.657							DA1300M-... ~ DA1340M-...
	DRA135M-5	●	0.531	0.550		5.433	3.543	2.756							DA1350M-... ~ DA1390M-...
	DRA140M-5	●	0.551	0.570		5.551	3.661	2.854				HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
	DRA145M-5	●	0.571	0.590		5.669	3.780	2.953							DA1450M-... ~ DA1490M-...
	SF0750- DRA150M-5	●	0.591	0.629	0.750	6.024	4.055	3.150	1.969	0.984	Yes	HS-3048TRP	DTP-6	-	DA1500M-... ~ DA1590M-...
	DRA160M-5	●	0.630	0.668		6.299	4.331	3.346							DA1600M-... ~ DA1690M-...
	DRA170M-5	●	0.669	0.708		6.535	4.567	3.543							DA1700M-... ~ DA1790M-...
	DRA180M-5	●	0.709	0.747		6.811	4.843	3.740				HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
	DRA190M-5	●	0.748	0.786		7.047	5.079	3.937							DA1900M-... ~ DA1990M-...
	SF1000- DRA200M-5	●	0.787	0.826	1.000	7.520	5.315	4.134	2.205	1.260	Yes	HS-4067TRP	DTP-7	-	DA2000M-... ~ DA2090M-...
	DRA210M-5	●	0.827	0.865		7.756	5.551	4.331							DA2100M-... ~ DA2150M-...
	DRA220M-5	●	0.866	0.905		8.031	5.827	4.528							DA2200M-... ~ DA2250M-...
	DRA230M-5	●	0.906	0.944		8.268	6.063	4.724							DA2300M-... ~ DA2381M-...
	DRA240M-5	●	0.945	0.983		8.504	6.299	4.921							DA2400M-... ~ DA2450M-...
	DRA250M-5	●	0.984	1.004		8.740	6.535	5.116							DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SF-DRA (Drilling Depth : 8 x DC)



8D

For PL indicates distance from drill point to corner edge **K6~K17**

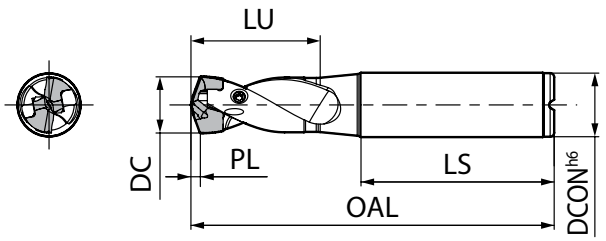
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS		Screw	Wrench	Wrench	
Inch	SF0500- DRA080M-8	●	0.313	0.334	0.500	4.961	3.189	2.677	1.772	0.630	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
	DRA085M-8	●	0.335	0.353		5.157	3.386	2.835							DA0850M-... ~ DA0890M-...
	DRA090M-8	●	0.354	0.373		5.315	3.543	2.992							DA0900M-... ~ DA0940M-...
	DRA095M-8	●	0.374	0.393		5.512	3.740	3.150							DA0950M-... ~ DA0990M-...
	SF0625- DRA100M-8	●	0.394	0.412	0.625	5.787	3.898	3.307	1.890	0.787	Yes	HS-2534TRP	-	FTP-5	DA1000M-... ~ DA1040M-...
	DRA105M-8	●	0.413	0.432		5.984	4.094	3.465							DA1050M-... ~ DA1090M-...
	DRA110M-8	●	0.433	0.452		6.181	4.291	3.622							DA1100M-... ~ DA1140M-...
	DRA115M-8	●	0.453	0.471		6.378	4.488	3.780							DA1150M-... ~ DA1190M-...
	DRA120M-8	●	0.472	0.491		6.535	4.646	3.937							DA1200M-... ~ DA1240M-...
	DRA125M-8	●	0.492	0.511		6.732	4.843	4.094							DA1250M-... ~ DA1290M-...
	DRA130M-8	●	0.512	0.530		6.890	5.000	4.252							DA1300M-... ~ DA1340M-...
	DRA135M-8	●	0.531	0.550		7.087	5.197	4.409							DA1350M-... ~ DA1390M-...
	DRA140M-8	●	0.551	0.570		7.244	5.354	4.567				HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
	DRA145M-8	●	0.571	0.590		7.441	5.551	4.724							DA1450M-... ~ DA1490M-...
	SF0750- DRA150M-8	●	0.591	0.629	0.750	7.913	5.945	5.039	1.969	0.984	Yes	HS-3048TRP	DTP-6	-	DA1500M-... ~ DA1590M-...
	DRA160M-8	●	0.630	0.668		8.307	6.339	5.354							DA1600M-... ~ DA1690M-...
	DRA170M-8	●	0.669	0.708		8.661	6.693	5.669							DA1700M-... ~ DA1790M-...
	DRA180M-8	●	0.709	0.747		9.055	7.087	5.984				HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
	DRA190M-8	●	0.748	0.786		9.409	7.441	6.299							DA1900M-... ~ DA1990M-...
	SF1000- DRA200M-8	●	0.787	0.826	1.000	10.000	7.795	6.614	2.205	1.260	Yes	HS-4067TRP	DTP-7	-	DA2000M-... ~ DA2090M-...
	DRA210M-8	●	0.827	0.865		10.354	8.150	6.929							DA2100M-... ~ DA2150M-...
	DRA220M-8	●	0.866	0.905		10.748	8.543	7.244							DA2200M-... ~ DA2250M-...
	DRA230M-8	●	0.906	0.944		11.102	8.898	7.559							DA2300M-... ~ DA2381M-...
	DRA240M-8	●	0.945	0.983		11.457	9.252	7.874							DA2400M-... ~ DA2450M-...
	DRA250M-8	●	0.984	1.004		11.811	9.606	8.189							DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SS-DRA (Drilling Depth : 1.5 x DC)



1.5D

For PL indicates distance from drill point to corner edge **K6~K17**

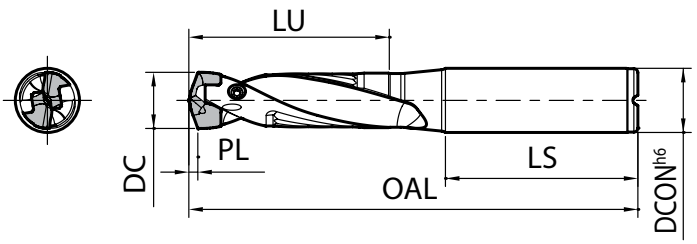
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench	
Inch	SS0375- DRA080M-1.5	●	0.313	0.334	0.375	2.608	0.504	1.575	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
	DRA085M-1.5	●	0.335	0.353		2.657	0.531						DA0850M-... ~ DA0890M-...
	DRA090M-1.5	●	0.354	0.373		2.707	0.563						DA0900M-... ~ DA0940M-...
	SS0500- DRA095M-1.5	●	0.374	0.393	0.500	2.953	0.591	1.772	Yes	HS-2534TRP	-	FTP-5	DA0950M-... ~ DA0990M-...
	DRA100M-1.5	●	0.394	0.412		3.002	0.622						DA1000M-... ~ DA1040M-...
	DRA105M-1.5	●	0.413	0.432		3.051	0.650						DA1050M-... ~ DA1090M-...
	DRA110M-1.5	●	0.433	0.452		3.140	0.681						DA1100M-... ~ DA1140M-...
	DRA115M-1.5	●	0.453	0.471		3.189	0.709						DA1150M-... ~ DA1190M-...
	SS0625- DRA120M-1.5	●	0.472	0.491	0.625	3.356	0.740	1.890	Yes	HS-2534TRP	-	FTP-5	DA1200M-... ~ DA1240M-...
	DRA125M-1.5	●	0.492	0.511		3.406	0.768						DA1250M-... ~ DA1290M-...
	DRA130M-1.5	●	0.512	0.530		3.455	0.799						DA1300M-... ~ DA1340M-...
	DRA135M-1.5	●	0.531	0.550		3.504	0.827						DA1350M-... ~ DA1390M-...
	DRA140M-1.5	●	0.551	0.570		3.553	0.858			HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
	DRA145M-1.5	●	0.571	0.590		3.602	0.886						DA1450M-... ~ DA1490M-...
	DRA150M-1.5	●	0.591	0.629		3.740	0.917						DA1500M-... ~ DA1590M-...
	SS0750- DRA160M-1.5	●	0.630	0.668	0.750	3.957	0.976	1.969	Yes	HS-3048TRP	DTP-6	-	DA1600M-... ~ DA1690M-...
	DRA170M-1.5	●	0.669	0.708		4.055	1.035						DA1700M-... ~ DA1790M-...
	DRA180M-1.5	●	0.709	0.747		4.193	1.094			HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
	SS1000- DRA190M-1.5	●	0.748	0.786	1.000	4.528	1.154	2.205	Yes	HS-4067TRP	DTP-7	-	DA1900M-... ~ DA1990M-...
	DRA200M-1.5	●	0.787	0.826		4.626	1.213						DA2000M-... ~ DA2090M-...
	DRA210M-1.5	●	0.827	0.865		4.724	1.272						DA2100M-... ~ DA2150M-...
	DRA220M-1.5	●	0.866	0.905		4.862	1.331						DA2200M-... ~ DA2250M-...
	DRA230M-1.5	●	0.906	0.944		4.961	1.390						DA2300M-... ~ DA2381M-...
	DRA240M-1.5	●	0.945	0.983		5.059	1.449						DA2400M-... ~ DA2450M-...
	DRA250M-1.5	●	0.984	1.004		5.157	1.508						DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SS-DRA (Drilling Depth : 3 x DC)



3D

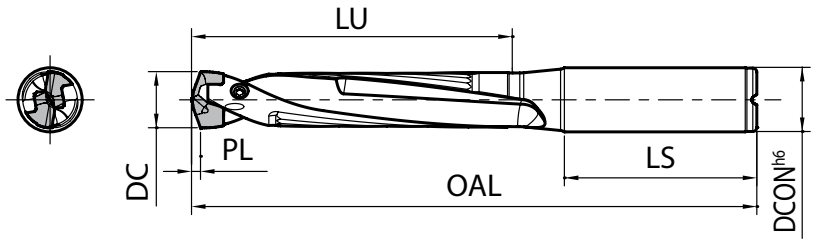
For PL indicates distance from drill point to corner edge **K6~K17**

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench	
Inch	SS0375- DRA080M-3	●	0.313	0.334	0.375	3.110	1.004	1.575	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
	DRA085M-3	●	0.335	0.353		3.189	1.063						DA0850M-... ~ DA0890M-...
	DRA090M-3	●	0.354	0.373		3.268	1.122						DA0900M-... ~ DA0940M-...
	SS0500- DRA095M-3	●	0.374	0.393	0.500	3.543	1.181	1.772	Yes	HS-2534TRP	-	FTP-5	DA0950M-... ~ DA0990M-...
	DRA100M-3	●	0.394	0.412		3.622	1.240						DA1000M-... ~ DA1040M-...
	DRA105M-3	●	0.413	0.432		3.701	1.299						DA1050M-... ~ DA1090M-...
	DRA110M-3	●	0.433	0.452		3.819	1.358						DA1100M-... ~ DA1140M-...
	DRA115M-3	●	0.453	0.471		3.898	1.417						DA1150M-... ~ DA1190M-...
	SS0625- DRA120M-3	●	0.472	0.491	0.625	4.094	1.476	1.890	Yes	HS-2534TRP	-	FTP-5	DA1200M-... ~ DA1240M-...
	DRA125M-3	●	0.492	0.511		4.173	1.535						DA1250M-... ~ DA1290M-...
	DRA130M-3	●	0.512	0.530		4.252	1.594						DA1300M-... ~ DA1340M-...
	DRA135M-3	●	0.531	0.550		4.331	1.654						DA1350M-... ~ DA1390M-...
	DRA140M-3	●	0.551	0.570		4.409	1.713			HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
	DRA145M-3	●	0.571	0.590		4.488	1.772						DA1450M-... ~ DA1490M-...
	DRA150M-3	●	0.591	0.629		4.685	1.890						DA1500M-... ~ DA1590M-...
	SS0750- DRA160M-3	●	0.630	0.668	0.750	4.961	2.008	1.969	Yes	HS-3048TRP	DTP-6	-	DA1600M-... ~ DA1690M-...
	DRA170M-3	●	0.669	0.708		5.118	2.126						DA1700M-... ~ DA1790M-...
	DRA180M-3	●	0.709	0.747		5.315	2.244			HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
	SS1000- DRA190M-3	●	0.748	0.786	1.000	5.472	2.362	2.205	Yes	HS-4067TRP	DTP-7	-	DA1900M-... ~ DA1990M-...
	DRA200M-3	●	0.787	0.826		5.866	2.480						DA2000M-... ~ DA2090M-...
	DRA210M-3	●	0.827	0.865		6.024	2.598						DA2100M-... ~ DA2150M-...
	DRA220M-3	●	0.866	0.905		6.220	2.717						DA2200M-... ~ DA2250M-...
	DRA230M-3	●	0.906	0.944		6.378	2.835						DA2300M-... ~ DA2381M-...
	DRA240M-3	●	0.945	0.983		6.535	2.953						DA2400M-... ~ DA2450M-...
	DRA250M-3	●	0.984	1.004		6.693	3.070						DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

SS-DRA (Drilling Depth : 5 x DC)



5D

For PL indicates distance from drill point to corner edge **K6~K17**

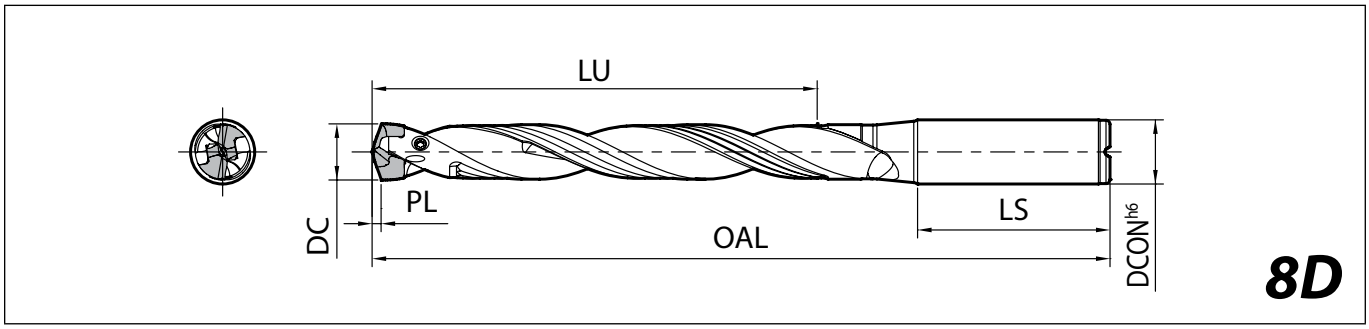
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench	
Inch	SS0375- DRA080M-5	●	0.313	0.334	0.375	3.780	1.673	1.575	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
	DRA085M-5	●	0.335	0.353		3.898	1.772						DA0850M-... ~ DA0890M-...
	DRA090M-5	●	0.354	0.373		4.016	1.870						DA0900M-... ~ DA0940M-...
	SS0500- DRA095M-5	●	0.374	0.393	0.500	4.331	1.969	1.772	Yes	HS-2524TRP	-	FTP-5	DA0950M-... ~ DA0990M-...
	DRA100M-5	●	0.394	0.412		4.449	2.067						DA1000M-... ~ DA1040M-...
	DRA105M-5	●	0.413	0.432		4.567	2.165						DA1050M-... ~ DA1090M-...
	DRA110M-5	●	0.433	0.452		4.724	2.264						DA1100M-... ~ DA1140M-...
	DRA115M-5	●	0.453	0.471		4.843	2.362						DA1150M-... ~ DA1190M-...
	SS0625- DRA120M-5	●	0.472	0.491	0.625	5.079	2.461	1.890	Yes	HS-2534TRP	-	FTP-5	DA1200M-... ~ DA1240M-...
	DRA125M-5	●	0.492	0.511		5.197	2.559						DA1250M-... ~ DA1290M-...
	DRA130M-5	●	0.512	0.530		5.315	2.657						DA1300M-... ~ DA1340M-...
	DRA135M-5	●	0.531	0.550		5.433	2.756						DA1350M-... ~ DA1390M-...
	DRA140M-5	●	0.551	0.570		5.551	2.854			HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
	DRA145M-5	●	0.571	0.590		5.669	2.953						DA1450M-... ~ DA1490M-...
	DRA150M-5	●	0.591	0.629		5.945	3.150						DA1500M-... ~ DA1590M-...
	SS0750- DRA160M-5	●	0.630	0.668	0.750	6.299	3.346	1.969	Yes	HS-3048TRP	DTP-6	-	DA1600M-... ~ DA1690M-...
	DRA170M-5	●	0.669	0.708		6.535	3.543						DA1700M-... ~ DA1790M-...
	DRA180M-5	●	0.709	0.747		6.811	3.740			HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
	SS1000- DRA190M-5	●	0.748	0.786	1.000	7.047	3.937	2.205	Yes	HS-4067TRP	DTP-7	-	DA1900M-... ~ DA1990M-...
	DRA200M-5	●	0.787	0.826		7.520	4.134						DA2000M-... ~ DA2090M-...
	DRA210M-5	●	0.827	0.865		7.756	4.331						DA2100M-... ~ DA2150M-...
	DRA220M-5	●	0.866	0.905		8.031	4.528						DA2200M-... ~ DA2250M-...
	DRA230M-5	●	0.906	0.944		8.268	4.724						DA2300M-... ~ DA2381M-...
	DRA240M-5	●	0.945	0.983		8.504	4.921						DA2400M-... ~ DA2450M-...
	DRA250M-5	●	0.984	1.004		8.740	5.116						DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SS-DRA (Drilling Depth : 8 x DC)



For PL indicates distance from drill point to corner edge **K6~K17**

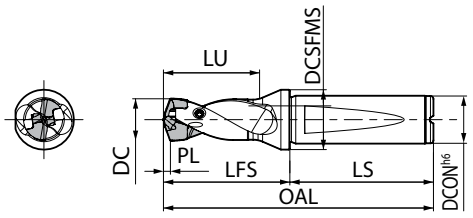
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench	
Inch	SS0375- DRA080M-8	●	0.313	0.334	0.375	4.764	2.677	1.575	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
	DRA085M-8	●	0.335	0.353		4.961	2.835						DA0850M-... ~ DA0890M-...
	DRA090M-8	●	0.354	0.373		5.118	2.992						DA0900M-... ~ DA0940M-...
	SS0500- DRA095M-8	●	0.374	0.393	0.500	5.512	3.150	1.772	Yes	HS-2524TRP	-	FTP-5	DA0950M-... ~ DA0990M-...
	DRA100M-8	●	0.394	0.412		5.669	3.307						DA1000M-... ~ DA1040M-...
	DRA105M-8	●	0.413	0.432		5.866	3.465						DA1050M-... ~ DA1090M-...
	DRA110M-8	●	0.433	0.452		6.063	3.622						DA1100M-... ~ DA1140M-...
	DRA115M-8	●	0.453	0.471		6.260	3.780						DA1150M-... ~ DA1190M-...
	SS0625- DRA120M-8	●	0.472	0.491	0.625	6.535	3.937	1.890	Yes	HS-2534TRP	-	FTP-5	DA1200M-... ~ DA1240M-...
	DRA125M-8	●	0.492	0.511		6.732	4.094						DA1250M-... ~ DA1290M-...
	DRA130M-8	●	0.512	0.530		6.890	4.252						DA1300M-... ~ DA1340M-...
	DRA135M-8	●	0.531	0.550		7.087	4.409						DA1350M-... ~ DA1390M-...
	DRA140M-8	●	0.551	0.570		7.244	4.567			HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
	DRA145M-8	●	0.571	0.590		7.441	4.724						DA1450M-... ~ DA1490M-...
	DRA150M-8	●	0.591	0.629		7.835	5.039						DA1500M-... ~ DA1590M-...
	SS0750- DRA160M-8	●	0.630	0.668	0.750	8.307	5.354	1.969	Yes	HS-3048TRP	DTP-6	-	DA1600M-... ~ DA1690M-...
	DRA170M-8	●	0.669	0.708		8.661	5.669						DA1700M-... ~ DA1790M-...
	DRA180M-8	●	0.709	0.747		9.055	5.984			HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
	SS1000- DRA190M-8	●	0.748	0.786	1.000	9.409	6.299	2.205	Yes	HS-4067TRP	DTP-7	-	DA1900M-... ~ DA1990M-...
	DRA200M-8	●	0.787	0.826		10.000	6.614						DA2000M-... ~ DA2090M-...
	DRA210M-8	●	0.827	0.865		10.354	6.929						DA2100M-... ~ DA2150M-...
	DRA220M-8	●	0.866	0.905		10.748	7.244						DA2200M-... ~ DA2250M-...
	DRA230M-8	●	0.906	0.944		11.102	7.559						DA2300M-... ~ DA2381M-...
	DRA240M-8	●	0.945	0.983		11.457	7.874						DA2400M-... ~ DA2450M-...
	DRA250M-8	●	0.984	1.004		11.969	8.189						DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SF-DRA (Drilling Depth : 1.5 x DC)



1.5D

For PL indicates distance from drill point to corner edge **K6~K17**

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS		Screw	Wrench	Wrench	
mm	SF12- DRA080M-1.5	●	7.94	8.49	12	71.2	26.2	12.8	45	16	Yes	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...
	DRA085M-1.5	●	8.5	8.99		72.5	27.5	13.5							DA0850M-...~DA0890M-...
	DRA090M-1.5	●	9	9.49		73.7	28.7	14.3							DA0900M-...~DA0940M-...
	DRA095M-1.5	●	9.5	9.99		75	30	15							DA0950M-...~DA0990M-...
	SF16- DRA100M-1.5	●	10	10.49	16	79.2	31.2	15.8	48	20	Yes	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...
	DRA105M-1.5	●	10.5	10.99		80.5	32.5	16.5							DA1050M-...~DA1090M-...
	DRA110M-1.5	●	11	11.49		82.7	34.7	17.3							DA1100M-...~DA1140M-...
	DRA115M-1.5	●	11.5	11.99		84	36	18							DA1150M-...~DA1190M-...
	DRA120M-1.5	●	12	12.49		85.2	37.2	18.8							DA1200M-...~DA1240M-...
	DRA125M-1.5	●	12.5	12.99		86.5	38.5	19.5							DA1250M-...~DA1290M-...
	DRA130M-1.5	●	13	13.49		87.7	39.7	20.3							DA1300M-...~DA1340M-...
	DRA135M-1.5	●	13.5	13.99		89	41	21							DA1350M-...~DA1390M-...
	DRA140M-1.5	●	14	14.49		90.2	42.2	21.8				HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...
	DRA145M-1.5	●	14.5	14.99		91.5	43.5	22.5							DA1450M-...~DA1490M-...
	SF20- DRA150M-1.5	●	15	15.99	20	97	47	24	50	25	Yes	HS-3048TRP	DTP-6	-	DA1500M-...~DA1590M-...
	DRA160M-1.5	●	16	16.99		100.5	50.5	25.5							DA1600M-...~DA1690M-...
	DRA170M-1.5	●	17	17.99		103	53	27							DA1700M-...~DA1790M-...
	SF25- DRA180M-1.5	●	18	18.99	25	112.5	56.5	28.5	56	32	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...
	DRA190M-1.5	●	19	19.99		115	59	30							DA1900M-...~DA1990M-...
	DRA200M-1.5	●	20	20.99		117.5	61.5	31.5							DA2000M-...~DA2090M-...
	DRA210M-1.5	●	21	21.99		120	64	33							DA2100M-...~DA2150M-...
	DRA220M-1.5	●	22	22.99		123.5	67.5	34.5							DA2200M-...~DA2250M-...
	DRA230M-1.5	●	23	23.99		126	70	36							DA2300M-...~DA2350M-...
	DRA240M-1.5	●	24	24.99		128.5	72.5	37.5							DA2400M-...~DA2450M-...
	DRA250M-1.5	●	25	25.5		131	75	39							DA2500M-...~DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

Part Number Identification System (Toolholder)

□□○○ - DRA ○○○ M - ○

Shank Type	Shank Dia.(mm)	Minimum Insert Dia.	Metric	Drilling Depth
SS : Straight Shank SF : Flanged Shank				1.5(LU = 1.5 x DC) 3 (LU = 3 x DC) 5 (LU = 5 x DC) 8 (LU = 8 x DC) 12(LU = 12 x DC)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SF-DRA (Drilling Depth : 3 x DC)

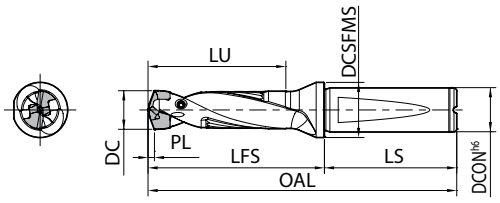


Fig. 1

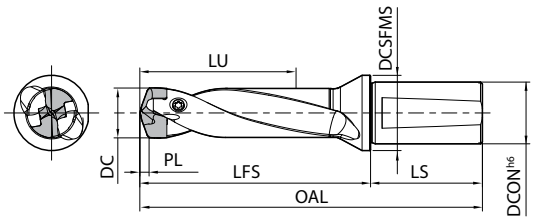


Fig. 2

3D

For PL indicates distance from drill point to corner edge **K6~K17**

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS			Screw	Wrench	Wrench	
mm	SF12- DRA080M-3	●	7.94	8.49	12	84	39	25.5	45	16	Yes	1	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...
	DRA085M-3	●	8.5	8.99		86	41	27				1				DA0850M-...~DA0890M-...
	DRA090M-3	●	9	9.49		88	43	28.5				1				DA0900M-...~DA0940M-...
	DRA095M-3	●	9.5	9.99		90	45	30				1				DA0950M-...~DA0990M-...
	SF16- DRA100M-3	●	10	10.49	16	95	47	31.5	48	20	Yes	1	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...
	DRA105M-3	●	10.5	10.99		97	49	33				1				DA1050M-...~DA1090M-...
	DRA110M-3	●	11	11.49		100	52	34.5				1				DA1100M-...~DA1140M-...
	DRA115M-3	●	11.5	11.99		102	54	36				1				DA1150M-...~DA1190M-...
	DRA120M-3	●	12	12.49		104	56	37.5				1				DA1200M-...~DA1240M-...
	DRA125M-3	●	12.5	12.99		106	58	39				1				DA1250M-...~DA1290M-...
	DRA130M-3	●	13	13.49		108	60	40.5				1				DA1300M-...~DA1340M-...
	DRA135M-3	●	13.5	13.99		110	62	42				1				DA1350M-...~DA1390M-...
	DRA140M-3	●	14	14.49		112	64	43.5				1	HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...
	DRA145M-3	●	14.5	14.99		114	66	45				1				DA1450M-...~DA1490M-...
	SF20- DRA150M-3	●	15	15.99	20	121	71	48	50	25	Yes	1	HS-3048TRP	DTP-6	-	DA1500M-...~DA1590M-...
	DRA160M-3	●	16	16.99		126	76	51				1				DA1600M-...~DA1690M-...
	DRA170M-3	●	17	17.99		130	80	54				1				DA1700M-...~DA1790M-...
	SF25- DRA180M-3	●	18	18.99	25	141	85	57	56	32	Yes	1	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...
	DRA190M-3	●	19	19.99		145	89	60				1				DA1900M-...~DA1990M-...
	DRA200M-3	●	20	20.99		149	93	63				1				DA2000M-...~DA2090M-...
	DRA210M-3	●	21	21.99		153	97	66				1				DA2100M-...~DA2150M-...
	DRA220M-3	●	22	22.99		158	102	69				1				DA2200M-...~DA2250M-...
	DRA230M-3	●	23	23.99		162	106	72				1				DA2300M-...~DA2350M-...
	DRA240M-3	●	24	24.99		166	110	75				1				DA2400M-...~DA2450M-...
	DRA250M-3	●	25	25.99		170	114	78				1				DA2500M-...~DA2550M-...
	SF32- DRA260M-3	●	26	26.99	32	178	120	81	58	39	Yes	2	HS-50100TRP	DTPM-15	-	DA2600M-...~DA2650M-...
	DRA270M-3	●	27	27.99		181	123	84				2				DA2700M-...~DA2750M-...
	DRA280M-3	●	28	28.99		185	127	87				2				DA2800M-...~DA2850M-...
	DRA290M-3	●	29	29.99		189	131	90				2				DA2900M-...~DA2950M-...
	DRA300M-3	●	30	30.99		193	135	93				2				DA3000M-...~DA3050M-...
	DRA310M-3	●	31	31.99		196	138	96				2				DA3100M-...~DA3150M-...
	DRA320M-3	●	32	33		200	142	99				2				DA3200M-...~DA3300M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SF-DRA (Drilling Depth : 5 x DC)

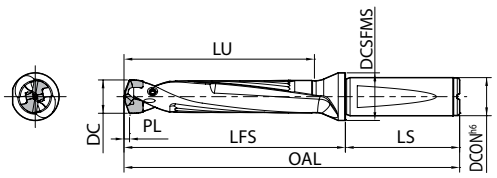


Fig. 1

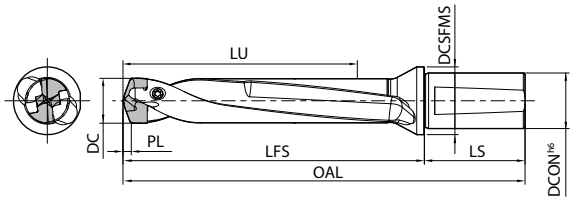


Fig. 2

5D

For PL indicates distance from drill point to corner edge **K6~K17**

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS			Screw	Wrench	Wrench	
mm	SF12- DRA080M-5	●	7.94	8.49	12	101	56	42.5	45	16	Yes	1	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...
	DRA085M-5	●	8.5	8.99		104	59	45				1				DA0850M-...~DA0890M-...
	DRA090M-5	●	9	9.49		107	62	47.5				1				DA0900M-...~DA0940M-...
	DRA095M-5	●	9.5	9.99		110	65	50				1				DA0950M-...~DA0990M-...
	SF16- DRA100M-5	●	10	10.49	16	116	68	52.5	48	20	Yes	1	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...
	DRA105M-5	●	10.5	10.99		119	71	55				1				DA1050M-...~DA1090M-...
	DRA110M-5	●	11	11.49		123	75	57.5				1				DA1100M-...~DA1140M-...
	DRA115M-5	●	11.5	11.99		126	78	60				1				DA1150M-...~DA1190M-...
	DRA120M-5	●	12	12.49		129	81	62.5				1				DA1200M-...~DA1240M-...
	DRA125M-5	●	12.5	12.99		132	84	65				1				DA1250M-...~DA1290M-...
	DRA130M-5	●	13	13.49		135	87	67.5				1				DA1300M-...~DA1340M-...
	DRA135M-5	●	13.5	13.99		138	90	70				1				DA1350M-...~DA1390M-...
	DRA140M-5	●	14	14.49		141	93	72.5				1	HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...
	DRA145M-5	●	14.5	14.99		144	96	75				1				DA1450M-...~DA1490M-...
	SF20- DRA150M-5	●	15	15.99	20	153	103	80	50	25	Yes	1	HS-3048TRP	DTP-6	-	DA1500M-...~DA1590M-...
	DRA160M-5	●	16	16.99		160	110	85				1				DA1600M-...~DA1690M-...
	DRA170M-5	●	17	17.99		166	116	90				1				DA1700M-...~DA1790M-...
	SF25- DRA180M-5	●	18	18.99	25	179	123	95	56	32	Yes	1	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...
	DRA190M-5	●	19	19.99		185	129	100				1				DA1900M-...~DA1990M-...
	DRA200M-5	●	20	20.99		191	135	105				1				DA2000M-...~DA2090M-...
	DRA210M-5	●	21	21.99		197	141	110				1				DA2100M-...~DA2150M-...
	DRA220M-5	●	22	22.99		204	148	115				1				DA2200M-...~DA2250M-...
	DRA230M-5	●	23	23.99		210	154	120				1				DA2300M-...~DA2350M-...
	DRA240M-5	●	24	24.99		216	160	125				1				DA2400M-...~DA2450M-...
	DRA250M-5	●	25	25.99		222	166	130				1				DA2500M-...~DA2550M-...
	SF32- DRA260M-5	●	26	26.99	32	232	174	135	58	39	Yes	2	HS-50100TRP	DTPM-15	-	DA2600M-...~DA2650M-...
	DRA270M-5	●	27	27.99		237	179	140				2				DA2700M-...~DA2750M-...
	DRA280M-5	●	28	28.99		243	185	145				2				DA2800M-...~DA2850M-...
	DRA290M-5	●	29	29.99		249	191	150				2				DA2900M-...~DA2950M-...
	DRA300M-5	●	30	30.99		255	197	155				2				DA3000M-...~DA3050M-...
	DRA310M-5	●	31	31.99		260	202	160				2				DA3100M-...~DA3150M-...
	DRA320M-5	●	32	33		266	208	165				2				DA3200M-...~DA3300M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SF-DRA (Drilling Depth : 8 x DC)

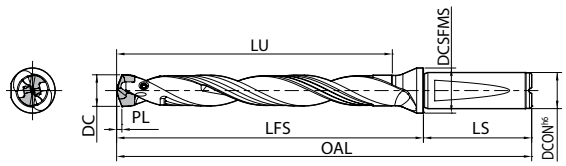


Fig. 1

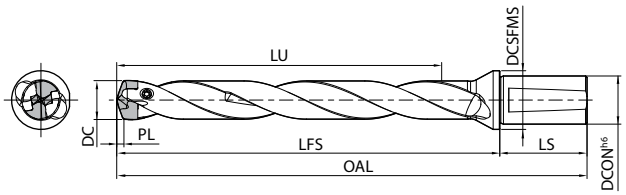


Fig. 2

8D

For PL indicates distance from drill point to corner edge **K6~K17**

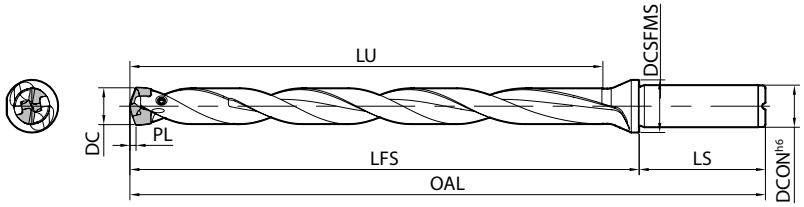
Toolholder Dimensions

Unit	Part Number		Std. Item	Dimensions								Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ K6~K17
				DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS			Screw	Wrench	Wrench	
mm	SF12-	DRA080M-8	●	7.94	8.49	12	126	81	68	45	16	Yes	1	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...
		DRA085M-8	●	8.5	8.99		131	86	72				1				DA0850M-...~DA0890M-...
		DRA090M-8	●	9	9.49		135	90	76				1				DA0900M-...~DA0940M-...
		DRA095M-8	●	9.5	9.99		140	95	80				1				DA0950M-...~DA0990M-...
	SF16-	DRA100M-8	●	10	10.49	16	147	99	84	48	20	Yes	1	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...
		DRA105M-8	●	10.5	10.99		152	104	88				1				DA1050M-...~DA1090M-...
		DRA110M-8	●	11	11.49		157	109	92				1				DA1100M-...~DA1140M-...
		DRA115M-8	●	11.5	11.99		162	114	96				1				DA1150M-...~DA1190M-...
		DRA120M-8	●	12	12.49		166	118	100				1				DA1200M-...~DA1240M-...
		DRA125M-8	●	12.5	12.99		171	123	104				1				DA1250M-...~DA1290M-...
		DRA130M-8	●	13	13.49		175	127	108				1				DA1300M-...~DA1340M-...
		DRA135M-8	●	13.5	13.99		180	132	112				1				DA1350M-...~DA1390M-...
		DRA140M-8	●	14	14.49		184	136	116				1	HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...
		DRA145M-8	●	14.5	14.99		189	141	120				1				DA1450M-...~DA1490M-...
	SF20-	DRA150M-8	●	15	15.99	20	201	151	128	50	25	Yes	1	HS-3048TRP	DTP-6	-	DA1500M-...~DA1590M-...
		DRA160M-8	●	16	16.99		211	161	136				1				DA1600M-...~DA1690M-...
		DRA170M-8	●	17	17.99		220	170	144				1				DA1700M-...~DA1790M-...
	SF25-	DRA180M-8	●	18	18.99	25	236	180	152	56	32	Yes	1	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...
		DRA190M-8	●	19	19.99		245	189	160				1				DA1900M-...~DA1990M-...
		DRA200M-8	●	20	20.99		254	198	168				1				DA2000M-...~DA2090M-...
		DRA210M-8	●	21	21.99		263	207	176				1				DA2100M-...~DA2150M-...
		DRA220M-8	●	22	22.99		273	217	184				1				DA2200M-...~DA2250M-...
		DRA230M-8	●	23	23.99		282	226	192				1				DA2300M-...~DA2350M-...
		DRA240M-8	●	24	24.99		291	235	200				1				DA2400M-...~DA2450M-...
		DRA250M-8	●	25	25.99		300	244	208				1				DA2500M-...~DA2550M-...
	SF32-	DRA260M-8	●	26	26.99	32	313	255	216	58	39	Yes	2	HS-50100TRP	DTPM-15	-	DA2600M-...~DA2650M-...
		DRA270M-8	●	27	27.99		321	263	224				2				DA2700M-...~DA2750M-...
		DRA280M-8	●	28	28.99		330	272	232				2				DA2800M-...~DA2850M-...
		DRA290M-8	●	29	29.99		339	281	240				2				DA2900M-...~DA2950M-...
		DRA300M-8	●	30	30.99		348	290	248				2				DA3000M-...~DA3050M-...
		DRA310M-8	●	31	31.99		356	298	256				2				DA3100M-...~DA3150M-...
		DRA320M-8	●	32	33		365	307	264				2				DA3200M-...~DA3300M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SF-DRA (Drilling Depth : 12 x DC)



12D

For PL indicates distance from drill point to corner edge **K6~K17**

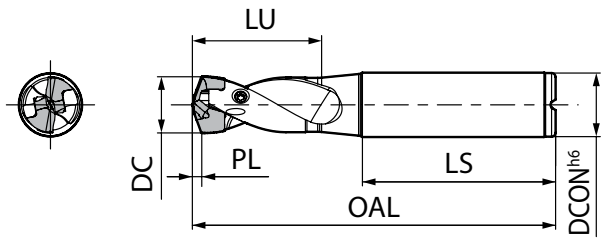
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS		Screw	Wrench	Wrench	
mm	SF16- DRA120M-12	●	12	12.49	16	216	168	150	48	20	Yes	HS-2534TRP	-	FTP-5	DA1200M-...~DA1240M-...
	DRA125M-12	●	12.5	12.99		223	175	156							DA1250M-...~DA1290M-...
	DRA130M-12	●	13	13.49		229	181	162							DA1300M-...~DA1340M-...
	DRA135M-12	●	13.5	13.99		236	188	168							DA1350M-...~DA1390M-...
	DRA140M-12	●	14	14.49		242	194	174				HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...
	DRA145M-12	●	14.5	14.99		249	201	180							DA1450M-...~DA1490M-...
	SF20- DRA150M-12	●	15	15.99	20	265	215	192	50	25	Yes	HS-3048TRP	DTP-6	-	DA1500M-...~DA1590M-...
	DRA160M-12	●	16	16.99		279	229	204							DA1600M-...~DA1690M-...
	DRA170M-12	●	17	17.99		292	242	216							DA1700M-...~DA1790M-...
	SF25- DRA180M-12	●	18	18.99	25	312	256	228	56	32	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...
	DRA190M-12	●	19	19.99		325	269	240							DA1900M-...~DA1990M-...
	DRA200M-12	●	20	20.99		338	282	252							DA2000M-...~DA2090M-...
	DRA210M-12	●	21	21.99		351	295	264							DA2100M-...~DA2150M-...
	DRA220M-12	●	22	22.99		365	309	276							DA2200M-...~DA2250M-...
	DRA230M-12	●	23	23.99		378	322	288							DA2300M-...~DA2350M-...
	DRA240M-12	●	24	24.99		391	335	300							DA2400M-...~DA2450M-...
	DRA250M-12	●	25	25.5		404	348	312							DA2500M-...~DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SS-DRA (Drilling Depth : 1.5 x DC)



1.5D

For PL indicates distance from drill point to corner edge **K6~K17**

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts K6~K17	Applicable Chamfering Attachment K36
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench		
mm	SS10- DRA080M-1.5	●	7.94	8.49	10	66.2	12.8	40	Yes	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...	S20-CH10-DRA
	DRA085M-1.5	●	8.5	8.99		67.5	13.5						DA0850M-...~DA0890M-...	
	DRA090M-1.5	●	9	9.49		68.7	14.3						DA0900M-...~DA0940M-...	
	DRA095M-1.5	●	9.5	9.99		70	15						DA0950M-...~DA0990M-...	
	SS12- DRA100M-1.5	●	10	10.49	12	76.2	15.8	45	Yes	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...	S32-CH12-DRA
	DRA105M-1.5	●	10.5	10.99		77.5	16.5						DA1050M-...~DA1090M-...	
	DRA110M-1.5	●	11	11.49		79.7	17.3						DA1100M-...~DA1140M-...	
	DRA115M-1.5	●	11.5	11.99		81	18						DA1150M-...~DA1190M-...	
	SS14- DRA120M-1.5	●	12	12.49	14	82.2	18.8	45	Yes	HS-2534TRP	-	FTP-5	DA1200M-...~DA1240M-...	S32-CH14-DRA
	DRA125M-1.5	●	12.5	12.99		83.5	19.5						DA1250M-...~DA1290M-...	
	DRA130M-1.5	●	13	13.49		84.7	20.3						DA1300M-...~DA1340M-...	
	DRA135M-1.5	●	13.5	13.99		86	21						DA1350M-...~DA1390M-...	
	SS16- DRA140M-1.5	●	14	14.49	16	90.2	21.8	48	Yes	HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...	S32-CH16-DRA
	DRA145M-1.5	●	14.5	14.99		91.5	22.5						DA1450M-...~DA1490M-...	
	DRA150M-1.5	●	15	15.99		95	24						DA1500M-...~DA1590M-...	
	SS18- DRA160M-1.5	●	16	16.99	18	98.5	25.5	48	Yes	HS-3048TRP	DTP-6	-	DA1600M-...~DA1690M-...	S32-CH18-DRA
	DRA170M-1.5	●	17	17.99		101	27						DA1700M-...~DA1790M-...	
	SS20- DRA180M-1.5	●	18	18.99	20	106.5	28.5	50	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...	S32-CH20-DRA
	DRA190M-1.5	●	19	19.99		109	30						DA1900M-...~DA1990M-...	
	SS25- DRA200M-1.5	●	20	20.99	25	117.5	31.5	56	Yes	HS-4067TRP	DTP-7	-	DA2000M-...~DA2090M-...	-
	DRA210M-1.5	●	21	21.99		120	33						DA2100M-...~DA2150M-...	
	DRA220M-1.5	●	22	22.99		123.5	34.5						DA2200M-...~DA2250M-...	
	DRA230M-1.5	●	23	23.99		126	36						DA2300M-...~DA2350M-...	
	DRA240M-1.5	●	24	24.99		128.5	37.5						DA2400M-...~DA2450M-...	
	SS32- DRA250M-1.5	●	25	25.5	32	135	39	60	Yes	HS-4067TRP	DTP-7	-	DA2500M-...~DA2550M-...	-

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page **K6~K17** for actual cutting diameters (DC).

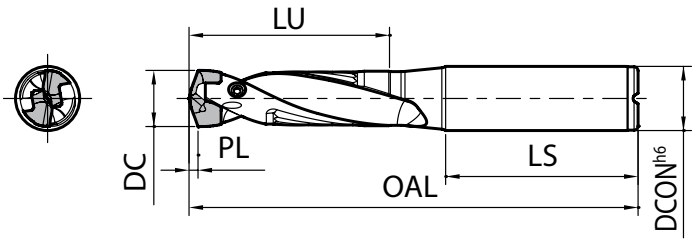
Part Number Identification System (Toolholder)

□□○○ - DRA ○○○ M - ○

□□ Shank Type	○○ Shank Dia.(mm)	○○○ Minimum Insert Dia.	M Metric	○ Drilling Depth
SS : Straight Shank SF : Flanged Shank				1.5(LU = 1.5 x DC) 3 (LU = 3 x DC) 5 (LU = 5 x DC) 8 (LU = 8 x DC) 12(LU = 12 x DC)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SS-DRA (Drilling Depth : 3 x DC)



3D

For PL indicates distance from drill point to corner edge **K6~K17**

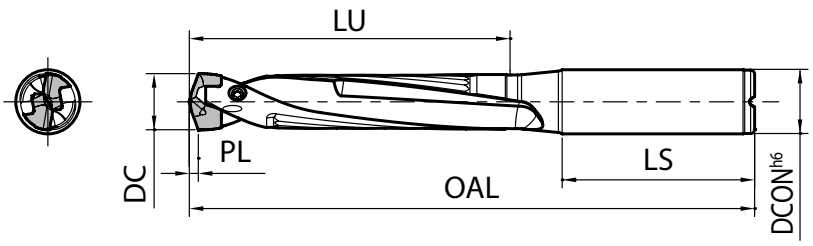
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17	Applicable Chamfering Attachment ➡ K36
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench		
mm	SS10- DRA080M-3	●	7.94	8.49	10	79	25.5	40	Yes	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...	S20-CH10-DRA
	DRA085M-3	●	8.5	8.99		81	27						DA0850M-...~DA0890M-...	
	DRA090M-3	●	9	9.49		83	28.5						DA0900M-...~DA0940M-...	
	DRA095M-3	●	9.5	9.99		85	30						DA0950M-...~DA0990M-...	
	SS12- DRA100M-3	●	10	10.49	12	92	31.5	45	Yes	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...	S32-CH12-DRA
	DRA105M-3	●	10.5	10.99		94	33						DA1050M-...~DA1090M-...	
	DRA110M-3	●	11	11.49		97	34.5						DA1100M-...~DA1140M-...	
	DRA115M-3	●	11.5	11.99		99	36						DA1150M-...~DA1190M-...	
	SS14- DRA120M-3	●	12	12.49	14	101	37.5	45	Yes	HS-2534TRP	-	FTP-5	DA1200M-...~DA1240M-...	S32-CH14-DRA
	DRA125M-3	●	12.5	12.99		103	39						DA1250M-...~DA1290M-...	
	DRA130M-3	●	13	13.49		105	40.5						DA1300M-...~DA1340M-...	
	DRA135M-3	●	13.5	13.99		107	42						DA1350M-...~DA1390M-...	
	SS16- DRA140M-3	●	14	14.49	16	112	43.5	48	Yes	HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...	S32-CH16-DRA
	DRA145M-3	●	14.5	14.99		114	45						DA1450M-...~DA1490M-...	
	DRA150M-3	●	15	15.99		119	48						DA1500M-...~DA1590M-...	
	SS18- DRA160M-3	●	16	16.99	18	124	51	48	Yes	HS-3048TRP	DTP-6	-	DA1600M-...~DA1690M-...	S32-CH18-DRA
	DRA170M-3	●	17	17.99		128	54						DA1700M-...~DA1790M-...	
	SS20- DRA180M-3	●	18	18.99	20	135	57	50	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~ DA1890M-...	S32-CH20-DRA
	DRA190M-3	●	19	19.99		139	60						DA1900M-...~DA1990M-...	
	SS25- DRA200M-3	●	20	20.99	25	149	63	56	Yes	HS-4067TRP	DTP-7	-	DA2000M-...~DA2090M-...	-
	DRA210M-3	●	21	21.99		153	66						DA2100M-...~DA2150M-...	
	DRA220M-3	●	22	22.99		158	69						DA2200M-...~DA2250M-...	
	DRA230M-3	●	23	23.99		162	72						DA2300M-...~DA2350M-...	
	DRA240M-3	●	24	24.99		166	75						DA2400M-...~DA2450M-...	
	SS32- DRA250M-3	●	25	25.5	32	174	78	60	Yes	HS-4067TRP	DTP-7	-	DA2500M-...~DA2550M-...	-

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SS-DRA (Drilling Depth : 5 x DC)



For PL indicates distance from drill point to corner edge **K6~K17**

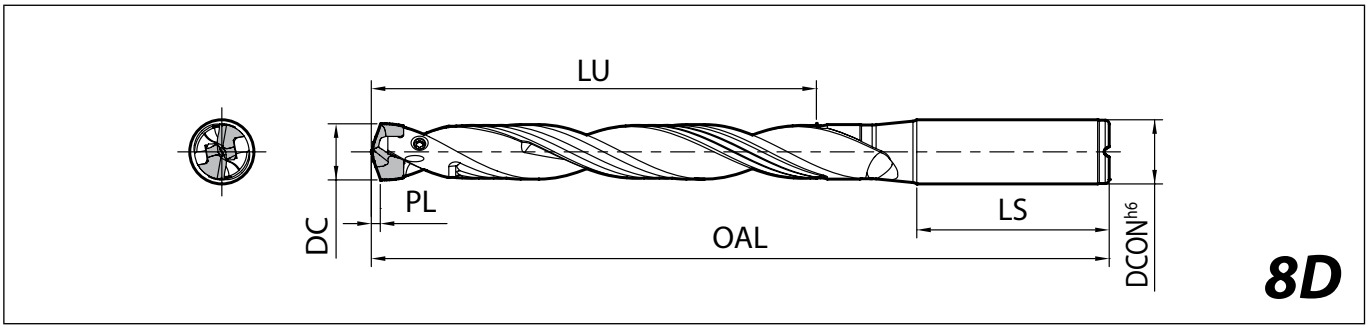
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17	Applicable Chamfering Attachment ➡ K36
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench		
mm	SS10- DRA080M-5	●	7.94	8.49	10	96	42.5	40	Yes	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...	S20-CH10-DRA
	DRA085M-5	●	8.5	8.99		99	45						DA0850M-...~DA0890M-...	
	DRA090M-5	●	9	9.49		102	47.5						DA0900M-...~DA0940M-...	
	DRA095M-5	●	9.5	9.99		105	50						DA0950M-...~DA0990M-...	
	SS12- DRA100M-5	●	10	10.49	12	113	52.5	45	Yes	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...	S32-CH12-DRA
	DRA105M-5	●	10.5	10.99		116	55						DA1050M-...~DA1090M-...	
	DRA110M-5	●	11	11.49		120	57.5						DA1100M-...~DA1140M-...	
	DRA115M-5	●	11.5	11.99		123	60						DA1150M-...~DA1190M-...	
	SS14- DRA120M-5	●	12	12.49	14	126	62.5	45	Yes	HS-2534TRP	-	FTP-5	DA1200M-...~DA1240M-...	S32-CH14-DRA
	DRA125M-5	●	12.5	12.99		129	65						DA1250M-...~DA1290M-...	
	DRA130M-5	●	13	13.49		132	67.5						DA1300M-...~DA1340M-...	
	DRA135M-5	●	13.5	13.99		135	70						DA1350M-...~DA1390M-...	
	SS16- DRA140M-5	●	14	14.49	16	141	72.5	48	Yes	HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...	S32-CH16-DRA
	DRA145M-5	●	14.5	14.99		144	75						DA1450M-...~DA1490M-...	
	DRA150M-5	●	15	15.99		151	80						DA1500M-...~DA1590M-...	
	SS18- DRA160M-5	●	16	16.99	18	158	85	48	Yes	HS-3048TRP	DTP-6	-	DA1600M-...~DA1690M-...	S32-CH18-DRA
	DRA170M-5	●	17	17.99		164	90						DA1700M-...~DA1790M-...	
	SS20- DRA180M-5	●	18	18.99	20	173	95	50	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...	S32-CH20-DRA
	DRA190M-5	●	19	19.99		179	100						DA1900M-...~DA1990M-...	
	SS25- DRA200M-5	●	20	20.99	25	191	105	56	Yes	HS-4067TRP	DTP-7	-	DA2000M-...~DA2090M-...	-
	DRA210M-5	●	21	21.99		197	110						DA2100M-...~DA2150M-...	
	DRA220M-5	●	22	22.99		204	115						DA2200M-...~DA2250M-...	
	DRA230M-5	●	23	23.99		210	120						DA2300M-...~DA2350M-...	
	DRA240M-5	●	24	24.99		216	125						DA2400M-...~DA2450M-...	
	SS32- DRA250M-5	●	25	25.5	32	226	130	60	Yes	HS-4067TRP	DTP-7	-	DA2500M-...~DA2550M-...	-

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ **K6~K17** for actual cutting diameters (DC).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SS-DRA (Drilling Depth : 8 x DC)



For PL indicates distance from drill point to corner edge **K6~K17**

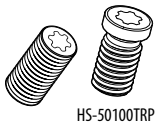
Toolholder Dimensions

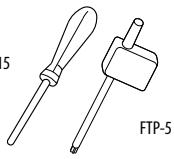
Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts K6~K17	Applicable Chamfering Attachment K36
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench		
mm	SS10- DRA080M-8	●	7.94	8.49	10	121	68	40	Yes	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...	S20-CH10-DRA
	DRA085M-8	●	8.5	8.99		126	72						DA0850M-...~DA0890M-...	
	DRA090M-8	●	9	9.49		130	76						DA0900M-...~DA0940M-...	
	DRA095M-8	●	9.5	9.99		135	80						DA0950M-...~DA0990M-...	
	SS12- DRA100M-8	●	10	10.49	12	144	84	45	Yes	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...	S32-CH12-DRA
	DRA105M-8	●	10.5	10.99		149	88						DA1050M-...~DA1090M-...	
	DRA110M-8	●	11	11.49		154	92						DA1100M-...~DA1140M-...	
	DRA115M-8	●	11.5	11.99		159	96						DA1150M-...~DA1190M-...	
	SS14- DRA120M-8	●	12	12.49	14	163	100	45	Yes	HS-2534TRP	-	FTP-5	DA1200M-...~DA1240M-...	S32-CH14-DRA
	DRA125M-8	●	12.5	12.99		168	104						DA1250M-...~DA1290M-...	
	DRA130M-8	●	13	13.49		172	108						DA1300M-...~DA1340M-...	
	DRA135M-8	●	13.5	13.99		177	112						DA1350M-...~DA1390M-...	
	SS16- DRA140M-8	●	14	14.49	16	184	116	48	Yes	HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...	S32-CH16-DRA
	DRA145M-8	●	14.5	14.99		189	120						DA1450M-...~DA1490M-...	
	DRA150M-8	●	15	15.99		199	128						DA1500M-...~DA1590M-...	
	SS18- DRA160M-8	●	16	16.99	18	209	136	48	Yes	HS-3048TRP	DTP-6	-	DA1600M-...~DA1690M-...	S32-CH18-DRA
	DRA170M-8	●	17	17.99		218	144						DA1700M-...~DA1790M-...	
	SS20- DRA180M-8	●	18	18.99	20	230	152	50	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...	S32-CH20-DRA
	DRA190M-8	●	19	19.99		239	160						DA1900M-...~DA1990M-...	
	SS25- DRA200M-8	●	20	20.99	25	254	168	56	Yes	HS-4067TRP	DTP-7	-	DA2000M-...~DA2090M-...	-
	DRA210M-8	●	21	21.99		263	176						DA2100M-...~DA2150M-...	
	DRA220M-8	●	22	22.99		273	184						DA2200M-...~DA2250M-...	
	DRA230M-8	●	23	23.99		282	192						DA2300M-...~DA2350M-...	
	DRA240M-8	●	24	24.99		291	200						DA2400M-...~DA2450M-...	
	SS32- DRA250M-8	●	25	25.5	32	304	208	60	Yes	HS-4067TRP	DTP-7	-	DA2500M-...~DA2550M-...	-

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page **K6~K17** for actual cutting diameters (DC).

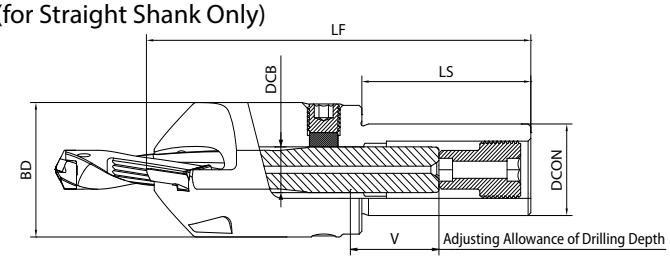
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts

Clamp Screw	Part Number
HS-2524TRP HS-2534TRP HS-3048TRP HS-4067TRP  HS-50100TRP	HS-2524TRP
	HS-2534TRP
	HS-3048TRP
	HS-4067TRP
	HS-50100TRP

Wrench	Part Number	Torque
DTP-6 DTP-7 DTPM-15  FTP-5	FTP-5	0.5 Nm (4.4 in/lb)
	DTP-6	0.8 Nm (7.1 in/lb)
	DTP-7	1.2 Nm (10.6 in/lb)
	DTPM-15	3.5 Nm (31.0 in/lb)

Chamfering Attachment (for Straight Shank Only)



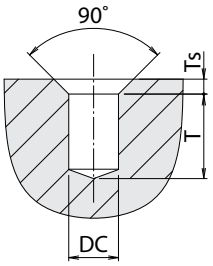
Dimensions

Part Number	Std. Item	Applicable Drill Shank Dia. DCB	Dimensions (mm)					Applicable Chamfer Insert
			DCON	BD	LF	LS	V (Max)	
S20-CH10-DRA	●	10	20	39	110	52	18	CT12T3-45DA
S32-CH12-DRA	●	12	32	43	130	62	24	
S32-CH14-DRA	●	14	32	45	130	62	24	
S32-CH16-DRA	●	16	32	47	141	62	24	
S32-CH18-DRA	●	18	32	49	145	62	24	
S32-CH20-DRA	●	20	32	53	150	62	24.5	

Applicable Insert

Shape			Part Number	MEGACOAT NANO	Dimensions (mm)	
				PR1535	W1	S
			CT12T3-45DA	●	13.54	3.97

Drilling and Chamfering Depths

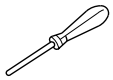


Cutting Dia. (mm) DC		Drilling Depth (mm)						Chamfering Dimensions (mm)		Applicable Chamfering Attachment
		T (3XD)		T (5XD)		T (8XD)				
min.	max.	min.	max.	min.	max.	min.	max.	Ts	Tsmax.	
7.94	8.49	12.5	20	18	36	43	60	2.5	8	S20-CH10-DRA
8.50	8.99	12.5	21.5	21.5	38.5	48	64			
9.00	9.49	12.5	23	24	41	52	68			
9.50	9.99	12.5	24.5	27.5	43.5	57.5	72.5			
10.00	10.49	15.5	26	22	46	52	76	4	8	S32-CH12-DRA
10.50	10.99	16	27.5	24.5	48.5	56	80			
11.00	11.49	16.5	29	27	51	60	84			
11.50	11.99	17.5	30.5	29.5	53.5	64	88			
12.00	12.49	18	32	32	56	68	92	4	8	S32-CH14-DRA
12.50	12.99	19	34	35	59	72.5	96.5			
13.00	13.49	19.5	35.5	37.5	61.5	76	100			
13.50	13.99	20	36.5	39.5	63.5	80	104			
14.00	14.49	21	38.5	42.5	66.5	84.5	108.5	4	8	S32-CH16-DRA
14.50	14.99	21.5	40	45	69	88.5	112.5			
15.00	15.99	22.5	41.5	47.5	71.5	92.5	116.5			
16.00	16.99	24	44.5	52.5	76.5	100.5	124.5	4	8	S32-CH18-DRA
17.00	17.99	25.5	47.5	57.5	81.5	108.5	132.5			
18.00	18.99	27.5	51	64	87	121	141	4	8	S32-CH20-DRA
19.00	19.99	29.5	54	69	92	129	149			

Ts: Max. chamfering dimension at the full feed.
Tsmax.: Max. chamfering dimension at a 50% feed reduction.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Chamfer Attachment Spare Parts

Chamfering Attachment	Adjusting Screw		For Fixing Drills					For Mounting Inserts		
			Clamp	Clamp Screw			Plug Screw	Clamp	Clamp Screw	Wrench
Part Number		Width Across Flat (mm)			Width Across Flat (mm)	Torque [N·m]				
S20-CH10-DRA	AJ-12X22	6	CP-CH10	HS8X8	4	12	BNP6	C09N	W6X18N	DTM-15
S32-CH12-DRA	AJ-16X30		CP-CH12			15				
S32-CH14-DRA	AJ-20X30	8	CP-CH14	HS10X10	5	20				
S32-CH16-DRA			CP-CH16	HS12X10	6	30				
S32-CH18-DRA	AJ-22x35	10	CP-CH18			30				
S32-CH20-DRA			CP-CH20	HS16X10	8	45				

DRA Chamfering Attachment Method

1. Mount DRA drill into the chamfering attachment (Fig.1)

Fig.1 Install the DRA

2. Install an insert and tighten temporarily with clearance between the cutting edge and DRA body (Fig.2)

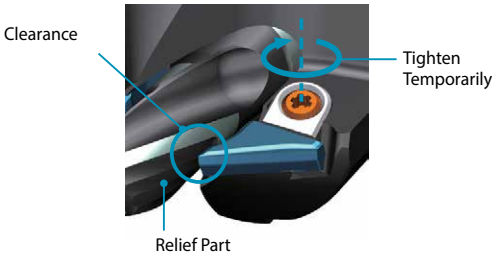


Fig.2 Install Inserts

3. Adjust drilling depth by turning adjustment screw withhexagon wrench (Fig.3)

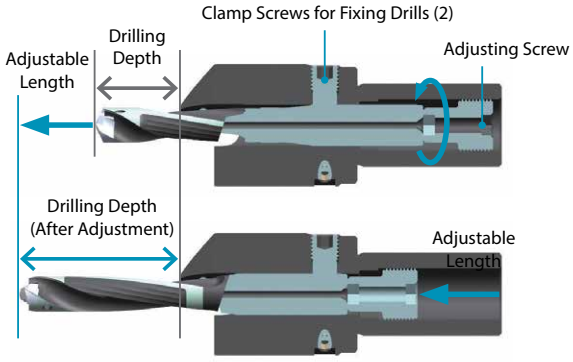


Fig.3 Adjustment of Drilling Depth

4. Align the flute edge and black relief part of the drill to the position shown by rotating the DRA drill (Fig.4)

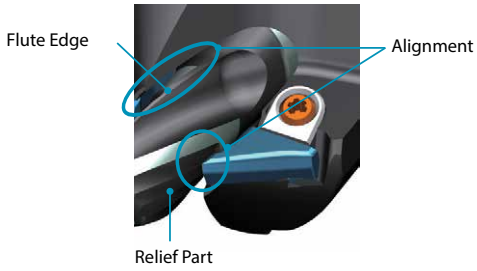


Fig.4 DRA Alignment

5. Fasten the two clamp screws for DRA (See table 1. for recommended torque)

Table1. Recommended Torque

Chamfering Attachment Part Number	Clamp Screw	
	Recommended Torque (N·m)	Width Across Flat (mm)
S20-CH10-DRA	12	4
S32-CH12-DRA	15	
S32-CH14-DRA	20	5
S32-CH16-DRA	30	6
S32-CH18-DRA	30	
S32-CH20-DRA	45	8

6. Tighten the inserts while lightly pressing the edge of insert against the relief part (Fig.5) (Recommended torque is 3.5Nm)

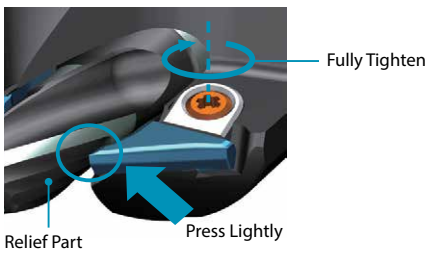


Fig.5 Fully Tighten

Cautions

- Chamfering attachment is compatible with straight shank SS-DRA. It cannot be used for flanged shank SF-DRA.
- Chamfering requires two chamfering inserts. Using one insert is not recommended.
- Only fully remove clamp screws when replacing them.
- Clamps and clamp screws for mounting inserts need to be replaced regularly.
- Screw locking adhesive is applied to adjustment screw. The effect will eventually wear off if the screws are used for a long time. Regular replacement is recommended.
- Please do not operate the plug screws.

Recommended Cutting Conditions

GM - General Purpose

★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Recommended Grade / Cutting Speed (sfm)		Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Holder Type (Cutting Depth) Feed Rate (ipr)			Notes
	PR1535	PR1525			1.5D & 3D	5D & 8D	12D	
Low Carbon Steel	★ 330~590	☆ 330~590	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	~	
			1.299	33.00	0.0079 ~ 0.0177	0.0063 ~ 0.0142		
Carbon Steel	★ 330~490	☆ 330~490	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	~	
			1.299	33.00	0.0079 ~ 0.0177	0.0063 ~ 0.0142		
Alloy Steel	★ 230~390	☆ 230~390	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	~	
			1.299	33.00	0.0079 ~ 0.0177	0.0063 ~ 0.0142		
Tool Steel	★ 160~300	☆ 160~300	0.313 ~ 0.429	7.94 ~ 10.90	0.0031 ~ 0.0067	0.0025 ~ 0.0054	0.0022 ~ 0.0047	Coolant See ➡ K42
			0.433 ~ 0.547	11.00 ~ 13.90	0.0031 ~ 0.0087	0.0025 ~ 0.0069	0.0022 ~ 0.0061	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0043 ~ 0.0098	0.0035 ~ 0.0079	0.0030 ~ 0.0069	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0043 ~ 0.0110	0.0035 ~ 0.0088	0.0030 ~ 0.0077	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0055 ~ 0.0126	0.0044 ~ 0.0101	0.0039 ~ 0.0088	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0055 ~ 0.0126	0.0044 ~ 0.0101	0.0039 ~ 0.0088	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0055 ~ 0.0126	0.0044 ~ 0.0101	~	
			1.299	33.00	0.0055 ~ 0.0126	0.0044 ~ 0.0101		
Stainless Steel※	★ 130~230	☆ 130~230	0.313 ~ 0.429	7.94 ~ 10.90	0.0039 ~ 0.0094	0.0031 ~ 0.0076	0.0028 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0039 ~ 0.0094	0.0031 ~ 0.0076	0.0028 ~ 0.0066	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0047 ~ 0.0118	0.0038 ~ 0.0094	0.0033 ~ 0.0083	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0059 ~ 0.0118	0.0047 ~ 0.0094	0.0041 ~ 0.0083	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0059 ~ 0.0118	0.0047 ~ 0.0094	0.0041 ~ 0.0083	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0059 ~ 0.0138	0.0047 ~ 0.0110	0.0041 ~ 0.0096	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0059 ~ 0.0138	0.0047 ~ 0.0110	~	
			1.299	33.00	0.0059 ~ 0.0138	0.0047 ~ 0.0110		
Gray Cast Iron	☆ 300~560	★ 300~560	0.313 ~ 0.429	7.94 ~ 10.90	0.0055 ~ 0.0114	0.0044 ~ 0.0091	0.0039 ~ 0.0080	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0055 ~ 0.0146	0.0044 ~ 0.0117	0.0039 ~ 0.0102	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0075 ~ 0.0169	0.0060 ~ 0.0135	0.0052 ~ 0.0119	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0075 ~ 0.0177	0.0060 ~ 0.0142	0.0052 ~ 0.0124	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0094 ~ 0.0177	0.0076 ~ 0.0142	0.0066 ~ 0.0124	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0094 ~ 0.0177	0.0076 ~ 0.0142	0.0066 ~ 0.0124	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0094 ~ 0.0177	0.0076 ~ 0.0142	~	
			1.299	33.00	0.0094 ~ 0.0177	0.0076 ~ 0.0142		
Nodular Cast Iron	☆ 130~390	★ 130~390	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	~	
			1.299	33.00	0.0079 ~ 0.0177	0.0063 ~ 0.0142		

※ Feed Rate 0.006 ipr or less is recommended for stainless steel until drilling depth reaches 0.5D.
Internal and External coolant recommended for Stainless, Heat-resistant Alloys, and Titanium

As drilling depth increases (**1.5D → 3D → 5D → 8D → 12D**), feed rates should be reduced.
Recommended Feed Rate Shows: **1.5D/3D** = 100%, **5D/8D** ≤ 80%, **12D** ≤ 70%
Recommended Cutting Speed: **8D** ≤ 80%, **12D** ≤ 70%

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Recommended Cutting Conditions

FTP - Flat Bottom, Counterboring / **FTP-H** Steel Beam Drilling

★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Recommended Grade / Cutting Speed (sfm)		Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Holder Type (Cutting Depth) Feed Rate (ipr)			Notes
	PR1535	PR1525			1.5D & 3D	5D & 8D	12D	
Low Carbon Steel	★ 330~590	☆ 330~590	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
Carbon Steel	★ 330~490	☆ 330~490	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
Alloy Steel	★ 230~390	☆ 230~390	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0157	0.0063 ~ 0.0126	0.0055 ~ 0.0110	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
Tool Steel	★ 160~300	☆ 160~300	0.313 ~ 0.429	7.94 ~ 10.90	0.0031 ~ 0.0067	0.0025 ~ 0.0054	0.0022 ~ 0.0047	Coolant See ➡ K42
			0.433 ~ 0.547	11.00 ~ 13.90	0.0031 ~ 0.0087	0.0025 ~ 0.0069	0.0022 ~ 0.0061	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0043 ~ 0.0098	0.0035 ~ 0.0079	0.0030 ~ 0.0069	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0043 ~ 0.0110	0.0035 ~ 0.0088	0.0030 ~ 0.0077	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0055 ~ 0.0118	0.0044 ~ 0.0094	0.0039 ~ 0.0083	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0055 ~ 0.0126	0.0044 ~ 0.0101	0.0039 ~ 0.0088	
Stainless Steel※	★ 130~230	☆ 130~230	0.313 ~ 0.429	7.94 ~ 10.90	0.0039 ~ 0.0079	0.0031 ~ 0.0063	0.0028 ~ 0.0055	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0039 ~ 0.0079	0.0031 ~ 0.0063	0.0028 ~ 0.0055	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0039 ~ 0.0094	0.0031 ~ 0.0076	0.0028 ~ 0.0066	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0059 ~ 0.0094	0.0047 ~ 0.0076	0.0041 ~ 0.0066	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0059 ~ 0.0094	0.0047 ~ 0.0076	0.0041 ~ 0.0066	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0059 ~ 0.0110	0.0047 ~ 0.0088	0.0041 ~ 0.0077	
Gray Cast Iron	☆ 300~560	★ 300~560	0.313 ~ 0.429	7.94 ~ 10.90	0.0055 ~ 0.0114	0.0044 ~ 0.0091	0.0039 ~ 0.0080	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0055 ~ 0.0146	0.0044 ~ 0.0117	0.0039 ~ 0.0102	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0075 ~ 0.0169	0.0060 ~ 0.0135	0.0052 ~ 0.0119	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0075 ~ 0.0177	0.0060 ~ 0.0142	0.0052 ~ 0.0124	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0094 ~ 0.0177	0.0076 ~ 0.0142	0.0066 ~ 0.0124	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0094 ~ 0.0177	0.0076 ~ 0.0142	0.0066 ~ 0.0124	
Nodular Cast Iron	☆ 130~390	★ 130~390	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	

※ Feed Rate 0.006 ipr or less is recommended for stainless steel until drilling depth reaches 0.5D.
Internal and External coolant recommended for Stainless, Heat-resistant Alloys, and Titanium

As drilling depth increases (**1.5D → 3D → 5D → 8D**), feed rates should be reduced.
Recommended Feed Rate Shows: **1.5D/3D** = 100%, **5D/8D** ≤ 80%, **12D** ≤ 70%
Recommended Cutting Speed: **8D** ≤ 80%, **12D** ≤ 70%

Notes: The recommended cutting conditions are for drilling on plain surfaces.
The conditions for drilling on slant hole shows the depth from the top of workpiece.
Set the feed rate under 50% when inclination angle is under 30°.
Set the feed rate under 30% when inclination angle is over 30°.
Traversing is not recommended.
Applicable to 1.5D, 3D, 5D, 8D, and 12D holders. Prepared hole (0.5 xDC) is needed when using 8D/12D holder.

Recommended Cutting Conditions

HQP - High Precision Insert for Steel

★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Recommended Grade / Cutting Speed (sfm)	Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Holder Type (Cutting Depth) Feed Rate (ipr)			Notes
	PR1525			1.5D & 3D	5D	8D & 12D	
Low Carbon Steel	★ 260~590	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	Coolant See K42
		0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0110	0.0038 ~ 0.0088	0.0033 ~ 0.0077	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0126	0.0050 ~ 0.0101	0.0044 ~ 0.0088	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
Carbon Steel	★ 260~490	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
		0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0110	0.0038 ~ 0.0088	0.0033 ~ 0.0077	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0126	0.0050 ~ 0.0101	0.0044 ~ 0.0088	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
Alloy Steel	★ 230~390	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
		0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0110	0.0038 ~ 0.0088	0.0033 ~ 0.0077	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0126	0.0050 ~ 0.0101	0.0044 ~ 0.0088	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
Tool Steel	★ 160~300	0.313 ~ 0.429	7.94 ~ 10.90	0.0031 ~ 0.0067	0.0025 ~ 0.0054	0.0022 ~ 0.0047	
		0.433 ~ 0.547	11.00 ~ 13.90	0.0031 ~ 0.0079	0.0025 ~ 0.0063	0.0022 ~ 0.0055	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0043 ~ 0.0091	0.0035 ~ 0.0072	0.0030 ~ 0.0063	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0043 ~ 0.0102	0.0035 ~ 0.0082	0.0030 ~ 0.0072	

As drilling depth increases (**1.5D → 3D → 5D → 8D → 12D**), feed rates should be reduced.
Recommended Feed Rate Shows: **1.5D/3D** = 100%, **5D** ≤ 80%, **8D/12D** ≤ 70%

HQS - for Difficult-to-Cut Materials / Stainless Steel

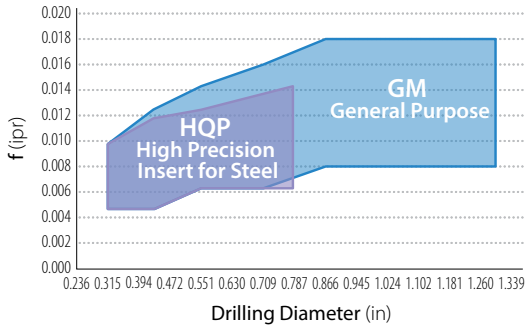
★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Recommended Grade / Cutting Speed (sfm)	Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Holder Type (Cutting Depth) Feed Rate (ipr)			Notes
	PR1535			1.5D & 3D	5D	8D & 12D	
Stainless Steel※	★ 130~160	0.313 ~ 0.429	7.94 ~ 10.90	0.0031 ~ 0.0047	0.0025 ~ 0.0038	0.0022 ~ 0.0033	Coolant See K42
		0.433 ~ 0.547	11.00 ~ 13.90	0.0039 ~ 0.0059	0.0031 ~ 0.0047	0.0028 ~ 0.0041	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0039 ~ 0.0059	0.0031 ~ 0.0047	0.0028 ~ 0.0041	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0047 ~ 0.0071	0.0038 ~ 0.0057	0.0033 ~ 0.0050	
Heat-Resistant Alloy	★ 50~70	0.313 ~ 0.429	7.94 ~ 10.90	0.0031 ~ 0.0047	0.0025 ~ 0.0038	0.0022 ~ 0.0033	
		0.433 ~ 0.547	11.00 ~ 13.90	0.0031 ~ 0.0059	0.0025 ~ 0.0047	0.0022 ~ 0.0041	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0039 ~ 0.0059	0.0031 ~ 0.0047	0.0028 ~ 0.0041	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0047 ~ 0.0071	0.0038 ~ 0.0057	0.0033 ~ 0.0050	
Titanium Alloy	★ 100~130	0.313 ~ 0.429	7.94 ~ 10.90	0.0031 ~ 0.0047	0.0025 ~ 0.0038	0.0022 ~ 0.0033	
		0.433 ~ 0.547	11.00 ~ 13.90	0.0031 ~ 0.0059	0.0025 ~ 0.0047	0.0022 ~ 0.0041	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0039 ~ 0.0059	0.0031 ~ 0.0047	0.0028 ~ 0.0041	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0047 ~ 0.0071	0.0038 ~ 0.0057	0.0033 ~ 0.0050	

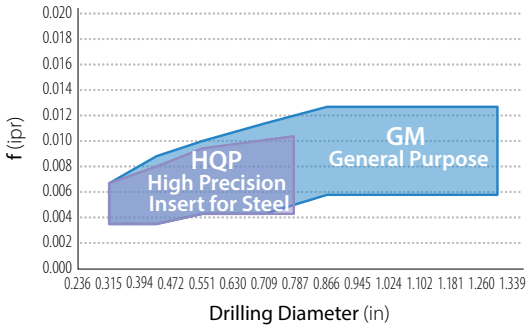
※ Feed Rate 0.006 ipr or less is recommended for stainless steel until drilling depth reaches 0.5D.
Internal and External coolant recommended for Stainless, Heat-resistant Alloys, and Titanium

As drilling depth increases (**1.5D → 3D → 5D → 8D → 12D**), feed rates should be reduced.
Recommended Feed Rate Shows: **1.5D/3D** = 100%, **5D** ≤ 80%, **8D/12D** ≤ 70%

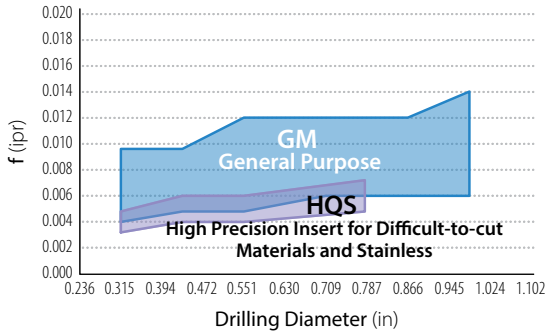
Low Carbon Steel/Carbon Steel/Alloy Steel



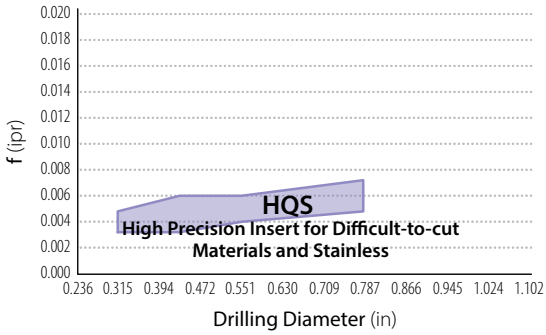
Mold Steel



Stainless Steel



Heat-resistant Alloy / Titanium Alloy



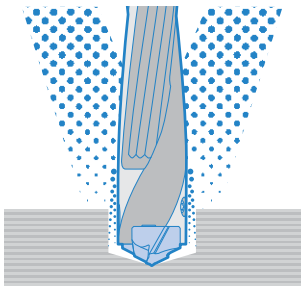
Coolant *Dry cutting is not recommended

1st Recommendation

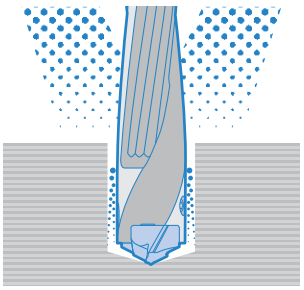
Internal coolant

Internal + External Coolant

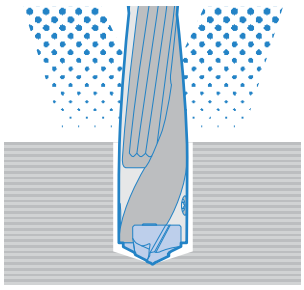
Drilling Depth is Less than 1D



Stainless Steel or High-feed Machining



External Coolant



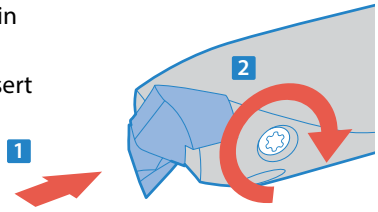
Lathe:
Max. Drill Depth 3D

Vertical M/C:
Max. Drill Depth 1.5D

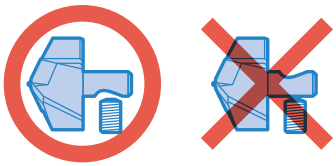
How to Attach Inserts

1 Install insert onto the toolholder in the right direction

2 Tighten clamp screw to fix the insert
(Torque: see page 31)



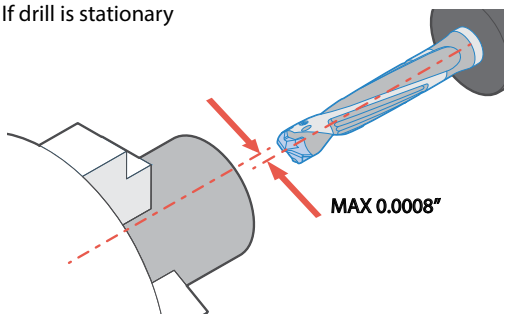
Be careful of the insert direction



*1 Remove dust on insert pocket using air blow for every replacement.
*2 Make sure that the locating surfaces of the insert closely contacts the toolholder.

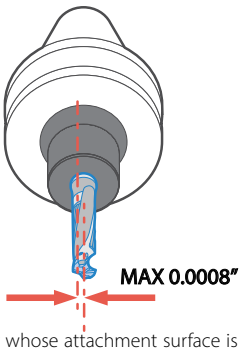
Core Deviation / Alignment Cautions

If drill is stationary



DRA works with both boring sleeve and collet-chuck. Center line deviation should be less than 0.0008" between workpiece and drill.

If drill is rotating



Do not use any arbor whose attachment surface is deformed. Center deviation must be less than 0.0008".

800.823.7284
www.kyocera precisiontools.com

Toolholder Connection Cautions

1st Choice

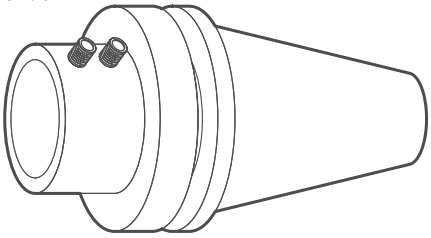
Hydro chuck, power chuck, collet chuck, etc.

- Hydro Chuck
- Power Chuck
- Collet Chuck

Install DRA into chucks

2nd Choice

Side lock arbor

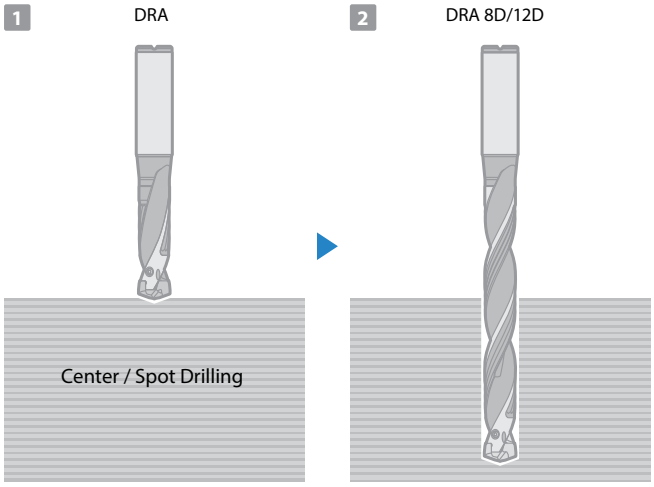


Example of side lock arbor

Cautions for Machining with 8D/12D Holder

Recommendations

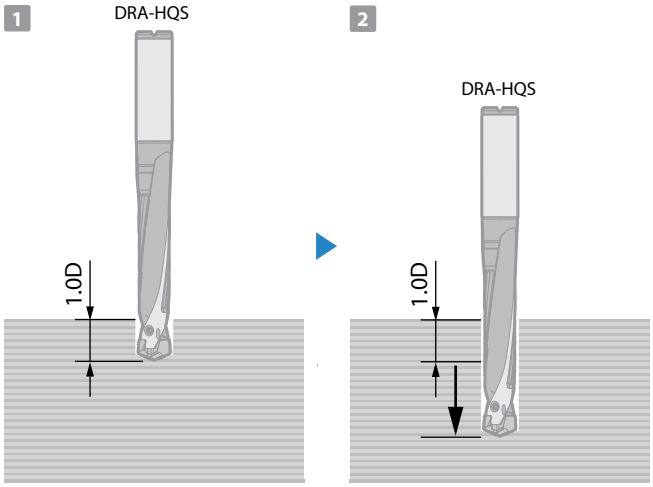
1. Make a center spot using DRA 1.5D/3D/5D
   (Depth of center spot should be at least half the cutting diameter)
2. Then drill the hole using DRA (8D/12D)



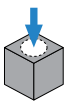
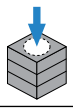
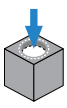
Cautions for Machining with HQS Inserts

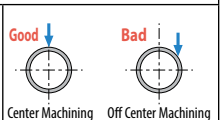
If chips are clogged at the entrance of drill hole machining in stainless steel machining, etc., the following machining method is recommended.

1. Up to 1.0D, the feed rate should be 0.003 ipr or less
2. After 1.0D, machine within the normal recommended range



Applicable Workpiece Applications

Application	Workpiece Shape	Machining Caution
Plain Surface		1. When machining stainless steel, for hole depths of up to 0.5D, keep feed rate at less than 0.006 ipr. 2. Thru coolant is recommended for smooth chip removal. For stainless steel, the combination of thru and external coolant is recommended.
Stacked Plates		1. Fix stacked plates securely to ensure they do not slip while machining.
Concave Surface		1. When machining concave holes, set the feed rate at less than half of recommended feed for continuous hole machining. 2. Utilize a pecking cycle if chips are not broken short at the inlet.
Tubing		1. Hole machining on the centerline of the tubing is possible. 2. Do not machine on curved surface areas.

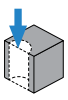


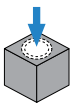
*Machining possible with FTP Inserts and 1.5D holders

Not Recommended Applications

Application	Workpiece Shape
*Hole Expansion	

Application	Workpiece Shape
*Angled Surface	

Application	Workpiece Shape
Half Cylindrical	

Application	Workpiece Shape
*Existing Hole	

*Machining possible with FTP Inserts and 1.5D holders

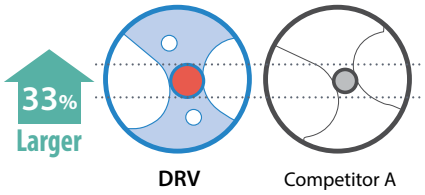
DRV Magic Drill

Economical Inserts with 4 Cutting Edges
Excellent Chip Evacuation with 6D Maximum Deep-Hole Drilling

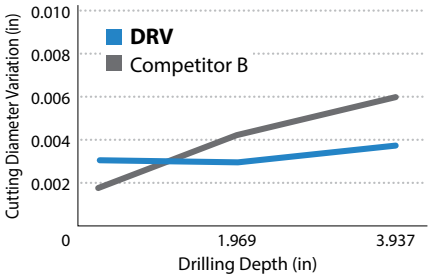
1 Excellent Drilling Precision with Less Variation in Cutting Diameter

Optimal Web Thickness and Low Cutting Force Design Reduces Chattering

Web Thickness Comparison
(Internal Evaluation)

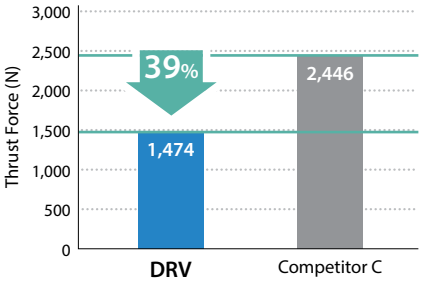


Cutting Diameter Variation Comparison
(Internal Evaluation)



Cutting Conditions : Vc = 490 sfm, f = 0.0024 ipr
Cutting Dia. Ø0.812" (5D), Wet, Workpiece : 1049

Cutting Force Comparison
(Internal Evaluation)

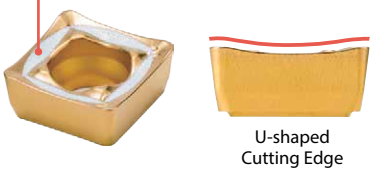


Cutting Conditions : Vc = 660 sfm, f = 0.0047 ipr
Cutting Dia. Ø0.812" (3D), Wet, Workpiece : 1049

2 Unique Insert Design to Control Chip Flow

Outer Edge Insert

Unique Insert Pattern to Differentiate between Outside and Inside Inserts



U-shaped Cutting Edge

Smooth Chip Evacuation with Compact Chips

Chip Shape Comparison of Outer Insert Cutting Edge
(Internal Evaluation)

DRV : 0.394"
Competitor D : 0.472"

Cutting Conditions : Vc = 490 sfm, f = 0.0024 ipr, Cutting Dia. Ø0.812 (3D), Wet Workpiece : 1049

Inner Edge Insert

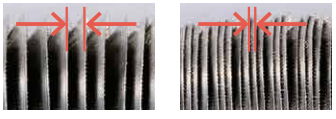
Spoon-shaped Cutting Edge

Excellent Chip Evacuation with 6xD Maximum Deep-Hole Drilling

Weight per Unit of Length for Chips Generated by the Inner Insert
(Internal Evaluation)

DRV
80mg/mm

Competitor E
151mg/mm



DRV : 1.2mm
Competitor E : 0.5mm

Cutting Conditions : Vc = 820 sfm, f = 0.0031 ipr, Cutting Dia. Ø0.812 (5D), Wet, Workpiece : 304

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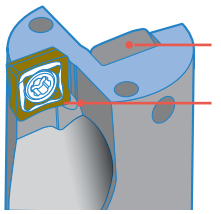
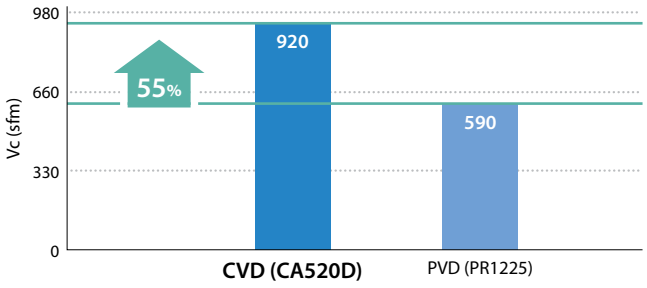
3 CVD Insert on the Outside Edge for Highly Efficient Drilling



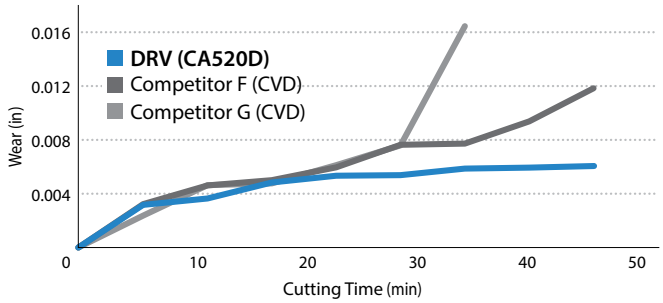
High Speed and Highly Efficient Machining with the Combination of CVD (Outer Edge) and PVD (Inner Edge) Inserts

Recommended Cutting Conditions (Maximum Values)



Cutting Dia. Ø0.812" (3D) Workpiece : 1049

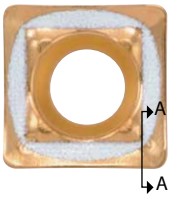
Wear Resistance Comparison (Internal Evaluation)



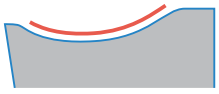
Cutting Conditions : Vc = 660 sfm, f = 0.0047 ipr, Cutting Dia. Ø0.812" (3D) , Wet
Workpiece : 4140H

4 Economical 4-Edge Inserts 4 Types of Chipbreakers for Various Machining Applications

GM Chipbreaker - General Purpose



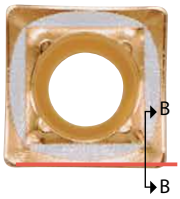
Chipbreaker for Steel Machining
Stable Deep-hole Machining with Low Cutting Force



A-A Section

Edge shape optimized for various machining applications

GH Chipbreaker - Tough Edge

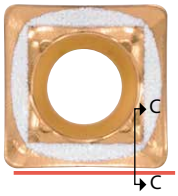


1st Recommendation for Machining Cast Iron
Good for Interrupted Steel Machining
Reduces Insert Chipping Common in Through-hole Machining

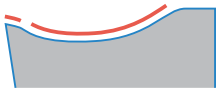
B-B Section

Negative land with strong edge

SM Chipbreaker - For Stainless Steel Machining



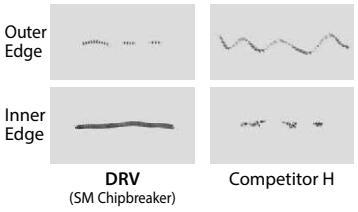
Stable Chip Control when Machining
Gummy Stainless Steel
Reduces Chip Clogging in the Holder Body



C-C Section

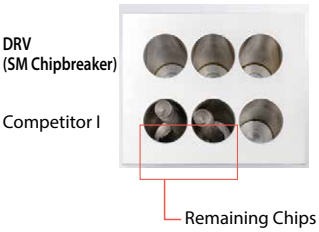
Sharp cutting and large rake angle

Chip Control Comparison (Internal Evaluation)



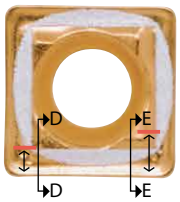
Cutting Conditions : Vc = 330 sfm, f = 0.0039 ipr
Cutting Dia. Ø0.812" (3D), Drilling Depth 2.436"
Wet, Workpiece : 304

Comparison of Remaining Chips (Internal Evaluation)

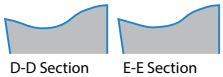


Cutting Conditions : Vc = 490 sfm, f = 0.0031 ipr
Cutting Dia. Ø0.984" (5D), Drilling Depth 3.858"
Wet, Workpiece : 304

XM Chipbreaker - For Machining Soft Steel and Structural Steel



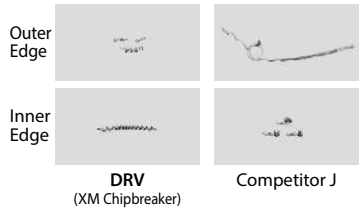
Stable Chip Control of Outer Cutting Edge



D-D Section E-E Section

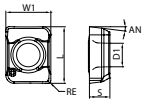
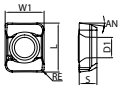
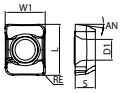
Excellent chip control with the changing width of the chipbreaker

Chip Control Comparison (Internal Evaluation)



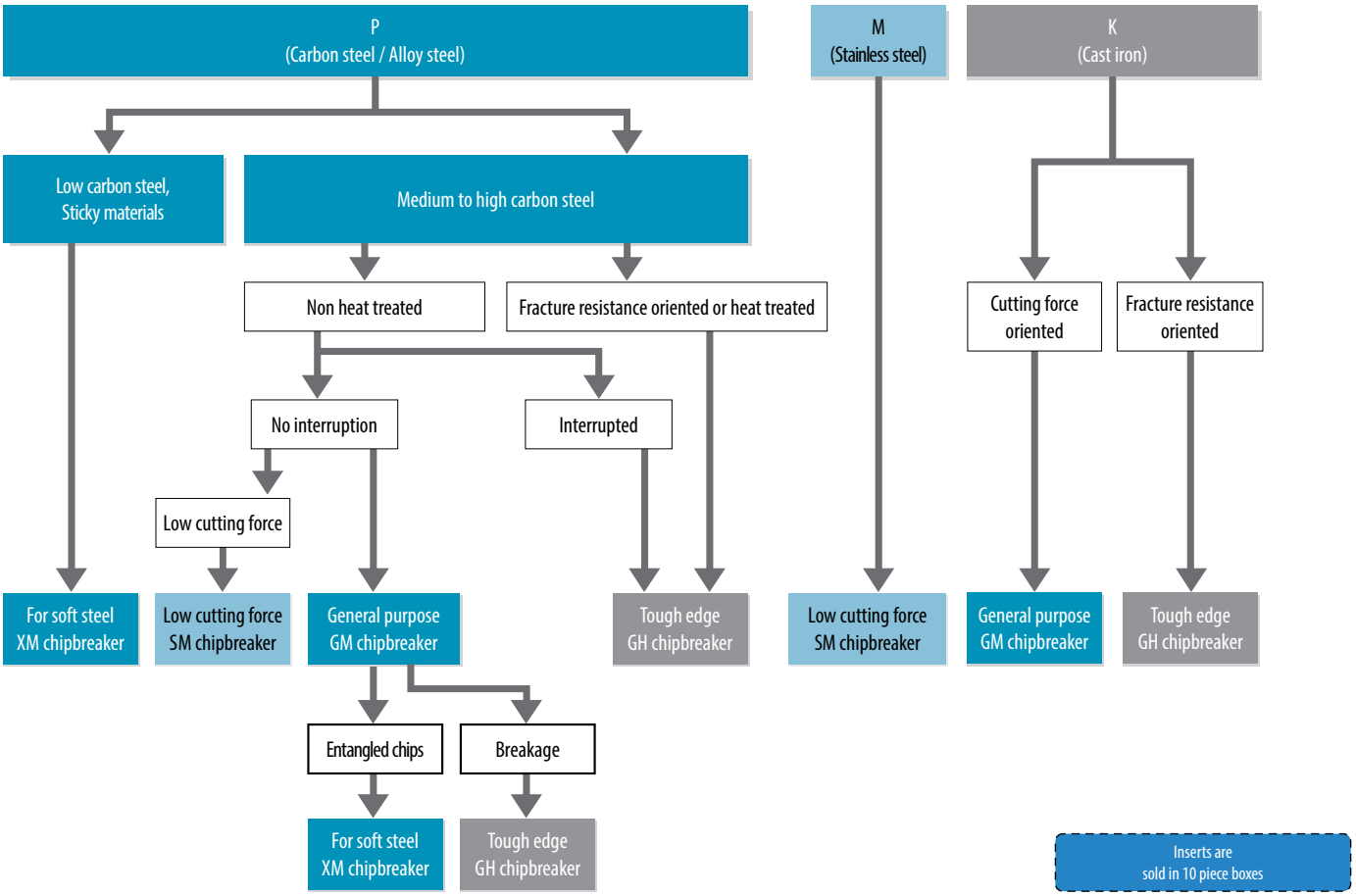
Cutting Conditions : Vc = 660 sfm, f = 0.0047 ipr
Cutting Dia. Ø0.625" (3D), Drilling Depth 1.875"
Wet, Workpiece : A36

LCMT (Outer Edge)

Usage Classification																
★ : High speed and highly efficient drilling ☆ : Stable machining oriented																
Carbon Steel / Alloy Steel													★	☆		P
Mold and Die Steel													★	☆		P
Stainless Steel													★	☆		M
Cast Iron												★		☆		K
Non-Ferrous Metals																N
Insert		Part Number	No. of Edges	Dimensions (mm)						Angle (°)	Carbide				Applicable Toolholder ➡ K50~K64
				S	D1	RE	L	W1	AN		CVD		PVD		
											CA415D	CA5200	PR1225		
	 Tough Edge	LCMT 030203-GH-E	2	2	2.3	0.3	5.54	4.4	7		●	●	●		S075-DRV...-□-03 S20-DRV...-□-03
	 General Purpose	LCMT 030203-GM-E	2	2	2.3	0.3	5.54	4.4	7		●	●	●		
	 Stainless Steel	LCMT 030203-SM-E	2	2	2.3	0.3	5.54	4.4	7			●	●		

Recommended Cutting Conditions ➡ K70~K73

Chipbreaker selection chart



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SCMT (Outer Edge)

Usage Classification

★ : High speed and highly efficient drilling

☆ : Stable machining oriented

Carbon Steel / Alloy Steel	★	☆
Mold and Die Steel	★	☆
Stainless Steel	★	☆
Cast Iron	★	☆
Non-Ferrous Metals		

P	P	P	P	M	K	N	Insert	Part Number	No. of Edges	Dimensions (mm)				Angle (°)	Carbide		Applicable Toolholder ➡ K50~K64
										IC	S	D1	RE	AN	CVD	PVD	
															CA415D / CA520D	PR1225	
								SCMT 040205-GH-E	4	4.8	2.2	2.4	0.5	7	●	●	S..-DRV...-□-04
								SCMT 050205-GH-E	4	5.25	2.6	2.4	0.5	7	●	●	S..-DRV...-□-05
								SCMT 060205-GH-E	4	6.4	2.8	2.9	0.5	7	●	●	S..-DRV...-□-06
								SCMT 070305-GH-E	4	7.65	3.2	3.5	0.5	7	●	●	S..-DRV...-□-07
								SCMT 090405-GH-E	4	9.1	4.1	4	0.5	7	●	●	S..-DRV...-□-09
								SCMT 110406-GH-E	4	11	4.5	4.6	0.6	7	●	●	S..-DRV...-□-11
								SCMT 140508-GH-E	4	13.8	5	5.7	0.8	7	●	●	S..-DRV...-□-14
								SCMT 170608-GH-E	4	16.8	6.58	6.9	0.8	7	●	●	S..-DRV...-□-17
								SCMT 040205-GM-E	4	4.8	2.2	2.4	0.5	7	●	●	S..-DRV...-□-04
								SCMT 050205-GM-E	4	5.25	2.6	2.4	0.5	7	●	●	S..-DRV...-□-05
								SCMT 060205-GM-E	4	6.4	2.8	2.9	0.5	7	●	●	S..-DRV...-□-06
								SCMT 070305-GM-E	4	7.65	3.2	3.5	0.5	7	●	●	S..-DRV...-□-07
								SCMT 090405-GM-E	4	9.1	4.1	4	0.5	7	●	●	S..-DRV...-□-09
								SCMT 110406-GM-E	4	11	4.5	4.6	0.6	7	●	●	S..-DRV...-□-11
								SCMT 140508-GM-E	4	13.8	5	5.7	0.8	7	●	●	S..-DRV...-□-14
								SCMT 170608-GM-E	4	16.8	6.58	6.9	0.8	7	●	●	S..-DRV...-□-17
								SCMT 040205-SM-E	4	4.8	2.2	2.4	0.5	7		●	S..-DRV...-□-04
								SCMT 050205-SM-E	4	5.25	2.6	2.4	0.5	7		●	S..-DRV...-□-05
								SCMT 060205-SM-E	4	6.4	2.8	2.9	0.5	7		●	S..-DRV...-□-06
								SCMT 070305-SM-E	4	7.65	3.2	3.5	0.5	7		●	S..-DRV...-□-07
								SCMT 090405-SM-E	4	9.1	4.1	4	0.5	7		●	S..-DRV...-□-09
								SCMT 110406-SM-E	4	11	4.5	4.6	0.6	7		●	S..-DRV...-□-11
								SCMT 140508-SM-E	4	13.8	5	5.7	0.8	7		●	S..-DRV...-□-14
								SCMT 170608-SM-E	4	16.8	6.58	6.9	0.8	7		●	S..-DRV...-□-17
								SCMT 040205-XM-E	4	4.8	2.2	2.4	0.5	7		●	S..-DRV...-□-04
								SCMT 050205-XM-E	4	5.25	2.6	2.4	0.5	7		●	S..-DRV...-□-05
								SCMT 060205-XM-E	4	6.4	2.8	2.9	0.5	7		●	S..-DRV...-□-06
								SCMT 070305-XM-E	4	7.65	3.2	3.5	0.5	7		●	S..-DRV...-□-07
								SCMT 090405-XM-E	4	9.1	4.1	4	0.5	7		●	S..-DRV...-□-09
								SCMT 110406-XM-E	4	11	4.5	4.6	0.6	7		●	S..-DRV...-□-11
								SCMT 140508-XM-E	4	13.8	5	5.7	0.8	7		●	S..-DRV...-□-14
								SCMT 170608-XM-E	4	16.8	6.58	6.9	0.8	7		●	S..-DRV...-□-17

Tough Edge

General Purpose

Stainless Steel

Low Carbon Steel

Recommended Cutting Conditions ➡ K70~K73

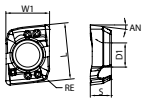
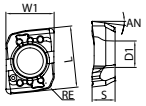
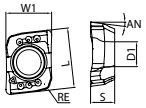
Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

LCMT (Inner Edge)

Usage Classification ★ : High speed and highly efficient drilling													
											Carbon Steel / Alloy Steel	★	P
											Mold and Die Steel	★	
											Stainless Steel	★	M
											Cast Iron	★	K
											Non-Ferrous Metals		N

Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)	Carbide		Applicable Toolholder ➡ K50~K64
				S	D1	RE	L	W1	AN	PVD	PR1535	
	 Tough Edge	LCMT 030205-GH-I	2	2	2.3	0.5	5.37	4.16	7		●	S075-DRV...-□-03 S20-DRV...-□-03
	 General Purpose	LCMT 030205-GM-I	2	2	2.3	0.5	5.37	4.16	7		●	
	 Stainless Steel	LCMT 030205-SM-I	2	2	2.3	0.5	5.37	4.16	7		●	

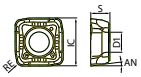
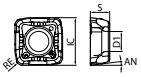
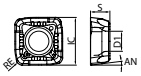
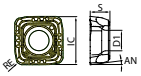
Recommended Cutting Conditions ➡ K70~K73

Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SCMT (Inner Edge)

Usage Classification ★ : High speed and highly efficient drilling											
								Carbon Steel / Alloy Steel	★	P	
								Mold and Die Steel	★		
								Stainless Steel	★	M	
								Cast Iron	★	K	
								Non-Ferrous Metals		N	

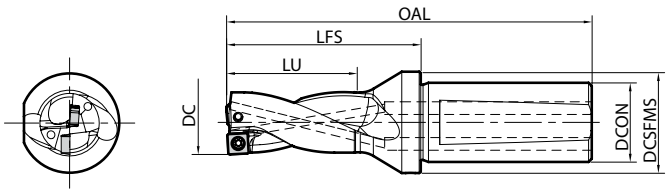
Insert		Part Number	No. of Edges	Dimensions (mm)				Angle (°)	Carbide		Applicable Toolholder ➡ K50~K64
				IC	S	D1	RE	AN	PVD	PR1535	
	 Tough Edge	SCMT 040209-GH-I	4	5	2.2	2.4	0.9	7		●	S..-DRV...-□-04
		SCMT 050210-GH-I	4	5.7	2.6	2.4	1	7		●	S..-DRV...-□-05
		SCMT 060210-GH-I	4	6.9	2.8	2.9	1	7		●	S..-DRV...-□-06
		SCMT 070310-GH-I	4	8.2	3.2	3.5	1	7		●	S..-DRV...-□-07
		SCMT 090410-GH-I	4	9.8	4.1	4	1	7		●	S..-DRV...-□-09
		SCMT 110410-GH-I	4	11.9	4.5	4.6	1	7		●	S..-DRV...-□-11
		SCMT 140510-GH-I	4	14.9	5	5.7	1	7		●	S..-DRV...-□-14
		SCMT 170610-GH-I	4	17.9	6.58	6.9	1	7		●	S..-DRV...-□-17
	 General Purpose	SCMT 040209-GM-I	4	5	2.2	2.4	0.9	7		●	S..-DRV...-□-04
		SCMT 050210-GM-I	4	5.7	2.6	2.4	1	7		●	S..-DRV...-□-05
		SCMT 060210-GM-I	4	6.9	2.8	2.9	1	7		●	S..-DRV...-□-06
		SCMT 070310-GM-I	4	8.2	3.2	3.5	1	7		●	S..-DRV...-□-07
		SCMT 090410-GM-I	4	9.8	4.1	4	1	7		●	S..-DRV...-□-09
		SCMT 110410-GM-I	4	11.9	4.5	4.6	1	7		●	S..-DRV...-□-11
		SCMT 140510-GM-I	4	14.9	5	5.7	1	7		●	S..-DRV...-□-14
		SCMT 170610-GM-I	4	17.9	6.58	6.9	1	7		●	S..-DRV...-□-17
	 Stainless Steel	SCMT 040209-SM-I	4	5	2.2	2.4	0.9	7		●	S..-DRV...-□-04
		SCMT 050210-SM-I	4	5.7	2.6	2.4	1	7		●	S..-DRV...-□-05
		SCMT 060210-SM-I	4	6.9	2.8	2.9	1	7		●	S..-DRV...-□-06
		SCMT 070310-SM-I	4	8.2	3.2	3.5	1	7		●	S..-DRV...-□-07
		SCMT 090410-SM-I	4	9.8	4.1	4	1	7		●	S..-DRV...-□-09
		SCMT 110410-SM-I	4	11.9	4.5	4.6	1	7		●	S..-DRV...-□-11
		SCMT 140510-SM-I	4	14.9	5	5.7	1	7		●	S..-DRV...-□-14
		SCMT 170610-SM-I	4	17.9	6.58	6.9	1	7		●	S..-DRV...-□-17
	 Low Carbon Steel	SCMT 040209-XM-I	4	5	2.2	2.4	0.9	7		●	S..-DRV...-□-04
		SCMT 050210-XM-I	4	5.7	2.6	2.4	1	7		●	S..-DRV...-□-05
		SCMT 060210-XM-I	4	6.9	2.8	2.9	1	7		●	S..-DRV...-□-06
		SCMT 070310-XM-I	4	8.2	3.2	3.5	1	7		●	S..-DRV...-□-07
		SCMT 090410-XM-I	4	9.8	4.1	4	1	7		●	S..-DRV...-□-09
		SCMT 110410-XM-I	4	11.9	4.5	4.6	1	7		●	S..-DRV...-□-11
		SCMT 140510-XM-I	4	14.9	5	5.7	1	7		●	S..-DRV...-□-14
		SCMT 170610-XM-I	4	17.9	6.58	6.9	1	7		●	S..-DRV...-□-17

Recommended Cutting Conditions ➡ K70~K73

Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRV (Drilling Depth : 2 x DC)



2D

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LU	DCSFMS	Coolant Hole	Radial Offset Max.	Spare Parts Screw	Wrench	Wrench	Wrench	Applicable Inserts ➡ K46~K49
Inch	S075- DRV0484-2-03	●	2	0.484	0.750	3.268	1.575	0.969	1.063	Yes	+0.008	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV0500-2-03	●		0.500		3.299	1.606	1.000			+0.006					
	DRV0516-2-03	●		0.516		3.331	1.638	1.031			+0.006					
	DRV0531-2-03	●		0.531		3.362	1.669	1.063			+0.004					
	S075- DRV0562-2-04	●	2	0.563	0.750	3.661	1.969	1.125	1.063	Yes	+0.014	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV0578-2-04	●		0.578		3.693	2.000	1.156			+0.014					
	S075- DRV0625-2-05	●	2	0.625	0.750	3.866	2.173	1.250	1.063	Yes	+0.016	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV0656-2-05	●		0.656		3.929	2.236	1.313			+0.012					
	S100- DRV0688-2-05	●		0.688	1.000	4.425	2.299	1.375	1.260	Yes	+0.010					
	S100- DRV0750-2-06	●	2	0.750	1.000	4.469	2.343	1.500	1.260	Yes	+0.024	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV0812-2-06	●		0.813		4.594	2.469	1.625			+0.018					
	DRV0875-2-06	●		0.875		4.720	2.594	1.750			+0.010					
	S100- DRV0938-2-07	●	2	0.938	1.000	4.827	2.701	1.875	1.260	Yes	+0.028	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV0984-2-07	●		0.984		4.917	2.791	1.969			+0.024					
	DRV1000-2-07	●		1.000		4.949	2.823	2.000			+0.020					
	S125- DRV1062-2-09	●	2	1.063	1.250	5.341	3.018	2.125	1.614	Yes	+0.041	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV1125-2-09	●		1.125		5.467	3.144	2.250			+0.033					
	DRV1188-2-09	●		1.188		5.593	3.270	2.375			+0.026					
	S150- DRV1250-2-09	●		1.250	1.500	6.256	3.539	2.500	1.929	Yes	+0.020					
	S150- DRV1312-2-11	●	2	1.313	1.500	6.380	3.663	2.625	1.929	Yes	+0.045	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV1375-2-11	●		1.375		6.506	3.789	2.750			+0.039					
	DRV1438-2-11	●		1.438		6.632	3.915	2.875			+0.031					
	DRV1500-2-11	●		1.500		6.756	4.039	3.000			+0.022					
	S150- DRV1562-2-14	●	2	1.562	1.500	7.116	4.400	3.124	1.929	Yes	+0.070	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)
	DRV1625-2-14	●		1.625		7.242	4.526	3.250			+0.063					
	DRV1688-2-14	●		1.688		7.368	4.652	3.376			+0.056					
	DRV1750-2-14	●		1.750		7.492	4.776	3.500			+0.049					
	DRV1812-2-14	●		1.812		7.616	4.900	3.624	2.126		+0.041					
	DRV1875-2-14	●		1.875		7.742	5.026	3.750			+0.034					
	DRV1938-2-14	●		1.938		7.868	5.152	3.876			+0.027					
	S150- DRV2000-2-17	●	2	2.000		7.854	5.138	4.000	2.323	Yes	+0.079	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

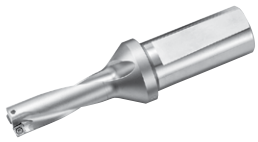
Hole Dia. Tolerance (2D type)

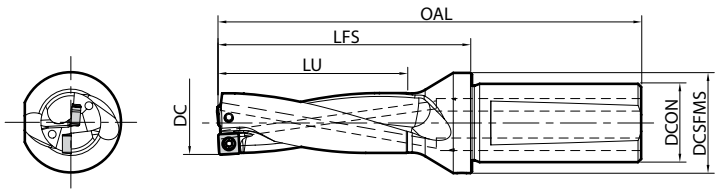
DC	Hole Dia. Tolerance (in)
ø0.484" - ø2.000"	+0.012 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRV (Drilling Depth : 3 x DC)





3D

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LU	DCSFMS	Coolant Hole	Radial Offset Max.	Spare Parts Screw	Wrench	Wrench	Wrench	Applicable Inserts ➡ K46~K49
Inch	S075- DRV0484-3-03	●	2	0.484	0.750	3.752	2.059	1.453	1.063	Yes	+0.008	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV0500-3-03	●		0.500		3.799	2.106	1.500			+0.006					
	DRV0516-3-03	●		0.516		3.847	2.154	1.547			+0.006					
	DRV0531-3-03	●		0.531		3.894	2.201	1.594			+0.004					
	S075- DRV0562-3-04	●	2	0.563	0.750	4.224	2.531	1.688	1.063	Yes	+0.014	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV0578-3-04	●		0.578		4.268	2.575	1.734			+0.014					
	S075- DRV0625-3-05	●	2	0.625	0.750	4.492	2.799	1.875	1.063	Yes	+0.016	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV0656-3-05	●		0.656		4.587	2.894	1.969			+0.012					
	S100- DRV0688-3-05	●		0.688	1.000	5.114	2.988	2.063	1.260	Yes	+0.010					
	S100- DRV0750-3-06	●	2	0.750	1.000	5.220	3.094	2.250	1.260	Yes	+0.024	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV0812-3-06	●		0.813		5.406	3.280	2.438			+0.018					
	DRV0875-3-06	●		0.875		5.594	3.469	2.625			+0.010					
	S100- DRV0938-3-07	●	2	0.938	1.000	5.764	3.638	2.813	1.260	Yes	+0.028	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV0984-3-07	●		0.984		5.902	3.776	2.953			+0.024					
	DRV1000-3-07	●		1.000		5.949	3.823	3.000			+0.020					
	S125- DRV1062-3-09	●	2	1.063	1.250	6.402	4.080	3.188	1.614	Yes	+0.041	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV1125-3-09	●		1.125		6.592	4.269	3.375			+0.033					
	DRV1188-3-09	●		1.188		6.781	4.458	3.563			+0.026					
	S150- DRV1250-3-09	●		1.250	1.500	7.508	4.791	3.750	1.929	Yes	+0.020					
	S150- DRV1312-3-11	●	2	1.313	1.500	7.692	4.976	3.938	1.929	Yes	+0.045	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV1375-3-11	●		1.375		7.881	5.165	4.125			+0.039					
	DRV1438-3-11	●		1.438		8.070	5.354	4.313			+0.031					
	DRV1500-3-11	●		1.500		8.256	5.539	4.500			+0.022					
	S150- DRV1562-3-14	●	2	1.562	1.500	8.678	5.962	4.686	1.929	Yes	+0.070	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)
	DRV1625-3-14	●		1.625		8.867	6.151	4.875			+0.063					
	DRV1688-3-14	●		1.688		9.056	6.340	5.064			+0.056					
	DRV1750-3-14	●		1.750		9.242	6.526	5.250			+0.049					
	DRV1812-3-14	●		1.812		9.428	6.712	5.436	2.126		+0.041					
	DRV1875-3-14	●		1.875		9.617	6.901	5.625			+0.034					
	DRV1938-3-14	●		1.938		9.806	7.090	5.814			+0.027					
	S150- DRV2000-3-17	●	2	2.000		9.854	7.138	6.000	2.323	Yes	+0.079	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

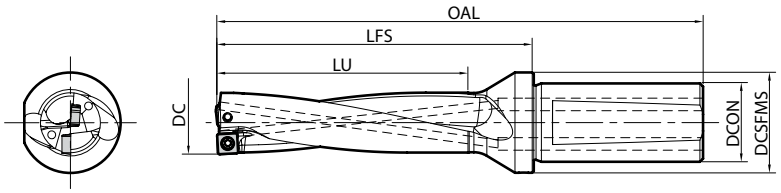
Hole Dia. Tolerance (3D type)

DC	Hole Dia. Tolerance (in)
ø0.484" - ø2.000"	+0.012 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRV (Drilling Depth : 4 x DC)



4D

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LU	DCSFMS	Coolant Hole	Radial Offset Max.	Spare Parts Screw	Wrench	Wrench	Wrench	Applicable Inserts ➡ K46~K49
Inch	S075- DRV0484-4-03	●	2	0.484	0.750	4.236	2.543	1.938	1.063	Yes	+0.008	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV0500-4-03	●		0.500		4.299	2.606	2.000			+0.006					
	DRV0516-4-03	●		0.516		4.362	2.669	2.062			+0.006					
	DRV0531-4-03	●		0.531		4.425	2.732	2.125			+0.004					
	S075- DRV0562-4-04	●	2	0.563	0.750	4.787	3.094	2.250	1.063	Yes	+0.014	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV0578-4-04	●		0.578		4.847	3.154	2.312			+0.014					
	S075- DRV0625-4-05	●	2	0.625	0.750	5.118	3.425	2.500	1.063	Yes	+0.016	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV0656-4-05	●		0.656		5.240	3.551	2.625			+0.012					
	S100- DRV0688-4-05	●		0.688	1.000	5.803	3.677	2.750	1.260	Yes	+0.010					
	S100- DRV0750-4-06	●	2	0.750	1.000	5.969	3.843	3.000	1.260	Yes	+0.024	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV0812-4-06	●		0.813		6.217	4.091	3.250			+0.018					
	DRV0875-4-06	●		0.875		6.469	4.343	3.500			+0.010					
	S100- DRV0938-4-07	●	2	0.938	1.000	6.701	4.575	3.750	1.260	Yes	+0.028	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV0984-4-07	●		0.984		6.886	4.760	3.938			+0.024					
	DRV1000-4-07	●		1.000		6.949	4.823	4.000			+0.020					
	S125- DRV1062-4-09	●	2	1.063	1.250	7.465	5.142	4.250	1.614	Yes	+0.041	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV1125-4-09	●		1.125		7.717	5.394	4.500			+0.033					
	DRV1188-4-09	●		1.188		7.969	5.646	4.750			+0.026					
	S150- DRV1250-4-09	●		1.250	1.500	8.756	6.039	5.000	1.929	Yes	+0.020					
	S150- DRV1312-4-11	●	2	1.313	1.500	9.004	6.287	5.250	1.929	Yes	+0.045	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV1375-4-11	●		1.375		9.256	6.539	5.500			+0.039					
	DRV1438-4-11	●		1.438		9.508	6.791	5.750			+0.031					
	DRV1500-4-11	●		1.500		9.756	7.039	6.000			+0.022					
	S150- DRV1562-4-14	●	2	1.562	1.500	10.240	7.524	6.248	1.929	Yes	+0.070	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)
	DRV1625-4-14	●		1.625		10.492	7.776	6.500			+0.063					
	DRV1688-4-14	●		1.688		10.744	8.028	6.752			+0.056					
	DRV1750-4-14	●		1.750		10.992	8.276	7.000			+0.049					
	DRV1812-4-14	●		1.812		11.240	8.524	7.248	2.126		+0.041					
	S200- DRV1875-4-14	●		1.875	2.000	11.492	8.776	7.500	2.520	Yes	+0.034					
	DRV1938-4-14	●		1.938		11.744	9.028	7.752			+0.027					
	S200- DRV2000-4-17	●	2	2.000	2.000	11.854	9.138	8.000	2.520	Yes	+0.079	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)

When offset drilling, reduce feed rate to 0.0024 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

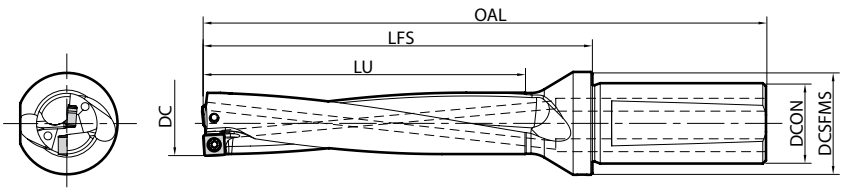
Hole Dia. Tolerance (4D type)

DC	Hole Dia. Tolerance (in)	DC	Hole Dia. Tolerance (in)
ø0.484" - ø1.500"	+0.014 0	ø1.562" - ø2.000"	+0.016 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRV (Drilling Depth : 5 x DC)



5D

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LU	DCSFMS	Coolant Hole	Radial Offset Max.	Spare Parts Screw	Wrench	Wrench	Wrench	Applicable Inserts ➡ K46~K49
Inch	S075- DRV0484-5-03	●	2	0.484	0.750	4.721	3.028	2.422	1.063	Yes	+0.008	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV0500-5-03	●		0.500		4.799	3.106	2.500			+0.006					
	DRV0516-5-03	●		0.516		4.878	3.185	2.578			+0.006					
	DRV0531-5-03	●		0.531		4.957	3.264	2.657			+0.004					
	S075- DRV0562-5-04	●	2	0.563	0.750	5.346	3.654	2.813	1.063	Yes	+0.014	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV0578-5-04	●		0.578		5.425	3.732	2.891			+0.014					
	S075- DRV0625-5-05	●	2	0.625	0.750	5.744	4.051	3.125	1.063	Yes	+0.016	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV0656-5-05	●		0.656		5.898	4.205	3.281			+0.012					
	S100- DRV0688-5-05	●		0.688	1.000	6.492	4.366	3.438	1.260	Yes	+0.010					
	S100- DRV0750-5-06	●	2	0.750	1.000	6.720	4.594	3.750	1.260	Yes	+0.024	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV0812-5-06	●		0.813		7.028	4.902	4.063			+0.018					
	DRV0875-5-06	●		0.875		7.343	5.217	4.375			+0.010					
	S100- DRV0938-5-07	●	2	0.938	1.000	7.638	5.512	4.688	1.260	Yes	+0.028	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV0984-5-07	●		0.984		7.870	5.744	4.922			+0.024					
	DRV1000-5-07	●		1.000		7.949	5.823	5.000			+0.020					
	S125- DRV1062-5-09	●	2	1.063	1.250	8.526	6.204	5.313	1.614	Yes	+0.041	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV1125-5-09	●		1.125		8.842	6.519	5.625			+0.033					
	DRV1188-5-09	●		1.188		9.157	6.834	5.938			+0.026					
	S150- DRV1250-5-09	●		1.250	1.500	10.008	7.291	6.250	1.929	Yes	+0.020					
	S150- DRV1312-5-11	●	2	1.313	1.500	10.316	7.600	6.563	1.929	Yes	+0.045	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV1375-5-11	●		1.375		10.631	7.915	6.875			+0.039					
	DRV1438-5-11	●		1.438		10.946	8.230	7.188			+0.031					
	DRV1500-5-11	●		1.500		11.256	8.539	7.500			+0.022					
	S150- DRV1562-5-14	●	2	1.562	1.500	11.802	9.086	7.810	1.929	Yes	+0.070	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)
	DRV1625-5-14	●		1.625		12.117	9.401	8.125			+0.063					
	DRV1688-5-14	●		1.688		12.432	9.716	8.440			+0.056					
	DRV1750-5-14	●		1.750		12.742	10.026	8.750			+0.049					
	DRV1812-5-14	●		1.812		13.052	10.336	9.060	2.126		+0.041					
	S200- DRV1875-5-14	●		1.875	2.000	13.367	10.651	9.375	2.520	Yes	+0.034					
	DRV1938-5-14	●		1.938		13.682	10.966	9.690			+0.027					
	S200- DRV2000-5-17	●	2	2.000	2.000	13.854	11.138	10.000	2.520	Yes	+0.079	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)

When offset drilling, reduce feed rate to 0.0020 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

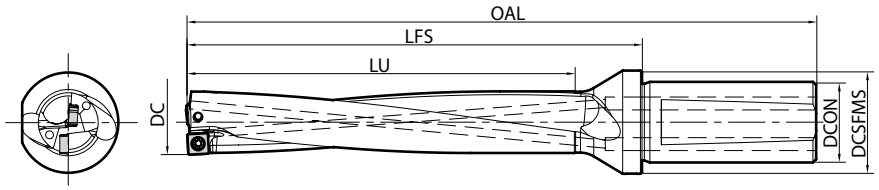
Hole Dia. Tolerance (5D type)

DC	Hole Dia. Tolerance (in)	DC	Hole Dia. Tolerance (in)
ø0.484" - ø1.500"	+0.014 0	ø1.562" - ø2.000"	+0.016 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRV (Drilling Depth : 6 x DC)



6D

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
Inch	S075- DRV0484-6-03	●	2	0.484	0.750	5.205	3.512	2.906	1.063	Yes	+0.008	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV0500-6-03	●		0.500		5.299	3.606	3.000			+0.006					
	DRV0516-6-03	●		0.516		5.394	3.701	3.094			+0.006					
	DRV0531-6-03	●		0.531		5.488	3.795	3.188			+0.004					
	S075- DRV0562-6-04	●	2	0.563	0.750	5.909	4.217	3.375	1.063	Yes	+0.014	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV0578-6-04	●		0.578		6.004	4.311	3.469			+0.014					
	S075- DRV0625-6-05	●	2	0.625	0.750	6.370	4.677	3.750	1.063	Yes	+0.016	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV0656-6-05	●		0.656		6.555	4.862	3.938			+0.012					
	S100- DRV0688-6-05	●		0.688	1.000	7.181	5.055	4.125	1.260	Yes	+0.010					
	S100- DRV0750-6-06	●	2	0.750	1.000	7.469	5.343	4.500	1.260	Yes	+0.024	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV0812-6-06	●		0.813		7.843	5.717	4.875			+0.018					
	DRV0875-6-06	●		0.875		8.220	6.094	5.250			+0.010					
	S100- DRV0938-6-07	●	2	0.938	1.000	8.579	6.453	5.625	1.260	Yes	+0.028	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV0984-6-07	●		0.984		8.854	6.728	5.906			+0.024					
	DRV1000-6-07	●		1.000		8.949	6.823	6.000			+0.020					
	S125- DRV1062-6-09	●	2	1.063	1.250	9.589	7.266	6.375	1.614	Yes	+0.041	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV1125-6-09	●		1.125		9.967	7.644	6.750			+0.033					
	DRV1188-6-09	●		1.188		10.344	8.022	7.125			+0.026					
	S150- DRV1250-6-09	●		1.250	1.500	11.256	8.539	7.500	1.929	Yes	+0.020					
	S150- DRV1312-6-11	●	2	1.313	1.500	11.628	8.911	7.875	1.929	Yes	+0.045	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV1375-6-11	●		1.375		12.006	9.289	8.250			+0.039					
	DRV1438-6-11	●		1.438		12.384	9.667	8.625			+0.031					
	DRV1500-6-11	●		1.500		12.756	10.039	9.000			+0.022					
	S150- DRV1562-6-14	●	2	1.562	1.500	13.364	10.648	9.372	1.929	Yes	+0.070	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)
	DRV1625-6-14	●		1.625		13.742	11.026	9.750			+0.063					
	DRV1688-6-14	●		1.688		14.120	11.404	10.128			+0.056					
	DRV1750-6-14	●		1.750		14.492	11.776	10.500			+0.049					
	DRV1812-6-14	●		1.812		14.864	12.148	10.872	2.126		+0.041					
	S200- DRV1875-6-14	●		1.875	2.000	15.242	12.526	11.250	2.520	Yes	+0.034					
	DRV1938-6-14	●		1.938		15.620	12.904	11.628			+0.027					
	S200- DRV2000-6-17	●	2	2.000	2.000	15.854	13.138	12.000	2.520	Yes	+0.079	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)

When offset drilling, reduce feed rate to 0.0024 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

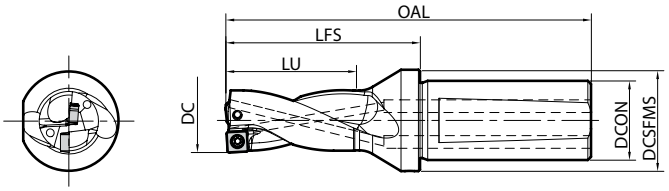
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Hole Dia. Tolerance (6D type)

DC	Hole Dia. Tolerance (in)
ø0.484" - ø1.500"	+0.018 0
ø1.562" - ø2.000"	+0.020 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRV (Drilling Depth : 2 x DC)



2D

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
mm	S20- DRV120M-2-03	●	2	12	20	82	39	24	27	Yes	+0.25	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV125M-2-03	●		12.5		83	40	25			+0.20					
	DRV130M-2-03	●		13		84	41	26			+0.15					
	DRV135M-2-03	●		13.5		85	42	27			+0.10					
	S20- DRV140M-2-04	●	2	14	20	92	49	28	27	Yes	+0.40	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV145M-2-04	●		14.5		93	50	29			+0.35					
	DRV150M-2-04	●		15		94	51	30			+0.30					
	DRV155M-2-04	●		15.5		95	52	31			+0.25					
	S25- DRV160M-2-05	●	2	16	25	110	56	32	32	Yes	+0.40	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV165M-2-05	●		16.5		111	57	33			+0.35					
	DRV170M-2-05	●		17		112	58	34			+0.30					
	DRV175M-2-05	●		17.5		113	59	35			+0.25					
	DRV180M-2-05	●		18		114	60	36			+0.20					
	DRV185M-2-05	●		18.5		115	61	37			+0.15					
	S25- DRV190M-2-06	●	2	19	25	113	59	38	32	Yes	+0.65	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV195M-2-06	●		19.5		114	60	39			+0.60					
	DRV200M-2-06	●		20		115	61	40			+0.55					
	DRV205M-2-06	●		20.5		116	62	41			+0.50					
	DRV210M-2-06	●		21		117	63	42			+0.45					
	DRV215M-2-06	●		21.5		118	64	43			+0.35					
	DRV220M-2-06	●		22		119	65	44			+0.30					
	S25- DRV225M-2-07	●	2	22.5	25	120	66	45	32	Yes	+0.90	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV230M-2-07	●		23		121	67	46			+0.80					
	DRV235M-2-07	●		23.5		122	68	47			+0.75					
	DRV240M-2-07	●		24		123	69	48			+0.70					
	DRV245M-2-07	●		24.5		124	70	49			+0.65					
	DRV250M-2-07	●		25		125	71	50			+0.60					
	DRV255M-2-07	●		25.5		126	72	51			+0.50					
	DRV260M-2-07	●		26		127	73	52			+0.45					
	S32- DRV270M-2-09	●	2	27	32	136	77	54	41	Yes	+1.05	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV280M-2-09	●		28		138	79	56			+0.95					
	DRV290M-2-09	●		29		140	81	58			+0.85					
	DRV300M-2-09	●		30		142	83	60			+0.75					
	DRV310M-2-09	●		31		144	85	62			+0.60					
	DRV320M-2-09	●		32		146	87	64			+0.50					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
mm	S40- DRV330M-2-11	●	2	33	40	161	92	66	49	Yes	+1.25	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV340M-2-11	●		34		163	94	68			+1.15					
	DRV350M-2-11	●		35		165	96	70			+1.00					
	DRV360M-2-11	●		36		167	98	72			+0.90					
	DRV370M-2-11	●		37		169	100	74			+0.80					
	DRV380M-2-11	●		38		171	102	76			+0.65					
	DRV390M-2-11	●		39		173	104	78			+0.55					
	S40- DRV400M-2-14	●	2	40	40	181	112	80	49	Yes	+1.75	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)
	DRV410M-2-14	●		41		183	114	82			+1.60					
	DRV420M-2-14	●		42		185	116	84			+1.50					
	DRV430M-2-14	●		43		187	118	86			+1.40					
	DRV440M-2-14	●		44		189	120	88			+1.30					
	DRV450M-2-14	●		45		191	122	90			+1.15					
	DRV460M-2-14	●		46		193	124	92	54		+1.05					
	DRV470M-2-14	●		47		195	126	94			+0.95					
	DRV480M-2-14	●		48		197	128	96			+0.80					
	DRV490M-2-14	●		49		199	130	98			+0.70					
	S40- DRV500M-2-17	●	2	50	40	198	129	100	59	Yes	+2.10	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)
	DRV510M-2-17	●		51		200	131	102			+1.95					
	DRV520M-2-17	●		52		202	133	104			+1.85					
	DRV530M-2-17	●		53		204	135	106			+1.75					
	DRV540M-2-17	●		54		206	137	108			+1.65					
	DRV550M-2-17	●		55		208	139	110			+1.50					
	DRV560M-2-17	●		56		210	141	112			+1.40					
	DRV570M-2-17	●		57		212	143	114	64		+1.30					
	DRV580M-2-17	●		58		214	145	116			+1.15					
	DRV590M-2-17	●		59		216	147	118			+1.05					
	DRV600M-2-17	●		60		218	149	120			+0.95					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

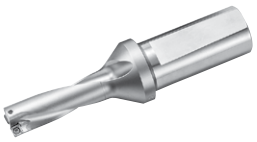
Hole Dia. Tolerance (2D type)

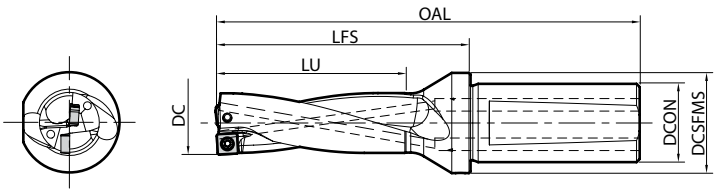
DC	Hole Dia. Tolerance (mm)
ø12 - ø60mm	+0.30 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRV (Drilling Depth : 3 x DC)





3D

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
mm	S20- DRV120M-3-03	●	2	12	20	94	51	36	27	Yes	+0.25	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV125M-3-03	●		12.5		96	53	37.5			+0.20					
	DRV130M-3-03	●		13		97	54	39			+0.15					
	DRV135M-3-03	●		13.5		99	56	40.5			+0.10					
	S20- DRV140M-3-04	●	2	14	20	106	63	42	27	Yes	+0.40	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV145M-3-04	●		14.5		108	65	43.5			+0.35					
	DRV150M-3-04	●		15		109	66	45			+0.30					
	DRV155M-3-04	●		15.5		111	68	46.5			+0.25					
	S25- DRV160M-3-05	●	2	16	25	126	72	48	32	Yes	+0.40	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV165M-3-05	●		16.5		127	73	49.5			+0.35					
	DRV170M-3-05	●		17		129	75	51			+0.30					
	DRV175M-3-05	●		17.5		130	76	52.5			+0.25					
	DRV180M-3-05	●		18		132	78	54			+0.20					
	DRV185M-3-05	●		18.5		133	79	55.5			+0.15					
	S25- DRV190M-3-06	●	2	19	25	132	78	57	32	Yes	+0.65	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV195M-3-06	●		19.5		134	80	58.5			+0.60					
	DRV200M-3-06	●		20		135	81	60			+0.55					
	DRV205M-3-06	●		20.5		137	83	61.5			+0.50					
	DRV210M-3-06	●		21		138	84	63			+0.45					
	DRV215M-3-06	●		21.5		140	86	64.5			+0.35					
	DRV220M-3-06	●		22		141	87	66			+0.30					
	S25- DRV225M-3-07	●	2	22.5	25	142	88	67.5	32	Yes	+0.90	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV230M-3-07	●		23		144	90	69			+0.80					
	DRV235M-3-07	●		23.5		145	91	70.5			+0.75					
	DRV240M-3-07	●		24		147	93	72			+0.70					
	DRV245M-3-07	●		24.5		148	94	73.5			+0.65					
	DRV250M-3-07	●		25		150	96	75			+0.60					
	DRV255M-3-07	●		25.5		151	97	76.5			+0.50					
	DRV260M-3-07	●		26		153	99	78			+0.45					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
mm	S32- DRV265M-3-09	●	2	26.5	32	161	102	79.5	41	Yes	+1.15	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV270M-3-09	●		27		163	104	81			+1.05					
	DRV275M-3-09	●		27.5		164	105	82.5			+1.00					
	DRV280M-3-09	●		28		166	107	84			+0.95					
	DRV285M-3-09	●		28.5		167	108	85.5			+0.90					
	DRV290M-3-09	●		29		169	110	87			+0.85					
	DRV295M-3-09	●		29.5		170	111	88.5			+0.80					
	DRV300M-3-09	●		30		172	113	90			+0.75					
	DRV305M-3-09	●		30.5		173	114	91.5			+0.65					
	DRV310M-3-09	●		31		175	116	93			+0.60					
	DRV315M-3-09	●		31.5		176	117	94.5			+0.55					
	DRV320M-3-09	●		32		178	119	96			+0.50					
	S40- DRV330M-3-11	●	2	33	40	194	125	99	49	Yes	+1.25	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV340M-3-11	●		34		197	128	102			+1.15					
	DRV350M-3-11	●		35		200	131	105			+1.00					
	DRV360M-3-11	●		36		203	134	108			+0.90					
	DRV370M-3-11	●		37		206	137	111			+0.80					
	DRV380M-3-11	●		38		209	140	114			+0.65					
	DRV390M-3-11	●		39		212	143	117			+0.55					
	S40- DRV400M-3-14	●	2	40	40	221	152	120	49	Yes	+1.75	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)
	DRV410M-3-14	●		41		224	155	123			+1.60					
	DRV420M-3-14	●		42		227	158	126			+1.50					
	DRV430M-3-14	●		43		230	161	129			+1.40					
	DRV440M-3-14	●		44		233	164	132			+1.30					
	DRV450M-3-14	●		45		236	167	135			+1.15					
	DRV460M-3-14	●		46		239	170	138	54		+1.05					
	DRV470M-3-14	●		47		242	173	141			+0.95					
	DRV480M-3-14	●		48		245	176	144			+0.80					
	DRV490M-3-14	●		49		248	179	147			+0.70					
	S40- DRV500M-3-17	●	2	50	40	248	179	150	59	Yes	+2.10	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)
	DRV510M-3-17	●		51		251	182	153			+1.95					
	DRV520M-3-17	●		52		254	185	156			+1.85					
	DRV530M-3-17	●		53		257	188	159			+1.75					
	DRV540M-3-17	●		54		260	191	162			+1.65					
	DRV550M-3-17	●		55		263	194	165			+1.50					
	DRV560M-3-17	●		56		266	197	168			+1.40					
	DRV570M-3-17	●		57		269	200	171	64		+1.30					
	DRV580M-3-17	●		58		272	203	174			+1.15					
	DRV590M-3-17	●		59		275	206	177			+1.05					
	DRV600M-3-17	●		60		278	209	180			+0.95					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

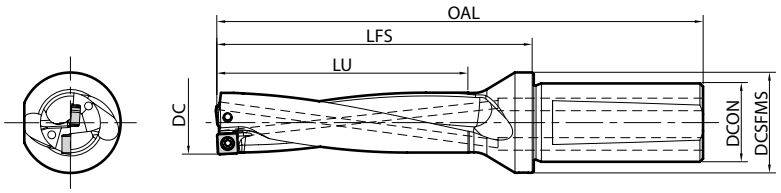
Hole Dia. Tolerance (3D type)

DC	Hole Dia. Tolerance (mm)
ø12 - ø60mm	+0.30 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRV (Drilling Depth : 4 x DC)



4D

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
mm	S20- DRV120M-4-03	●	2	12	20	106	63	48	27	Yes	+0.25	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV125M-4-03	●		12.5		108	65	50			+0.20					
	DRV130M-4-03	●		13		110	67	52			+0.15					
	DRV135M-4-03	●		13.5		112	69	54			+0.10					
	S20- DRV140M-4-04	●	2	14	20	120	77	56	27	Yes	+0.40	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV145M-4-04	●		14.5		122	79	58			+0.35					
	DRV150M-4-04	●		15		124	81	60			+0.30					
	DRV155M-4-04	●		15.5		126	83	62			+0.25					
	S25- DRV160M-4-05	●	2	16	25	142	88	64	32	Yes	+0.40	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV165M-4-05	●		16.5		144	90	66			+0.35					
	DRV170M-4-05	●		17		146	92	68			+0.30					
	DRV175M-4-05	●		17.5		148	94	70			+0.25					
	DRV180M-4-05	●		18		150	96	72			+0.20					
	DRV185M-4-05	●		18.5		152	98	74			+0.15					
	S25- DRV190M-4-06	●	2	19	25	151	97	76	32	Yes	+0.65	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV195M-4-06	●		19.5		153	99	78			+0.60					
	DRV200M-4-06	●		20		155	101	80			+0.55					
	DRV205M-4-06	●		20.5		157	103	82			+0.50					
	DRV210M-4-06	●		21		159	105	84			+0.45					
	DRV215M-4-06	●		21.5		161	107	86			+0.35					
	DRV220M-4-06	●		22		163	109	88			+0.30					
	S25- DRV225M-4-07	●	2	22.5	25	165	111	90	32	Yes	+0.90	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV230M-4-07	●		23		167	113	92			+0.80					
	DRV235M-4-07	●		23.5		169	115	94			+0.75					
	DRV240M-4-07	●		24		171	117	96			+0.70					
	DRV245M-4-07	●		24.5		173	119	98			+0.65					
	DRV250M-4-07	●		25		175	121	100			+0.60					
	DRV255M-4-07	●		25.5		177	123	102			+0.50					
	DRV260M-4-07	●		26		179	125	104			+0.45					
	S32- DRV270M-4-09	●	2	27	32	190	131	108	41	Yes	+1.05	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV280M-4-09	●		28		194	135	112			+0.95					
	DRV290M-4-09	●		29		198	139	116			+0.85					
	DRV300M-4-09	●		30		202	143	120			+0.75					
	DRV310M-4-09	●		31		206	147	124			+0.60					
	DRV320M-4-09	●		32		210	151	128			+0.50					

When offset drilling, reduce feed rate to 0.0024 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
mm	S40- DRV330M-4-11	●	2	33	40	227	158	132	49	Yes	+1.25	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV340M-4-11	●		34		231	162	136			+1.15					
	DRV350M-4-11	●		35		235	166	140			+1.00					
	DRV360M-4-11	●		36		239	170	144			+0.90					
	DRV370M-4-11	●		37		243	174	148			+0.80					
	DRV380M-4-11	●		38		247	178	152			+0.65					
	DRV390M-4-11	●		39		251	182	156			+0.55					
	S40- DRV400M-4-14	●	2	40	40	261	192	160	49	Yes	+1.75	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)
	DRV410M-4-14	●		41		265	196	164			+1.60					
	DRV420M-4-14	●		42		269	200	168			+1.50					
	DRV430M-4-14	●		43		273	204	172			+1.40					
	DRV440M-4-14	●		44		277	208	176			+1.30					
	DRV450M-4-14	●		45		281	212	180			+1.15					
	DRV460M-4-14	●		46		285	216	184	54		+1.05					
	DRV470M-4-14	●		47		289	220	188			+0.95					
	S50- DRV480M-4-14	●		48	50	293	224	192	59		+0.80					
	DRV490M-4-14	●		49		297	228	196			+0.70					
	S50- DRV500M-4-17	●	2	50	50	298	229	200	59	Yes	+2.10	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)
	DRV510M-4-17	●		51		302	233	204			+1.95					
	DRV520M-4-17	●		52		306	237	208			+1.85					
	DRV530M-4-17	●		53		310	241	212			+1.75					
	DRV540M-4-17	●		54		314	245	216			+1.65					
	DRV550M-4-17	●		55		318	249	220			+1.50					
	DRV560M-4-17	●		56		322	253	224			+1.40					
	DRV570M-4-17	●		57		326	257	228	64		+1.30					
	DRV580M-4-17	●		58		330	261	232			+1.15					
	DRV590M-4-17	●		59		334	265	236			+1.05					
	DRV600M-4-17	●		60		338	269	240			+0.95					

When offset drilling, reduce feed rate to 0.0024 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

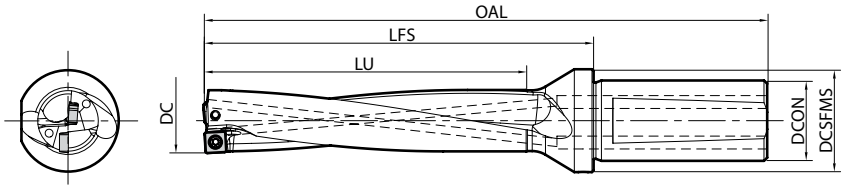
Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

Hole Dia. Tolerance (4D type)

DC	Hole Dia. Tolerance (mm)
ø12 - ø39mm	+0.35 0
ø40 - ø60mm	+0.40 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRV (Drilling Depth : 5 x DC)



5D

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ⇒ K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
mm	S20- DRV120M-5-03	●	2	12	20	118	75	60	27	Yes	+0.25	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV130M-5-03	●		13		123	80	65			+0.15					
	S20- DRV140M-5-04	●	2	14	20	134	91	70	27	Yes	+0.40	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV150M-5-04	●		15		139	96	75			+0.30					
	S25- DRV160M-5-05	●		16		158	104	80			+0.40					
	DRV170M-5-05	●	2	17	25	163	109	85	32	Yes	+0.30	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV180M-5-05	●		18		168	114	90			+0.20					
	S25- DRV190M-5-06	●		19		170	116	95			+0.65					
	DRV200M-5-06	●		20		175	121	100			+0.55					
	DRV210M-5-06	●	2	21	25	180	126	105	32	Yes	+0.45	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV220M-5-06	●		22		185	131	110			+0.30					
	S25- DRV230M-5-07	●		23		190	136	115			+0.80					
	DRV240M-5-07	●		24		195	141	120			+0.70					
	DRV250M-5-07	●	2	25	25	200	146	125	32	Yes	+0.60	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV260M-5-07	●		26		205	151	130			+0.45					
	S32- DRV270M-5-09	●		27		217	158	135			+1.05					
	DRV280M-5-09	●		28		222	163	140			+0.95					
	DRV290M-5-09	●		29		227	168	145			+0.85					
	DRV300M-5-09	●	2	30	32	232	173	150	41	Yes	+0.75	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV310M-5-09	●		31		237	178	155			+0.60					
	DRV320M-5-09	●		32		242	183	160			+0.50					
	S40- DRV330M-5-11	●		33		260	191	165			+1.25					
	DRV340M-5-11	●		34		265	196	170			+1.15					
	DRV350M-5-11	●		35		270	201	175			+1.00					
	DRV360M-5-11	●	2	36	40	275	206	180	49	Yes	+0.90	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV370M-5-11	●		37		280	211	185			+0.80					
	DRV380M-5-11	●		38		285	216	190			+0.65					
	DRV390M-5-11	●		39		290	221	195			+0.55					

When offset drilling, reduce feed rate to 0.0020 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ⇒ **K70~K73**
Troubleshooting ⇒ **K67**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
mm	S40- DRV400M-5-14	●	2	40	40	301	232	200	49	Yes	+1.75	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)
	DRV410M-5-14	●		41		306	237	205			+1.60					
	DRV420M-5-14	●		42		311	242	210			+1.50					
	DRV430M-5-14	●		43		316	247	215			+1.40					
	DRV440M-5-14	●		44		321	252	220			+1.30					
	DRV450M-5-14	●		45		326	257	225			+1.15					
	DRV460M-5-14	●		46		331	262	230	54		+1.05					
	DRV470M-5-14	●		47		336	267	235			+0.95					
	S50- DRV480M-5-14	●		48	50	341	272	240	59		+0.80					
	DRV490M-5-14	●		49		346	277	245			+0.70					
	S50- DRV500M-5-17	●	2	50	50	348	279	250	59	Yes	+2.10	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)
	DRV510M-5-17	●		51		353	284	255			+1.95					
	DRV520M-5-17	●		52		358	289	260			+1.85					
	DRV530M-5-17	●		53		363	294	265			+1.75					
	DRV540M-5-17	●		54		368	299	270			+1.65					
	DRV550M-5-17	●		55		373	304	275			+1.50					
	DRV560M-5-17	●		56		378	309	280			+1.40					
	DRV570M-5-17	●		57		383	314	285	64		+1.30					
	DRV580M-5-17	●		58		388	319	290			+1.15					
	DRV590M-5-17	●		59		393	324	295			+1.05					
	DRV600M-5-17	●		60		398	329	300			+0.95					

When offset drilling, reduce feed rate to 0.0020 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

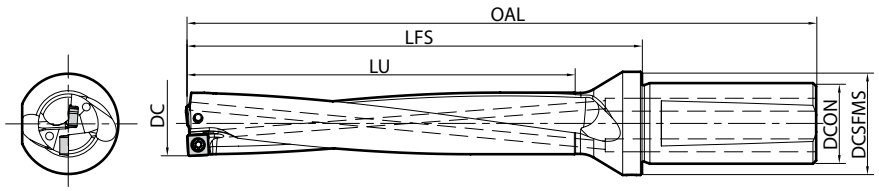
Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

Hole Dia. Tolerance (5D type)

DC	Hole Dia. Tolerance (mm)
ø12 - ø39mm	+0.35 0
ø40 - ø60mm	+0.40 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRV (Drilling Depth : 6 x DC)



6D

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
mm	S20- DRV120M-6-03	●	2	12	20	130	87	72	27	Yes	+0.25	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV130M-6-03	●		13		136	93	78			+0.15					
	S20- DRV140M-6-04	●	2	14	20	148	105	84	27	Yes	+0.40	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV150M-6-04	●		15		154	111	90			+0.30					
	S25- DRV160M-6-05	●		16		174	120	96			+0.40					
	DRV170M-6-05	●	2	17	25	180	126	102	32	Yes	+0.30	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV180M-6-05	●		18		186	132	108			+0.20					
	S25- DRV190M-6-06	●		19		189	135	114			+0.65					
	DRV200M-6-06	●		20		195	141	120			+0.55					
	DRV210M-6-06	●	2	21	25	201	147	126	32	Yes	+0.45	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV220M-6-06	●		22		207	153	132			+0.30					
	S25- DRV230M-6-07	●		23		213	159	138			+0.80					
	DRV240M-6-07	●		24		219	165	144			+0.70					
	DRV250M-6-07	●	2	25	25	225	171	150	32	Yes	+0.60	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV260M-6-07	●		26		231	177	156			+0.45					
	S32- DRV270M-6-09	●		27		244	185	162			+1.05					
	DRV280M-6-09	●		28		250	191	168			+0.95					
	DRV290M-6-09	●		29		256	197	174			+0.85					
	DRV300M-6-09	●	2	30	32	262	203	180	41	Yes	+0.75	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV310M-6-09	●		31		268	209	186			+0.60					
	DRV320M-6-09	●		32		274	215	192			+0.50					
	S40- DRV330M-6-11	●		33		293	224	198			+1.25					
	DRV340M-6-11	●		34		299	230	204			+1.15					
	DRV350M-6-11	●		35		305	236	210			+1.00					
	DRV360M-6-11	●	2	36	40	311	242	216	49	Yes	+0.90	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV370M-6-11	●		37		317	248	222			+0.80					
	DRV380M-6-11	●		38		323	254	228			+0.65					
	DRV390M-6-11	●		39		329	260	234			+0.55					
	S40- DRV400M-6-14	●		40		341	272	240			+1.75					
	DRV410M-6-14	●		41		347	278	246			+1.60					
	DRV420M-6-14	●		42		353	284	252			+1.50					
	DRV430M-6-14	●	2	43	40	359	290	258	49	Yes	+1.40	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)
	DRV440M-6-14	●		44		365	296	264			+1.30					
	DRV450M-6-14	●		45		371	302	270			+1.15					
	S50- DRV500M-6-17	●		50		398	329	300	59		+2.10					
	DRV550M-6-17	●	2	55	50	428	359	330		Yes	+1.50	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)
	DRV600M-6-17	●		60		458	389	360	64		+0.95					

When offset drilling, reduce feed rate to 0.0016 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K70~K73**
Troubleshooting ➡ **K67**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Hole Dia. Tolerance (6D type)

DC	Hole Dia. Tolerance (mm)
ø12 - ø39mm	+0.45 0
ø40 - ø60mm	+0.50 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

Insert Grade Selection Guide

Select CVD for the outer edge when performing high speed and high efficiency drilling and for abrasion resistance and long tool life.

Select PVD MEGACOAT for the outer edge for stable drilling and a better surface finish.

PVD MEGACOAT is recommended for the outer edge if chattering occurs, machining with lathe, or if cutting conditions cannot be increased to the recommended speed for CVD.

1st Recommendation
(High Speed and High Efficiency Drilling)

Outer Edge : CVD (CA520D / CA415D)

Inner Edge : PVD (PR1535)

Stable Machining Oriented
(1st Recommendation for Lathe Machining)

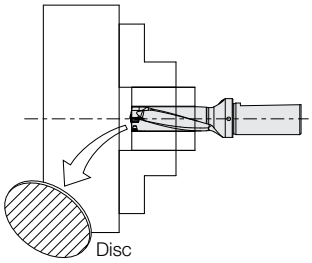
Outer Edge : PVD (PR1225)

Inner Edge : PVD (PR1535)

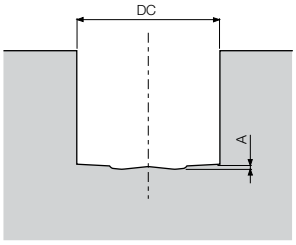
Machining Caution

In case of through-hole machining, a disc may be generated and ejected outward when exiting the hole.

Be sure to install guards to protect against dangers if using a machine without the covers (including general-purpose lathes, etc.).



DRV Hole Bottom Shape



DRV Inch Diameters (in)			DRV Metric Diameters (mm)											
Insert Size	DC	A	Insert Size	DC	A	Insert Size	DC	A	Insert Size	DC	A	Insert Size	DC	A
03	0.500	0.028	03	12.0	0.7	06	19.0	1.2	09	26.5	1.2	14	40.0	1.9
04	0.562	0.039		12.5			19.5			27.0			41.0	
05	0.625	0.043		13.0			20.0			27.5	1.3		42.0	2.0
	0.656			13.5			20.5	1.3		28.0			43.0	
	0.688		04	14.0	1.0		21.0			28.5			44.0	
06	0.750	0.047		14.5			21.5			29.0			45.0	2.1
	0.812	0.051		15.0			22.0			29.5	1.4		46.0	
	0.875			15.5		07	22.5	1.2		30.0			47.0	
07	0.938	0.047	05	16.0	1.1		23.0			30.5			48.0	2.2
	0.984	0.051		16.5			23.5			31.0			49.0	
	1.000			17.0			24.0			31.5	1.5	17	50.0	2.0
09	1.062	0.047		17.5			24.5	1.3		32.0			51.0	2.1
	1.125	0.051		18.0	1.2		25.0		11	33.0	1.5		52.0	
	1.188	0.055		18.5			25.5			34.0			53.0	
	1.250	0.059					26.0			35.0			54.0	2.2
11	1.312	0.059								36.0	1.6		55.0	
	1.375									37.0			56.0	
	1.438	0.063								38.0			57.0	2.3
	1.500									39.0	1.7		58.0	
14	1.562	0.075											59.0	2.4
	1.625												60.0	
	1.688	0.079												
	1.750													
	1.812	0.083												
	1.875	0.087												
	1.938													
17	2.000	0.083												

Common for 2D, 3D, 4D, 5D, 6D Drills
*Above is estimated values. (varies within ±0.1mm (±0.004") depending on workpiece material and cutting conditions)

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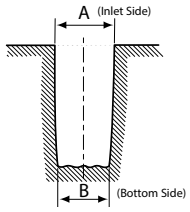
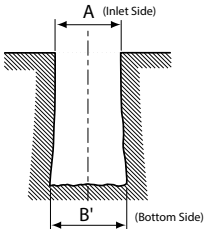
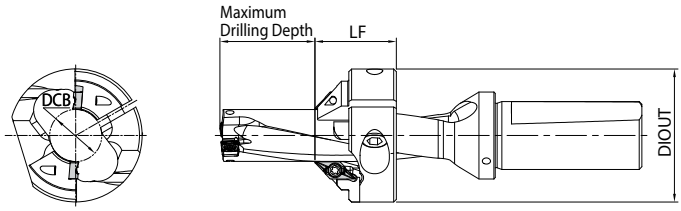
Troubleshooting (DRV / DRZ)

Problems	Conditions		Cause	Countermeasures
Hole Diameter is Smaller at the Bottom of the Hole		There is no problem for inlet, however gradually hole diameter is getting smaller at the bottom. A>B	Chip jam (External or Internal edge chip stuck)	Change the cutting conditions · Increase the cutting speed · Lower the feed rate See ➡ K70~K73, K94 for "Recommended Cutting Conditions".
Hole Diameter is Larger at the Bottom of the Hole		There is no problem for inlet, however gradually hole diameter is getting larger at the bottom. A<B	Internal edge chip jam.	Change the cutting conditions · Increase the cutting speed · Lower the feed rate See ➡ K70~K73, K94 for "Recommended Cutting Conditions". · Check the core height ➡ K76~K77 (DRV) ➡ K96~K97 (DRZ)
Hole Diameter is Small at the Hole Inlet			Incorrect adjustment of hole diameter.	In case of using lathe machine, use X-axis and adjustment hole diameter. ➡ K76 (DRV) ➡ K96 (DRZ)
			No core at internal edge. (No core remains)	Adjust the center height. ➡ K76~K77 (DRV) ➡ K96~K97 (DRZ)

Identifying Tool Life of Magic Drill (DRV / DRZ)

How to Judge Tool Life	Tool Life Indications
Tool Condition and Insert Wear	· When an insert is new, the holder is slightly bent to the side during cutting. (Therefore, the cutting diameter is slightly bigger during cutting). Once cutting is finished, the holder will return back to normal size. No tool marks will appear on the finished surface. (his depends on workpiece and cutting condition: during external machining slight tool mark might appear.) · When an insert is at the end of its tool life, Gradually the external corner part gets worn out, the holder does not bend slightly outwards - it starts to bend inwards. After the cutting is finished, the holder returns to the normal position. When taking off a holder under this condition the cutting edge of the insert creates external tool marks on the finished surface of the workpiece.
Checking Hole Diameter	When cutting diameter is measured, suddenly it shows small diameter. In this case, a worn out insert can be the cause.
Checking the Surface on the Exit Side	If insert wear progresses, the burrs of penetrated hole entrance become bigger. This is a clear indication that the tool must be exchanged.
Variation of Cutting Noise	Light drilling noise at the beginning turns to dull noise with vibration
Variation of Vibration	As the end of tool life is getting closer, there is more vibration and the cutting noise changes. However, when machining smaller diameters these factors are difficult to detect.

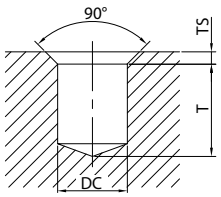
Chamfering Attachment



Chamfer Attachment Dimensions

Part Number	Std. Item	Applicable Drill Bodies		Dimensions (mm)			Applicable Inserts	Spare Parts			
		Inch Size Bodies	Metric Size Bodies	DIOUT	DCB	LF		Insert Screw	Wrench	Clamp Screw	Wrench
DRV-CH17	●	S075-DRV0656-...-05	S25-DRV165M-...-05 S25-DRV170M-...-05	47	16.2	30	CH0503-45	SB-3080TR	FT-10	HH6X18	LW-5
DRV-CH18	●	S100-DRV0688-...-05	S25-DRV175M-...-05 S25-DRV180M-...-05	47	17.2	30					
DRV-CH19	●	-	S25-DRV185M-...-05 S25-DRV190M-...-06	49	18.2	30					
DRV-CH20	●	S100-DRV0766-...-06	S25-DRV195M-...-06 S25-DRV200M-...-06	49	19.2	30					
DRV-CH21	●	S100-DRV0812-...-06	S25-DRV205M-...-06 S25-DRV210M-...-06	49	20.2	30					
DRV-CH22	●	-	S25-DRV215M-...-06 S25-DRV220M-...-06	49	21.2	30					
DRV-CH23	●	-	S25-DRV225M-...-07 S25-DRV230M-...-07	51	22.2	30					
DRV-CH24	●	S100-DRV0938-...-07	S25-DRV235M-...-07 S25-DRV240M-...-07	51	23.2	30					
DRV-CH25	●	S100-DRV0984-...-07	S25-DRV245M-...-07 S25-DRV250M-...-07	53	24.2	30					
DRV-CH26	●	-	S25-DRV255M-...-07 S25-DRV260M-...-07	53	25.2	30					
DRV-CH27	●	S125-DRV1062-...-09	S25-DRV265M-...-09 S32-DRV270M-...-09	64	26	35				HH8X20	LW-6

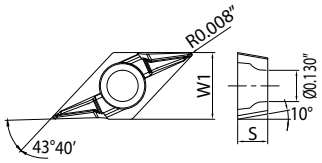
Maximum Drilling Depth / Chamfering Depths



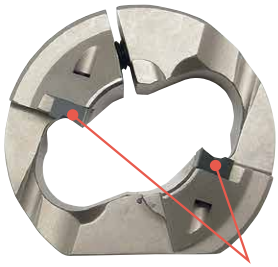
Drilling Diameter (mm)	Maximum Drilling Depth T (mm)					Max Chamfering Depth	Applicable Chamfering Attachment
DC	2D Drill	3D Drill	4D Drill	5D Drill	6D Drill	Ts (mm)	
Ø16.5	0.5	17	33.5	–	–	2.5	DRV-CH17
Ø17.0	1.5	18.5	35.5	52.5	69.5		
Ø17.5	2.5	20	37.5	–	–		DRV-CH18
Ø18.0	3.5	21.5	39.5	57.5	75.5		
Ø18.5	4.5	23	41.5	–	–		DRV-CH19
Ø19.0	5.5	24.5	43.5	62.5	81.5		
Ø19.5	6.5	26	45.5	–	–		DRV-CH20
Ø20.0	7.5	27.5	47.5	67.5	87.5		
Ø20.5	8.5	29	49.5	–	–		DRV-CH21
Ø21.0	9.5	30.5	51.5	72.5	93.5		
Ø21.5	10.5	32	53.5	–	–		DRV-CH22
Ø22.0	11.5	33.5	55.5	77.5	99.5		
Ø22.5	12.5	35	57.5	–	–		DRV-CH23
Ø23.0	13.5	36.5	59.5	82.5	105.5		
Ø23.5	14.5	38	61.5	–	–		DRV-CH24
Ø24.0	15.5	39.5	63.5	87.5	111.5		
Ø24.5	16.5	41	65.5	–	–		DRV-CH25
Ø25.0	17.5	42.5	67.5	92.5	117.5		
Ø25.5	18.5	44	69.5	–	–		DRV-CH26
Ø26.0	19.5	45.5	71.5	97.5	123.5		
Ø26.5	–	47	–	–	–		DRV-CH27
Ø27.0	16.5	43.5	75.5	97.5	124.5		

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

How to Install Chamfering Attachment

Insert		Part Number	Dimensions (mm)		MEGACOAT NANO	Applicable Chamfering Attachment
			W1	S	PR1535	
		CH0503-45	7.05	3.18	●	DRV-CH○○

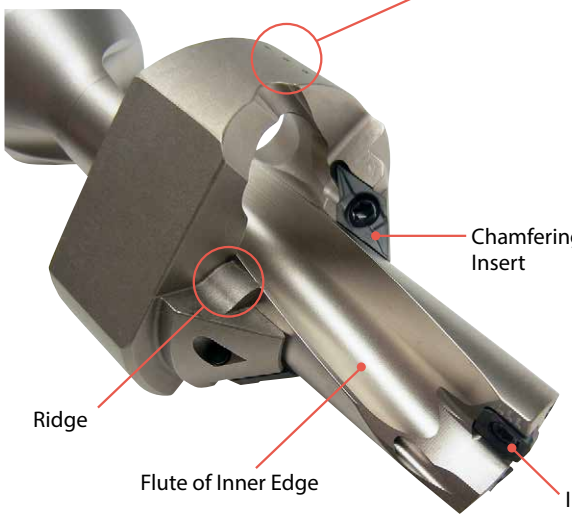
How to Install Chamfering Attachment



Chamfering Insert

Clamping Screw for Chamfering Attachment

Identification on Inner Edge



Chamfering Insert

Ridge

Flute of Inner Edge

Inner Edge

Instructions

1) Install the attachment over the DRV body so that "• • •" mark on the side of the attachment aligns with the inside flute edge (see image).

2) Adjust the position to avoid interference between the chamfering inserts, chamfering attachment ridges, and drill body flutes. Then fasten the clamp screw with the recommended torque below.

Recommended Torque

Chamfering Attachment Part Number	Torque (Nm)	Clamping Screw	Wrench
DRV-CH17 ~ DRV-CH26	10	HH6X18	LW-5
DRV-CH27	14	HH8X20	LW-6

Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRV 2D/3D - Recommended Cutting Conditions (with Coolant)

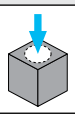
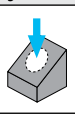
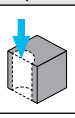
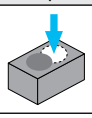
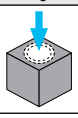
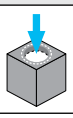
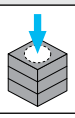
Drilling Depth: 2D / 3D

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. DC (in)	Metric Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)			
	PVD Coated Carbide				CVD Coated Carbide								2D~3D			
	PR1225				CA520D				CA415D							
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH			GM	GH	XM	SM
Low Carbon Steel	-	-	★ 390-660	☆ 390-660	-	-	★ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	–	–	–	0.0016 ~ 0.0024
											0.562 - 0.578	14.0 - 15.5	–	–	0.0016 ~ 0.0035	0.0016 ~ 0.0028
											0.625 - 0.688	16.0 - 18.5	–	–	0.0016 ~ 0.0039	0.0016 ~ 0.0031
											0.750 - 0.875	19.0 - 22.0	–	–	0.0016 ~ 0.0047	0.0016 ~ 0.0031
											0.922 - 1.000	22.5 - 26.0	–	–	0.0016 ~ 0.0055	0.0024 ~ 0.0039
											1.062 - 1.250	26.5 - 32.0	–	–	0.0024 ~ 0.0055	0.0024 ~ 0.0039
											1.312 - 1.500	33.0 - 39.0	–	–	0.0024 ~ 0.0055	0.0024 ~ 0.0039
											1.562 - 2.000	40.0 - 60.0	–	–	0.0024 ~ 0.0063	0.0031 ~ 0.0047
Carbon Steel	★ 330-590	☆ 330-590	☆ 330-590	☆ 330-590	★ 490-920	☆ 490-920	☆ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0055	0.0016 ~ 0.0055	–	0.0016 ~ 0.0039
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0055	0.0016 ~ 0.0055	0.0016 ~ 0.0039	0.0016 ~ 0.0039
											0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0063	0.0024 ~ 0.0063	0.0024 ~ 0.0047	0.0024 ~ 0.0047
											0.750 - 1.000	19.0 - 26.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0024 ~ 0.0055	0.0024 ~ 0.0055
											1.062 - 1.250	26.5 - 32.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0024 ~ 0.0055	0.0024 ~ 0.0055
											1.312 - 1.500	33.0 - 39.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0028 ~ 0.0063	0.0024 ~ 0.0055
											1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0024 ~ 0.0071	0.0024 ~ 0.0055
Alloy Steel	★ 330-525	☆ 330-525	☆ 330-525	-	★ 460-720	☆ 460-720	☆ 460-720	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0047	0.0016 ~ 0.0047	–	–
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0055	0.0016 ~ 0.0055	–	–
											0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0063	0.0024 ~ 0.0063	–	–
											0.750 - 1.500	19.0 - 39.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	–	–
											1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	–	–
Tool Steel	☆ 260-490	★ 260-490	-	-	☆ 425-690	★ 425-690	-	-	-	-	0.500 - 0.578	12.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	–	–
											0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0047	0.0024 ~ 0.0047	–	–
											0.750 - 1.250	19.0 - 32.0	0.0031 ~ 0.0059	0.0031 ~ 0.0059	–	–
											1.312 - 1.500	33.0 - 39.0	0.0031 ~ 0.0059	0.0031 ~ 0.0059	–	–
											1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0059	0.0031 ~ 0.0059	–	–
Stainless Steel (Austenitic)	-	-	-	★ 230-460	-	-	-	★ 460-660	-	-	0.500 - 0.578	12.0 - 15.5	–	–	–	0.0016 ~ 0.0039
											0.625 - 0.688	16.0 - 18.5	–	–	–	0.0024 ~ 0.0047
											0.750 - 2.000	19.0 - 60.0	–	–	–	0.0024 ~ 0.0055
Gray Cast Iron	☆ 330-490	★ 330-490	-	-	-	-	-	-	☆ 490-720	★ 490-720	0.500	12.0 - 13.5	0.0031 ~ 0.0055	0.0031 ~ 0.0055	–	–
											0.562 - 0.578	14.0 - 15.5	0.0031 ~ 0.0055	0.0031 ~ 0.0055	–	–
											0.625 - 0.688	16.0 - 18.5	0.0031 ~ 0.0071	0.0031 ~ 0.0071	–	–
											0.750 - 1.500	19.0 - 39.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	–	–
											1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	–	–
Nodular Cast Iron	☆ 260-390	★ 260-390	-	-	-	-	-	-	☆ 390-590	★ 390-590	0.500 - 0.578	12.0 - 15.5	0.0031 ~ 0.0047	0.0031 ~ 0.0047	–	–
											0.625 - 0.688	16.0 - 18.5	0.0031 ~ 0.0063	0.0031 ~ 0.0063	–	–
											0.750 - 1.500	19.0 - 39.0	0.0031 ~ 0.0071	0.0031 ~ 0.0071	–	–
											1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0071	0.0031 ~ 0.0071	–	–

Internal Coolant is Recommended

★ : 1st Recommendation ☆ : 2nd Recommendation

Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended

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DRV 4D - Recommended Cutting Conditions (with Coolant)

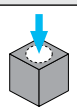
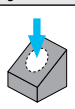
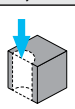
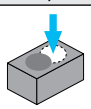
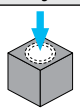
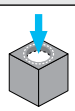
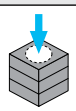
Drilling Depth: 4D

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. DC (in)	Metric Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)			
	PVD Coated Carbide				CVD Coated Carbide								4D			
	PR1225				CA520D				CA415D							
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH			GM	GH	XM	SM
Low Carbon Steel	-	-	★ 390-660	☆ 390-660	-	-	★ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	–	–	–	0.0016 ~ 0.0024
											0.562 - 0.578	14.0 - 15.5	–	–	0.0016 ~ 0.0031	0.0016 ~ 0.0028
											0.625 - 0.688	16.0 - 18.5	–	–	0.0016 ~ 0.0031	0.0016 ~ 0.0031
											0.750 - 0.875	19.0 - 22.0	–	–	0.0016 ~ 0.0039	0.0016 ~ 0.0031
											0.922 - 1.000	22.5 - 26.0	–	–	0.0016 ~ 0.0047	0.0020 ~ 0.0039
											1.062 - 1.250	26.5 - 32.0	–	–	0.0016 ~ 0.0047	0.0020 ~ 0.0039
											1.312 - 1.500	33.0 - 39.0	–	–	0.0024 ~ 0.0047	0.0020 ~ 0.0039
											1.562 - 2.000	40.0 - 60.0	–	–	0.0024 ~ 0.0063	0.0020 ~ 0.0039
Carbon Steel	★ 330-590	☆ 330-590	☆ 330-590	☆ 330-590	★ 490-920	☆ 490-920	☆ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0039	0.0016 ~ 0.0039	–	0.0016 ~ 0.0031
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0039	0.0016 ~ 0.0039	0.0016 ~ 0.0031	0.0016 ~ 0.0031
											0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0047	0.0020 ~ 0.0047	0.0016 ~ 0.0039	0.0020 ~ 0.0039
											0.750 - 1.000	19.0 - 26.0	0.0028 ~ 0.0063	0.0028 ~ 0.0063	0.0016 ~ 0.0047	0.0020 ~ 0.0047
											1.062 - 1.250	26.5 - 32.0	0.0028 ~ 0.0063	0.0028 ~ 0.0063	0.0016 ~ 0.0047	0.0020 ~ 0.0047
											1.312 - 1.500	33.0 - 39.0	0.0028 ~ 0.0063	0.0028 ~ 0.0063	0.0024 ~ 0.0055	0.0020 ~ 0.0047
											1.562 - 2.000	40.0 - 60.0	0.0028 ~ 0.0063	0.0028 ~ 0.0063	0.0024 ~ 0.0063	0.0020 ~ 0.0047
Alloy Steel	★ 330-525	☆ 330-525	☆ 330-525	-	★ 460-720	☆ 460-720	☆ 460-720	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0039	0.0016 ~ 0.0039	–	–
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0039	0.0016 ~ 0.0039	–	–
											0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0047	0.0020 ~ 0.0047	–	–
											0.750 - 1.500	19.0 - 39.0	0.0028 ~ 0.0063	0.0028 ~ 0.0063	–	–
											1.562 - 2.000	40.0 - 60.0	0.0028 ~ 0.0063	0.0028 ~ 0.0063	–	–
Tool Steel	☆ 260-490	★ 260-490	-	-	☆ 425-690	★ 425-690	-	-	-	-	0.500 - 0.578	12.0 - 15.5	0.0016 ~ 0.0028	0.0016 ~ 0.0028	–	–
											0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0039	0.0020 ~ 0.0039	–	–
											0.750 - 1.250	19.0 - 32.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	–	–
											1.312 - 1.500	33.0 - 39.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	–	–
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	–	–
Stainless Steel (Austenitic)	-	-	-	★ 230-460	-	-	-	★ 460-660	-	-	0.500 - 0.578	12.0 - 15.5	–	–	–	0.0016 ~ 0.0031
											0.625 - 0.688	16.0 - 18.5	–	–	–	0.0020 ~ 0.0043
											0.750 - 2.000	19.0 - 60.0	–	–	–	0.0024 ~ 0.0047
Gray Cast Iron	☆ 330-490	★ 330-490	-	-	-	-	-	-	☆ 490-720	★ 490-720	0.500	12.0 - 13.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	–	–
											0.562 - 0.578	14.0 - 15.5	0.0024 ~ 0.0047	0.0024 ~ 0.0047	–	–
											0.625 - 0.688	16.0 - 18.5	0.0031 ~ 0.0063	0.0031 ~ 0.0063	–	–
											0.750 - 1.500	19.0 - 39.0	0.0031 ~ 0.0071	0.0031 ~ 0.0071	–	–
											1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0071	0.0031 ~ 0.0071	–	–
Nodular Cast Iron	☆ 260-390	★ 260-390	-	-	-	-	-	-	☆ 390-590	★ 390-590	0.500 - 0.578	12.0 - 15.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	–	–
											0.625 - 0.688	16.0 - 18.5	0.0031 ~ 0.0055	0.0031 ~ 0.0055	–	–
											0.750 - 1.500	19.0 - 39.0	0.0031 ~ 0.0063	0.0031 ~ 0.0063	–	–
											1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0063	0.0031 ~ 0.0063	–	–

Internal Coolant is Recommended

★ : 1st Recommendation ☆ : 2nd Recommendation

Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended

DRV 5D - Recommended Cutting Conditions (with Coolant)

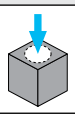
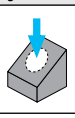
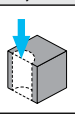
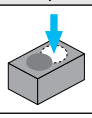
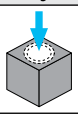
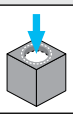
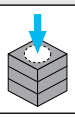
Drilling Depth: 5D

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. DC (in)	Metric Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)			
	PVD Coated Carbide				CVD Coated Carbide								5D			
	PR1225				CA520D				CA415D							
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH			GM	GH	XM	SM
Low Carbon Steel	-	-	★ 390-660	☆ 390-660	-	-	★ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	–	–	–	0.0012 ~ 0.0020
											0.562 - 0.578	14.0 - 15.5	–	–	0.0016 ~ 0.0028	0.0016 ~ 0.0024
											0.625 - 0.688	16.0 - 18.5	–	–	0.0016 ~ 0.0031	0.0016 ~ 0.0024
											0.750 - 0.875	19.0 - 22.0	–	–	0.0016 ~ 0.0039	0.0016 ~ 0.0028
											0.922 - 1.000	22.5 - 26.0	–	–	0.0016 ~ 0.0047	0.0016 ~ 0.0031
											1.062 - 1.250	26.5 - 32.0	–	–	0.0016 ~ 0.0047	0.0016 ~ 0.0031
											1.312 - 1.500	33.0 - 39.0	–	–	0.0020 ~ 0.0047	0.0016 ~ 0.0039
											1.562 - 2.000	40.0 - 60.0	–	–	0.0020 ~ 0.0055	0.0016 ~ 0.0039
Carbon Steel	★ 330-590	☆ 330-590	☆ 330-590	☆ 330-590	★ 490-920	☆ 490-920	☆ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	–	0.0016 ~ 0.0028
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0016 ~ 0.0028	0.0016 ~ 0.0028
											0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0039	0.0020 ~ 0.0039	0.0020 ~ 0.0031	0.0020 ~ 0.0031
											0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0039	0.0020 ~ 0.0039
											1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0047	0.0020 ~ 0.0039
											1.312 - 1.500	33.0 - 39.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0047	0.0020 ~ 0.0039
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0039
Alloy Steel	★ 330-525	☆ 330-525	☆ 330-525	-	★ 460-720	☆ 460-720	☆ 460-720	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	–	–
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	–	–
											0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0039	0.0020 ~ 0.0039	–	–
											0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	–	–
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	–	–
Tool Steel	☆ 260-490	★ 260-490	-	-	☆ 425-690	★ 425-690	-	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	–	–
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	–	–
											0.625 - 0.688	16.0 - 18.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	–	–
											0.750 - 1.500	19.0 - 39.0	0.0020 ~ 0.0039	0.0020 ~ 0.0039	–	–
											1.562 - 2.000	40.0 - 60.0	0.0020 ~ 0.0039	0.0020 ~ 0.0039	–	–
Stainless Steel (Austenitic)	-	-	-	★ 230-460	-	-	-	★ 460-660	-	-	0.500	12.0 - 13.5	–	–	–	0.0016 ~ 0.0031
											0.562 - 0.578	14.0 - 15.5	–	–	–	0.0016 ~ 0.0031
											0.625 - 0.688	16.0 - 18.5	–	–	–	0.0016 ~ 0.0039
											0.750 - 2.000	19.0 - 60.0	–	–	–	0.0024 ~ 0.0047
Gray Cast Iron	☆ 330-490	★ 330-490	-	-	-	-	-	-	☆ 490-720	★ 490-720	0.500 - 0.578	12.0 - 15.5	0.0016 ~ 0.0039	0.0016 ~ 0.0039	–	–
											0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0047	0.0024 ~ 0.0047	–	–
											0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0055	0.0024 ~ 0.0055	–	–
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0055	0.0024 ~ 0.0055	–	–
Nodular Cast Iron	☆ 260-390	★ 260-390	-	-	-	-	-	-	☆ 390-590	★ 390-590	0.500	12.0 - 13.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	–	–
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	–	–
											0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	–	–
											0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	–	–
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	–	–

Internal Coolant is Recommended

★ : 1st Recommendation ☆ : 2nd Recommendation

Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended

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DRV 6D - Recommended Cutting Conditions (with Coolant)

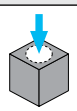
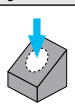
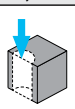
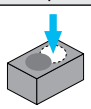
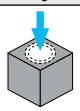
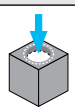
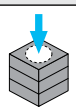
Drilling Depth: 6D

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. DC (in)	Metric Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)			
	PVD Coated Carbide				CVD Coated Carbide								6D			
	PR1225				CA520D				CA415D							
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH			GM	GH	XM	SM
Low Carbon Steel	-	-	★ 390-660	☆ 390-660	-	-	★ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	–	–	–	0.0012 ~ 0.0020
											0.562 - 0.578	14.0 - 15.5	–	–	0.0016 ~ 0.0024	0.0016 ~ 0.0024
											0.625 - 0.688	16.0 - 18.5	–	–	0.0016 ~ 0.0024	0.0016 ~ 0.0024
											0.750 - 0.875	19.0 - 22.0	–	–	0.0016 ~ 0.0028	0.0016 ~ 0.0028
											0.922 - 1.000	22.5 - 26.0	–	–	0.0016 ~ 0.0031	0.0016 ~ 0.0028
											1.062 - 1.250	26.5 - 32.0	–	–	0.0016 ~ 0.0031	0.0016 ~ 0.0028
											1.312 - 1.500	33.0 - 39.0	–	–	0.0016 ~ 0.0035	0.0016 ~ 0.0031
											1.562 - 2.000	40.0 - 60.0	–	–	0.0024 ~ 0.0047	0.0016 ~ 0.0031
Carbon Steel	★ 330-590	☆ 330-590	☆ 330-590	☆ 330-590	★ 490-920	☆ 490-920	☆ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	0.0012 ~ 0.0020	0.0012 ~ 0.0020	–	0.0012 ~ 0.0020
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	0.0016 ~ 0.0024	0.0016 ~ 0.0024
											0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0031	0.0020 ~ 0.0031	0.0020 ~ 0.0028	0.0020 ~ 0.0028
											0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0020 ~ 0.0031	0.0020 ~ 0.0031
											1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0020 ~ 0.0031	0.0020 ~ 0.0031
											1.312 - 1.500	33.0 - 39.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0020 ~ 0.0031	0.0020 ~ 0.0031
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0020 ~ 0.0031
Alloy Steel	★ 330-525	☆ 330-525	☆ 330-525	-	★ 460-720	☆ 460-720	☆ 460-720	-	-	-	0.500	12.0 - 13.5	0.0012 ~ 0.0020	0.0012 ~ 0.0020	–	–
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	–	–
											0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0031	0.0020 ~ 0.0031	–	–
											0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	–	–
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	–	–
Tool Steel	☆ 260-490	★ 260-490	-	-	☆ 425-690	★ 425-690	-	-	-	-	0.500	12.0 - 13.5	0.0012 ~ 0.0020	0.0012 ~ 0.0020	–	–
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0020	0.0016 ~ 0.0020	–	–
											0.625 - 0.688	16.0 - 18.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	–	–
											0.750 - 1.500	19.0 - 39.0	0.0020 ~ 0.0031	0.0020 ~ 0.0031	–	–
											1.562 - 2.000	40.0 - 60.0	0.0020 ~ 0.0031	0.0020 ~ 0.0031	–	–
Stainless Steel (Austenitic)	-	-	-	★ 230-460	-	-	-	★ 460-660	-	-	0.500	12.0 - 13.5	–	–	–	0.0012 ~ 0.0020
											0.562 - 0.578	14.0 - 15.5	–	–	–	0.0016 ~ 0.0024
											0.625 - 0.688	16.0 - 18.5	–	–	–	0.0016 ~ 0.0035
											0.750 - 2.000	19.0 - 60.0	–	–	–	0.0024 ~ 0.0039
Gray Cast Iron	☆ 330-490	★ 330-490	-	-	-	-	-	-	☆ 490-720	★ 490-720	0.500 - 0.578	12.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	–	–
											0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	–	–
											0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	–	–
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	–	–
Nodular Cast Iron	☆ 260-390	★ 260-390	-	-	-	-	-	-	☆ 390-590	★ 390-590	0.500	12.0 - 13.5	0.0012 ~ 0.0020	0.0012 ~ 0.0020	–	–
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	–	–
											0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0031	0.0024 ~ 0.0031	–	–
											0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	–	–
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	–	–

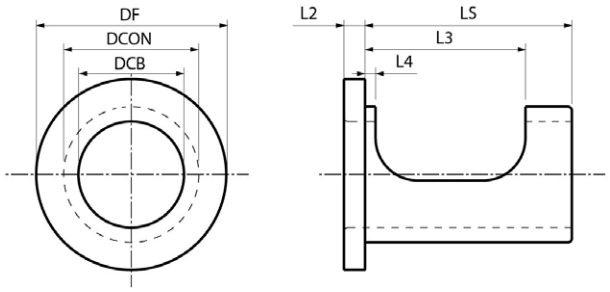
Internal Coolant is Recommended

★ : 1st Recommendation ☆ : 2nd Recommendation

Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended

SHE



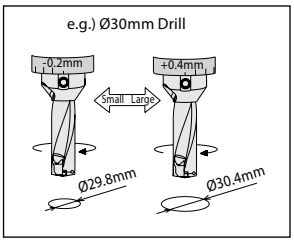
Toolholder Dimensions

Unit	Part Number		Std. Item	Dimensions							* Drill Dia. Adjustable Range	Center Height Adjustable Range
				DCB	DCON	DF	L2	L3	L4	LS		
Inch	ASL	75100-175	●	0.750	1.000	1.614	0.157	1.417	0.118	1.750	+0.016 ~ -0.008	+0.008 ~ -0.006
		100125-212	●	1.000	1.250	1.929	0.236	1.496	0.098	2.125	+0.016 ~ -0.008	+0.008 ~ -0.006
		125150-238	●	1.250	1.500	2.283	0.236	1.693	0.098	2.375	+0.016 ~ -0.008	+0.008 ~ -0.006
mm	SHE	2025-43	●	20	25	41	4	36	3	43	+0.4 ~ -0.2	+0.2 ~ -0.15
		2532-48	●	25	32	49	6	38	2.5	48	+0.4 ~ -0.2	+0.2 ~ -0.15
		3240-53	●	32	40	58		43		53	+0.4 ~ -0.2	+0.2 ~ -0.15
		4050-63	●	40	50	74		49	3	63	+0.6 ~ -0.2	+0.3 ~ -0.2

Diameter Adjustment Range adjusts the drill diameter.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

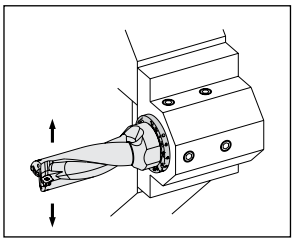
1. Diameter Adjustment (for Machining Center)



3 Diameter Adjustment

ASL (in)		SHE (mm)	
Shank Dia.	Adjustment Range	Shank Dia.	Adjustment Range
Ø0.750"	+0.016 ~ -0.008	Ø20	+0.4 ~ -0.2
Ø1.000"		Ø25	
Ø1.250"		Ø32	
-		Ø40	+0.6 ~ -0.2

2. Center Height Adjustment (for Lathe Operations)



3 Center Height Adjustment

ASL (in)		SHE (mm)	
Shank Dia.	Adjustment Range	Shank Dia.	Adjustment Range
Ø0.750"	+0.008 ~ -0.006	Ø20	+0.2 ~ -0.15
Ø1.000"		Ø25	
Ø1.250"		Ø32	
-		Ø40	+0.3 ~ -0.2

How to Use the Adjustable Sleeve

1. Hole Diameter Adjustment when Drilling

(1) Adjust the scale at the flange periphery of the sleeve to the center of the drill coolant plug. (Fig.1)

(2) When making the hole diameter larger, rotate the sleeve in (+) direction and to make it smaller, rotate the sleeve in (-) direction.

(3) When rotating the sleeve, insert the wrench supplied with the drill into the hole on the flange periphery to rotate the sleeve.

(4) Using the bottom screw of the side-lock arbor, firmly tighten on the drill directly through the sleeve's window.
The upper screw should be tightened slightly so that the sleeve will not be damaged.

Caution:
· Not applicable with
Collet Chuck type Arbor.
· Scale on the sleeve is the reference value.
Check the actual hole diameter after adjusting.

DRV

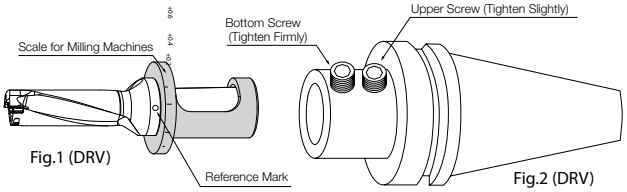


Fig.1 (DRV) Fig.2 (DRV)

DRZ

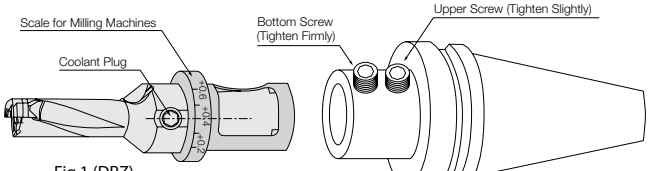


Fig.1 (DRZ) Fig.2 (DRZ)

(Example of Adjusting the Hole Dia. +0.4mm)

2. Center-Height Adjustment for Lathes

Most Lathe problems occur due to Center Height Deviation.
The Center Height is appropriate if a core approximately 0.5mm diameter remains at the center of the end face. (Fig.3)
Center-height adjustment is necessary if:

◆ No core remains or ◆ Core diameter is more than 1mm

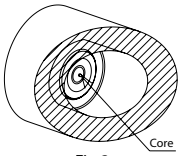


Fig.3

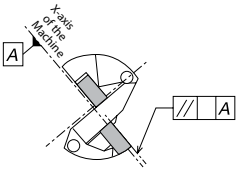


Fig.4

(1) Align the drill with the outer insert face parallel to the X-axis of the tool turret. (Fig.4)

(2) Align the scale (for the lathe) on the flange face of the sleeve to the center of the drill coolant plug.

(3) When no core remains, rotate the sleeve to (+) direction to make the core larger, and when the core diameter is more than 1mm, rotate the sleeve to (-) direction to make the core smaller.

(4) When rotating the sleeve, insert the wrench supplied with the drill into the hole on the flange periphery to rotate the sleeve.

(5) After Completing the adjustment, firmly tighten on the drill directly through the sleeve's window.

Note: Depending on amount of the center height adjustment, the hole diameter may change. It is recommended that the hole diameter is checked after the center height adjustment.

Magic Drill Setup for Lathes

Installation

1. The top face of the outer insert should be parallel to the X-axis to allow for offset cutting.
   (Cutting diameter can be changed by moving in the X-axis.)
2. It is recommended to set the outer insert as shown in Fig.1 with the outer insert facing the operator. (Fig.1)
   (It is also possible to use it by setting it in 180° reverse position)
   If the lathe has two turrets, when installing the drill into the lower turret, the outer insert should be set to face the operator.
   (It is also possible to use it by setting at 180° reverse position)

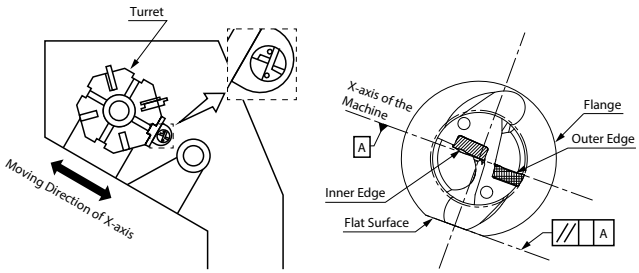


Fig.1 Installed into the Lathe

Cutting Diameter Adjustment

1 Cutting Diameter Adjustment

1. Cutting diameter is adjusted by moving X-axis.
   The moving direction of the X-axis depends on the position of the toolholder.
2. For making the hole diameter larger, slide the tool along the X-axis toward the outer insert side. (Fig.2, Fig.3)
   For making the hole diameter smaller, slide the tool along the X-axis in the opposite direction.
   (This movement of the axis is called an "Offset")
   Be sure not to make the hole diameter smaller than the drill diameter by more than 0.2mm (0.008"). Otherwise, the toolholder will interfere with the drilled hole. (Fig.4)

Ex.) When using Ø20mm drill, the hole diameter must not be smaller than 19.8m (0.780")

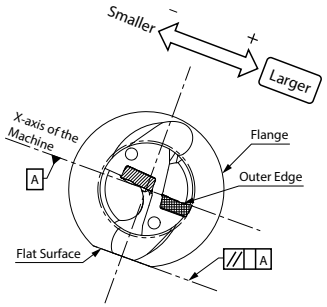


Fig.2 Outer Insert Facing Up

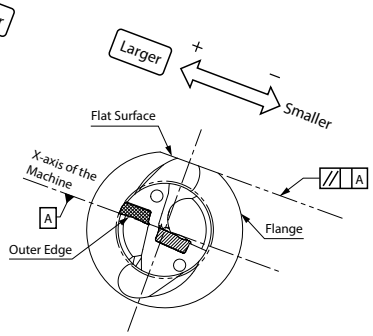


Fig.3 Outer Insert Facing Down

2 Offset Limit of the Cutting Diameter

For the maximum limit of the cutting diameter, refer to "Max. Offset (Radial)" in the Toolholder Dimensions table.
(The figure in the Toolholder Dimensions table shows how much it is possible to offset the drill in the radial direction.)

Ex.) When using Ø20mm (Ø0.787") drill, for example, it is possible to make a hole up to Ø21.1mm (0.831") since "Max. Offset (Radial)" is +0.55mm (+0.022").

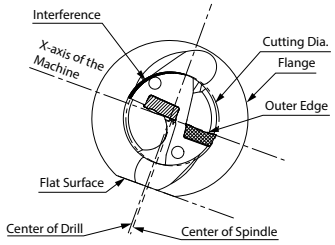


Fig.4 Excessive Offset (For Smaller Hole Diameter)

Center Height Adjustment

1 Center Height of the Inner Insert

When installing inner insert as shown in Fig.1, it will be set around 0.05mm (0.002") below the Center of Spindle. (Fig.5)
This is the normal position of the center height.
However, in case that the turret of the lathe is out of alignment with the Center of Spindle, sometimes the inner insert may be above or below center.
For stable machining, it is essential to check the Center Height of the inner insert carefully

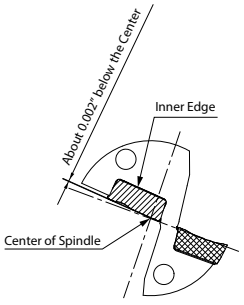


Fig.5 Front View of the Drill

2 How to Check the Center Height

For checking the center height of the inner insert, see the core which remains at the center of the bottom of the drilled hole.
If the center height is in the normal position, a core of about 0.5mm (0.020") in diameter, will remain after machining. (Fig.6)
Adjustment of center height is required if no core is present or a large core diameter of 1mm (0.039") or more remains.
* The drilled hole for verification purposes needs to be machined at approximately 10mm (0.375") in depth and at a feed rate of 0.004 ipr or lower.

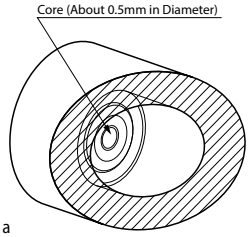


Fig.6 Center Core

800.823.7284
www.kyoceraprecisiontools.com

3 Center Height Adjustment

1. When there is no remaining core and the inner insert is chipping

This occurs when the inner insert is set above center. (Fig.7)

How to Adjust
A.Install the drill rotated by 180˚ Most problems will be solved by this method (Fig.8) B.If the core diameter becomes too large after the above adjustment, install the drill by rotating 90° counter-clockwise as shown in Fig.9 (outer edge is positioned lower) and adjust the center height by moving the tool in the X-axis direction. (However, this will make it impossible to adjust the cutting diameter) Caution: When installing the drill in the opposite direction (outer insert is positioned above), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole. The best solution is to readjust the center position of the turret itself.

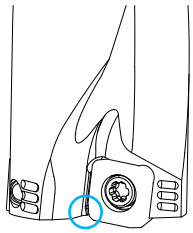


Fig.7 Insert breakage near the center of the drill

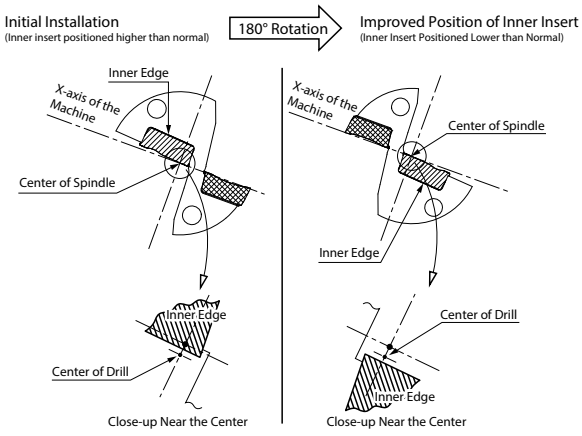


Fig.8

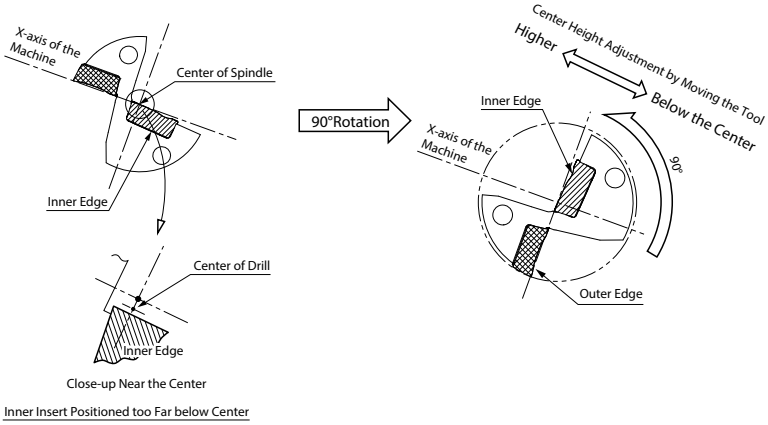


Fig.9

2. Core with Excessively Large Diameter More than 1mm (0.039")

This occurs when the inner insert is below center
This condition causes poor chip evacuation and an adjustment is required.

How to Adjust
Install the drill rotated 90˚ as shown in Fig.10. (outer insert is positioned on the upper side) and adjust the center height by moving tool in the X-axis direction. (However, this will make it impossible to adjust the cutting diameter) Caution: When installing the drill in the opposite direction (outer insert is positioned lower), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole. The best solution is to readjust the center position of the turret itself.

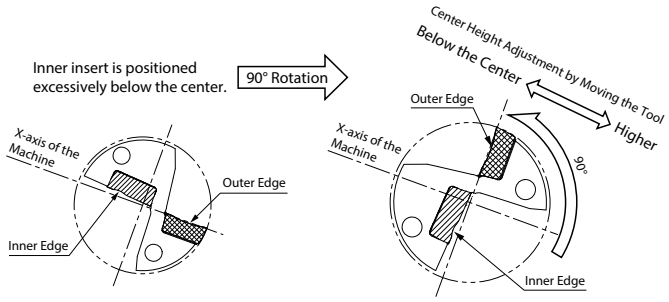
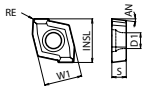
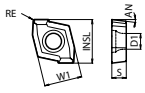
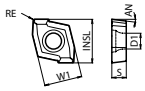


Fig.10

ZCMT

			Carbon Steel / Alloy Steel		○	●		P
			Mold and Die Steel			●		P
			Stainless Steel		●	○		M
			Cast Iron	●				K
			Non-Ferrous Metals				●	N

Insert		Part Number	Dimensions (mm)					Angle (°)	Carbide				Applicable Toolholder ➡ K80~K92
			S	D1	RE	INSL	W1	AN	PVD			-	
									PR1210	PR1225	PR1230	KW10	
	 General Purpose	ZCMT 050203	2.38	2.3	0.3	5.9	5	7	●	●	●	●	S..-DRZ....-05
		ZCMT 06T204	2.8	2.5	0.4	7	6	7	●	●	●	●	S..-DRZ....-06
		ZCMT 080304	3.18	2.9	0.4	9.7	8.2	7	●	●	●	●	S..-DRZ....-08
		ZCMT 10T304	3.97	4.4	0.4	12	10.4	7	●	●	●	●	S..-DRZ....-10
		ZCMT 12T306	3.97	5.6	0.6	14.3	12.8	7	●	●	●	●	S..-DRZ....-12
		ZCMT 150408	4.76	5.6	0.8	17.8	15.8	7	●	●	●	●	S..-DRZ....-15
		ZCMT 200608	6.35	6.5	0.8	22.8	20.3	7			●	●	S..-DRZ....-20
	 Deep Drilling / Low Cutting Force	ZCMT 050203SP	2.38	2.3	0.3	5.9	5	7		●	●	●	S..-DRZ....-05
		ZCMT 06T204SP	2.8	2.5	0.4	7	6	7		●	●	●	S..-DRZ....-06
		ZCMT 080304SP	3.18	2.9	0.4	9.7	8.2	7		●	●	●	S..-DRZ....-08
		ZCMT 10T304SP	3.97	4.4	0.4	12	10.4	7		●	●	●	S..-DRZ....-10
		ZCMT 12T304SP	3.97	5.6	0.4	14.3	12.8	7		●	●	●	S..-DRZ....-12
		ZCMT 150406SP	4.76	5.6	0.6	17.8	15.8	7		●	●	●	S..-DRZ....-15
	 Stainless Steel	ZCMT 050203SU	2.38	2.3	0.3	5.9	5	7		●	●		S..-DRZ....-05
		ZCMT 06T204SU	2.8	2.5	0.4	7	6	7		●	●		S..-DRZ....-06

Features of SP Chipbreaker
1. Less cutting force with large rake angle
2. Suitable for chip control of sticky materials such as stainless steel or soft steel.
3. Larger size inserts have smaller corner-R(RE) than standard chipbreaker type and can reduce burrs.

Recommended Cutting Conditions ➡ K94

Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Chipbreaker Selection Guide (ZCMT)

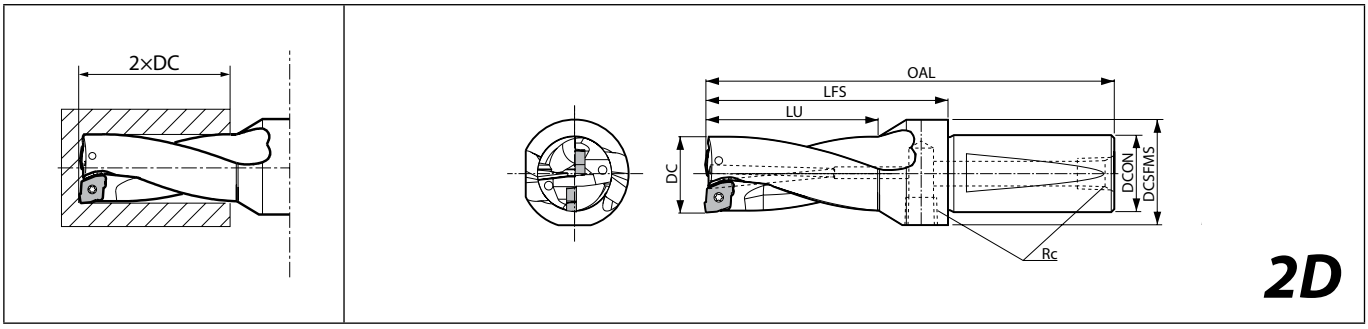
★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Insert Size	ZCMT05									ZCMT06									ZCMT08					
	Chipbreaker	Standard			SP			SU			Standard			SP			SU			Standard			SP		
	Cutting Depth	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D
Low Carbon Steel		☆	☆	-	★	★	★	-	-	-	☆	☆	-	★	★	★	☆	☆	☆	☆	☆	-	★	★	★
Carbon Steel		★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★
Alloy Steel		★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★
Tool Steel		★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★
Stainless Steel		☆	☆	-	★	★	★	☆	☆	-	-	-	-	☆	☆	☆	★	★	★	☆	☆	-	★	★	★
Cast Iron		★	★	★	☆	☆	☆	-	-	-	★	★	★	☆	☆	☆	-	-	-	★	★	★	☆	☆	☆
Aluminum Alloy		☆	☆	☆	★	★	★	-	-	-	☆	☆	☆	★	★	★	-	-	-	☆	☆	☆	★	★	★
Brass		★	★	★	☆	☆	☆	-	-	-	★	★	★	☆	☆	☆	-	-	-	★	★	★	☆	☆	☆
Titanium Alloy		☆	☆	☆	★	★	★	-	-	-	☆	☆	☆	★	★	★	-	-	-	☆	☆	☆	★	★	★

Workpiece Material	Insert Size	ZCMT10								ZCMT12								ZCMT15								ZCMT20		
	Chipbreaker	Standard				SP				Standard				SP				Standard				SP				Standard		
	Cutting Depth	2D	3D	4D	5D	2D	3D	4D	5D	2D	3D	4D	5D	2D	3D	4D	5D	2D	3D	4D	5D	2D	3D	4D	5D	2D	3D	4D
Low Carbon Steel		☆	☆	-	-	★	★	★	★	☆	☆	-	-	★	★	★	★	☆	☆	-	-	★	★	★	★	★	★	★
Carbon Steel		★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★
Alloy Steel		★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★
Tool Steel		★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★
Stainless Steel		☆	☆	-	-	★	★	★	★	☆	☆	-	-	★	★	★	★	☆	☆	-	-	★	★	★	★	★	★	★
Cast Iron		★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★
Aluminum Alloy		☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	★	★
Brass		★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★
Titanium Alloy		☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	★	★

Standard chipbreakers (without symbol) may function better with interrupted cutting.
When machining aluminum, chips become long and difficult to discharge at depths over 2D.

DRZ (Drilling Depth : 2 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LU	DCSFMS	Rc	Coolant Hole	Radial Offset Max.	Spare Parts: Plug	Screw	Wrench	Wrench	Applicable Inserts ⇒ K78
Inch	S75- DRZ5621125-05G	●	2	0.562	0.75	3.87	2.18	1.125	1.06	1/8 NPT	Yes	+0.020	GP-1N	SB-2045TR	-	FT-6	ZCMT050203 ZCMT050203SP ZCMT050203SU
	S100- DRZ6251250-06G	●		0.625		4.52	2.39	1.250				+0.043					
	DRZ6561312-06G	●		0.656		4.52	2.39	1.312				+0.034					
	DRZ6881375-06G	●	2	0.688		4.56	2.43	1.375	1.26	1/8 NPT		+0.027	GP-1N	SB-2260TR	DTM-7	-	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
	DRZ7501500-06G	●		0.750		4.73	2.61	1.500				+0.020					
	DRZ8121625-06G	●		0.812		4.93	2.81	1.625				+0.014					
	S100- DRZ8751750-08G	●		0.875	1.00	5.02	2.90	1.750	1.30		Yes	+0.055					
	DRZ9381875-08G	●	2	0.938		5.17	3.05	1.875	1.30	1/8 NPT		+0.043	GP-1N	SB-2570TR	DT-8	-	ZCMT080304 ZCMT080304SP
	DRZ10002000-08G	●		1.000		5.24	3.11	2.000	1.38			+0.028					
	S100- DRZ10622125-10G	●		1.062		5.67	3.54	2.125	1.65			+0.098					
	DRZ11252250-10G	●	2	1.125		5.74	3.62	2.250	1.65	1/4 NPT		+0.073	GP-2N	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP
	DRZ11882375-10G	●		1.188		5.86	3.74	2.375	1.77			+0.067					
	DRZ12502500-10G	●		1.250		5.92	3.79	2.500	1.77			+0.047					
	S125- DRZ13122625-12G	●		1.312		6.82	4.10	2.625				+0.110					
	DRZ13752750-12G	●		1.375		6.98	4.27	2.750				+0.094					
	DRZ14382875-12G	●	2	1.438		7.07	4.35	2.875	2.17	1/4 NPT		+0.078	GP-2N	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306
	DRZ15003000-12G	●		1.500		7.19	4.47	3.000				+0.067					
	DRZ15623125-12G	●		1.562		7.29	4.57	3.125				+0.047					
	S125- DRZ16253250-15G	●		1.625	1.25	7.34	4.62	3.250				+0.150					
	DRZ16883375-15G	●		1.688		7.49	4.78	3.375	2.17			+0.138					
	DRZ17503500-15G	●		1.750		7.57	4.85	3.500				+0.122					
	DRZ18123625-15G	●	2	1.812		7.78	5.06	3.625		1/4 NPT		+0.106	GP-2N	SB-5085TR	DT-20	-	ZCMT150406SP ZCMT150408
	DRZ18753750-15G	●		1.875		7.97	5.26	3.750	2.36			+0.087					
	DRZ19383875-15G	●		1.938		8.05	5.34	3.875				+0.070					
	DRZ20004000-15G	●		2.000		8.05	5.34	4.000				+0.055					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ⇒ **K94**
Troubleshooting ⇒ **K67**

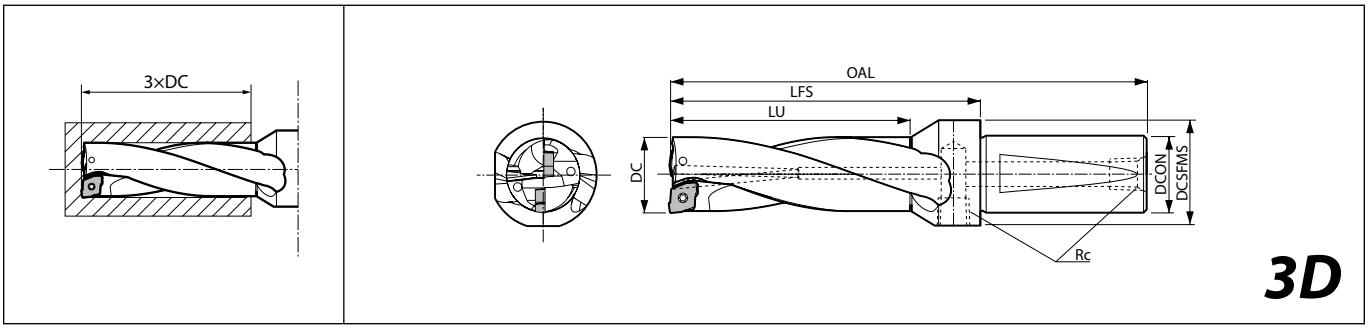
Hole Dia. Tolerance (2D type)

DC	Hole Dia. Tolerance (in)
ø0.562"~ø1.000"	+0.008 -0.004
ø1.062"~ø1.562"	+0.010 -0.006
ø1.625"~ø2.000"	+0.012 -0.008

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRZ (Drilling Depth : 3 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ⇒ K78
				DC	DCON	OAL	LFS	LU	DCSFMS	Rc			Plug	Screw	Wrench	Wrench	
Inch	S75- DRZ5621687-05G	●	2	0.562	0.75	4.42	2.72	1.687	1.06	1/8 NPT	Yes	+0.020	GP-1N	SB-2045TR	-	FT-6	ZCMT050203 ZCMT050203SP ZCMT050203SU
	S100- DRZ6251875-06G	●	2	0.625	1.00	5.15	3.02	1.875	1.26	1/8 NPT	Yes	+0.043	GP-1N	SB-2260TR	DTM-7	-	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
	DRZ6561969-06G	●		0.656		5.15	3.02	1.969				+0.034					
	DRZ6882062-06G	●		0.688		5.23	3.10	2.062				+0.027					
	DRZ7502250-06G	●		0.750		5.48	3.35	2.250				+0.020					
	DRZ8122438-06G	●		0.812		5.76	3.64	2.438				+0.014					
	S100- DRZ8752625-08G	●	2	0.875		5.77	3.65	2.625	1.30	1/8 NPT		+0.055	GP-1N	SB-2570TR	DT-8	-	ZCMT080304 ZCMT080304SP
	DRZ9382814-08G	●		0.938		5.89	3.76	2.814	1.30			+0.043					
	DRZ10003000-08G	●		1.000		6.11	3.98	3.000	1.38			+0.028					
	S100- DRZ10623187-10G	●	2	1.062		6.81	4.49	3.187	1.65	1/4 NPT		+0.098	GP-2N	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP
	DRZ11253375-10G	●		1.125		6.92	4.60	3.375	1.65			+0.073					
	DRZ11883562-10G	●		1.188		7.12	4.80	3.562	1.77			+0.067					
	DRZ12503750-10G	●		1.250		7.22	4.89	3.750	1.77			+0.047					
	S125- DRZ13123938-12G	●	2	1.312	1.25	8.00	5.28	3.938	2.17	1/4 NPT	Yes	+0.110	GP-2N	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306
	DRZ13754125-12G	●		1.375		8.24	5.53	4.125				+0.094					
	DRZ14384312-12G	●		1.438		8.37	5.65	4.312				+0.078					
	DRZ15004500-12G	●		1.500		8.57	5.85	4.500				+0.067					
	DRZ15624688-12G	●		1.562		8.69	5.97	4.688				+0.047					
	S125- DRZ16254875-15G	●	2	1.625		8.83	6.11	4.875	2.17	1/4 NPT		+0.150	GP-2N	SB-5085TR	DT-20	-	ZCMT150406SP ZCMT150408
	DRZ16885062-15G	●		1.688		8.93	6.21	5.062				+0.138					
	DRZ17505250-15G	●		1.750		9.18	6.47	5.250				+0.122					
	DRZ18125438-15G	●		1.812		9.47	6.75	5.438	2.36			+0.106					
	DRZ18755625-15G	●		1.875		9.65	6.93	5.625				+0.087					
	DRZ19385812-15G	●		1.938		9.86	7.15	5.812				+0.070					
	DRZ20006000-15G	●		2.000		9.88	7.17	6.000				+0.055					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ⇒ **K94**
Troubleshooting ⇒ **K67**

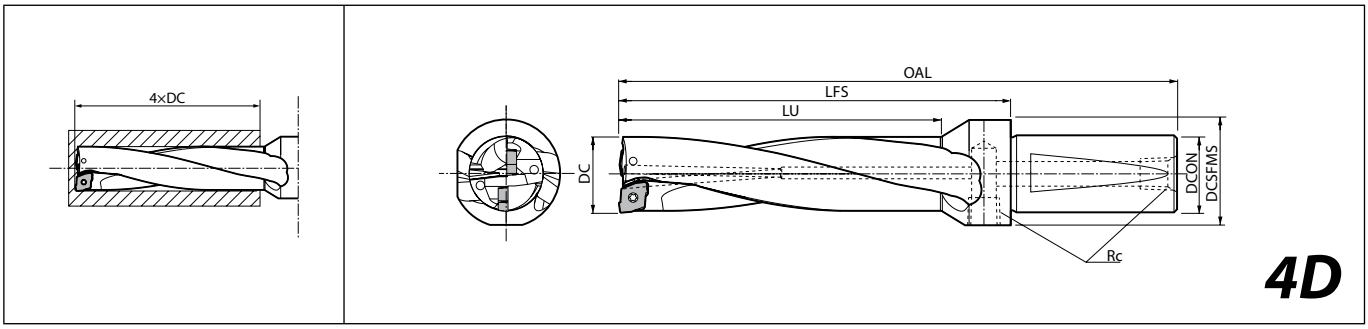
Hole Dia. Tolerance (3D type)

DC	Hole Dia. Tolerance (in)
ø0.562"~ø1.000"	+0.008 -0.004
ø1.062"~ø1.562"	+0.010 -0.006
ø1.625"~ø2.000"	+0.012 -0.008

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRZ (Drilling Depth : 4 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LU	DCSFMS	Rc	Coolant Hole	Radial Offset Max.	Spare Parts: Plug	Screw	Wrench	Wrench	Applicable Inserts ➡ K78
Inch	S75- DRZ5622250-05G	●	2	0.562	0.75	5.77	3.27	2.25	1.06	1/8 NPT	Yes	+0.020	GP-1N	SB-2045TR	-	FT-6	ZCMT050203 ZCMT050203SP ZCMT050203SU
	S100- DRZ6252500-06G	●	2	0.625	1.00	6.65	3.65	2.50	1.26	1/8 NPT	Yes	+0.043	GP-1N	SB-2260TR	DTM-7	-	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
	DRZ6882750-06G	●		0.688		6.74	3.74	2.75				+0.027					
	DRZ7503000-06G	●		0.750		7.07	4.07	3.00				+0.020					
	DRZ8123250-06G	●		0.812		7.39	4.39	3.25				+0.014					
	S100- DRZ8753500-08G	●	2	0.875	1.00	7.56	4.56	3.50	1.30	1/8 NPT	Yes	+0.055	GP-1N	SB-2570TR	DT-8	-	ZCMT080304 ZCMT080304SP
	DRZ9383750-08G	●		0.938		7.77	4.77	3.75	1.38			+0.043					
	DRZ10004000-08G	●		1.000		8.06	5.06	4.00	1.38			+0.028					
	S125- DRZ10624250-10G	●	2	1.062	1.25	8.55	5.55	4.25	1.65	1/4 NPT	Yes	+0.098	GP-2N	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP
	DRZ11254500-10G	●		1.125		8.84	5.84	4.50	1.65			+0.073					
	DRZ11884750-10G	●		1.188		8.98	5.98	4.75	1.77			+0.067					
	DRZ12505000-10G	●		1.250		9.30	6.30	5.00	1.77			+0.047					
	S125- DRZ13125250-12G	●	2	1.312	1.25	9.58	6.58	5.25	2.17	1/4 NPT	Yes	+0.110	GP-2N	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306
	DRZ13755500-12G	●		1.375		9.91	6.91	5.50				+0.094					
	DRZ14385750-12G	●		1.438		10.07	7.07	5.75				+0.078					
	DRZ15006000-12G	●		1.500		10.35	7.35	6.00				+0.067					
	DRZ15626250-12G	●		1.562		10.50	7.50	6.25				+0.047					
	S125- DRZ16256500-15G	●	2	1.625	1.25	10.73	7.73	6.50	2.17	1/4 NPT	Yes	+0.150	GP-2N	SB-5085TR	DT-20	-	ZCMT150406SP ZCMT150408
	S150- DRZ16886750-15G	●	2	1.688	1.50	11.37	7.87	6.75	2.17	1/4 NPT	Yes	+0.138	GP-2N	SB-5085TR	DT-20	-	
	DRZ17507000-15G	●		1.750		11.70	8.20	7.00	2.17			+0.122					
	DRZ18127250-15G	●		1.812		12.06	8.56	7.25	2.36			+0.106					
	DRZ18757500-15G	●		1.875		12.28	8.78	7.50	2.36			+0.087					
	DRZ19387750-15G	●		1.938		12.58	9.08	7.75	2.36			+0.070					
	DRZ20008000-15G	●		2.000		12.63	9.13	8.00	2.36			+0.055					

When offset drilling, reduce feed rate to 0.0024 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K94**
Troubleshooting ➡ **K67**

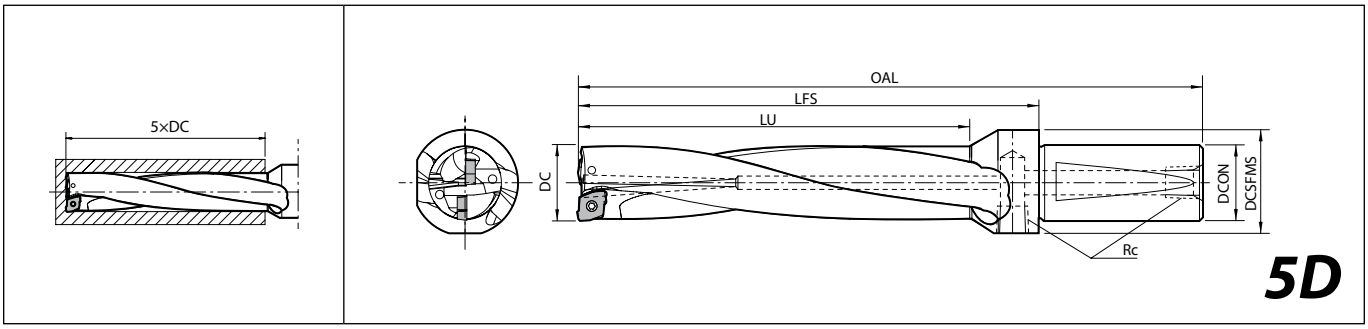
Hole Dia. Tolerance (2D type)

DC	Hole Dia. Tolerance (in)
ø0.562"~ø1.000"	+0.008 -0.004
ø1.062"~ø1.562"	+0.010 -0.006
ø1.625"~ø2.000"	+0.012 -0.008

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRZ (Drilling Depth : 5 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K78
				DC	DCON	OAL	LFS	LU	DCSFMS	Rc			Plug	Screw	Wrench	Wrench	
Inch	S125- DRZ10625310-10G	●	2	1.062	1.25	9.61	6.61	5.31	1.65	1/4 NPT	Yes	+0.098	GP-2N	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP
	DRZ11255625-10G	●		1.125		9.97	6.97	5.63				+0.073					
	DRZ11885940-10G	●		1.188		10.17	7.17	5.94	1.77			+0.067					
	DRZ12506250-10G	●		1.250		10.55	7.55	6.25				+0.047					
	S125- DRZ13126560-12G	●	2	1.312	1.25	10.89	7.89	6.56	2.17	1/4 NPT		+0.110	GP-2N	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306
	DRZ13756875-12G	●		1.375		11.28	8.28	6.88				+0.094					
	DRZ14387190-12G	●		1.438		11.51	8.51	7.19				+0.078					
	DRZ15007500-12G	●		1.500		11.85	8.85	7.50				+0.067					
	DRZ15627810-12G	●		1.562		12.07	9.07	7.81				+0.047					
	S125- DRZ16258125-15G	●	2	1.625	1.25	12.35	9.35	8.13	2.17	1/4 NPT	Yes	+0.150	GP-2N	SB-5085TR	DT-20	-	ZCMT150406SP ZCMT150408
	S150- DRZ16888440-15G	●	2	1.688	1.50	13.05	9.55	8.44	2.17	1/4 NPT		+0.138					
	DRZ17508750-15G	●		1.750		13.45	9.95	8.75				+0.122					
	DRZ18129060-15G	●		1.812		13.87	10.37	9.06	2.36			+0.106					
	DRZ18759375-15G	●		1.875		14.15	10.65	9.38				+0.087					
	DRZ19389690-15G	●		1.938		14.51	11.01	9.69				+0.070					
	DRZ200010000-15G	●		2.000		14.63	11.13	10.00				+0.055					

When offset drilling, reduce feed rate to 0.0020 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K94**
Troubleshooting ➡ **K67**

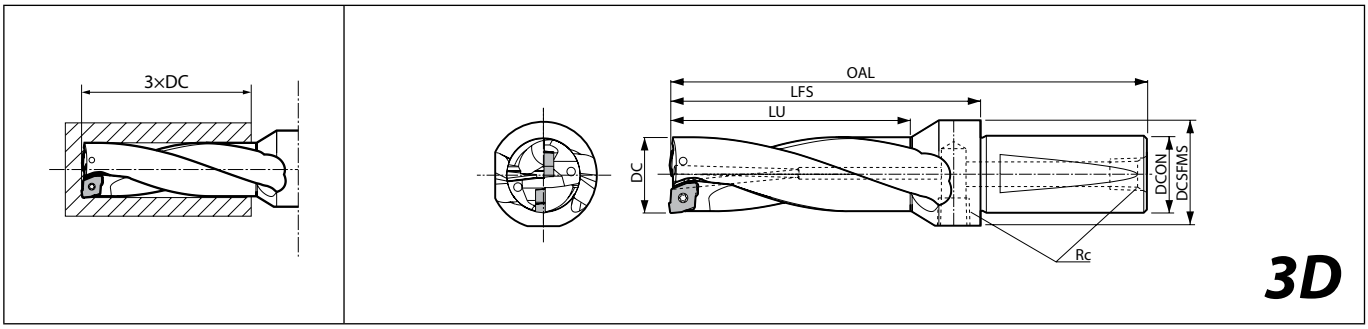
Hole Dia. Tolerance (3D type)

DC	Hole Dia. Tolerance (in)
ø1.062"~ø1.562"	+0.014 -0.006
ø1.625"~ø2.000"	+0.016 -0.008

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRZ (Drilling Depth : 3 x DC)

Metric Dia. / Inch Shank



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions (in) DC mm	DC in	DCON	OAL	LFS	LU	DCSFMS	Rc	Coolant Hole	Radial Offset Max.	Spare Parts: Plug	Screw	Wrench	Wrench	Applicable Inserts ➡ K78
Metric Dia. / Inch Shank	S75 -DRZ1339-05G	●	2	13.0	0.512	0.75	4.27	2.58	1.54	1.06	1/8NPT	Yes	+0.020	GP-1N	SB-2045TR	FT-6	-	ZCMT050203 ZCMT050203SP ZCMT050203SU
	-DRZ135405-05G	●		13.5	0.531		4.27	2.58	1.59				+0.020					
	-DRZ1442-05G	●		14.0	0.551		4.42	2.72	1.65				+0.020					
	-DRZ145435-05G	●		14.5	0.571		4.42	2.72	1.71				+0.020					
	-DRZ1545-05G	●		15.0	0.591		4.52	2.83	1.77				+0.020					
	-DRZ155465-05G	●		15.5	0.610		4.52	2.83	1.83				+0.020					
	S100 -DRZ1648-06G	●	2	16.0	0.630	1.00	5.15	3.02	1.89	1.26	1/8NPT	Yes	+0.043	GP-1N	SB-2260TR	-	DTM-7	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
	-DRZ165495-06G	●		16.5	0.650		5.15	3.02	1.95				+0.035					
	-DRZ1751-06G	●		17.0	0.669		5.23	3.10	2.01				+0.031					
	-DRZ1854-06G	●		18.0	0.709		5.36	3.23	2.13				+0.024					
	-DRZ185555-06G	●		18.5	0.728		5.36	3.23	2.19				+0.024					
	-DRZ1957-06G	●		19.0	0.748		5.48	3.35	2.24				+0.020					
	-DRZ195585-06G	●		19.5	0.768		5.48	3.35	2.30				+0.020					
	-DRZ2060-06G	●		20.0	0.787		5.61	3.49	2.36				+0.020					
	-DRZ2163-06G	●		21.0	0.827		5.76	3.64	2.48				+0.008					
	S100 -DRZ215645-08G	●	2	21.5	0.846		5.77	3.65	2.54	1.30	1/8NPT	Yes	+0.071	GP-1N	SB-2570TR	-	DT-8	ZCMT080304 ZCMT080304SP
	-DRZ2266-08G	●		22.0	0.866		5.77	3.65	2.60				+0.063					
	-DRZ225675-08G	●		22.5	0.886		5.77	3.65	2.66				+0.055					
	-DRZ2369-08G	●		23.0	0.906		5.89	3.76	2.72				+0.051					
	-DRZ2472-08G	●		24.0	0.945		6.00	3.87	2.84	1.38			+0.043					
	-DRZ2575-08G	●		25.0	0.984		6.11	3.98	2.95				+0.031					
	-DRZ2678-08G	●		26.0	1.024		6.23	4.10	3.07				+0.024					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K94**
Troubleshooting ➡ **K67**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Metric Dia. / Inch Shank

Unit	Part Number	Std. Item	No. of Inserts	Dimensions (in) DC mm	DC in	DCON	OAL	LFS	LU	DCSFMS	Rc	Coolant Hole	Radial Offset Max.	Spare Parts: Plug	Screw	Wrench	Wrench	Applicable Inserts ➡ K78
Metric Dia. / Inch Shank	S100 -DRZ2781-10G	●	2	27.0	1.063	1.00	6.81	4.49	3.19	1.65	1/4 NPT	Yes	+0.098	GP-1N	SB-4085TR	-	DT-15	ZCMT10T304 ZCMT10T304SP
	-DRZ2884-10G	●		28.0	1.102		6.92	4.60	3.31				+0.087					
	-DRZ2987-10G	●		29.0	1.142		7.04	4.72	3.43				+0.079					
	-DRZ3090-10G	●		30.0	1.181		7.12	4.80	3.54	1.77			+0.067					
	-DRZ3193-10G	●		31.0	1.220		7.22	4.89	3.66				+0.059					
	-DRZ3296-10G	●		32.0	1.260		7.36	5.04	3.78				+0.047					
	S125 -DRZ3399-12G	●	2	33.0	1.299	1.25	8.00	5.28	3.90	2.17	1/4 NPT	Yes	+0.114	GP-2N	SB-5085TR	-	DT-20	ZCMT12T304SP ZCMT12T306
	-DRZ34102-12G	●		34.0	1.338		8.15	5.44	4.02				+0.106					
	-DRZ36108-12G	●		36.0	1.418		8.37	5.65	4.25				+0.087					
	-DRZ37111-12G	●		37.0	1.457		8.46	5.74	4.37				+0.075					
	-DRZ38114-12G	●		38.0	1.496		8.57	5.85	4.49				+0.067					
	-DRZ39117-12G	●		39.0	1.535		8.69	5.97	4.61				+0.055					
	-DRZ40120-12G	●		40.0	1.575		8.74	6.03	4.72				+0.047					
	S125 -DRZ41123-15G	●	2	41.0	1.614	1.25	8.83	6.11	4.84	2.17	1/4 NPT	Yes	+0.157	GP-2N	SB-5085TR	-	DT-20	ZCMT150406SP ZCMT150408
	-DRZ42126-15G	●		42.0	1.654		8.93	6.21	4.96				+0.146					
	-DRZ43129-15G	●		43.0	1.693		9.07	6.35	5.08				+0.138					
	-DRZ44132-15G	●		44.0	1.732		9.18	6.47	5.20				+0.126					
	-DRZ46138-15G	●		46.0	1.811		9.47	6.75	5.43	2.36			+0.106					
	-DRZ48144-15G	●		48.0	1.890		9.74	7.03	5.67				+0.087					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K94**
Troubleshooting ➡ **K67**

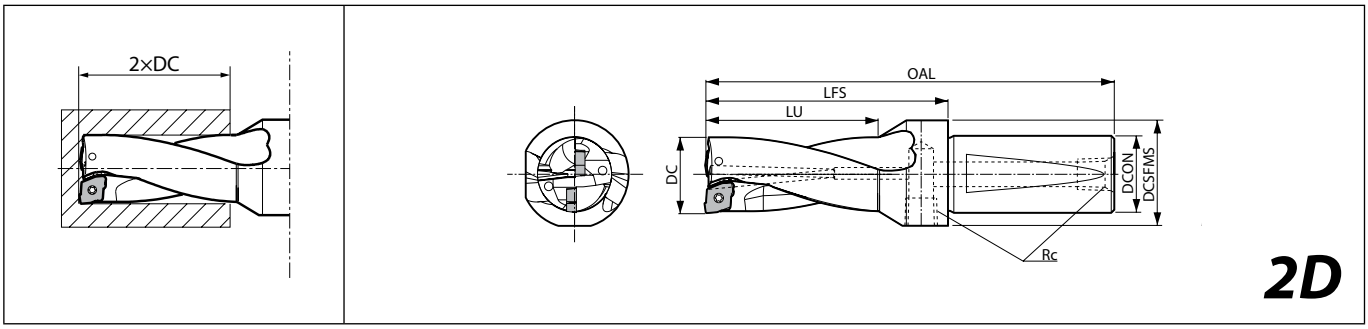
Hole Dia. Tolerance (3D type)

DC	Hole Dia. Tolerance (mm)
ø13~ø26.5mm	+0.20 -0.10
ø27~ø40mm	+0.25 -0.15
ø41~ø59mm	+0.30 -0.20

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRZ (Drilling Depth : 2 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	OAL	LFS	LF5	LU	DCSFMS	Rc	Coolant Hole	Radial Offset Max.	Spare Parts: Plug	Screw	Wrench	Wrench	Applicable Inserts ➡ K78
mm	S20- DRZ1326-05	●	2	13	20	95	52	26	27	Rc1/8	Yes	+0.5	GP-1	SB-2045TR	-	FT-6	ZCMT050203 ZCMT050203SP ZCMT050203SU
	DRZ135270-05	●		13.5				27									
	DRZ1428-05	●		14		98	55	28									
	DRZ145290-05	●		14.5				29									
	DRZ1530-05	●		15		100	57	30									
	DRZ155310-05	●		15.5				31									
	S25- DRZ1632-06	●	2	16	25	115	61	32	32	Rc1/8	Yes	+1.1	GP-1	SB-2260TR	DTM-7	-	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
	DRZ165330-06	●		16.5				33				+0.9					
	DRZ1734-06	●		17		116	62	34				+0.8					
	DRZ175350-06	●		17.5				35				+0.7					
	DRZ1836-06	●		18		118	64	36				+0.6					
	DRZ185370-06	●		18.5				37									
	DRZ1938-06	●		19		120	66	38				+0.5					
	DRZ195390-06	●		19.5				39									
	DRZ2040-06	●		20		123	69	40									
	DRZ205410-06	●		20.5		125	71	41				+0.3					
	DRZ2142-06	●		21				42				+0.2					
	S25- DRZ215430-08	●	2	21.5	25	128	74	43	33	Rc1/8	Yes	+1.8	GP-1	SB-2570TR	DT-8	-	ZCMT080304 ZCMT080304SP
	DRZ2244-08	●		22				44				+1.6					
	DRZ225450-08	●		22.5				45				+1.4					
	DRZ2346-08	●		23		130	76	46				+1.3					
	DRZ235470-08	●		23.5				47				+1.2					
	DRZ2448-08	●		24		131	77	48	35			+1.1					
	DRZ245490-08	●		24.5				49				+0.9					
	DRZ2550-08	●		25		133	79	50				+0.8					
	DRZ255510-08	●		25.5				51				+0.7					
	DRZ2652-08	●		26		135	81	52				+0.6					
	DRZ265530-08	●		26.5				53				+0.5					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K94**
Troubleshooting ➡ **K67**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K78
				DC	DCON	OAL	LFS	LU	DCSFMS	Rc			Plug	Screw	Wrench	Wrench	
mm	S32- DRZ2754-10	●	2	27	32	149	90	54	42	Rc1/4	Yes	+2.5	GP-2	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP
	DRZ275550-10	●		27.5				55				+2.3					
	DRZ2856-10	●		28		151	92	56				+2.2					
	DRZ285570-10	●		28.5				57				+2.1					
	DRZ2958-10	●		29		153	94	58				+2					
	DRZ295590-10	●		29.5				59				+1.8					
	DRZ3060-10	●		30		154	95	60	45			+1.7					
	DRZ305610-10	●		30.5				61				+1.5					
	DRZ3162-10	●		31		155	96	62				+1.5					
	DRZ315630-10	●		31.5				63				+1.3					
	DRZ3264-10	●		32		158	99	64				+1.2					
	DRZ325650-10	●		32.5				65				+1					
	S40- DRZ3366-12	●	2	33	40	173	104	66	55	Rc1/4	Yes	+2.9	GP-2	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306
	DRZ3468-12	●		34		176	107	68				+2.7					
	DRZ3570-12	●		35		177	108	70				+2.4					
	DRZ3672-12	●		36		180	111	72				+2.2					
	DRZ3774-12	●		37		181	112	74				+1.9					
	DRZ3876-12	●		38		183	114	76				+1.7					
	DRZ3978-12	●		39		185	116	78				+1.4					
	DRZ4080-12	●		40				80				+1.2					
	S40- DRZ4182-15	●	2	41	40	186	117	82	55	Rc1/4	Yes	+4	GP-2	SB-5085TR	DT-20	-	ZCMT150406SP ZCMT150408
	DRZ4284-15	●		42		188	119	84				+3.7					
	DRZ4386-15	●		43		190	121	86				+3.5					
	DRZ4488-15	●		44		192	123	88				+3.2					
	DRZ4590-15	●		45				90				+3					
	DRZ4692-15	●		46		198	129	92	60			+2.7					
	DRZ4794-15	●		47		201	132	94				+2.5					
	DRZ4896-15	●		48		203	134	96				+2.2					
	DRZ4998-15	●		49		204	135	98				+2					
	DRZ50100-15	●		50				100				+1.7					
	DRZ51102-15	●		51		205	136	102				+1.2					
	DRZ52104-15	●		52				104				+1					
	DRZ53106-15	●		53		208	139	106				+0.7					
	S40- DRZ54108-20	●	2	54	40	214	145	108	65	Rc1/4	Yes	+5	GP-2	SB-60120TR	DT-25	-	ZCMT200608
	DRZ55110-20	●		55		215	146	110				+4.7					
	DRZ56112-20	●		56		217	148	112				+4.4					
	DRZ57114-20	●		57		219	150	114				+4.1					
	DRZ58116-20	●		58		221	152	116				+3.8					
	DRZ59118-20	●		59		223	154	118				+3.5					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K94**
Troubleshooting ➡ **K67**

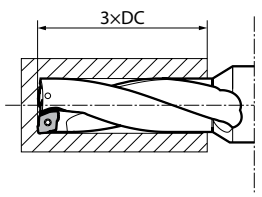
Hole Dia. Tolerance (2D type)

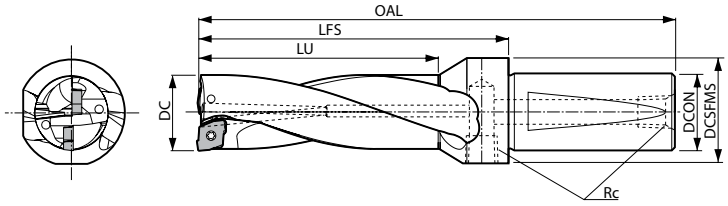
DC	Hole Dia. Tolerance (mm)
ø13~ø26.5mm	+0.20 -0.10
ø27~ø40mm	+0.25 -0.15
ø41~ø59mm	+0.30 -0.20

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRZ (Drilling Depth : 3 x DC)





3D

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LU	DCSFMS	Rc	Coolant Hole	Radial Offset Max.	Spare Parts: Plug	Screw	Wrench	Wrench	Applicable Inserts ➡ K78
mm	S20- DRZ1339-05	●	2	13	20	108	65	39	27	Rc1/8	Yes	+0.5	GP-1	SB-2045TR	-	FT-6	ZCMT050203 ZCMT050203SP ZCMT050203SU
	DRZ135405-05	●		13.5				40.5									
	DRZ1442-05	●		14		112	69	42									
	DRZ145435-05	●		14.5				43.5									
	DRZ1545-05	●		15		115	72	45									
	DRZ155465-05	●		15.5				46.5									
	S25- DRZ1648-06	●	2	16	25	131	77	48	32	Rc1/8	Yes	+1.1	GP-1	SB-2260TR	DTM-7	-	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
	DRZ165495-06	●		16.5				49.5				+0.9					
	DRZ1751-06	●		17		133	79	51				+0.8					
	DRZ175525-06	●		17.5				52.5				+0.7					
	DRZ1854-06	●		18		136	82	54				+0.6					
	DRZ185555-06	●		18.5				55.5									
	DRZ1957-06	●		19		139	85	57				+0.5					
	DRZ195585-06	●		19.5				58.5									
	DRZ2060-06	●		20		143	89	60				+0.5					
	DRZ205615-06	●		20.5		146	92	61.5				+0.3					
	DRZ2163-06	●		21		146	92	63				+0.2					
	S25- DRZ215645-08	●	2	21.5	25	147	93	64.5	33	Rc1/8	Yes	+1.8	GP-1	SB-2570TR	DT-8	-	ZCMT080304 ZCMT080304SP
	DRZ2266-08	●		22				66				+1.6					
	DRZ225675-08	●		22.5				67.5				+1.4					
	DRZ2369-08	●		23		150	96	69				+1.3					
	DRZ235705-08	●		23.5				70.5				+1.2					
	DRZ2472-08	●		24		152	98	72	35			+1.1					
	DRZ245735-08	●		24.5				73.5				+0.9					
	DRZ2575-08	●		25		155	101	75				+0.8					
	DRZ255765-08	●		25.5				76.5				+0.7					
	DRZ2678-08	●		26		158	104	78				+0.6					
	DRZ265795-08	●		26.5				79.5				+0.5					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K94**
Troubleshooting ➡ **K67**

Hole Dia. Tolerance (3D type)

DC	Hole Dia. Tolerance (mm)
ø13~ø26.5mm	+0.20 -0.10
ø27~ø40mm	+0.25 -0.15
ø41~ø59mm	+0.30 -0.20

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

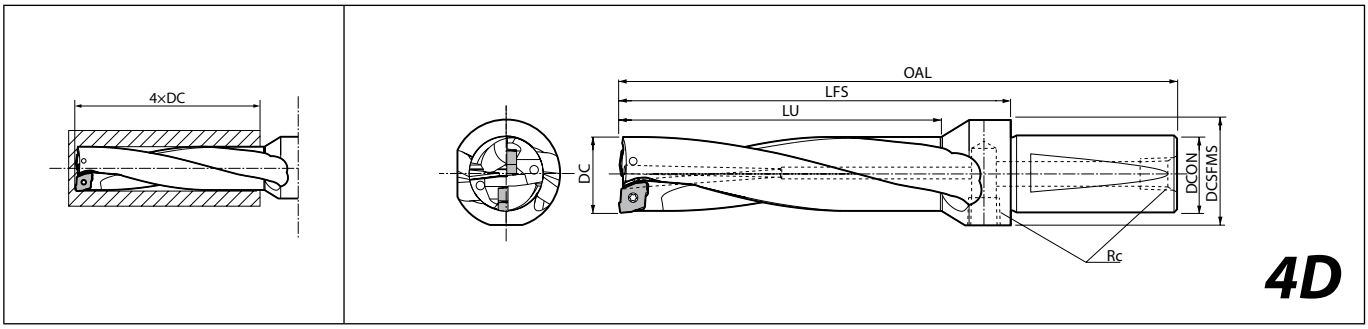
Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LU	DCSFMS	Rc	Coolant Hole	Radial Offset Max.	Spare Parts: Plug	Screw	Wrench	Wrench	Applicable Inserts ⇨ K78
mm	S32- DRZ2781-10	●	2	27	32	173	114	81	42	Rc1/4	Yes	+2.5	GP-2	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP
	DRZ275825-10	●		27.5				82.5				+2.3					
	DRZ2884-10	●		28		176	117	84				+2.2					
	DRZ285855-10	●		28.5				85.5				+2.1					
	DRZ2987-10	●		29		179	120	87				+2					
	DRZ295885-10	●		29.5				88.5				+1.8					
	DRZ3090-10	●		30		181	122	90	45			+1.7					
	DRZ305915-10	●		30.5				91.5				+1.5					
	DRZ3193-10	●		31		183	124	93				+1.5					
	DRZ315945-10	●		31.5				94.5				+1.3					
	DRZ3296-10	●		32		187	128	96				+1.2					
	DRZ325975-10	●		32.5				97.5				+1					
	S32- DRZ3399-12	●	2	33	32	193	134	99	55	Rc1/4	Yes	+2.9	GP-2	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306
	DRZ34102-12	●		34		197	138	102				+2.7					
	DRZ35105-12	●		35		199	140	105				+2.4					
	DRZ36108-12	●		36		203	144	108				+2.2					
	DRZ37111-12	●		37		205	146	111				+1.9					
	DRZ38114-12	●		38		208	149	114				+1.7					
	DRZ39117-12	●		39		211	152	117				+1.4					
	DRZ40120-12	●		40		212	153	120				+1.2					
	S40- DRZ3399-12	●	2	33	40	203	134	99	55	Rc1/4	Yes	+2.9	GP-2	SB-5085TR	DT-20	-	ZCMT150406SP ZCMT150408
	DRZ34102-12	●		34		207	138	102				+2.7					
	DRZ35105-12	●		35		209	140	105				+2.4					
	DRZ36108-12	●		36		213	144	108				+2.2					
	DRZ37111-12	●		37		215	146	111				+1.9					
	DRZ38114-12	●		38		218	149	114				+1.7					
	DRZ39117-12	●		39		221	152	117				+1.4					
	DRZ40120-12	●		40		222	153	120				+1.2					
	S40- DRZ41123-15	●	2	41	40	224	155	123	55	Rc1/4	Yes	+4	GP-2	SB-5085TR	DT-20	-	
	DRZ42126-15	●		42		227	158	126				+3.7					
	DRZ43129-15	●		43		230	161	129				+3.5					
	DRZ44132-15	●		44		233	164	132				+3.2					
	DRZ45135-15	●		45		234	165	135				+3					
	DRZ46138-15	●		46		241	172	138	60			+2.7					
	DRZ47141-15	●		47		245	176	141				+2.5					
	DRZ48144-15	●		48		248	179	144				+2.2					
	DRZ49147-15	●		49		250	181	147				+2					
	DRZ50150-15	●		50		251	182	150				+1.7					
	DRZ51153-15	●		51		254	185	153				+1.2					
	DRZ52156-15	●		52		257	188	156				+1					
	DRZ53159-15	●		53		260	191	159				+0.7					
	S40- DRZ54162-20	●	2	54	40	266	197	162	65	Rc1/4	Yes	+5	GP-2	SB-60120TR	DT-25	-	ZCMT200608
	DRZ55165-20	●		55		269	200	165				+4.7					
	DRZ56168-20	●		56		272	203	168				+4.4					
	DRZ57171-20	●		57		275	206	171				+4.1					
	DRZ58174-20	●		58		278	209	174				+3.8					
	DRZ59177-20	●		59		281	212	177				+3.5					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ⇨ **K94**
Troubleshooting ⇨ **K67**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRZ (Drilling Depth : 4 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LU	DCSFMS	Rc	Coolant Hole	Radial Offset Max.	Spare Parts: Plug	Screw	Wrench	Wrench	Applicable Inserts ➡ K78
mm	S20- DRZ1352-05	●	2	13	20	121	78	52	27	Rc1/8	Yes	+0.5	GP-1	SB-2045TR	-	FT-6	ZCMT050203 ZCMT050203SP ZCMT050203SU
	DRZ135540-05	●		13.5				54									
	DRZ1456-05	●		14		126	83	56									
	DRZ145580-05	●		14.5				58									
	DRZ1560-05	●		15		130	87	60									
	DRZ155620-05	●		15.5				62									
	S25- DRZ1664-06	●	2	16	25	147	93	64	32	Rc1/8	Yes	+1.1	GP-1	SB-2260TR	DTM-7	-	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
	DRZ165660-06	●		16.5				66				+0.9					
	DRZ1768-06	●		17		149	95	68				+0.8					
	DRZ175700-06	●		17.5				70				+0.7					
	DRZ1872-06	●		18		153	99	72				+0.6					
	DRZ185740-06	●		18.5				74									
	DRZ1976-06	●		19		157	103	76				+0.5					
	DRZ195780-06	●		19.5				78									
	DRZ2080-06	●		20		156	102	80				+0.5					
	DRZ205820-06	●		20.5		161	107	82				+0.3					
	DRZ2184-06	●		21		161	107	84				+0.2					
	S25- DRZ215860-08	●	2	21.5	25	169	115	86	33	Rc1/8	Yes	+1.8	GP-1	SB-2570TR	DT-8	-	ZCMT080304 ZCMT080304SP
	DRZ2288-08	●		22				88				+1.6					
	DRZ225900-08	●		22.5				90				+1.4					
	DRZ2392-08	●		23		173	119	92				+1.3					
	DRZ235940-08	●		23.5				94				+1.2					
	DRZ2496-08	●		24		176	122	96	35			+1.1					
	DRZ245980-08	●		24.5				98				+0.9					
	DRZ25100-08	●		25		180	126	100				+0.8					
	DRZ2551020-08	●		25.5				102				+0.7					
	DRZ26104-08	●		26		184	130	104				+0.6					
	DRZ2651060-08	●		26.5				106				+0.5					

When offset drilling, reduce feed rate to 0.0024 ipror less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K94**
Troubleshooting ➡ **K67**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LU	DCSFMS	Rc	Coolant Hole	Radial Offset Max.	Spare Parts: Plug	Screw	Wrench	Wrench	Applicable Inserts ➡ K78
mm	S32- DRZ27108-10	●	2	27	32	200	141	108	42	Rc1/4	Yes	+2.5	GP-2	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP
	DRZ2751100-10	●		27.5				110				+2.3					
	DRZ28112-10	●		28		204	145	112				+2.2					
	DRZ2851140-10	●		28.5				114				+2.1					
	DRZ29116-10	●		29		208	149	116				+2					
	DRZ2951180-10	●		29.5				118				+1.8					
	DRZ30120-10	●		30		211	152	120	45			+1.7					
	DRZ3051220-10	●		30.5				122				+1.5					
	DRZ31124-10	●		31		214	155	124									
	DRZ3151260-10	●		31.5				126				+1.3					
	DRZ32128-10	●		32		219	160	128				+1.2					
	DRZ3251300-10	●		32.5				130				+1					
	S32- DRZ33132-12	●	2	33	32	226	167	132	55	Rc1/4	Yes	+2.9	GP-2	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306
	DRZ34136-12	●		34		231	172	136				+2.7					
	DRZ35140-12	●		35		234	175	140				+2.4					
	DRZ36144-12	●		36		239	180	144				+2.2					
	DRZ37148-12	●		37		242	183	148				+1.9					
	DRZ38152-12	●		38		246	187	152				+1.7					
	DRZ39156-12	●		39		250	191	156				+1.4					
	DRZ40160-12	●		40		252	193	160				+1.2					
	S40- DRZ33132-12	●	2	33	40	236	167	132	55	Rc1/4	Yes	+2.9	GP-2	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306
	DRZ34136-12	●		34		241	172	136				+2.7					
	DRZ35140-12	●		35		244	175	140				+2.4					
	DRZ36144-12	●		36		249	180	144				+2.2					
	DRZ37148-12	●		37		252	183	148				+1.9					
	DRZ38152-12	●		38		256	187	152				+1.7					
	DRZ39156-12	●		39		260	191	156				+1.4					
	DRZ40160-12	●		40		262	193	160				+1.2					
	S40- DRZ41164-15	●	2	41	40	265	196	164	55	Rc1/4	Yes	+4	GP-2	SB-5085TR	DT-20	-	ZCMT150406SP ZCMT150408
	DRZ42168-15	●		42		269	200	168				+3.7					
	DRZ43172-15	●		43		273	204	172				+3.5					
	DRZ44176-15	●		44		277	208	176				+3.2					
	DRZ45180-15	●		45		279	210	180				+3					
	DRZ46184-15	●		46		287	218	184	60			+2.7					
	DRZ47188-15	●		47		292	223	188				+2.5					
	DRZ48192-15	●		48		296	227	192				+2.2					
	DRZ49196-15	●		49		300	231	196				+2					
	DRZ50200-15	●		50		301	232	200				+1.7					

When offset drilling, reduce feed rate to 0.0024 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K94**
Troubleshooting ➡ **K67**

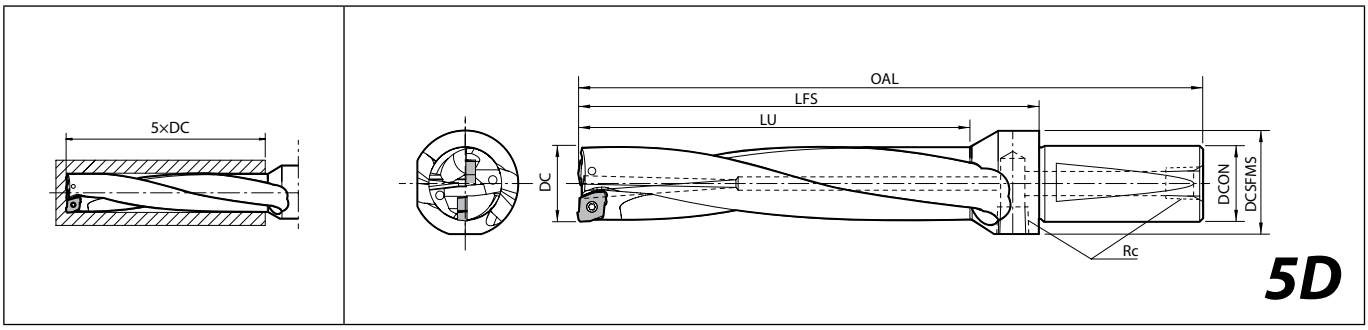
Hole Dia. Tolerance (4D type)

DC	Hole Dia. Tolerance (mm)
ø13~ø26.5mm	+0.25 -0.10
ø27~ø40mm	+0.30 -0.15
ø41~ø50mm	+0.35 -0.20

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRZ (Drilling Depth : 5 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LU	DCSFMS	Rc	Coolant Hole	Radial Offset Max.	Spare Parts: Plug	Screw	Wrench	Applicable Inserts ➡ K78
mm	S32- DRZ27135-10	●	2	27	32	277	168	135	42	Rc1/4	Yes	+2.5	GP-2	SB-4085TR	DT-15	ZCMT10T304 ZCMT10T304SP
	DRZ28140-10	●		28		232	173	140				+2.2				
	DRZ29145-10	●		29		237	178	145				+2				
	DRZ30150-10	●		30		241	182	150	45			+1.7				
	DRZ31155-10	●		31		245	186	155				+1.5				
	DRZ32160-10	●		32		251	192	160				+1.2				
	S40- DRZ33165-12	●	2	33	40	269	200	165	55	Rc1/4	Yes	+2.9	GP-2	SB-5085TR	DT-20	ZCMT12T304SP ZCMT12T306
	DRZ34170-12	●		34		275	206	170				+2.7				
	DRZ35175-12	●		35		279	210	175				+2.4				
	DRZ36180-12	●		36		285	216	180				+2.2				
	DRZ37185-12	●		37		289	220	185				+1.9				
	DRZ38190-12	●		38		294	225	190				+1.7				
	DRZ39195-12	●		39		299	230	195				+1.4				
	DRZ40200-12	●		40		302	233	200				+1.2				
	S40- DRZ41205-15	●	2	41	40	306	237	205	55	Rc1/4	Yes	+4	GP-2	SB-5085TR	DT-20	ZCMT150406SP ZCMT150408
	DRZ42210-15	●		42		311	242	210				+3.7				
	DRZ43215-15	●		43		316	247	215				+3.5				
	DRZ45225-15	●		45		324	255	225				+3				
	DRZ46230-15	●		46		333	264	230	60			+2.7				
	DRZ47235-15	●		47		339	270	235				+2.5				
	DRZ48240-15	●		48		344	275	240				+2.2				
	DRZ49245-15	●		49		349	280	245				+2				
	DRZ50250-15	●		50		351	282	250				+1.7				

When offset drilling, reduce feed rate to 0.0020 ipr or less.
See page **K74** for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ **K94**
Troubleshooting ➡ **K67**

Hole Dia. Tolerance (5D type)

DC	Hole Dia. Tolerance (mm)
ø27~ø40mm	+0.35 -0.15
ø41~ø50mm	+0.40 -0.20

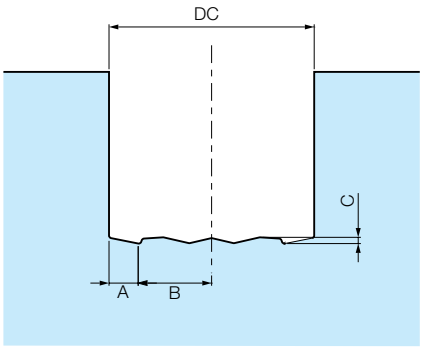
* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRZ Hole Bottom Shape (Common for 2D, 3D, 4D, and 5D Lengths)

DRZ Inch Diameters (in)				DRZ Metric Diameters (mm)							
DC	A	B	C	DC	A	B	C	DC	A	B	C
0.562	0.083	0.198	0.016	13.0	2.1	4.4	0.4	27.0	4.0	9.5	0.7
0.625	0.106	0.207	0.024	13.5		4.7		27.5		9.8	
0.656		0.222		14.0		4.9		28.0		10.0	
0.688		0.238		14.5		5.2		28.5		10.3	
0.750		0.269	0.028	15.0		5.4	0.5	29.0		10.5	
0.812		0.300		15.5		5.7		29.5		10.8	
0.875	0.122	0.316	0.024	16.0	2.7	5.3	0.6	30.0		11.0	
0.938		0.347	0.028	16.5		5.6		30.5		11.3	
1.000		0.378		17.0		5.8		31.0		11.5	0.8
1.062	0.157	0.374		17.5		6.1		31.5		11.8	
1.125		0.406		18.0		6.3		32.0		12.0	
1.188		0.437		18.5		6.6	0.7	32.5		12.3	
1.250		0.468	0.031	19.0		6.8		33.0	5.7	10.8	0.8
1.312	0.224	0.432		19.5		7.1		34.0		11.3	
1.375		0.464		20.0		7.3		35.0		11.8	
1.438		0.495		20.5		7.6		36.0		12.3	
1.500		0.526	0.035	21.0		7.8	0.8	37.0		12.8	
1.562		0.557		21.5	3.1	7.7	0.6	38.0		13.3	0.9
1.625	0.256	0.557	0.039	22.0		7.9		39.0		13.8	
1.688		0.588		22.5		8.2		40.0		14.3	
1.750		0.619		23.0		8.4		41.0	6.5	14.0	1.0
1.812		0.650		23.5		8.7		42.0		14.5	
1.875		0.682	0.043	24.0		8.9	0.7	43.0		15.0	
1.938		0.713		24.5		9.2		44.0		15.5	
2.000		0.744		25.0		9.4		45.0		16.0	
				25.5		9.7		46.0		16.5	
				26.0		9.9		47.0		17.0	
				26.5		10.2		48.0		17.5	1.1
								49.0		18.0	
								50.0		18.5	
								51.0		19.0	
								52.0		19.5	
								53.0		20.0	
								54.0	8.5	18.5	1.2
								55.0		19.0	
								56.0		19.5	
								57.0		20.0	
								58.0		20.5	
								59.0		21.0	

- Figures in chart are nominal sizes.
- (Varies from -0.004" (-0.1mm) to +0.004" (+0.1mm) depending on work material and cutting conditions)



Recommended Cutting Conditions (with Coolant)

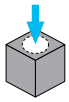
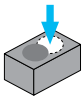
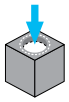
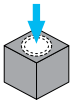
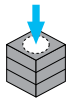
Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)				Drill Dia. DC (in)	Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)			
	MEGACOAT			Carbide						
	PR1230	PR1225	PR1210	KW10			2D	3D	4D	5D
	Standard SP SU	Standard SP SU	Standard	Standard SP						
Low Carbon Steel	★ 390 ~ 720	☆ 390 ~ 720	-	-	0.512~0.610	13~15.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
					0.630~1.043	16~26.5	0.0031 ~ 0.0059	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
					1.063~1.969	27~50	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0020 ~ 0.0035
					1.969~	50~	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
Carbon Steel	★ 330 ~ 520	☆ 330 ~ 520	-	-	0.512~0.610	13~15.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
					0.630~1.043	16~26.5	0.0031 ~ 0.0059	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
					1.063~1.969	27~50	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0020 ~ 0.0035
					1.969~	50~	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
Alloy Steel	★ 260 ~ 460	☆ 260 ~ 460	-	-	0.512~0.610	13~15.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
					0.630~1.043	16~26.5	0.0031 ~ 0.0059	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
					1.063~1.969	27~50	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0020 ~ 0.0035
					1.969~	50~	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
Tool Steel	★ 230 ~ 430	☆ 230 ~ 430	-	-	0.512~0.610	13~15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0012 ~ 0.0028	-
					0.630~1.043	16~26.5	0.0031 ~ 0.0047	0.0024 ~ 0.0039	0.0024 ~ 0.0031	-
					1.063~1.969	27~50	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0024 ~ 0.0039	0.0016 ~ 0.0028
					1.969~	50~	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0024 ~ 0.0039	-
Stainless Steel (Austenitic)	☆ 200 ~ 390	★ 200 ~ 390	-	-	0.512~0.610	13~15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0012 ~ 0.0024	-
					0.630~1.043	16~26.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
					1.063~1.969	27~50	0.0024 ~ 0.0047	0.0024 ~ 0.0039	0.0016 ~ 0.0039	0.0016 ~ 0.0028
					1.969~	50~	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0016 ~ 0.0039	-
Gray Cast Iron	-	-	★ 330 ~ 490	☆ 330 ~ 390	0.512~0.610	13~15.5	0.0031 ~ 0.0047	0.0031 ~ 0.0039	0.0024 ~ 0.0031	-
					0.630~1.043	16~26.5	0.0039 ~ 0.0071	0.0039 ~ 0.0059	0.0031 ~ 0.0047	-
					1.063~1.969	27~50	0.0039 ~ 0.0079	0.0039 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0039
					1.969~	50~	0.0039 ~ 0.0079	0.0039 ~ 0.0071	0.0031 ~ 0.0059	-
Nodular Cast Iron	-	-	★ 260 ~ 390	☆ 260 ~ 330	0.512~0.610	13~15.5	0.0031 ~ 0.0047	0.0031 ~ 0.0039	0.0024 ~ 0.0031	-
					0.630~1.043	16~26.5	0.0039 ~ 0.0071	0.0039 ~ 0.0059	0.0031 ~ 0.0047	-
					1.063~1.969	27~50	0.0039 ~ 0.0079	0.0039 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0039
					1.969~	50~	0.0039 ~ 0.0079	0.0039 ~ 0.0071	0.0031 ~ 0.0059	-
Non-ferrous Metals	-	-	-	★ 660 ~ 1970	0.512~0.610	13~15.5	0.0024 ~ 0.0047	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
					0.630~1.043	16~26.5	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0059	-
					1.063~1.969	27~50	0.0031 ~ 0.0079	0.0031 ~ 0.0071	0.0024 ~ 0.0059	0.0020 ~ 0.0039
					1.969~	50~	0.0031 ~ 0.0079	0.0031 ~ 0.0071	0.0024 ~ 0.0059	-
Titanium Alloys	-	-	-	★ 130 ~ 230	0.512~0.610	13~15.5	0.0020 ~ 0.0024	0.0020 ~ 0.0024	0.0020 ~ 0.0024	-
					0.630~1.043	16~26.5	0.0020 ~ 0.0028	0.0020 ~ 0.0028	0.0020 ~ 0.0028	-
					1.063~1.969	27~50	0.0024 ~ 0.0031	0.0024 ~ 0.0031	0.0024 ~ 0.0031	0.0016 ~ 0.0020
					1.969~	50~	0.0024 ~ 0.0031	0.0024 ~ 0.0031	0.0024 ~ 0.0031	-

Apply a sufficient amount of coolant

★ : 1st Recommendation ☆ : 2nd Recommendation

Cutting Conditions by Application

(Workpiece Material: 1049)

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Concave Surface	Existing Hole	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	390	390	390	390	390	390	Not Available
f (ipr)	0.004	0.002	0.002	0.002	Concave Surface: 0.002 Once drill is fully engaged: 0.004	*0.002	Not Available
Internal Coolant	Yes	Yes	Yes	Yes	Yes	Yes	Not Available

Max. Depth for Drilling with External Coolant

In case of using external coolant system, chip evacuation will be bad.
Therefore D.O.C. should be measured within 1.5 times (1.5 x DC) of drill diameter (DC).

Magic Drill Setup for Lathes

Installation

① The top face of the outer insert should be parallel to the X-axis to allow for offset cutting. (Cutting diameter can be changed by moving in the X-axis.)
② It is recommended to set the outer insert as shown in Fig.1 with the outer insert facing the operator.
(It is also possible to use it by setting 180° reverse position.)
In case of the lathe with two turrets, when installing the drill to the lower turret, the outer insert should be set so as to face the operator.
(It is also possible to use it by setting at 180° reverse position)

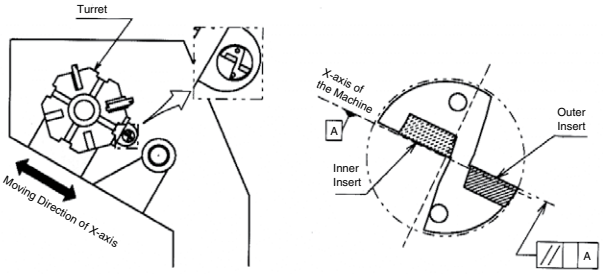


Fig.1 Installation to the Turning Lathe

Cutting Diameter Adjustment

1. Cutting Diameter Adjustment

① Cutting diameter is adjusted by moving the tool in the X-axis direction.
The moving direction of the X-axis movement depends on the position of the toolholder.
② For making the hole diameter larger, slide the tool along the X-axis toward the outer insert side. (Fig. 2, Fig. 3)
For making the hole diameter smaller, slide the tool along the X-axis in the opposite direction.
(This movement of the axis is called an "Offset")
However, be sure not to make the hole diameter smaller than the drill diameter by more than 0.2mm (.008").
Otherwise, the toolholder will interfere with the drilled hole. (Fig. 4)
e.g.) when using Ø20 (Ø.787") drill, the hole diameter must not be smaller than 19.8mm (.780") .

2. Offset Limit of the Cutting Diameter

For the maximum limit of the cutting diameter, refer to "Max. Offset (Radial)" in the Toolholder Dimension table.
(The figure in the table shows how much it is possible the offset the drill in the radial direction.)
e.g.) In case of using Ø20 (Ø.787") drill, it is possible to make a hole up to Ø2 (Ø.827") 1 since "Max. Offset (Radial)" is +0.5mm (.02") .

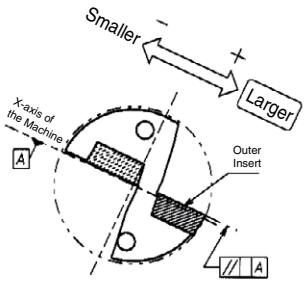


Fig. 2 Outer Insert Facing Up

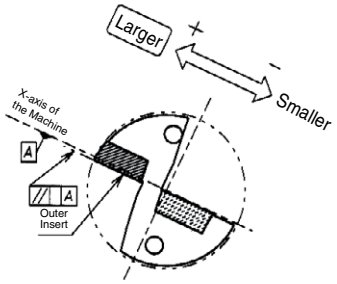


Fig. 3 Outer Insert Facing Down

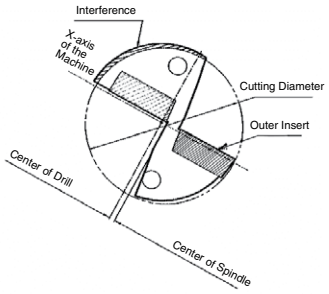


Fig. 4 Excessive Offset (For Smaller Hole Diameter)

Center Height Adjustment

1. Center Height of the Inner Insert

When installing inner insert as shown in Fig. 1, it will be set around 0.2mm (.008") below the Center line of the Spindle. (Fig. 5)
This is the normal position of the center height and the inner insert is designed to be set at this position.
However, in case that the turret of the lathe is out of alignment with the center of spindle, sometimes the inner insert may be above or below center.
For stable machining, it is essential to check the center height of the inner insert carefully.

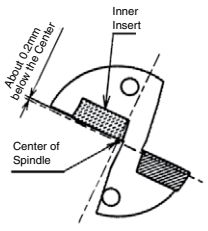


Fig. 5 Front View of the Drill

2. How to Check the Center Height of Inner Insert

For checking the center height of the inner insert, see the core which remains at the center of the drilled hole. (Fig. 6)
If the center height is in the normal condition, a core of about 0.5mm (.020") in diameter will remain after machining.

In the following case, it is necessary to adjust the center height.
- No core remains
- Core diameter is more than 1mm (.039")

The drilled hole for verification purposes needs to be machined at approximately 10mm (0.375") in depth and at a feed rate of 0.004 ipr or lower.

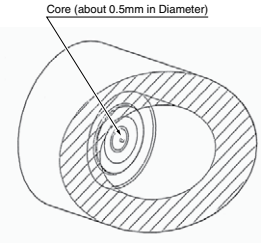


Fig. 6 Center Core

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3. Center Height Adjustment

a) No Core or Cores with Small Diameter

This occurs when the inner insert is set above center.
In this case, adjustment is necessary since insert breakage is likely at the center of the drill. (Fig. 7)

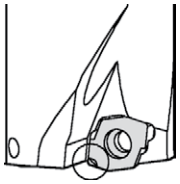


Fig. 7 Insert Breakage near the Center of Drill

Adjustments

① Install the drill rotated at the 180°. Most problems will be solved by this method.

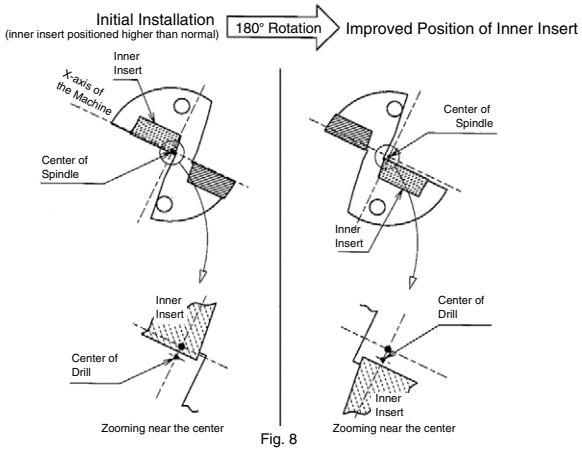


Fig. 8

② If the core diameter becomes too large after the above adjustment, install the drill rotated 90° counter-clockwise as shown in Fig.9 (outer insert is positioned lower) and adjust the center height by moving the tool in the X-axis direction.
(However, this makes it impossible to adjust the cutting diameter.)

Caution: In case of installing the drill in the opposite direction (outer insert is positioned upper), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole.
The fundamental solution is to readjust the center position of the turret itself.

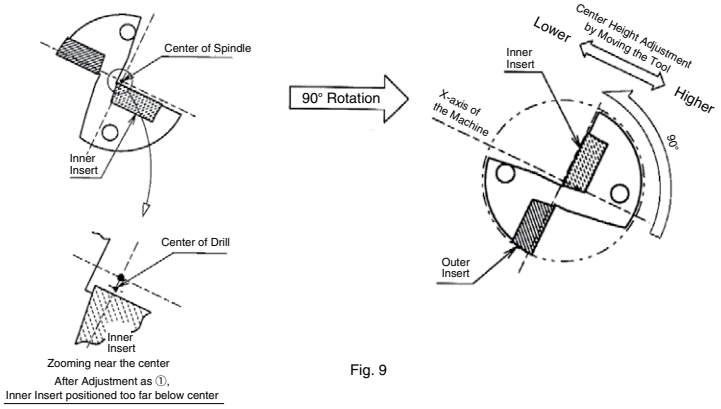


Fig. 9

b) Core with Excessively Large Diameter (More than 1mm/.04")

This occurs when the inner insert is below center.
This condition causes poor chip evacuation and on adjustment is required.

Adjustments

Install the drill rotated 90° counter-clockwise as shown in Fig.10 (outer insert is positioned upper), and adjust the center height by moving the tool in the X-axis direction.
(However, this makes it impossible to adjust the cutting diameter.)
Caution: When installing the drill in the opposite direction (outer insert is positioned lower), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole.
The fundamental solution is to readjust the center position of the turret itself.

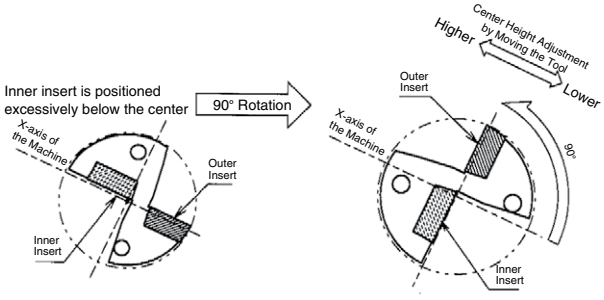


Fig. 10

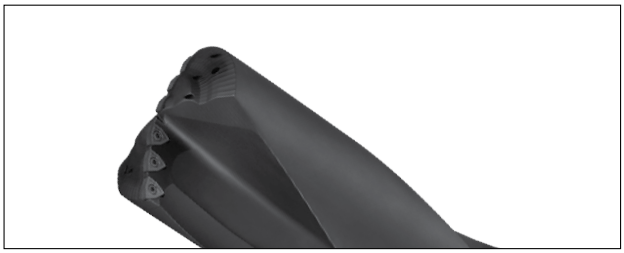
HOLESHOT Drill

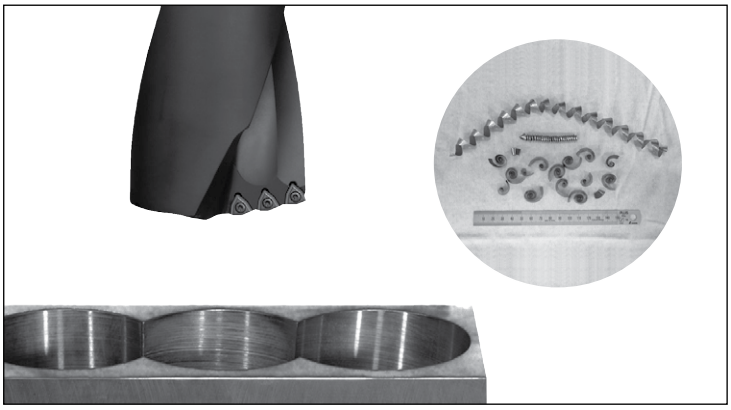
Sharp Cutting with Enhanced Chip Evacuation

Superior Fracture Resistance and Long Tool Life with MEGACOAT NANO Coating Technology

1. Drill Diameters from 0.688" to 4.000"
2. Flute Designs Optimized for Maximum Rigidity and Good Chip Evacuation
3. Featuring Grades PR1535 and CA6535 Available for Difficult-to-Cut Materials

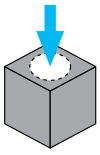
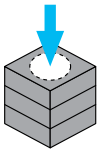
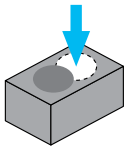
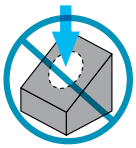
Patented Swept Back Design





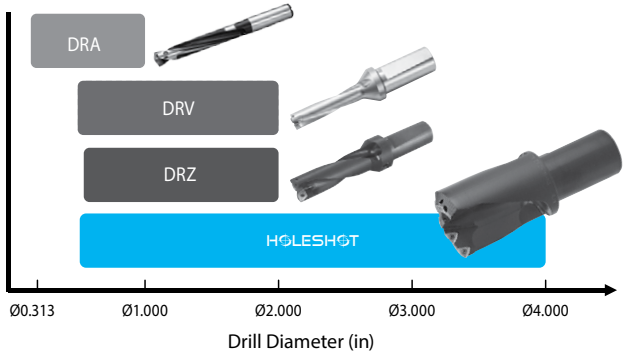
- Enables Drilling of Stacked Plates and Welded Assemblies
- Reduces Slug Formation
- Provides Excellent Chip Control

Applicable Workpieces

Plain Surface	Stacked Plates	Hole Expansion	Angled Surface
			

Hole Expansion: Overlap amount of through hole must be 1/5DC (0.2 x DC) or less. Expansion of blind holes is not possible because chips are built up in the next hole and will cause chip recutting issues

HOLESHOT Drill Diameter Range



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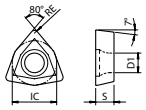
WCMX

						Carbon Steel / Alloy Steel		○		●		P
						Mold and Die Steel				●		P
						Stainless Steel	●	●		●		M
						Cast Iron			●		○	K
						Non-Ferrous Metals					●	N
						Heat-resistant alloy	●	●		●		S
Insert		Part Number		No. of Edges	Dimensions (in)				Carbide				Applicable Toolholder ➔ K100~K103
					IC	S	D1	RE	CVD	PVD		-	
									CA6535	PR1535	PR1510	PR1230	KW10
		WCMX	040204-M1A	3	1/4	0.094	0.084	1/64	●		●	●	●	DR-0688... ~ DR-0844...
			050308-M1	3	5/16	1/8	0.125	1/32	●		●	●	●	DR-0866... ~ DR-1156... DR-1575... ~ DR-2031...
			050308-M1A	3					●			●	●	
			06T308-M1	3	3/8	5/32	0.146		●	●	●	●	●	DR-1181... ~ DR-1562... DR-2062... ~ DR-3250...
			06T308-M1A	3					●		●	●	●	

WCMX…M1:
General purpose drilling insert; First choice for Med-High Carbon Steel, Tool Steels, and Cast Iron; also available for general purpose drilling in Stainless Steel. Tougher edge than M1A chipbreaker.
WCMX…M1A:
First choice for Low-carbon Steel, Aluminum, and other "sticky" materials. Freer cutting than M1 chipbreaker.

Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

HOLESHOT (DR)

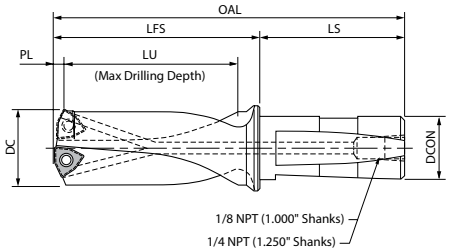


Fig.1

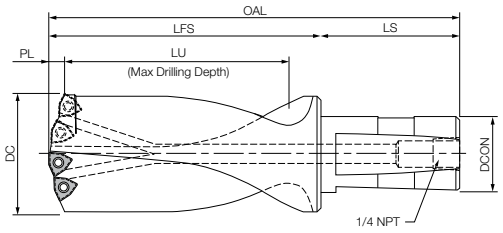


Fig.2

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC in	DC mm	DCON	OAL	LFS	LS	LU	PL	Coolant Hole	Fig.	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts ➡ K99
Inch	DR- 0688-X3N	●	2	0.688	-	0.750	4.87	2.84	2.03	2.06	0.090	Yes	1	SCR-01	T7	WCMX 040204-M1A
	0719-X3N	●		0.719		0.750	5.00	2.97	2.03	2.15	0.093					
	0750-X3N	●		0.750		0.750	5.13	3.10	2.03	2.25	0.102					
	0781-X3N	●		0.781		0.750	5.26	3.23	2.03	2.34	0.106					
	0813-X3N	●		0.813		0.750	5.39	3.36	2.03	2.44	0.110					
	0844-X3N	●		0.844		0.750	5.52	3.49	2.03	2.53	0.114					
	DR- 0866	△	2	0.866	22	1.000	4.78	2.50	2.28	1.75	0.130	Yes	1	SCR-03	T9	WCMT 050308 WCMX 050308-M1 WCMX 050308-M1A
	0866-X3N	△					5.80	3.52		2.60						
	0875	△		0.875	-	1.000	4.78	2.50	2.28	1.75	0.131					
	0875-X3N	●					5.79	3.51		2.63						
	0906	●		0.906	23	1.000	4.78	2.50	2.28	1.75	0.135					
	0906-X3N	●					5.88	3.60		2.71						
	0937	●		0.937	-	1.000	4.78	2.50	2.28	1.75	0.139					
	0937-X3N	●					5.98	3.70		2.81						
	0945	△		0.945	24	1.000	4.78	2.50	2.28	1.75	0.140					
	0945-X3N	△					6.04	3.76		2.83						
	0969-X3N	●		0.969	-	1.000	6.08	3.80	2.28	2.91	0.143					
	0984	●		0.984	25	1.000	4.78	2.50	2.28	1.75	0.145					
	0984-X3N	△					6.17	3.89		2.95						

Recommended Cutting Conditions ➡ K104

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC in	DC mm	DCON	OAL	LFS	LS	LU	PL	Coolant Hole	Fig.	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts K99
Inch	DR- 1000	●	2	1.000	-	1.000	4.78	2.50	2.28	1.75	0.147	Yes	1	SCR-03	T9	WCMX 050308-M1 WCMX 050308-M1A
	1000-X3N	●					6.18	3.90		3.00						
	1024-X3N	△		1.024	26	1.000	6.29	4.01	2.28	3.07	0.150					
	1031	●		1.031	-	1.000	5.16	2.88	2.28	2.13	0.151					
	1031-X3N	●					6.27	3.99		3.09						
	1062	●		1.062	27	1.000	5.16	2.88	2.28	2.13	0.155					
	1062-X3N	●					6.37	4.09		3.18						
	1094	△		1.094	-	1.000	5.16	2.88	2.28	2.13	0.159					
	1102	●		1.102	28	1.000	5.16	2.88	2.28	2.13	0.160					
	1125	●		1.125	-	1.000	5.16	2.88	2.28	2.13	0.163					
	1125-X3N	●					6.56	4.28		3.37						
	1142	●		1.142	29	1.000	5.16	2.88	2.28	2.13	0.165					
	1142-X3N	△					6.66	4.38		3.43						
	1156	●		1.156	-	1.000	5.16	2.88	2.28	2.13	0.167					
	1156-X3N	●					6.67	4.39		3.47						
	DR- 1187	●	2	1.187	-	1.000	5.16	2.88	2.28	2.13	0.169	Yes	1	SCR-30	T10	WCMX 06T308-M1 WCMX 06T308-M1A
	1187-X3N	●				1.250	6.76	4.48		3.56						
	1250	●		1.250		1.000	5.53	3.25	2.28	2.50	0.177					
	1250-X3N	●				1.250	6.96	4.68		3.75						
	1299	△		1.299	33	1.000	5.53	3.25	2.28	2.50	0.184					
	1312	●		1.312	-	1.000	5.53	3.25	2.28	2.50	0.185					
	1375	●		1.375	-	1.000	5.53	3.25	2.28	2.50	0.193					
	1375-X3N	●				1.250	7.34	5.06		4.12						
	1406	△		1.406		1.000	5.78	3.50	2.28	2.75	0.197					
	1417	●		1.417	36	1.000	5.78	3.50	2.28	2.75	0.199					
	1437	●		1.437	-	1.000	5.78	3.50	2.28	2.75	0.196					
	1437-X3N	△				1.250	7.54	5.26		4.31						
	1457	△		1.457	37	1.000	5.78	3.50	2.28	2.75	0.199					
	1469	△		1.469	-	1.000	5.78	3.50	2.28	2.75	0.200					
	1469-X3N	●				1.250	7.63	5.35		4.40						
	1500	●		1.500	-	1.000	5.78	3.50	2.28	2.75	0.204					
	1500-X3N	●				1.250	7.73	5.45	2.28	4.50						
	1562-X3N	●		1.562		1.250	8.17	5.89	2.28	4.68	0.212					
	DR- 1575	●	3	1.575	40	1.250	6.16	3.88	2.28	2.88	0.208	Yes	2	SCR-03	T9	WCMX 050308-M1 WCMX 050308-M1A
	1575-X3N	△				1.500	8.61	5.92	2.69	4.72						
	1614	△		1.614	41	1.250	6.16	3.88	2.28	2.88	0.212					
	1614-X3N	●				1.500	8.73	6.04	2.69	4.84						
	1625	●		1.625	-	1.250	6.16	3.88	2.28	2.88	0.214					
	1625-X3N	●				1.500	8.77	6.08	2.69	4.87						
	1656	●		1.656		1.250	6.16	3.88	2.28	2.88	0.218					
	1719	●		1.719		1.250	6.41	4.13	2.28	3.00	0.225					

Recommended Cutting Conditions K104

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC in	Dimensions DC mm	DCON	OAL	LFS	LS	LU	PL	Coolant Hole	Fig.	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts K99
Inch	DR- 1750	●	4	1.750	-	1.250	6.41	4.13	2.28	3.00	0.225	Yes	2	SCR-03	T9	WCMX 050308-M1 WCMX 050308-M1A
	1750-X3N	●				1.500	9.30	6.61	2.69	5.25						
	1772	●		1.772	45	1.250	6.41	4.13	2.28	3.00	0.231					
	1772-X3N	△				1.500	9.42	6.73	2.69	5.31						
	1781	●		1.781		1.250	6.41	4.13	2.28	3.00	0.223					
	1812	●		1.812	-	1.250	6.41	4.13	2.28	3.00	0.230					
	1812-X3N	△				1.500	9.48	6.79	2.69	5.43						
	1844	●		1.844		1.250	6.78	4.50	2.28	3.38	0.233					
	1850-X3N	△		1.850	47	1.500	9.66	6.97	2.69	5.55	0.233					
	1875-X3N	●		1.875	-	1.500	9.68	6.99	2.69	5.62	0.240					
	1890-X3N	△		1.890	48	1.500	9.79	7.10	2.69	5.67	0.246					
	1929	△		1.929	49	1.250	6.78	4.50	2.28	3.38	0.259					
	1929-X3N	△				1.500	9.92	7.23	2.69	5.79						
	1937	●		1.937	-	1.250	6.78	4.50	2.28	3.38	0.259					
	1937-X3N	●				1.500	9.89	7.20	2.69	5.81						
	1969	●		1.969	50	1.250	6.78	4.50	2.28	3.38	0.260					
	1969-X3N	●				1.500	9.99	7.30	2.69	5.91						
	2000	●		2.000	-	1.250	6.78	4.50	2.28	3.38	0.267					
	2000-X1	●				1.250	6.06	3.38	2.28	2.13						
	2000-X3N	●				1.500	10.09	7.40	2.69	6.00						
	2008-X3N	△		2.008	51	1.500	10.16	7.47	2.69	6.02	0.267					
	2031-X3N	●		2.031	-	1.500	10.30	7.61	2.69	6.09	0.268					
	DR- 2062	●	4	2.062	-	1.500	7.44	4.75	2.69	3.50	0.260	Yes	2	SCR-30	T10	WCMX 06T308-M1 WCMX 06T308-M1A
	2062-X1	△				1.500	6.06	3.38	2.69	2.13						
	2062-X3N	●				2.000	10.94	7.69	3.25	6.18						
	2094	△		2.094		1.500	7.44	4.75	2.69	3.50	0.267					
	2094-X1	△				1.500	6.06	3.38	2.69	2.13						
	2125	●		2.125	54	1.500	7.44	4.75	2.69	3.50	0.266					
	2187-X1	△		2.187		1.500	6.25	3.56	2.69	2.31	0.273					
	2187-X3N	●				2.000	11.33	8.08	3.25	6.56						
	2219	●		2.219		1.500	7.81	5.13	2.69	3.88						
	2219-X1	●				1.500	6.25	3.56	2.69	2.31	0.277					
	2219-X3N	●				2.000	11.44	8.19	3.25	6.66						
	2250	●		2.250	-	1.500	7.81	5.13	2.69	3.88						
	2250-X1	●				1.500	6.25	3.56	2.69	2.31	0.281					
	2250-X3N	●				2.000	11.53	8.28	3.25	6.75						
	2281	●		2.281		1.500	7.81	5.13	2.69	3.88	0.283					
	2312	●		2.312		1.500	7.81	5.13	2.69	3.88	0.287					
	2312-X3N	●				2.000	11.72	8.47	3.25	6.93						

Recommended Cutting Conditions K104

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC in	Dimensions DC mm	DCON	OAL	LFS	LS	LU	PL	Coolant Hole	Fig.	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts K99
Inch	DR- 2362	△	4	2.362	60	1.500	8.19	5.50	2.69	4.13	0.301	Yes	2	SCR-30	T10	WCMX 06T308-M1 WCMX 06T308-M1A
	2375	●		2.375	-	1.500	8.19	5.50	2.69	4.13	0.298					
	2375-X1	●				1.500	6.56	3.88	2.69	2.50						
	2375-X3N	●				2.000	12.05	8.80	3.25	7.12						
	2437-X1	△		2.437		1.500	6.56	3.88	2.69	2.50	0.309					
	2437-X3N	●				2.000	12.25	9.00	3.25	7.31						
	2469	●		2.469		1.500	8.19	5.50	2.69	4.13	0.319					
	2500	●		2.500		1.500	8.19	5.50	2.69	4.13	0.329					
	2500-X1	●				1.500	6.56	3.88	2.69	2.50						
	2500-X3N	●				2.000	12.46	9.21	3.25	7.50						
	2625	●		2.625		2.000	11.25	8.00	3.25	6.50	0.326					
	2625-X1	●				2.000	7.50	4.25	3.25	2.75						
	2750	●		2.750		2.000	11.25	8.00	3.25	6.50	0.340					
	2750-X1	●				2.000	7.50	4.25	3.25	2.75						
	2875	●		2.875		2.000	11.25	8.00	3.25	6.50	0.357					
	2875-X1	●				2.000	7.75	4.50	3.25	3.00						
	DR- 3000-X1	●	6	3.000	-	2.000	7.75	4.50	3.25	3.00	0.369					
	3000	●				2.000	11.25	8.00	3.25	6.50						
	3125	●		3.125		2.000	12.50	9.25	3.25	7.63	0.393					
	3125-X1	△				2.000	8.13	4.88	3.25	3.25						
	3250	●		3.250		2.000	12.50	9.25	3.25	7.63	0.387					
	3250-X1	△				2.000	8.13	4.88	3.25	3.25						
	3500	●		3.500		2.000	12.50	9.25	3.25	7.63	0.440					
	3500-X1	●				2.000	8.38	5.13	3.25	3.50						
	3625	●		3.625		2.000	12.67	9.42	3.25	7.94	0.441					
	3750	●		3.750		2.000	13.00	9.75	3.25	8.00	0.459					
	3750-X1	△				2.000	8.75	5.50	3.25	3.75						
	3875	△		3.875		2.000	13.44	10.19	3.25	8.44	0.470					
	4000	●		4.000		2.000	13.88	10.63	3.25	8.56	0.482					
	4000-X1	●				2.000	9.38	6.13	3.25	4.00						

Recommended Cutting Conditions K104

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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Recommended Cutting Conditions

Workpiece Material	Feed Rate (ipr)	Recommended Insert Grade / Cutting Speed (sfm)					Notes
		MEGACOAT NANO		MEGACOAT	CVD Carbide	Carbide	
		PR1535	PR1510	PR1230	CA6535	KW10	
Low Carbon Steel	0.0015~0.0035	☆ 250~650	-	★ 800~900	-	-	Coolant
Carbon Steel	0.005~0.009	☆ 250~550	-	★ 400~800	-	-	
Alloy Steel	0.004~0.010	☆ 225~500	-	★ 250~750	-	-	
Tool Steel	0.004~0.010	-	-	★ 250~750	-	-	
Stainless Steel (Austenitic)	0.0025~0.006	★ 200~600	-	★ 200~600	☆ 250~650	-	
Gray Cast Iron	0.005~0.011	-	★ 400~800	-	-	☆ 400~800	
Nodular Cast Iron	0.004~0.010	-	★ 300~500	-	-	☆ 300~500	
Non-ferrous Metals	0.008~0.010	-	-	-	-	★ 1,800~2,000	
Heat-resistant Alloy	0.0010~0.0015	☆ 75~150	-	★ 75~150	★ 75~200	-	
Titanium Alloys	0.0025~0.0030	★ 100~200	-	-	-	☆ 150~250	

Apply a sufficient amount of coolant

★ : 1st Recommendation ☆ : 2nd Recommendation

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HOLESHOT Applications

DRILL APPLICATION HOLESHOT INDEXABLE DRILL

Stationary
For stationary (lathe) applications the drill should be mounted in a toolholder that is concentric within 0.003 TIR and parallel to the machine centerline. Flats on the shank should be precisely aligned so that the cutting edges are parallel to the x-axis, which will help chip flow.

A disc is normally produced as the drill breaks through the hole. Although the disc is usually minimal with holeshot, adequate guarding should be provided for and in place.

holeshot drills can be used to back bore an existing hole to a desired size. The drill can be offset by up to 0.015" for back boring.

Rotating
Make certain the spindle is rigid with minimal runout. Since both machine and fixture rigidity are key factors, make sure the workpiece is fixed rigidly and secured. Mount drill for the least possible overhang and make sure the drill flange is flush against the face of the adapter.

Coolant - Chip removal and tool life are enhanced by feeding coolant through the drill. 30 P.S.I. minimum coolant pressure is recommended for horizontal applications. Vertical position requires a higher coolant pressure (40 to 60 P.S.I.) to flush chips properly.

Through the tool coolant is preferred for holeshot drilling, but due to the unique flute design, coolant deficiencies can be overcome. Especially in smaller, lower horsepower machine tools, strong flood coolant can be utilized with excellent results. When flooding the cut, direct coolant directly into the drilling area.

Coremaster Coredrill

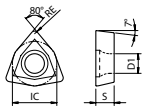
Fast and Effective way to Expand Pre-Existing Holes

Superior Fracture Resistance and Long Tool Life with MEGACOAT NANO Coating Technology

1. **Two Effective Flutes Allow High Feed Rates for Improved Productivity**
2. **Deeper Drilling Depths Available in XL Series**
3. **Fixed Pocket and Adjustable Cartridge Styles Available**

Adjustable cartridges can be adjusted 0.075" per side, providing 0.150" adjustment capability on diameter

WCMX

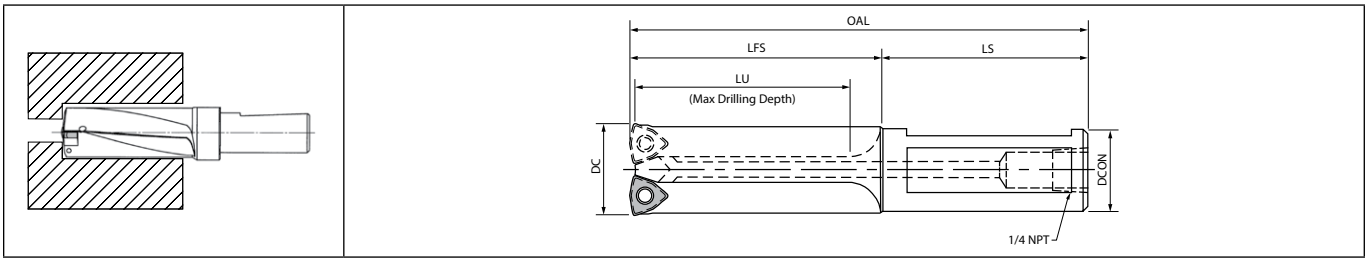
							Carbon Steel / Alloy Steel		○		●				P
							Mold and Die Steel				●				P
							Stainless Steel	●	●		●				M
							Cast Iron			●		○			K
							Non-Ferrous Metals					●			N
							Heat-resistant alloy	●	●		●				S
Insert		Part Number	No. of Edges	Dimensions (in)				Carbide					Cermet		Applicable Toolholder ➡ K107~K108
				IC	S	D1	RE	CVD	PVD			-	PVD	-	
								CA6535	PR1535	PR1510	PR1230	KW10	PV90	TN60	
		WCMX 050308-M1	3	5/16	1/8	0.125	1/32	●		●	●	●		●	CD-825 ~ CD-1052 CD-825-XL ~ CD-1052-XL
		050308-M1A	3					●			●	●	●		
		06T308-M1	3	3/8	5/32	0.146		●	●	●	●	●			CD-1115 ~ CD-1303 CD-1360-C ~ CD-2960-C CD-1115-XL ~ CD-1303-XL CD-1350-LC ~ CD-3000-LC
		06T308-M1A	3					●		●	●	●			

WCMX…M1:
General purpose drilling insert; First choice for Med-High Carbon Steel, Tool Steels, and Cast Iron; also available for general purpose drilling in Stainless Steel. Tougher edge than M1A chipbreaker.
WCMX…M1A:
First choice for Low-carbon Steel, Aluminum, and other "sticky" materials. Freer cutting than M1 chipbreaker.

Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Coremaster Coredrill (CD) (Fixed Pocket)



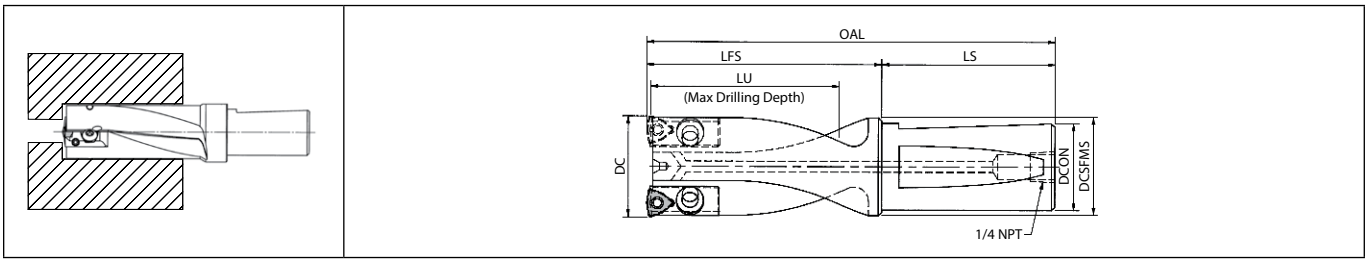
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LS	LU	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts ➡ K106
Inch	CD- 0825	●	2	0.825	1.000	4.750	2.250	2.500	1.750	SCR03	T9	WCMT 050308 WCMX 050308-M1 WCMX 050308-M1A
	0865	●		0.865								
	0938	●		0.938								
	0990	●		0.990		5.000	2.500		2.000			
	1052	●		1.052								
	1115	●	2	1.115	1.000	5.500	3.000	2.500	2.500	SCR30	T10	WCMT 06T308 WCMX 06T308-M1 WCMX 06T308-M1A
	1178	●		1.178								
	1240	●		1.240								
	1303	●		1.303								

Maximum material removal: WCMX 050308 – 5/16″ per side, WCMX 06T308 – 3/8″ per side.

Recommended Cutting Conditions ➡ K109

Coremaster Coredrill (CD-C) (Adjustable Pocket)



Toolholder Dimensions

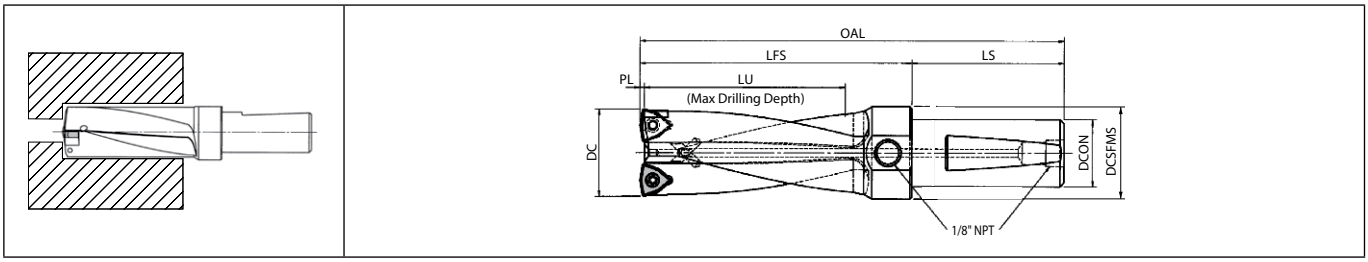
Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	OAL	LFS	LS	LU	DCSFMS	Spare Parts Insert Screw	Spare Parts Wrench	Spare Parts Cartridge	Spare Parts Screw	Applicable Inserts ➡ K106
Inch	CD- 1360-C	●	2	1.36 - 1.46	1.250	6.250	3.500	2.750	2.750	1.27	SCR30	T10	02-03	01-01	WCMT 06T308 WCMX 06T308-M1 WCMX 06T308-M1A
	1460-C	●		1.46 - 1.56						1.37					
	1560-C	●		1.56 - 1.66						1.47					
	1660-C	●		1.66 - 1.76						1.57				01-02	
	1760-C	●		1.76 - 1.86	1.500	7.000	4.000	3.000	3.125	1.67					
	1860-C	●		1.86 - 1.96						1.77					
	1960-C	●		1.96 - 2.06						1.87					
	2060-C	●		2.06 - 2.16						1.97					
	2160-C	●		2.16 - 2.26						2.07					
	2260-C	●		2.26 - 2.36						2.17					
	2360-C	●		2.36 - 2.46						2.27					
	2460-C	●		2.46 - 2.56						2.37					
	2560-C	●		2.56 - 2.66						-					
	2660-C	●		2.66 - 2.76											
	2760-C	●		2.76 - 2.86											
	2860-C	●		2.86 - 2.96											
	2960-C	●		2.96 - 3.06											

Maximum material removal: WCMX 050308 – 5/16″ per side, WCMX 06T308 – 3/8″ per side.

Recommended Cutting Conditions ➡ K109

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Coremaster Coredrill (CD-XL) (Extended Length - Fixed Pocket)



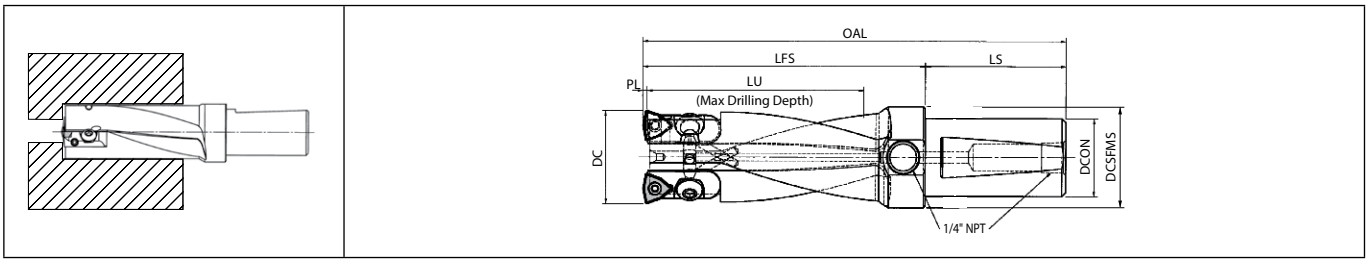
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Spare Parts		Applicable Inserts ➡ K106
											Screw	Wrench	
				DC	DCON	OAL	LFS	LS	LU	DCSFMS			
Inch	CD- 0825-XL	●	2	0.825	1.000	5.530	3.250	2.280	2.250	1.375	SCR03	T9	WCMT 050308 WCMX 050308-M1 WCMX 050308-M1A
	0865-XL	●		0.865									
	0938-XL	●		0.938		5.780	3.500		2.500				
	0990-XL	●		0.990									
	1052-XL	●		1.052									
	1115-XL	●		1.115	1.000	6.280	4.000	2.280	3.000	1.375	SCR30	T10	WCMT 06T308 WCMX 06T308-M1 WCMX 06T308-M1A
	1178-XL	●		1.178									
	1240-XL	●		1.240									
	1303-XL	●		1.303									

Maximum material removal: WCMX 050308 – 5/16″ per side, WCMX 06T308 – 3/8″ per side.

Recommended Cutting Conditions ➡ K109

Coremaster Coredrill (CD-LC) (Extended Length - Adjustable Pocket)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Spare Parts				Applicable Inserts ➡ K106
											Insert Screw	Wrench	Cartridge	Screw	
				DC	DCON	OAL	LFS	LS	LU	DCSFMS					
Inch	CD- 1350-LC	●	2	1.35 - 1.50	1.250	6.780	4.500	2.280	3.500	1.63	SCR30	T10	02-03	01-01	WCMT 06T308 WCMX 06T308-M1 WCMX 06T308-M1A
	1500-LC	●		1.50 - 1.65											
	1650-LC	●		1.65 - 1.80	1.500	8.190	5.500	2.690	4.500	1.88				01-02	
	1800-LC	●		1.80 - 1.95											
	1950-LC	●		1.95 - 2.10	1.500	8.190	5.500	2.690	4.500	-					
	2100-LC	●		2.10 - 2.25											
	2250-LC	●		2.25 - 2.40	2.000	9.750	6.500	3.250	5.500	2.38					
	2400-LC	●		2.40 - 2.55	2.000	9.750	6.500	3.250	5.500	-					
	2550-LC	●		2.55 - 2.70											
	2700-LC	●		2.70 - 2.85	2.000	10.250	7.000	3.250	6.000	-					
	2850-LC	●		2.85 - 3.00											
	3000-LC	●		3.00 - 3.15											

Maximum material removal: WCMX 050308 – 5/16″ per side, WCMX 06T308 – 3/8″ per side.

Recommended Cutting Conditions ➡ K109

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

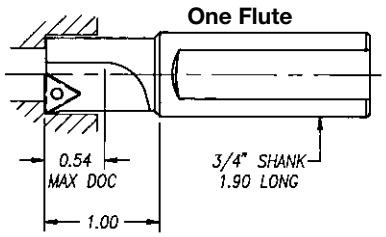
Workpiece Material	Feed Rate (ipr)	Recommended Insert Grade / Cutting Speed (sfm)								Notes
		MEGACOAT NANO		MEGACOAT	CVD Carbide	Cermet	PVD Cermet	PVD Coated Carbide	Carbide	
		PR1535	PR1510	PR1230	CA6535	TN60	PV90	PR905	KW10	
Low Carbon Steel	0.003~0.007	☆ 250~650	-	★ 800~900	-	-	☆ 300~1,000	-	-	Coolant
Carbon Steel	0.010~0.018	☆ 250~550	-	★ 400~800	-	-	☆ 300~900	-	-	
Alloy Steel	0.008~0.020	☆ 225~500	-	★ 250~750	-	-	☆ 250~800	-	-	
Tool Steel	0.008~0.020	-	-	★ 250~750	-	-	☆ 200~750	-	-	
Stainless Steel (Austenitic)	0.005~0.012	★ 200~600	-	★ 200~600	☆ 250~650	-	-	-	-	
Gray Cast Iron	0.010~0.022	-	★ 400~800	-	-	-	-	☆ 400~800	☆ 400~800	
Nodular Cast Iron	0.008~0.020	-	★ 300~500	-	-	-	-	☆ 300~500	☆ 300~500	
Non-ferrous Metals	0.016~0.020	-	-	-	-	★ 1,800~2,000	-	-	★ 1,800~2,000	
Heat-resistant Alloy	0.002~0.005	☆ 75~150	-	★ 75~150	★ 75~200	-	-	-	-	
Titanium Alloys	0.005~0.006	★ 100~200	-	-	-	-	-	☆ 100~210	☆ 150~250	

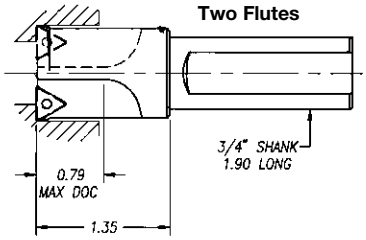
Apply a sufficient amount of coolant

★ : 1st Recommendation ☆ : 2nd Recommendation

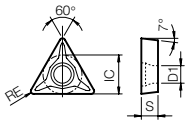
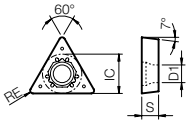
Counterbores

For Socket Head Cap Screw Sizes 1/4"~3/4" and 6mm~16mm





TCMT

										Carbon Steel / Alloy Steel ● ● P
										Mold and Die Steel ● ● P
										Stainless Steel ● M
										Cast Iron K
										Non-Ferrous Metals N
										Heat-resistant alloy ● S
Insert		Part Number	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA6535	CVD CA125P	Applicable Toolholder K111
		TCMT 18151HP	3	7/32	3/32	0.094	1/64	●		...-SHCS-CB
		TCMT 18151HQ	3	7/32	3/32	0.098	1/64		●	...-SHCS-CB

Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Counterbores (SHCS-CB)

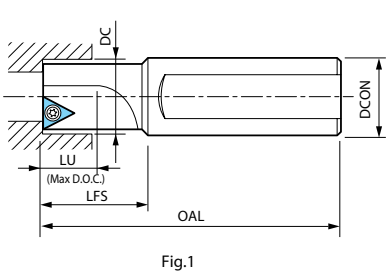


Fig.1

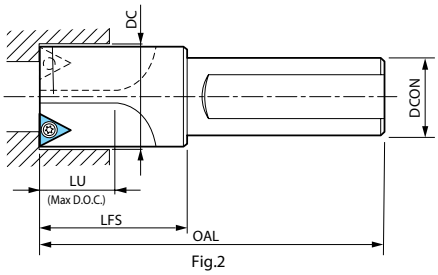


Fig.2

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Fig.	Spare Parts		Applicable Inserts ➡ K110
				SHCS		DC	DCON	OAL	LFS	LU		Screw	Wrench	
				in	mm									
Inch	1/4-SHCS-CB	●	1	1/4	-	0.422	0.750	2.90	1.00	0.54	1	SCR-05	FT-7	TCMT18151HP TCMT18151HQ
	5/16-SHCS-CB	●		5/16		0.515								
	3/8-SHCS-CB	●		3/8		0.609								
	7/16-SHCS-CB	●		7/16		0.703								
	1/2-SHCS-CB	●	2	1/2		0.797		3.25	1.35	0.79	2			
	5/8-SHCS-CB	●		5/8		1.000								
	3/4-SHCS-CB	●		3/4		1.187								
	M6-SHCS-CB	●	1	-	M6	0.440	0.750	2.90	1.00	0.54	1	SCR-05	FT-7	
	M8-SHCS-CB	●			M8	0.558								
	M10-SHCS-CB	●			M10	0.676								
	M12-SHCS-CB	●	2		M12	0.755		3.25	1.35	0.79	1			

Maximum material removal per side is 1/4"

Recommended Cutting Conditions

Workpiece Material	Chipbreaker / Feed Rate (ipr)		Recommended Insert Grade / Cutting Speed (sfm)		Notes
			CVD Carbide		
	HP	HQ	CA6535	CA125P	
Low Carbon Steel	-	0.004~0.010	-	★ 390~850	Coolant
Carbon Steel	-	0.004~0.010	-	★ 390~850	
Alloy Steel	-	0.004~0.010	-	★ 360~750	
Stainless Steel (Austenitic)	0.004~0.010	-	★ 250~650	-	
Heat-resistant Alloy	0.004~0.010	-	★ 75~200	-	

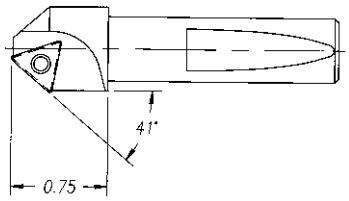
Apply a sufficient amount of coolant ★ : 1st Recommendation ☆ : 2nd Recommendation

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

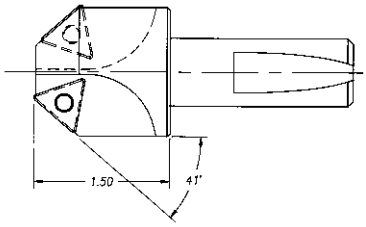
Countersinks

For Flat Head Cap Screw Sizes #10 ~ 3/4"

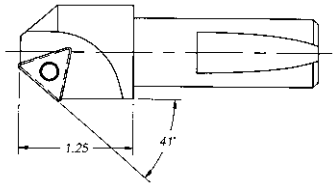
CS-82-177



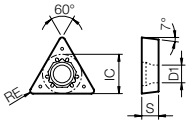
CS-82-612



CS-82-362



TCMT

Insert		Part Number	No. of Edges	Dimensions (in) IC	S	D1	RE	Carbide CVD CA6535	CVD CA125P	Applicable Toolholder ➡ K113
Carbon Steel / Alloy Steel									●	P
Mold and Die Steel									●	P
Stainless Steel								●		M
Cast Iron										K
Non-Ferrous Metals										N
Heat-resistant alloy								●		S
		TCMT 2151HQ	3	1/4	3/32	0.110	1/64		●	CS82-177
		TCMT 3252HQ	3	3/8	5/32	0.173	1/32	●	●	CS82-362 CS82-612

Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Countersinks (CS)

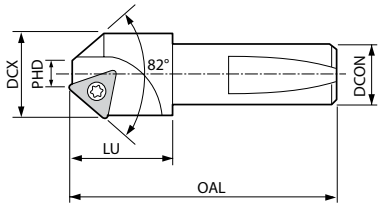


Fig.1

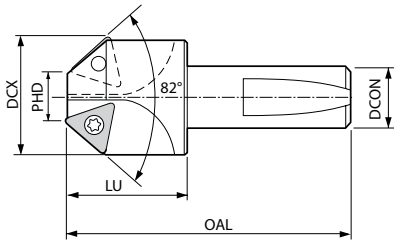


Fig.2

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					Rake Angle (°)		FHCS	Fig.	Spare Parts		Applicable Inserts ➡ K112
				DCX	DCON	PHD	OAL	LU	A.R.	R.R.			Screw	Wrench	
Inch	CS 82-177	●	1	0.673	0.500	0.177	2.530	0.750	0	0	#10, 1/4", 5/16"	1	SCR-01	FT-7	TCMT2151HQ
	82-362	●	1	1.073	0.750	0.362	3.280	1.250			3/8", 7/16", 1/2"		SCR-02	FT-15	TCMT3252HQ
	82-612	●	2	1.464	0.750	0.612	3.530	1.500			5/8", 3/4"	2			

CS82-612 is one flute effective with staggered inserts.

Recommended Cutting Conditions

Workpiece Material	Chipbreaker / Feed Rate (ipr)		Recommended Insert Grade / Cutting Speed (sfm)		Notes
			CVD Carbide		
	HP	HQ	CA6535	CA125P	
Low Carbon Steel	-	0.004~0.010	-	★ 390~850	Coolant
Carbon Steel	-	0.004~0.010	-	★ 390~850	
Alloy Steel	-	0.004~0.010	-	★ 360~750	
Stainless Steel (Austenitic)	0.004~0.010	-	★ 250~650	-	
Heat-resistant Alloy	0.004~0.010	-	★ 75~200	-	

Apply a sufficient amount of coolant

★ : 1st Recommendation ☆ : 2nd Recommendation

M

Overview		M2~M11
45° / 66° / 70° Lead Angle		M12~M61
MB45		M12
MFPN45 / MFPN66		M22
MFSE45		M38
MFLN45 / 70		M44
MFK	High efficiency milling cutters for cast iron	M50
75° Lead Angle		M62~M67
MSRS15		M62
88° / 90° Lead Angle		M68~M217
MA90		M68
MEW	M-FOUR	M82
MEC / MECX		M96
MEV	M-THREE	M118
MEWH / MECH / MECHT	Helical End Mills / Shell Mills	M126
MFWN / MFWN-Mini	M-SIX	M142
MFSN88		M158
MFLN90		M164
MSRS90		M170
MSR		M177
MTP90		M184
DMC-SX / DMC-H		M186
EM / EM-LE		M190
FM90		M192
MD90	High efficiency fine pitch milling cutters for aluminum alloys	M194
MFAH	High efficiency milling cutters for aluminum alloys	M200
MEAS	Mult-functional milling cutters of aluminum alloys	M210
EM-AL / FM-AL	General purpose milling cutters for aluminum alloys	M216
Milling Cutters for Finishing		M218~M223
MFF		M218
High Feed Milling Cutters		M224~M259
MFH-RAPTOR		M224
MFH-MAX		M238
MFH-Mini		M247
MFH-Micro		M254
Multi-Functional End Mills		M260~M265
MEY		M260
Slot Mills (MSTA)		M266~M269
Ball-Nose / Radius Milling Cutters		M270~M295
MRF / MRFW		M270
MRW	RAD-8	M274
MRX	RAD-6	M284
Other Applications		M296~M317
CM / CM-AL	Chamfering End Mill	M296
MCSE	Chamfering End Mill	M299
MEF	Bolt Countersink End Mill	M302
METS	T-Slot End Mill	M305
MGI	Grooving End Mill with GVR Inserts	M308
MVG	Ring Grooving End MIll	M310
API	Ring Groover	M312
DC	Dovetail End Mill	M316
ISO Milling Inserts		M318~M323
BT Arbors & Overhang Lengths (for Modular Head End Mills)		M324~M325

45˚/66°/70°/75° Lead Angle

Lead Angle	Shape \ Applications	Facing	Chamfering
45°	**MB45** M14~M17	• Delivers the low cutting force benefits of positive inserts and the fracture resistance benefits of negative inserts • Provides excellent surface finish • Available for steel, stainless steel, cast iron, aluminum alloys, and heat-resistant alloys	
45°	**MFPN45** M22~M27	• 10-edge pentagonal inserts (double-sided) • Low cutting force with helical cutting-edge design • Dual cutting edge design (High toughness) • Weldon and cylindrical shanks available	

Lead Angle	Shape \ Applications	Facing	Chamfering
45°	**MFSE45** With Wiper Insert M40	• 10-edge pentagonal inserts (double-sided) • Low cutting force with helical cutting-edge design • Dual cutting edge design (High toughness) • End mills have ø32mm cylindrical shank	
45°	**MFLN45** M46	• For heavy milling • Tough 4-edge vertical inserts • For large depths of cut and high feed rates • Max. D.O.C. 12 mm	

Lead Angle	Shape \ Applications	Facing
66°	**MFPN66** M33~M35	• Double-sided 10-edge insert • Cutting edge angle 66˚ • Reduces chattering with low cutting force design • End mills have ø32mm, ø40mm cylindrical shank
75°	**MSRS15** M63~M64	• For heavy milling • Max. D.O.C. 12 mm • High chip evacuation rate per unit

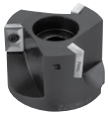
Lead Angle	Shape \ Applications	Facing
70°	**MFLN70** M47	• For heavy milling • Tough 4-edge vertical inserts • For large depths of cut and high feed rates • Max. D.O.C. 17 mm
70°	**MFK** M52~M54	• High efficiency multi-edge cutter for cast iron • 10-edge pentagonal inserts (double-sided) • Low cutting force with helical cutting-edge design Improved surface finish, minimizing chattering and prevented burr formation • Dual cutting edge design (High toughness)
70°	**MFK-SF** M56	• For cast iron • Adjustable cutting edge height • High speed and high precision machining of cast iron by combining ceramic insert and CBN wiper insert

88˚/90˚ Lead Angle (Double-sided insert)

Lead Angle	Shape \ Applications	Facing	Shouldering	Slotting
90°	**MA90** M72~M75	• Economical double-sided 4-edge insert • Obtuse edge increases cutting edge toughness • Smooth surface wall with low cutting force and reduced chattering		
	MA90 Modular Head M76			
	MEW M84~M89	• Economical double-sided 4-edge insert • Obtuse edge increases cutting edge toughness • Smooth surface wall with low cutting force and reduced chattering		
	MEW Modular Head M90			

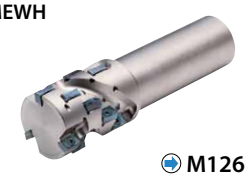
Lead Angle	Shape \ Applications	Facing	Shouldering	Slotting
90°	**MFWN** M144~M148	• Economical double-sided 6-edge insert • Superior fracture resistance with thick edge design • "Large slant edge" design reduces shock when cutting edge enters the workpiece • Low cutting force and reduce chattering • End mills have weldon or cylindrical shanks		
90°	**MFWN Mini** M153~M154	• Can be used up to 5 mm D.O.C. • Good cost performance • Economical double-sided 6-edge insert • Superior fracture resistance with thick edge design • "Large slant edge" design reduces shock when cutting edge enters the workpiece • Low cutting force and reduce chattering		
88°	**MFSN88** M159~M161	• Economical double-sided 8-edge insert • Reduces chattering with low cutting force design • Contribute to cost-cutting for Shoulder Roughing • End mills have ø32mm, ø40mm cylindrical shank		

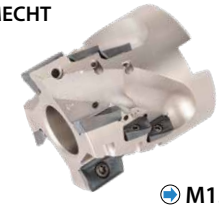
90˚ Lead

Lead Angle	Applications / Shape	Facing	Shouldering	Slotting
90°	**MEC** M96~M102	• Good squareness • Low cutting force • The silver coating prevents chip wear on the tool body • With coolant hole (Over shank size ø16) • The twisted cutting edge improves cutting performance • Smooth surface of shoulder wall		
	MEC Modular Head M103			
	MECX M112~M113	• Good squareness • Small size insert with multi-edge specification • Recommended for small machines: low cutting force and high strength design • The silver coating prevents chip wear on the tool body • With coolant hole		
	MTP90 M184	• Medium to roughing of steel / cast iron • For small machines and M/C		
	EM M190	• Extended length end mills		
	EM-LE M191	• Long edge end mill		
	FM-90  M192	• Fixed pocket face mills		

Lead Angle	Applications / Shape	Facing	Shouldering	Slotting
90°	**MEV** M120~M122	• Newly developed vertical triangle inserts • Economical 3-edge insert • The MEV can perform a wide variety of machining processes		
	MEV Modular Head M122			
	DMC-H M187	• High Rake • For small milling machine and M/C		
	DMC-SX M186	• For small milling machine and M/C		

90˚ Lead (Heavy Milling)

Lead Angle	Shape \ Applications	Facing	Shouldering	Slotting
90°(Long cutting edge)	**MEWH**  M126	• Low cutting force and sharp cutting performance • Excellent surface finish quality • Economical double-sided 4-edge insert • High quality and stable machining with heavy milling		
	MEWH Shell Mill M127	• MEWH shell mill		
	MSRS90 M172~M173	• High efficiency, low cutting force and stable machining without chatter • Various expansive possibilities with combining neutral insert and custom-ordered cutter		
	MSR M178~M179	• Low cutting force and restrain chattering with notched insert • Chipbreaker design with specialized notches improves chip evacuation • Chipbreaker achieves stabilized machining for heavy milling		
	MFLN90 M166	• For heavy milling • Tough 4-edge vertical inserts • For large depths of cut and high feed rates • Max. ap 20 mm • Chamfered corner type available • Prevents chattering and insert fracturing		

Lead Angle	Shape \ Applications	Facing	Shouldering	Slotting
90°(Long cutting edge)	**MECH** M130	• Notched insert improves higher productivity		
	MECH Shell Mill M131	• MECH shell mill		
	MECHT  M139	• Excellent chattering resistance and good chip control with special design for titanium alloys • End mills have ø32mm, cylindrical shank		

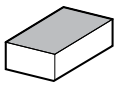
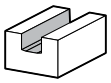
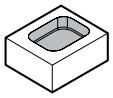
90° Lead (for Aluminum Alloys)

Lead Angle	Shape \ Applications	Facing	Shouldering	Slotting
	MFAH M196~M197	• High efficiency super-fine pitch milling cutter for finishing aluminum alloys • Light-weight aluminum body with internal coolant available or choose a Steel body • Adjustable cutting edge height • 3 different cutting edge design		
90°	**MFAH** M202~M204	• High efficiency milling cutter for finishing aluminum alloys • Light-weight hybrid body with internal coolant available/Steel body • Adjustable cutting edge height • 3 different cutting edge design		
	MEAS M212	• High efficiency milling cutter for finishing aluminum alloys • Excellent scatter prevention to ensure stable		
	FM-AL M216	• Aluminum cutting face mills • Fixed pocket		
	EM-AL M216	• Aluminum cutting end mills • Fixed pocket		

For Finishing Operations

Shape \ Applications	Facing
MFF M221	• High-Quality surface finish • Molded wiper insert • Cutter body design provides excellent reliability • Easy-to-adjust cutting edge

High Feed Cutters

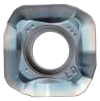
Shape \ Applications	Facing	Shouldering	Slotting	Pocketing	Cutting Diameter DCX
					Ø0.375" Ø0.625" Ø0.5" Ø1" Ø1.5" Ø2" Ø2.5" Ø3" Ø4" Ø5" Ø6"

MFH-RAPTOR (Face Mill)
M225~M227

- Various applications with 4 types of inserts

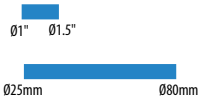
GM Type
(General purpose)

GH Type
(Tough edge)


LD Type
(Large D.O.C.) MAX. D.O.C. = 5mm

FL Type
(With wiper edge)
Roughing and finishing

MFH-RAPTOR (End Mill)
M229~M231



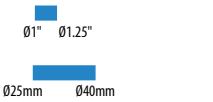
MFH-RAPTOR (Modular Head)
M232

- 3D convex cutting edge reduces shock of biting workpiece
- Multi-functional cutter for ramping, helical milling vertical milling (plunging) etc. (GM/GH type)

MFH-MAX (Face Mill)
M242

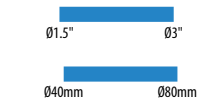
- Economical double-sided 4-edge insert
- High feed milling with large depth of cut capabilities

GM Type
(General Purpose)

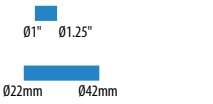


MFH-MAX (End Mill)
M241

- Achieves high efficiency machining in various shouldering, slotting, helical milling, and ramping applications



MFH-MAX (Modular Head)
M243



MFH-Mini (Face Mill)
M249

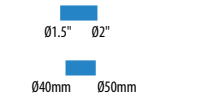
- Economical double-sided 4-edge insert

GM type
(General purpose)

GH type
(Tough edge)

MFH-Mini (End Mill)
M248

- High efficiency and high feed machining at small dia. machining and small machining center



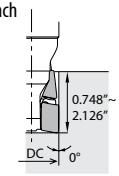
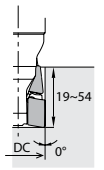
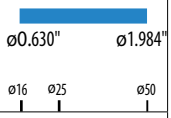
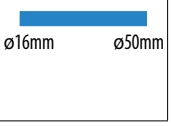
MFH-Mini (Modular Head)
M250

MFH-Micro (End Mill)
M255

- Micro diameter cutter for high feed machining
- High efficiency machining with low cutting force and reduced chattering

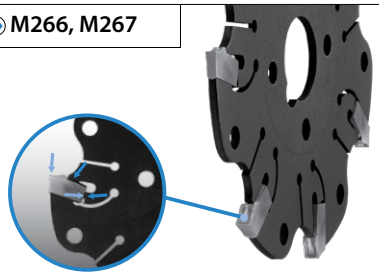
MFH-Micro (Modular Head)
M256

Multi-Functional End Mills

Applications / Shape	Facing	Shouldering	Slotting	Deep slotting	Pocketing	Drilling	Lead Angle and Max. D.O.C.	Cutting Diameter DC
MEY M260~M261	• Multi-function machining (Drilling/Ramping/ Shouldering/Grooving) • High efficiency mold machining • Low cutting force, Good chip evacuation	• Full 2-insert structure and high stability • Good chip control when Ramping	• Cutting diameters that are larger than the shank diameters enables wall shouldering • The silver coating prevents chip wear on the tool body				Inch  mm 	Inch  mm 

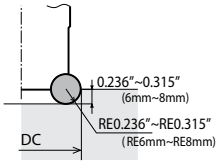
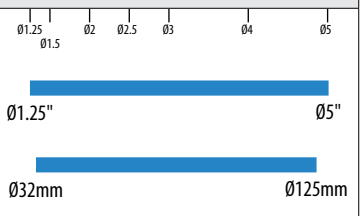
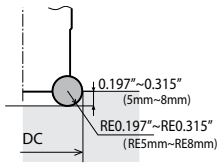
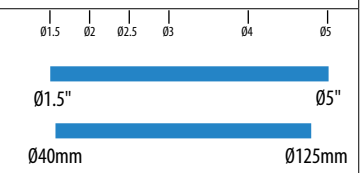
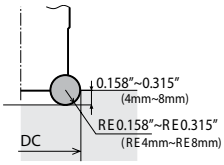
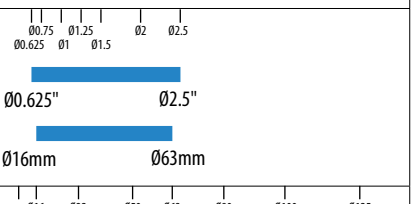
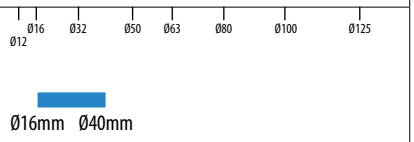
Slot Mill MSTA

M266, M267

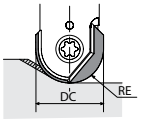
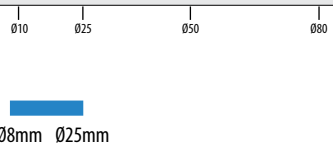
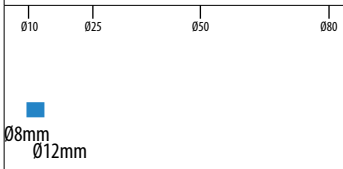


- Self-clamping type
- Remove insert with appropriate wrench

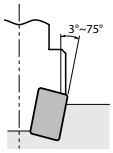
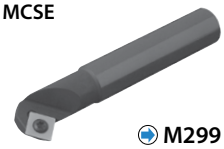
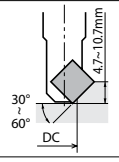
Radius

Applications / Shape	Facing	Shouldering	Pocketing	Lead Angle and Max. D.O.C.	Cutting Diameter DC
MRW Face Mill/End Mill M276~M280	• High efficiency radius cutter with double-sided insert • Combine sharpness and cutting edge strength (A.R. Max. +12˚) • Prevent insert rotation during machining with flat lock structure • Wide application range from steel to heat-resistant alloys				
MRX Face Mill M285~M286	• Low cutting force and high performance radius cutter • Low cutting force with helical cutting-edge design (A.R. Max. +10˚) • Prevent insert rotation during machining with flat lock structure • Wide application from facing, grooving, pocketing to plunging • Wide application range from steel to heat-resistant alloys				
MRX End Mill M288~M297					
MRX head (Modular Head) M290					

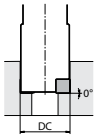
Ball-nose end mill

Applications / Shape	Contouring/Profiling	Pocketing	Lead Angle and Max. D.O.C.	Cutting Diameter DC
MRF M270	• For high quality mold finishing • High R-accuracy (Insert's R-accuracy: ±0.01mm or under) • The bushing ensures insert installation accuracy			
MRFW M271	• Carbide shank • For high quality mold finishing • High R-accuracy (Insert's R-accuracy: ±0.01mm or under) • The bushing ensures insert installation accuracy • Superior to anti vibration, and stable machining is possible with long overhang length without chattering			

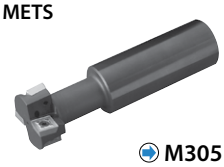
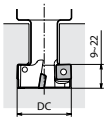
Chamfering

Shape \ Applications	Chamfering	Back Chamfering	V Shape Slotting	Countersinking	Lead Angle and Max. D.O.C.
CM / CM-AL M298	• Chamfering angles 3°-75° • CM-AL for aluminum cutting				
MCSE  M299	• For 30˚, 45˚, 60˚ chamfering • Economical 4-edge insert • Available back chamfering				

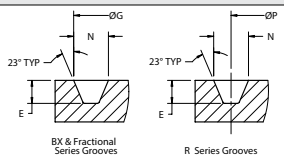
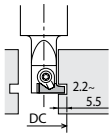
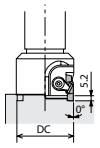
Bolt Countersinking

Shape \ Applications	Bolt Countersinking	Facing	Shouldering	Lead Angle and Max. D.O.C.
MEF M302	• Countersink for hexagon socket bolt (M6 ~ M30) • Economical 4-edge insert			

T-Slotting

Shape \ Applications	T-Slotting	Back Side Milling	Lead Angle and Max. D.O.C.
METS  M305	• T-Slotting • Recommended for high feed machining with 2 flute design • Economical 4-edge insert		

Grooving

Shape \ Applications	Internal Grooving	Ring Grooving	API Ring Grooving	Lead Angle and Max. D.O.C.
API M312			• The most economical and reliable tool to produce API ring grooves for the oil, gas, and petrochemical industries	
MGI M308	• Edge Width 1.0 ~ 4.0mm • Grooving for M/C			
MVG M310		• Cutting dia. ø30 ~ ø75mm • Edge width 4.0 ~ 4.9mm • O-Ring grooving (G Series)		

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Milling Insert Identification System

Symbol	Shape
H	Hexagon
O	Octagon
P	Pentagon
S	Square
T	Triangle
C	80° Diamond
D	55° Diamond
E	75° Diamond
F	50° Diamond
M	86° Diamond
V	35° Diamond
W	80° Trigon
L	Rectangle
A	85° Parallelogram
B	82° Parallelogram
K	55° Parallelogram
R	Round

Shown angle stands for acute angle for rhombic and parallelogram inserts.

Shape

Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Other Angles

Relief Angle

Symbol (Class)	Tolerance					
	Corner Height		Thickness		I.C. Size	
	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)
A	0.0002	0.005	0.0010	0.025	0.0010	0.025
F					0.0005	0.013
C	0.0005	0.013			0.0010	0.025
H					0.0005	0.013
E	0.0010	0.025	0.0010	0.025	0.0010	0.025
G			0.0050	0.130		
J	0.0002	0.005	0.0010	0.025	0.002~0.006	0.05~0.15
K*	0.0005	0.013				
L*	0.0010	0.025				
M*	0.003~0.007	0.080~0.180	0.0050	0.130		
N*			0.0010	0.025		
U*	0.005~0.015	0.130~0.380	0.0050	0.130	0.003~0.009	0.08~0.25

R	Blank with grind stock on all surfaces
S	Blank with grind stock on top and bottom surface only

Insert's periphery is as fired.
* Tolerance difference depends on size and shape of insert

Tolerance

I.C. Size (inch)	Symbol
5/32	1.2
3/16	1.5
7/32	1.8
1/4	2
5/16	2.5
3/8	3
7/16	3.5
1/2	4
9/16	4.5
5/8	5
11/16	5.5
3/4	6
7/8	7
1	8
1-1/4	10

I.C. Size (ANSI)

Inserts with Radius			
0	Sharp Corner	4	1/16" Radius
1	1/64" Radius	6	3/32" Radius
2	1/32" Radius	8	1/8" Radius
3	3/64" Radius		
Insert with Wiper Flats			
A	Square Insert 45° Chamfer		
D	Square Insert 30° Chamfer		
E	Square Insert 15° Chamfer		
F	Square Insert 3° Chamfer		
K	Square Insert 30° Double Chamfer		
L	Square Insert 15° Double Chamfer		
M	Square Insert 3° Double Chamfer		
N	Truncated Triangle Insert		
P	Flatted Corner Triangle		
X	Triangle Insert 15° Double Chamfer		

Cutting Point

Symbol	Insert
F	Sharp Edge
E	R-honed
T	Chamfered
S	Chamfered + R-honed

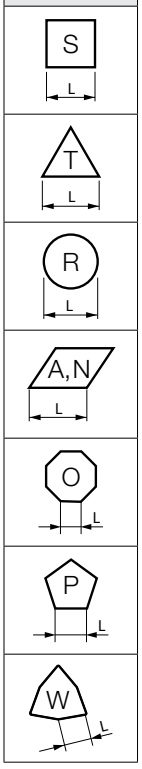
Edge Preparation

ANSI (inch): S E K N 4 2 A F T N

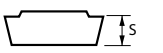
ISO (metric): S E K N 12 03 A F T N

Hole / Chipbreaker	
Symbol	Insert
W	No Chipbreaker with Hole
T	Single-sided Chipbreaker with Hole
F	Double-sided Chipbreaker without Hole
N	No Chipbreaker without Hole
R	Single-sided Chipbreaker without Hole
M	Single-sided Chipbreaker with Hole
A	No Chipbreaker with Hole

Edge Length Symbol (ISO)

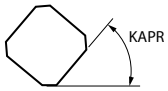


Thickness			
ISO		ANSI	
Thickness (mm)	Symbol	Thickness (inch)	Symbol
1.59	01	1/16	1
1.98	T1	5/64	1.2
2.38	02	3/32	1.5
2.78	T2	-	-
3.18	03	1/8	2
3.97	T3	5/32	2.5
4.76	04	3/16	3
5.56	05	7/32	3.5
6.35	06	1/4	4
7.94	07	5/16	5
9.525	09	3/8	6



Thickness displayed as the distance between bottom surface and highest point on cutting edge.

Cutting Edge Angle	
Symbol	Cutting Edge Angle
A	45°
D	60°
E	75°
F	85°
H	87°
P	90°
X	65°

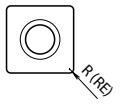


Relief Angle	
Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
R	10°
S	14°
T	22°
U	23°

Tool Hand	
R	Right-hand
L	Left-hand
N	Neutral

Manufacturer's Option
Chipbreaker, etc.

Corner-R(RE)			
ISO		ANSI	
Symbol	Corner-R (RE) (mm)	Symbol	Corner-R (RE) (inch)
04	0.40	1	1/64
08	0.80	2	1/32
12	1.20	3	3/64
16	1.60	4	1/16
20	2.00	5	5/64



45° General Purpose Milling Series

MB45

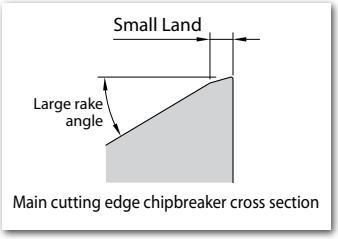
Delivers the low cutting force benefits of positive inserts and the fracture resistance benefits of negative inserts, and provides excellent surface finish

1 Large insert lineup for a wide variety of machining applications

Five insert designs for various machining applications
Economical inserts with 8 cutting edges
General purpose GM insert with E-Class and M-Class options based on required machining accuracy

SM (E Class) - Low Cutting Force

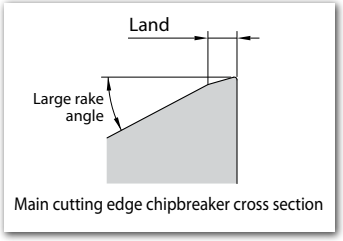
Sharpness oriented with a low cutting force design
-10% cutting resistance compared to general purpose GM insert
Recommended for small machines (BT30)



Main cutting edge chipbreaker cross section

GM (E/M Class) - General Purpose

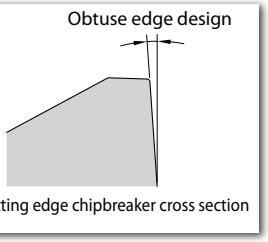
1st recommendation for steel machining
Low cutting force and fracture resistance
E-Class or M-Class options



Main cutting edge chipbreaker cross section

GH (M Class) - Tough Edge

Tough cutting edge and excellent fracture resistance
Obtuse edge design is resistant to chipping
Recommended for intermittent machining



Main cutting edge chipbreaker cross section

W (E-Class) Wiper Insert

Ultra-long wiper edge (Wiper edge length approx. 8 mm)

* Double-sided 2-edge insert

When to use GM (Class E/M)

Selection by Machining Application

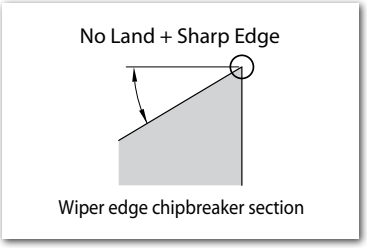
Surface roughness oriented: **GM** (E-Class)
Cost-effective and surface finish oriented: **GM** (M-Class)
Efficiency and surface roughness oriented: **W** (E-Class)

Criteria	GM (E-Class)	GM (M-Class)	W (E-Class) * Wiper
Tolerance	Inscribed Circle Tolerance ±0.0005"	Inscribed Circle Tolerance ±0.0020"	Inscribed Circle Tolerance ±0.0005"
Surface Finish	○ Approx. 1.6µmRa	△ Approx. 3.2µmRa	◎ Approx. 0.8µmRa or less
(Gloss)	(○)	(◎)	(◎)
Machining Efficiency	○	○	◎
Economy	○	◎	△

*Surface finish is based on internal assessment and varies depending on the machining environment

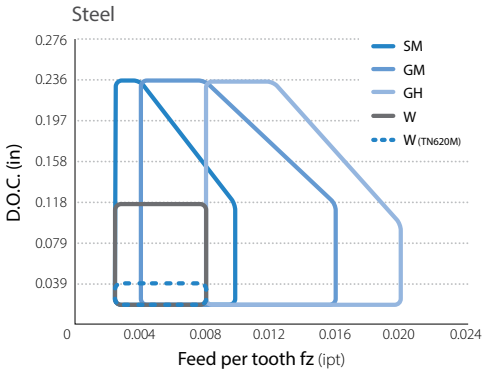
AM for Aluminum Alloys

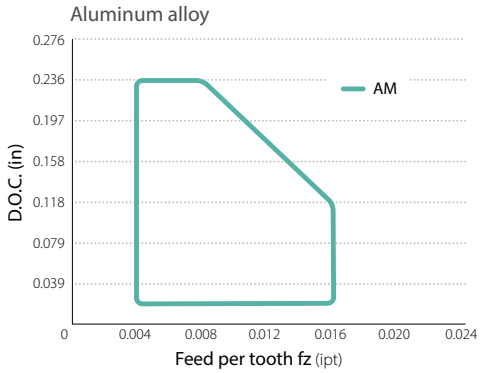
No Land + Sharp Edge Specifications
Excellent sharpness



Wiper edge chipbreaker section

Applicable Insert Range





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2 7 insert grades available for steel, stainless steel, cast iron, heat-resistant alloys, and aluminum

For steel, stainless steel and cast iron

PR1825/PR1835/PR1810 New development MEGACOAT NANO EX

For hardened material

PR015S MEGACOAT HARD PVD coating

For steel Surface finish oriented

TN620M Cermet

For stainless steel and heat-resistant alloys

CA6535 CVD coating

For aluminum machining

PDL025 DLC coating

GW25 Non-coated Carbide

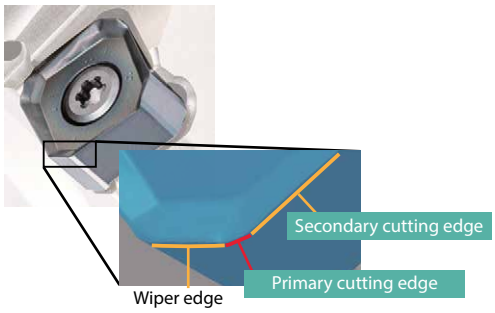
3 Low cutting force design with excellent fracture resistance and superior surface finish

Low cutting force and excellent fracture resistance

A unique helical cutting edge

A.R. Ensures a maximum of 13° and suppresses chatter with low cutting force.

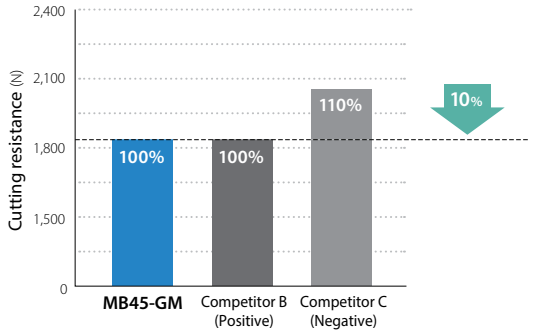
Double edge structure



Primary cutting edge generates thin chips
Reduces impact load and greatly reduces vibration when exiting the part

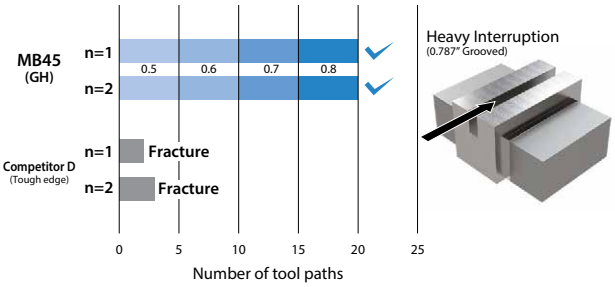
Unique helical cutting edge and double-edge structure

Cutting resistance comparison (Internal evaluation)



Cutting Conditions: Vc = 590 sfm, D.O.C. = 0.118", ae/DC = 80 % Center Cut, fz = 0.012 ipt, Workpiece: 1049

Fracture resistance comparison (Internal evaluation) fz = 0.020 ipt~0.032 ipt



Cutting Conditions: Vc = 330 sfm, D.O.C. × ae = 0.079" × 3.937" mm Center Cut, BT50
Workpiece: 4140HT ø5.000" (10 flute)

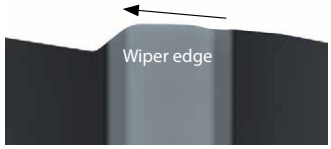
High Quality

Long arc wiper edge utilizing unique technology

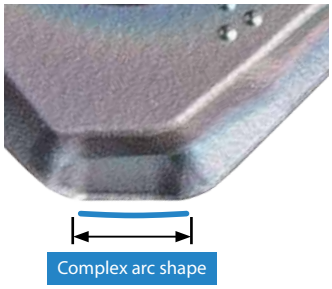
Unique long arc wiper edge

Reduces variation in mounting accuracy and provides superior finished surface quality

Side view of insert



Convex curved shape with wiper edge protruding upward
*GM/SM/AM (E-Class)



MB45 (Face Mill)

Fig.1

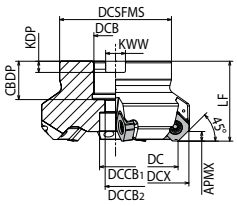
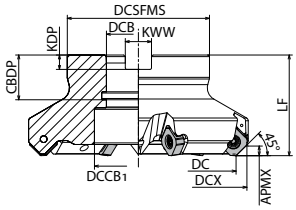


Fig.2



Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions											A.R. max.(°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Applicable Inserts ● M18
						DC	DCX	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX						
Inch	Inch Bore Dia.	Coarse Pitch	MB45- 2000R-14T3C	●	3	2.000	2.492	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313					11,300		
			2500R-14T4C	●	4	2.500	2.992													10,100	1	
			3000R-14T5C	●	5	3.000	3.492	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382	0.236	+13	-12	Yes	9,200		SN□U1406...
			4000R-14T5C	●	5	4.000	4.492	3.750	1.500	2.047	-	1.969	1.417	0.394	0.626					8,000	2	
			5000R-14T6C	●	6	5.000	5.492					2.480								7,100		
		Fine Pitch	MB45- 2000R-14T4C	●	4	2.000	2.492	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313					11,300		
			2500R-14T5C	●	5	2.500	2.992													10,100	1	
			3000R-14T6C	●	6	3.000	3.492	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382	0.236	+13	-12	Yes	9,200		SN□U1406...
			4000R-14T8C	●	8	4.000	4.492	3.750	1.500	2.047	-	1.969	1.417	0.394	0.626					8,000	2	
			5000R-14T10C	●	10	5.000	5.492					2.480	1.417	0.394	0.626					7,100		
		Extra Fine Pitch	MB45- 2000R-14T5C	●	5	2.000	2.492	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313					11,300		
			2500R-14T6C	●	6	2.500	2.992													10,100	1	
			3000R-14T8C	●	8	3.000	3.492	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382	0.236	+13	-12	Yes	9,200		SN□U1406...
			4000R-14T10C	●	10	4.000	4.492	3.750	1.500	2.047	-	1.969	1.417	0.394	0.626					8,000	2	
			5000R-14T13C	●	13	5.000	5.492					2.480	1.417	0.394	0.626					7,100		

Maximum number of revolutions
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on page **M19**.
Do not use the face mill or end mill at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

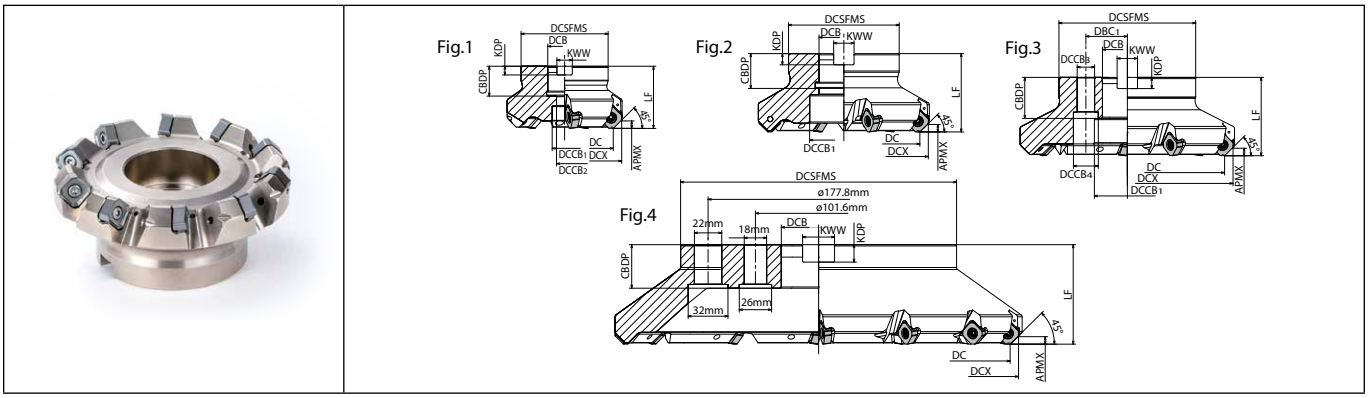
Inch Size Face Mill and End Mill Spare Parts

	Part Number	Insert Screw	Wrench	Anti-Seize Compound	Arbor Bolt
Face Mills	MB45- 2000R-14T...	SB-50110TRP	TTP-20	P-37	HH3/8-1.25(H)
	2500R-14T...				HH3/8-1.25(H)
	3000R-14T...				HH1/2-1.25(H)
	4000R-14T... ~ 5000R-14T...				-
		Recommended Torque for Insert Screw 4.5 Nm			
End Mills	MB45- 1500S125-14T2C	SB-50110TRP	TTP-20	P-37	-
	1500S125-14T3C				
	2000S125-14T3C				
	2500S125-14T4C				
		Recommended Torque for Insert Screw 4.5 Nm			

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.
(H) Optional coolant-through bolt available

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MB45 (Face Mill)



Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions														A.R. max.(°)	R.R. (°)	Coolant Hole	Weight (kg)	Max RPM	Fig.	Applicable Inserts ➡ M18
						DC	DCX	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	$DCCB_3$	$DCCB_4$	DBC_1	LF	CBDP	KDP	KWW	APMX							
mm	Inch Bore Dia.	Coarse Pitch	MB45- 080R-14T5C	●	5	80	93	70	1.000"	20	13	-	-	-	50	1.063"	0.236"	0.375"	6	+13	-12	Yes	1.4	9,000	1	SN□U1406...
			100R-14T5C	●	5	100	113	78	1.250"	45						1.339"	0.315"	0.500"					2.0	8,000		
			125R-14T6C	●	6	125	138	89	1.500"	55					63	1.496"	0.394"	0.625"					3.3	7,200	2	
			160R-14T7	●	7	160	173	110	2.000"	70	-						0.433"	0.750"				No	5.1	6,300		
			200R-14T8	●	8	200	213	140	1.875"	110		18	26	4.000"			0.551"	1.000"					7.6	5,700	3	
			250R-14T10	●	10	250	263																10.8	5,100		
			315R-14T14	●	14	315	328	222		-		-	-	-	80								20.4	4,500	4	
		Fine Pitch	MB45- 080R-14T6C	●	6	80	93	70	1.000"	20	13	-	-	-	50	1.063"	0.236"	0.375"	6	+13	-12	Yes	1.4	9,000	1	SN□U1406...
			100R-14T8C	●	8	100	113	78	1.250"	45						1.339"	0.315"	0.500"					1.8	8,000		
			125R-14T10C	●	10	125	138	89	1.500"	55					63	1.496"	0.394"	0.625"					3.1	7,200	2	
			160R-14T12	●	12	160	173	110	2.000"	70	-						0.433"	0.750"				No	4.9	6,300		
			200R-14T14	●	14	200	213	140	1.875"	110		18	26	4.000"			0.551"	1.000"					7.4	5,700	3	
			250R-14T16	●	16	250	263																10.5	5,100		
			315R-14T18	●	18	315	328	222		-		-	-	-	80								20.2	4,500	4	
		Extra Fine Pitch	MB45- 080R-14T8C	●	8	80	93	70	1.000"	20	13	-	-	-	50	1.063"	0.236"	0.375"	6	+13	-12	Yes	1.3	9,000	1	SN□U1406...
			100R-14T10C	●	10	100	113	78	1.250"	45						1.339"	0.315"	0.500"					1.8	8,000		
			125R-14T13C	●	13	125	138	89	1.500"	55					63	1.496"	0.394"	0.625"					3.0	7,200	2	
			160R-14T16	●	16	160	173	110	2.000"	70	-						0.433"	0.750"			-13	No	4.8	6,300		
			200R-14T18	●	18	200	213	140	1.875"	110		18	26	4.000"			0.551"	1.000"					7.2	5,700	3	
			250R-14T20	●	20	250	263														-12		10.4	5,100		

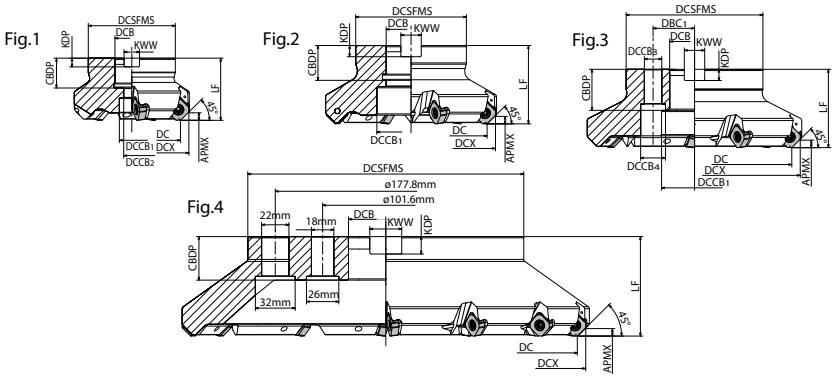
Maximum number of revolutions
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on page **M19**.
Do not use the face mill or end mill at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

Metric Size Face Mill and End Mill Spare Parts

		Part Number	Insert Screw	Wrench	Anti-Seize Compound	Arbor Bolt	Differential Screw
Face Mills	Inch Bore Dia.	MB45- 080R-14T...	SB-50110TRP	TTP-20	P-37	HH1/2-1.25(H)	-
		100R-14T... ~ 315R-14T...				-	-
	Metric Bore Dia.	MB45- 040R/050R-14T...-M				HH8X25(H)	-
		040R/050R-14T...-22M				-	W10X31*
		063R-14T...-M	Recommended Torque for Insert Screw 4.5 Nm			HH10X30(H)	-
		080R-14T...-M				HH12X35(H)	-
		100R-14T...-M ~ 315R-14T...-M				-	-
End Mills		MB45- 40S32-14T2C ~ 80S32-14T5C	SB-50110TRP	TTP-20	P-37	-	-
			Recommended Torque for Insert Screw 4.5 Nm				

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.
(H) Optional coolant-through bolt available
*How to install differential screw on page **M16**
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MB45 (Face Mill)



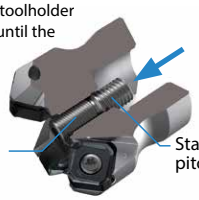
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCX	DCSFMS	DCB	DCB1	DCB2	DCB3	DCB4	DBC1	LF	CBDP	KDP	KWW	APMX	A.R. max.(°)	R.R. (°)	Coolant Hole	Weight (kg)	Max RPM	Fig.	Applicable Inserts ➡ M18
mm	Metric Bore Dia. Coarse Pitch MB45- 040R-14T2C-M	●	2	40	54	38	16	13.5	9					19							0.4	12,700		
	050R-14T3C-M	●	3	50	63	48	22	18	11	-	-	-	40	21	6.3	10.4					0.5	11,400	1	
	063R-14T4C-M	●	4	63	76	50															0.7	10,100		
	080R-14T5C-M	●	5	80	93	70	27	20	13				50	24	7	12.4				Yes	1.4	9,000		
	100R-14T5C-M	●	5	100	113	78	32	45						30	8	14.4					1.9	8,000	2	
	125R-14T6C-M	●	6	125	138	89	40	55					63	33	9	16.4	6	+13	-12		3.2	7,200		SN□U1406...
	160R-14T7-M	●	7	160	173	110			-	14	20	66.7									5.1	6,300		
	200R-14T8-M	●	8	200	213	142	60	110		18	26	101.6		35	14	25.7				No	7.3	5,700	3	
	250R-14T10-M	●	10	250	263																10.5	5,100		
	315R-14T14-M	●	14	315	328	222		-		-	-	-	80								19.4	4,500	4	
	Fine Pitch MB45- 040R-14T3C-M	●	3	40	54	38	16	13.5	9					19	5.6	8.4					0.3	12,700		
	040R-14T3C-22M*	●				47	22	12	-				40	21	6.3	10.4					0.5	12,700	1	
	050R-14T4C-M	●	4	50	63	48		18	11	-	-	-									0.4	11,400		
	063R-14T5C-M	●	5	63	76	50														Yes	0.6	10,100		
	080R-14T6C-M	●	6	80	93	70	27	20	13				50	24	7	12.4					1.4	9,000		
	100R-14T8C-M	●	8	100	113	78	32	45						30	8	14.4					1.8	8,000	2	
	125R-14T10C-M	●	10	125	138	89	40	55					63	33	9	16.4	6	+13	-12		3.0	7,200		SN□U1406...
	160R-14T12-M	●	12	160	173	110			-	14	20	66.7									4.9	6,300		
	200R-14T14-M	●	14	200	213	142	60	110		18	26	101.6		35	14	25.7				No	7.0	5,700	3	
	250R-14T16-M	●	16	250	263																10.2	5,100		
	315R-14T18-M	●	18	315	328	222		-		-	-	-	80								19.2	4,500	4	
	Extra Fine Pitch MB45- 040R-14T4C-M	●	4	40	54	38	16	13.5	9					19	5.6	8.4					0.3	12,700		
	040R-14T4C-22M*	●				47	22	12	-				40	21	6.3	10.4					0.4	11400	1	
	050R-14T5C-M	●	5	50	63	48		18	11	-	-	-									0.4	11,400		
	063R-14T6C-M	●	6	63	76	50													-12	Yes	0.6	10,100		
	080R-14T8C-M	●	8	80	93	70	27	20	13				50	24	7	12.4	6	+13			1.3	9,000		SN□U1406...
	100R-14T10C-M	●	10	100	113	78	32	45						30	8	14.4					1.7	8,000	2	
	125R-14T13C-M	●	13	125	138	89	40	55					63	33	9	16.4					2.9	7,200		
	160R-14T16-M	●	16	160	173	110			-	14	20	66.7							-13		4.8	6,300		
	200R-14T18-M	●	18	200	213	142	60	110		18	26	101.6		35	14	25.7				No	6.9	5,700	3	
	250R-14T20-M	●	20	250	263														-12		10.1	5,100		

Maximum number of revolutions
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on page **M19**.
Do not use the face mill or end mill at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

How to Install Differential Screw (MB45-040R-14T3C-22M, MB45-040R-14T4C-22M)

1. Insert the fine pitch side of the double screw into the toolholder and carefully rotate it until the screw stops.

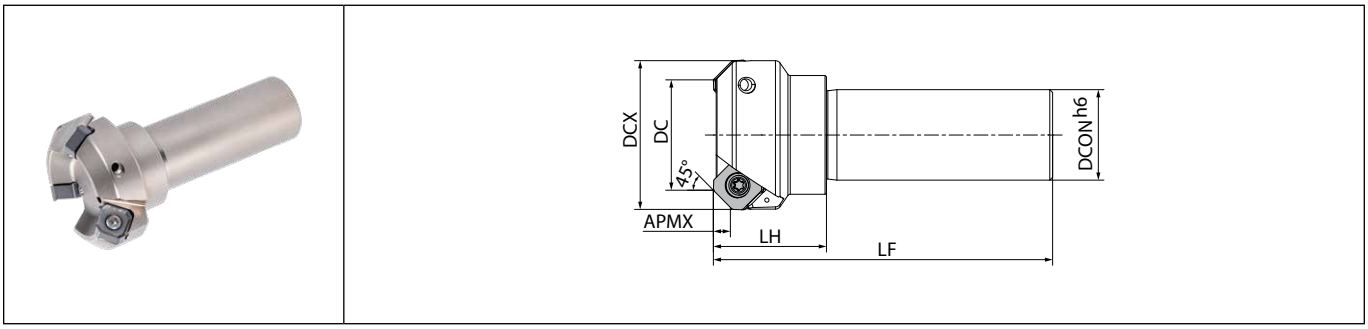


2. To ensure that the holder and arbor are securely connected, provide a clearance of approx. 4mm between the holder and arbor before tightening the screws.

3. Rotate the screw until there is no clearance, and check the holder is attached to the arbor.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MB45 (End Mill)



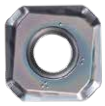
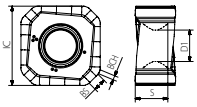
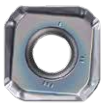
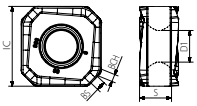
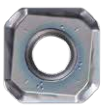
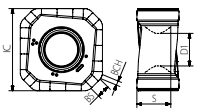
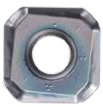
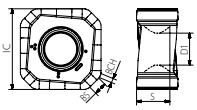
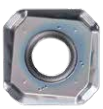
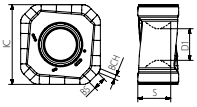
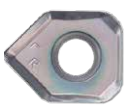
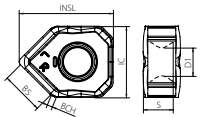
Toolholder Dimensions

Unit	Part Number		Std. Item R	No. of Inserts	Dimensions DC	DCX	DCON	LH	LF	APMX	A.R. max.(°)	R.R. (°)	Coolant Hole	Max RPM	Spare Parts: Anti-Seize Compound	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts ➡ M18
Inch	Cylindrical Shank	MB45- 1500S125-14T2C	●	2	1.500	1.992	1.250	1.575	4.724	0.236	+13	-12	Yes	12,700	P-37	SB-50110TRP Tightening torque 4.5N·m	TTP-20	SN□U1406...
		MB45- 1500S125-14T3C	●	3	1.500	1.992								11,400				
		MB45- 2000S125-14T3C	●	3	2.000	2.492								10,100				
		MB45- 2500S125-14T4C	●	4	2.500	2.992								9,000				
mm	Cylindrical Shank	MB45- 40S32-14T2C	●	2	40	53	32	40	120	6	+13	-12	Yes	12,700	P-37	SB-50110TRP Tightening torque 4.5N·m	TTP-20	SN□U1406...
		MB45- 50S32-14T3C	●	3	50	63								11,400				
		MB45- 63S32-14T4C	●	4	63	76								10,100				
		MB45- 80S32-14T5C	●	5	80	93								9,000				

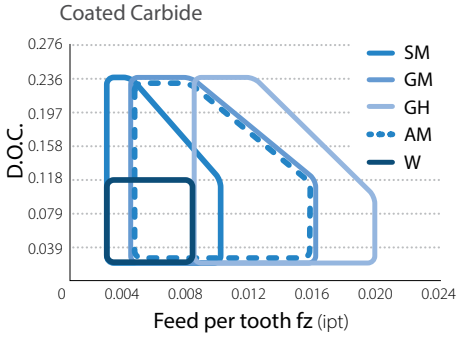
Maximum number of revolutions
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on page **M19**.
Do not use the face mill or end mill at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

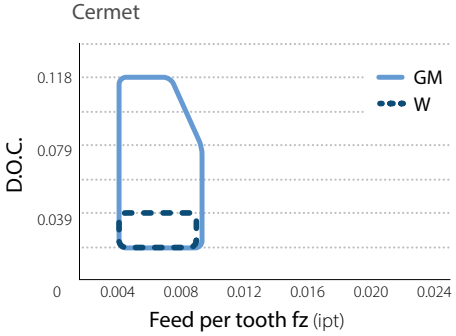
SNMU/SNEU

Usage Classification										
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel				★	☆		■	P
	Mold and die steel				★	☆		■	P
	Austenitic stainless steel				☆	★			M
	Martensitic stainless steel	★				☆			M
	Precipitation hardened stainless steel					★			M
	Gray cast iron			★					K
	Nodular cast iron			★					K
	Non-ferrous metals		★				☆		N
	Heat-resistant alloy	★				☆			S
	Titanium alloy					★			S
	Hard materials (≤ 60 HRC)			★					H

Insert		Part Number	No. of Edges	Dimensions (mm)						Carbide							Cermet	Applicable Toolholder ⇒ M14~M17
				IC	S	D1	INSL	BCH	BS	CVD	DLC	PVD				-	-	
										CA6535	PDL025	PR015S	PR1810	PR1825	PR1835	GW25	TN620M	
	 General Purpose (M-Class)	SNMU 1406ANER-GM	8	14.7	6.07	5.8	-	0.8	2.3	●			●	●	●		●	MB45-...
	 Tough Edge (M-Class)	SNMU 1406ANER-GH	8	14.7	5.89	5.8	-	1.4	1.7	●		●	●	●	●			MB45-...
	 General Purpose (E-Class)	SNEU 1406ANER-GM	8	14.7	6.07	5.8	-	0.8	2.3	●			●	●	●		●	MB45-...
	 Low Cutting Force (E-Class)	SNEU 1406ANER-SM	8	14.7	6.07	5.8	-	0.8	2.3	●				●	●			MB45-...
	 Aluminum / Non-Ferrous Metals (E-Class)	SNEU 1406ANFR-AM	8	14.7	6.07	5.8	-	0.8	2.3		●					●		MB45-...
	 Wiper Insert (E-Class / 2-edge)	SNEU 1406ANEN-W	2	14.7	6.15	5.8	19.4	1.1	8.8	●			●	●	●		●	MB45-...

Applicable Chipbreaker Range





SNMU and SNEU inserts are sold in 10 piece boxes

SNEU1406ANEN-W inserts are sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

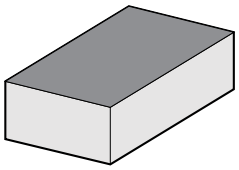
Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed fz (ipt)	Recommended Insert Grade (Vc: sfm)							
			MEGACOAT NANO EX (PVD coating)			MEGACOAT HARD (PVD coating)	CVD coating	Cermet	DLC coating	Carbide
			PR1835	PR1825	PR1810	PR015S	CA6535	TN620M	PDL025	GW25
General GM	Carbon Steel	0.004 - **0.008** - 0.016 (0.002 - **0.005** - 0.008)	☆ 390 - **590** - 820	★ 390 - **590** - 820	-	-	-	★ 660 - **820** - 980	-	-
	Alloy Steel	0.004 - **0.008** - 0.016 (0.002 - **0.005** - 0.008)	☆ 330 - **520** - 720	★ 330 - **520** - 720	-	-	-	★ 590 - **720** - 820	-	-
	Mold steel	0.004 - **0.008** - 0.016 (0.002 - **0.003** - 0.006)	☆ 260 - **460** - 590	★ 260 - **460** - 590	-	-	-	★ 490 - **590** - 720	-	-
	Austenitic stainless steel	0.004 - **0.008** - 0.016	☆ 330 - **520** - 660	☆ 330 - **520** - 660	-	-	-	-	-	-
	Martensitic stainless steel	0.004 - **0.008** - 0.016	☆ 490 - **660** - 820	-	-	-	☆ 590 - **790** - 980	-	-	-
	Precipitation hardened stainless steel	0.004 - **0.008** - 0.012	★ 300 - **390** - 490	-	-	-	-	-	-	-
	Gray cast iron	0.004 - **0.008** - 0.016	-	-	★ 390 - **590** - 820	-	-	-	-	-
	Ductile cast iron	0.004 - **0.008** - 0.014	-	-	★ 330 - **490** - 660	-	-	-	-	-
	Ni-based heat resistant alloys	0.004 - **0.005** - 0.008	☆ 70 - **100** - 160	-	-	-	★ 70 - **100** - 160	-	-	-
Low Cutting Force SM	Carbon Steel	0.002 - **0.005** - 0.010	☆ 390 - **590** - 820	☆ 390 – **590** – 820	-	-	-	-	-	-
	Alloy Steel	0.002 - **0.005** - 0.010	☆ 330 - **520** - 720	☆ 330 – **520** – 720	-	-	-	-	-	-
	Mold steel	0.002 - 0.004 - 0.008	☆ 260 - **460** - 590	☆ 260 – **460** – 590	-	-	-	-	-	-
	Austenitic stainless steel	0.002 - **0.005** - 0.010	★ 330 - **520** - 660	☆ 330 – **520** – 660	-	-	-	-	-	-
	Martensitic stainless steel	0.002 - **0.005** - 0.010	☆ 490 - **660** - 820	-	-	-	★ 590 - **790** - 980	-	-	-
	Precipitation hardened stainless steel	0.002 - **0.005** - 0.010	☆ 300 - **390** - 490	-	-	-	-	-	-	-
	Gray cast iron	0.002 - **0.005** - 0.010	-	-	☆ 390 - **590** - 820	-	-	-	-	-
	Ductile cast iron	0.002 - **0.004** - 0.008	-	-	☆ 330 - **490** - 660	-	-	-	-	-
	Ni-based heat resistant alloys	0.002 - **0.004** - 0.006	☆ 70 - **100** - 160	-	-	-	☆ 70 - **100** - 160	-	-	-
	Titanium alloy	0.002 - **0.003** - 0.006	★ 130 - **200** - 260	-	-	-	-	-	-	-
Tough Edge GH	Carbon Steel	0.008 - **0.012** - 0.020	☆ 390 - **590** - 820	☆ 390 – **590** – 820	-	-	-	-	-	-
	Alloy Steel	0.008 - **0.012** - 0.020	☆ 330 - **520** - 720	☆ 390 – **520** – 720	-	-	-	-	-	-
	Mold steel	0.008 - **0.012** - 0.018	☆ 260 - **460** - 590	☆ 260 – **460** – 590	-	-	-	-	-	-
	Austenitic stainless steel	0.008 - **0.012** - 0.016	☆ 330 - **520** - 660	☆ 330 – **520** – 660	-	-	-	-	-	-
	Martensitic stainless steel	0.008 - **0.012** - 0.016	☆ 490 - **660** - 820	-	-	-	☆ 590 - **790** - 980	-	-	-
	Precipitation hardened stainless steel	0.008 - **0.012** - 0.016	☆ 300 - **390** - 490	-	-	-	-	-	-	-
	Gray cast iron	0.008 - **0.012** - 0.020	-	-	☆ 390 - **590** - 820	-	-	-	-	-
	Ductile cast iron	0.008 - **0.012** - 0.018	-	-	☆ 330 - **490** - 660	-	-	-	-	-
	Ni-based heat resistant alloys	0.004 - **0.008** - 0.012	☆ 70 - **100** - 160	-	-	-	☆ 70 - **100** - 160	-	-	-
	Hardened material ≤ 60 HRC	0.002 - **0.004** - 0.008	-	-	-	★ 160 - **260** - 330	-	-	-	-
AM	Aluminum alloy	0.004 - **0.008** - 0.016	-	-	-	-	-	-	★ 660 - **1970** - 2950	☆ 660 - **1640** - 2620

The numbers in bold font are recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation. ★: 1st Recommendation ☆: 2nd Recommendation
Machining with coolant is recommended for Ni-based heat resistant alloy and titanium alloy. When choosing wet machining for other workpieces, reduce the cutting speed to 70% or less.
When machining aluminum, be sure to use within recommended conditions. Do not rotate more than the maximum speed listed on the main unit.
Dry machining is recommended for cermet.

Precautions

Applications



Facing

How to mount inserts

1. Completely eliminate chips and dust from the insert mounting side.
2. Coat anti-seize compound thinly on portion of taper and thread of clamp screw prior to installation.
3. After mounting a clamp screw on the top edge of wrench, tighten the screw while keeping the insert pushed against the shim seat surface and holder surface (Fig.1).
4. Tighten the wrench in a direction parallel to the clamp screw.
   Recommended tightening torque · · · 4.5 N·m
5. After tightening, check that there is no gap between the contact surface of the insert and the surface of the shim, or between the side surface of insert and the holder surface.

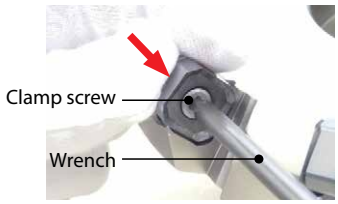


Fig.1

Defining the machining diameter (DC)

With respect to the machining diameter (DC) specified in ISO*, the numerical value of the machining diameter (Fig. 2) where the plane surface is finished depends on the insert. Please be careful.

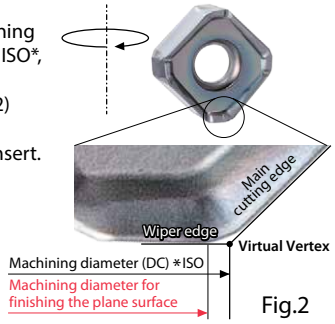


Fig.2

Machining diameter at which the plane surface is finished (for ø125mm)

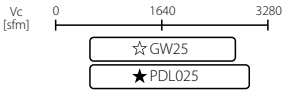
	GM	GH	SM	AM
Difference to machining diameter (DC)	-1.1	-2.0	-1.1	-1.1
Machining diameter (mm) at which the plane surface is finished *Dimensional tolerance $^{0}_{-0.2}$mm	123.9	123.0	123.9	123.9

*GH has a larger double-edge size, so the machining diameter at which the plane surface is finished is smaller than other inserts.

Precautions when machining

Precautions when machining aluminum

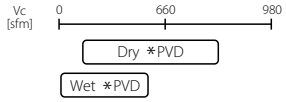
- Be sure to use within recommended conditions.
- Do not rotate more than the maximum speed listed on the main unit.
  *The number of revolutions listed on the holder is the maximum number of revolutions without load.



	Recommended cutting speed [sfm]
PDL025	660 ~ 1970 ~ 2950
GW25	660 ~ 1640 ~ 2620

Precautions for wet machining of steel

For wet machining, select PR1835 and use a cutting speed of 70% or less of the recommended condition as a guide.



MB45-125R-14T10C
SCREW:SB-50110TRP WRENCH:
MAX 7,200 RPM

Rotating at maximum speed is prohibited.

How to use a wiper insert

1. Use when the feed amount per revolution [ipr] becomes large. The table below shows the standard feed amount per revolution and the number of wipers installed.

Feed per rotation	Number of wiper inserts	Pocket for wiper insert
0.079 < f [ipr] ≤ 0.157	1 pc	Pocket with "Single dot" (Fig. 3)
0.157 < f [ipr]	2 pcs	"Single dot" and "Double dots" pockets (Figs. 3, 4) * Only holders with 12 or more inserts have "Double dots"

2. Chipbreaker recommended for use with wiper insert

	GM chipbreaker	GH chipbreaker	SM chipbreaker	AM chipbreaker
Wiper Insert	✓	Not recommended	✓	Not recommended

3. Install the wiper insert correctly as shown in Fig. 5.
   * Fig. 6 shows the insert incorrectly attached to the holder.

"Double dots" are placed in the diagonal pocket of "Single dot"
* For only holders with 12 or more inserts

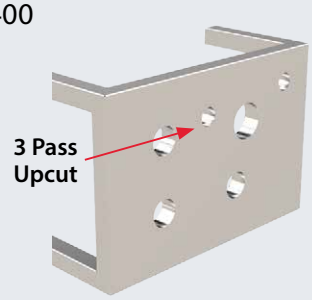
Fig. 5

Fig. 6

800.823.7284
www.kyocera precisiontools.com

Case studies
Excellent performance even under unstable machining conditions

Cradle SS400



Vc = 520 sfm
D.O.C. x ae= 0.003"x5.12", Wet

Machining efficiency

MB45 ø160mm 12 flute
GM(PR1825)
Vf = 760 sfm
fz = 0.008 ipt

Competitor G ø160mm 8 flute
Vf = 620 sfm
fz = 0.010 ipt

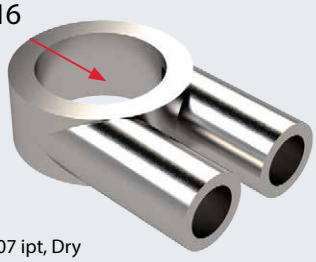
Machining efficiency 1.2x

MB45 shows stable machining in an environment prone to deflection and chatter.
Increasing the number of inserts improves efficiency.
Improved joints between machining passes.

(User evaluation)

Case studies
Achieves 1.6x longer tool life under the same machining conditions

Housing 316



Vc = 300 sfm
D.O.C. = 0.079", fz = 0.007 ipt, Dry

Number of parts

MB45 ø63mm 5 flute
GM(PR1825)
30 pcs per corner

Competitor H ø63mm 5 flute
18 pcs per corner

Tool life 1.6x

MB45 shows stable machining without chattering.
Wear on the cutting edge proceeds normally and shows 1.6x tool life than competitor.

(User evaluation)

MFPN45 (Face Mill)

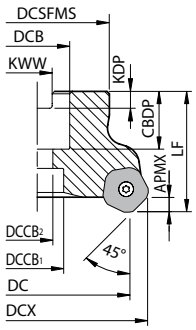


Fig. 1

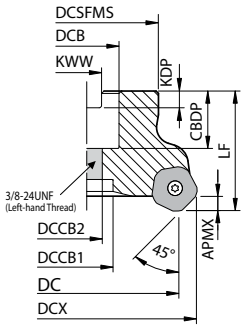


Fig. 2

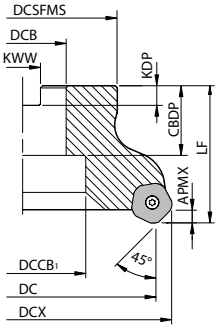


Fig. 3

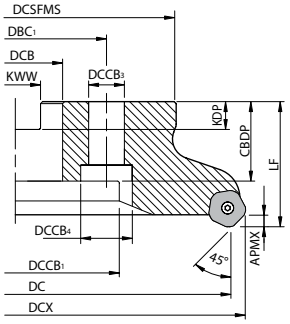


Fig. 4

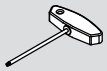
Toolholder Dimensions

Unit			Part Number	Std. Item R	No. of Inserts	Dimensions DC	DCX	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	$DCCB_3$	$DCCB_4$	DBC_1	LF	CBDP	KDP	KWW	APMX	A.R. max.(°)	R.R.(°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ➡ M28
Inch	Inch Bore Dia.	Coarse Pitch	MFPN 452500R-4T	●	4	2.500	2.815	1.890	0.750	0.669	0.433				1.575	0.750	0.187	0.313	0.236* (6mm)	+10	-10	No	0.5	1	PN□U1205...R-..
			453000R-5T	●	5	3.000	3.315	2.283	1.000	0.866	0.551				1.969	1.063	0.236	0.375					1.1	1	
			454000R-6T	●	6	4.000	4.315	2.756	1.500	2.047		-	-	-	1.969	1.142	0.394	0.625			-6		1.4	3	
			455000R-7T	●	7	5.000	5.315	3.425		2.283					2.480	1.417	0.394	0.625					2.6	3	
			456000R-8T	●	8	6.000	6.315	4.016	2.000	2.835	-				2.480	1.496	0.433	0.750					3.8	3	
			458000R-10T	●	10	8.000	8.315	5.591	2.500	3.937		0.709	1.024	4.000	2.480	1.575	0.551	1.000					6.6	4	
			4510000R-12T	●	12	10.000	10.315	5.591		3.937		0.709	1.024	4.000	2.480	1.575	0.551	1.000					9.3	4	
		Fine Pitch	MFPN 452000R-4T	●	4	2.000	2.315	1.750	0.750	-	3/8-24UNF				1.969	0.830	0.187	0.313	0.236* (6mm)	+10	-10	No	0.3	2	PN□U1205...R-..
			452500R-5T	●	5	2.500	2.815	1.890		0.669	0.433				1.575	0.750	0.187	0.313					0.5	1	
			453000R-6T	●	6	3.000	3.315	2.283	1.000	0.866	0.551				1.969	1.063	0.236	0.375					1.1	1	
			454000R-8T	●	8	4.000	4.315	2.756	1.500	2.047		-	-	-	1.969	1.142	0.394	0.625			-6		1.3	3	
			455000R-10T	●	10	5.000	5.315	3.425		2.283					2.480	1.417	0.394	0.625					2.6	3	
			456000R-12T	●	12	6.000	6.315	4.016	2.000	2.835	-				2.480	1.496	0.433	0.750					3.9	3	
			458000R-14T	●	14	8.000	8.315	5.591	2.500	3.937		0.709	1.024	4.000	2.480	1.575	0.551	1.000					6.6	4	
			4510000R-16T	●	16	10.000	10.315	5.591		3.937		0.709	1.024	4.000	2.480	1.575	0.551	1.000					9.3	4	
		Extra Fine Pitch	MFPN 452500R-6T	●	6	2.500	2.815	1.890	0.750	0.669	0.433				1.575	0.750	0.187	0.313	0.236* (6mm)	+10	-10	No	0.5	1	PN□U1205...R-..
			453000R-8T	●	8	3.000	3.315	2.283	1.000	0.866	0.551				1.969	1.063	0.236	0.375					1.1	1	
			454000R-10T	●	10	4.000	4.315	2.756	1.500	2.047		-	-	-	1.969	1.142	0.394	0.625			-6		1.3	3	
			455000R-13T	●	13	5.000	5.315	3.425		2.283	-				2.480	1.417	0.394	0.625					2.6	3	
			456000R-16T	●	16	6.000	6.315	4.016	2.000	2.835					2.480	1.496	0.433	0.750					3.9	3	

APMX : 0.236"/6mm (GM, SM, GH Chipbreakers), 0.197"/5mm (GL Chipbreaker), 0.118/3mm (W Chipbreaker)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inch Size Face Mill Spare Parts

Part Number			Insert Screw	Wrench		Shim	Shim Screw	Wrench	Anti-Seize Compound	Arbor Bolt	Mounting Screw
				TTW*[1]	DTM						
											
Coarse Pitch	MFPN	452500R-4T	SB-50140TR	TTW-15	-	MFPN-45	SPW-7050	LW-5	P-37	HH3/8-1.25	-
		453000R-5T								HH1/2-1.25	
		454000R-6T ~ 4510000R-12T	Recommended Torque for Insert Screw 4.2 Nm			Recommended Torque for Shim Screw 6.0 Nm				-	
Fine Pitch	MFPN	452000R-4T	SB-50140TR	TTW-15	-	-	-	-	P-37	-	XNS610*[2]
		452500R-5T								HH3/8-1.25	-
		453000R-6T	Recommended Torque for Insert Screw 4.2 Nm							HH1/2-1.25	
		454000R-8T ~ 4510000R-16T								-	
Extra-Fine Pitch	MFPN	452500R-6T	SB-40140TRN	-	DTM-15	-	-	-	P-37	HH3/8-1.25	-
		453000R-8T								HH1/2-1.25	
		454000R-10T ~ 456000R-16T	Recommended Torque for Insert Screw 3.5 Nm							-	

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

*2 Differential screw (3/8-24UNF)

MFPN45 (Face Mill)

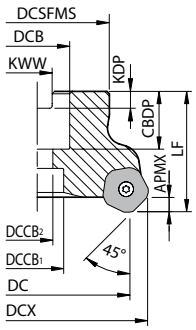


Fig. 1

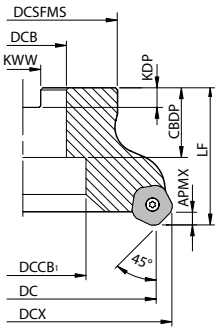


Fig. 2

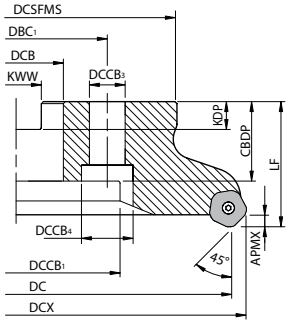


Fig. 3

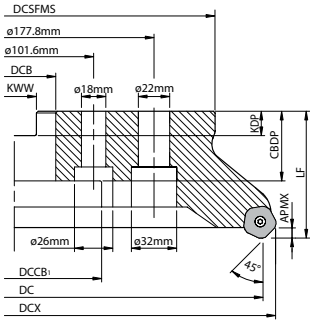


Fig. 4

Toolholder Dimensions

Unit			Part Number	Std. Item R	Std. Item L	No. of Inserts	Dimensions DC	DCX	DCSFMS	DCB	DCCB1	DCCB2	DCCB3	DCCB4	DBC1	LF	CBDP	KDP	KWW	APMX	A.R. max.(°)	R.R.(°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ⇒ M28
mm	Inch Bore Dia.	Coarse Pitch	MFPN 45080R/L-5T	●	●	5	80	93	60	1.000"	22	13				50	1.063"	0.236"	0.375"	6*	+10	-8	No	1.1	1	PN□U1205...R/L-..
			45100R/L-6T	●	●	6	100	113	70	1.250"	48		-	-	-		1.260"	0.315"	0.500"			-6		1.4	2	
			45125R/L-7T	●	●	7	125	138	87	1.500"	58					63	1.417"	0.394"	0.625"					2.6	2	
			45160R/L-8T	●	●	8	160	173	102	2.000"	72	-					1.496"	0.433"	0.750"					4	2	
			45200R-10T	●		10	200	213	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"					6.7	3	
			45250R-12T	●		12	250	263																9.4	3	
		Fine Pitch	MFPN 45080R-6T	●		6	80	93	60	1.000"	22	13				50	1.063"	0.236"	0.375"	6*	+10	-8	No	1.1	1	PN□U1205...R-..
			45100R-8T	●		8	100	113	70	1.250"	48		-	-	-		1.260"	0.315"	0.500"			-6		1.4	2	
			45125R-10T	●		10	125	138	87	1.500"	58					63	1.417"	0.394"	0.625"					2.7	2	
			45160R-12T	●		12	160	173	102	2.000"	72	-					1.496"	0.433"	0.750"					4	2	
			45200R-14T	●		14	200	213	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"					6.9	3	
			45250R-16T	●		16	250	263																9.6	3	
		Extra Fine Pitch	MFPN 45080R-8T	●		8	80	93	60	1.000"	22	13				50	1.063"	0.236"	0.375"	6*	+10	-8	No	1.1	1	PN□U1205...R-..
			45100R-10T	●		10	100	113	70	1.250"	48		-	-	-		1.260"	0.315"	0.500"			-6		1.3	2	
			45125R-13T	●		13	125	138	87	1.500"	58					63	1.417"	0.394"	0.625"					2.7	2	
			45160R-16T	●		16	160	173	102	2.000"	72	-					1.496"	0.433"	0.750"					4	2	
			45200R-18T	●		18	200	213	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"					6.9	3	
			45250R-20T	●		20	250	263																9.6	3	

APMX : 0.236"/6mm (GM, SM, GH Chipbreakers), 0.197"/5mm (GL Chipbreaker), 0.118/3mm (W Chipbreaker)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

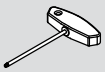
Toolholder Dimensions

Unit			Part Number	Std. Item R	Std. Item L	No. of Inserts	DC	DCX	DCSFMS	DCB	DCB_1	DCB_2	DCB_3	DCB_4	DBC_1	LF	CBDP	KDP	KWW	APMX	A.R. max.(°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ➔ M28
mm	Metric Bore Dia.	Coarse Pitch	MFPN 45063R-4T-M	●		4	63	76	47	22	19	11	-	-	-	40	21	6.3	10.4	6*	+10	-10	No	0.5	1	PN□U1205...R-..
			45080R-5T-M	●		5	80	93	60	27	22	13				50	24	7	12.4			-8		1.1	1	
			45100R-6T-M	●		6	100	113	70	32	48	-					30	8	14.4			-6		1.4	2	
			45125R-7T-M	●		7	125	138	87	40	58					63	32	9	16.4					2.6	2	
			45160R-8T-M	●		8	160	173	102		68		14	20	66.7									3.8	3	
			45200R-10T-M	●		10	200	213	142	60	110		18	26	101.6		40	14	25.7					6.4	3	
			45250R-12T-M	●		12	250	263																9.1	3	
			45315R-14T-M	□		14	315	328	220				-	-	-	80								21.3	4	
		Fine Pitch	MFPN 45063R-5T-M	●		5	63	76	47	22	19	11	-	-	-	40	21	6.3	10.4	6*	+10	-10	No	0.5	1	PN□U1205...R-..
			45080R-6T-M	●		6	80	93	60	27	22	13				50	24	7	12.4			-8		1	1	
			45100R-8T-M	●		8	100	113	70	32	48	-					30	8	14.4			-6		1.4	2	
			45125R-10T-M	●		10	125	138	87	40	58					63	32	9	16.4					2.5	2	
			45160R-12T-M	●		12	160	173	102		68		14	20	66.7									3.8	3	
			45200R-14T-M	●		14	200	213	142	60	110		18	26	101.6		40	14	25.7					6.5	3	
			45250R-16T-M	●		16	250	263																9.1	3	
		Extra Fine Pitch	MFPN 45063R-6T-M	●		6	63	76	47	22	19	11	-	-	-	40	21	6.3	10.4	6*	+10	-10	No	0.5	1	PN□U1205...R-..
			45080R-8T-M	●		8	80	93	60	27	22	13				50	24	7	12.4			-8		1.1	1	
			45100R-10T-M	●		10	100	113	70	32	48	-					30	8	14.4			-6		1.3	2	
			45125R-13T-M	●		13	125	138	87	40	58					63	32	9	16.4					2.6	2	

APMX : 0.236"/6mm (GM, SM, GH Chipbreakers), 0.197"/5mm (GL Chipbreaker), 0.118/3mm (W Chipbreaker)

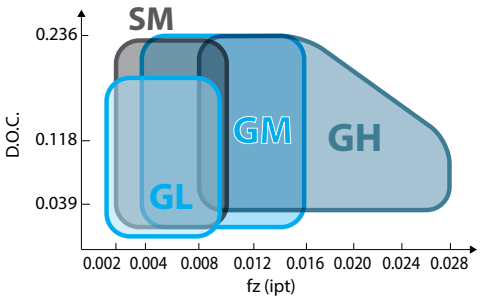
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

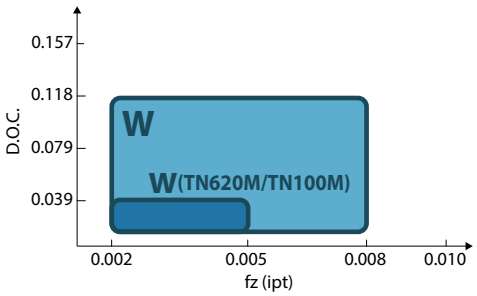
Metric Size Face Mill Spare Parts

Part Number			Insert Screw	Wrench		Shim	Shim Screw	Wrench	Anti-Seize Compound	Arbor Bolt
				TTW	DTM					
										
Coarse Pitch	MFPN	45063R-4T-M	SB-50140TR	TTW-15	-	MFPN-45	SPW-7050	LW-5	P-37	HH10×30
		45080R-5T-(M)	Recommended Torque for Insert Screw 4.2 Nm			Recommended Torque for Shim Screw 6.0 Nm				HH12×35
		45100R-6T-(M) ~ 45315R-14T-(M)								-
Fine Pitch	MFPN	45063R-5T-M	SB-50140TR	TTW-15	-	-	-	-	P-37	HH10×30
		45080R-6T-(M)	Recommended Torque for Insert Screw 4.2 Nm							HH12×35
		45100R-8T-(M) ~ 45315R-18T-(M)								-
Extra-Fine Pitch	MFPN	45063R-6T-M	SB-40140TRN	-	DTM-15	-	-	-	P-37	HH10×30
		45080R-8T-(M)	Recommended Torque for Insert Screw 3.5 Nm							HH12×35
		45100R-10T-(M) ~ 45125R-13T-(M)								-

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Applicable Chipbreaker Range





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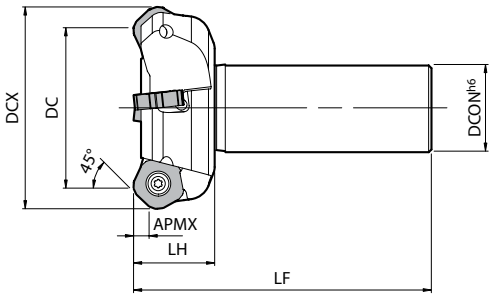
MFPN45 (End Mill)



Toolholder Dimensions

Unit		Part Number	Std. Item R	No. of Inserts	Dimensions DC	DCX	DCON	LF	LH	APMX	A.R. max.(°)	R.R. (°)	Coolant Hole	Spare Parts: Anti-Seize Compound	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
Inch	Weldon	MFPN 452000R-W125-3T	●	3	2.00	2.31	1.25	3.60	1.18	0.236* (6mm)	+10	-12	No	P-37	SB-50140TR Tightening torque 4.2N·m	TTW-15	PN□U1205...R-..
		452500R-W125-4T	●	4	2.50	2.81						-10					
		453000R-W125-5T	●	5	3.00	3.31						-8					
mm	Cylindrical	MFPN 45050R-S32-3T	●	3	50	63	32	110	30	0.236* (6mm)	+10	-12	No	P-37	SB-50140TR Tightening torque 4.2N·m	TTW-15	PN□U1205...R-..
		45063R-S32-4T	●	4	63	76						-10					
		45080R-S32-5T	●	5	80	93						-8					

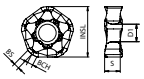
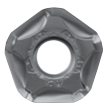
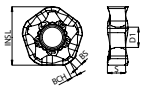
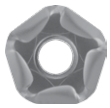
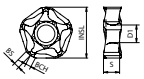
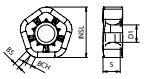
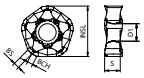
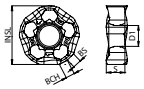
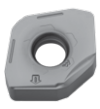
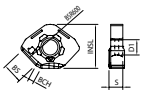
APMX : 0.236"/6mm (GM, SM, GH Chipbreakers), 0.197"/5mm (GL Chipbreaker), 0.118/3mm (W Chipbreaker)
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

PNMU/PNEU

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel				☆			★	☆		■	P
Mold and die steel				☆			★	☆		■	
Austenitic stainless steel					☆		☆	★			M
Martensitic stainless steel	★							☆			
Precipitation hardened stainless steel					☆			★			
Gray cast iron			☆			★					K
Nodular cast iron			☆			★					
Non-ferrous metals											N
Heat-resistant alloy	★							☆			S
Titanium alloy					☆			★			
Hard materials (≤ 60 HRC)		★									H

Insert		Part Number	No. of Edges	Dimensions (mm)					Carbide							Cermet		Applicable Toolholder ⇒ M22~M27
				S	D1	INSL	BCH	BS	CVD	PVD						-		
									CA6535	PR0155	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835	TN100M	TN620M	
	 General Purpose	PNMU 1205ANER-GM	10	5.56	6.2	17.88	2	2	●		△	●	●	●	●	●		●	MFPN45...R-..
	 General Purpose	PNMU 1205ANEL-GM	10	5.56	6.2	17.88	2	2	●		△	●	●	●	●	●		●	MFPN45...L-..
	 Low Cutting Force	PNMU 1205ANER-SM	10	5.56	6.2	17.88	2	2	●		△	●	●	●	●	●			MFPN45...R-..
	 Tough Edge	PNMU 1205ANER-GH	10	6.17	6.2	17.98	2	2	●	●	△	●	●	●	●	●			MFPN45...R-..
	 Surface Finish Oriented	PNEU 1205ANER-GL	10	5.56	6.2	17.51	2.7	2.7	●		△	●	●	●	●	●		●	MFPN45...R-..
	 Surface Finish Oriented	PNEU 1205ANEL-GL	10	5.56	6.2	17.51	2.7	2.7	●		△	●	●	●	●	●		●	MFPN45...L-..
	 2-edge / with Wiper Edge	PNEU 1205ANER-W	2	5.56	6.2	17.85	2.3	8.1	●		△	●	●	●	●	●	●	●	MFPN45...R-..

Recommended Cutting Conditions ⇒ M29

PNMU and PNEU inserts are sold in 10 piece boxes

PNEU1205ANER-W inserts are sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed fz (ipt) ( ) : TN620M	Recommended Insert Grade (Vc: sfm)					
			Cermet	MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD	CVD
			TN620M	PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	PR015S	CA6535
GM	Carbon Steel	0.004 - **0.008** - 0.016 (0.002 - **0.005** - 0.008)	★ 660 - **820** - 980	☆ 390 - **590** - 820	★ 390 - **590** - 820	-	-	-
	Alloy Steel	0.004 - **0.008** - 0.016 (0.002 - **0.005** - 0.008)	★ 590 - **720** - 820	☆ 330 - **520** - 720	★ 330 - **520** - 720	-	-	-
	Mold Steel	0.004 - **0.008** - 0.014 (0.002 - **0.003** - 0.006)	★ 490 - **590** - 720	☆ 260 - **460** - 590	★ 260 - **460** - 590	-	-	-
	Austenitic Stainless Steel	0.004 - **0.008** - 0.016	-	☆ 330 - **520** - 660	☆ 330 - **520** - 660	-	-	-
	Martensitic Stainless Steel	0.004 - **0.008** - 0.016	-	☆ 490 - **660** - 820	-	-	-	☆ 590 - **790** - 980
	Precipitation Hardened Stainless Steel	0.004 - **0.008** - 0.012	-	★ 300 - **390** - 490	-	-	-	-
	Gray Cast Iron	0.004 - **0.008** - 0.016	-	-	-	★ 390 - **590** - 820	-	-
	Nodular Cast Iron	0.004 - **0.008** - 0.014	-	-	-	★ 330 - **490** - 660	-	-
	Ni-base Heat-Resistant Alloy	0.004 - **0.005** - 0.008	-	☆ 70 - **100** - 160	-	-	-	★ 70 - **100** - 160
SM *(GL)	Carbon Steel	0.002 - **0.005** - 0.010 (0.002 - **0.004** - 0.006)	★ 660 - **820** - 980	☆ 390 - **590** - 820	☆ 390 - **590** - 820	-	-	-
	Alloy Steel	0.002 - **0.005** - 0.010 (0.002 - **0.004** - 0.006)	★ 590 - **720** - 820	☆ 330 - **520** - 720	☆ 330 - **520** - 720	-	-	-
	Mold Steel	0.002 - **0.004** - 0.008 (0.002 - **0.003** - 0.005)	★ 490 - **590** - 720	☆ 260 - **460** - 590	☆ 260 - **460** - 590	-	-	-
	Austenitic Stainless Steel	0.002 - **0.005** - 0.010	-	★ 330 - **520** - 660	☆ 330 - **520** - 660	-	-	-
	Martensitic Stainless Steel	0.002 - **0.005** - 0.010	-	☆ 490 - **660** - 820	-	-	-	★ 590 - **790** - 980
	Precipitation Hardened Stainless Steel	0.002 - **0.005** - 0.010	-	☆ 300 - **390** - 490	-	-	-	-
	Gray Cast Iron	0.002 - **0.005** - 0.010	-	-	-	☆ 390 - **590** - 820	-	-
	Nodular Cast Iron	0.002 - **0.004** - 0.008	-	-	-	☆ 330 - **490** - 660	-	-
	Ni-base Heat-Resistant Alloy	0.002 - **0.004** - 0.006	-	☆ 70 - **100** - 160	-	-	-	☆ 70 - **100** - 160
	Titanium Alloy	0.002 - **0.003** - 0.006	-	★ 130 - **200** - 260	-	-	-	-
GH	Carbon Steel	0.008 - **0.016** - 0.028	-	☆ 390 - **590** - 820	☆ 390 - **590** - 820	-	-	-
	Alloy Steel	0.008 - **0.016** - 0.024	-	☆ 330 - **520** - 720	☆ 330 - **520** - 720	-	-	-
	Mold Steel	0.008 - **0.014** - 0.020	-	☆ 260 - **460** - 590	☆ 260 - **460** - 590	-	-	-
	Austenitic Stainless Steel	0.008 - **0.012** - 0.016	-	☆ 330 - **520** - 660	☆ 330 - **520** - 660	-	-	-
	Martensitic Stainless Steel	0.008 - **0.012** - 0.016	-	☆ 490 - **660** - 820	-	-	-	☆ 590 - **790** - 980
	Precipitation Hardened Stainless Steel	0.008 - **0.012** - 0.016	-	☆ 300 - **390** - 490	-	-	-	-
	Gray Cast Iron	0.008 - **0.016** - 0.028	-	-	-	☆ 390 - **590** - 820	-	-
	Nodular Cast Iron	0.008 - **0.014** - 0.020	-	-	-	☆ 330 - **490** - 660	-	-
	Ni-base Heat-Resistant Alloy	0.008 - **0.012** - 0.016	-	☆ 70 - **100** - 160	-	-	-	☆ 70 - **100** - 160
	Hardened Materials (≤ 60 HRC)	0.002 - **0.004** - 0.008	-	-	-	-	★ 160 - **260** - 330	-

★: 1st Recommendation ☆: 2nd Recommendation

The numbers in bold font represent the center value of the recommended cutting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

*1. GL chipbreaker: Recommended when finish is a priority

*2. GH chipbreaker: For Fine Pitch cutter, recommended feed is fz ≦ 0.016 ipt
GH chipbreaker is not recommended for extra fine pitch cutters

Cutter Type and Chipbreaker Selection

Milling Purpose	Cutter Type			Chipbreaker				
	Coarse Pitch	Fine Pitch	Extra Fine Pitch	GM	SM	GH	GL	W
General milling for steel and alloy steel		●		●				
Steel and alloy steel (to prevent chattering due to low rigidity machine or poor clamping power)	●				●			
Productivity oriented (high metal removal rate) (D.O.C. 1 0.1575", fz 1 0.0138 ipt)	●					●		
Focusing on finishing quality	●	●					●	
General milling of stainless steel		●			●			
Stainless steel (to prevent chattering due to low rigidity machine or poor clamping power)	●				●			
Cast iron (for high feed rates and high efficiency)			●	●				
Cast iron (D.O.C. 1 0.1575", fz 1 0.0138 ipt)	●					●		
Improved surface finish in high-efficiency milling		●	●					●

How to Use Wiper Insert

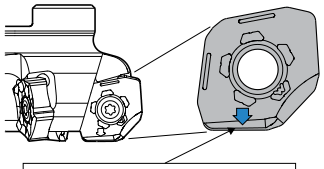
1) Please use one wiper insert per cutter.
(If you use more than 2 inserts on one cutter, the workpiece surface may have galling.)

2) Combination of Wiper Insert with other Chipbreakers

Combination \ Chipbreaker	GM	SM	W
Recommended Combination	●		●
Recommended Combination		●	●

GH+W and GL+W insert chipbreaker combinations are not recommended.

How to Attach Wiper Inserts on MFPN Cutter



The down arrow symbol (↓) indicates wiper cutting edge.
When attaching inserts, make sure that the arrow symbol points downward.

3) For checking the protrusion amount of the wiper insert, use tool presetter. (Appropriate protrusion: 0.0039")

Applicable Chipbreaker

Cutter Type	Chipbreaker		
	GM	SM (GL)	GH
Coarse Pitch (with shim)	✓	✓	✓
Fine Pitch (without shim)	✓	✓	✓ (Feed rate is recommended under fz = 0.0157 ipt)
Extra Fine Pitch (without shim)	✓	✓	Not recommended

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Usage Precautions (How to mount an insert)

1. Be sure to remove dust and chips from the insert mounting pocket.
2. After applying anti-seize compound on portion of taper and thread, while pressing the insert against the constraint surfaces, put the screw into the hole of the insert and tighten the screw with appropriate torque. Ref. to Fig. 1 and Fig.2.
   Recommended tightening torque: The torque for coarse pitch (using M5 screw) is 4.2 N·m
   The torque for extra fine pitch (using M4 screw) is 3.5 N·m.
3. After tightening the screw, make sure that there is no clearance between the insert seat surface and the bearing surface of the toolholder and between the insert side surfaces and the pocket wall of the toolholder.
4. To change the cutting edge of the insert, turn the insert counterclockwise (ref. to Fig. 3).
   Insert corner identification number is stamped on the top surface of insert (Fig. 4). To protect the wiper edge, use the corners of insert in the sequence of corner numbers.

Fig.1

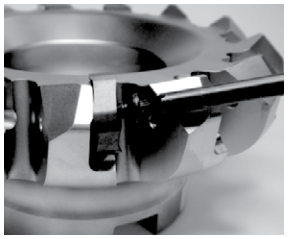


Fig.2

Fig.3

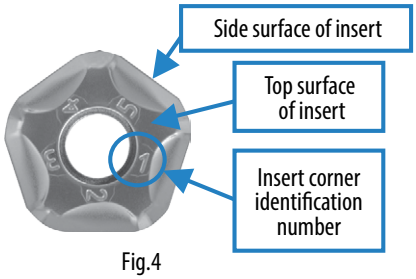


Fig.4

How to Replace the Shim (Coarse Pitch)

1. Be sure to remove dust and chips from the insert mounting pocket.
2. The shim must be mounted in the proper direction. While aligning the surface of the shim with the mark on it to the corresponding pocket wall (ref. to Fig. 5) and lightly pressing the shim toward the constraint surface, insert the screw into the hole of the shim and tighten it (ref. to Fig. 6).
   When tightening the screw, make sure that the screw is vertical to the bearing surface. Recommended tightening torque is 6.0N·m.
3. After tightening the screw, make sure that there is no clearance between the shim seat surface and the bearing surface. If there is any clearance, remove the insert and mount it again according to the above steps.

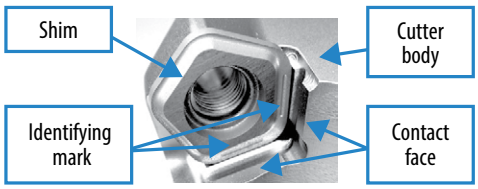


Fig.5

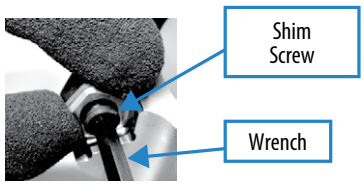


Fig.6

66° High Efficiency Milling

MFPN66

Economical Inserts with 10 Cutting Edges
Reduces Chattering with Low Cutting Force Design
Reduces Cutting Costs when Machining Auto Parts and Other General Purpose Machining Applications

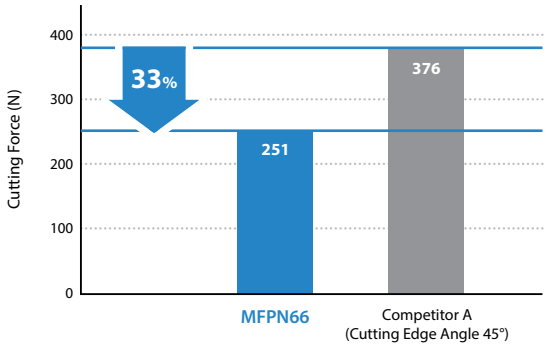
1 Economical inserts with 10 cutting edges
Applicable to various machining applications with wide size range from ø32mm

Cost reduction in various applications from general parts to automotive parts machining

2 Reduces Chattering with Low Cutting Force Design
Available for Small to Medium ap Applications

Suppresses Vibration for Excellent Surface Finish with 66° Cutting Edge Angle

Low Cutting Force Comparison (Internal Evaluation)



Thrust Force is Cutting Resistance

Cutting Conditions : Vc = 660 sfm, f = 0.006 ipt, D.O.C. = 0.118"
Cutter Diameter Ø63mm, Workpiece : 1049 Steel

Surface Finish (Machining with Workpiece Overhang Length of 80mm)

Excellent Surface Finish with Low Workpiece Clamping Rigidity

Cutting Conditions : Vc = 660 sfm, f = 0.008 ipt, D.O.C. = 0.020"
Cutter Diameter Ø63mm, Workpiece : 1049 Steel

3 Long Tool Life with MEGACOAT NANO Coating Technology
Insert Lineup Also Contains Cermet Grade for Better Surface Finish

1st Recommendation
(General Purpose)
GM Chipbreaker

Tough Edge
GH Chipbreaker

For Stainless Steel Machining
SM Chipbreaker

Cermet for Milling TN620M

Excellent Wear Resistance and Adhesion Resistance
High Quality Surface Finish

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MFPN66 (Face Mill)

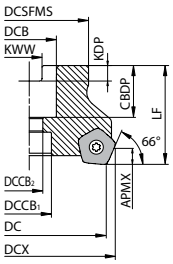

Fig. 1

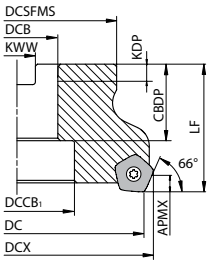

Fig. 2

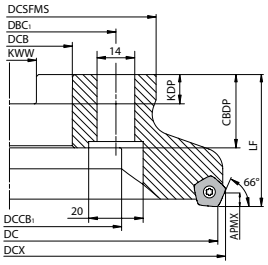

Fig. 3

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions											A.R. max.(°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ⇨ M36
				R		DC	DCX	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	DBC_1	LF	CBDP	KDP	KWW						
mm	Inch Bore Dia.	Fine Pitch	MFPN 66080R-6T-G	●	6	80	88	70	1.000"	20	13	-	50	1.063"	0.236"	0.375"	+12	-7	No	1.2	1	PNMU0905...
			66100R-7T-G	●	7	100	107	78	1.250"	45				1.339"	0.315"	0.500"				1.7		
			66125R-9T-G	●	9	125	132	89	1.500"	55	-		63	1.496"	0.394"	0.625"		-6		2.9	2	
			66160R-11T-G	●	11	160	167	110	2.000"	72					0.433"	0.750"				4.5		
		Extra Fine Pitch	MFPN 66080R-9T-G	●	9	80	88	70	1.000"	20	13	-	50	1.063"	0.236"	0.375"	+12	-7	No	1.2	1	PNMU0905...
			66100R-11T-G	●	11	100	107	78	1.250"	45				1.339"	0.315"	0.500"				1.7		
			66125R-13T-G	●	13	125	132	89	1.500"	55	-		63	1.496"	0.394"	0.625"		-6		3	2	
			66160R-15T-G	●	15	160	167	110	2.000"	72					0.433"	0.750"				4.8		
	Metric Bore Dia.	Fine Pitch	MFPN 66050R-4T-M-G	●	4	50	58	48	22	18	11	-	40	21	6.3	10.4	+12	-9	No	0.3	1	PNMU0905...
			66063R-5T-M-G	●	5	63	71											-8		0.5		
			66080R-6T-M-G	●	6	80	88	70	27	20	13		50	24	7	12.4		-7		1.2		
			66100R-7T-M-G	●	7	100	107	78	32	45	-			30	8	14.4		-6		1.6	2	
			66125R-9T-M-G	●	9	125	132	89	40	55			63	33	9	16.4				2.8		
			66160R-11T-M-G	●	11	160	167					66.7								3.8	3	
		Extra Fine Pitch	MFPN 66050R-5T-M-G	●	5	50	58	48	22	18	11	-	40	21	6.3	10.4	+12	-9	No	0.4	1	PNMU0905...
			66063R-7T-M-G	●	7	63	71											-8		0.5		
			66080R-9T-M-G	●	9	80	88	70	27	20	13		50	24	7	12.4		-7		1.2		
			66100R-11T-M-G	●	11	100	107	78	32	45	-			30	8	14.4		-6		1.6	2	
			66125R-13T-M-G	●	13	125	132	89	40	55			63	33	9	16.4				3		
			66160R-15T-M-G	●	15	160	167					66.7								4	3	

APMX : 5mm (GM, SM, GH Chipbreakers, Coated cabide), 3mm (GM Chipbreaker, Cermet)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts (Both Metric and Inch Size Bore Dia.)

Part Number			Spare Parts			
			Insert Screw	Wrench	Anti-seize Compound	Arbor Bolt
Fine Pitch	MFPN	66050R-4T-M-G	SB-4090TRP	DTPM-15	P-37	HH10X30
		66063R-5T-M-G				HH10X30
		66080R-6T(-M)-G				HH12X35
		66100R-7T(-M)-G	Recommended Torque for Insert Screw 3.5 Nm			-
		66125R-9T(-M)-G				
		66160R-11T(-M)-G				
Extra Fine Pitch	MFPN	66050R-5T-M-G	SB-4090TRP	DTPM-15	P-37	HH10X30
		66063R-7T-M-G				HH10X30
		66080R-9T(-M)-G				HH12X35
		66100R-11T(-M)-G	Recommended Torque for Insert Screw 3.5 Nm			-
		66125R-13T(-M)-G				
		66160R-15T(-M)-G				

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

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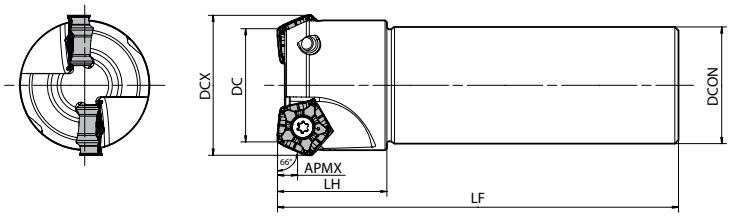
MFPN66 (End Mill)



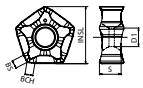
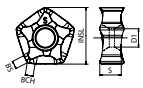
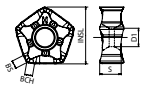
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. max.(°)	R.R. (°)	Coolant Hole	Spare Parts			Applicable Inserts
				DC	DCX	DCON	LF	LH				Anti-Seize Compound	Screw	Wrench	
		R													
mm	MFPN 66032R-S32-2T-G	●	2	32	39.5	32	110	30	+12	-14	No	P-37	SB-4090TRP	DTPM-15	PNMU0905...
	66040R-S32-3T-G	●	3	40	47.5					-12					

APMX : 5 mm (GM, SM, GH Chipbreakers, Coated cabide), 3 mm (GM Chipbreaker, Cermet)
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
Recommended tightening torque for insert clamp : 3.5N·m

PNMU

Usage Classification										
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel			☆			★	☆	■	P
	Mold and die steel			☆			★	☆	■	
	Austenitic stainless steel				☆		☆	★		M
	Martensitic stainless steel							☆		
	Precipitation hardened stainless steel				☆			★		
	Gray cast iron		☆			★				K
	Nodular cast iron		☆			★				
	Non-ferrous metals									N
	Heat-resistant alloy							☆		S
	Titanium alloy				☆			★		
	Hard materials (≤ 60 HRC)	★								H

Insert		Part Number	No. of Edges	Dimensions (mm)					Carbide						Cermet	Applicable Toolholder ➡ M33 M35
				S	D1	INSL	BCH	BS	PVD						-	
									PR015S	PR1510	PR1525	PR1535	PR1810	PR1825	TN620M	
	 General purpose	PNMU 0905XNER-GM	10	5.56	4.7	14.6	2	2		△	●	●	●	●	●	MFPN66...
	 Low cutting force	PNMU 0905XNER-SM	10	5.56	4.7	14.6	2	2		△	●	●	●	●		MFPN66...
	 Tough edge	PNMU 0905XNER-GH	10	5.56	4.7	14.6	2	2	●	△	●	●	●	●		MFPN66...

Recommended Cutting Conditions ➡ M37

PNMU inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Coated Carbide

Chipbreaker	Workpiece Material	Feed (fz: ipt)	Recommended Insert Grade (Cutting Conditions Vc: sfm)			
			MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD
			PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	PR015S
GM	Carbon Steel	0.004~**0.008**~0.012	☆ 390~**590**~820	★ 390~**590**~820	-	-
	Alloy Steel	0.004~**0.008**~0.012	☆ 330~**520**~720	★ 330~**520**~720	-	-
	Mold Steel	0.004~**0.007**~0.010	★ 260~**460**~590	★ 260~**460**~590	-	-
	Austenitic Stainless Steel	0.004~**0.007**~0.010	☆ 330~**490**~660	☆ 330~**490**~660	-	-
	Martensitic Stainless Steel	0.004~**0.007**~0.010	☆ 330~**490**~660	-	-	-
	Precipitation Hardened Stainless Steel	0.004~**0.007**~0.010	★ 300~**390**~490	-	-	-
	Gray Cast Iron	0.004~**0.008**~0.012	-	-	★ 390~**590**~820	-
	Nodular Cast Iron	0.004~**0.007**~0.010	-	-	★ 330~**490**~660	-
	Ni-base Heat-Resistant Alloy	0.004~**0.005**~0.008	☆ 70~**100**~160	-	-	-
SM	Carbon Steel	0.002~**0.005**~0.008	-	☆ 390~**590**~820	-	-
	Alloy Steel	0.002~**0.005**~0.008	-	☆ 330~**520**~720	-	-
	Mold Steel	0.002~**0.004**~0.006	-	☆ 260~**460**~590	-	-
	Austenitic Stainless Steel	0.002~**0.005**~0.008	★ 330~**490**~660	☆ 330~**490**~660	-	-
	Martensitic Stainless Steel	0.002~**0.005**~0.008	★ 330~**490**~660	-	-	-
	Precipitation Hardened Stainless Steel	0.002~**0.005**~0.008	☆ 300~**390**~490	-	-	-
	Gray Cast Iron	0.002~**0.005**~0.008	-	-	☆ 390~**590**~820	-
	Nodular Cast Iron	0.002~**0.004**~0.006	-	-	☆ 330~**490**~660	-
	Ni-base Heat-Resistant Alloy	0.002~**0.003**~0.006	★ 70~**100**~160	-	-	-
	Titanium Alloy	0.002~**0.003**~0.006	★ 130~**200**~260	-	-	-
GH*	Carbon Steel	0.006~**0.010**~0.014	-	☆ 390~**590**~820	-	-
	Alloy Steel	0.006~**0.010**~0.014	-	☆ 330~**520**~720	-	-
	Mold Steel	0.004~**0.008**~0.012	-	☆ 260~**460**~590	-	-
	Gray Cast Iron	0.006~**0.010**~0.014	-	-	☆ 390~**590**~820	-
	Nodular Cast Iron	0.004~**0.008**~0.012	-	-	☆ 330~**490**~660	-
	Hardened Materials (≤ 60HRC)	0.002~**0.003**~0.006	-	-	-	★ 160~**260**~330

*When using GH chipbreaker for fine pitch cutters, recommended feed is fz 0.008 ipt

★: 1st Recommendation ☆: 2nd Recommendation

Cermet

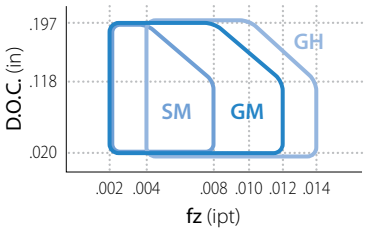
Chipbreaker	Workpiece Material	Feed (fz: ipt)	Recommended Insert Grade (Cutting Conditions Vc: sfm)
			Cermet
			TN620M
GM	Carbon Steel	0.002~0.005~0.006	★ 660~**820**~980
	Alloy Steel	0.002~0.005~0.006	★ 590~**720**~820
	Mold Steel	0.002~0.004~0.005	★ 490~**590**~720

★: 1st Recommendation

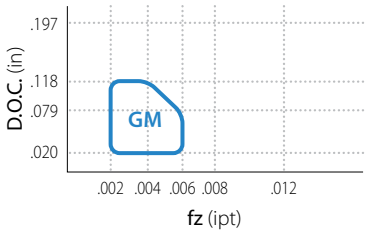
The number in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation

Cutting with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy

Coated Carbide



Cermet



Applicable Chipbreaker Range

Cutter	Insert		
	GM	SM	GH
Fine Pitch	✓	✓	✓
Extra Fine Pitch	✓	✓	fz = 0.008 ipt is Recommended

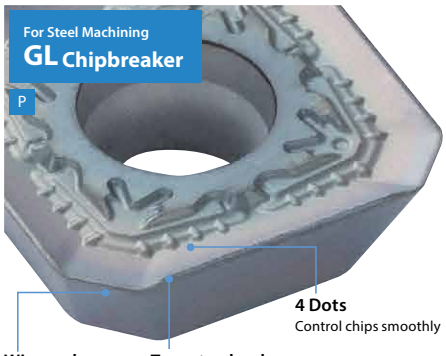
High Precision High Rake Milling

MFSE45

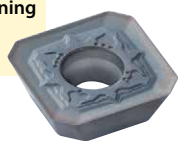
Rough and Finish in a Single Pass with Excellent Surface Finish
Roughing Condition (fz = 0.010ipt) Provides Excellent Surface Finish (0.8 µmRa or Less)

1 The MFSE45 Milling Solution

Delivers high-quality surfaces by roughing and finishing simultaneously

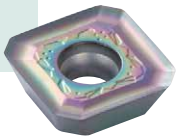


For Stainless Steel Machining
SL Chipbreaker



M
Micro-honing

For Aluminum Machining
AL Chipbreaker

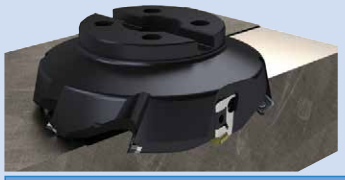


N
Sharp Edge

Machining Comparison Simulation (Example)

MFSE45 1 Pass and cutting time was cut by 1/3, with a good surface finish (0.8 µmRa or less)

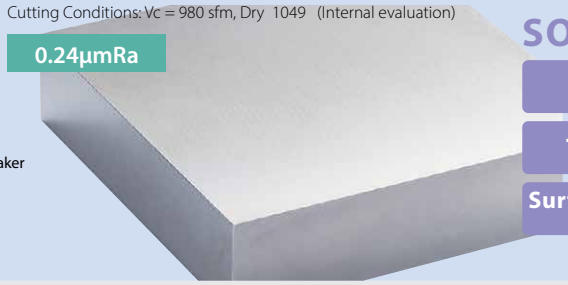
fz = 0.010 ipt (D.O.C. = 0.039")



Ø160mm -8T GL Chipbreaker
(With Wiper Insert)

Cutting Time **Roughing + Finishing**

Cutting Conditions: Vc = 980 sfm, Dry 1049 (Internal evaluation)



SOLUTION
- 1 Pass
- Time = 1/3
- Surface Finish ✓

Conventional Machining

Two separate passes for roughing and finishing
Cutting time is longer due to low feed rates during finishing

fz = 0.006 ipt (D.O.C. = 0.032")

Ø160mm-8T

fz = 0.005 ipt (D.O.C. = 0.008")

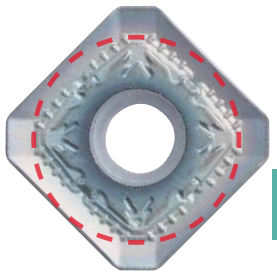
Ø160mm-8T

Cutting Time **Roughing** → **Finishing**

2 Excellent Surface Finish and Long Tool Life

Tight IC tolerance of insert

Improved surface finish quality and longer tool life with reducing front edge runout



Inscribed Circle Tolerance
± 0.0008" or Less

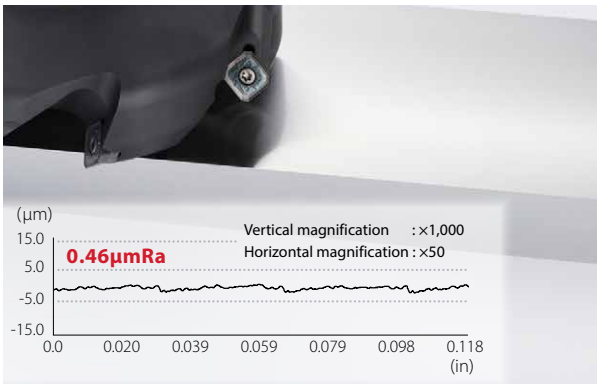
(Class E Standard ± 0.0012" or less)

Excellent Front Edge Runout Accuracy

Advantage ❶ **Theoretical reduction of roughness on finished surface, excellent surface finish**

Front Edge Runout: Small ⇒ Surface Roughness: Good

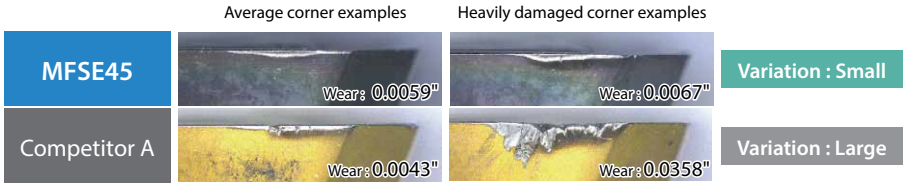
Surface roughness in stainless steel machining (Internal evaluation)



Cutting Conditions : Vc = 820 sfm, D.O.C. x ae = 0.039" x 3.937", fz = 0.006 ipt, Wet 304 Ø125mm (Standard 6 flutes) SL Chipbreaker

Advantage ❷ **Insert wear progresses evenly and tool life can be improved**

Effect on wear (User Evaluation)



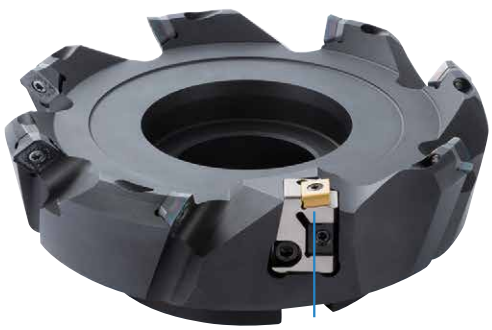
Cutting Conditions : Vc = 890 sfm, D.O.C. = ~ 0.059", fz = 0.008 ipt, Wet SS 400 Ø250mm (15 flutes) SL Chipbreaker (PR1535)

Due to the high wear rate of the insert, all inserts need to be replaced, which may result in shorter tool life.

3 Various Holders Available for Multiple Applications

In addition to styles with a wiper insert, the standard type with only the standard inserts are also available

Type	With Wiper Insert	Standard
Surface roughness	Approx. 0.8μmRa	Approx. 1.6μmRa
Recommended feed	fz = 0.010 ipt	fz = 0.005 ipt (Finish machining time)
Application	High efficiency finishing	General purpose (Uses 1 insert style)



Using wiper insert for MFF

(Cutting edge adjustment mechanism)

Note) See page 7 for details on how to adjust the cutting edge.

MFSE45 (Face Mill)

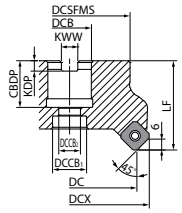


Fig. 1

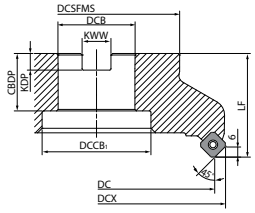


Fig. 2

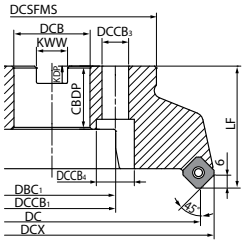
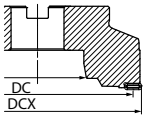


Fig. 3



Wiper Insert Pocket

Toolholder Dimensions

Unit			Part Number	Std. Item R	Std. Item L	No. of Inserts	Dimensions DC	DCX	DCB	DCSFMS	DCCB1	DCCB2	DCCB3	DCCB4	DBC1	LF	CBDP	KDP	KWW	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➔ M42
mm	Standard	Inch Bore Dia.	MFSE 45080R-5T	●		5	80	88.7	1.000"	70	20	13	-	-	-	50	1.063"	0.236"	0.375"	No	12,800	1.4	1	SEET13T3...
			45100R-5T	●		5	100	108.7	1.250"	78	48	-	-	-	-	50	1.260"	0.315"	0.500"	No	11,500	1.9	2	SEET13T3...
			45125R-6T	●		6	125	133.7	1.500"	89	55	-	-	-	-	63	1.496"	0.394"	0.625"	No	10,200	3.3	2	SEET13T3...
			45160R-7T	●	●	7	160	168.7	2.000"	110	72	-	-	-	-	63	1.496"	0.433"	0.750"	No	9,000	5.3	2	SEET13T3...
			45200R-8T	●	●	8	200	208.7	1.875"	142	100	-	18	26	101.6	63	1.575"	0.551"	1.000"	No	8,100	7.3	3	SEET13T3...
			45250R-10T	●	●	10	250	258.7		222	110	-	18	26	101.6	63	1.575"	0.551"	1.000"	No	7,200	15.8	3	SEET13T3...
		Metric Bore Dia.	MFSE 45063R-5T-M	●		5	63	71.7	22	48	-	5	-	-	-	50	21	6.3	10.4	No	14,400	0.6	1	SEET13T3...
			45080R-5T-M	●		5	80	88.7	27	70	-	5	-	-	-	50	24	7	12.4	No	12,800	1.4	1	SEET13T3...
			45100R-5T-M	●		5	100	108.7	32	78	-	5	-	-	-	50	30	8	14.4	No	11,500	1.8	2	SEET13T3...
			45125R-6T-M	●		6	125	133.7	40	89	-	6	-	-	-	63	33	9	16.4	No	10,200	3.2	2	SEET13T3...
			45160R-7T-M	●		7	160	168.7		110	-	7	14	20	66.7	63	32			No	9,000	5.4	3	SEET13T3...
			45200R-8T-M	●		8	200	208.7	60	142	-	8	18	26	101.6	63	40	14	25.7	No	8,100	7	3	SEET13T3...
			45250R-10T-M	●		10	250	258.7		222	-	10	18	26	101.6	63	40	14	25.7	No	7,200	15.5	3	SEET13T3...
	Wiper Insert	Inch Bore Dia.	MFSE 45160R-8T-W	●		8	160	168.7	2.000"	102	72	-	-	-	-	63	1.496"	0.433"	0.750"	No	1,000	5.5	3	SEET13T3... LNGX1209...
			45200R-9T-W	●		9	200	208.7	1.875"	142	133	-	18	26	101.6	63	1.575"	0.551"	1.000"	No	800	7.6	3	SEET13T3... LNGX1209...
			45250R-11T-W	●		11	250	258.7		222		-	18	26	101.6	63	1.496"	0.551"	1.000"	No		12.3	3	SEET13T3... LNGX1209...
		Metric Bore Dia.	MFSE 45160R-8T-W-M	●		8	160	168.7	40	110	1	8	-	-	-	63	33	9	16.4	No	1,000	5.5	2	SEET13T3... LNGX1209...
			45200R-9T-W-M	●		9	200	212.8	60	142	1	9	18	26	101.6	63	40	14	25.7	No	800	7.3	3	SEET13T3... LNGX1209...
			45250-11T-W-M	□		11	250	262.7		222	1	11	18	26	101.6	63	38			No		12	3	SEET13T3... LNGX1209...

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts

Common for Standard and Wiper Insert Styles

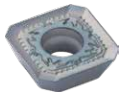
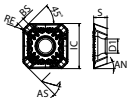
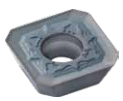
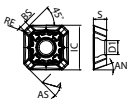
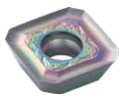
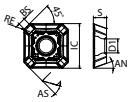
Clamp Screw	Wrench	Shim	Shim screw	Wrench	Anti-Seize Compound
SB-35120TRP	DTPM-15	MFSE-105	SPW-5035	LW-3.5	P-37
Recommended tightening torque for insert clamp 4N·m		Recommended tightening torque for shim clamp 5N·m			

For Wiper Insert

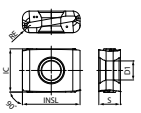
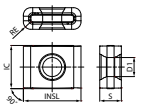
Clamp screw	Wrench	Wedge	Cartridge	Cartridge clamp screw	Wrench	Adjustment Screw
SB-3592TR	DTM-10	AD-MFF	CR-MFF	HH5X15L	TTW-15	W6X18N
Recommended tightening torque for wiper insert clamp 1.2N·m						

SEET

Usage Classification								
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel	☆			☆	☆	★	P
	Mold and die steel	☆		☆		★	☆	
	Austenitic stainless steel	☆			☆	☆	★	M
	Martensitic stainless steel	★				☆	☆	
	Precipitation hardened stainless steel							
	Gray cast iron	★				☆	☆	K
	Nodular cast iron	★				☆	☆	
	Non-ferrous metals		★					N
	Heat-resistant alloy	★					☆	S
	Titanium alloy				☆		★	
	Hard materials							H

Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)		Carbide						Applicable Toolholder ➡ M40
				IC	S	D1	RE	BS	AN	AS	CVD	DLC	PVD				
											CA6535	PDL025	PR1525	PR1535	PR1825	PR1835	
	 General Purpose	SEET 13T3AGSN-GL	4	13.4	3.97	4.2	1.5	2.1	20	29	●		●	●	●	●	MFSE45...
	 Stainless Steel	SEET 13T3AGSN-SL	4	13.4	3.97	4.2	1.5	2.1	20	29	●		●	●	●	●	MFSE45...
	 Non-Ferrous Metals	SEET 13T3AGFN-AL	4	13.4	3.97	4.2	1.5	2.1	20	29		●					MFSE45...

LNGX

Insert		Part Number	No. of Edges	Dimensions (mm)					Carbide		Cermet	Applicable Toolholder ➡ M40 M221
				IC	S	D1	RE	INSL	PVD		PVD	
									PR1525	PR1825	PV60M	
	 Low Cutting Force	LNGX 120916R-TT	4	9.525	4.76	4.2	1.6	12.7	●	●	●	MFSE45...-W MFSE45...-W-M MFF...-SF
		LNGX 120916	4	9.525	4.76	4.2	1.6	12.7	●	●	●	MFSE45...-W MFSE45...-W-M MFF...-SF

Recommended Cutting Conditions ➡ M43

SEET and LNGX inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	fz (ipt)	Recommended Insert Grade (Cutting Speed Vc: sfm)			
			MEGACOAT NANO EX (MEGACOAT NANO)		CVD Coated Carbide	DLC (Coated Carbide)
			PR1835 (PR1535)	PR1825 (PR1525)	CA6535	PDL025
GL	Carbon Steel	0.004 ~ **0.006** ~ 0.012	★ 490 ~ **660** ~ 980	☆ 490 ~ **660** ~ 980	☆ 490 ~ **660** ~ 980	–
	Alloy Steel	0.004 ~ **0.006** ~ 0.012	★ 490 ~ **660** ~ 980	☆ 490 ~ **660** ~ 980	☆ 490 ~ **660** ~ 980	–
	Mold Steel	0.004 ~ **0.006** ~ 0.010	☆ 330 ~ **490** ~ 820	★ 330 ~ **490** ~ 820	☆ 330 ~ **490** ~ 820	–
	Austenitic Stainless Steel*	0.004 ~ **0.006** ~ 0.010	★ 330 ~ **660** ~ 820	☆ 330 ~ **660** ~ 820	☆ 330 ~ **660** ~ 820	–
	Martensitic Stainless Steel*	0.004 ~ **0.006** ~ 0.010	★ 330 ~ **660** ~ 820	☆ 330 ~ **660** ~ 820	☆ 330 ~ **660** ~ 820	–
	Gray Cast Iron	0.004 ~ **0.006** ~ 0.010	☆ 330 ~ **660** ~ 820	☆ 330 ~ **660** ~ 820	☆ 330 ~ **660** ~ 820	–
	Nodular Cast Iron	0.004 ~ **0.006** ~ 0.010	☆ 330 ~ **660** ~ 820	☆ 330 ~ **660** ~ 820	★ 330 ~ **660** ~ 820	–
SL	Carbon Steel	0.004 ~ **0.005** ~ 0.006	☆ 490 ~ **660** ~ 980	☆ 490 ~ **660** ~ 980	☆ 490 ~ **660** ~ 980	–
	Alloy Steel	0.004 ~ **0.005** ~ 0.006	☆ 490 ~ **660** ~ 980	☆ 490 ~ **660** ~ 980	☆ 490 ~ **660** ~ 980	–
	Mold Steel	–	–	–	–	–
	Austenitic Stainless Steel*	0.004 ~ **0.006** ~ 0.008	★ 330 ~ **660** ~ 820	☆ 330 ~ **660** ~ 820	☆ 330 ~ **660** ~ 820	–
	Martensitic Stainless Steel*	0.004 ~ **0.006** ~ 0.008	★ 330 ~ **660** ~ 820	☆ 330 ~ **660** ~ 820	☆ 330 ~ **660** ~ 820	–
AL	Aluminum Alloy (Si 13% or less)	0.004 ~ **0.006** ~ 0.012	–	–	–	★ 660 ~ **1,310** ~ 1,640

*Machining with coolant is recommended for stainless steel.
Bold text in the table indicates recommended values. Adjust the cutting speed and feed within the above conditions according to the actual machining situation.

★: 1st Recommendation ☆: 2nd Recommendation

Face Mills for Heavy Milling

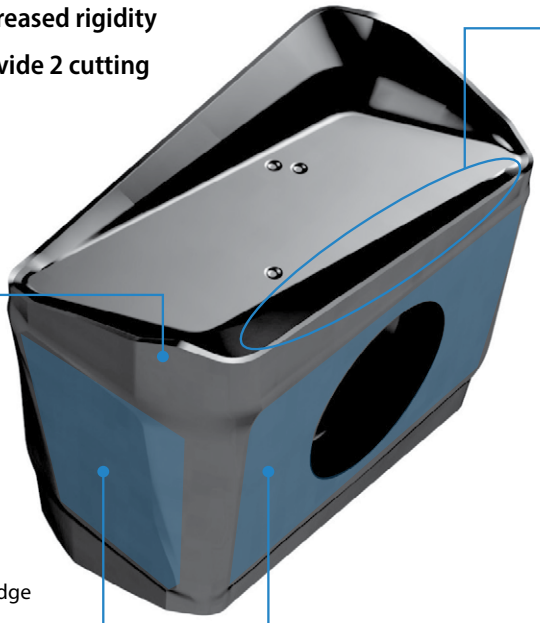
MFLN

Tough 4-edge tangential inserts for reliable heavy milling at large D.O.C. and high feed rates
Three lead angle options for optimized machining in various applications

1 Tough and Reliable Inserts for Stable Heavy Milling

Inserts up to 20mm long offer increased rigidity

Tangentially mounted inserts provide 2 cutting edges on each side

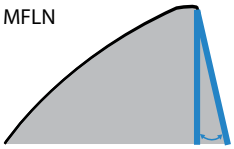


Obtuse Edge Design

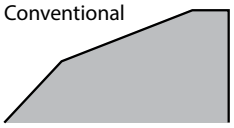
Increases the cutting edge angle only at the tip to maintain both strength and sharpness

Cross-section view of cutting edge

MFLN



Conventional



Corner Chamfer

(only available on MFLN90)

Both general corner-R type and chamfered corner type available

Prevents chattering and insert fracturing

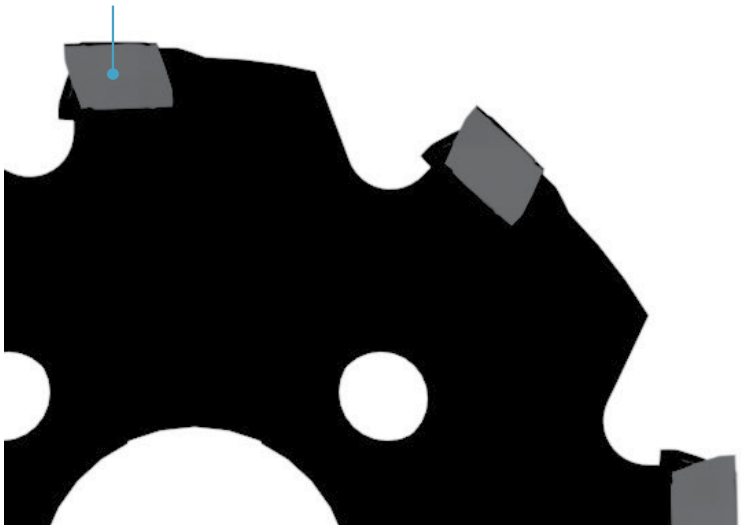
Convex cutting edge ridge

Reduced impact forces when entering the workpiece

Wide Flat Mounting Surface

Holds insert firmly in heavy milling applications

Tangentially mounted inserts increase rigidity



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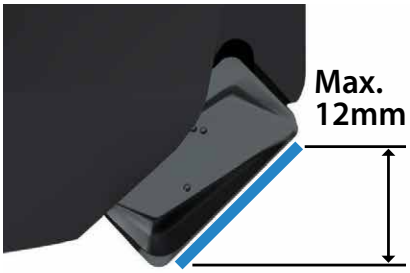
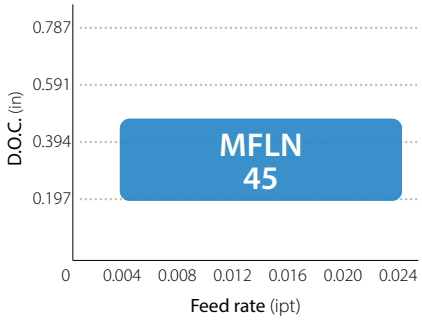
2 Large D.O.C. and High Feed Rates

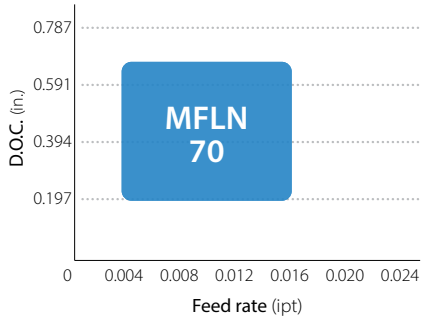
MFLN45
(Cutting edge angle **45°**)



MFLN70
(Cutting edge angle **70°**)

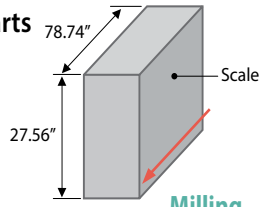
Applicable Range





Case Study

Forging Die for Automotive Parts



Vc = 295 sfm
D.O.C. × ae = ~0.039" × ~3.15"
fz = 0.014 ipt Dry
MFLN45080R-4T-M (ø80mm-4 Inserts)
LOGU221616ER-GM PR1535

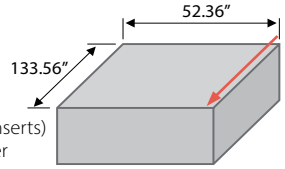
Chip Removal Volume

		Milling Efficiency
MFLN45 (ø80mm-4 Inserts)	Q=**416** cc/min	x1.2
Competitor H (ø100mm-5 Inserts)	Q=**336** cc/min	

MFLN achieved 1.2 times machining efficiency.
Quieter machining and good chip shapes

(User evaluation)

Machining base FCD600



Vc = 395 sfm
D.O.C. = 0.433" × 6.49"
fz = 0.025 ipt Dry
XMFLN70250R-13T-OH-M (ø250mm-13 Inserts)
Fine pitch, internal coolant, custom holder
LOGU221616ER-GM PR1525

Chip Removal Volume

	Roughing	Finishing	Milling Efficiency
MFLN70	Q=**2,340** cc/min	Q=**2,340** cc/min	x1.1
Competitor	Roughing (Competitor F) Q=**2,100** cc/min	Finishing (Competitor G) Q=**1,970** cc/min	

MFLN improved machining efficiency with lower cutting force.
It can be used for both roughing and finishing applictions

(User evaluation)

MFLN45 (Face Mill)

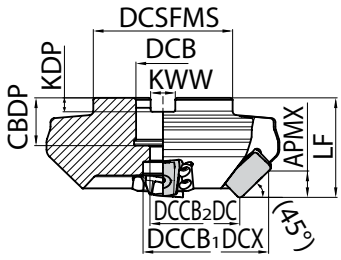


Fig. 1

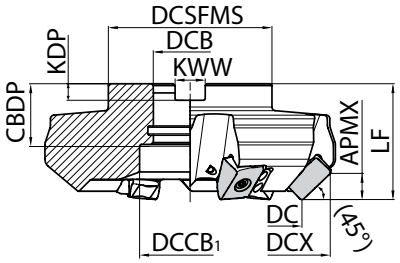


Fig. 2

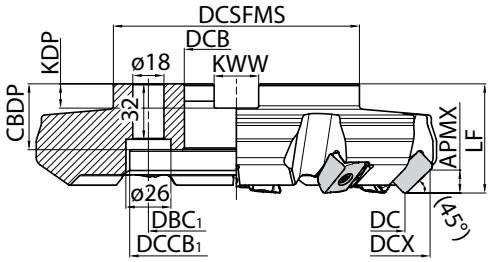


Fig. 3

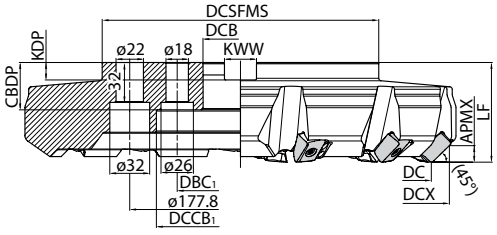


Fig. 4

Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	Dimensions (mm)													A.R. max.(°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M48
			R		DC	DCX	DCSFMS	DCB	DCCB1	DCCB2	DBC1	LF	CBDP	KDP	KWW	APMX								
mm	Inch Bore Dia.	MFLN 45080R-4T	●	4	80	104	70	1.000"	20	13	-	50	1.063"	0.236"	0.375"	12	+2	-15.5		5,970	2	1	LOGU221616ER-GM
		45100R-4T	●	4	100	124	78	1.250"	45			50	1.339"	0.315"	0.500"	12	+2	-14.5	Yes	4,780	2.7	2	LOGU221616ER-GM
		45125R-6T	●	6	125	149	89	1.500"	55			63	1.496"	0.394"	0.625"	12	+2	-13.5	Yes	3,820	4.6	2	LOGU221616ER-GM
		45160R-7T	●	7	160	184	110	2.000"	90			63	1.496"	0.433"	0.750"	12	+2	-13.5	No	2,990	6.8	2	LOGU221616ER-GM
		45200R-8T	●	8	200	224	142	1.875"	124	-	4.000"	63	1.496"	0.551"	1.000"	12	+2	-13.5	No	2,390	10	3	LOGU221616ER-GM
		45250R-10T	●	10	250	274	222	1.875"	160	-	4.000"	63	1.496"	0.551"	1.000"	12	+2	-13.5	No	1,910	17.1	3	LOGU221616ER-GM
		45315R-12T	□	12	315	339	222	1.875"	215	-	4.000"	80	1.496"	0.551"	1.000"	12	+2	-13.5	No	1,520	25.3	4	LOGU221616ER-GM
	Metric Bore Dia.	45080R-4T-M	●	4	80	104	70	27	20	13	-	50	24	7	12.4	12	+2	-15.5		5,970	2	1	LOGU221616ER-GM
		45100R-4T-M	●	4	100	124	78	32	45			50	30	8	14.4	12	+2	-14.5	Yes	4,780	2.7	2	LOGU221616ER-GM
		45125R-6T-M	●	6	125	149	89	40	55			63	33	9	16.4	12	+2	-13.5	Yes	3,820	4.6	2	LOGU221616ER-GM
		45160R-7T-M	●	7	160	184	110	40	90		66.7	63	33	9	16.4	12	+2	-13.5	No	2,990	6.7	3	LOGU221616ER-GM
		45200R-8T-M	●	8	200	224	142	60	124	-	101.6	63	38	14	25.7	12	+2	-13.5	No	2,390	9.7	3	LOGU221616ER-GM
		45250R-10T-M	●	10	250	274	222	60	160		101.6	63	38	14	25.7	12	+2	-13.5	No	1,910	16.9	3	LOGU221616ER-GM
		45315R-12T-M	□	12	315	339	222	60	215		101.6	80	38	14	25.7	12	+2	-13.5	No	1,520	25.1	4	LOGU221616ER-GM

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MFLN70 (Face Mill)

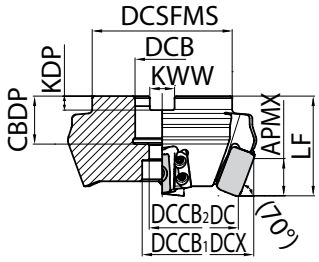


Fig. 1

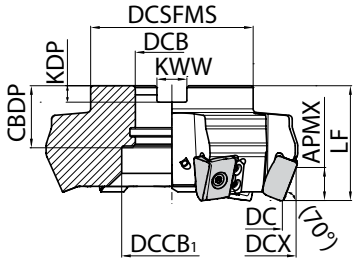


Fig. 2

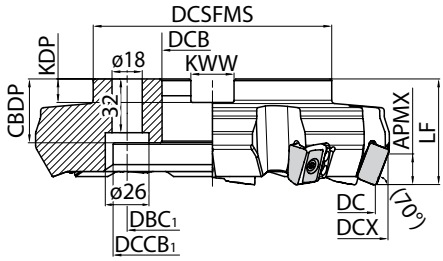


Fig. 3

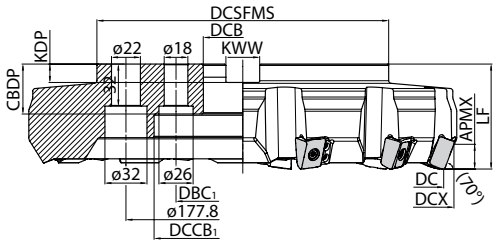
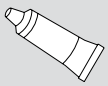


Fig. 4

Toolholder Dimensions

Unit		Part Number	Std. Item R	No. of Inserts	Dimensions (mm) DC	DCX	DCSFMS	DCB	DCCB1	DCCB2	DBC1	LF	CBDP	KDP	KWW	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M48
mm	Inch Bore Dia.	MFLN 70080R-4T	●	4	80	93	70	1.000"	20	13	-	50	1.063"	0.239"	0.375"	17	+1	-16.5		5,970	1.4	1	LOGU221616ER-GM
		70100R-4T	●		100	113	78	1.250"	45				1.339"	0.315"	0.500"			-14.5	Yes	4,780	2	2	
		70125R-6T	●	6	125	138	89	1.500"	55			63	1.496"	0.394"	0.625"			-13.5		3,820	3.5	2	
		70160R-7T	●	7	160	173	110	2.000"	70	-				0.433"	0.750"				No	2,990	5.8	2	
		70200R-8T	●	8	200	213	142	1.875"	120		4.000"			0.551"	1.000"					2,390	8.5	3	
		70250R-10T	●	10	250	263	222		160											1,910	15.1	3	
		70315R-12T	□	12	315	328			215			80								1,520	22.2	4	
	Metric Bore Dia.	MFLN 70080R-4T-M	●	4	80	93	70	27	20	13	-	50	24	7	12.4	17	+1	-16.5		5,970	1.4	1	LOGU221616ER-GM
		70100R-4T-M	●		100	113	78	32	45				30	8	14.4			-14.5	Yes	4,780	1.9	2	
		70125R-6T-M	●	6	125	138	89	40	55			63	33	9	16.4			-13.5		3,820	3.4	2	
		70160R-7T-M	●	7	160	173	110		90	-	66.7								No	2,990	5.3	3	
		70200R-8T-M	●	8	200	213	142	60	120				38	14	25.7					2,390	8.2	3	
		70250R-10T-M	●	10	250	263	222		160		101.6									1,910	14.8	3	
		70315R-12T-M	□	12	315	328			215			80								1,520	21.9	4	

Spare Parts

Part Number	Parts: Insert Screw	Wrench	Shim	Clamp screw	Wrench	Anti-Seize Compound	Arbor bolt
							
MFLN ○○080R-4T(-M)	SB-60200TRP	TTP-20	MAP-2216	SB-40140TR	DTM-15	P-37	HH12X35
MFLN ○○100R-4T(-M) ~ ○○315R-12T(-M)							–
	Tightening torque for clamping insert 6.0 N·m		Tightening torque for clamping shim 3.5 N·m				

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

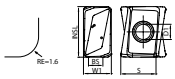
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

LOGU

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel	☆		★	☆	P
Mold and die steel	☆		★	☆	P
Austenitic stainless steel					M
Martensitic stainless steel					M
Precipitation hardened stainless steel					M
Gray cast iron	☆		★	☆	K
Nodular cast iron	☆		★	☆	K
Non-ferrous metals					N
Heat-resistant alloy					S
Titanium alloy					S
Hard materials					H

Insert		Part Number	No. of Edges	Dimensions (mm)						Carbide				Applicable Toolholder ➡ M46 M47 M166
				S	D1	RE	W1	INSL	BS	PVD				
										PR1525	PR1535	PR1825	PR1835	
	 Corner-R	LOGU 221616ER-GM	4	16.6	6.8	1.6	12.5	22.8	6.3	●	●	●	●	MFLN45... MFLN70... MFLN90...

Recommended Cutting Conditions ➡ M49

Applicable Insert Selection

	LOGU221616ER-GM (Corner-R)	LOGU2216PWER-GM (Corner Chamfer)
MFLN 45	✓	Not applicable
MFLN 70	✓	Not applicable

LOGU inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions (MFLN45 / MFLN70)

	Workpiece Material	D.O.C. (in.) Width of Cut ≦0.5×DC	D.O.C. (in.) Width of Cut >0.5×DC	Feed (fz : ipt)	Recommended Insert Grades (Cutting Speed Vc : sfm) MEGACOAT NANO EX (MEGACOAT NANO) PR1825 (PR1825)	MEGACOAT NANO EX (MEGACOAT NANO) PR1835 (PR1835)
MFLN 45	Carbon Steel	~0.394	~0.315	0.004~**0.012**~0.024	★ 330~**490**~590	☆ 260~**390**~490
	Alloy Steel				★ 330~**490**~590	☆ 260~**390**~490
	Die Steel				★ 260~**390**~490	☆ 230~**330**~390
	Gray Cast Iron	~0.474	~0.394	0.004~**0.012**~0.024	★ 330~**490**~590	☆ 260~**390**~490
	Nodular Cast Iron				★ 330~**490**~590	☆ 260~**390**~490
MFLN 70	Carbon Steel	~0.591	~0.472	0.004~**0.008**~0.016	★ 330~**490**~590	☆ 260~**390**~490
	Alloy Steel				★ 330~**490**~590	☆ 260~**390**~490
	Die Steel				★ 260~**390**~490	☆ 230~**330**~390
	Gray Cast Iron	~0.669	~0.591	0.004~**0.008**~0.016	★ 330~**490**~590	☆ 260~**390**~490
	Nodular Cast Iron				★ 330~**490**~590	☆ 260~**390**~490

The number in **bold** font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
Dry machining is recommended.

★: 1st Recommendation ☆: 2nd Recommendation

How to Mount Inserts

1. Completely eliminate chips and dust from the insert mounting side.
2. After mounting a clamp screw on the top edge of wrench, tighten the screw while keeping the insert pushed against the shim seat surface and holder surface (Fig.1,2)
3. Make sure that the identification on the top of the insert is the same in each pocket. (Fig.3)
4. Tighten the wrench (20IP) in while holding parallel to the clamp screw.
5. Tighten the insert clamp screw at an appropriate torque. (Recommended torque: 6.0 Nm)
6. After tightening, check that there is no gap between the insert and the surface of the shim, or between the side surface of insert and the holder surface. If there is a gap, remount the insert using the directions above.

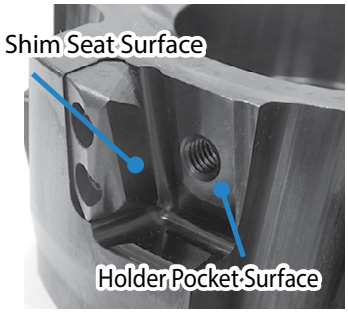


Fig.1

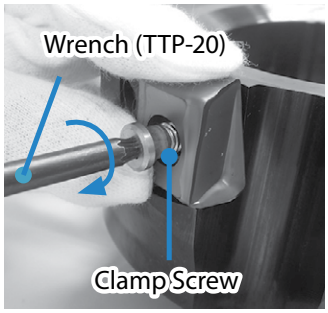


Fig.2

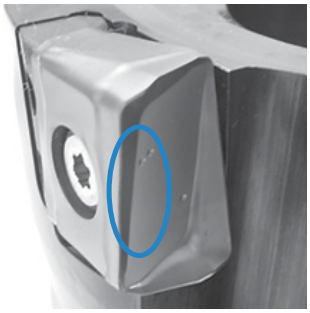


Fig.3

How to Replace the Insert Shim Seat

1. Completely eliminate chips and dust from the shim mounting side.
2. Coat medium strength screw locking adhesive on the screws.
3. Tighten the screw keeping the shim pushed against the pocket surface of toolholder.
4. After tightening both screws temporarily, tighten them with appropriate torque. (Recommended torque:3.5 N·m)
5. Please check that there is no gap between the shim and the pocket surfaces of toolholder.

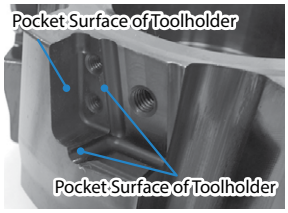


Fig.1

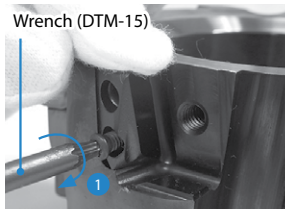


Fig.2

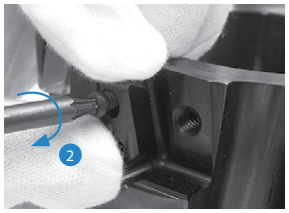


Fig.3

Fig.4

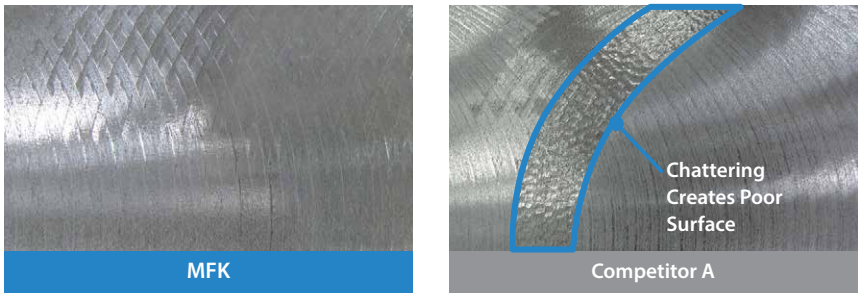
High Efficiency Cast Iron Machining

MFK

Tough edge with low cutting forces enable stable machining
Uses 10-edge inserts for economical machining

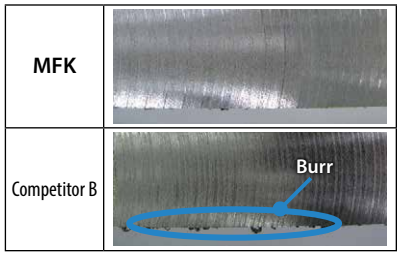
MFK Reduces cutting forces with a well balanced design
Excellent surface finish is achieved by minimizing chattering

Surface Finish Comparison (Internal Evaluation)



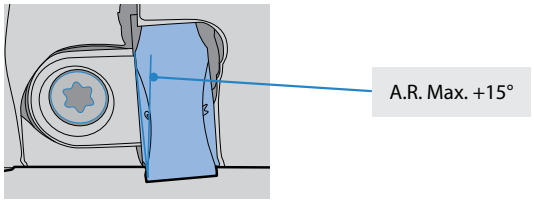
Cutting Conditions: Vc = 590 sfm, fz = 0.012 ipt, ap × ae = 0.118" × 3.071", Dry Workpiece: Nodular Cast Iron (80-60-03)

Burr Comparison (Internal Evaluation)

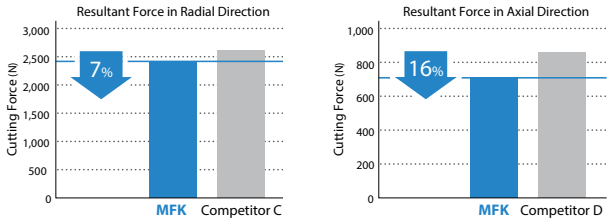


Sharp Cutting Prevents Burr Formation

1 Low Cutting Forces with Helical Cutting Edge Design

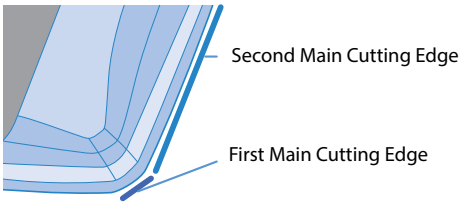


Cutting Force Comparison (Internal Evaluation)

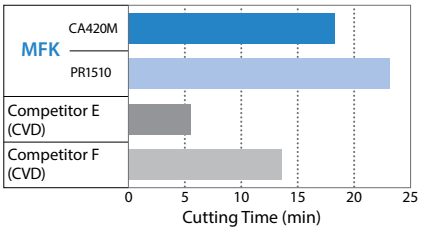


Cutting Conditions: Vc = 590 sfm, fz = 0.012 ipt, D.O.C. × ae = 0.118" × 2.441", Dry Workpiece: Nodular Cast Iron (80-60-03), Ø5.000"

2 Tough and Reliable Dual Angle Edge Design



Fracture Resistance Comparison (Internal Evaluation)



Cutting Conditions: Vc = 980 sfm, fz = 0.020 ipt, D.O.C. = 0.079", Wet Workpiece: Nodular Cast Iron (65-45-12) with 4 Bores

Reduces impact load when entering the workpiece

800.823.7284
www.kyocera precisiontools.com

Large Cutter Lineup for Various Applications

Fine and Extra Fine Pitch Types Available.

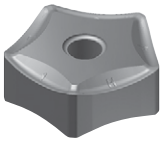
Fine Pitch
(Example: 5000R-11-12T = 12 Inserts)

- Recommended for Unstable Setups
- General Purpose for Wide Application Ranges

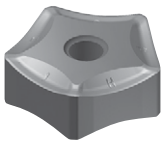
Extra Fine Pitch
(Example: 5000R-11-18T = 18 Inserts)

- Recommended for Rigid Setups
- Finer Pitch for Higher Efficiency

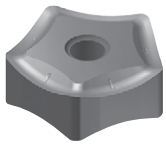
Wide Range of Chipbreakers for Various Machining Applications



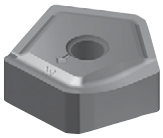
General Purpose:
GM Chipbreaker



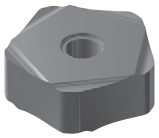
Heavy Duty:
GH Chipbreaker



Finishing:
GL Ground Chipbreaker

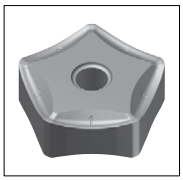


Wiper Edge:
W Ground Wiper Edge

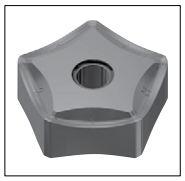


High Speed Machining:
Ceramic with Chipbreaker

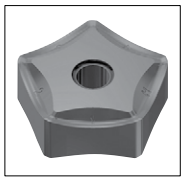
Insert Grade Lineup



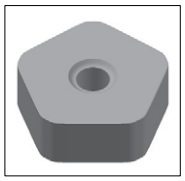
CA420M
Long Tool Life
(CVD)
(1st Recommendation)



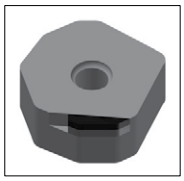
PR1510
Stable Machining
(PVD)



PR1525
Fracture Resistance
(PVD)



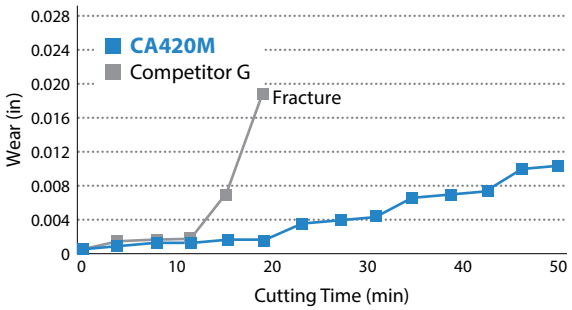
KS6050 / CS7050
High Speed Machining
(Ceramic)



KBN475
High Speed § Precision Machining
(CBN Wiper Insert)

Use CBN wiper inserts together with ceramic KS6050/CS7050 inserts

Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions: Vc = 670 sfm, fz = 0.012 ipt, D.O.C. × ae = 0.079" × 3.150", Dry
Workpiece: Nodular Cast Iron (65-45-12)

MFK (Face Mill)

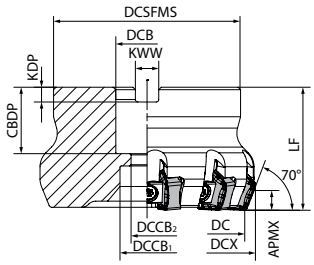


Fig. 1

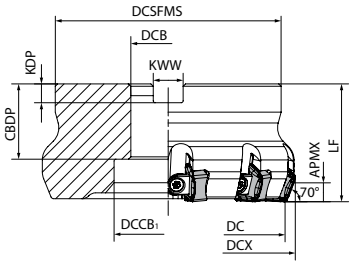


Fig. 2

Toolholder Dimensions

Unit			Part Number	Std. Item R	No. of Inserts	Dimensions DC	DCX	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.
Inch	Inch Bore Dia.	Fine Pitch	MFK 3000R-11-8T	●	8	3.000	3.340	2.750	1.000	0.866	0.551	2.480	1.063	0.240	0.375	0.236	+15	-7	No	8,000	1.61	1
			4000R-11-10T	●	10	4.000	4.340	3.750	1.500	1.299	0.866		1.181	0.390	0.625			-6		7,000	2.86	1
			5000R-11-12T	●	12	5.000	5.340			2.047	-		1.496					-5		6,100	3.67	2
			6000R-11-16T	●	16	6.000	6.340	4.880	2.000	2.835				0.430	0.750					5,300	4.94	2
		Extra Fine Pitch	MFK 3000R-11-10T	●	10	3.000	3.340	2.750	1.000	0.866	0.551	2.480	1.063	0.240	0.375	0.236	+15	-7	No	8,000	1.55	1
			4000R-11-14T	●	14	4.000	4.340	3.750	1.500	1.299	0.866		1.181	0.390	0.625			-6		7,000	2.74	1
			5000R-11-18T	●	18	5.000	5.340			2.047	-		1.496					-5		6,100	3.48	2
			6000R-11-22T	●	22	6.000	6.340	4.880	2.000	2.835				0.430	0.750					5,300	4.76	2

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts and Applicable Inserts (Inch MFK)

Part Number	Spare Parts				Applicable Inserts M58
	Wedge	Wedge screw	Wrench	Mounting bolt	
MFK 3000R-11-8T	C09N	W6X18N	TT-15	HH1/2-1.25	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
4000R-11-10T				HH3/4-2.3H	
5000R-11-12T				-	
6000R-11-16T					
MFK 3000R-11-10T	C09N	W6X18N	TT-15	HH1/2-1.25	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
4000R-11-14T				HH3/4-2.3H	
5000R-11-18T				-	
6000R-11-22T					

MFK (Face Mill)

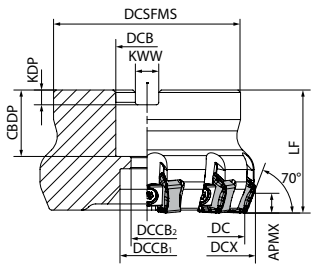


Fig. 1

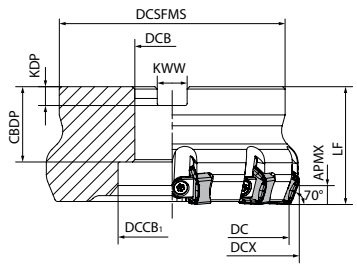


Fig. 2

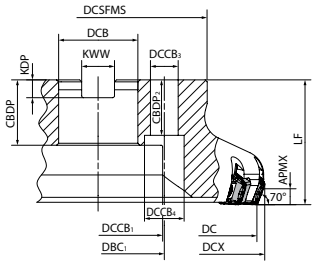


Fig. 3

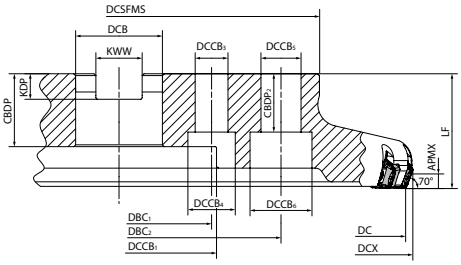


Fig. 4

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions																		A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.
				R		DC	DCX	DCSFMS	DCB	DCCB1	DCCB2	DCCB3	DCCB4	DCCB5	DCCB6	DBC1	DBC2	LF	CBDP	KDP	KWW	APMX	CBDP2						
mm	Inch Bore Dia.	Fine Pitch	MFK 080R-11-8T	●	8	80	89	76	1.250"	26	17	-	-	-	-	-	-	63	1.260"	0.315"	0.500"	6	-	+15	-7	No	8,000	1.76	1
			100R-11-10T	●	10	100	109	96																	-6		7,000	2.98	1
			125R-11-12T	●	12	125	134	100	1.500"	55	-								1.496"	0.394"	0.625"				-5		6,100	3.65	2
			160R-11-16T	●	16	160	169		2.000"	70									1.496"	0.433"	0.750"						5,300	4.62	2
			200R-11-20T	●	20	200	209	142	1.875"	110		18	26			4.000"			1.575"	0.551"	1.000"		32				4,700	7.65	3
			250R-11-24T	●	24	250	259																				4,200	10.73	3
			315R-11-28T	□	28	315	324	220						22	32		7.000"										3,700	19.71	4
		Extra Fine Pitch	MFK 080R-11-10T	●	10	80	89	76	1.250"	26	17	-	-	-	-	-	-	63	1.260"	0.315"	0.500"	6	-	+15	-7	No	8,000	1.7	1
			100R-11-14T	●	14	100	109	96																	-6		7,000	2.85	1
			125R-11-18T	●	18	125	134	100	1.500"	55	-								1.496"	0.394"	0.625"				-5		6,100	3.44	2
			160R-11-22T	●	22	160	169		2.000"	70									1.496"	0.433"	0.750"						5,300	4.44	2
			200R-11-28T	●	28	200	209	142	1.875"	110		18	26			4.000"			1.575"	0.551"	1.000"		32				4,700	7.4	3
			250R-11-36T	●	36	250	259																				4,200	10.36	3
			315R-11-44T	□	44	315	324	220						22	32		7.000"										3,700	19.21	4
	Metric Bore Dia.	Fine Pitch	MFK 080R-11-8T-M	●	8	80	89	76	27	20	13	-	-	-	-	-	-	63	24	7	12.4	6	-	+15	-7	No	8,000	1.87	1
			100R-11-10T-M	●	10	100	109	96	32	26	17								28	8	14.4				-6		7,000	2.99	1
			125R-11-12T-M	●	12	125	134	100	40	55	-								33	9	16.4				-5		6,100	3.56	2
			160R-11-16T-M	●	16	160	169			70		14	20			66.7							28				5,300	4.51	3
			200R-11-20T-M	●	20	200	209	142	60	110		18	26			101.6			40	14	25.7		32				4,700	7.35	3
			250R-11-24T-M	●	24	250	259																				4,200	10.43	3
			315R-11-28T-M	□	28	315	324	220						22	32		177.8										3,700	19.41	4
		Extra Fine Pitch	MFK 080R-11-10T-M	●	10	80	89	76	27	20	13	-	-	-	-	-	-	63	24	7	12.4	6	-	+15	-7	No	8,000	1.81	1
			100R-11-14T-M	●	14	100	109	96	32	26	17								28	8	14.4				-6		7,000	2.86	1
			125R-11-18T-M	●	18	125	134	100	40	55	-								33	9	16.4				-5		6,100	3.38	2
			160R-11-22T-M	●	22	160	169			70		14	20			66.7							28				5,300	4.32	3
			200R-11-28T-M	●	28	200	209	142	60	110		18	26			101.6			40	14	25.7		32				4,700	7.1	3
			250R-11-36T-M	●	36	250	259																				4,200	10.07	3
			315R-11-44T-M	□	44	315	324	220						22	32		177.8										3,700	18.92	4

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts and Applicable Inserts (Metric MFK)

Part Number	Spare Parts (Inch Bore Dia.)				Applicable Inserts M58
	Wedge	Wedge screw	Wrench	Mounting bolt	
MFK 080R-11-8T	C09N	W6X18N	TT-15	HH16X40	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
100R-11-10T					
125R-11-12T					
160R-11-16T				-	
200R-11-20T					
250R-11-24T					
315R-11-28T					
MFK 080R-11-10T	C09N	W6X18N	TT-15	HH16X40	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
100R-11-14T					
125R-11-18T					
160R-11-22T				-	
200R-11-28T					
250R-11-36T					
315R-11-44T					

Part Number	Spare Parts (Metric Bore Dia.)				Applicable Inserts M58
	Wedge	Wedge screw	Wrench	Mounting bolt	
MFK 080R-11-8T-M	C09N	W6X18N	TT-15	HH12X35	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
100R-11-10T-M				HH16X40	
125R-11-12T-M					
160R-11-16T-M				-	
200R-11-20T-M					
250R-11-24T-M					
315R-11-28T-M					
MFK 080R-11-10T-M	C09N	W6X18N	TT-15	HH12X35	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
100R-11-14T-M				HH16X40	
125R-11-18T-M					
160R-11-22T-M				-	
200R-11-28T-M					
250R-11-36T-M					
315R-11-44T-M					

MFK-SF (Face Mill)

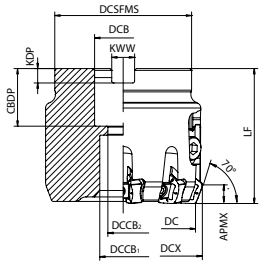


Fig. 1

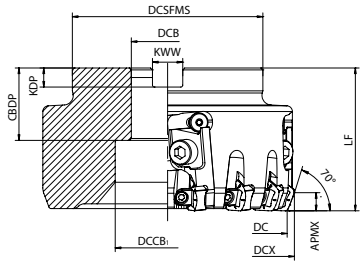


Fig. 2

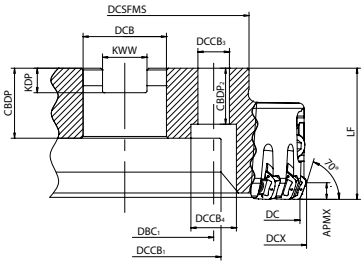


Fig. 3

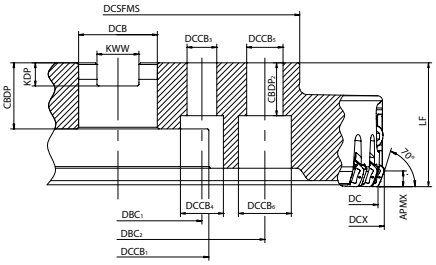


Fig. 4

Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions																		A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.
			R		DC	DCX	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	$DCCB_3$	$DCCB_4$	$DCCB_5$	$DCCB_6$	DBC_1	DBC_2	LF	CBDP	KDP	KWW	APMX	$CBDP_2$						
mm	Inch Bore Dia.	MFK 080R-11-9T-SF	●	9 (3)	80	89	76	1.250"	26	17	-	-	-	-	-	-	75	1.260"	0.315"	0.500"	6	-	+15	-7	No	8,000	2.08	1
		100R-11-12T-SF	●	12 (4)	100	109	96																	-6		7,000	3.49	1
		125R-11-15T-SF	●	15 (5)	125	134	100	1.500"	55	-								1.496"	0.394"	0.625"						6,100	4.54	2
		160R-11-18T-SF	●	18 (6)	160	169		2.000"	70										0.433"	0.750"				-5		5,300	6.82	2
		200R-11-24T-SF	●	24 (8)	200	209	142	1.875"	110	-	18	26	22	32	4.000"	7.000"		1.575"	0.551"	1.000"		32				4,700	10.39	3
		250R-11-30T-SF	□	30 (10)	250	259																				4,200	16.85	3
		315R-11-39T-SF	□	39 (13)	315	324	220																			3,700	28.65	4
	Metric Bore Dia.	MFK 080R-11-9T-M-SF	●	9 (3)	80	89	76	27	20	13	-	-	-	-	-	-	75	24	7	12.4	6	-	+15	-7	No	8,000	2.21	1
		100R-11-12T-M-SF	●	12 (4)	100	109	96	32	26	17								28	8	14.4				-6		7,000	3.49	1
		125R-11-15T-M-SF	●	15 (5)	125	134	100	40	55	-								33	9	16.4				-5		6,100	4.47	2
		160R-11-18T-M-SF	●	18 (6)	160	169					14	20			66.7							28				5,300	6.99	3
		200R-11-24T-M-SF	●	24 (8)	200	209	142	60	110	-	18	26	22	32	101.6	177.8		35	14	25.7		32				4,700	9.89	3
		250R-11-30T-M-SF	□	30 (10)	250	259																				4,200	16.35	3
		315R-11-39T-M-SF	□	39 (13)	315	324	220																			3,700	28.14	4

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
Numbers in parentheses ( ) are the number of adjustable cutting edge pockets.
Please install wiper inserts in the adjustable cutting edge pockets.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts and Applicable Inserts (MFK-SF)

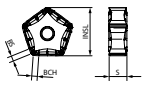
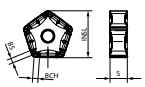
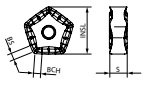
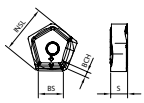
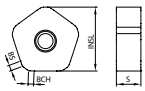
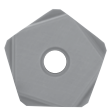
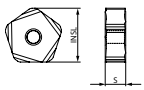
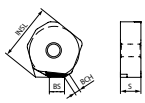
Part Number	Spare Parts								Applicable Inserts M58
	Wedge	Wedge screw	Wrench	Cartridge	Cartridge clamp screw	Wrench	Adjustment screw	Mounting bolt	
MFK 080R-11-9T-SF	C09N	W6X18N	TT-15	CR-MFK70R	HH8X25	LW-6	AJ-519TR	HH16X40	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
100R-11-12T-SF									
125R-11-15T-SF								-	
160R-11-18T-SF									
200R-11-24T-SF									
250R-11-30T-SF									
315R-11-39T-SF									
MFK 080R-11-9T-M-SF	C09N	W6X18N	TT-15	CR-MFK70R	HH8X25	LW-6	AJ-519TR	HH12X35	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
100R-11-12T-M-SF								HH16X40	
125R-11-15T-M-SF								-	
160R-11-18T-M-SF									
200R-11-24T-M-SF									
250R-11-30T-M-SF									
315R-11-39T-M-SF									

PNMG/PNEG/PNEA

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel									P
Mold and die steel									
Austenitic stainless steel									M
Martensitic stainless steel									
Precipitation hardened stainless steel									
Gray cast iron	★			☆		☆	★		K
Nodular cast iron	★			☆		★	☆		
Non-ferrous metals									N
Heat-resistant alloy									S
Titanium alloy									
Hard materials									H

Insert	Part Number	No. of Edges	Dimensions (mm)				Carbide					Ceramic		CBN	Applicable Toolholder ➡ M52~M56
			S	INSL	BCH	BS	CVD	PVD				CVD	-	-	
							CA420M	PR1510	PR1525	PR1810	PR1825	C5/7050	KS6050	KBN475	
 General Purpose	PNMG 1106XNEN-GM	10	6.35	17.23	2	2	●	△	●	●	●				MFK... MFK...-M MFK...-SF
 Tough Edge	PNMG 1106XNEN-GH	10	6.35	17.23	2	2	●	△	●	●	●				MFK... MFK...-M MFK...-SF
 Surface Finish Oriented	PNEG 1106XNEN-GL	10	6.35	17.18	2.6	2.6	●	△	●	●	●				MFK... MFK...-M MFK...-SF
 2-edge / with Wiper Edge	PNEG 1106XNER-W	2	6.35	18.02	2	10	●	△	●	●	●				MFK... MFK...-M MFK...-SF
 High Speed Machining	PNEA 1106XNTN-T01020	10	6.5	16.94	1.5	1.5						●	●		MFK... MFK...-M MFK...-SF
  High Speed Machining (With Chipbreaker)	PNEG 1106XNTR-T00515	10	6.35	17.07	-	-						●	●		MFK... MFK...-M MFK...-SF
 2-edge / Wiper Insert	PNEG 1106XNTR-T01015W	2	6.5	18.06	1.7	4.8								●	MFK... MFK...-M MFK...-SF

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M59, M60

Standard PNEG inserts sold in 10 piece boxes

PNEG1106XNER-W inserts are sold in 5 piece boxes

PNEG1106XNTR-T01015W inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions (Ceramic/CBN)

Without Chipbreaker

Workpiece Material	Insert Grades	Cutting Speed Vc (sfm)	Edge Prep.	Feed Rate fz (ipt) 0.0020 0.0039 0.0079 0.0118 0.0157
Cast Iron	★ KS6050	1,970~**2,950**~3,940	0.004 × 20°	● 0.0039
	☆ CS7050			
Nodular Cast Iron	☆ KS6050	1,310~**1,970**~2,950		
	★ CS7050			

With Chipbreaker

Workpiece Material	Insert Grades	Cutting Speed Vc (sfm)	Edge Prep.	Feed Rate fz (ipt) 0.0020 0.0039 0.0079 0.0118 0.0157
Cast Iron	★ KS6050	1,970~**2,950**~3,940	0.002 × 15°	● 0.0039
	☆ CS7050			
Nodular Cast Iron	☆ KS6050	1,310~**1,970**~2,950		
	★ CS7050			

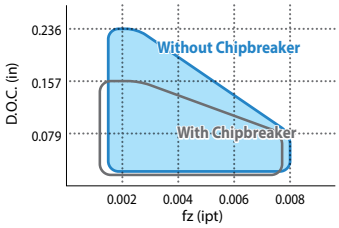
CBN Wiper Insert

Workpiece Material	Insert Grades	Cutting Speed Vc (sfm)	Edge Prep.	Feed Rate fz (ipt) 0.0020 0.0039 0.0079 0.0118 0.0157
Cast Iron	KBN475	1,970~**2,950**~3,940	0.004 × 15°	● 0.0039
Nodular Cast Iron		1,310~**1,970**~2,950		

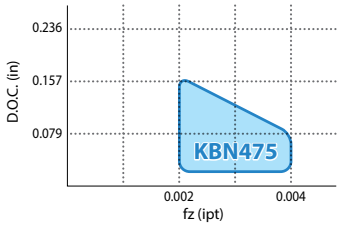
★: 1st Recommendation ☆: 2nd Recommendation

Recommended Application Range (Ceramic/CBN)

Gray/Nodular Cast Iron
(Ceramic)



Gray/Nodular Cast Iron
(CBN)



When using CBN wiper inserts
1. Please use CBN wiper inserts together with ceramic inserts.
Feed rate should be fz=0.004ipt or under.
2. The main cutting edge of CBN wiper insert is slightly higher than that of ceramic inserts.
Therefore, the feed rate for the inserts next to CBN wiper inserts is double that of other inserts.

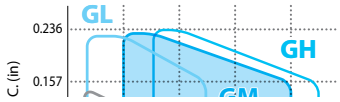
Recommended Cutting Conditions (Coated Carbide)

Workpiece Material	Insert Grades	Cutting Speed Vc (sfm)	Chipbreaker	Feed Rate fz (ipt) 0.0024 0.0039 0.0079 0.0118 0.0157
Cast Iron	**CA420M**	560~**750**~980	GM ★	0.0098
	PR1810	390~**590**~820	GH ☆	0.0118
	PR1825		GL	0.0047
	PR1510	390~**590**~820	GH	0.0118
	PR1525		GL	0.0047
Nodular Cast Iron	**CA420M**	490~**660**~820	GM	0.0079
	PR1810	330~**490**~660	GH ☆	0.0098
	PR1825		GL	0.0039
	PR1510	330~**490**~660	GH	0.0098
	PR1525		GL	0.0039

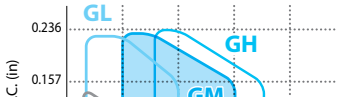
★: 1st Recommendation ☆: 2nd Recommendation

Recommended Application Range

Gray Cast Iron



Nodular Cast Iron



Notes:
1. When using W, please use together with GM or GH.
2. If machining fz=0.008 ipt or over, insert corner will be damaged. The main cutting edge of W insert is receding from that of GM and GH. Therefore, the feed rate for the insert next to W type is double of the other inserts.

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How to Adjust Cutting Edge Height

1. Assemble all related parts into the cutter.

2. Make sure the back end of cartridge makes contact with adjustment screw (Fig 1), and pull them lightly inwards (Fig 2).
   Tighten the cartridge clamp screw temporary.

3. Install the insert (Fig 3), and tighten the wedge screw temporarily.
   Temporarily tighten the screw with a 40 to 45 degree rotation after the wedge contacts the insert.

4. Loosen the cartridge clamp screw (Fig 4).

5. Adjust the extruding amount with adjustment screw (Fig 5).

6. Tighten the wedge screw and firmly fix the insert.
   (Recommended tightening torque : 6Nm)

7. Tighten the cartridge clamp screw firmly.
   (Recommended tightening torque : 10Nm)

Notes :

1. Follow steps 1-7 above for adjustment.
2. To adjust the edge height adjust the wedge screw and loosen the cartridge clamp screw.
   Tightening the adjustment screw with the clamp screw fixed firmly may damage the adjustment screw.
3. The adjusted edge height difference must be within 5µm.

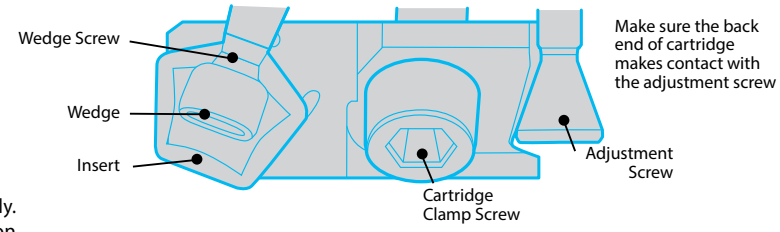


Fig.1

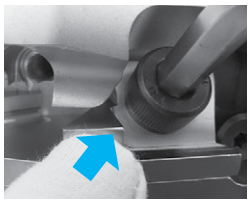


Fig.2

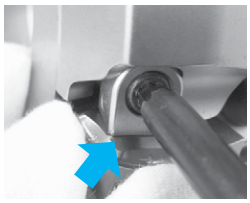


Fig.3

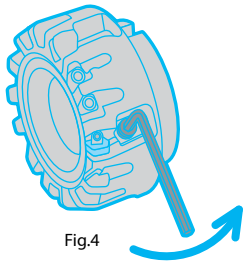


Fig.4

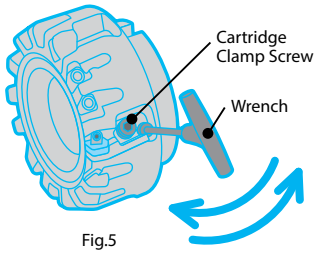


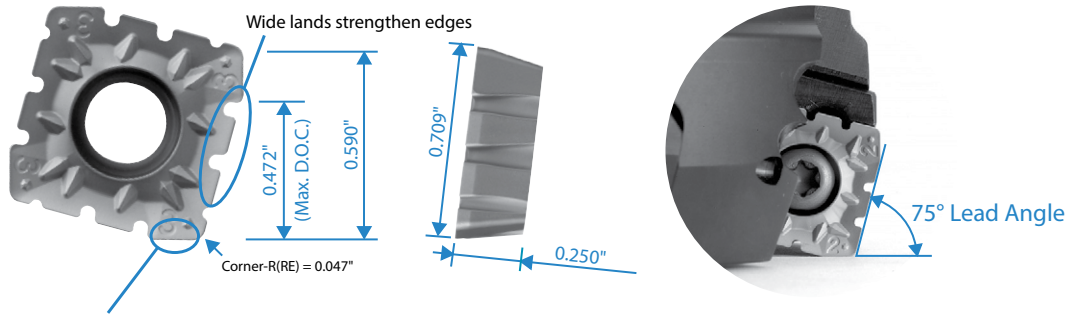
Fig.5

Face Mill for Heavy Machining

MSRS15

Large depths of cut and high feed rates improve metal removal efficiency

Recommended D.O.C. : 5mm~10mm (0.200"~0.400")

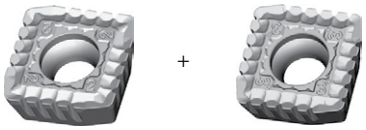
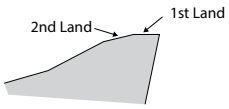
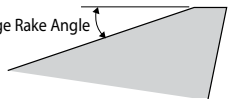
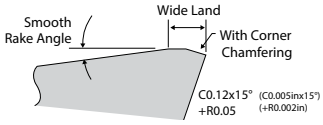


A.R. +9°
R.R. −9° (Ø80mm)
−5° (> Ø100mm)

Large wiper edges enable increased feed rates.

Strong inserts due to 6.35mm (0.250") thickness.

Chipbreaker Selection

	Low Cutting Force Oriented	General Purpose	Edge Strength Oriented
Insert Type	 NB2P (4-Notched) + NB3P (5-Notched)	NB2 (2-Notched) + NB3 (3-Notched)	NB2T (2-Notched) + NB3T (3-Notched)
Applications	Ideal when using extended arbors or for cutting thin plate workpieces	General purpose with good balance of strength and low cutting resistance	Ideal for interrupted cutting Ideal when feed rate is increased or workpiece material is Cast Iron
Edge Preparation	As many as four (or five) Notches help to alleviate the shock when biting into the workpiece 	Strength, cutting resistance, and chip control are all well balanced 	Strength is increased by the edge shape and moderate rake angle of the chamfer edge 

A supplemental chipbreaker may be used when it is necessary to increase strength and bite while focusing on low cutting resistance, as when machining welded areas.

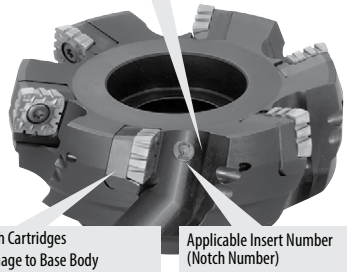
Insert Number - NB2P (4-Notched) and NB3P (5-Notched)

In order to match each insert with the corresponding insert pocket of the milling cutter, "2" is marked for NB2P insert (4-Notched) and "3" is marked on NB3P insert (5-Notched).

Features of Toolholder

Coarse Pitch

Designed with Large Chip Pockets
Good Chip Evacuation



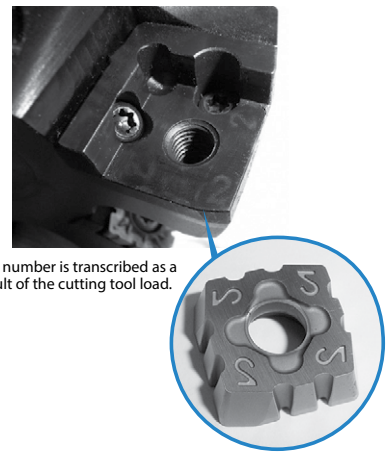
Designed with Cartridges
Prevents Damage to Base Body

Applicable Insert Number
(Notch Number)

Fine Pitch

Higher Productivity Due to Close Pitch Design

Insert Replacement Identification



Insert number is transcribed as a result of the cutting tool load.

* Depending on the cutting conditions, marks may not be transcribed.

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MSRS15 (Face Mill)

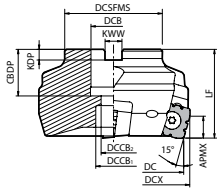


Fig. 1

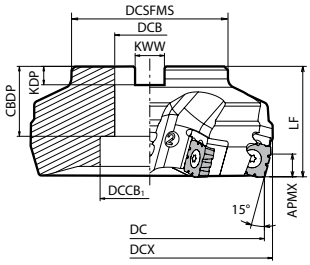


Fig. 2

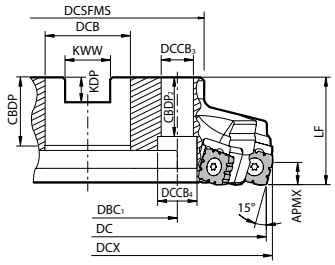


Fig. 3

Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions															A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ⇒ M66
			R			DC	DCX	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	$DCCB_3$	$DCCB_4$	DBC_1	LF	CBDP	KDP	KWW	APMX	$CBDP_2$						
Inch	Inch Bore Dia.	Coarse Pitch	MSRS 155000R-6T	●	6	5.00	5.27	3.75	1.500	2.13	-	-	-	-	2.48	1.00	0.40	0.625	0.47	-	+9	-5		3.6	2	SPMT1806EDER... SPMT1806EDSR...
			158000R-10T	●	10	8.00	8.27	5.12	2.500	-		0.675	1.045	4		1.25	0.53	1.000		1.25		-5		7.7	3	
		Fine Pitch	MSRS 153000R-6T	●	6	3.00	3.27	2.25	1.000	0.87	0.551	-	-	-	1.97	0.75	0.31	0.375	0.47	-	+9	-9		1.3	1	SPMT1806EDER... SPMT1806EDSR...
			154000R-6T	●	6	4.00	4.27	3.75	1.250	1.38	-					1	0.40	0.500				-5		1.9	2	

Mounting bolt (HH1/2-1.25) is included for MSRS153000R-6T.
Cartridge is included in the coarse pitch type, but no cartridge in the fine pitch type.

Spare Parts (Inch)

Part Number			Spare Parts						
			Insert Screw	Wrench	Cartridge	Clamp Screw	Wrench	Anti-seize Compound	Mounting Bolt
Coarse Pitch	MSRS	155000R-6T	SB-60120TR	TT-25L	MAP-1806	SB-40140TR	DT-15	P-37	-
		158000R-10T	Recommended Torque for Insert Screw 7.5N · m		Recommended Torque for Cartridge Clamp 3.5N · m				
Fine Pitch	MSRS	153000R-6T	SB-60120TR	TT-25L	-	-	-	P-37	HH1/2-1.25
		154000R-6T	Recommended Torque for Insert Screw 7.5N · m						HH3/4-2.3H

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MSRS15 (Face Mill)

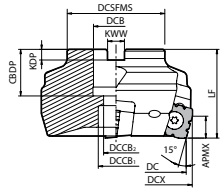


Fig. 1

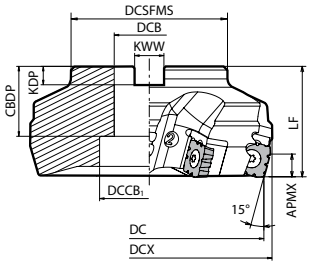


Fig. 2

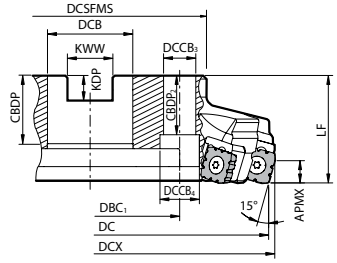


Fig. 3

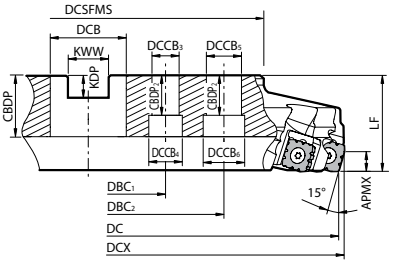


Fig. 4

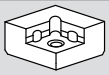
Toolholder Dimensions

Unit			Part Number	Std. Item R	Inserts	Dimensions DC	DCX	DCSFMS	DCB	DCCB1	DCCB2	DCCB3	DCCB4	DCCB5	DCCB6	DBC1	DBC2	LF	CBDP	KDP	KWW	APMX	CBDP2	A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ➔ M66
mm	Inch Bore Dia.	Coarse Pitch	MSRS 15080R-4T	●	4	80	87	55	1.000"	20	13	-	-	-	-	-	-	50	1.024"	0.236"	0.375"	12	-	+9	-9	No	1.3	1	SPMT1806EDER... SPMT1806EDSR...
			15100R-4T	●		100	107	70	1.250"	42	-								1.260"	0.315"	0.500"				-5		2	2	
			15125R-6T	●	6	125	132	85	1.500"	54				-	-	-		60	1.496"	0.394"	0.625"						3.6	2	
			15160R-8T	●	8	160	167	100	2.000"	68										0.433"	0.750"						5	2	
			15200R-10T	●	10	200	207	130	1.875"	-		18	26			4.00"				0.551"	1.000"		32				7.7	3	
			15250R-12T	●	12	250	257																				12	3	
			15315R-14T	●	14	315	322	220						22	32		7.00"						25				17	4	
		Fine Pitch	MSRS 15080R-6T	●	6	80	87	55	1.000"	20	13	-	-	-	-	-	-	50	1.024"	0.236"	0.375"	12	-	+9	-9	No	1.3	1	SPMT1806EDER... SPMT1806EDSR...
			15100R-6T	●		100	107	70	1.250"	42	-								1.260"	0.315"	0.500"				-5		1.9	2	
			15125R-8T	●	8	125	132	85	1.500"	54				-	-	-		60	1.496"	0.394"	0.625"						3.5	2	
			15160R-10T	●	10	160	167	100	2.000"	68										0.433"	0.750"						4.9	2	
			15200R-12T	●	12	200	207	130	1.875"	-		18	26			4.00"				0.551"	1.000"		32				7.6	3	
			15250R-14T	●	14	250	257																				11.9	3	
			15315R-16T	□	16	315	322	220						22	32		7.00"						25				17	4	
	Metric Bore Dia.	Coarse Pitch	MSRS 15080R-4T-M	●	4	80	87	70	27	20	13	-	-	-	-	-	-	50	24	7	12.4	12	-	+9	-9	No	1.3	1	SPMT1806EDER... SPMT1806EDSR...
			15100R-4T-M	●		100	107	85	32	45	-								29	8	14.4				-5		2	2	
			15125R-6T-M	●	6	125	132		40	55				-	-	-		60	33	9	16.4						3.6	2	
			15160R-8T-M	●	8	160	167	110		68		14	20			66.7							28				5	3	
			15200R-10T-M	●	10	200	207	140	60	-		18	26			101.6			38	15	25.7		32				7.7	3	
			15250R-12T-M	●	12	250	257																				12	3	
			15315R-14T-M	●	14	315	322	230						22	32		177.8										17	4	
		Fine Pitch	MSRS 15080R-6T-M	●	6	80	87	70	27	20	13	-	-	-	-	-	-	50	24	7	12.4	12	-	+9	-9	No	1.3	1	SPMT1806EDER... SPMT1806EDSR...
			15100R-6T-M	●		100	107	85	32	45	-								29	8	14.4				-5		1.9	2	
			15125R-8T-M	●	8	125	132		40	55				-	-	-		60	33	9	16.4						3.5	2	
			15160R-10T-M	●	10	160	167	110		68		14	20			66.7							28				4.9	3	
			15200R-12T-M	●	12	200	207	140	60	-		18	26			101.6			38	15	25.7		32				7.6	3	
			15250R-14T-M	●	14	250	257																				11.9	3	
			15315R-16T-M	□	16	315	322	230						22	32		177.8										17	4	

Mounting bolt (HH12X35) is included for MSRS15080R-OT(-M).
Cartridge is included in the coarse pitch type, but no cartridge in the fine pitch type.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts (Metric)

Part Number		Spare Parts						
		Insert Screw	Wrench	Cartridge	Shim Screw	Wrench	Anti-seize Compound	Mounting Bolt
								
Coarse Pitch	MSRS 15080R-4T(-M)	SB-60120TR	TT-25L	MAP-1806	SB-40140TR	DT-15	P-37	HH12X35
	MSRS 15100R-4T(-M) ~ 15315R-14T(-M)	Recommended Torque for Insert Screw 7.5N · m		Recommended Torque for Cartridge Clamp 3.5N · m				-
Fine Pitch	MSRS 15080R-6T(-M)	SB-60120TR	TT-25L	-	-	-	P-37	HH12X35
	MSRS 15100R-6T(-M) ~ 15315R-16T(-M)	Recommended Torque for Insert Screw 7.5N · m						-

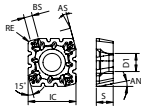
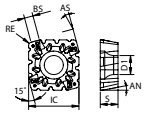
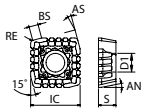
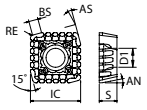
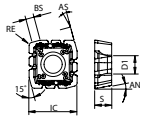
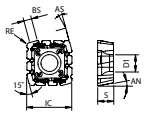
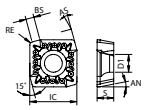
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

SPMT

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel		★	☆	P
Mold and die steel		★	☆	P
Austenitic stainless steel				M
Martensitic stainless steel				M
Precipitation hardened stainless steel				M
Gray cast iron	★			K
Nodular cast iron	★			K
Non-ferrous metals				N
Heat-resistant alloy			★	S
Titanium alloy			★	S
Hard materials				H

Insert	Part Number	No. of Edges	Dimensions (mm) IC	S	D1	RE	BS	Angle (°) AN	AS	Carbide PVD PR1810	PR1825	PR1835	Applicable Toolholder ⇨ M63~M64
 2-notch	SPMT 1806EDER-NB2	4	18	6.35	6.8	1.2	3.1	11	15	●	●	●	MSRS15...
 3-notch	SPMT 1806EDER-NB3	4	18	6.35	6.8	1.2	3.1	11	15	●	●	●	MSRS15...
 4-notch / Low cutting force	SPMT 1806EDER-NB2P	4	18	6.35	6.8	1.2	3.1	11	15	●	●	●	MSRS15...
 5-notch / Low cutting force	SPMT 1806EDER-NB3P	4	18	6.35	6.8	1.2	3.1	11	15	●	●	●	MSRS15...
 2-notch / Tough edge	SPMT 1806EDSR-NB2T	4	18	6.35	6.8	1.2	3.1	11	15	●		●	MSRS15...
 3-notch / Tough edge	SPMT 1806EDSR-NB3T	4	18	6.35	6.8	1.2	3.1	11	15	●		●	MSRS15...
 Without notch	SPMT 1806EDER-V	4	18	6.35	6.8	1.2	3.1	11	15	●	●	●	MSRS15...

Right-hand Insert Shown

Recommended Cutting Conditions ⇨ M67

SPMT inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)			Recommended Insert Grades (Cutting Speed Vc: sfm)		
	NB2P + NB3P	NB2 + NB3	NB2T + NB3T	MEGACOAT NANO EX		
				PR1810	PR1825	PR1835
Carbon Steel	0.006	0.008	0.012	-	★ 390 ~ 590 ~ 820	☆ 390 ~ 590 ~ 720
Alloy Steel	0.006	0.008	0.012	-	★ 390 ~ 590 ~ 820	☆ 390 ~ 590 ~ 720
Mold Steel	0.004	0.006	0.008	-	★ 330 ~ 520 ~ 720	☆ 330 ~ 520 ~ 660
Gray Cast Iron	0.008	0.010	0.014	★ 390 ~ 590 ~ 820	-	-
Nodular Cast Iron	0.006	0.008	0.012	★ 390 ~ 520 ~ 720	-	-
Stainless Steel	Not Recommended					
Aluminum / Copper	Not Recommended					

★ : 1st Recommendation ☆ : 2nd Recommendation

Tangential 90° Milling with 4-Edge Inserts

MA90

Original tangential 90° end mill with economical 4-edge inserts

New grade PR18 Series and unique insert cutting edge design creates high-quality machining with longer tool life

1 The MA90 tangential end mills provide a large variety of machining operations

Large web thickness
High rigidity

Peripheral grinding
Excellent wall accuracy

Special wiper edge
Large relief angle suppresses wear
High-quality surface finish

Multi-functional (G-class insert)
Supports three-dimensional machining

Unique cutting edge design
Excellent fracture resistance and low cutting force design

Newly developed insert grade
MEGACOAT NANO EX
PR18 Series delivers longer tool life

2 New insert grades PR18 Series provides significantly longer tool life

Next-generation insert grade
PR18 Series
Longer Tool Life with Next-generation Coating for Milling

Extensive lineup of insert grades

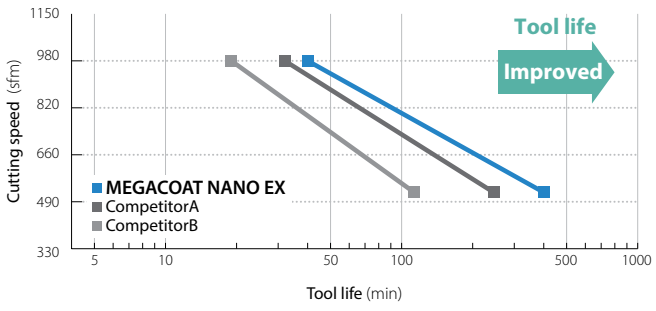
Workpiece material	P Steel					M Stainless steel					K Cast iron				
ISO	01	10	20	30	40	01	10	20	30	40	01	10	20	30	40
Lineup		1st recommendation PR1825					1st recommendation PR1835					1st recommendation PR1810			
		Wet PR1835					High-speed machining CA6535								

H Hardened material	PR015S (GH)	S Heat-resistant alloy	CA6535 (PR1835)	Titanium alloy	PR1835
---	---	---	---	---	---

PR1825 Wear resistance comparison (Internal evaluation)
V-T graph

Life criteria:
Flank face wear = 0.004"

Cutting conditions:
Vc = 520 / 980 sfm
D.O.C. = 0.079" × 4.331", fz = 0.005 ipt
4140 Dry
PNMU1205ANER-GM (MFPN)



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www.kyocera precisiontools.com

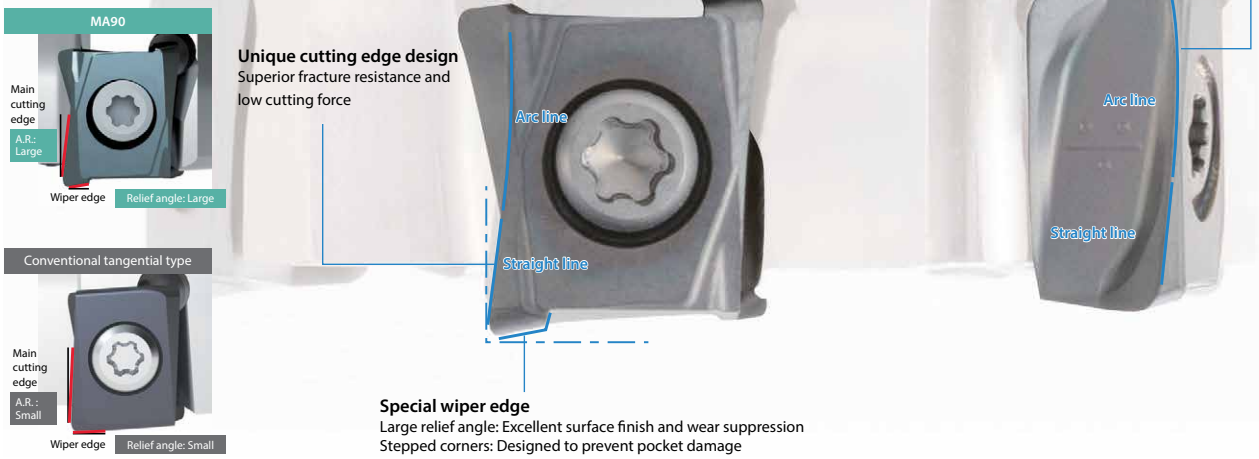
3 Achieve reliable results with an insert designed for high quality machining and long tool life

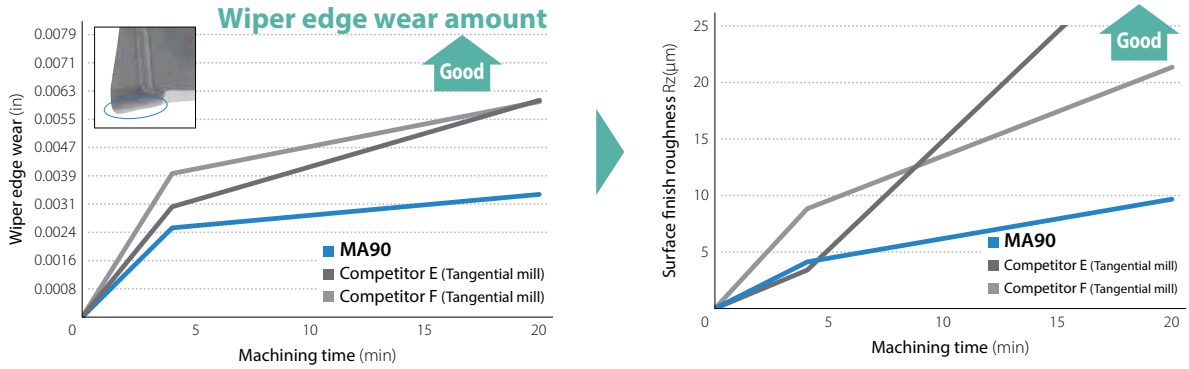
Unique cutting edge design delivers high fracture resistance and low cutting forces
Special wiper edge and peripheral grinding specs provide high quality finish and long tool life

Peripheral grinding specifications
Unique, sloped, edge shape
Grounded peripheral provides higher precision

Advantage

The large A.R. and relief angle of wiper edge create lower resistance and excellent surface finish.





Cutting conditions: Vc = 660 sfm, D.O.C. x a.e. = 0.039" x 37.50", fz = 0.004/0.005 ipt, Dry 1049 Φ50mm (6/7 flute) BT50

Long tool life and high-speed efficiency

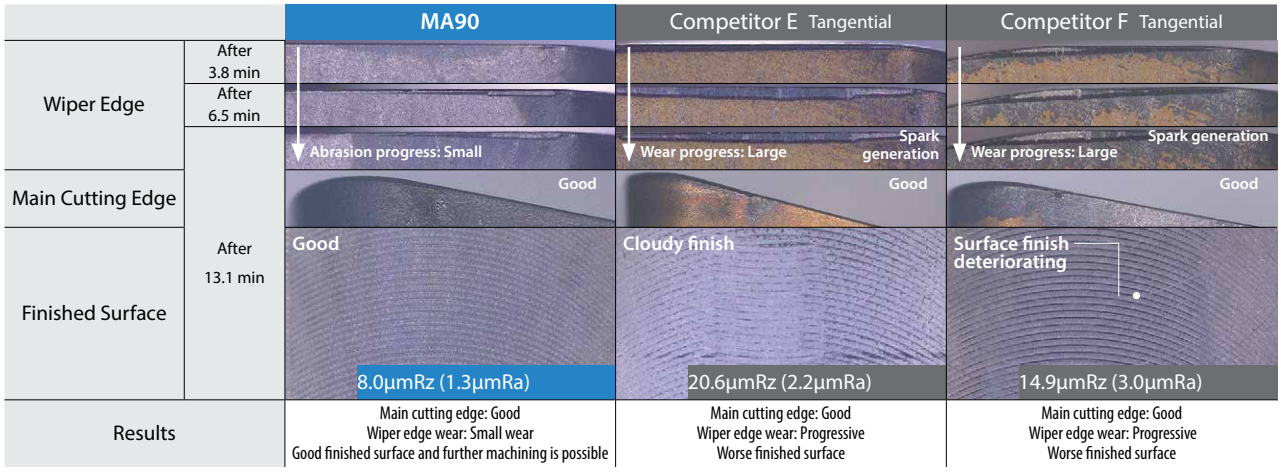
Test 1 Even if the main cutting edge is in good condition, the tool reached the end of life due to deterioration of the finished surface.

MA90 ✓

Test 2 Machined with reduced cutting speed because the surface finish deteriorated early.

MA90 ✓

Edge condition and finished surface



MA90 (End Mill)

Weldon Shank

Cylindrical Shank

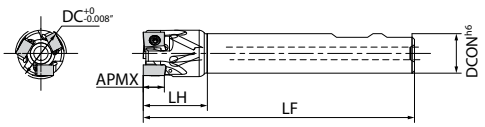


Fig. 1

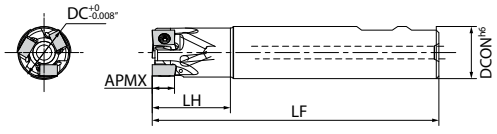


Fig. 2

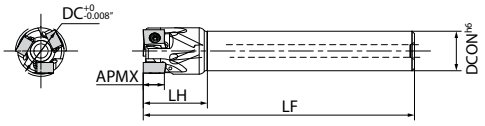


Fig. 3

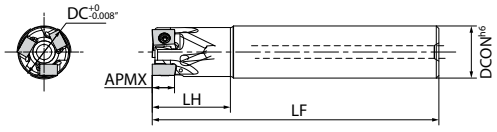


Fig. 4

Toolholder Dimensions (LOGU09... Inserts)

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DC	Dimensions DCON	Dimensions LF	Dimensions LH	Dimensions APMX	Coolant Hole	Max RPM	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts M78
Inch	Weldon	Standard Shank	MA90- 0625W625-09T2C	●	2	0.625	0.625	3.000	1.024	0.315	Yes	29,700	2	P-37	SB-44865UTRP	DTPM-8	LOGU0904...
			0750W750-09T3C	●	3	0.750	0.750	3.250	1.160			27,300	2				
			1000W100-09T4C	●	4	1.000	1.000	3.750	1.400			27,300	2		SB-44880UTRP		
			1250W100-09T4C	●	4	1.250	1.000	4.000	1.700			21,300	1				
			1250W100-09T5C	●	5				1.700			21,300	1				
			1250W125-09T5C	●	5		1.250		1.650			21,300	2				
			1500W125-09T5C	●	5	1.500		4.350	2.050			19,400	1				
			1500W125-09T6C	●	6							19,400	1				
	Cylindrical	Standard Shank	MA90- 0625S625-09T2C	●	2	0.625	0.625	3.000	1.024	0.315	Yes	29,700	4	P-37	SB-44865UTRP	DTPM-8	LOGU0904...
			0750S750-09T3C	●	3	0.750	0.750	3.250	1.160			27,300	4				
			1000S100-09T4C	●	4	1.000	1.000	3.750	1.400			27,300	4		SB-44880UTRP		
			1250S100-09T5C	●	5	1.250		4.000	1.700			21,300	3				
			1500S125-09T5C	●	5	1.500	1.250	4.350	2.050			19,400	3				
		Long Shank	MA90- 0750S750-09T3CL	●	3	0.750	0.750	7.000	1.590	0.315	Yes	27,300	4	P-37	SB-44865UTRP	DTPM-8	LOGU0904...
			1000S100-09T3CL	●	3	1.000	1.000		2.100			27,300	4		SB-44880UTRP		
			1500S125-09T3CL	●	3	1.500	1.250	9.500	2.661			19,400	3				

Maximum number of revolutions:
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page **M79**.
Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.
LOGU0904... Insert screw tightening torque = 1.2 Nm

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions (LOGU12... Inserts)

Unit			Part Number	Std. Item	No. of Inserts	Dimensions					Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts ⇒ M78
						DC	DCON	LF	LH	APMX				Anti-Seize Compound	Insert Screw	Wrench	
Inch	Weldon	Standard Shank	MA90- 1000W100-12T2C	●	2	1.000	1.000	3.750	1.400	0.472	Yes	29,700	2	P-37	SB-40104TRP	DTPM-15	LOGU1206...
			1250W100-12T2C	●	2	1.250		4.000	1.700			27,300	2				
			1250W100-12T3C	●	3							27,300	2				
			1250W125-12T3C	●	3		1.250		1.650			21,300	1				
			1500W125-12T3C	●	3	1.500		4.350	2.050			19,400	1				
			1500W125-12T4C	●	4							19,400	1				
	Cylindrical	Standard Shank	MA90- 1000S100-12T2C	●	2	1.000	1.000	3.750	1.400	0.472	Yes	29,700	4	P-37	SB-40104TRP	DTPM-15	LOGU1206...
			1250S100-12T3C	●	3	1.250		4.000	1.700			27,300	4				
			1500S125-12T4C	●	4	1.500	1.250	4.350	2.050			19,400	3				
		Long Shank	MA90- 1000S100-12T2CL	●	2	1.000	1.000	7.000	2.100	0.472	Yes	27,300	4	P-37	SB-40104TRP	DTPM-15	LOGU1206...
			1500S125-12T3CL	●	3	1.500	1.250	9.500	2.661			19,400	3				

Maximum number of revolutions:
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page **M79**.
Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.
LOGU1206... Insert screw tightening torque = 3.5 Nm

MA90 (End Mill)

Cylindrical Shank

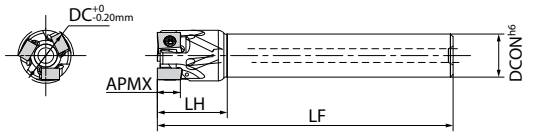


Fig. 1

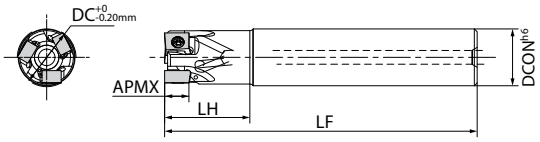


Fig. 2

Toolholder Dimensions (LOGU09... Inserts)

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts M78
mm	Cylindrical	Standard Shank	MA90- 16S12-09T2C	●	2	16	12	100	23	8	Yes	29,500	0.1	1	P-37	SB-44865UTRP	DTPM-8	LOGU0904...
			16S16-09T2C	●			16		26					2				
			18S16-09T2C	●		18			23			27,900		1				
			20S16-09T2C	●		20		110	26			26,600	0.2	1		SB-44880UTRP		
			20S16-09T3C	●	3									1				
			20S20-09T2C	●	2		20		30					2				
			20S20-09T3C	●	3									2				
			22S20-09T3C	●		22			26			25,400		1				
			25S20-09T3C	●		25		120	29			23,900	0.3	1				
			25S20-09T4C	●	4									1				
			25S25-09T3C	●	3		25		32				0.4	2				
			25S25-09T4C	●	4									2				
			28S25-09T3C	●	3	28			29			22,600	0.3	1				
			30S25-09T4C	●	4	30		130	32			21,900	0.5	1				
			32S25-09T4C	●		32						21,200		1				
			32S25-09T5C	●	5									1				
			32S32-09T4C	●	4		32		40				0.7	2				
			32S32-09T5C	●	5									2				
			35S32-09T4C	●	4	35		150	50			20,300	0.9	1				
			35S32-09T5C	●	5							20,300		1				
			40S32-09T4C	●	4	40						19,000	1.0	1				
			40S32-09T6C	●	6									1				
			50S32-09T5C	●	5	50		120	40			17,000	0.9	1				
			50S32-09T7C	●	7									1				
		Long Shank	MA90- 20S18-09T2CL	●	2	20	18	150	30	8	Yes	26,600	0.3	1	P-37	SB-44880UTRP	DTPM-8	LOGU0904...
			20S20-09T2CL	●			20		40					2				
			25S25-09T2CL	●		25	25	170	50			23,900	0.6	2				
			32S32-09T2CL	●		32	32	200	65			21,200	1.1	2				

Maximum number of revolutions:
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page **M79**.
Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.
LOGU0904... Insert screw tightening torque = 1.2 Nm

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions (LOGU12... Inserts)

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts ➡ M78
mm	Cylindrical	Standard Shank	MA90- 25S20-12T2C	●	2	25	20	120	29	12	Yes	18,300	0.3	1	P-37	SB-40104TRP	DTPM-15	LOGT1206... LOGU1206...
			25S25-12T2C	●			25		32				0.4	2				
			28S25-12T2C	●		28			29			17,300	0.4	1				
			30S25-12T2C	●		30		130	32			16,800	0.5	1				
			30S25-12T3C	●	3								0.5	1				
			32S25-12T2C	●	2	32	25	130	32			16,300	0.5	1				
			32S25-12T3C	●	3								0.5	1				
			32S32-12T2C	●	2		32	130	40			16,300	0.7	2				
			32S32-12T3C	●	3								0.7	2				
			35S32-12T3C	●		35						15,600	0.9	1				
			40S32-12T3C	●		40	32	150	50			14,600	0.9	1				
			40S32-12T4C	●	4								0.9	1				
			50S32-12T4C	●		50	32	120	40			13,100	0.9	1				
			50S32-12T6C	●	6								0.8	1				
		Long Shank	MA90- 25S25-12T2CL	●	2	25	25	170	50	12	Yes	18,300	0.6	2	P-37	SB-40104TRP	DTPM-15	LOGT1206... LOGU1206...
			32S32-12T2CL	●		32	32	200	65			16,300	1.1	2				

Maximum number of revolutions:
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page **M79**.
Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.
LOGU1206... Insert screw tightening torque = 3.5 Nm

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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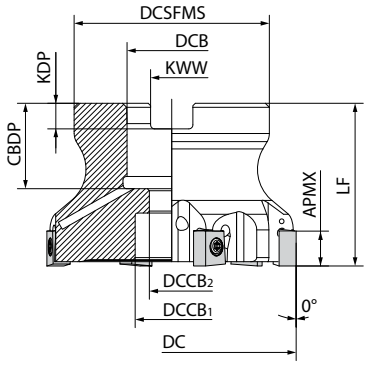
MA90 (Face Mill)



Toolholder Dimensions (LOGU09/12... Inserts)

Unit	Bore Dia.	Part Number	Std. Item	No. of Inserts	Dimensions										Coolant Hole	Max RPM	Spare Parts				Applicable Inserts ➡ M78
			R		DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX			Anti-Seize Compound	Insert Screw	Wrench	Arbor Bolt	
Inch	Inch Bore Dia.	MA90- 1500R-09T5C	●	5	1.500	1.400	0.750	0.669	0.433	1.575	0.750	0.187	0.313	0.315	Yes	19,400	P-37	SB-44880UTRP Insert Tightening Torque 1.2 Nm	DTPM-8	HH1/4-0.75(H)	LOGU0904...
		1500R-09T6C	●	6																	
		2000R-09T6C	●	6	2.000	1.750										16,800				HH3/8-1.25(H)	
		2000R-09T7C	●	7																	
		2500R-09T7C	●	7	2.500											15,100					
		2500R-09T9C	●	9																	
	Inch Bore Dia.	MA90- 1500R-12T3C	●	3	1.500	1.400	0.500	0.433	0.276	1.575	0.709	0.156	0.250	0.472	Yes	15,000	P-37	SB-40104TRP Insert Tightening Torque 3.5 Nm	DTPM-15	HH1/4-0.75(H)	LOGT1206... LOGU1206...
		1500R-12T4C	●	4																	
		2000R-12T4C	●	4	2.000	1.750	0.750	0.669	0.433		0.750	0.187	0.313			13,000				HH3/8-1.25(H)	
		2000R-12T6C	●	6																	
		2500R-12T6C	●	6	2.500											11,600					
		2500R-12T8C	●	8																	
		3000R-12T8C	●	8	3.000	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382			10,600				HH1/2-1.25(H)	
		3000R-12T10C	●	10																	

Maximum number of revolutions:
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page **M79**.
Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.
(H) Optional coolant-thru bolt available.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MA90 (Face Mill)

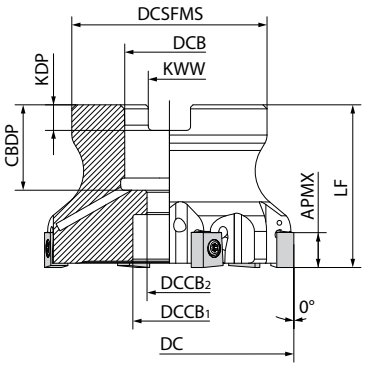


Fig. 1

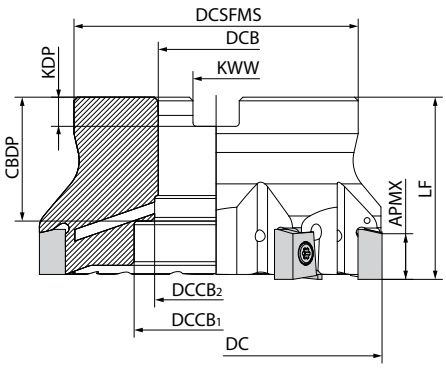


Fig. 2

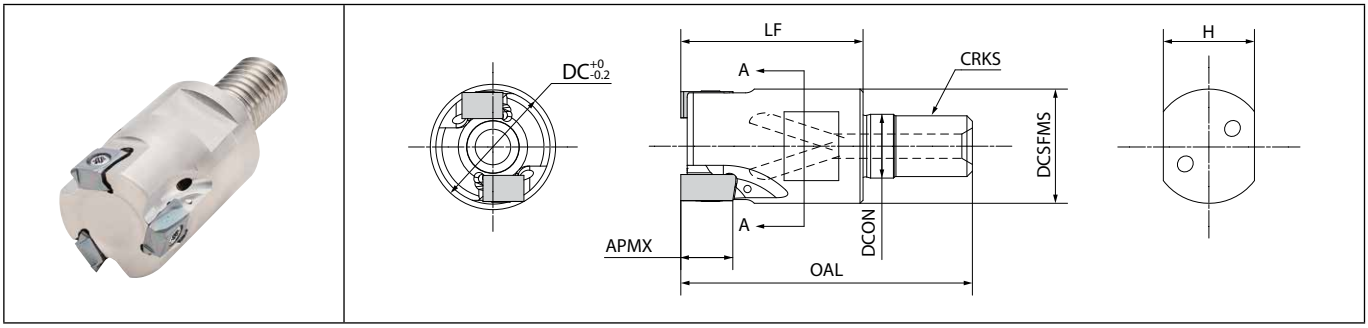
Toolholder Dimensions (LOGU09/12... Inserts)

Unit	Bore Dia.	Part Number	Std. Item R	No. of Inserts	Dimensions DC	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Spare Parts: Arbor Bolt	Applicable Inserts M78
mm	Metric Bore Dia.	MA90- 040R-09T4C-M	●	4	40	38	16	15	9	40	19	5.6	8.4	8	Yes	26,600	0.2	1	P-37	SB-44880UTRP	DTPM-8	HH8×25(H)	LOGU0904...
		040R-09T6C-M	●	6																Insert Tightening Torque 1.2 Nm			
		050R-09T5C-M	●	5	50	48	22	18	11		21	6.3	10.4			23,900	0.4					HH10×30(H)	
		050R-09T7C-M	●	7																			
		063R-09T6C-M	●	6	63											21,200	0.5						
		063R-09T9C-M	●	9													0.4						
	Inch Bore Dia.	MA90- 080R-12T7C	●	7	80	70	1.00"	20	13	50	1.063"	0.236"	0.375"	12	Yes	10,400	1.2	1	P-37	SB-40104TRP	DTPM-15	HH1/2-1.25(H)	LOGT1206... LOGU1206...
		080R-12T10C	●	10																Insert Tightening Torque 3.5 Nm			
		100R-12T9C	●	9	100	78	1.25"	45	-		1.339"	0.315"	0.500"			9,300	1.5	2				-	
		100R-12T13C	●	13																			
		125R-12T12C	●	12	125	89	1.50"	55		63	1.496"	0.394"	0.625"			8,300	2.6						
		125R-12T16C	●	16																			
	Metric Bore Dia.	MA90- 040R-12T3C-M	●	3	40	38	16	14	9	40	19	5.6	8.4	12	Yes	14,600	0.2	1	P-37	SB-40104TRP	DTPM-15	HH8×25(H)	LOGT1206... LOGU1206...
		040R-12T4C-M	●	4																Insert Tightening Torque 3.5 Nm			
		050R-12T4C-M	●	4	50	48	22	18	11		21	6.3	10.4			13,100	0.3					HH10×30(H)	
		050R-12T6C-M	●	6																			
		063R-12T6C-M	●	6	63											11,700	0.4						
		063R-12T8C-M	●	8																			
		080R-12T7C-M	●	7	80	70	27	20	13	50	24	7	12.4			10,400	1.2					HH12×35(H)	
		080R-12T10C-M	●	10																			
		100R-12T9C-M	●	9	100	78	32	45	-		30	8	14.4			9,300	1.5	2				-	
		100R-12T13C-M	●	13																			
		125R-12T12C-M	●	12	125	89	40	55		63	33	9	16.4			8,300	2.5						
		125R-12T16C-M	●	16																			

Maximum number of revolutions:
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page **M79**.
Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.
(H) Optional coolant-thru bolt available.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MA90 (Modular Type)



Toolholder Dimensions (LOGU09/12... Inserts)

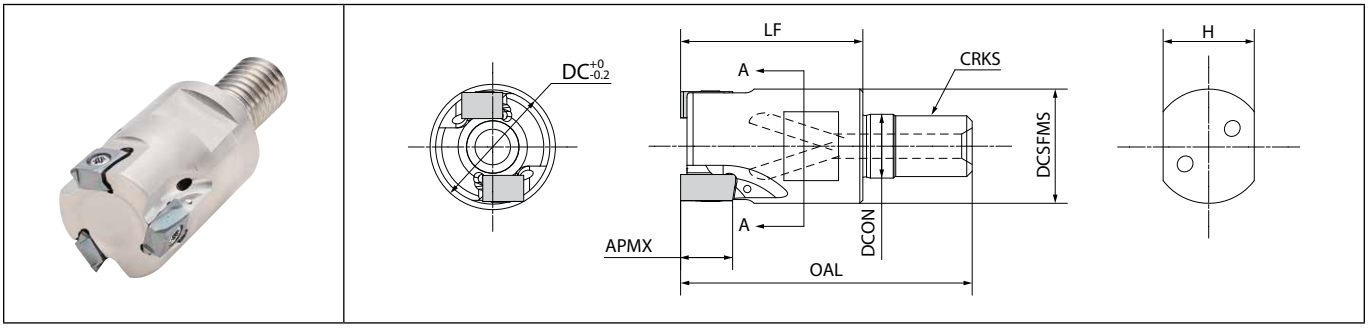
Unit	Part Number	Std. Item	No. of Inserts	Dimensions								Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➡ M78
				DC	DCSFMS	DCON	OAL	LF	CRKS	H	APMX			Anti-Seize Compound	Insert Screw	Wrench	
Inch	MA90- 0750M10-09T3C	●	3	0.750	0.711	0.413	1.890	1.181	M10xP1.50	0.591	0.315	Yes	27,300	P-37	SB-44865UTRP	DTPM-8	LOGU0904...
	1000M12-09T4C	●	4	1.000	0.906	0.492	2.205	1.378	M12xP1.75	0.748			18,300		SB-44880UTRP		
	1250M16-09T5C	●	5	1.250	1.181	0.669	2.441	1.575	M16xP2.00	0.945			16,300				
	MA90- 1000M12-12T2C	●	2	1.000	0.906	0.492	2.205	1.378	M12xP1.75	0.748	0.472	Yes	18,300	P-37	SB-40104TRP	DTPM-15	LOGT1206...
	1250M16-12T3C	●	3	1.250	1.181	0.669	2.441	1.575	M16xP2.00	0.945			16,300				LOGU1206...

Maximum number of revolutions:
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page **M79**.
Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.
LOGU0904... Insert screw tightening torque = 1.2 Nm
LOGU1206... Insert screw tightening torque = 3.5 Nm

See page **M324** for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MA90 (Modular Type)



Toolholder Dimensions (LOGU09/12... Inserts)

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➡ M78
				DC	DCSFMS	DCON	OAL	LF	CRKS	H	APMX			Anti-Seize Compound	Insert Screw	Wrench	
mm	MA90- 20M10-09T2C	●	2	20	18.8	10.5	48	30	M10×P1.5	15	8	Yes	19,000	P-37	SB-44880UTRP	DTPM-8	LOGU0904...
	20M10-09T3C	●	3														
	25M12-09T3C	●	3	25	23	12.5	56	35	M12×P1.75	19			17,000				
	25M12-09T4C	●	4														
	32M16-09T4C	●	4	32	30	17	62	40	M16×P2.0	24			15,100				
	32M16-09T5C	●	5														
	MA90- 25M12-12T2C	●	2	25	23	12.5	56	35	M12×P1.75	19	12	Yes	18,300	P-37	SB-40104TRP	DTPM-15	LOGT1206... LOGU1206...
	32M16-12T2C	●	2	32	30	17	62	40	M16×P2.0	24			16,300				
	32M16-12T3C	●	3														

Maximum number of revolutions:
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page **M79**.
Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.
LOGU0904... Insert screw tightening torque = 1.2 Nm
LOGU1206... Insert screw tightening torque = 3.5 Nm

See page **M324** for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

LOGU

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel				★	☆	P
Mold and die steel				★	☆	P
Austenitic stainless steel				☆	★	M
Martensitic stainless steel	★				☆	M
Precipitation hardened stainless steel					★	M
Gray cast iron			★			K
Nodular cast iron			★			K
Non-ferrous metals						N
Heat-resistant alloy	★				☆	S
Titanium alloy					★	S
Hard materials (≤ 60 HRC)		★				H

Insert	Part Number	No. of Edges	Dimensions (mm) W1	S	D1	INSL	BS	RE	Carbide CVD CA6535	PVD PR015S	PVD PR1810	PVD PR1825	PVD PR1835	Applicable Toolholder
General Purpose (G-Class)	LOGU 090404ER-GM	4	4.3	6.77	3.33	8.89	1.29	0.4	●		●	●	●	MA90-...-09-...
	090408ER-GM			6.71			0.90	0.8	●		●	●	●	
	090412ER-GM			6.65			0.49	1.2	●		●	●	●	
	090416ER-GM			6.59			0.10	1.6	●		●	●	●	
Low Cutting Force (G-Class)	LOGU 090404ER-SM	4	4.3	6.77	3.33	8.89	1.29	0.4	●			●	●	
	090408ER-SM			6.71			0.89	0.8	●			●	●	
	090412ER-SM			6.65			0.49	1.2	●			●	●	
	090416ER-SM			6.59			0.10	1.6	●			●	●	
Tough Edge (G-Class)	LOGU 090408ER-GH	4	4.3	6.71	3.33	8.89	0.90	0.8		●	●	●	●	
General Purpose (G-Class)	LOGU 120604ER-GM	4	6.6	10.10	4.55	13.28	2.50	0.4	●		●	●	●	
	120608ER-GM			10.04			2.14	0.8	●		●	●	●	
	120612ER-GM			9.97			1.79	1.2	●		●	●	●	
	120616ER-GM			9.92			1.44	1.6	●		●	●	●	
	120620ER-GM			9.85			1.08	2.0	●		●	●	●	
	120624ER-GM			9.79			0.72	2.4	●		●	●	●	
	120630ER-GM			9.69			0.20	3.0	●		●	●	●	
Single-Sided General Purpose (G-Class)	LOGT 120640ER-GM	2	6.6	9.56	4.55	13.28	1.69	4.0	●		●	●	●	
	120650ER-GM			9.40			0.63	5.0	●		●	●	●	
	120660ER-GM			9.24			0.37	6.0	●		●	●	●	
Low Cutting Force (G-Class)	LOGU 120604ER-SM	4	6.6	10.10	4.55	13.28	2.50	0.4	●			●	●	
	120608ER-SM			10.04			2.14	0.8	●			●	●	
	120612ER-SM			9.97			1.79	1.2	●			●	●	
	120616ER-SM			9.92			1.44	1.6	●			●	●	
	120620ER-SM			9.85			1.08	2.0	●			●	●	
	120624ER-SM			9.79			0.72	2.4	●			●	●	
	120630ER-SM			9.69			0.20	3.0	●			●	●	
Tough Edge (G-Class)	LOGU 120608ER-GH	4	6.6	10.16	4.55	13.25	2.26	0.8		●	●	●	●	

Unmarked : GM
△ : SM
□ : GH

Recommended Cutting Conditions ➡ M79

LOGU and LOGT inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Cutter Diameter and Feed Rate (fz: ipt)				Recommended Insert Grade (Cutting Speed Vc: sfm)				
		09 Size Insert (LOGU09...)		12 Size Insert (LOGU12...)		CVD Coating	MEGACOAT HARD	MEGACOAT NANO EX		
		ø0.625" ø16mm ~ ø18mm	ø0.750" ~ ø2.500" ø20mm ~ ø63mm	ø1.000" ø25mm ~ ø30mm	ø1.250" ~ ø3.000" ø32mm ~ ø125mm	CA6535	PR015S	PR1810	PR1825	PR1835
General GM	Carbon Steel	0.002~**0.004**~0.006	0.002~**0.004**~0.006	0.002~**0.004**~0.007	0.002~**0.006**~0.009	-	-	-	★ 390~**590**~820	☆ 390~**590**~820
	Alloy Steel	0.002~**0.003**~0.005	0.002~**0.004**~0.006	0.002~**0.004**~0.006	0.002~**0.005**~0.008	-	-	-	★ 330~**520**~720	☆ 330~**520**~720
	Mold Steel	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.006	0.002~**0.005**~0.007	-	-	-	★ 260~**460**~590	☆ 260~**460**~590
	Austenitic Stainless Steel	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.006	0.002~**0.005**~0.007	-	-	-	☆ 330~**520**~660	★ 330~**520**~660
	Martensitic Stainless Steel	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.006	0.002~**0.005**~0.007	★ 590~**790**~980	-	-	-	☆ 490~**660**~820
	Precipitation Hardened Stainless Steel	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.006	0.002~**0.005**~0.007	-	-	-	-	★ 300~**390**~490
	Gray Cast Iron	0.002~**0.004**~0.006	0.002~**0.004**~0.006	0.002~**0.004**~0.007	0.002~**0.006**~0.009	-	-	☆ 390~**590**~820	-	-
	Nodular Cast Iron	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.006	0.002~**0.005**~0.007	-	-	☆ 330~**490**~660	-	-
	Ni-based Heat-Resistant Alloy	0.002~**0.002**~0.003	0.002~**0.003**~0.004	0.002~**0.003**~0.005	0.002~**0.004**~0.006	★ 70~**100**~160	-	-	-	☆ 70~**100**~160
	Titanium Alloy	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.005	0.002~**0.004**~0.006	-	-	-	-	☆ 100~**160**~230
Low Cutting Force SM	Carbon Steel	0.002~**0.003**~0.004	0.002~**0.004**~0.006	0.002~**0.004**~0.006	0.002~**0.004**~0.007	-	-	-	★ 390~**590**~820	☆ 390~**590**~820
	Alloy Steel	0.002~**0.003**~0.004	0.002~**0.003**~0.005	0.002~**0.003**~0.005	0.002~**0.004**~0.006	-	-	-	★ 330~**520**~720	☆ 330~**520**~720
	Mold Steel	0.002~**0.003**~0.004	0.002~**0.003**~0.004	0.002~**0.003**~0.005	0.002~**0.004**~0.006	-	-	-	★ 260~**460**~590	☆ 260~**460**~590
	Austenitic Stainless Steel	0.002~**0.003**~0.004	0.002~**0.003**~0.005	0.002~**0.003**~0.005	0.002~**0.004**~0.006	-	-	-	☆ 330~**520**~660	★ 330~**520**~660
	Martensitic Stainless Steel	0.002~**0.003**~0.004	0.002~**0.003**~0.005	0.002~**0.003**~0.005	0.002~**0.004**~0.006	★ 590~**790**~980	-	-	-	☆ 490~**660**~820
	Precipitation Hardened Stainless Steel	0.002~**0.003**~0.004	0.002~**0.003**~0.005	0.002~**0.003**~0.005	0.002~**0.004**~0.006	-	-	-	-	★ 300~**390**~490
	Ni-based Heat-Resistant Alloy	0.002~**0.002**~0.003	0.002~**0.003**~0.004	0.002~**0.003**~0.005	0.002~**0.003**~0.005	★ 70~**100**~160	-	-	-	☆ 70~**100**~160
	Titanium Alloy	0.002~**0.003**~0.004	0.002~**0.003**~0.005	0.002~**0.003**~0.005	0.002~**0.004**~0.005	-	-	-	-	★ 100~**160**~230
Tough Edge GH	Carbon Steel	0.002~**0.004**~0.006	0.002~**0.004**~0.006	0.002~**0.004**~0.007	0.002~**0.006**~0.009	-	-	-	★ 390~**590**~820	☆ 390~**590**~820
	Alloy Steel	0.002~**0.003**~0.005	0.002~**0.004**~0.006	0.002~**0.004**~0.006	0.002~**0.005**~0.008	-	-	-	★ 330~**520**~720	☆ 330~**520**~720
	Mold Steel	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.006	0.002~**0.005**~0.007	-	-	-	★ 260~**460**~590	☆ 260~**460**~590
	Austenitic Stainless Steel	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.006	0.002~**0.005**~0.007	-	-	-	☆ 330~**520**~660	☆ 330~**520**~660
	Martensitic Stainless Steel	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.006	0.002~**0.005**~0.007	-	-	-	-	☆ 490~**660**~820
	Precipitation Hardened Stainless Steel	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.006	0.002~**0.005**~0.007	-	-	-	-	☆ 300~**390**~490
	Gray Cast Iron	0.002~**0.004**~0.006	0.002~**0.004**~0.006	0.002~**0.004**~0.007	0.002~**0.006**~0.009	-	-	★ 390~**590**~820	-	-
	Nodular Cast Iron	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.006	0.002~**0.005**~0.007	-	-	★ 330~**490**~660	-	-
	Ni-based Heat-Resistant Alloy	0.002~**0.002**~0.003	0.002~**0.003**~0.004	0.002~**0.003**~0.005	0.002~**0.004**~0.006	-	-	-	-	☆ 70~**100**~160
	Titanium Alloy	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.005	0.002~**0.004**~0.006	-	-	-	-	☆ 100~**160**~230
	Hardened Materials (≤ 60 HRC)	0.002~**0.003**~0.004	0.002~**0.004**~0.005	0.002~**0.004**~0.006	0.002~**0.005**~0.007	-	★ 200~**260**~330	-	-	-

The values in **bold** are the recommended starting condition. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation. ★: 1st Recommendation ☆: 2nd Recommendation

Machining with coolant is recommended for Ni-base heat-resistant alloys and titanium alloys. When choosing wet machining for other workpieces, reduce the cutting speed to 70% or less.

Face milling are not recommended for slotting or pocketing. Recommended ae is 75% of the cutting diameter or less. We recommend coarse pitch cutters when ae is 30% of the cutting diameter or more.

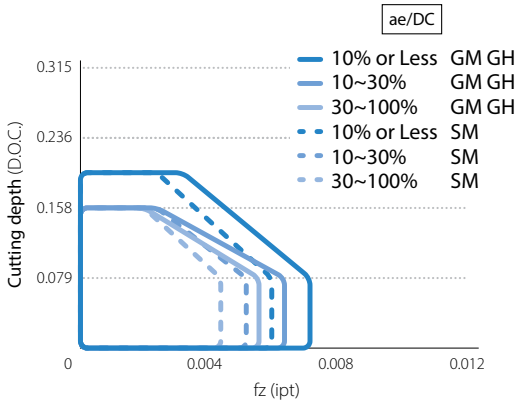
Working above recommended conditions or long-term use can damage the screws. It is recommended to replace the screws regularly.

Ramping and Helical milling are not recommended for large corner radius inserts R4.0mm / R5.0mm / R6.0mm.

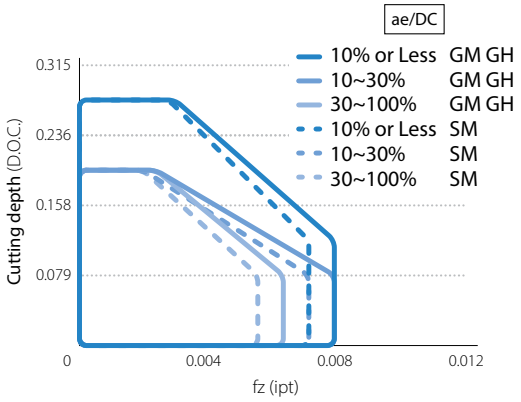
Cutting Performance

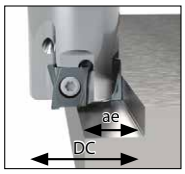
09 Size (LOGU09...) Machining for Steel (Dry)

Cutting Dia. DC : ø0.625", ø16mm ~ ø18mm



Cutting Dia. DC : ø0.750" ~ ø2.500", ø20mm ~ ø63mm

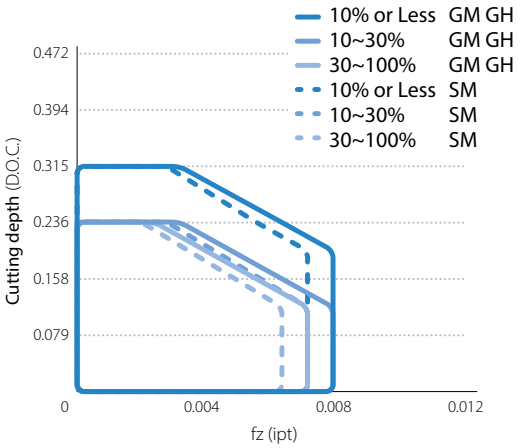




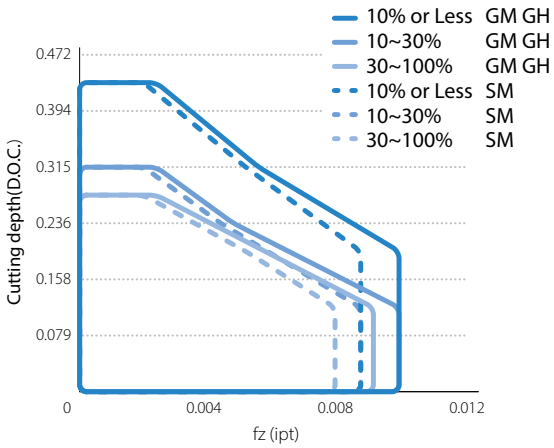
For other workpiece material, set D.O.C. and fz appropriately for each ae.

12 Size (LOGU12...) Machining for Steel (Dry)

Cutting Dia. DC : ø1.000", ø25mm ~ ø30mm



Cutting Dia. DC : ø1.250" ~ ø3.000", ø32mm ~ ø125mm

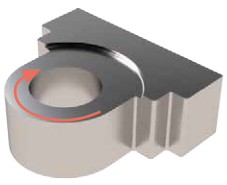


For other workpiece material, set D.O.C. and fz appropriately for each ae.

Case Studies

Brake parts 70-50-05

Vc = 440 sfm
n = 535 RPM
D.O.C. x ae = 0.134" x 0.984"
fz = 0.006 ipt
Vf = 22.04 ipm
Wet
MA90-080R-12T7C-M
LOGU120616ER-GM (PR1810)



Number of Workpieces

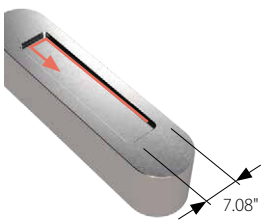
MA90 (7 flute)	1,000 pcs	Tool life x1.6
Competitor G (7 flute)	600 pcs	

MA90 showed good cutting edge condition and stable machining.
Achieved 1.6 times longer tool life.

(User evaluation)

Mold parts Stainless steel

Vc = 410 sfm
n = 1,600 RPM
D.O.C x ae = 0.039" x 0.984"
fz = 0.005 ipt
Vf = 22.44 ipm
Dry
MA90-25S20-09T3C
LOGU090408ER-GM (PR1835)



Machining efficiency

MA90 (3 flute)	Q = 14.5 cc/min	x1.5 Machining efficiency
Competitor H (3 flute)	Q = 9.5 cc/min	

MA90 showed 1.5 times higher machining efficiency than its competitors.
Improved tool life (3 to 4 pcs)

(User evaluation)

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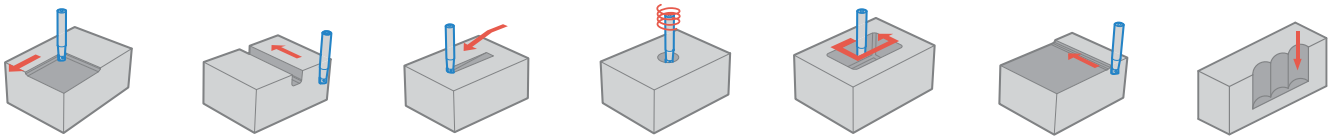
Notes

Applications



Face Milling & Shouldering | Slotting | Ramping | Helical Milling | Pocketing | Contouring | Plunging

Ramping Reference Table

Description	Cutter Diameter DC	0.625" / 16mm	0.750" / 20mm	1.000" / 25mm	1.250" / 32mm	1.500" / 40mm	2.000" / 50mm
MA... - 09 - ...	Max. Ramping Angle RMPX	1.16°	0.97°	0.64°	0.4°	0.23°	0.11°
	tan RMPX	0.020	0.017	0.011	0.007	0.004	0.002
Description	Cutter Diameter DC	1.000" / 25mm	28	30	1.250" / 32mm	35	40
MA... - 12 - ...	Max. Ramping Angle RMPX	2°	1.7°	1.6°	1.5°	1.2°	1°
	tan RMPX	0.034	0.030	0.027	0.026	0.021	0.017

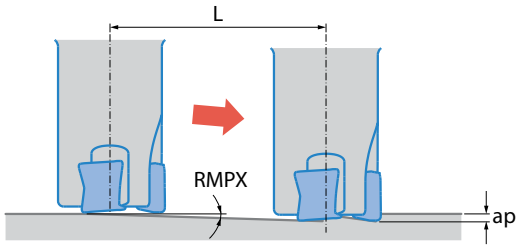
Ramping is not recommended for large corner radius inserts R4.0mm / R5.0mm / R6.0mm
Decrease ramping angle if chips become excessively long

Ramping Tips

Ramping angle should be under RMPX.
Reduce recommended feed rate by 70%

Formula for Min. Cutting Length (L) at Max. Ramping Angle

$$L = \frac{D.O.C.}{\tan RMPX}$$



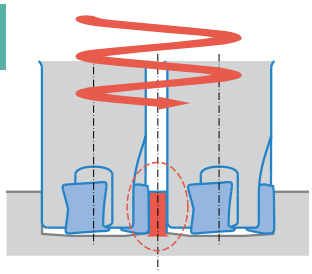
Ramping is not recommended for large corner radius inserts R4.0mm / R5.0mm / R6.0mm.

Helical Milling Tips

For Helical milling, use between min. cutting dia. and max. cutting dia.

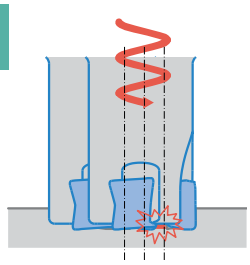
Exceeding max. cutting dia.

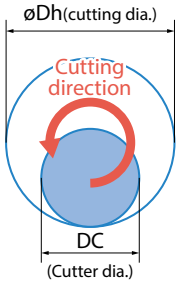
Center core remains after machining



Less than min. cutting dia.

Center core hits holder body





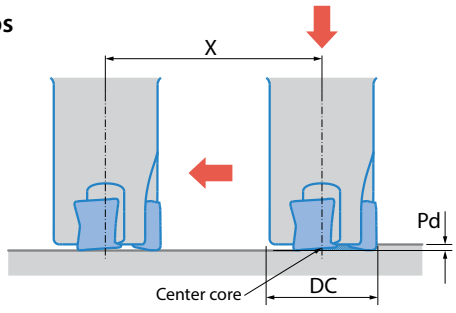
Units: inch

Description	Minimum cutting diameter øDh1	Maximum cutting diameter øDh2
MA... - 09 - ...	2XDC-0.157"	2XDC-0.079"
MA... - 12 - ...	2XDC-0.236"	2XDC-0.079"

Helical milling is not recommended for large corner radius inserts R4.0mm / R5.0mm / R6.0mm.

For helical milling, use between min. cutting dia. and max. cutting dia..
The cutter direction should be counterclockwise (down cut) (see above).
Please machine in a safe environment as long chips may be produced.

Drilling Tips

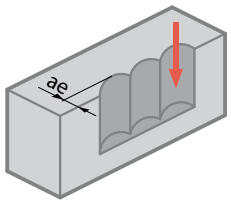


Units: inch

Description	Maximum drilling depth (Pd)	Min. cutting length (X) for flat bottom surface
MA... - 09 - ...	0.010"	DC-0.118"
MA... - 12 - ...	0.020"	DC-0.197"

It is recommended to reduce feed by 25% of recommendation until the center core is removed when traversing after drilling.
Axial feed rate recommendation per revolution is f = 0.004 ipt or less when drilling.

Plunging Tips



Available for vertical milling (plunging)
Feed should be set within fz = 0.004 (ipt) when plunging.

Units: inch

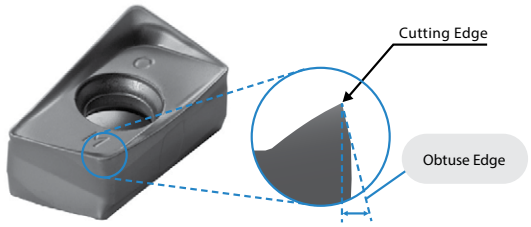
Description	Maximum width of cut (ae)
09 Size (LOGU09...)	0.079
12 Size (LOGU12...)	0.118

Double-Sided 4-Edge Insert

M-FOUR (MEW)

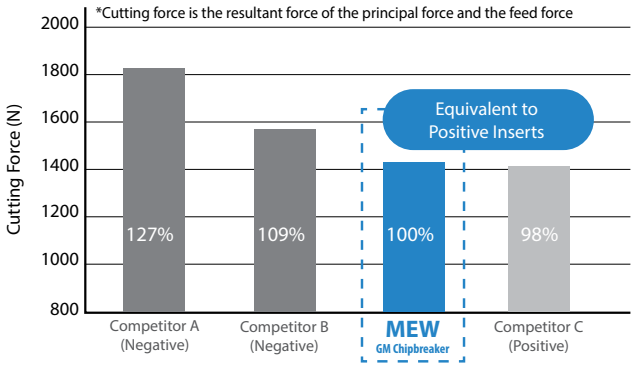
Unique mold technology reduces cutting forces equivalent to positive inserts

Obtuse Edge for Increased Cutting Edge Toughness



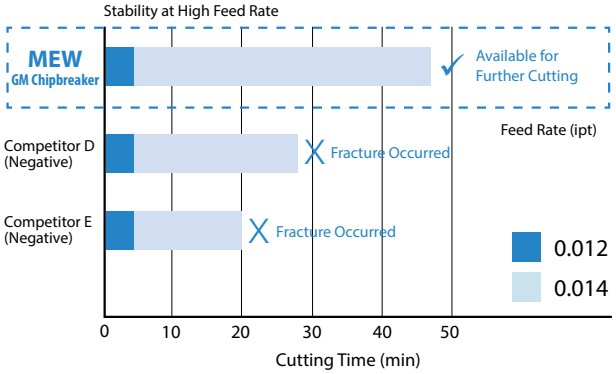
Low Cutting Forces Equivalent to Positive Inserts

Cutting Force Comparison



Cutting Conditions:
1049 Ø20mm Cutter
Vc = 500 sfm D.O.C. × ae = 0.118" × 0.591" fz = 0.006 ipt

Fracture Resistance Comparison (Internal Evaluation)



Cutting Conditions:
4140 (37~39Hs) Ø20mm Cutter
Vc = 400 sfm D.O.C. × ae = 0.118" × 0.394" fz = 0.012~0.014 ipt

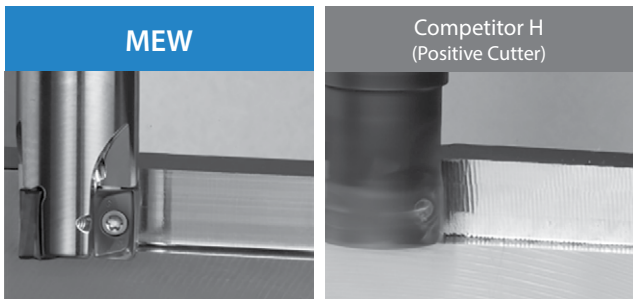
Improved surface finish, minimizing chatter

Sharp cutting and superior resistance to vibration and burrs due to helical cutting edge and optimum axial rake design

MEW GM Chipbreaker	Cometitor F (Negative)	Cometitor G (Positive)
+20°	+17°	+17°

Large Rake Angle Reduces Cutting Forces

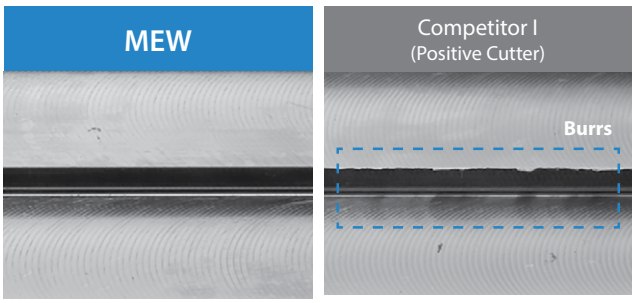
Surface of Shoulder Wall (Internal Evaluation)



Smooth surface of MEW without chattering

Cutting Conditions : Vc = 790 sfm, fz = 0.005 ipt, D.O.C. × ae = 0.158" × 0.197"
Cutter Dia. Ø0.750", Dry Workpiece : A65

Burr Comparison with Positive Cutters (Internal Evaluation)



Fewer burrs than positive cutters due to sharp cutting

Cutting Conditions : Vc = 820 sfm, fz = 0.004 ipt, D.O.C. × ae = 0.158" × 0.197"
Cutter Dia. Ø0.750, Dry Workpiece : 1049

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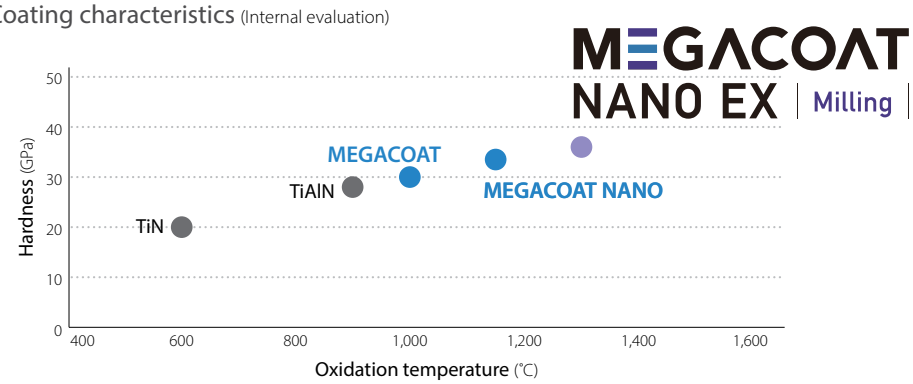
Long Tool Life with MEGACOAT NANO EX Coating Technology

For steel, stainless steel and cast iron

PR1825 / PR1835 / PR1810 New development MEGACOAT NANO EX

Coating characteristics (Internal evaluation)



For hardened material

PR015S MEGACOAT HARD PVD coating

For stainless steel and heat-resistant alloys

CA6535 CVD coating

For aluminum machining

PDL025 DLC coating

GW25 Non-coated Carbide

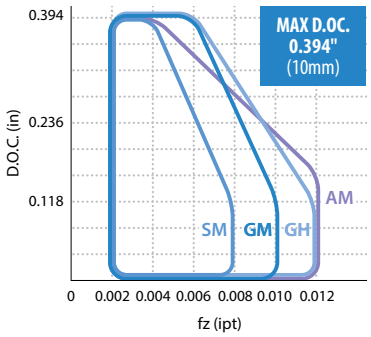
Various Chipbreakers for a Wide Range of Applications

4 types of chipbreakers for a wide range of applications along with a large lineup of corner R(RE) for the GM chipbreaker

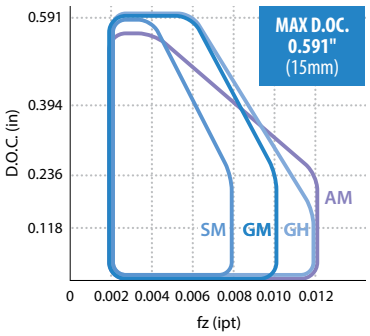
Chipbreaker	Application	Shape
GM	General Purpose	
SM	Low Cutting Force	
GH	Heavy Milling	
AM	Non-ferrous Metals / Aluminum	

Chipbreaker Recommended Applications (Shouldering)

LOMU10 Type



LOMU15 Type



Chips (GM Chipbreaker)

Grooving

Shouldering

Corner Radius Lineup

Corner-R (RE) 0.4 ,1.0 ,1.2 ,1.6 and 2.0mm added to GM chipbreaker lineup

04 Marking on Insert	08 Not Marked	10 Marking on Insert	12 Marking on Insert	16 Marking on Insert	20 Marking on Insert
LOMU100404ER-GM LOMU150504ER-GM	LOMU100408ER-GM LOMU150508ER-GM	LOMU150510ER-GM	LOMU100412ER-GM LOMU150512ER-GM	LOMU100416ER-GM LOMU150516ER-GM	LOMU100420ER-GM LOMU150520ER-GM

MEW (End Mill)

Cylindrical Shank (Standard) Shown

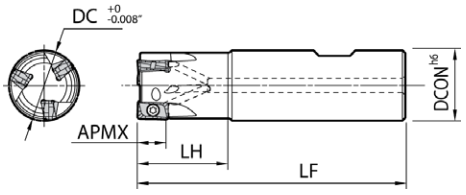


Fig. 1

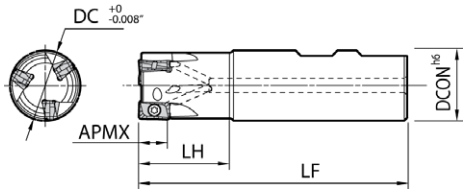


Fig. 2

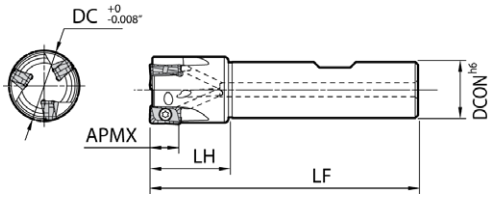


Fig. 3

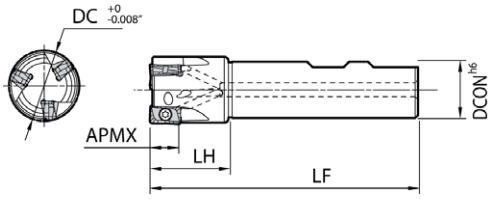


Fig. 4

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts ➡ M93
Inch	Weldon	Standard Shank	MEW 0625-W500-10-2T	●	2	0.625	0.500	2.75	0.969	0.393	+7	-22	No	43,900	3	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
			0625-W625-10-2T	●	2		0.625	3.00	1.046				Yes		1				
			0750-W625-10-2T	●	2	0.750			1.145			-20		42,000	4				
			0750-W750-10-2T	●	2		0.750	3.25	1.170						1				
			0750-W750-10-3T	●	3										1				
			0750-W750-4-10-3T	●	3			4.00	1.921						1				
			1000-W750-10-3T	●	3	1.000		3.25	1.219					37,200	4				
			1000-W100-10-2T	●	2		1.000		1.413						2				
			1000-W100-10-3T	●	3										2				
			1000-W100-475-10-3T	●	3			4.75							2				
			1250-W100-10-4T	●	4	1.250		3.75	1.469					34,000	4				
			1250-W125-10-3T	●	3		1.250	4.00	1.663						2				
			1250-W125-10-4T	●	4										2				
			1500-W125-10-5T	●	5	1.500		4.125	2.070			-19		30,700	4				
		Long Overhang	MEW 1000-W100-45-10-3T	●	3	1.000	1.000	4.50	2.163	0.393	+7	-20	Yes	37,200	2	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
		Standard Shank	MEW 1000-W750-15-2T	●	2	1.000	0.750	3.25	1.219	0.590	+10	-22	Yes	34,700	4	P-37	SB-4090TRP	DTPM-15	LOGT1505... LOMU1505...
			1000-W100-15-2T	●	2		1.000	3.75	1.413						2				
			1000-W100-475-15-2T	●	2			4.75							2				
			1250-W100-15-2T	●	2	1.250		3.75	1.469					30,100	4				
			1250-W125-15-2T	●	2		1.250	4.00	1.663						2				
			1250-W125-15-3T	●	3										2				
			1500-W125-15-3T	●	3	1.500		4.125	2.069			-21		25,600	4				
			1500-W125-15-4T	●	4										4				

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MEW (End Mill)

Cylindrical Shank (Standard) Shown

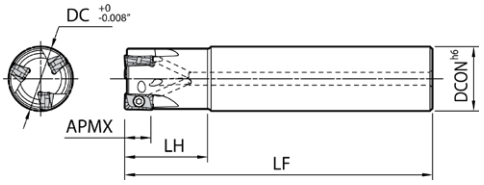


Fig. 1

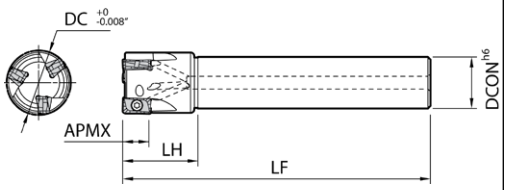


Fig. 2

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts ➡ M93
						DC	DCON	LF	LH	APMX						Anti-Seize Compound	Insert Screw	Wrench	
Inch	Cylindrical	Long Shank	MEW 0625-S625-6-10-2T	●	2	0.625	0.625	6.00	1.500	0.393	+7	-22	Yes	43,900	1	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
			0750-S750-7-10-2T	●	2	0.750	0.750	7.00	1.586					42,000	1				
			1000-S100-7-10-3T	●	3	1.000	1.000		1.980			-20		37,200	1				
			1000-S100-8-10-2T	●	2			8.00						37,200	1				
			1000-S100-8-10-3T	●	3									37,200	1				
			MEW 1250-S125-8-15-3T	●	3	1.250	1.250	8.00	1.980	0.590	+10	-22	Yes	30,100	1	P-37	SB-4090TRP	DTPM-15	LOGT1505... LOMU1505...
			1500-S125-8-15-4T	●	4	1.500			2.069			-21		25,600	2				

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

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Contact your local Kyocera sales engineer to upgrade old products to new technology

MEW (End Mill)

Cylindrical Shank (Standard) Shown

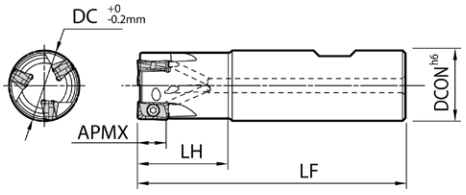


Fig. 1

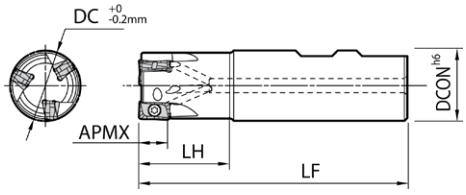


Fig. 2

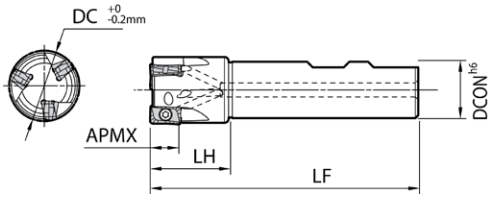


Fig. 3

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts: Anti-Seize Compound	Insert Screw	Wrench	Applicable Inserts ➡ M93
mm	Weldon, Standard Shank — MEW 16-W16-10-2T	□	2	16	16	75	25	10	+7	-22	Yes	43,750	1	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
	MEW 20-W20-10-2T	□	2	20	20	77	25	10	+7	-20	Yes	41,000	1	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
	MEW 20-W20-10-3T	●	3	20	20	77	25	10	+7	-20	Yes	41,000	1	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
	MEW 25-W25-10-3T	●	3	25	25	90	32	10	+7	-20	Yes	37,500	2	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
	MEW 32-W32-10-4T	□	4	32	32	102	40	10	+7	-20	Yes	33,900	2	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
	MEW 40-W32-10-5T	●	5	40	32	111	50	10	+7	-19	Yes	30,000	3	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
	MEW 25-W25-15-2T	□	2	25	25	90	32	15	+10	-22	Yes	35,000	2	P-37	SB-4090TRP	DTPM-15	LOGT1505... LOMU1505...
	MEW 32-W32-15-3T	□	3	32	32	102	40	15	+10	-21	Yes	30,000	2	P-37	SB-4090TRP	DTPM-15	LOGT1505... LOMU1505...
	MEW 40-W32-15-4T	□	4	40	32	111	50	15	+10	-21	Yes	25,000	3	P-37	SB-4090TRP	DTPM-15	LOGT1505... LOMU1505...

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MEW (End Mill)

Cylindrical Shank (Standard) Shown

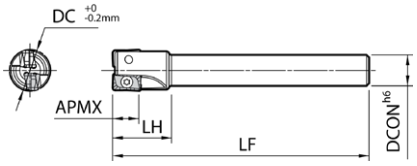


Fig. 1

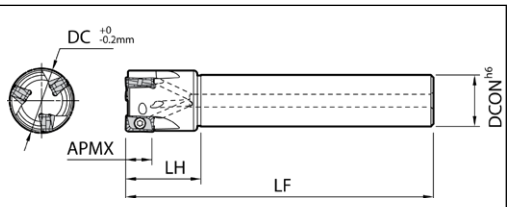


Fig. 2

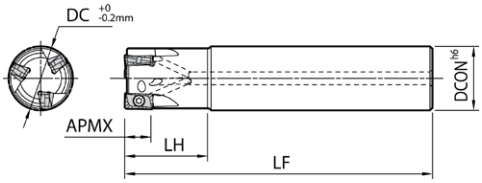


Fig. 3

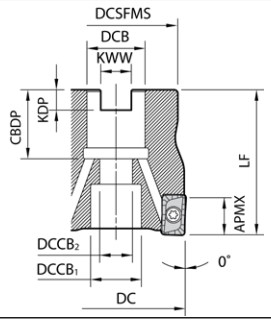
Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts ➡ M93
mm	Cylindrical	Standard Shank	MEW 16-S12-10-2T	●		16	12	100	23	10	+7	-22	No	43,750	1	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
			16-S16-10-2T	●			16		26		+7	-22	Yes	43,750	3				
			18-S16-10-2T	●	2	18			25		+7	-21		43,000	2				
			20-S16-10-2T	●		20		110	26		+7	-20		41,000	2				
			20-S20-10-2T	●			20		30		+7	-20		41,000	3				
			20-S20-10-3T	●	3	20					+7	-20		41,000	3				
			22-S20-10-3T	●		22			26		+7	-20		39,600	2				
			25-S20-10-3T	●		25		120	29		+7	-20		37,500	2				
			25-S25-10-2T	●	2	25	25		32		+7	-20		37,500	3				
			25-S25-10-3T	●	3						+7	-20		37,500	3				
			28-S25-10-3T	●		28			29		+7	-20		35,800	2				
			30-S25-10-4T	●	4	30		130	32		+7	-20		34,800	2				
			32-S25-10-4T	●		32					+7	-20		33,900	2				
			32-S32-10-3T	●	3	32	32	130	40		+7	-20		33,900	3				
			32-S32-10-4T	●	4						+7	-20		33,900	3				
			40-S32-10-5T	●	5	40		150	50		+7	-19		30,000	2				
			50-S32-10-5T	●		50		120	40		+7	-19		22,500	2				
		Long Shank	MEW 20-S20-10-150-2T	●	2	20	20	150	40	10	+7	-20	Yes	41,000	3	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
			25-S25-10-170-2T	●		25	25	170	50					37,500	3				
		Standard Shank	MEW 25-S20-15-2T	●		25	20	120	29	15	+10	-22	Yes	35,000	2	P-37	SB-4090TRP	DTPM-15	LOGT1505... LOMU1505...
			25-S25-15-2T	●	2		25		32		+10	-22		35,000	3				
			32-S25-15-2T	●		32		130			+10	-22		30,000	2				
			32-S32-15-2T	●			32		40		+10	-22		30,000	3				
			32-S32-15-3T	●	3						+10	-22		30,000	3				
			40-S32-15-3T	●		40		150	50		+10	-21		25,000	2				
			40-S32-15-4T	●	4						+10	-21		25,000	2				
			50-S32-15-4T	●		50		120	40		+10	-21		17,000	2				

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MEW (Face Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Applicable Inserts ➡ M93
		R		DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX						
Inch	MEW 1500R-10-5T	●	5	1.50	1.457	0.750	0.669	0.433	1.575	0.826	0.188	0.312	0.393	+7°	-19°	Yes	30,700	0.2	LOGT1004... LOMU1004...
	2000R-10-5T	●	5	2.00	1.811												22,300	0.4	
	2500R-10-6T	●	6	2.50	1.969												20,400	0.6	
	MEW 2000R-15-4T	●	4	2.00	1.811	0.750	0.669	0.433	1.575	0.826	0.188	0.312	0.590	+10°	-21°	Yes	16,800	0.4	LOGT1505... LOMU1505...
	2000R-15-5T	●	5														16,800	0.4	
	2500R-15-5T	●	5	2.50	1.969												14,400	0.5	
	3000R-15-6T	●	6	3.00	2.362	1.000	0.866	0.551	1.969	1.063	0.236	0.381			-20°		12,250	1.0	
	4000R-15-8T	●	8	4.00	3.504	1.500	2.047	-		1.181	0.393	0.625					10,400	1.8	

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts and Applicable Inserts (Inch End Mill/Face Mill)

Part Number	Spare Parts				Applicable Inserts ➡ M93			
	Insert Screw	Wrench	Anti-Seize Compound	Arbor Bolt	General Purpose	Low Cutting Force	Tough Edge (For Heavy Milling)	Non-ferrous Metals
MEW ...-10-_T	SB-3065TRP	DTPM-8	P-37	-	LOMU10...-GM	LOMU10...-SM	LOMU10...-GH	LOGT10...-AM
MEW 1500R-10-5T	Recommended tightening torque for insert clamp 1.2N-m			HH3/8-1.25 (HH3/8-1.25H)				
2000R-10-5T								
2500R-10-6T								
MEW ...-15-_T	SB-4090TRP	DTPM-15	P-37	-	LOMU15...-GM	LOMU15...-SM	LOMU15...-GH	LOGT15...-AM
MEW 2000R-15-4T	Recommended tightening torque for insert clamp 3.5N-m			HH3/8-1.25 (HH3/8-1.25H)				
2500R-15-5T								
3000R-15-6T								
4000R-15-8T				-				

Coat anti-seize compound thinly on portion of taper and thread prior to installation.
Optional Through-Coolant Bolt available in ( )

Wrench Specifications

Wrenches and clamp screws are "Torx Plus".
1. Ref. to Fig. 1 for "Torx Plus" Wrench. (Purple grip)
2. Ref. to Fig. 2 for "Torx" Wrench. (Black grip)
A "Torx Plus" Wrench and a "Torx" Wrench have different top shapes.
Please use a "Torx Plus" Wrench.
* If a "Torx" Wrench is used to tighten, the screw head might become damaged and then the screw cannot be removed.

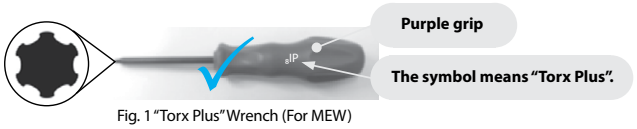


Fig. 1 "Torx Plus" Wrench (For MEW)

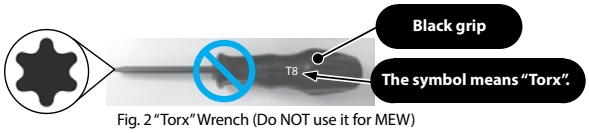
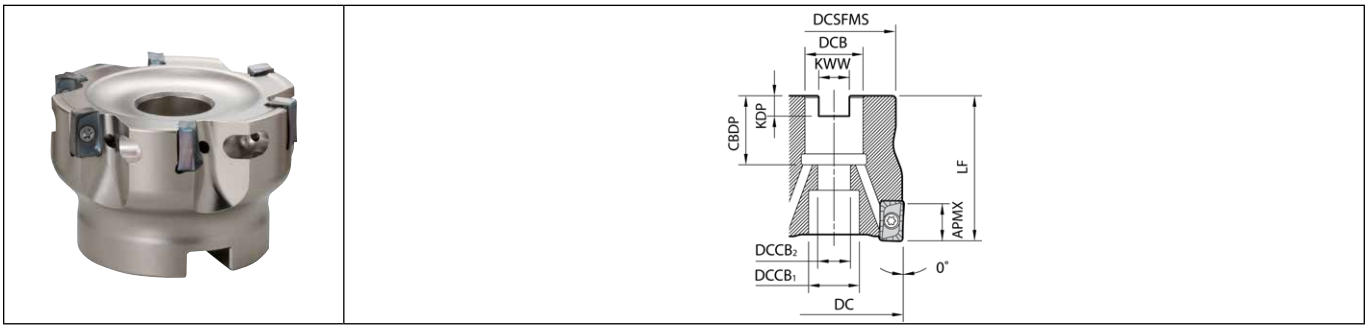


Fig. 2 "Torx" Wrench (Do NOT use it for MEW)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MEW (Face Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Applicable Inserts ➡ M93
		R		DC	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX						
mm	MEW 032R-10-4T-M	●	4	32	30	16	14	9	35	19	5.6	8.4	10	+7	-20	Yes	33,900	0.1	LOGT1004... LOMU1004...
	040R-10-5T-M	●	5	40	34				40						-19		30,000	0.2	
	050R-10-5T-M	●		50	45	22	18	11		21	6.3	10.4					22,500	0.4	
	063R-10-6T-M	●	6	63	47												20,500	0.5	
	MEW 040R-15-4T-M	●	4	40	34	16	14	9	40	19	5.6	8.4	15	+10	-21	Yes	25,000	0.2	LOGT1505... LOMU1505...
	050R-15-4T-M	●		50	45	22	18	11		21	6.3	10.4					17,000	0.3	
	063R-15-5T-M	●	5	63	47												14,500	0.5	
	080R-15-6T-M	●	6	80	60	27	20	13	50	25	7	12.4			-20		12,000	1	
	080R-15-6T	●				25.4				27	6	9.5							

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

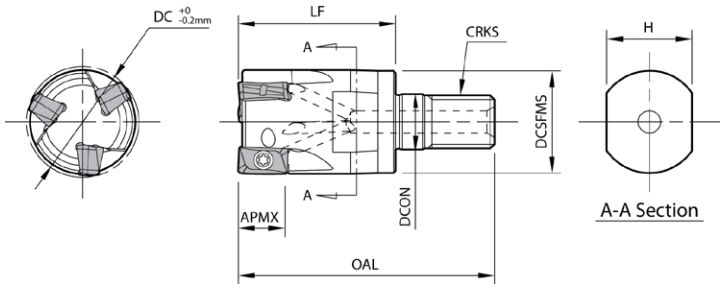
Spare Parts and Applicable Inserts (Metric End Mill/Face Mill)

Part Number	Spare Parts				Applicable Inserts ➡ M93			
	Insert Screw	Wrench	Anti-Seize Compound	Arbor Bolt	General Purpose	Low Cutting Force	Tough Edge (For Heavy Milling)	Non-ferrous Metals
MEW ...-10-_T	SB-3065TRP	DTPM-8	P-37	-	LOMU10...-GM	LOMU10...-SM	LOMU10...-GH	LOGT10...-AM
MEW 032R-10_-M				HH8×25 (HH8X25H)				
040R-10_-M								
050R-10_-M	Recommended tightening torque for insert clamp 1.2N-m							
063R-10_-M				HH10×30 (HH10X30H)				
MEW ...-15-_T	SB-4090TRP	DTPM-15	P-37	-	LOMU15...-GM	LOMU15...-SM	LOMU15...-GH	LOGT15...-AM
MEW 040R-15_-M				HH8×25 (HH8X25H)				
050R-15_-M				HH10×30 (HH10X30H)				
063R-15_-M	Recommended tightening torque for insert clamp 3.5N-m							
080R-15_(-M)				HH12×35 (HH12X35H)				

Coat anti-seize compound thinly on portion of taper and thread prior to installation.
Optional Through-Coolant Bolt available in ( )

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MEW (Modular Type)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Applicable Inserts ➡ M93
				DC	DCON	DCSFMS	OAL	LF	APMX	CRKS	H					
mm	MEW 16-M08-10-2T	●	2	16	8.5	14.7	42	25	10	M8x1.25	12	+7	-22	Yes	43,750	LOGT1004... LOMU1004...
	20-M10-10-2T	●	2	20	10.5	18.7	48	30		M10x1.5	15		-20		41,000	
	20-M10-10-3T	●	3													
	25-M12-10-3T	●	3	25	12.5	23	56	35		M12x1.75	19				37,500	
	32-M16-10-4T	●	4	32	17	30	62	40		M16x2.0	24				33,900	
	MEW 25-M12-15-2T	●	2	25	12.5	23	56	35	15	M12x1.75	19	+10	-22	Yes	35,000	LOGT1505... LOMU1505...
	32-M16-15-3T	●	3	32	17	30	62	40		M16x2.0	24				30,000	

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
See page **M324** for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

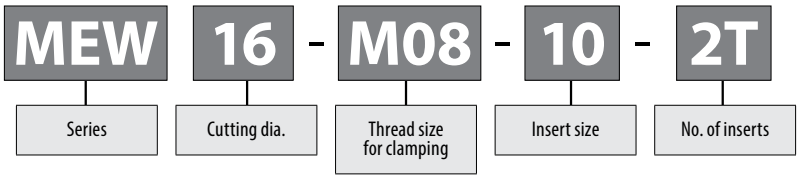
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts and Applicable Inserts (MEW Modular Type)

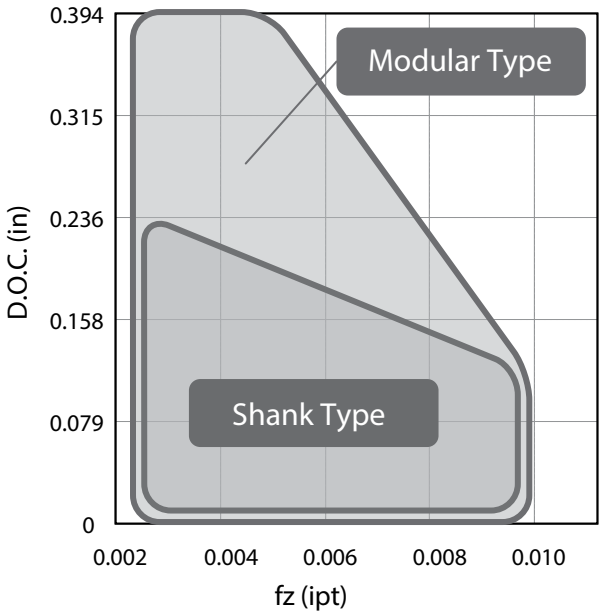
Part Number	Spare Parts			Applicable Inserts ➡ M93			
	Insert Screw	Wrench	Anti-Seize Compound	General Purpose	Low Cutting Force	Tough Edge (For Heavy Milling)	Non-ferrous Metals
MEW 16-M08-10-2T 20-M10-10-2T 20-M10-10-3T 25-M12-10-3T 32-M16-10-4T	SB-3065TRP	DTPM-8	P-37	LOMU10…-GM	LOMU10…-SM	LOMU10…-GH	LOGT10…-AM
	Recommended tightening torque for insert clamp 1.2N·m						
MEW 25-M12-15-2T 32-M16-15-3T	SB-4090TRP	DTPM-15	P-37	LOMU15…-GM	LOMU15…-SM	LOMU15…-GH	LOGT15…-AM
	Recommended tightening torque for insert clamp 3.5N·m						

Coat anti-seize compound thinly on portion of taper and thread prior to installation.

Modular End Mill Head Identification System



Modular End Mill Features



<Cutting Conditions>

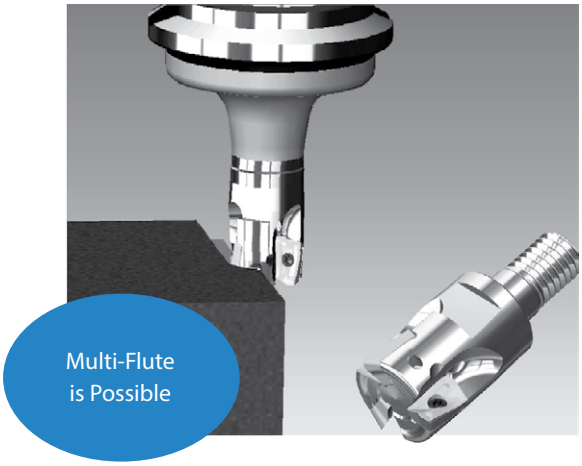
· Cutting Speed : Vc = 490 sfm (n = 2,390min^{-1})
· Width of Cut : ae = 0.394" (Shouldering)
· Workpiece Material : 1055 Dry
· Machine : BT30 M/C

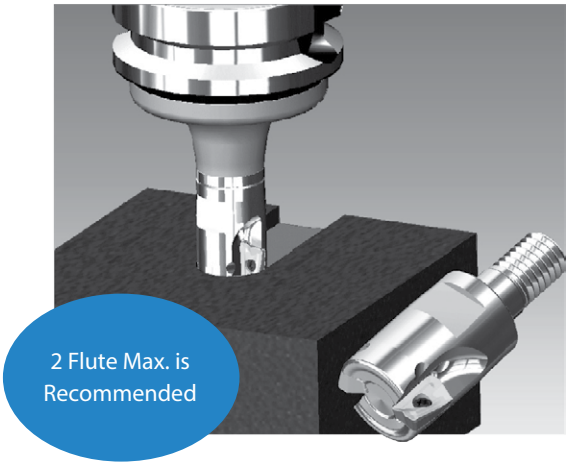
<Cutting Tool>

· Modular type
  Head : MEW20-M10-10-3T
  Arbor : BT30K-M10-45
  Insert : LOMU100408ER-GM (PR1525)
· Shank type
  Toolholder : MEW20-S20-10-3T
  Arbor : BT30 Milling Chuck (Two-face clamping)
  Insert : LOMU100408ER-GM (PR1525)

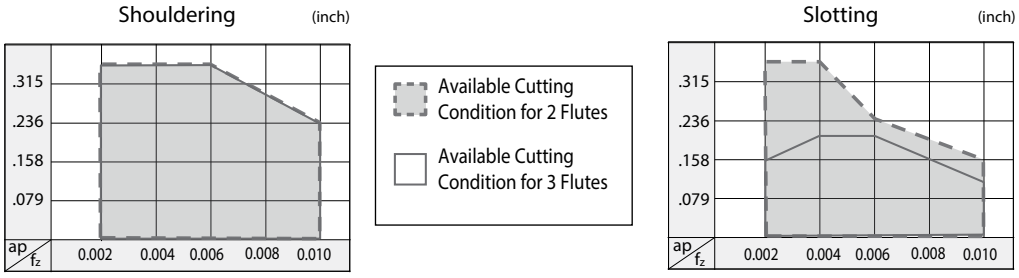
Flute Recommendation for Shouldering and Slotting

Shouldering (ae = 0.394")	Slotting





Modular End Mill Cutting Conditions by Application



For high efficiency shouldering with higher feed rates, 3 or more flutes is possible.
For slotting applications, use 2 flutes maximum to lower cutting forces.

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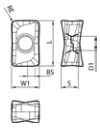
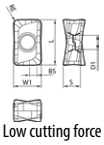
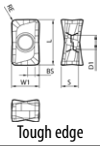
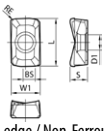
LOMU/LOGT

Usage Classification		CA6535	PDL025	PR015S	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835	GW25	
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel				☆			★	☆			P
	Mold and die steel				☆			★	☆			
	Austenitic stainless steel					☆		☆	★			M
	Martensitic stainless steel	★							☆			
	Precipitation hardened stainless steel					☆			★			
	Gray cast iron			☆			★					K
	Nodular cast iron			☆			★					
	Non-ferrous metals		★								☆	N
	Heat-resistant alloy	★							☆			S
	Titanium alloy					☆			★			
	Hard materials (≤ 60 HRC)			★								H

Insert		Part Number	No. of Edges	Dimensions (mm) S	D1	RE	L	W1	BS	Carbide CVD CA6535	DLC PDL025	PVD PR015S	PVD PR1510	PVD PR1525	PVD PR1535	PVD PR1810	PVD PR1825	PVD PR1835	- GW25	Applicable Toolholder M84~M90
	 General purpose	LOMU 100404ER-GM	4	4	3.4	0.4	10.9	6.6	2.1	●			△	●	●	●	●	●		MEW...-10-... MEWH...-10-...
		LOMU 100408ER-GM				0.8			1.7	●			△	●	●	●	●	●		
		LOMU 100412ER-GM				1.2			1.3	●			△	●	●	●	●	●		
		LOMU 100416ER-GM				1.6			1	●			△	●	●	●	●	●		
		LOMU 100420ER-GM				2			1	●			△	●	●	●	●	●		
		LOMU 150504ER-GM	4	5.6	4.8	0.4	15.7	9.2	2.2	●			△	●	●	●	●	●		MEW...-15-... MEWH...-15-...
		LOMU 150508ER-GM				0.8			1.8	●			△	●	●	●	●	●		
		LOMU 150510ER-GM				1			1.6					●			●			
		LOMU 150512ER-GM				1.2			1.4	●			△	●	●	●	●	●		
		LOMU 150516ER-GM				1.6			1	●			△	●	●	●	●	●		
		LOMU 150520ER-GM				2			0.6	●			△	●	●	●	●	●		
	 Low cutting force	LOMU 100408ER-SM	4	4	3.4	0.8	10.9	6.6	1.7	●			△	●	●	●	●	●		MEW...-10-... MEWH...-10-...
		LOMU 150508ER-SM	4	5.6	4.8	0.8	15.7	9.2	1.8	●			△	●	●	●	●	●		MEW...-15-... MEWH...-15-...
	 Tough edge	LOMU 100408ER-GH	4	4	3.4	0.8	10.9	6.6	1.7	●		●	△	●	●	●	●	●		MEW...-10-... MEWH...-10-...
		LOMU 150508ER-GH	4	5.6	4.8	0.8	15.7	9.2	1.8	●		●	△	●	●	●	●	●		MEW...-15-... MEWH...-15-...
	 2-edge / Non-Ferrous Metals	LOGT 100408FR-AM	2	4	3.6	0.8	11.2	6.8	2.8		●								●	MEW...-10-...
		LOGT 150508FR-AM	2	5.6	4.9	0.8	15.9	8.9	2.9		●								●	MEW...-15-...

Right-hand Insert Shown

Recommended Cutting Conditions M94

LOMU and LOGT inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

How to Mount Insert

1. Be sure to remove dust and chips from the insert mounting pocket.
2. Clamp screw
   1. Apply anti-seize compound on portion of taper and thread of clamp screw.
   2. Attach the screw (magnetic head) to the front end of the wrench. While lightly pressing the insert against the constraint surfaces, put the screw into the hole of the insert and tighten. (Ref. to Fig. 1) Tighten M3 screws (SB-3065TRP) slightly inclined from the insert surface.(Ref. to Fig. 2)
3. When tightening the screw, make sure that the wrench is parallel to the screw.
4. After tightening the screw, make sure that there is no clearance between the insert seat surface and the bearing surface of the toolholder or between the insert side surfaces and the constraint surface of the toolholder. If there is any clearance, remove the insert and mount it again according to the above steps.

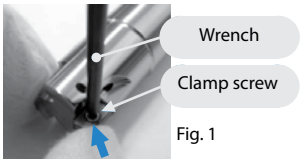


Fig. 1

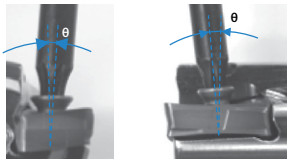


Fig. 2

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz : ipt		Recommended Insert Grade / Cutting Speed (Vc: sfm)						
		Toolholder Part Numbers		MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD	CVD	DLC	Uncoated Carbide
		MEW0625~MEW0750 MEW16~MEW18	MEW1000~MEW1500 MEW1500R~MEW3000R MEW20~MEW40 MEW040R~MEW080R	PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	PR015S	CA6535	PDL025	GW25
GM	Carbon Steel	0.002 - **0.004** - 0.008	0.003 - **0.006** - 0.010	☆ 390-**590**-820	★ 390-**590**-820	-	-	-	-	-
	Alloy Steel	0.002 - **0.004** - 0.006	0.003 - **0.006** - 0.008	☆ 330-**520**-720	★ 330-**520**-720	-	-	-	-	-
	Mold Steel	0.002 - **0.003** - 0.005	0.003 - **0.005** - 0.008	☆ 260-**460**-590	★ 260-**460**-590	-	-	-	-	-
	Austenitic Stainless Steel	0.002 - **0.003** - 0.005	0.003 - **0.005** - 0.006	☆ 330-**520**-660	☆ 330-**520**-660	-	-	-	-	-
	Martensitic Stainless Steel	0.002 - **0.003** - 0.005	0.003 - **0.005** - 0.008	☆ 490-**660**-820	-	-	-	★ 590-**790**-980	-	-
	Precipitation Hardened Stainless Steel	0.002 - **0.003** - 0.005	0.003 - **0.005** - 0.008	★ 300-**390**-490	-	-	-	-	-	-
	Gray Cast Iron	0.002 - **0.004** - 0.007	0.003 - **0.007** - 0.010	-	-	★ 390-**590**-820	-	-	-	-
	Nodular Cast Iron	0.002 - **0.003** - 0.005	0.003 - **0.006** - 0.008	-	-	★ 330-**490**-660	-	-	-	-
	Ni-base Heat-Resistant Alloy	0.002 - **0.003** - 0.005	0.003 - **0.005** - 0.006	☆ 70-**100**-160	-	-	-	★ 70-**100**-160	-	-
	Titanium Alloy	0.002 - **0.003** - 0.005	0.003 - **0.006** - 0.008	☆ 130-**200**-260	-	☆ 100-**160**-230	-	-	-	-
SM	Carbon Steel	0.002 - **0.004** - 0.007	0.003 - **0.006** - 0.008	☆ 390-**590**-820	★ 390-**590**-820	-	-	-	-	-
	Alloy Steel	0.002 - **0.003** - 0.005	0.003 - **0.005** - 0.007	☆ 330-**520**-720	★ 330-**520**-720	-	-	-	-	-
	Mold Steel	0.002 - **0.003** - 0.005	0.003 - **0.004** - 0.006	☆ 260-**460**-590	★ 260-**460**-590	-	-	-	-	-
	Austenitic Stainless Steel	0.002 - **0.003** - 0.005	0.003 - **0.004** - 0.006	★ 330-**520**-660	☆ 330-**520**-660	-	-	-	-	-
	Martensitic Stainless Steel	0.002 - **0.003** - 0.005	0.003 - **0.004** - 0.006	☆ 490-**660**-820	-	-	-	★ 590-**790**-980	-	-
	Precipitation Hardened Stainless Steel	0.002 - **0.003** - 0.005	0.003 - **0.004** - 0.006	☆ 300-**390**-490	-	-	-	-	-	-
	Ni-base Heat-Resistant Alloy	0.002 - **0.003** - 0.004	0.003 - **0.004** - 0.005	☆ 70-**100**-160	-	-	-	★ 70-**100**-160	-	-
	Titanium Alloy	0.002 - **0.003** - 0.005	0.003 - **0.005** - 0.006	★ 130-**200**-260	-	☆ 100-**160**-230	-	-	-	-
GH	Carbon Steel	0.002 - **0.004** - 0.008	0.003 - **0.008** - 0.012	☆ 390-**590**-820	★ 390-**590**-820	-	-	-	-	-
	Alloy Steel	0.002 - **0.004** - 0.006	0.003 - **0.008** - 0.010	☆ 330-**520**-720	★ 330-**520**-720	-	-	-	-	-
	Mold Steel	0.002 - **0.003** - 0.005	0.003 - **0.006** - 0.009	☆ 260-**460**-590	★ 260-**460**-590	-	-	-	-	-
	Austenitic Stainless Steel	0.002 - **0.003** - 0.005	0.003 - **0.005** - 0.006	☆ 330-**520**-660	☆ 330-**520**-660	-	-	-	-	-
	Martensitic Stainless Steel	0.002 - **0.003** - 0.005	0.003 - **0.005** - 0.008	☆ 490-**660**-820	-	-	-	☆ 590-**790**-980	-	-
	Precipitation Hardened Stainless Steel	0.002 - **0.003** - 0.005	0.003 - **0.005** - 0.008	☆ 300-**390**-490	-	-	-	-	-	-
	Gray Cast Iron	0.002 - **0.004** - 0.008	0.003 - **0.009** - 0.012	-	-	☆ 390-**590**-820	-	-	-	-
	Nodular Cast Iron	0.002 - **0.003** - 0.006	0.003 - **0.007** - 0.010	-	-	☆ 330-**490**-660	-	-	-	-
	Ni-base Heat-Resistant Alloy	0.002 - **0.003** - 0.005	0.003 - **0.005** - 0.006	☆ 70-**100**-160	-	-	-	☆ 70-**100**-160	-	-
	Titanium Alloy	0.002 - **0.003** - 0.005	0.003 - **0.006** - 0.008	☆ 130-**200**-260	-	☆ 100-**160**-230	-	-	-	-
	Hardened Materials (≤ 60 HRC)	0.002 - **0.003** - 0.005	0.003 - **0.006** - 0.009	-	-	-	★ 200-**260**-330	-	-	-
AM	Alminum (Si < 13%)	0.002 - **0.005** - 0.008	0.005 - **0.007** - 0.012	-	-	-	-	-	★ 660-2,950	☆ 660-980
	Alminum (Si > 13%)	0.002 - **0.003** - 0.005	0.002 - **0.005** - 0.008	-	-	-	-	-		

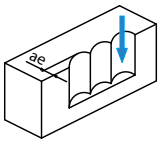
Bold numbers in the table indicate the most recommended value of feed (f). Adjust cutting speed and feed rate according to the actual machining conditions.
Coolant is recommended for Ni-base heat-resistant alloy and titanium alloy with MEW.

★ : 1st Recommendation ☆ : 2nd Recommendation

Ramping, helical milling and vertical milling (Plunging)

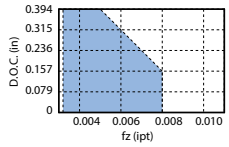
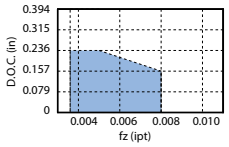
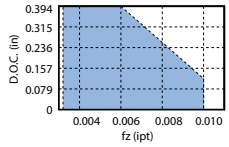
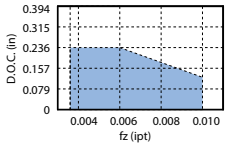
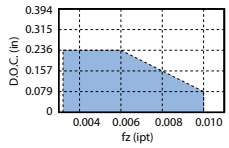
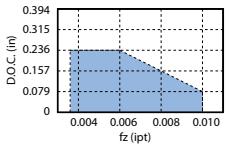
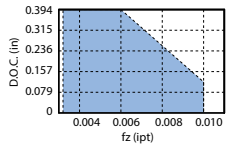
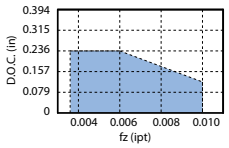
1. Available for vertical milling (plunging).
2. NOT available for ramping and helical milling, because interference between workpiece and insert may occur.

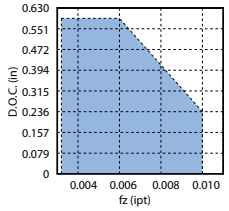
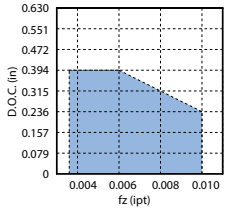
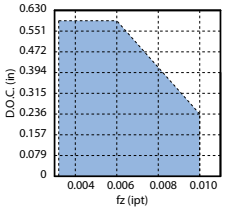
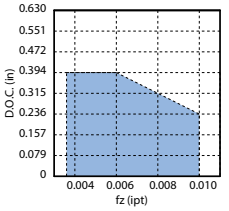
Vertical Milling (Plunging)



Insert description	Max. width of cut
LOMU10 type	5mm
LOMU15 type	7mm

Cutting Performance

Description	Shouldering (Cutting Width ae=DC/2)	Slotting
MEW0625...-10 MEW0750...-10 MEW16...-10 MEW18...-10		
MEW1000...-10 ~ MEW1500...-10 MEW20...-10 ~ MEW50...-10		
MEW0750..-2T MEW1000...-2T (Long shank) MEW20...-2T MEW25...-2T (Long shank)		
MEW1500R...-10 ~ MEW2500R...-10 MEW032R...-10 ~ MEW063R...-10		

Description	Shouldering (Cutting Width ae=DC/2)	Slotting
MEW1000...-15 ~ MEW1500...-15 MEW25...-15 ~ MEW50...-15		
MEW2000R...-15 ~ MEW3000R...-15 MEW040R...-15 ~ MEW080R...-15		

<Cutting Conditions>
· Vc = 600 sfm
· GM Chipbreaker
· Workpiece Material: 1049
· Overhang Length
1. End Mill: Same length as LH of the dimension
2. Face Mill: LF of the dimension + minimum overhang length of the arbor

Case Studies

1018

· Construction Equipment Part
· Vc = 820 sfm
· D.O.C. x ae = 0.158" x 0.787"
· fz = 0.006 ipt (Vf = 53 ipm)
· Wet
· MEW32-S32-10-4T(4 flutes)
· LOMU100408ER-GM (PR1525)

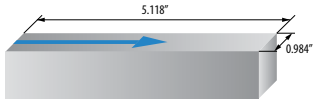
PR1525	Chip evacuation rate =108cc/min
Competitor A (Positive cutter)	Chip evacuation rate =72cc/min

MEW showed stable milling without chattering at higher feed, improving the machining efficiency by 150%.
Burrs are prevented and excellent surface finish is achieved.

(User Evaluation)

15-5PH (42HRC)

· Aircraft Part
· Vc = 590 sfm
· D.O.C. x ae = 0.079" x 0.984"
· fz = 0.004 ipt (Vf = 28 ipm)
· Wet
· MEW32-S32-10-4T(4 flutes)
· LOMU100408ER-GM (PR1525)



PR1525	Chip evacuation rate = 35.8cc/min (Further machining possible)
Competitor B (Positive cutter)	Chip evacuation rate = 26.8cc/min (Unable to continue machining)

No chattering and more stable milling is possible with MEW.
Despite the milling difficulty because of the properties of the material (42HRC), PR1525 kept good cutting edge form, minimizing wear and adhesion.

(User evaluation)

MEC (End Mill)

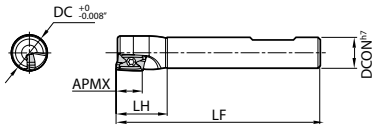


Fig. 1

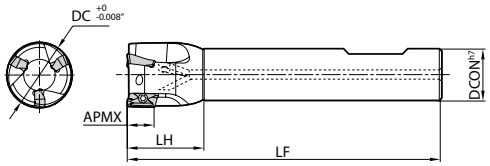


Fig. 2

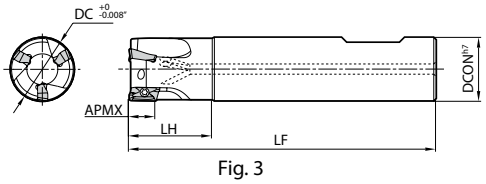


Fig. 3

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DC	Dimensions DCON	Dimensions LF	Dimensions LH	Dimensions APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts ➡ M104~M105
Inch	Weldon	Standard Shank	MEC 0500-S500-11	●	1	0.500	0.500	2.650	0.787	0.400	+12	-21	No	50,800	1	P-37	SB-2545TR	DTM-8	BDMT1103...
			MEC 0625-S500-11T	●	2	0.625	0.500	2.750	0.906	0.400	+18	-14	No	43,750	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
			0625-S625-11T	●			0.625	3.000	1.024				Yes	43,750	3				
			0750-S625-11T	●	3	0.750	0.625	3.050			+20	-10		41,000	2				
			0750-S750-11T	●		0.750	0.750	3.250	1.142					41,000	3				
			1000-S750-11T	●		1.000	0.750				+21	-10		37,500	2				
			1000-S100-11T	●			1.000	3.750	1.260					37,500	3				
			1250-S100-11T	●	4	1.250	1.000				+23	-9		33,900	2				
			1250-S125-11T	●			1.250	4.000	1.575					33,900	3				
			1500-S125-11T	●	5	1.500	1.250	4.350	1.969		+24	-8		30,000	2				
			MEC 1000-S750-17	●	2	1.000	0.750	3.500	1.417	0.618	+16	-11	Yes	35,000	2	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...
			1000-S100-17	●		1.000	1.000	3.750						35,000	3				
			1250-S100-17	●	3	1.250	1.000	4.000	1.575		+17	-7		30,000	2				
			1250-S125-17	●			1.250							30,000	3				
			1500-S125-17	●	4	1.500	1.250	4.350	1.969		+19			25,000	2				

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
For more details, see "Warning" on page **M107**.
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MEC (End Mill)

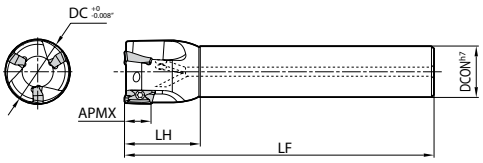


Fig. 1

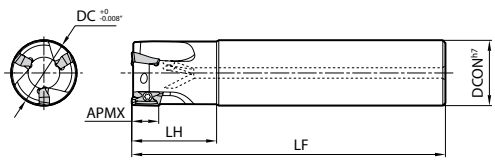


Fig. 2

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts: Anti-Seize Compound	Insert Screw	Wrench	Applicable Inserts ➡ M104~M105
Inch	Cylindrical	Long Shank	MEC 0750-S750-5.2-11T	●	2	0.750	0.750	5.200	2.362	0.400	+20	-10	Yes	41,000	2	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
			1000-S100-6.3-11T	●		1.000	1.000	6.300			+21			37,500	2				
			1250-S125-7.9-11T	●		1.250	1.250	7.870	2.559		+23	-9		33,900	2				
			1500-S125-9.5-11T	●		1.500	1.250	9.450				-8		30,000	1				
			MEC 1000-S100-6.3-17	●	2	1.000	1.000	6.300	2.362	0.618	+16	-11	Yes	35,000	2	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...
			1250-S125-7.9-17	●		1.250	1.250	7.870	2.559		+17	-7		30,000	2				
			1500-S125-9.5-17	●		1.500	1.250	9.450						25,000	1				

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
For more details, see "Warning" on page **M107**.
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

MEC (End Mill)

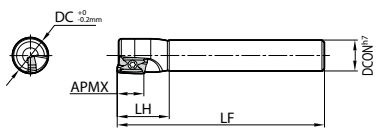


Fig. 1

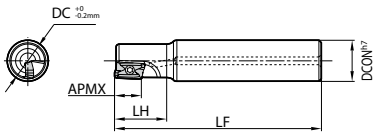


Fig. 2

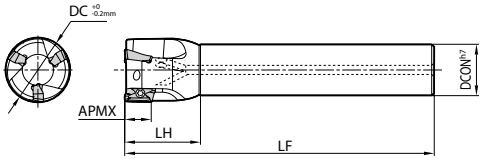


Fig. 3

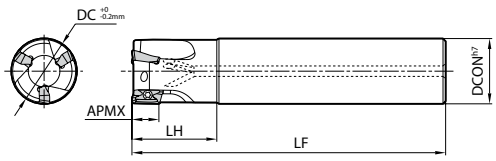


Fig. 4

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts: Anti-Seize Compound	Insert Screw	Wrench	Applicable Inserts ➡ M104~M105
mm	Cylindrical, Standard Shank, MEC 10-S10-11	●	1	10	10	80	17	10	+10	-24	No	54,800	1	P-37	SB-2545TR	DTM-8	BDMT1103...
	MEC 10-S16-11	●	1	10	16	80	17	10	+10	-24	Yes	54,800	2	P-37	SB-2545TR	DTM-8	BDMT1103...
	MEC 12-S10-11	●	1	12	10	80	20	10	+12	-21	No	50,800	1	P-37	SB-2545TR	DTM-8	BDMT1103...
	MEC 12-S12-11	●	1	12	12	80	20	10	+12	-21	No	50,800	1	P-37	SB-2545TR	DTM-8	BDMT1103...
	MEC 12-S16-11	●	1	12	16	80	20	10	+12	-21	Yes	50,800	2	P-37	SB-2545TR	DTM-8	BDMT1103...
	MEC 13-S12-11	●	1	13	12	80	20	10	+12	-19	No	49,200	1	P-37	SB-2545TR	DTM-8	BDMT1103...
	MEC 14-S12-11	●	1	14	12	80	20	10	+12	-19	No	47,700	1	P-37	SB-2545TR	DTM-8	BDMT1103...
	MEC 14-S16-11	●	1	14	16	80	20	10	+12	-19	Yes	47,700	2	P-37	SB-2545TR	DTM-8	BDMT1103...
	MEC 16-S12-11T	●	2	16	12	100	23	10	+18	-14	No	43,750	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	16-S16-11T	●	2	16	16	100	23	10	+18	-14	Yes	43,750	4	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	17-S16-11T	●	2	17	16	100	23	10	+18	-13	Yes	43,500	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	18-S16-11T	●	2	18	16	100	23	10	+19	-13	Yes	43,000	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	19-S16-11T	●	3	19	16	110	26	10	+20	-10	Yes	42,000	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	20-S16-11T	●	3	20	16	110	26	10	+20	-10	Yes	41,000	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	20-S20-11T	●	3	20	20	110	30	10	+20	-10	Yes	41,000	4	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	21-S20-11T	●	3	21	20	110	26	10	+20	-9	Yes	40,300	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	22-S20-11T	●	3	22	20	120	29	10	+21	-10	Yes	39,600	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	24-S20-11T	●	3	24	20	120	29	10	+21	-10	Yes	38,200	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	25-S20-11T	●	3	25	20	120	29	10	+21	-10	Yes	37,500	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	25-S20-11T-4	●	4	25	20	120	29	10	+21	-10	Yes	37,500	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	25-S25-11T	●	3	25	25	120	32	10	+21	-10	Yes	37,500	4	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	25-S25-11T-4	●	4	25	25	120	32	10	+21	-10	Yes	37,500	4	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	28-S25-11T	●	3	28	25	130	29	10	+22	-9	Yes	35,800	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	30-S25-11T	●	4	30	25	130	32	10	+23	-9	Yes	34,800	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	32-S25-11T	●	4	32	25	130	32	10	+23	-9	Yes	33,900	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	32-S25-11T-5	●	5	32	25	130	32	10	+23	-9	Yes	33,900	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	32-S32-11T	●	4	32	32	130	40	10	+23	-9	Yes	33,900	4	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	32-S32-11T-5	●	5	32	32	130	40	10	+23	-9	Yes	33,900	4	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	40-S32-11T	●	5	40	32	150	50	10	+23	-8	Yes	30,000	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	50-S32-11T	●	5	50	32	150	50	10	+23	-7	Yes	22,500	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
For more details, see "Warning" on page **M107**.
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Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts: Anti-Seize Compound	Insert Screw	Wrench	Applicable Inserts ➡ M104~M105
mm	Cylindrical	Long Shank	MEC 20-S18-170-11T	●	2		18	170	30	10	+20	-10	Yes	41,000	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
			20-S20-140-11T	●		20	20	140	60						4				
			20-S20-170-11T	●				170							4				
			22-S20-170-11T	●		22			30		+21			39,600	3				
			25-S23-210-11T	●		25	23	210	32					37,500	3				
			25-S25-160-11T	●			25	160	60						4				
			25-S25-210-11T	●				210							4				
			28-S25-210-11T	●		28			32		+22	-9		35,800	3				
			32-S32-200-11T	●		32	32	200	65		+23			33,900	4				
			32-S32-250-11T	●				250							4				
			35-S32-250-11T	●		35			40					32,600	3				
			40-S32-240-11T	●		40		240	65			-8		30,000	3				
			MEC 20-S20-150-11T-3	●	3	20	20	150	60	10	+20	-10	Yes	41,000	4	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
			25-S25-170-11T-3	●		25	25	170			+21			37,500	4				
			25-S25-170-11T-4	●	4										4				
			30-S25-180-11T-3	●	3	30		180	32		+23	-9		34,800	3				
			32-S32-200-11T-3	●		32	32	200	65					33,900	4				
			32-S32-200-11T-4	●	4										4				
			32-S32-200-11T-5	●	5										4				

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
For more details, see "Warning" on page **M107**.
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

MEC (End Mill)

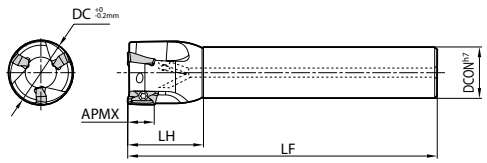


Fig. 1

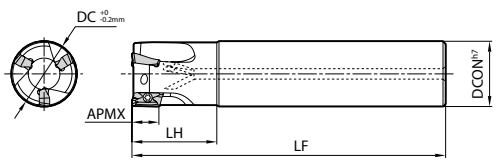


Fig. 2

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts ➡ M104~M105
						DC	DCON	LF	LH	APMX									
mm	Cylindrical	Standard Shank	MEC 25-S20-17	●	2	25	20	120	36	15.7	+16	-11	Yes	35,000	1	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...
			25-S25-17	●			25								2				
			32-S25-17	●	3	32		130	40		+17	-7		30,000	1				
			32-S32-17	●			32								2				
			40-S32-17	●	4	40		150	50		+19			25,000	1				
			50-S32-17	●		50								17,000	1				
		Long shank	MEC 25-S25-160-17	●	2	25	25	160	60	15.7	+16	-11	Yes	35,000	2	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...
			25-S25-210-17	●				210							2				
			28-S25-210-17	●		28			36					32,500	1				
			32-S32-200-17	●		32	32	200	65		+17	-7		30,000	2				
			32-S32-250-17	●				250							2				
			35-S32-250-17	●		35			40					27,700	1				
			40-S32-240-17	●		40		240	65		+19			25,000	1				
			MEC 32-S32-250-17-3	●	3	32	32	250	65	15.7	+17	-7	Yes	30,000	2	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...
			40-S32-250-17-3	●		40					+19			25,000	1				
			40-S32-250-17-4	●	4										1				
			50-S42-250-17-4	●		50	42		64			-6		17,000	1				

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
For more details, see "Warning" on page **M107**.
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MEC (Face Mill)

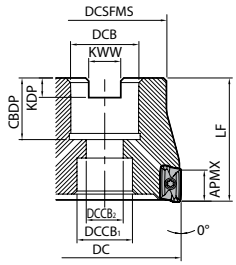


Fig. 1

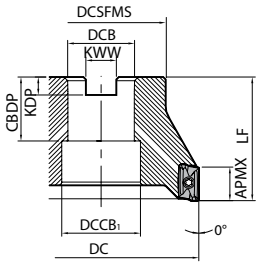


Fig. 2

Toolholder Dimensions

Unit	Part Number	Std. Item R	No. of Inserts	Dimensions DC	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts: Anti-Seize Compound	Insert Screw	Wrench	Applicable Inserts M104~M105
Inch	Inch Bore Dia.																						
	MEC 1500R-11T-5T	●	5	1.500	1.263		0.63			0.807							30,700	0.2	1				
	2000R-11T-5T	●	5	2.000	1.606	0.750	0.646	0.417	1.575	0.819	0.188	0.312					22,300	0.3	1				
	2500R-11T-6T	●	6	2.500	1.594		0.63			0.819			0.400	+23	-7	Yes	20,400	0.7	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
	3000R-11T-7T	●	7	3.000	1.917	1.000	0.827	0.555	1.969	0.878	0.223	0.375					18,500	1.0	1				
	4000R-11T-9TN	●	9	4.000	2.622	1.500	1.969	-	2.48	1.654	0.375	0.625					16,800	1.6	1				
	MEC 2000R-17-4T	●	4	2.000	1.606	0.750	0.646	0.417	1.575	0.819	0.188	0.312					16,800	0.4	1				
	2000R-17-5T	●	5														16,800	0.4	1				
	2500R-17-5T	●	5	2.500	1.634		0.646			0.819			0.618	+19	-7	Yes	14,400	0.8	1	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...
	3000R-17-6T	●	6	3.000	1.969	1.000	0.827	0.555	1.969	0.878	0.223	0.375					12,250	1.0	1				
	4000R-17-7TN	●	7	4.000	2.622	1.500	1.969	-	2.48	1.654	0.375	0.625					10,400	1.8	2				

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
For more details, see "Warning" on page **M107**.
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

When using center-through Air/Coolant/Mist
If center through Air (Coolant, Mist) is used, please use appropriate arbor and clamp with arbor bolt (Table1)

For good shoulder finishes by MEC multistage ap.
In order to obtain a smooth finished shoulder wall with multiple passes of MEC milling cutter, please keep D.O.C. 0.217" (5.5mm) or less for 11T3 type insert and also keep D.O.C. 0.354" (9mm) or less for 1704 type insert.

Table 1

Part Number	Arbor Bolt (Attachment)	Wrench
MEC1500R···· MEC2000R···· MEC2500R····	HH3/8-1.25H	5/16" Hex
MEC3000R····	HH1/2-1.25H	3/8" Hex
MEC4000R····	HH3/4-2.3H	5/8" Hex

Wrench sold separately.

MEC (Face Mill)

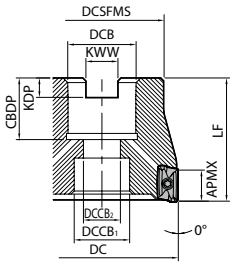


Fig. 1

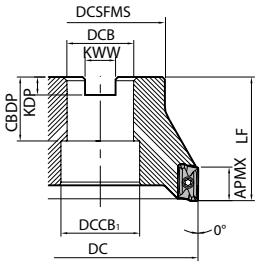


Fig. 2

Toolholder Dimensions

Unit			Part Number	Std. Item R	No. of Inserts	Dimensions DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts: Anti-Seize Compound	Insert Screw	Wrench	Applicable Inserts M104~M105
mm	Inch Bore Dia.	Coarse Pitch	MEC 063R-11-6T	●	6	63	50	1.000"	20	14	50	1.024"	0.236"	0.375"	10	+23	-7	Yes	20,500	0.8	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
			080R-11-7T	●	7	80	52.5												18,500	1	1				
			100R-11-9TN	●	9	100	65	1.250"	26	17.6	63	1.260"	0.315"	0.500"					17,000	1.8	1				
		Fine pitch	MEC 063R-11-8T	●	8	63	50	1.000"	20	14	50	1.024"	0.236"	0.375"	10	+23	-7	Yes	20,500	0.8	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
			080R-11-10T	●	10	80	52.5												18,500	1	1				
		Coarse Pitch	MEC 063R-17-5T	●	5	63	50	1.000"	20	14	50	1.024"	0.236"	0.375"	15.7	+19	-7	Yes	14,500	0.8	1	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...
			080R-17-6T	●	6	80	52.5												12,000	1	1				
			100R-17-7TN	●	7	100	65	1.250"	26	17.6	63	1.260"	0.315"	0.500"					10,500	1.8	1				
			125R-17-9T	●	9	125	80	1.500"	45	32		1.496"	0.394"	0.625"					8,900	3.4	1				
		Fine Pitch	MEC 063R-17-6T	●	6	63	50	1.000"	20	14	50	1.024"	0.236"	0.375"	15.7	+19	-7	Yes	14,500	0.8	1	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...
			080R-17-8T	●	8	80	52.5												12,000	1	1				
			100R-17-9TN	●	9	100	65	1.250"	26	17.6	63	1.260"	0.315"	0.500"					10,500	1.8	1				
	Metric Bore Dia.	Coarse Pitch	MEC 040R-11-5T-M	●	5	40	34	16	14	8.5	40	20	5.6	8.5	10	+23	-7	Yes	30,000	0.2	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
			050R-11-5T-M	●		50	40	22	18	12		22	6.3	10.4					22,500	0.3	1				
			063R-11-6T-M	●	6	63													20,500	0.7	1				
			080R-11-7T-M	●	7	80	52.5	27	20	14	50	26	7	12.4					18,500	1	1				
			100R-11-9T-MN	●	9	100	65	32	26	17.6	55		8	14.4					17,000	1.6	1				
			125R-11-11T-M	●	11	125	85	40	45	32	63	33	9.5	16.4					15,000	3.1	1				
		Fine Pitch	MEC 032R-11-5T-M	●	5	32	30	16	11.5	8.5	35	20	5.6	8.4	10	+23	-7	Yes	33,900	0.1	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
			040R-11-6T-M	●	6	40	34		14		40								30,000	0.2	1				
			080R-11-10T-M	●	10	80	52.5	27	20	14	50	26.5	7	12.4					18,500	0.9	1				
			100R-11-11T-M	●	11	100	65	32	26	17.6	55	26	8	14.4					17,000	1.7	1				
		Coarse Pitch	MEC 040R-17-4T-M	●	4	40	34	16	14	8.5	40	20	5.6	8.5	15.7	+19	-7	Yes	25,000	0.3	1	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...
			050R-17-4T-M	●		50	40	22	18	12		22	6.3	10.4					17,000	0.4	1				
			063R-17-5T-M	●	5	63													14,500	0.6	1				
			080R-17-6T-M	●	6	80	52.5	27	20	14	50	26	7	12.4					12,000	1	1				
			100R-17-7T-MN	●	7	100	65	32	26	17.6	55		8						10,500	1.8	1				
			125R-17-9T-M	●	9	125	85	40	45	32	63	33	9.5	16.4					8,900	3.1	1				
			160R-17-12T-M	●	12	160	110		68	-								No	7,400	4.5	2				

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
For more details, see "Warning" on page **M107**.
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

When using center-through Air/Coolant/Mist

If center through Air (Coolant, Mist) is used, please use appropriate arbor and clamp with arbor bolt (Table1)

For good shoulder finishes with MEC multistage D.O.C.

In order to obtain a smooth finished shoulder wall with multiple passes of MEC milling cutter, please keep D.O.C. 0.217" (5.5mm) or less for 11T3 type insert and also keep D.O.C. 0.354" (9mm) or less for 1704 type insert.

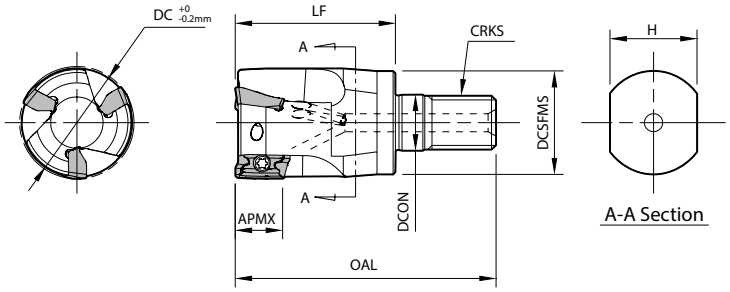
Table 1

Part Number	Arbor Bolt (Attachment)	Wrench
MEC032R·····M	SP8X35	LW-5 (Double width 5 mm)
MEC040R·····M	HH8X25H	LW-5 (Double width 5 mm)
MEC050R·····M MEC063R·····M	HH10X30H	LW-6 (Double width 6 mm)
MEC063R···· MEC080R····(-M)	HH12X35H	LW-8 (Double width 8 mm)
MEC100R····N/M	HH16X52H	LW-12 (Double width 12 mm)
MEC125R····	HF20X53H	LW-14 (Double width 14 mm)
MEC160R····	HF24X60H	LW-17 (Double width 17 mm)

Wrench sold separately.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MEC (Modular Head)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Applicable Inserts ➡ M104~M105
				DC	DCON	DCSFMS	OAL	LF	APMX	CRKS	H					
mm	MEC 16-M08-11T-2T	●	2	16	8.5	14.7	42	25	10	M8x1.25	12	+18	-14	Yes	43,750	BDGT11T3... BDMT11T3...
	20-M10-11T-2T	●		20	10.5	18.7	48	30		M10x1.5	15	+20	-10		41,000	
	20-M10-11T-3T	●	3												41,000	
	25-M12-11T-3T	●		25	12.5	23	56	35		M12x1.75	19	+21			37,500	
	32-M16-11T-4T	●	4	32	17	30	62	40		M16x2.0	24	+23	-9		33,900	
	MEC 25-M12-17-2T	●	2	25	12.5	23	56	35	15.7	M12x1.75	19	+16	-11	Yes	35,000	BDGT1704... BDMT1704...
	32-M16-17-3T	●	3	32	17	30	62	40		M16x2.0	24	+17	-7		30,000	

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
For more details, see "Warning" on page **M107**.
See page **M324** for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

Spare Parts for MEC Modular Head

Part Number	Spare Parts		
	Insert Screw	Wrench	Anti-Seize Compound
MEC 16-M08-11T-2T	SB-2555TRG	DTM-8	P-37
20-M10-11T-2T			
20-M10-11T-3T			
25-M12-11T-3T	Recommended tightening torque for insert clamp 1.2N·m		
32-M16-11T-4T			
MEC 25-M12-17-2T	SB-4070TRN	DTM-15	P-37
32-M16-17-3T	Recommended tightening torque for insert clamp 3.5N·m		

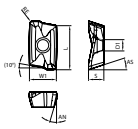
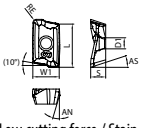
Coat anti-seize compound thinly on portion of taper and thread prior to installation.

BDGT/BDMT

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel				★	☆		P
Mold and die steel				★	☆		P
Austenitic stainless steel		☆		☆	★		M
Martensitic stainless steel	★				☆		M
Precipitation hardened stainless steel		☆			★		M
Gray cast iron			★				K
Nodular cast iron			★				K
Non-ferrous metals							N
Heat-resistant alloy	★				☆		S
Titanium alloy		☆			★		S
Hard materials							H

Insert	Part Number	No. of Edges	Dimensions (mm) S	D1	RE	L	INSL	LE	W1	Angle (°) AN	AS	Carbide CVD CA6535	Carbide PVD PR1535	PR1810	PR1825	PR1835	Cermet - TN100M	Applicable Toolholder ⇨ M96~M103
		BDMT 110302ER-JT	2	3	2.8	0.2	11	-	-	6.3	15	18	●	●	●	●	●		MEC...-11
		BDMT 110304ER-JT				0.4							●	●	●	●	●		
		BDMT 110308ER-JT				0.8							●	●	●	●	●		
		BDMT 11T302ER-JT	2	3.8	2.8	0.2	11	-	-	6.7	13	18		●	●	●	●		MEC...-11T(...) MEC...-11-...
		BDMT 11T304ER-JT				0.4							●	●	●	●	●	●	
		BDMT 11T308ER-JT				0.8							●	●	●	●	●	●	
		BDMT 11T312ER-JT				1.2							●	●	●	●	●		
		BDMT 11T316ER-JT				1.6							●	●	●	●	●		
		BDMT 11T320ER-JT				2							●	●	●	●	●		
		BDMT 11T324ER-JT				2.4							●	●	●	●	●		
		BDMT 11T331ER-JT				3.1							●	●	●	●	●		
		BDMT 170404ER-JT	2	4.9	4.4	0.4	17	-	-	9.6	13	18	●	●	●	●	●		MEC...-17(...) MEC...-17-...
		BDMT 170408ER-JT				0.8							●	●	●	●	●	●	
		BDMT 170412ER-JT				1.2							●	●	●	●	●		
		BDMT 170416ER-JT				1.6							●	●	●	●	●		
		BDMT 170420ER-JT				2							●	●	●	●	●		
		BDMT 170424ER-JT				2.4							●	●	●	●	●		
		BDMT 170431ER-JT				3.1							●	●	●	●	●		
		BDMT 170440ER-JT				4								●	●	●	●		
	 Low cutting force / Stainless steel	BDMT 110302ER-JS	2	3	2.8	0.2	11	-	-	6.3	15	18	●	●		●	●		MEC...-11
		BDMT 110304ER-JS				0.4							●	●		●	●		
		BDMT 110308ER-JS				0.8							●	●		●	●		
		BDMT 11T302ER-JS	2	3.8	2.8	0.2	11	-	-	6.7	13	18	●	●		●	●		MEC...-11T(...) MEC...-11-...
		BDMT 11T304ER-JS				0.4							●	●		●	●		
		BDMT 11T308ER-JS				0.8							●	●		●	●		
		BDMT 170404ER-JS	2	4.9	4.4	0.4	17	-	-	9.6	13	18	●	●		●	●		MEC...-17(...) MEC...-17-...
		BDMT 170408ER-JS				0.8							●	●		●	●		

Right-hand Insert Shown

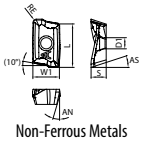
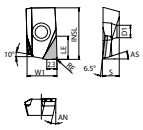
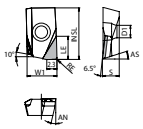
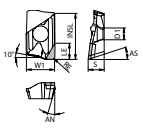
Recommended Cutting Conditions ⇨ M106~M107

Standard BDMT / BDGT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

BDGT/BDMT

Usage Classification						
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel					P
	Mold and die steel					
	Austenitic stainless steel					M
	Martensitic stainless steel					
	Precipitation hardened stainless steel					
	Gray cast iron					K
	Nodular cast iron					
	Non-ferrous metals	★	☆	□	■	N
	Heat-resistant alloy					S
	Titanium alloy		☆	□	■	
	Hard materials					H

Insert		Part Number	No. of Edges	Dimensions (mm)							Angle (°)		Carbide		PCD		Applicable Toolholder ⇒ M96~M103
				S	D1	RE	L	INSL	LE	W1	AN	AS	DLC	-	-	-	
													PDL025	GW25	KPD001	KPD230	
	 Non-Ferrous Metals	BDGT 11T302FR-JA 11T304FR-JA 11T308FR-JA	2	3.8	2.8	0.2 0.4 0.8	11	-	-	6.7	13	18	● ● ●	● ● ●			MEC...-11T(...) MEC...-11-...
		BDGT 170404FR-JA 170408FR-JA 170420FR-JA 170431FR-JA	2	4.9	4.4	0.4 0.8 2 3.1	17	-	-	9.6	13	18	● ● ● ●	● ● ● ●			MEC...-17(...) MEC...-17-...
		BDGT 11T302FR 11T304FR 11T308FR	1	3.8	2.8	0.2 0.4 0.8	-	11.5	3.8	6.7	13	18			● ● ●	● ● ●	MEC...-11T(...) MEC...-11-...
		BDGT 11T302FR-LE 11T304FR-LE 11T308FR-LE	1	3.8	2.8	0.2 0.4 0.8	-	11.5	5.2	6.7	13	18			● ● ●	● ● ●	MEC...-11T(...) MEC...-11-...
		BDMT 11T302FR 11T304FR	1	3.8	2.8	0.2 0.4	-	11	3.6	6.7	13	18			● ●	● ●	MEC...-11T(...) MEC...-11-...
		BDMT 170402FR 170404FR	1	4.9	4.4	0.2 0.4	-	17	4.4	9.6	13	18			● ●	● ●	MEC...-17(...) MEC...-17-...

Right-hand Insert Shown

Recommended Cutting Conditions ⇒ M107

Standard BDMT / BDGT Inserts are sold in 10 piece boxes

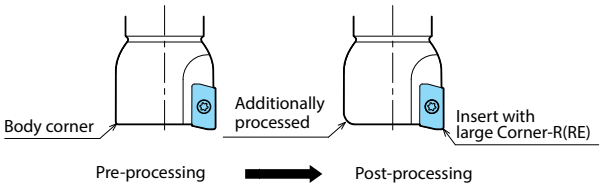
PCD Inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

When using inserts with corner-R (RE)1.6mm or larger, additional modifications of the cutter body will be necessary. Ref. to the chart below for the recommended modifications.

Insert Corner-R (RE)	Additional Modifications of the Cutter Body Corner (mm)
1.6	R1.0
2.0	
2.4	R1.2
3.1	R1.6
4.0	R2.5

* R shape is recommended for additional processing to the body corner.
When applying chamfer shaped additional processing, do not cut away too much.



Recommended Cutting Conditions

JT Chipbreaker

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)				
	Toolholder Description		Cermet	MEGACOAT NANO EX (MEGACOAT NANO)			CVD Coated Carbide
	MEC0500~MEC0750 MEC10~MEC19	MEC1000~MEC1500 MEC20~MEC40 MEC1500R~MEC4000R MEC040R~MEC160R	TN100M	PR1835 (PR1535)	PR1825	PR1810	CA6535
Carbon Steel	0.002~**0.004**~0.006	0.003~**0.006**~0.010	☆ 390~**520**~660	☆ 390~**590**~820	★ 390~**590**~820	-	-
Alloy Steel	0.002~**0.004**~0.005	0.003~**0.006**~0.008	☆ 330~**460**~590	☆ 330~**520**~720	★ 330~**520**~720	-	-
Mold Steel	0.002~**0.003**~0.004	0.003~**0.005**~0.008	☆ 260~**390**~490	☆ 260~**460**~590	★ 260~**460**~590	-	-
Austenitic Stainless Steel	0.002~**0.003**~0.004	0.003~**0.005**~0.006	-	☆ 330~**520**~660	☆ 330~**520**~660	-	-
Martensitic Stainless Steel	0.002~**0.003**~0.004	0.003~**0.005**~0.008	-	☆ 490~**660**~820	-	-	★ 590~**790**~980
Precipitation Hardened Stainless Steel	0.002~**0.003**~0.004	0.003~**0.005**~0.008	-	★ 300~**390**~490	-	-	-
Gray Cast Iron	0.002~**0.004**~0.006	0.003~**0.007**~0.010	-	-	-	★ 390~**590**~820	-
Nodular Cast Iron	0.002~**0.003**~0.004	0.003~**0.006**~0.008	-	-	-	★ 330~**490**~660	-
Ni-base Heat Resistant Alloy	0.002~**0.003**~0.004	0.003~**0.005**~0.006	-	☆ 70~**100**~160	-	-	★ 70~**100**~160
Titanium Alloys	0.002~**0.003**~0.004	0.003~**0.006**~0.008	-	☆ 130~**200**~260	-	-	-

Bold numbers in the table indicate the most recommended values. Adjust cutting speed and feed rate according to the actual machining conditions.
Coolant is recommended for Ni-base heat-resistant alloys and titanium alloys.

★ : 1st Recommendation ☆ : 2nd Recommendation

JS Chipbreaker

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)		
	Toolholder Description		MEGACOAT NANO EX (MEGACOAT NANO)		CVD Coated Carbide
	MEC0500~MEC0750 MEC10~MEC19	MEC1000~MEC1500 MEC20~MEC40 MEC1500R~MEC4000R MEC040R~MEC160R	PR1835 (PR1535)	PR1825	CA6535
Carbon Steel	0.002~**0.004**~0.005	0.003~**0.006**~0.007	☆ 390~**590**~820	★ 390~**590**~820	-
Alloy Steel	0.002~**0.003**~0.004	0.003~**0.005**~0.006	☆ 330~**520**~720	★ 330~**520**~720	-
Mold Steel	0.002~**0.003**~0.004	0.003~**0.004**~0.005	☆ 260~**460**~590	★ 260~**460**~590	-
Austenitic Stainless Steel	0.002~**0.003**~0.004	0.003~**0.004**~0.005	★ 330~**520**~660	☆ 330~**520**~660	-
Martensitic Stainless Steel	0.002~**0.003**~0.004	0.003~**0.004**~0.005	☆ 490~**660**~820	-	★ 590~**790**~980
Precipitation Hardened Stainless Steel	0.002~**0.003**~0.004	0.003~**0.004**~0.005	☆ 300~**390**~490	-	-
Ni-base Heat Resistant Alloy	0.002~**0.003**~0.004	0.003~**0.004**~0.005	☆ 70~**100**~160	-	★ 70~**100**~160
Titanium Alloys	0.002~**0.003**~0.004	0.003~**0.004**~0.005	★ 130~**200**~260	-	-

Bold numbers in the table indicate the most recommended values. Adjust cutting speed and feed rate according to the actual machining conditions. Coolant is recommended for Ni-base heat-resistant alloys and titanium alloys.

★ : 1st Recommendation ☆ : 2nd Recommendation

JA Chipbreaker

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)	
		DLC Coated Carbide	Carbide
		PDL025	GW25
Aluminum Alloy (Si 13% or Less)	0.002~0.012	660~3,280	660~2,620
Aluminum Alloy (Si 13% and Over)	0.002~0.008	660~980	660~980

PCD

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)
		PCD
		KPD230 (KPD001)
Aluminum Alloy (Si 13% or Less)	0.002~0.008	1640~4,920
Aluminum Alloy (Si 13% and Over)	0.002~0.006	980~3,280

⚠ Warning Please observe below precautions fully.
Failure to observe the precautions may cause serious damage to human body.

Warning about Max. Revolution indicated on main body

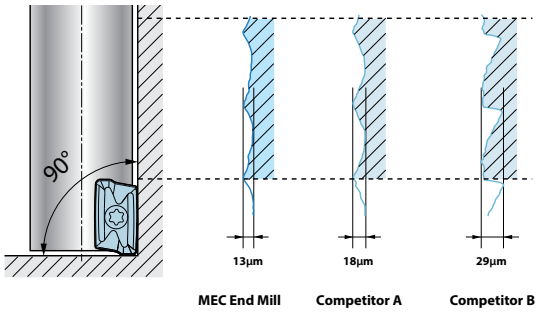
1. When running the end mill and the face mill at revolutions exceeding the maximum revolution limit, the inserts or toolholder may be damaged due to the centrifugal force.
2. For actual practical revolution, please set within recommended cutting condition.
3. When using at a higher revolution (over 10,000 RPM), refer to the table to adjust the balance of MEC and suitable arbor.

Max RPM	Balance quality grade G ISO 1940-1 / 8821 (JIS B0905)
~20,000	G16
~30,000	G6.3
30,000~	G2.5

Features of MEC

Great 90° Shoulders

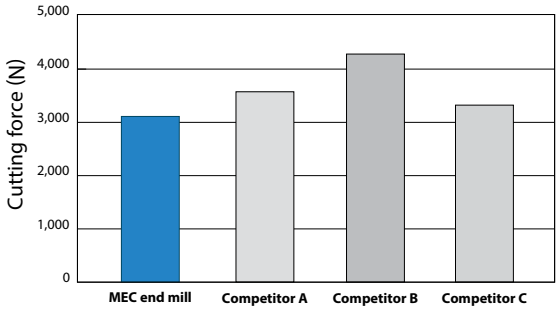
Cutting Surface Comparison



(Internal evaluation)

Low Cutting Force

Cutting Force Comparison

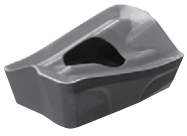


Tool dia. ø0.750" 1049
Vc = 400 sfm Shouldering D.O.C. x ae = 0.354" x 0.394"
fz = 0.008 ipt Dry

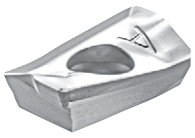
(Internal evaluation)

Chipbreaker

JT Chipbreaker
(General Purpose)

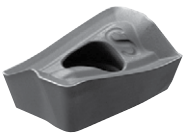


JA Chipbreaker
(For Aluminum)



JS Chipbreaker
(Low Cutting Force)

Cutting Force
20% Lower

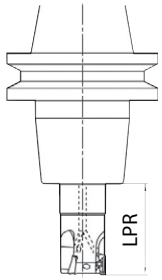


Cutting performance of mec end mill

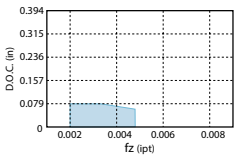
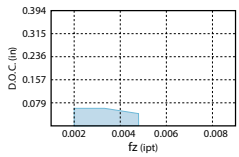
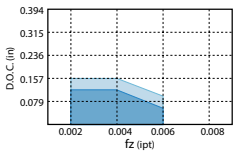
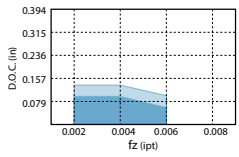
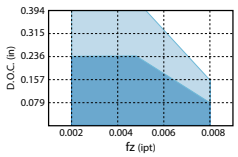
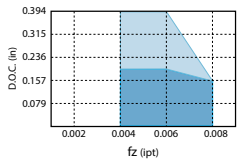
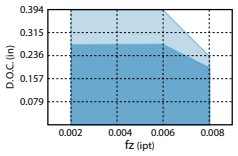
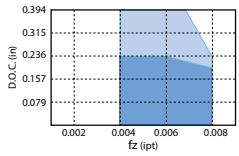
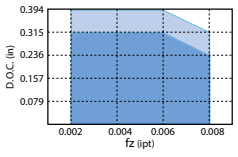
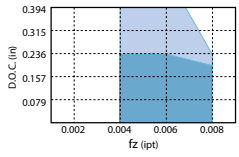
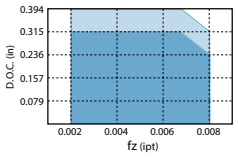
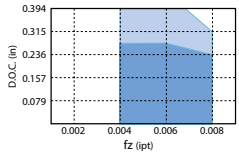
1. Overhang Length 10mm insert (Standard shank with JT chipbreaker)

Cutting Dia.	Description	Overhang Length LPR (in)	
ø10mm	MEC10-S10-11	0.670	-
ø0.005" ø12mm	MEC0500... MEC12-S16-11	0.787	1.180
ø0.625" ø16mm	MEC0625-S625-11T MEC16-S16-11T	1.180	1.790
ø0.0750" ø20mm	MEC0750-S750-11T MEC20-S20-11T	1.180	1.790
ø1.000" ø25mm	MEC1000-S100-11T MEC25-S25-11T	1.260	1.890
ø32mm	MEC1250-S125-11T MEC32-S32-11T	1.580	2.360

Shape



(Vc = 400 sfm Workpiece material: 1049)

Description	Shouldering (Cutting Width ae=DC/2)	Slotting Ramping and helical milling
MEC10-S10-11		
MEC0500... MEC12-S16-11		
MEC0625-S625-11T MEC16-S16-11T		
MEC0750-S750-11T MEC20-S20-11T		
MEC1000-S100-11T MEC25-S25-11T		
MEC1250-S125-11T MEC32-S32-11T		

800.823.7284
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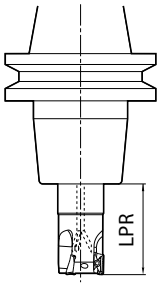
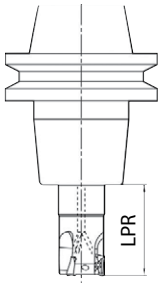
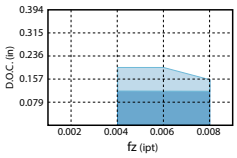
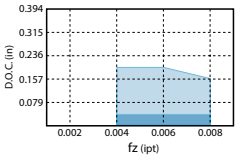
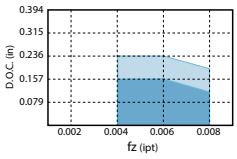
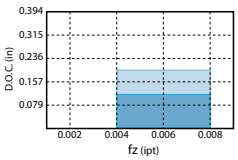
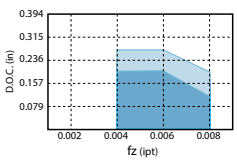
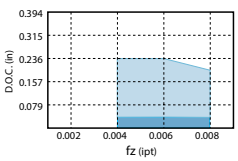
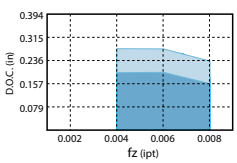
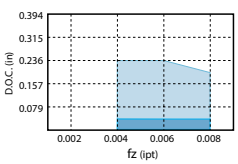
2. Overhang Length 10mm Insert (Long shank with JT chipbreaker)

Cutting Dia.	Description	Overhang Length LPR (in)		Shape
ø0.750" ø20mm Long Shank	MEC0750-S750-5.2-11T MEC20-S20-140-11T	2.362	3.543	
ø1.000" ø25mm Long Shank	MEC1000-S100-6.3-11T MEC25-S25-160-11T	2.362	3.957	
ø1.250" ø32mm Long Shank	MEC1250-S125-7.9-11T MEC32-S32-200-11T	3.957	5.118	
ø1.500" ø40mm Long Shank	MEC1500-S125-9.5-11T MEC40-S32-240-11T	3.957	5.119	

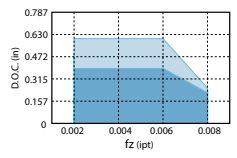
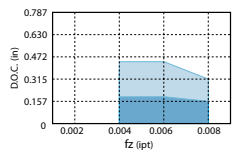
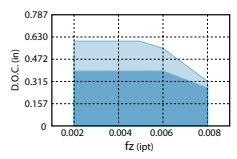
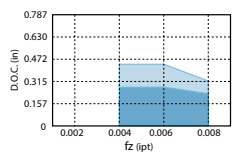
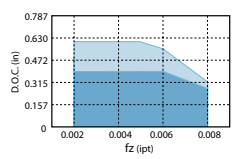
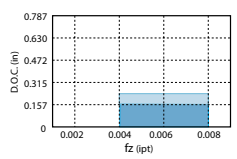
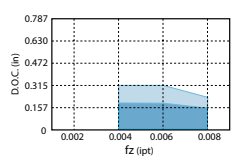
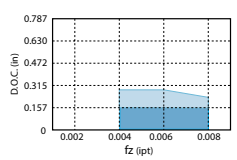
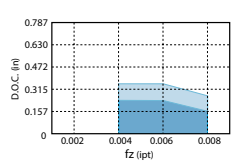
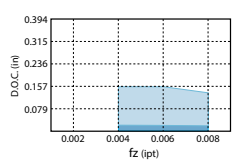
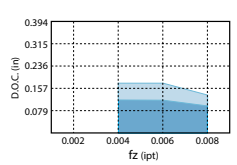
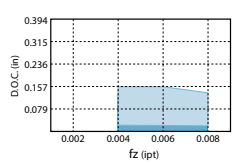
3. Overhang Length 15.7mm Insert (JT chipbreaker)

Cutting Dia.	Description	Overhang Length LPR (in)		Shape
ø1.000" ø25mm	MEC1000-S100-17 MEC25-S25-17	1.417	2.126	
ø1.250" ø32mm	MEC1250-S125-17 MEC32-S32-17	1.575	2.362	
ø1.500" ø40mm	MEC1500-S125-17 MEC40-S32-17	1.969	2.953	
ø1.000" ø25mm Long Shank	MEC1000-S100-6.3-17 MEC25-S25-160-17	2.362	3.937	
ø1.250" ø32mm Long Shank	MEC1250-S125-7.9-17 MEC32-S32-200-17	3.937	5.118	
ø1.500" ø40mm Long Shank	MEC1500-S125-9.5-17 MEC40-S32-240-17	3.937	5.118	

(Vc = 400 sfm Workpiece Material: 1049)

Description	Shouldering (Cutting Width ae=DC/2)	Slotting Ramping and helical milling
MEC0750-S750-5.2-11T MEC20-S20-140-11T Long shank		
MEC1000-S100-6.3-11T MEC25-S25-160-11T Long shank		
MEC1250-S125-7.9-11T MEC32-S32-200-11T Long shank		
MEC1500-S125-9.5-11T MEC40-S32-240-11T Long shank		

(Vc = 400 sfm Workpiece Material: 1049)

Description	Shouldering (Cutting Width ae=DC/2)	Slotting Ramping and helical milling
MEC1000-S100-17 MEC25-S25-17		
MEC1250-S125-17 MEC32-S32-17		
MEC1500-S125-17 MEC40-S32-17		
MEC1000-S100-6.3-17 MEC25-S25-160-17 Long shank		
MEC1250-S125-7.9-17 MEC32-S32-200-17 Long shank		
MEC1500-S125-9.5-17 MEC40-S32-240-17 Long shank		

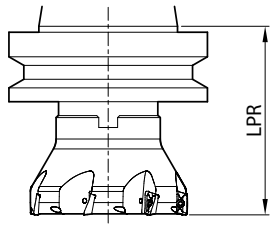
Cutting Performance of MEC Face Mill

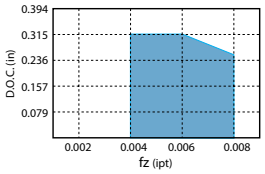
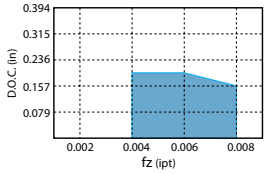
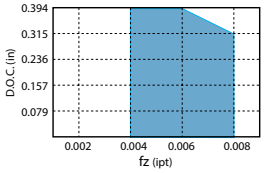
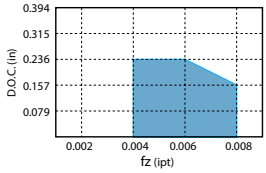
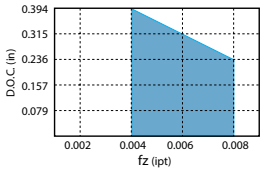
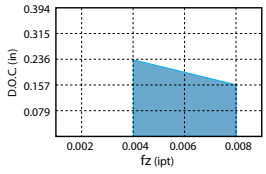
Overhand Length 10mm Insert (JT chipbreaker)

(Vc = 400 sfm Workpiece Material: 1049)

Cutting Dia.	Description	Overhang Length LPR (in)
ø32mm	MEC032R-11-5T-M	4.331
ø1.5000" ø40mm	MEC1500R-11T-5T MEC040R-11-T-◯M	4.528
ø2.000" ø50mm	MEC2000R-11T-5T MEC050R-11-◯T-M	3.937
ø2.500" ø63mm	MEC2500R-11T-6T MEC063R-11-◯T MEC063R-11-◯T-M	3.740
ø3.000" ø80mm	MEC3000R-11T-7T MEC080R-11-◯T MEC080R-11-◯T-M	
ø4.000" ø100mm	MEC4000R-11T-9TN MEC100R-11-9TN MEC100R-11-9T-MN	4.252
ø125mm	MEC125R-11-11T MEC125R-11-11T-M	

Shape



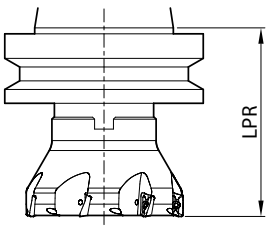
Description	Shouldering (Cutting Width ae=DC/2)	Slotting
MEC1500R-11T-5T MEC040R-11-◯T-M		
MEC2000R-11T-5T ~ MEC4000R-11T-9TN MEC050R-11-◯T-M ~ MEC100R-11-9TN(-MN)		
MEC125R-11-11T(-M)		

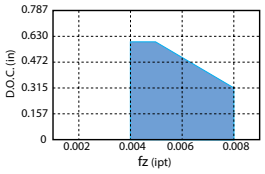
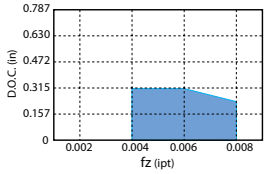
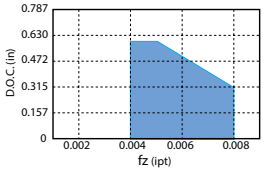
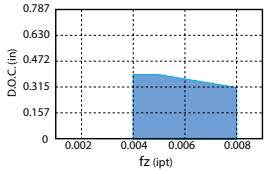
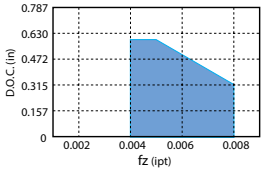
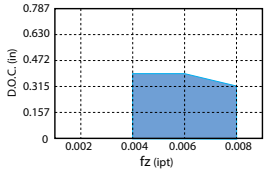
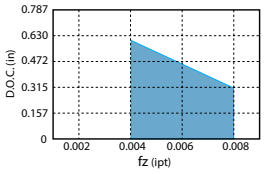
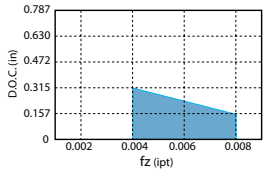
Overhand Length 15.7mm Insert (JT chipbreaker)

(Vc = 400 sfm Workpiece Material: 1049)

Cutting Dia.	Description	Overhang Length LPR (in)
ø40mm	MEC040R-17-4T-M	4.528
ø2.000" ø50mm	MEC2000R-17-◯T MEC050R-17-◯T-M	3.937
ø2.500" ø63mm	MEC2500R-17-4T MEC063R-17-◯T MEC063R-17-◯T-M	3.740
ø3.000" ø80mm	MEC3000R-17-6T MEC080R-17-◯T MEC080R-17-◯T-M	
ø4.000" ø100mm	MEC4000R-17-7T MEC100R-17-◯TN MEC100R-17-◯T-MN	4.252
ø125mm	MEC125R-17-9T MEC125R-17-9T-M	
ø160mm	MEC160R-17-12T MEC160R-17-12T-M	

Shape



Description	Shouldering (Cutting Width ae=DC/2)	Slotting
MEC040R-17-4T-M		
MEC2000R-17-◯T MEC050R-17-◯T-M		
MEC2500R-17-4T ~ MEC4000R-17-7T MEC063R-17-◯T(-M) ~ MEC100R-17-◯TN(-MN)		
MEC125R-17-9T(-M) MEC160R-17-12T(-M)		

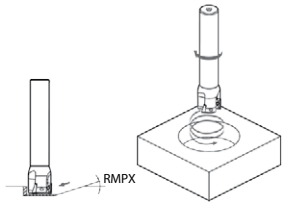
Ramping, Helical Milling and Vertical Milling (Plunging)

Ramping/Helical Milling

Ramping angle is recommended under RMPX.

Refer to each tool's cutting performance list for sinking depth per revolution when helical milling.

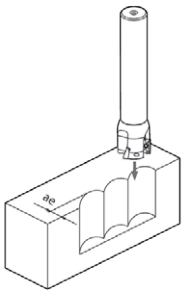
Use compressed air when during machining.



Cutting Dia.	Applicable Inserts	Max. Ramping Angle (RMPX)
ø0.625", ø16~ø18mm	BDMT11T3.. BDGT11T3..	3°
ø0.750", ø19~Ø21mm		5°
ø1.000", ø22~ø25mm		2.5°
ø1.250", ø28~ø32mm		1.5°
ø1.500", ø40mm		0.7°
ø50mm~		Not recommended
ø1.000", ø25mm	BDMT1704.. BDGT1704..	8°
ø1.250", ø32mm		5°
ø1.500", ø40mm		2.5°
ø50mm~		Not recommended

BDMT1103 type is not recommended for ramping and helical milling.

Vertical Milling (Plunging)



Cutting Dia.	Applicable Inserts	Max. Width of Cut (ae)
ø0.625" ø16~ø19mm	BDMT11T3.. BDGT11T3..	0.060" 1.5 mm
ø0.750"~ø4.000" ø20~ø160mm	BDMT11T3.. BDGT11T3..	0.197" 5 mm
ø1.000"~ø4.000" ø25~ø160mm	BDMT1704.. BDGT1704..	0.315" 8 mm

BDMT1103 type is not recommended for vertical milling (plunging).

Minimum Cutting Dia. for Helical Milling

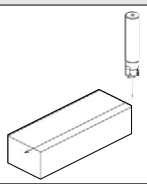
MEC Insert	Cutting Dia.	ø0.625"	ø0.750"	ø1.000"	ø1.250"	ø1.500"	ø16mm	ø18mm	ø20mm	ø22mm	ø25mm	ø28mm	ø30mm	ø32mm	ø40mm	ø50mm
BD_T11T3..	Min. Cutting Dia.	ø0.827"	ø1.102"	ø1.575"	ø2.087"	ø2.598"	ø21mm	ø25mm	ø29mm	ø33mm	ø39mm	ø45mm	ø49mm	ø53mm	ø69mm	Not recommended for helical milling
	Min. Cutting Dia. for Flat Bottom	ø1.102"	ø1.339"	ø1.850"	ø2.362"	ø2.835"	ø28mm	ø32mm	ø36mm	ø40mm	ø46mm	ø52mm	ø56mm	ø60mm	ø76mm	

MEC Insert	Cutting Dia.	ø1.000"	ø1.250"	ø1.500"	ø25mm	ø32mm	ø40mm	ø50mm
BD_T1704..	Min. Cutting Dia.	ø1.339"	ø1.850"	ø2.362"	ø34mm	ø48mm	ø64mm	Helical milling is not recommended.
	Min. Cutting Dia. for Flat Bottom	ø1.850"	ø2.323"	ø2.835"	ø46mm	ø60mm	ø76mm	

Case Studies

Pre-Hardened Tool Steel

- Test Piece (54~56HRC)
- Vc = 160 sfm (n = 800min^{-1})
- D.O.C. × ae = 0.079" × 0.551"
- fz = 0.005 ipt (Vf = 2.28 ipm)
- Dry
- MEC20-S20-11T (3 Flute)
- BDMT11T308ER-JT (PR830)



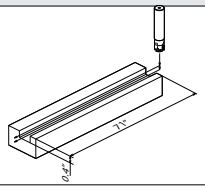
MEC	Chip removal amount =28.1in^3 (Further machining possible)
Competitor's end mill A	Chip removal amount = 1.1in^3 (Chipping occurred)

Competitor's end mill A [ø25 (2 flutes) Vc = 40 m/min fz = 0.075 mm/t ap x ae = 2 x 3 mm] had chipping occurred in 10 minutes and had loud machining sound. MEC could increase the feed rate, and the cutting edge remained in extremely good condition and is still sustainable for further machining.

(User evaluation)

Structural Steel

- Plate
- Vc = 290 sfm (n = 1,400min^{-1})
- D.O.C. = 0.197" x 2 Passes
- fz = 0.005 ipt (Vf = 19.7 ipm)
- Dry
- MEC20-S20-11T (3 Flute)
- BDMT11T308ER-JT (PR830)



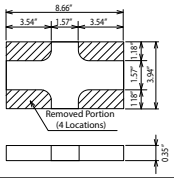
MEC	23 pcs/edge
Competitor's end mill B	10~11pcs/edge

MEC extended the tool life for more than twice.

(User evaluation)

304

- Plate
- Vc = 410 sfm (n = 1,600min^{-1})
- D.O.C. = 0.354"
- fz = 0.004 ipt (Vf = 12.6 ipm)
- Dry
- MEC25-S25-17 (2 Flute)
- BDMT170408ER-JT (PR830)



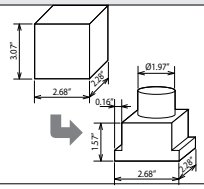
MEC	4pcs/edge or more
Competitor's end mill C	1pc/edge or less

Competitor's end mill C (indexable end mill) had high cutting force and had insert breakage, but MEC had no insert breakage and was still usable for further machining after machining 4 pieces (16 points).

(User evaluation)

Die Steel

- Mold
- Vc = 430 sfm (n = 1,040min^{-1})
- D.O.C. × ae = ~0.118" × ~0.197"
- fz = 0.007 ipt (Vf = 36.8 ipm)
- Dry (Air Blow)
- MEC40-S32-11T (5 Flute)
- BDMT11T308ER-JT (PR830)



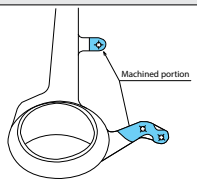
MEC	2 hours (Small wear: extendible)
Competitor's end mill D	2 hours (Halted due to insert breakage)

MEC had better cutting performance/insert life comparing to competitor's end mill D, and the insert had only small wear and was usable for further machining after used for machining of the same duration as competitor's end mill D. Competitor's end mill D (6 flutes type) was used with Vf = 936 mm/min (fz = 0.15 mm/t).

(User evaluation)

4118

- Knuckle Steering
- Vc = 490 sfm (n = 1,200min^{-1})
- D.O.C. = 0.020"~0.197" (Shouldering)
- fz = 0.004 ipt (Vf = 18.8 ipm)
- Dry
- MEC40-S32-17 (4 Flute)
- BDMT170408ER-JT (PR830)



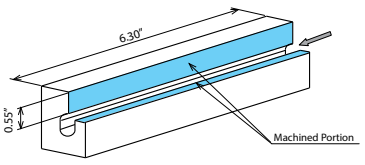
MEC	150 pcs/edge
Competitor's end mill E	40pcs/edge

MEC had a better finished surface comparing to competitor's end mill E and also improved the tool life by more than 3 times.

(User evaluation)

Ni-Base Heat-Resistant Alloy

- Turbine Parts
- Vc = 50 sfm (n = 120min^{-1})
- D.O.C. = 0.020"
- fz = 0.003 ipt (Vf = 1.5 ipm)
- Wet
- MEC040R-17-4T-M (4 Flute)
- BDMT170408ER-JS (PR1025)



MEC	9pcs/edge
Competitor's end mill F	1pc/edge or less

Competitor's end mill F (Coated carbide Insert) could not finish machining of 1 workpiece, but MEC could cut 9pcs/edge and the finished surface was good.

(User evaluation)

MECX (End Mill)

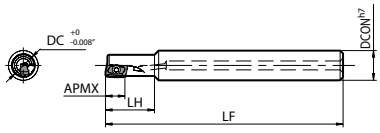


Fig. 1

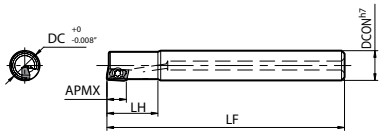


Fig. 2

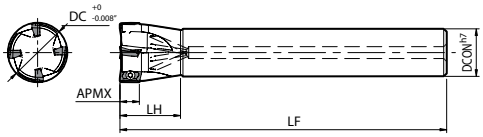


Fig. 3

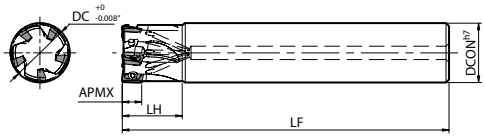


Fig. 4

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts (M114)
Inch	Standard Shank	Standard Pitch	MECX 0375-S375-07-1T	●	1	0.375	0.375	3.00	0.669	0.236	+12.8	-19.7	Yes	47,150	1	P-37	SB-2035TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
			0500-S500-07-2T	●	2	0.500	0.500	3.27	0.709		+14.3	-12.9		45,800	1				
			0625-S625-07-3T	●	3	0.625	0.625	3.50	0.787		+16.3	-11.3		43,300	2		SB-2042TRG		
			0750-S625-07-4T	●	4	0.750		4.00				-10.9		40,900	3				
			0750-S750-07-4T	●	4		0.750							40,900	2				
			0750-S750-07-5T	●	5									40,900	2				
			1000-S100-07-5T	●	5	1.000	1.000	4.50	0.984			-9.5		36,900	2				
			1000-S100-07-7T	●	7									36,900	2				
			1000-S750-07-5T	●	5		0.750							36,900	3				
			1000-S750-07-7T	●	7									36,900	3				
			1250-S125-07-6T	●	6	1.250	1.250	5.00	1.181			-8.9		33,700	2		SB-2035TRG		
			1250-S125-07-8T	●	8									33,700	4				
	Long Shank	Standard Pitch	MECXL 0625-S625-07-3T	●	3	0.625	0.625	5.10	2.175	0.236	+16.3	-11.3	Yes	43,300	4	P-37	SB-2042TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
			0750-S750-07-4T	●	4	0.750	0.750	5.50	2.362			-10.9		40,900	4				
			1000-S100-07-5T	●	5	1.000	1.000	6.30				-9.5		36,900	4				
			1250-S125-07-6T	●	6	1.250	1.250	7.90	2.559			-8.9		33,700	4				
mm	Standard Shank	Standard Pitch	MECX 08-S10-07-1T	●	1	8	10	80	16	6	+11.7	-24	Yes	48,100	1	P-37	SB-2035TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
			10-S10-07-1T	●		10			17		+12.8	-18.7		47,100	2				
			12-S12-07-2T	●	2	12	12		18		+14.3	-13.7		46,200	4				
			14-S12-07-2T	●		14					+16.3	-12.1		44,800	3				
			16-S16-07-3T	●	3	16	16	100	20		+16.3	-11.3		43,200	4		SB-2042TRG		
			17-S16-07-3T	●		17					+16.3	-11		42,400	3				
			18-S16-07-3T	●		18					+16.3	-10.9		41,600	3				
			20-S16-07-4T	●	4	20	16	110	20		+16.3	-10.4		40,200	3				
			20-S20-07-4T	●			20				+16.3	-10.4		40,200	4				
			21-S20-07-4T	●		21					+16.3	-10.1		39,500	3				
			25-S20-07-5T	●	5	25	20	120	25		+16.3	-9.7		37,000	3				
			25-S25-07-5T	●			25				+16.3	-9.7		37,000	4				
			26-S25-07-5T	●		26					+16.3	-9.5		36,500	3				
			33-S32-07-6T	●	6	33	32	130	30		+16.3	-8.8		33,100	3				
		Fine Pitch	MECX 16-S16-07-4T	●	4	16	16	100	20	6	+16.3	-11.3	Yes	43,200	4	P-37	SB-2042TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
			20-S16-07-5T	●	5	20		110			+16.3	-10.4		40,200	3				
			20-S20-07-5T	●			20				+16.3	-10.4		40,200	4				
			25-S20-07-7T	●	7	25		120	25		+16.3	-9.7		37,000	3				
			25-S25-07-7T	●			25				+16.3	-9.7		37,000	4				
			32-S32-07-8T	●	8	32	32	130	30		+16.3	-8.9		33,600	4				
	Long Shank	Standard Pitch	MECX 17-S16-130-07-3T	●	3	17	16	130	20	6	+16.3	-11	Yes	42,400	3	P-37	SB-2042TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
			21-S20-140-07-4T	●	4	21	20	140			+16.3	-10.1		39,500	3				
			26-S25-160-07-5T	●	5	26	25	160	25		+16.3	-9.5		36,500	3				

Coat Anti-seize Compound(P-37) thinly on portion of taper and thread prior to installation.
Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
For more details, see "Warning" on page **M115**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MECX (Face Mill)

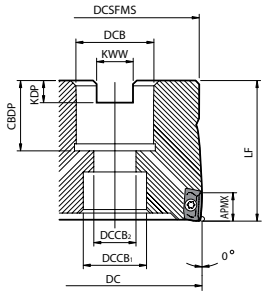


Fig. 1

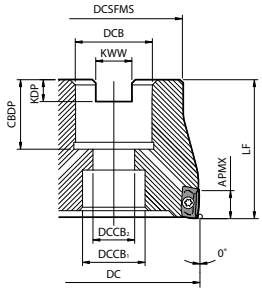


Fig. 2

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										A.R. MAX. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.
		R		DC	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX						
Inch	MECX 1250R-07-8T	●	8	1.250	1.181	0.75	0.630	0.417	1.575	0.807	0.187	0.313	0.236	+7	-8.9	Yes	33,600	0.15	1
	1500R-07-10T	●	10	1.500	1.496										-8.4		30,500	0.25	
	2000R-07-12T	●	12	2.000	1.575		0.646			0.819					-8.3		27,700	0.125	2
	2500R-07-14T	●	14	2.500			0.630								-7.9		24,900	0.50	
mm	MECX 032R-07-8T-M	●	8	32	30	16	14	8.5	40	20	5.5	8.5	6	+7	-8.9	Yes	33,600	0.15	1
	040R-07-10T-M	●	10	40	38	22	18	12		22	6.3	10.4			-8.4		30,500	0.25	

Spare Parts and Applicable Inserts

Unit	Part Number	Spare Parts				Applicable Inserts ➡ M114
		Anti-Seize Compound	Insert Screw	Wrench	Arbor Bolt	
Inch	MECX 1250R-07-8T 1500R-07-10T 2000R-07-12T 2500R-07-14T	P-37	SB-2042TRG	DTM-6	HH3/8-1.25H	BDMT0703...-JT BDMT0703...-JS
mm	MECX 032R-07-8T-M	P-37	SB-2042TRG	DTM-6	HH8x25H	BDMT0703...-JT
	040R-07-10T-M				HH10x30H	BDMT0703...-JS

Coat Anti-seize Compound(P-37) thinly on portion of taper and thread prior to installation.
Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
MECX032R comes with mounting bolt (HH8X25H) and MECX040R comes with mounting bolt (HH10X30H).
Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
For more details, see "Warning" on page **M115**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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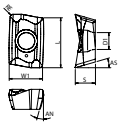
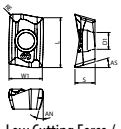
BDMT

Usage Classification							
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel				★	☆	P
	Mold and die steel				★	☆	P
	Austenitic stainless steel		☆		☆	★	M
	Martensitic stainless steel	★				☆	M
	Precipitation hardened stainless steel		☆			★	M
	Gray cast iron			★			K
	Nodular cast iron			★			K
	Non-ferrous metals						N
	Heat-resistant alloy	★				☆	S
	Titanium alloy		☆			★	S
	Hard materials						H

Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)		Carbide					Applicable Toolholder ➡ M112 M113
				S	D1	RE	L	W1	AN	AS	CVD	PVD				
											CA6535	PR1535	PR1810	PR1825	PR1835	
		BDMT 070302ER-JT	2	2.6	2.3	0.2	6.7	4.6	15	16	●	●	●	●	●	MECX...-07-...
		070304ER-JT				0.4					●	●	●	●	●	
		070308ER-JT				0.8					●	●	●	●	●	
	 Low Cutting Force / Stainless Steel	BDMT 070302ER-JS	2	2.6	2.3	0.2	6.7	4.6	15	16	●	●		●	●	MECX...-07-...
		070304ER-JS				0.4					●	●		●	●	
		070308ER-JS				0.8					●	●		●	●	

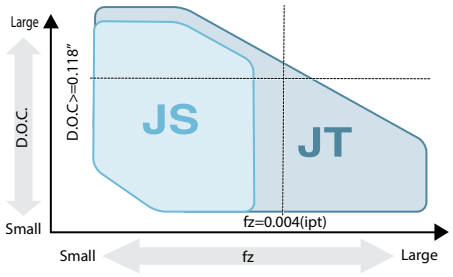
Right-hand Insert Shown

Recommended Cutting Conditions ➡ M115

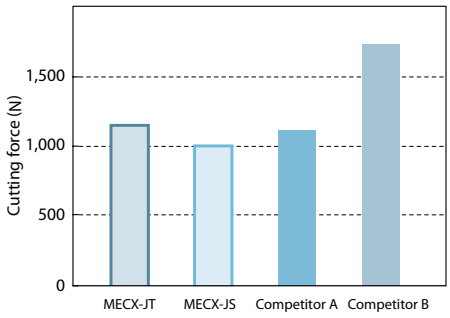
BDMT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Chipbreaker Selection



Cutting Force Comparison (Internal Evaluation)



1045
Vc = 490 sfm
D.O.C. x ae = 0.197"x0.197"
fz = 0.003 ipt

Warning Please observe below precautions fully. Failure to observe the precautions may cause serious damage to human body.

Warning about max. revolution indicated on main body

1. Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter or the body may be damaged even under no load.
2. For actual practical revolution, please set within recommended cutting condition.
3. When using at a higher revolution (over 10,000 RPM), refer to the table to adjust the balance of MECX and suitable arbor.

RPM	Balance quality grade G ISO 1940-1/8821 (JIS B0905)
~20,000	G16
~30,000	G6.3
30,000~	G2.5

Recommended Cutting Conditions

Workpiece Material	fz (ipt)		Recommended Insert Grade Vc (sfm)			
	JS Chipbreaker	JT Chipbreaker	MEGACOAT NANO EX (MEGACOAT NANO)			CVD Coated Carbide
			PR1835 (PR1535)	PR1825	PR1810	CA6535
Carbon Steel	0.0016~**0.0031**~0.0039	0.0024~**0.0039**~0.0047	☆ 390~**590**~820	★ 390~**590**~820	-	-
Alloy Steel	0.0016~**0.0024**~0.0031	0.0024~**0.0031**~0.0039	☆ 330~**520**~720	★ 330~**520**~720	-	-
Mold Steel	0.0016~**0.0024**~0.0031	0.0024~**0.0031**~0.0039	☆ 260~**460**~590	★ 260~**460**~590	-	-
Austenitic Stainless Steel	0.0012~**0.0016**~0.0020	0.0020~**0.0024**~0.0028	★ 330~**520**~660	☆ 330~**520**~660	-	-
Martensitic Stainless Steel	0.0012~**0.0016**~0.0020	0.0020~**0.0024**~0.0039	☆ 490~**660**~820	-	-	★ 590~**790**~980
Precipitation Hardened Stainless Steel	0.0012~**0.0016**~0.0020	0.0020~**0.0024**~0.0039	★ 300~**390**~490	-	-	-
Gray Cast Iron	0.0016~**0.0031**~0.0039	0.0031~**0.0039**~0.0059	-	-	★ 390~**590**~820	-
Nodular Cast Iron	0.0016~**0.0024**~0.0031	0.0031~**0.0039**~0.0047	-	-	★ 330~**490**~660	-
Ni-base Heat Resistant Alloy	0.0012~**0.0016**~0.0020	0.0020~**0.0024**~0.0028	☆ 70~**100**~160	-	-	★ 70~**100**~160
Titanium Alloys	0.0016~**0.0024**~0.0031	0.0031~**0.0039**~0.0047	★ 130~**200**~260	-	-	-

Bold numbers in the table indicate the most recommended values. Adjust cutting speed and feed rate according to the actual machining conditions.
Coolant is recommended for Ni-base heat-resistant alloys and titanium alloys.

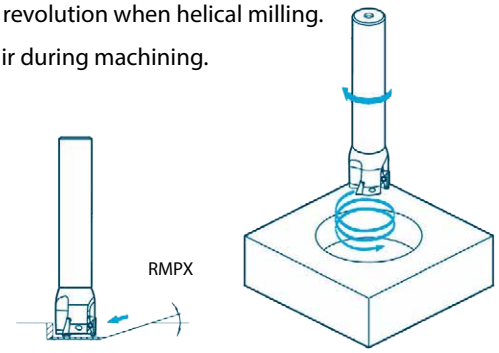
★ : 1st Recommendation ☆ : 2nd Recommendation

Ramping/Helical milling

Ramping angle is recommended under RMPX.

Refer to each tool's cutting performance list for sinking depth per revolution when helical milling.

Use compressed air during machining.



Cutting Dia.	Applicable Inserts	Max. Ramping ngle (RMPX)
ø0.375", ø8mm	BDMT0703 type	Not recommended
ø10mm		1.5°
ø0.500" ø12mm, ø14mm		2°
ø0.625", ø16mm		3°
ø17mm, ø18mm		1.5°
ø0.750", ø20mm		2°
ø21mm		1.8°
ø1.000", ø25mm		1.3°
ø26mm		1.2°
ø1.250", ø32mm		0.8°
ø33mm		0.5°

Guidance of minimum cutting dia. by helical milling

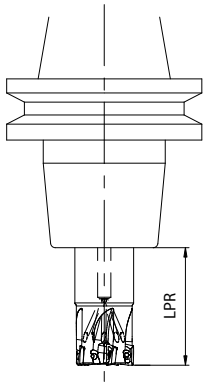
MECX	Cutting Dia.	ø0.375"	ø0.500"	ø0.625"	ø0.750"	ø8mm	ø10mm	ø12mm	ø14mm	ø16mm	ø17mm	ø18mm	ø20mm
BDMT0703..	Min. Cutting Dia.	ø0.512"	ø0.748"	ø0.984"	ø1.260"	Not recommended for helical milling	ø14mm	ø18mm	ø22mm	ø26mm	ø28mm	ø30mm	ø34mm
	Min. Cutting Dia. for Flat Bottom	ø0.630"	ø0.866"	ø1.142"	ø1.378"		ø17mm	ø21mm	ø25mm	ø29mm	ø31mm	ø33mm	ø37mm

MECX	Cutting Dia.	ø21mm	ø25mm	ø26mm	ø32mm	ø33mm
BDMT0703..	Min. Cutting Dia.	ø36mm	ø44mm	ø46mm	ø58mm	ø60mm
	Min. Cutting Dia. for Flat Bottom	ø39mm	ø47mm	ø49mm	ø61mm	ø63mm

MECX End Mill Cutting Performance

Cutting Dia.	Description	Overhang Length LPR (in)	
ø8mm	MECX08-S10-07-1T	0.630	-
ø0.375" ø10mm	MECX0375-S375-07-1T MECX10-S10-07-1T	0.670	-
ø0.500" ø12mm	MECX0500-S500-07-2T MECX12-S12-07-2T	0.709	1.180
ø0.625" ø16mm	MECX0625-S625-07-3T MECX16-S16-07-3T	0.787	1.570
ø0.750" ø20mm	MECX0750-S750-07-4T MECX20-S20-07-4T	0.787	1.570
ø1.000" ø25mm	MECX1000-S100-07-5T MECX25-S25-07-5T	1.000	1.970
ø1.250" ø32mm	MECX1250-S125-07-6T MECX32-S32-07-6T	1.180	1.970

Shape



* Machining with extended Overhang length is not recommended for ø8mm ø0.375", or ø10mm.

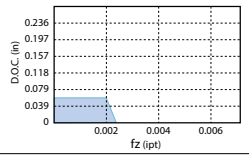
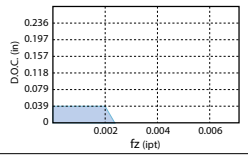
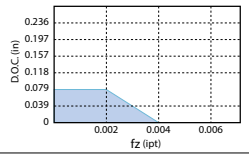
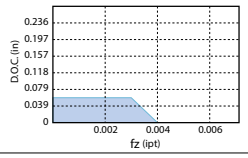
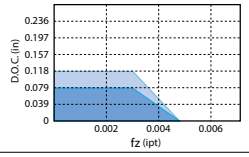
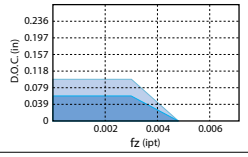
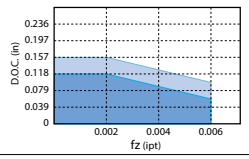
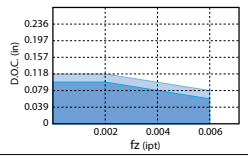
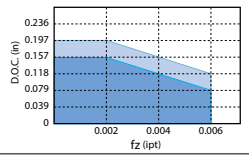
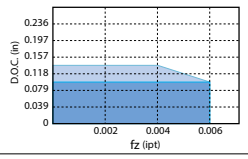
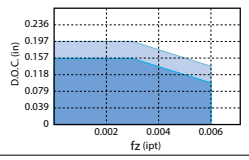
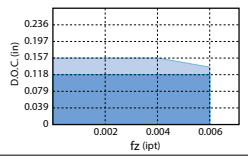
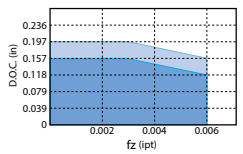
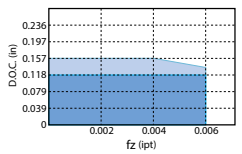
* The cutting performance list shows applicable range of JT chipbreaker with Standard flute-number type.

For multi-edge type, use with 70% or less of D.O.C.

* Cutting conditions of JS chipbreaker

1. For MECX08~MECX12
   Decrease the feed rate by 25% according to cutting capability list.
2. For MECX16 and over
   Decrease the feed rate and D.O.C. by 30% according to cutting capability list.

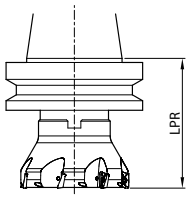
(Vc = 400 sfm Workpiece Material: 1049)

Description	Shouldering (Cutting Width ae=DC/2)	Slotting Ramping and Helical Milling
MECX08-S10-07-1T		
MECX0375-S375-07-1T MECX10-S10-07-1T		
MECX0500-S500-07-2T MECX12-S12-07-2T		
MECX0625-S625-07-3T MECX16-S16-07-3T		
MECX0750-S750-07-4T MECX20-S20-07-4T		
MECX1000-S100-07-5T MECX25-S25-07-5T		
MECX1250-S125-07-6T MECX32-S32-07-6T		

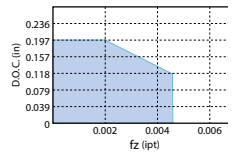
MECX Face Mill Cutting Performance

Cutting Dia.	Description	Overhang Length LPR (in)
ø1.250" ø32mm	MECX1250R-07-8T MECX032R-07-8T-M	3.937
ø1.500" ø40mm	MECX1500R-07-10T MECX040R-07-10T-M	
ø2.000"	MECX2000R-07-12T	
ø2.500"	MECX2500R-07-14T	

Shape



(Vc = 400 sfm Workpiece Material: 1049)

Description	Shouldering (Cutting Width ae=DC/2)
MECX1250R-07-8T MECX1500R-07-10T MECX2000R-07-12T MECX2500R-07-14T MECX032R-07-8T-M MECX040R-07-10T-M	

* Use JT chipbreaker.

* Slotting is not recommended.

High Performance Milling

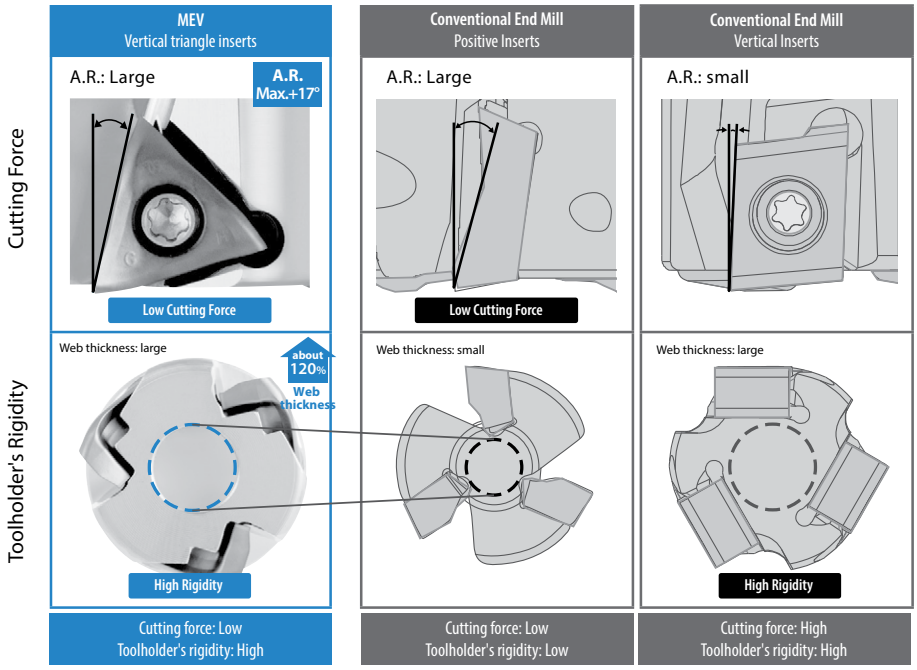
M-THREE (MEV)

Newly Developed Triangular Inserts Provide Low Cutting Forces and Increased Rigidity
High Performance, Economical, and Multi-functional Milling Solutions

1 High performance: low cutting force and high rigidity

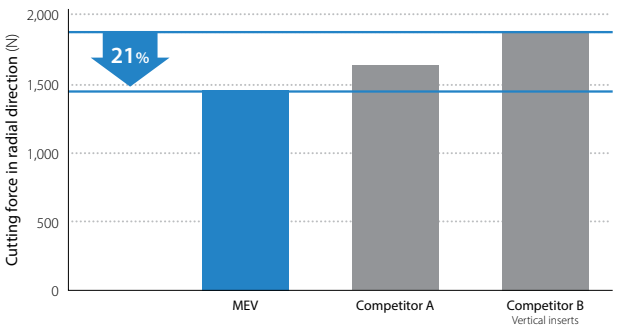
Newly developed vertical triangle inserts with 3 cutting edges for stable machining and reduced chattering

MEV vs Competitor



Keeping the max rake angle at 17°, provides lower cutting forces than the positive insert types of competitors

Cuttting Force Comparison (internal Evaluation)

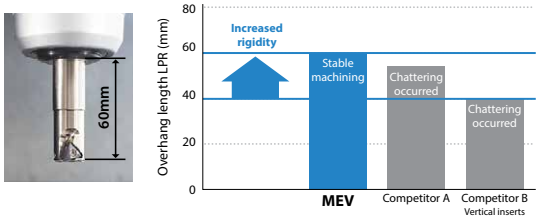


Cutting Conditions: Vc = 655 sfm, D.O.C. × ae = 0.118" × 0.709", fz = 0.004 ipt, Ø0.750" (3 flutes), Dry Workpiece : 4140H

Low cutting force and large optimal web thickness provides excellent chattering resistance

Chattering Resistance Comparison (internal Evaluation)

Shouldering



Cutting Conditions: Vc = 655 sfm, D.O.C. × ae = 0.118" × 0.71", fz = 0.004 ipt, Ø0.750" (3 flutes), Dry Workpiece : 4140H

Slotting

Cutting Conditions: Vc = 655 SFM, D.O.C. = 0.118" (Slotting), fz = 0.004 ipt, Ø0.750" (3 flutes), Dry Workpiece : 4140H

800.823.7284
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1 The economical choice: 3 cutting edge insert with long tool life

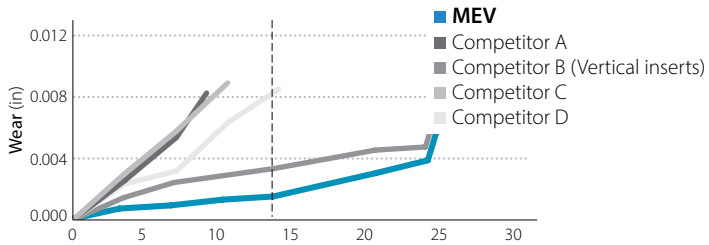
Insert

Unique triangle inserts with 3 cutting edges

PR15-series utilizes excellent MEGACOAT NANO coating technology with wear and adhesion resistance

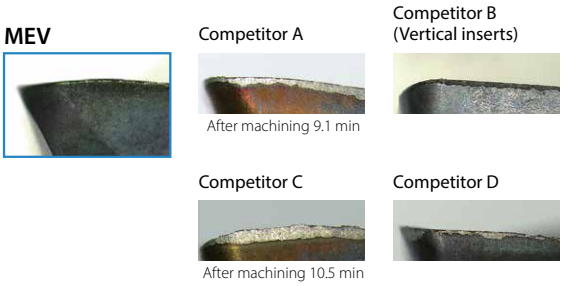
Long Tool Life with Excellent Wear Resistance

Wear resistance comparison (internal evaluation)



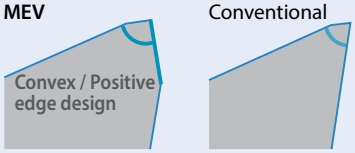
Cutting conditions : Vc = 590 sfm, D.O.C. × ae = 0.118" × 0.394", fz = 0.004 ipt, Ø0.750", Dry
Workpiece : D2 (30~35HS)

Cutting Edge (after machining 14 min)



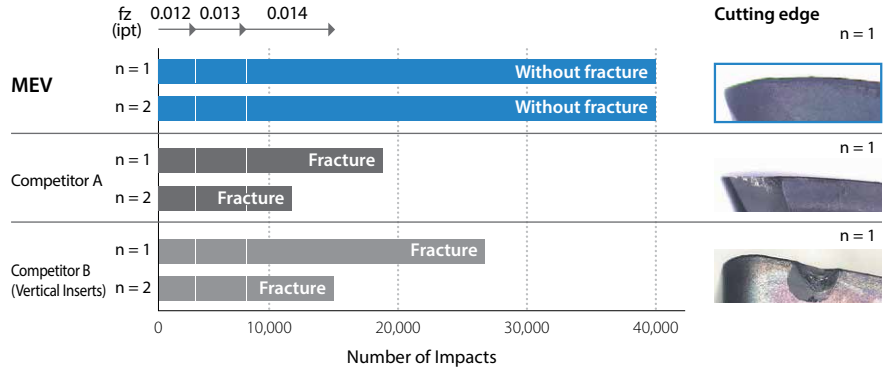
Improved Stability with Superior Fracture Resistance

Cutting edge cross-section



The MEV features a larger cutting edge to increase strength

Wear resistance comparison (internal evaluation)



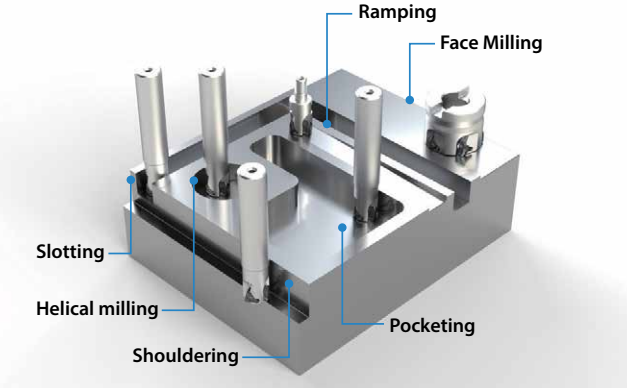
Cutting conditions : Vc = 390 sfm, D.O.C. × ae = 0.079" × 0.393", fz = 0.012" - 0.014" ipt, Ø0.750" (1 Flute), Dry
Workpiece : 4140H

1 Multi-functional: The MEV can perform a wide variety of machining processes

Great performance in shouldering, slotting, and ramping applications (D.O.C. 6mm or less)

Chip Example (Slotting)

Cutting Conditions : Vc = 490 sfm,
D.O.C. = 0.236" (Slotting)
fz = 0.008 ipt, Ø0.750" (3 insert), Dry
Workpice : SS400



MEV (End Mill)

Weldon Shank

Cylindrical Shank

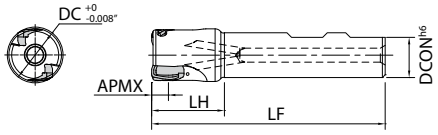


Fig. 1

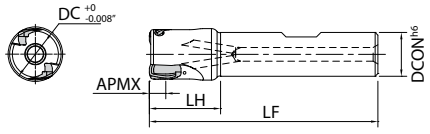


Fig. 2

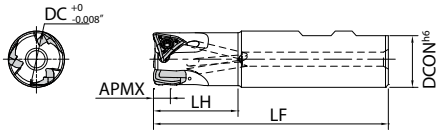


Fig. 3

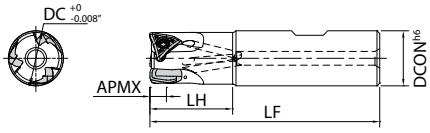


Fig. 4

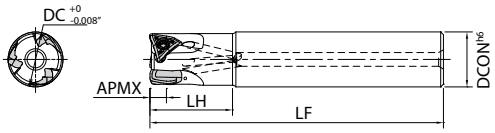


Fig. 5

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts: Anti-Seize Compound	Insert Screw	Wrench	Applicable Inserts ➡ M123
Inch	Weldon	Standard Shank	MEV 0750-W625-06-2T	●	2	0.750	0.625	3.056	1.150	0.236	+17	-38	Yes	32,000	0.1	2	P-37	SB-3076TRP	DTPM-10	TOMT0605...-GM TOMT0605...-SM
			0750-W750-06-2T	●	2		0.750	3.229							0.2	4		Recommended tightening torque for insert screw 2.0N-m		
			1000-W750-06-3T	●	3	1.000		3.231	1.200			-37		25,000	0.2	2				
			1000-W100-06-3T	●	3		1.000	3.737	1.400						0.3	3				
			1250-W100-06-4T	●	4	1.250		3.731	1.450					20,000	0.4	1				
			1250-W125-06-4T	●	4		1.250	3.987	1.650			-35			0.5	3				
			1500-W125-06-5T	●	5	1.500		4.331	2.050					16,000	0.7	1				
	Cylindrical	Long Shank	MEV 0750-S750-6-06-2T	●	2	0.750	0.750	6.000	1.600	0.236	+17	-38	Yes	32,000	0.3	5	P-37	SB-3076TRP	DTPM-10	TOMT0605...-GM TOMT0605...-SM
			1000-S100-7-06-2T	●	2	1.000	1.000	7.000	2.000			-37		25,000	0.6	5		Recommended tightening torque for insert screw 2.0N-m		
			1000-S100-7-06-3T	●	3										0.6	5				
			1250-S125-8-06-4T	●	4	1.250	1.250	8.000	2.600			-35		20,000	1.1	5				

Max. revolution : When running end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MEV (End Mill)

Cylindrical Shank

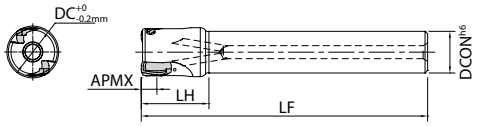


Fig. 1

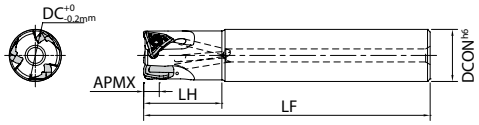


Fig. 2

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts M123
mm	Cylindrical	Standard Shank	MEV 20-S16-06-2T	●	2	20	16	110	26	6	+17	-38	Yes	32,000	0.2	1	P-37	SB-3076TRP	DTPM-10	TOMT0605...-GM TOMT0605...-SM
			20-S20-06-2T	●	2		20		30						0.2	2		Recommended tightening torque for insert screw 2.0N·m		
			20-S20-06-3T	●	3										0.2	2				
			22-S20-06-3T	●	3	22			26			-37		29,000	0.2	1				
			25-S20-06-3T	●	3	25		120	29					25,000	0.3	1				
			25-S25-06-2T	●	2		25		32						0.4	2				
			25-S25-06-3T	●	3										0.4	2				
			28-S25-06-3T	●	3	28			29			-36		23,000	0.4	1				
			30-S25-06-4T	●	4	30		130	32					21,500	0.5	1				
			32-S25-06-4T	●	4	32								20,000	0.5	1				
			32-S32-06-3T	●	3		32		40						0.7	2				
			32-S32-06-4T	●	4										0.7	2				
			40-S32-06-5T	●	5	40		150	50					16,000	1	1				
			50-S32-06-5T	●	5	50		120	40		+16			13,000	0.9	1				
		Long Shank	MEV 20-S18-06-150-2T	●	2	20	18	150	30	6	+17	-38	Yes	32,000	0.3	1	P-37	SB-3076TRP	DTPM-10	TOMT0605...-GM TOMT0605...-SM
			20-S18-06-150-3T	●	3											1		Recommended tightening torque for insert screw 2.0N·m		
			20-S20-06-150-2T	●	2		20		40							2				
			20-S20-06-150-3T	●	3											2				
			25-S25-06-170-2T	●	2	25	25	170	50			-37		25,000	0.6	2				
			25-S25-06-170-3T	●	3											2				
			32-S32-06-200-2T	●	2	32	32	200	65			-36		20,000	1.1	2				
			32-S32-06-200-3T	●	3							-35				2				

Max. revolution : When running end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

MEV (Face Mill)

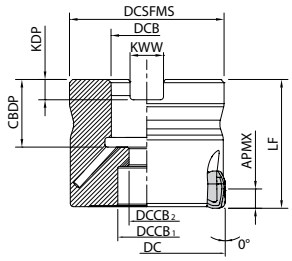


Fig. 1

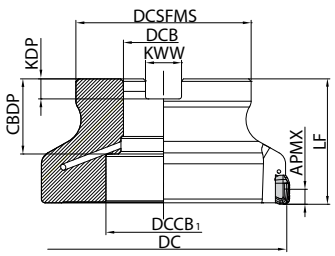


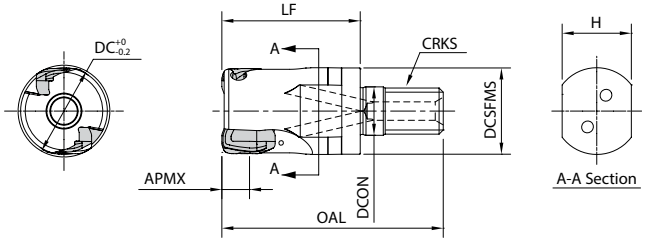
Fig. 2

Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts				Applicable Inserts M123
			R		DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX							Anti-Seize Compound	Arbor Bolt	Insert Screw	Wrench	
Inch	Inch Bore Dia.	MEV 1500R-06-5T	●	5	1.500	1.457	0.750	0.669	0.433	1.575	0.750	0.187	0.312	0.236	+17	-35	Yes	16,000	0.2	1	P-37	HH3/8-1.25	SB-3076TRP	DTPM-10	TOMT0605..-GM TOMT0605..-SM
		2000R-06-6T	●	6	2.000	1.811									+16			12,500	0.4	1					
		2500R-06-6T	●	6	2.500	1.969												10,000	0.6	1					
mm	Inch Bore Dia.	MEV 080R-06-7T	●	7	80	60	1.000"	20	13	50	1.063"	0.236"	0.375"	6	+15	-35	Yes	7,900	1.1	1	P-37	HH12X35	SB-3076TRP	DTPM-10	TOMT0605..-GM TOMT0605..-SM
		100R-06-9T	●	9	100	70	1.250"	46	-	63	1.339"	0.315"	0.500"		+15	-35		6,300	1.4	2		-			
	Metric Bore Dia.	MEV 032R-06-4T-M	●	4	32	30	16	13.5	9	35	19	5.6	8.4		+17	-36		20,000	0.1	1		HH8X25			
		040R-06-5T-M	●	5	40	38	16	15	9	40	19	5.6	8.4		+17	-36		16,000	0.2	1		HH8X25			
		050R-06-5T-M	●		50	48	22	18	11	40	21	6.3	10.4		+16	-36		13,000	0.4	1		HH10X30			
		063R-06-6T-M	●	6	63	48	22	18	11	40	21	6.3	10.4		+16	-35		10,000	0.6	1		HH10X30			
		080R-06-7T-M	●	7	80	60	27	20	13	50	24	7	12.4		+15	-35		7,900	1.1	1		HH12X35			
		100R-06-9T-M	●	9	100	70	32	46	-	50	30	8	14.4		+15	-35		6,300	1.4	2		-			

Max. revolution : When running end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
Recommended tightening torque for insert screw 2.0N·m

MEV (Modular Head)



Toolholder Dimensions

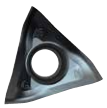
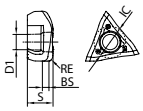
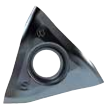
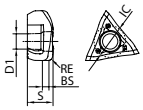
Unit	Part Number	Std. Item	No. of Inserts	Dimensions								A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts M123
				DC	DCON	DCSFMS	OAL	LF	APMX	CRKS	H					Anti-Seize Compound	Insert Screw	Wrench	
mm	MEV 20-M10-06-2T	●	2	20	10.5	18.7	48	30	6	M10x1.5	15	+17	-38	Yes	32,000	P-37	SB-3076TRP	DTPM-10	TOMT0605...-GM TOMT0605...-SM
	20-M10-06-3T	●	3														Recommended tightening torque for insert screw 2.0N·m		
	25-M12-06-3T	●		25	12.5	23	56	35		M12x1.75	19		-37		25,000				
	32-M16-06-4T	●	4	32	17	30	62	40		M16x2.0	24		-36		20,000				

Max. revolution : When running end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
See page **M324** for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

TOMT

Usage Classification								
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel			★	☆	P
	Mold and die steel			★	☆	
	Austenitic stainless steel			☆	★	M
	Martensitic stainless steel	★			☆	
	Precipitation hardened stainless steel				★	
	Gray cast iron		★			K
	Nodular cast iron		★			
	Non-ferrous metals					N
	Heat-resistant alloy	★			☆	S
	Titanium alloy				★	
	Hard materials					H

Insert		Part Number	No. of Edges	Dimensions (mm)					Carbide				Applicable Toolholder ⇒ M120~M122
				IC	S	D1	RE	BS	CVD	PVD			
									CA6535	PR1510	PR1525	PR1535	
	 General purpose	TOMT 060504ER-GM	3	7.2	5.7	3.4	0.4	1.9	●	●	●	●	MEV...-06-…
		TOMT 060508ER-GM					0.8	1.5	●	●	●	●	
	 Low cutting force	TOMT 060508ER-SM	3	7.2	5.7	3.4	0.8	1.5	●		●	●	MEV...-06-…

Right-hand Insert Shown

Recommended Cutting Conditions ⇒ M124

TOMT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed (fz: ipt)	Recommended Insert Grade (Vc: sfm)			
			MEGACOAT NANO			CVD Coated Carbide
			PR1535	PR1525	PR1510	CA6535
GM	Carbon steel	0.003~**0.006**~0.010	☆ 390~**590**~820	★ 390~**590**~820	-	-
	Alloy steel	0.003~**0.006**~0.008	☆ 330~**520**~720	★ 330~**520**~720	-	-
	Mold steel	0.003~**0.005**~0.008	☆ 260~**460**~590	★ 260~**460**~590	-	-
	Austenitic stainless steel	0.003~**0.005**~0.006	☆ 330~**520**~660	☆ 330~**520**~660	-	-
	Martensitic stainless steel	0.003~**0.005**~0.008	☆ 490~**660**~820	-	-	★ 590~**790**~980
	Precipitation hardened stainless steel	0.003~**0.005**~0.008	★ 300~**390**~490	-	-	-
	Gray cast iron	0.003~**0.007**~0.010	-	☆ 390~**590**~820	★ 390~**590**~820	-
	Nodular cast iron	0.003~**0.006**~0.008	-	☆ 330~**490**~660	★ 330~**490**~660	-
	Ni-base heat-resistant alloy	0.003~**0.005**~0.006	☆ 70~**100**~160	-	-	★ 70~**100**~160
	Titanium alloy	0.003~**0.006**~0.008	☆ 130~**200**~260	-	☆ 100~**160**~230	-
SM	Carbon steel	0.003~**0.006**~0.008	☆ 390~**590**~820	★ 390~**590**~820	-	-
	Alloy steel	0.003~**0.005**~0.007	☆ 330~**520**~720	★ 330~**520**~720	-	-
	Mold steel	0.003~**0.004**~0.006	☆ 260~**460**~590	★ 260~**460**~590	-	-
	Austenitic stainless steel	0.003~**0.004**~0.006	★ 330~**520**~660	☆ 330~**520**~660	-	-
	Martensitic stainless steel	0.003~**0.004**~0.006	☆ 490~**660**~820	-	-	★ 590~**790**~980
	Precipitation hardened stainless steel	0.003~**0.004**~0.006	☆ 300~**390**~490	-	-	-
	Ni-base heat-resistant alloy	0.003~**0.004**~0.005	☆ 70~**100**~160	-	-	★ 70~**100**~160
	Titanium alloy	0.003~**0.005**~0.006	★ 130~**200**~260	-	-	-

The number in **bold font** is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
Cutting with coolant is recommended for ni-base heat resistant alloy and titanium alloy.
Cutting with coolant is recommended to get good finishing.

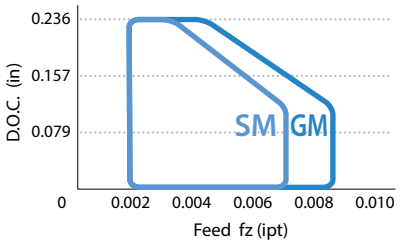
★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Chipbreaker Range

GM type for General purpose: Edge shape optimized for various machining applications
SM type with low cutting force design: Sharp cutting and large rake angle

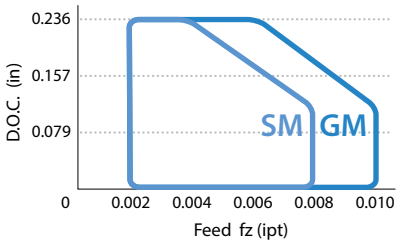
Cutter Dia. : Ø0.750"~Ø2.000" (Ø20mm~Ø50mm)

Shouldering



Cutting conditions : Vc = 490 sfm, ae = DC/2, Workpiece : 1049

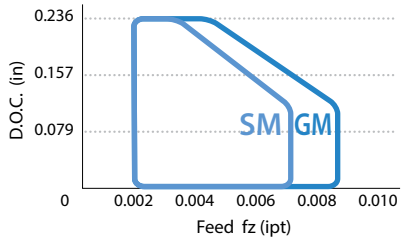
Slotting



Cutting conditions : Vc = 490 sfm, ae = DC, Workpiece : 1049

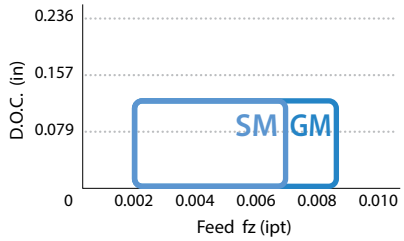
Cutter Dia. : Ø2.500"~Ø4.000" (Ø63mm~Ø100mm)

Shouldering (Width of cut ae ≤ DC/4)



Cutting Conditions : Vc = 490 sfm, ae = DC/4, Workpiece : 1049

Shouldering (Width of cut ae ≥ DC/4), Slotting



Cutting conditions : Vc = 490 sfm, ae = DC, Workpiece : 1049

800.823.7284
www.kyoceraprecisiontools.com

Ramping Reference Data

	Cutter Dia. DC (in)	0.750"	-	1.000"	-	-	1.250"	1.500"	2.000"
Description	Cutter Dia. DC (mm)	20mm	22mm	25mm	28mm	30mm	32mm	40mm	50mm
MEV··· -06- ···	Max. Ramping Angle RMPX	1.00°	0.80°	0.65°	0.60°	0.55°	0.50°	0.40°	0.30°
	tan RMPX	0.017	0.014	0.011	0.010	0.010	0.009	0.007	0.005

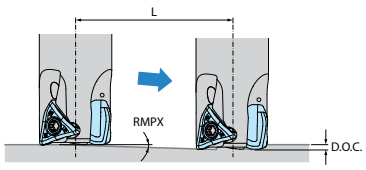
Decrease ramping angle if chips become excessively long.

Guide for Ramping

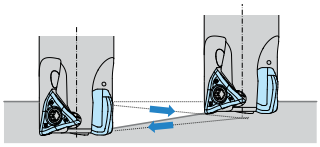
Ramping angle should be RMPX (Maximum ramping angle) or under in the above cutting conditions.
Feed rate should be 70% or under of the above cutting conditions.

Formula of the cutting length (L) at Max. ramping angle

$$L = \frac{ap}{\tan RMPX}$$



For two-way ramping, the ramping angle should be half of RMPX.

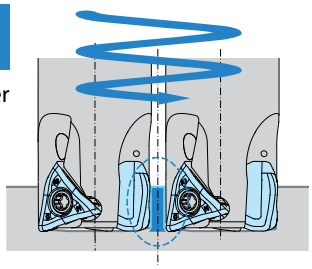


Guide for Helical milling

For helical milling, use between Min. cutting dia. and Max. cutting dia.

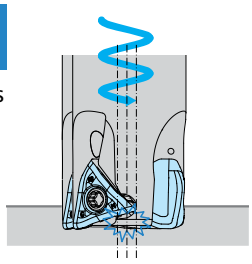
⃠Exceeding Max. Cutting Dia.

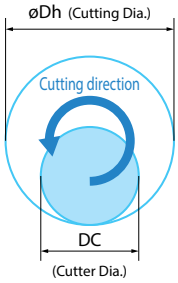
Center core part remains after machining



⃠Under Min. Cutting Dia.

Center core part interferes with toolholder



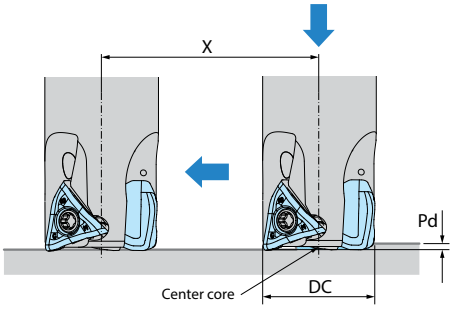


Unit : inch

Description	Min. Cutting Dia.	Max. Cutting Dia.
MEV··· -06- ···	2×DC–0.197"	2×DC–0.079"

For helical milling, stay within Min. cutting dia. and Max. cutting dia. Keep machine depth (h) per rotation less than max. D.O.C. (S) in the cutter dimensions chart.
Use caution to eliminate incidences caused by producing long chips.

Guide for Drilling



Unit : in

Description	Max. Cutting Depth Pd	Min. Cutting Length X for Flat Bottom Surface
MEV··· -06- ···	0.010"	DC–0.118"

It is recommended to reduce feed by 25% of recommendation until the center core is removed when traversing after drilling. Axial feed rate recommendation per revolution is f < 0.004 ipr.

MEWH (End Mill)

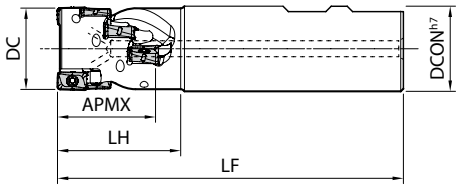


Fig. 1

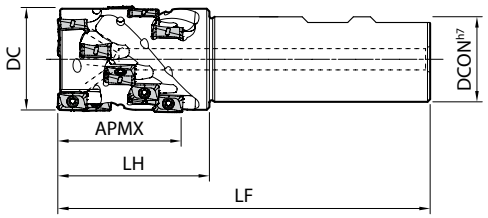


Fig. 2

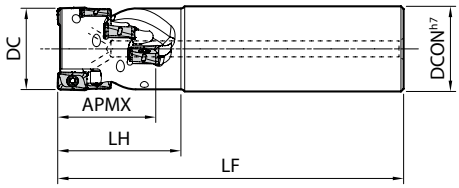


Fig. 3

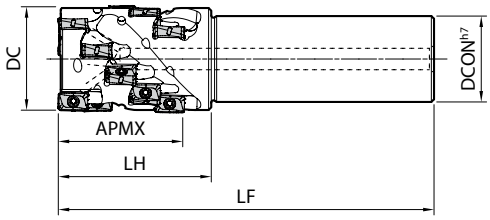


Fig. 4

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions DC	Dimensions DCON	Dimensions LF	Dimensions LH	Dimensions APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts ➡ M128 M93
Inch	MEWH 1000-W100-10-3-2T	●	6	2	3	1.000	1.000	3.806	1.523	1.102	+13	-20	Yes	1	P-37	SB-3065TRP	DTPM-8	LOMU1004...
	1250-W125-10-4-2T	●	8		4	1.250	1.250	4.161	1.878	1.456				1		Recommended tightening torque for insert clamp 1.2N·m		
	1500-W125-10-5-3T	●	15	3	5	1.500		4.610	2.244	1.811				2				
	1500-W150-10-5-3T	●					1.500	4.957	2.267					2				
	MEWH 1500-W125-15-4-2T	●	2	4	8	1.500	1.250	4.846	2.480	2.086	+13	-20	Yes	2	P-37	SB-4090TRP	DTPM-15	LOMU1505...
	2000-W150-15-4-3T	●	3		12	2.000	1.500	5.252						2		Recommended tightening torque for insert clamp 3.5N·m		
mm	MEWH 025-S25-10-3-2T	●	6	2	3	25	25	120	37	28	+13	-20	Yes	3	P-37	SB-3065TRP	DTPM-8	LOMU1004...
	032-S32-10-4-2T	●	8		4	32	32	130	46	37				3		Recommended tightening torque for insert clamp 1.2N·m		
	040-S32-10-5-2T	●	10		5	40		140	57	46				4				
	040-S32-10-5-3T	●	15	3										4				
	MEWH 040-S32-15-4-2T	●	8	2	4	40	32	160	63	53	+13	-20	Yes	4	P-37	SB-4090TRP	DTPM-15	LOMU1505...
	050-S42-15-4-2T	●				50	42							4		Recommended tightening torque for insert clamp 3.5N·m		
	050-S42-15-4-3T	●	12	3										4				

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
Aluminum machining is not recommended (AM chipbreaker is not available for MEWH)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MEWH (Shell Mill)

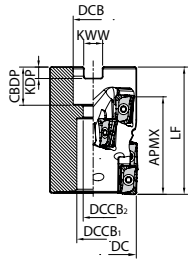


Fig. 1

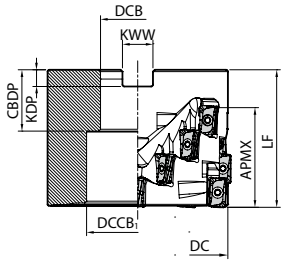


Fig. 2

Toolholder Dimensions

Unit	Part Number	Std. Item R	No. of Inserts	No. of Flutes	No. of Stages	Dimensions DC	DCB	DCB1	DCB2	LF	CBDP	KDP	KWW	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts: Anti-Seize Compound	Arbor Bolt	Insert Screw	Wrench	Applicable Inserts (M128 M93)
Inch	MEWH 2000R-15-4-3T	●	12	3	4	2.00	0.75	0.669	0.433	2.756	0.750	0.187	0.312	2.086	+13	-20	No	1	P-37	HH3/8-1.25	SB-4090TRP	DTPM-15	LOMU1505..
	3000R-15-4-4T	●	16	4	4	3.00	1.00	0.866	0.551		1.063	0.236	0.381					1		HH1/2-1.25	Recommended tightening torque for insert clamp 3.5N·m		
mm	MEWH 040R-10-4-3T-M	●	12	3	4	40	16	15	9	53	19	5.6	8.4	37	+13	-20	No	1	P-37	HH8X25	SB-3065TRP	DTPM-8	LOMU1004...
	050R-10-5-3T-M	●	15		5	50	22	18	11	64	21	6.3	10.4	46				1		HH10X30	Recommended tightening torque for insert clamp 1.2N·m		
	MEWH 050R-15-4-3T-M	●	12	3	4	50	22	18	11	70	21	6.3	10.4	53	+13	-20	No	1	P-37	HH10X30	SB-4090TRP	DTPM-15	LOMU1505...
	063R-15-3-3T-M	●	9		3	63	27	20	13	58	24	7	12.4	41				1		HH12X35	Recommended tightening torque for insert clamp 3.5N·m		
	080R-15-4-4T-M	●	16	4	4	80	32	26	18	70	28	8	14.4	53				1		HH16X45			
	100R-15-4-5T-M	●	20	5		100	40	55	-	74	33	9	16.4					2		-			

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
Aluminum machining is not recommended (AM chipbreaker is not available for MEWH)

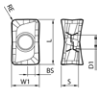
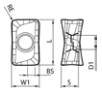
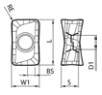
Guidance of applicable inserts for MEWH

Insert Location	Toolholder Part Number										
	MEWH...10...					MEWH...15...					
	Corner-R(RE) (mm)					Corner-R(RE) (mm)					
Bottom inserts	0.4	0.8	1.2	1.6	2.0	0.4	0.8	1.0	1.2	1.6	2.0
*Middle inserts	0.4 / 0.8	0.4 / 0.8	0.4 / 0.8	0.4	0.4	0.4~1.6	0.4~1.6	0.4~1.6	0.4~1.6	0.4~1.6	0.4~1.6

* For middle inserts, it is not recommended to use the insert with larger corner-R(RE) than shown in the table, because it will make finished surface uneven.

LOMU

Usage Classification										
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel				☆			★	☆	P
	Mold and die steel				☆			★	☆	
	Austenitic stainless steel					☆		☆	★	M
	Martensitic stainless steel	★							☆	
	Precipitation hardened stainless steel					☆			★	
	Gray cast iron			☆			★			K
	Nodular cast iron			☆			★			
	Non-ferrous metals									N
	Heat-resistant alloy	★							☆	S
	Titanium alloy					☆			★	
	Hard materials (≤ 60 HRC)		★							H

Insert		Part Number		Dimensions (mm)						Carbide								Applicable Toolholder ⇨ M126 M127 M84~M90
				S	D1	RE	L	W1	BS	CVD	PVD							
										CA6535	PR0155	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835	
	 General Purpose	LOMU 100404ER-GM		4	3.4	0.4	10.9	6.6	2.1	●		△	●	●	●	●	●	MEWH...-10-.. MEW...-10-...
		LOMU 100408ER-GM				0.8			1.7	●		△	●	●	●	●	●	
		LOMU 100412ER-GM				1.2			1.3	●		△	●	●	●	●	●	
		LOMU 100416ER-GM				1.6			1	●		△	●	●	●	●	●	
		LOMU 100420ER-GM				2			1	●		△	●	●	●	●	●	
		LOMU 150504ER-GM		5.6	4.8	0.4	15.7	9.2	2.2	●		△	●	●	●	●	●	MEWH...-15-... MEW...-15-...
		LOMU 150508ER-GM				0.8			1.8	●		△	●	●	●	●	●	
		LOMU 150510ER-GM				1			1.6				●			●		
		LOMU 150512ER-GM				1.2			1.4	●		△	●	●	●	●	●	
		LOMU 150516ER-GM				1.6			1	●		△	●	●	●	●	●	
		LOMU 150520ER-GM				2			0.6	●		△	●	●	●	●	●	
	 Low Cutting Force	LOMU 100408ER-SM		4	3.4	0.8	10.9	6.6	1.7	●		△	●	●	●	●	●	MEWH...-10-... MEW...-10-...
		LOMU 150508ER-SM		5.6	4.8	0.8	15.7	9.2	1.8	●		△	●	●	●	●	●	MEWH...-15-... MEW...-15-...
	 Tough Edge	LOMU 100408ER-GH		4	3.4	0.8	10.9	6.6	1.7	●	●	△	●	●	●	●	●	MEWH...-10-... MEW...-10-...
		LOMU 150508ER-GH		5.6	4.8	0.8	15.7	9.2	1.8	●	●	△	●	●	●	●	●	MEWH...-15-... MEW...-15-...

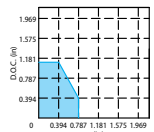
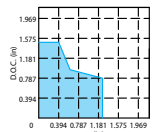
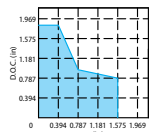
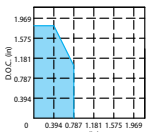
Right-hand Insert Shown

Recommended Cutting Conditions ⇨ M129

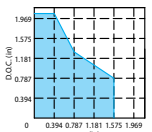
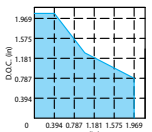
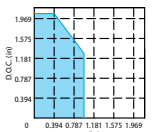
Cutting Performance

LOMU Inserts are sold in 10 piece boxes

LOMU1004 Inserts

Cutting Dia.	Description	2 Flute D.O.C. x ae	Description	3 Flute D.O.C. x ae
ø1.000" ø25mm	MEWH1000 -W100-10-3-2T MEWH025 -S25-10-3-2T		-	-
ø1.250" ø32mm	MEW1250 -W125-10-4-2T MEWH032 -S32-10-4-2T		-	-
ø1.500" ø40mm	MEWH1500 -W125-10-5-2T MEWH040 -S32-10-5-2T		MEWH1500 -W150-10-5-3T MEWH040 -S32-10-5-3T	

LOMU1505 Inserts

Cutting Dia.	Description	2 Flute D.O.C. x ae	Description	3 Flute D.O.C. x ae
ø1.500" ø40mm	MEWH1500 -W125-15-4-2T MEWH040 -S32-15-4-2T		-	-
ø2.000" ø50mm	MEWH2000 -W150-15-4-2T MEWH050 -S42-15-4-2T		MEWH2000 -W150-15-4-3T MEWH050 -S42-15-4-3T	

Cutting Conditions>
Vc = 400 sfm
fz = 0.003~0.005 ipt
GM Chipbreaker
Workpiece: 4137
Overhang Length: End mill overhang length is "LH" of the dimension list

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)			
		Toolholder Part Number	MEGACOAT NANO EX (MEGACOAT NANO)			CVD Carbide
		End Mill / Shell Mill	PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	CA6535
		MEWH1000..~MEWH4000.. MEWH025..~MEWH050..				
GM	Carbon Steel	0.002~**0.004**~0.008	☆ 390~**590**~820	★ 390~**590**~820	-	-
	Alloy Steel	0.002~**0.004**~0.006	☆ 330~**520**~720	★ 330~**520**~720	-	-
	Mold Steel	0.002~**0.003**~0.005	☆ 260~**460**~590	★ 260~**460**~590	-	-
	Austenitic Stainless Steel	0.002~**0.003**~0.005	☆ 330~**520**~660	☆ 330~**520**~660	-	-
	Martensitic Stainless Steel	0.002~**0.003**~0.004	☆ 490~**660**~820	-	-	★ 590~**790**~980
	Precipitation Hardened Stainless Steel	0.002~**0.003**~0.004	★ 300~**390**~490	-	-	-
	Gray Cast Iron	0.002~**0.004**~0.007	-	-	★ 390~**590**~820	-
	Nodular Cast Iron	0.002~**0.003**~0.005	-	-	★ 330~**490**~660	-
	Ni-base Heat Resistant Alloy	0.002~**0.003**~0.004	☆ 70~**100**~160	-	-	★ 70~**100**~160
	Titanium Alloys	0.002~**0.003**~0.005	☆ 130~**200**~260	-	☆ 100~**160**~230	-
SM	Carbon Steel	0.002~**0.004**~0.007	☆ 390~**590**~820	★ 390~**590**~820	-	-
	Alloy Steel	0.002~**0.003**~0.005	☆ 330~**520**~720	★ 330~**520**~720	-	-
	Mold Steel	0.002~**0.003**~0.005	☆ 260~**460**~590	★ 260~**460**~590	-	-
	Austenitic Stainless Steel	0.002~**0.003**~0.005	★ 330~**520**~660	☆ 330~**520**~660	-	-
	Martensitic Stainless Steel	0.002~**0.003**~0.004	☆ 490~**660**~820	-	-	★ 590~**790**~980
	Precipitation Hardened Stainless Steel	0.002~**0.003**~0.004	☆ 300~**390**~490	-	-	-
	Ni-base Heat Resistant Alloy	0.002~**0.003**~0.004	☆ 70~**100**~160	-	-	★ 70~**100**~160
	Titanium Alloys	0.002~**0.003**~0.005	★ 130~**200**~260	-	☆ 100~**160**~230	-
GH	Carbon Steel	0.002~**0.004**~0.008	☆ 390~**590**~820	★ 390~**590**~820	-	-
	Alloy Steel	0.002~**0.004**~0.006	☆ 330~**520**~720	★ 330~**520**~720	-	-
	Mold Steel	0.002~**0.003**~0.005	☆ 260~**460**~590	★ 260~**460**~590	-	-
	Austenitic Stainless Steel	0.002~**0.003**~0.005	☆ 330~**520**~660	☆ 330~**520**~660	-	-
	Martensitic Stainless Steel	0.002~**0.003**~0.004	☆ 490~**660**~820	-	-	☆ 590~**790**~980
	Precipitation Hardened Stainless Steel	0.002~**0.003**~0.004	☆ 300~**390**~490	-	-	-
	Gray Cast Iron	0.002~**0.004**~0.008	-	-	☆ 390~**590**~820	-
	Nodular Cast Iron	0.002~**0.003**~0.006	-	-	☆ 330~**490**~660	-
	Ni-base Heat Resistant Alloy	0.002~**0.003**~0.004	☆ 70~**100**~160	-	-	☆ 70~**100**~160
	Titanium Alloys	0.002~**0.003**~0.005	☆ 130~**200**~260	-	☆ 100~**160**~230	-

The number in **bold font** is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

★ : 1st Recommendation ☆ : 2nd Recommendation

Coolant is recommended for ni-base heat resistant alloy and titanium alloy.

MECH (Helical End Mill, with coolant hole for bottom insert)

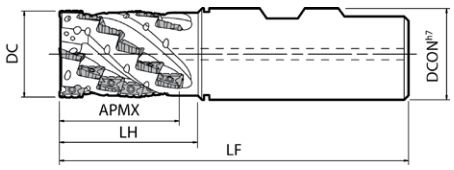


Fig. 1

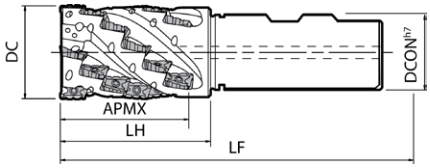


Fig. 2

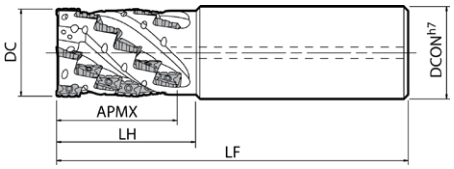


Fig. 3

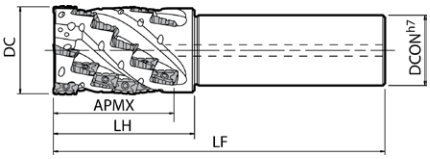


Fig. 4

Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts ➡ M132
Inch	Weldon Shank	MECH 1000-W100-11-4-2T	●	8	2	4	1.00	1.00	4.17	1.81	1.46	+21	-10	No	2	P-37	SB-2555TRG	DTM-8	BDMT11T3...-N2 + BDMT11T3...-N3
		1250-W125-11-5-2T	●	10		5	1.25	1.25	4.52	2.17	1.81		-9		2				
		1250-W125-11-5-4T	●	20	4										2				
		1500-W125-11-6-4T	●	24		6	1.50		4.90	2.52	2.16	+23	-8		2				
		1500-W150-11-6-4T	●						5.28						1				
		2000-W150-11-7-4T	●	28		7	2.00	1.50	5.73	2.95	2.52		-7		2				
		2000-W1500-11-7-6T	●	42	6										2				
		MECH 1500-W125-17-4-2T	●	8	2	4	1.50	1.25	5.26	2.87	2.32	+19	-7	No	2	P-37	SB-4070TRN	DTM-15	BDMT1704...-N3 + BDMT1704...-N4
		1500-W150-17-4-2T	●					1.50	5.64						1				
		2000-W1500-17-5-4T	●	20	4	5	2.00		6.26	3.46	2.91				2				
mm	Cylindrical Shank	MECH 025-S25-11-4-2T	●	8	2	4	25	25	120	46	37	+21	-10	Yes	3	P-37	SB-2555TRG	DTM-8	BDMT11T3...-N2 + BDMT11T3...-N3
		032-S32-11-5-2T	●	10		5	32	32	140	55	46		-9		3				
		032-S32-11-5-4T	●	20	4										3				
		040-S32-11-6-4T	●	24		6	40		150	64	55	+23	-8		4				
		040-S42-11-6-4T	●					42	160						3				
		050-S42-11-7-4T	●	28		7	50		172	75	64		-7		4				
		050-S42-11-7-6T	●	42	6										4				
		MECH 040-S32-17-4-2T	●	8	2	4	40	32	160	73	59	+19	-7	Yes	4	P-37	SB-4070TRN	DTM-15	BDMT1704...-N3 + BDMT1704...-N4
		040-S42-17-4-2T	●					42	170						3				
		050-S42-17-5-4T	●	20	4	5	50		185	88	74		-6		4				

For installation of notched insert, see page **M134**.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MECH (Shell Mill, without coolant hole)

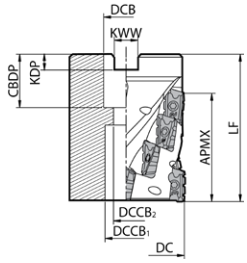


Fig. 1

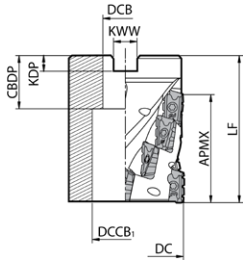


Fig. 2

Toolholder Dimensions

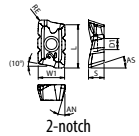
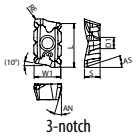
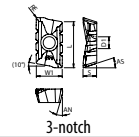
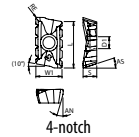
Unit		Part Number	Std. Item R	No. of Inserts	No. of Flutes	No. of Stages	Dimensions DC	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts: Anti-Seize Compound	Arbor Bolt	Insert Screw	Wrench	Applicable Inserts ➔ M132
Inch	Inch Bore	MECH 2000R-11-5-6T	●	30	6	5	2.00	0.75	0.63	0.417	2.480	0.750	0.197	0.313	1.811	+23	-8	No	1	P-37	HH3/8-1.25	SB-2555TRG	DTM-8	BDMT11T3...-N2 + BDMT11T3...-N3
		2000R-17-2-4T	●	8	4	2					2.047				1.181	+19	-7				HH3/8-1.25	SB-4070TRN	DTM-15	BDMT1704...-N3 + BDMT1704...-N4
		2000R-17-4-4T	●	16	4	4					3.070				2.322									
mm	Inch Bore	MECH 063R-17-3-4T	●	12	4	3	63	1.00"	20	14	70	1.024"	0.236"	0.375"	45	+19	-7	No	1	P-37	HH12X35	SB-4070TRN	DTM-15	BDMT1704...-N3 + BDMT1704...-N4
		080R-17-4-6T	●	24	6	4	80	1.25"	26	18	85	1.260"	0.315"	0.500"	59				1		HH16X45			
		100R-17-4-6T	●				100	1.50"	56	-		1.496"	0.394"	0.625"					2		-			
	Metric Bore Dia.	MECH 040R-11-4-4T-M	●	16	4	4	40	16	15	9	50	19	5.6	8.4	37	+23	-8	No	1	P-37	HH8X25	SB-2555TRG	DTM-8	BDMT11T3...-N2 + BDMT11T3...-N3
		050R-11-5-6T-M	●	30	6	5	50	22	18	11	63	21	6.3	10.4	46				1		HH10X30			
		MECH 050R-17-2-4T-M	●	8	4	2	50	22	18	11	52	21	6.3	10.4	30	+19	-7	No	1	P-37	HH10X30	SB-4070TRN	DTM-15	BDMT1704...-N3 + BDMT1704...-N4
		050R-17-4-4T-M	●	16		4					78				59				1		HH10X40			
		063R-17-3-4T-M	●	12		3	63	27	20	14	70	24	7	12.4	45				1		HH12X35			
		080R-17-4-6T-M	●	24	6	4	80	32	26	18	85	28	8	14.4	59				1		HH16X45			
		100R-17-4-6T-M	●				100	40	56	-		30	9	16.4					2		-			

For installation of notched insert, see page **M134**.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

BDMT

Usage Classification					
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel			★	☆	P
	Mold and die steel			★	☆	
	Austenitic stainless steel					M
	Martensitic stainless steel					
	Precipitation hardened stainless steel					
	Gray cast iron		★			K
	Nodular cast iron		★			
	Non-ferrous metals					N
	Heat-resistant alloy					S
	Titanium alloy	☆			★	
	Hard materials					H

Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)		Carbide				Applicable Toolholder ⇨ M130~ M131
				S	D1	RE	L	W1	AN	AS	PVD				
											PR1535	PR1810	PR1825	PR1835	
	 2-notch	BDMT 11T308ER-N2	2	3.8	2.8	0.8	11	6.7	13	18	●	●	●	●	MECH...11...
	 3-notch	BDMT 11T308ER-N3	2	3.8	2.8	0.8	11	6.7	13	18	●	●	●	●	MECH...11...
	 3-notch	BDMT 170408ER-N3	2	4.9	4.4	0.8	17	9.6	13	18	●	●	●	●	MECH...17...
	 4-notch	BDMT 170408ER-N4	2	4.9	4.4	0.8	17	9.6	13	18	●	●	●	●	MECH...17...

Right-hand Insert Shown

Recommended Cutting Conditions ⇨ M135

BDMT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

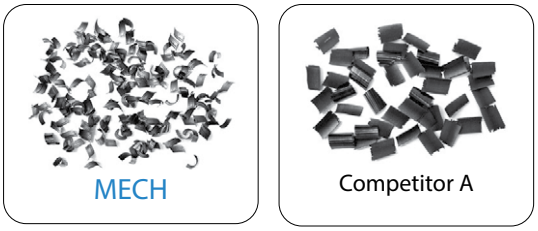
Applicable Inserts

Part Number	Applicable Inserts					
	2-Notched	+	3-Notched	3-Notched	+	4-Notched
MECH...-11-	BDMT 11T308ER-N2	+	BDMT 11T308ER-N3	-		
MECH...-17-		-		BDMT 170408ER-N3	+	BDMT 170408ER-N4

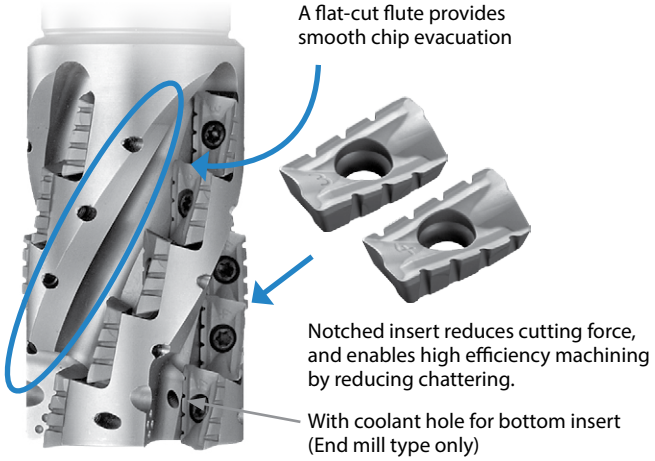
Enhanced Chip Evacuation

Smooth chip evacuation

Notched insert breaks chips into small pieces

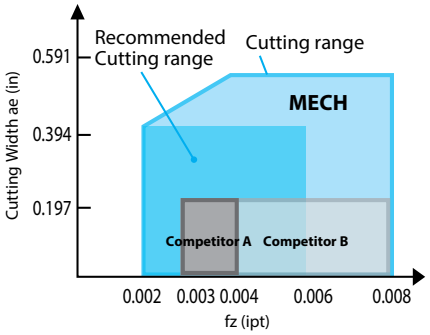


Workpiece Material: SS400
Vc = 400 sfm
D.O.C. × ae = 1.575"×0.394"
fz = 0.005 ipt
MECH032-S32-11-5-4T



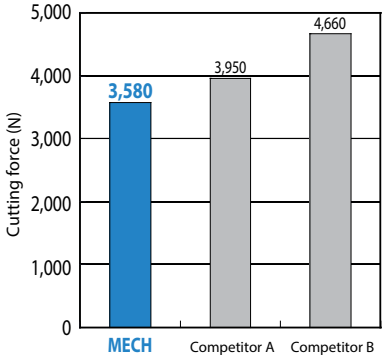
Low Cutting Force

Low cutting force due to notched inserts



Workpiece Material : 1049
Vc = 390 sfm
D.O.C. × ae = 1.575" × 0.197~0.512"
fz = 0.002~0.008 ipt
MECH032-S32-11-5-4T

Cutting force comparison (Principal force)



Workpiece Material : 1049
Vc = 390 sfm
D.O.C. × ae = 1.575" × 0.394"
fz = 0.004 ipt
MECH032-S32-11-5-4T

(Internal evaluation)

Number of Inserts to Install

Description		No. of Flutes	No. of Inserts	No. of Inserts			
				BDMT11T308ER-		BDMT170408ER-	
				N2	N3	N3	N4
MECH	1000-W1000-11-4-2T 025-S25-11-4-2T	2	8	4	4	-	-
	1250-W1250-11-5-2T 032-S32-11-5-2T		10	5	5		
	1250-W1250-11-5-4T 032-S32-11-5-4T	4	20	10	10		
	1500-W1250-11-6-2T 040-S32-11-6-4T		24	12	12		
	1500-W1500-11-6-4T 040-S42-11-6-4T						
	2000-W1500-11-7-4T 050-S42-11-7-4T		28	14	14		
	2000-W1500-11-7-6T 050-S42-11-7-6T	6	42	21	21		
MECH	1500-W125-17-4-2T 040-S32-17-4-2T	2	8	-	-	4	4
	1500-W150-17-4-2T 040-S42-17-4-2T						
	2000-W1500-17-5-4T 050-S42-17-5-4T	4	20			10	10

Description		No. of Flutes	No. of Inserts	No. of Inserts			
				BDMT11T308ER-		BDMT170408ER-	
				N2	N3	N3	N4
MECH	040R-11-4-4T-M	4	16	8	8	-	-
	2000R-11-5-6T 050R-11-5-6T-M	6	30	15	15		
MECH	2000R-17-2-4T 050R-17-2-4T-M	4	8	-	-	4	4
	2000R-17-4-4T 050R-17-4-4T-M		16			8	8
	063R-17-3-4T-M		12			6	6
	080R-17-4-6T-M	6	24			12	12
	100R-17-4-6T-M						
MECH	063R-17-3-4T	4	12			6	6
	080R-17-4-6T	6	24			12	12
	100R-17-4-6T						
MECH	050R11-8-4T-BT50	4	32	16	16	-	-
	050R17-7-4T-BT50		28	-	-	14	14
	063R17-7-4T-BT50						
	080R17-7-4T-BT50						
	100R17-7-6T-BT50	6	42			21	21

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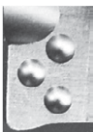
Caution when Installing Notched Insert

1. Install notched inserts by cutting the insert with the number of marks on the toolholder body.

<Insert number and toolholder marks>

Insert Size	11 type		17 type	
Insert Number	2	3	3	4
Marks				

* Using the cutter with the inserts installed incorrectly will damage the toolholder.

2. When installing notched inserts in flute line, ensure that the number on the insert is the same as the insert in first stage. (Ref. to Fig. 1, 2 and 3)

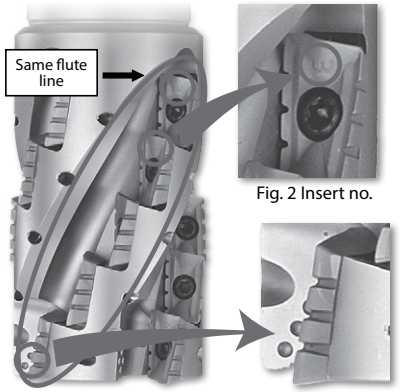


Fig. 1 Same flute line

Fig. 2 Insert no.

Fig. 3 Marks

Recommended Cutting Conditions
(When using a notched insert)

Workpiece Material	fz (ipt)	Recommended Insert Grades (Vc: sfm)			
		MEGACOAT NANO EX			MEGACOAT NANO
		PR1810	PR1825	PR1835	PR1535
Carbon steel	0.003~0.004~0.006	-	★ 390~**590**~820	☆ 390~**590**~820	☆ 390~**590**~820
Alloy steel	0.003~0.004~0.006	-	★ 330~**520**~720	☆ 330~**520**~720	☆ 330~**520**~720
Mold steel	0.003~0.004~0.006	-	★ 260~**460**~590	☆ 260~**460**~590	☆ 260~**460**~590
Gray cast iron	0.003~0.006~0.007	★ 390~**590**~820	-	-	-
Nodular cast iron	0.003~0.006~0.007	★ 330~**490**~720	-	-	-
*Titanium alloys	0.003~0.004~0.006	-	-	★ 130~**200**~260	☆ 130~**200**~260

* Machining with coolant is recommended for titanium alloys.

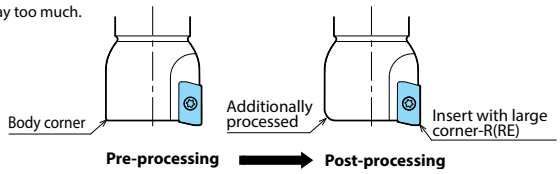
★ : 1st Recommendation ☆ : 2nd Recommendation

1. The recommended cutting conditions above are for notched inserts.
2. If using an insert without notch, the cutting depth (D.O.C.) and width (ae) should be 60% or less of those of a notched insert.

When using inserts with corner-R(RE) 1.6mm or larger, additional modifications of the cutter body will be necessary.
Ref. to the chart below for the recommended modifications. (Additional grind off is not necessary when corner-R(RE) is 1.2mm or less.)

Insert Corner-R(RE) (mm)	Additional processing dimension to body corner (mm)
1.6	R1.0
2.0	
2.4	R1.2
3.1	R1.6
4.0	R2.5

* Round- shaped additional processing is recommended. When applying chamfer shaped additional processing, do not cut away too much.



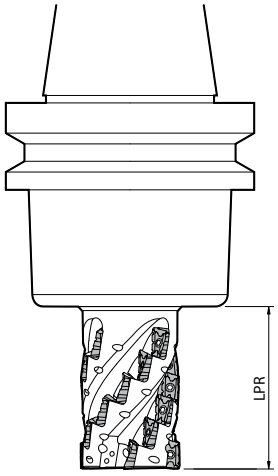
Cutting Performance

(Machining center equivalent to AC15/18.5kW)

MECH End Mill

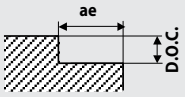
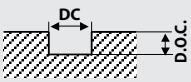
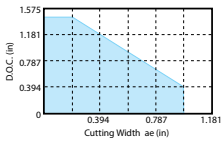
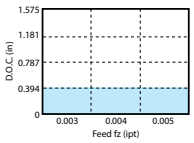
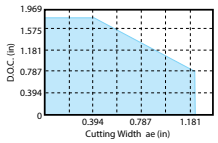
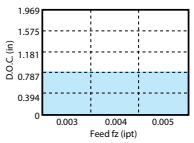
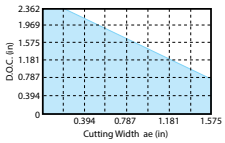
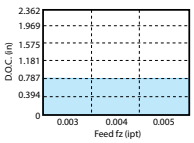
Cutting Dia.	Description	Overhang Length LPR (in)
ø1.000" ø25mm	MECH1000-W1000-11-4-2T MECH025-S25-11-4-2T	1.89
ø1.250" ø32mm	MECH1250-W1250-11-5-2T MECH032-S32-11-5-2T	2.24
	MECH1250-W1250-11-5-4T MECH032-S32-11-5-4T	
ø1.500" ø40mm	MECH1500-W1250-11-6-4T MECH040-S32-11-6-4T	2.56
	MECH1500-W1500-11-6-4T MECH040-S42-11-6-4T	
ø2.000" ø50mm	MECH2000-W1500-11-7-4T MECH050-S42-11-7-4T	2.99
	MECH2000-W1500-11-7-6T MECH050-S42-11-7-6T	
ø1.500" ø40mm	MECH1500-W1250-17-4-2T MECH040-S32-17-4-2T	2.91
	MECH1500-W1500-17-4-2T MECH040-S42-17-4-2T	
ø2.000" ø50mm	MECH2000-W1500-17-5-4T MECH050-S42-17-5-4T	3.50

Shape

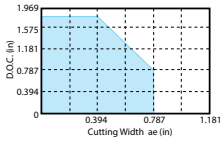
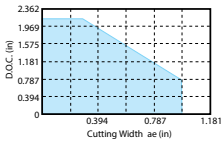
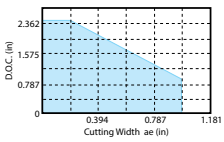
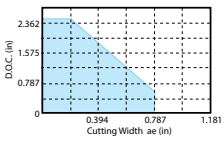
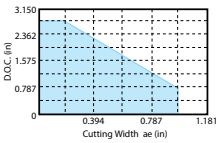


2 flute type

(Workpiece Material: 1049)

Description	Shouldering	Slotting
		
	Cutting Speed: Vc = 330~590 sfm Feed: fz = 0.003~0.006 ipt	Cutting Speed: Vc = 330~390 sfm Feed: fz = 0.003~0.005 ipt
MECH1000-W1000-11-4-2T MECH025-S25-11-4-2T		
MECH1250-W1250-11-5-2T MECH032-S32-11-5-2T		
MECH1500-W1250-17-4-2T MECH1500-W1500-17-4-2T MECH040-S32-17-4-2T MECH040-S42-17-4-2T		

4 flute / 6 flute

MECH1250-W1250-11-5-4T MECH032-S32-11-5-4T	
MECH1500-W1250-11-6-4T MECH1500-W1500-11-6-4T MECH040-S32-11-6-4T MECH040-S42-11-6-4T	
MECH2000-W1500-11-7-4T MECH050-S42-11-7-4T	
MECH2000-W1500-11-7-6T MECH050-S42-11-7-6T	
MECH2000-W1500-17-5-4T MECH050-S42-17-5-4T	

4 flute/6 flute type are not recommended for slotting.

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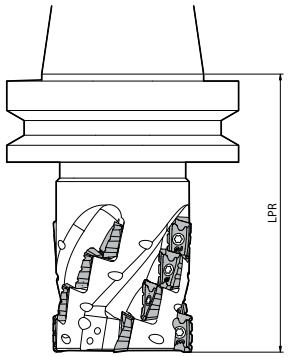
MECH Shell Mill

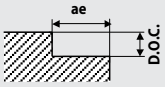
(Workpiece Material: 1049)

Cutting Dia.	Description	Overhang Length LPR (in)
ø40mm	MECH040R-11-4-4T-M	4.92
ø2.000" ø50mm	MECH2000R-11-5-6T MECH050R-11-5-6T-M	4.84
	MECH2000R-17-2-4T MECH050R-17-2-4T-M	4.41
	MECH2000R-17-4-4T MECH050R-17-4-4T-M	5.43
ø63mm	MECH063R-17-3-4T-□	4.53
ø80mm	MECH080R-17-4-6T-□	5.12
ø100mm	MECH100R-17-4-6T-□	5.12

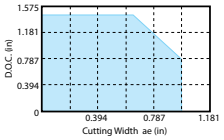
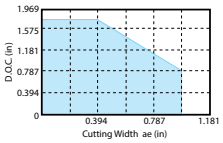
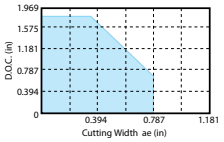
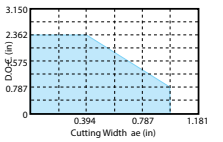
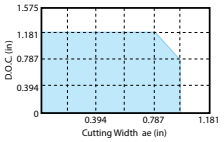
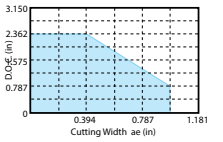
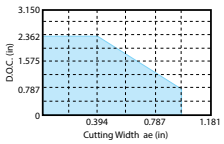
Shape



Shouldering



Cutting Speed: Vc = 330~590 sfm
Feed: fz = 0.003~0.006 ipt

MECH040R-11-4-4T-M		MECH063R-17-3-4T-□	
MECH2000R-11-5-6T MECH050R-11-5-6T-M		MECH080R-17-4-6T-□	
MECH2000R-17-2-4T MECH050R-17-2-4T-M		MECH100R-17-4-6T-□	
MECH2000R-17-4-4T MECH050R-17-4-4T-M			

Slotting is not recommended.

Helical End Mill for Titanium Alloy Machining

MECHT

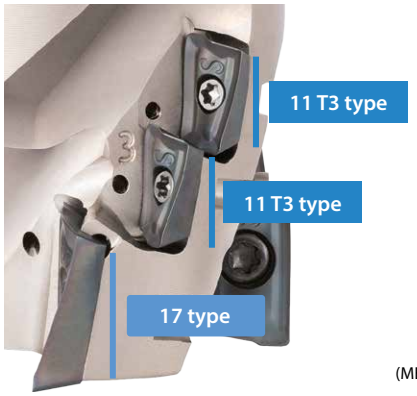
Insert Size Combination Improves Roughing Capabilities Maintains Stable Machining and Long Tool Life

1 Developed to reduce chattering and chip recutting issues

Unique Insert Combination

The larger bottom inserts are positioned to handle larger cutting forces (excluding ø32mm)

Stable machining with improved fracture resistance



(MECHT50R-1711 type)

New Design for High Reliability

Bottom inserts are held in place by double-faced contacts

Bore dia.

Larger bore diameter improves fastening power and reduces chattering

ø50mm cutter with a ø27mm bore (conventional bore: ø22mm)

Toolholder hardness Hardened 15% more than conventional holders

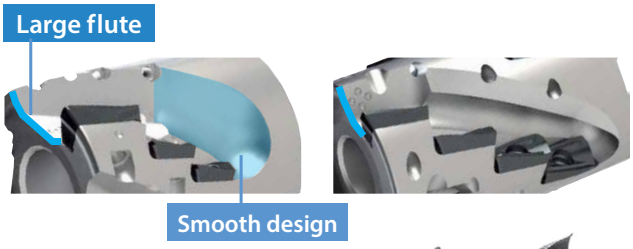
Toolholder spec Custom ordering available

Excellent Chip Evacuation

New flute design

Large, smooth flutes prevent chip clogging

MECHT (ø50mm-4T 3 stages) Conventional (ø50mm-4T 4 stages)

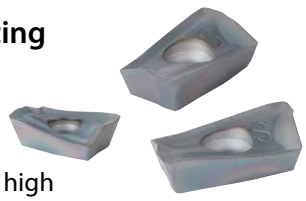


All inserts have coolant holes
Optimized hole diameter controls flow amount and pressure

Smooth chip evacuation as well as superior cooling of the cutting edge

Chips example

2 Longer tool life with low-resistance js chipbreaker and tough pvd coating



Low cutting force **JS chipbreaker**

Heat at the cutting edge is suppressed due to sharp cutting performance. Long tool life.

Greater toughness **PR1835**

Fracture resistant with a tough substrate and high heat-resistant MEGACOAT NANO EX coating technology

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MECHT

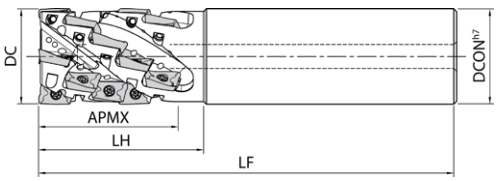


Fig. 1

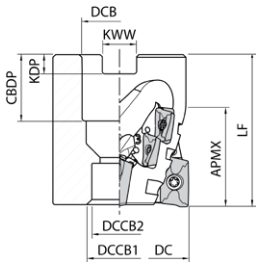


Fig. 2

Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions					A.R. Max. (°)	R.R. max. (°)	Coolant Hole	Fig.	Spare Parts		Applicable Inserts ➡ M140	
							DC	DCON	LF	LH	APMX					Insert Screw	Wrench	Stages	
																		1st	2nd or higher
mm	Helical End Mill	MECHT 32-S32-11-5-4T	●	20	4	5	32	32	140	55	46	+23	-9	Yes	1	SB-2555TRG	DTM-8	BDMT11T3..	BDMT11T308..

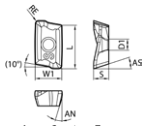
Unit		Part Number	Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions									A.R. Max. (°)	R.R. max. (°)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ M140	
							DC	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX					Arbor Bolt	Insert Screw	Wrench	Stages	
																							1st	2nd or higher
mm	Helical Shell Mill	MECHT 50R-1711-3-4T-M	●	12	4	3	50	27	20	14	55	24	7	12.4	34	+19	-7	Yes	2	HH12X40	SB-2555TRG SB-4070TRN	DTM-8 DTM-15	BDMT1704..	BDMT11T308..
		50R-1711-4-5T-M	●	20	5	4					65				43					HH12X50				
		63R-17-4-5T-M	●				63				80				60					HH12X65	SB-4070TRN	DTM-15	BDMT1704..	BDMT170408..
		80R-17-4-6T-M	●	24	6		80	32	26	17		28	8	14.4						HH16X65				

Use inserts with Corner-R of 0.8mm or less for the 2nd or higher stages
Machining with coolant is recommended (Internal coolant pressure 218 psi or more)
Coat Anti-seize Compound(P-37) thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

BDMT

Usage Classification			
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel		P
	Mold and die steel		
	Austenitic stainless steel		M
	Martensitic stainless steel		
	Precipitation hardened stainless steel		
	Gray cast iron		K
	Nodular cast iron		
	Non-ferrous metals		N
	Heat-resistant alloy		S
	Titanium alloy	☆ ★	
	Hard materials		H

Insert		Part Number	No. of Edges	Dimensions (mm) S	D1	RE	L	W1	Angle (°) AN	AS	Carbide PVD PR1535	PR1835	Applicable Toolholder ➡ M139
	 Low Cutting Force	BDMT 11T302ER-JS	2	3.8	2.8	0.2	11	6.7	13	18	●	●	MECHT...11...
		11T304ER-JS				0.4					●	●	
		11T308ER-JS				0.8					●	●	
		BDMT 170404ER-JS	2	4.9	4.4	0.4	17	9.6	13	18	●	●	MECHT...17...
		170408ER-JS				0.8					●	●	

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M141

BDMT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Workpiece Material	Applications	Depth and Width of Cut (in)		Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)
					MEGACOAT NANO EX (MEGACOAT NANO)
		D.O.C.	W.O.C.		PR1835 (PR1535)
Titanium Alloy	Shouldering	~Length of Cut (APMX)	~0.5DC	0.004~**0.005**~0.006	100~**130**~200
	Slotting	~0.5DC	1DC	0.002~**0.003**~0.004	100~**130**~160

Double-Sided, 6-Edge Insert, 90° Milling

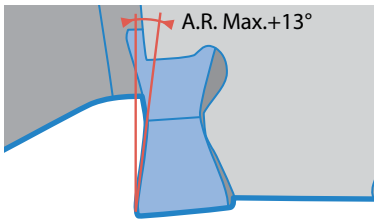
M-SIX (MFWN)

Low Cutting Forces for Reduced Chattering
Superior Fracture Resistance

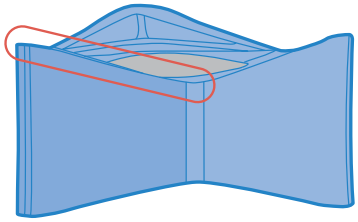
1 Sharp Cutting due to Lower Cutting Forces

Low Cutting Force due to Steep Rake Angle

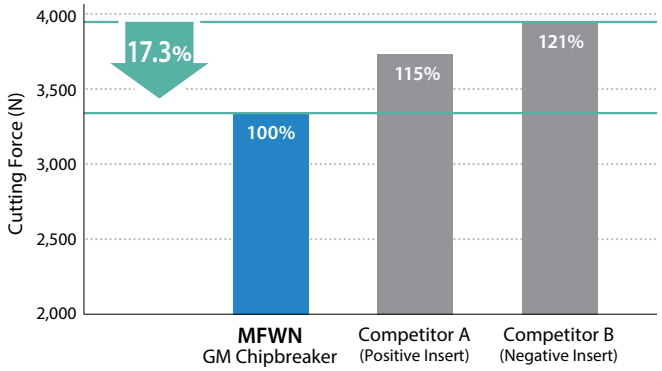
Dynamic Slant Design Reduces Initial Impact when Cutting Edge Enters the Workpiece



Dynamic Slant Design



Cutting Force Comparison (In-house Evaluation)

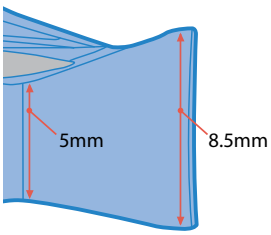


Cutting Force is the Resultant Force of the Principal Force and the Feed Force

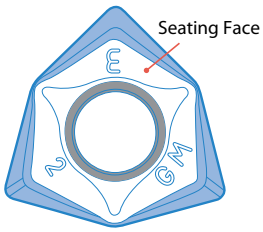
Cutting Conditions: Vc = 590 sfm, D.O.C. × ae = 0.275" × 0.400", fz = 0.008 ipt
Workpiece: 1049 Cutter Dia. Ø5.000"

2 Superior Fracture Resistance with Thick Edge Design

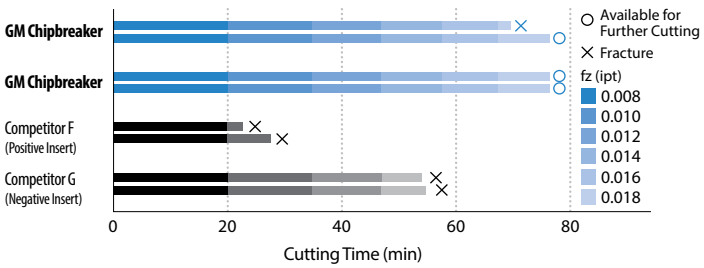
Cutting Edge Thickness: 5 - 8.5mm



Stable Clamping with the Unique Insert Face Design



Fracture Resistance Comparison (In-house Evaluation)



Cutting Conditions: Vc = 330 sfm, D.O.C. × ae = 0.080" × 4.000", fz = 0.004 ~ 0.018 ipt, Dry
Workpiece: 4140H (38 ~ 42HS) Interrupted with a Slot in the Workpiece

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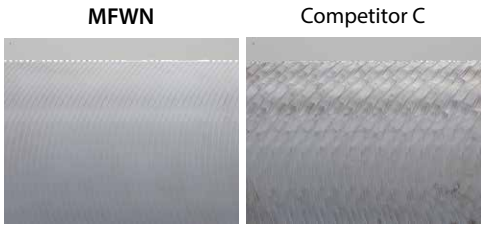
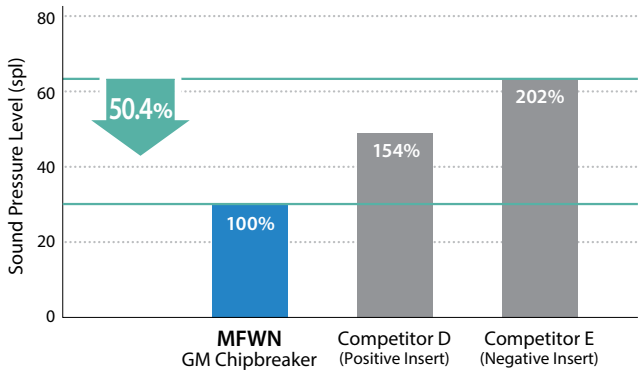
3 Reduced Chattering Even with Extended Milling Adapters

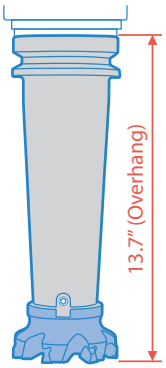
Resistant to Chattering due to Low Cutting Force Design and applicable to long overhang

Surface Roughness Comparison (In-house Evaluation)



Cutting Noise Comparison (In-house Evaluation)



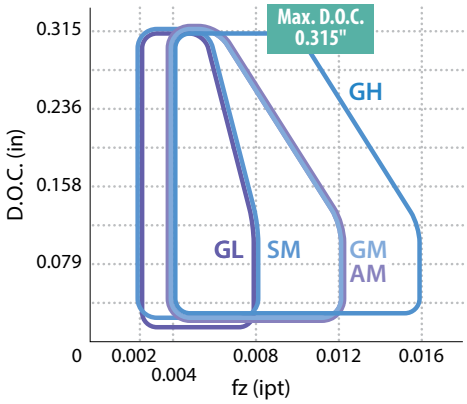


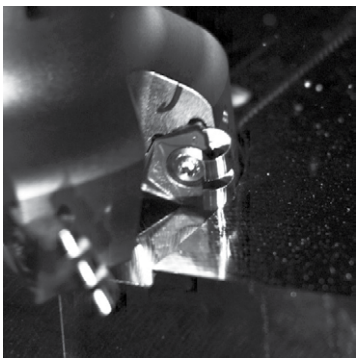
Cutting Conditions: Vc = 660 sfm, D.O.C. × ae = 0.118" × 0.590", fz = 0.004 ipt
Workpiece: 1049 Cutter Dia. Ø3.000" (7 Inserts)

4 Extensive Insert Lineup Covering Various Applications

Chipbreaker	Applications	Shape
GM	General Purpose	
SM	Low Cutting Force	
GH	Heavy Milling	
GL	Surface-Finish Oriented	
AM	Aluminum / Non-ferrous Metals	

Application Range





Smooth Chip Evacuation

Properly Curled Chips
(The Photo was Taken by a High Speed Camera)

MFWN (Face Mill)

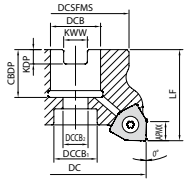


Fig. 1

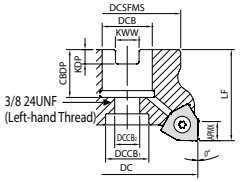


Fig. 2

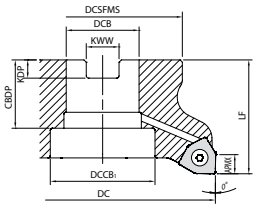


Fig. 3

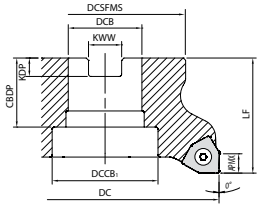


Fig. 4

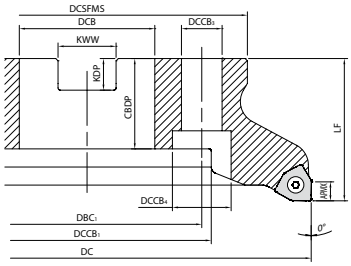


Fig. 5

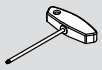
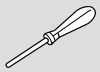
Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions														A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➡ M149
				R		DC	DCSFMS	DCB	DCCB1	DCCB2	DCCB3	DCCB4	DBC1	LF	CBDP	KDP	KWW	APMX								
Inch	Inch Bore Dia.	Coarse Pitch	MFWN 902500R-3T	●	3	2.500	1.890	0.750	0.669	0.433				1.575	0.750	0.187	0.312			-10		14,000	0.4	1	
			903000R-4T	●	4	3.000	2.283	1.000	0.875	0.551				1.968	1.063	0.236	0.381			-9	Yes	12,000	0.8	1	
			904000R-5T	●	5	4.000	2.756	1.500	2.047		-	-	-		1.142	0.393	0.625			-8		10,500	1.1	3	WNEU0806...
			905000R-6T	●	6	5.000	3.425		2.175					2.480	1.496	0.393	0.625	0.315	+13	-7.5		9,500	2.5	3	WNGT0806...
			906000R-8T	●	8	6.000	4.016	2.000	2.835	-					1.496	0.433	0.752					8,000	3.4	4	WNMU0806...
			908000R-10T	●	10	8.000	5.591	2.500	3.937		0.709	1.024	4.000	2.480	1.575	0.551	1.008			-7	No	7,500	6.0	5	
			9010000R-12T	●	12	10.000																6,500	8.2	5	
		Fine Pitch	MFWN 902000R-4T	●	4	2.000	1.752	0.750	0.500	3/8 24UNF				1.968	0.830	0.187	0.312			-12		14,000	0.4	2	
			902500R-4T	●	4	2.500	1.890		0.669	0.433				1.575	0.750	0.187	0.312			-10		14,000	0.5	1	
			903000R-5T	●	5	3.000	2.283	1.000	0.875	0.551	-	-	-	1.968	1.063	0.236	0.381	0.315	+13	-9	Yes	12,000	0.8	1	WNEU0806...
			904000R-7T	●	7	4.000	2.756	1.500	2.047	-					1.142	0.393	0.625			-8		10,500	1.0	3	WNGT0806...
			905000R-8T	●	8	5.000	3.425		2.175					2.480	1.496	0.393	0.625			-7.5		9,500	2.5	3	WNMU0806...
		Extra Fine Pitch	MFWN 902500R-5T	●	5	2.500	1.890	0.750	0.669	0.433				1.575	0.750	0.187	0.312			-10		14,000	0.4	1	
			903000R-7T	●	7	3.000	2.283	1.000	0.875	0.551				1.968	1.063	0.236	0.381			-9	Yes	12,000	0.8	1	
			904000R-9T	●	9	4.000	2.756	1.500	2.047		-	-	-		1.142	0.393	0.625	0.315	+13	-8		10,500	1.0	3	WNEU0806...
			905000R-12T	●	12	5.000	3.425		2.175	-				2.480	1.496	0.393	0.625			-7.5		9,500	2.4	3	WNGT0806...
			906000R-14T	●	14	6.000	4.016	2.000	2.835						1.496	0.433	0.752			-7	No	8,000	3.4	4	WNMU0806...

Max. revolution : When running the end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts (Inch Cutters)

Part Number		Spare Parts								
		Insert Screw	Wrench		Shim	Shim Screw	Wrench	Anti-Seize Compound	Arbor Bolt	Mounting Screw
			TTW	DTM						
										
Coarse Pitch	MFWN 902500R-3T	SB-50140TR	TTW-15	-	MFWN-90	SPW-7050	LW-5	P-37	HH3/8-1.25 (HH3/8-1.25H)	-
	MFWN 903000R-4T	Recommended tightening torque for insert screw 4.2N•m			Recommended tightening torque for shim clamp 6.0N•m				HH1/2-1.25 (HH1/2-1.25H)	-
	MFWN 904000R-5T ~ 9010000R-12T								-	-
Fine Pitch	MFWN 902000R-4T	SB-50140TR	TTW-15	-	-	-	-	P-37	-	XNS610*
	MFWN 902500R-4T	Recommended tightening torque for insert screw 4.2N•m							HH3/8-1.25 (HH3/8-1.25H)	-
	MFWN 903000R-5T								HH1/2-1.25 (HH1/2-1.25H)	-
	MFWN 904000R-7T ~ 9010000R-14T								-	-
Extra Fine Pitch	MFWN 902500R-5T	SB-50140TR	TTW-15	-	-	-	-	P-37	HH3/8-1.25 (HH3/8-1.25H)	-
	MFWN 903000R-7T	SB-40140TRN	-	DTM-15					HH1/2-1.25 (HH1/2-1.25H)	-
	MFWN 904000R-9T ~ 9010000R-18T	Recommended tightening torque for insert screw 3.5N•m							-	-

Coat anti-seize compound thinly on portion of taper and thread prior to installation.
If through spindle coolant is required, please order arbor bolt in ( ) separately.
*Differential screw (3/8-24UNF)

MFWN (Face Mill)

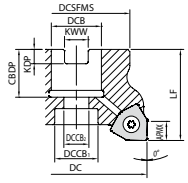


Fig. 1

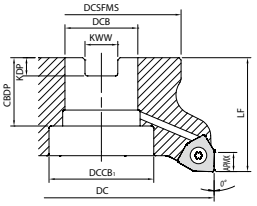


Fig. 2

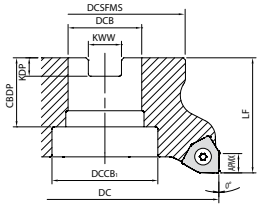


Fig. 3

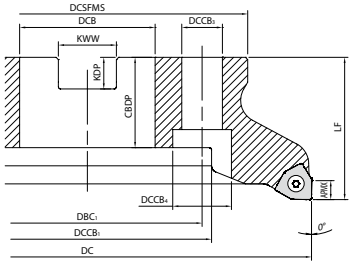


Fig. 4

Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions													A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➡ M149
				R		DC	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	$DCCB_3$	$DCCB_4$	DBC_1	LF	CBDP	KDP	KWW	APMX							
mm	Inch Bore Dia.	Coarse Pitch	MFWN 90080R-4T	●	4	80	60	1.000"	20	13	-	-	-	50	1.063"	0.236"	0.375"	8	+13	-9	Yes	12,000	1	1	WNEU0806... WNGT0806... WNMU0806...
			90100R-5T	●	5	100	70	1.250"	46						1.339"	0.315"	0.500"			-8		10,500	1.3	2	
			90125R-6T	●	6	125	87	1.500"	55					63	1.496"	0.394"	0.625"			-7.5		9,500	2.6	2	
			90160R-8T	●	8	160	102	2.000"	72	-						0.433"	0.750"				No	8,000	3.9	3	
			90200R-10T	●	10	200	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"			-7		7,500	6.3	4	
			90250R-12T	●	12	250																6,500	8.7	4	
		Fine Pitch	MFWN 90080R-5T	●	5	80	60	1.000"	20	13	-	-	-	50	1.063"	0.236"	0.375"	8	+13	-9	Yes	13,500	1	1	WNEU0806... WNGT0806... WNMU0806...
			90100R-7T	●	7	100	70	1.250"	46						1.339"	0.315"	0.500"			-8		12,000	1.4	2	
			90125R-8T	●	8	125	87	1.500"	55					63	1.496"	0.394"	0.625"			-7.5		10,500	2.7	2	
			90160R-10T	●	10	160	102	2.000"	72	-						0.433"	0.750"				No	9,000	4	3	
			90200R-12T	●	12	200	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"			-7		8,000	6.6	4	
			90250R-14T	●	14	250																7,000	8.9	4	
		Extra Fine Pitch	MFWN 90080R-7T	●	7	80	60	1.000"	20	13	-	-	-	50	1.063"	0.236"	0.375"	8	+13	-9	Yes	10,500	1.1	1	WNEU0806... WNGT0806... WNMU0806...
			90100R-9T	●	9	100	70	1.250"	46						1.339"	0.315"	0.500"			-8		9,500	1.3	2	
			90125R-12T	●	12	125	87	1.500"	55					63	1.496"	0.394"	0.625"			-7.5		8,000	2.7	2	
			90160R-14T	●	14	160	102	2.000"	72	-						0.433"	0.750"				No	7,000	4.1	3	
			90200R-16T	●	16	200	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"			-7		6,500	6.7	4	
			90250R-18T	●	18	250																5,500	9.1	4	

Max. revolution : When running the end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

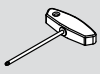
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit			Part Number	Std. Item R	No. of Inserts	Dimensions DC	DCSFMS	DCB	DCCB1	DCCB2	DCCB3	DCCB4	DBC1	LF	CBDP	KDP	KWW	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➡ M149
mm	Metric Bore Dia.	Coarse Pitch	MFWN 90063R-3T-M	●	3	63	47	22	19	11	-	-	-	40	21	6.3	10.4	8	+13	-10	Yes	14,000	0.5	1	WNEU0806... WNGT0806... WNMU0806...
			90080R-4T-M	●	4	80	60	27	20	13				50	24	7	12.4			-9		12,000	1	1	
			90100R-5T-M	●	5	100	70	32	46						30	8	14.4			-8		10,500	1.3	2	
			90125R-6T-M	●	6	125	87	40	55					63	33	9	16.4			-7.5		9,500	2.5	2	
			90160R-8T-M	●	8	160	102		68	-	14	20	66.7		32						No	8,000	3.8	4	
			90200R-10T-M	●	10	200	142	60	110		18	26	101.6		40	14	25.7			-7		7,500	6	4	
			90250R-12T-M	●	12	250																6,500	8.4	4	
		Fine Pitch	MFWN 90063R-4T-M	●	4	63	47	22	19	11	-	-	-	40	21	6.3	10.4	8	+13	-10	Yes	16,000	0.5	1	WNEU0806... WNGT0806... WNMU0806...
			90080R-5T-M	●	5	80	60	27	20	13				50	24	7	12.4			-9		13,500	1	1	
			90100R-7T-M	●	7	100	70	32	46						30	8	14.4			-8		12,000	1.3	2	
			90125R-8T-M	●	8	125	87	40	55					63	33	9	16.4			-7.5		10,500	2.6	2	
			90160R-10T-M	●	10	160	102		68	-	14	20	66.7		32						No	9,000	3.9	4	
			90200R-12T-M	●	12	200	142	60	110		18	26	101.6		40	14	25.7			-7		8,000	6.3	4	
			90250R-14T-M	●	14	250																7,000	8.7	4	
		Extra Fine Pitch	MFWN 90063R-5T-M	●	5	63	47	22	19	11	-	-	-	40	21	6.3	10.4	8	+13	-10	Yes	16,000	0.5	1	WNEU0806... WNGT0806... WNMU0806...
			90080R-7T-M	●	7	80	60	27	20	13				50	24	7	12.4			-9		10,500	1.1	1	
			90100R-9T-M	●	9	100	70	32	46						30	8	14.4			-8		9,500	1.3	2	
			90125R-12T-M	●	12	125	87	40	55	-				63	33	9	16.4			-7.5		8,000	2.6	2	
			90160R-14T-M	●	14	160	102		68		14	20	66.7		32					-7	No	7,000	3.9	4	

Max. revolution : When running the end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts (Metric Cutters)

	Part Number	Spare Parts: Insert Screw	Wrench: TTW	Wrench: DTM	Shim	Shim Screw	Wrench	Anti-Seize Compound	Arbor Bolt
									
Coarse Pitch	MFWN 90063R-3T-M	SB-50140TR	TTW-15		MFWN-90	SPW-7050	LW-5	P-37	HH10X30 (HH10X1.25H)
	MFWN 90080R-4T(-M)			-					HH12X35 (HH12X35H)
	MFWN 90100R-5T(-M) ~ 90250R-12T(-M)	Recommended tightening torque for insert screw 4.2N•m			Recommended tightening torque for shim clamp 6.0N•m				-
Fine Pitch	MFWN 90063R-4T-M	SB-50140TR	TTW-15		-	-	-	P-37	HH10X30 (HH10X1.25H)
	MFWN 90080R-5T(-M)			-					HH12X35 (HH12X35H)
	MFWN 90100R-7T(-M) ~ 90250R-14T(-M)	Recommended tightening torque for insert screw 4.2N•m							-
Extra Fine Pitch	MFWN 90063R-5T-M	SB-50140TR	TTW-15	-	-	-	-	P-37	HH10X30 (HH10X1.25H)
	MFWN 90080R-7T(-M)	SB-40140TRN	-	DTM-15					HH12X35 (HH12X35H)
	MFWN 90100R-9T(-M) ~ 90250R-18T	Recommended tightening torque for insert screw 3.5N•m							-

Coat anti-seize compound thinly on portion of taper and thread prior to installation.
If through spindle coolant is required, please order arbor bolt in ( ) separately.

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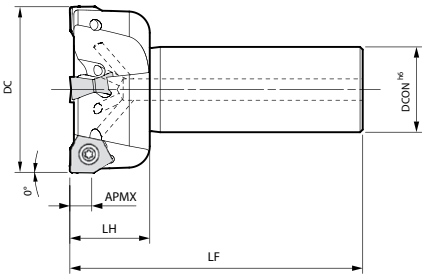
MFWN (End Mill)



Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➡ M149
			R		DC	DCON	LF	LH	APMX					Insert Screw	Wrench	Anti-Seize Compound	
Inch	Weldon Shank	MFWN 902000R-W125-3T	●	3	2.000	1.250	3.600	1.180	0.315	+13	-12	Yes	18,500	SB-50140TR	TTW-15	P-37	WNEU0806...
		902500R-W125-4T	●	4	2.500						-10		16,000	Recommended tightening torque for insert clamp 4.2N•m			WNGT0806...
		903000R-W125-5T	●	5	3.000						-8		13,500				WNMU0806...
mm	Cylindrical Shank	MFWN 90050R-S32-3T	●	3	50	32	110	30	8	+13	-12	Yes	18,500	SB-50140TR	TTW-15	P-37	WNEU0806...
		90063R-S32-4T	●	4	63						-10		16,000	Recommended tightening torque for insert clamp 4.2N•m			WNGT0806...
		90080R-S32-5T	●	5	80						-9		13,500				WNMU0806...

Max. revolution : When running the end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

How to Mount Inserts

1. Be sure to remove dust and chips from the insert mounting pocket.
2. After applying anti-seize compound on portion of taper and thread, attach the screw to the front end of the wrench. While lightly pressing the insert against the constraint surfaces, put the screw into the hole of the insert and tighten. (Ref. to Fig. 1)
3. When tightening the screw, make sure that the wrench is parallel to the screw.
   Remember that the screw hole of the toolholder for Extra Fine Pitch is angled to the pocket floor. (Ref. to Fig. 2 and Fig. 3)
4. Be careful not to tighten the screw with excessive torque.
   Recommended tightening torque is 4.2N·m for M5 screw (SB-50140TR) and 3.5N·m for M4 screw (SB-40140TRN).
5. After tightening the screw, make sure that there is no clearance between the insert seat surface and the pocket floor of the holder or between the insert side surfaces and the constraint surface of the holder. If there is any clearance, remove the insert and mount it again according to the above steps.
6. To index the cutting edge of the insert, turn the insert counterclockwise (Ref. to Fig. 4). The insert corner identification number is stamped on the top surface of the insert.

Fig. 1

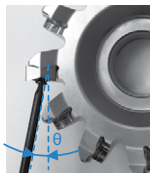


Fig. 2

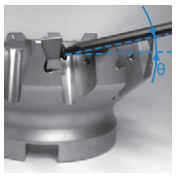


Fig. 3

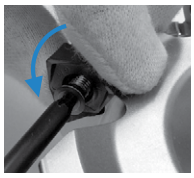


Fig. 4

How to Replace Shim (For Coarse Pitch)

1. Be sure to remove dust and chips from the insert mounting pocket.
2. The shim must be mounted in the proper direction. While aligning the surface of the shim with the mark on it to the corresponding constraint surface (Ref. to Fig. 1) and lightly pressing the shim toward the constraint surface (Ref. to Fig. 2), insert the screw into the hole of the shim and tighten (Ref. to Fig. 3). When tightening the screw, make sure that the screw is vertical to the pocket floor (Recommended tightening torque is 6.0N·m).
3. After tightening the screw, make sure that there is no clearance between the shim seat surface and the pocket floor. If there is any clearance, remove the insert and mount it again according to the above steps.

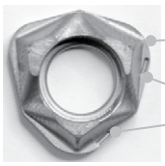


Fig. 1

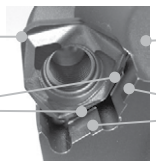


Fig. 2

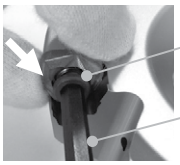


Fig. 3

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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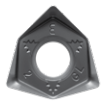
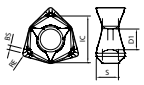
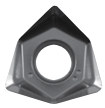
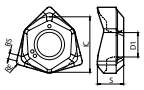
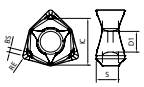
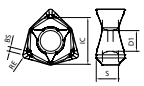
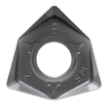
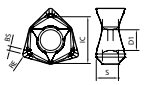
WNEU/WNMU/WNGT

Usage Classification													
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel					☆			★	☆		■	P
	Mold and die steel					☆			★	☆		■	
	Austenitic stainless steel						☆		☆	★			M
	Martensitic stainless steel	★								☆			
	Precipitation hardened stainless steel						☆			★			
	Gray cast iron				☆			★					K
	Nodular cast iron				☆			★					
	Non-ferrous metals		★								☆		N
	Heat-resistant alloy	★								☆			S
	Titanium alloy						☆			★			
	Hard materials (≤ 60 HRC)			★									H

Insert		Part Number	No. of Edges	Dimensions (mm)					Carbide									Cermet		Applicable Toolholder ⇒ M144 M146 M147 M148
				IC	S	D1	RE	BS	CVD	DLC	PVD							-	-	
									CA6535	PDL025	PR015S	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835	GW25	TN620M	
	 Surface Finish Oriented	WNEU 080608EN-GL	6	14.02	6.65	6.2	0.8	1.5	●			△	●	●	●	●	●		●	MFWN90...
	 3-Edge / Non-Ferrous Metals	WNGT 080608FN-AM	3	14.02	6.65	6.2	0.8	1.5		●								●		MFWN90...
	 Tough Edge	WNMU 080608EN-GH	6	14.02	6.65	6.2	0.8	1.3	●		●	△	●	●	●	●	●			MFWN90...
	 General Purpose	WNMU 080604EN-GM	6	14.02	6.65	6.2	0.4	1.7	●			△	●	●	●	●	●		●	MFWN90...
		080608EN-GM					0.8	1.3	●			△	●	●	●	●	●		●	
	 Low Cutting Force	WNMU 080608EN-SM	6	14.02	6.65	6.2	0.8	1.3	●			△	●	●	●	●	●			MFWN90...

Recommended Cutting Conditions ⇒ M150

WNMU / WNEU / WNGT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz (ipt) ( ) : TN620M	Recommended Insert Grade (Vc sfm)							
			Cermet	MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD	CVD Coated Carbide	DLC Coated Carbide	Carbide
			TN620M	PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	PR015S	CA6535	PDL025	GW25
GM	Carbon Steel	0.004~**0.008**~0.012 (0.002~**0.004**~0.006)	★ 660~**820**~980	☆ 390~**590**~820	★ 390~**590**~820	-	-	-	-	-
	Alloy Steel	0.004~**0.008**~0.012 (0.002~**0.004**~0.006)	★ 590~**720**~820	☆ 330~**520**~720	★ 330~**520**~720	-	-	-	-	-
	Mold Steel	0.004~**0.006**~0.010 (0.002~**0.004**~0.005)	★ 490~**590**~720	☆ 260~**460**~590	☆ 260~**460**~590	-	-	-	-	-
	Austenitic Stainless Steel	0.004~**0.006**~0.010	-	☆ 330~**520**~660	☆ 330~**520**~660	-	-	-	-	-
	Martensitic Stainless Steel	0.004~**0.006**~0.010	-	☆ 490~**660**~820	-	-	-	☆ 590~**790**~980	-	-
	Precipitation Hardened Stainless Steel	0.004~**0.006**~0.010	-	★ 300~**390**~490	-	-	-	-	-	-
	Gray Cast Iron	0.004~**0.008**~0.012	-	-	-	★ 390~**590**~820	-	-	-	-
	Nodular Cast Iron	0.004~**0.006**~0.010	-	-	-	★ 330~**490**~660	-	-	-	-
	Ni-base Heat Resistant Alloy	0.004~**0.005**~0.008	-	☆ 70~**100**~160	-	-	-	★ 70~**130**~160	-	-
SM *(GL)	Carbon Steel	0.002~**0.005**~0.008 (0.002~**0.003**~0.005)	★ 660~**820**~980	☆ 390~**590**~820	☆ 390~**590**~820	-	-	-	-	-
	Alloy Steel	0.002~**0.005**~0.008 (0.002~**0.003**~0.005)	★ 590~**720**~820	☆ 330~**520**~720	☆ 330~**520**~720	-	-	-	-	-
	Mold Steel	0.002~**0.003**~0.006 (0.002~**0.003**~0.004)	★ 490~**590**~720	☆ 260~**460**~590	☆ 260~**460**~590	-	-	-	-	-
	Austenitic Stainless Steel	0.002~**0.005**~0.008	-	★ 330~**520**~660	☆ 330~**520**~660	-	-	-	-	-
	Martensitic Stainless Steel	0.002~**0.005**~0.008	-	☆ 490~**660**~820	-	-	-	☆ 590~**790**~980	-	-
	Precipitation Hardened Stainless Steel	0.002~**0.005**~0.008	-	☆ 300~**390**~490	-	-	-	-	-	-
	Gray Cast Iron	0.002~**0.005**~0.008	-	-	-	☆ 390~**590**~820	-	-	-	-
	Nodular Cast Iron	0.002~**0.003**~0.006	-	-	-	☆ 330~**490**~660	-	-	-	-
	Ni-base Heat Resistant Alloy	0.002~**0.004**~0.006	-	☆ 70~**100**~160	-	-	-	☆ 70~**130**~160	-	-
	Titanium Alloy	0.002~**0.003**~0.006	-	★ 130~**200**~260	-	-	-	-	-	-
GH	Carbon Steel	0.008~**0.012**~0.016	-	☆ 390~**590**~820	☆ 390~**590**~820	-	-	-	-	-
	Alloy Steel	0.008~**0.012**~0.016	-	☆ 330~**520**~720	☆ 330~**520**~720	-	-	-	-	-
	Mold Steel	0.006~**0.008**~0.012	-	☆ 260~**460**~590	☆ 260~**460**~590	-	-	-	-	-
	Austenitic Stainless Steel	0.008~**0.010**~0.012	-	☆ 330~**520**~660	☆ 330~**520**~660	-	-	-	-	-
	Martensitic Stainless Steel	0.008~**0.010**~0.012	-	☆ 490~**660**~820	-	-	-	☆ 590~**790**~980	-	-
	Precipitation Hardened Stainless Steel	0.008~**0.010**~0.012	-	☆ 300~**390**~490	-	-	-	-	-	-
	Gray Cast Iron	0.008~**0.012**~0.016	-	-	-	☆ 390~**590**~820	-	-	-	-
	Nodular Cast Iron	0.006~**0.008**~0.012	-	-	-	☆ 330~**490**~660	-	-	-	-
	Ni-base Heat Resistant Alloy	0.006~**0.008**~0.010	-	☆ 70~**100**~160	-	-	-	☆ 70~**130**~160	-	-
	Hardened Material (≤ 60 HRC)	0.006~**0.008**~0.010	-	-	-	-	★ 260~**330**~390	-	-	-
AM	Non-ferrous Material	0.004~**0.008**~0.012	-	-	-	-	-	-	★ 660~**1970**~2950	☆ 660~**1640**~2620

The figures in bold font represent the center value of the recommended cutting conditions.
★ : 1st Recommendation ☆ : 2nd Recommendation
Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation
Machining with coolant is recommended for Ni-base Heat-resistant alloy and Titanium Alloy *GL chiphreaker is recommended for surface finish oriented milling
When using GH chipbreaker for fine pitch cutters, recommended feed is fz ≦ 0.012 ipt
GH chipbreaker is not recommended for extra fine pitch cutter

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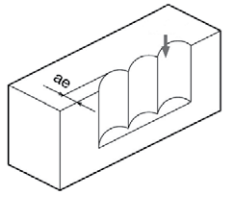
Applicable Chipbreaker

Cutter	Chipbreaker			
	GM	SM (GL)	GH	AM
Coarse Pitch (with Shim)	✓	✓	✓	✓
Fine Pitch (without Shim)	✓	✓	✓ (fz 0 0.012 ipt Recommended)	✓
Extra Fine Pitch (without Shim)	✓	✓	Not Recommended	Not Recommended

Cutter Type and Insert Selection Guide

Purpose	Cutter			Chipbreaker				
	Coarse Pitch	Fine Pitch	Extra-Fine Pitch	GM	SM	GH	GL	AM
General Milling for Steel and Alloy Steel		✓		✓				
Steel and Alloy Steel (to prevent chattering due to low rigidity machine or poor clamping power)	✓				✓			
Productivity Oriented (D.O.C. 0.157" and over, fz 0.010 ipt and over)	✓					✓		
Surface Roughness Oriented	✓	✓					✓	
General Milling for Stainless Steel		✓			✓			
Stainless Steel (to prevent chattering due to low rigidity machine or poor clamping power)	✓				✓			
Cast Iron Milling (Improved Efficiency)			✓	✓				
Cast Iron (D.O.C. 0.157" and over, fz 0.010 ipt and over)	✓					✓		
General Milling for Aluminum Alloys		✓						✓
Aluminum Alloys (to prevent chattering due to low rigidity)	✓							✓

Plunging



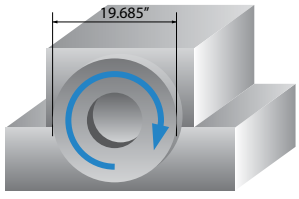
Cutting Dia.	MAX. Width of Cut (ae)
All Items	0.315"

NOT available for ramping or helical milling, due to interference between workpiece and insert.

Case Study

No.50

Machine Part
Vc = 560 sfm
D.O.C. x ae = 0.098" x 5.118"
fz = 0.007 ipt (Vf = 19.685 ipm)
Wet
MFWN90160R-8T (8 flutes)
WNMU080608EN-GM (PR1510)



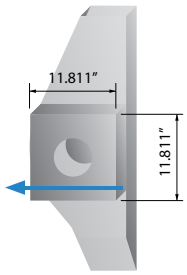
PR1510	Chip evacuation rate = 163cc/min
Competitor A (Positive cutter)	Chip evacuation rate = 68cc/min

Competitor A proceeded machining under low cutting conditions, as the workpiece was slipping because of the unstable chucking.
With MFWN, stable machining was possible at higher cutting conditions.

(User evaluation)

Manganese Steel

Construction Machine Part
Vc = 490 sfm
D.O.C. x ae = 0.039 x 3.937"
fz = 0.008 ipt (Vf = 26.299 ipm)
Dry
MFWN90100R-7T (7 flutes)
WNMU080608EN-GM (PR1525)



PR1525	Machining efficiency: 2 pcs/edge
Competitor B (Negative cutter) (Vertical inserts)	1 pc/edge

Despite instability with the long overhang of the workpiece, MFWN doubled tool life, improving the efficiency by 150%.

(User evaluation)

Low Cutting Force 90° Milling

MFWN Mini

Economical small diameter MFWN series milling cutters
Additional fine pitch, small diameter toolholders available

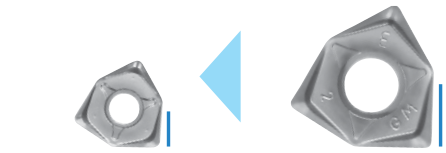
1 Cost-Efficient 6-Edge Inserts

Smaller insert design technology maintains original MFWN cutting performance
Can be used up to 0.197" (5mm) depth of cut.

Smaller Insert Size

MFWN Mini
05 size

MFWN
08 size



D.O.C. ~0.197" (~5mm)

D.O.C. ~0.315" (~8mm)

Increased Versatility

Large small-diameter lineup

High-efficiency machining with fine pitch styles

1 ~ 3 additional flutes

Expanded lineup of smaller diameters

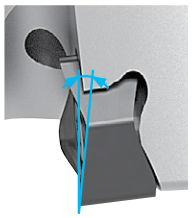
Face Mill ø50
End Mill ø25 - ø40

2 Fracture-Resistant Inserts and Low Cutting Forces

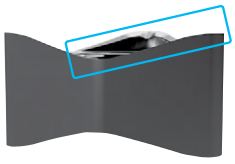
Low cutting force and high chattering-resistance

Sharp cutting by large rake angle
"Large slant edge" design reduces shock when cutting edge enters the workpiece

A.R. Max +11°

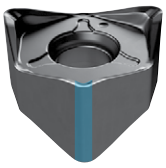


"Large slant edge" design

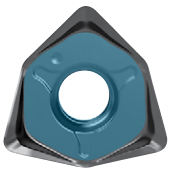


Superior fracture resistance with thick edge design

Stable clamping strength with unique insert face Design



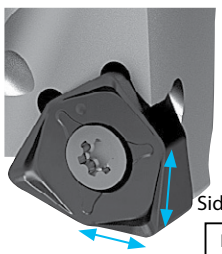
Cutting edge thickness: 5.2mm
(3.1mm at the thinnest point)



Optimized seating surface

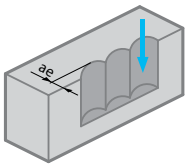
Neutral inserts for various uses

Symmetrical side and bottom cutting edges provide a wide range of machining applications



Bottom edge

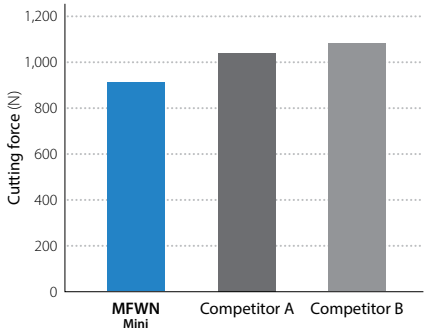
Plunging possible



Side edge

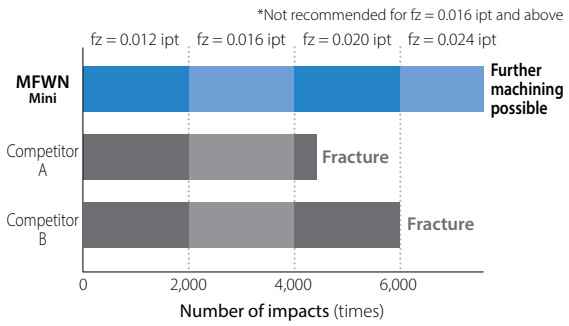
Left-handed toolholders are also available (Custom order)

Cutting Force comparison (Internal Evaluation)



Cutting conditions : Vc = 490 sfm, fz = 0.006 ipt, D.O.C. x ae = 0.059" x 1.378", Dry
Cutting Dia. ø63mm Workpiece : 4140

Fracture Resistance Comparison (Internal Evaluation)



Cutting conditions : Vc = 390 sfm, D.O.C. x ae = 0.059" x 1.181", Dry
Cutting Dia. ø63mm Workpiece : Mold Steel 37 ~ 43 HRC

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MFWN Mini (Face Mill)

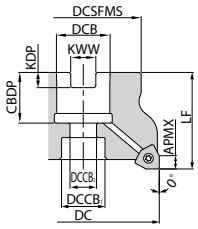

Fig. 1

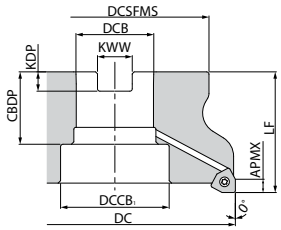

Fig. 2

Toolholder Dimensions

Unit			Part Number		Std. Item	No. of Inserts	Dimensions									A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➡ M155
				R		DC	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX							
mm	Inch Bore Dia.	Fine Pitch	MFWN	90080R-05-7T	●	7	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	5	+11	-7	Yes	10,900	1.3	1	WNMU0504...
				90100R-05-8T	●	8	100	78	1.250"	45	-		1.339"	0.315"	0.500"					9,700	1.6	2	
				90125R-05-11T	●	11	125	89	1.500"	55		63	1.496"	0.394"	0.625"					8,700	2.9	2	
		Extra Fine Pitch	MFWN	90080R-05-9T	●	9	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	5	+11	-7	Yes	10,900	1.2	1	WNMU0504...
				90100R-05-11T	●	11	100	78	1.250"	45	-		1.339"	0.315"	0.500"					9,700	1.6	2	
				90125R-05-14T	●	14	125	89	1.500"	55		63	1.496"	0.394"	0.625"					8,700	2.8	2	
	Metric Bore Dia.	Fine Pitch	MFWN	90050R-05-5T-M	●	5	50	48	22	17.5	11	40	21	6.3	10.4	5	+11	-9	Yes	13,800	0.4	1	WNMU0504...
				90063R-05-6T-M	●	6	63			18								-8		12,300	0.5	1	
				90080R-05-7T-M	●	7	80	70	27	20	13	50	24	7	12.4			-7		10,900	1.2	1	
				90100R-05-8T-M	●	8	100	78	32	45	-		30	8	14.4					9,700	1.6	2	
				90125R-05-11T-M	●	11	125	89	40	55		63	33	9	16.4					8,700	2.8	2	
		Extra Fine Pitch	MFWN	90050R-05-6T-M	●	6	50	48	22	17.5	11	40	21	6.3	10.4	5	+11	-9	Yes	13,800	0.4	1	WNMU0504...
				90063R-05-7T-M	●	7	63			18								-8		12,300	0.5	1	
				90080R-05-9T-M	●	9	80	70	27	20	13	50	24	7	12.4			-7		10,900	1.2	1	
				90100R-05-11T-M	●	11	100	78	32	45	-		30	8	14.4					9,700	1.5	2	
				90125R-05-14T-M	●	14	125	89	40	55		63	33	9	16.4					8,700	2.7	2	

Max. revolution : When running the end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts

	Part Number		Insert Screw	Wrench	Anti-seize Compound	Arbor Bolt
Fine Pitch	MFWN	90050R-05-5T-M	SB-3065TRP	DTPM-8	P-37	HH10×30
		90063R-05-6T-M				HH10×30
		90080R-05-7T(-M)	Recommended tightening torque for insert screw 1.2N•m			HH12×35
		90100R-05-8T(-M)				-
		90125R-05-11T(-M)				
Extra Fine Pitch	MFWN	90050R-05-6T-M	SB-3065TRP	DTPM-8	P-37	HH10×30
		90063R-05-7T-M				HH10×30
		90080R-05-9T(-M)	Recommended tightening torque for insert screw 1.2N•m			HH12×35
		90100R-05-11T(-M)				-
		90125R-05-14T(-M)				

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MFWN Mini (End Mill)

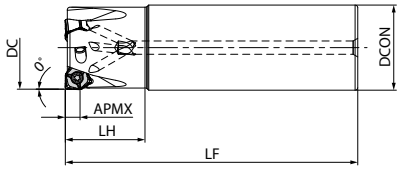

Fig. 1

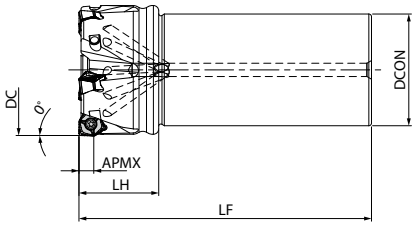

Fig. 2

Toolholder Dimensions

Unit		Part Number	Std. Item R	No. of Inserts	Dimensions DC	Dimensions DCON	Dimensions LF	Dimensions LH	Dimensions APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts: Insert Screw	Spare Parts: Wrench	Spare Parts: Anti-Seize Compound	Applicable Inserts ➡ M155
mm	Cylindrical Shank	MFWN 90025R-S25-05-2T	●	2	25	25	120	32	5	+11	-14.5	Yes	19,500	1	SB-3065TRP	DTPM-8	P-37	WNMU0504...
		90032R-S32-05-3T	●	3	32	32	130	40			-12		17,200	1				
		90040R-S32-05-4T	●	4	40		150	50			-10		15,400	2				
		90050R-S32-05-5T	●	5	50		110	30			-9		13,800	2				
		90063R-S32-05-6T	●	6	63						-8		12,300	2				
		90080R-S32-05-7T	●	7	80						-7		10,900	2				

Recommended tightening torque for insert screw 1.2N•m

Max. revolution : When running the end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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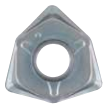
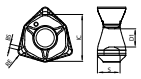
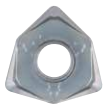
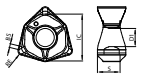
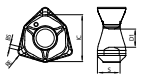
WNMU

Usage Classification										
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel			☆			★	☆	P
	Mold and die steel			☆			★	☆	P
	Austenitic stainless steel				☆		☆	★	M
	Martensitic stainless steel							☆	M
	Precipitation hardened stainless steel				☆			★	M
	Gray cast iron		☆			★			K
	Nodular cast iron		☆			★			K
	Non-ferrous metals								N
	Heat-resistant alloy							☆	S
	Titanium alloy				☆			★	S
	Hard materials (≤ 60 HRC)	★							H

Insert		Part Number	No. of Edges	Dimensions (mm)					Carbide						Applicable Toolholder ➡ M153 M154
				IC	S	D1	RE	BS	PVD						
									PR0155	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835
	 General Purpose	WNMU 050408EN-GM	6	8.8	4.2	3.4	0.8	0.7		△	●	●	●	●	MFWN90...-05-...
	 Low Cutting Force	WNMU 050408EN-SM	6	8.8	4.2	3.4	0.8	0.7		△	●	●	●	●	MFWN90...-05-...
	 Tough Edge	WNMU 050408EN-GH	6	8.8	4.2	3.4	0.8	0.7	●	△	●	●	●	●	MFWN90...-05-...

Recommended Cutting Conditions ➡ M156

WNMU Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

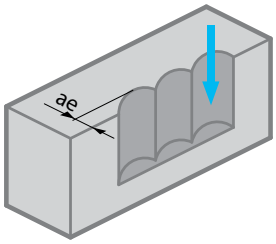
Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm)			
			MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD
			PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	PR015S
GM	Carbon Steel	0.004~**0.008**~0.010	☆ 390~**590**~820	★ 390~**590**~820	-	-
	Alloy Steel	0.004~**0.008**~0.010	☆ 330~**520**~720	★ 330~**520**~720	-	-
	Mold Steel	0.004~**0.006**~0.008	☆ 260~**460**~590	★ 260~**460**~590	-	-
	Austenitic Stainless Steel	0.004~**0.006**~0.008	☆ 330~**520**~660	☆ 330~**520**~660	-	-
	Martensitic Stainless Steel	0.004~**0.006**~0.008	☆ 490~**660**~820	-	-	-
	Precipitation Hardened Stainless Steel	0.004~**0.006**~0.008	★ 300~**390**~490	-	-	-
	Gray Cast Iron	0.004~**0.008**~0.010	-	-	★ 390~**590**~820	-
	Nodular Cast Iron	0.004~**0.006**~0.008	-	-	★ 330~**490**~660	-
	Ni-base Heat Resistant Alloy	0.004~**0.005**~0.006	☆ 70~**100**~160	-	-	-
SM	Carbon Steel	0.002~**0.005**~0.008	☆ 390~**590**~820	☆ 390~**590**~820	-	-
	Alloy Steel	0.002~**0.005**~0.008	☆ 330~**520**~720	☆ 330~**520**~720	-	-
	Mold Steel	0.002~**0.003**~0.006	☆ 260~**460**~590	☆ 260~**460**~590	-	-
	Austenitic Stainless Steel	0.002~**0.005**~0.008	★ 330~**520**~660	☆ 330~**520**~660	-	-
	Martensitic Stainless Steel	0.002~**0.005**~0.008	☆ 490~**660**~820	-	-	-
	Precipitation Hardened Stainless Steel	0.002~**0.005**~0.008	☆ 300~**390**~490	-	-	-
	Gray Cast Iron	0.002~**0.005**~0.008	-	-	☆ 390~**590**~820	-
	Nodular Cast Iron	0.002~**0.003**~0.006	-	-	☆ 330~**490**~660	-
	Ni-base Heat Resistant Alloy	0.002~**0.003**~0.006	★ 70~**100**~160	-	-	-
	Titanium Alloy	0.002~**0.003**~0.006	★ 130~**200**~260	-	☆ 130~**200**~260	-
GH	Carbon Steel	0.006~**0.008**~0.012	☆ 390~**590**~820	☆ 390~**590**~820	-	-
	Alloy Steel	0.006~**0.008**~0.012	☆ 330~**520**~720	☆ 390~**520**~720	-	-
	Mold Steel	0.006~**0.008**~0.010	☆ 260~**460**~590	☆ 260~**460**~590	-	-
	Austenitic Stainless Steel	0.006~**0.008**~0.010	☆ 330~**520**~660	☆ 330~**520**~660	-	-
	Martensitic Stainless Steel	0.006~**0.008**~0.010	☆ 490~**660**~820	-	-	-
	Precipitation Hardened Stainless Steel	0.006~**0.008**~0.010	☆ 300~**390**~490	-	-	-
	Gray Cast Iron	0.006~**0.008**~0.012	-	☆ 390~**590**~820	☆ 390~**590**~820	-
	Nodular Cast Iron	0.006~**0.008**~0.010	-	☆ 330~**490**~660	☆ 330~**490**~660	-
	Ni-base Heat Resistant Alloy	0.004~**0.006**~0.008	☆ 70~**100**~160	-	-	-
	Hardened Material (≤ 60 HRC)	0.002~**0.003**~0.006	-	-	-	★ 160~**260**~330

The figures in bold font represent the center value of the recommended cutting conditions.
Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation
Machining with coolant is recommended for Ni-base Heat-resistant alloy and Titanium Alloy
When using GH chipbreaker for fine pitch cutters, recommended feed is fz ≦ 0.008 ipt

★ : 1st Recommendation ☆ : 2nd Recommendation

Plunging



Available for Plunging

Cutting Dia.	Maximum Width of Cut (ae)
All Cutters	5mm

Ramping and helical milling are not recommended due to interference between workpiece and flank face

Applicable Chipbreaker

Cutter type	Chipbreaker		
	GM	SM	GH
Fine Pitch	✓	✓	✓
Extra Fine Pitch	✓	✓	(Feed rate is recommended fz=0.008 ipt or under)

How to Mount Inserts

1. Completely eliminate chips and dust from the insert mounting side.
2. Insert Screw
   · Apply anti-seize compound on portion of taper and thread of clamp screw.
   · After mounting a insert screw on the top edge of wrench, tighten the screw while keeping the insert pushed against the shim seat surface and holder surface (Fig.1)
3. When tightening the screw, make sure that the wrench is parallel to the screw.
   Recommended tightening torque . . . 1.2N·m
4. After tightening, check that there is no gap between the insert and the surface of the shim, or between the side surface of insert and the holder surface.
   If there is a gap, remount the insert using the directions above.

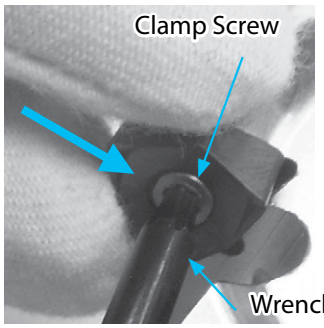


Fig. 1

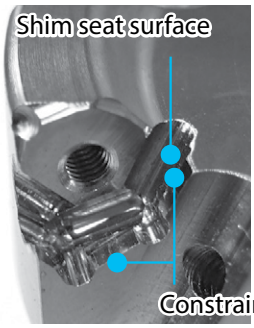


Fig. 2

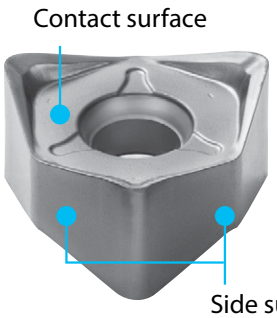


Fig. 3

88˚ Lead, High Efficiency Cutter

MFSN88

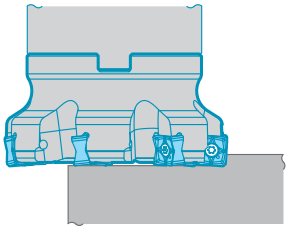
Economical double-sided 8-edge insert suitable for shoulder roughing
Reduces chattering with a low cutting force design

1 Economical double-sided 8-edge insert suitable for shoulder roughing

Cost reduction with nearly 90˚ corners

Shoulder roughing

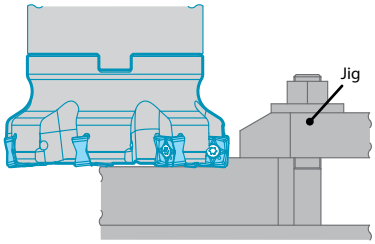
Cost reduction by switching from 90˚ cutter with positive inserts



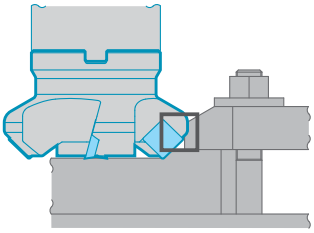
See page **M127** for unmachined corner portion

Facing without interfering with fixtures

MFSN88



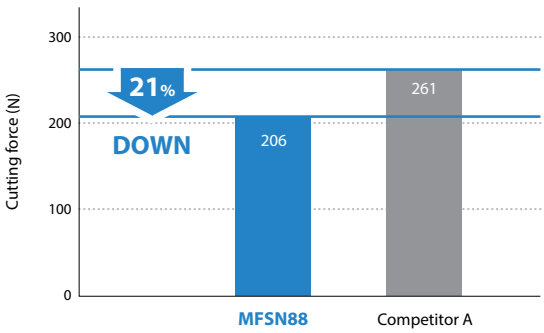
Conventional 45˚ cutter



2 Reduces chattering with a low cutting force design

Chatter resistant medium to roughing machining range

Cutting force comparison (Internal evaluation)



Cutting force is thrust force

Cutting Conditions : Vc = 660 sfm, f = 0.006 ipt, D.O.C. = 0.118"
Cutter Diameter Ø63mm, Workpiece : 1049 Steel

3 Extended tool life with MEGACOAT NANO technology

Insert grade and chipbreaker lineup for various machining application

1st Recommendation (General purpose)
GM chipbreaker

Tough edge
GH chipbreaker

For stainless steel
SM chipbreaker

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MFSN88 (Face Mill)

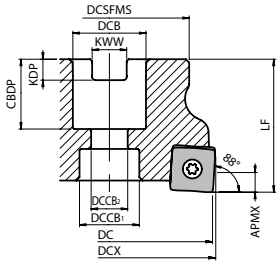


Fig. 1

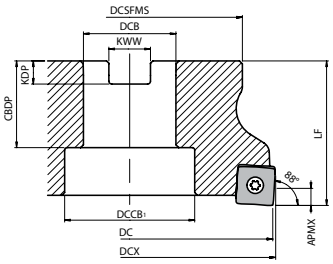


Fig. 2

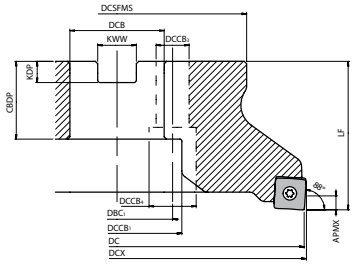


Fig. 3

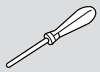
Toolholder Dimensions

Unit			Part Number		Std. Item	No. of Inserts	Dimensions														A.R. Max. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ➡ M162
				R		DC	DCX	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	$DCCB_3$	$DCCB_4$	DBC_1	LF	CBDP	KDP	KWW							
mm	Inch Bore Dia.	Fine Pitch	MFSN	88080R-6T-G	●	6	80	82	70	1.000"	20	13	-	-	-	50	1.063"	0.236"	0.375"	+10	-9	No	1.1	1	SNMU1305...
				88100R-7T-G	●	7	100	102	78	1.250"	45						1.339"	0.315"	0.500"		-8		1.5	2	
				88125R-9T-G	●	9	125	127	89	1.500"	55	-				63	1.496"	0.394"	0.625"		-7.5		2.5	2	
				88160R-11T-G	●	11	160	162	110	2.000"	70							0.433"	0.750"		-7		4.1	2	
		Extra Fine Pitch	MFSN	88080R-9T-G	●	9	80	82	70	1.000"	20	13	-	-	-	50	1.063"	0.236"	0.375"	+10	-9	No	1.1	1	SNMU1305...
				88100R-11T-G	●	11	100	102	78	1.250"	45						1.339"	0.315"	0.500"		-8		1.5	2	
				88125R-13T-G	●	13	125	127	89	1.500"	55	-				63	1.496"	0.394"	0.625"		-7.5		2.6	2	
				88160R-15T-G	●	15	160	162	110	2.000"	70							0.433"	0.750"		-7		4.3	2	
	Metric Bore Dia.	Fine Pitch	MFSN	88050R-4T-M-G	●	4	50	52	48	22	17.5	11	-	-	-	40	21	6.3	10.4	+10	-12	No	0.3	1	SNMU1305...
				88063R-5T-M-G	●	5	63	65			18										-10		0.4	1	
				88080R-6T-M-G	●	6	80	82	70	27	20	13				50	24	7	12.4		-9		1.1	1	
				88100R-7T-M-G	●	7	100	102	78	32	45						30	8	14.4		-8		1.4	2	
				88125R-9T-M-G	●	9	125	127	89	40	55	-				63	33	9	16.4		-7.5		2.4	2	
				88160R-11T-M-G	●	11	160	162	110				14	20	66.7						-7		4.2	3	
		Extra Fine Pitch	MFSN	88050R-5T-M-G	●	5	50	52	48	22	17.5	11	-	-	-	40	21	6.3	10.4	+10	-12	No	0.3	1	SNMU1305...
				88063R-7T-M-G	●	7	63	65			18										-10		0.4	1	
				88080R-9T-M-G	●	9	80	82	70	27	20	13				50	24	7	12.4		-9		1.1	1	
				88100R-11T-M-G	●	11	100	102	78	32	45						30	8	14.4		-8		1.4	2	
				88125R-13T-M-G	●	13	125	127	89	40	55	-				63	33	9	16.4		-7.5		2.5	2	
				88160R-15T-M-G	●	15	160	162	110				14	20	66.7						-7		4.3	3	

APMX : 5mm (GM, SM, GH Chipbreakers, Coated Carbide), 3mm (GM Chipbreaker, Cermet)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts (for Both Metric and Inch Bore Dia.)

Part Number			Insert Screw	Wrench	Anti-Seize Compound	Arbor Bolt
						
Fine Pitch	MFSN	88050R-4T-M-G	SB-4090TRP	DTPM-15	P-37	HH10X30
		88063R-5T-M-G				HH10X30
		88080R-6T(-M)-G				HH12X35
		88100R-7T(-M)-G	Recommended tightening torque for insert screw 3.5N•m			-
		88125R-9T(-M)-G				
		88160R-11T(-M)-G				
Extra Fine Pitch	MFSN	88050R-5T-M-G	SB-4090TRP	DTPM-15	P-37	HH10X30
		88063R-7T-M-G				HH10X30
		88080R-9T(-M)-G				HH12X35
		88100R-11T(-M)-G	Recommended tightening torque for insert screw 3.5N•m			-
		88125R-13T(-M)-G				
		88160R-15T(-M)-G				

Coat anti-seize compound thinly on portion of taper and thread prior to installation.

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MFSN88 (End Mill)

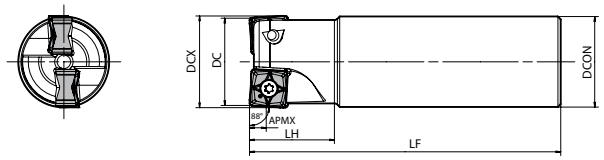


Fig. 1

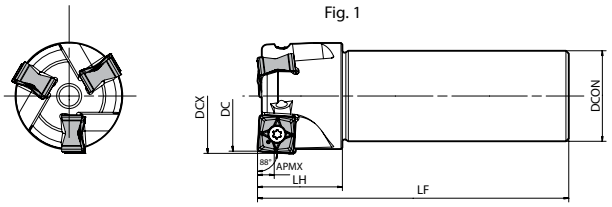


Fig. 2

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ M162
		R		DC	DCX	DCON	LF	LH					Insert Screw	Wrench	Anti-Seize Compound	
mm	MFSN 88032R-S32-2T-G	●	2	32	34	32	110	30	+10	-15.5	No	1	SB-4090TRP	DTPM-15	P-37	SNMU1305...
	88040R-S32-3T-G	●	3	40	42					-13		2				

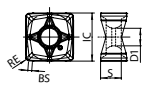
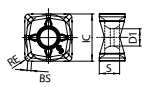
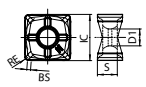
APMX : 5mm (GM, SM, GH Chipbreakers, Coated Carbide), 3mm (GM Chipbreaker, Cermet)
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
Recommended tightening torque for insert clamp : 3.5N·m

SNMU

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel			☆			★	☆	■	P
Mold and die steel			☆			★	☆	■	P
Austenitic stainless steel				☆		☆	★		M
Martensitic stainless steel							☆		M
Precipitation hardened stainless steel				☆			★		M
Gray cast iron		☆			★				K
Nodular cast iron		☆			★				K
Non-ferrous metals									N
Heat-resistant alloy							☆		S
Titanium alloy				☆			★		S
Hard materials (≤ 60 HRC)	★								H

Insert		Part Number	Dimensions (mm)					Carbide						Cermet	Applicable Toolholder ➡ M159 M161
								PVD						-	
			IC	S	D1	RE	BS	PR015S	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835	TN620M	
	 General Purpose	SNMU 130508EN-GM	13	5.51	4.7	0.8	1		△	●	●	●	●	●	●	MFSN88...
	 Low Cutting Force	SNMU 130508EN-SM	13	5.51	4.7	0.8	1		△	●	●	●	●	●		MFSN88...
	 Tough Edge	SNMU 130508EN-GH	13	5.51	4.7	0.8	1	●	△	●	●	●	●	●		MFSN88...

Recommended Cutting Conditions ➡ M163

SNMU Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Coated Carbide

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc : sfm)			
			MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD
			PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	PR015S
GM	Carbon Steel	0.0039~**0.0079**~0.0118	☆ 390~**590**~820	★ 390~**590**~820	-	-
	Alloy Steel	0.0039~**0.0079**~0.0118	☆ 330~**520**~720	★ 330~**520**~720	-	-
	Mold Steel	0.0039~**0.0059**~0.0098	★ 260~**460**~590	★ 260~**460**~590	-	-
	Austinitic Stainless Steel	0.0039~**0.0059**~0.0098	☆ 330~**490**~660	☆ 330~**490**~660	-	-
	Martensitic Stainless Steel	0.0039~**0.0059**~0.0098	☆ 330~**490**~660	-	-	-
	Precipitation Hardened Stainless Steel	0.0039~**0.0059**~0.0098	★ 300~**390**~490	-	-	-
	Gray Cast Iron	0.0039~**0.0079**~0.0118	-	-	★ 390~**590**~820	-
	Nodular Cast Iron	0.0039~**0.0059**~0.0098	-	-	★ 330~**490**~660	-
	Ni-base Heat Resistant Alloys	0.0039~**0.0047**~0.0079	☆ 70~**100**~160	-	-	-
SM	Carbon Steel	0.0024~**0.0047**~0.0079	-	☆ 390~**590**~820	-	-
	Alloy Steel	0.0024~**0.0047**~0.0079	-	☆ 330~**520**~720	-	-
	Mold Steel	0.0024~**0.0031**~0.0059	-	☆ 260~**460**~590	-	-
	Austinitic Stainless Steel	0.0024~**0.0047**~0.0079	★ 330~**490**~660	☆ 330~**490**~660	-	-
	Martensitic Stainless Steel	0.0024~**0.0047**~0.0079	★ 330~**490**~660	-	-	-
	Precipitation Hardened Stainless Steel	0.0024~**0.0047**~0.0079	☆ 300~**390**~490	-	-	-
	Gray Cast Iron	0.0024~**0.0047**~0.0079	-	-	☆ 390~**590**~820	-
	Nodular Cast Iron	0.0024~**0.0039**~0.0059	-	-	☆ 330~**490**~660	-
	Ni-base Heat Resistant Alloys	0.0024~**0.0031**~0.0059	★ 70~**100**~160	-	-	-
	Titanium Alloys	0.0024~**0.0031**~0.0059	★ 130~**200**~260	-	-	-
GH	Carbon Steel	0.0059~**0.0098**~0.0138	-	☆ 390~**590**~820	-	-
	Alloy Steel	0.0059~**0.0098**~0.0138	-	☆ 330~**520**~720	-	-
	Mold Steel	0.0039~**0.0079**~0.0118	-	☆ 260~**460**~590	-	-
	Gray Cast Iron	0.0059~**0.0098**~0.0138	-	-	☆ 390~**590**~820	-
	Nodular Cast Iron	0.0039~**0.0079**~0.0118	-	-	☆ 330~**490**~660	-
	Hardened Materials (≤ 60 HRC)	0.0039~**0.0079**~0.0118	-	-	-	★ 260~**330**~390

The figures in bold font represent the center value of the recommended cutting conditions.
Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation
Machining with coolant is recommended for Ni-base Heat-resistant alloy and Titanium Alloy

★ : 1st Recommendation ☆: 2nd Recommendation

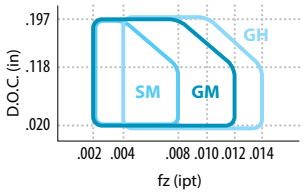
Cermet

Chipbreaker	Workpiece Material	Feed (fz: ipt)	Recommended insert grades (Vc: sfm)
			Cermet
			TN620M
GM	Carbon steel	0.002~**0.005**~0.006	★ 660~**820**~980
	Alloy steel	0.002~**0.005**~0.006	★ 590~**720**~820
	Mold steel	0.002~**0.004**~0.005	★ 490~**590**~720

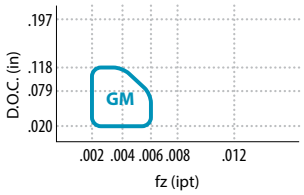
★ : 1st Recommendation

Applicable Chipbreaker Range

Coated Carbide



Cermet



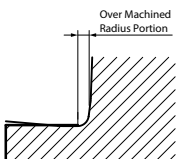
Applicable Chipbreaker

Cutter Type	Chipbreaker		
	GM	SM	GH
Fine Pitch	✓	✓	✓
Extra Fine Pitch	✓	✓	△ (Feed rate is recommended fz=0.008 ipt or under)

Not recommended for plunging.

Reference Data for Unmachined Corner Portion

D.O.C.	1 mm	2 mm	3 mm	4 mm	5 mm
Over Machined Radius Portion	0.12 mm	0.24 mm	0.27 mm	0.31 mm	0.34 mm



Over machined radius portion to 90°cutter

Face Mills for Heavy Milling

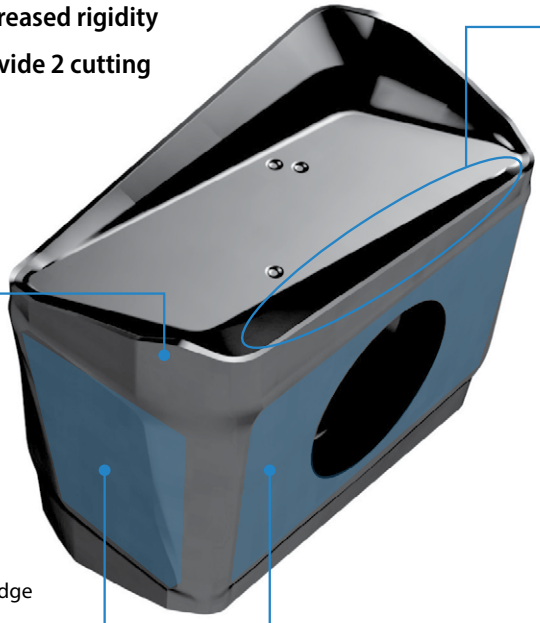
MFLN

Tough 4-edge tangential inserts for reliable heavy milling at large D.O.C. and high feed rates
Three lead angle options (including MFLN45 and MFLN70) for optimized machining in various applications

1 Tough and Reliable Inserts for Stable Heavy Milling

Inserts up to 20mm long offer increased rigidity

Tangentially mounted inserts provide 2 cutting edges on each side

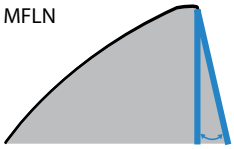


Obtuse Edge Design

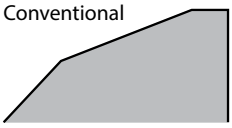
Increases the cutting edge angle only at the tip to maintain both strength and sharpness

Cross-section view of cutting edge

MFLN



Conventional



Corner Chamfer

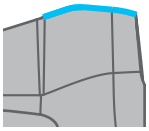
(only available on MFLN90)

Both general corner-R type and chamfered corner type available

Prevents chattering and insert fracturing

Convex cutting edge ridge

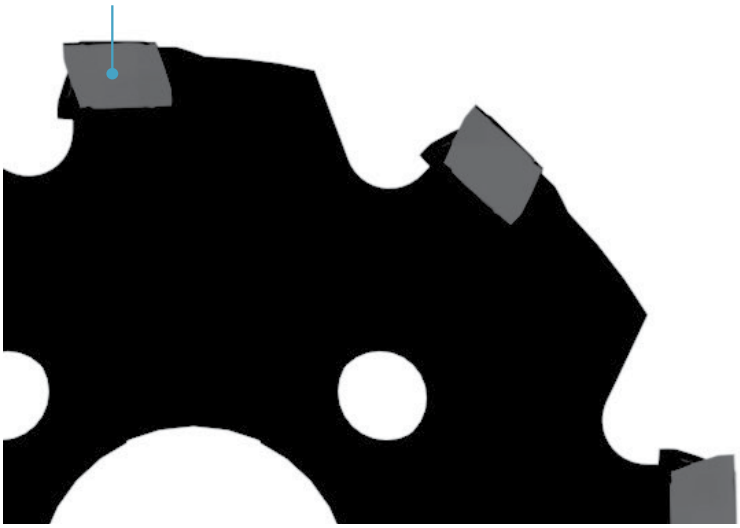
Reduced impact forces when entering the workpiece



Wide Flat Mounting Surface

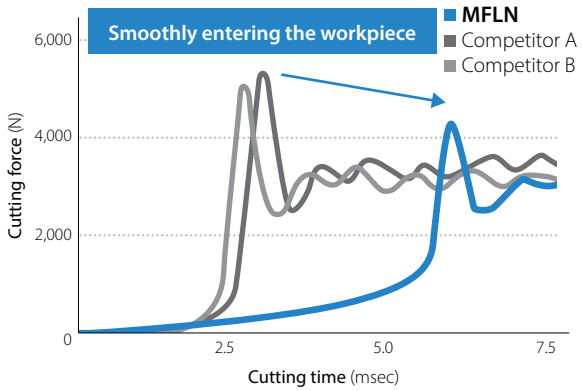
Holds insert firmly in heavy milling applications

Tangentially mounted inserts increase rigidity



Cutting forces when entering the workpiece (internal evaluation)

MFLN90: Insert - chamfered corner type



Cutting Conditions : Vc = 490 sfm, D.O.C. × ae = 0.197" × 2.95", fz = 0.012 ipt
ø125mm (1 insert), Dry Workpiece : 1049

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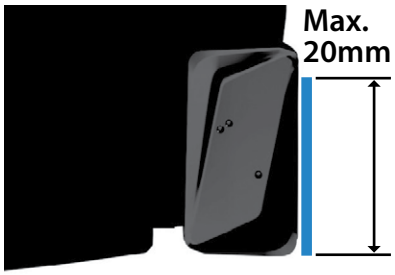
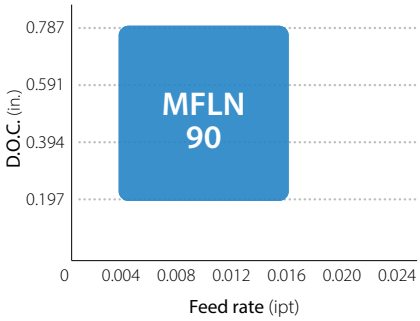
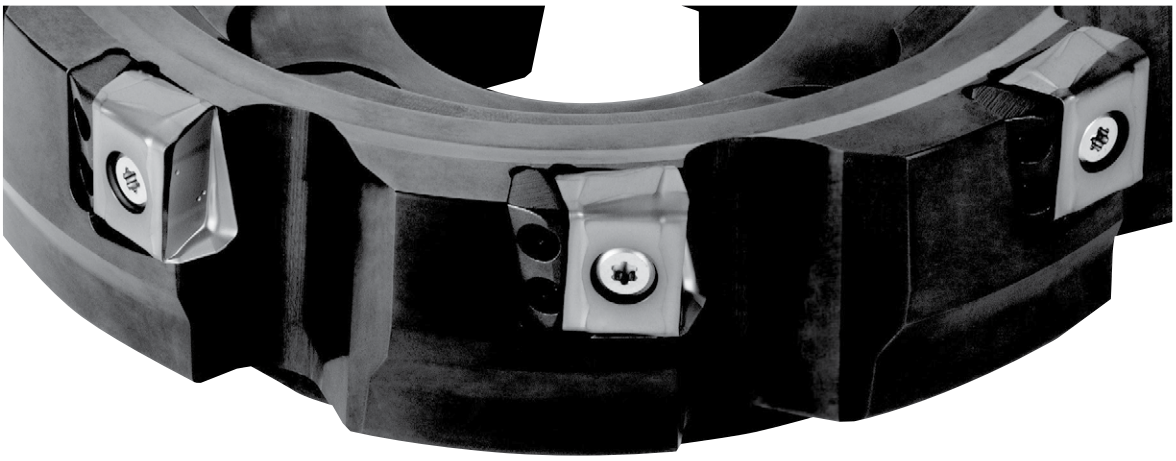
2 Large D.O.C. and High Feed Rates

MFLN90
Lead Angle 90°



Applicable range



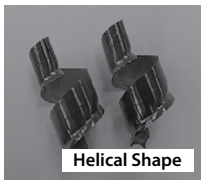


Chip Comparison (Internal Evaluation)

Helix-shaped chips prevent chip recutting and provide stable machining at high feed rates.

MFLN90 Stable

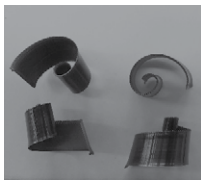
fz = 0.012 ipt



fz = 0.016 ipt

Competitor A Unstable

fz = 0.012 ipt



fz = 0.016 ipt

Competitor B Unstable

fz = 0.012 ipt

fz = 0.016 ipt

Cutting Conditions : Vc = 490 sfm, ap × ae = 0.394" × 3.937", fz = 0.012, 0.016 ipt, ø125mm (1 insert), Dry Workpiece : 1049

MFLN90

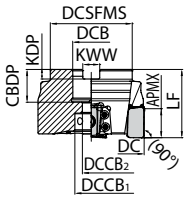


Fig. 1

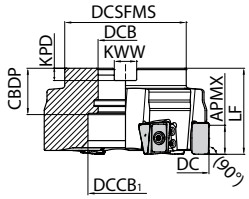


Fig. 2

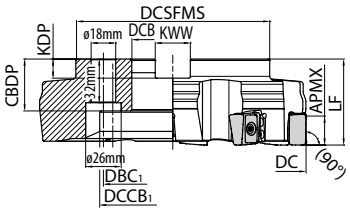


Fig. 3

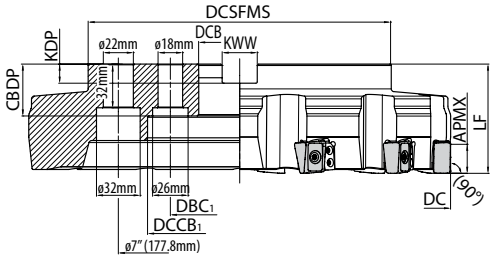


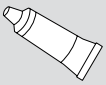
Fig. 4

Toolholder Dimensions

Unit	Part Number		Std. Item R	No. of Inserts	Dimensions DC	DCSFMS	DCB	DCCB1	DCCB2	DBC1	LF	CBDP	KDP	KWW	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ⇒ M167
mm	Inch Bore Dia.	MFLN 90080R-4T	●	4	80	60	1.000"	24	13	-	50	1.063"	0.236"	0.375"	20	+4.5	-16.5	Yes	5,970	1	1	LOGU221616ER-GM LOGU2216PAER-GM
		90100R-4T	●		100	70	1.250"	45	-			1.339"	0.315"	0.500"			-14.5		4,780	1.6	2	
		90125R-6T	●	6	125	89	1.500"	55			63	1.496"	0.394"	0.625"			-13.5	No	3,820	3	2	
		90160R-7T	●	7	160	110	2.000"	90					0.433"	0.750"					2,990	4.6	2	
		90200R-8T	●	8	200	142	1.875"	132		101.6			0.551"	1.000"					2,390	7.2	3	
		90250R-10T	●	10	250			172									-13		1,910	10.5	3	
		90315R-12T	□	12	315	222		205			80								1,520	21.8	4	
	Metric Bore Dia.	MFLN 90080R-4T-M	●	4	80	60	27	24	13	-	50	24	7	12.4	20	+4.5	-16.5	Yes	5,970	1	1	LOGU221616ER-GM LOGU2216PAER-GM
		90100R-4T-M	●		100	70	32	45				30	8	14.4			-14.5		4,780	1.5	2	
		90125R-6T-M	●	6	125	89	40	55			63	33	9	16.4			-13.5	No	3,820	2.9	2	
		90160R-7T-M	●	7	160	110		90		66.7									2,990	4.5	3	
		90200R-8T-M	●	8	200	142	60	132	-			38	14	25.7					2,390	6.9	3	
		90250R-10T-M	●	10	250			172		101.6							-13		1,910	10.3	3	
		90315R-12T-M	□	12	315	222		205			80								1,520	20.9	4	

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Spare Parts

Part Number	Spare Parts: Insert Screw	Wrench	Shim	Shim Screw	Wrench	Anti-Seize Compound	Arbor Bolt
							
MFLN ○○080R-4T(-M)	SB-60200TRP	TTP-20	MAP-2216	SB-40140TR	DTM-15	P-37	HH12X35
○○100R-4T(-M) ~ ○○315R-12T(-M)	Recommended tightening torque for insert screw 6.0N•m		Recommended tightening torque for shim screw 3.5N•m				–

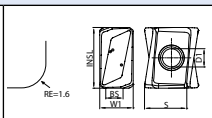
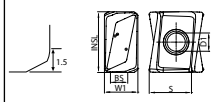
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

LOGU

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel	☆		★	☆	P
Mold and die steel	☆		★	☆	
Austenitic stainless steel					M
Martensitic stainless steel					
Precipitation hardened stainless steel					
Gray cast iron	☆		★	☆	K
Nodular cast iron	☆		★	☆	
Non-ferrous metals					N
Heat-resistant alloy					S
Titanium alloy					
Hard materials					H

Insert		Part Number	Dimensions (mm)						Carbide PVD				Applicable Toolholder ⇒ M166 M46 M47
			S	D1	RE	W1	INSL	BS	PR1525	PR1535	PR1825	PR1835	
	 Corner-R	LOGU 221616ER-GM	16.6	6.8	1.6	12.5	22.8	6.3	●	●	●	●	MFLN90... MFLN45... MFLN70...
	 Corner Chamfer	LOGU 2216PAER-GM	16.9	6.8	-	12.5	22.8	4.8	●	●	●	●	MFLN90...

Recommended Cutting Conditions ⇒ **M168**

LOGU Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

	Workpiece Material	D.O.C. (in)		fz: ipt	Recommended Insert Grades (Cutting Speed Vc : sfm)	
					MEGACOAT NANO EX (MEGACOAT NANO)	
		Width of Cut ≦0.5×DC	Width of Cut >0.5×DC		PR1825 (PR1525)	PR1835 (PR1535)
MFLN 90	Carbon steel	~0.709	~0.591	0.004~**0.008**~0.016	★ 330~**490**~590	☆ 260~**390**~490
	Alloy steel				★ 330~**490**~590	☆ 260~**390**~490
	Mold steel				★ 260~**390**~490	☆ 230~**330**~390
	Gray cast iron	~0.787	~0.709	0.004~**0.008**~0.016	★ 330~**490**~590	☆ 260~**390**~490
	Nodular cast iron				★ 330~**490**~590	☆ 260~**390**~490

The table above provides recommendations based on product specifications.
Before using the product, check the machine's specifications such as power.
The number in **bold** font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
Dry machining is recommended.

★ : 1st Recommendation ☆: 2nd Recommendation

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How to Mount Inserts

1 . Completely eliminate chips and dust from the insert mounting side.
2. After mounting a clamp screw on the top edge of wrench, tighten the screw while keeping the insert pushed against the shim seat surface and holder surface (Fig.1,2)
3. Make sure that the identification on the top of the insert is the same in each pocket.(Fig.3)
4. Tighten the wrench (TTP-20) in while holding parallel to the clamp screw.
5. Tighten the insert clamp screw at an appropriate torque. (Recommended torque: 6.0 N·m)
6. After tightening, check that there is no gap between the insert and the surface of the shim, or between the side surface of insert and the holder surface. If there is a gap, remount the insert using the directions above.

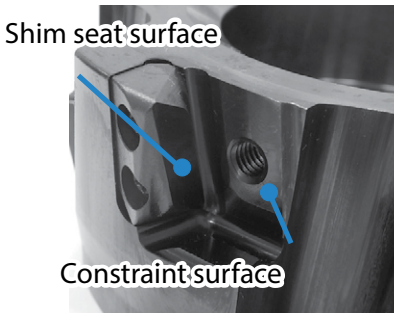


Fig.1

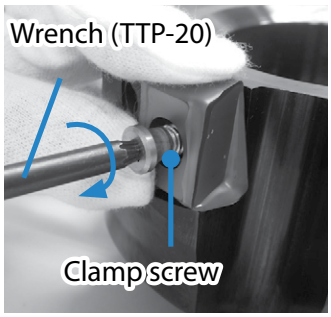


Fig.2

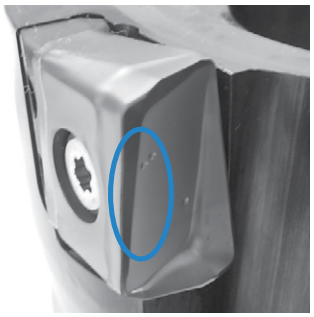


Fig.3

How to Replace Shim

1. Completely eliminate chips and dust from the shim mounting side.
2. Coat medium strength screw locking adhesive on the screws.
3. Tighten the screw keeping the shim pushed against the pocket surface of toolholder.
4. After tightening both screws temporarily, tighten them with appropriate torque. (Recommended torque:3.5 N·m)
5. Please check that there is no gap between the shim and the pocket surfaces of toolholder.

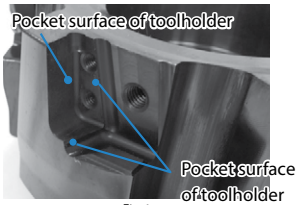


Fig.1

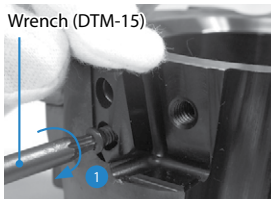


Fig.2

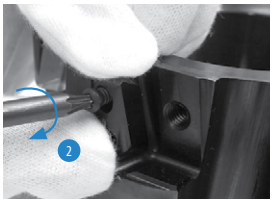
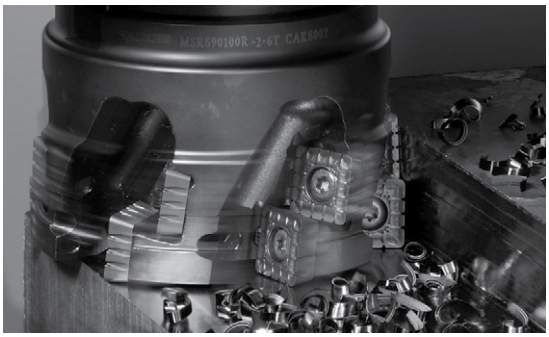


Fig.3

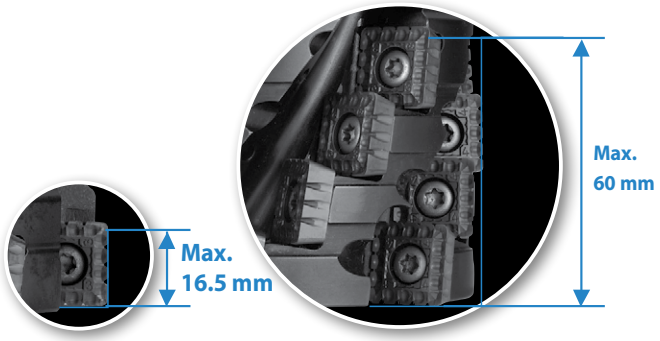
Fig.4

MSRS90 Face Mill for Heavy Milling



Wide selection of cutting edge lengths available

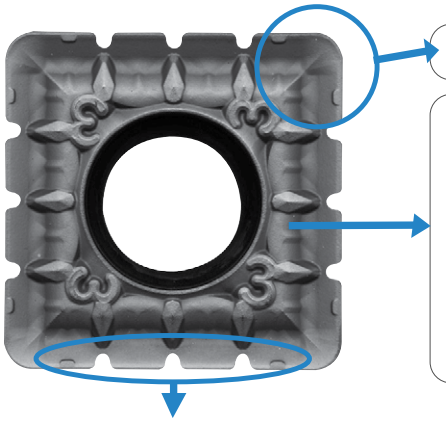
1, 2, and 4-Stage (ø3.00in, ø80mm, ø100mm)



High Efficiency, Low Cutting Force and Low Vibration Milling Cutte Neutral and Corner-R insert

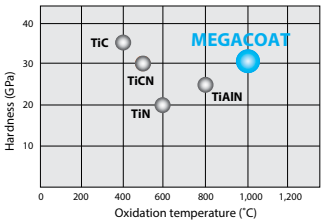
Applicable to shouldering (Cutting edge angle: 90˚),
high feed milling (Cutting edge angle: 30˚), plunging, and side cutter.

Custom-ordered milling cutter with high performance notched neutral inserts provides various applications



Neutral insert with corner-R is available to various applications

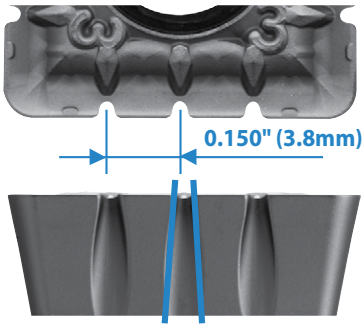
Long Tool Life: MEGACOAT



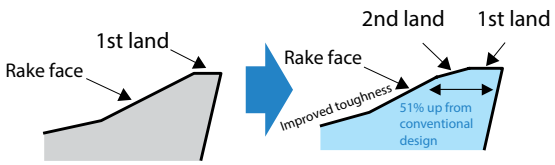
High hardness and high oxidation resistance long tool life: MEGACOAT

Notched Insert SPMT180616EN

The notched insert breaks chips into small pieces and reduces cutting force.
The second land near the cutting edge improves edge strength.



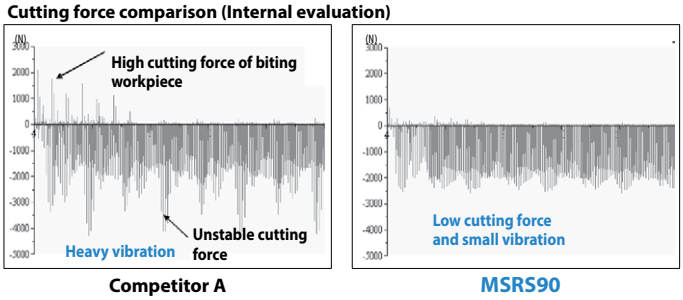
For neutral (Right/Left) hand
Applicable for various cutting edge angle.
Cutting edge length: 18mm



Edge preparation

Low cutting force (Notched insert benefit)

Cutting force comparison (Internal evaluation)



Competitor A | MSRS90

Notched insert realizes lower cutting force and smaller vibration

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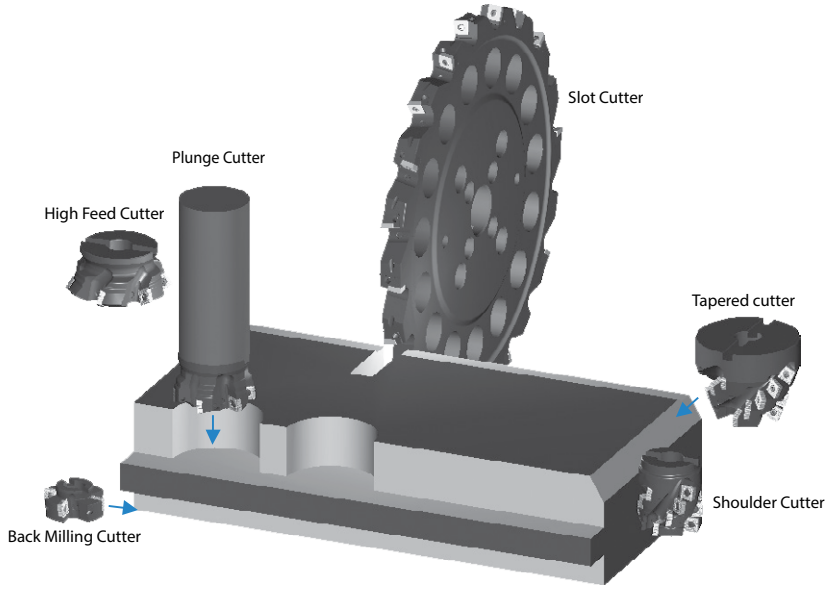
www.kyocera precisiontools.com

Applicable Inserts: Available for a Variety of Applications

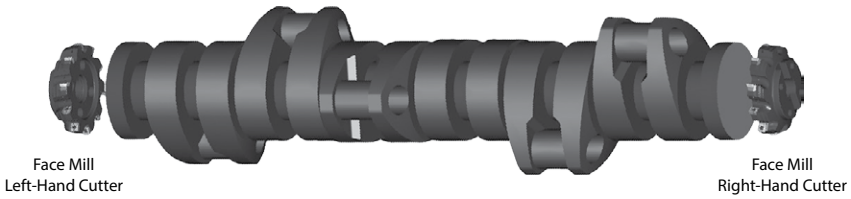
Applications	Chipbreaker Selection	3-Notched	4-Notched	Without Notch
General Purpose	Standard	NB3 +	NB4	
Low Cutting Force	Low Cutting Force	NB3P +	NB4P	
Edge Strength Oriented	Without Notch (Usable with Notched Inserts)	(NB3 or	NB4) +	

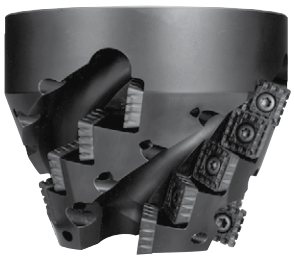
Various Cutting Possibilities with Custom-Designed and Standard Cutters



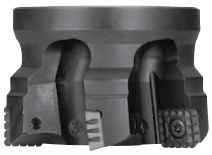
The custom-designed milling cutters can be customized for your requirements such as diameter, cutting edge angle, number of insert stages, etc.

Shaft length determination





Tapered Cutter



Plunge Cutter

45˚ Face Mill

High Feed Cutter

Shoulder Cutter

MSRS90

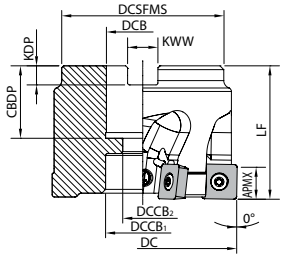


Fig. 1

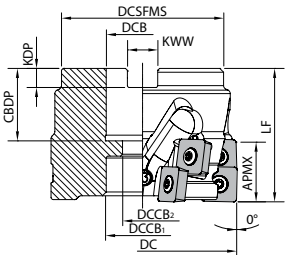


Fig. 2

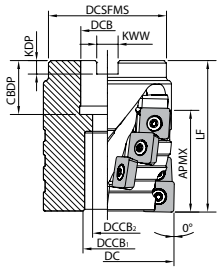


Fig. 3

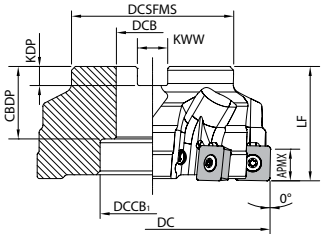


Fig. 4

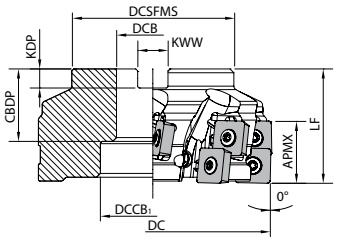


Fig. 5

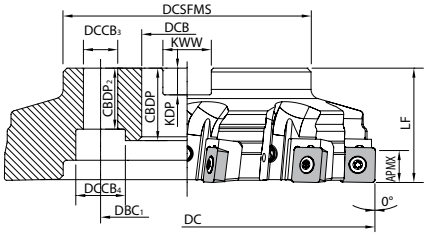


Fig. 6

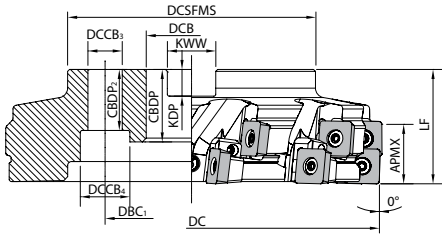


Fig. 7

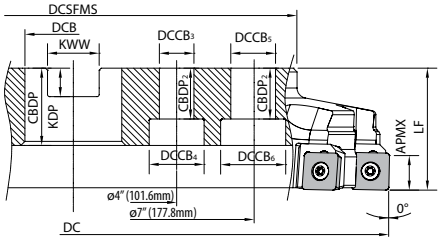


Fig. 8

Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions										A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts M174
			R				DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX						
Inch	Inch Bore Dia.	MSRS 903000R-1-4T	●	4	4	1	3.00	2.75	1.00	0.87	0.55	2.36	1.06	0.24	0.38	0.65	+7	-10	No	2.4	1	SPMT180616EN-...
		903000R-2-4T	●	8	4	2										1.22				2.2	2	
		904000R-1-6T	●	6	6	1	4.00	3.35	1.50	2.05	-	2.76	1.14	0.39	0.63	0.65				4.4	4	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

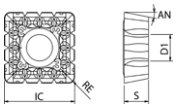
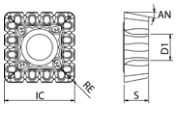
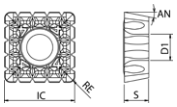
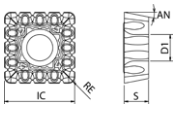
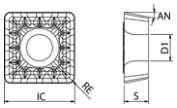
Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions																A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ➡ M174
			R				DC	DCSFMS	DCB	DCB_1	DCB_2	DCB_3	DCB_4	DCB_5	DCB_6	DBC_1	LF	CBDP	$CBDP_2$	KDP	KWW	APMX						
mm	Inch Bore Dia.	MSRS 90080R-1-4T	●	4	4	1	80	70	1.250"	27	18	-	-	-	-	-	60	1.260"	-	0.315"	0.500"	16.5	+7	-10	No	1.4	1	SPMT180616EN-...
		90080R-2-4T	●	8		2																31				1.2	2	
		90080R-4-4T	●	16		4											85					60				1.5	3	
		90100R-1-6T	●	6	6	1	100	85	1.500"	39	21						70	1.496"		0.394"	0.625"	16.5				2.3	1	
		90100R-2-6T	●	12		2																31				2.1	2	
		90100R-4-6T	□	24		4											90					60				3.2	3	
		90125R-1-8T	□	8	8	1	125			55				-	-		60					16.5				2.6	4	
		90125R-2-8T	□	16		2																31				2.4	5	
		90160R-1-8T	●	8		1	160	100	2.000"	70										0.433"	0.750"	16.5				4.3	4	
		90160R-2-8T	□	16		2																31				4.1	5	
		90200R-1-10T	●	10	10	1	200	130	1.875"	-	-	18	26			4.000"			1.260"	0.551"	1.000"	16.5				6.7	6	
		90200R-2-10T	□	20		2																31				6.6	7	
		90250R-1-12T	●	12	12	1	250			-												16.5				12.6	6	
		90250R-2-12T	□	24		2																31				12.5	7	
		90315R-1-14T	●	14	14	1	315	220				17	27	22	32	-			0.984"			16.5				16.1	8	
		90315R-2-14T	□	28		2																31				16		
	Metric Bore Dia.	MSRS 90080R-1-4T-M	●	4	4	1	80	70	27	20	13	-	-	-	-	-	60	24	-	7	12.4	16.5	+7	-10	No	1.3	1	SPMT180616EN-...
		90080R-2-4T-M	●	8		2																31				1.1	2	
		90080R-4-4T-M	●	16		4											85					60				1.4	3	
		90100R-1-6T-M	●	6	6	1	100	85	32	45							70	30		8	14.4	16.5				2.2	1	
		90100R-2-6T-M	●	12		2																31				2	2	
		90100R-4-6T-M	□	24		4											90					60				3.1	3	
		90125R-1-8T-M	●	8	8	1	125		40	55				-	-		60	33		9	16.4	16.5				2.6	4	
		90125R-2-8T-M	□	16		2																31				2.4	5	
		90160R-1-8T-M	●	8		1	160	110				14	20			66.7			28			16.5				4.2	6	
		90160R-2-8T-M	□	16		2																31				4	7	
		90200R-1-10T-M	●	10	10	1	200	140	60	-		18	26			101.6	60	40	32	14	25.7	16.5				6.7	6	
		90200R-2-10T-M	□	20		2																31				6.6	7	
		90250R-1-12T-M	●	12	12	1	250															16.5				12.6	6	
		90250R-2-12T-M	□	24		2																31				12.5	7	
		90315R-1-14T-M	●	14	14	1	315	220				17	27	22	32	-			25			16.5				16.1	8	
		90315R-2-14T-M	□	28		2																31				16		

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SPMT

Usage Classification				
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel		★	P
	Mold and die steel		★	
	Austenitic stainless steel			M
	Martensitic stainless steel			
	Precipitation hardened stainless steel			
	Gray cast iron	★		K
	Nodular cast iron	★		
	Non-ferrous metals			N
	Heat-resistant alloy			S
	Titanium alloy			
	Hard materials			H

Insert		Part Number	No. of Edges	Dimensions (mm)				Angle (°)	Carbide		Applicable Toolholder ⇨ M172 M173
				IC	S	D1	RE	AN	PVD		
									PR1810	PR1835	
	 3-Notch	SPMT 180616EN-NB3	4	18	6.35	6.8	1.6	11	●	●	MSRS90...
	 3-Notch / Low Notch Force	SPMT 180616EN-NB3P	4	18	6.35	6.8	1.6	11	●	●	MSRS90...
	 4-Notch	SPMT 180616EN-NB4	4	18	6.35	6.8	1.6	11	●	●	MSRS90...
	 4-Notch / Low Cutting Force	SPMT 180616EN-NB4P	4	18	6.35	6.8	1.6	11	●	●	MSRS90...
	 Without Notch	SPMT 180616EN-V	4	18	6.35	6.8	1.6	11	●	●	MSRS90...

Recommended Cutting Conditions ⇨ M175

SPMT Inserts are sold in 10 piece boxes

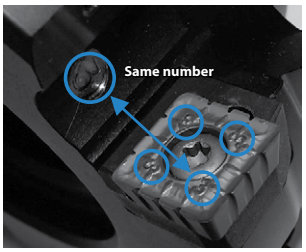
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

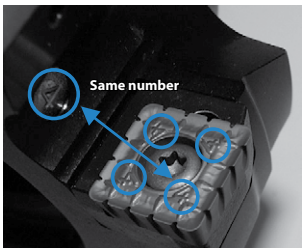
Caution when Installing Notched Insert

It is important to install the appropriate notched insert into the correct position. If it is installed in incorrect position, the tool cannot cut the workpiece and it may damage the toolholder body. For MSRS90, notched insert location indicator is marked at insert installed pocket of the cutter body.

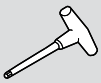
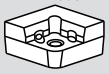
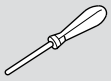
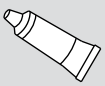
Description		No. of Inserts	No. of Flutes	No. of Stages	No. of Inserts	
					Notched	
					NB3(P)	NB4(P)
MSRS	90100R-1-6T	6	6	1	3	3
	90100R-2-6T	12		2	6	6
	90100R-4-6T	24		4	12	12

When installing the inserts, match the number on the top surface of insert to the number of the cutter body.





Spare Parts

Part Number			Spare Parts							
			Insert Screw	Wrench	Cartridge		Clamp screw	Wrench	Anti-seize Compound	Arbor Bolt
					MAP-1806M 	MAP-1806S (Bottom Edge Only)				
Without Cartridge	MSRS	903000R-1-4T	SB-60120TR	TT-25L	-	-	-	-	P-37	HH1/2-1.25
		903000R-2-4T								-
		904000R-1-6T								HH12X35
Without Cartridge	MSRS	90080R-○-4T-M			-	-	-	-		
		90100R-○-6T-M								
		90125R-○-8T-M								
With Cartridge	MSRS	90160R-○-8T-M ~ 90315R-○-14T-M			MAP-1806M*1	MAP-1806S*2	SB-40140TR	DT-15		-
			Recommended tightening torque for insert screw 7.5N·m		Recommended tightening torque for cartridge screw 3.5N·m					
Without Cartridge	MSRS	90080R-○-4T			-	-	-	-		HH16X45
		90100R-○-6T								HH20X55
		90125R-○-8T								
With Cartridge	MSRS	90160R-○-8T ~ 90315R-○-14T			MAP-1806M*1	MAP-1806S*2	SB-40140TR	DT-15		-
					Recommended tightening torque for cartridge screw 3.5N·m					

Notes: *1: MAP-1806M is only for the bottom edge (1st stage) of MSRS90..R-1.

*2: MAP-1806S is only for the bottom edge (1st stage) of MSRS90..R-2... Use it only for the bottom edge (1st stage).

How to attach the cartridge: You need to tighten 2 clamp screws to fix the cartridge. Tighten the slant screw first and then tighten the other screw.

Coat anti-seize compound thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions

Workpiece material	fz (ipt)		Vc (sfm)	
	Standard NB3+NB4	Low Cutting Force NB3P+NB4P	MEGACOAT NANO EX	
			PR1810	PR1835
Soft steel	0.004~**0.008**~0.010	0.004~**0.008**~0.010	-	★ 400~**500**~725
Carbon steel	0.004~**0.008**~0.010	0.004~**0.008**~0.010	-	★ 325~**500**~650
Alloy steel	0.004~**0.006**~0.008	0.004~**0.006**~0.008	-	★ 325~**500**~650
Mold steel	0.004~**0.006**~0.008	0.004~**0.005**~0.006	-	★ 325~**500**~600
Gray cast iron	0.004~**0.008**~0.012	0.004~**0.008**~0.010	★ 325~**600**~825	-
Nodular cast iron	0.004~**0.008**~0.010	0.004~**0.007**~0.008	★ 325~**600**~725	-
Stainless steel	Not Recommended			
Aluminum/Copper	Not Recommended			

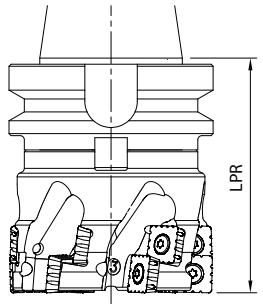
★: 1st Recommendation ☆: 2nd Recommendation

Cutting Conditions (Shouldering)

Using MSRS90100R-1-6T

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		(D.O.C. × ae)	Chip Evacuation Rate (in^3/min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Cast iron	≤ 4.72	590	0.008	0.59 × 3.15	50.41
	4.72~7.87	590	0.008	0.59 × 1.57	25.20
	≥ 7.91	425	0.004	0.59 × 1.57	16.05
Carbon steel	≤ 4.72	490	0.008	0.59 × 3.15	42.05
	4.72~7.87	490	0.008	0.59 × 1.57	20.99
	≥ 7.91	325	0.004	0.59 × 1.57	13.97

Overhang Length LPR (in)



Using MSRS90100R-2-6T

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		(D.O.C. × ae)	Chip Evacuation Rate (in^3/min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Cast iron	≤ 4.72	590	0.008	1.18 × 1.97	62.97
	4.72~7.87	590	0.008	1.18 × 1.18	37.77
	≥ 7.91	425	0.004	1.18 × 0.98	20.08
Carbon steel	≤ 4.72	490	0.008	1.18 × 1.97	52.54
	4.72~7.87	490	0.008	1.18 × 1.18	31.55
	≥ 7.91	325	0.004	1.18 × 0.98	17.51

Using MSRS90100R-4-6T

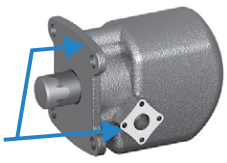
Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		(D.O.C. × ae)	Chip Evacuation Rate (in^3/min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Cast iron	≤ 5.51	590	0.008	2.36 × 0.79	50.41
	5.51~7.87	590	0.008	2.36 × 0.39	25.20
	≥ 7.91	425	0.004	2.36 × 0.39	16.05
Carbon steel	≤ 5.51	490	0.008	2.36 × 0.79	42.05
	5.51~7.87	490	0.008	2.36 × 0.39	20.99
	≥ 7.91	325	0.004	2.36 × 0.39	13.97

Case Studies

Ductile Iron, 60-40-8

Industrial Parts
- Vc = 490 sfm
- D.O.C. × ae = 0.236" × 2.559"
- fz = 0.006 ipt
(Vf = 16.93 ipm)

MSRS90100R-1-6T(ø100mm -6 flutes)
SPMT180616EN-NB3/NB4
(PR1210)



MSRS90 (PR1210) — **Chip Removal = 15.7 in^3/min**

Competitor B — **9.3 in^3/min**

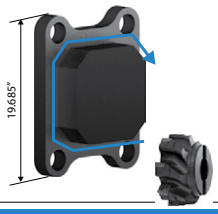
- MSRS90 more than doubled the machining efficiency compared with competitor B.
- Competitor B machined with 2 passes (D.O.C. × ae = 0.118×2.56").
MSRS90 machined with only 1 pass.
- Cutting time was reduced.

(User evaluation)

Chrome-Moly Steel

Construction Machine Part
- Vc = 660 sfm
- D.O.C. × ae = 0.394" × 1.968"
- fz = 0.004 ipt
(Vf = 15.748 ipm)

MSRS90125R-1-8T(ø125 -8 flutes)
SPMT180616EN-NB3/NB4
(PR1230)



MSRS90 (PR1230) — **Chip Removal = 12.2 in^3/min**

Competitor C — **9.3 in^3/min**

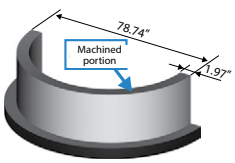
- MSRS90 improved the machining efficiency to 1.3 times that of competitor C.
- Competitor C machined with D.O.C.× ae = 0.20x1.97"
- Tool cost is reduced to 1/3 although competitor C is expensive using 2-corner insert.
MSRS90 reduced machining cost as well as improved machining efficiency.

(User evaluation)

Tool Steel

Shipbuilding Parts
- Vc = 490 sfm
- D.O.C. × ae = 0.394" × 0.394"~1.968"
- fz = 0.004 ipt
(Vf = 9.449 ipm)

MSRS90160R-1-8T(ø160 -8 flutes)
SPMT180616EN-NB3/NB4
(PR1230)



MSRS90 (PR1230) — **Chip Removal = 7.32 in^3/min**

Competitor D — **3.66 in^3/min**

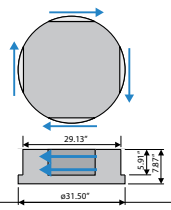
- MSRS90 more than doubled the machining efficiency compared with competitor D.
- Competitor D machined with D.O.C.× ae = 0.197×0.394~1.968"
➡ Low cutting force of MSRS90 enabled twice as large D.O.C. as that of competitor.
- It can double the D.O.C. as well as increase the cutting speed (Vc = 325 increases to 490 sfm).
➡ Machining efficiency was improved by MSRS90 (by achieving reduction in cutting time).

(User evaluation)

Structural Steel

Power Generation Parts
- Vc = 530 sfm
- D.O.C. × ae = 0.394" × 0~0.787"
- fz = 0.006 ipt
(Vf = 19.69 ipm)

MSRS90125R-1-8T(ø125 -8 flutes)
SPMT180616EN-NB3/NB4
(PR1230)



MSRS90 (PR1230) — **12 Faces/Edge**

Competitor E — **8 Faces/Edge**

- MSRS90 showed 1.5 times longer tool life than that of competitor E.
- Competitor E machined with 2 passes on a side (D.O.C.× ae = 0.472×0~0.394").
- Competitor E was poor in feed rate (Vf = 15.748ipm). Machining efficiency was improved with MSRS90 (by achieving reduction in cutting time).
- Although competitor E is load due to high cutting force. MSRS90 operates fairly quietly.

(User evaluation)

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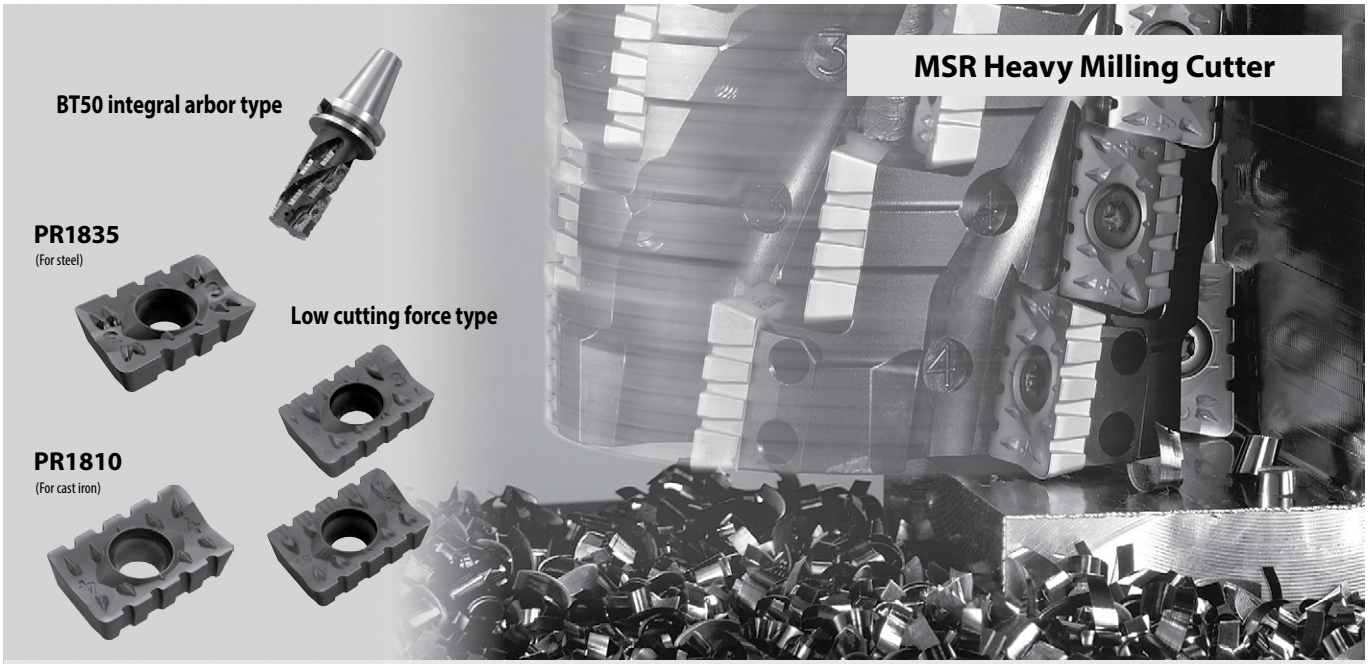


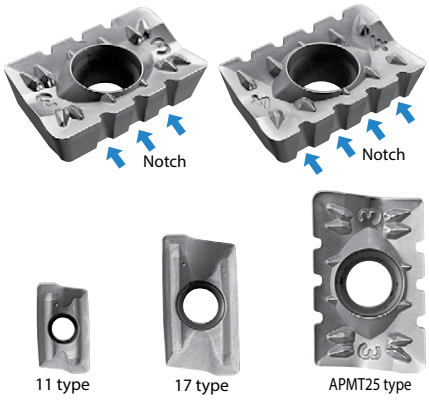
Notched insert reduces cutting force, and enables high feed rates by reducing chattering.

Improved chip evacuation and low cutting force with the special chipbreaker.

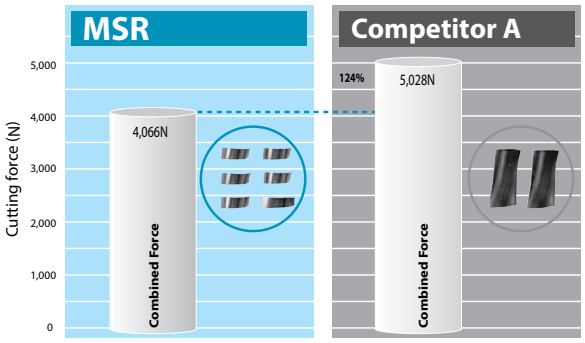
Enables heavy milling and deep cutting, and also drastically improves machining efficiency. (Reduction of cutting time)

Notched Insert

Size comparison (full-scale)



Cutting Force Comparison



* The exclusive notched chipbreaker provides low cutting forces and good chip evacuation. (Internal evaluation)

MSR (Face Mill)

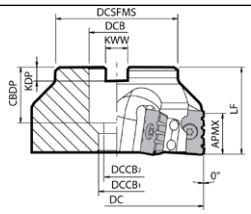


Fig. 1

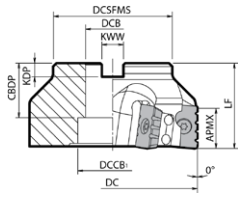


Fig. 2

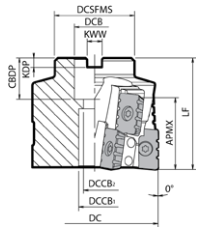


Fig. 3

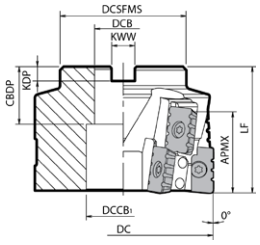


Fig. 4

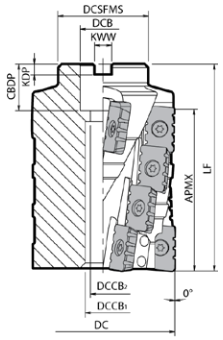


Fig. 5

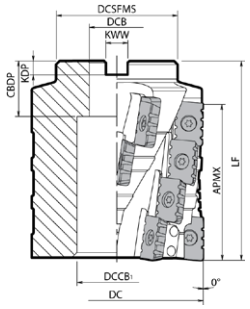


Fig. 6

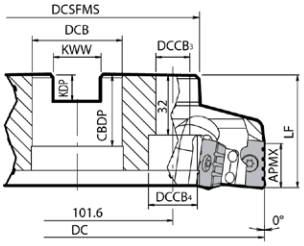


Fig. 7

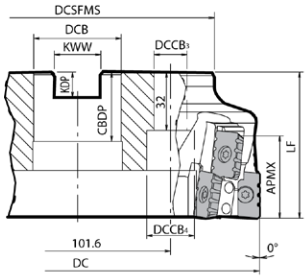


Fig. 8

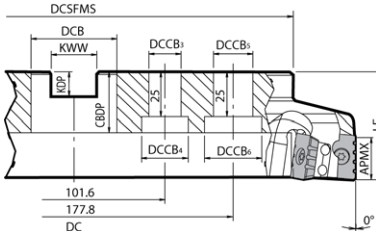


Fig. 9

Toolholder Dimensions

Unit		Part Number	Std. Item R	No. of Inserts	No. of Flutes	No. of Stages	Dimensions DC	DCSFMS	DCB	DCCB1	LF	CBDP	KDP	KWW	APMX	A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts M181
Inch	Inch Bore Dia.	MSR 3000R-1	●	4	4	1	3.00	2.25	1.00	0.790	1.970	1.020	0.240	0.375	0.925	+9	-5	No	0.8	2	APMT2506...
		4000R-1-1.5ID	●	6	6	1	4.00	2.75	1.50	1.610	1.970	1.260	0.310	0.500	0.925				14.7	2	
		4000R-2-1.5ID	●	12	6	2					2.760				1.770				16	4	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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Toolholder Dimensions

Unit	Part Number	Std. Item R	No. of Inserts	No. of Flutes	No. of Stages	Dimensions DC	DCSFMS	DCB	DCCB1	DCCB2	DCCB3	DCCB4	DCCB5	DCCB6	LF	CBDP	KDP	KWW	APMX	A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ⓜ M181
mm	Inch Bore Dia.	MSR 063R-1	●	4	4	1	63	50	1.000"	20	14					65	1.024"	0.236"	0.375"	23.5				0.8	1	
		063R-2	●	8		2										85				45				1	3	
		080R-1	●	4		1	80	55								50				23.5				1.1	1	
		080R-2	●	8		2										70				45	-8			1.6	3	
		080R-2-31.75	●					70	1.250"	27	18						1.260"	0.315"	0.500"					1.7	3	
		080R-4	●	16		4		55	1.000"	20	14					115	1.024"	0.236"	0.375"	90				2.6	5	
		080R-4-31.75	●							27	18						1.260"	0.315"	0.500"					2.7	5	
		100R-1	●	6	6	1	100	70	1.250"	42		-	-			50				23.5				1.6	2	
		100R-2	●	12		2										70				45				2.2	4	
		100R-4	●	24		4										115				90				3.6	6	
		125R-1	●	6		1	125	85	1.500"	54				-	-	60				23.5	+9		No	3.5	2	APMT2506...
		125R-2	●	12		2										70		0.394"	0.625"	45				3.8	4	
		125R-4	●	24		4										115				90				6.1	6	
		160R-1	●	8	8	1	160	100	2.000"	68	-					60	1.496"	0.433"	0.750"	23.5		-5		5.8	2	
		160R-2	●	16		2										70				45				6.4	4	
		160R-4	●	32		4										115				90				10.7	6	
		200R-1	●	10	10	1	200	130	1.875"	-		18	26			60		0.551"	1.000"	23.5				7.5	7	
		200R-2	●	20		2										80				45				10.4	8	
		250R-1	●	12	12	1	250									60				23.5				10.9	7	
		250R-2	●	24		2										80				45				14.7	8	
		315R-1	□	14	14	1	315	220				17	27	22	32	60	1.378			23.5				16	9	
	Metric Bore Dia.	MSR 063R-1M	●	4	4	1	63	50	27	20	14					65	22	7.2	12.4	23.5	-8			0.7	1	
		063R-2M	●	8		2										85				45				0.9	3	
		080R-1M	●	4		1	80	55								50				23.5				1	1	
		080R-2M	●	8		2										70				45				1.5	3	
		080R-4M	●	16		4										115				90				2.5	5	
		100R-1M	●	6	6	1	100	70	32	42		-	-			50	28	8	14.4	23.5		-5		1.5	2	
		100R-2M	●	12		2										70				45				2	4	
		100R-4M	●	24		4										115				90				3.2	6	
		125R-1M	●	6		1	125	85	40	58				-	-	60	30	9	16.4	23.5	+9		No	3.4	2	APMT2506...
		125R-2M	●	12		2										70				45				3.7	4	
		125R-4M	●	24		4										115				90				6	6	
		160R-1M	●	8	8	1	160	100		68	-					60		10		23.5				6.1	2	
		160R-2M	●	16		2										70				45				6.8	4	
		200R-1M	●	10	10	1	200	130	60	-		18	26			60	38	15	25.4	23.5				7	7	
		200R-2M	●	20		2										80				45				9.9	8	
		250R-1M	●	12	12	1	250									60				23.5				10.3	7	
		250R-2M	●	24		2										80				45				14.2	8	
		315R-1M	□	14	14	1	315	230				17	27	22	32	60	35			23.5				15.5	9	

Spare Parts (Inch and Metric Face Mills)

Part Number	Spare Parts: Insert Screw	Wrench	Shim	Shim Screw	Wrench	Anti-seize Compound
MSR 063R-○□	SB-60120TR (for Insert Screw)	TT-25L	-	-	-	P-37
MSR 3000R... 4000R...			MAP-2506	SB-40140TR (for Shim Screw)	DT-15	
MSR 080R-○□ ~ 315R-○□						

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Shim is not available for MSR063R (DC = 63mm).
Arbor bolt (HH12X35) is included for MSR063R / MSR080R (Metric).
Arbor bolt (HH12X40) is included for MSR063R / MSR080R (Inch Bore Dia.).
Arbor bolt (HH16X45) is included for MSR080R-○-31.75.
It is not recommended using only top edge part (under D.O.C. = 1.181" / 30mm) for 4 stages type.
If D.O.C. is small, use 1 stage or 2 stages type.
Deep slotting is not recommended for these cutters.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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MSR (Integral Arbor)

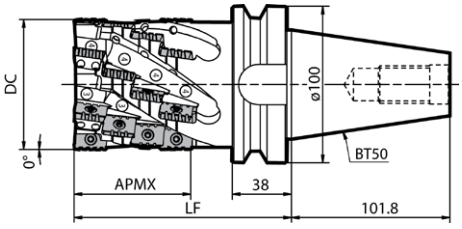

Fig. 1

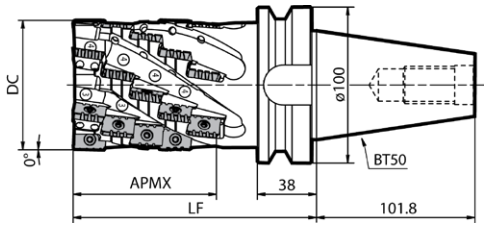

Fig. 2

Toolholder Dimensions

Unit	Part Number	Std. Item R	No. of Inserts	No. of Flutes	No. of Stages	Dimensions DC	Dimensions LF	Dimensions APMX	A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Cartridge	Spare Parts: Cartridge Screw	Spare Parts: Wrench	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts ➔ M181
mm	MSR 063R-BT50-4	●	16	4	4	63	160	90	+9	-8	No	5.7	1	P-37	-	-	-	SB-60120TR	TT-25L	APMT2506...
	063R-BT50-5	●	20		5		180	111				6.2	2							
	080R-BT50-4	●	16		4	80	160	90				6.9	1		MAP-2506	SB-40140TR	DT-15	SB-60120TR		
	080R-BT50-5	●	20		5		180	111				7.4	2							
	100R-BT50-4	●	24	6	4	100	160	90		-5		9.6	1							
	100R-BT50-5	●	30		5		180	111				10.5	2							

Shim is not available for MSR063R (DC = 63mm).
It is not recommended using only top edge part (under D.O.C. = 1.181" / 30mm) for 4 stages / 5 stages type. If D.O.C. is small, use previous page's 1 stage type or 2 stages type.
Deep slotting is not recommended for this cutter.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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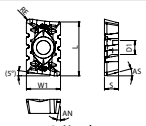
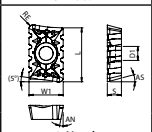
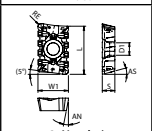
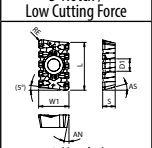
APMT

Usage Classification				
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel		★	P
	Mold and die steel		★	
	Austenitic stainless steel			M
	Martensitic stainless steel			
	Precipitation hardened stainless steel			
	Gray cast iron	★		K
	Nodular cast iron	★		
	Non-ferrous metals			N
	Heat-resistant alloy			S
	Titanium alloy			
	Hard materials			H

Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)		Carbide PVD		Applicable Toolholder ⇨ M178 M179 M180
				S	D1	RE	L	W1	AN	AS	PR1810	PR1835	
	 3-Notch	APMT 250608ER-NB3	2	6.35	6.5	0.8	25	15.875	11	15	●	●	MSR...
		APMT 250616ER-NB3				1.6					●	●	
		APMT 250640ER-NB3				4						●	
		APMT 250616EL-NB3	2	6.35	6.5	1.6	25	15.875	11	15		●	
	 4-Notch	APMT 250608ER-NB4	2	6.35	6.5	0.8	25	15.875	11	15	●	●	MSR...
		APMT 250616ER-NB4				1.6					●	●	
		APMT 250640ER-NB4				4						●	
		APMT 250616EL-NB4	2	6.35	6.5	1.6	25	15.875	11	15		●	
	 3-Notch / Low Cutting Force	APMT 250616ER-NB3P	2	6.35	6.5	1.6	25	15.875	11	15	●	●	MSR...
	 4-Notch / Low Cutting Force	APMT 250616ER-NB4P	2	6.35	6.5	1.6	25	15.875	11	15	●	●	MSR...

Right-hand Insert Shown

Recommended Cutting Conditions ⇨ M182

APMT Inserts are sold in 10 piece boxes

Caution when Installing Notched Inserts (MSR)

It is important to install the appropriate notched insert into the correct position. Failure to do so may result in damage to the toolholder body. The appropriate insert is marked on the pocket of the cutter body.

1 . (3) is for APMT2506○○ER-NB3

2. (4) is for APMT2506○○ER-NB4

(No. of Inserts – Example)

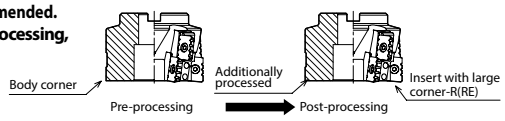
Description	No. of Inserts	No. of Flutes	No. of Inserts	
			Notched	
			NB3	NB4
MSR 100R-1	6	6	3	3
100R-2	12		6	6
100R-4	24		12	12

Caution when Installing Insert with Corner-R(RE) 4.0mm

When using inserts with corner-R(RE) 4.0mm, additional modifications of the cutter body will be necessary. Ref. to the table below for the recommended modifications.

Insert Corner-R(RE) (mm)	Additional Processing Dimension to Body Corner (mm)
4.0	R2.0

*** Round- shaped additional processing is recommended. When applying chamfer shaped additional processing, do not cut away too much.**



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Workpiece Material	fz (ipt)		Recommended Insert Grades (Cutting Speed Vc: sfm)	
	Low Cutting Force	General Purpose	MEGACOAT	
	NB3P+NB4P	NB3+NB4	PR1810	PR1835
Carbon steel	0.008	0.006	-	★ 330~490~660
Cast iron	0.008	0.006	★ 330~490~660	-
Stainless steel	Not Recommended			
Aluminum / Copper	Not Recommended			

* For MSR, cutting speed should be carefully adjusted depending on the length of toolholder protruding from the end of machine spindle.
• When the overhang length of toolholder is small, set the cutting speed to slightly higher than the recommended cutting conditions.
• When the overhang length of toolholder is long, set the cutting speed to slightly lower than the recommended cutting conditions.

★ : 1st Recommendation

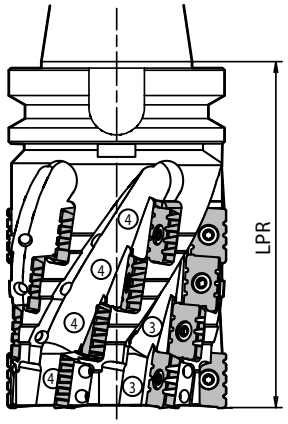
Cutting Conditions

1. Shouldering

Using MSR100R-1

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in^3/min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 3.94	590	0.008	0.79 × 3.15	67.13
	3.94~7.87	590	0.008	0.79 × 1.57	33.56
	≥ 7.91	400	0.008	0.79 × 1.18	16.84
Cast iron	≤ 3.94	500	0.008	0.79 × 3.15	56.14
	3.94~7.87	500	0.008	0.79 × 1.57	28.07
	≥ 7.91	325	0.008	0.79 × 1.18	13.91

Overhang Length LPR (in)



Using MSR100R-2

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in^3/min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 5.12	590	0.008	1.57 × 1.57	67.13
	5.12~9.06	590	0.008	1.57 × 0.79	33.56
	≥ 9.09	400	0.008	1.57 × 0.79	22.46
Cast iron	≤ 5.12	500	0.008	1.57 × 1.57	56.14
	5.12~9.06	500	0.008	1.57 × 0.79	28.07
	≥ 9.09	325	0.008	1.57 × 0.79	18.55

Using MSR100R-4

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in^3/min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 7.09	590	0.008	2.95 × 0.79	63.16
	7.09~11.02	590	0.008	2.95 × 0.39	31.61
	≥ 1.06	400	0.008	2.95 × 0.39	21.05
Cast iron	≤ 7.09	500	0.008	2.95 × 0.79	52.66
	7.09~11.02	500	0.008	2.95 × 0.39	26.30
	≥ 11.06	325	0.008	2.95 × 0.39	17.39

2. Slotting

Using MSR100R-1

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in^3/min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 3.94	590	0.008	0.55 × 3.94	58.95
	3.94~7.87	500	0.008	0.28 × 3.94	24.59
	≥ 7.91	400	0.008	0.16 × 3.94	11.23
Cast iron	≤ 3.94	500	0.008	0.28 × 3.94	24.59
	3.94~7.87	400	0.008	0.16 × 3.94	11.23
	≥ 7.91	325	0.008	0.12 × 3.94	6.96

Using MSR100R-2

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in^3/min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 5.12	590	0.008	0.55 × 3.94	58.95
	5.12~9.06	500	0.008	0.28 × 3.94	24.59
	≥ 9.09	400	0.008	0.16 × 3.94	11.23
Cast iron	≤ 5.12	500	0.008	0.28 × 3.94	24.59
	5.12~9.06	400	0.008	0.16 × 3.94	11.23
	≥ 9.09	325	0.008	0.12 × 3.94	6.96

Using MSR160R-1

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in^3/min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 3.94	600	0.008	0.39 × 6.30	56.63
	3.94~7.87	500	0.008	0.20 × 6.30	28.32
	≥ 7.91	400	0.008	0.16 × 6.30	14.83
Cast iron	≤ 3.94	500	0.008	0.20 × 6.30	23.43
	3.94~7.87	400	0.008	0.12 × 6.30	14.04
	≥ 7.91	325	0.008	0.08 × 6.30	6.22

Using MSR160R-2

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in^3/min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 5.12	600	0.008	0.39 × 6.30	56.63
	5.12~9.06	500	0.008	0.20 × 6.30	23.43
	≥ 9.09	400	0.008	0.16 × 6.30	14.83
Cast iron	≤ 5.12	500	0.008	0.20 × 6.30	23.43
	5.12~9.06	400	0.008	0.12 × 6.30	11.11
	≥ 9.09	325	0.008	0.08 × 6.30	6.22

Notes: MSR...-4 (No. of stage)
Slotting is not recommended.

MTP90 (End Mill)

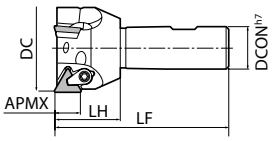


Fig. 1

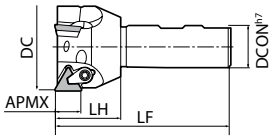


Fig. 2

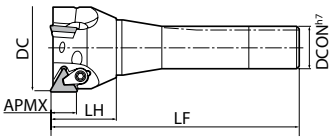


Fig. 3

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts								Applicable Inserts ➡ M185
				DC	DCON	LF	LH	APMX					Clamp Set	Clamp	Clamp Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
Inch	MTP 90-075-75W	●	2	0.75	0.75	3.28	1.25	0.34	+3	-3	No	2	CPS-2S	-	-	FT-15	-	-	-	-	TPG22... TPM22...
	90-100-75W	●	3	1.00								2									
	MTP 90-125-75W	●	2	1.25	0.75	3.28	1.25	0.53	+5	0	No	2	CPS-3	-	-	-	LW-3	KPT-32	SH3X6	LW-2	TPK32..., TPMR32..., TPG32..., TPM32...
	90-150-75W	●	3	1.50								2									
	90-200-75W	●	3	2.00	0.75	3.53	1.50	0.53				2									
	MTP 90-200-125W	●	3	2.00	1.25	3.90	1.69	0.71	+8	0	No	3	-	CP-8W	W8X18	-	LW-4	KPT-42	SH3X6	LW-2	TPK43... TPKR43... TPMR43...
	90-250-125W	●	3	2.50								3									
	MTP 90-200-R8	●	3	2.00	0.949	6.00	2.003	0.53	+5		No	4	CPS-3	-	-	-	LW-3	KPT-32	SH3X6	LW-2	TPK32..., TPMR32..., TPG32..., TPM32...

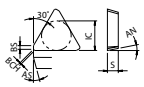
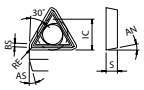
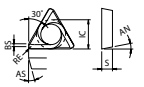
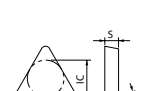
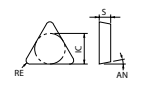
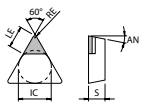
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

TP Inserts

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel	★	☆		☆		■	□				P
Mold and die steel	★	☆		☆		■	□				P
Stainless steel	☆	★		☆							M
Gray cast iron			★		☆						K
Nodular cast iron			★								K
Non-ferrous metals					★				■	□	N
Heat-resistant alloy		★									S
Titanium alloy		★	★		☆				■	□	S
Hard materials	□			□							H

Insert		Part Number ANSI	Part Number ISO	No. of Edges	Dimension (in) IC	S	BCH	RE	BS	LE	Angle (°) AN	AS	Carbide PVD PR1825	PR1535	PR1210	PR1225	Carbide - KW10	Cermet - TN100M	TN610	TN60	PCD - KPD001	KPD010	Applicable Toolholder M184
		TPK 32PDTR	TPKN 1603PDFR	3	3/8	1/8	0.028	-	0.047	-	11	15			●	●		●					MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8
		TPK 32PDFR	TPKN 1603PDTR	3	3/8	1/8	0.028	-	0.047	-	11	15					●						
		TPK 43PDTR	TPKN 2204PDFR	3	1/2	3/16	0.028	-	0.063	-	11	15			●	●		●					MTP90-200-125W MTP90-250-125W
		TPK 43PDFR	TPKN 2204PDTR	3	1/2	3/16	0.028	-	0.063	-	11	15					●						
		TPKR 43PDER-S	TPKR 2204PDER-S	3	1/2	3/16	-	0.039	0.055	-	11	15				●							MTP90-200-125W MTP90-250-125W
		TPMR 32PDER-H	TPMR 1603PDER-H	3	3/8	1/8	-	0.031	0.047	-	11	15	●										MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8
		TPMR 43PDER-H	TPMR 2204PDER-H	3	1/2	3/16	-	0.039	0.055	-	11	15	●										MTP90-200-125W MTP90-250-125W
	 Without Chipbreaker	TPG 2205	TPGN 110302	3	1/4	1/8	-	0.008	-	-	11	-					●			●			MTP90-075-75W MTP90-100-75W
		TPG 221	TPGN 110304					0.016									●		●	●			
		TPG 222	TPGN 110308					0.031									●		●	●			
		TPG 321	TPGN 160304	3	3/8	1/8	-	0.016	-	-	11	-		●			●		●	●			MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8
		TPG 322	TPGN 160308					0.031						●			●	●	●	●			
	 Without Chipbreaker	TPM 221	TPMN 110304	3	1/4	1/8	-	0.016	-	-	11	-					●						MTP90-075-75W MTP90-100-75W
		TPM 222	TPMN 110308					0.031									●						
		TPM 321	TPMN 160304	3	3/8	1/8	-	0.016	-	-	11	-					●	●					MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8
		TPM 322	TPMN 160308					0.031									●	●					
		TPM 323	TPMN 160312					0.047										●					
		TPG 2205	TPGN 110302	1	1/4	1/8	-	0.008	-	0.154	11	-									●	●	MTP90-075-75W MTP90-100-75W
		TPG 221	TPGN 110304					0.016		0.146											●	●	
		TPG 321	TPGN 160304	3	3/8	1/8	-	0.016	-	-	11	-									●	●	MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8
		TPG 322	TPGN 160308					0.031														●	

Right-hand Insert Shown

TP Inserts are sold in 10 piece boxes

PCD Inserts are sold in 1 piece boxes

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm) MEGACOAT NANO EX PR1825	MEGACOAT NANO PR1535	MEGACOAT PR1225	MEGACOAT PR1210	Carbide KW10	Cermet TN100M	Cermet TN610	Cermet TN60	PCD KPD001 (KPD010)
Carbon Steel	~0.010	★390~820	☆390~820	☆390~820	-	-	★390~660	☆390~660	☆390~660	-
Alloy Steel	~0.010	★330~720	☆330~720	☆330~720	-	-	★330~590	☆330~590	☆330~590	-
Mold Steel	~0.008	★260~590	☆260~590	☆260~590	-	-	★330~590	☆330~590	☆330~590	-
Stainless Steel	~0.008	☆390~720	★390~720	☆390~720	-	-	☆390~660	-	-	-
Cast Iron	~0.010	-	-	-	☆330~720	☆260~490	-	-	-	-
Non-ferrous Metals	~0.008	-	-	-	-	★330~980	-	-	-	★980~2620
Heat-resistant Alloy	~0.006	-	★70~160	-	-	-	-	-	-	-
Titanium Alloy	~0.006	-	★130~260	-	-	-	-	-	-	-
Hard Materials (~45HRc)	~0.006	☆160~330	-	☆160~330	-	-	-	-	-	-

★ : 1st Recommendation ☆: 2nd Recommendation

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DMC-SX

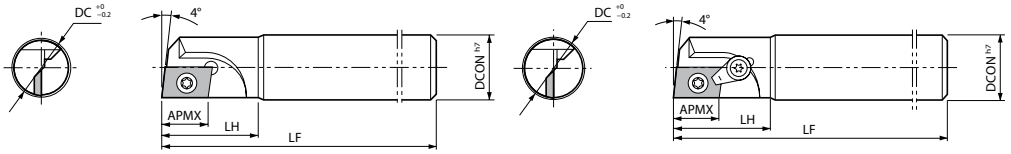


Fig. 1

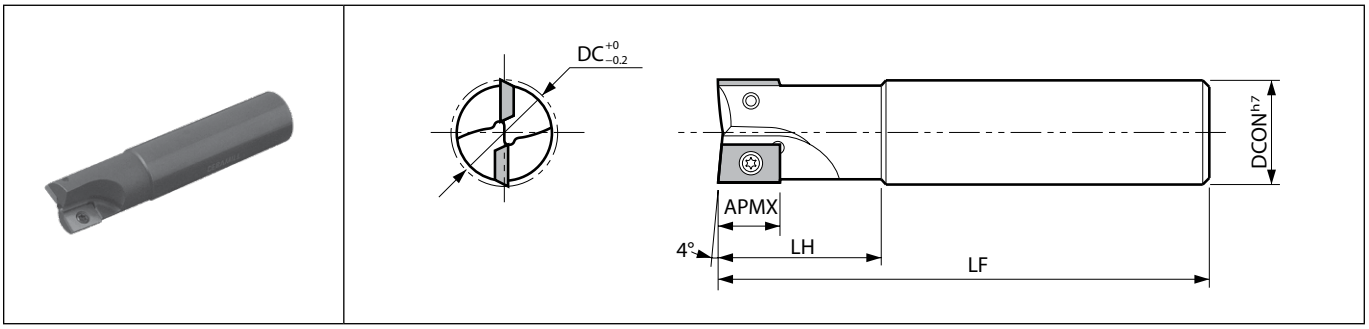
Fig. 2

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts: Clamp Set	Screw	Wrench	Applicable Inserts ➡ M188
mm	DMC 316SXT	●	1	16	16	90	30	14	+3	-3	No	1	-	SB-4060TR	FT-15	NDCT32... NDCW32...
	320SX	●		20	20	110						2	CPS-2TR	SB-4065TR		
	325SX	●	2	25	25	120	40			-2		2				
	332SX	●		32	32	130				0		2				
	340SX	●		40		150						2				
	DMC 320SX-200	●	1	20	20	200	50	14	+3	-3	No	1	-	SB-4065TR	FT-15	NDCT32... NDCW32...
	325SX-220	●	2	25	25	220	60			-2		1				
	332SX-250	●		32	32	250	80			0		1				

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DMC-H



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. (°)	R.R. (°)	Coolant Hole	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts ⇨ M188
mm	DMC 316H	●	1	16	16	90	30	14	+5	-3.5	No	SB-4060TR	FT-15	NDCT32...X NDCW32...X..
	320H	●	1	20	20	110	30	14	+6	-2	No	SB-4060TR	FT-15	NDCT32...X NDCW32...X..
	325H	●	2	25	25	120	40	14	+8	0	No	SB-4065TR	FT-15	NDCT32...X NDCW32...X..
	332H	●	2	32	32	130	40	14	+8	0	No	SB-4065TR	FT-15	NDCT32...X NDCW32...X..
	340H	●	2	40	32	150	40	14	+8	0	No	SB-4065TR	FT-15	NDCT32...X NDCW32...X..

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

NDCT/NDCW

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel		■				P
Mold and die steel		■				
Austenitic stainless steel						M
Martensitic stainless steel						
Precipitation hardened stainless steel						
Gray cast iron	☆					K
Nodular cast iron						
Non-ferrous metals	★		□		■	N
Heat-resistant alloy						S
Titanium alloy	☆		□		■	
Hard materials						H

Insert	Part Number ANSI	Part Number ISO	No. of Edges	Dimensions (in) IC	S	D1	RE	L	INSL	LE	W1	Angle (°) AN	AS	Carbide - KW10	Cermet - TN100M	PCD - KPD001	PCD - KPD010	PCD - KPD230	Applicable Toolholder ⇨ M186 M187
	NDCT 322FR	NDCT 150308FR	2	3/8	1/8	0.177	0.031	0.591	-	-	-	15	-	●					DMC...SX(...)
	NDCT 322TRX	NDCT 150308TRX	2	3/8	1/8	0.173	0.031	0.591	-	-	-	15	-		●				DMC...SX(...) DMC...H
	NDCW 3205TR 321TR 322TR 325TR 3275TR 3210TR	NDCW 150302TR 150304TR 150308TR 150320TR 150330TR 150340TR	2	3/8	1/8	0.177	0.008 0.016 0.031 0.079 0.118 0.157	0.591	-	-	-	15	-		● ● ● ● ● ●				DMC...SX(...)
	NDCW 322TRX	NDCW 150308TRX	2	3/8	1/8	0.173	0.031	0.591	-	-	-	15	-		●				DMC...SX(...) DMC...H
	NDCW 322FRX	NDCW 150308FRX	2	3/8	1/8	0.173	0.031	0.591		-	-	15	-	●					
	NDCW 3205FRX 3205FRX-NE	NDCW 150302FRX 150302FRX-NE	1	-	1/8	0.173	0.008	-	0.591	0.224 0.201	3/8	-	15			●	●	●	DMC...SX(...) DMC...H

Right-hand Insert Shown

Recommended Cutting Conditions ⇨ M189

NDCT / NDCW Inserts are sold in 10 piece boxes

PCD Inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

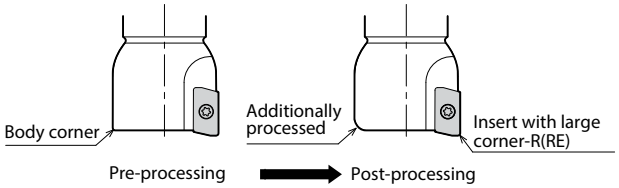
Recommended Cutting Conditions (DMC-SX)

Workpiece Material	fz (ipt)	Recommended Insert Grades (Vc: sfm)		Max. D.O.C. (in)		
		Cermet	Carbide			
		TN100M	KW10	Cutting Dia. (DC)	Slotting (D.O.C.)	Shouldering (D.O.C. x ae)
Carbon steel	~0.008	★ 390~660	-	ø16mm~	0.118	0.354 x 0.118
Alloy steel	~0.008	★ 330~590	-	ø16mm~	0.118	0.354 x 0.118
Mold steel	~0.006	★ 330~590	-	ø16mm~	0.118	0.354 x 0.118
Stainless steel	~0.006	☆ 390~660	-	ø16mm~	0.118	0.354 x 0.118
Cast iron	~0.008	-	★ 260~490	ø16mm~	0.118	0.354 x 0.118
Non-ferrous metals	~0.008	-	★ 330~980	ø16mm~	0.118	0.354 x 0.118

When installing inserts with corner-R(RE) over 2.0mm, grind off the corner part of the tool's insert pocket to avoid contact with the workpiece.
Additional modifications for the body will be necessary. Ref. table below for the recommended modifications.
(Additional grind off is not necessary when corner-R(RE) is 0.8mm or less.)

Insert Corner-R(RE) (mm)	Additional Processing Dimension to Body Corner (mm)
2.0	R1.0
3.0	R1.6
4.0	R2.0

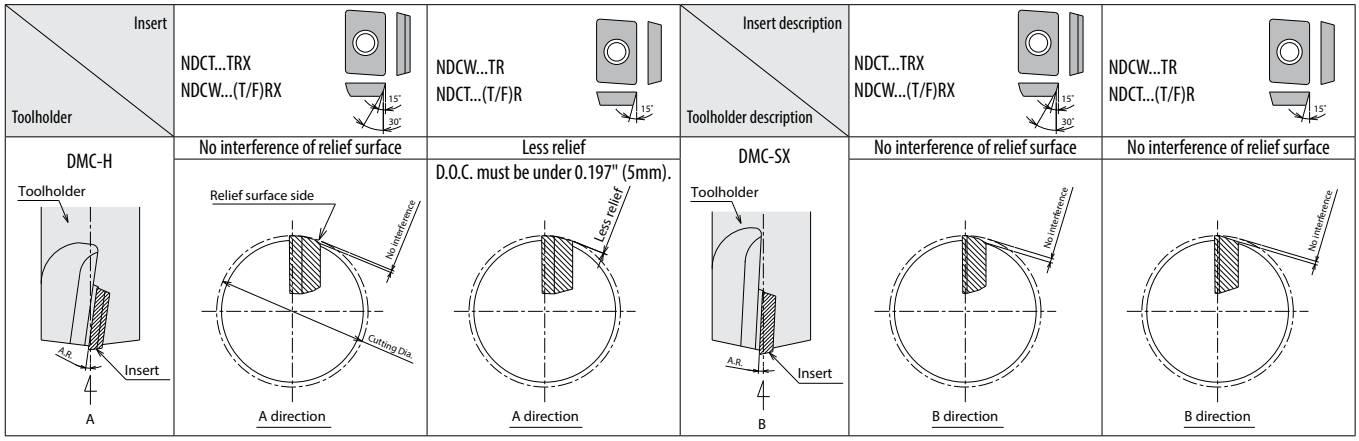
* Round- shaped additional processing is recommended.
When applying chamfer shaped additional processing, do not cut away too much.



Recommended Cutting Conditions (DMC-H)

Workpiece Material	fz (ipt)	Recommended Insert Grades (Vc: sfm)				Max. D.O.C. (in)		
		Cermet	Carbide	PCD				
		TN100M	KW10	KPD230 (KPD001)	KPD010	Cutting Dia. (DC)	Slotting (D.O.C.)	Shouldering (D.O.C. x ae)
Carbon steel	~0.008	★ 390~660	-	-	-	~Ø20mm	0.157	0.315 x 0.157
						Ø25mm~	0.315	0.551 x 0.236
Alloy steel	~0.008	★ 330~590	-	-	-	~Ø20mm	0.157	0.315 x 0.157
						Ø25mm~	0.315	0.512 x 0.236
Mold steel	~0.006	★ 330~590	-	-	-	~Ø20mm	0.118	0.197 x 0.079
						Ø25mm~	0.236	0.394 x 0.118
Stainless steel	~0.006	☆ 390~660	-	-	-	~Ø20mm	0.118	0.236 x 0.079
						Ø25mm~	0.236	0.512 x 0.118
Cast iron	~0.008	-	★ 260~490	-	-	~Ø20mm	0.157	0.315 x 0.157
						Ø25mm~	0.236	0.551 x 0.236
Non-ferrous metals	~0.008	-	★ 330~980	★ 980~1640	☆ 980~1640	~Ø20mm	0.157	0.315 x 0.157
						Ø25mm~	0.236	0.551 x 0.236

Above inserts are also applicable to DMC○○○SX, but the conventional NDCW32○TR insert is not applicable for this end mill.



EM (End Mill / Extended Length End Mill)

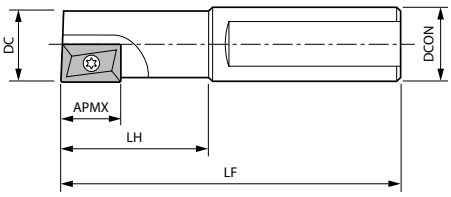


Fig. 1

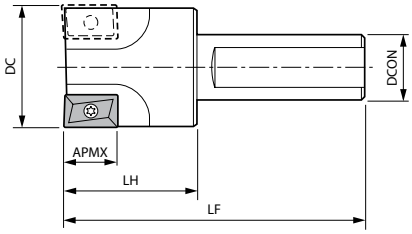


Fig. 2

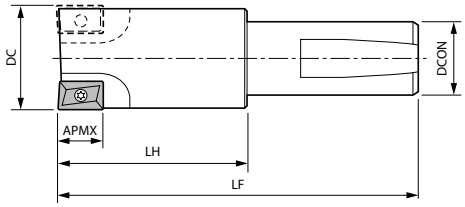


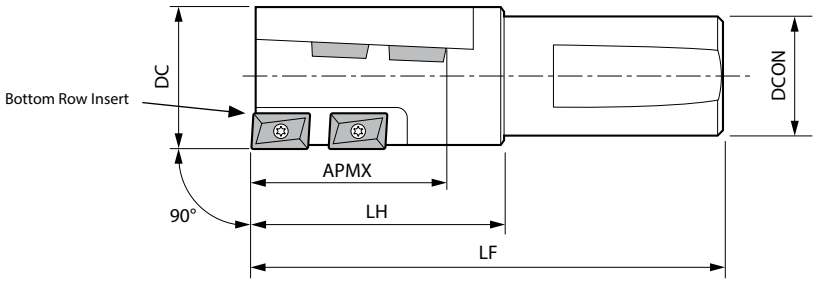
Fig. 3

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Max. Ramping Angle (°)	Insert Screw	Wrench	Applicable Inserts ➡ M193
Inch	EM 0437-09	●	1	7/16	1/2	2.78	1.00	0.37	+3	-11	No	1	3	SCR-04	T7	XPMT0902...
	0500-09	●		1/2						-9		1				
	0562-09	●		9/16						-7		1	8			
	0625-09	●	2	5/8	5/8	2.90			+5	-6		2				
	0750-09	●		3/4	3/4	3.03			+5	-2		2				
	1000-09-3F	●	3	1					+3	-2		2		SCR-01		
	EM 0625	●	1	5/8	3/4	2.90	1.00	0.60	+5	-14	No	1	3	SCR-16	T10	XPMT15T3...
	0688	●		11/16		3.40				-12		1				
	0750	●		3/4			1.50			-10		1	8			
	0875	●		7/8						-7		1				
	0938	●	2	15/16						-5		2				
	1000	●		1						-5		2				
	1000-100S	●			1	3.78				-5		2				
	1125	●		1-1/8	3/4	3.40				-4		2		SCR-30		
	1250	●		1-1/4						-3		2				
	1250-3F	●	3		1	3.78				-3		2				
	1375	●	2	1-3/8	3/4	3.40				-2		2				
	1500	●		1-1/2						-2		2				
	1500-3F	●	3		1	3.78				-2		2				
	EM 1000-2.5	●	2	1	3/4	4.40	2.50	0.60	+5	-5	No	3	8	SCR-16	T10	
	1000-3.5	●			1	5.78	3.50			-5		3				
	1250-2.5	●		1-1/4		4.78	2.50			-3		3		SCR-30		

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

EM-LE (Long Edge End Mill)



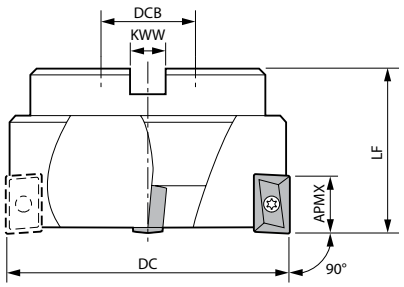
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	No. of Flutes	Dimensions					A.R. (°)	R.R. (°)	Coolant Hole	Insert Screw	Wrench	Applicable Inserts ➡ M193
					DC	DCON	LF	LH	APMX						
Inch	EM 1500-2000-LE	●	8	2	1-1/2	1-1/4	4.91	2.63	2.00	+5	-2	No	SCR-30	T10	XPMT15T3...

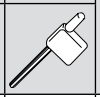
Insert Compatibility

Part Number	Bottom Row	Side Row
EM ...-LE	XPMT 15T3..	XPMT 15T308

FM90 (Fixed Pocket Face Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. (°)	R.R. (°)	Coolant Hole	Insert Screw	Wrench	Applicable Inserts ➡ M193
				DC	DCB	LF	KWW	APMX						
Inch	FM 2000-90RH	●	3	2.0	3/4	1-13/32	5/16	0.6	+5	+3	No	SCR-30	T10	XPMT15T3...
	3000-90RH	●	4	3.0	1	1-25/32	3/8			+5				

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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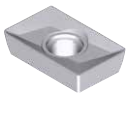
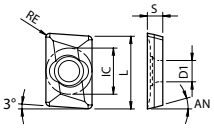
XPMT

Usage Classification								
★: Roughing / 1st Choice ☆: Roughing / 2nd Choice ■: Finishing / 1st Choice □: Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel				★	■	P
	Mold and die steel	★			☆	■	P
	Stainless steel				★		M
	Gray cast iron		★				K
	Nodular cast iron		★				K
	Non-ferrous metals						N
	Heat-resistant alloy	★		☆	☆		S
	Titanium alloy		☆		★		S
	Hard materials						H

Insert	Part Number	No. of Edges	Dimensions (in)					Angle (°)		Carbide				Cermet	Applicable Toolholder
			IC	S	D1	RE	INSL	AN	AS	CVD	PVD			-	➡ M190 M191 M192 M296
										CA6535	PR1510	PR1525	PR1535	TN100M	
															
	XPMT 090208	2	1/4	0.094	0.110	0.031	0.375	11	-	●	●	●	●	●	CM...-09 EM...-09(-3F)
	XPMT 15T304	2	3/8	0.156	0.157	0.016	0.607	11	-	●	●		●	●	CM1000-... EM0625 EM0688 EM0750 EM0875 EM0938 EM1000(-100S) EM1125 EM1250(-3F) EM1375 EM1500(-3F) EM...-2.5 EM...-3.5 EM...-LE FM...-90RH
	15T308					0.031				●	●		●	●	
	15T316					0.063				●	●		●		
	15T324					0.094				●	●		●		
	15T331					0.122				●	●		●		
	15T364					0.250				●	●		●		

*Toolholder modifications are necessary if using larger corner radius XPMT15T324, XPMT15T331, and XPMT15T364 inserts due to interference between the holder and workpiece.

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm)				
		MEGACOAT NANO			CVD Coated Carbide	Cermet
		PR1535	PR1525	PR1510	CA6535	TN100M
Carbon Steel	0.003~0.006	★ 400~800	★ 400~800	-	-	★ 800~1400
Alloy Steel	0.003~0.006	★ 300~700	★ 300~700	-	-	★ 600~1200
Mold Steel	0.003~0.006	★ 250~600	★ 250~600	-	-	★ 400~700
Stainless Steel	0.002~0.006	★ 300~600	☆ 300~600	-	★ 550~950	☆ 300~800
Cast Iron	0.003~0.008	-	-	★ 400~800	-	☆ 400~1200
Non-ferrous Metals	0.005~0.007	-	-	-	-	☆ 1500~1800
Heat-resistant Alloy	0.002~0.005	☆ 70~160	-	-	★ 70~160	-
Titanium Alloy	0.002~0.005	☆ 130~260	-	☆ 100~230	-	-

★: 1st Recommendation ☆: 2nd Recommendation

XPMT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Super Fine Pitch Cutter for Aluminum Machining

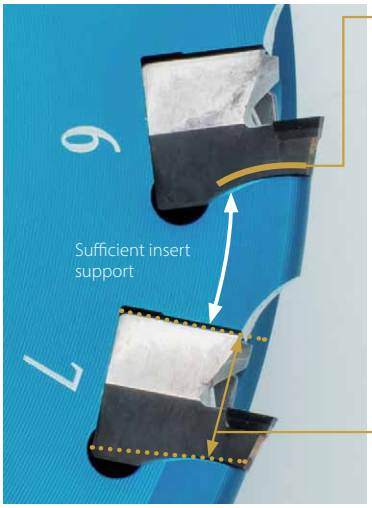
MD90

Improved efficiency in aluminum with super fine pitch specifications

High quality and high precision design with long tool life

1 Unique design provides efficiency and high quality machining results

High Efficiency Cutter design engineered with ultra-fine pitch specifications

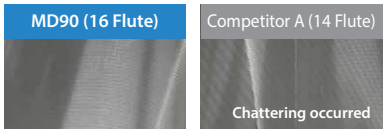


Curved Contact Surface

Maximized pitch maintains multiple inserts and rigidity

Reduces chattering by dispersing stress

Chatter Resistance Comparison
(Internal Evaluation)



Vc = 9,840 sfm, D.O.C. x ae = 0.008" x 2.756"
fz = 0.003 ipt Wet ADC12 ø80mm (Prototype)

Scatter Prevention

Firm insert hold

Ultra-Fine Pitch with Lightweight Design

Largest cutter diameter of ø125mm weighs less than 1.5 kg

Compatible with BT30

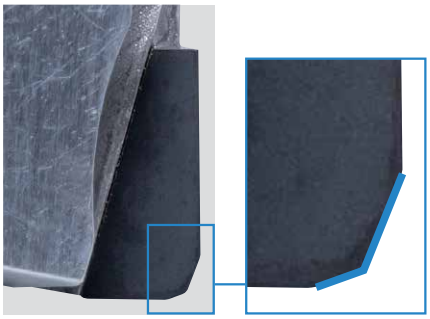
Cutting Dia.	No. of Inserts	Weight (kg)	Body
ø2.000"	10	0.37	Steel
ø2.500"	14	0.62	
ø40mm	6	0.26	
ø50mm	10	0.37	
ø63mm	14	0.62	
ø80mm	16	0.6	Aluminum
ø100mm	20	0.97	
ø125mm	24	1.49	

High Quality High machined surface quality, high precision and long tool life

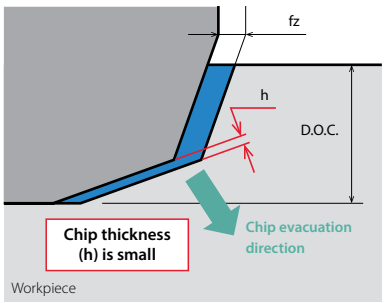
Suppresses Burr Formation

Double-Edge (Standard Type)

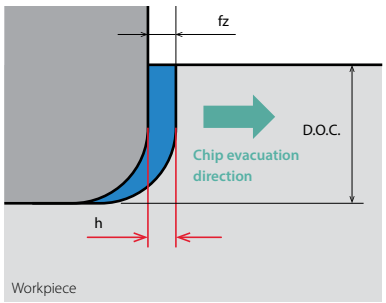
Controlls the chip evacuation direction and suppresses distortion caused by chip separation



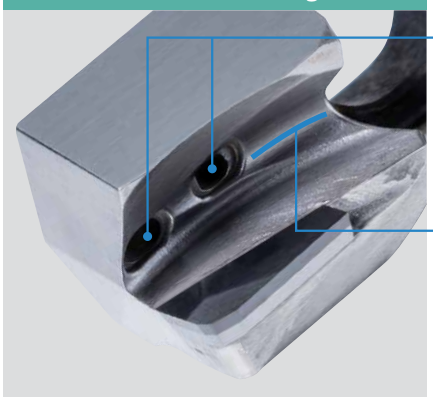
Double-Edge



Corner R



Stable Machining



Double Coolant Holes

Effective cooling of cutting edge and workpiece to achieve superior surface finishes

Suppresses chip biting and surface defects

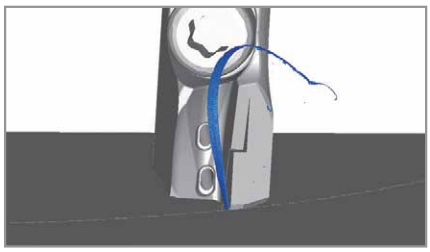
Streamlined Chip Pocket

Good chip control protects cutter body

Stable cutter balance delivers high-precision machining and longer tool life

Chip Evacuation Simulation

Evacuates chips along the pocket



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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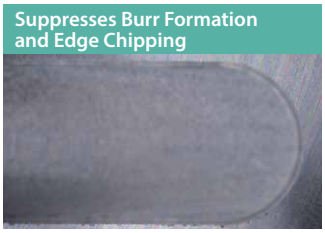
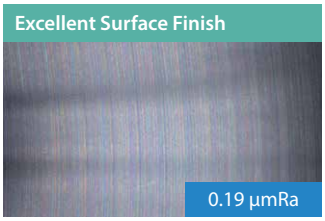
Performance

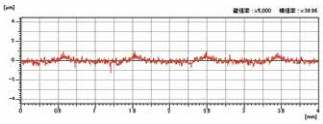
High-efficiency and high-quality machining performance with ultra-fine pitch specifications

n = 9,900 rpm (Vc = 8,200 sfm)
Vf = 375 ipm (fz = 0.0024 ipt)
D.O.C. x ae = 0.012" x 1.969"
ADC12 Wet ø50mm
MD90-080RA-T16CSF
LNGX1807PDFR-G (KPD01A)
(Internal Evaluation)

Surface Finish Evaluation







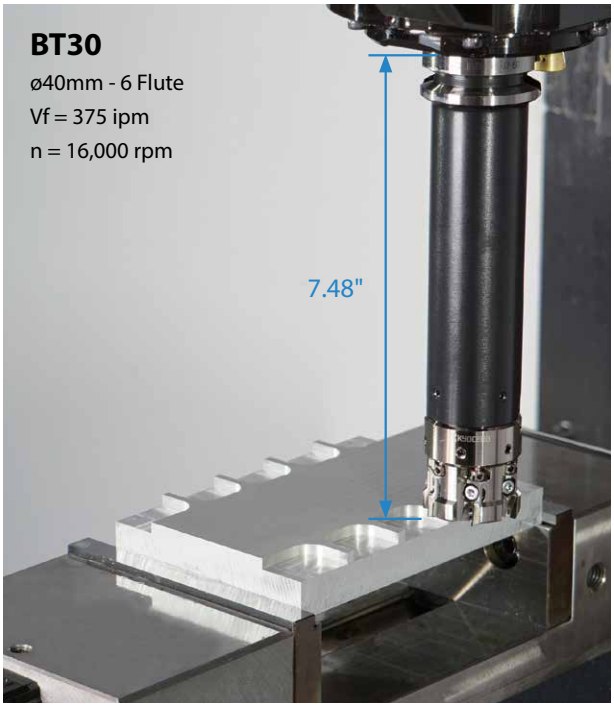
Machining Efficiency Comparison (Internal Evaluation)

		Efficiency
MD90 (16 Flute)	Vf = 375 ipm	↑
Competitor A (14 Flute)	Vf = 325 ipm	

Since the MD90 has a high number of cutting edges, table feed (Vf) can be improved.
Efficiency can be improved while maintaining the same machining quality as competitor.

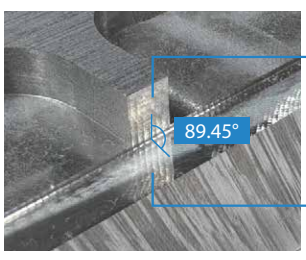
Stability

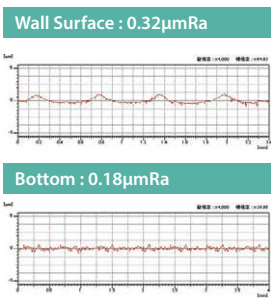
Stable machining even with a long overhang setup



n = 16,000 rpm (Vc = 6,560 sfm)
Vf = 375 ipm (fz = 0.004 ipt)
D.O.C. x ae = 0.197" x 0.197" ADC12 Wet ø1.575" (6 Flutes)
MD90-040RS-T6CMSF
LNGX180704PDFR-RR (KPD01A)
(Internal Evaluation)

Surface finish evaluation





● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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MD90 (Steel Body)

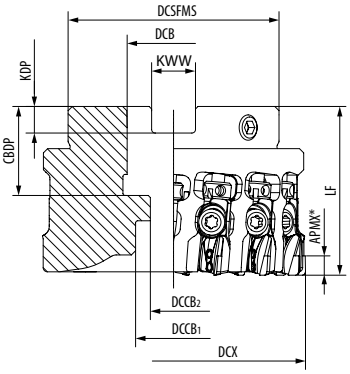


Fig. 1

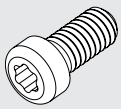
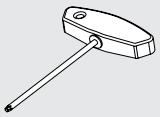
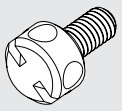
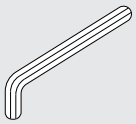
*Please refer to Page **M198** for APMX.

Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	Dimensions									Rake Angle	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts	Applicable Inserts ⇒ M198
			R		DCX	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	A.R.					Arbor Bolt Attached	
Inch	Inch Bore Dia.	MD90- 2000RS-T10CSF	●	10	2.000	1.910	0.750	0.669	0.433	1.575	0.750	0.187	0.313	+5°	Yes	25,000	0.37	1	HH3/8-1.25H	LNGX1807PDFR-G LNGX1807PDFR-L LNGX180704PDFR-RR LNGX180708PDFR-RR
		2500RS-T14CSF	●	14	2.500	1.750		0.750									0.62			
mm	Metric Bore Dia.	MD90- 040RS-T6CMSF	●	6	40	38.5	16	13.5	9	40	19	5.6	8.4	+5°	Yes	25,000	0.26	1	HH8X25H	
		050RS-T10CMSF	●	10	50	48.5	22	18	11		21	6.3	10.4				0.37		HH10X30H	
		063RS-T14CMSF	●	14	63	50											0.62			

Maximum number of revolutions
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece.
Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.
See applicable insert table for APMX

Spare Parts

Clamp Screw	Wrench	Adjustment Screw	Adjustment Wrench
			
BH4X8TR	TTW-15	AJ-3110	LW-2
Torque for insert clamp: 3.5 N.m		-	-

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MD90 (Aluminum Body)

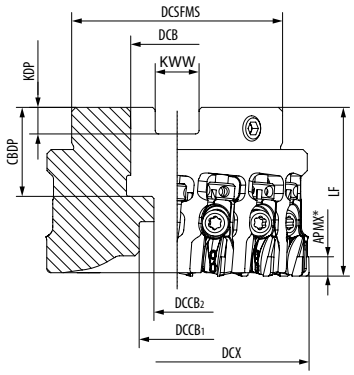


Fig. 1

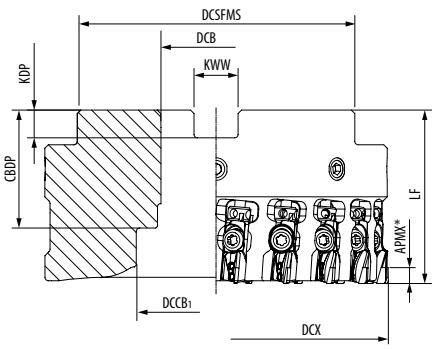


Fig. 2

*Please refer to Page **M198** for APMX.

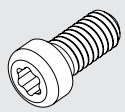
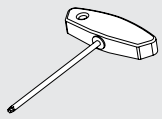
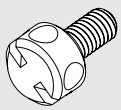
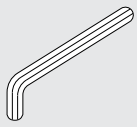
Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	Dimensions									Rake Angle	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts	Applicable Inserts ➡ M198
			R		DCX	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	A.R.					Arbor Bolt Attached Metric (Inch)	
mm	Inch Bore Dia.	MD90- 080RA-T16CSF	●	16	80	60	1.000"	20	13	50	1.063"	0.236"	0.375"	+5°	Yes	20,000	0.6	1	HH12X35H (HH1/2-1.25H)	LNGX1807PDFR-G LNGX1807PDFR-L LNGX180704PDFR-RR LNGX180708PDFR-RR
		100RA-T20C254SF	●	20	100	80										18,000	0.97			
		100RA-T20CSF	●				1.250"	45	-		1.339"	0.315"	0.500"				0.89	2	HF16X40HA	
		125RA-T24C254SF	●	24	125		1.000"	20	13	55	1.063"	0.236"	0.375"			16,000	1.49	1	HH12X35H (HH1/2-1.25H)	
		125RA-T24CSF	●				1.500"	55	-		1.496"	0.394"	0.625"				1.34	2	HF20X53HA (HH3/4-2.3H)	
	Metric Bore Dia.	MD90- 080RA-T16CMSF	●	16	80	60	27	20	13	50	24	7	12.4	+5°	Yes	20,000	0.6	1	HH12X35H	
		100RA-T20C27MSF	●	20	100	80										18,000	0.96			
		100RA-T20CMSF	●				32	45	-		30	8	14.4				0.88	2	HF16X40HA	
		125RA-T24C27MSF	●	24	125		27	20	13	55	24	7	12.4			16,000	1.48	1	HH12X35H	
		125RA-T24CMSF	●				40	55	-		33	9	16.4				1.31	2	HF20X53HA	

Inch thread coolant-through arbor bolts in ( ) can be substituted but are sold separately
HH1/2-1.25H ➡ HH12X35H
HH3/4-2.3H ➡ HF20X53HA

Maximum number of revolutions
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece.
Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.
See applicable insert table for APMX

Spare Parts

Clamp Screw	Wrench	Adjustment Screw	Adjustment Wrench
			
BH4X8TR	TTW-15	AJ-3110	LW-2
Torque for insert clamp: 3.5 N.m		-	-

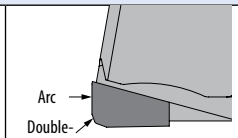
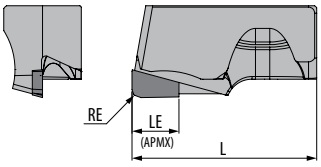
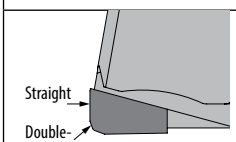
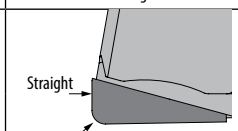
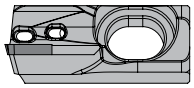
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

LNGX

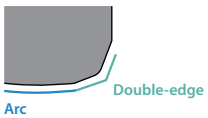
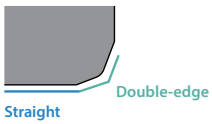
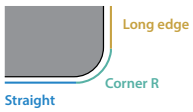
Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel		P
Mold and die steel		
Austenitic stainless steel		M
Martensitic stainless steel		
Precipitation hardened stainless steel		
Gray cast iron		K
Nodular cast iron		
Non-ferrous metals	■	N
Heat-resistant alloy		S
Titanium alloy		
Hard materials		H

Insert			Part Number	Dimensions (mm) L	RE	LE (APMX)	PCD - KPD01A	Applicable Toolholder
Standard	 Arc, Double-edge, General Purpose	 RE, LE (APMX), L	LNGX 1807PDFR-G	18.1	-	4	●	MD90...RS...-SF MD90...RA...-SF
	 Straight, Double-edge, Low Cutting Force		LNGX 1807PDFR-L				●	
Long Edge	 Straight, Corner R(RE)		LNGX 180704PDFR-RR		0.4	8	●	
			LNGX 180708PDFR-RR		0.8		●	

The dimension indicated for LE (APMX) is for a new insert. Please note that it may change after regrinding.

Type	Shape	Features and Applications
G	 Double-edge, Arc	1st recommendation Suppresses burrs and ensures high-quality surface finish Achieves longer tool life and stable machining
L	 Double-edge, Straight	Low cutting force with straight wiper edge Provides suitable results even with lower rigidity workpieces or clamping power
RR	 Long edge, Corner R, Straight	Corner Radius (R) Suitable for machining with larger D.O.C and heavy loads

Polycrystalline Diamond — Average Particle Size : 1 µm

KPD01A Achieves both wear resistance and chipping resistance required for machining with ultra-fine pitch tools
Stable, high-efficiency machining is possible

Recommended Cutting Conditions

Workpiece	Property	Cutting Speed Vc (sfm)	Feed fz (ipt)	Recommended Grade
Aluminum Alloy	Si Ratio ≤ 12.5%	3280 - **6,560** - 9,840	0.002 - **0.004** - 0.008	KPD01A
	Si Ratio ≥ 12.5%	1,310 - **1,970** - 2,620	0.002 - **0.004** - 0.008	

Numbers in **Bold** are recommended starting values. Please adjust cutting speed and feed rate according to actual machining conditions taking into account machine and workpiece rigidity

Do not use the cutter at speeds exceeding the maximum cutting speed limit

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

How to Install Inserts

1 Mount an Insert

2 Partially tighten

Torque : 1.0 N·m

3 Adjust insert runout

Insert Runout 5 µm or less

4 Fully tighten

Torque : 3.5 N·m

1 Mount inserts into all pockets

2 Partially tighten the clamp screw (Recommended torque 1.0 N.m)

3 Turn the screw with the wrench to adjust and make sure that all screw heights are within 5 µm of each other (Recommended)

4 Fully tighten the clamp screw with tightening torque 3.5 N.m

Precautions

While in use

⚠Caution

Please use within recommended cutting conditions

Do not run the cutter at revolutions exceeding the printed maximum revolution limit of the cutter body

Inserts or parts may scatter due to the centrifugal force and cutting load

Confirm the total weight of the cutter and the arbor is within the machine's acceptable range

Please do not use under the following conditions:

- When cutter is not fully loaded with inserts
- If the body and/or clamp is damaged
- If a clamp or clamp screw is removed
- If inserts that have different regrind amounts are mounted

Please wear protective equipment such as protective glove when changing inserts or adjusting edge fluctuation

Injury can occur when touching the cutting edge

Dynamic balance

Balance adjustment on the cutter is completed before shipping

Balance adjustment has been made with special high precision inserts to be ISO balance grade (ISO1940/1) G2.5
Recommended cutting conditions at Max. revolution

Do not operate the balance adjustment screw at the outer periphery of cutter

This could lead to improper dynamic balance

Milling Cutters for Aluminum Finishing

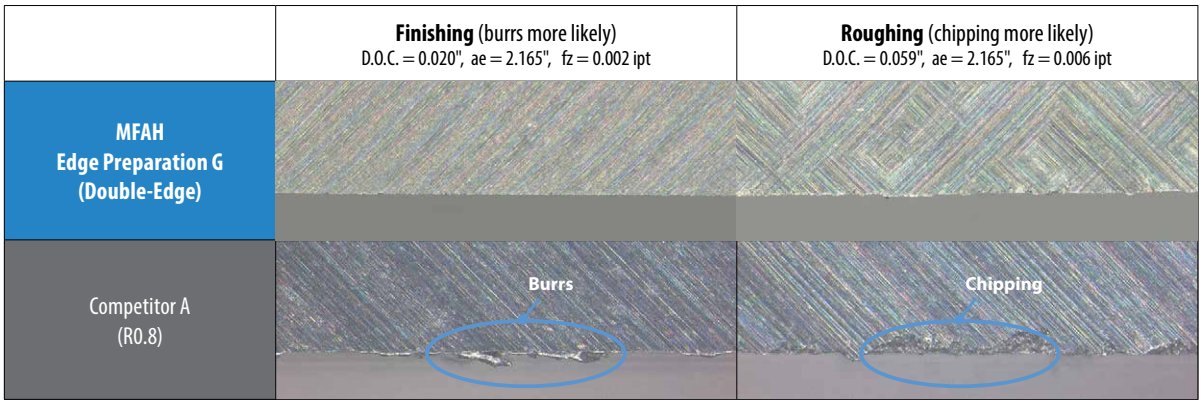
MFAH

Low cutting force minimizes burrs and chipping for high quality machining
Easily adjust blade runout
2 body types and 3 inserts for a variety of milling applications

1 Minimizes Burrs for High Quality Machining Results

Large true rake angle and dual cutting edge insert designs

Burr and chipping comparison (Internal evaluation)

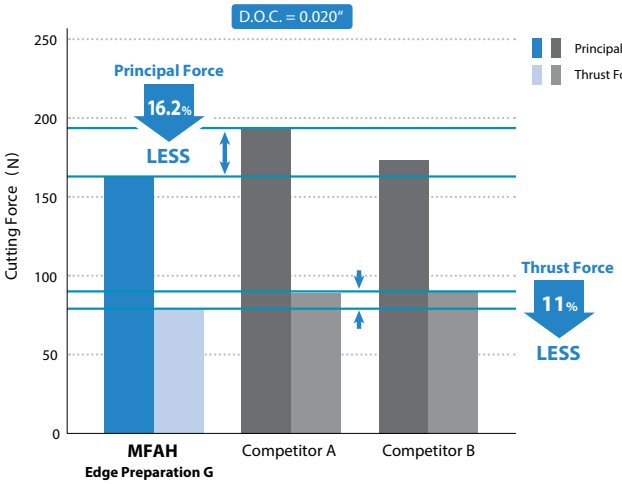


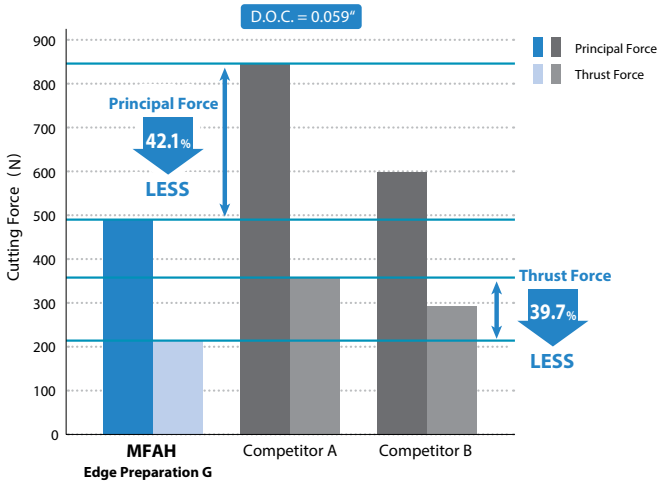
Cutting Conditions: Vc = 8,200 sfm, Wet, Cutting Dia. Ø80mm
MFAH080RS-10T-SF, ENET0905PAER-G KPD001
Workpiece: 383.0 Aluminum

2 Low Cutting Force Design

Low cutting force, reduced chattering and high efficiency machining

Cutting Force Comparison (Internal Evaluation)





Cutting Conditions: Vc = 8,200 sfm, ae = 2.165", fz = 0.004 ipt Wet, Cutting Dia. Ø80mm
MFAH080RS-10T-SF ENET0905PAER-G KPD001
Workpiece: 383.0 Aluminum

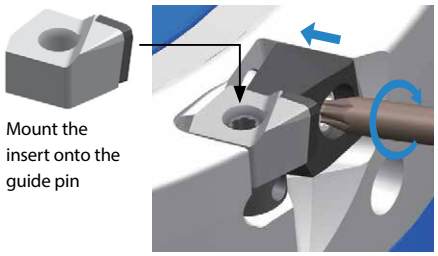
800.823.7284
www.kyoceraprecisiontools.com

3 Adjustable Blade Runout

Easily install inserts and adjust blade runout

Easy Insert Installment

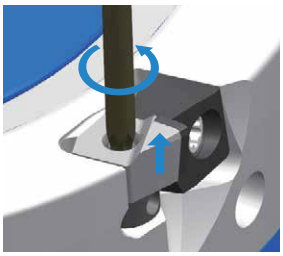
Guide pin allows for easier positioning



Mount the insert onto the guide pin

Easily Adjust Blade Runout

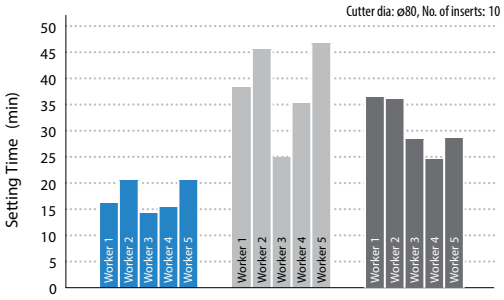
Adjustable from both the front and outer periphery



Unique design for easily adjusting from the front

Blade Runout Setting Time Comparison (Internal Evaluation)

* Operation Time of 5 Workers Comparison



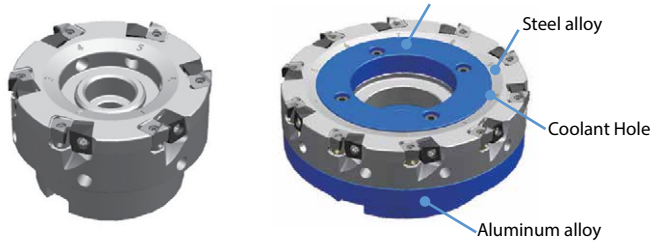
The MFAH can drastically shorten the setting time

4 Large Tooling Lineup

Steel body and light-weight hybrid body with internal coolant available

3 different edge designs offer a variety of machining applications

Cutter Body



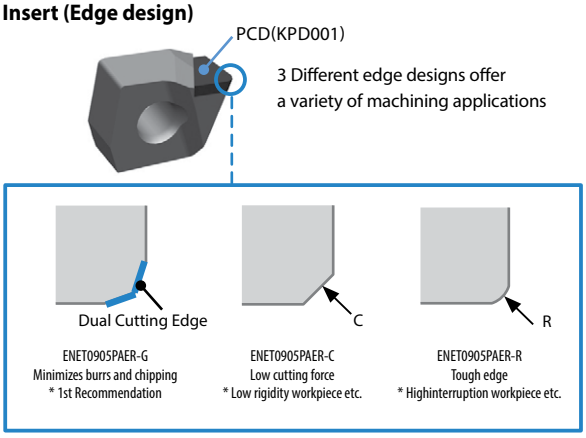
Steel Body

ø50mm~ø125mm

Light-weight Hybrid Body

ø80mm~ø315mm

Insert (Edge design)

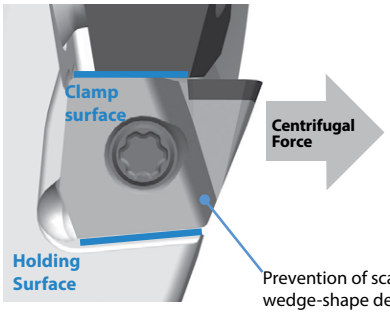


5 Safety Enhancements During High-Speed Revolution

Scattering Prevention Mechanism

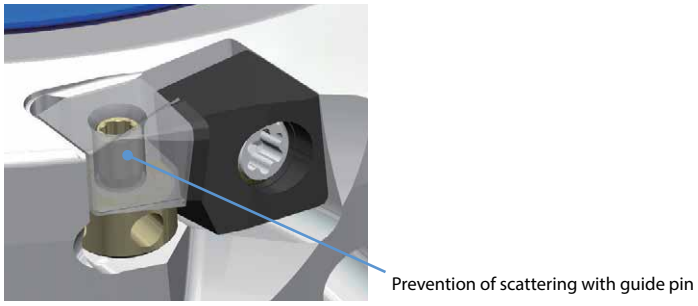
1 Prevention of scattering by wedge-shape design

New wedge-shape feature holds insert
Firmly in place and reduces chattering



2 Prevention of scattering with guide pin

Guide pins improve safety
During high-speed rotation



MFAH (Light-Weight Hybrid Body)

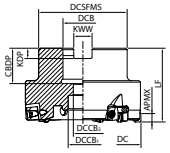


Fig. 1

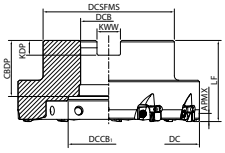


Fig. 2

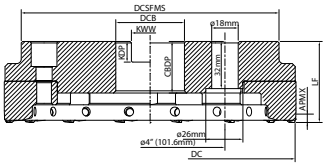


Fig. 3

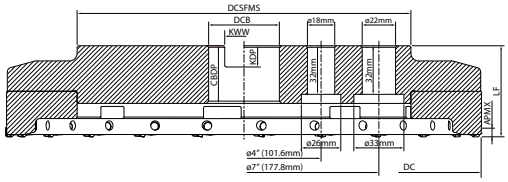


Fig. 4

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ➡ M205
		R		DC	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX					Arbor Bolt Attached Metric (Inch)	Coolant Cover (Included if Listed)	Coolant Cover (Optional / Sold Separately)	
mm	Inch Bore Dia.	●	6	80	62	1.000"	20	13	50	1.063"	0.236"	0.374"	4.6	Yes	14,600	0.83	1	HH12X35HC (HF0500X35HC)	-	-	ENET0905PAER-G ENET0905PAER-C ENET0905PAER-R
	MFAH 080RA-6T-SF	●	10													0.78	1				
	080RA-10T-SF	●	8	100	62	1.000"	20	13		0.945"	0.236"	0.374"			13,000	1.21	1	HH12X35HC (HF0500X35HC)			
	100RA-8T-254-SF	●	8		85	1.250"	42	-		1.339"	0.315"	0.500"				1.33	2	HF16X44HC (HF0625X44HC)			
	100RA-8T-SF	●	12		62	1.000"	20	13		0.945"	0.236"	0.374"				1.16	1	HH12X35HC (HF0500X35HC)			
	100RA-12T-254-SF	●	12		85	1.250"	42	-		1.339"	0.315"	0.500"				1.29	2	HF16X44HC (HF0625X44HC)			
	100RA-12T-SF	●	10	125	60	1.000"	20	13		0.945"	0.236"	0.374"			11,400	1.8	1	HH12X35HC (HF0500X35HC)	CC-125-MFAH		
	125RA-10T-254-SF	●			89	1.500"	55	-	55	1.496"	0.394"	0.626"				2	2	HF20X53HA			
	125RA-10T-SF	●	16		60	1.000"	20	13	50	0.945"	0.236"	0.374"				1.74	1	HH12X35HC (HF0500X35HC)			
	125RA-16T-254-SF	●			89	1.500"	55			1.496"	0.394"	0.626"				1.95	2	HF20X53HA			
	125RA-16T-SF	●	12	160	130	2.000"	70				0.433"	0.752"			8,000	3.4	2	HF24X60HA	CC-160-MFAH		
	160RA-12T-SF	●	20													3.3	2				
	160RA-20T-SF	□	16	200	175	1.875"	126	-	55	1.378"	0.551"	1.000"			5,600	4.9	3	-	-	CC-200-MFAH	
	200RA-16T-SF	□	24													4.8	3				
	200RA-24T-SF	□	20	250	140		165								4,500	7	3			CC-250-MFAH	
	250RA-20T-SF	□	32													6.9	3				
	250RA-32T-SF	□	24	315	220		220		60	1.496"					3,500	11.7	4			CC-315-MFAH	
	315RA-24T-SF	□	40													11.5	4				
	315RA-40T-SF																				

Confirm the total weight of the cutter and the arbor is within the machine's acceptable range.
Inch thread coolant-through arbor bolts in ( ) can be substituted but are sold separately
HF0500X35HC ➡ HH12X35HC
HF0625X44HC ➡ HH16X44HC

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ⇒ M205
		R		DC	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX					Arbor Bolt (Attachment)	Coolant Cover (Attachment)	Coolant Cover (Sold Separately)	
mm	Metric Bore Dia.	MFAH 080RA-6T-M-SF	●	6	80	62	27	20	13	50	27	7	12.4	4.6	Yes	14,600	0.82	1	HH12X35HC	-	-	ENET0905PAER-G ENET0905PAER-C ENET0905PAER-R
		080RA-10T-M-SF	●	10													0.78	1				
		100RA-8T-M27-SF	●	8	100	62	27	20	13		24	7	12.4			13,000	1.2	1	HH12X35HC			
		100RA-8T-M-SF	●	8		85	32	42	-		30	8	14.4				1.32	2	HF16X48HC			
		100RA-12T-M27-SF	●	12		62	27	20	13		24	7	12.4				1.15	1	HH12X35HC			
		100RA-12T-M-SF	●	12		85	32	42	-		30	8	14.4				1.27	2	HF16X48HC			
		125RA-10T-M27-SF	●	10	125	60	27	20	13		24	7	12.4			11,400	1.8	1	HH12X35H	CC-125-MFAH		
		125RA-10T-M-SF	●	10		94	40	55	-	55	33	9	16.4				2.1	2	HF20X53HA			
		125RA-16T-M27-SF	●	16		60	27	20	13	50	24	7	12.4				1.73	1	HH12X35H			
		125RA-16T-M-SF	●	16		94	40	55	-		33	9	16.4				2.1	2	HF20X53HA			
		160RA-12T-M-SF	●	12	160	125	40	57	-		33	9	16.4			8,000	3.5	2	HF20X53HA	CC-160-MFAH		
		160RA-20T-M-SF	●	20													3.4	2				
		200RA-16T-M-SF	□	16	200	175	60	126		55	35	14	25.7			5,600	4.7	3	-	-	CC-200-MFAH	
		200RA-24T-M-SF	□	24													4.6	3				
		250RA-20T-M-SF	□	20	250	140		165								4,500	6.9	3			CC-250-MFAH	
		250RA-32T-M-SF	□	32													6.8	3				
		315RA-24T-M-SF	□	24	315	220		220		60	38					3,500	11.7	4			CC-315-MFAH	
		315RA-40T-M-SF	□	40													11.5	4				

Confirm the total weight of the cutter and the arbor is within the machine's acceptable range.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MFAH (Steel Body)

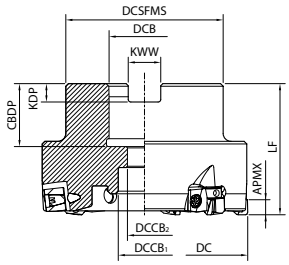


Fig. 1

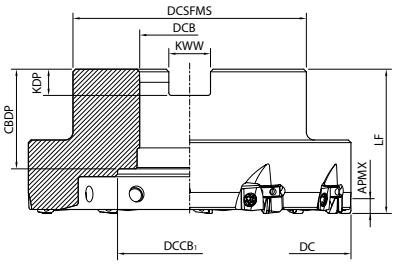


Fig. 2

Toolholder Dimensions

Unit		Part Number	Std. Item R	No. of Inserts	Dimensions DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts: Arbor Bolt (Included if Listed)	Applicable Inserts ➡ M205
mm	Inch Bore Dia.	MFAH 080RS-6T-SF	●	6	80	50	1.000"	20	13	50	1.063"	0.236"	0.375"	4.6	No	14,600	1.02	1	HH12X35	ENET0905PAER-G ENET0905PAER-C ENET0905PAER-R
		080RS-10T-SF	●	10													0.98	1		
		100RS-8T-SF	●	8	100	70	1.250"	45	-		1.339"	0.315"	0.500"			13,000	1.59	2	-	
		100RS-12T-SF	●	12													1.55	2		
		125RS-10T-SF	●	10	125	89	1.500"	55		55	1.496"	0.394"	0.625"			11,400	2.63	2		
		125RS-16T-SF	●	16													2.56	2		
	Metric	MFAH 050RS-4T-M-SF	●	4	50	48	16	13.6	9	40	19	5.6	8.4	4.6	No	19,200	0.44	1	HH8X25	
		050RS-5T-M-SF	●	5													0.43	1		
		063RS-5T-M-SF	●		63	61	22	23	11		21	6.3	10.4			16,800	0.69	1	HH10X30	
		063RS-6T-M-SF	●	6													0.68	1		
		080RS-6T-M-SF	●	6	80	60	27	20	13	50	24	7	12.4			14,600	1.16	1	HH12X35	
		080RS-10T-M-SF	●	10													1.11	1		
		100RS-8T-M-SF	●	8	100	70	32	45	-		30	8	14.4			13,000	1.56	2	-	
		100RS-12T-M-SF	●	12													1.51	2		
		125RS-10T-M-SF	●	10	125	89	40	55		55	33	9	16.4			11,400	2.6	2		
		125RS-16T-M-SF	●	16													2.5	2		

Spare Parts

Part Number		Wedge	Wedge Screw	Wrench	Adjustment Screw	Wrench	Anti-Seize Compound	Applicable Inserts
Light-Weight Hybrid Body	MFAH080RA- … ~ MFAH315RA- …	C08R	W5X13L	TTW-15	AJ-4170	DTPM-8	P-37	ENET0905…
Steel Body	MFAH050RS- … ~ MFAH125RS- …							

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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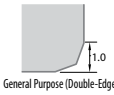
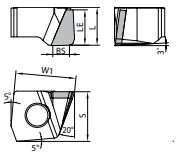
ENET

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel		P
Mold and die steel		
Austenitic stainless steel		M
Martensitic stainless steel		
Precipitation hardened stainless steel		
Gray cast iron		K
Nodular cast iron		
Non-ferrous metals	■	N
Heat-resistant alloy		S
Titanium alloy		
Hard materials		H

Insert			Part Number	Dimensions (mm) S	L	LE	W1	BS	PCD -	PCD KPD001	Applicable Toolholder ⇨ M202~M204
	 1.0 General Purpose (Double-Edge)		ENET 0905PAER-G	7.9	6.02	5.6	9.61	2.6	●		MFAH...RA...-SF MFAH...RS...-SF
	0.5 Low Cutting Force		ENET 0905PAER-C	7.9	6.02	5.6	9.61	3	●		MFAH...RA...-SF MFAH...RS...-SF
	RE=0.4 Tough Edge		ENET 0905PAER-R	7.9	6.02	5.6	9.61	3.1	●		MFAH...RA...-SF MFAH...RS...-SF

Recommended Cutting Conditions ⇨ M206

ENET PCD Inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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Recommended Cutting Conditions

Workpiece material	Property	Vc (sfm)	fz (ipt)	Recommended Insert Grades
Aluminum Alloys	Si Ratio ≤ 12.5%	3,280~**8,200**~9,840	0.002~**0.004**~0.008	KPD001
	Si Ratio ≥ 12.5%	1,310~**1,970**~2,630	0.002~**0.004**~0.008	

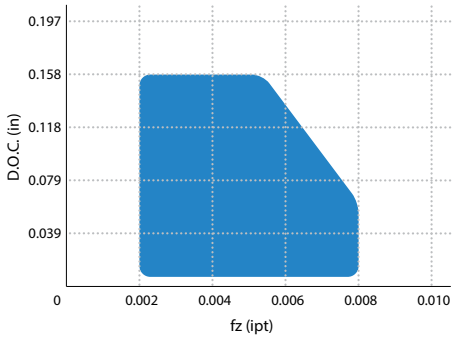
Recommended Cutting Conditions are reference values.

Please adjust cutting speed and feed rate according to actual machining conditions taking into account machine and workpiece rigidity.

Do not use the cutter at speeds exceeding the maximum cutting speed limit.

Cutting Performance

BT50 M/C (Machine Power 30kw)



Cutting Conditions: Vc = 8,200 sfm, ae = 2.165", Wet, Cutting Dia. Ø80mm
MFAH080RS-10T-SF, ENET0905PAER-G KPD001, Workpiece: 383.0 Aluminum

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Cautions

While in use

⚠ Caution

Please use within recommended cutting conditions

Do not run the cutter at revolutions exceeding the printed maximum revolution limit of the cutter body
Inserts or cutter body may be damaged due to the centrifugal force and cutting load

Please do not use under the following conditions:
- When cutter is not fully loaded with inserts
- If the body and/or clamp is damaged
- If a clamp or clamp screw is removed
- If inserts that have different regrind amounts are mounted

Please wear protective equipment such as protective glove when changing inserts or adjusting edge fluctuation
Injury can occur when touching the cutting edge

Dynamic balance

Balance adjustment on the cutter is completed before shipping
Balance adjustment has been made with special high precision inserts to be ISO balance quality grade (ISO 1940-1) G2.5

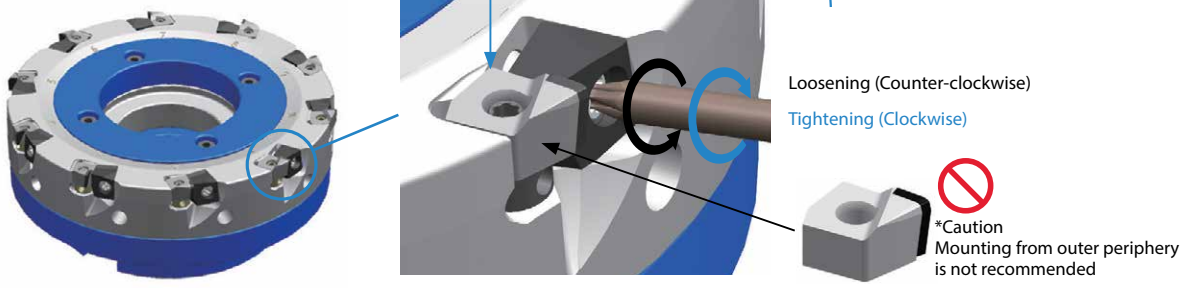
Do not adjust the balance screw
➡ This could lead to improper dynamic balance
Do not completely remove clamp and clamp screw from cutter
➡ This requires additional balance adjustment

Balance adjustment screw is mounted at the necessary point

* Do not operate

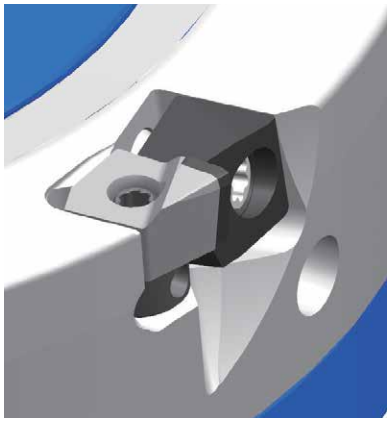
How to Mount Inserts

1. Adjust the clearance between adjustment screw for cutting edge and the surface of insert to be 0.5mm
2. Mount insert on guide pin
   (Be sure to install from the head. Mounting from outer periphery is not recommended)
3. Tighten the clamp screw while lightly pressing the insert against the holding surface (Recommended Torque 4.2N•m)
4. Make sure that there is no clearance between the insert side surfaces and the holding surface



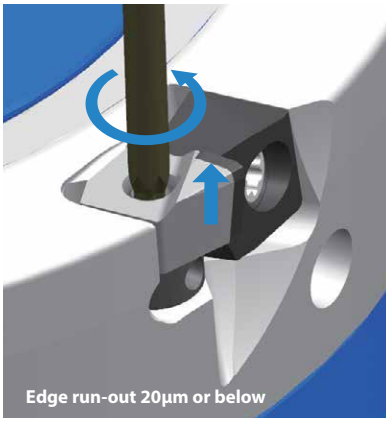
How to Adjust Blade Runout

1 Install an insert



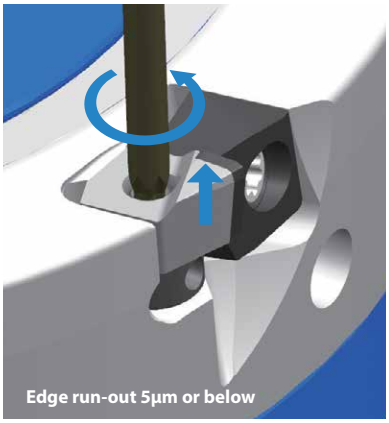
2 Partially tighten

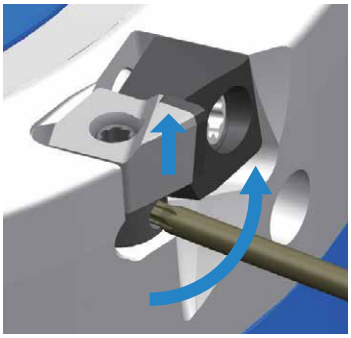
3 Adjustable blade runout



4 Fully tighten

5 Adjustable blade runout





Adjustment edge run-out from outer periphery is possible

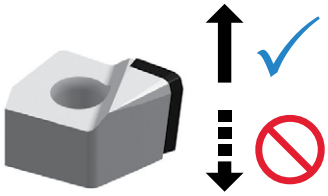
1 Install inserts into all pockets

2 Partially tighten the clamp screw (Recommended Torque 2.0N•m)

3 Turn the screw with the wrench to adjust and make sure that all screw heights are within 20µm of each other (Recommended)

4 Fully tighten the clamp screw with tightening torque 4.2 N•m

5 Slightly adjust position of cutting edge (Recommended position difference: 5µm or below)
* All inserts should be fine-tuned



* Caution
Do not adjust cutting edge to lower position

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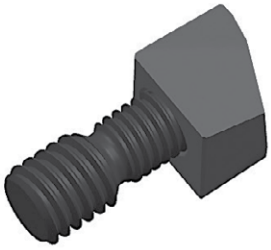
Replacing the Insert Clamp

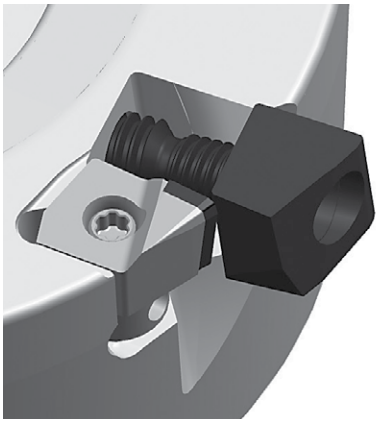
Corrrect Mounting Procedure for Clamp and Clamp Screw

1 Attach clamp screw into clamp first



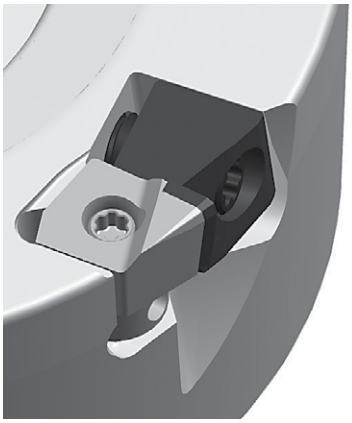
Attaching clamp screw into clamp
(about 1 revolution)

2 Mounting



Mount it to the holder

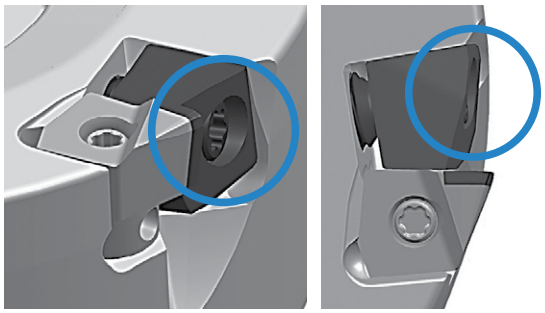
3 Fastening



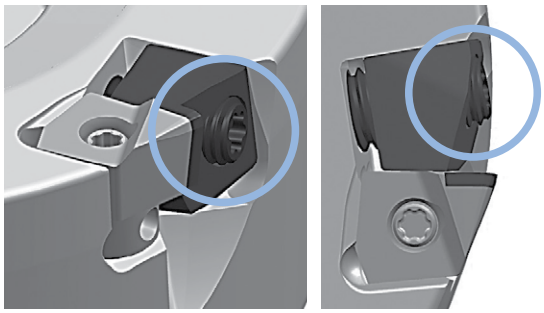
Fasten with recommended torque
(Completed)

Mount position of clamp screw

Right position
(Screw head does not come out)



Wrong position
(Screw head comes out)



After tightening the clamp screw with the recommended torque, please check the protrusion of the clamp screw.
If it is protruding outside the clamp, please reinstall

When clamp screws need to be replaced and completely removed, a balance adjustment is necessary after installation

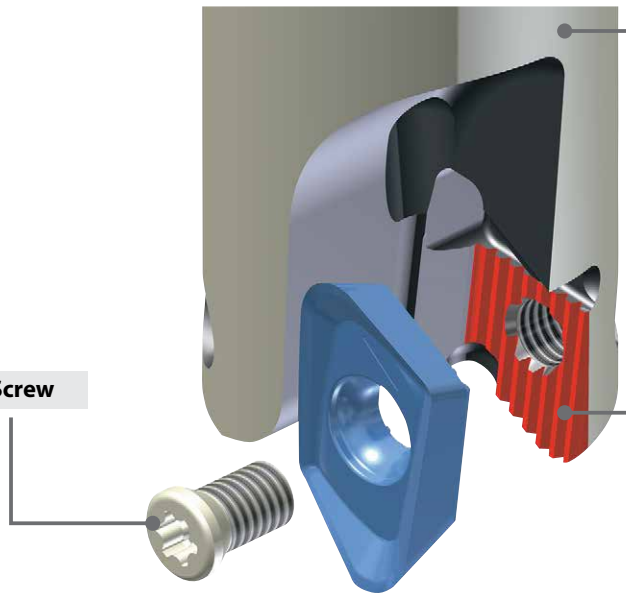
High Efficiency Milling Cutters for Aluminum Machining

MEAS

Excellent scatter prevention to ensure stable, high speed aluminum machining
Large ramping angle delivers a wide range of machining applications

1 Reliable High Efficiency Machining

Grooved connection between the insert and holder
Provides high speed aluminum machining (ø1.25" / ø32mm: Recommended max. cutting speed Vc = 9,840 sfm)



ISO balance quality grade G6.3

Prevents vibration during high speed machining (ISO1940/1)

M4 Clamp Screw

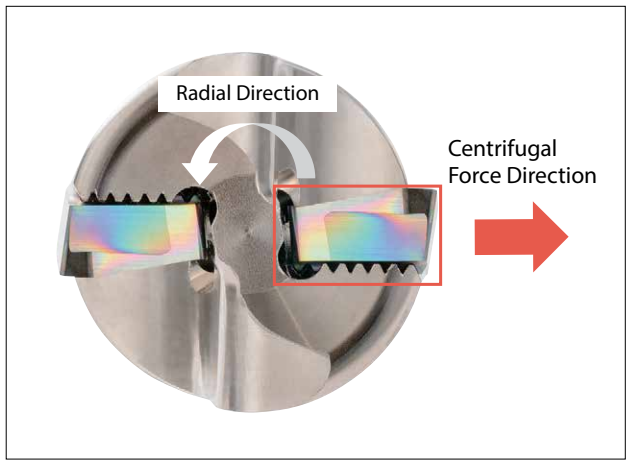
Unique Grooved Contact Surface

Prevents insert screw breakage and ensures greater safety

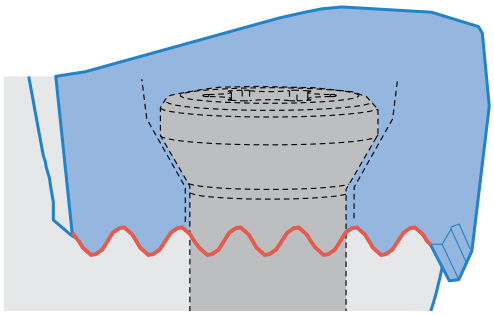
Back of the Insert

Grooved Insert Pocket

Centrifugal force is applied across the grooved surface to reduce pressure on the insert screw
Prevents insert screw breakage and safely secures the insert during high-speed revolutions



Grooved Contact Surface



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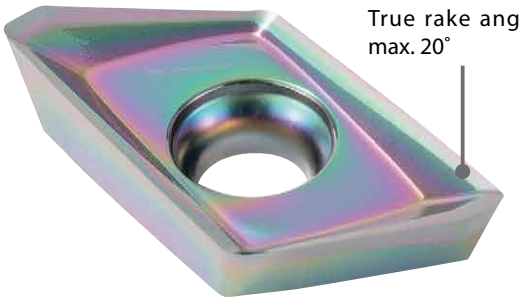
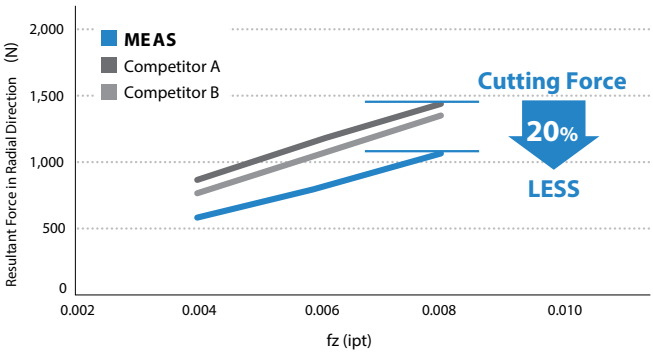
2 Low Cutting Force with Sharp Cutting Edge

True rake angle max. 20°
Low cutting force and excellent chattering resistance



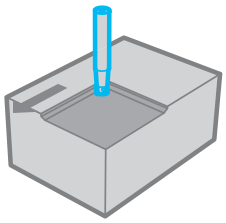
Cutting Force Comparison (Internal Evaluation)

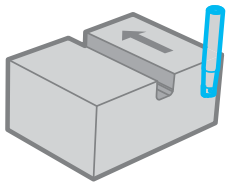


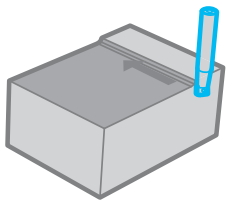
Cutting conditions: Vc = 390 m/min, ap × ae = 8 × 5mm, Dry
Cutter dia. ø25mm (2 Flutes) Workpiece material: A7075

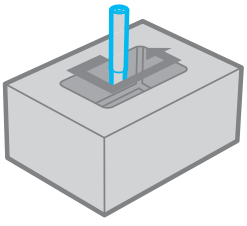
3 Machining for a Wide Variety of Applications

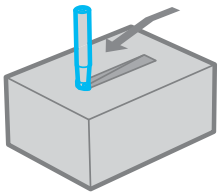
Max. ramping angle 20° (ø1.00" / ø25mm)
The MEAS can be used for shouldering, slotting, ramping, and helical milling applications

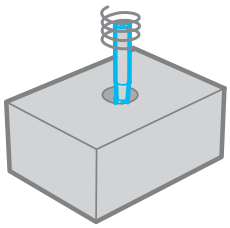

Facing, Shouldering

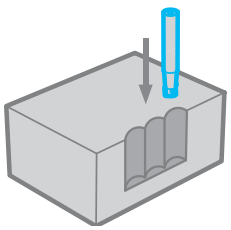

Slotting


Contouring


Pocketing


Ramping


Helical Milling


Plunging

MEAS (End Mill for Aluminum)

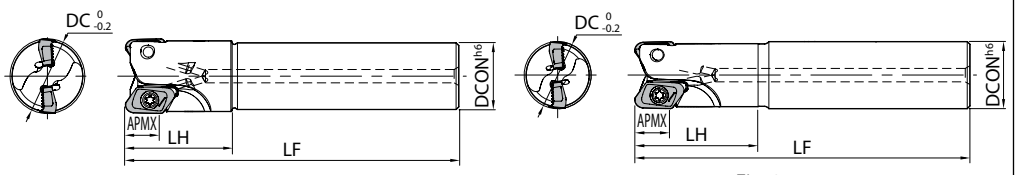


Fig. 1

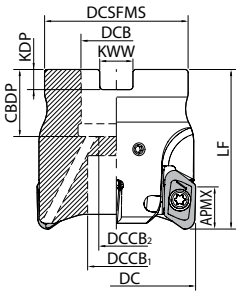
Fig. 2

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts: Anti-Seize Compound	Insert Screw	Wrench	Applicable Inserts ⇒ M213
Inch	Cylindrical	Standard Shank	MEAS 1000-S1000-13-2T	●	2	1.000	1.000	5.000	2.000	0.472	+10	14	Yes	59,000	0.4	2	P-37	SB-4075TRP	DTPM-15	KCGT1305... KCGT1305...
			1250-S1250-13-2T	●	2	1.250	1.250	6.000	2.750			13		49,000	0.8	2		SB-4090TRP		
			1500-S1250-13-3T	●	3	1.500			2.000			12		42,000	0.9	1				
		Long Shank	MEAS 1000S1000132T675	●	2	1.000	1.000	6.750	3.550	0.472	+10	14	Yes	49,000	0.6	2	P-37	SB-4075TRP	DTPM-15	KCGT1305... KCGT1305...
			1250S1250132T800	●	2	1.250	1.250	8.000	4.800			13		39,000	1.1	2		SB-4090TRP		
mm	Cylindrical	Standard Shank	MEAS 25-S25-13-2T	●	2	25	25	125	49	12	+10	-14	Yes	59,000	0.4	2	P-37	SB-4075TRP	DTPM-15	KCGT1305... KCGT1305...
			28-S25-13-2T	●		28			40			-13		54,000	0.4	1		SB-4090TRP		
			32-S32-13-2T	●		32	32	150	69					49,000	0.8	2				
			35-S32-13-2T	●		35			50					46,000	0.9	1				
			40-S32-13-3T	●	3	40	32	150	50			-12		42,000	0.9	1				
		Long Shank	MEAS 25-S25-13-2T-170	●	2	25	25	170	89	12	+10	-14	Yes	49,000	0.5	2	P-37	SB-4075TRP	DTPM-15	KCGT1305...
			32-S32-13-2T-200	●		32	32	200	119			-13		39,000	1.1	2		SB-4090TRP		

When using inserts with a corner-R(RE) of 1/8" (3.2mm) or larger, additional modifications (R0.138" (3.5mm) or larger) on the corner of cutter body is necessary.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
Recommended tightening torque for insert clamp : 3.5N·m

MEAS (Face Mill for Aluminum)



Toolholder Dimensions

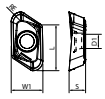
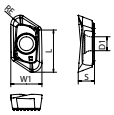
Unit	Part Number	Std. Item R	No. of Inserts	Dimensions DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Spare Parts: Anti-Seize Compound	Arbor Bolt	Insert Screw	Wrench	Applicable Inserts ⇒ M213
Inch	MEAS 2000R-13-4T	●	4	2.000	1.750	0.750	0.669	0.433	1.969	0.750	0.187	0.313	0.472	+10	-10	Yes	36,000	0.4	P-37	HH10X30H	SB-4090TRP	DTPM-15	KCGT1305...
mm	MEAS 050R-13-4T-M	●	4	50	45	22	18	11	50	21	6.3	10.4	12	+10	-11	Yes	36,000	0.4	P-37	HH10X30H	SB-4090TRP	DTPM-15	KCGT1305...

When using inserts with a corner-R(RE) of 1/8" (3.2mm) or larger, additional modifications (R0.138" (3.5mm) or larger) on the corner of cutter body is necessary.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
Recommended tightening torque for insert clamp : 3.5N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KCGT

Usage Classification		
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel	P
	Mold and die steel	
	Austenitic stainless steel	M
	Martensitic stainless steel	
	Precipitation hardened stainless steel	
	Gray cast iron	K
	Nodular cast iron	
	Non-ferrous metals ★	N
	Heat-resistant alloy	S
	Titanium alloy	
	Hard materials	H

Insert		Part Number	No. of Edges	Dimensions (mm) S	D1	RE	L	W1	Carbide DLC PDL025	Applicable Toolholder ⇨ M212
	 Non-Ferrous Metals	KCGT 130504FR-AL	2	5.1	4.4	0.4	14.1	9.9	●	MEAS...
		KCGT 130508FR-AL				0.8	13.9		●	
		KCGT 130512FR-AL				1.2	13.8		●	
		KCGT 130516FR-AL				1.6	13.3		●	
		KCGT 130520FR-AL				2	13.3		●	
		KCGT 130524FR-AL				2.4	13.3		●	
		KCGT 130530FR-AL				3	13.3		●	
		KCGT 130532FR-AL				3.2	12.8		●	
		KCGT 130540FR-AL				4	12.8		●	
		KCGT 130550FR-AL				5	12.8		●	
	 Tough Edge	KCGT 130504ER-AM	2	5.1	4.4	0.4	13.7	9.9	●	MEAS...
		KCGT 130508ER-AM				0.8	13.7		●	
		KCGT 130516ER-AM				1.6	13.3		●	
		KCGT 130525ER-AM				2.5	13.3		●	
		KCGT 130530ER-AM				3	13.3		●	
		KCGT 130540ER-AM				4	12.8		●	

KCGT Inserts are sold in 10 piece boxes

Right-hand Insert Shown

Recommended Cutting Conditions

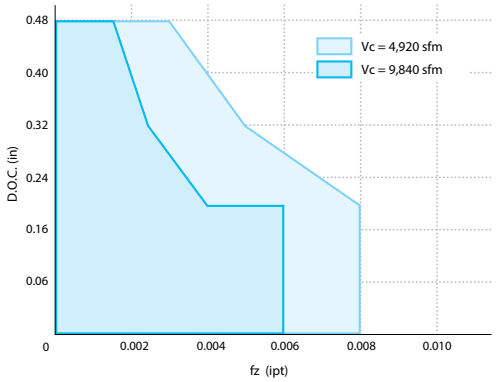
Workpiece Material		Chipbreaker	Vc (sfm)	ae	fz (ipt) D.O.C. = 0.197" (Reference Value)	
				DC	Cutting Dia. ≤ ø1.000" / ø28mm	Cutting Dia. ≥ ø1.250" / ø32mm
Aluminum Alloys	Si Ratio ≤ 12.5%	AL	660~3,280~9,840	≤ 0.5DC	0.002~0.006~0.010	
				0.5DC <		
		AM	660~3,280~16,400	≤ 0.5DC	0.002~0.006~0.012	0.002~0.008~0.014
				0.5DC <	0.002~0.006~0.010	0.002~0.006~0.012
	Si Ratio ≥ 12.5%	AL	660~980~1,310	≤ 0.5DC	0.002~0.004~0.008	
				0.5DC <		
		AM	660~980~2,620	≤ 0.5DC	0.002~0.006~0.012	0.002~0.008~0.014
				0.5DC <	0.002~0.006~0.010	0.002~0.006~0.012

- Recommended Cutting Conditions are reference values.
  Please adjust cutting speed and feed rate according to actual machining conditions taking into account machine and workpiece rigidity
- Do not use the cutter at speeds exceeding the maximum cutting speed limit (See page **M167**)
- Regularly changing the insert clamp screw is recommended
  Use appropriate safety covers to protect from tool breakage and chip scattering
- When using at a higher revolution (10,000min^{-1} or over), refer to the table below to adjust the balance of the MEAS and arbor

RPM	ISO balance quality grade ISO 1940-1/8821 (JIS B0905)
~20,000	G16
~30,000	G6.3
30,000~	G2.5

MEAS Cutting Performance

ø50mm (4 flutes) Shouldering ae = 0.984" Workpiece Material: 7175



Reduce the feed rate when machining at high speeds

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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Ramping Reference Data

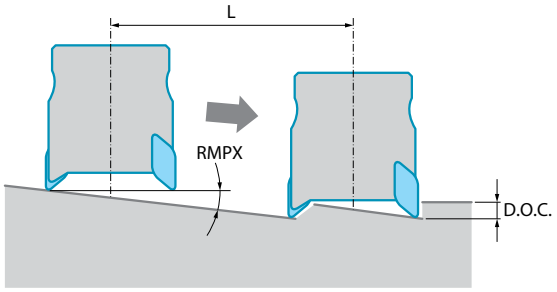
Cutter Dia. DC	1.000"	1.250"	1.500"	2.000"	25mm	28mm	32mm	35mm	40mm	50mm
Max. ramping angle RMPX	20°	12.5°	8.5°	6°	20°	16°	12.5°	11°	8.5°	6°
tan RMPX	0.363	0.221	0.149	0.105	0.363	0.287	0.221	0.194	0.149	0.105

Ramping Guide

Ramping angle should be RMPX (Maximum ramping angle) or under in the above cutting conditions.
Reduce recommended feed rate by 50%

Formula for max. cutting length "L" at Max. ramping angle

$$L = \frac{D.O.C.}{\tan RMPX}$$



Plunging Guide

* When plunging, reduce feed rate to fz = ≤ 0.004 ipt.

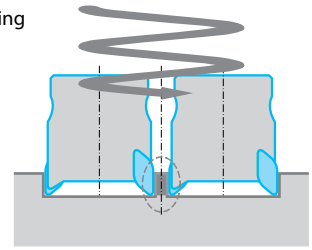
Insert Description	Max. Width of Cut (ae)
KCGT13 type	0.315"

Helical Milling Guide

For helical milling, use between min. cutting dia. and max. cutting dia.

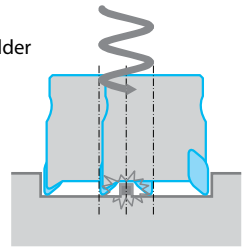
Over max. Cutting Dia.

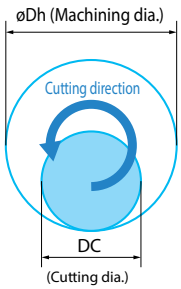
Center core part remains after machining



Under min. Cutting Dia.

Center core part interferes with toolholder





Cutter	Min. Cutting Dia.	Max. Cutting Dia.	Maximum Ramping Depth per Cycle
MEAS...13...	2 × DC - 0.630"	2 × DC - 0.118"	0.138"

Unit: inch

- Climb milling is recommended (refer to the figure above)
- Feed rate should be under 50% of the recommended cutting conditions
- Use caution to eliminate incidences caused by producing long chips

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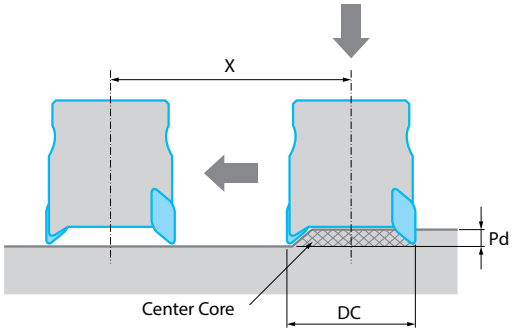
Drilling Guide



Drilling Depth

Please refer to Pd (Max. drilling depth) in the chart.

Traversing after Drilling

1. It is recommended to reduce feed by fz = 0.006 ipt or less until the center core is removed.
2. When drilling, reduce feed rate per revolution to f = 0.004 ipr or under.

Description	Max. Cutting Depth Pd	Min. Cutting Length X for Flat Bottom Surface
MEAS…-13-…	0.138	DC - 0.630"

Unit: inch

How to Mount Inserts

1. Be sure to remove dust and chips from the insert mounting pocket.

2. Insert screw

- Coat anti-seize compound thinly on portion of taper and thread.
- Attach screw to the magnetized wrench tip and tighten while gently pressing the outside edge of the insert toward the insert pocket surface (grooved surface)

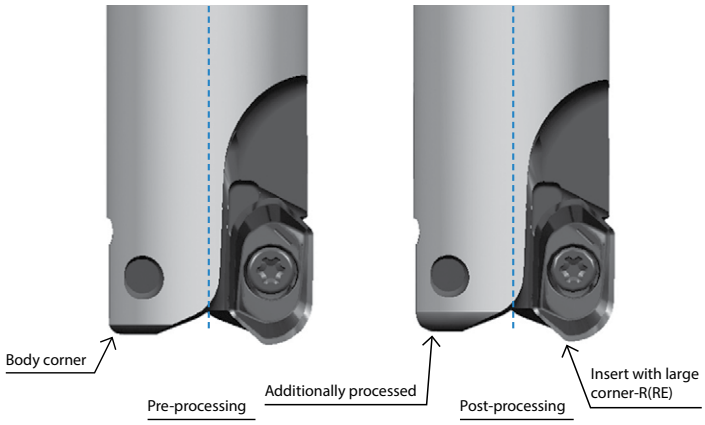
See the picture on the right. Recommended Torque 3.5N•m

When Using Inserts with a Corner-R(RE) of 3.2mm or larger

When using inserts with corner-R(RE) 3.2mm or larger, additional modifications of the cutter body will be necessary.
Additional modifications for the body will be necessary. Ref. to the chart below for the recommended modifications.
(If corner-R is 3.0mm or smaller, additional modifications are not needed)

Insert Corner-R(RE)	Additional Processing Dimension to Body Corner
1/8" (3.2mm)	R0.079" (2.0mm)
0.157" (4mm)	R0.098" (2.5mm)
0.197" (5mm)	R0.118" (3.0mm)

* Round- shaped additional processing is recommended.
When applying chamfer shaped additional processing, do not cut away too much.



Cautions

While in Use

⚠ Caution

Please use within recommended cutting conditions

Do not run the cutter at revolutions exceeding the printed maximum revolution limit of the cutter body
Do not use the end mill at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Please do not use under the following conditions :
When cutter is not fully loaded with inserts
If the body is damaged

Please wear protective equipment such as protective glove when changing inserts
Injury can occur when touching the cutting edge

Dynamic Balance

Balance adjustment on the cutter is completed before shipping

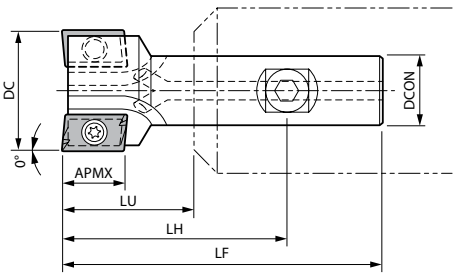
Balance adjustment to be ISO balance quality grade (ISO 1940-1) G6.3
When using at a higher revolution (10,000rpm or over), refer to the table below to adjust the balance of MEAS and arbor

Do not operate the balance adjustment screw on the outer periphery of the cutter. This could lead to improper dynamic balance

RPM	ISO balance quality grade ISO 1940-1/8821 (JIS B0905)
~20,000	G16
~30,000	G6.3
30,000~	G2.5

EM-AL (Fixed Pocket End Mill for Aluminum)

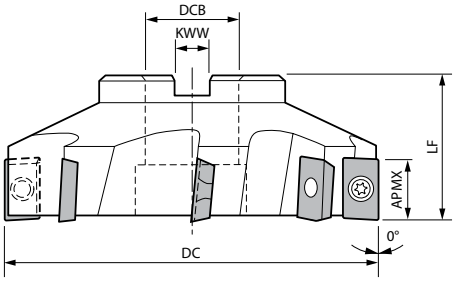
For CM-AL chamfering end mills for aluminum ➡ M298



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCON	LF	LH	LU	APMX	A.R. (°)	R.R. (°)	Coolant Hole	Max. Ramping Angle (°)	Insert Screw	Wrench	Applicable Inserts ➡ M217
Inch	EM 1000-AL	●	2	1	3/4	3.380	2.365	1.360	0.64	+5	-10	Yes	8	SCR-02	T15	APET1604...
	1250-AL	●		1-1/4							-7					
	1500-AL	●		1-1/2	1	4.000	2.864	1.740			-5					
	2000-AL	●	3	2		4.250	3.110	1.990			-2					
	EM 1000-2.75-AL	●	2	1	3/4	4.780	3.780	2.750	0.64	+5	-10	Yes	8	SCR-02	T15	APET1604...
	1000-3.75-AL	●			1	6.015	4.875	3.750								
	1250-2.125-AL	●		1-1/4		4.433	3.293	2.125			-7					

FM-AL (Fixed Pocket Face Mill for Aluminum)



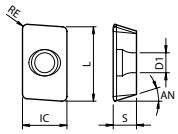
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCB	LF	KWW	APMX	A.R. (°)	R.R. (°)	Coolant Hole	Max. Ramping Angle (°)	Insert Screw	Wrench	Applicable Inserts ➡ M217
Inch	FM AL-2500-90-3	●	3	2-1/2	3/4	1.570	5/16	0.64	+5	-3	No	8	SCR-02	T15	APET1604...
	3000-90-AL	●	6	3	1		3/8		+5	+0					
	4000-90-AL	●	8	4											
	4000-90-AL-125	●			1-1/4		1/2								
	AL-4000-90-5	●	5		1		3/8								

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

APET

Usage Classification														
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)													Carbon steel / Alloy steel		P
													Mold and die steel		
													Stainless steel		M
													Gray cast iron		K
													Nodular cast iron		
													Non-ferrous metals	★	N
													Heat-resistant alloy		S
													Titanium alloy		
													Hard materials		H

Insert		Part Number	No. of Edges	Dimensions (in)					Angle (°)		Carbide		Applicable Toolholder ⇨ M216 M298
				IC	S	D1	RE	INSL	AN	AS	-	KW10	
		APET 1604PDFR	2	3/8	0.188	0.157	0.039	0.630	11	-	●	●	EM...-AL FMAL-... FM...-90-AL CM...-AL
		160416					0.062				●		
		160431					0.125				●		

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm)
		Uncoated Carbide
		KW10
Non-ferrous Metals	0.005~0.007	2,000~4,000

APET Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

High-Precision Cutter for Finishing Applications

MFF

Cutter body design provides excellent reliability
Molded wiper inserts increase machining efficiency

1 Innovative Solutions for Finish Machining

Designed with a unique insert combination of semi-finishing and finishing, the MFF drastically improves productivity by reducing finish quality issues.

SOLUTION

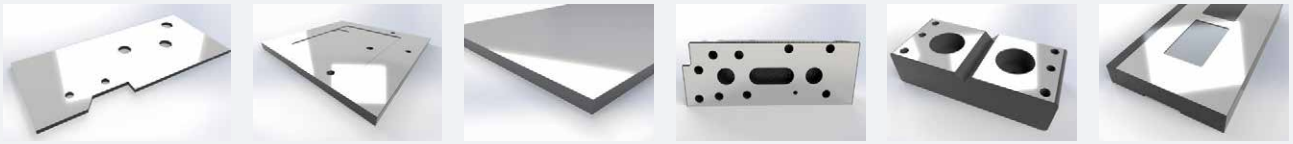
Increase feed to f = 0.197 ipt
Achieved 0.8 µm Ra surface finish
No grinding required
Achieved 5 µm flatness

The above is the result of a field test. Actual results will depend on machining environment, workpiece rigidity, machine, etc.

MFF
Machining solutions

Can be used on a wide variety or parts and workpieces

Parts	Workpiece Material	Industry
Plate / Frame / Case Cylinder pump / Rail Turbine housing Casing / Mold base	Rolled Steel for general structure / Gray cast iron / Spheroidal graphite cast iron Ni-resist cast iron Mold steel Carburized and hardened steel (60 HRC)	Industrial machining / Machine tools Shipbuilding / Automotive Construction machinery / Molds



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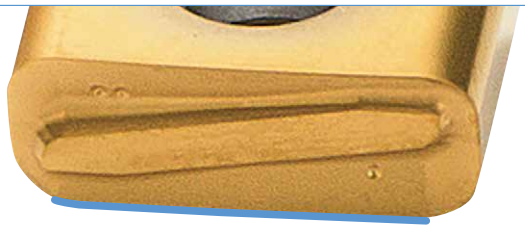
2 Molded Wiper Insert for High-Quality Surface Finish

Kyocera's unique molded insert technology for high feed rates and excellent surface finish



Low cutting force with special edge preparation

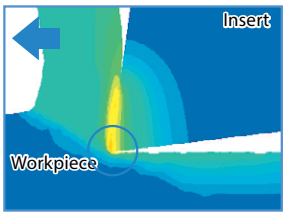
Micro-honing
Good sharpness

Wiper Edge

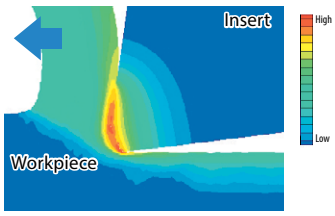
Large S-curve shape developed for higher feed rates

Edge Temperature Simulation Comparison (Internal Evaluation)

MFF



Conventional Tool After 2 sec machining



MEGACOAT NANO Cermet PV60M

For high-speed machining
Recommended Vc = ~ 1,150 sfm

High-quality surface finish

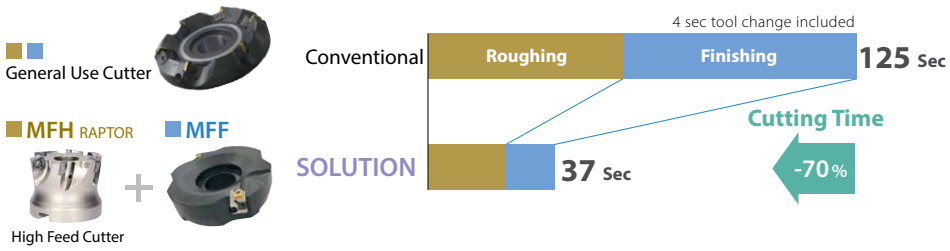
Molded TT Chipbreaker

Reduces chip clogging
High feed machining

Comprehensive Machining Solutions

From roughing to finish machining improvements (Internal Evaluation)

Combine with Kyocera's MFH high feed cutter to improve quality and efficiency



Cutting Conditions
Conventional Ø200mm (6 flute)
Vc = 660 sfm
Roughing : Vf = 11.26 ipm (fz = 0.006 ipt), D.O.C. = 0.047"
Finishing : Vf = 9.06 ipm (fz = 0.005 ipt), D.O.C. = 0.012"

SOLUTION
Roughing: MFH-RAPTOR Ø63mm (6 flute)
Vc = 660 sfm
Vf = 287.40 ipm (fz = 0.047 ipt), D.O.C. = 0.028"
Finishing: MFF Ø200mm (2 flute)
Vc = 980 sfm
Vf = 94.49 ipm (f = 0.197 ipt), D.O.C. = 0.004"

Surface finish quality after machining

The MFF SOLUTION

Excellent Surface Finish (0.27 µm Ra)

Conventional Machining

Cloudy Surface Finish (1.01 µm Ra)

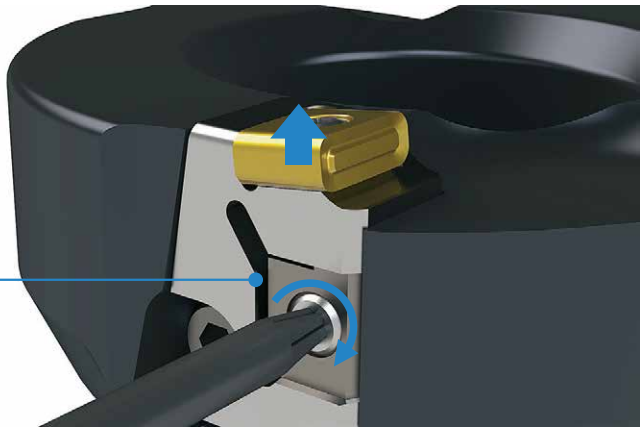
3 Adjustable Cutting Edge Height for Increased Usability

Cartridge height comes pre-adjusted and should not be necessary.

Adjustment is not required after replacing insert.

Easy-to-Adjust Cutting Edge

Cutting edge height can be adjusted easily with one screw

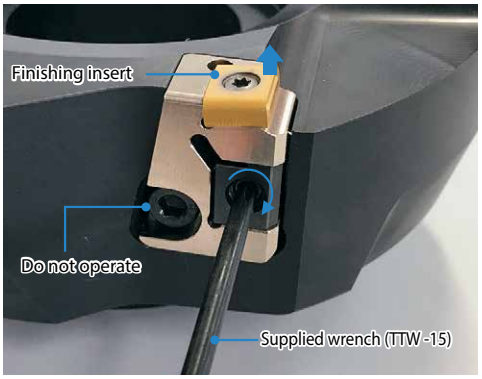


Included adjustment wrench

Edge Adjustment

If D.O.C. is 0.004"~0.008" (0.1mm ~ 0.2mm), no adjustment is necessary (Pre-adjusted before holder is shipped).
Cutting edge adjustment is NOT required when replacing inserts.

If D.O.C. is less than 0.1 mm or if you prefer a different edge height, use the following method:



Adjusting the cutting edge

Use the supplied TTW-15 wrench to rotate the screw and easily adjust the cutting edge position.

Procedure

To adjust, start with the screw turned counterclockwise about two rotations (lowering the cutting edge).
Tighten the screw clockwise (raising the cutting edge) to adjust the amount of protrusion.
*Use a dial gauge to measure protrusion amount.

Precautions

Make sure to lower the cutting edge below the desired height first (turning screw counterclockwise) and then raise the edge up to the final height (turning screw clockwise).
If cutting edge is simply lowered to the final edge height, chattering or loosening of the screw may occur due to backlash.
Make sure the measurement position of the cutting edge is the same machining diameter.

Standard Cutting Edge Height

D.O.C. = 0.0020" → protrusion against rough edge : 0.0012"
D.O.C. = 0.0039" ~ → protrusion against rough edge : 0.0024" *Pre-adjusted before shipment

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MFF

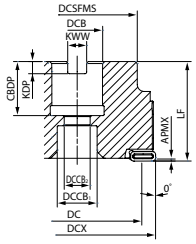


Fig. 1

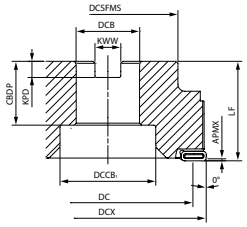


Fig. 2

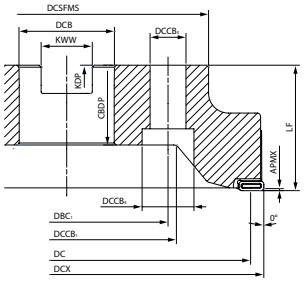


Fig. 3

Toolholder Dimensions

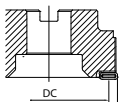
Unit	Part Number		Std. Item R	No. of Inserts	Dimensions DC	DCX	DCSFMS	DCB	DCCB1	DCCB2	DCCB3	DCCB4	DBC1	LF	CBDP	KDP	KWW	APMX	A.R. (°)	R.R. (°) (Medium-Finishing Insert)	R.R. (°) (Finishing Insert)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M222 M42
mm	Inch Bore Dia.	MFF 080R-SF	●	2	67.3	80	60	1.000"	20	13	-	-	-	50	1.063"	0.236"	0.375"	0.3	-8	-9	-20	No	2,000	1.3	1	LNGX120916R-TT LNGX120916
		100R-SF	●		87.3	100	70	1.250"	48						1.260"	0.315"	0.500"						1,600	1.8	2	
		125R-SF	●		112.3	125	87	1.500"	58					63	1.496"	0.394"	0.625"						1,300	3.5	2	
		160R-SF	●		147.3	160	102	2.000"	72	-						0.433"	0.750"						1,000	5.9	2	
		200R-SF	●		187.3	200	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"						800	8.1	3	
		250R-SF	●		237.3	250																		10.8	3	
	Metric Bore Dia.	MFF 080R-M-SF	●	2	67.3	80	60	27	20	13	-	-	-	50	24	7	12.4	0.3	-8	-9	-20	No	2,000	1.3	1	LNGX120916R-TT LNGX120916
		100R-M-SF	●		87.3	100	70	32	48						32	8	14.4						1,600	1.8	2	
		125R-M-SF	●		112.3	125	87	40	55					63	33	9	16.4						1,300	3.5	2	
		160R-M-SF	●		147.3	160	102		72	-													1,000	5.9	2	
		200R-M-SF	●		187.3	200	142	60	110		18	26	101.6		40	14	25.7						800	7.7	3	
		250R-M-SF	●		237.3	250																		10.5	3	

*ø250mm sizes have holes for lighter weight.

Max. Revolution

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on page **M225**.
Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Surface Finish
The surface will be finished flat within the range of DC shown on the right.

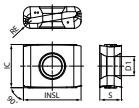
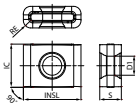


Spare Parts

Spare Parts							
Insert Screw	Wrench	Wedge	Cartridge	Cartridge Clamp Screw	Wrench	Adjustment Screw	Anti-seize Compound
SB-3592TR	DTM-10	AD-MFF	CR-MFF	HH5X15L	TTW-15	W6X18N	P-37
Recommended tightening torque for insert screw 1.2N•m							

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

LNGX

Insert		Part Number	No. of Edges	Dimensions (mm)					Cermet	Carbide		Applicable Toolholder ➡ M221 M40
				IC	S	D1	RE	INSL	PVD	PVD		
									PV60M	PR1525	PR1825	
	 Low Cutting Force	LNGX 120916R-TT	4	9.525	4.76	4.2	1.6	12.7	●	●	●	MFF...-SF MFSE45...-W MFSE45...-W-M
		LNGX 120916	4	9.525	4.76	4.2	1.6	12.7	●	●	●	MFF...-SF MFSE45...-W MFSE45...-W-M

Recommended Cutting Conditions ➡ **M223**

M MILLING

- **45°-70°** Lead Angle
- **75°** Lead Angle
- **88°-90°** Lead Angle
- Finish Milling
- High Feed Milling
- Multi-Functional
- Slot Mills
- Ball-Nose Radius
- Other Applications

LNGX Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	f (ipr)	D.O.C. (in)	Recommended Insert Grades (Vc : sfm)	
				PV60M	PR1825 (PR1525)
TT	Structural steel	0.059~**0.158**~0.197	0.001~**0.004**~0.012	★ 750~**920**~1,150	☆ 750~**920**~1,150
	Carbon steel	0.039~**0.158**~0.197		★ 660~**820**~1,150	☆ 660~**820**~1,150
	Alloy steel	0.039~**0.158**~0.197		★ 660~**820**~1,150	☆ 660~**820**~1,150
	Mold steel	0.039~**0.079**~0.158	0.001~**0.004**~0.008	☆ 390~**660**~820	★ 390~**660**~820
	Mold steel (50HRC～)	0.024~**0.039**~0.047	0.001~**0.002**~0.004	-	★ 160~**230**~260
	Austenitic stainless steel*	0.039~**0.079**~0.158	0.001~**0.004**~0.008	☆ 390~**660**~820	★ 390~**660**~820
	Martensitic stainless steel *	0.039~**0.118**~0.158		☆ 490~**660**~980	★ 490~**660**~980
Standard	Gray cast iron	0.039~**0.079**~0.158	0.001~**0.004**~0.012	☆ 660~**820**~1,150	★ 660~**820**~1,150
	Nodular cast iron	0.059~**0.079**~0.158		☆ 490~**820**~980	★ 490~**820**~980

*These cutters are 1-flute effective (recommended feed rates are in inches per rev)
*Machining with coolant is recommended for stainless steel
The number in bold is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

★: 1st Recommendation ☆: 2nd Recommendation

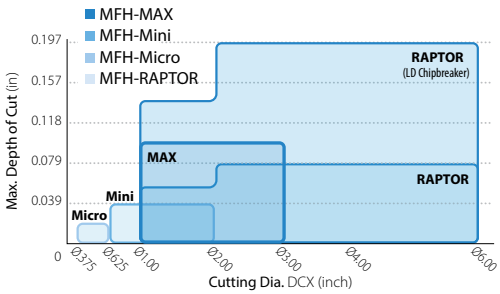
High-Feed Milling Series

(Cutter Dia. Ø1.000" ~ Ø6.000")
(Cutter Dia. Ø25mm ~ Ø160mm)

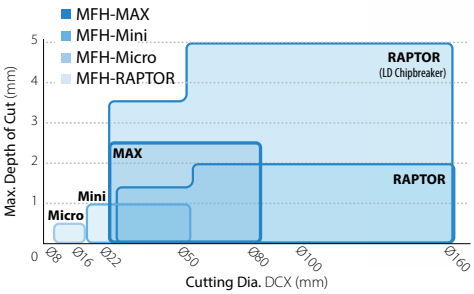
MFH-RAPTOR

Anti-vibration Design for Increased Chip Evacuation and Shortened Cutting Times

MFH-Series Inch Diameter Range

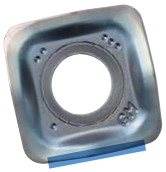


MFH-Series Metric Diameter Range



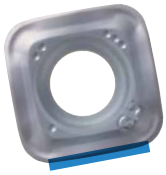
1 4 Different Insert Designs Offer a Variety of Machining Options

GM (General Milling)



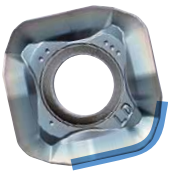
1st Choice for General Purpose
Multiple Metalworking Processes

GH (Tough Edge)



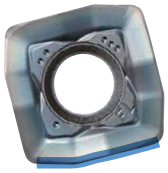
Tough Edge
Excellent Fracture Resistance

LD (Large D.O.C.)



1st Choice for Large D.O.C.
Available for Scale Removal
Max. D.O.C. = 0.197" (5mm)

FL (Wiper Edge)

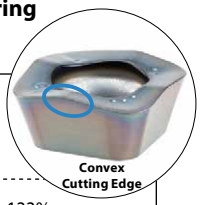


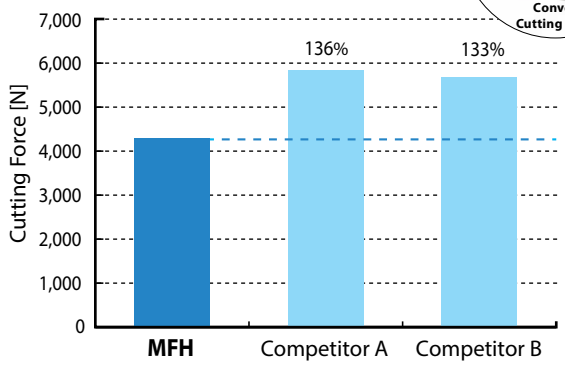
Wiper Edge
Roughing and Finishing Even in Low Horsepower Machining Centers

2 Molded Convex Cutting Edge Reduces Initial Shock when Entering Workpiece

Cutting Force (Shock) Comparison when Entering Workpiece (Internal Evaluation)

Width of cut ae is half of cutter diameter when cutting forces at initial contact are greatest

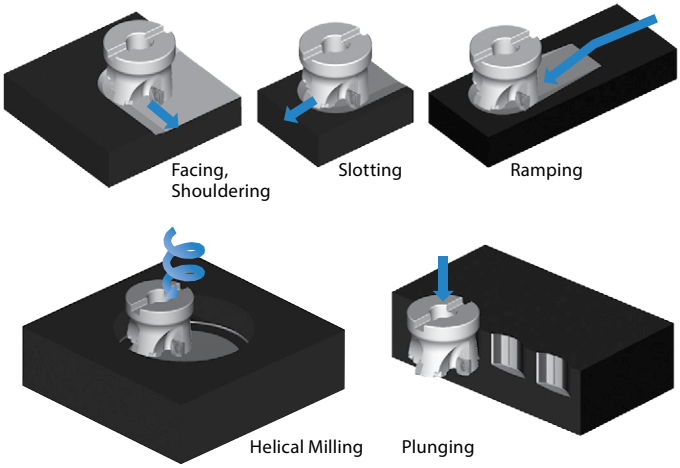




Vc = 490 sfm, fz = 0.059 ipt, D.O.C. x ae = 0.059" x 1.240"
1049, Dry, Cutter Dia.Ø2.5"

Resultant Force Shown

3 Multi-Functional Applications



* GM insert is applicable to all the above applications

* LD insert and FL insert are not applicable for helical milling, plunging, and contouring of rising wall (Please refer to **M184**)

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MFH-RAPTOR (Face Mill)

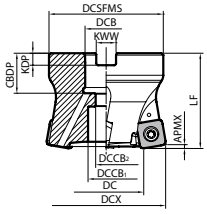


Fig. 1

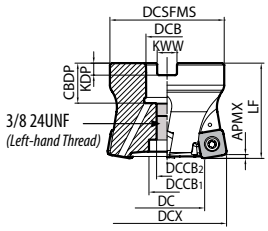


Fig. 2

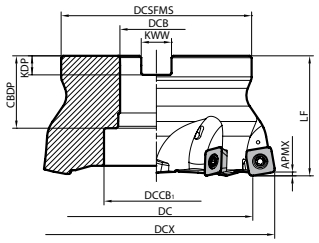


Fig. 3

Toolholder Dimensions (SOMT10 Inserts)

Unit	Part Number	Std. Item R	No. of Inserts	Dimensions DCX	DC (GM/GH)	DC (LD)	DC (FL)	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX	APMX2	A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M233
Inch	MFH 2000R-10-4T	●	4	2.000	1.331	1.510	1.469	1.750	0.750	0.669	0.433	1.969	0.947	0.187	0.313	0.059 (0.138)	0.047	+10	-5	Yes	10,000	0.4	1	SOMT1004...
	2000R-10-5T	●	5																					
	2500R-10-5T	●	5	2.500	1.831	2.010	1.969	2.250					0.75						-4		8,800	0.7		
	2500R-10-6T	●	6																					
	3000R-10-7T	●	7	3.000	2.331	2.510	2.469	2.750	1.000	0.866	0.551	2.48	1.063	0.236	0.382						7,600	1.3		

Toolholder Dimensions (SOMT14 Inserts)

Unit	Part Number	Std. Item R	No. of Inserts	Dimensions DCX	DC (GM/GH)	DC (LD)	DC (FL)	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX	APMX2	A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M233
Inch	MFH 2000R-14-4T	●	4	2.000	1.094	1.330	1.291	1.750	0.750	0.500	3/8 24UNF	1.969	0.827	0.187	0.313	0.079 (0.197)	0.079	+10	-10	Yes	8,800	0.4	2	SOMT1405...
	2000R-14-5T	●	5																				2	
	2500R-14-4T	●	4	2.500	1.594	1.830	1.791	2.250	0.750	0.669	0.433	1.969	0.750	0.187	0.313						7,400	0.6	1	
	2500R-14-5T	●	5																				1	
	2500R-14-5T-1000	●	5						1.000	0.866	0.551	2.480	1.063	0.236	0.382						7,400	0.7	1	
	3000R-14-5T	●	5	3.000	2.094	2.330	2.291	2.750	1.000	0.866	0.551	2.480	1.063	0.236	0.382				-9		6,400	1.2	1	
	3000R-14-6T	●	6																				1	
	3000R-14-6T-1250	●	6						1.250	1.000	0.657	2.480	1.063	0.280	0.504						6,400	1.3	1	
	4000R-14-6T	●	6	4.000	3.094	3.330	3.291	3.750	1.500	1.299	0.866	2.480	1.181	0.394	0.626				-7		5,600	2.3	1	
	4000R-14-7T	●	7																				1	
	5000R-14-7T	●	7	5.000	4.094	4.330	4.291		1.500	2.047	-	2.480	1.496	0.394	0.626						4,800	2.9	3	
	6000R-14-8T	●	8	6.000	5.094	5.330	5.291	4.880	2.000	2.835	-			0.433	0.752				-6	No	4,200	4.5	3	

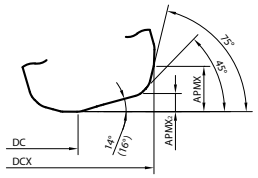
For APMX2, refer to the figure on **M226**
For SOMT10...-LD inserts (APMX = 0.138") and (APMX2 = 0.047").
For SOMT14...-LD inserts (APMX = 0.197") and (APMX2 = 0.079").
Max. Revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

Spare Parts (MFH-RAPTOR - Inch Face Mills)

Part Number		Spare Parts						Applicable Inserts ➡ M233
		Insert Screw	Wrench		Anti-Seize Compound	Arbor Bolt	Mounting Screw	
			DTPM	TTP				
MFH	2000R-10-4T	SB-4090TRPN	DTPM-15 Recommended tightening torque for insert screw 3.5N•m		P-37	HH3/8-1.25(H)	–	SOMT100420ER-GM SOMT100420ER-LD SOMT100420ER-FL SOMT100420ER-GH
	2000R-10-5T							
	2500R-10-5T							
	2500R-10-6T							
	3000R-10-7T					HH1/2-1.25(H)	–	
MFH	2000R-14-4T	SB-50120TRP				-	XNS610*	SOMT140520ER-GM SOMT140520ER-LD SOMT140514ER-FL SOMT140520ER-GH
	2000R-14-5T	SB-5090TRP						
	2500R-14-4T	SB-50120TRP	TTP-20 Recommended tightening torque for insert screw 4.5N•m		P-37	HH3/8-1.25(H)	-	
	2500R-14-5T							
	2500R-14-5T-1000					HH1/2-1.25(H)	-	
	3000R-14-5T							
	3000R-14-6T							
	3000R-14-6T-1250					HH5/8-1.50(H)	-	
	4000R-14-6T					HH3/4-2.3H	-	
	4000R-14-7T							
	5000R-14-7T					-	-	
	6000R-14-8T							

(H) Optional coolant-through bolt available.

LD Chipbreaker Cutting Edge Dimensions



Angle in ( ) is for SOMT14 type

Caution with Max. Revolution
When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

*Differential Screw (3/8-24UNF)

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MFH-RAPTOR (Face Mill)

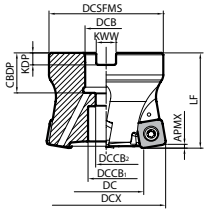


Fig. 1

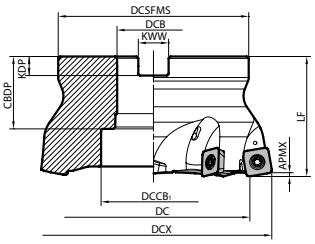


Fig. 2

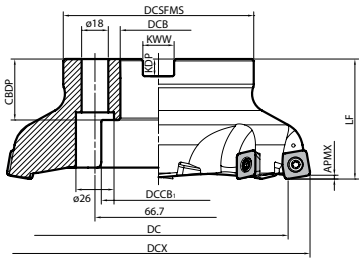


Fig. 3

Toolholder Dimensions (SOMT10 Inserts)

Unit		Part Number	Std. Item R	No. of Inserts	Dimensions DCX	DC (GM/GH)	DC (LD)	DC (FL)	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX	APMX2	A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M233
mm	Inch Bore Dia.	MFH 050R-10-4T	●	4	50	33	37.5	36.5	47	0.875"	19	11	50	0.748"	0.197"	0.331"	1.5 (3.5)	1.2	+10	-5	Yes	10,000	0.4	1	SOMT1004...
		050R-10-5T	●	5																					
		063R-10-5T	●	5	63	46	50.5	49.5	60											-4		8,800	0.7		
		063R-10-6T	●	6																					
		080R-10-7T	●	7	80	63	67.5	66.5	76	1.250"	26	17	63	1.260"	0.315"	0.500"						7,600	1.3		
	Metric Bore Dia.	MFH 050R-10-4T-M	●	4	50	33	37.5	36.5	47	22	19	11	50	21	6.3	10.4	1.5 (3.5)	1.2	+10	-5	Yes	10,000	0.4	1	SOMT1004...
		050R-10-5T-M	●	5																					
		063R-10-5T-22M	●	5	63	46	50.5	49.5	60											-4		8,800	0.7		
		063R-10-5T-27M	●	5						27	20	13		24	7	12.4									
		063R-10-6T-22M	●	6						22	19	11		21	6.3	10.4									
		063R-10-6T-27M	●	6						27	20	13		24	7	12.4									
		080R-10-7T-M	●	7	80	63	67.5	66.5	76				63									7,600	1.6		

Toolholder Dimensions (SOMT14 Inserts)

Unit		Part Number	Std. Item R	No. of Inserts	Dimensions DCX	DC (GM/GH)	DC (LD)	DC (FL)	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX	APMX2	A.R. (°)		Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M233
mm	Inch Bore Dia.	MFH 050R-14-4T	●	4	50	27	33	32	47	0.875"	12	-	50	0.748"	0.197"	0.331"	2 (5)	2	+10	-10	Yes	8,800	0.4	1	SOMT1405...
		063R-14-4T	●	4	63	40	46	45	60		19	11										7,400	0.6	1	
		063R-14-5T	●	5																				1	
		080R-14-5T	●	5	80	57	63	62	76	1.250"	26	17	63	1.260"	0.315"	0.500"				-8		6,400	1.3	1	
		080R-14-6T	●	6																				1	
		100R-14-6T	●	6	100	77	83	82	96											-7		5,600	2.4	1	
		100R-14-7T	●	7																				1	
		125R-14-7T	●	7	125	102	108	107	100	1.500"	55	-		1.496"	0.394"	0.625"						4,800	2.9	2	
		160R-14-8T	●	8	160	137	143	142		2.000"	72				0.433"	0.750"				-6	No	4,200	3.9	2	
	Metric Bore Dia.	MFH 050R-14-4T-M	●	4	50	27	33	32	47	22	12	-	50	21	6.3	10.4	2 (5)	2	+10	-10	Yes	8,800	0.4	1	SOMT1405...
		063R-14-4T-22M	●	4	63	40	46	45	60		19	11										7,400	0.6	1	
		063R-14-4T-27M	●	4						27	20	13		24	7	12.4								1	
		063R-14-5T-22M	●	5						22	19	11		21	6.3	10.4								1	
		063R-14-5T-27M	●	5						27	20	13		24	7	12.4								1	
		080R-14-5T-M	●	5	80	57	63	62	76	27	20	13	63	24	7	12.4				-8		6,400	1.4	1	
		080R-14-6T-M	●	6																				1	
		100R-14-6T-M	●	6	100	77	83	82	96	32	26	17		28	8	14.4				-7		5,600	2.4	2	
		100R-14-7T-M	●	7																				2	
		125R-14-7T-M	●	7	125	102	108	107	100	40	55	-		33	9	16.4						4,800	2.8	2	
		160R-14-8T-M	●	8	160	137	143	142			68			32						-6	No	4,200	3.7	3	

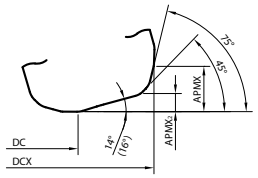
For APMX2, refer to the figure on **M228**
For SOMT10...-LD (APMX = 3.5mm) and (APMX2 = 1.2mm).
For SOMT14...-LD (APMX = 5mm) and (APMX2 = 2mm).
Max. Revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts (MFH-RAPTOR - Metric Face Mills)

Part Number		Spare Parts						Applicable Inserts ➡ M233
		Insert Screw	Wrench		Anti-Seize Compound	Arbor Bolt	Mounting Screw	
			DTPM	TTP				
MFH	050R-10-...	SB-4090TRPN	DTPM-15 Recommended tightening torque for insert screw 3.5N•m		P-37	HH10X30	-	SOMT100420ER-GM SOMT100420ER-LD SOMT100420ER-FL SOMT100420ER-GH
	050R-10-...-M							
	063R-10-...							
	063R-10-...-22M							
	063R-10-...-27M					HH12X35	-	
	080R-10-...					HH16X40	-	
	080R-10-...-M					HH12X35	-	
MFH	050R-14-...	SB-50120TRP	TTP-20 Recommended tightening torque for insert screw 4.5N•m		P-37	-	W10X31	SOMT140520ER-GM SOMT140520ER-LD SOMT140514ER-FL SOMT140520ER-GH
	050R-14-...-M							
	063R-14-...					HH10X30	-	
	063R-14-...-22M							
	063R-14-...-27M					HH12X35	-	
	080R-14-...					HH16X40	-	
	080R-14-...-M					HH12X35	-	
	100R-14-...					HH16X40	-	
	100R-14-...-M					-	-	
	125R-14-...					-	-	
	125R-14-...-M					-	-	
	160R-14-...					-	-	
	160R-14-...-M					-	-	

LD Chipbreaker Cutting Edge Dimensions



Angle in ( ) is for SOMT14 type

Caution with Max. Revolution
When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

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MFH-RAPTOR (End Mill)

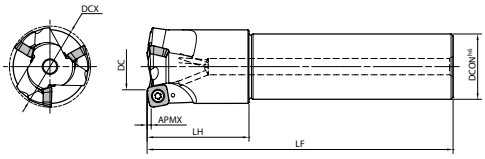


Fig. 1

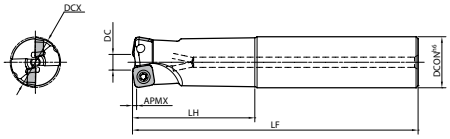


Fig. 2

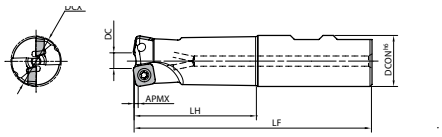


Fig. 3

Toolholder Dimensions (SOMT10 Inserts)

Unit			Part Number	Std. Item	No. of Inserts	Dimensions									A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts M233
						DCX	DCON	DC (GM/GH)	DC (LD)	DC (FL)	LF	LH	APMX	APMX2							Anti-Seize Compound	Insert Screw	Wrench	
Inch	Standard Shank	Weldon	MFH 1000-W100-10-2T	●	2	1.000	1.000	0.331	0.508	0.469	5.500	3.173	0.059 (0.138)	0.047	+10	-5	Yes	17,000	0.4	3	P-37	SB-4075TRP	DTPM-15	SOMT1004...
			1250-W125-10-2T	●	2	1.250	1.250	0.581	0.758	0.719	6.000	2.750						14,000	0.8	3				
			1250-W125-10-3T	●	3															3	Recommended tightening torque for insert screw 3.5N•m			
			1500-W150-10-3T	●	3	1.500	1.500	0.831	1.008	0.969		2.000						11,500		3				
			1500-W150-10-4T	●	4															3				
	Long Shank	Cylindrical	MFH 1000-S100-10-2T-8	●	2	1.000	1.000	0.331	0.508	0.469	8.000	4.750	0.059 (0.138)	0.047	+10	-5	Yes	17,000	0.8	2	P-37	SB-4075TRP	DTPM-15	SOMT1004...
			1250-S125-10-2T-8	●	2	1.250	1.250	0.581	0.758	0.719								14,000		2	Recommended tightening torque for insert screw 3.5N•m			
			1500-S125-10-4T10	●	4	1.500	1.250	0.831	1.008	0.969	10.000	2.000						11,500		1				

For $APMX_2$, refer to the figure on **M226**
For SOMT10...-LD inserts (APMX = 0.138") and ($APMX_2$ = 0.047").
Max. Revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

MFH-RAPTOR (End Mill)

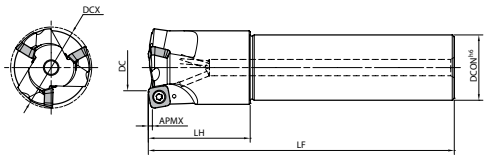


Fig. 1

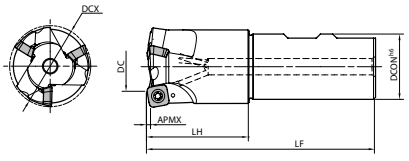


Fig. 2

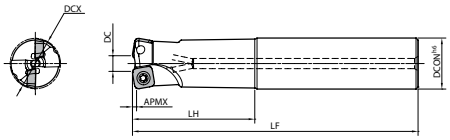


Fig. 3

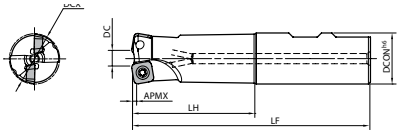


Fig. 4

Toolholder Dimensions (SOMT10 Inserts)

Unit			Part Number	Std. Item	No. of Inserts	Dimensions DCX	DCON	DC (GM/GH)	DC (LD)	DC (FL)	LF	LH	APMX	APMX2	A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts: Anti-Seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts M233
mm	Standard Shank	Cylindrical	MFH 25-S25-10-2T	●	2	25	25	8	12.5	11.5	140	60	1.5 (3.5)	1.2	+10	-5	Yes	17,000	0.4	3	P-37	SB-4075TRP	DTPM-15	SOMT1004...
			28-S25-10-2T	●	2	28		11	15.5	14.5		40						15,500	0.5	1				
			32-S32-10-2T	●	2	32	32	15	19.5	18.5	150	70						14,000	0.8	3				
			32-S32-10-3T	●	3															3				
			35-S32-10-2T	●	2	35		18	22.5	21.5		50						13,000		1				
			35-S32-10-3T	●	3															1				
			40-S32-10-3T	●	3	40		23	27.5	26.5								11,500	0.9	1				
			40-S32-10-4T	●	4															1				
		Weldon	MFH 25-W25-10-2T	●	2	25	25	8	12.5	11.5	117	60	1.5 (3.5)	1.2	+10	-5	Yes	17,000	0.4	4	P-37	SB-4075TRP	DTPM-15	SOMT1004...
			32-W32-10-3T	●	3	32	32	15	19.5	18.5	131	70						14,000	0.7	4				
			40-W32-10-3T	●	3	40		23	27.5	26.5	112	50						11,500		2				
			40-W32-10-4T	●	4															2				
	Long Shank	Cylindrical	MFH 25-S25-10-2T-200	●	2	25	25	8	12.5	11.5	200	120	1.5 (3.5)	1.2	+10	-5	Yes	17,000	0.6	3	P-37	SB-4075TRP	DTPM-15	SOMT1004...
			28-S25-10-2T-200	●	2	28		11	15.5	14.5		40						15,500	0.7	1				
			32-S32-10-2T-200	●	2	32	32	15	19.5	18.5		120						14,000	1	3				
			35-S32-10-2T-200	●	2	35		18	22.5	21.5		50						13,000	1.4	1				
			40-S32-10-4T-250	●	4	40		23	27.5	26.5	250							11,500	1.5	1				
	Extra Long Shank	Cylindrical	MFH 25-S25-10-2T-300	●	2	25	25	8	12.5	11.5	300	180	1.5 (3.5)	1.2	+10	-5	Yes	17,000	1	3	P-37	SB-4075TRP	DTPM-15	SOMT1004...
			28-S25-10-2T-300	●	2	28		11	15.5	14.5		40						15,500	1.1	1				
			32-S32-10-2T-300	●	2	32	32	15	19.5	18.5		180						14,000	1.6	3				
			35-S32-10-2T-300	●	2	35		18	22.5	21.5		50						13,000	1.7	1				
			40-S32-10-4T-300	●	4	40		23	27.5	26.5								11,500	1.8	1				

Recommended tightening torque for insert screw 3.5N•m

For APMX2, refer to the figure on **M228**
For SOMT10...-LD (APMX = 3.5mm) and (APMX2 = 1.2mm).
Max. Revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MFH-RAPTOR (End Mill)

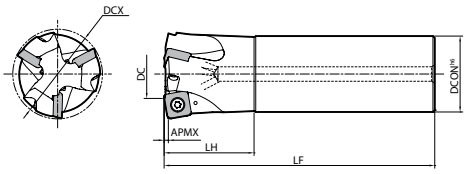


Fig. 1

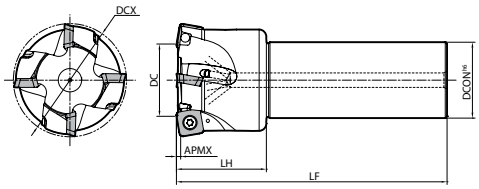


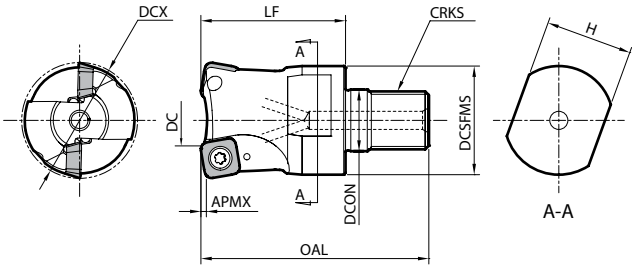
Fig. 2

Toolholder Dimensions (SOMT14 Inserts)

Unit		Part Number	Std. Item	No. of Inserts	Dimensions									A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ➡ M233
					DCX	DCON	DC (GM/GH)	DC (LD)	DC (FL)	LF	LH	APMX	APMX₂							Anti-Seize Compound	Insert Screw	Wrench	
mm	Cylindrical	MFH 50-S42-14-3T	●	3	50	42	27	33	32	150	50	2 (5)	2	+10	-10	Yes	8,800	1.4	1	P-37	SB-50120TRP	TTP-20	SOMT1405...
		63-S42-14-4T	●	4	63		40	46	45						-10		7,400	1.7	2	Recommended tightening torque for insert screw 3.5N•m			
		80-S42-14-5T	●	5	80		57	63	62						-8		6,400	2.3	2				

For APMX₂, refer to the figure on **M228**
For SOMT14...-LD (APMX = 5mm) and (APMX₂ = 2mm).
Max. Revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

MFH-RAPTOR (Modular Head)



Toolholder Dimensions (SOMT10 Inserts)

Unit	Part Number	Std. Item	No. of Inserts	Dimensions											A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➡ M233
				DCX	DCON	DC (GM/GH)	DC (LD)	DC (FL)	DCSFMS	OAL	LF	APMX	$APMX_2$	CRKS	H					Anti-Seize Compound	Screw	Wrench	
mm	MFH 25-M12-10-2T	●	2	25	12.5	8	12.5	11.5	23	57	35	1.5 (3.5)	1.2	M12×P1.75	19	+10	-5	Yes	17,000	P-37	SB-4075TRP	DTPM-15	SOMT1004...
	28-M12-10-2T	●	2	28		11	15.5	14.5											15,500				
	32-M16-10-2T	●	2	32	17	15	19.5	18.5	30	62	40			M16×P2.0	24				14,000				
	32-M16-10-3T	●	3																				
	35-M16-10-2T	●	2	35		18	22.5	21.5											13,000				
	35-M16-10-3T	●	3																				
	40-M16-10-3T	●	3	40		23	27.5	26.5											11,500				
	40-M16-10-4T	●	4																				

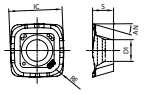
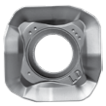
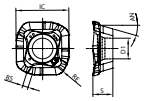
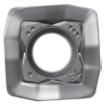
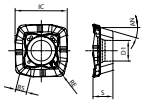
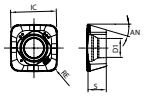
Recommended tightening torque for insert clamp 3.5N•m

For $APMX_2$, refer to the figure in **M228**
For SOMT10...-LD (APMX = 3.5mm) and ($APMX_2$ = 1.2mm).
Max. Revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.
See page **M324** for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SOMT

Usage Classification											
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)	Carbon steel / Alloy steel				☆			★	☆	P
	Mold and die steel				☆			★	☆	P
	Austenitic stainless steel					☆		☆	★	M
	Martensitic stainless steel	★							☆	M
	Precipitation hardened stainless steel					☆			★	M
	Gray cast iron			☆			★			K
	Nodular cast iron			☆			★			K
	Non-ferrous metals									N
	Heat-resistant alloy	★							☆	S
	Titanium alloy					☆			★	S
	Hard materials (≤ 60 HRC)		★							H

Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)	Carbide							Applicable Toolholder ➡ M225~M232
				IC	S	D1	RE	BS	AN	CVD	PVD						
										CA6535	PR015S	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835
	 General Purpose	SOMT 100420ER-GM	4	10.3	4.58	4.6	2	-	16	●		△	●	●	●	●	●	MFH...-10-..
		SOMT 140520ER-GM	4	14.14	5.56	5.8	2	-	16	●		△	●	●	●	●	●	MFH...-14-..
	 Large D.O.C.	SOMT 100420ER-LD	4	10.45	4.58	4.6	2	0.9	16	●		△	●	●	●	●	●	MFH...-10-..
		SOMT 140520ER-LD	4	14.76	5.56	5.8	2	1.6	16	●		△	●	●	●	●	●	MFH...-14-..
	 With Wiper Edge	SOMT 100420ER-FL	4	10.44	4.58	4.6	2	1.4	16	●		△	●	●	●	●	●	MFH...-10-..
		SOMT 140514ER-FL	4	14.57	5.56	5.8	1.4	3.1	16	●		△	●	●	●	●	●	MFH...-14-..
	 Tough Edge	SOMT 100420ER-GH	4	10.43	4.57	4.55	2	-	16		●	△	●	●	●	●	●	MFH...-10-..
		SOMT 140520ER-GH	4	14.17	5.56	5.8	2	-	16		●	△	●	●	●	●	●	MFH...-14-..

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M234~M235

SOMT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Chipbreaker	Workpiece	Holder Part Number and Feed Rate (fz: ipt)					Recommended Insert Grade (Vc: sfm)				
		End Mill Feed Rates			Face Mill Feed Rates		MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD	CVD
		MFH1000 MFH25-	MFH1250 MFH32-	MFH1500 MFH40-	MFH…R-10	MFH…-14	PR1810 (PR1510)	PR1825 (PR1525)	PR1835 (PR1535)	PR015S	CA6535
GM GH	Carbon Steel	① 0.020~**0.032**~0.039 ② 0.008~**0.016**~0.020	① 0.020~**0.039**~0.059 ② 0.012~**0.028**~0.039	① 0.020~**0.047**~0.071 ② 0.016~**0.039**~0.059	0.020~**0.059**~0.079		-	★ 390~**590**~820	☆ 390~**590**~820	-	-
	Alloy Steel	① 0.020~**0.032**~0.039 ② 0.008~**0.016**~0.020	① 0.020~**0.039**~0.059 ② 0.012~**0.028**~0.039	① 0.020~**0.047**~0.071 ② 0.016~**0.039**~0.059	0.020~**0.059**~0.079		-	★ 330~**520**~720	☆ 330~**520**~720	-	-
	Mold Steel (~40 HRc)	① 0.020~**0.028**~0.032 ② 0.008~**0.012**~0.016	① 0.020~**0.032**~0.047 ② 0.012~**0.024**~0.032	① 0.020~**0.039**~0.063 ② 0.016~**0.032**~0.047	0.020~**0.047**~0.071		-	☆ 260~**460**~590	☆ 260~**460**~590	**GH** ★ 260-**460**-590	-
	Mold Steel (40~50 HRc)	① 0.006~**0.012**~0.020 ② 0.006~**0.008**~0.010	① 0.008~**0.020**~0.032 ② 0.008~**0.012**~0.018	① 0.008~**0.024**~0.035 ② 0.008~**0.020**~0.028	0.008~**0.028**~0.039		-	☆ 200~**330**~430	-	**GH** ★ 200-**330**-430	-
	Mold Steel (50~55 HRc)	① 0.006~**0.010**~0.016	① 0.006~**0.014**~0.024	① 0.006~**0.010**~0.028	0.008~**0.020**~0.031		-	☆ 160~230~330	-	**GH** ★ 160-**230**-330	-
	Mold Steel (55~60 HRc)	① 0.0004-**0.0024**-0.0039 (Recommended only with GH chipbreaker)					-	-	-	**GH** ☆ 160-**200**-230	-
	Austenitic Stainless Steel	① 0.020~**0.028**~0.032 ② 0.008~**0.012**~0.016	① 0.020~**0.032**~0.047 ② 0.012~**0.024**~0.032	① 0.020~**0.039**~0.063 ② 0.016~**0.032**~0.047	0.020~**0.047**~0.071		-	**GM** ☆ 330~**520**~660	**GM** ☆ 330~**520**~660	-	-
	Martensitic Stainless Steel	① 0.020~**0.028**~0.032 ② 0.008~**0.012**~0.016	① 0.020~**0.032**~0.047 ② 0.012~**0.024**~0.032	① 0.020~**0.039**~0.063 ② 0.016~**0.032**~0.047	0.020~**0.047**~0.071		-	-	☆ 490~**660**~820	-	★ 590~**790**~980
	Precipitation Hardened Stainless Steel	① 0.020~**0.028**~0.032 ② 0.008~**0.012**~0.016	① 0.020~**0.032**~0.047 ② 0.012~**0.024**~0.032	① 0.020~**0.039**~0.063 ② 0.016~**0.032**~0.047	0.020~**0.047**~0.071		-	-	★ 300~390~490	-	-
	Gray Cast Iron	① 0.020~**0.032**~0.039 ② 0.008~**0.016**~0.020	① 0.020~**0.039**~0.059 ② 0.012~**0.028**~0.039	① 0.020~**0.047**~0.071 ② 0.016~**0.039**~0.059	0.020~**0.059**~0.079		★ 390~**590**~820	-	-	-	-
	Nodular Cast Iron	① 0.020~**0.028**~0.032 ② 0.008~**0.012**~0.016	① 0.020~**0.032**~0.047 ② 0.012~**0.024**~0.032	① 0.020~**0.039**~0.063 ② 0.016~**0.032**~0.047	0.020~**0.047**~0.071		★ 330~**490**~660	-	-	-	-
	Ni-base Heat Resistant Alloy	① 0.008~**0.016**~0.024 ② 0.006~**0.008**~0.012	① 0.008~**0.020**~0.035 ② 0.008~**0.016**~0.024	① 0.008~**0.024**~0.039 ② 0.008~**0.020**~0.032	0.008~**0.032**~0.047		-	-	☆ 70~**100**~160	-	★ 70~**100**~160
	Titanium Alloy	① 0.008~**0.016**~0.024 ② 0.006~**0.008**~0.012	① 0.008~**0.020**~0.035 ② 0.008~**0.016**~0.024	① 0.008~**0.024**~0.039 ② 0.008~**0.020**~0.032	0.008~**0.032**~0.047		**GM** ☆ 100~**160**~230	-	**GM** ★ 130~**200**~260	-	-
LD	Carbon Steel	① 0.020~**0.032**~0.039 ③ 0.002~**0.004**~0.008	① 0.020~**0.039**~0.059 ③ 0.002~**0.006**~0.012	① 0.020~**0.047**~0.071 ③ 0.002~**0.008**~0.012	① 0.020~**0.059**~0.079 ③ 0.002~**0.008**~0.012	④ 0.020~**0.059**~0.079 ⑤ 0.002~**0.008**~0.016	-	★ 390~**590**~820	☆ 390~**590**~820	-	-
	Alloy Steel	① 0.020~**0.032**~0.039 ③ 0.002~**0.004**~0.008	① 0.020~**0.039**~0.059 ③ 0.002~**0.006**~0.012	① 0.020~**0.047**~0.071 ③ 0.002~**0.008**~0.012	① 0.020~**0.059**~0.079 ③ 0.002~**0.008**~0.012	④ 0.020~**0.059**~0.079 ⑤ 0.002~**0.008**~0.016	-	★ 330~**520**~720	☆ 330~**520**~720	-	-
	Mold Steel (~40 HRc)	① 0.020~**0.028**~0.032 ③ 0.002~**0.003**~0.006	① 0.020~**0.032**~0.047 ③ 0.002~**0.004**~0.008	① 0.020~**0.039**~0.063 ③ 0.002~**0.006**~0.008	① 0.020~**0.047**~0.071 ③ 0.002~**0.006**~0.008	④ 0.020~**0.047**~0.071 ⑤ 0.002~**0.006**~0.012	-	★ 260~**460**~590	☆ 260~**460**~590	-	-
	Mold Steel (40~50 HRc)	① 0.008~**0.012**~0.020 ③ 0.001~**0.002**~0.004	① 0.008~**0.020**~0.032 ③ 0.001~**0.003**~0.006	① 0.008~**0.024**~0.035 ③ 0.001~**0.004**~0.006	① 0.008~**0.028**~0.039 ③ 0.001~**0.004**~0.006	④ 0.008~**0.028**~0.039 ⑤ 0.001~**0.004**~0.008	-	★ 200~**330**~430	☆ 200~**330**~430	-	-
	Austenitic Stainless Steel	① 0.020~**0.028**~0.032 ③ 0.002~**0.003**~0.006	① 0.020~**0.032**~0.047 ③ 0.002~**0.004**~0.008	① 0.020~**0.039**~0.063 ③ 0.002~**0.006**~0.008	① 0.020~**0.047**~0.071 ③ 0.002~**0.006**~0.008	④ 0.020~**0.047**~0.071 ⑤ 0.002~**0.006**~0.012	-	☆ 330~**520**~660	★ 330~**520**~660	-	-
	Martensitic Stainless Steel	① 0.020~**0.028**~0.032 ③ 0.002~**0.003**~0.006	① 0.020~**0.032**~0.047 ③ 0.002~**0.004**~0.008	① 0.020~**0.039**~0.063 ③ 0.002~**0.006**~0.008	① 0.020~**0.047**~0.071 ③ 0.002~**0.006**~0.008	④ 0.020~**0.047**~0.071 ⑤ 0.002~**0.006**~0.012	-	-	☆ 490~**660**~820	-	★ 590~**790**~980
	Precipitation Hardened Stainless Steel	① 0.020~**0.028**~0.032 ③ 0.002~**0.003**~0.006	① 0.020~**0.032**~0.047 ③ 0.002~**0.004**~0.008	① 0.020~**0.039**~0.063 ③ 0.002~**0.006**~0.008	① 0.020~**0.047**~0.071 ③ 0.002~**0.006**~0.008	④ 0.020~**0.047**~0.071 ⑤ 0.002~**0.006**~0.012	-	-	★ 300~**390**~490	-	-
	Gray Cast Iron	① 0.020~**0.032**~0.039 ③ 0.002~**0.004**~0.008	① 0.020~**0.039**~0.059 ③ 0.002~**0.006**~0.012	① 0.020~**0.047**~0.071 ③ 0.002~**0.008**~0.012	① 0.020~**0.059**~0.079 ③ 0.002~**0.008**~0.012	④ 0.020~**0.059**~0.079 ⑤ 0.002~**0.008**~0.016	★ 390~**590**~820	-	-	-	-
	Nodular Cast Iron	① 0.020~**0.028**~0.032 ③ 0.002~**0.003**~0.006	① 0.020~**0.032**~0.047 ③ 0.002~**0.004**~0.008	① 0.020~**0.039**~0.063 ③ 0.002~**0.006**~0.008	① 0.020~**0.047**~0.071 ③ 0.002~**0.006**~0.008	④ 0.020~**0.047**~0.071 ⑤ 0.002~**0.006**~0.012	★ 330~**490**~660	-	-	-	-
	Ni-base Heat Resistant Alloy	① 0.008~**0.016**~0.024 ③ 0.001~**0.002**~0.004	① 0.008~**0.020**~0.035 ③ 0.001~**0.003**~0.006	① 0.008~**0.024**~0.039 ③ 0.001~**0.004**~0.006	① 0.008~**0.032**~0.047 ③ 0.001~**0.004**~0.006	④ 0.008~**0.032**~0.047 ⑤ 0.001~**0.004**~0.008	-	-	☆ 70~**100**~160	-	★ 70~**100**~160
	Titanium Alloy	① 0.008~**0.016**~0.024 ③ 0.001~**0.002**~0.004	① 0.008~**0.020**~0.035 ③ 0.001~**0.003**~0.006	① 0.008~**0.024**~0.039 ③ 0.001~**0.004**~0.006	① 0.008~**0.032**~0.047 ③ 0.001~**0.004**~0.006	④ 0.008~**0.032**~0.047 ⑤ 0.001~**0.004**~0.008	☆ 100~**160**~230	-	★ 130~**200**~260	-	-

★: 1st Recommendation ☆: 2nd Recommendation

① **For D.O.C. ≤ 0.039"**
② **For D.O.C. 0.040 - 0.059"**
③ **For D.O.C. 0.040 - 0.138"**
④ **For D.O.C. ≤ 0.079"**
⑤ **For D.O.C. 0.080 - 0.197"**

- Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy
- The figure in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
- Machining with CAT30 or equivalent, feed rate should be reduced to 25% of recommended cutting conditions
- Internal coolant is recommended for slotting applications
- For finishing, maximum recommended feed is f = 0.059 ipt for **SOMT14-LD** type, f = 0.035 ipt for **SOMT10-LD** type, f = 0.118 ipt for **SOMT14-FL** type, f = 0.055 ipt for **SOMT10-FL** type

Recommended Cutting Conditions

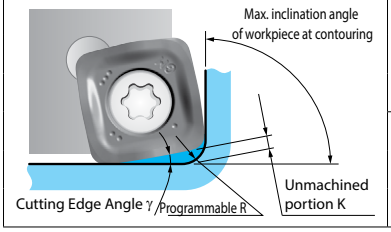
Chipbreaker	Workpiece	Holder Part Number and Feed Rate (fz: ipt)					Recommended Insert Grade (Vc: sfm)				
		End Mill Feed Rates			Face Mill Feed Rates		MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD	CVD
		MFH1000 MFH25-	MFH1250 MFH32-	MFH1500 MFH40-	MFH...R-10	MFH...R-14	PR1810 (PR1510)	PR1825 (PR1525)	PR1835 (PR1535)	PR015S	CA6535
FL	Carbon Steel	① 0.020~**0.032**~0.039 ② 0.008~**0.016**~0.020	① 0.020~**0.039**~0.059 ② 0.012~**0.028**~0.039	① 0.020~**0.047**~0.071 ② 0.016~**0.039**~0.059	0.020~**0.059**~0.079		-	★ 390~**590**~820	☆ 390~**590**~820	-	-
	Alloy Steel	① 0.020~**0.032**~0.039 ② 0.008~**0.016**~0.020	① 0.020~**0.039**~0.059 ② 0.012~**0.028**~0.039	① 0.020~**0.047**~0.071 ② 0.016~**0.039**~0.059	0.020~**0.059**~0.079		-	★ 330~**520**~720	☆ 330~**520**~720	-	-
	Mold Steel (~40 HRc)	① 0.020~**0.028**~0.032 ② 0.008~**0.012**~0.016	① 0.020~**0.032**~0.047 ② 0.012~**0.024**~0.032	① 0.020~**0.039**~0.063 ② 0.016~**0.032**~0.047	0.020~**0.047**~0.071		-	★ 260~**460**~590	☆ 260~**460**~590	-	-
	Mold Steel (40~50 HRc)	① 0.006~**0.012**~0.020 ② 0.006~**0.008**~0.010	① 0.008~**0.020**~0.032 ② 0.008~**0.012**~0.018	① 0.008~**0.024**~0.035 ② 0.008~**0.020**~0.028	0.008~**0.028**~0.039		-	★ 200~**330**~430	☆ 200~**330**~430	-	-
	Austenitic Stainless Steel	① 0.020~**0.028**~0.032 ② 0.008~**0.012**~0.016	① 0.020~**0.032**~0.047 ② 0.012~**0.024**~0.032	① 0.020~**0.039**~0.063 ② 0.016~**0.032**~0.047	0.020~**0.047**~0.071		-	☆ 330~**520**~660	★ 330~**520**~660	-	-
	Martensitic Stainless Steel	① 0.020~**0.028**~0.032 ② 0.008~**0.012**~0.016	① 0.020~**0.032**~0.047 ② 0.012~**0.024**~0.032	① 0.020~**0.039**~0.063 ② 0.016~**0.032**~0.047	0.020~**0.047**~0.071		-	-	☆ 490~**660**~820	-	★ 590~**790**~980
	Precipitation Hardened Stainless Steel	① 0.020~**0.028**~0.032 ② 0.008~**0.012**~0.016	① 0.020~**0.032**~0.047 ② 0.012~**0.024**~0.032	① 0.020~**0.039**~0.063 ② 0.016~**0.032**~0.047	0.020~**0.047**~0.071		-	-	★ 300~**390**~490	-	-
	Gray Cast Iron	① 0.020~**0.032**~0.039 ② 0.008~**0.016**~0.020	① 0.020~**0.039**~0.059 ② 0.012~**0.028**~0.039	① 0.020~**0.047**~0.071 ② 0.016~**0.039**~0.059	0.020~**0.059**~0.079		★ 390~**590**~820	-	-	-	-
	Nodular Cast Iron	① 0.020~**0.028**~0.032 ② 0.008~**0.012**~0.016	① 0.020~**0.032**~0.047 ② 0.012~**0.024**~0.032	① 0.020~**0.039**~0.063 ② 0.016~**0.032**~0.047	0.020~**0.047**~0.071		★ 330~**490**~660	-	-	-	-
	Ni-base Heat Resistant Alloy	① 0.008~**0.016**~0.024 ② 0.006~**0.008**~0.012	① 0.008~**0.020**~0.035 ② 0.008~**0.016**~0.024	① 0.008~**0.024**~0.039 ② 0.008~**0.020**~0.032	0.008~**0.032**~0.047		-	-	☆ 70~**100**~160	-	★ 70~**100**~160
	Titanium Alloy	① 0.008~**0.016**~0.024 ② 0.006~**0.008**~0.012	① 0.008~**0.020**~0.035 ② 0.008~**0.016**~0.024	① 0.008~**0.024**~0.039 ② 0.008~**0.020**~0.032	0.008~**0.032**~0.047		☆ 100~**160**~230	-	★ 130~**200**~260	-	-

★: 1st Recommendation ☆: 2nd Recommendation

① **For D.O.C. ≤ 0.039"**
② **For D.O.C. 0.040 - 0.059"**
③ **For D.O.C. 0.040 - 0.138"**
④ **For D.O.C. ≤ 0.079"**
⑤ **For D.O.C. 0.080 - 0.197"**

- Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy
- The figure in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
- Machining with CAT30 or equivalent, feed rate should be reduced to 25% of recommended cutting conditions
- Internal coolant is recommended for slotting applications
- For finishing, maximum recommended feed is f = 0.059 ipt for **SOMT14-LD** type, f = 0.035 ipt for **SOMT10-LD** type, f = 0.118 ipt for **SOMT14-FL** type, f = 0.055 ipt for **SOMT10-FL** type

Approximate Programming Radius Adjustment

Shape	Holder	Chipbreaker	Cutting Edge Angle γ	Programmable R (in) Recommended	Max. Non-machined Portion K (in)	Side Wall Max. Inclination Angle (°)
	MFH…-10-…	GM / GH	10°	0.118	0.034	90°
		LD	14°	0.148	0.027	65°
		FL	14°	0.118	0.035	80°
	MFH…-14-…	GM / GH	10°	0.148	0.054	90°
		LD	16°	0.197	0.042	65°
		FL	13°	0.118	0.054	80°

Ramping Reference Data

MFH…-10-…

Cutter Dia. DCX (in)	1.00"	-	1.25"	-	1.50"	2.00"	2.50"	3.00"
Cutter Dia. DCX (mm)	25mm	28mm	32mm	35mm	40mm	50mm	63mm	80mm
Max. Ramping Angle RMPX (°)	5°	4.5°	4°	3.5°	3°	2.5°	2°	1°
tan RMPX	0.087	0.078	0.070	0.061	0.052	0.043	0.035	0.017

MFH…-14-…

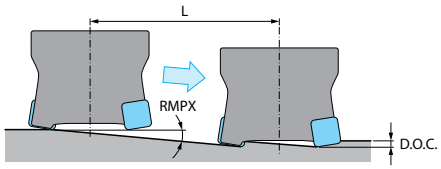
Cutter Dia. DCX (in)	2.00"	2.50"	3.00"	4.00"	5.00"	6.00"
Cutter Dia. DCX (mm)	50mm	63mm	80mm	100mm	125mm	160mm
Max. Ramping Angle RMPX (°)	2°	1.8°	1°	0.5°	0.4°	0.2°
tan RMPX	0.035	0.031	0.017	0.009	0.007	0.003

Ramping Guide

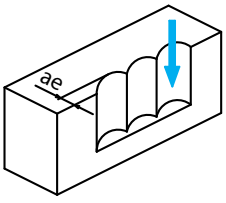
- Ramping angle RPMX (maximum ramping angle) should be under above cutting conditions
- Reduce recommended feed rate in cutting conditions above by 70%

Formula for Max. Cutting Length (L) at Max. Ramping Angle

$$L = \frac{D.O.C.}{\tan RMPX}$$



Plunging



Insert Description	Maximum Width of Cut (ae)
SOMT10 Type	0.315"
SOMT14 Type	0.453"

- LD and FL chipbreakers are not available for plunging
- Reduce feed rate to fz = 0.008ipt when plunging

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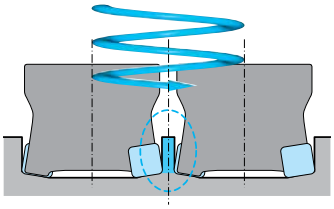
Helical Milling

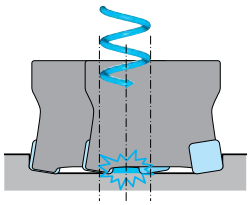
For Helical milling, use between Min. Drilling Dia. and Max. Drilling Dia.

⃠ Exceeding Max. Machining Dia.



Center Core Remains

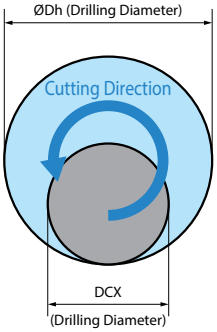
⃠ Under Min. Machining Dia.



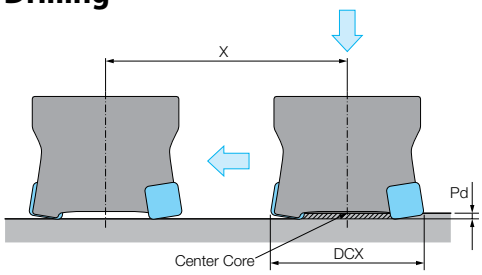
Center Core Hits Holder Body

Holder	Min. Drilling Dia. ØDh1	Max. Drilling Dia. ØDh2	Max. Ramping Depth per Cycle
MFH…-10-…	2×DCX–0.709"	2×DCX–0.079"	GM = 0.059"
MFH…-14-…	2×DCX–0.984"	2×DCX–0.079"	GM = 0.079"

- Keep machine depth per rotation less than max D.O.C. (APMX) in the cutter dimensions chart
- Use climb milling. (Refer to detail on right)
- Feed rates should be reduced to 50% of recommended cutting conditions
- Use caution to eliminate incidences caused by producing long chips



Drilling



3D Machining

Chipbreaker	Ramping	Contouring (Rising Wall Angle)	Plunging	Helical Milling	Pocketing
GM / GH	✓	✓ (90°)	✓	✓	✓
LD	✓	Limit (65°)	X	X	X
FL	✓	Limit (80°)	X	X	X

- Some applications are not available depending on chipbreaker.
- For FL and LD type, there is a limit of rising wall angle during contouring.

Holder	GM / GH		LD		FL	
	Max. Drilling Depth (Pd)	Min. Cutting Length (X) for Flat Bottom Surface	Max. Drilling Depth (Pd)	Min. Cutting Length (X) for Flat Bottom Surface	Max. Drilling Depth (Pd)	Min. Cutting Length (X) for Flat Bottom Surface
MFH…-10-…	0.059"	DCX–0.709"	0.059"	DCX–0.551"	0.059"	DCX–0.591"
MFH…-14-…	0.079"	DCX–0.945"	0.079"	DCX–0.709"	0.079"	DCX–0.748"

[Drilling Depth]
See Max. Drilling Depth (Pd) in the above cutting conditions
Traversing after Drilling
1. It is recommended to reduce feed by 25% of recommended cutting conditions until Center Core is removed
2. Axial feed rate recommendation per revolution is 0.008 ipr while drilling

High-Feed Small Diameter / Large D.O.C. Milling

(Cutter Dia. Ø1.000" ~ Ø3.000")
(Cutter Dia. Ø22mm ~ Ø80mm)

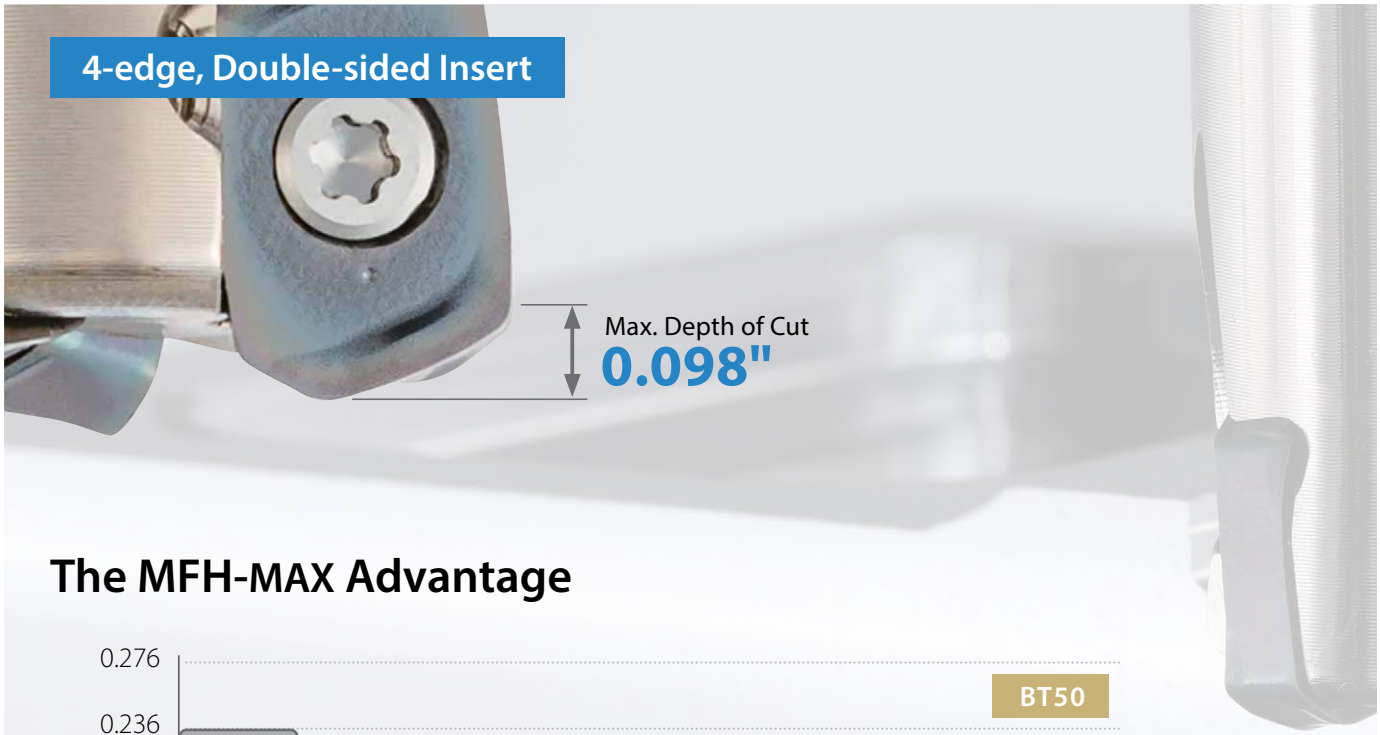
MFH-MAX

Excellent Performance in Various Applications, including Automotive Parts, Difficult-to-cut Materials, and Mold Machining

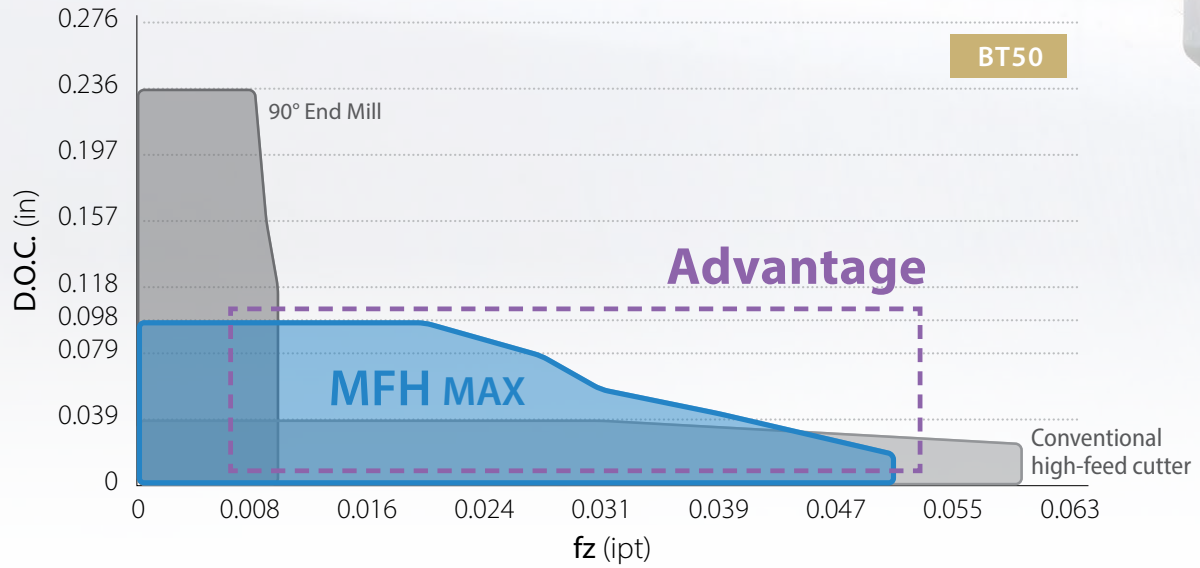
1 Small Diameter High Feed Milling with Large Depth of Cut Capabilities

A small 4-edge, double-sided insert supports depths of cut up to 0.098" (2.5mm) with cutting diameters available from Ø1.000" and Ø22mm.

Achieves high efficiency machining in various shouldering, slotting, helical milling, and ramping applications.



The MFH-MAX Advantage



Vc = 490 sfm, ae = 0.492" (ae/DCX = 50%), 1049 Dry Ø1.000" Overhang length 2.362" BT50

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2 The MFH-MAX can cover a Large Variety of Machining Applications and Environments

1 A Better Alternative to 90° End Mills (Rough to Medium-Finish Machining)

High Feed Rates Dramatically Improve Machining Efficiency

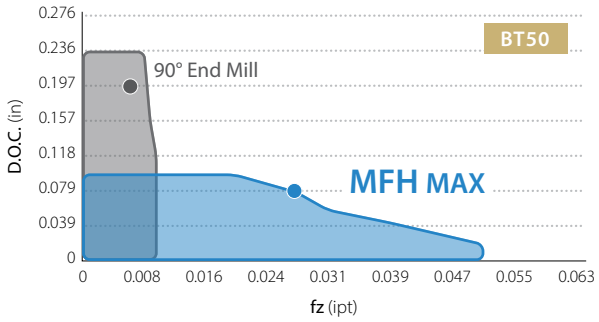
Machining Efficiency Simulation Example

Pocketing: Vc = 490 sfm, ae = 0.492"

MFH MAX Ø1.000" (3 Flute): **100 cc/min**
D.O.C. = **0.079"**, fz = **0.028** ipt

Machining Efficiency x 1.8

Conventional 90° End Mill Ø1.000" (3 Flute): **54 cc/min**
D.O.C. = **0.197"**, fz = **0.006** ipt



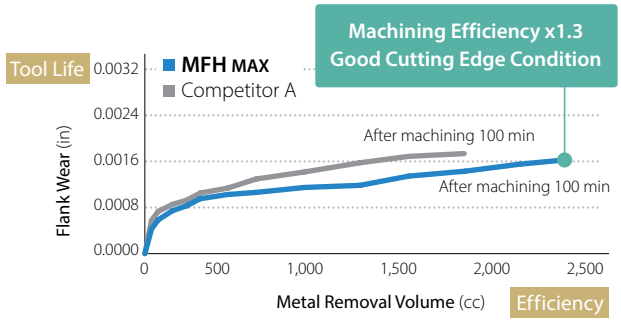
High Efficiency and Good Tool Life

Machining Efficiency and Cutting Edge Condition Comparison (Internal Evaluation)

Cutting edge condition after machining 100 min

MFH-MAX
D.O.C = 0.063", fz = **0.024** ipt

Competitor A 90° End Mill
D.O.C. = 0.197", fz = **0.006** ipt



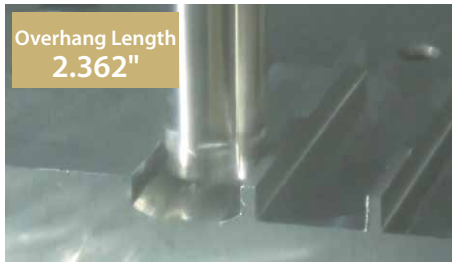
Vc = 490 sfm, ae = 0.492", Dry 4140Ⓗ Ø1.000" BT50

Higher Stability in Unstable Machining Environment

Chatter Resistance Comparison (Internal evaluation)

Slotting
Ø1.000" (3 Flute)
External air
1049
BT50

Video



Machining Efficiency

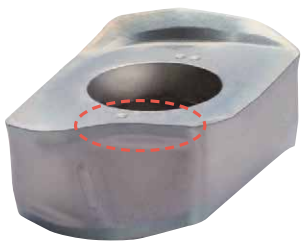
MFH MAX: **103 cc/min**
Vc = 390 sfm, D.O.C. = 0.059", fz = **0.024** ipt

Machining Efficiency x 4.5

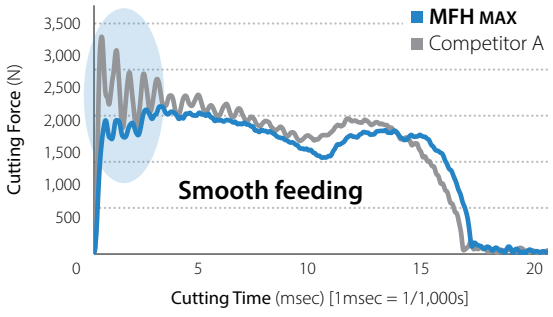
Competitor A 90 ° End Mill
31 cc/min **Chattering (Machining was impossible)**
Vc = 260 sfm, D.O.C. = 0.079", fz = 0.008 ipt
23 cc/min
Vc = 260 sfm, D.O.C. = 0.079", fz = 0.006 ipt

Innovative Insert Design

Convex cutting edge design reduces impact when entering workpiece



Cutting Force when Entering Workpiece (Internal Evaluation)



Vc = 490 sfm, D.O.C. = 0.079", ae = 1.000", fz = 0.028 ipt, Dry 1049 Ø2.000" BT50

2 When Compared to Conventional High Feed Cutters

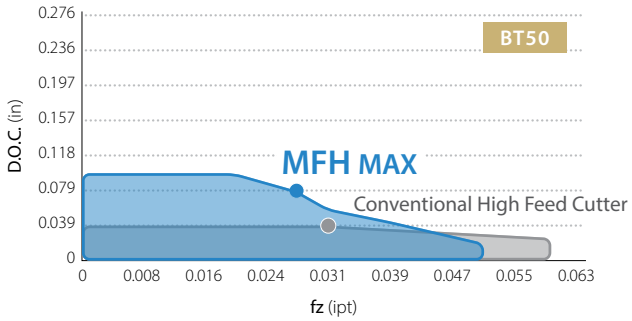
A Larger D.O.C. Dramatically Improves Machining Efficiency

Machining Efficiency Simulation Example

Multistage Machining (Depth 1.181"): Vc = 490 sfm, ae = 0.492"

MFH MAX Ø1.000" (3 Flute): **100 cc/min** (Machining Efficiency x 1.3)
D.O.C. = 0.079", fz = **0.028** ipt

Conventional High Feed Cutter Ø1.000" (3 Flute): **76 cc/min**
D.O.C. = **0.039"**, fz = **0.031** ipt



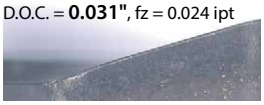
High Efficiency and Good Tool Life

Machining Efficiency and Cutting Edge Condition Comparison
(Internal Evaluation)

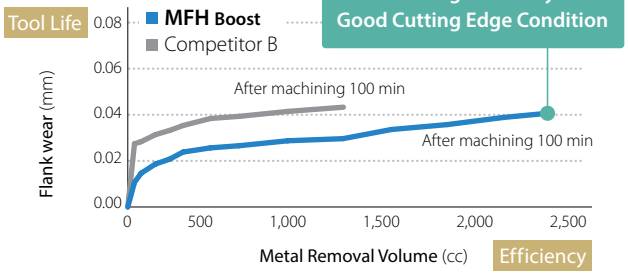
Cutting Edge Condition after 100 min machining

MFH-MAX
D.O.C. = 0.063", fz = 0.024 ipt

Competitor B High Feed Type
D.O.C. = **0.031"**, fz = 0.024 ipt



Machining Efficiency x2
Good Cutting Edge Condition



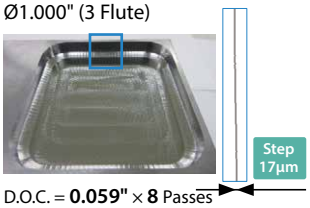
Vc = 490 sfm, ae = 0.492", Dry 4140 Ø1.000" BT50

Excellent Wall Accuracy

Machining Efficiency and Wall Comparisons
(Internal Evaluation)

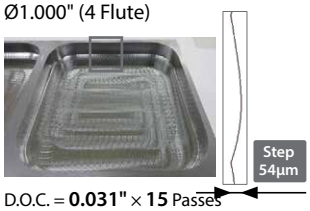
Pocketing (Depth 0.472")

MFH-MAX
Ø1.000" (3 Flute)



D.O.C. = **0.059"** × **8** Passes
Q = 115 cc/min

Competitor B High Feed Type
Ø1.000" (4 Flute)



D.O.C. = **0.031"** × **15** Passes
Q = **81** cc/min

Cutting Conditions: Vc = 660 sfm, ae = 0.492", fz = 0.031 ipt, Dry 1049 BT50

Superior Wall Accuracy

Wiper on outer periphery

Reduction of wall level variation in multi-pass machining

3 A Powerful Tool for Difficult-to-cut Materials

The MFH-MAX gained dramatic improvements in efficiency when machining titanium alloy, stainless steel, etc.

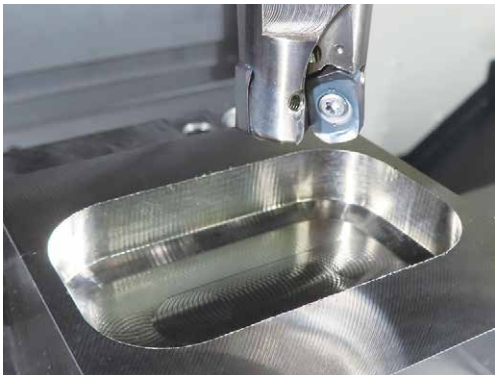
Machining Efficiency Comparison (Internal Evaluation)

Titanium Alloy Pocketing (Depth 0.236")

MFH MAX: **Approx. 1' 30"** (Machining Efficiency x 1.8)
D.O.C. = **0.059"** × **4** Passes (fz = ~0.014 ipt)

Competitor C High Feed Type: **Approx. 2' 50"**
D.O.C. = **0.024"** × **10** Passes (fz = ~0.016 ipt)

Vc = 160 sfm, ae = 0.492" (ae/DCX = 50%), Ramping Angle 3° Ti-6Al-4V Wet Ø1.000" (3 Flute) BT50



MFH-MAX (End Mill)

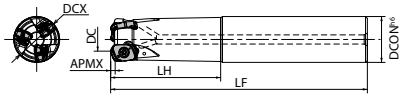


Fig. 1

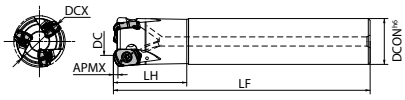


Fig. 2

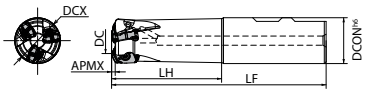


Fig. 3

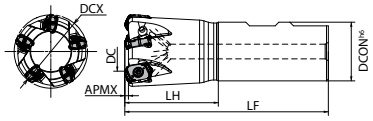


Fig. 4

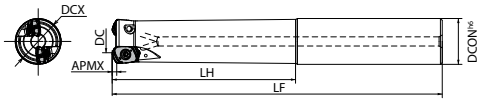


Fig. 5

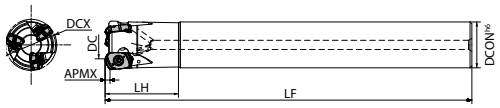


Fig. 6

Toolholder Dimensions

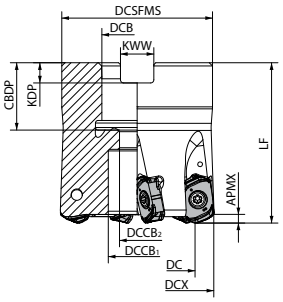
Unit			Part Number		Std. Item	No. of Inserts	Dimensions DCX	DC	DCON	LF	LH	APMX	A.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts: Anti-Seize Compound	Insert Screw	Wrench	Applicable Inserts ⇒ M244
Inch	Cylindrical	Standard Shank	MFH	1000-S100-04-3T	●	3	1.000	0.567	1.000	2.500	5.500	0.098	-10	Yes	12,500	0.4	1	P-37	SB-3575TRP	DTPM-10	LOMU040410ER-GM
				1250-S125-04-5T	●	5	1.250	0.817	1.250	2.750	6.000				11,000	0.7	1				
		Long Shank	MFH	1000-S100-04-3T-7	●	3	1.000	0.567	1.000	4.000	7.000	0.098	-10	Yes	12,500	0.7	5				
				1250-S125-04-4T-8	●	4	1.250	0.817	1.250	4.750	8.000				11,000	1.1	5				
	Weldon	Standard Shank	MFH	1000-W100-04-3T	●	3	1.000	0.567	1.000	2.000	4.600	0.098	-10	Yes	12,500	0.4	3				
				1250-W125-04-5T	●	5	1.250	0.817	1.250	2.750	5.150				11,000	0.7	3				
mm	Cylindrical	Standard Shank	MFH	22-S20-04-2T	●	2	22	11	20	130	30	2.5	-10	Yes	13,600	0.3	2	P-37	SB-3575TRP	DTPM-10	LOMU040410ER-GM
				25-S25-04-2T	●	2	25	14	25	140	60				12,700	0.5	1				
				25-S25-04-3T	●	3											1				
				28-S25-04-3T	●	3	28	17			40				12,000	0.5	2				
				28-S25-04-4T	●	4											2				
				32-S32-04-4T	●	4	32	21	32	150	70				11,200	0.8	1				
				32-S32-04-5T	●	5											1				
				35-S32-04-4T	●	4	35	24			50				10,700	0.8	2				
				35-S32-04-5T	●	5											2				
				40-S32-04-5T	●	5	40	29							10,000	0.9	2				
				40-S32-04-6T	●	6											2				
		Long Shank	MFH	25-S25-04-2T-180	●	2	25	14	25	180	100	2.5	-10	Yes	12,700	0.6	5	P-37	SB-3575TRP	DTPM-10	LOMU040410ER-GM
				25-S25-04-3T-180	●	3											5				
				28-S25-04-3T-200	●	3	28	17		200	40				12,000	0.7	6				
				32-S32-04-4T-200	●	4	32	21	32		120				11,200	1.1	5				
				35-S32-04-4T-200	●	4	35	24			50				10,700		6				
				40-S32-04-5T-250	●	5	40	29		250					10,000	1.5	6				
	Weldon	Standard Shank	MFH	25-W25-04-2T	●	2	25	14	25	117	60	2.5	-10	Yes	12,700	0.4	3	P-37	SB-3575TRP	DTPM-10	LOMU040410ER-GM
				25-W25-04-3T	●	3											3				
				32-W32-04-4T	●	4	32	21	32	131	70				11,200	0.7	3				
				32-W32-04-5T	●	5											3				
				40-W32-04-5T	●	5	40	29		111	50				10,000		4				
				40-W32-04-6T	●	6											4				

Recommended tightening torque for insert screw 2.0N•m

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MFH-MAX (Face Mill)



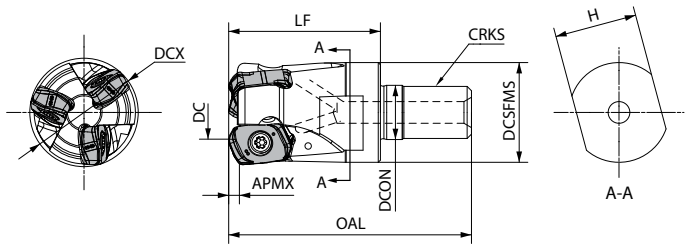
Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	Dimensions											A.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Spare Parts				Applicable Inserts M244
			R		DCX	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX					Anti-Seize Compound	Insert Screw	Wrench	Arbor Bolt	
Inch	Inch Bore Dia.	MFH 1500R-04-6T	●	6	1.500	1.067	1.400	0.500	0.433	0.276	1.575	0.709	0.156	0.250				10,200	0.2				HH1/4-0.75(H)	
		2000R-04-7T	●	7	2.000	1.567	1.750					0.947						8,600	0.5	P-37	SB-3575TRP	DTPM-10		
		2500R-04-9T	●	9	2.500	2.067	2.250	0.750	0.669	0.433	1.969	0.750	0.188	0.313	0.098	-10	Yes	8,000	0.7	Recommended tightening torque for insert screw 2.0N•m			HH3/8-1.25(H)	LOMU 040410ER-GM
		3000R-04-10T	●	10	3.000	2.567	2.750	1.000	0.866	0.551	2.480	1.063	0.236	0.375				7,500	1.3				HH1/2-1.25(H)	
mm	Inch Bore Dia.	MFH 080R-04-8T	●	8	80	69	76	1.250"	26	17	63	1.260"	0.315"	0.500"	2.5	-10	Yes	7,100	1.6	P-37	SB-3575TRP	DTPM-10	HH16X40(H)	LOMU 040410ER-GM
		080R-04-10T	●	10																Recommended tightening torque for insert screw 2.0N•m			HH16X40(H)	
	Metric Bore Dia.	MFH 040R-04-5T-M	●	5	40	29	38	16	15	9	40	19	5.6	8.4				10,000	0.2				HH8X25(H)	
		040R-04-6T-M	●	6																				
		050R-04-6T-M	●	6	50	39	47	22	18	11	50	21	6.3	10.4	2.5	-10	Yes	9,000	0.4				HH10X30(H)	LOMU 040410ER-GM
		050R-04-7T-M	●	7																				
		052R-04-6T-M	●	6	52	41												8,800	0.5				HH10X30(H)	
		052R-04-7T-M	●	7															0.4	P-37	SB-3575TRP	DTPM-10		
		063R-04-7T-M	●	7	63	52	60	22	18	11								8,000	0.8	Recommended tightening torque for insert screw 2.0N•m			HH10X30(H)	
		063R-04-7T-27M	●	7				27	20	13		24	7	12.4										
		063R-04-9T-M	●	9				22	18	11		21	6.3	10.4										
		063R-04-9T-27M	●	9				27	20	13		24	7	12.4					0.7					
		080R-04-8T-M	●	8	80	69	76				63							7,100	1.8				HH12X35(H)	
		080R-04-10T-M	●	10															1.7					

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.
(H) Optional coolant-through arbor bolt available

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MFH-MAX (Modular Head)



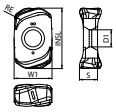
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions									A.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts M244
				DCX	DC	DCON	DCSFMS	OAL	LF	APMX	CRKS	H				Anti-Seize Compound	Insert Screw	Wrench	
Inch	MFH 1000-M12-04-3T	●	3	1.000	0.567	0.492	0.900	2.205	1.380	0.098	M12×P1.75	0.748	-10	Yes	12,500	P-37	SB-3575TRP	DTPM-10	LOMU040410ER-GM
	1250-M16-04-5T	●	5	1.250	0.817	0.669	1.180	2.441	1.580		M16×P2.0	0.945			11,000	Recommended tightening torque for insert screw 2.0N•m			
mm	MFH 22-M10-04-2T	●	2	22	11	10.5	18.7	48	30	2.5	M10×P1.5	15	-10	Yes	13,600	P-37	SB-3575TRP	DTPM-10	LOMU040410ER-GM
	25-M12-04-2T	●	2	25	14	12.5	23	56	35		M12×P1.75	19			12,700				
	25-M12-04-3T	●	3																
	28-M12-04-3T	●	3	28	17										12,000				
	28-M12-04-4T	●	4																
	32-M16-04-4T	●	4	32	21	17	30	62	40		M16×P2.0	24			11,200				
	32-M16-04-5T	●	5																
	35-M16-04-4T	●	4	35	24										10,700				
	35-M16-04-5T	●	5																
	40-M16-04-5T	●	5	40	29										10,000				
	40-M16-04-6T	●	6																
	42-M16-04-5T	●	5	42	31										9,800				
	42-M16-04-6T	●	6																

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.
See page **M324** for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

LOMU

Usage Classification									
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)	Carbon steel / Alloy steel			☆			★	☆	P
	Mold and die steel			☆			★	☆	
	Austenitic stainless steel				☆		☆	★	M
	Martensitic stainless steel	★						☆	
	Precipitation hardened stainless steel				☆			★	
	Gray cast iron		☆			★			K
	Nodular cast iron		☆			★			
	Non-ferrous metals								N
	Heat-resistant alloy	★						☆	S
	Titanium alloy				☆			★	
	Hard materials								H

Insert		Part Number	No. of Edges	Dimensions (mm)					Carbide						Applicable Toolholder
				S	D1	RE	W1	INSL	CVD	PVD					
									CA6535	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835	
	 General Purpose	LOMU 040410ER-GM	4	4.4	4.1	1	9.1	14.5	●	△	●	●	●	●	●	MFH...-04-..

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M245

LOMU Inserts are sold in 10 piece boxes

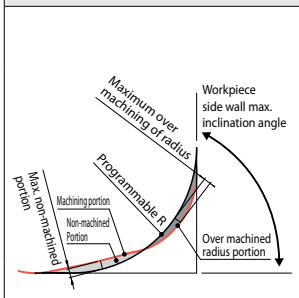
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Chipbreaker	Workpiece Material		Holder Part Number and Feed Rate (fz: ipt)		Recommended Insert Grade (Vc: sfm)			
			D.O.C. (in)	MFH…04…	MEGACOAT NANO EX (MEGACOAT NANO)			CVD Coating
					PR1810 (PR1510)	PR1825 (PR1525)	PR1835 (PR1535)	CA6535
GM	Carbon Steel Alloy Steel	(~ 280HB)	≤ 0.020	0.008~**0.032**~0.051	–	★ 390~**520**~720	☆ 390~**520**~720	–
			≤ 0.039	0.008~**0.028**~0.043				
			≤ 0.059	0.008~**0.024**~0.032				
			≤ 0.079	0.008~**0.016**~0.028				
			≤ 0.098	0.008~**0.012**~0.020				
		(~ 350HB)	≤ 0.020	0.008~**0.030**~0.047	–	★ 330~**490**~660 (Dry Machining Recommended)	☆ 330~**490**~660 (Dry Machining Recommended)	–
			≤ 0.039	0.008~**0.026**~0.039				
			≤ 0.059	0.008~**0.022**~0.028				
			≤ 0.079	0.008~**0.016**~0.022				
			≤ 0.098	0.008~**0.010**~0.014				
	Mold Steel	(~ 40HRC)	≤ 0.020	0.008~**0.024**~0.043	–	★ 260~**390**~520 (Dry Machining Recommended)	☆ 260~**390**~520 (Dry Machining Recommended)	–
			≤ 0.039	0.008~**0.020**~0.035				
			≤ 0.059	0.008~**0.016**~0.026				
			≤ 0.079	0.008~**0.012**~0.022				
			≤ 0.098	0.008~**0.010**~0.014				
		(40 ~ 50HRC)	≤ 0.020	0.004~**0.012**~0.020	–	★ 200~**330**~430 (Dry Machining Recommended)	–	–
			≤ 0.039	0.004~**0.010**~0.016				
			≤ 0.059	0.004~**0.008**~0.012				
			≤ 0.079	–				
			≤ 0.098					
		(50 ~ 55HRC)	≤ 0.020	0.004~**0.008**~0.016	–	★ 160~**230**~330 (Dry Machining Recommended)	–	–
			≤ 0.039	0.004~**0.006**~0.010				
			≤ 0.059	–				
			≤ 0.079					
			≤ 0.098					
	Austenitic Stainless Steel		≤ 0.020	0.008~**0.02**4~0.039	–	☆ 330~**460**~590	★ 330~**460**~590	–
			≤ 0.039	0.008~**0.020**~0.035				
			≤ 0.059	0.008~**0.018**~0.024				
			≤ 0.079	0.008~**0.012**~0.020				
			≤ 0.098	0.008~**0.010**~0.016				
	Martensitic Stainless Steel		≤ 0.020	0.008~**0.024**~0.039	–	–	☆ 330~**490**~660	★ 490~**660**~980
			≤ 0.039	0.008~**0.020**~0.035				
			≤ 0.059	0.008~**0.018**~0.024				
			≤ 0.079	0.008~**0.012**~0.020				
			≤ 0.098	0.008~**0.010**~0.016				
	Precipitation Hardened Stainless Steel		≤ 0.020	0.004~**0.012**~0.020	–	–	★ 300~**390**~490	–
			≤ 0.039	0.004~**0.010**~0.018				
			≤ 0.059	0.004~**0.006**~0.010				
			≤ 0.079	–				
			≤ 0.098					
	Gray Cast Iron		≤ 0.020	0.008~**0.032**~0.051	★ 390~**520**~720	–	–	–
			≤ 0.039	0.008~**0.028**~0.043				
			≤ 0.059	0.008~**0.024**~0.032				
			≤ 0.079	0.008~**0.016**~0.028				
			≤ 0.098	0.008~**0.012**~0.020				
	Nodular Cast Iron		≤ 0.020	0.008~**0.024**~0.039	★ 330~**490**~660	–	–	–
			≤ 0.039	0.008~**0.020**~0.035				
			≤ 0.059	0.008~**0.016**~0.028				
			≤ 0.079	0.008~**0.012**~0.024				
			≤ 0.098	0.008~**0.010**~0.016				
	Ni-base Heat-Resistant Alloy		≤ 0.020	0.004~**0.012**~0.018	–	–	☆ 70~**100**~160	★ 70~**100**~160
			≤ 0.039	0.004~**0.010**~0.016				
			≤ 0.059	0.004~**0.006**~0.008				
			≤ 0.079	–				
			≤ 0.098					
	Titanium Alloy		≤ 0.020	0.004~**0.012**~0.020	–	–	★ 130~**200**~260	–
			≤ 0.039	0.004~**0.010**~0.018				
			≤ 0.059	0.004~**0.006**~0.010				
			≤ 0.079	–				
			≤ 0.098					

- The number in **bold** font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation. ★: 1st Recommendation ☆: 2nd Recommendation
- Machining with coolant is recommended for Precipitation Hardened Stainless Steel, Ni-base Heat-Resistant Alloy, and Titanium Alloy.
- Machining with coolant may have a lower tool life than dry machining. Set the cutting speed, feed rate and D.O.C. lower than recommended conditions.
- Machining with CAT30 or equivalent, feed rate should be reduced to 25% of recommended cutting conditions. Slotting is not recommended in this situation.
- Center through air is recommended for slotting.
- Slotting or pocketing are not recommended for face mill types.
- For face milling, it is recommended that width of cut should be set to 75% or less of the cutting diameter.
- For long shank end mills, 75% or less of the recommended conditions is recommended for both D.O.C. and feed rate.

Approximate Programming Radius Adjustment

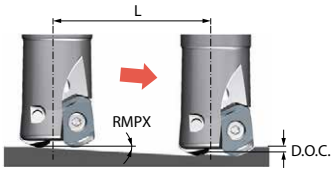
Shape	Programmable R (in)	Maximum Over Machining of Radius (in)	Maximum Non-machined Portion (in)
	R0.059	0	0.0559
	R0.079	0	0.0488
	R0.118 (Recommended)	0	0.0343
	0.138	0.0024	0.0272

Ramping Guide

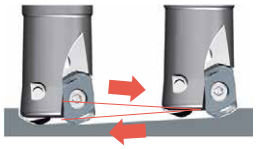
- Ramping angle should be under RMPX (maximum ramping angle) in table below
- Reduce recommended feed rate in recommended cutting conditions by 70%

Formula for max. cutting Length (L) at max. ramping angle

$$L = \frac{D.O.C.}{\tan RMPX}$$



- When ramping from both the front and outer periphery, set the maximum ramping angle RMPX to 50%.



Ramping Reference Data

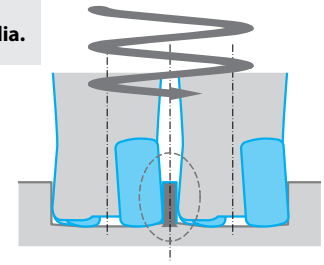
	Cutter Dia. DCX (in)	-	1.000"	-	1.250"	-	1.500"	-	2.000"	-	2.500"	3.000"
Description	Cutter Dia. DCX (mm)	22	25	28	32	35	40	42	50	52	63	80
MFH... -04- ...	Max. Ramping Angle RMPX	3.9°	3.0°	2.4°	2.0°	1.7°	1.4°	1.3°	1.0°	1.0°	0.8°	0.6°
	tan RMPX	0.068	0.052	0.042	0.035	0.029	0.024	0.022	0.018	0.017	0.013	0.010

Helical Milling

For Helical milling, use between Min. Drilling Dia. and Max. Drilling Dia.

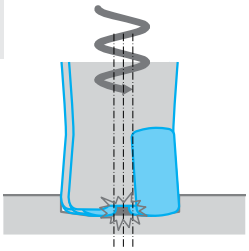
⃠ Exceeding max. cutting dia.

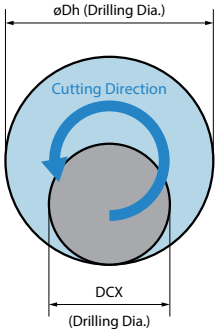
Center core part remains after machining



⃠ Under min. cutting dia.

Center core part interferes with toolholder

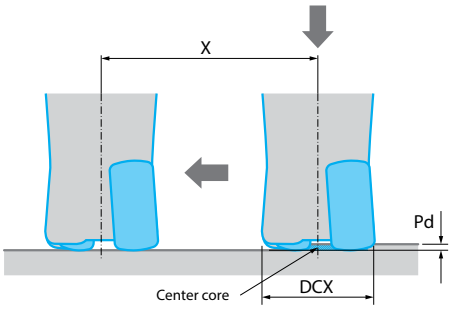




Description	Min. Drilling dia. (in)	Max. Drilling dia. (in)
MFH... -04- ...	2 × DCX - 0.433"	2 × DCX - 0.079"

- Maximum ramping depth per cycle to be under maximum D.O.C. Max D.O.C. (0.098")
- Use climb milling. (Refer to the above figure)
- Feed rates should be reduced to 50% of recommended cutting conditions
- Use caution to eliminate incidences caused by producing long chips

Drilling

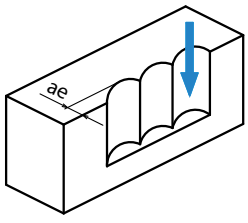


Description	GM type	
	Max. Drilling Depth Pd (in)	Min. Cutting Length X for Flat Bottom Surface (in)
MFH... -04- ...	0.024"	DCX - 0.472"

It is recommended to reduce feed by 25% of recommendation until the center core is removed
Axial feed rate recommendation per revolution is f ≤ 0.008 ipr while drilling

Plunging

Plunging



Insert Description	Maximum Width of Cut (ae)
LOMU04 Type	0.197"

Reduce feed rate to fz ≤ 0.008 ipt when plunging

High-Feed Small Diameter Milling

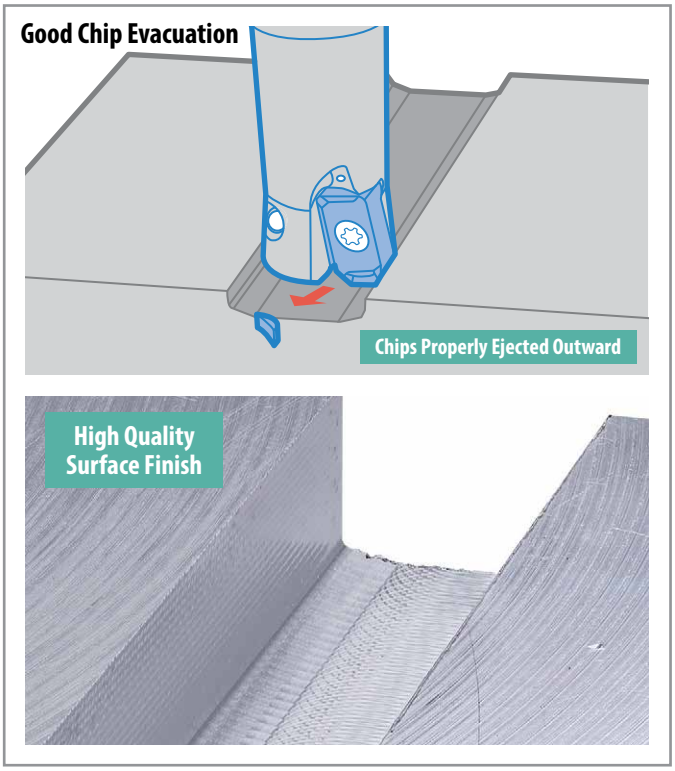
MFH-Mini

(Cutter Dia. Ø0.625" ~ Ø2.000")
(Cutter Dia. Ø16mm ~ Ø50mm)

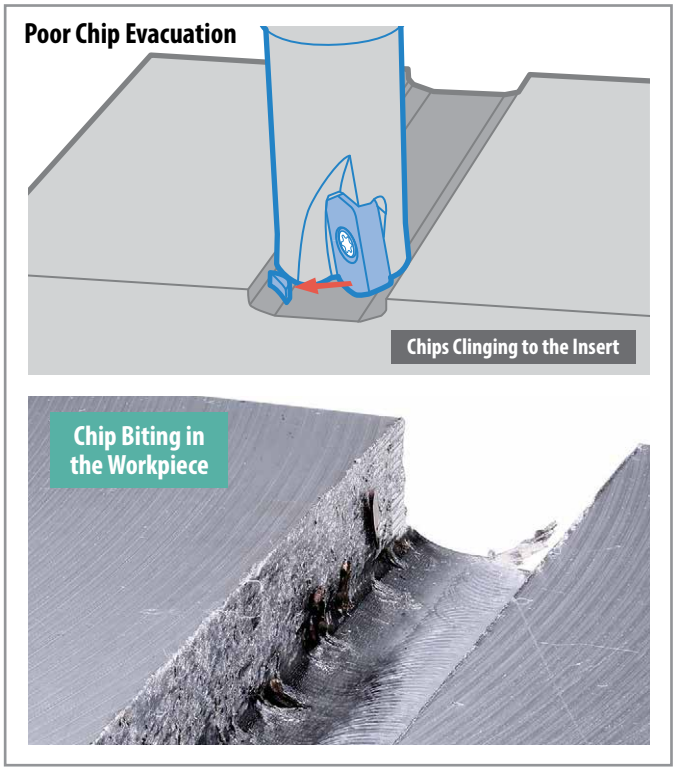
Excellent Performance in Various Applications, including Automotive Parts, Difficult-to-cut Materials, and Mold Machining

1 Excellent Chip Evacuation

MFH-Mini



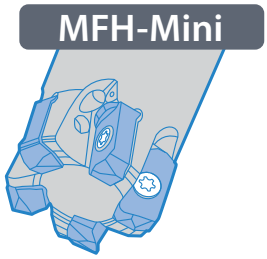
Competitor High Feed Cutter



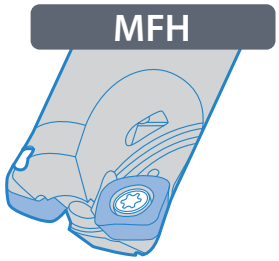
Cutting Conditions: Cutter Dia. DCX = Ø0.625" , Vc = 490 sfm, fz = 0.024 ipt, D.O.C. = 0.020" (20 Passes): Total 0.394" × 0.630", Dry Workpiece: Stainless Steel

2 Fine Pitch for Efficient Machining

Cutter Dia. 1.000" Type



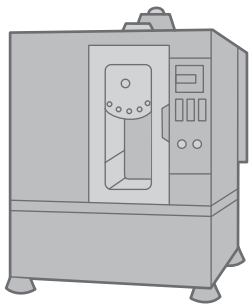
5 Inserts
MFH1000-W100-03-5T47



2 Inserts
MFH1000-W100-10-2T

3 Suitable for Roughing of Molds

High Feed Machining in Small Machining Centers



MFH-Mini (End Mill)

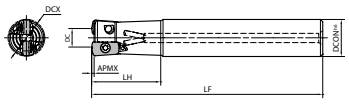


Fig. 1

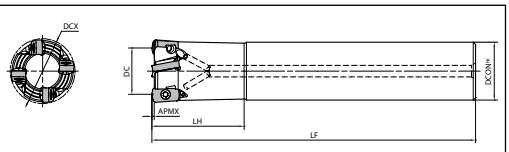


Fig. 2

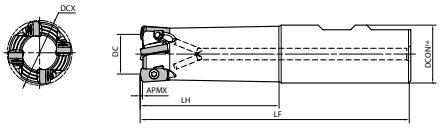


Fig. 3

Toolholder Dimensions

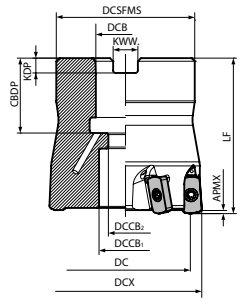
Unit			Part Number	Std. Item	No. of Inserts	Dimensions DCX	DC	DCON	LF	LH	APMX	A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts: Anti-Seize Compound	Insert Screw	Wrench	Applicable Inserts ➡ M251
Inch	Weldon	Standard Shank	MFH 0625-W625-03-2T-3	●	2	0.625	0.310	0.625	3.196	1.250	0.039	-10	-15	Yes	18,800	0.1	3	P-37	SB-3065TRP	DTPM-8	LOGU030310ER-GM LOGU030310ER-GH
			0750-W750-03-3T-4	●	3	0.750	0.435	0.750	4.070	2.000					15,700	0.2	3				
			1000-W100-03-4T47	●	4	1.000	0.685	1.000	4.820	2.500					13,400	0.4	3				
			1000-W100-03-5T47	●	5												3				
			1250-W125-03-5T-5	●	5	1.250	0.935	1.250	5.070	2.750					11,400	0.7	3				
			1250-W125-03-6T-5	●	6												3				
	Cylindrical	Long Shank	MFH 0625-S625-03-2T-6	●	2	0.625	0.310	0.625	6.000	2.000	0.039	-10	-15	Yes	18,800	0.2	1	P-37	SB-3065TRP	DTPM-8	LOGU030310ER-GM LOGU030310ER-GH
			0750-S750-03-3T55	●	3	0.750	0.435	0.750	5.500	2.000					15,700	0.3	1				
			0750-S750-03-3T65	●	3				6.500	3.000							1				
			0875-S750-03-3T55	●	3	0.875	0.560		5.500	2.000					14,700	0.3	1				
			1000-S100-03-4T55	●	4	1.000	0.685	1.000	5.500	2.500					13,400	0.5	1				
			1000-S100-03-4T-7	●	4				7.000	4.000						0.6	1				
			1250-S125-03-5T62	●	5	1.250	0.935	1.250	6.250	3.000					11,400	0.8	1				
			1250-S125-03-5T-8	●	5				8.000	4.750						1.1	1				
mm	Cylindrical	Standard Shank	MFH 16-S16-03-2T	●	2	16	8	16	100	30	1	-10	-15	Yes	18,800	0.1	1	P-37	SB-3065TRP	DTPM-8	LOGU030310ER-GM LOGU030310ER-GH
			17-S16-03-2T	●	2	17	9			20					17,900		2				
			18-S16-03-2T	●	2	18	10								17,000		2				
			20-S20-03-3T	●	3	20	12	20	130	50					15,700	0.3	1				
			20-S20-03-4T	●	4												1				
			22-S20-03-3T	●	3	22	14			30					14,700		2				
			22-S20-03-4T	●	4												2				
			25-S25-03-4T	●	4	25	17	25	140	60					13,400	0.5	1				
			25-S25-03-5T	●	5												1				
			28-S25-03-4T	●	4	28	20			40					12,400		2				
			28-S25-03-5T	●	5												2				
			32-S32-03-5T	●	5	32	24	32	150	70					11,400	0.8	1				
			32-S32-03-6T	●	6												1				
		Long Shank	MFH 16-S16-03-2T-150	●	2	16	8	16	150	50	1	-10	-15	Yes	18,800	0.2	1	P-37	SB-3065TRP	DTPM-8	LOGU030310ER-GM LOGU030310ER-GH
			20-S20-03-3T-160	●	3	20	12	20	160	80					15,700	0.3	1				
			25-S25-03-4T-180	●	4	25	17	25	180	100					13,400	0.6	1				
			32-S32-03-5T-200	●	5	32	24	32	200	120					11,400	1.1	1				
	Weldon	Standard Shank	MFH 16-W16-03-2T	●	2	16	8	16	79	30	1	-10	-15	Yes	18,800	0.1	3	P-37	SB-3065TRP	DTPM-8	LOGU030310ER-GM LOGU030310ER-GH
			20-W20-03-3T	●	3	20	12	20	101	50					15,700	0.2	3				
			20-W20-03-4T	●	4												3				
			25-W25-03-4T	●		25	17	25	117	60					13,400	0.4	3				
			25-W25-03-5T	●	5												3				
			32-W32-03-5T	●		32	24	32	131	70					11,400	0.7	3				
			32-W32-03-6T	●	6												3				

Recommended tightening torque for insert screw 1.2N•m

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MFH-Mini (Face Mill)

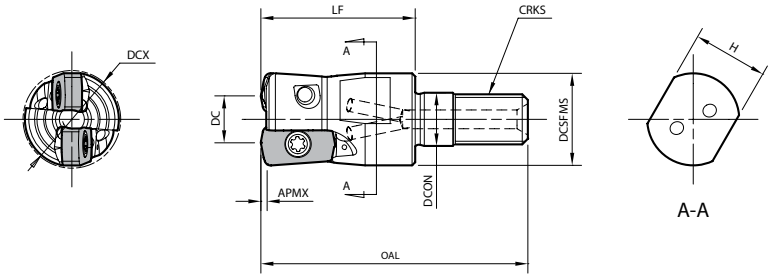


Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions											A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Spare Parts				Applicable Inserts ➡ M251
		R		DCX	DC	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX						Anti-Seize Compound	Insert Screw	Wrench	Arbor Bolt	
Inch	MFH 1500R-03-5T	●	5	1.500	1.185	1.400	0.500	0.433	0.276	1.575	0.709	0.156	0.250	0.039	-10	-15	Yes	10,200	0.2	P-37	SB-3065TRP	DTPM-8	HH1/4-0.75(H)	LOGU030310ER-GM LOGU030310ER-GH
	1500R-03-6T	●	6																					
	2000R-03-8T	●	8	2.000	1.685	1.750	0.750	0.669	0.433	1.968	0.947	0.188	0.312	0.039				8,600	0.5	Recommended tightening torque for insert screw 1.2N•m			HH3/8-1.25(H)	
	2000R-03-9T	●	9																					
mm	MFH 040R-03-5T-M	●	5	40	32	38	16	15	9	40	19	5.6	8.4	1	-10	-15	Yes	9,900	0.2	P-37	SB-3065TRP	DTPM-8	HH8X25(H)	LOGU030310ER-GM LOGU030310ER-GH
	040R-03-6T-M	●	6																					
	050R-03-8T-M	●	8	50	42	47	22	19	11	50	21	6.3	10.4					8,600	0.5	Recommended tightening torque for insert screw 1.2N•m			HH10X30(H)	

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Multiple step slot milling is NOT recommended for MFH-Mini face mill diameters above Ø1.300" due to a danger of re-cutting chips.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.
(H) Optional coolant-through arbor bolt available.

MFH-Mini (Modular Head)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➡ M251
				DCX	DC	DCON	DCSFMS	OAL	LF	APMX	CRKS	H					Anti-Seize Compound	Insert Screw	Wrench	
Inch	MFH 0625-M08-03-2T	●	2	0.625	0.310	0.335	0.579	1.693	0.984	0.039	M8×P1.25	0.472	-10	-15	Yes	18,800	P-37	SB-3065TRP	DTPM-8	LOGU030310ER-GM LOGU030310ER-GH
	MFH 0750-M10-03-3T	●	3	0.750	0.435	0.413	0.728	1.929	1.181	0.039	M10×P1.5	0.591	-10	-15	Yes	15,700				
	MFH 1000-M12-03-4T	●	4	1.000	0.685	0.492	0.906	2.244	1.378	0.039	M12×P1.75	0.748	-10	-15	Yes	13,400				
	1000-M12-03-5T	●	5																	
	MFH 1250-M16-03-5T	●	5	1.250	0.935	0.669	1.181	2.480	1.575	0.039	M16×P2	0.945	-10	-15	Yes	11,400				
	1250-M16-03-6T	●	6																	
	1500-M16-03-6T	●	6	1.500	1.185											10,200				
mm	MFH 16-M08-03-2T	●	2	16	8	8.5	14.7	42	25	1	M8×P1.25	12	-10		Yes	18,880	P-37	SB-3065TRP	DTPM-8	LOGU030310ER-GM LOGU030310ER-GH
	17-M08-03-2T	●	2	17	9											17,900				
	18-M08-03-2T	●	2	18	10											17,000				
	MFH 20-M10-03-3T	●	3	20	12	10.5	18.7	48	30	1	M10×P1.5	15	-10		Yes	15,700				
	20-M10-03-4T	●	4																	
	22-M10-03-3T	●	3	22	14											14,700				
	22-M10-03-4T	●	4																	
	MFH 25-M12-03-4T	●	4	25	17	12.5	23	56	35	1	M12×P1.75	19	-10		Yes	13,400				
	25-M12-03-5T	●	5																	
	28-M12-03-4T	●	4	28	20											12,400				
	28-M12-03-5T	●	5																	
	MFH 32-M16-03-5T	●	5	32	24	17	30	62	40	1	M16×P2	24	-10		Yes	11,400				
	32-M16-03-6T	●	6																	

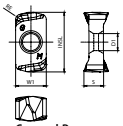
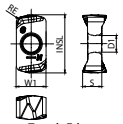
Recommended tightening torque for insert screw 1.2N•m

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.
See page **M324** for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

LOGU

Usage Classification										
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)	Carbon steel / Alloy steel				☆			★	☆	P
	Mold and die steel				☆			★	☆	
	Austenitic stainless steel					☆		☆	★	M
	Martensitic stainless steel	★							☆	
	Precipitation hardened stainless steel					☆			★	
	Gray cast iron			☆			★			K
	Nodular cast iron			☆			★			
	Non-ferrous metals									N
	Heat-resistant alloy	★							☆	S
	Titanium alloy					☆			★	
	Hard materials (≤ 60 HRC)		★							H

Insert		Part Number	No. of Edges	Dimensions (mm)					Carbide							Applicable Toolholder
				S	D1	RE	INSL	W1	CVD	PVD							
									CA6535	PR0155	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835	
	 General Purpose	LOGU 030310ER-GM	4	3.96	3.45	1	11.9	6.2	●		△	●	●	●	●	●	MFH...-03-..
	 Tough Edge	LOGU 030310ER-GH	4	3.96	3.45	1	11.9	6.2		●	△	●	●	●	●	●	MFH...-03-..

Right-hand Insert Shown

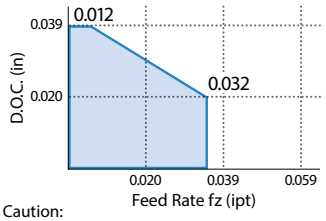
Recommended Cutting Conditions ➡ M252

LOGU Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

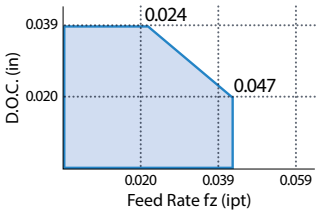
Cutting Performance

Fine Pitch End Mill



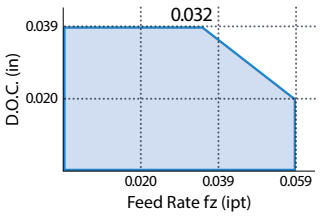
Standard Pitch End Mill

Cutting Dia. Ø0.625" - Ø0.750"
Cutting Dia. Ø16mm - Ø22mm



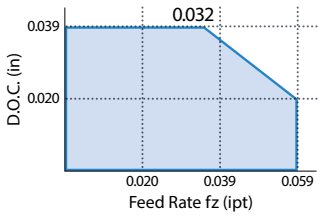
Standard Pitch End Mill

Cutting Dia. 1.000" - 1.250"
Cutting Dia. Ø25mm - Ø32mm



MFH Mini Face Mill

Cutting Dia. 1.500" - 2.000"
Cutting Dia. Ø40mm - Ø50mm



Caution:
When using fine pitch, reduce the cutting conditions compared with standard type

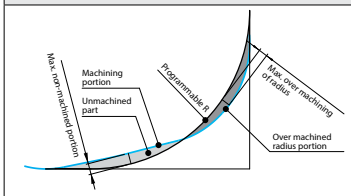
Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Holder Part Number and Feed Rate (fz: ipt) *Recommended D.O.C. = 0.020" Reference Value								Recommended Insert Grade (Vc: sfm)				
										MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD	CVD
		MFH0625...2T (MFH16...2T)	MFH0750...3T (MFH20...3T)	(MFH20...4T)	MFH1000...4T (MFH25...4T)	MFH1000...5T (MFH25...5T)	MFH1250...5T (MFH32...5T)	MFH1250...6T (MFH32...6T)	MFH1500...5T/6T MFH2000...8T	PR1810 (PR1510)	PR1825 (PR1525)	PR1835 (PR1835)	PR015S	CA6535
GM GH	Carbon Steel	0.008-**0.028**-0.047		0.008-**0.020**-0.031	0.008-**0.031**-0.059	0.008-**0.020**-0.031	0.008-**0.031**-0.059	0.008-**0.020**-0.031	0.008-**0.031**-0.059	-	★ 390-**590**-820	☆ 390-**590**-820	-	-
	Alloy Steel									-	★ 330-**520**-720	☆ 330-**520**-720	-	-
	Mold Steel ~40 HRc	0.008-**0.020**-0.035		0.008-**0.016**-0.024	0.008-**0.024**-0.047	0.008-**0.016**-0.024	0.008-**0.024**-0.047	0.008-**0.016**-0.024	0.008-**0.024**-0.047	-	☆ 260-**460**-590	☆ 260-**460**-590	**GH** ★ 260-**460**-590	-
	Mold Steel 40~50 HRc	0.008-**0.012**-0.020		0.008-**0.010**-0.012	0.008-**0.012**-0.024	0.008-**0.010**-0.012	0.009-**0.012**-0.024	0.008-**0.010**-0.012	0.008-**0.012**-0.024	-	☆ 200-**330**-430	-	**GH** ★ 200-**330**-430	-
	Mold Steel 50~55 HRc	0.004-**0.012**-0.020		0.004-**0.008**-0.012	0.004-**0.012**-0.020	0.004-**0.008**-0.012	0.004-**0.012**-0.020	0.004-**0.008**-0.012	0.004-**0.008**-0.012	-	☆ 160-**230**-330	-	**GH** ★ 160-**230**-330	-
	Mold Steel 55~60 HRc	0.0004-**0.0024**-0.0039 (Recommended only with GH chipbreaker)								-	-	-	**GH** ☆ 160-**200**-230	-
	Austenitic Stainless Steel	0.008-**0.020**-0.035		0.008-**0.016**-0.024	0.008-**0.024**-0.047	0.008-**0.016**-0.024	0.008-**0.024**-0.047	0.008-**0.016**-0.024	0.008-**0.024**-0.047	-	**GM** ☆ 330-**520**-660	**GM** ★ 330-**520**-660	-	-
	Martensitic Stainless Steel									-	-	☆ 490-**660**-820	-	★ 590-**790**-980
	Precipitation Hardened Stainless Steel									-	-	★ 300-**390**-490	-	-
	Gray Cast Iron	0.008-**0.028**-0.047		0.008-**0.020**-0.031	0.008-**0.031**-0.059	0.008-**0.020**-0.031	0.008-**0.031**-0.059	0.008-**0.020**-0.031	0.008-**0.031**-0.059	★ 390-**590**-820	-	-	-	-
	Nodular Cast Iron	0.008-**0.020**-0.035		0.008-**0.016**-0.024	0.008-**0.024**-0.047	0.008-**0.016**-0.024	0.008-**0.024**-0.047	0.008-**0.016**-0.024	0.008-**0.024**-0.047	★ 330-**490**-660	-	-	-	-
	Ni-base Heat-Resistant Alloy	0.008-**0.012**-0.024		0.008-**0.010**-0.016	0.008-**0.016**-0.031	0.008-**0.010**-0.016	0.008-**0.016**-0.031	0.008-**0.010**-0.016	0.008-**0.016**-0.031	-	-	☆ 70-**100**-160	-	★ 70-**100**-160
	Titanium Alloy									**GM** ☆ 100-**160**-230	-	**GM** ★ 130-**200**-260	-	-

Standard Pitch End Mills | Fine Pitch End Mills | MFH Mini Face Mills

Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy
The number in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
★: 1st Recommendation ☆: 2nd Recommendation
Machining with CAT30 or equivalent, feed rate should be reduced to 25% of recommended cutting conditions
Internal coolant is recommended for slotting applications
Slotting and pocketing are not recommended for face mill types

Approximate Programming Radius Adjustment

Shape	Programmable R (in)	Maximum Over Machining of Radius (in)	Maximum Non-machined Portion (in)
	R0.063 (Recommended)	0	0.0154
	R0.079	0.0035	0.0138
	R0.098	0.0102	0.0102
	R0.118	0.0181	0.0067

Cutting edge angle: 12°

800.823.7284
www.kyoceraprecisiontools.com

Ramping Reference Data

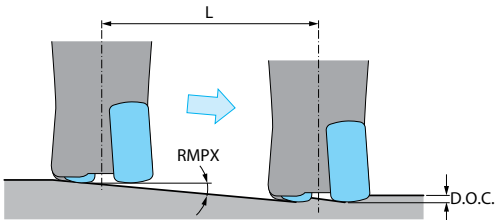
Description	Cutter Dia. DCX (in)	0.625"	-	-	0.750"	-	0.875"	1.000"	-	1.250"	1.500"	2.000"
	Cutter Dia. DCX (mm)	16mm	17mm	18mm	20mm	22mm	-	25mm	28mm	32mm	40mm	50mm
MFH ...-03-...	Max. Ramping Angle RMPX (°)	2.8°	2.5°	2.1°	1.7°	1.4°	1.3°	1.2°	1°	0.8°	0.5°	0.4°
	tan RMPX	0.049	0.042	0.037	0.030	0.024	0.023	0.021	0.017	0.014	0.009	0.007

Ramping Guide

Ramping angle should be RMPX (Maximum ramping angle) or under in the above cutting conditions.
Feed rate should be 70% or undear of the above cutting conditions.

Multiple step slot milling is NOT recommended for MFH-Mini face mill diameters above Ø1.3" due to a danger of re-cutting chips

Formula of the cutting length "L" at max. ramping angle $L = \frac{D.O.C.}{\tan RMPX}$

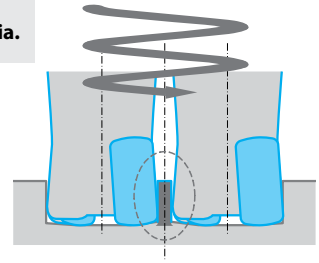


Helical Milling

For Helical milling, use between Min. Drilling Dia. and Max. Drilling Dia.

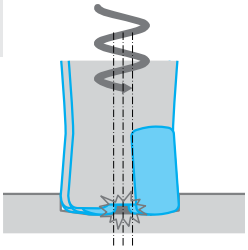
Exceeding max. cutting dia.

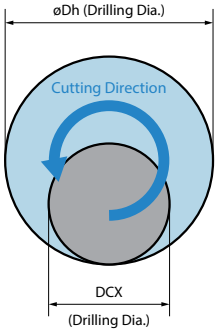
Center core part remains after machining



Under min. cutting dia.

Center core part interferes with toolholder

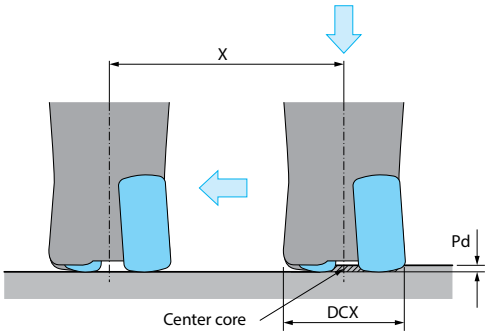




Description	Min. Drilling dia. (in)	Max. Drilling dia. (in)
MFH... -03- ...	2 × DCX - 0.315"	2 × DCX - 0.079"

- Maximum ramping depth per cycle to be under maximum D.O.C. Max D.O.C. (0.039")
- Use climb milling. (Refer to the above figure)
- Feed rates should be reduced to 50% of recommended cutting conditions
- Use caution to eliminate incidences caused by producing long chips

Drilling Guide



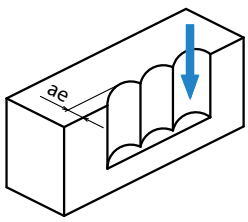
Description	GM type / GH type	
	Max. Drilling Depth Pd (in)	Min. Cutting Length X for Flat Bottom Surface (in)
MFH...-03-...	0.039"	DCX-0.354"

Unit: in

It is recommended to reduce feed by 25% of recommendation until the center core is removed
Axial feed rate recommendation per revolution is f ≤ 0.008 ipr while drilling

Plunging Guide

Plunging



Insert Description	Max. Width of Cut
LOGU03 type	0.138"

Reduce feed rate to fz ≤ 0.008 ipt when plunging

High-Feed Small Diameter Milling

MFH-Micro

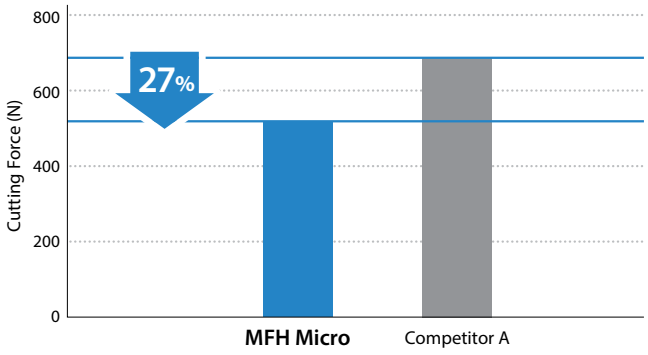
(Cutter Dia. Ø0.375" ~ Ø0.625")
(Cutter Dia. Ø8mm ~ Ø16mm)

Low Resistance and Durable Design Aids in Chatter Resistant Machining Maximum D.O.C. 0.020" and Stable High Feed Machining on a Wide Range of Applications

1 Stable Machining with Chattering Resistance

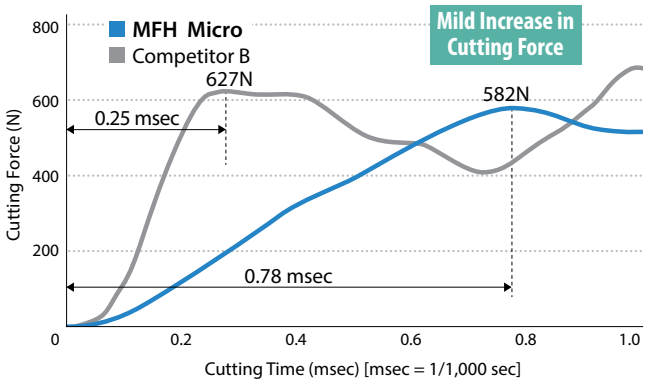
Molded Convex Cutting Edge Controls Initial Impact when Entering the Workpiece

Cutting Force Comparison (In-house Evaluation)



Cutting Conditions: Vc = 390 sfm, fz = 0.024 ipt, D.O.C. = 0.016"
Cutter Dia. Ø0.375", Slotting, Dry Workpiece: 1049

Increase in Cutting Force when Entering Work Piece
(In-house Evaluation)



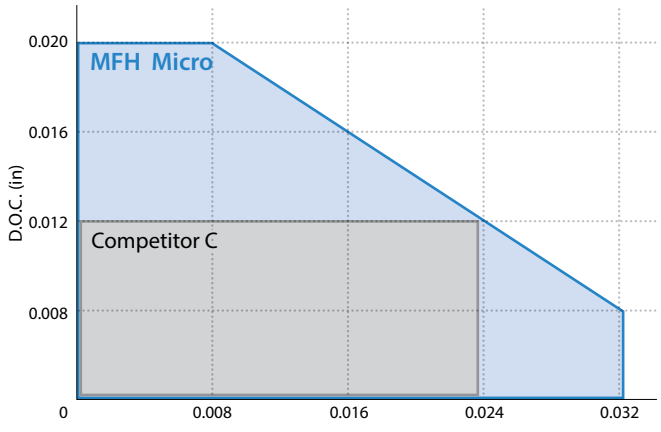
Cutting Conditions: Vc = 390 sfm, fz = 0.024 ipt, D.O.C. × ae = 0.016" × 0.197"
Cutter Dia. Ø0.375", Dry Workpiece: 1049

2 Wide Range of Machining Applications

Wide Range of Machining Applications at a Maximum Depth of Cut of 0.020"

Stable Machining Even with Small Machining Centers

Cutting Performance Map (Cutter Dia. Ø0.375")



(Internal Evaluation)

3 Can Replace Solid End Mills to Reduce Machining Costs

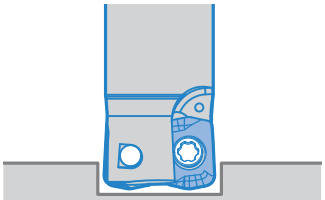
Suppresses Chattering and Increases Milling Efficiency

MFH-Micro Compared to Solid End Mills (Mechanical Parts Slotting 1049)

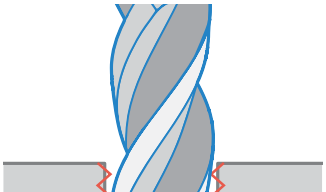
MFH-Micro Q = 15.3 cc/min
Vc = 490 sfm, fz = 0.016 ipt
D.O.C. × ae = 0.016" × 0.394", Dry
MFH10-S10-01-2T (2 Flutes)
LPGT010210ER-GM (PR1525)

1.2x Machining Efficiency

Solid End Mill Q = 12.2 cc/min
Vc = 260 sfm, fz = 0.002 ipt
D.O.C. × ae = 0.012" × 0.394", Dry
Ø10mm (4 Flute)



Resists Chattering at High Feed Rates (fz = 0.016 ipt)



Subject to Chattering and Feed per Tooth Cannot Be Increased

MFH-Micro (End Mill)

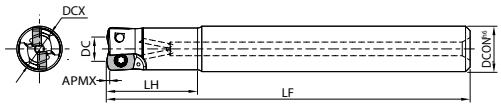


Fig. 1

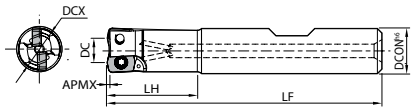


Fig. 2

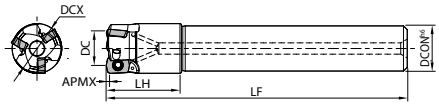


Fig. 3

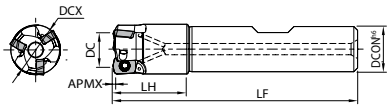


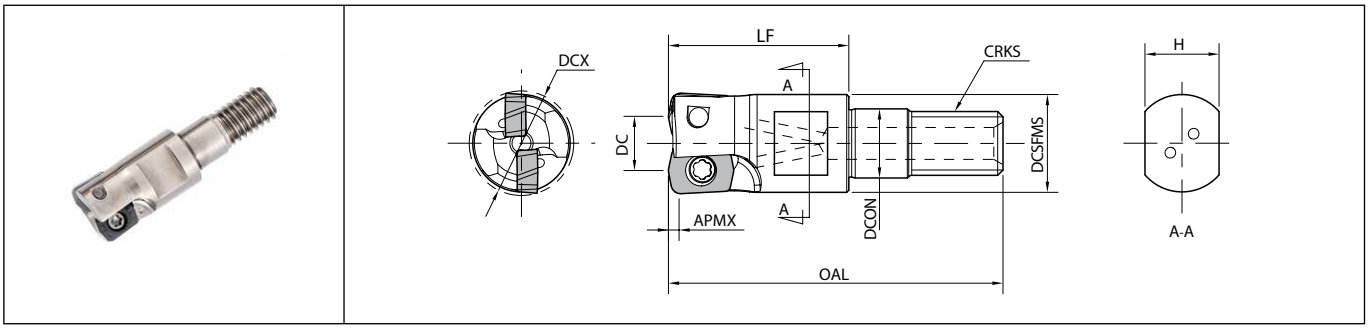
Fig. 4

Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	Dimensions						A.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ▶ M257
					DCX	DC	DCON	LF	LH	APMX						Anti-Seize Compound	Insert Screw	Wrench	
Inch	Cylindrical	MFH 0375-S375-01-1T-3	●	1	0.375	0.225	0.375	3.000	0.750	0.020	+5	Yes	16,200	0.04	1	P-37	SB-1840TRP	FTP-6	LPGT010210ER-GM
		0394-S375-01-2T-3	●	2	10mm	0.244							16,200	0.04	1				
		0500-S500-01-3T-3	●	3	0.500	0.350	0.500						14,000	0.07	1				
		0500-S500-01-3T-5	●	3				5.000					14,000	0.11	1				
		0625-S625-01-4T35	●	4	0.625	0.475	0.625	3.500	1.000				11,400	0.12	1				
mm	Cylindrical	MFH 08-S10-01-1T	●	1	8	4.2	10	75	16	0.5	+5	Yes	20,000	0.04	1	P-37	SB-1840TRP	FTP-6	LPGT010210ER-GM
		10-S10-01-2T	●	2	10	6.2		80	20				16,200	0.04	1				
		12-S12-01-3T	●	3	12	8.2	12						14,000	0.06	1				
		14-S12-01-3T	●	3	14	10.2							12,500	0.07	3				
		16-S16-01-4T	●	4	16	12.2	16	90	25				11,400	0.12	1				
	Weldon	MFH 08-W10-01-1T	●	1	8	4.2	10	58	16	0.5	+5	Yes	20,000	0.03	2	P-37	SB-1840TRP	FTP-6	LPGT010210ER-GM
		10-W10-01-2T	●	2	10	6.2		60	20				16,200	0.03	2				
		12-W12-01-3T	●	3	12	8.2	12	65					14,000	0.05	2				
		14-W12-01-3T	●	3	14	10.2							12,500	0.05	4				
		16-W16-01-4T	●	4	16	12.2	16	73	25				11,400	0.1	2				

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.
Recommended tightening torque for insert screw : 0.5N·m

MFH-Micro (Modular Head)

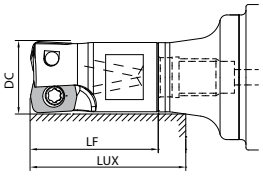


Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions									A.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts M257
				DCX	DC	DCON	DCSFMS	OAL	LF	APMX	CRKS	H				Anti-Seize Compound	Insert Screw	Wrench	
Inch	MFH 0500-M06-01-3T	●	3	0.500	0.350	0.256	0.441	1.240	0.669	0.020	M6xP1.0	0.276	+5	Yes	14,000	P-37	SB-1840TRP	FTP-6	LPGT010210ER-GM
	0625-M08-01-4T	●	4	0.625	0.475	0.335	0.579	1.575	0.866		M8xP1.25	0.472			11,400				
mm	MFH 08-M06-01-1T	●	1	8	4.2	6.5	9.2	30.5	17	0.5	M6xP1.0	7	+5	Yes	20,000	P-37	SB-1840TRP	FTP-6	LPGT010210ER-GM
	10-M06-01-2T	●	2	10	6.2										16,200				
	12-M06-01-3T	●	3	12	8.2		11.2								14,000				
	14-M06-01-3T	●	3	14	10.2										12,500				
	16-M08-01-4T	●	4	16	12.2	8.5	14.7	39	22	0.5	M8xP1.25	12	+5	Yes	11,400				

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.
Industry standard threads for adapting to common toolholders (For Ø8mm - Ø14mm screw size: M6 x P1.0).
Check screw specifications for the shank in use.
Recommended tightening torque for insert screw : 0.5N·m

Actual End Mill Depth **(MFH16-M08-01-4T)**



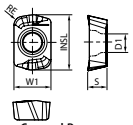
BT Arbor Part Number	Applicable End Mill (Head)			Actual End Mill Depth (mm)
	Part Number	Cutting Dia. (mm)	Dimensions (mm)	LUX
		DC	LF	
BT30K-M08-45	MFH16-M08-01...	16	22	28.8
BT40K-M08-55	MFH16-M08-01...	16	22	28.7

See page **M324** for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

LPGT

Usage Classification								
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)	Carbon steel / Alloy steel		☆		★	☆	P
	Mold and die steel		☆		★	☆	
	Austenitic stainless steel			☆	☆	★	M
	Martensitic stainless steel	★				☆	
	Precipitation hardened stainless steel			☆		★	
	Gray cast iron						K
	Nodular cast iron						
	Non-ferrous metals						N
	Heat-resistant alloy	★				☆	S
	Titanium alloy			☆		★	
	Hard materials (≤ 60 HRC)						H

Insert		Part Number	No. of Edges	Dimensions (mm)						Carbide					Applicable Toolholder ➡ M255 M256
				S	D1	RE	W1	INSL		CVD	PVD				
										CA6535	PR1525	PR1535	PR1825	PR1835	
	 General Purpose	LPGT 010210ER-GM	2	2.19	2.1	1	4.19	6.26		●	●	●	●	●	MFH...-01-..

Right-hand Insert Shown

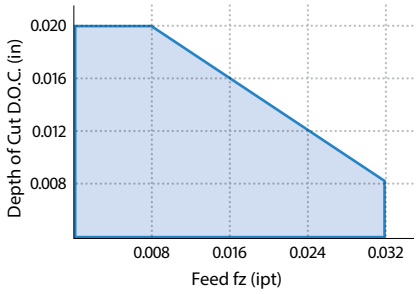
Recommended Cutting Conditions ➡ M258

LPGT Inserts are sold in 10 piece boxes

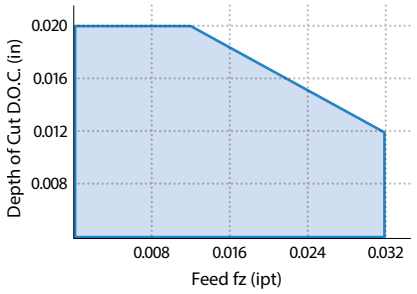
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Cutting Performance

Cutter Dia: Ø0.375" ~ Ø0.500"
Cutter Dia: Ø8mm ~ Ø12mm



Cutter Dia: Ø0.625"
Cutter Dia: Ø14mm ~ Ø16mm



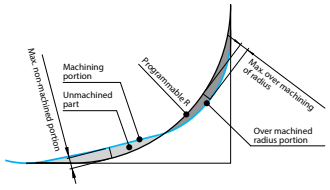
Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Cutter Part Number and Feed Rate (fz: ipt) *Recommended D.O.C. = 0.012" Reference Value					Recommended Insert Grade (Vc: sfm)		
		MFH08-…-1T	MFH0375…-1T-3 MFH0394…-2T-3 MFH10-…-2T	MFH0500-…-3T-.. MFH12-…-3T	MFH14-…-3T	MFH0625-…-4T(35) MFH16-…-4T	MEGACOAT NANO EX (MEGACOAT NANO)		CVD
							PR1825 (PR1525)	PR1835 (PR1535)	CA6535
GM	Carbon Steel	0.008~**0.016**~0.024			0.008~**0.020**~0.031		★ 390~**590**~820	☆ 390~**590**~820	-
	Alloy Steel						★ 330~**520**~720	☆ 330~**520**~720	-
	Mold Steel (~40 HRc)	0.008~**0.012**~0.020			0.008~**0.016**~0.024		★ 260~**460**~590	☆ 260~**460**~590	-
	Mold Steel (40~50 HRc)	0.008~**0.010**~0.012			0.008~**0.010**~0.016		★ 200~**330**~430	☆ 200~**330**~430	-
	Austenitic Stainless Steel	0.008~**0.012**~0.020			0.008~**0.016**~0.024		☆ 330~**520**~660	★ 330~**520**~660	-
	Martensitic Stainless Steel						-	☆ 490~**660**~820	★ 590~**790**~980
	Precipitation Hardened Stainless Steel						-	★ 300~**390**~490	-
	Gray Cast Iron	0.008~**0.016**~0.024			0.008~**0.020**~0.031		★ 390~**590**~820	-	-
	Nodular Cast Iron	0.008~**0.012**~0.020			0.008~**0.016**~0.024		★ 330~**490**~660	-	-
	Ni-base Heat-Resistant Alloy	0.008~**0.010**~0.012			0.008~**0.010**~0.016		-	☆ 70~**100**~160	★ 70~**100**~160
	Titanium Alloy						-	★ 130~**200**~260	-

Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy
The number in **bold** font is recommended starting conditions.
Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
Internal coolant is recommended for slotting applications

★: 1st Recommendation ☆: 2nd Recommendation

Approximate Programming Radius Adjustment

Shape	Programmable R (in)	Maximum Over Machining of Radius (in)	Maximum Non-machined Portion (in)
	R0.039	0	0.0083
	R0.047 (Recommended)	0	0.0067
	R0.059	0.0032	0.0039
	R0.079	0.0110	0.0004

Cutting edge angle: 12°

Ramping Reference Data

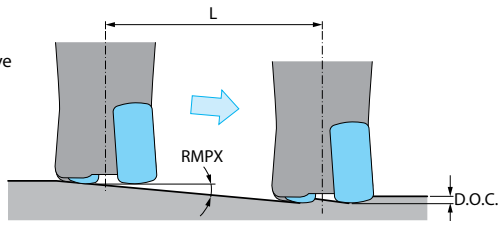
Description	Cutter Dia. DCX (in)	-	0.375"	0.500"	-	0.625"
	Cutter Dia. DCX (mm)	8mm	10mm	12mm	14mm	16mm
MFH ...-01-...	Max. Ramping Angle RMPX (°)	4.0°	3.0°	2.0°	1.5°	1.2°
	tan RMPX	0.070	0.052	0.035	0.026	0.021

Ramping Guide

Decrease Ramping Angle if Chips Become Excessively Long
Ramping angle should be under RMPX (maximum ramping angle) in the cutting conditions above
Reduce recommended feed rate in recommended cutting conditions by 70%

Formula of the cutting length "L" at max. ramping angle

$$L = \frac{D.O.C.}{\tan RMPX}$$

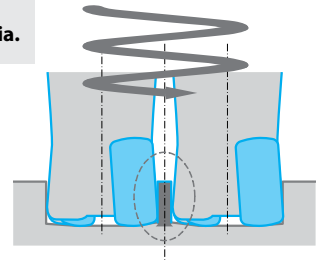


Helical Milling

For Helical milling, use between Min. Drilling Dia. and Max. Drilling Dia.

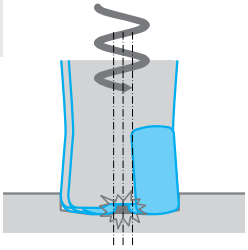
Exceeding max. cutting dia.

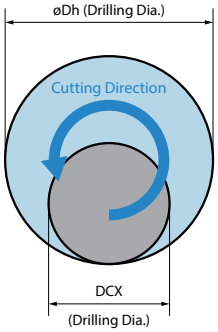
Center core part remains after machining



Under min. cutting dia.

Center core part interferes with toolholder

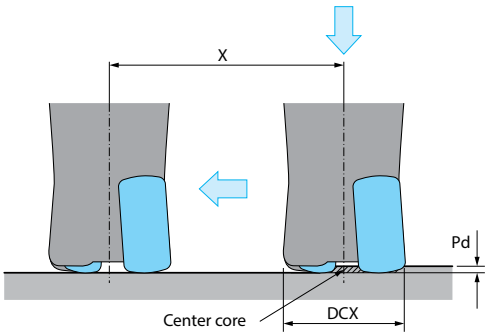




Description	Min. Drilling dia. (in)	Max. Drilling dia. (in)
MFH... -01- ...	2 × DCX - 0.138"	2 × DCX - 0.079"

- Maximum ramping depth per cycle to be under maximum D.O.C. Max D.O.C. (0.020")
- Use climb milling. (Refer to the above figure)
- Feed rates should be reduced to 50% of recommended cutting conditions
- Use caution to eliminate incidences caused by producing long chips

Drilling Guide



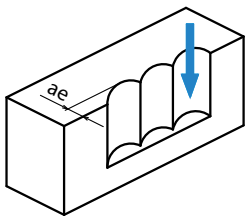
Description	GM type / GH type	
	Max. Drilling Depth Pd (in)	Min. Cutting Length X for Flat Bottom Surface (in)
MFH...-01-...	0.020"	DCX-0.138"

Unit: in

It is recommended to reduce feed by 25% of recommendation until the center core is removed
Axial feed rate recommendation per revolution is f ≤ 0.008 ipr while drilling

Plunging Guide

Plunging



Insert Description	Max. Width of Cut
LPGT01 type	0.067"

Reduce feed rate to fz ≤ 0.008 ipt when plunging

MEY

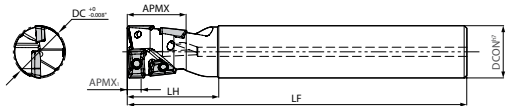


Fig. 1

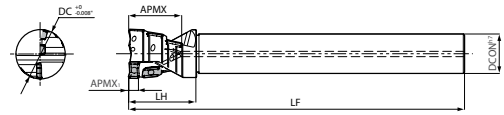


Fig. 2

Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	No. of Flutes	Dimensions DC	DCON	LF	LH	APMX	APMX1	A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts: Anti-seize Compound	Insert Screw	Wrench	Applicable Inserts ➡ M262
Inch	Standard Shank	MEY 0625-S625-HG	●	4	2	0.630	0.625	4.699	1.195	0.748	0.177	+11	-11	Yes	1	P-37	SB-2040TRG	DTM-6	Center Edge : GOMT08T208ER-D Side Edge : JOMT08T208ER-D
		0750-S750-HG	●			0.787	0.750	5.091	1.350	0.866	0.236		-9				SB-2555TRG	DT-8	Center Edge : GOMT100308ER-D Side Edge : JOMT100308ER-D
		1000-S100-HG	●			1.000	1.000	5.486	1.549	1.102	0.295		-11				SB-3070TRG	DT-10	Center Edge : GOMT13T308ER-D Side Edge : JOMT13T308ER-D
		1250-S125-HG	●			1.250	1.250	5.858	1.921	1.417	0.374	+13	-9				SB-4070TRG	DT-15	Center Edge : GOMT160408ER-D Side Edge : JOMT160408ER-D
		1500-S125-HG	●	7		1.500	1.250	6.260	2.126	1.654	0.295		-11		2		SB-3070TRG	DT-10	Center Edge : GOMT13T308ER-D Side Edge : JOMT13T308ER-D
		2000-S150-HG	●			1.984	1.500	6.649	2.712	2.126	0.374		-9				SB-4070TRG	DT-15	Center Edge : GOMT160408ER-D Side Edge : JOMT160408ER-D

APMX1 shows the edge length of the complete 2-insert part.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Applicable Inserts

Part Number		Applicable Inserts ➡ M262 Side Edge	No. of Inserts	Center Edge	No. of Inserts
MEY	0625-S625-HG	JOMT08T208ER-D	3	GOMT08T208ER-D	1
	0750-S750-HG	JOMT100308ER-D		GOMT100308ER-D	
	1000-S100-HG	JOMT13T308ER-D		GOMT13T308ER-D	
	1250-S125-HG	JOMT160408ER-D		GOMT160408ER-D	
	1500-S125-HG	JOMT13T308ER-D	6	GOMT13T308ER-D	
	2000-S150-HG	JOMT160408ER-D		GOMT160408ER-D	
MEY	16-S16(-...)	JOMT08T208ER-D	3	GOMT08T208ER-D	1
	17-S16(-...)				
	20-S20(-...)	JOMT100308ER-D		GOMT100308ER-D	
	21-S20(-...)				
	25-S25(-...)	JOMT13T308ER-D		GOMT13T308ER-D	
	26-S25(-...)				
	32-S32(-...)	JOMT160408ER-D		GOMT160408ER-D	
	33-S32(-...)				
	40-S32(-...)	JOMT13T308ER-D	6	GOMT13T308ER-D	
	50-S42(-...)	JOMT160408ER-D		GOMT160408ER-D	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MEY

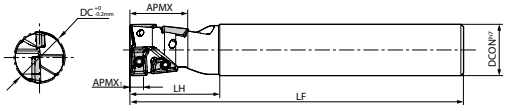


Fig. 1

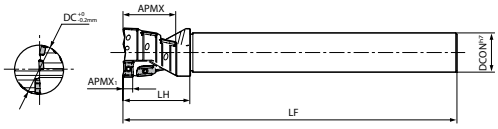


Fig. 2

Toolholder Dimensions

Unit		Part Number		Std. Item	No. of Inserts	No. of Flutes	Dimensions DC	DCON	LF	LH	APMX	APMX1	A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts: Anti-seize Compound	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts ➡ M262
mm	Standard Shank	MEY	16-S16	●	4	2	16	16	120	31	19	4.5	+11	-11	No	1	P-37	SB-2040TRG	DTM-6	Center Edge : GOMT08T208ER-D Side Edge : JOMT08T208ER-D
			17-S16	●			17									1				
			20-S20	●			20	20	130	35	22	6		-9		1		SB-2555TRG	DT-8	Center Edge : GOMT100308ER-D Side Edge : JOMT100308ER-D
			21-S20	●			21									1				
			25-S25	●			25	25	140	40	28	7.5		-11		1		SB-3070TRG	DT-10	Center Edge : GOMT13T308ER-D Side Edge : JOMT13T308ER-D
			26-S25	●			26									1				
			32-S32	●			32	32	150	50	36	9.5	+13	-9		1		SB-4070TRG	DT-15	Center Edge : GOMT160408ER-D Side Edge : JOMT160408ER-D
			33-S32	●			33									1				
			40-S32	●	7		40		160	55	42	7.5		-11		2		SB-3070TRG	DT-10	Center Edge : GOMT13T308ER-D Side Edge : JOMT13T308ER-D
			50-S42	●			50	42	170	70	54	9.5		-9		2		SB-4070TRG	DT-15	Center Edge : GOMT160408ER-D Side Edge : JOMT160408ER-D
	Long Head	MEY	16-S16-140H	●	4	2	16	16	140	51	19	4.5	+11	-11	No	1	P-37	SB-2040TRG	DTM-6	Center Edge : GOMT08T208ER-D Side Edge : JOMT08T208ER-D
			20-S20-150H	●			20	20	150	53	22	6		-9		1		SB-2555TRG	DT-8	Center Edge : GOMT100308ER-D Side Edge : JOMT100308ER-D
			25-S25-170H	●			25	25	170	70	28	7.5	+13	-11		1		SB-3070TRG	DT-10	Center Edge : GOMT13T308ER-D Side Edge : JOMT13T308ER-D
			32-S32-180H	●			32	32	180	80	36	9.5		-9		1		SB-4070TRG	DT-15	Center Edge : GOMT160408ER-D Side Edge : JOMT160408ER-D
	Long Shank	MEY	16-S16-190	●	4	2	16	16	190	61	19	4.5	+11	-11	No	1	P-37	SB-2040TRG	DTM-6	Center Edge : GOMT08T208ER-D Side Edge : JOMT08T208ER-D
			17-S16-190	●			17			31						1				
			20-S20-200	●			20	20	200	63	22	6		-9		1		SB-2555TRG	DT-8	Center Edge : GOMT100308ER-D Side Edge : JOMT100308ER-D
			21-S20-200	●			21			35						1				
			25-S25-220	●			25	25	220	80	28	7.5		-11		1		SB-3070TRG	DT-10	Center Edge : GOMT13T308ER-D Side Edge : JOMT13T308ER-D
			26-S25-220	●			26			40						1				
			32-S32-230	●			32	32	230	90	36	9.5	+13	-9		1		SB-4070TRG	DT-15	Center Edge : GOMT160408ER-D Side Edge : JOMT160408ER-D
			33-S32-230	●			33			50						1				
			40-S32-240	●	7		40		240	55	42	7.5		-11		2		SB-3070TRG	DT-10	Center Edge : GOMT13T308ER-D Side Edge : JOMT13T308ER-D
			50-S42-250	●			50	42	250	70	54	9.5		-9		2		SB-4070TRG	DT-15	Center Edge : GOMT160408ER-D Side Edge : JOMT160408ER-D

APMX1 shows the edge length of the complete 2-insert part.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

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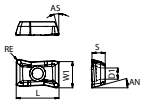
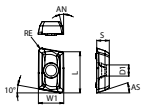
GOMT/JOMT

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or under)

Carbon steel / Alloy steel		★	P
Mold and die steel		★	P
Austenitic stainless steel		☆	M
Martensitic stainless steel			M
Precipitation hardened stainless steel			M
Gray cast iron	★		K
Nodular cast iron	★		K
Non-ferrous metals			N
Heat-resistant alloy			S
Titanium alloy			S
Hard materials			H

Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)		Carbide PVD		Applicable Toolholder ➡ M260 M261
				S	D1	RE	L	W1	AN	AS	PR1810	PR1825	
		GOMT 08T208ER-D	2	2.78	2.3	0.8	8.7	5.21	17	13	●	●	MEY0625-S625-HG MEY16-S16(-...) MEY17-S16(-...)
		GOMT 100308ER-D	2	3.3	2.8	0.8	10.7	6.56	17	13	●	●	MEY0750-S750-HG MEY20-S20(-...) MEY21-S20(-...)
		GOMT 13T308ER-D	2	3.85	3.4	0.8	13.2	8.36	17	13	●	●	MEY1000-S100-HG MEY1500-S125-HG MEY25-S25(-...) MEY26-S25(-...) MEY40-S32(-...)
		GOMT 160408ER-D	2	4.76	4.4	0.8	16.7	10.03	17	13	●	●	MEY1250-S125-HG MEY2000-S150-HG MEY32-S32(-...) MEY33-S32(-...) MEY50-S42(-...)
		JOMT 08T208ER-D	2	2.78	2.3	0.8	8.5	5.14	13	17	●	●	MEY0625-S625-HG MEY16-S16(-...) MEY17-S16(-...)
		JOMT 100308ER-D	2	3.18	2.8	0.8	10.2	6.41	13	17	●	●	MEY0750-S750-HG MEY20-S20(-...) MEY21-S20(-...)
		JOMT 13T308ER-D	2	3.7	3.4	0.8	13.2	8.07	13	17	●	●	MEY1000-S100-HG MEY1500-S125-HG MEY25-S25(-...) MEY26-S25(-...) MEY40-S32(-...)
		JOMT 160408ER-D	2	4.5	4.4	0.8	16.7	9.72	13	17	●	●	MEY1250-S125-HG MEY2000-S150-HG MEY32-S32(-...) MEY33-S32(-...) MEY50-S42(-...)

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M263

GOMT / JOMT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Workpiece Material	fz (ipt)		Recommended Insert Grades (Vc: sfm)	
			MEGACOAT NANO EX	
	Drilling	Shouldering, Slotting	PR1810	PR1825
Carbon Steel	0.003~0.006	0.002~0.010	-	★ 390~820
Alloy Steel	0.003~0.006	0.002~0.010	-	★ 330~720
Mold Steel	0.003~0.005	0.002~0.006	-	★ 260~590
Stainless Steel	0.003~0.005	0.002~0.006	-	★ 390~720
Cast Iron	0.002~0.008	0.002~0.010	★ 330~720	-

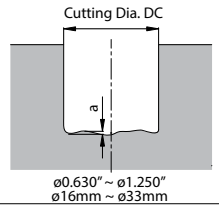
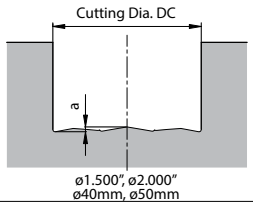
★: 1st Recommendation ☆: 2nd Recommendation

Drilling Precautions

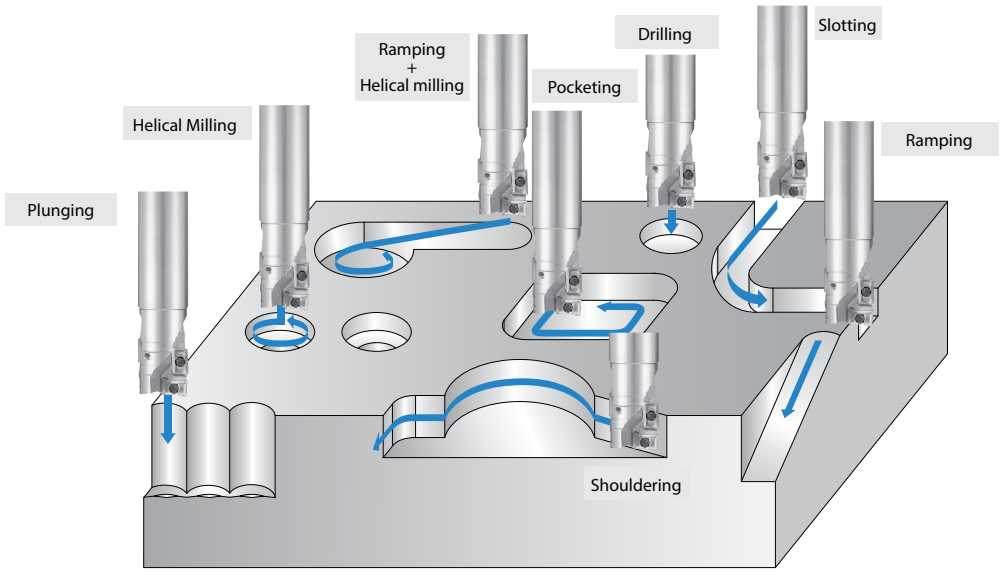
1. Drilling conditions should be calculated as one flute effective.
2. Use compressed air during drilling.
3. Carbon steel other than low carbon steel can be drilled to a depth of 0.5D without step feeding. For soft steel or sticky material such as stainless steel, Step feed drilling (0.020" ~ 0.039") is recommended.
4. For stainless steel drilling, coolant is recommended.
5. Please refer to right list for maximum hole depth.

Cutting Dia. (DC)	Max. Hole Depth
ø0.630" / ø16mm	0.512" / 13mm
ø17mm	0.512" / 13mm
ø0.787" / ø20mm	0.669" / 17mm
ø21mm	0.669" / 17mm
ø1.000" / ø25mm	0.866" / 22mm
ø26mm	0.866" / 22mm
ø1.250" / ø32mm	1.142" / 29mm
ø33mm	1.142" / 29mm
ø1.500" / ø40mm	1.417" / 36mm
ø2.000" / ø50mm	1.575" / 40mm

Drilled Hole Bottom Shape

Cutting Dia.	a	Shape of the Bottom
ø0.630" ø16mm, ø17mm	0.020" 0.50mm	
ø0.787" ø20,mm ø21mm	0.025" 0.64mm	
ø1.000" ø25mm, ø26mm	0.033" 0.85mm	
ø1.250" ø32mm, ø33mm	0.044" 1.12mm	
ø1.500" ø40mm	0.061" 1.54mm	
ø2.000" ø50mm	0.065" 1.65mm	

Examples of MEY multi-function machining



MEY Cutting Performance

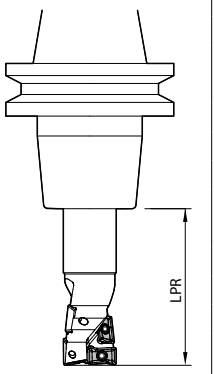
Workpiece Material: 1049

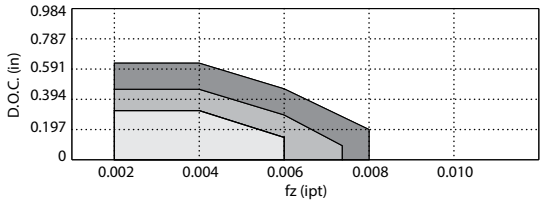
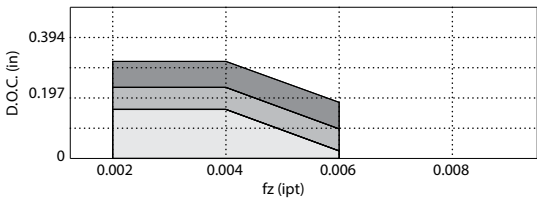
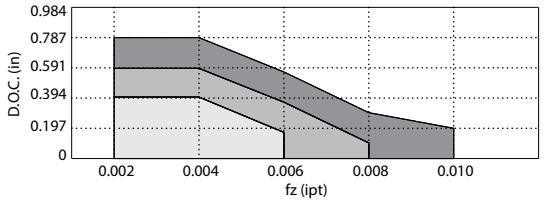
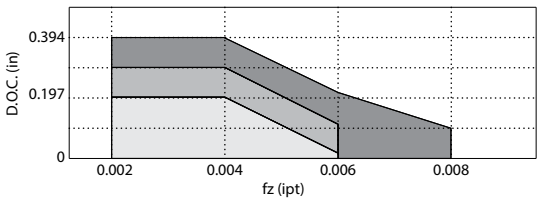
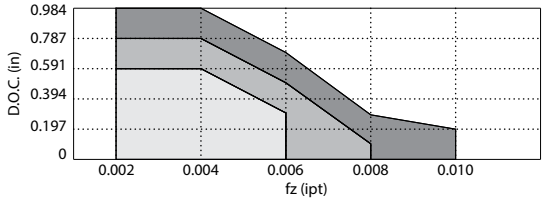
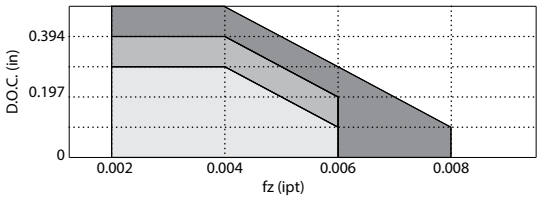
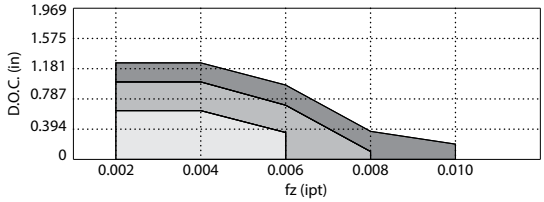
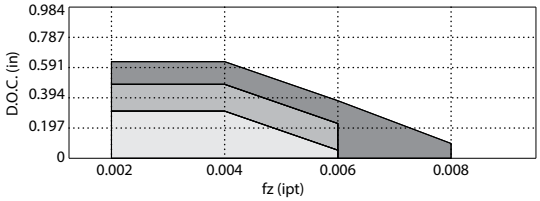
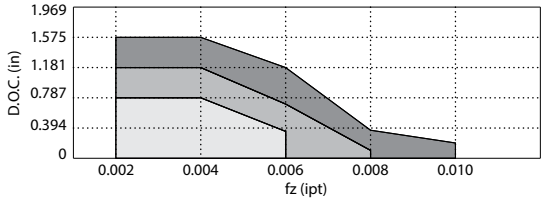
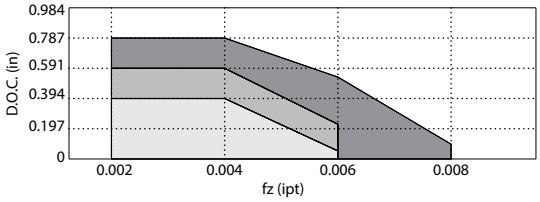
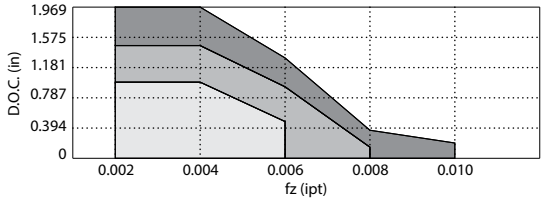
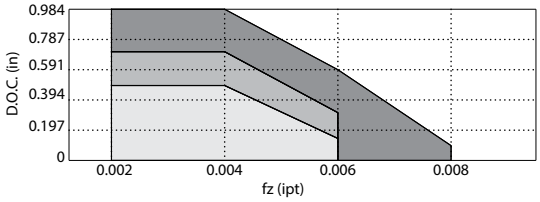
Cutting Dia.	Description	Overhang Length LPR (in)		
ø0.630″ ø16mm	MEY16-S16	1.220″	[~2.402″]	(Not Recommended)
	MEY16-S16-140H	-	~2.402″	[~3.583″]
	MEY16-S16-190	-	2.402″	~3.583″
ø17mm	MEY17-S16	1.220″	[~2.402″]	(Not Recommended)
	MEY17-S16-190	1.220″	~2.402″	~3.583″
ø0.750″ ø20mm	MEY20-S20	1.378″	[~2.559″]	(Not Recommended)
	MEY20-S20-150H	-	~2.559″	[~3.740″]
	MEY20-S20-200	-	2.559″	~3.740″
ø21mm	MEY21-S20	1.378″	[~2.559″]	(Not Recommended)
	MEY21-S20-200	1.378″	~2.559″	~3.740″

When using in [ ] dimension, be careful the chucking length to the shank does not get too short.

Cutting Dia.	Description	Overhang length LPR (in)		
ø1.000″ ø25mm	MEY25-S25	1.575″	[~2.756″]	(Not Recommended)
	MEY25-S25-170H	-	2.756″	[~3.937″]
	MEY25-S25-220	-	~3.150″	~3.937″
ø26mm	MEY26-S25	1.575″	[~2.756″]	(Not Recommended)
	MEY26-S25-220	1.575″	~2.756″	~3.937″
ø1.250″ ø32mm	MEY32-S32	1.969″	[~3.150″]	(Not Recommended)
	MEY32-S32-180H	-	~3.150″	[~4.331″]
	MEY32-S32-230	-	3.543″	~4.331″
ø33mm	MEY33-S32	1.969″	[~3.150″]	(Not Recommended)
	MEY33-S32-230	1.969″	~3.150″	~4.331″
ø1.500″ ø40mm	MEY40-S32	2.165″	[~3.346″]	[~4.528″]
	MEY40-S32-240	2.165″	~3.346″	~4.528″
ø2.000″ ø50mm	MEY50-S42	2.756″	[~3.937″]	[~5.118″]
	MEY50-S42-250	2.756″	~3.937″	~5.118″

Shape



Description	• Shouldering (Cutting Width ae = DC/2) Note: Part ae = DC/4	• Slotting, Ramping, and Helical Milling
MEY0625-S625 MEY16-S16 MEY17-S16		
MEY0750-S750 MEY20-S20 MEY21-S20		
MEY1000-S100 MEY25-S25 MEY26-S25		
MEY1250-S125 MEY32-S32 MEY33-S32		
MEY1500-S125 MEY40-S32		
MEY2000-S125 MEY50-S42		

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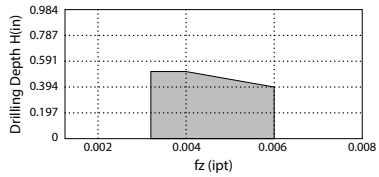
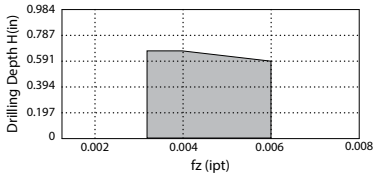
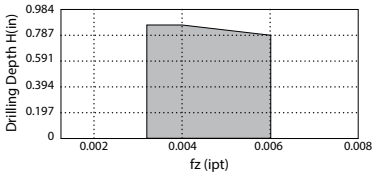
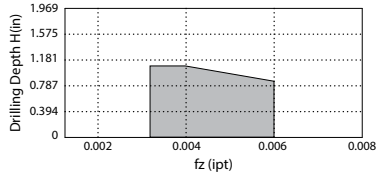
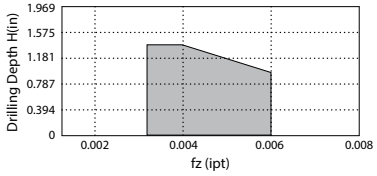
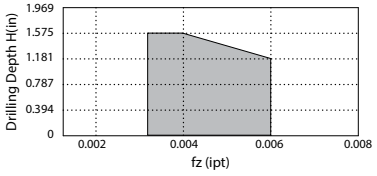
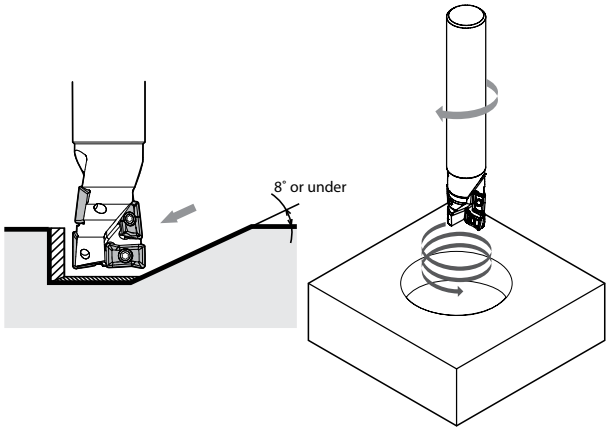
Drilling (Standard/Long Head/Long Shank: 1049)

MEY0625-S625 / MEY16-S16 MEY17-S16	MEY0750-S750 / MEY20-S20 MEY21-S20	MEY1000-S100 / MEY25-S25 MEY26-S25
		
MEY1250-S125 / MEY32-S32 MEY33-S32	MEY1500-S125 / MEY40-S32	MEY2000-S125 / MEY50-S42
		

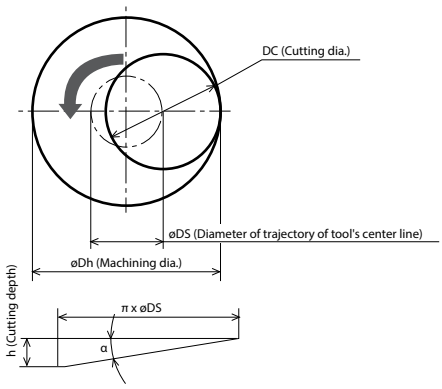
How to use MEY effectively

Ramping/Helical milling

- Ramping angle is recommended to be 8˚ or under. Sinking depth per revolution when helical milling should be 1/2DC or under.
- Use compressed air during machining.



Helical milling factors



øDS (How to find diameter of trajectory of tool's center line)

øDS = øDh - DC

h How to find "h"

h = π X ø DS X tan α

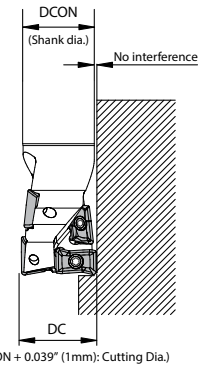
(α should be 8˚ or under)

Shouldering

- Tools with 1mm larger cutting diameter than shank diameter are available. High wall shouldering is possible.
- Lineup

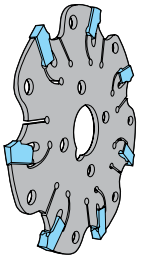
(mm)

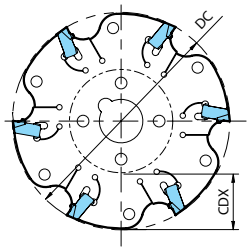
Description	DC	DCON
MEY17-S16	17	16
MEY21-S20	21	20
MEY26-S25	26	25
MEY33-S32	33	32
MEY17-S16-190	17	16
MEY21-S20-200	21	20
MEY26-S25-220	26	25
MEY33-S32-230	33	32

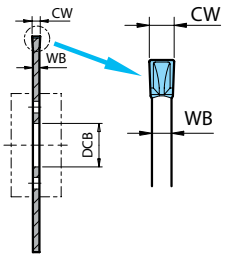


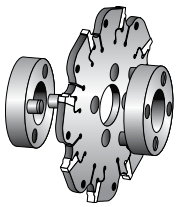
(DCON + 0.039" (1mm): Cutting Dia.)

MSTA









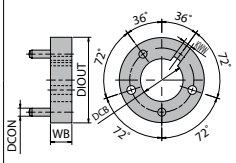
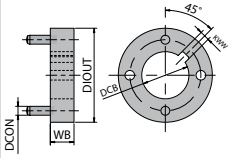
Drive Ring (Sold Separately)
Assembly Example

Toolholder Dimensions (Inch)

Unit	Part Number	Std. Item N	No. of Inserts	Dimensions DC	DCB	CDX	CW	WB	Coolant Hole	RPM	Weight (kg)	Applicable Inserts ➡ M268
Inch	MSTA 02N063-5T	●	5	2.500	0.625	0.625	0.063 (1.6mm)	0.051	No	5,100	0.03	SLT..-..SKB SLT..-..SKD
	03N063-7T	●	7	3.000		0.875				4,000	0.04	
	04N063-9T	●	9	4.000	1.000	1.063				3,200	0.07	
	05N063-11T	●	11	5.000	1.250	1.375				2,600	0.1	
	MSTA 03N089-7T	●	7	3.000	0.625	0.875	0.089 (2.2mm) (2.5mm)	0.071	No	4,000	0.05	SLT..-..SKB SLT..-..SKD
	04N089-9T	●	9	4.000	1.000	1.063				3,200	0.08	
	06N089-14T	●	14	6.000	1.250	1.438				2,000	0.3	
	MSTA 02N126-4T	●	4	2.500	0.625	0.625	0.120 (3.05mm)	0.095	No	5,100	0.05	SLT..-..SKB SLT..-..SKD
	03N126-6T	●	6	3.000		0.875				4,000	0.08	
	04N126-9T	●	9	4.000	1.000	1.063				3,200	0.13	
	05N126-11T	●	11	5.000	1.250	1.375				2,600	0.2	
	06N126-14T	●	14	6.000		1.438				2,000	0.35	
	MSTA 03N164-6T	●	6	3.000	0.625	0.875	0.160 (4.05mm)	0.134	No	4,000	0.1	SLT..-..SKB SLT..-..SKD
	04N164-9T	●	9	4.000	1.000	1.063				3,200	0.15	
	05N164-11T	●	11	5.000	1.250	1.375				2,600	0.25	

Attach the drive ring (sold separately) to MSTA slot mill to use. Drive ring is sold in 1 piece packs.
Please purchase two drive rings per one MSTA slot mill.
Do not exceed the max. revolution.
Do not operate cutting on reverse revolution.
Wrench (MS-FRW1) is not included. Please purchase it separately.

Drive Ring (for Inch Holders)

Shape	Part Number	Std. Item	Dimensions (in) DCB	DIOUT	WB	KWW	DCON	Drawing	Applicable Toolholders
 Fig. 1  Fig. 2	DR1000-1875	●	1.000	1.875	0.394	0.256	0.200	Fig. 2	MSTA 04N◯◯◯-◯T
	DR1250-2250	●	1.250	2.250		0.319	0.240		MSTA 05N◯◯◯-◯T
	DR1250-3125	●	1.250	3.125	0.472	0.319	0.472		MSTA 06N◯◯◯-◯T

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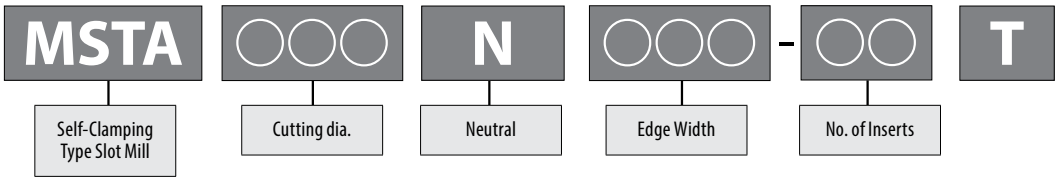
MSTA Toolholder Identification System



Toolholder Dimensions (Metric)

Unit	Part Number	Std. Item N	No. of Inserts	Dimensions DC	DCB	CDX	WB	CW	Coolant Hole	RPM	Weight (kg)	Applicable Inserts ⇒ M268
mm	MSTA 63N16-5T	●	5	63	16	15	1.3	1.6	No	5,100	0.03	SLT..-..SKB SLT..-..SKD
	80N16-7T	●	7	80		21				4,000	0.04	
	100N16-9T	●	9	100	22	27				3,200	0.07	
	125N16-11T	●	11	125	32	35				2,600	0.1	
	MSTA 63N22-5T	●	5	63	16	15	1.8	2.2 (2.25)	No	5,100	0.03	SLT..-..SKB SLT..-..SKD
	80N22-7T	●	7	80		21				4,000	0.05	
	100N22-9T	●	9	100	22	27				3,200	0.08	
	125N22-11T	●	11	125	32	35				2,600	0.12	
	160N22-14T	●	14	160	40	40				2,000	0.3	
	MSTA 63N30-4T	●	4	63	16	15	2.4	3.05	No	5,100	0.05	SLT..-..SKB SLT..-..SKD
	80N30-6T	●	6	80		21				4,000	0.08	
	100N30-9T	●	9	100	22	27				3,200	0.13	
	125N30-11T	●	11	125	32	35				2,600	0.2	
	160N30-14T	●	14	160	40	40				2,000	0.35	
	MSTA 63N40-4T	●	4	63	16	15	3.4	4.05	No	5,100	0.06	SLT..-..SKB SLT..-..SKD
	80N40-6T	●	6	80		21				4,000	0.1	
	100N40-9T	●	9	100	22	27				3,200	0.15	
	125N40-11T	●	11	125	32	35				2,600	0.25	
	160N40-14T	●	14	160	40	40				2,000	0.4	

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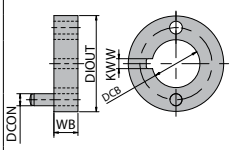
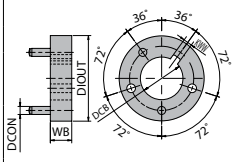
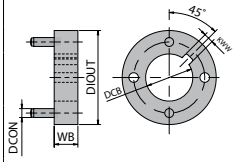
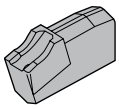
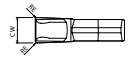
Please purchase two drive rings per one MSTA slot mill.
Do not exceed the max. revolution.
Do not operate cutting on reverse revolution.
Wrench (MS-FRW1) is not included. Please purchase it separately.

Drive Ring (for Metric Holders)

Shape	Part Number	Std. Item	Dimensions (mm) DCB	DIOUT	WB	KWW	DCON	Drawing	Applicable Toolholders
 Fig. 1	DR16-32A	●	16	32	8	4.1	3	Fig. 2	MSTA 63N16-5T, 63N22-5T
 Fig. 2	DR16-32B	●					4	Fig. 1	MSTA 63N30-4T, 63N40-4T
 Fig. 3	DR16-38	●		38				Fig. 3	MSTA 80N○○-○T
	DR22-46	●	22	46	10	6.1	5		MSTA 100N○○-○T
	DR32-55	●	32	55		8.1	6		MSTA 125N○○-○○T
	DR40-80	●	40	80	12	10.1	12		MSTA 160N○○-○○T

SLT Inserts

Usage Classification				
● : 1st Choice	Carbon steel / Alloy steel	●	○	P
○ : 2nd Choice	Mold and die steel			P
	Stainless steel	○	●	M
	Gray cast iron	○		K
	Nodular cast iron	○		K
	Non-ferrous metals			N
	Heat-resistant alloy		●	S
	Titanium alloy			S
	Hard materials			H

Insert		Part Number	Dimensions (mm) CW Inch	CW mm	RE	Angle (°) GAN	Tolerance (mm) CW min.	CW max.	Carbide CVD CA0835	Carbide PVD PR0735	Applicable Toolholder
		SLT 16-15SKB	0.063	1.60	0.15	5	- 0.1	0	●	●	MSTA...
		SLT 22-20SKB	0.087	2.20	0.2	5	- 0.05	+ 0.08	●	●	
		SLT 30-20SKB	0.120	3.05	0.2	5	0	+ 0.15	●	●	
		SLT 40-20SKB	0.159	4.05	0.2	5	0	+ 0.15	●	●	
Low Cutting Force		SLT 16-15SKD	0.063	1.60	0.15	15	- 0.1	0	●	●	
		SLT 22-20SKD	0.089	2.25	0.2	15	0	+ 0.15	●	●	
		SLT 30-20SKD	0.120	3.05	0.2	15	0	+ 0.15	●	●	
		SLT 40-20SKD	0.159	4.05	0.2	15	0	+ 0.15	●	●	

Recommended Cutting Conditions ➡ M269

Inserts Identification System

Edge width	
Symbol	Edge Width
16	1.6mm
22	2.2(2.25)mm
30	3.05mm
40	4.05mm

Chipbreaker Symbol	
Symbol	Rake Angle
KB	5°
KD	15°

SLT | **16** – **15** | **S** | **KB**

- SLT: Insert Symbol
- 16 – 15: Corner-R (RE)

Corner-R (RE)	
Symbol	Corner-R (RE)
15	0.15mm
20	0.2mm

- S: Edge Preparation

Edge Preparation	
Symbol	Cutting Edge Spec.
S	Chamfered + R-honed

Selection of chipbreaker

KB chipbreaker ··· general purpose chipbreaker for steel and cast iron
KD chipbreaker ··· low cutting force chipbreaker for stainless steel

Insert Grades Features

CA0835

- TiN+TiCN+Al_2O_3 based CVD Coated carbide
- For carbon steel, alloy steel, stainless steel and cast iron
- For middle to high speed machining

PR0735

- TiN base PVD Coated carbide
- For stainless steel, heat-resistant alloys, etc.
- For low to middle speed machining

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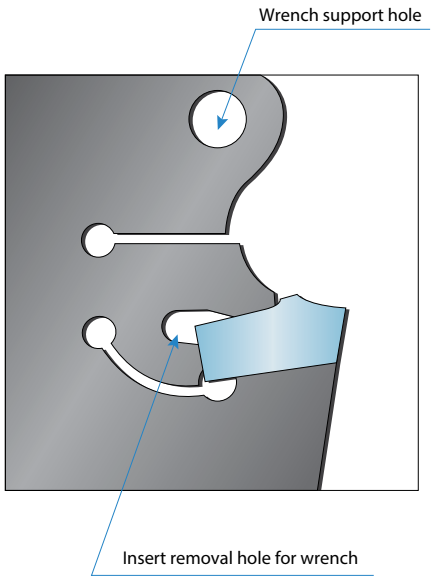
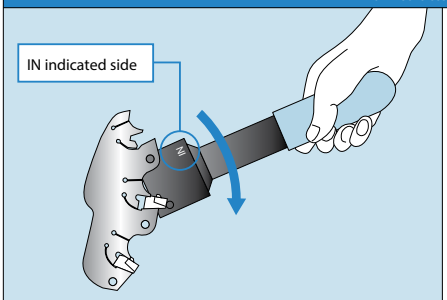
Setup

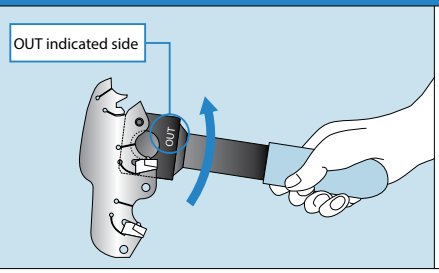


How to attach inserts



1. Put insert inside the slot mill.
2. Insert one of the pins on the wrench (on IN indicated side) into the wrench support hole.
3. Using the other pin, push the front relief surface of the insert.
4. Rotate the wrench until insert's back end makes contact with slot mill.

How to detach inserts



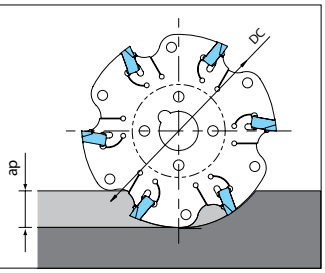
1. Insert one of the pins on the wrench (on OUT indicated side) into the wrench support hole, and insert other pin into the insert releasing hole.
2. Insert can be uninstalled by rotating the wrench counterclockwise. (A magnet is installed on OUT indicated side.)

Note: Use appropriate wrench for set up.

Recommended Cutting Conditions

Workpiece Material		Hardness (HRC)	Recommended Insert Grades (Vc: sfm)		fz (ipt)				Notes
			CVD Coated Carbide	PVD Coated Carbide	Edge Width				
			CA0835	PR0735	0.063" 1.60mm	0.087" (0.089") 2.20mm (2.25mm)	0.118" 3.00mm	0.157" 4.00mm	
Low Carbon Steel	1010~1025	20	820~1020	660~820	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	Coolant
Carbon Steel	1030~1059, 1060 Annealed	29	520~620	430~520	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	
	1030~1059, 1060 Heat Treated	37	460~590	360~490	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	
Alloy Steel	Annealed	28	460~590	360~490	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	
	Heat Treated	41	390~520	330~430	0.001~0.004	0.002~0.005	0.002~0.006	0.003~0.007	
High Carbon Alloy	D2, H13, etc.	42	330~460	260~390	0.001~0.004	0.002~0.005	0.002~0.006	0.003~0.007	
Stainless Steel	304, 316, etc. Austenitic	33	490~620	260~390	0.001~0.004	0.002~0.005	0.002~0.006	0.003~0.007	
	403, 410, etc. Martensitic	45	460~590	200~260	0.001~0.004	0.002~0.005	0.002~0.006	0.003~0.007	
Gray Cast Iron	NO.45~NO.60	38	520~660	-	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	Dry
Nodular Cast Iron	60-40-18~70-50-05	25	430~520	-	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	
	80-60-03~120-90-02	37	360~460	-	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	

Note: 1. Use down-cut machining.
2. If ap is 1/10 or under of cutter dia.(DC), it is possible to increase feed per tooth (fz) by 40%.



MRF

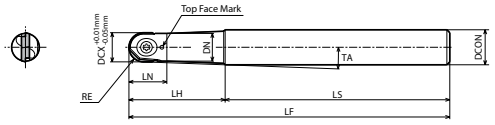


Fig. 1

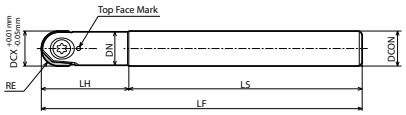


Fig. 2

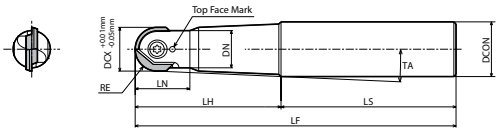


Fig. 3

Top Face Shown

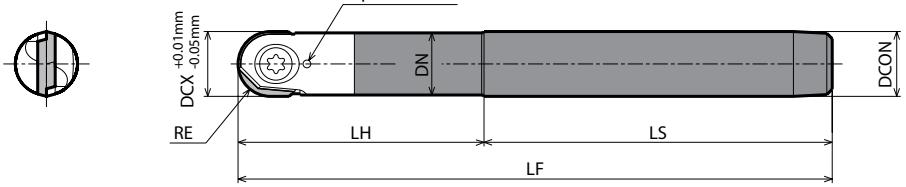
Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	Dimensions RE	DCX	DCON	LF	LH	DN	LN	LS	TA	Coolant Hole	Fig.	Spare Parts: Anti-seize Compound	Insert Screw	Wrench	Wrench	Applicable Inserts ➡ M272
mm	Standard Neck	MRF 08-S12	●	1	4	8	12	100	22	7.5	10	78	6°20′	No	1	P-37	SC-30067	DT-8	-	RDFG08FR
		10-S12	●		5	10			25	9.5	13	75	3°00′		1		SC-35085	DT-10		RDFG10FR
		12-S12	●		6	12		110	30	11.5	-	80	-		2		SC-40100	DT-15		RDFG12FR
		16-S20	●		8	16	20	130	50	14	20		2°50′		1		SC-50130	DT-20		RDFG16FR
		20-S25	●		10	20	25	140	60	17	25		3°00′		3		SC-60160	-	TT-25	RDFG20FR
		25-S32	●		12.5	25	32	150	70	22	31		3°30′		3		SC-60210		TT-30	RDFG25FR
	Long Neck	MRF 08-S12-130	●	1	4	8	12	130	50	7.5	10	80	2°30′	No	1	P-37	SC-30067	DT-8	-	RDFG08FR
		10-S16-150	●		5	10	16	150		9.5	15	100	3°50′		1		SC-35085	DT-10		RDFG10FR
		12-S16-160	●		6	12		160	60	11.5	16		2°10′		1		SC-40100	DT-15		RDFG12FR
		16-S20-160	●		8	16	20		65	14	20	95	2°00′		1		SC-50130	DT-20		RDFG16FR
		20-S25-180	●		10	20	25	180	80	17	25	100	2°10′		3		SC-60160	-	TT-25	RDFG20FR
		25-S32-200	●		12.5	25	32	200	90	22	31	110	2°40′		3		SC-60210		TT-30	RDFG25FR

TA (Toolholder's interference angle) is the angle formed by the tangential line from insert dia. to toolholder's shank dia.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MRFW (Carbide Shank)



Top Face Shown

Toolholder Dimensions

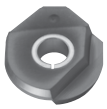
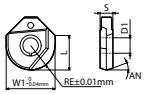
Unit		Part Number	Std. Item	No. of Inserts	Dimensions RE	DCX	DCON	LF	LH	DN	LS	Coolant Hole	Spare Parts: Anti-seize Compound	Insert Screw	Wrench	Applicable Inserts ➡ M272
mm	Carbide Standard	MRFW 08-S08	●	1	4	8	8	100	30	7.4	70	No	P-37	SC-30067	DT-8	RDFG08FR
		10-S10	●		5	10	10		35	9.5	65			SC-35085	DT-10	RDFG10FR
		12-S12	●		6	12	12	110	45	11.5				SC-40100	DT-15	RDFG12FR
	Carbide Long Neck	MRFW 08-S08-130	●	1	4	8	8	130	65	7.4	65	No	P-37	SC-30067	DT-8	RDFG08FR
		10-S10-140	●		5	10	10	140	75	9.5				SC-35085	DT-10	RDFG10FR
		12-S12-150	●		6	12	12	150	85	11.5				SC-40100	DT-15	RDFG12FR

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

RDFG

Usage Classification ● : 1st Choice ○ : 2nd Choice			
Carbon steel / Alloy steel	●	P
Mold and die steel	●	P
Stainless steel	○	M
Gray cast iron	○	K
Nodular cast iron	○	K
Non-ferrous metals		N
Heat-resistant alloy		S
Titanium alloy		S
Hard materials		H

Insert		Part Number	Dimensions (mm) S	D1	RE	L	W1	AN	Angle (°) Carbide	PVD PR915	Applicable Toolholder ➡ M270 M271
		RDFG 08FR	2.1	3.1	4	6.6	8	15	●		MRF(W)08...
		10FR	2.7	3.6	5	8	10	15	●		MRF(W)10...
		12FR	3.2	4.1	6	9.4	12	15	●		MRF(W)12...
		16FR	4.2	5.1	8	11.3	16	10	●		MRF16...
		20FR	5.2	6.1	10	14.1	20	10	●		MRF20...
		25FR	6.2	6.1	12.5	15.5	25	10	●		MRF25...

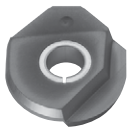
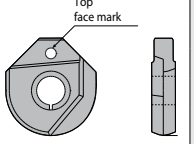
Right-hand Insert Shown

Recommended Cutting Conditions ➡ M273

RDFG Inserts are sold in 2 piece boxes

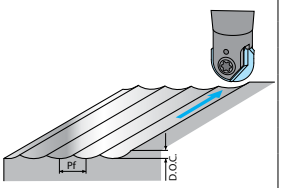
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts

Insert		Description	
		RDFG	08FR 10FR 12FR 16FR 20FR 25FR

Align the Top Face Mark of both insert and toolholder.

Recommended Depth of Cut

Description		Depth of cut (mm)		Applications
		ap	Pf	
Standard Neck	MRF08-S12	0.008 (Max 0.012)	0.031	
	MRF10-S12	0.008	0.039	
	MRF12-S12	0.020	0.047	
	MRF16-S20	0.020	0.063	
	MRF20-S25	0.039	0.079	
	MRF25-S32	0.039	0.098	
Long Neck	MRF08-S12-130	0.008 (Max 0.012)	0.031	
	MRF10-S12-150	0.008	0.039	
	MRF12-S12-160	0.020	0.047	
	MRF16-S20-160	0.020	0.063	
	MRF20-S25-180	0.039	0.079	
	MRF25-S32-200	0.039	0.098	
Carbide Standard Neck	MRFW08-S08	0.008 (Max 0.012)	0.031	
	MRFW10-S10	0.008	0.039	
	MRFW12-S12	0.020	0.047	
Carbide Long Neck	MRFW08-S08-130	0.008 (Max 0.012)	0.031	
	MRFW10-S10-140	0.008	0.039	
	MRFW12-S12-150	0.020	0.047	

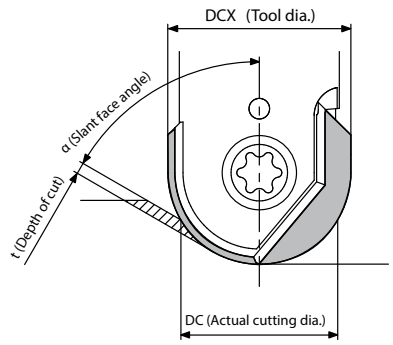
For Ø8mm, Holder may be broken because of overload if D.O.C. exceeds 0.012".

Recommended Cutting Conditions (At Cutting Dia. DCX)

Workpiece Material	Insert Grade	Vc (sfm)	fz (ipt)	ø8mm		ø10mm		ø12mm	
				Vc (sfm) (RPM)	fz (ipt) Vf (ipm)	Vc (sfm) (RPM)	fz (ipt) Vf (ipm)	Vc (sfm) (RPM)	fz (ipt) Vf (ipm)
Carbon steel	PR915	330~660	0.004~0.012	490 (5,970)	0.008 (94.095)	490 (4,770)	0.008 (75.197)	490 (3,980)	0.008 (62.598)
Alloy steel	PR915	260~590	0.004~0.012	430 (5,170)	0.008 (81.496)	430 (4,140)	0.008 (65.354)	430 (3,450)	0.008 (54.331)
Mold steel	PR915	160~490	0.004~0.008	330 (3,980)	0.006 (46.850)	330 (3,180)	0.006 (37.402)	330 (2,650)	0.006 (31.496)
Stainless steel	PR915	160~490	0.004~0.008	330 (3,980)	0.006 (46.850)	330 (3,180)	0.006 (37.402)	330 (2,650)	0.006 (31.496)
Cast iron	PR915	330~660	0.008~0.016	490 (5,970)	0.012 (140.945)	490 (4,770)	0.012 (112.598)	490 (3,980)	0.012 (94.095)
Workpiece Material	Insert Grade	Vc (sfm)	fz (ipt)	ø16mm		ø20mm		ø25mm	
				Vc (sfm) (RPM)	fz (ipt) Vf (ipm)	Vc (sfm) (RPM)	fz (ipt) Vf (ipm)	Vc (sfm) (RPM)	fz (ipt) Vf (ipm)
Carbon steel	PR915	330~660	0.004~0.012	490 (2,980)	0.008 (46.850)	490 (2,390)	0.008 (37.402)	490 (1,910)	0.008 (29.921)
Alloy steel	PR915	260~590	0.004~0.012	430 (2,590)	0.008 (40.551)	430 (2,070)	0.008 (32.677)	430 (1,660)	0.008 (25.984)
Mold steel	PR915	160~490	0.004~0.008	330 (1,990)	0.006 (23.622)	330 (1,590)	0.006 (18.898)	330 (1,270)	0.006 (14.961)
Stainless steel	PR915	160~490	0.004~0.008	330 (1,990)	0.006 (23.622)	330 (1,590)	0.006 (18.898)	330 (1,270)	0.006 (14.961)
Cast iron	PR915	330~660	0.008~0.016	490 (2,980)	0.012 (70.472)	490 (2,390)	0.012 (56.299)	490 (1,910)	0.012 (45.276)

Actual Cutting Speed (Vd) Conversion Coefficient Table

- Vd varies depending on D.O.C. and slant face angle.
- Vd can be obtained by dividing the conversion coefficient into the recommended cutting speed.

Model	Tool Dia. (DCX)		ø8mm		ø10mm		ø12mm	
	Depth of Cut (t:in)		0.004	0.008	0.004	0.008	0.008	0.020
	Slant face angle (α)	15°	1.00	1.00	1.00	1.00	1.00	1.00
		30°	1.05	1.02	1.05	1.03	1.04	1.01
		45°	1.18	1.12	1.20	1.14	1.16	1.07
		60°	1.47	1.34	1.51	1.38	1.42	1.24
		75°	2.15	1.82	2.24	1.92	2.02	1.60
		90°(Horizontal plane)	4.48	3.22	5.06	3.57	3.92	2.50
	Tool Dia. (DCX)		ø16mm		ø20mm		ø25mm	
	Depth of Cut (t:in)		0.008	0.020	0.020	0.039	0.020	0.039
	Slant face angle (α)	15°	1.00	1.00	1.00	1.02	1.00	1.01
		30°	1.05	1.01	1.02	1.00	1.03	1.00
		45°	1.18	1.10	1.12	1.06	1.14	1.08
		60°	1.47	1.30	1.34	1.21	1.38	1.25
		75°	2.14	1.73	1.83	1.53	1.93	1.62
		90°(Horizontal plane)	4.48	2.87	3.20	2.29	3.57	2.55

e.g.) Suppose tool dia. 8mm, D.O.C. = 0.039", slant face angle 90°: The actual cutting speed Vd for carbon steel machining, when Vc is 490sfm at the full cutter diameter, Vd can be obtained by calculating: Vd = 490 ÷ 4.48 = 109.4sfm

High Efficiency Radius Cutter

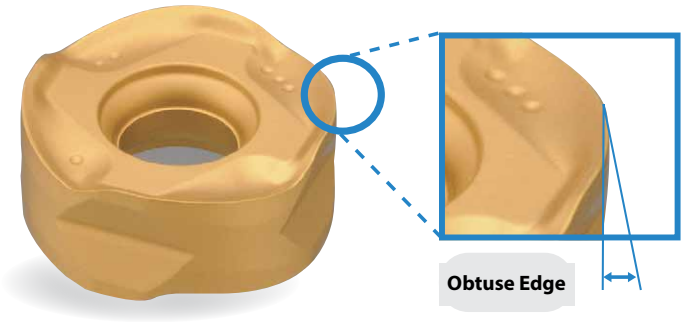
RAD-8 (MRW)

Economical and high efficiency radius cutter with double-sided insert for various types of workpieces

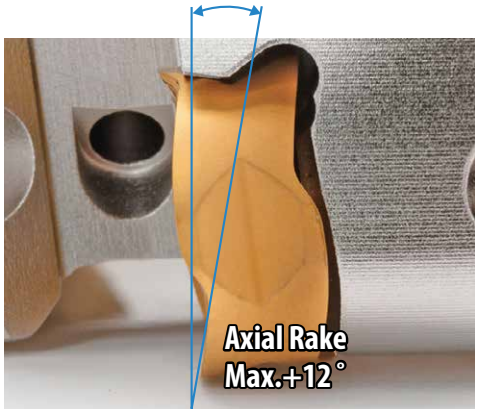
Economical double-sided 8-edge insert
Combine sharpness and cutting edge strength

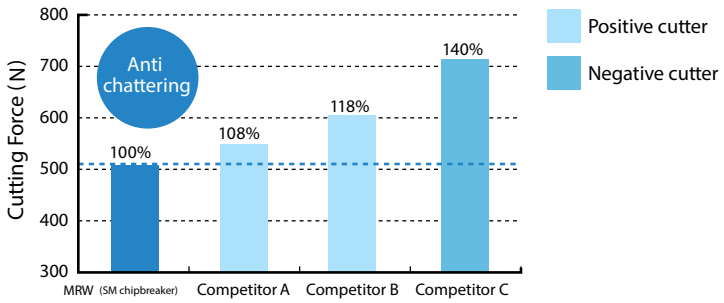
Obtuse edge increases cutting edge toughness

Helical cutting edge design with maximum axial rake 12˚ reduces cutting force, equivalent to positive inserts.



Low Cutting Force Chipbreaker

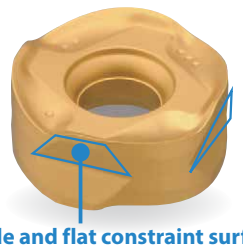




< Cutting Condition >
Vc = 390 sfm, D.O.C. × ae = 0.039" × 1.575", fz = 0.008 ipt
304 Stainless Steel, Cutter Ø2.000"

1 Flat Lock Structure Creates a Firm Hold on the Inserts

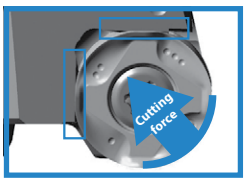
Prevents insert rotation for stable machining



Wide and flat constraint surface

Flat lock structure

Wide flat constraint surface
- Receives even cutting forces
- Controls insert rotation



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Longer tool life with a variety of grades and 3 chipbreakers available for various applications

Available for Steel, Stainless Steels, Cast Iron, and Heat-Resistant Alloys

Workpiece Material		Applicable Insert Grades	Applicable Chipbreaker
P Carbon Steel / Alloy Steel/Mold Steel		PR1825 PR1525	GM/SM/GH chipbreaker
K Cast Iron		PR1810 PR1510	GH/GM chipbreaker
S Ni-base Heat-Resistant Alloys	M Martensitic Stainless Steel	PR1835 CA6535	SM/GM chipbreaker
S Ni-base Heat-Resistant Alloys S Titanium alloys	M Austenitic Stainless Steel M Precipitation Hardened Stainless Steel	PR1835 PR1535	SM/GM chipbreaker

2 Insert Grades for Difficult-to-cut Material

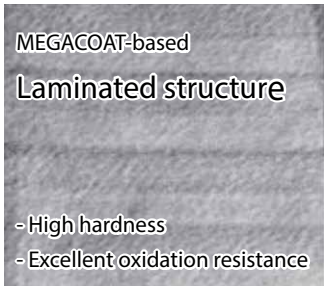
Controls sudden fracture for stable machining
Suitable for high efficiency machining

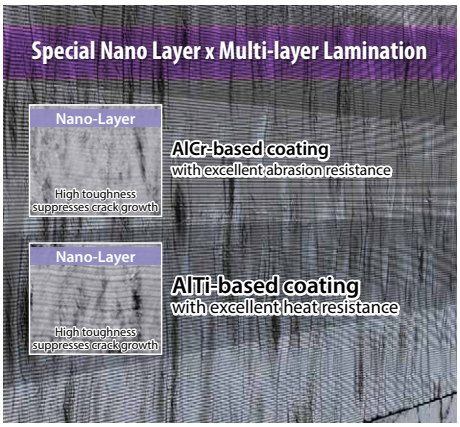
CA6535

For martensitic stainless steel and Ni-base heat-resistant alloys
High heat resistance and wear resistance with CVD coating
Improved stability with thin layer coating technology

PR1835

For Ni-base heat-resistant alloys, titanium alloys and precipitation hardened stainless steel
Stable and longer tool life by special nano coating layer
MEGACOAT NANO EX

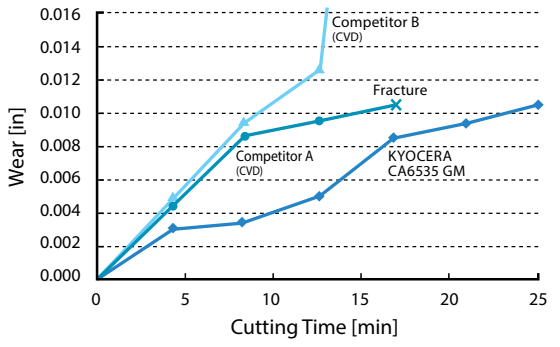




Multi-layering of high-performance nano layers

Tool Life Comparison

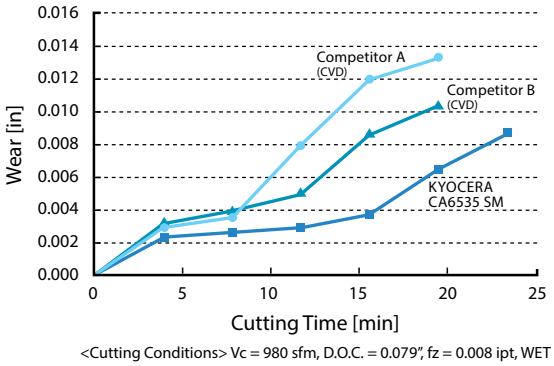
Ni-base Heat Resistant Alloy



<Cutting Conditions> Vc = 160 sfm, D.O.C. = 0.039", fz = 0.006 ipt, WET

1st recommendation GM Chipbreaker

Martensitic Stainless Steel



<Cutting Conditions> Vc = 980 sfm, D.O.C. = 0.079", fz = 0.008 ipt, WET

1st recommendation SM Chipbreaker

MRW (Face Mill)

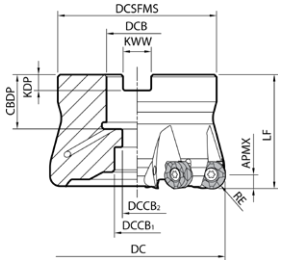


Fig. 1

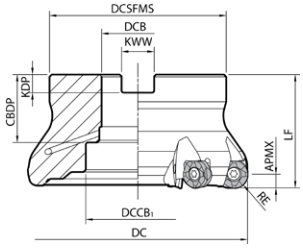


Fig. 2

Toolholder Dimensions

Unit	Part Number	Std. Item R	No. of Inserts	Dimensions RE	DC	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX	A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➡ M281
Inch	Inch Bore Dia. MRW 2000R-12-5T	●	5	0.236 (6mm)	2.00	1.75	0.75	0.748	0.433	1.575	0.750	0.187	0.312	0.236 (6mm)	+12	-15.5	Yes	16,000	0.3	1	ROMU1204M0ER-..
	2000R-12-6T	●	6																0.3	1	
	2500R-12-6T	●	6		2.50	1.75	0.75	0.748	0.433	1.575	0.750	0.187	0.312					14,000	0.6	1	
	2500R-12-7T	●	7																0.6	1	
	3000R-12-6T	●	6		3.00	2.25	1.00	0.866	0.551	1.969	1.063	0.236	0.381					12,000	1.1	1	
	3000R-12-8T	●	8																1.1	1	
	4000R-12-7T	●	7		4.00	3.54	1.50	2.047	-	1.969	1.142	0.393	0.625					10,600	1.5	2	
	4000R-12-9T	●	9																1.4	2	
	MRW 2500R-16-5T	●	5	0.315 (8mm)	2.50	1.75	0.75	0.748	0.433	1.575	0.750	0.187	0.312	0.315 (8mm)	+11	-16.5	Yes	12,800	0.5	1	ROMU1605M0ER-..
	2500R-16-6T	●	6																0.5	1	
	3000R-16-7T	●	7		3.00	2.25	1.00	0.866	0.551	1.969	1.063	0.236	0.381					11,000	1.0	1	
	4000R-16-8T	●	8		4.00	3.54	1.50	2.047	-	1.969	1.142	0.393	0.625					9,600	1.3	2	
	5000R-16-8T	●	8		5.00	3.54	1.50	2.047	-	2.480	1.496	0.393	0.625					8,560	2.6	2	
	5000R-16-10T	●	10																2.5	2	

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
APMX is Maximum D.O.C. For more details, see page **M282**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MRW (Face Mill)

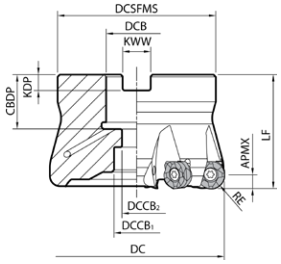


Fig. 1

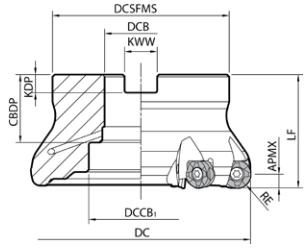


Fig. 2

Toolholder Dimensions

Unit	Part Number		Std. Item R	No. of Inserts	Dimensions RE	DC	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX	A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➡ M281
mm	Inch Bore Dia.	MRW 080R-12-6T	●	6	6	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	6	+12	-15.5	Yes	12,000	1.2	1	ROMU1204M0ER-..
		080R-12-8T	●	8																1.1	1	
		100R-12-7T	●	7		100	78	1.250"	46	-		1.339"	0.315"	0.500"					10,600	1.5	2	
		100R-12-9T	●	9																1.4	2	
		MRW 080R-16-6T	●	6	8	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	8	+11	-16.5	Yes	11,000	1.1	1	ROMU1605M0ER-..
		080R-16-7T	●	7																	1	
		100R-16-6T	●	6		100	78	1.250"	46	-		1.339"	0.315"	0.500"					9,600	1.4	2	
		100R-16-8T	●	8																	2	
		125R-16-8T	●	8		125	89	1.500"	55		63	1.496"	0.394"	0.625"					8,560	2.6	2	
		125R-16-10T	●	10																	2	
	Metric Bore Dia.	MRW 050R-12-5T-M	●	5	6	50	48	22	18	11	40	21	6.3	10.4	6	+12	-15.5	Yes	16,000	0.3	1	ROMU1204M0ER-..
		050R-12-6T-M	●	6																	1	
		063R-12-6T-M	●	6		63	60		19										14,000	0.6	1	
		063R-12-7T-M	●	7																	1	
		080R-12-6T-M	●	6		80	70	27	20	13	50	24	7	12.4					12,000	1.1	1	
		080R-12-8T-M	●	8																	1	
		100R-12-7T-M	●	7		100	78	32	46	-		30	8	14.4					10,600	1.5	2	
		100R-12-9T-M	●	9																1.4	2	
		MRW 063R-16-5T-M	●	5	8	63	60	22	19	11	40	21	6.3	10.4	8	+11	-16.5	Yes	12,800	0.5	1	ROMU1605M0ER-..
		063R-16-6T-M	●	6																	1	
		080R-16-6T-M	●	6		80	70	27	20	13	50	24	7	12.4					11,000	1.1	1	
		080R-16-7T-M	●	7																1	1	
		100R-16-6T-M	●	6		100	78	32	46	-		30	8	14.4					9,600	1.4	2	
		100R-16-8T-M	●	8																1.3	2	
		125R-16-8T-M	●	8		125	89	40	55		63	33	9	16.4					8,500	2.6	2	
		125R-16-10T-M	●	10																2.5	2	

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
APMX is Maximum D.O.C. For more details, see page **M282**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts and Applicable Inserts (Inch Face Mills)

Part Number	Spare Parts					Applicable Inserts ➡ M281		
	Insert Screw	Wrench		Anti-seize Compound	Arbor Bolt	General Purpose	Low Cutting Force	Tough Edge (For Heavy Milling)
		DTPM-15	TTP-20					
MRW 2000R-12...	SB-4085TRP	DTPM-15		P-37	HH3/8-1.25 (HH3/8-1.25H)	ROMU1204M0ER-GM	ROMU1204M0ER-SM	ROMU1204M0ER-GH
MRW 2500R-12...		Recommended tightening torque for insert screw 3.5N•m			HH1/2-1.25 (HH1/2-1.25H)			
MRW 3000R-12...					-			
MRW 4000R-12...								
MRW 2500R-16...	SB-50140TRP	TTP-20		P-37	HH3/8-1.25 (HH3/8-1.25H)	ROMU1605M0ER-GM	ROMU1605M0ER-SM	ROMU1605M0ER-GH
MRW 3000R-16...		Recommended tightening torque for insert screw 4.5N•m			HH1/2-1.25 (HH1/2-1.25H)			
MRW 4000R-16...					-			
MRW 5000R-16...								

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
( ) Optional coolant-through bolt available

Spare Parts and Applicable Inserts (Metric Face Mills)

Part Number	Spare Parts					Applicable Inserts ➡ M281		
	Insert Screw	Wrench		Anti-seize Compound	Arbor Bolt	General Purpose	Low Cutting Force	Tough Edge (For Heavy Milling)
		DTPM-15	TTP-20					
MRW 050R-12...	SB-4085TRP	DTPM-15		P-37	HH10X30	ROMU1204M0ER-GM	ROMU1204M0ER-SM	ROMU1204M0ER-GH
MRW 063R-12...		Recommended tightening torque for insert screw 3.5N•m			HH12X35			
MRW 080R-12...					-			
MRW 100R-12...								
MRW 063R-16...	SB-50140TRP	TTP-20		P-37	HH10X30	ROMU1605M0ER-GM	ROMU1605M0ER-SM	ROMU1605M0ER-GH
MRW 080R-16...		Recommended tightening torque for insert screw 4.5N•m			HH12X35			
MRW 100R-16...					-			
MRW 125R-16...								

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

MRW (End Mill)

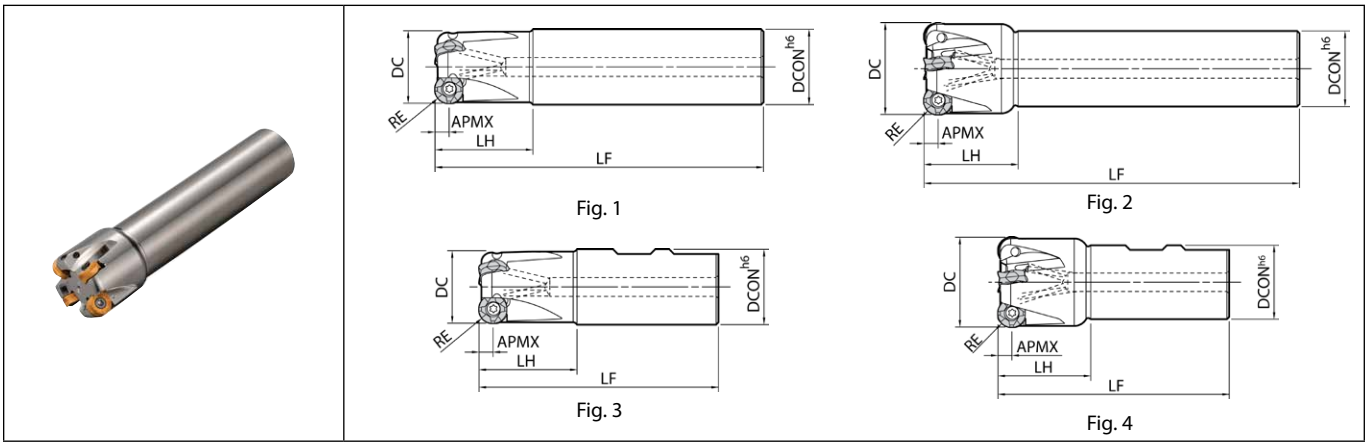


Fig. 1 Fig. 2 Fig. 3 Fig. 4

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions RE	DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Applicable Inserts ➡ M281
Inch	Weldon	Standard Shank	MRW 1250-W125-12-3T	●	3	0.236 (6mm)	1.25	1.25	3.921	1.575	0.236 (6mm)	+12	-20	Yes	22,000	3	ROMU1204M0ER-..
			1500-W125-12-4T	●	4		1.50		3.856				-16.5		18,800	4	
			2000-W150-12-5T	●	5		2.00	1.50	4.266				-15.5		16,000	4	
			MRW 1500-W125-16-2T	●	2	0.315 (8mm)	1.50	1.25	3.856	1.575	0.315 (8mm)	+11	-18	Yes	17,200	4	ROMU1605M0ER-..
			2000-W150-16-4T	●	4		2.00	1.50	4.262				-16.5		14,800	4	
			2500-W150-16-5T	●	5		2.50								12,800	4	
	Cylindrical	Long Shank	MRW 2000-S150-12-4T-12	●	4	0.236 (6mm)	2.00	1.50	12.000	1.969	0.236 (6mm)	+12	-15.5	Yes	16,000	2	ROMU1204M0ER-..
			MRW 2000-S150-16-3T-8	●	3	0.315 (8mm)	2.00	1.50	8.000	1.575	0.315 (8mm)	+11	-16.5	Yes	14,800	2	ROMU1605M0ER-..
			2500-S150-16-4T-12	●	4		2.50		12.000	1.969					12,800	2	

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
APMX is Maximum D.O.C. For more details, see page **M282**.

Spare Parts and Applicable Inserts (Inch End Mills)

Part Number	Spare Parts: Insert Screw	Wrench: DTPM-15	Wrench: TTP-20	Anti-seize Compound	Applicable Inserts ➡ M281: General Purpose	Low Cutting Force	Tough Edge (For Heavy Milling)
MRW ...-12-...	SB-4085TRP	DTPM-15		P-37	ROMU1204M0ER-GM	ROMU1204M0ER-SM	ROMU1204M0ER-GH
	Recommended tightening torque for insert screw 3.5N•m						
MRW ...-16-...	SB-50140TRP		TTP-20	P-37	ROMU1605M0ER-GM	ROMU1605M0ER-SM	ROMU1605M0ER-GH
	Recommended tightening torque for insert screw 4.5N•m						

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

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Contact your local Kyocera sales engineer to upgrade old products to new technology

MRW (End Mill)

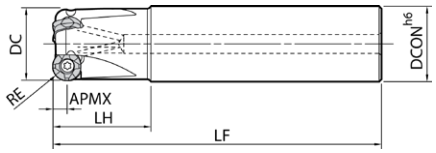


Fig. 1

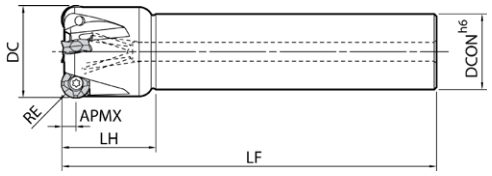


Fig. 2

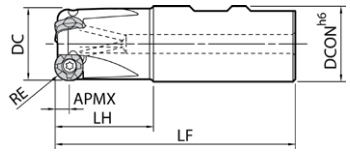


Fig. 3

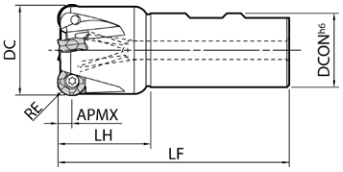


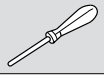
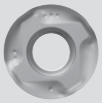
Fig. 4

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions RE	DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Applicable Inserts ➡ M281
mm	Cylindrical	Standard Shank	MRW 32-S32-12-3T	●	3	6	32	32	140	40	6	+12	-20	Yes	22,000	1	ROMU1204M0ER-..
			40-S32-12-4T	●	4		40		160				-16.5		18,800	2	
			50-S42-12-5T	●	5		50	42	170				-15.5		16,000	2	
			MRW 40-S32-16-3T	●	3	8	40	32	160	40	8	+11	-18	Yes	17,200	2	ROMU1605M0ER-..
			50-S42-16-4T	●	4		50	42	170				-16.5		14,800	2	
			63-S42-16-5T	●	5		63			50					12,800	2	
		Long Shank	MRW 32-S32-12-2T-200	●	2	6	32	32	200	40	6	+12	-20	Yes	22,000	1	ROMU1204M0ER-..
			40-S32-12-3T-200	●	3		40						-16.5		18,800	2	
			50-S42-12-4T-300	●	4		50	42	300				-15.5		16,000	2	
			MRW 40-S32-16-2T-200	●	2	8	40	32	200	40	8	+11	-18	Yes	17,200	2	ROMU1605M0ER-..
			50-S42-16-3T-300	●	3		50	42	300				-16.5		14,800	2	
			63-S42-16-4T-300	●	4		63			50					12,800	2	
	Weldon	Standard Shank	MRW 32-W32-12-3T	●	3	6	32	32	102	40	6	+12	-20	Yes	22,000	3	ROMU1204M0ER-..
			40-W32-12-4T	●	4		40		100				-16.5		18,800	4	
			50-W40-12-5T	●	5		50	40	110				-15.5		16,000	4	
			MRW 40-W32-16-3T	●	3	8	40	32	100	40	8	+11	-18	Yes	17,200	4	ROMU1605M0ER-..
			50-W40-16-4T	●	4		50	40	110				-16.5		14,800	4	
			63-W40-16-5T	●	5		63		120	50					12,800	4	

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
APMX is Maximum D.O.C. For more details, see page **M282**.

Spare Parts and Applicable Inserts (Metric End Mills)

Part Number	Spare Parts: Insert Screw	Spare Parts: Wrench	Spare Parts: Anti-seize Compound	Applicable Inserts ➡ M281: General Purpose	Applicable Inserts ➡ M281: Low Cutting Force	Applicable Inserts ➡ M281: Tough Edge (For Heavy Milling)
		DTPM-15  TTP-20				
MRW ...-12-...	SB-4085TRP	DTPM-15	P-37	ROMU1204M0ER-GM	ROMU1204M0ER-SM	ROMU1204M0ER-GH
	Recommended tightening torque for insert screw 3.5N•m					
MRW ...-16-...	SB-50140TRP	TTP-20	P-37	ROMU1605M0ER-GM	ROMU1605M0ER-SM	ROMU1605M0ER-GH
	Recommended tightening torque for insert screw 4.5N•m					

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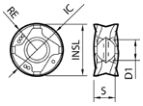
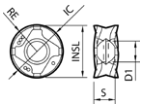
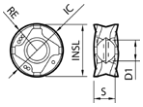
ROMU

Usage Classification										
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)	Carbon steel / Alloy steel			☆			★	☆	P
	Mold and die steel			☆			★	☆	
	Austenitic stainless steel				☆		☆	★	M
	Martensitic stainless steel	★						☆	
	Precipitation hardened stainless steel				☆			★	
	Gray cast iron		☆			★			K
	Nodular cast iron		☆			★			
	Non-ferrous metals								N
	Heat-resistant alloy	★						☆	S
	Titanium alloy				☆			★	
	Hard materials								H

Insert		Part Number	Dimensions (mm)					Carbide						Applicable Toolholder ➡ M280~M280
			IC	S	D1	RE	INSL	CVD	PVD					
								CA6535	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835
	 General Purpose	ROMU 1204M0ER-GM	12	4.75	4.6	6	11.8	●	△	●	●	●	●	MRW...-12-..
		ROMU 1605M0ER-GM	16	5.48	6.2	8	15.8	●	△	●	●	●	●	MRW...-16-..
	 Low Cutting Force	ROMU 1204M0ER-SM	12	4.75	4.6	6	11.8	●		●	●		●	MRW...-12-..
		ROMU 1605M0ER-SM	16	5.48	6.2	8	15.8	●		●	●		●	MRW...-16-..
	 Tough Edge	ROMU 1204M0ER-GH	12	4.75	4.6	6	11.8	●	△	●	●	●	●	MRW...-12-..
		ROMU 1605M0ER-GH	16	5.48	6.2	8	15.8	●	△	●	●	●	●	MRW...-16-..

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M282

ROMU Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Workpiece Material	Recommended Chipbreaker fz (ipt) Recommended Feed Rate (Standard Value) ROMU12 : D.O.C. = 0.118" ROMU16 : D.O.C. = 0.158"			Recommended Insert Grades (Cutting Speed Vc: sfm)			
				MEGACOAT NANO EX (MEGACOAT NANO)			CVD Coated Carbide
	GM	SM	GH	PR1810 (PR1510)	PR1825 (PR1525)	PR1835 (PR1535)	CA6535
Carbon Steel	★ 0.004~**0.008**~0.012	☆ 0.002~**0.006**~0.008	☆ 0.006~**0.012**~0.014	-	★ 390~**590**~820	☆ 390~**590**~820	-
Alloy Steel	★ 0.004~**0.008**~0.012	☆ 0.002~**0.006**~0.008	☆ 0.006~**0.012**~0.014	-	★ 330~**520**~720	☆ 330~**520**~720	-
Mold Steel	★ 0.004~**0.006**~0.010	☆ 0.002~**0.005**~0.008	☆ 0.006~**0.008**~0.012	-	★ 260~**460**~590	☆ 260~**460**~590	-
Austenitic Stainless Steel	☆ 0.004~**0.006**~0.008	★ 0.002~**0.005**~0.008	☆ 0.006~**0.008**~0.010	-	☆ 330~**520**~660	★ 330~**520**~660	-
Martensitic Stainless Steel	☆ 0.004~**0.006**~0.008	★ 0.002~**0.005**~0.008	☆ 0.006~**0.008**~0.010	-	-	☆ 490~**660**~820	★ 590~790~980
Precipitation Hardened Stainless Steel	★ 0.004~**0.006**~0.008	☆ 0.002~**0.005**~0.008	☆ 0.006~**0.008**~0.010	-	-	★ 300~**390**~490	-
Gray Cast Iron	★ 0.004~**0.008**~0.012	-	☆ 0.006~**0.012**~0.014	★ 390~**590**~820	-	-	-
Nodular Cast Iron	★ 0.004~**0.006**~0.010	-	☆ 0.006~**0.008**~0.012	★ 330~**490**~660	-	-	-
Ni-base Heat Resistant Alloy	★ 0.004~**0.005**~0.006	☆ 0.002~**0.004**~0.006	☆ 0.005~**0.006**~0.008	-	-	☆ 70~**100**~160	★ 70~**100**~160
Titanium Alloy	☆ 0.004~**0.005**~0.006	★ 0.002~**0.004**~0.006	-	☆ 100~**160**~230	-	★ 130~**200**~260	-

· Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy
★ : 1st Recommendation ☆ : 2nd Recommendation
· The figure in bold font is center value of the recommended cutting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
· Recommended feed rate is the reference value when D.O.C. is RE/2 (0.118" for ROMU12, 0.158" for ROMU16).
For lower feed rates than the above conditions, the conversion factor in the following table is recommended.

Conversion Factor for Feed Per Tooth by Depth of Cut (D.O.C.)

Insert	D.O.C. (Recommended)	Max. D.O.C.	Conversion Factor for Feed Per Tooth				
			D.O.C. = 0.020"	D.O.C. = 0.039"	D.O.C. = 0.079"	D.O.C. = 0.118"	D.O.C. = 0.158"
ROMU12 type	0.118" or less	0.236"	2.1	1.5	1.1	1.0 (Standard)	-
ROMU16 type	0.158" or less	0.315"	2.4	1.7	1.3	1.1	1.0 (Standard)

Calculation Example (ROMU12, Carbon Steel, GM Chipbreaker, D.O.C. = 0.039")

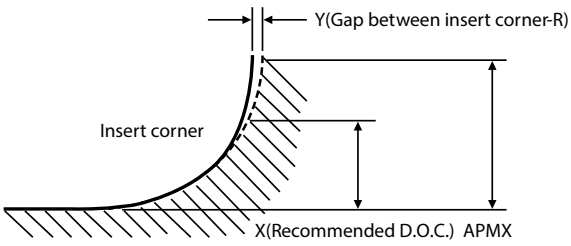
fz = 0.008 ipt (Standard value for carbon steel and GM chipbreaker)	X	**1.5** (Conversion factor for ROMU12 type, D.O.C. = 0.039")	=	**fz = 0.012 ipt** (Recommended feed rate)

* Recommended D.O.C.: 0.118" (3mm) or less for ROMU12, 0.158" (4mm) or less for ROMU16
Except the case that D.O.C. temporally surpasses the recommended D.O.C., machining under the recommended D.O.C. is recommended.

Corner-R Shape During Processing

Corner-R shape during processing with MRW (Ref. to the right figure)

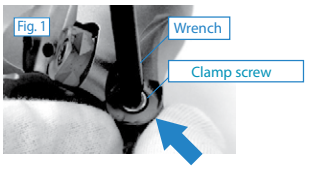
Insert	APMX	X	Y
ROMU12 type	6 mm	3 mm	0.1 mm
ROMU16 type	8 mm	4 mm	0.1 mm

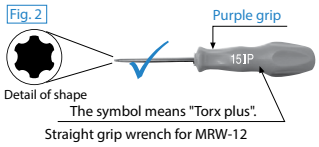


* When machining with larger D.O.C. than recommended D.O.C. (X), there is a gap (Y) between the workpiece corner and Insert corner-R(RE).
* The above figure is estimation. There would be ±0.008" variation depending on the cutting conditions.

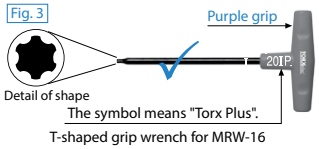
How to Mount Inserts

1. Be sure to remove dust and chips from the insert mounting pocket.
2. Clamp screw
   1. Apply anti-seize compound on portion of taper and thread of clamp screw.
   2. Attach the screw to the front end of the wrench. While lightly pressing the insert against the pocket surfaces, put the screw into the hole of the insert and tighten. (Ref. to Fig. 1)
3. Wrenches and clamp screws are "Torx Plus".
   1. Fig. 2 wrench is for MRW-12. (Straight grip)
   2. Fig. 3 wrench is for MRW-16. (T-shaped grip)
   Please use a "Torx Plus" Wrench for tightening cramp screw.
   * If a "Torx" wrench (Fig. 4) is used to tighten, the screw head might become damaged and then the screw cannot be removed.
4. When tightening the screw, make sure that the wrench is parallel to the screw.
   Recommended Tightening torque, See spare parts table.
5. After tightening the screw, make sure that there is no clearance between the insert seat surface and the pocket surface of the toolholder or between the insert side surfaces and the constraint surface of the toolholder. If there is any clearance, remove the insert and mount it again according to the above steps.

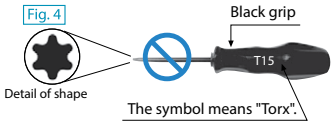




Straight grip wrench for MRW-12



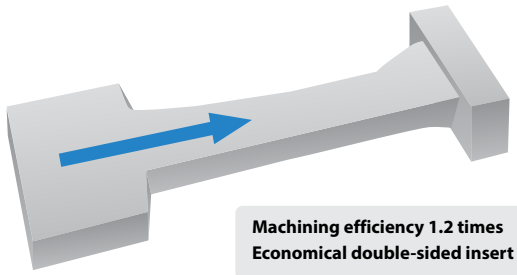
T-shaped grip wrench for MRW-16



Torx wrench (Do NOT use it for MRW)

Case Studies

410 Stainless Steel



Machining efficiency 1.2 times
Economical double-sided insert

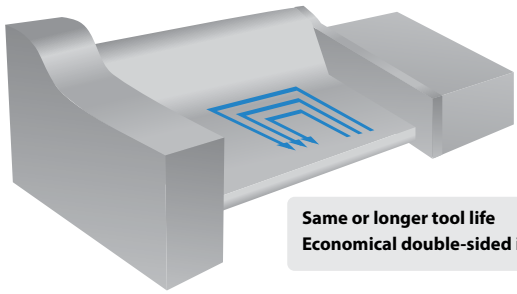
- Turbine blade • Vc = 890 sfm • fz = 0.011 ipt
- D.O.C. = 0.020~0.039" ae = Max. 1.378" • Dry
- MRW050R-12-6T-M (6 flutes) • ROMU1204M0ER-SM (CA6535)

CA6535	Stable machining
Competitor A (Positive cutter)	Unstable machining with large noise

- MRW improved machining efficiency by 1.2 times with same tool life compared with competitor A.
- MRW has cost advantage due to double-sided inserts.

(User evaluation)

410 Stainless Steel



Same or longer tool life
Economical double-sided insert

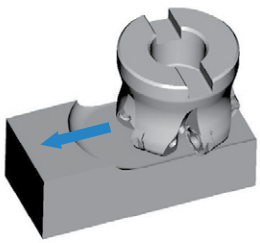
- Turbine Blade • Vc = 820 sfm • fz = 0.006 ipt
- D.O.C. = 0.079" ae = 0.197-1.181" • Wet
- MRW050R-12-5T-M (5 flutes) • ROMU1204M0ER-SM (CA6535)

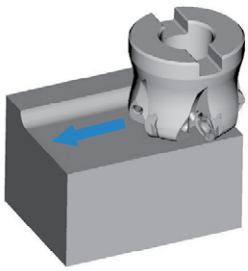
CA6535	Stable, available for further machining
Competitor B (Positive cutter)	Unstable machining with large noise

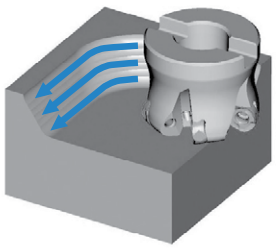
- MRW showed less damage on the cutting edge and reduced machining noise.
- MRW has equal or longer tool life and cost advantage due to double sided inserts.

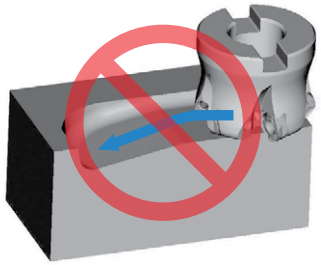
(User evaluation)

Applications


Facing


Shouldering


Contouring


Plunging/Profiling

* MRW type is not available for 3D machining such as plunging and profiling.

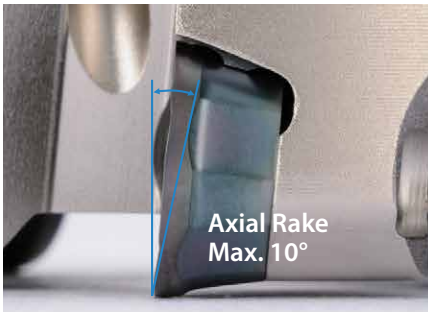
High Efficiency Radius Cutter

RAD-6 (MRX)

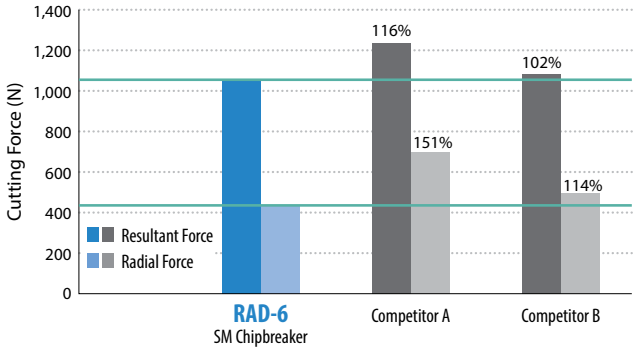
Low Cutting Forces for Longer Tool Life
Available for a Wide Range of Applications

1 Low Cutting Force Helical Cutting Edge Design

Maximum Axial Rake Angle



Cutting Force Comparison (Internal Evaluation)



Cutting Conditions: Vc = 400 sfm, D.O.C. × ae = 0.079" × 0.984" fz = 0.008 ipt,
Workpiece: 304 Steel Cutter: Ø2.000"

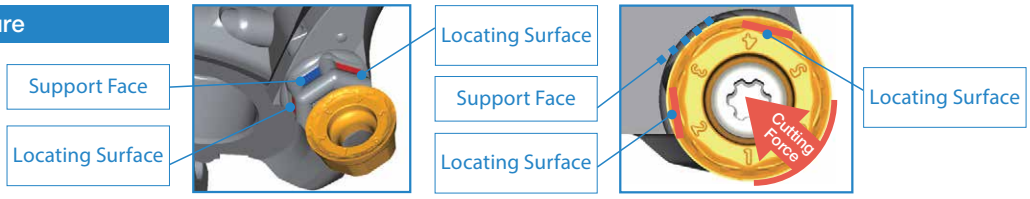
2 Flat Lock Structure Creates a Firm Hold on the Inserts

Prevents insert rotation during machining to provide stable cuttting

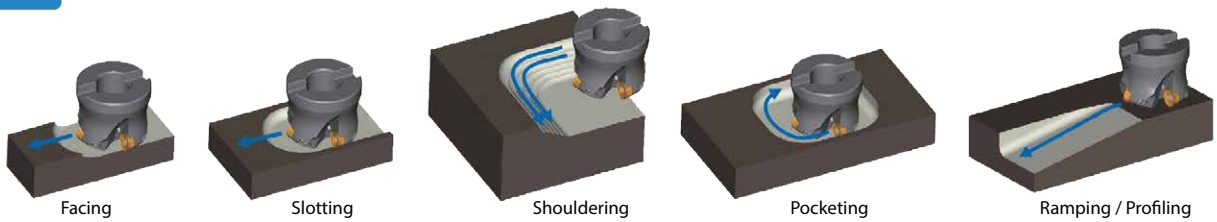
Flat Lock Structure

Wide Flat Binding Face

- Receives even cutting forces
- Prevents insert rotation



3 Available for Various Applications



4 Numerous Applications for a Large Variety of Materials

Insert grades **CA6535/PR1835** for difficult-to-cut material are available.
Long tool life with wide lineup of grades and 3 chipbreakers, available for steel, stainless steel and heat-resistant alloys.

Cost-effective M class inserts are available

MRX (Face Mill)

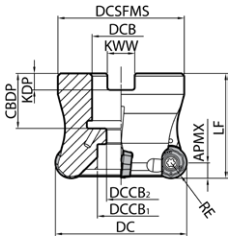


Fig. 1

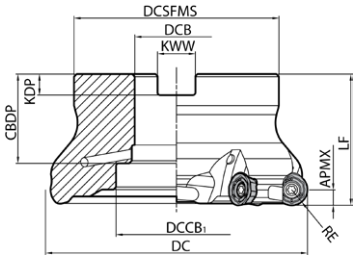


Fig. 2

Toolholder Dimensions

Unit		Part Number	Std. Item R	No. of Inserts	Dimensions RE	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX	A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➡ M291
Inch	Inch Bore Dia.	MRX 1500R-10-5T	●	5	0.197 (5mm)	1.500	1.400	0.500	0.433	0.276	1.575	0.709	0.156	0.250	0.197 (5mm)	+10	-5.5	Yes	13,500	1.2	1	RPGT10T3... RPMT10T3...
		2000R-10-6T	●	6		2.000	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313						1.1	1	
		MRX 2000R-12-5T	●	5	0.236 (6mm)	2.000	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313	0.236 (6mm)	+10	-5.5	Yes	10,000	1.4	2	RPGT1204... RPMT1204... RPMW1204...
		3000R-12-6T	●	6		3.000	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382					9,000	2.7	2	
		MRX 2500R-16-5T	●	5	0.315 (8mm)	2.500	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313	0.315 (8mm)	+10	-5.5	Yes	18,000	0.3	1	RPGT1605... RPMT1605... RPMW1605...
		3000R-16-6T	●	6		3.000	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382					15,500	0.6	1	
		4000R-16-7T	●	7		4.000	3.540	1.500	2.047	-	1.969	1.142	0.394	0.626					13,500	1.1	1	

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Spare Parts and Applicable Inserts (Inch Face Mills)

Part Number	Spare Parts: Insert Screw	Wrench: DTPM	Wrench: TTP	Anti-seize Compound	Arbor Bolt	Applicable Inserts ➡ M291
MRX 1500R-10...	SB-3070TRP	DTPM-10		P-37	HH1/4-0.75(H)	RPMT10T3M0ER-GM RPGT10T3M0ER-GM RPGT10T3M0ER-SM RPMT10T3M0EN-GH *1
2000R-10...	Recommended tightening torque for insert screw 2.0N•m				HH3/8-1.25(H)	
MRX 2000R-12...	SB-4090TRPN	DTPM-15		P-37	HH3/8-1.25(H)	RPMT1204M0ER-GM RPGT1204M0ER-GM RPGT1204M0ER-SM RPMT1204M0EN-GH RPMW1204M0TN *2
3000R-12...	Recommended tightening torque for insert screw 3.5N•m				HH1/2-1.25(H)	
MRX 2500R-16...	SB-50120TRP	TTP-20		P-37	HH3/8-1.25(H)	RPMT1605M0ER-GM RPGT1605M0ER-GM RPGT1605M0ER-SM RPMT1605M0EN-GH RPMW1605M0TN *3
3000R-16...	Recommended tightening torque for insert screw 4.5N•m				HH1/2-1.25(H)	
4000R-16...					-	

(H) Optional coolant-through bolt available

Max. Revolution
Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat anti-seize compound thinly on portion of taper and thread prior to installation.

*1··· Not compatible with conventional RPMT10T3M0 inserts (without ER-.. or EN-..)
*2··· Not compatible with conventional RPMT1204M0 and RPMT1204M0-H inserts (without ER-.. or EN-...).
*3··· Not compatible with the conventional RPMT1606M0-H inserts.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MRX (Face Mill)

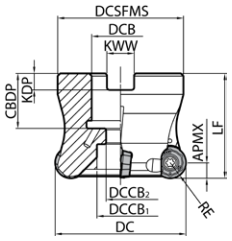


Fig. 1

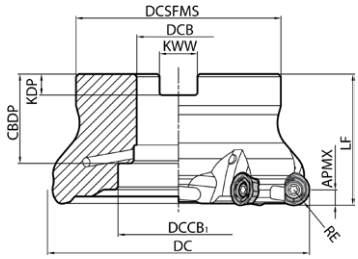


Fig. 2

Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	Dimensions											A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ⇒ M291
			R		RE	DC	DCSFMS	DCB	DCB1	DCB2	LF	CBDP	KDP	KWW	APMX							
mm	Inch Bore Dia.	MRX 080R-12-6T	●	6	6	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	6	+10	-5.5	Yes	13,500	1.2	1	RPGT1204... RPMT1204... RPMW1204...
		080R-12-8T	●	8																1.1	1	
		100R-12-7T	●	7		100	78	1.250"	46	-		1.339"	0.315"	0.500"					12,000	1.5	2	
		100R-12-9T	●	9																	2	
		MRX 080R-16-5T	●	5	8	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	8	+10	-5.5	Yes	11,500	1.1	1	RPGT1605... RPMT1605... RPMW1605...
		080R-16-6T	●	6																	1	
		100R-16-6T	●			100	78	1.250"	46	-		1.339"	0.315"	0.500"					10,000	1.4	2	
		100R-16-7T	●	7																	2	
		125R-16-6T	●	6		125	89	1.500"	55		63	1.496"	0.394"	0.625"					9,000	2.7	2	
		125R-16-8T	●	8																	2	
	Metric Bore Dia.	MRX 040R-10-5T-M	●	5	5	40	38	16	15	9	40	19	5.6	8.4	5	+10	-5.5	Yes	20,000	0.2	1	RPGT10T3... RPMT10T3...
		050R-10-6T-M	●	6		50	48	22	18	11		21	6.3	10.4					17,500	0.3	1	
		063R-10-7T-M	●	7		63	60												15,000	0.6	1	
		MRX 040R-12-4T-M	●	4	6	40	38	16	13.5	9	40	19	5.6	8.4	6	+10	-5.5	Yes	21,000	0.2	1	RPGT1204... RPMT1204... RPMW1204...
		050R-12-4T-M	●			50	48	22	18	11		21	6.3	10.4					18,000	0.3	1	
		050R-12-5T-M	●	5																	1	
		063R-12-5T-M	●			63	60												15,500	0.6	1	
		063R-12-6T-M	●	6																	1	
		080R-12-6T-M	●			80	70	27	20	13	50	24	7	12.4					13,500	1.2	1	
		080R-12-8T-M	●	8																1.1	1	
		100R-12-7T-M	●	7		100	78	32	46	-		30	8	14.4					12,000	1.4	2	
		100R-12-9T-M	●	9																	2	
		MRX 063R-16-4T-M	●	4	8	63	60	22	18	11	40	21	6.3	10.4	8	+10	-5.5	Yes	13,500	0.5	1	RPGT1605... RPMT1605... RPMW1605...
		063R-16-5T-M	●	5																	1	
		080R-16-5T-M	●			80	70	27	20	13	50	24	7	12.4					11,500	1.1	1	
		080R-16-6T-M	●	6																	1	
		100R-16-6T-M	●			100	78	32	46	-		30	8	14.4					10,000	1.4	2	
		100R-16-7T-M	●	7																	2	
		125R-16-6T-M	●	6		125	89	40	55		63	33	9	16.4					9,000	2.6	2	
		125R-16-8T-M	●	8																	2	

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts and Applicable Inserts (Metric Face Mills)

Part Number		Spare Parts					Applicable Inserts ➡ M291
		Insert Screw	Wrench		Anti-seize Compound	Arbor Bolt	
			DTPM	TTP			
MRX	040R-10...	SB-3070TRP	DTPM-10		P-37	HH8X25	RPMT10T3M0ER-GM RPGT10T3M0ER-GM RPGT10T3M0ER-SM RPMT10T3M0EN-GH *1
	050R-10...		Recommended tightening torque for insert screw 2.0N•m			HH10X30	
	063R-10...						
MRX	040R-12...	SB-4090TRPN	DTPM-15		P-37	HH8X25	RPMT1204M0ER-GM RPGT1204M0ER-GM RPGT1204M0ER-SM RPMT1204M0EN-GH RPMW1204M0TN *2
	050R-12...					HH10X30	
	063R-12...		Recommended tightening torque for insert screw 3.5N•m				
	080R-12...					HH12X35	
	100R-12...					-	
MRX	063R-16...	SB-50120TRP	TTP-20		P-37	HH10X30	RPMT1605M0ER-GM RPGT1605M0ER-GM RPGT1605M0ER-SM RPMT1605M0EN-GH RPMW1605M0TN *3
	080R-16...					HH12X35	
	100R-16...		Recommended tightening torque for insert screw 4.5N•m			-	
	125R-16...						

Max. Revolution
Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat anti-seize compound thinly on portion of taper and thread prior to installation.

*1··· Not compatible with conventional RPMT10T3M0 inserts (without ER-.. or EN-..)
*2··· Not compatible with conventional RPMT1204M0 and RPMT1204M0-H inserts (without ER-.. or EN-..).
*3··· Not compatible with the conventional RPMT1606M0-H inserts.

MRX (End Mill)

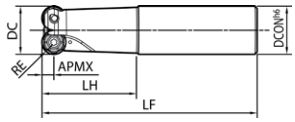


Fig. 1

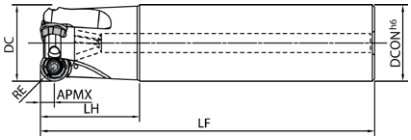


Fig. 2

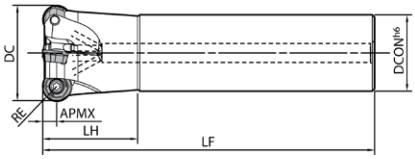


Fig. 3

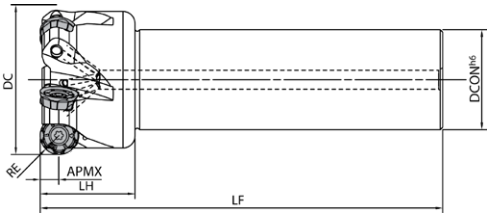


Fig. 4

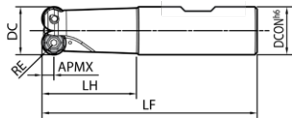


Fig. 5

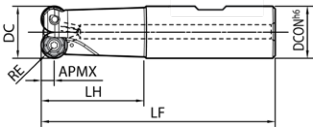


Fig. 6

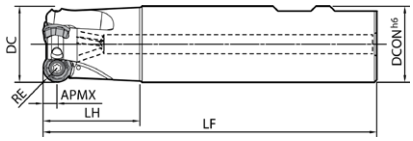


Fig. 7

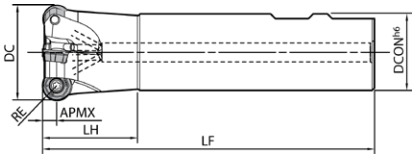


Fig. 8

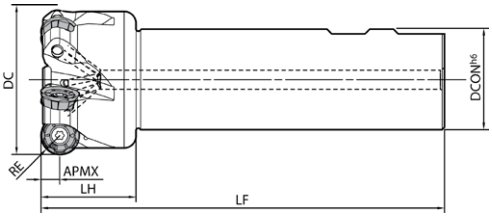


Fig. 9

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions RE	DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Applicable Inserts ➡ M291
Inch	Weldon	Standard Shank	MRX 0625-W625-08-2T	●	2	0.157 (4mm)	0.625	0.625	4.331	2.386	0.157 (4mm)	+3	-6.5	No	38,000	5	RDGT0803... RDMT0803...
			0750-W750-08-2T	●	2		0.750	0.750	4.724	2.654		+10	-5.5	Yes	32,000	6	
			1000-W100-08-4T	●	4		1.000	1.000	4.724	2.406					28,000	7	
			MRX 1000-W100-10-3T	●	3	0.197 (5mm)	1.000	1.000	4.724	2.409	0.197 (5mm)	+10	-5.5	Yes	28,000	7	RPGT10T3... RPMT10T3...
			1250-W125-10-4T	●	4		1.250	1.250	5.512	3.197					22,500	7	
			MRX 1250-W125-12-3T	●	3	0.236 (6mm)	1.250	1.250	5.512	3.189	0.236 (6mm)	+10	-5.5	Yes	24,500	7	RPGT1204... RPMT1204... RPMW1204...
			1500-W125-12-4T	●	4		1.500	1.250	5.512	1.575					21,000	8	
			MRX 2000-W150-16-4T	●	4	0.315 (8mm)	2.000	1.500	6.693	1.575	0.315 (8mm)	+10	-5.5	Yes	15,500	8	RPGT1605... RPMT1605... RPMW1605...

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit			Part Number	Std. Item	No. of Inserts	Dimensions RE	DC	DCON	LF	LH	APMX	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Applicable Inserts ➡ M291
mm	Cylindrical	Standard Shank	MRX 16-S16-08-2T	●	2	4	16	16	110	40	4	+3	-5.5	No	38,000	1	RDGT0803... RDMT0803...
			20-S20-08-2T	●			20	20	120			+10		Yes	32,000	2	
			25-S25-08-4T	●	4		25	25							28,000	2	
			MRX 20-S20-10-2T	●	2	5	20	20	120	40	5	+5	-8	No	30,000	1	RPGT10T3... RPMT10T3...
			25-S25-10-3T	●	3		25	25				+10	-5.5	Yes	28,000	2	
			32-S32-10-4T	●	4		32	32	140						22,500	2	
			MRX 32-S32-12-3T	●	3	6	32	32	140	40	6	+10	-5.5	Yes	24,500	2	RPGT1204... RPMT1204... RPMW1204...
			40-S32-12-4T	●	4		40								21,000	3	
			50-S42-12-5T	●	5		50	42	170						18,000	3	
			MRX 40-S32-16-2T	●	2	8	40	32	140	40	8	+10	-5.5	Yes	18,000	3	RPGT1605... RPMT1605... RPMW1605...
			50-S42-16-4T	●	4		50	42	170						15,500	3	
			63-S42-16-5T	●	5		63								13,500	4	
	Weldon	Standard Shank	MRX 16-W16-08-2T	●	2	4	16	16	89	40	4	+3	-5.5	No	38,000	5	RDGT0803... RDMT0803...
			20-W20-08-2T	●			20	20	91			+10		Yes	32,000	6	
			25-W25-08-4T	●	4		25	25	97						28,000	7	
			MRX 20-W20-10-2T	●	2	5	20	20	91	40	5	+5	-8	No	30,000	5	RPGT10T3... RPMT10T3...
			25-W25-10-3T	●	3		25	25	97			+10	-5.5	Yes	28,000	7	
			32-W32-10-4T	●	4		32	32	101						22,500	7	
			MRX 32-W32-12-3T	●	3	6	32	32	101	40	6	+10	-5.5	Yes	24,500	7	RPGT1204... RPMT1204... RPMW1204...
			40-W32-12-4T	●	4		40								21,000	8	
			50-W40-12-5T	●	5		50	40	111						18,000	8	
			MRX 40-W32-16-2T	●	2	8	40	32	101	40	8	+10	-5.5	Yes	18,000	8	RPGT1605... RPMT1605... RPMW1605...
			50-W40-16-4T	●	4		50	40	111						15,500	8	
			63-W40-16-5T	●	5		63		112						13,500	9	
	Cylindrical	Long Shank	MRX 16-S16-08-2T-160	●	2	4	16	16	160	70	4	+3	-5.5	No	38,000	1	RDGT0803... RDMT0803...
			20-S20-08-2T-180	●			20	20	180	80		+10		Yes	32,000	2	
			25-S25-08-4T-180	●	4		25	25							28,000	2	
			MRX 20-S20-10-2T-180	●	2	5	20	20	180	80	5	+5	-8	No	30,000	1	RPGT10T3... RPMT10T3...
			25-S25-10-2T-180	●			25	25				+10	-5.5	Yes	28,000	2	
			32-S32-10-4T-200	●	4		32	32	200						22,500	2	
			MRX 32-S32-12-2T-200	●	2	6	32	32	200	80	6	+10	-5.5	Yes	24,500	2	RPGT1204... RPMT1204... RPMW1204...
			40-S32-12-4T-200	●	4		40			40					21,000	3	
			50-S42-12-4T-300	●			50	42	300						18,000	3	
			MRX 40-S32-16-2T-200	●	2	8	40	32	200	40	8	+10	-5.5	Yes	18,000	3	RPGT1605... RPMT1605... RPMW1605...
			50-S42-16-4T-300	●	4		50	42	300						15,500	3	
			63-S42-16-4T-300	●			63								13,500	4	

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

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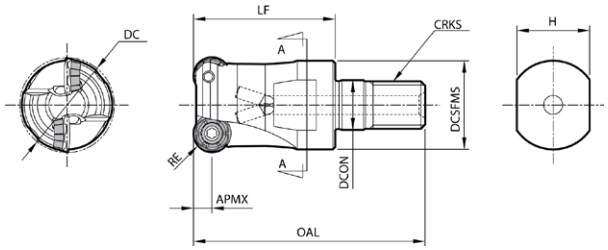
Contact your local Kyocera sales engineer to upgrade old products to new technology

MRX (Modular Head)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions RE	DC	DCON	DCSFMS	OAL	LF	APMX	CRKS	H	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Applicable Inserts ➡ M291
mm	MRX 16-M08-08-2T	●	2	4	16	8.5	14.7	42	25	4	M8x1.25	12	+3	-5.5	No	38,000	RDGT0803... RDMT0803...
	20-M10-08-2T	●	2	4	20	10.5	18.7	48	30	4	M10x1.5	15	+10	-5.5	Yes	32,000	RDGT0803... RDMT0803...
	25-M12-08-4T	●	4	4	25	12.5	23	56	35	4	M12x1.75	19	+10	-5.5	Yes	28,000	RDGT0803... RDMT0803...
	MRX 20-M10-10-2T	●	2	5	20	10.5	18.7	48	30	5	M10x1.5	15	+5	-8	No	30,000	RPGT10T3... RPMT10T3...
	25-M12-10-3T	●	3	5	25	12.5	23	56	35	5	M12x1.75	19	+10	-5.5	Yes	28,000	RPGT10T3... RPMT10T3...
	32-M16-10-4T	●	4	5	32	17	30	62	40	5	M16x2.0	24	+10	-5.5	Yes	22,500	RPGT10T3... RPMT10T3...
	MRX 32-M16-12-3T	●	3	6	32	17	30	62	40	6	M16x2.0	24	+10	-5.5	Yes	24,500	RPGT1204... RPMT1204... RPMW1204...
	40-M16-12-4T	●	4	6	40	17	30	62	40	6	M16x2.0	24	+10	-5.5	Yes	21,000	RPGT1204... RPMT1204... RPMW1204...
	MRX 40-M16-16-2T	●	2	8	40	17	30	62	40	8	M16x2.0	24	+10	-5.5	Yes	18,000	RPGT1605... RPMT1605... RPMW1605...

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
See page **M324** for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

Spare Parts and Applicable Inserts (Inch and Metric End Mills)

Part Number	Insert Screw	Wrench DTPM	Wrench TTP	Anti-seize Compound	Applicable Inserts ➡ M291
MRX ...-08...	SB-2555TRP	DTPM-8		P-37	RDMT0803M0ER-GM RDGT0803M0ER-GM RDGT0803M0ER-SM RDMT0803M0EN-GH *1
	Recommended tightening torque for insert screw 1.2N•m				
MRX ...-10...	SB-3070TRP	DTPM-10		P-37	RPMT10T3M0ER-GM RPGT10T3M0ER-GM RPGT10T3M0ER-SM RPMT10T3M0EN-GH *2
	Recommended tightening torque for insert screw 2.0N•m				
MRX ...-12...	SB-4090TRPN	DTPM-15		P-37	RPMT1204M0ER-GM RPGT1204M0ER-GM RPGT1204M0ER-SM RPMT1204M0EN-GH RPMW1204M0TN *3
	Recommended tightening torque for insert screw 3.5N•m				
MRX ...-16...	SB-50120TRP	TTP-20		P-37	RPMT1605M0ER-GM RPGT1605M0ER-GM RPGT1605M0ER-SM RPMT1605M0EN-GH RPMW1605M0TN *4
	Recommended tightening torque for insert screw 4.5N•m				

Max. Revolution
Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat anti-seize compound thinly on portion of taper and thread prior to installation.

*1··· Not compatible with the conventional RDMT08T2M0-H inserts.
*2··· Not compatible with conventional RPMT10T3M0 inserts (without ER-.. or EN-..)
*3··· Not compatible with conventional RPMT1204M0 and RPMT1204M0-H inserts (without ER-.. or EN-..).
*4··· Not compatible with the conventional RPMT1606M0-H inserts.

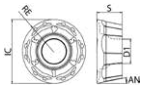
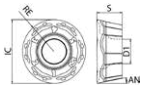
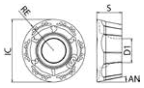
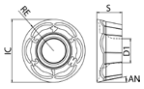
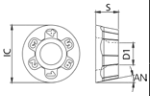
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

RDMT/RDGT/RPMT/RPGT/RPMW

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or under)

Carbon steel / Alloy steel			☆			★	☆	P
Mold and die steel			☆			★	☆	P
Austenitic stainless steel				☆		☆	★	M
Martensitic stainless steel	★						☆	M
Precipitation hardened stainless steel				☆			★	M
Gray cast iron		☆			★			K
Nodular cast iron		☆			★			K
Non-ferrous metals								N
Heat-resistant alloy	★						☆	S
Titanium alloy				☆			★	S
Hard materials								H

Insert		Part Number	Dimensions (mm)				Angle (°)	Carbide						Applicable Toolholder ➡ M285~M290
			IC	S	D1	RE	AN	CVD	PVD					
								CA6535	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835	
	 General Purpose	RDGT 0803M0ER-GM	8	3.18	3	4	15	●	△	●	●	●	●	MRX...-08-..
		RPGT 10T3M0ER-GM	10	3.97	3.5	5	11	●	△	●	●	●	●	MRX...-10-..
		RPGT 1204M0ER-GM	12	4.76	4.6	6	11	●	△	●	●	●	●	MRX...-12-..
		RPGT 1605M0ER-GM	16	5.56	5.8	8	11	●	△	●	●	●	●	MRX...-16-..
	 General Purpose	RDMT 0803M0ER-GM	8	3.18	3	4	15	●	△	●	●	●	●	MRX...-08-..
		RPMT 10T3M0ER-GM	10	3.97	3.5	5	11	●	△	●	●	●	●	MRX...-10-..
		RPMT 1204M0ER-GM	12	4.76	4.6	6	11	●	△	●	●	●	●	MRX...-12-..
		RPMT 1605M0ER-GM	16	5.56	5.8	8	11	●	△	●	●	●	●	MRX...-16-..
	 Low Cutting Force	RDGT 0803M0ER-SM	8	3.18	3	4	15	●		●	●		●	MRX...-08-..
		RPGT 10T3M0ER-SM	10	3.97	3.5	5	11	●		●	●		●	MRX...-10-..
		RPGT 1204M0ER-SM	12	4.76	4.6	6	11	●		●	●		●	MRX...-12-..
		RPGT 1605M0ER-SM	16	5.56	5.8	8	11	●		●	●		●	MRX...-16-..
	 Tough Edge	RDMT 0803M0EN-GH	8	3.18	3	4	15	●	△	●	●	●	●	MRX...-08-..
		RPMT 10T3M0EN-GH	10	3.97	3.5	5	11	●	△	●	●	●	●	MRX...-10-..
		RPMT 1204M0EN-GH	12	4.76	4.6	6	11	●	△	●	●	●	●	MRX...-12-..
		RPMT 1605M0EN-GH	16	5.56	5.8	8	11	●	△	●	●	●	●	MRX...-16-..
	 Flat Top (Heavy Milling)	RPMW 1204M0TN	12	4.76	4.6	6	11			●	●			MRX...-12-..
		RPMW 1605M0TN	16	5.56	5.8	8	11			●	●			MRX...-16-..

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M292

RDGT / RPGT / RDMT / RPMT / RPMW Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Chipbreaker / Feed Rate (fz: ipt)					Recommended Insert Grade (Vc: sfm)			
	RD..08... : D.O.C. = 0.079" RP..10... : D.O.C. = 0.098" RP..12... : D.O.C. = 0.118" RP..16... : D.O.C. = 0.158"					MEGACOAT NANO EX (MEGACOAT NANO)			CVD Coated Carbide
	RDMT-GM RPMT-GM	RDGT-GM RPGT-GM	RDGT-SM RPGT-SM	RDMT-GH RPMT-GH	RPMW	PR1810 (PR1510)	PR1825 (PR1525)	PR1835 (PR1535)	CA6535
Carbon Steel	★ 0.004~**0.008**~0.012	☆ 0.004~**0.008**~0.012	☆ 0.002~**0.006**~0.008	☆ 0.006~**0.012**~0.014	☆ 0.006~**0.012**~0.016	-	★ 390~**590**~820	☆ 390~**590**~820	-
Alloy Steel	★ 0.004~**0.008**~0.012	☆ 0.004~**0.008**~0.012	☆ 0.002~**0.006**~0.008	☆ 0.006~**0.012**~0.014	☆ 0.006~**0.012**~0.016	-	★ 330~**520**~720	☆ 330~**520**~720	-
Mold Steel	★ 0.004~**0.006**~0.010	☆ 0.004~**0.006**~0.010	☆ 0.002~**0.005**~0.008	☆ 0.006~**0.008**~0.012	☆ 0.006~**0.008**~0.012	-	★ 260~**460**~590	☆ 260~**460**~590	-
Austenitic Stainless Steel	☆ 0.004~**0.006**~0.008	☆ 0.004~**0.006**~0.008	★ 0.002~**0.005**~0.008	☆ 0.006~**0.008**~0.010	☆ 0.006~**0.008**~0.010	-	☆ 330~**520**~660	★ 330~**520**~660	-
Martensitic Stainless Steel	☆ 0.004~**0.006**~0.008	☆ 0.004~**0.006**~0.008	★ 0.002~**0.005**~0.008	☆ 0.006~**0.008**~0.010	☆ 0.006~**0.008**~0.010	-	-	☆ 490~**660**~820	★ 590~**790**~980
Precipitation Hardened Stainless Steel	☆ 0.004~**0.006**~0.008	★ 0.004~**0.006**~0.008	☆ 0.002~**0.005**~0.008	☆ 0.006~**0.008**~0.010	☆ 0.006~**0.008**~0.010	-	-	★ 300~**390**~490	-
Gray Cast Iron	★ 0.004~**0.008**~0.012	☆ 0.004~**0.008**~0.012	-	☆ 0.006~**0.012**~0.014	☆ 0.006~**0.012**~0.016	★ 390~**590**~820	-	-	-
Nodular Cast Iron	★ 0.004~**0.006**~0.010	☆ 0.004~**0.006**~0.010	-	☆ 0.006~**0.008**~0.012	☆ 0.006~**0.010**~0.014	★ 330~**490**~660	-	-	-
Ni-base Heat-Resistant Alloy	☆ 0.004~**0.005**~0.006	★ 0.004~**0.005**~0.006	☆ 0.002~**0.004**~0.006	☆ 0.005~**0.006**~0.008	☆ 0.005~**0.006**~0.008	-	-	☆ 70~**100**~160	★ 70~**100**~160
Titanium Alloy	☆ 0.004~**0.005**~0.006	☆ 0.004~**0.005**~0.006	★ 0.002~**0.004**~0.006	-	-	☆ 100~**160**~230	-	★ 130~**200**~260	-

★ : 1st Recommendation ☆ : 2nd Recommendation

- Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy.
- RDGT / RPGT are recommended for Stainless Steel, Ni-base Heat Resistant Alloy, and Titanium Alloy.
- The figure in bold font is the starting value of the recommended cutting conditions.
  Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
- Recommended feed rate is the reference value when D.O.C. is rε/2 (0.079" for RD..08 / 0.098" for RP..10 / 0.118" for RP..12 / 0.158" for RP..16).
  For other D.O.C., calculate the recommended feed rate based on the conversion factor below.
- For MRX16-S16-08-2T(-160), MRX16-W-08-2T, MRX20-S20-10-2T(-180), MRX20-W20-10-2T, MRX0625-W625-08-2T, MRX0625-S625-08-2T-6 set the feed rate no higher than 50% of the recommended cutting conditions.

Conversion Factor for Feed Per Tooth by Depth of Cut (D.O.C.)

Insert	D.O.C. (Max.)	Conversion Factor for Feed Per Tooth									
		D.O.C. = 0.020" (0.5mm)	D.O.C. = 0.039" (1.0mm)	D.O.C. = 0.059" (1.5mm)	D.O.C. = 0.079" (2.0mm)	D.O.C. = 0.098" (2.5mm)	D.O.C. = 0.118" (3.0mm)	D.O.C. = 0.158" (4.0mm)	D.O.C. = 0.197" (5.0mm)	D.O.C. = 0.236" (6.0mm)	D.O.C. = 0.315" (8.0mm)
RD..08... (GM/SM/GH Chipbreaker)	0.158" (4mm)	1.7	1.3	1.1	1.0 (Standard)	0.9	0.8	0.8	-	-	-
RP..10... (GM/SM/GH Chipbreaker)	0.197" (5mm)	1.9	1.4	1.2	1.0	1.0 (Standard)	0.9	0.8	0.8	-	-
RP..12... (GM/SM/GH Chipbreaker)	0.236" (6mm)	2.1	1.5	1.3	1.1	1.0	1.0 (Standard)	0.9	0.8	0.8	-
RP..16... (GM/SM/GH Chipbreaker)	0.315" (8mm)	2.4	1.7	1.4	1.3	1.1	1.1	1.0 (Standard)	0.9	0.8	0.8

Calculation Example (RPMT12..., Carbon Steel, GM Chipbreaker, D.O.C. = 0.039")

fz = 0.008 ipt (Standard value for carbon steel and GM chipbreaker)	X	**1.5** (Conversion factor for ROMU12 type, D.O.C. = 0.039")	=	**fz = 0.012 ipt** (Recommended feed rate)

Maximum Depth of Cut and Usable Edges

Usable Edges	Insert Radius			
	R4	R5	R6	R8
3 Edges	D.O.C. = 0.079"~0.158"	D.O.C. = 0.098"~0.197"	D.O.C. = 0.118"~0.236"	D.O.C. = 0.158"~0.315"
6 Edges	Less than D.O.C. = 0.079"	Less than D.O.C. = 0.098"	Less than D.O.C. = 0.118"	Less than D.O.C. = 0.158"

Drilling Conditions

[Drilling Depth]

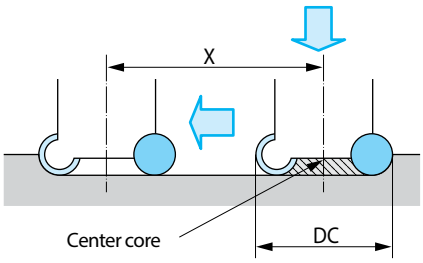
See Max. Cutting Depth (Pd) in the table below.

[Traversing After Drilling]

Caution when Traversing right after Drilling

1 . Reduce the table feed by 50% of the recommended conditions until the center core part is completely cut off. The internal cutting edge's radial rake angle is large in the negative direction.

2 . Min cutting length for flat bottom face (X) is in the table to the right.



Inch					mm				
Inch Tool Spec.		Max D.O.C.	Max. Cutting Depth (Pd)	Min. Cutting Length for Flat Bottom Face (X)	Metric Tool Spec.		Max D.O.C.	Max. Cutting Depth (Pd)	Min. Cutting Length for Flat Bottom Face (X)
Insert	Tool Dia.				Insert	Tool Dia. Metric			
RD..08	0.625	0.157	0.028	0.349	RD..08	16	4	0.7	9
	0.750	0.157	0.055	0.474		20	4	1.4	13
	1.000	0.157	0.055	0.724		25	4	1.4	18
RP..10	0.750	0.197	0.024	0.396	RP..10	20	5	0.6	11
	1.000	0.197	0.075	0.646		25	5	1.9	16
	1.250	0.197	0.075	0.896		32	5	1.9	23
	1.500	0.197	0.075	1.146		40	5	1.9	31
	2.000	0.197	0.075	1.646		50	5	1.9	41
	2.500	0.197	0.075	2.146		63	5	1.9	54
RP..12	1.250	0.236	0.094	0.817	RP..12	32	6	2.4	21
	1.500	0.236	0.094	1.067		40	6	2.4	29
	2.000	0.236	0.094	1.567		50	6	2.4	39
	2.500	0.236	0.094	2.067		63	6	2.4	52
	3.000	0.236	0.094	2.567		80	6	2.4	69
	4.000	0.236	0.094	3.567		100	6	2.4	89
RP..16	1.500	0.315	0.134	0.909	RP..16	40	8	3.4	25
	2.000	0.315	0.134	1.409		50	8	3.4	35
	2.500	0.315	0.134	1.909		63	8	3.4	48
	3.000	0.315	0.134	2.409		80	8	3.4	65
	4.000	0.315	0.134	3.409		100	8	3.4	85
	5.000	0.315	0.134	4.346		125	8	3.4	110

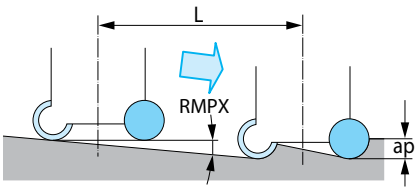
• Above value is based on the clearance of 0.039" between the tool and the workpiece.

Ramping Conditions

Ramping angle should be under RMPX (maximum ramping angle) in the table below.
Feed rate should be under 70% of the cutting conditions on page **M284**

Formula of the cutting length "L" at max. ramping angle

$$L = \frac{D.O.C.}{\tan RMPX}$$



Inch						mm					
Inch Tool Spec.		Max D.O.C.	Max Ramping Angle RMPX	tan RMPX	Max. Cutting Length at Max. Ramping Angle (L)	Metric Tool Spec.		Max D.O.C.	Max Ramping Angle RMPX	tan RMPX	Max. Cutting Length at Max. Ramping Angle (L)
Insert	Tool Dia.					Insert	Tool Dia. Metric				
RD..08	0.625	0.157	7°	0.123	1.282	RD..08	16	4	8°	0.141	28
	0.750	0.157	9°	0.158	0.994		20	4	9°	0.158	25
	1.000	0.157	5°	0.087	1.800		25	4	5°	0.087	45
RP..10	0.750	0.197	4°	0.070	2.816	RP..10	20	5	5°	0.087	57
	1.000	0.197	9°	0.158	1.243		25	5	10°	0.176	28
	1.250	0.197	6°	0.105	1.873		32	5	6°	0.105	47
	1.500	0.197	4°	0.070	2.816		40	5	4°	0.070	71
	2.000	0.197	3°	0.052	3.757		50	5	3°	0.052	95
	2.500	0.197	2°	0.035	5.640		63	5	2°	0.035	143
RP..12	1.250	0.236	9°	0.158	1.491	RP..12	32	6	9°	0.158	37
	1.500	0.236	6°	0.105	2.248		40	6	5°	0.087	68
	2.000	0.236	4°	0.070	3.379		50	6	4°	0.070	85
	2.500	0.236	2°	0.035	6.768		63	6	2°	0.035	171
	3.000	0.236	2°	0.035	6.768		80	6	2°	0.035	171
	4.000	0.236	1°	0.017	13.498		100	6	1°	0.017	343
RP..16	1.500	0.315	12°	0.213	1.481	RP..16	40	8	11°	0.194	41
	2.000	0.315	6°	0.105	2.997		50	8	7°	0.123	65
	2.500	0.315	4°	0.070	4.506		63	8	4°	0.070	114
	3.000	0.315	3°	0.052	6.011		80	8	3°	0.052	152
	4.000	0.315	2°	0.035	9.025		100	8	2°	0.035	229
	5.000	0.315	1°	0.017	17.998		125	8	1°	0.017	458

• Above value is based on the clearance of 0.039" between the tool and the workpiece.

Helical Milling Conditions

- Sinking depth (h) when helical milling should be under Max D.O.C. in table below. Sinking angle α (with trajectory of the center line of tool) should be under RMPX (maximum ramping angle) in cutting conditions on page **M286**.
- Feed rate should be under 70% of recommended cutting conditions on page **M284**.
- Climb milling is recommended.

Formula for sinking depth (h)
$h=\pi \times øDs \times \tan \alpha$

(h should be D.O.C. or under)
(α should be RMPX or under)

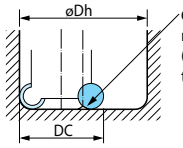
øDs (Trajectory diameter of cutter's center line)
øDs=øDh-DC

Inch						mm					
Inch Tool Spec.		Max D.O.C.	Min. Cutting Dia. (ØDh1)	Min. Cutting Dia. for Flat Bottom Facing (ØDh2)	Max. Cutting Dia. (ØDh3)	Metric Tool Spec.		Max D.O.C.	Min. Cutting Dia. (ØDh1)	Min. Cutting Dia. for Flat Bottom Facing (ØDh2)	Max. Cutting Dia. (ØDh3)
Insert	Tool Dia.					Insert	Tool Dia. Metric				
RD..08	0.625	0.157	7⁹	0.123	1.282	RD..08	16	4	8⁹	0.141	28
	0.750	0.157	9⁹	0.158	0.994		20	4	9⁹	0.158	25
	1.000	0.157	5⁹	0.087	1.800		25	4	5⁹	0.087	45
RP..10	0.750	0.197	4⁹	0.070	2.816	RP..10	20	5	5⁹	0.087	57
	1.000	0.197	9⁹	0.158	1.243		25	5	10⁹	0.176	28
	1.250	0.197	6⁹	0.105	1.873		32	5	6⁹	0.105	47
	1.500	0.197	4⁹	0.070	2.816		40	5	4⁹	0.070	71
	2.000	0.197	3⁹	0.052	3.757		50	5	3⁹	0.052	95
	2.500	0.197	2⁹	0.035	5.640		63	5	2⁹	0.035	143
RP..12	1.250	0.236	9⁹	0.158	1.491	RP..12	32	6	9⁹	0.158	37
	1.500	0.236	6⁹	0.105	2.248		40	6	5⁹	0.087	68
	2.000	0.236	4⁹	0.070	3.379		50	6	4⁹	0.070	85
	2.500	0.236	2⁹	0.035	6.768		63	6	2⁹	0.035	171
	3.000	0.236	2⁹	0.035	6.768		80	6	2⁹	0.035	171
	4.000	0.236	1⁹	0.017	13.498		100	6	1⁹	0.017	343
RP..16	1.500	0.315	12⁹	0.213	1.481	RP..16	40	8	11⁹	0.194	41
	2.000	0.315	6⁹	0.105	2.997		50	8	7⁹	0.123	65
	2.500	0.315	4⁹	0.070	4.506		63	8	4⁹	0.070	114
	3.000	0.315	3⁹	0.052	6.011		80	8	3⁹	0.052	152
	4.000	0.315	2⁹	0.035	9.025		100	8	2⁹	0.035	229
	5.000	0.315	1⁹	0.017	17.998		125	8	1⁹	0.017	458

- Above value is based on the clearance of 0.039" between the tool and the workpiece.

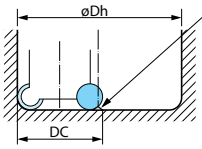
Requirements for Removing Core

[When cutting dia. øDh1≤øDh<øDh2]



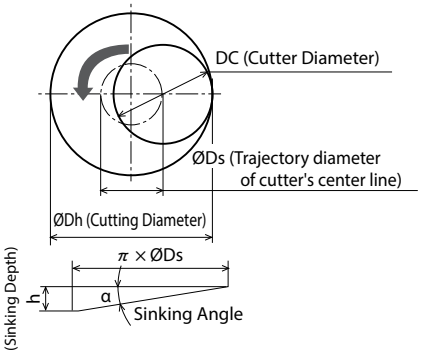
Center core part remains after machining. (Not removable with the same cutter)

[When cutting dia. øDh2≤øDh≤øDh3]



Center core part remains after machining. (Removable by traversing with the same cutter)

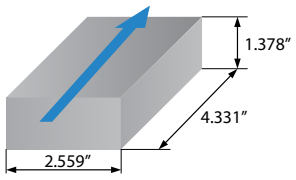
Helical Milling Factors



Case Studies

304 Stainless Steel

Vc = 375 sfm
fz = 0.006 ipt
D.O.C. × ae = 0.039" × 2.559"
Dry
MRX100R-12-9T-M (9 Flutes)
RPGT1204M0ER-SM (PR1535)



4.5 times longer tool life

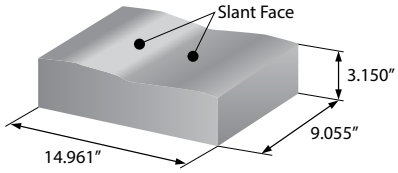
PR1535	**450 pcs/edge**
Conventional	**100 pcs/edge**

- High cost efficiency with 4.5 times longer tool life and 1.5 times more insert edges.
- MRX prevented burr formation and improved surface finish.

(User evaluation)

H13 (45HRC) Alloy Tool Steel

Vc = 330 sfm
fz = 0.004 ipt
D.O.C. × ae = 0.039~0.079" × 0.394"
Dry
MRX20-S20-08-2T (2 Flutes)
RDGT0803M0ER-GM (PR1525)



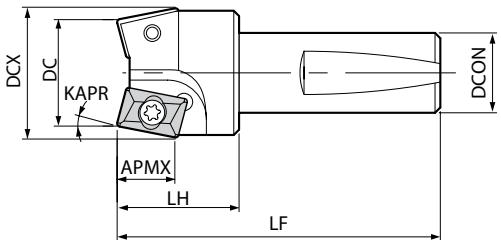
More than double tool life

PR1525	**2 pcs and more Stable tool life**
Conventional	**1 pc unstable tool life**

- Conventional tool machined only 1 pc of workpiece due to unstable tool life, but MRX doubled the tool life with stable machining.

(User evaluation)

CM (Chamfer End Mill)



Toolholder Dimensions

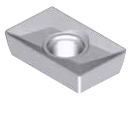
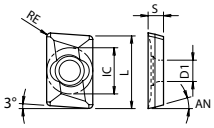
Unit	Part Number	Std. Item	No. of Inserts	Dimensions DCX	DC	DCON	LF	LH	APMX	KAPR (°)	Coolant Hole	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts M297
Inch	CM 0563-15-09	●	2	0.741	0.563	0.500	2.780	1.000	0.340	15	No	SCR-04	T7	XPMT090208
	0563-20-09	●		0.795					0.330	20				
	0563-25-09	●		0.849					0.310	25				
	0563-30-09	●		0.901	0.563	0.625	2.910	1.000	0.300	30		SCR-04		
	0563-35-09	●		0.951					0.280	35				
	0563-45-09	●		1.041					0.240	45		SCR-01		
	0563-60-09	●		1.165					0.160	60				
	0563-75-09	●		1.217					0.080	75				
	CM 1000-03	●	2	1.062	1.000	0.750	3.150	1.250	0.589	3	No	SCR-16	T10	XPMT15T3...
	1000-05	●		1.104					0.586	5				
	1000-10	●		1.206					0.577	10				
	1000-15	●		1.308					0.564	15				
	1000-20	●		1.408					0.547	20				
	1000-25	●		1.504					0.526	25				
	1000-30	●		1.596					0.501	30		SCR-30		
	1000-35	●		1.686					0.472	35				
	1000-37.5	●		1.744					0.456	37.5		SCR-30		
	1000-41	●		1.786					0.433	41				
	1000-45	●		1.800					0.400	45				
	1000-50	●		1.908					0.376	50				
	1000-55	●		2.014					0.327	55				
	1000-60	●		2.042					0.284	60				
	1000-70	●		2.094					0.193	70				
	1000-75	●		2.168					0.146	75				

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

XPMT

Usage Classification								
★: Roughing / 1st Choice ☆: Roughing / 2nd Choice ■: Finishing / 1st Choice □: Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel				★	■	P
	Mold and die steel	★			☆	■	P
	Stainless steel				★		M
	Gray cast iron		★				K
	Nodular cast iron		★				K
	Non-ferrous metals						N
	Heat-resistant alloy	★		☆	☆		S
	Titanium alloy		☆		★		S
	Hard materials						H

Insert		Part Number	No. of Edges	Dimensions (in)					Angle (°)		Carbide				Cermet	Applicable Toolholder
				IC	S	D1	RE	INSL	AN	AS	CVD	PVD			-	
											CA6535	PR1510	PR1525	PR1535	TN100M	
		XPMT 090208	2	1/4	0.094	0.110	0.031	0.375	11	-	●	●	●	●	●	CM...-09 EM...-09(-3F)
		XPMT 15T304	2	3/8	0.156	0.157	0.016	0.607	11	-	●	●		●	●	CM1000-... EM0625 EM0688 EM0750 EM0875 EM0938 EM1000(-100S) EM1125 EM1250(-3F) EM1375 EM1500(-3F) EM...-2.5 EM...-3.5 EM...-LE FM...-90RH
		15T308					0.031				●	●		●	●	
		15T316					0.063				●	●		●		
		15T324					0.094				●	●		●		
		15T331					0.122				●	●		●		
		15T364					0.250				●	●		●		

Recommended Cutting Conditions

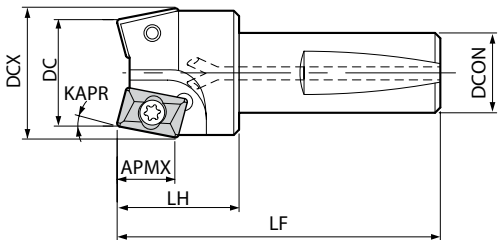
Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm)				
		MEGACOAT NANO			CVD Coated Carbide	Cermet
		PR1535	PR1525	PR1510	CA6535	TN100M
Carbon Steel	0.003~0.006	★ 400~800	★ 400~800	-	-	★ 800~1400
Alloy Steel	0.003~0.006	★ 300~700	★ 300~700	-	-	★ 600~1200
Mold Steel	0.003~0.006	★ 250~600	★ 250~600	-	-	★ 400~700
Stainless Steel	0.002~0.006	★ 300~600	☆ 300~600	-	★ 550~950	☆ 300~800
Cast Iron	0.003~0.008	-	-	★ 400~800	-	☆ 400~1200
Non-ferrous Metals	0.005~0.007	-	-	-	-	☆ 1500~1800
Heat-resistant Alloy	0.002~0.005	☆ 70~160	-	-	★ 70~160	-
Titanium Alloy	0.002~0.005	☆ 130~260	-	☆ 100~230	-	-

★: 1st Recommendation ☆: 2nd Recommendation

XPMT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

CM-AL (Chamfer End Mill, for Aluminum)



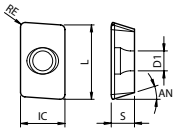
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions DCX	DC	DCON	LF	LH	APMX	KAPR (°)	Coolant Hole	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts
Inch	CM 1000-15-AL	●	2	1.316	1.000	0.750	3.250	1.350	0.613	15.0	Yes	SCR-02	T15	M302 M217
	1000-20-AL	●		1.416					0.595	20.0				APET1604...
	1000-30-AL	●		1.608					0.544	30.0				
	0800-45-AL	●		1.66	0.800				0.440	45.0				
	0800-60-AL	●		1.856					0.308	60.0				
	0690-75-AL	●		1.872	0.690				0.158	75.0				

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

APET

Usage Classification		
★: Roughing / 1st Choice	Carbon steel / Alloy steel	P
☆: Roughing / 2nd Choice	Mold and die steel	
■: Finishing / 1st Choice	Stainless steel	M
□: Finishing / 2nd Choice	Gray cast iron	K
(Hardness 45HRC or less)	Nodular cast iron	
	Non-ferrous metals ★	N
	Heat-resistant alloy	S
	Titanium alloy	
	Hard materials	H

Insert	Part Number	No. of Edges	Dimensions (in) IC	S	D1	RE	INSL	Angle (°) AN	AS	Carbide -	Carbide KW10	Applicable Toolholder
	APET 1604PDFR	2	3/8	0.188	0.157	0.039	0.630	11	-	●		M298 M216
	160416					0.062					●	CM...-AL EM...-AL FMAL-... FM...-90-AL
	160431					0.125				●		

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm) Uncoated Carbide KW10
Non-ferrous Metals	0.005~0.007	2,000~4,000

APET Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MCSE

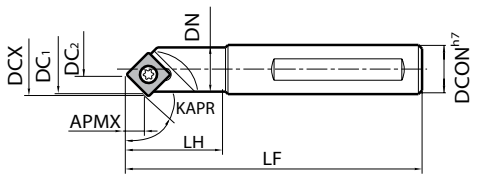


Fig. 1

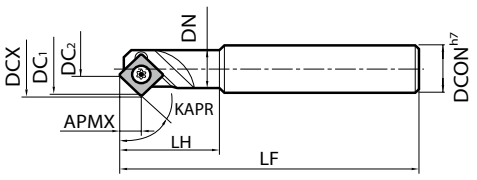


Fig. 2

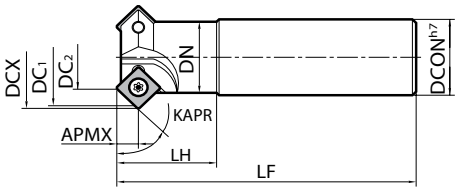


Fig. 3

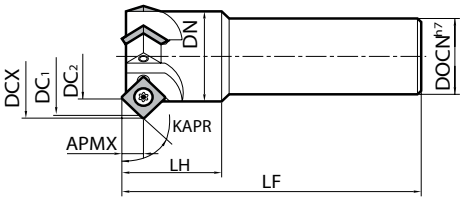


Fig. 4

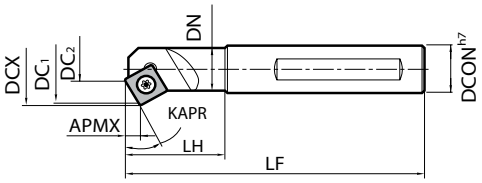


Fig. 5

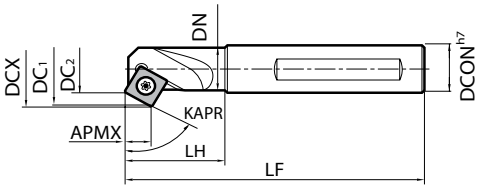


Fig. 6

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								Standard corner-R(RE)	KAPR (°)	A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ M300
				DCX	DC1	DC2	DCON	LF	LH	APMX	DN							Insert Screw	Wrench	Wrench	
mm	MCSE 104	●	1	16	15	4	16	85	31	6.5	15	0.4	45	0	-4.5	No	1	SB-3060TR	DT-10	-	SDKW09T2... SDMT31.81C
	106	●	1	22	21	6	20	121	41	8.6	16	0.8	45	0	-1	No	2	SB-5090TR	-	LTW-20	SEKW42... SEMT421C
	115	●	1	31	30	15	20	121	41	8.6	18	0.8	45	0	+5	No	2	SB-5090TR	-	LTW-20	SEKW42... SEMT421C
	227	●	2	43	42	27	32	121	41	8.6	30	0.8	45	0	+8	No	3	SB-5090TR	-	LTW-20	SEKW42... SEMT421C
	336	●	3	52	51	36	32	121	41	8.6	38	0.8	45	0	+10	No	4	SB-5090TR	-	LTW-20	SEKW42... SEMT421C
	MCSE 104-30D	●	1	19	18	4	16	85	31	4.7	15	0.4	30	0	-4	No	5	SB-3060TR	DT-10	-	SDKW09T2... SDMT31.81C
	108-30D	●	1	28	27	8	20	110	41	6.3	19	0.8	30	0	-2.5	No	5	SB-5090TR	-	LTW-20	SEKW42... SEMT421C
	110-30D	●	1	30	28	10	20	120	40	6.3	18	0.8	30	0	0	No	5	SB-5090TR	-	LTW-20	SEKW42... SEMT421C
	MCSE 108-60D	●	1	19.5	19	8	20	110	41	10	19	0.8	60	0	-3.5	No	6	SB-5070TR	-	LTW-20	SEKW42... SEMT421C
	120-60D	●	1	31	30	20	20	120	40	10	18	0.8	60	0	0	No	6	SB-5090TR	-	LTW-20	SEKW42... SEMT421C

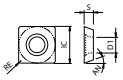
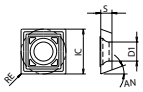
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SDKW/SDMT/SEKW/SEMT

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel	★		■	P
Mold and die steel	★		■	P
Stainless steel	★			M
Gray cast iron		☆		K
Nodular cast iron				K
Non-ferrous metals		★		N
Heat-resistant alloy				S
Titanium alloy		☆		S
Hard materials				H

Insert		Part Number ANSI	Part Number ISO	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1825	Carbide - KW10	Cermet - TN100M	Applicable Toolholder ➔ M299
		(Use ISO Part Number)	SDKW 09T204FN	3/8	0.109	0.134	1/64	15		●		MCSE104-30D MCSE104
			SDKW 09T204TN	3/8	0.109	0.134	1/16	15	●		●	MCSE104-30D MCSE104
		SEKW 421FN 422FN	SEKW 120304FN 120308FN	1/2	1/8	0.217	1/16 1/32	20		● ●		MCSE106 , MCSE108-..D MCSE110-30D , MCSE115 MCSE120-60D , MCSE227 MCSE336
		SEKW 421TN 422TN	SEKW 120304TN 120308TN	1/2	1/8	0.217	1/64 1/32	20	● ●		● ●	
	 Low Cutting Force	SDMT 31.81C	SDMT 09T204C	3/8	0.109	0.134	1/64	15	●	●	●	MCSE104-30D MCSE104
		SEMT 421C	SEMT 120304C	1/2	1/8	0.217	1/64	20	●	●		MCSE106 , MCSE108-..D MCSE110-30D , MCSE115 MCSE120-60D , MCSE227 MCSE336

Recommended Cutting Conditions ➔ M301

SDKW / SDMT / SEKW / SEMT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

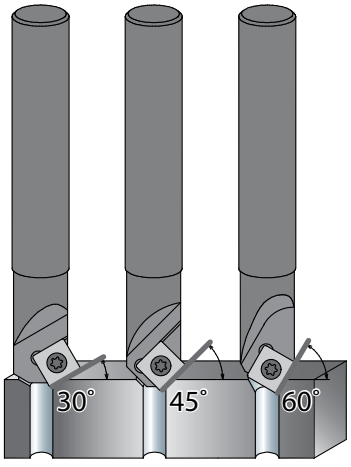
Applicable Inserts

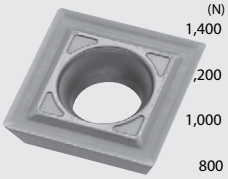
Part Number		Applicable Inserts M300		
MCSE	104 104-30D	SDKW 09T204TN	SDKW 09T204FN	SDMT 31.81C
MCSE	106 115 227 336	SEKW 421TN 422TN	SEKW 421FN 422FN	SEMT 421C
MCSE	108-30D 110-30D			
MCSE	108-60D 120-60D			

Recommended Cutting Conditions

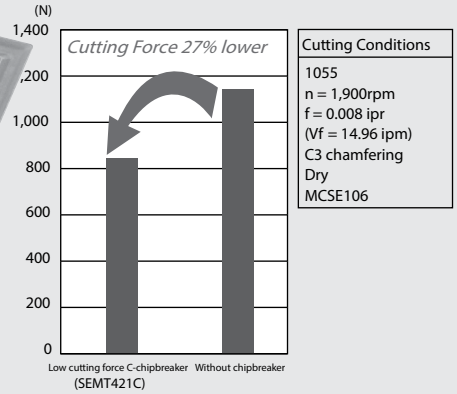
Workpiece Material	fz (ipt)		Recommended Insert Grades (Vc: sfm)		
			Cermet	MEGACOAT NANO EX	Carbide
	DC_2 (Ø4mm~Ø20mm)	DC_2 (Ø27mm~Ø36mm)	TN100M	PR1825	KW10
Carbon Steel	0.002~0.010	0.008~0.016	★ 330~590	★ 390~820	-
Alloy Steel	0.002~0.010	0.008~0.016	★ 330~590	★ 330~720	-
Mold Steel	0.002~0.010	0.008~0.016	★ 330~490	★ 260~590	-
Stainless Steel	0.002~0.008	0.004~0.012	☆ 330~590	★ 390~720	-
Cast Iron	0.004~0.012	0.012~0.020	-	-	☆ 260~490
Non-ferrous Metals	0.004~0.012	0.012~0.020	-	-	★ 330~980

★ : 1st Recommendation ☆ : 2nd Recommendation





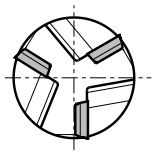
Cutting performance of low cutting force C-chipbreaker

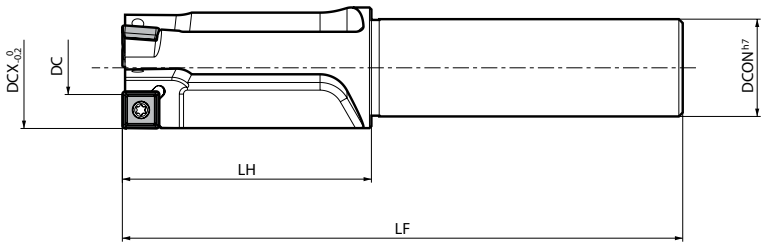


Cutting Conditions
1055 n = 1,900rpm f = 0.008 ipr (Vf = 14.96 ipm) C3 chamfering Dry MCSE106

Cutting force is reduced by 27% with low cutting force C-chipbreaker

MEF (Bolt Countersink End Mill)





Toolholder Dimensions

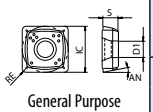
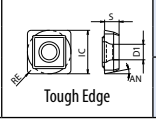
Unit	Part Number	Std. Item	No. of Inserts	Dimensions DC	DCX	DCON	LF	LH	Standard corner-R(RE)	A.R. (°)	R.R. (°)	Objective bolt size	Coolant Hole	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts ➡ M303
mm	MEF 11-S10	●	1	3	11	10	103	23	0.4	+5	-13	M6	No	SB-2250TR	DTM-7	SPMT060204EN-GM SPMT060208EN-GM SPMT060204E-Z SPMT060208E-Z
	14-S12	●		4.5	14	12	108	28				M8		SB-2260TR		
	17-S16	●	2	7.3	17.5	16	115	35				M10				
	18-S16	●		7.7	18		117	38				-				
	20-S16	●	3	9.5	20		120	40			-12	M12				
	22-S20	●		11.4	22	20	124	44				-				
	23-S20	●		12.4	23		126	46				M14				
	24-S20	●		13.4	24		128	48				-				
	25-S20	●		14.4	25		130	50				-				
	MEF 26-S25	●	3	9.8	26	25	132	52	0.8	+5	-13	M16	No	SB-3080TR	DT-10	SPMT090304EN-GM SPMT090308EN-GM SPMT090304E-Z SPMT090308E-Z
	27-S25	●		10.6	27		134	54				-				
	28-S25	●		11.5	28		136	56				-				
	29-S25	●		12.6	29		138	58				M18				
	30-S25	●		13.5	30		140	60				-				
	32-S25	●		15.5	32		144	64				M20				
	35-S32	●		18.4	35	32	150	70				M22				
	39-S32	●	4	22.5	39		158	78				M24				
	43-S32	●		26.2	43		166	86			-12	M27				
	48-S32	●		31.3	48		176	96				M30				

Although Corner-R(RE) pertains to MEF11-S10, DC = 0.118" (3.0mm).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

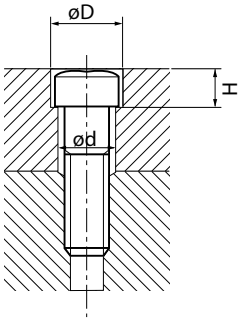
SPMT

Usage Classification		PR1810	PR1825	PR1835	KW10	
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)	Carbon steel / Alloy steel		★	☆		P
	Mold and die steel		★	☆		
	Austenitic stainless steel		☆	★		M
	Martensitic stainless steel			☆		
	Precipitation hardened stainless steel			★		
	Gray cast iron	★			☆	K
	Nodular cast iron	★				
	Non-ferrous metals				★	N
	Heat-resistant alloy			☆		S
	Titanium alloy			★	☆	
	Hard materials					H

Insert		Part Number	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1810	PVD PR1825	PVD PR1835	- KW10	Applicable Toolholder ➡ M302
	 General Purpose	SPMT 060204EN-GM	1/4	0.094	2.5	1/64	11	●	●	●		MEF(11~25)-S..
		SPMT 060208EN-GM				1/32		●	●	●		
		SPMT 090304EN-GM	3/8	1/8	3.4	1/64	11	●	●	●		MEF(26~48)-S..
		SPMT 090308EN-GM				1/32		●	●	●		
	 Tough Edge	SPMT 060204E-Z	1/4	0.094	2.5	1/64	11	●	●		●	MEF(11~25)-S..
		SPMT 060208E-Z				1/32		●	●		●	
		SPMT 090304E-Z	3/8	1/8	3.4	1/64	11	●	●		●	MEF(26~48)-S..
		SPMT 090308E-Z				1/32		●	●		●	

SPMT Inserts are sold in 10 piece boxes

Bolt Countersink (Hexagon Socket Head Cap Screw)



Nominal Screw Size	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
øD (mm)	11	14	17.5	20	23	26	29	32	35	39	43	48
H (mm)	6.5	8.6	10.8	13	15.2	17.5	19.5	21.5	23.5	25.5	29	32
ød (mm)	6.6	9	11	14	16	18	20	22	24	26	30	33
Applicable End Mill	MEF11	MEF14	MEF17	MEF20	MEF23	MEF26	MEF29	MEF32	MEF35	MEF39	MEF43	MEF48

Recommended Cutting Conditions

Workpiece Material	fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm) MEGACOAT NANO EX PR1810	PR1825	PR1835	Carbide KW10
Carbon Steel	0.004~0.006	-	★ 390~**590**~720	☆ 390~**590**~720	-
Alloy Steel	0.004~0.006	-	★ 390~**590**~720	☆ 390~**590**~720	-
Mold Steel	0.002~0.004	-	★ 330~**490**~590	☆ 330~**490**~590	-
Stainless Steel	0.002~0.004	-	-	★ 260~**390**~590	-
Cast Iron	0.004~0.008	★ 330~**590**~720	-	-	☆ 260~**330**~390
Non-ferrous Metals	0.004~0.008	-	-	-	★ 330~**660**~980

★ : 1st Recommendation ☆ : 2nd Recommendation

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Bolt Countersinking Recommendations

1. Carbon steel
Increase the feed rate to **fz = 0.004 ~ 0.006 ipt** for preventing long chips at low feed rates.
Chip control is good when setting **(Vc = 260 sfm)** for **MEF11~MEF25**, and **(Vc = 390 sfm)** for **MEF26~MEF48**.

Toolholder Description	Vc (sfm)	fz (ipt)
MEF11~MEF25	260	0.1~0.15
MEF26~MEF48	390	0.1~0.15

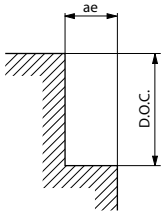
2. Sticky materials
Step feed is recommended for good chip control
Increase the feed rate to **fz = 0.004 ~ 0.006 ipt** for preventing long chips at low feed rate **(fz = 0.002 ipt)**.
Use cover to prevent accidents or injury by thick chips at higher feed rates.

Toolholder Description	Vc (sfm)	fz (ipt)	Step Feed (in)
MEF11~MEF48	260~490	0.004~0.006	0.020~0.059

3. Stainless steel
Use a lower cutting speed. High cutting speeds cause chattering.

Cutting Performance when Shouldering

MEF bolt countersink end mill is also recommended of shouldering.



Vc = 260~390 sfm
1055
Dry
Overhang length:
Same as LH in the dimension table

- When shouldering, both side edge and bottom edges function.
- Both edges wear at the same time depending on D.O.C.. The insert uses 2 edges instead of 4. (Fig. 1)

- MEF type's side edge is designed to have a slight clearance for the countersinking.
  Therefore, worked side wall is approx. 1˚ inclined against the vertical face. (Fig. 2)

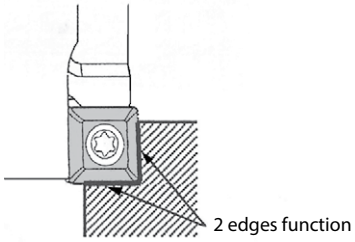


Fig. 1

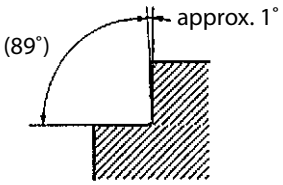
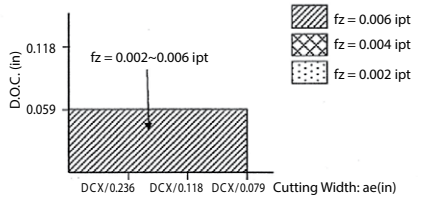
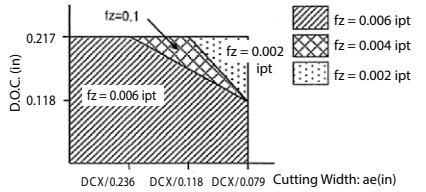
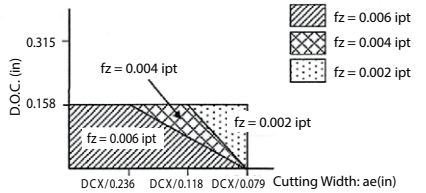
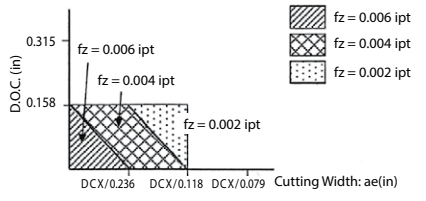


Fig. 2

Description	Cutting Range
MEF11-S12 MEF14-S12 MEF17-S16 MEF18-S16	
MEF20-S16 MEF22-S20 ~ MEF25-S20	
MEF26-S25 ~ MEF32-S25 MEF35-S32	
MEF39-S32 MEF43-S32 MEF48-S32	

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www.kyocera precisiontools.com

METS (T-Slot End Mill)

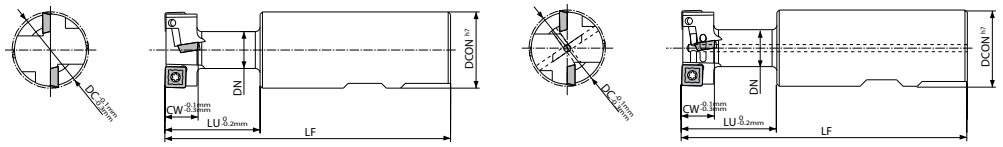


Fig. 1 Fig. 2

Toolholder Dimensions

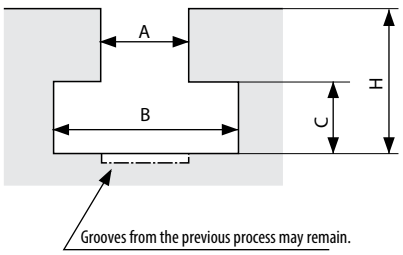
Unit	Part Number	Std. Item	No. of Inserts	No. of Flutes	Dimensions DC	DCON	LF	LU	CW	DN	A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts: Insert Screw	Spare Parts: Wrench	Applicable Inserts M306
mm	METS 21-S25	●	2	1	21	25	109	29	9	10.5	+9	-10	No	1	SB-2560TR	DT-8	SDMT221E-K
	25-S25	●	4	2	25		112	32	11	12.5				1			
	32-S32	●			32	32	120	38	14	15.5				1	SB-3060TR	DT-10	SDMT080308E-K
	40-S32	●			40		130	50	18	20.5		-12		1	SB-4085TR	DT-15	SDMT432E-K
	50-S32	●			50		140	60	22	26.5				1			
	METS 21-S25-H	●	2	1	21	25	109	29	9	10.5	+9	-10	Yes	2	SB-2560TR	DT-8	SDMT221E-K
	25-S25-H	●	4	2	25		112	32	11	12.5				2			
	32-S32-H	●			32	32	120	38	14	15.5				2	SB-3060TR	DT-10	SDMT080308E-K
	40-S32-H	●			40		130	50	18	20.5		-12		2	SB-4085TR	DT-15	SDMT432E-K
	50-S32-H	●			50		140	60	22	26.5				2			

METS...-H has air holes

JIS standard of T-slot (Extracted from B0952)

(Unit: mm)

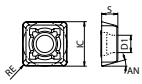
A (Nominal Size)	B	C	H Max.	H Min.
12	19 $^{+2}_{0}$	8 $^{+1}_{0}$	25	20
14	23 $^{+2}_{0}$	9 $^{+2}_{0}$	28	23
18	30 $^{+2}_{0}$	12 $^{+2}_{0}$	36	30
22	37 $^{+3}_{0}$	16 $^{+2}_{0}$	45	38
28	46 $^{+4}_{0}$	20 $^{+2}_{0}$	56	48



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SDMT

Usage Classification					
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel		★		P
	Mold and die steel		★		
	Austenitic stainless steel				M
	Martensitic stainless steel M				
	Precipitation hardened stainless steel				
	Gray cast iron	★		☆	K
	Nodular cast iron	★			
	Non-ferrous metals			★	N
	Heat-resistant alloy				S
	Titanium alloy				
	Hard materials				H

Insert		Part Number ANSI	Part Number ISO	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide PVD PR1810	PVD PR1835	- KW10	Applicable Toolholder ⇨ M305
		SDMT 221E-K	SDMT 060304E-K	1/4	1/8	0.110	1/64	15	●	●	●	METS21-S25(-H) METS25-S25(-H)
		(Use ISO Part Number)	SDMT 080308E-K	0.315	1/8	0.134	1/32	15	●	●	●	METS32-S32(-H)
		SDMT 432E-K	SDMT 120408E-K	1/2	3/16	0.173	1/32	15	●	●	●	METS40-S32(-H) METS50-S32(-H)

Recommended Cutting Conditions ⇨ M307

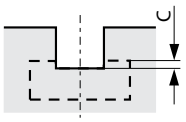
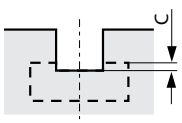
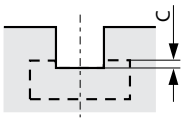
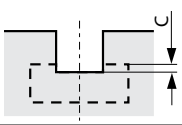
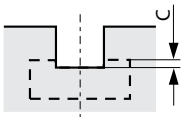
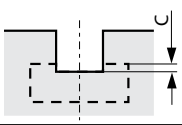
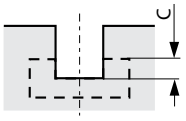
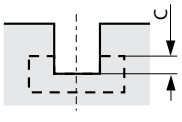
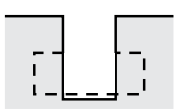
SDMT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Workpiece Material	fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)		
		MEGACOAT NANO EX		Carbide
		PR1810	PR1835	KW10
Carbon Steel	0.004~0.006	-	★ 330~660	-
Alloy Steel	0.003~0.005	-	★ 330~660	-
Mold Steel	0.002~0.004	-	★ 260~490	-
Cast Iron	0.004~0.006	★ 330~660	-	☆ 260~390
Non-ferrous Metals	0.004~0.006	-	-	★ 330~980

★ : 1st Recommendation ☆ : 2nd Recommendation

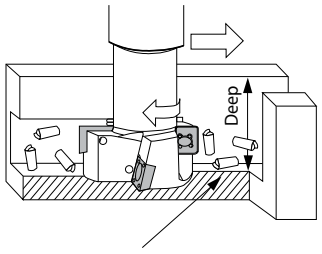
Part Number (T-Slot Nominal Size)	Steel			Cast Iron		
	Groove Shape at Pre-process	T-Slotting Conditions	Conditions to Prevent Chattering	Groove Shape at Pre-process	T-Slotting Conditions	Conditions to Prevent Chattering
METS21-S25(-H) (Nominal Size 12)	C = 0.039~0.118″ 	Vc = 390 fz = 0.004 (n = 1,820) (Vf = 7.165)	Vc = 200 fz = 0.006 (n = 920) (Vf = 5.394)	C = Over 0.039″ 	Vc = 390 fz = 0.005 (n = 1,820) (Vf = 8.583)	Vc = 260 fz = 0.006 (n = 1,210) (Vf = 7.165)
METS25-S25(-H) (Nominal Size 14)	C = 0.039~0.118″ 	Vc = 390 fz = 0.004 (n = 1,530) (Vf = 12.047)	Vc = 200 fz = 0.006 (n = 760) (Vf = 8.976)	C = Over 0.039″ 	Vc = 390 fz = 0.005 (n = 1,530) (Vf = 14.449)	Vc = 260 fz = 0.006 (n = 1,020) (Vf = 12.047)
METS32-S32(-H) (Nominal Size 18)	C = 0.039~0.118″ 	Vc = 330 fz = 0.004 (n = 1,000) (Vf = 7.874)	Vc = 200 fz = 0.006 (n = 600) (Vf = 7.087)	C = Over 0.039″ 	Vc = 390 fz = 0.005 (n = 1,190) (Vf = 11.260)	Vc = 260 fz = 0.006 (n = 800) (Vf = 9.449)
METS40-S32(-H) (Nominal Size 22)	C = 0.354″ 	Vc = 260 fz = 0.006 Chattering is likely when set to shallower than C = 0.354".	Vc = 200 fz = 0.006 (n = 480) (Vf = 5.669)	C = Over 0.354″ 	Vc = 390 fz = 0.006 (n = 960) (Vf = 8.976)	Vc = 260 fz = 0.006 (n = 640) (Vf = 7.559)
METS50-S32(-H) (Nominal Size 28)	Not recommended for steel because of chattering				Vc = 390 fz = 0.006 (n = 760) (Vf = 8.976)	Vc = 260 fz = 0.006 (n = 510) (Vf = 6.024)

- Chattering is likely when fz is less than fz = 0.004 ipt. Keep feed rate between fz = 0.004~0.006 ipt. For cast iron machining, the bigger the C-dimension becomes, the less chattering occurs.

[Cutting Speed : Vc (sfm), Spindle Revolution : n (min^{-1}), Feed Rate fz (ipt), Table Feed Vf (ipm)]

How to Prevent Damaging Chips when Steel Machining

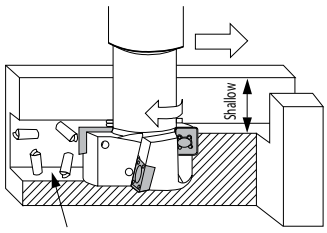
Before Improvement (Deep Groove at Pre-Process)



Chips stay in the pre-process groove.

Improvement of chip biting

After Improvement (Shallow Groove at Pre-Process)



Chips are evacuated backward and chances of damaging chips are less.

Make pre-process groove shallower to prevent the tool from becoming damaged from chips.
Use compressed air to aid in chip evacuation.

MGI (Grooving End Mill)

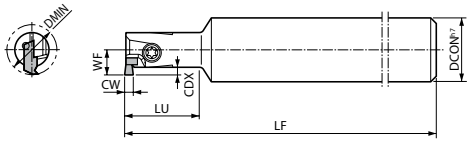


Fig. 1

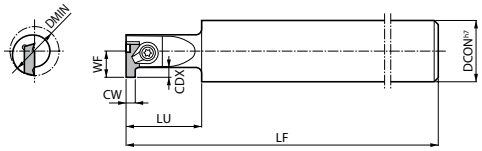
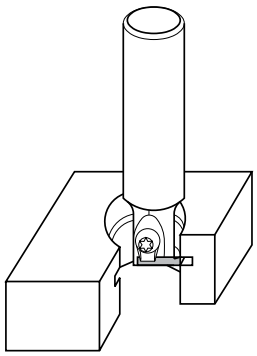
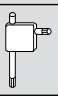


Fig. 2



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Fig.	Spare Parts					Applicable Inserts ➡ M309
			DMIN	DCON	LF	LU	CDX	WF	CW min.	CW max.			Clamp Set	Clamp Set	Insert Screw	Wrench	Wrench	
																		
mm	MGI 1420-1SS	●	14	20	100	20	2.2	6.8	1	3	No	1	-	-	SB-4065TR	-	FT-15	GVR...-020SS
	MGI 1620-1S	●	16	20	110	25	2.2	7.8	1	3.4	No	1	-	-	SB-4085TR	-	FT-15	GVR...-020S
	MGI 2020-1A	●	20	20	110	30	2.2	9.8	1	3.4	No	2	CPS-5F	-	-	-	FT-15	GVR...-020A , GVR...-...AR
	MGI 2220-1B	●	22	20	110	30	2.8	11	1.45	4	No	2	CPS-5F	-	-	-	FT-15	GVR...-020B , GVR...-...BR
	MGI 3225-1C	●	32	25	120	35	5.5 (4.5)	16	2.8	4	No	2	-	CPS-6F	-	LW-3	-	GVR...-020C

CDX shows available grooving depth.
GVR280-020C, GVR300-020C inserts are available for groove depths up to 4.5mm.
GVR430 ~ 500-020C inserts can be installed into MGI3225-1C holders, but not recommended for steel machining because of toolholder's rigidity.

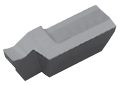
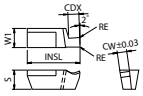
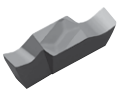
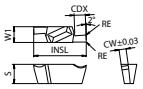
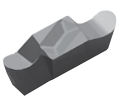
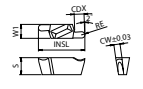
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GVR

Usage Classification

● : Continuous ~ Light interruption / 1st Choice
◔ : Continuous ~ Light interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

Carbon steel / Alloy steel	●	◔			P
Stainless steel	●	◔			M
Gray cast iron			●		K
Non-ferrous metals			●		N
Titanium alloy			●		S
Hard materials (~ 40HRC)	●	○			H
Hard materials (40HRC ~)					

Insert		Part Number (Use with grade PR1225)	Previous Part Number (Use with grades PR930, KW10, TC40, TC60)	No. of Edges	Dimensions (mm) CW	CDX	S	RE	INSL	W1	Tolerance (mm) CW min.	CW max.	Carbide PVD PR1225	Carbide PVD PR930	Carbide - KW10	Cermet - TC40	Applicable Toolholder ➡ M308
	 1-edge	GVR 100-020SS	GVR 100SS	1	1	2.3	3	0.2	9	3.6	-0.03	+0.03	●	●	●		MGI1420-1SS
		GVR 125-020SS	GVR 125SS		1.25								●	●	●		
		GVR 145-020SS	GVR 145SS		1.45								●	●	●		
		GVR 200-020SS	GVR 200SS		2								●	●	●		
		GVR 250-020SS	GVR 250SS		2.5								●	●	●		
		GVR 300-020SS	GVR 300SS		3								●	●	●		
		GVR 100-020S	GVR 100S	1	1	2.3	4	0.2	11	4	-0.03	+0.03	●	●	●		MGI1620-1S
		GVR 125-020S	GVR 125S		1.25								●	●	●		
		GVR 145-020S	GVR 145S		1.45								●	●	●		
		GVR 185-020S	GVR 185S		1.85								●	●	●		
		GVR 200-020S	GVR 200S		2								●	●	●		
		GVR 250-020S	GVR 250S		2.5								●	●	●		
		GVR 340-020S	GVR 340S		3.4								●	●	●		
	 2-edge	GVR 100-020A	GVR 100A	2	1	2.3	5	0.2	12	4	-0.03	+0.03	●	●	●	●	MGI2020-1A
		GVR 125-020A	GVR 125A		1.25								●	●	●		
		GVR 145-020A	GVR 145A		1.45								●	●	●	●	
		GVR 185-020A	GVR 185A		1.85								●	●	●		
		GVR 200-020A	GVR 200A		2								●	●	●		
		GVR 250-020A	GVR 250A		2.5								●	●	●		
		GVR 300-020A	GVR 300A		3								●	●	●		
		GVR 340-020A	GVR 340A		3.4								●	●	●		
		GVR 145-020B	GVR 145B	2	1.45	2.8	5.5	0.2	15	4.5	-0.03	+0.03	●	●	●		MGI2220-1B
		GVR 185-020B	GVR 185B		1.85	2.8							●	●	●		
		GVR 200-020B	GVR 200B		2	3.2							●	●	●		
		GVR 230-020B	GVR 230B		2.3	3.2							●	●	●		
		GVR 250-020B	GVR 250B		2.5	3.2							●	●	●		
		GVR 280-020B	GVR 280B		2.8	3.2							●	●	●		
		GVR 300-020B	GVR 300B		3	4.2							●	●	●		
		GVR 340-020B	GVR 340B		3.4	4.2							●	●	●		
		GVR 400-020B	GVR 400B		4	4.2							●	●	●		
		GVR 280-020C	GVR 280C	2	2.8	4.5	6.5	0.2	21	5.8	-0.03	+0.03	●	●	●		MGI3225-1C
		GVR 300-020C	GVR 300C		3	4.5							●	●	●	●	
		GVR 340-020C	GVR 340C		3.4	5.5							●	●	●		
		GVR 400-020C	GVR 400C		4	5.5							●	●	●		
		(GVR 430-020C)	(GVR 430C)		4.3	6.3							●	●	●		
		(GVR 460-020C)	(GVR 460C)		4.6	6.3							●	●	●		
		(GVR 500-020C)	(GVR 500C)		5	6.3							●	●	●		
	 2-edge / Full R / Copying	GVR 200-100AR	GVR 100AR	2	2	2.3	5	1	12	4	-0.03	+0.03	●	●	●		MGI2020-1A
		GVR 250-125AR	GVR 125AR		2.5			1.25					●	●	●		
		GVR 300-150AR	GVR 150AR		3			1.5					●	●	●		
		GVR 200-100BR	GVR 100BR	2	2	3.2	5.5	1	15	4.5	-0.03	+0.03	●	●	●		MGI2220-1B
		GVR 300-150BR	GVR 150BR		3	4.2		1.5					●	●	●		

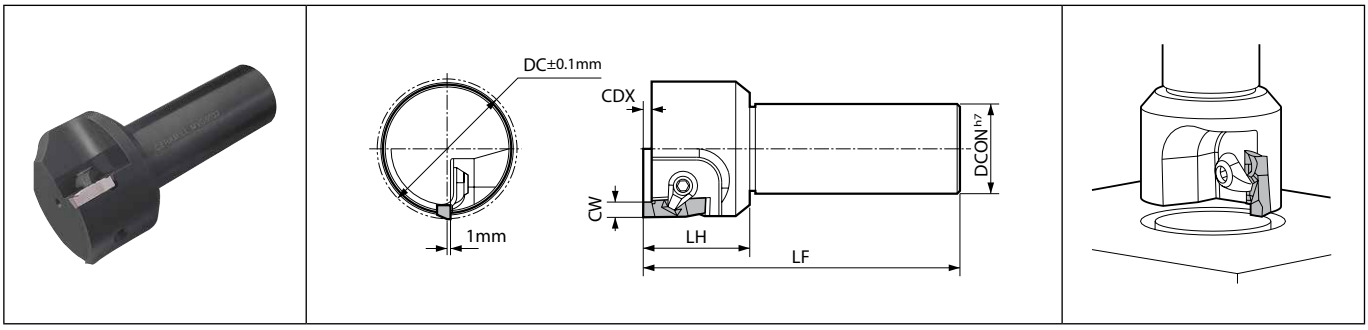
CDX shows available grooving depth.
Right-hand shown
GVR280-020C, GVR300-020C inserts are available for groove depths up to 4.5mm.
GVR430 ~ 500-020C inserts can be installed into MGI3225-1C holders, but not recommended for steel machining because of toolholder's rigidity.

Recommended Cutting Conditions ➡ M311

GVR Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MVG (Ring Grooving End Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions DC	DCON	LF	LH	CDX	CW min.	CW max.	Coolant Hole	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts
mm	MVG 3032	●	30	32	120	40	5.2	4	4.9	No	CPS-6V	LW-3	GVFR400-020B GVFR430-020B GVFR460-020B GVFR490-020B
	3532	●	35										
	4032	●	40										
	4532	●	45										
	5032	●	50										
	5532	●	55										
	6032	●	60										

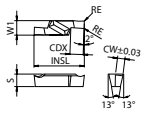
CDX shows available grooving depth.

GVFR

Usage Classification

● : Continuous ~Light interruption / 1st Choice
◔ : Continuous ~Light interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

Carbon steel / Alloy steel	●	◔	P
Stainless steel	●	◔	M
Gray cast iron		●	K
Non-ferrous metals		●	N
Titanium alloy		●	S
Hard materials (~ 40HRC)	●	○	H
Hard materials (40HRC ~)			

Insert		Part Number (Use with grade PR1225)	Previous Part Number (Use with grades PR930, KW10, TC40, TC60)	No. of Edges	Dimensions (mm) CW	CDX	S	RE	INSL	W1	Tolerance (mm) CW min.	CW max.	Carbide PVD PR1225	PVD PR930	- KW10	Applicable Toolholder
		GVFR 400-020B	GVFR 400B	2	4	5.3	5	0.2	20	5.8	-0.03	+0.03	●	●	●	MVG....
		430-020B	430B		4.3								●		●	
		460-020B	460B		4.6								●		●	
		490-020B	490B		4.9								●	●	●	

CDX shows available grooving depth.
Right-hand shown

Recommended Cutting Conditions ➔ M311

GVFR Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

MGI

Recommended Cutting Conditions

Workpiece Material	fz (ipt)	Recommended Insert Grades (Vc: sfm)				
		Cermet		MEGACOAT	PVD Coated Carbide	Carbide
		TC40	TC60	PR1225	PR930	KW10
Carbon Steel	0.002~0.006	☆ 390~660	☆ 330~590	★ 260~490	☆ 260~490	-
Alloy Steel	0.002~0.006	☆ 390~660	☆ 330~590	★ 260~490	☆ 260~490	-
Mold Steel	0.001~0.005	☆ 330~590	☆ 260~490	★ 200~430	☆ 200~430	-
Stainless Steel	0.001~0.005	☆ 330~590	★ 260~490	★ 200~430	☆ 200~430	-
Cast Iron	0.002~0.008	☆ 330~490	-	-	-	★ 260~490
Non-ferrous Metals	0.05~0.2	-	-	-	-	★ 330~980

Use down-cut machining.

★ : 1st Recommendation ☆ : 2nd Recommendation

MVG

Recommended Cutting Conditions

Workpiece Material	fz (ipt)	Recommended Insert Grades (Vc: sfm)				
		Cermet		MEGACOAT	PVD Coated Carbide	Carbide
		TC40	TC60	PR1225	PR930	KW10
Carbon Steel	0.002~0.006	★ 390~660	☆ 330~590	★ 260~560	☆ 260~490	-
Alloy Steel	0.002~0.006	★ 390~660	☆ 330~590	★ 260~560	☆ 260~490	-
Mold Steel	0.001~0.005	★ 330~590	☆ 260~490	★ 200~490	☆ 200~430	-
Stainless Steel	0.001~0.005	☆ 330~590	☆ 260~490	★ 200~490	☆ 200~430	-
Cast Iron	0.002~0.008	-	-	-	-	★ 260~490
Non-ferrous Metals	0.002~0.008	-	-	-	-	★ 330~980

★ : 1st Recommendation ☆ : 2nd Recommendation

API Ring Groover

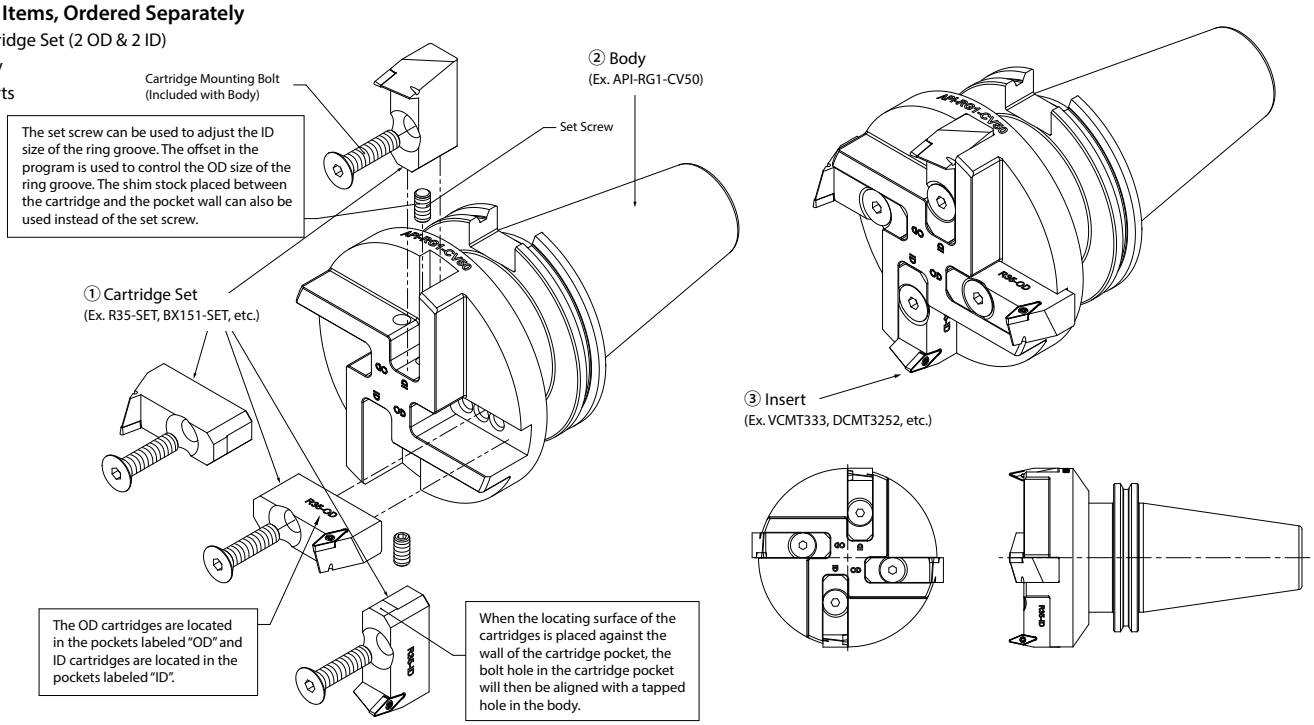
Featuring an integral shank for maximum rigidity, Kyocera's API Ring Groovers are the most versatile ring grooving tools on the market.

ADVANTAGES

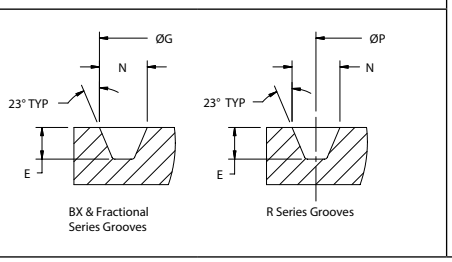
- Create ring grooves per API Spec 6A for BX, R, and RX style grooves
- Roughout and finish of inlay of API Ring Grooves
- Replaceable cartridges allow a single cutter body to produce multiple size API grooves
- Integral shank, multiple sizes and styles available

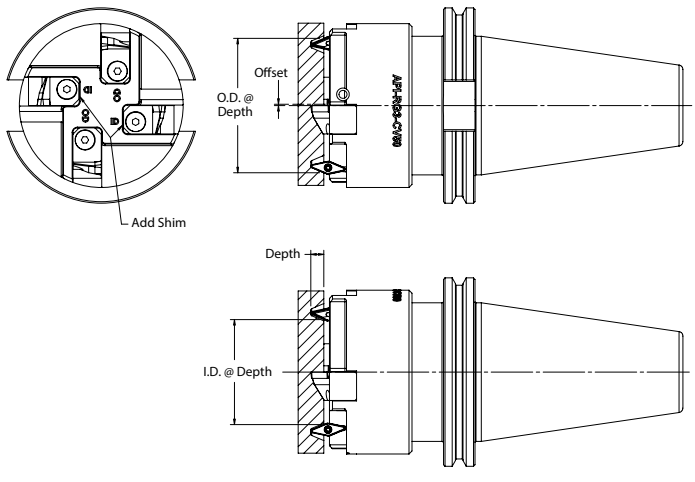
3 Line Items, Ordered Separately

① Cartridge Set (2 OD & 2 ID)
② Body
③ Inserts



API Ring Groover (Body and Cartridges)





Ring / Cartridge Set Dimensions

Ring Specification	① Cartridge Set Part Number Choose Set	Std. Item	No. of Inserts	No. of Flutes	Dimensions (in)							Roughout Cartridges	Applicable Body Part Number
					Offset	Pitch P	OD G	Width N	Depth E	OD Depth	ID Depth		
BX-150	BX150-SET	●	4	2	0.061	-	2.893	0.450	0.220	2.771	2.115	-	API-RG-3-CV40 API-RG-3-CV50 API-RG-3-BT50 API-RG-3-DIN-69871
BX-150-R	BX150-R-SET	●		1	0.097		3.341	0.841	0.485	3.147	1.853	Yes	
BX-151	BX151-SET	●	4	2	0.065	-	3.062	0.466	0.220	2.932	2.260	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
BX-151-R	BX151-R-SET	●	4	1	0.097	-	3.496	0.846	0.485	3.302	1.998	Yes	API-RG-3-CV40 API-RG-3-CV50 API-RG-3-BT50 API-RG-3-DIN-69871
BX-152	BX152-SET	●	4	2	0.069	-	3.395	0.498	0.230	3.257	2.537	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
BX-152-R	BX152-R-SET	●		1	0.091		3.826	0.876	0.505	3.644	2.256	Yes	
BX-153	BX153-SET	●		2	0.077		4.046	0.554	0.270	3.892	3.092	-	
BX-153-R	BX153-R-SET	●		1	0.110		4.486	0.936	0.535	4.266	2.834	Yes	
BX-154	BX154-SET	●		2	0.083		4.685	0.606	0.300	4.519	3.369	-	
BX-154-R	BX154-R-SET	●		1	0.112		5.116	0.971	0.570	4.892	3.398	Yes	
BX-155	BX155-SET	●	4	2	0.100	-	5.930	0.698	0.330	5.730	4.734	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
BX-155-R	BX155-R-SET	●		1	0.223		6.366	1.076	0.595	5.920	4.660	Yes	
BX-156	BX156-SET	●	4	2	0.132	-	9.521	0.921	0.440	9.257	7.943	-	API-RG-4-CV50 API-RG-4-BT50 API-RG-4-DIN-69871
BX-156-R	BX156-R-SET	●		1	0.166		9.956	1.306	0.710	9.624	7.676	Yes	
BX-169	BX169-SET	●	4	2	0.081	-	6.955	0.666	0.380	6.793	5.785	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-16	R16-SET	●	4	2	0.026	2.000	-	0.344	0.250	2.292	1.708	-	API-RG-3-CV40 API-RG-3-CV50 API-RG-3-BT50 API-RG-3-DIN-69871
R-18	R18-SET	●				2.375				2.667	2.083		
R-20	R20-SET	●				2.688				2.980	2.396		
R-23	R23-SET	●	4	2	0.046	3.250	-	0.469	0.310	3.627	2.873	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
R-23-R	R23-R-SET	●		1	0.081	3.300		0.856	0.575	3.994	2.606	Yes	
R-24	R24-SET	●		2	0.046	3.750		0.469	0.310	4.127	3.373	-	
R-24-R	R24-R-SET	●		1	0.077	3.800		0.871	0.590	4.517	3.083	Yes	
R-26	R26-SET	●		2	0.046	4.000		0.469	0.310	4.377	3.623	-	
R-27	R27-SET	●				4.250				4.627	3.873		
R-31	R31-SET	●	4	2	0.044	4.875	-	0.469	0.310	5.256	4.494	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-31-R	R31-R-SET	●		1	0.072	4.920		0.856	0.575	5.632	4.208	Yes	
R-35	R35-SET	●		2	0.046	5.375		0.469	0.310	5.752	4.998	-	
R-35-R	R35-R-SET	●		1	0.081	5.420		0.856	0.575	6.114	4.726	Yes	
R-37	R37-SET	●		2	0.046	5.875		0.469	0.310	6.252	5.498	-	
R-39	R39-SET	●				6.375				6.752	5.998		
R-39-R	R39-R-SET	●		1	0.081	6.420		0.856	0.575	7.114	5.726	Yes	
R-41	R41-SET	●		2	0.046	7.125		0.469	0.310	7.502	6.748	-	
R-44	R44-SET	●				7.625				8.002	7.248		
R-44-R	R44-R-SET	●		1	0.071	7.670		0.856	0.575	8.384	6.956	Yes	
R-45	R45-SET	●		2	0.046	8.313		0.469	0.310	8.690	7.936	-	
R-46	R46-SET	●			0.048			0.531	0.380	8.748	7.878		
R-46-R	R46-R-SET	●		1	0.082	8.360		0.916	0.645	9.112	7.608	Yes	
1-13/16	1-13/16-SET	●	4	2	0.034	-	4.373	0.377	0.258	4.305	3.687	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
2-1/16-10K	2-1/16-10K-SET	●					4.623			4.555	3.937		
2-9/16-15K	2-9/16-15K-SET	□	4	2	0.034	-	5.873	0.377	0.258	5.805	5.187	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
3-1/16-10K	3-1/16-10K-SET	●					5.748			5.680	5.062		
4-1/16-10K	4-1/16-10K-SET	●					7.123			7.055	6.437		
5-1/8-10K	5-1/8-10K-SET	●					8.748			8.680	8.062		

Applicable Body

② Body Part Number Choose Body	Std. Item	Shank	Body Spare Parts	
			Mounting Bolt	Set Screw
API-RG-1-CV40	●	CAT40	01-05	01-08
API-RG-1-CV50	●	CAT50		
API-RG-1-BT50	●	BT50		
API-RG-1-BT40	□	BT40		
API-RG-1-DIN-69871	□	DIN69871		
API-RG-2-CV50	●	CAT50	01-05	01-08
API-RG-2-BT50	●	BT50		
API-RG-2-DIN-69871	□	DIN69871		
API-RG-3-CV40	●	CAT40	01-06	01-09
API-RG-3-CV50	●	CAT50		
API-RG-3-BT50	□	BT50		
API-RG-3-DIN-69871	□	DIN69871		
API-RG-4-CV50	●	CAT50	01-07	01-10
API-RG-4-BT50	□	BT50		
API-RG-4-DIN-69871	□	DIN69871		

Note

The OD and ID dimensions are to set the cut diameter of a given cartridge set using a presetter. The dimensions are the cut diameter of the tool at the depth of the ring groove. By setting zero at the nose radius then moving the presetter to the depth of the API groove the OD and ID can be preset to the dimensions shown.

See illustration on page M312

Cartridge Set Spare Parts and Applicable Inserts M314

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Cartridge Set Spare Parts and Applicable Inserts

Ring Specification	Cartridge Set Part Number	Std. Item	Spare Parts: Clamp Screw	Spare Parts: Wrench	③ Applicable Inserts Choose Inserts
BX-150	BX150-SET	●	SCR-02	T15	DCMT3252
BX-150-R	BX150-R-SET	●			DCMT3253
BX-151	BX151-SET	●			DCMT3252
BX-151-R	BX151-R-SET	●			DCMT3253
BX-152	BX152-SET	●			DCMT3252
BX-152-R	BX152-R-SET	●			DCMT3253
BX-153	BX153-SET	●			DCMT3252
BX-153-R	BX153-R-SET	●			DCMT3253
BX-154	BX154-SET	●			DCMT3252
BX-154-R	BX154-R-SET	●			DCMT3253
BX-155	BX155-SET	●			DCMT3252
BX-155-R	BX155-R-SET	●			VCMT333
BX-156	BX156-SET	●			VCMT332
BX-156-R	BX156-R-SET	●			VCMT333
BX-169	BX169-SET	●			VCMT332
R-16	R16-SET	●	SCR-01	T7	VCMT222
R-18	R18-SET	●			
R-20	R20-SET	●			
R-23	R23-SET	●	SCR-02	T15	DCMT3252
R-23-R	R23-R-SET	●			VCMT333
R-24	R24-SET	●			DCMT3252
R-24-R	R24-R-SET	●			VCMT333

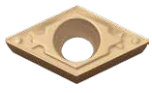
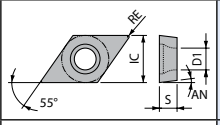
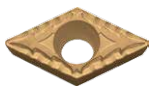
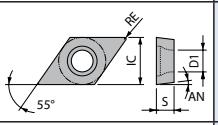
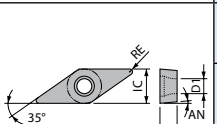
Ring Specification	Cartridge Set Part Number	Std. Item	Spare Parts: Clamp Screw	Spare Parts: Wrench	③ Applicable Inserts Choose Inserts
R-26	R26-SET	●	SCR-02	T15	DCMT3252
R-27	R27-SET	●			
R-31	R31-SET	●			
R-31-R	R31-R-SET	●			VCMT333
R-35	R35-SET	●			DCMT3252
R-35-R	R35-R-SET	●			VCMT333
R-37	R37-SET	●			DCMT3252
R-39	R39-SET	●			
R-39-R	R39-R-SET	●			VCMT333
R-41	R41-SET	●			DCMT3252
R-44	R44-SET	●			
R-44-R	R44-R-SET	●			VCMT333
R-45	R45-SET	●			DCMT3252
R-46	R46-SET	●			VCMT333
R-46-R	R46-R-SET	●			
1-13/16	1-13/16-SET	●	SCR-01	T7	VCMT222
2-1/16-10K	2-1/16-10K-SET	●			
3-1/16-10K	3-1/16-10K-SET	●			
4-1/16-10K	4-1/16-10K-SET	●			
5-1/8-10K	5-1/8-10K-SET	●			

DCMT/VCMT

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel	★			☆	★	☆	☆	P
Mold and die steel	★			☆	★	☆	☆	
Stainless steel		★		★	★			M
Gray cast iron	☆							K
Nodular cast iron	☆							
Non-ferrous metals								N
Heat-resistant alloy		★	☆	☆	☆			S
Titanium alloy				★				
Hard materials (≤ 60 HRC)								H

Insert		Part Number ANSI	Part Number ISO	Dimensions (in) IC	S	D1	RE	Angle (°) AN	Carbide: CVD CA125P	CVD CA6525	PVD PR015S	PVD PR1535	PVD PR1225	Cermet: PVD PV730	- TN60	Applicable Cartridge
		DCMT 3252HQ	DCMT 11T308HQ	3/8	5/32	0.173	1/32	7	●	●		●		●	●	(See Table Above)
		DCMT 3253CQ	DCMT 11T312CQ	3/8	5/32	0.173	3/64	7		●					●	
		VCMT 222HQ	VCMT 110308HQ	1/4	1/8	0.110	1/32	7					●			
		VCMT 332HQ	VCMT 160408HQ	3/8	3/16	0.173	1/32	7	●	●	●	●			●	
		333HQ	160412HQ				3/64						●			

DCMT / VCMT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)						
		CVD Coated Carbide		MEGACOAT HARD	MEGACOAT	MEGACOAT NANO	PVD Coated Cermet	Uncoated Cermet
		CA125P	CA6525	PR015S	PR1225	PR1535	PV730	TN60
Carbon Steel	0.002~0.006	★ 330~860	-	-	★ 260~560	☆ 390~820	☆ 330~590	☆ 390~660
Alloy Steel	0.002~0.006	★ 330~860	-	-	★ 260~560	☆ 330~720	☆ 330~590	☆ 390~660
Mold Steel	0.001~0.005	★ 330~690	-	-	★ 200~490	☆ 260~590	☆ 260~490	☆ 330~590
Austenitic Stainless Steel	0.001~0.005	-	★ 390~690	-	★ 200~490	★ 330~660	-	-
Martensitic Stainless Steel	0.001~0.005	-	★ 390~890	-	★ 200~490	☆ 390~820	☆ 260~490	☆ 330~590
Precipitation Hardened Stainless Steel	0.001~0.004	-	★ 260~490	-	★ 175~330	★ 300~490	-	-
Gray Cast Iron	0.002~0.008	☆ 260~490	-	-	-	-	-	-
Nodular Cast Iron	0.002~0.006	☆ 260~390	-	-	-	-	-	-
Ni-base Heat Resistant Alloy	0.002~0.005	-	★ 130~260	☆ 130~260	☆ 130~260	☆ 70~160	-	-
Titanium Alloy	0.002~0.006	-	-	-	-	★ 130~260	-	-

- Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy
Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

★ : 1st Recommendation ☆ : 2nd Recommendation

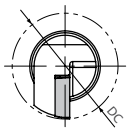
Sample CNC Program for the API Ring Groover

Sample is shown without cutter comp.
N10 (Incremental Program)
N20 G00 X (As required) Y (As required) Z.100 M03 S (As required)
N30 G01 Z0.0 F100
N40 G91 -Y (Offset) Z-.100 F (As required)
N50 G03 J (Offset) Z-.100 F (As required)
N60 G03 J (Offset) Z-.100
Continue to Depth
Last Pass
N90 G03 J (Offset) Z0.00

Use 0.03 Depth in Z for Inconel and 0.04 Depth in Z for Steel

DC (Dovetail End Mills)

Rougher / Finisher



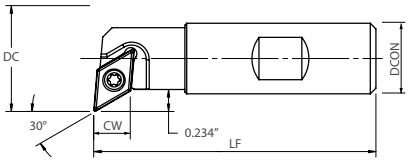
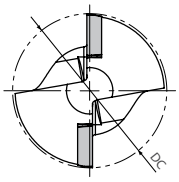


Fig. 1

Rougher / Finisher



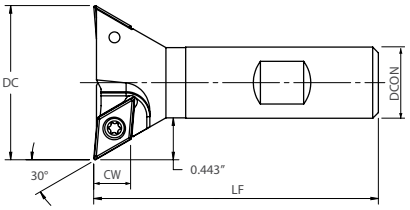
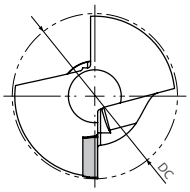


Fig. 2

Rougher



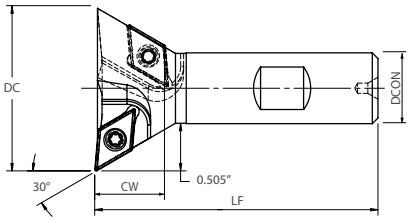


Fig. 3

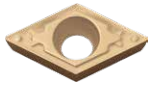
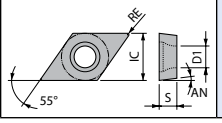
Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	No. of Flutes	Dimensions				Coolant Hole	Fig.	Spare Parts		Applicable Inserts ⇒ M317
						DC	DCON	LF	CW			Insert Screw	Wrench	
Inch	Weldon Shank	DC 1-1.13	●	1	1	1.125	0.750	3.000	0.388	No	1	SCR-02	T15	DCMT3251HQ
		2-1.63	●	2	2	1.625			0.388		2			
		2-1.75	●	2	1	1.750			0.739		3			

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DCMT

Usage Classification				
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)	Carbon steel / Alloy steel		★	■	P
	Mold and die steel		★	■	P
	Stainless steel	☆	★		M
	Gray cast iron				K
	Nodular cast iron				K
	Non-ferrous metals				N
	Heat-resistant alloy				S
	Titanium alloy				S
	Hard materials				H

Insert		Part Number ANSI	Part Number ISO	Dimensions (in)				Angle (°)	Carbide		Cermet	Applicable Toolholder ➡ M316
				IC	S	D1	RE	AN	CVD	PVD	-	
									CA6525	PR1535	TN620	
		DCMT 3251HQ	DCMT 11T304HQ	3/8	5/32	0.173	1/64	7	●	●	●	DC...

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)		
		CVD Coated Carbide	MEGACOAT NANO	Uncoated Cermet
		CA6525	PR1535	TN620
Carbon Steel	0.003~0.006	-	★ 300~650	☆ 660~980
Alloy Steel	0.003~0.005	-	★ 300~650	☆ 590~820
Mold Steel	0.002~0.004	-	★ 250~500	☆ 490~720
Austenitic Stainless Steel	0.002~0.004	-	★ 300~550	-
Martensitic Stainless Steel	0.002~0.005	★ 250~500	☆ 300~650	-
Precipitation Hardened Stainless Steel	0.002~0.004	☆ 200~450	★ 200~400	-
Gray Cast Iron	0.003~0.006	-	-	-
Nodular Cast Iron	0.002~0.005	-	-	-
Ni-base Heat Resistant Alloy	0.002~0.004	★ 70~160	☆ 70~160	-
Titanium Alloy	0.002~0.004	-	★ 130~260	-

· Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy ★ : 1st Recommendation ☆ : 2nd Recommendation
Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

DCMT Inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-Type Inserts (Solid without Hole)

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel			☆	★		■	■	P
Mold and die steel			☆	★		■	■	P
Austenitic stainless steel			☆	★				M
Martensitic stainless steel								M
Precipitation hardened stainless steel								M
Gray cast iron	★	☆			☆			K
Nodular cast iron	★	☆						K
Non-ferrous metals					★			N
Heat-resistant alloy								S
Titanium alloy								S
Hard materials								H

Insert	Part Number ANSI	Part Number ISO	No. of Edges	Dimensions (in) IC	S	BCH	INSL	RE	BS	Angle (°) AN	AS	Carbide CVD CA420M	Carbide PVD PR1210	Carbide PVD PR1225	Carbide PVD PR1825	Carbide - KW10	Cermet - TN100M	Cermet - TN610	Applicable Toolholder
	SDKN 42AUFN	SDKN 1203AUFN	4	1/2	1/8	0.020	-	-	0.047	15	23					●			
	SDKN 42AUTN	SDKN 1203AUTN	4	1/2	1/8	0.020	-	-	0.047	15	23		●	●			●		-
	(Use ISO Part Number)	SDKN 1504AUTN	4	5/8	3/16	0.020	-	-	0.047	15	23			●					
	SDKR 42AUEN-S	SDKR 1203AUEN-S	4	1/2	1/8	0.020	-	-	0.067	15	23			●			●		-
	SDMR 42AUER-H	SDMR 1203AUER-H	4	1/2	1/8	0.020	-	0.039	0.031	15	23				●				-
	SEC 422 424	SEC 120308 120316	4	1/2	1/8	-	-	1/32 1/16	-	20	-							● ●	-
	SEEN 42AFTN	SEEN 1203AFTN	4	1/2	1/8	0.020	-	-	0.055	20	25						●		
	SEKN 42AFFN	SEKN 1203AFFN	4	1/2	1/8	0.020	-	-	0.055	20	25					●			
	SEKN 42AFTN	SEKN 1203AFTN	4	1/2	1/8	0.020	-	-	0.055	20	25		●	●			●		-
	SEKN 43AFTN	SEKN 1204AFTN	4	1/2	3/16	0.020	-	-	0.055	20	25			●					
	SEKN 53AFTN	SEKN 1504AFTN	4	5/8	3/16	0.020	-	-	0.055	20	25			●			●		
1-edge / With Wiper Edge	SEEN 42AFFR-W	SEEN 1203AFFR-W	1	1/2	1/8	-	0.573	-	0.138	20	25					●			-
	SEEN 42AFTR-W	SEEN 1203AFTR-W	1	1/2	1/8	-	0.573	-	0.138	20	25						●		
	SEKN 42EFTR	SEKN 1203EFTR	4	1/2	1/8	0.047	-	-	0.055	20	25						●		-
	SEKR 42AFEN-S	SEKR 1203AFEN-S	4	1/2	1/8	0.020	-	-	0.067	20	25			●			●		-
	SEMR 42AFER-H	SEMR 1203AFER-H	4	1/2	1/8	-	-	0.039	0.039	20	25				●				-

S-Type inserts are sold in 10 piece boxes

SEEN-W inserts are sold in 5 piece boxes

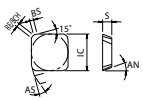
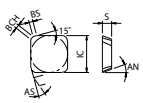
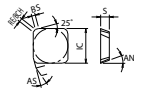
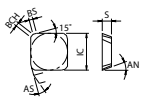
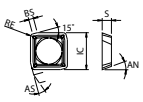
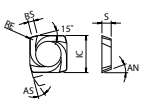
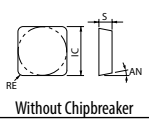
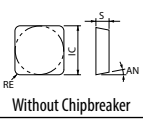
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-Type Inserts (Solid without Hole)

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel			☆		★		■		P
Mold and die steel			☆		★		■		P
Austenitic stainless steel			☆		★				M
Martensitic stainless steel									M
Precipitation hardened stainless steel									M
Gray cast iron	★	☆		☆		☆			K
Nodular cast iron	★	☆		☆					K
Non-ferrous metals						★			N
Heat-resistant alloy									S
Titanium alloy									S
Hard materials									H

Insert		Part Number ANSI	Part Number ISO	Dimensions (in) IC	S	BCH	RE	BS	Angle (°) AN	AS	Carbide CVD CA420M	Carbide PVD PR1210	PR1225	PR1810	PR1825	Carbide - KW10	Cermet - TN100M	TN60	Applicable Toolholder
		SPCN 42EDTR	SPCN 1203EDTR	1/2	1/8	-	0.039	0.079	11	15							●		
		SPKN 42EDER	SPKN 1203EDER	1/2	1/8	0.039	-	0.063	11	15	●								
		SPKN 42EDTR	SPKN 1203EDTR	1/2	1/8	-	0.039	0.079	11	15			●				●		-
						0.039	-					●							
		42EDTL	1203EDTL			-	0.039										●		
		SPKN 53EDFR	SPKN 1504EDFR	5/8	3/16	0.039	-	0.087	11	15						●			
		SPKN 53EDTR	SPKN 1504EDTR	5/8	3/16	0.039	-	0.087	11	15		●	●				●		
		SPEN 42EEER	SPEN 1203EEER	1/2	1/8	0.039	-	0.055	11	20	●								-
		SPEN 42EESR	SPEN 1203EESR	1/2	1/8	0.039	-	0.055	11	20				●					
		SPCN 42XPTR	SPCN 1203XPTR	1/2	1/8	-	0.039	0.079	11	11							●		
		SPKN 42XPFR	SPKN 1203XPFR	1/2	1/8	0.039	-	0.079	11	11						●			-
		SPKN 42XPTR	SPKN 1203XPTR	1/2	1/8	-	0.039	0.079	11	11							●		
		SPKN 53XETR	SPKN 1504XETR	5/8	3/16	0.039	-	0.079	11	20							●		
		SPCN 63EETR1	SPCN 1904EETR1	3/4	3/16	0.028	-	0.047	11	20							●		-
		SPKR 42EDER-S	SPKR 1203EDER-S	1/2	1/8	-	0.079	0.039	11	15			●						-
		SPMR 42EDER-H	SPMR 1203EDER-H	1/2	1/8	-	0.039	0.079	11	15					●				-
	 Without Chipbreaker	SPG 321	SPGN 090304	3/8	1/8	-	1/64	-	11	-						●			-
		322	090308				1/32									●			
		SPG 421	SPGN 120304	1/2	1/8	-	1/64	-	11	-						●			
		422	120308				1/32									●		●	
	 Without Chipbreaker	SPM 422	SPMN 120308	1/2	1/8	-	1/32	-	11							●	●	●	-
		423	120312				3/64										●	●	
		SPM 432	SPMN 120408	1/2	3/16	-	1/32	-	11		●								
		433	120412				3/64				●								

Right-hand Shown

S-Type inserts are sold in 10 piece boxes

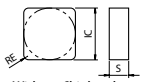
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-Type Inserts (Solid without Hole)

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel		■	P
Mold and die steel		■	P
Austenitic stainless steel			M
Martensitic stainless steel			M
Precipitation hardened stainless steel			M
Gray cast iron	★		K
Nodular cast iron	★		K
Non-ferrous metals			N
Heat-resistant alloy			S
Titanium alloy			S
Hard materials			H

Insert		Part Number ANSI	Part Number ISO	No. of Edges	Dimensions (in) IC	S	RE	BCH	BS	Angle (°) AN	AS	Carbide CVD CA420M	Cermet - TN100M	Applicable Toolholder
		SNCN 43XNTN	SNCN 1204XNTN	8	1/2	3/16	-	0.079	0.079	-	-		●	-
		SNKN 43XNTN	SNKN 1204XNTN	8	1/2	3/16	-	0.079	0.079	-	-		●	
		SNMF 43XNTN	SNMF 1204XNTN	8	1/2	3/16	-	0.079	0.079	-	-		●	-
	 Without Chipbreaker	SNM 433	SNMN 120412	8	1/2	3/16	3/64	-	-	-	-	●		-
		436	120424				3/32					●		

Right-hand Shown

S-Type inserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

T-Type Inserts (Solid without Hole)

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel		☆	☆	★		■		■	P
Mold and die steel		☆	☆	★		■		■	P
Austenitic stainless steel		☆	☆	★					M
Martensitic stainless steel									M
Precipitation hardened stainless steel									M
Gray cast iron	★				☆				K
Nodular cast iron	★								K
Non-ferrous metals					★				N
Heat-resistant alloy									S
Titanium alloy									S
Hard materials									H

Insert		Part Number ANSI	Part Number ISO	No. of Edges	Dimensions (in)					Angle (°)		Carbide				Cermet			Applicable Toolholder
					IC	S	BCH	RE	BS	AN	AS	PVD			-	-			
												PR1210	PR1225	PR1535	PR1825	KW10	TN100M	TN60	TN610	
		TEKN 32PTFR	TEKN 1603PTFR	3	3/8	1/8	0.028	-	0.055	20	22					●				
		TEKN 32PTTR	TEKN 1603PTTR	3	3/8	1/8	0.028	-	0.055	20	22	●								
							-	1/32					●				●			
		TEEN 43PTTR	TEEN 2204PTTR	3	1/2	3/16	-	0.039	0.055	20	22						●			
		TEKN 43PTFR	TEKN 2204PTFR	3	1/2	3/16	0.028	-	0.055	20	22					●				
		TEKN 43PTTR	TEKN 2204PTTR	3	1/2	3/16	0.028	-	0.055	20	22	●								-
							-	0.039					●				●			
		TEKR 43PTER-S	TEKR 2204PTER-S	3	1/2	3/16	-	0.039	0.055	20	22		●							-
		TEMR 32PTER-H	TEMR 1603PTER-H	3	3/8	1/8	-	1/32	0.047	20	22				●					-
		TEMR 43PTER-H	TEMR 2204PTER-H	3	1/2	3/16	-	0.039	0.055	20	22				●					
		TPC 32P4R	TPC 1603P4R	3	3/8	1/8	0.026	-	0.063	11	15								●	-
		TPK 32PDFR	TPKN 1603PDFR	3	3/8	1/8	0.028	-	0.047	11	15					●				MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8
		TPK 32PDTR	TPKN 1603PDTR	3	3/8	1/8	0.028	-	0.047	11	15	●	●				●			
		TPK 43PDFR	TPKN 2204PDFR	3	1/2	3/16	0.028	-	0.063	11	15					●				MTP90-200-125W MTP90-250-125W
		TPK 43PDTR	TPKN 2204PDTR	3	1/2	3/16	0.028	-	0.063	11	15	●	●				●			
		TPKR 43PDER-S	TPKR 2204PDER-S	3	1/2	3/16	-	0.039	0.055	11	15		●							MTP90-200-125W MTP90-250-125W
		TPMR 32PDER-H	TPMR 1603PDER-H	3	3/8	1/8	-	1/32	0.047	11	15				●					MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8
		TPMR 43PDER-H	TPMR 2204PDER-H	3	1/2	3/16	-	0.039	0.055	11	15				●					MTP90-200-125W MTP90-250-125W
	Without Chipbreaker	TPG 181505	TPGN 090202	3	7/32	0.094	-	0.008	-	11	-					●				-
		18151	090204					1/64								●		●	●	
		TPG 2205	TPGN 110302	3	1/4	1/8	-	0.008	-	11	-					●		●		MTP90-075-75W MTP90-100-75W
		221	110304					1/64								●		●	●	
		222	110308					1/32								●		●	●	
		TPG 321	TPGN 160304	3	3/8	1/8	-	1/64	-	11	-			●		●		●	●	MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8
		322	160308					1/32						●		●	●	●	●	
	Without Chipbreaker	TPM 221	TPMN 110304	3	1/4	1/8	-	1/64	-	11	-					●				MTP90-075-75W MTP90-100-75W
		222	110308					1/32								●				
		TPM 321	TPMN 160304	3	3/8	1/8	-	1/64	-	11	-					●	●			MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8
		322	160308					1/32								●	●			
		323	160312					3/64									●			
		TPM 432	TPMN 220408	3	1/2	3/16	-	1/32	-	11	-						●			-

Right-hand Shown

T-Type inserts are sold in 10 piece boxes

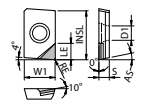
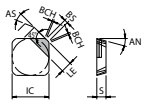
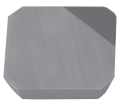
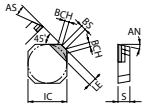
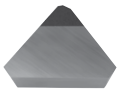
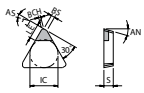
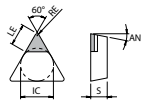
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PCD Inserts

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel				P
Mold and die steel				
Austenitic stainless steel				M
Martensitic stainless steel				
Precipitation hardened stainless steel				
Gray cast iron				K
Nodular cast iron				
Non-ferrous metals	□		■	N
Heat-resistant alloy				S
Titanium alloy	□		■	
Hard materials				H

Insert		Part Number ANSI	Part Number ISO	No. of Edges	Dimensions (in)									Angle (°)		PCD			Applicable Toolholder
					IC	W1	S	D1	RE	INSL	LE	BCH	BS	AN	AS	-			
																KPD001	KPD010	KPD230	
		NDCW 3205FRX 3205FRX-NE	NDCW 150302FRX 150302FRX-NE	1	-	3/8	1/8	0.173	0.008	0.591	0.224 0.201	-	-	-	15	●	●	●	DMC...SX(...) DMC...H
		SDKN 42AUFN	SDKN 1203AUFN	1	1/2	-	1/8	-	-	-	0.142	0.020	0.047	15	23	●			-
		SEEN 42AFFN	SEEN 1203AFFN	1	1/2	-	1/8	-	-	-	0.138	0.020	0.055	20	25	●	●		-
		TEEN 32PTFR 32PTFR-NE	TEEN 1603PTFR 1603PTFR-NE	1	3/8	-	1/8	-	-	-	0.185 0.161	0.024	0.055	20	22	●	●	●	-
		TEKN 43PTFR 43PTFR-NE	TEKN 2204PTFR 2204PTFR-NE	1	1/2	-	3/16	-	-	-	0.189 0.165	0.028	0.071	20	22	●	●	●	-
		TPG 2205 221	TPGN 110302 110304	1	1/4	-	1/8	-	0.008 1/64	-	0.154 0.146	-	-	11	-	●	●		MTP90-075-75W MTP90-100-75W

Right-hand Shown

PCD Inserts are sold in 1 piece boxes

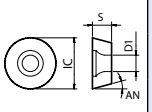
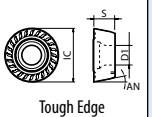
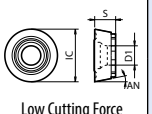
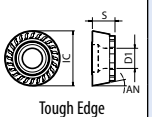
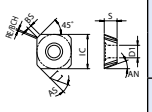
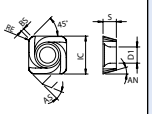
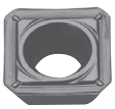
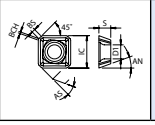
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Additional Geometries (with Hole)

Usage Classification

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(Hardness 45HRC or less)

Carbon steel / Alloy steel		☆			★	☆		■		P
Mold and die steel		☆			★	☆		■		P
Austenitic stainless steel		☆			☆	★				M
Martensitic stainless steel						☆				M
Precipitation hardened stainless steel						★				M
Gray cast iron	☆			★			☆			K
Nodular cast iron	☆			★						K
Non-ferrous metals							★			N
Heat-resistant alloy						☆				S
Titanium alloy						★				S
Hard materials										H

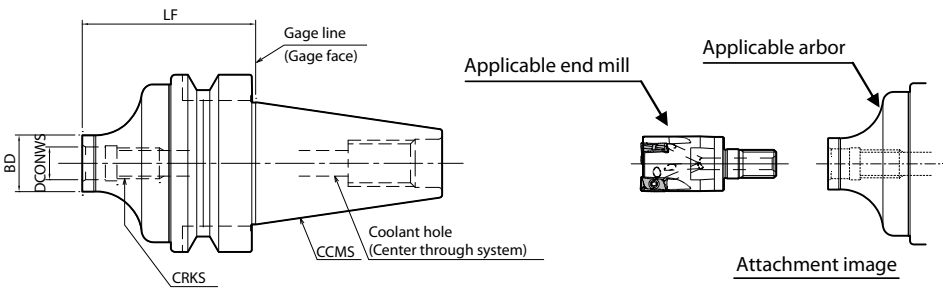
Insert		Part Number ANSI	Part Number ISO	Dimensions (in)						Angle (°)		Carbide						Cermet		Applicable Toolholder
				IC	S	D1	RE	BCH	BS	AN	AS	PVD					-	-		
												PR1210	PR1225	PR1230	PR1810	PR1825	PR1835	KW10	TN100M	
		(Use ISO Part Number)	RDHX 0702M0T	0.276	0.094	0.110	-	-	-	15	-						●			-
			RDHX 1003M0T	0.394	0.125	0.150	-	-	-	15	-						●			
			RDHX 12T3M0T	0.472	0.156	0.150	-	-	-	15	-						●			
	 Tough Edge	(Use ISO Part Number)	RDMT 08T2M0-H	0.315	0.109	0.134	-	-	-	15	-				●		●	●		-
	 Low Cutting Force	(Use ISO Part Number)	RPMT 10T3M0	0.394	0.156	0.134	-	-	-	11	-				●		●	●		-
			RPMT 1204M0	0.472	0.187	0.173	-	-	-	11	-				●		●	●		
	 Tough Edge	(Use ISO Part Number)	RPMT 1204M0-H	0.472	0.187	0.173	-	-	-	11	-				●		●	●	●	-
			RPMT 1606M0-H	0.630	0.250	0.217	-	-	-	11	-				●		●	●	●	
			RPMT 2006M0-H	0.787	0.250	0.256	-	-	-	11	-				●		●	●		
		(Use ISO Part Number)	SDKW 1204AESN	0.500	0.187	0.217	0.039	-	0.059	15	20		●							-
			SDKW 1204AETN	0.500	0.187	0.217	0.039	-	0.059	15	20	●								
		SEKW 43AFTN	SEKW 1204AFTN	0.500	0.187	0.217	-	0.020	0.067	20	25	●	●						●	
		(Use ISO Part Number)	SDMT 1204AESR-H	0.500	0.187	0.217	0.039	-	0.031	15	20					●				-
		SEKT 43AFEN-S	SEKT 1204AFEN-S	0.500	0.187	0.217	-	0.020	0.067	20	25		●						●	-

Right-hand Shown

linserts are sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

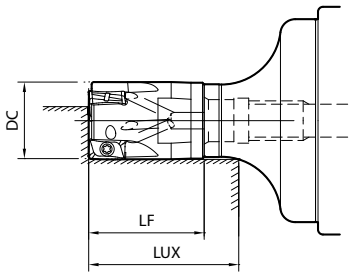
BT Arbor (for modular head / double-face clamping spindle)

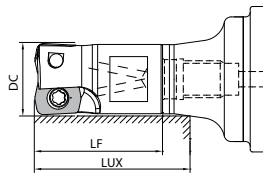


Dimensions

Unit	Part Number		Std. Item	Dimensions				Coolant Hole	Arbor (Double-Face Clamping)	Applicable Modular Head End MIII MA90, MEW, MEC, MEV, MFH-RAPTOR, MFH-MAX, MFH-Mini, MFH-Micro, MRX
				LF	BD	DCONWS	CRKS		CCMS	
mm	BT30K-	M08-45	●	45	14.7	8.5	M8×1.25	Yes	BT30	(MEW/MEC/MFH/MRX)..-M08-..
		M10-45	●		18.7	10.5	M10×1.5			(MA90/MEW/MEC/MEV/MFH/MRX)..-M10-..
		M12-45	●		23	12.5	M12×1.75			(MA90/MEW/MEC/MEV/MFH/MRX)..-M12-..
	BT40K-	M08-55	●	55	14.7	8.5	M8×1.25	Yes	BT40	(MEW/MEC/MFH/MRX)..-M08-..
		M10-60	●	60	18.7	10.5	M10×1.5			(MA90/MEW/MEC/MEV/MFH/MRX)..-M10-..
		M12-55	●	55	23	12.5	M12×1.75			(MA90/MEW/MEC/MEV/MFH/MRX)..-M12-..
		M16-65	●	65	30	17	M16×2.0			(MA90/MEW/MEC/MEV/MFH/MRX)..-M16-..

Actual End Mill Depth



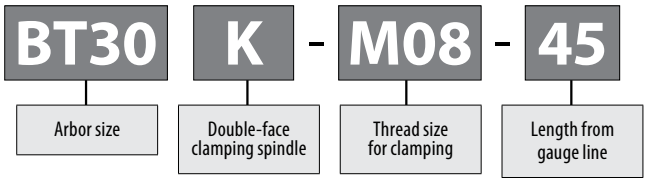


(MFH16-M08-01...)

Arbor Part Number		Unit	Applicable Modular End Mill (Head)			Actual End Mill Depth
			Part Number	Cutting Dia.	Dimensions	LUX
				DC	LF	
BT30K-	M08-45	Inch	MFH0625-M08-03... (MFH-Micro)	0.625	0.984	1.252
		mm	MFH16-M08-01... (MFH-Micro)	16	22	28.8
			...16-M08-...	16	25	31.8
			...17-M08-...	17		33.2
			...18-M08-...	18		34.2
	M10-45	Inch	...0750-M10-...	0.750	1.181	1.449
		mm	...20-M10-...	20	30	36.8
			...22-M10-...	22		39.2
	M12-45	Inch	...1000-M12-...	1.000	1.378	1.685
		mm	...25-M12-...	25	35	42.8
			...28-M12-...	28		45.5
BT40K-	M08-55	mm	MFH16-M08-01... (MFH-Micro)	16	22	28.7
			...16-M08-...	16	25	31.7
			...17-M08-...	17		33.2
			...18-M08-...	18		34.3
	M10-60		...20-M10-...	20	30	38.7
			...22-M10-...	22		44.5
	M12-55		...25-M12-...	25	35	44.6
			...28-M12-...	28		47.6
	M16-65	Inch	...1250-M16-...	1.250	1.575	2.016
		mm	...32-M16-...	32	40	51.2
			...35-M16-...	35		60.2
			...40-M16-...	40		64

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Arbor Identification System



How to Attach Modular Head End Mill

1. When clamping the head on the arbor, make sure there is no dust or chips inside (Fig. 1).
   Do NOT put lubricant on the clamping portion.

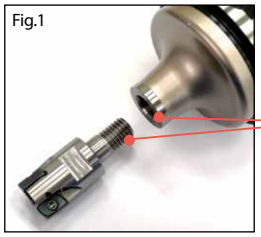
2. Attach the head on the arbor and fix it using the wrench (Fig. 2).
   See Table 1 for Recommended Torque.
   Note) The wrench is NOT included with product.

Table 1. Recommended Head Tightening Torque

Thread Dia. Tolerance	Wrench Width Across Flat (mm)	Recommended Torque (Nm)
M8	12	23
M10	15	46
M12	19	80
M16	24	90

3. Confirm that the head is fixed firmly on the arbor (Fig. 3).

Fig.1

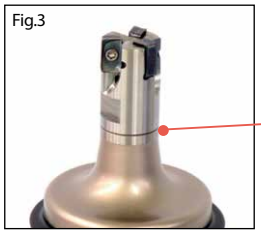


Ensure there are NO chips between the arbor and head.

Fig.2

See Table 1 for wrench size and recommended torque

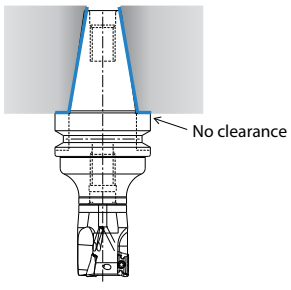
Fig.3



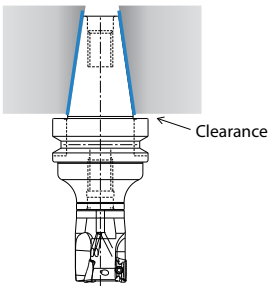
No space in between

Standard BT Spindle Mounting

The double-face clamping arbor can be mounted on a general BT spindle and used like a standard BT arbor; however, its double-face clamping advantages will not be fully realized on a general BT spindle.



Double-face clamping arbor mounted on double-face clamping spindle



Double-face clamping arbor mounted on general spindle

Quick Change Tooling

N

Polygon Taper Shank (KPC Series)		N2~N17
CN Inserts		N4
DN Inserts		N6
TN Inserts		N8
VN Inserts		N10
WN Inserts		N12
VB / VC Inserts		N13
GBA Inserts	(Shallow Grooving)	N15
GDM / GDG Inserts	(Grooving)	N16
16E℞ Inserts	(External Threading)	N17
HSK-T Tooling (ICTM Standard)		N18~N33
Toolholders for Square Shank	External Turning / External Facing	N20
CN Inserts		N22
DN Inserts		N24
TN Inserts		N26
WN Inserts		N28
VB / VC Inserts		N30
GBA Inserts	(Shallow Grooving)	N32
16ER / 22ER Inserts	(External Threading)	N32
Toolholders for Boring Bars / Drills		N33

PSC Shank Tools

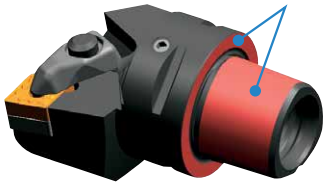
Polygon Taper Shank

PSC Shank Tools
JIS B 6066-1
ISO26623-1 Polygonal taper interface with flange contact surface

1 High Rigidity

Polygon taper design and dual contact between the taper and the flange face for high rigidity

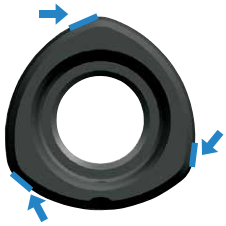
Dual contact between the taper face and the flange face



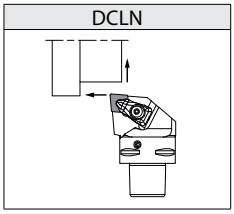
2 High Precision

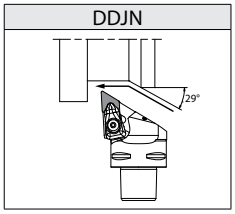
Locational accuracy within ±2µm

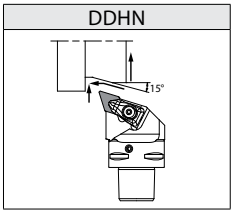
Distributes cutting forces evenly between 3 faces for enhanced rigidity and centering accuracy

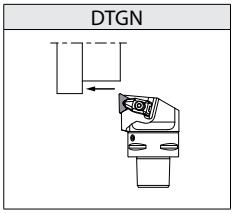


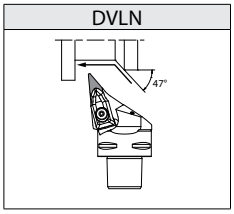
Even distribution of force between 3 faces enhances rigidity and centering

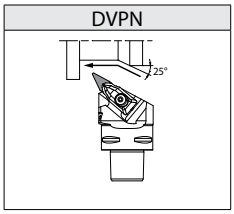


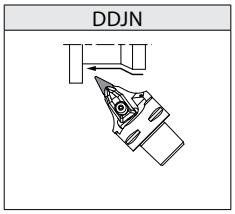


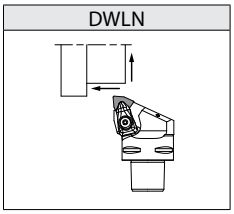


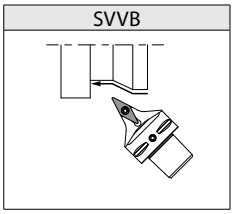


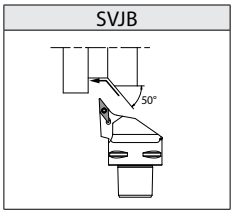




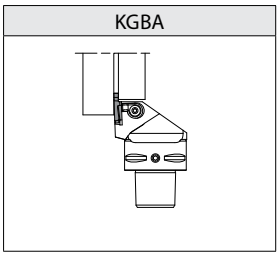




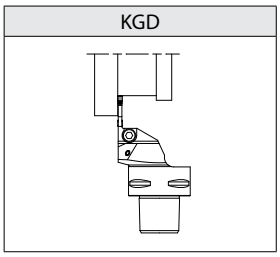




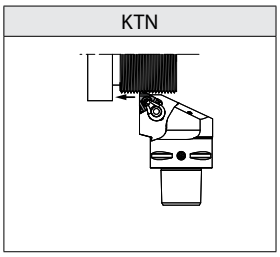
Grooving



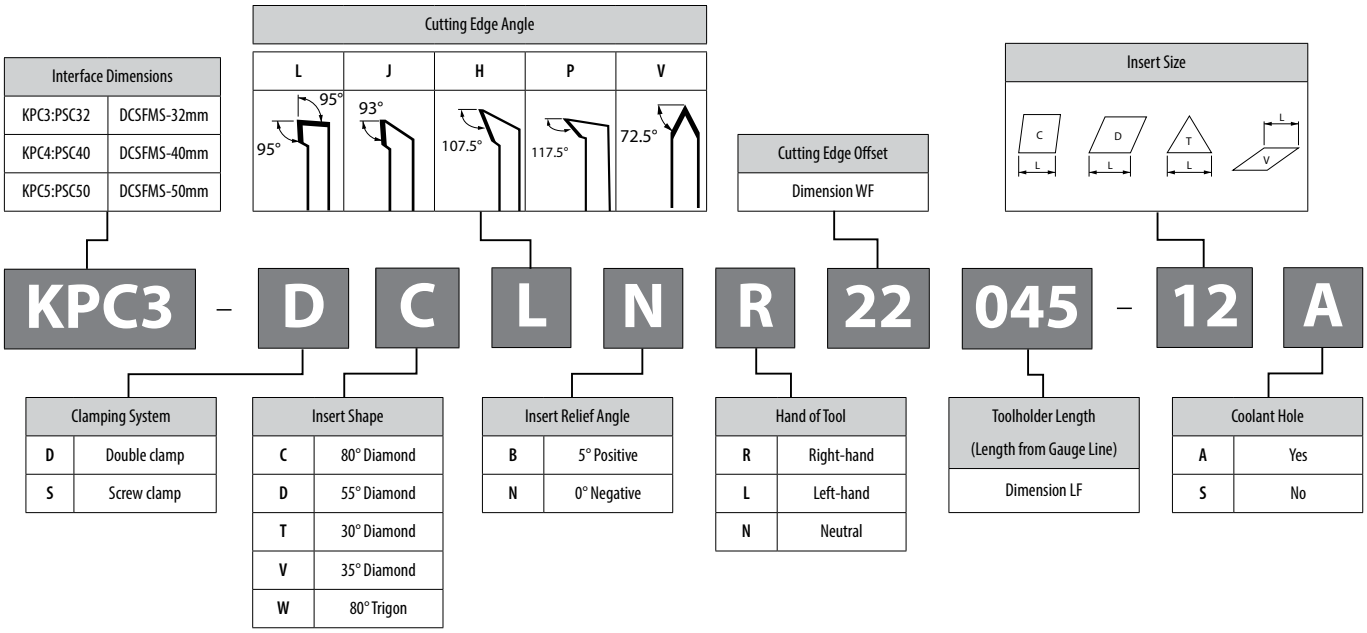
Grooving / Cut-off



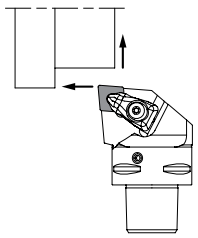
Threading



Identification System (for External Holders)



DCLN (External Turning)



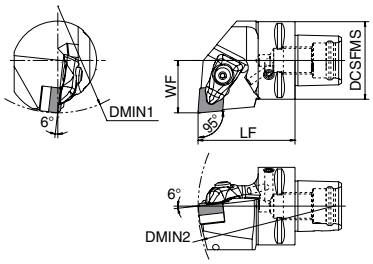


Fig. 1

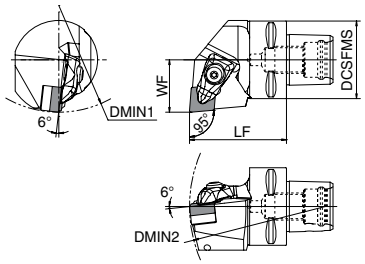
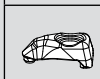
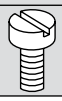


Fig. 2

Right-hand shown

Toolholder Dimensions

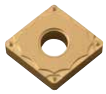
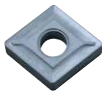
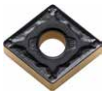
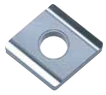
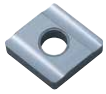
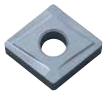
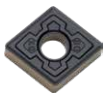
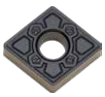
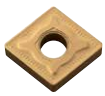
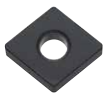
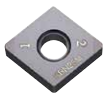
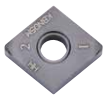
Unit	Part Number	Std. Item R	Std. Item L	Coolant Hole	Dimensions DCSFMS	Dimensions LF	Dimensions WF	Dimensions DMIN1	Dimensions DMIN2	Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Applicable Inserts
mm	KPC3-DCLN□□ 22045-12A	●	●	Yes	32	45	22	60	121	0.8	-6	-6	1	CN□A43... CN□G43... CN□M43...
	KPC4-DCLN□□ 27050-12A	●	●		40	50	27	110	140					
	KPC5-DCLN□□ 35060-12A	●	●		50	60	35		165					
	KPC3-DCLN□□ 22045-12S	●	●	No	32	45	22	60	121	0.8	-6	-6	2	
	KPC4-DCLN□□ 27050-12S	●	●		40	50	27	110	140					
	KPC5-DCLN□□ 35060-12S	●	●		50	60	35		165					

Part Number	Spare Parts: Clamp	Screw (for clamp)	Spring	Shim	Shim*	Shim	Shim*	Shim Screw	Shim Screw	Wrench
										
KPC3-DCLN□□ 22045-12A	CP-3D-S	CS-3D-TR	SP-3D	-	-	SP-441P	SP-441P-C	-	M3X8	FT-15
KPC4-DCLN□□ 27050-12A				DC-44	DC-44-C	-	-	SB-4085TR	-	
KPC5-DCLN□□ 35060-12A										
KPC3-DCLN□□ 22045-12S	CP-3D-S	CS-3D-TR	SP-3D	-	-	SP-441P	SP-441P-C	-	M3X8	FT-15
KPC4-DCLN□□ 27050-12S				DC-44	DC-44-C	-	-	SB-4085TR	-	
KPC5-DCLN□□ 35060-12S										

Pressure Resistance : up to 1,015 psi
When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
When using inserts with SX chipbreaker, use shim (-C type) sold separately.
Recommended Tightening Torque : 3.9N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B16	B16	B16	B16	B16	B16	B16	B17
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	CQ	CJ	TN-V	PMG	GS	PG	PS	PT
Page	B17	B17	B17	B17	B17	B17	B18	B18
Applications	Medium - Roughing	Roughing	Roughing	Roughing	Medium	Medium - Roughing	Medium - Roughing	Low Carbon Steel
Insert								
Chipbreaker	GT	Standard	PH	PX	R/L	R/L-25R	Z	XF
Page	B18	B18	B18	B19	B23	B23	B23	B19
Applications	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker	XP	XQ	XS	SK	FP-TK	TK	MQ	MS
Page	B19	B19	B19	B19	B19	B20	B20	B20
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	MU	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B20	B21	B21	B21	B22	B22	B22	B22
Applications	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials / Cast Iron
Insert								
Chipbreaker	Ceramic	R/L-A3	AH	PCD	SQ	SG	R/L-SX	CBN
Page	B113	B23	B23	C34	B20	B21	B21	C8
Applications	Hard Materials	Hard Materials	Hard Materials					
Insert								
Chipbreaker	HH	HL	HD					
Page	C9	C9	C9					

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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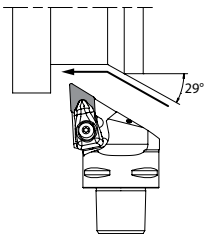
DDJN (External Turning / External Copying)



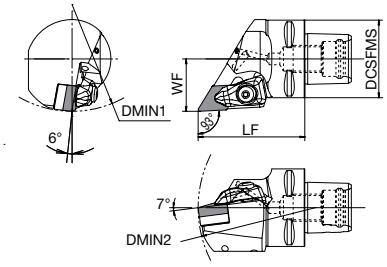


Fig. 1

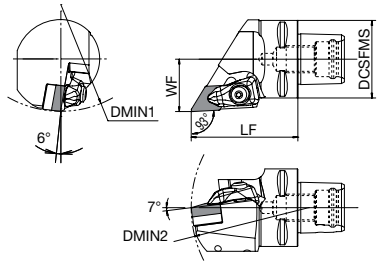


Fig. 2

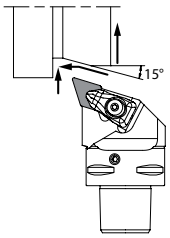
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Coolant Hole	Dimensions DCSFMS	Dimensions LF	Dimensions WF	Dimensions DMIN1	Dimensions DMIN2	Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Spare Parts Clamp	Spare Parts Screw (for clamp)	Spare Parts Spring	Spare Parts Shim	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts
mm	KPC3-DDJN□ 22050-15A	●	●	Yes	32	50	22	110	121	0.8	-6	-7	1	CP-3D-S	CS-3D-TR	SP-3D	DD-44 (DD-43*)	SB-4085TRP	FT-15	DN□A43... DN□G43... DN□M43...
	KPC4-DDJN□ 27055-15A	●	●		40	55	27		145											
	KPC5-DDJN□ 35060-15A	●	●		50	60	35		165											
	KPC3-DDJN□ 22050-15S	●	●	No	32	50	22	110	121	0.8	-6	-7	2	CP-3D-S	CS-3D-TR	SP-3D	DD-44 (DD-43*)	SB-4085TRP	FT-15	DN□A43... DN□G43... DN□M43...
	KPC4-DDJN□ 27055-15S	●	●		40	55	27		145											
	KPC5-DDJN□ 35060-15S	●	●		50	60	35		165											

Pressure Resistance : up to 1,015 psi
When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Shims indicated with * must be purchased separately for thicker inserts
Recommended Tightening Torque : 3.9 N·m

DDHN (External Turning / External Facing / External Copying)



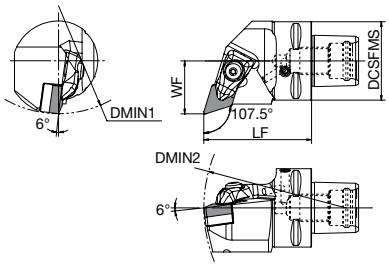


Fig. 1

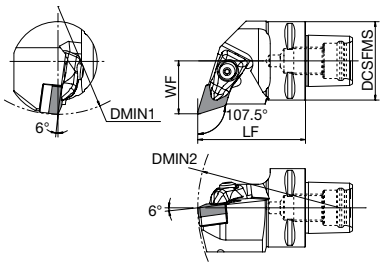


Fig. 2

Right-hand shown

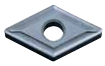
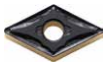
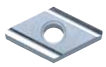
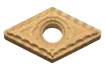
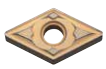
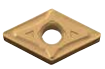
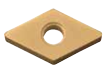
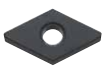
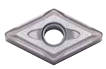
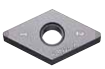
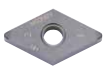
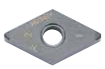
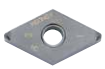
Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Coolant Hole	Dimensions DCSFMS	Dimensions LF	Dimensions WF	Dimensions DMIN1	Dimensions DMIN2	Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Spare Parts Clamp	Spare Parts Screw (for clamp)	Spare Parts Spring	Spare Parts Shim	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts
mm	KPC3-DDHN□ 22050-15A	●	●	Yes	32	50	22	110	121	0.8	-6	-6	1	CP-3D-S	CS-3D-TR	SP-3D	DD-44 (DD-43*)	SB-4085TRP	FT-15	DN□A43... DN□G43... DN□M43...
	KPC4-DDHN□ 27055-15A	●	●		40	55	27		145											
	KPC5-DDHN□ 35060-15A	●	●		50	60	35		165											
	KPC3-DDHN□ 22050-15S	●	●	No	32	50	22	110	121	0.8	-6	-6	2	CP-3D-S	CS-3D-TR	SP-3D	DD-44 (DD-43*)	SB-4085TRP	FT-15	DN□A43... DN□G43... DN□M43...
	KPC4-DDHN□ 27055-15S	●	●		40	55	27		145											
	KPC5-DDHN□ 35060-15S	●	●		50	60	35		165											

Pressure Resistance : up to 1,015 psi
When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Shims indicated with * must be purchased separately for thicker inserts
Recommended Tightening Torque : 3.9 N·m

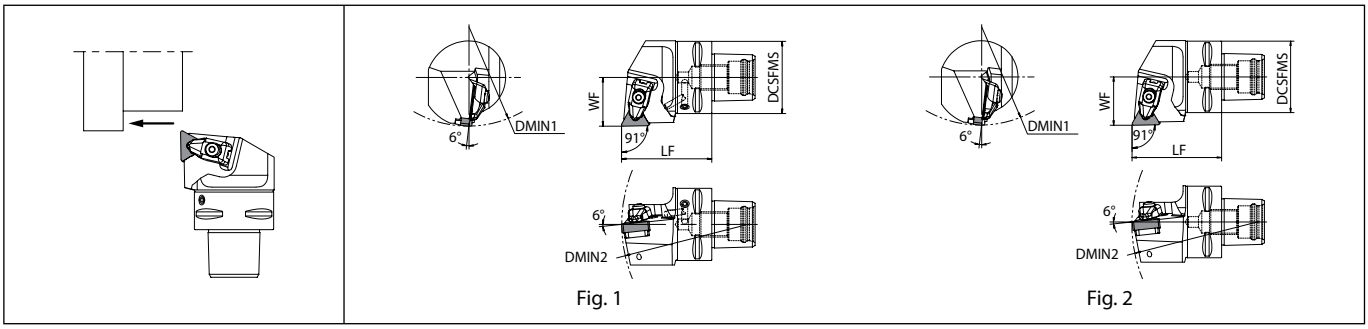
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing
Insert								
Chipbreaker	PP	GP	PQ	HQ	CQ	CJ	TN-V	PMG
Page	B24	B24	B24	B25	B25	B25	B25	B25
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing
Insert								
Chipbreaker	GS	PG	PS	PT	GT	Standard	PH	PX
Page	B25	B26	B26	B26	B26	B27	B27	B27
Applications	Medium	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Large ap	Medium - Roughing
Insert								
Chipbreaker	R/L	XF	XP	XQ	XS	SK	R-LD	FP-TK
Page	B32	B27	B27	B27	B27	B28	B28	B28
Applications	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	TK	MQ	MS	MU	KQ	KG	KH	C
Page	B28	B28	B29	B29	B30	B30	B30	B30
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys
Insert								
Chipbreaker	ZS	GC	No Chipbreaker	Ceramic	R/L-A3	AH	PCD	SQ
Page	B30	B30	B31	B114	B31	B31	C35	B29
Applications	Heat-Resistant Alloys	Hard Materials / Cast Iron	Hard Materials	Hard Materials	Hard Materials			
Insert								
Chipbreaker	SG	CBN	HH	HL	HD			
Page	B29	C10	C11	C11	C11			

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DTGN (External Turning)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Coolant Hole	Dimensions DCSFMS	Dimensions LF	Dimensions WF	Dimensions DMIN1	Dimensions DMIN2	Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Applicable Inserts
mm	KPC3-DTGN□□ 22040-16A	●	●	Yes	32	40	22	110	116	0.8	-6	-6	1	TN□A33... TN□G33... TN□M33...
	KPC4-DTGN□□ 27050-16A	●	●		40	50	27		140					
	KPC5-DTGN□□ 35060-16A	●	●		50	60	35		165					
	KPC3-DTGN□□ 22040-16S	●	●	No	32	40	22	110	116	0.8	-6	-6	2	TN□A33... TN□G33... TN□M33...
	KPC4-DTGN□□ 27050-16S	●	●		40	50	27		140					
	KPC5-DTGN□□ 35060-16S	●	●		50	60	35		165					

Part Number	Spare Parts: Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw	Wrench (for shim / sold separately)
KPC3-DTGN□□ 22040-16A	CP-2D	CS-2D	SP-2D	LW-2.5	DT-32	SB-3080TR	FT-10
KPC4-DTGN□□ 27050-16A							
KPC5-DTGN□□ 35060-16A							
KPC3-DTGN□□ 22040-16S	CP-2D	CS-2D	SP-2D	LW-2.5	DT-32	SB-3080TR	FT-10
KPC4-DTGN□□ 27050-16S							
KPC5-DTGN□□ 35060-16S							

Pressure Resistance : up to 1,015 psi
When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Recommended Tightening Torque : 1.7 N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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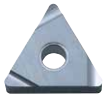
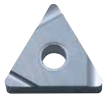
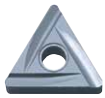
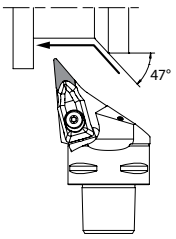
Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	PP	GP	PQ	HQ	CQ	PMG	GS	PG
Page	B39	B39	B39	B39	B39	B40	B40	B40
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing	Finishing	Finishing
Insert								
Chipbreaker	PS	PT	GT	Standard	PH	PX	R/L-SSF	R/L-S
Page	B40	B40	B40	B40	B41	B41	B45	B45
Applications	Finishing - Medium	Medium - Roughing	Medium - Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium
Insert								
Chipbreaker	R/L-B	R/L-C	R/L-25R	XF	XP	XQ	XS	SK
Page	B45	B46	B46	B41	B41	B41	B41	B42
Applications	Large ap	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless steel	Cast Iron
Insert								
Chipbreaker	R-LD	FP-TK	TK	MQ	MS	MU	R/L-ST	KQ
Page	B42	B42	B42	B42	B42	B42	B43	B43
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals
Insert								
Chipbreaker	KG	KH	C	ZS	GC	No Chipbreaker	Ceramic	R/L-A3
Page	B43	B43	B43	B43	B43	B44	B118	B44
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron				
Insert								
Chipbreaker	AH	PCD	SG	CBN				
Page	B44	C36	B43	C13				

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DVLN (External Turning / External Copying)



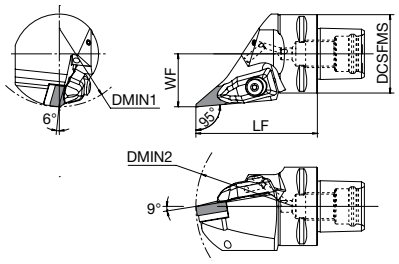


Fig. 1

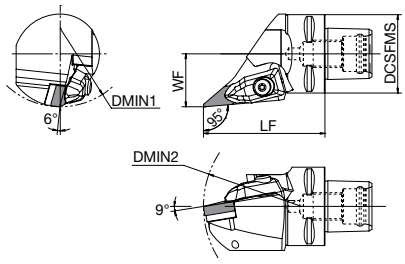


Fig. 2

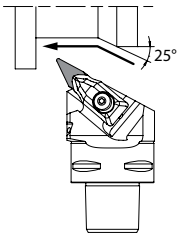
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Coolant Hole	Dimensions DCSFMS	Dimensions LF	Dimensions WF	Dimensions DMIN1	Dimensions DMIN2	Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Spare Parts Clamp	Spare Parts Screw (for clamp)	Spare Parts Spring	Spare Parts Shim	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts
mm	KPC3-DVLN%L 22058-16A	●	●	Yes	32	58	22	80	100	0.8	-6	-9	1	CP-5D-S	CS-3D-TR	SP-3D	DV-33	SB-4085TR	FT-15	VN□A33... VN□G33... VN□M33...
	KPC4-DVLN%L 27062-16A	●	●		40	62	27													
	KPC5-DVLN%L 35065-16A	●	●		50	65	35													
	KPC3-DVLN%L 22058-16S	●	●	No	32	58	22	80	100	0.8	-6	-9	2	CP-5D-S	CS-3D-TR	SP-3D	DV-33	SB-4085TR	FT-15	VN□A33... VN□G33... VN□M33...
	KPC4-DVLN%L 27062-16S	●	●		40	62	27													
	KPC5-DVLN%L 35065-16S	●	●		50	65	35													

Pressure Resistance : up to 1,015 psi
When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Recommended Tightening Torque : 3.9 N·m

DVPN (External Turning / External facing / External Copying)



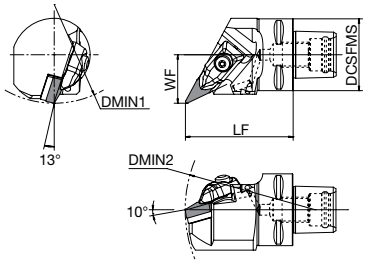


Fig. 1

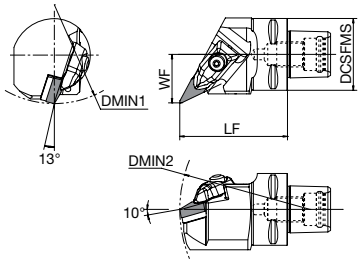


Fig. 2

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Coolant Hole	Dimensions DCSFMS	Dimensions LF	Dimensions WF	Dimensions DMIN1	Dimensions DMIN2	Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Spare Parts Clamp	Spare Parts Screw (for clamp)	Spare Parts Spring	Spare Parts Shim	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts
mm	KPC3-DVPN%L 22055-16A	●	●	Yes	32	55	22	110	130	0.8	-13	-10	1	CP-5D-S	CS-3D-TR	SP-3D	DV-33	SB-4085TR	FT-15	VN□A33... VN□G33... VN□M33...
	KPC4-DVPN%L 27060-16A	●	●		40	60	27		145											
	KPC5-DVPN%L 35065-16A	●	●		50	65	35		165											
	KPC3-DVPN%L 22055-16S	●	●	No	32	55	22	110	130	0.8	-13	-10	2	CP-5D-S	CS-3D-TR	SP-3D	DV-33	SB-4085TR	FT-15	VN□A33... VN□G33... VN□M33...
	KPC4-DVPN%L 27060-16S	●	●		40	60	27		145											
	KPC5-DVPN%L 35065-16S	●	●		50	65	35		165											

Pressure Resistance : up to 1,015 psi
When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Recommended Tightening Torque : 3.9 N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DVVN (External Copying)

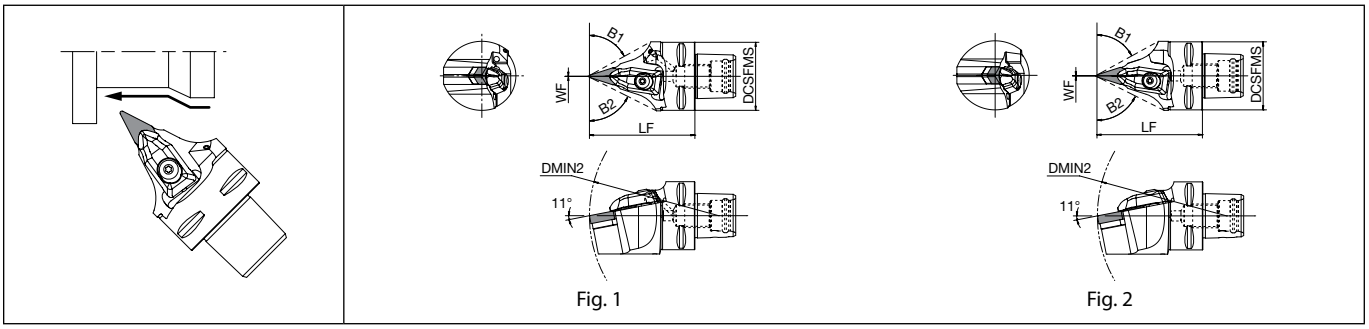


Fig. 1 Fig. 2

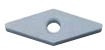
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Coolant Hole	Dimensions				Angle (°)		Standard Corner-R(RE)	Fig.	Spare Parts						Applicable Inserts
												Clamp	Screw (for clamp)	Screw	Shim	Spring	Wrench	
		N		DCSFMS	LF	WF	DMIN2	B1	B2									
mm	KPC4-DVVNN 00062-16A	●	Yes	40	62	0	152	61	63	0.8	1	CP-5D-S	CS-3D-TR	SB-4085TR	DV-33	SP-3D	FT-15	VN□A33... VN□G33... VN□M33...
	KPC5-DVVNN 00065-16A	●		50	65	0	170	59	59									
	KPC3-DVVNN 00058-16S	●	No	32	58	0	140	68	68	0.8	2	CP-5D-S	CS-3D-TR	SB-4085TR	DV-33	SP-3D	FT-15	
	KPC4-DVVNN 00062-16S	●		40	62	0	152	61	63									
	KPC5-DVVNN 00065-16S	●		50	65	0	170	59	59									

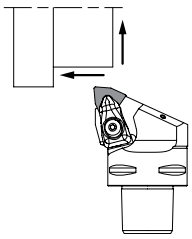
Pressure Resistance : up to 1,015 psi
When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
Recommended Tightening Torque : 3.9 N·m
Angle B1 and B2 show the area of interference between the holder and the cutting edge

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium	Roughing
Insert								
Chipbreaker	PP	GP	R/L-VC	VF	PQ	HQ	TN-V	Standard
Page	B47	B47	B47	B47	B47	B47	B47	B47
Applications	Finishing - Medium	Finishing	Medium	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron
Insert								
Chipbreaker	SK	R/L-S	R/L	MQ	MS	MU	KG	KH
Page	B48	B49	B49	B48	B48	B48	B48	B48
Applications	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron			
Insert								
Chipbreaker	No Chipbreaker	Ceramic	PCD	SG	CBN			
Page	B49	B119	C37	B48	C14			

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DWLN (External Turning / External Facing)



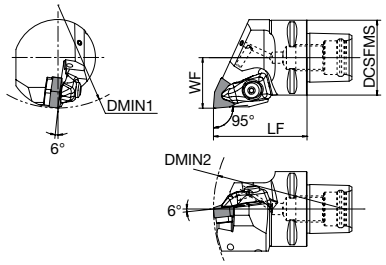


Fig. 1

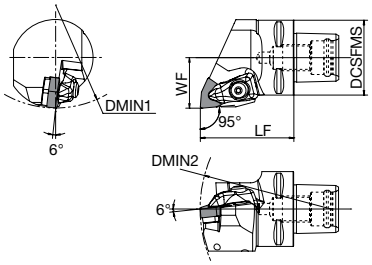


Fig. 2

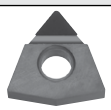
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Coolant Hole	Dimensions DCSFMS	Dimensions LF	Dimensions WF	Dimensions DMIN1	Dimensions DMIN2	Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Spare Parts: Clamp	Spare Parts: Screw (for clamp)	Spare Parts: Spring	Spare Parts: Shim	Spare Parts: Screw	Spare Parts: Wrench	Applicable Inserts
mm	KPC3-DWLNR/L 22047-08A	●	●	Yes	32	47	22	110	121	0.8	-6	-6	1	CP-3D-S	CS-3D-TR	SP-3D	DW-42	SB-4085TR	FT-15	WN□A43... WN□G43... WN□M43...
	KPC4-DWLNR/L 27050-08A	●	●		40	50	27		140											
	KPC5-DWLNR/L 35060-08A	●	●		50	60	35		165											
	KPC3-DWLNR/L 22047-08S	●	●	No	32	47	22	110	121	0.8	-6	-6	2	CP-3D-S	CS-3D-TR	SP-3D	DW-42	SB-4085TR	FT-15	WN□A43... WN□G43... WN□M43...
	KPC4-DWLNR/L 27050-08S	●	●		40	50	27		140											
	KPC5-DWLNR/L 35060-08S	●	●		50	60	35		165											

Pressure Resistance : up to 1,015 psi
Recommended Tightening Torque : 3.9 N·m

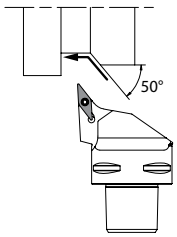
Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B50	B50	B50	B50	B50	B50	B50	B51
Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	CQ	CJ	PMG	GS	PG	PS	PT	GT
Page	B51	B51	B51	B51	B51	B51	B51	B52
Applications	Roughing	Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Stainless steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker	Standard	PH	XP	XQ	XS	TK	MQ	MS
Page	B52	B52	B52	B52	B52	B52	B53	B53
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	MU	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B53	B53	B53	B53	B54	B54	B54	B54
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron				
Insert								
Chipbreaker	AH	PCD	SG	CBN				
Page	B54	C38	B53	C15				

N QUICK CHANGE TOOLING

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVJB (External Turning / External Copying)



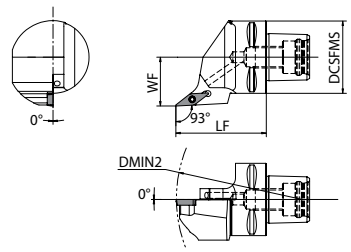


Fig. 1

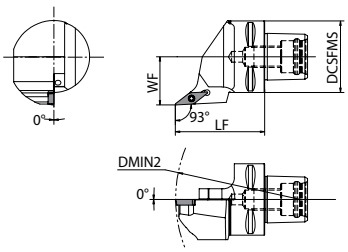


Fig. 2

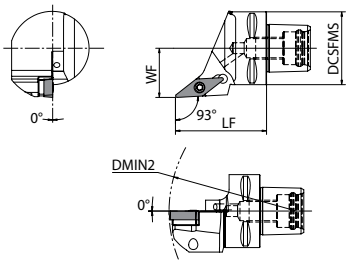


Fig. 3

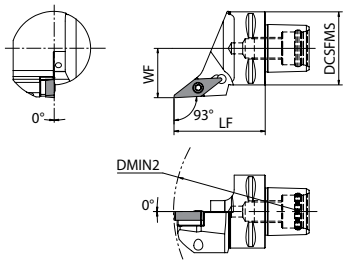


Fig. 4

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Coolant Hole	Dimensions DCSFMS	Dimensions LF	Dimensions WF	Dimensions DMIN2	Standard Corner-R(RE)	Fig.	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench	Applicable Inserts
mm	KPC3-SVJB□ 22040-11A	●	●	Yes	32	40	22	116	0.4	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	KPC4-SVJB□ 27050-11A	●	●		40	50	27	140									
	KPC5-SVJB□ 35060-11A	●	●		50	60	35	165									
	KPC3-SVJB□ 22040-11S	●	●	No	32	40	22	116	0.4	2	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	KPC4-SVJB□ 27050-11S	●	●		40	50	27	140									
	KPC5-SVJB□ 35060-11S	●	●		50	60	35	165									
	KPC3-SVJB□ 22047-16A	●	●	Yes	32	47	22	116	0.8	3	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	KPC4-SVJB□ 27050-16A	●	●		40	50	27	140									
	KPC5-SVJB□ 35060-16A	●	●		50	60	35	165									
	KPC3-SVJB□ 22047-16S	●	●	No	32	47	22	116	0.8	4	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	KPC4-SVJB□ 27050-16S	●	●		40	50	27	140									
	KPC5-SVJB□ 35060-16S	●	●		50	60	35	165									

Pressure Resistance : up to 1,015 psi
Recommended Tightening Torque is 1.2N·m for VB..22 inserts and 3.5N·m for VB(C)..33 inserts.
When using inserts with a corner-R (RE) greater than 1/32" (0.8 mm), additional modifications to the toolholder are necessary in order to prevent workpiece and shim from interfering with each other.
When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the toolholder or shim are necessary in order to prevent workpiece and shim from interfering with each other.
When using inserts with a corner-R (RE) of 0.008" and 1/64" (0.2mm and 0.4mm), shim (SVN-32S*) is recommended (sold separately).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

SVVB (External Copying)

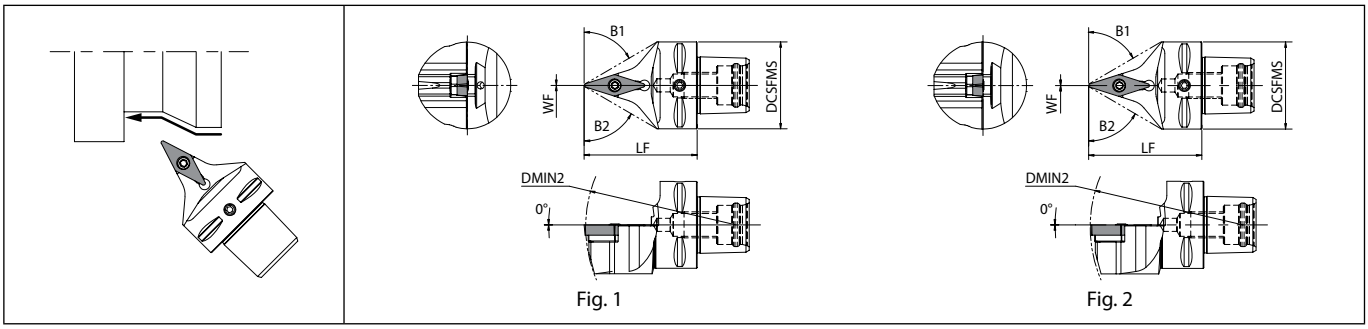
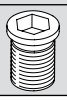


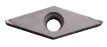
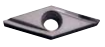
Fig. 1 Fig. 2

Toolholder Dimensions

Unit	Part Number	Std. Item	Coolant Hole	Dimensions				Angle (°)		Standard Corner-R(RE)	Fig.	Spare Parts					Applicable Inserts
												Screw	Wrench	Shim	Shim Screw	Wrench	
		N		DCSFMS	LF	WF	DMIN2	B1	B2								
mm	KPC3-SVVBN 00048-16A	●	Yes	32	48	0	116	62	62	0.8	1	SB-40125TRN	FT-15	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	KPC4-SVVBN 00052-16A	●		40	52	0	140	59	59								
	KPC5-SVVBN 00060-16A	●		50	60	0	165	56	56								
	KPC3-SVVBN 00048-16S	●	No	32	48	0	116	62	62	0.8	2	SB-40125TRN	FT-15	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	KPC4-SVVBN 00052-16S	●		40	52	0	140	59	59								
	KPC5-SVVBN 00060-16S	●		50	60	0	165	56	56								

Pressure Resistance : up to 1,015 psi
When using inserts with a corner-R (RE) of 0.008" and 1/64" (0.2mm and 0.4mm), shim (SVN-32S*) is recommended (sold separately).
Angle B1 and B2 show the area of interference between the holder and the cutting edge
Recommended Tightening Torque : 3.5 N·m

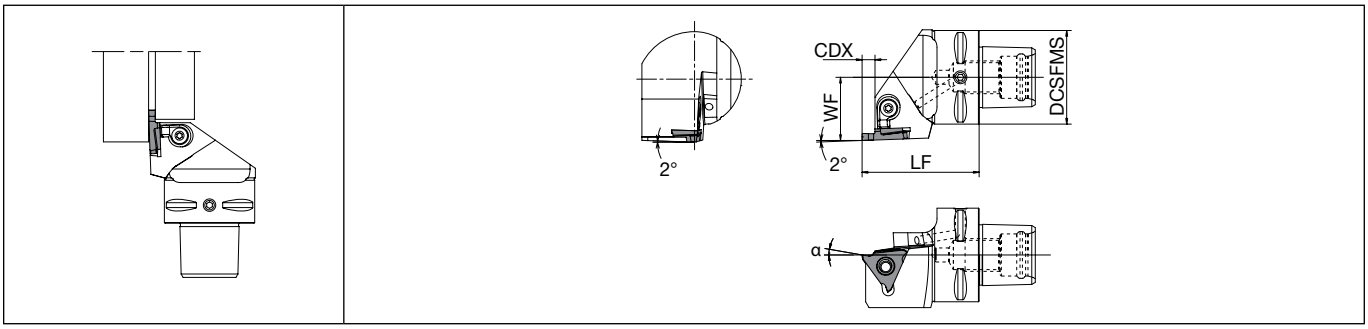
Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker	PP	GP	VF	HQ	PL-F	PL-FSF	PL-Y	PCD
Page	B97	B97	B97	B97	B98	B98	B99	C49

Applications	Hard Materials
Insert	
Chipbreaker	CBN
Page	C26

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGBA (Shallow Grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Coolant Hole	Dimensions DCSFMS	Dimensions LF	Dimensions WF	Dimensions CDX	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts G6~G12
mm	KPC3-KGBA□□ 22040-16	●	●	Yes	32	40	22	2.5	LGBA-16□□S	FT-15	GBA32□□...
	KPC4-KGBA□□ 27050-16	●	●		40	50	27				
	KPC5-KGBA□□ 35060-16	●	●		50	60	35				
	KPC3-KGBA□□ 22040-2215	●	●	Yes	32	40	22	4	LGBA-22□□S	FT-15	GBA43□□...
	KPC4-KGBA□□ 27050-2215	●	●		40	50	27				
	KPC5-KGBA□□ 35060-2215	●	●		50	60	35				
	KPC3-KGBA□□ 22040-2225	●	●	Yes	32	40	22	5.5	LGBA-22□□S	FT-15	
	KPC4-KGBA□□ 27050-2225	●	●		40	50	27				
	KPC5-KGBA□□ 35060-2225	●	●		50	60	35				
	KPC3-KGBA□□ 22040-2235	●	●	Yes	32	40	22	5.5	LGBA-22□□S	FT-15	
	KPC4-KGBA□□ 27050-2235	●	●		40	50	27				
	KPC5-KGBA□□ 35060-2235	●	●		50	60	35				

Pressure Resistance : up to 1,015 psi
CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : See "CDX" dimension of Insert.
Clamp Set : LGBA-○○RS for Right-hand Toolholder and LGBA-○○LS for Left-hand Toolholder.
Rake Angle (α) after Installment of Insert (Ref. table below.)

Rake Angle (α) after Installment of GBA insert

GBA32□□OOO-OOO		GBA43□□OOO-OOO		GBA43□□OOO-OOOR (Full-R)		
α	Insert Grades	α	Insert Grades	α	Insert Grades	Full-R Part Number
10°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215 KPD001, KPD010	0°	KBN510, KBN525	10°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215	050R~150R
		10°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215 KPD001, KPD010	14°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215	200R
20°	KW10	20°	KW10		KW10	050R~200R

Rake Angle (α) after Installment of GBA-GM insert

α	Insert Part Number
10°	GBA43□□150-020GM
15°	GBA43□□175-020GM ~ GBA43□□265-030GM
12°	GBA43□□300-030GM ~ GBA43□□400-040GM

α indicates the rake angle at the center of the edge width, after installing insert.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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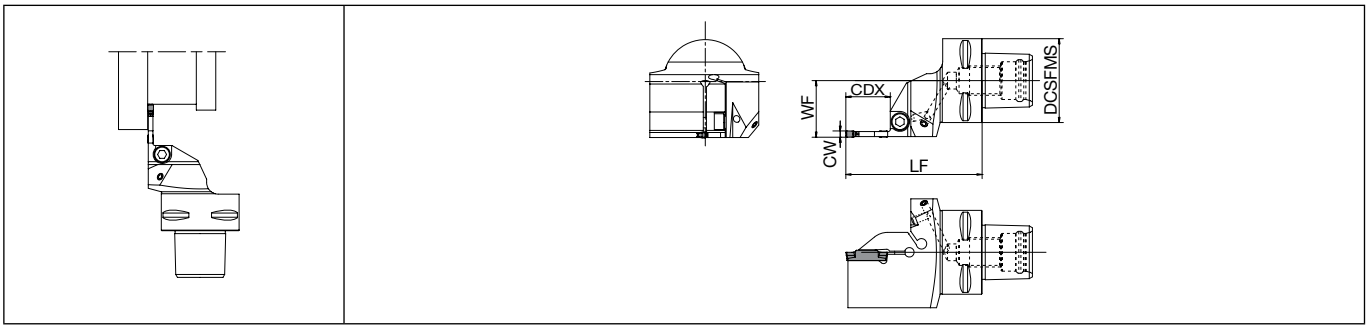
KGD (External Grooving)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Coolant Hole	Dimensions DCSFMS	LF	WF	CDX	CW min.	CW max.	Spare Parts Clamp bolt	Spare Parts Wrench	Applicable Inserts G30~G33
mm	KPC3-KGD□L 22050-2T10	●	●	Yes	32	50	22	10	2	3	HH5X16	LW-4	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	KPC4-KGD□L 27055-2T10	●	●		40	55	27						
	KPC5-KGD□L 35060-2T10	●	●		50	60	35						
	KPC3-KGD□L 22055-2T17	●	●	Yes	32	55	22	17			HH5X16	LW-4	
	KPC4-KGD□L 27060-2T17	●	●		40	60	27						
	KPC5-KGD□L 35060-2T17	●	●		50	60	35						
	KPC3-KGD□L 22050-3T10	●	●	Yes	32	50	22	10	3	4	HH5X16	LW-4	GD..3020... GD..3520... GD..4020...
	KPC4-KGD□L 27055-3T10	●	●		40	55	27						
	KPC5-KGD□L 35060-3T10	●	●		50	60	35						
	KPC3-KGD□L 22060-3T20	●	●	Yes	32	60	22	20			HH5X16	LW-4	
	KPC4-KGD□L 27065-3T20	●	●		40	65	27						
	KPC5-KGD□L 35065-3T20	●	●		50	65	35						
	KPC3-KGD□L 22050-4T10	●	●	Yes	32	50	22	10	4	5	HH5X16	LW-4	GD..4020... GD..5020...
	KPC4-KGD□L 27055-4T10	●	●		40	55	27						
	KPC5-KGD□L 35060-4T10	●	●		50	60	35						
	KPC4-KGD□L 27065-4T20	●	●	Yes	40	65	27	20			HH5X16	LW-4	
	KPC5-KGD□L 35065-4T20	●	●		50	65	35						
	KPC4-KGD□L 27070-4T25	●	●	Yes	40	70	27	25			HH5X16	LW-4	
	KPC5-KGD□L 35070-4T25	●	●		50	70	35						
	KPC4-KGD□L 27055-5T10	●	●	Yes	40	55	27	10	5	6	HH5X16	LW-4	GD..5020... GD..6020...
	KPC5-KGD□L 35060-5T10	●	●		50	60	35						
	KPC4-KGD□L 27060-5T17	●	●	Yes	40	60	27	17			HH5X16	LW-4	
	KPC5-KGD□L 35060-5T17	●	●		50	60	35						

Pressure Resistance : up to 1,015 psi
Recommended Tightening Torque : 6.5 N·m
CDX dimension shows available grooving depth (if CDX dimension is 20mm or more, using a 2-edge insert, the maximum grooving depth is 18mm)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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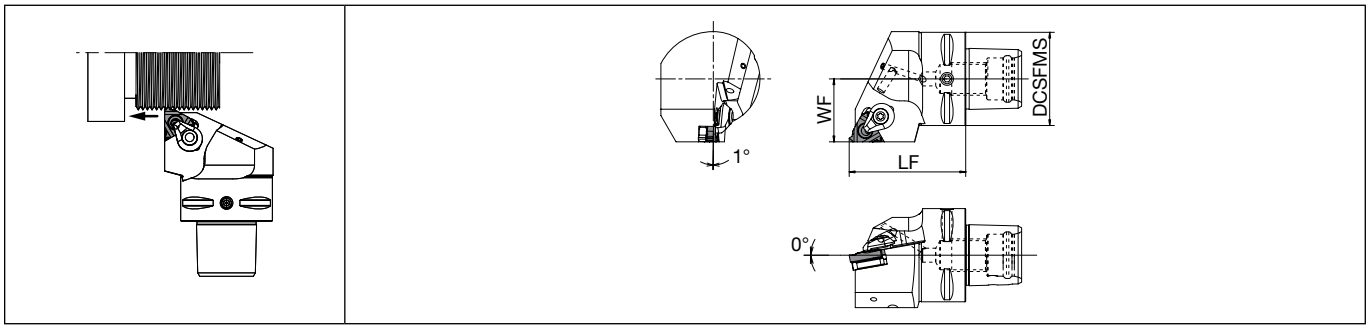
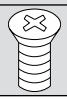
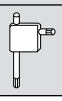
KTN (External Threading)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item R	Std. Item L	Coolant Hole	Dimensions DCSFMS	Dimensions LF	Dimensions WF	Spare Parts: Clamp set	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench	Applicable Inserts
												➡ J6, J8, J10 J12, J14, J16 J18, J20
mm	KPC3-KTN℄ 22040-16	●	●	Yes	32	40	22	CPS-5S	TN-32	SP3X8	FT-15	16E℄ type
	KPC4-KTN℄ 27050-16	●	●		40	50	27					
	KPC5-KTN℄ 35060-16	●	●		50	60	35					

Pressure Resistance : up to 1,015 psi

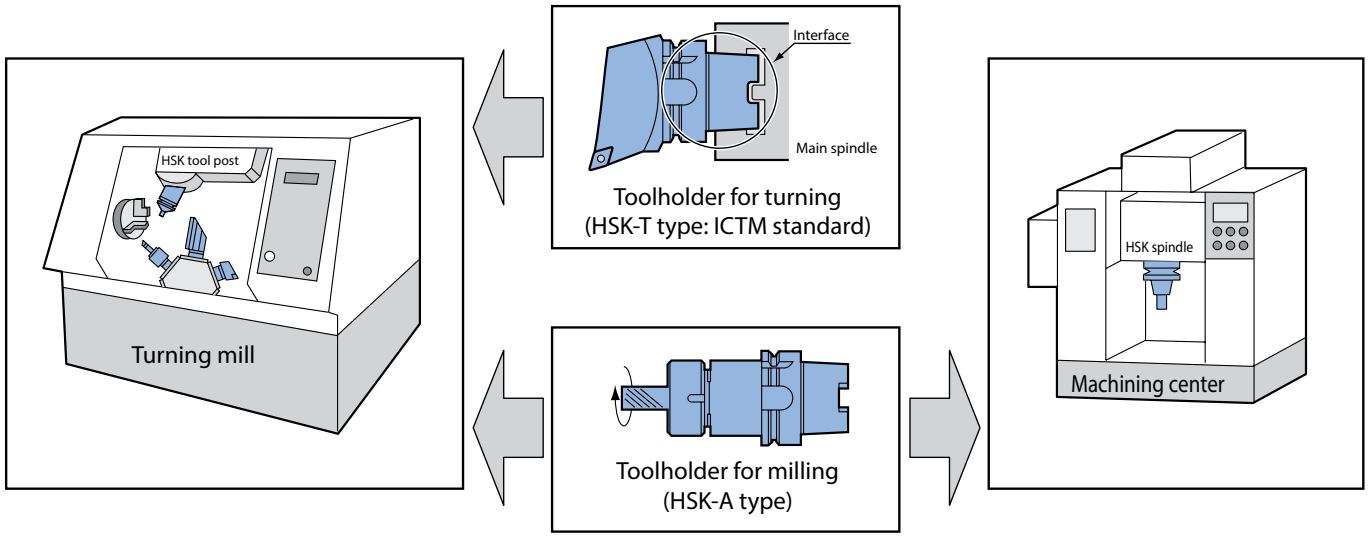
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Tools for Mill Turn

HSK-T Series

- The turning mill is a machine that combines turning and milling functions. Now an interface (between workpiece and toolholder - similar to a milling arbor) is available for the turning mill that fulfils the ICTM standard.
- ICTM standard was developed by 16 companies in Japan, as the interface between turning mill machines. It is based on the two-face restraint type standard "ISO 12164-1:2001 HSK Standard Shank"
- This standard became an International Standard as ISO Standard "ISO12164-3:2008" in 2008.
  Part Number is indicated as HSK-◯◯.

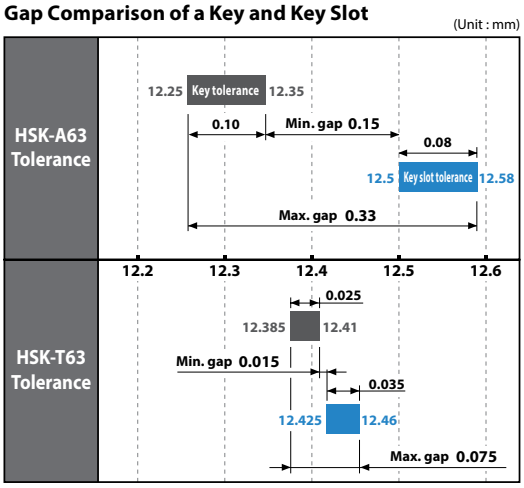
1 Compatible with HSK-A type for Machining Centers



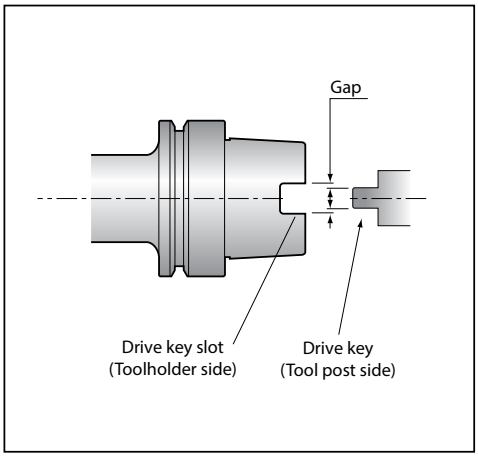
2 Machining Precision

Machining precision for turning is improved by minimizing the gap between the drive key slot on the toolholder side and the drive key on the toolpost side.

Gap Comparison of a Key and Key Slot



Gap Effect



Identification System (External Holders)

Interface Size
T63 HSK - T63
T100 HSK - T 100

Manual Clamp Hole	
H	Yes
No code	No

Shank Size
25mm square (height/ width)

Hand of Tool	
R	Right-hand
L	Left-hand

(mm)

Toolholder Length
Length from Gauge Line

T63 **H** – **S2525** **R** – **105** **(Toolholder forSsquare Shank)**

A63 (Previous description) **P** **C** **L** **N** **R** – **DX** **12** **(Solid Type)**

Clamping System	
P	Lever lock
M	Multi lock
S	Screw clamp
W	Wedge lock

Insert Shape	
C	80° Diamond
D	55° Diamond
T	60° Triangle
V	35° Diamond
W	80° Trigon

Cutting Edge Angle

E	G	J
60°	90°	93°

L	M	N
95° / 95°	50°	63°

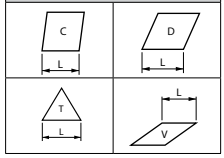
V
72.5°

Insert Relief Angle	
N	0° Negative
B	5° Positive

Hand of Tool	
R	Right-hand
L	Left-hand
N	Neutral

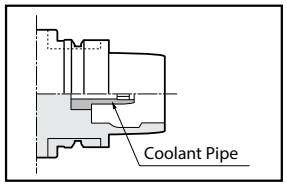
Toolholder Length (Length from Gauge Line)	
DX	65mm
H	100mm
L	140mm

Insert Size



Coolant Pipe

Coolant Pipe is built into toolholder.



Toolholder for Square Shank (External Turning / External Facing)

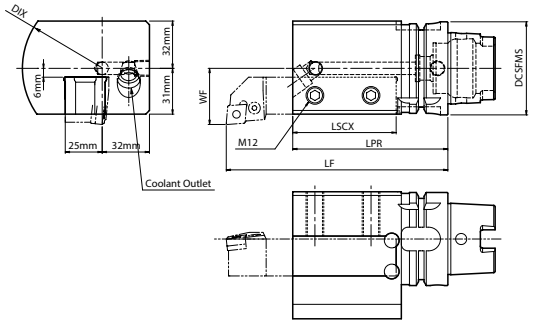


Fig. 1

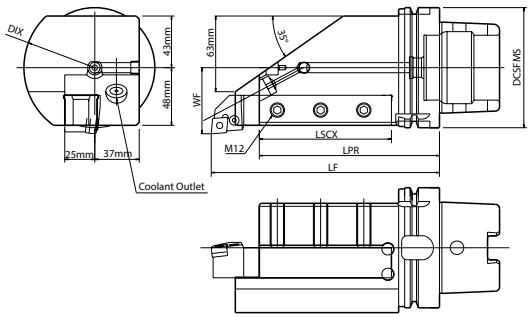


Fig. 2

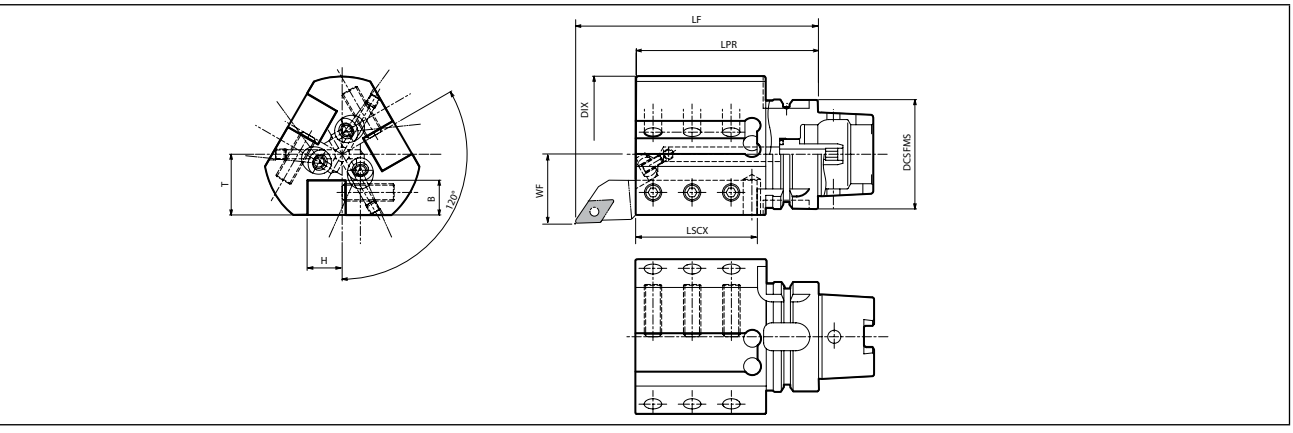
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Fig.	Spare Parts		
		R	L	DCSFMS	DIX	LF	LPR	LSCX	WF		Screw	Coolant Pipe	Wrench
mm	T63H- S2525R/L-105	●	●	63	108	150	105	70	38	1	HS12X25	CL63-1	LW-6
	T100H- S2525R/L-150	●	●	100	118	190	150	110	55	2	HS12X30	CL100-1	LW-6

Coolant outlet direction is adjustable.
For 25mm square shank.
These toolholders are not compatible with Mazak INTEGREX i and j series.

Toolholder for Square Shank (External Turning / External Facing)



Right-hand shown

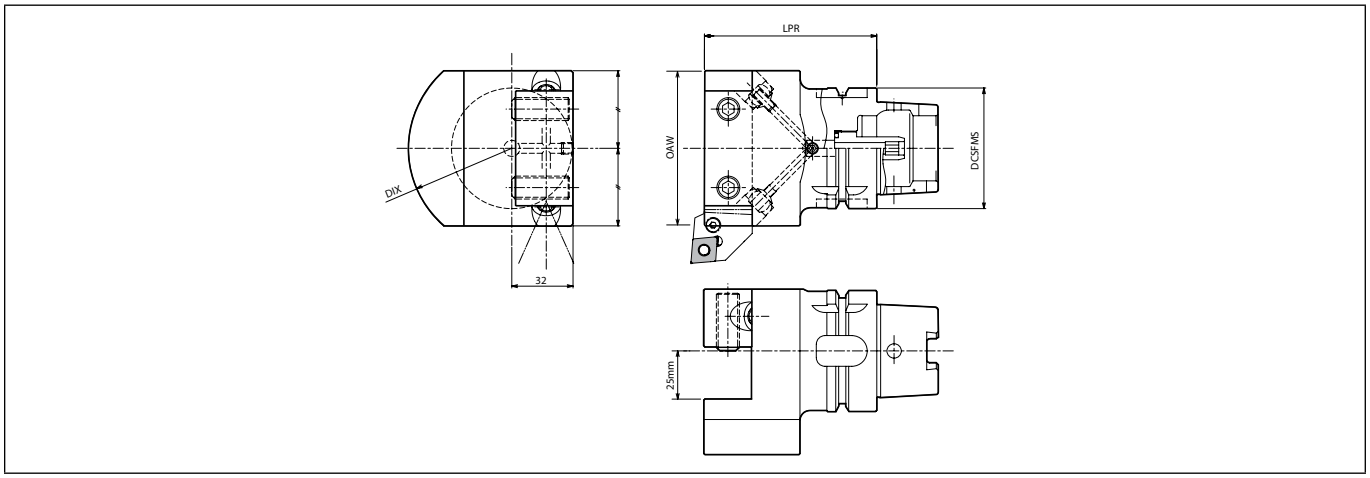
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions									Spare Parts		
		R	DCSFMS	DIX	H	B	T	LF	LPR	LSCX	WF	Screw	Coolant Pipe	Wrench
mm	T63H- S2020R-105T	●	63	90	20	20	35	150	105	70	40	HS12X30	CL63-1	LW-6
	T100H- S2525R-150T	●	100	118	25	25	48	190	150	110	55	HS12X35	CL100-1	LW-6

Coolant outlet direction is adjustable.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder for Square Shank (External Facing / External Turning)



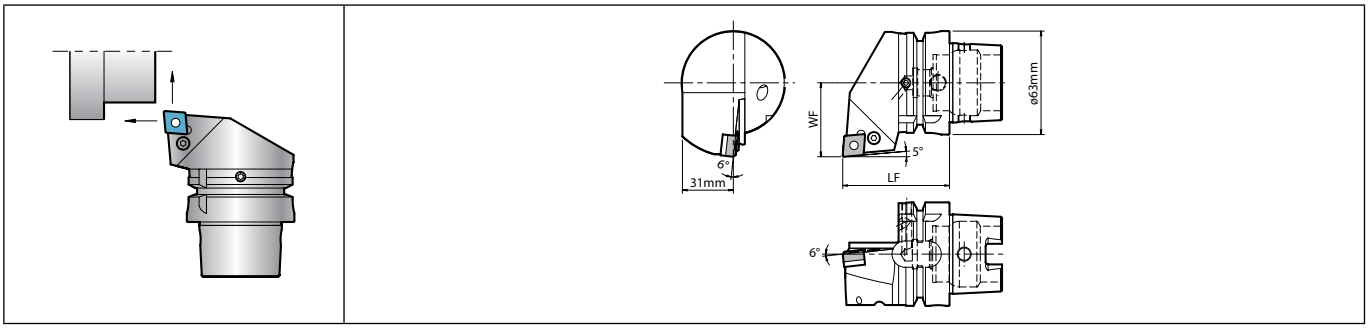
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions				Spare Parts		
							Screw	Coolant Pipe	Wrench
		N	DCSFMS	DIX	LPR	OAW			
mm	T63H- S2525-90F	●	63	108	90	81	HS12X30	CL63-1	LW-6
	S2525-120F	●			120				
	T100H- S2525-105F	●	100	118	105	96	HS12X30	CL100-1	LW-6
	S2525-150F	●			150				

Coolant outlet direction is adjustable.
These toolholders are not compatible with Yamazaki Mazak INTRGREX i and j series.

PCLN (External Turning / External Facing)



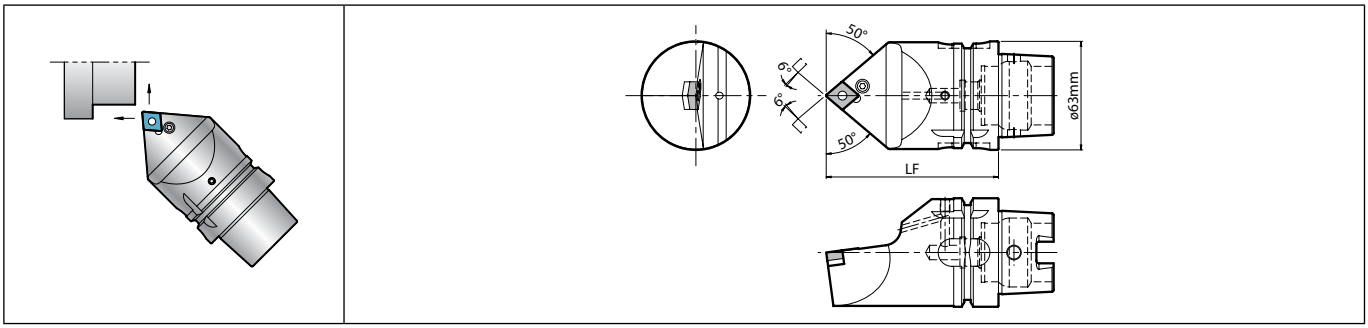
Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions		Spare Parts							Applicable Inserts
						Coolant Pipe	Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench	
		R	L	LF	WF								
mm	T63H- PCLN□L-DX12	●	●	65	45	CL63-1	LL-2N	LS-2N	PC-2	LSP-2	LC-42N (LC-42N-C*)	LW-3	CN□A43..., CN□G43... CN□M43...

When using inserts with SX chipbreaker, use shim (-C type) sold separately.

PCMN (External Turning / External Facing)



Toolholder Dimensions

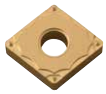
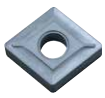
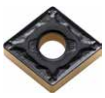
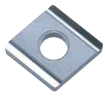
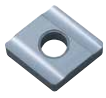
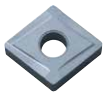
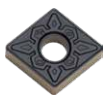
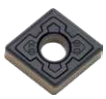
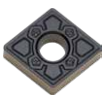
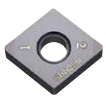
Unit	Part Number	Std. Item	Dimensions	Spare Parts								Applicable Inserts
				Coolant Pipe	Lever	Lock Screw	Punch	Shim Pin	Shim	Shim*	Wrench	
		N	LF									
mm	T63H- PCMNN-H12	●	100	CL63-1	LL-2N	LS-2N	PC-2	LSP-2	LC-42N	LC-42N-C	LW-3	CN□A43..., CN□G43... CN□M43...
	PCMNN-L12	●	140									

When using inserts with SX chipbreaker, use shim (-C type) sold separately.

N QUICK CHANGE TOOLING

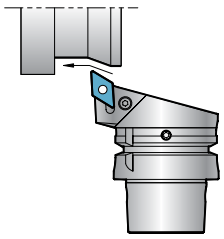
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

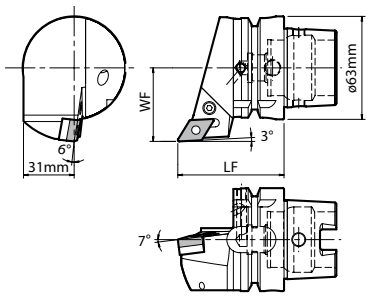
Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B16	B16	B16	B16	B16	B16	B16	B17
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	CQ	CJ	TN-V	PMG	GS	PG	PS	PT
Page	B17	B17	B17	B17	B17	B17	B18	B18
Applications	Medium - Roughing	Roughing	Roughing	Roughing	Medium	Medium - Roughing	Medium - Roughing	Low Carbon Steel
Insert								
Chipbreaker	GT	Standard	PH	PX	R/L	R/L-25R	Z	XF
Page	B18	B18	B18	B19	B23	B23	B23	B19
Applications	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker	XP	XQ	XS	SK	FP-TK	TK	MQ	MS
Page	B19	B19	B19	B19	B19	B20	B20	B20
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	MU	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B20	B21	B21	B21	B22	B22	B22	B22
Applications	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials / Cast Iron
Insert								
Chipbreaker	Ceramic	R/L-A3	AH	PCD	SQ	SG	R/L-SX	CBN
Page	B113	B23	B23	C34	B20	B21	B21	C8
Applications	Hard Materials	Hard Materials	Hard Materials					
Insert								
Chipbreaker	HH	HL	HD					
Page	C9	C9	C9					

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PDJN (External Turning / External Copying)





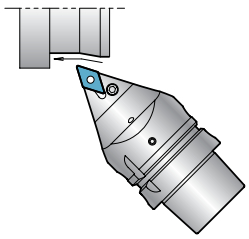
Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

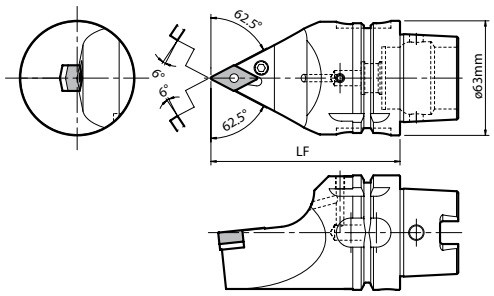
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions			Spare Parts								Applicable Inserts
						Coolant Pipe	Lever	Lock Screw	Punch	Shim Pin	Shim	Shim*	Wrench	
		R	LF	WF										
mm	T63H- PDJNR-DX15	●	65	45	CL63-1	LL-3N	LS-2N	PC-2	LSP-2	LD-42	LD-42-20	LW-3	DN□A43..., DN□G43... DN□M43...	

When using inserts with corner-R(RE) greater than 1/16" (1.6mm), please purchase shim LD-42-20* (sold separately) to prevent workpiece and shim from interfering each other.

PDNN (External Turning / External Copying)





Toolholder Dimensions

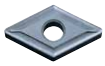
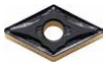
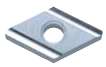
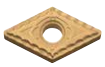
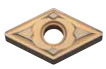
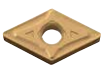
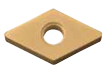
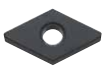
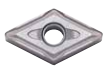
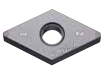
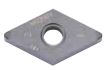
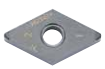
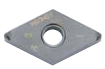
Unit	Part Number	Std. Item	Dimensions	Spare Parts								Applicable Inserts
				Coolant Pipe	Lever	Lock Screw	Punch	Shim Pin	Shim	Shim*	Wrench	
		N	LF									
mm	T63H- PDNNN-H15	●	100	CL63-1	LL-3N	LS-2N	PC-2	LSP-2	LD-42	LD-42-20	LW-3	DN□A43..., DN□G43... DN□M43...
	PDNNN-L15	●	140									

When using inserts with corner-R(RE) greater than 1/16" (1.6mm), please purchase shim LD-42-20* (sold separately) to prevent workpiece and shim from interfering each other.

N QUICK CHANGE TOOLING

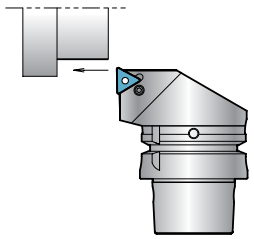
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

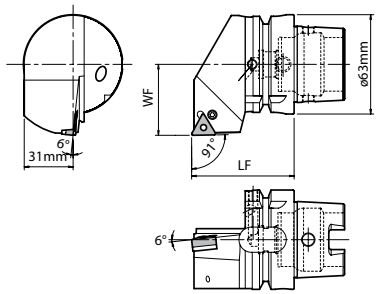
Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing
Insert								
Chipbreaker	PP	GP	PQ	HQ	CQ	CJ	TN-V	PMG
Page	B24	B24	B24	B25	B25	B25	B25	B25
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing
Insert								
Chipbreaker	GS	PG	PS	PT	GT	Standard	PH	PX
Page	B25	B26	B26	B26	B26	B27	B27	B27
Applications	Medium	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Large ap	Medium - Roughing
Insert								
Chipbreaker	R/L	XF	XP	XQ	XS	SK	R-LD	FP-TK
Page	B32	B27	B27	B27	B27	B28	B28	B28
Applications	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	TK	MQ	MS	MU	KQ	KG	KH	C
Page	B28	B28	B29	B29	B30	B30	B30	B30
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys
Insert								
Chipbreaker	ZS	GC	No Chipbreaker	Ceramic	R/L-A3	AH	PCD	SQ
Page	B30	B30	B31	B114	B31	B31	C35	B29
Applications	Heat-Resistant Alloys	Hard Materials / Cast Iron	Hard Materials	Hard Materials	Hard Materials			
Insert								
Chipbreaker	SG	CBN	HH	HL	HD			
Page	B29	C10	C11	C11	C11			

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PTGN (External Turning)





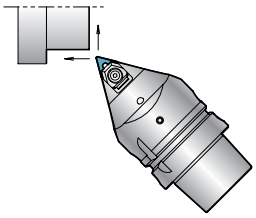
Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

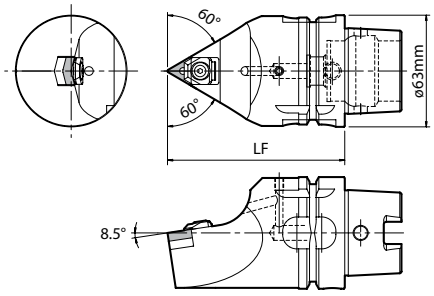
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions		Spare Parts								Applicable Inserts
						Coolant Pipe	Lever	Lock Screw	Punch	Shim Pin	Shim	Shim*	Wrench	
		R	L	LF	WF										
mm	T63H- PTGN□L-DX16	●	●	65	45	CL63-1	LL-1N	LS-1N	PC-1	LSP-1	LT-32N	LT-32N-20	FH-2.5	TN□A33..., TN□G33... TN□M33...

When using inserts with corner-R(RE) greater than 1/16" (1.6mm), please purchase shim LT-32N-20* (sold separately) to prevent workpiece and shim from interfering each other.

WTEN (External Turning / External Facing)



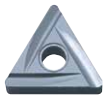
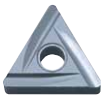
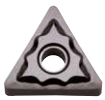


Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions	Spare Parts							Applicable Inserts
				Clamp Set	Coolant Pipe	Nut	Shim Pin	Shim	Spacer	Wrench	
		N	LF								
mm	T63H- WTENN-H16	●	100	WCS-1N	CL63-1	WN-1	WP-1S	WTN-33	WSP-1	LW-3	TN□A33..., TN□G33... TN□M33...
	WTENN-L16	●	140								

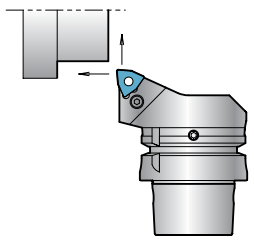
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

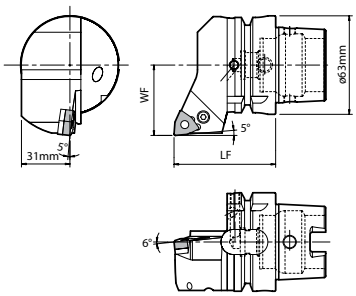
Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	PP	GP	PQ	HQ	CQ	PMG	GS	PG
Page	B39	B39	B39	B39	B39	B40	B40	B40
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing	Finishing	Finishing
Insert								
Chipbreaker	PS	PT	GT	Standard	PH	PX	R/L-SSF	R/L-S
Page	B40	B40	B40	B40	B41	B41	B45	B45
Applications	Finishing - Medium	Medium - Roughing	Medium - Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium
Insert								
Chipbreaker	R/L-B	R/L-C	R/L-25R	XF	XP	XQ	XS	SK
Page	B45	B46	B46	B41	B41	B41	B41	B42
Applications	Large ap	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless steel	Cast Iron
Insert								
Chipbreaker	R-LD	FP-TK	TK	MQ	MS	MU	R/L-ST	KQ
Page	B42	B42	B42	B42	B42	B42	B43	B43
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals
Insert								
Chipbreaker	KG	KH	C	ZS	GC	No Chipbreaker	Ceramic	R/L-A3
Page	B43	B43	B43	B43	B43	B44	B118	B44
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron				
Insert								
Chipbreaker	AH	PCD	SG	CBN				
Page	B44	C36	B43	C13				

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

PWLN (External Turning / External Facing)



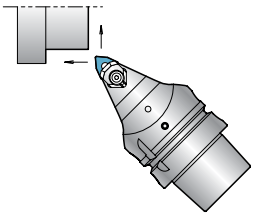


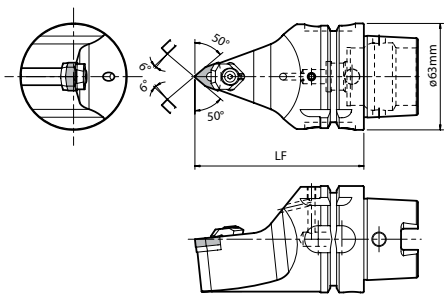
Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

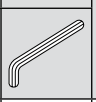
Unit	Part Number	Std. Item		Dimensions		Spare Parts							Applicable Inserts
						Coolant Pipe	Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench	
		R	L	LF	WF								
mm	T63H- PWLN□L-DX08	●	●	65	45	CL63-1	LL-2N	LS-2N	PC-2	LSP-2	LW-42N	LW-3	WN□A43..., WN□G43... WN□M43...

WWMN (External Turning / External Facing)





Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions	Spare Parts						Applicable Inserts
					Clamp set	Coolant Pipe	Nut	Shim Pin	Shim	Wrench	
		N	LF								
mm	T63H- WWMNN-H08	●	100	WCS-8	CL63-1	WN-1	WP5X15	WWN-42	LW-3	WN□A43..., WN□G43... WN□M43...	
	WWMNN-L08	●	140								

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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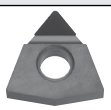
Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B50	B50	B50	B50	B50	B50	B50	B51
Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	CQ	CJ	PMG	GS	PG	PS	PT	GT
Page	B51	B51	B51	B51	B51	B51	B51	B52
Applications	Roughing	Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Stainless steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker	Standard	PH	XP	XQ	XS	TK	MQ	MS
Page	B52	B52	B52	B52	B52	B52	B53	B53
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	MU	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B53	B53	B53	B53	B54	B54	B54	B54
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron				
Insert								
Chipbreaker	AH	PCD	SG	CBN				
Page	B54	C38	B53	C15				

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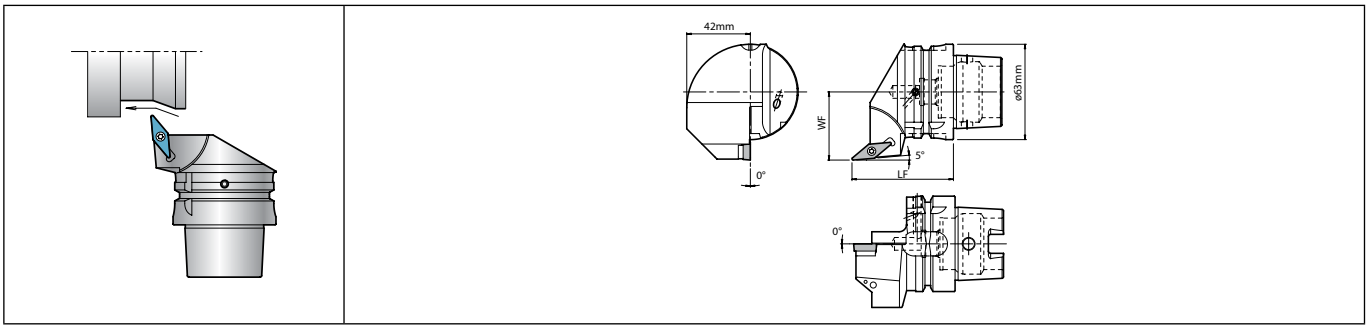
SVLB (External Turning / External Copying)

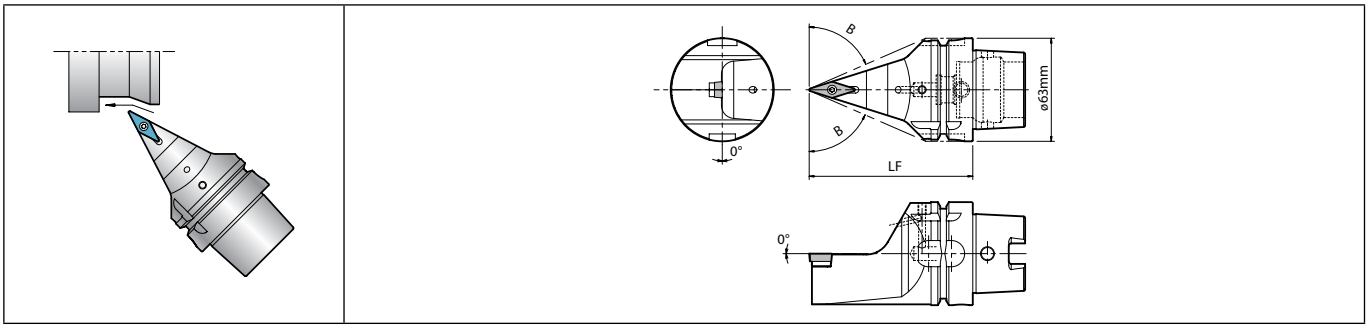


Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions		Spare Parts						Applicable Inserts
						Coolant Pipe	Screw	Shim Screw	Shim	Wrench	Wrench	
		R	L	LF	WF							
mm	T63H- SVLB□L-DX16N	●	●	65	45	CL63-1	SB-40125TRN	SS-4N	SVN-32N	LW-4	FT-15	VB□T33..., VB□W33... VC□T33...

SVVB (External Turning / External Copying)



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions		Spare Parts						Applicable Inserts
					Coolant Pipe	Screw	Shim Screw	Shim	Wrench	Wrench	
		N	LF	B (°)							
mm	T63H- SVVBN-H16N	●	100	66.5	CL63-1	SB-40125TRN	SS-4N	SVN-32N	LW-4	FT-15	VB□T33..., VB□W33... VC□T33...
	SVVBN-L16N	●	140	72.5							

Angle B show the interference angle from the line of cutting edge and toolholder.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Non-Ferrous Metals	Hard Materials
Insert							
Chip Breaker Type	PP	GP	VF	HQ	PX-Y	PCD	CBN
Page	B97, B100	B97	B97	B97	B99	C49	C26

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
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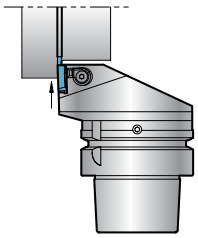
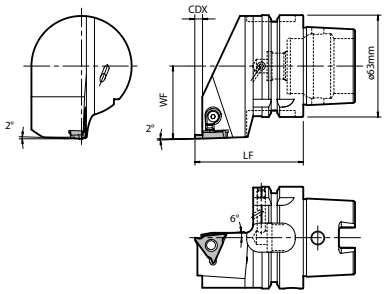
KGBA (Shallow Grooving)





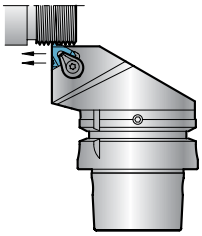
Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

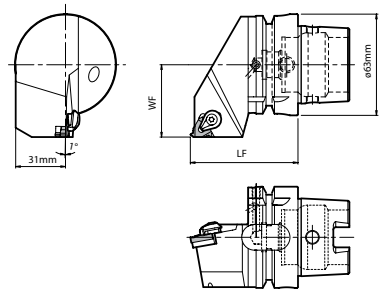
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions			Spare Parts			Applicable Inserts ⇨ G6~G12
						Clamp Set	Coolant Pipe	Wrench	
		R	LF	WF	CDX				
mm	T63H- KGBAR-16	●	67	45	2.5	LGBA-16LS	CL63-1	FT-15	GBA32R...
	KGBAR-22-15	●			4	LGBA-22LS			GBA43R...
	KGBAR-22-25	●			4.5				
	KGBAR-22-35	●			5.5				

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : See "CDX" dimension of Insert.

KTN (External Threading)





Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions		Spare Parts							Applicable Inserts ⇨ J6, J8, J10 J12, J14, J16 J18, J20
					Clamp Set	Clamp Set	Coolant Pipe	Shim Screw	Shim	Wrench	Wrench	
		R	LF	WF								
mm	T63H- KTNR-16	●	67	45	CPS-5S	-	CL63-1	SP3X8	TN-32	-	FT-15	16ER type
	KTNR-22	●			-	CPS-6S			TN-43	LW-3	-	22ER type

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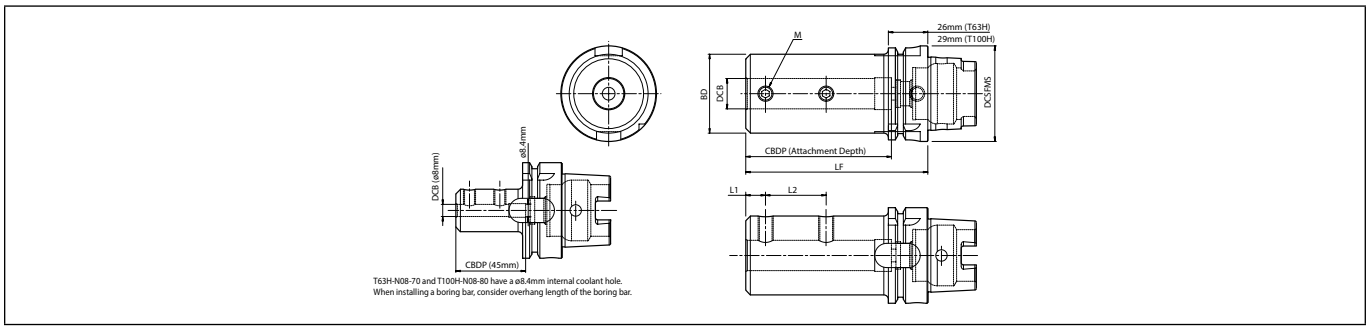
Toolholder for Boring Bars and Drills



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							M	Spare Parts			Notes
			N	DCB	DCSFMS	BD	LF	CBDP	L1	L2	Screw	Coolant Pipe	Wrench	
mm	T63H- N08-70	●	8			28	70	45		20	HS8X10			
	N10-80	●	10			35	80	55	9	22	HS8X12		LW-4	
	N12-90	●	12			42	90	65						
	N16-100	●	16	63		48	100	75	11	30	HS10X16	CL63-1	LW-5	For Boring Bar
	N20-120	●	20			52	120	95		40				
	N25-140	●	25			56	140	115	13	50	HS12X16		LW-6	
	N32-160	●	32				160	135		60	HS12X12			

	T63H- N08-70	●	8			28	70	45		20	HS8X10			
	N10-80	●	10			35	80	55	9	22	HS8X12		LW-4	
	N12-90	●	12			42	90	65						
	N16-100	●	16	63		48	100	75	11	30	HS10X16	CL63-1	LW-5	For Boring Bar
	N20-120	●	20			52	120	95		40				
	N25-140	●	25			56	140	115	13	50	HS12X16		LW-6	
	N32-160	●	32				160	135		60	HS12X12			

mm

* Shorter than the toolholder for boring bar.

Identification System (HSK Holders for Boring Bars / Drills)

Interface Size
T63 HSK - T63
T100 HSK - T100

T63

Manual Clamp Hole	
H	Yes
No code	No

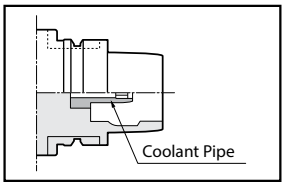
H – **N** **08** – **70**

Toolholder Length (mm)
Length from Gauge Line

Toolholder	
N	For boring bar
C	For drill

Internal Dia.	
08	ø8
10	ø10

Coolant Pipe
Coolant pipe is built into toolholder.

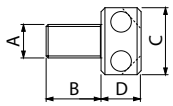
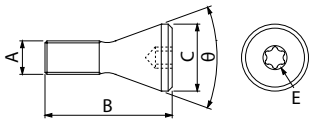
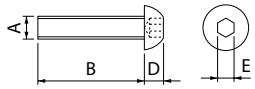
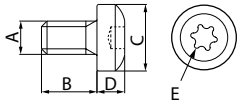
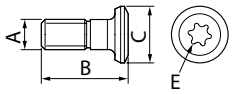
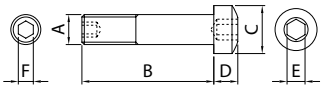
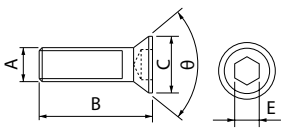
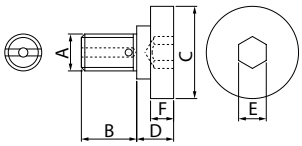
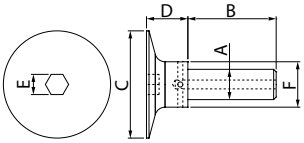
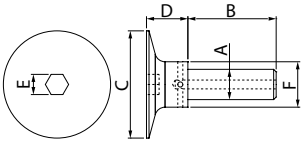


● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts

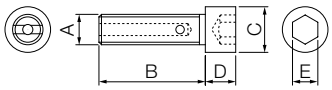
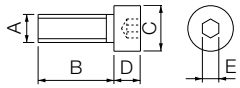
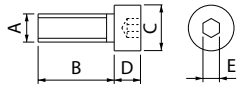
P

Screws / Bolts	P2~P7
Pins	P8
Shims	P9~P13
Cartridges	P14
Clamp Sets	P15~P16
Clamps	P17~P18
Chipbreakers	P19
Wrenches	P20~P21
Electric Wrenches - DTD500 Electric Torque Insert Driver	P22
Spings / Nuts / Punches / Others	P23
Discontinued Tools - Spare Parts List	P24~P40

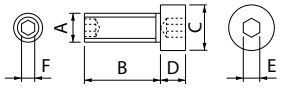
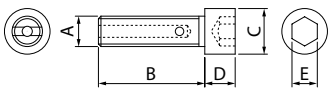
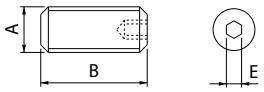
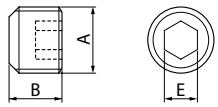
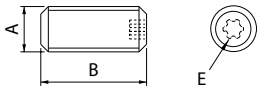
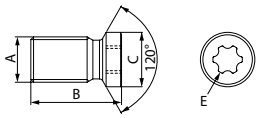
Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Torque (N·m)	Notes
					A	B	C	D	E	F	α	θ		
mm		AJ	-3110	●	M3X0.35	6.0	6.5	4.0	2.0	-	-	-	-	
		AJ	-519TR	●	M5X0.8	19.0	10.0	-	T15	-	-	40°	-	
		BH	3X6	△	M3X0.5	6.0	-	2.0	2.0	-	-	-	-	
			3X12	●	M3X0.5	12.0	-	2.0	2.0	-	-	-		
			6X25	●	M6X1.0	25.0	-	4.0	4.0	-	-	-		
		BH	4X8TR	●	M4X0.7	8.5	6.2	3.0	T15	-	-	-	3.5	
			6X10TR	●	M6X1.0	10.0	12.0	5.0	T25	-	-	-	6.5	
		CP	8X23TL	●	M8X1.25	23.0	15.0	-	T25	-	-	-	6.0	L… shows Left-hand thread
		CS	-2D	●	M4X0.7	21.5	6.4	3.5	2.5	2.0	-	-	1.7	
			-3D	●	M5X0.8	22.0	8.0	4.0	3.0	2.5	-	-	3.9	
			-5D	●	M5X0.8	28.0	8.0	4.0	3.0	2.5	-	-	3.0	
		CS	-3D-TR	●	M5X0.8	22.0	8.0	4.0	T15	T15	-	-	3.9	
		GS	-50	●	M5X0.8	13.0	7.5	-	3.0	-	-	82°	-	
		HF	16X40HA	●						14.0	-	-	-	With Coolant Hole
			20X53HA	●	M20X2.5	33.0	50.0	20.0	14.0					
			24X60H	●	M24X3.0	40.5	65.0	19.5	17.0					
Inch		HF	0500X35HC	●	1/2-20 UNF	1.378	1.673	0.646	0.313	0.709	-	-	-	With Coolant Hole
			0625X44HC	●	5/8-18 UNF	0.790	2.461	0.724	0.313	1.575				
			0625X48HC	●	5/8-18 UNF	0.790	2.461	0.567	0.313	1.575				
mm		HH	12X35HC	●	M12X1.75	35.0	42.5	16.4	8.0	18.0	-	-	-	With Coolant Hole
		HF	16X48HC	●	M16X2.0	30.0	62.5	18.4	12.0	40.0				

P SPARE PARTS

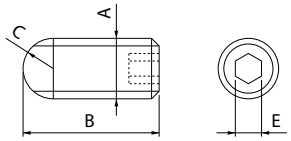
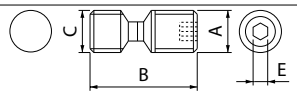
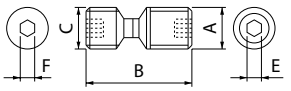
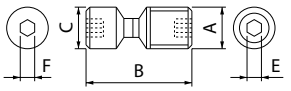
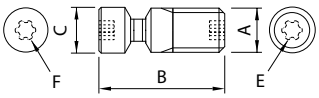
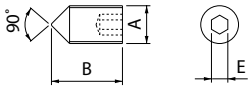
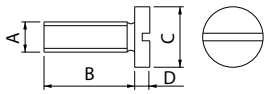
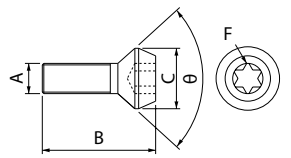
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Unit	Drawing	Part Number	Std. Item	Dimensions						Angle		Torque (N·m)	Notes
				A	B	C	D	E	F	α	θ		
Inch		HH 3/8-1.25H	●	3/8-24 UNF	1.250	0.550	0.375	0.312	-	-	-	-	With Coolant Hole
		1/2-1.25H	●	1/2-20 UNF		0.750	0.500	0.375					
		3/4-2.3H	●	3/4-16 UNF	1.500	1.120	0.750	0.625					
		HH 1/4-0.75	●	1/4-28 UNF	0.750	0.375	0.250	0.188	-	-	-	-	
		3/8-1.25	●	3/8-24 UNF	1.250	0.550	0.375	0.312					
		1/2-1.25	●	1/2-20 UNF	1.250	0.750	0.500	0.375					
mm		HH 3X6	●	M3X0.5	6.0	5.5	3.0	2.5	-	-	-	-	
		3X10S	●		10.0	5.0							
		3X12	●		12.0	5.5							
		HH 3.5X10S	●	M3.5X0.6	10.0	5.5	3.0	2.5	-	-	-		
		HH 4X12S	●	M4X0.7	12.0	7.0	4.0	3.0	-	-	-		
		4X16	●		16.0								
		HH 5X12	●	M5X0.8	12.0	8.5	5.0	4.0	-	-	-		
		5X15	●		15.0								
		5X15L	●										L… shows Left-hand thread
		5X16	●		16.0								
		5X20	●		20.0								
		5X25	●		25.0								
		5X30	△		30.0								
		HH 6X12	△	M6X1.0	12.0	10.0	6.0	5.0	-	-	-		
		6X18	●		18.0								
		6X20	●		20.0								
		6X25	●		25.0								
		6X30	●		30.0								
		HH 8X20	●	M8X1.25	20.0	13.0	8.0	6.0	-	-	-		
		8X25	●		25.0								
		HH 10X30	●	M10X1.5	30.0	16.0	10.0	8.0	-	-	-	-	
		HH 12X35	●	M12X1.75	35.0	18.0	12.0	10.0	-	-	-		
		12X40	●		40.0								
		HH 16X40	●	M16X2.0	40.0	24.0	16.0	14.0	-	-	-		
		16X45	●		45.0								
		HH 20X40	●	M20X2.5	40.0	30.0	20.0	17.0	-	-	-		
		20X55	●		55.0								

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

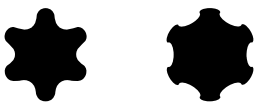
Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Torque (N·m)	Notes
					A	B	C	D	E	F	α	θ		
mm		HH	4X12	●	M4X0.7	10.0	7.0	4.0	3.0	2.0	-	-	-	
		HH	10X30H	●	M10X1.5	30.0	16.0	10.0	6.0	-	-	-	-	With coolant hole
			10X35HK	●		35.0								
			12X35H	●	M12X1.75	35.0	18.0	12.0	8.0					
		HS	3X3P	△	M3X0.5	2.9	-	-	1.5	-	-	-	1.0	HS4X4P and HS6X4P have a flat edge Clamp Screw equivalent to JIS B-1177
			3X4P	●		3.9								
			3X4	●		4.0								
		HS	4X4P	●	M4X0.7	3.9	-	-	2.0	-	-	-	2.0	
			4X4	●		4.0								
		HS	5X5	●	M5X0.8	5.0			2.5				3.0	
		HS	6X4P	●	M6X0.75	3.9	-	-	3.0	-	-	-	4.0	
			6X6	●	M6X1.0	6.0								
			6X14	●		14.0								
			6X22	●		22.0								
		HS	10X10	●	M10X1.5	10.0	-	-	5.0	-	-	-	-	
		HS	12X25	●	M12X1.75	25.0	-	-	6.0	-	-	-		
		HS	5X4LP	●	M5X0.8	4.0	-	-	2.5	-	-	-	-	
		HS	-2524TRP	●	M2.5X0.35	2.4	-	-	5IP	-	-	-	0.5	IP shows Torx Plus
			-2534TRP	●		3.4								
			-3048TRP	●	M3X0.5	4.8			6IP				0.8	
			-4067TRP	●	M4X0.7	6.7			7IP				1.2	
		HS	-50100TRP	●	M5X0.8	10	6.0	-	15IP	-	-	-	3.5	IP shows Torx Plus

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Torque (N-m)	Notes
					A	B	C	D	E	F	α	θ		
mm		HSB	4X8°/L	●	M4X0.7	8.0	R2.0	-	2.0	-	-	-	2.0	R…shows Right-hand thread L…shows Left-hand thread
		LS	-03N	●	M5X0.8	9.7	M5X0.8	-	2.0	-	-	-	2.0	N: Silver coated
			-03SN	●		12.0			2.5				3.0	
		LS	-05	●	M5X0.8	15.5	M5X0.8	-	2.0	2.0	-	-	2.0	
		LS	-1N	●	M6X1.0	17.0	6.0	-	2.5	2.5	-	-	3.0	N: Silver coated
			-1SN	●		14.2								
			-1T	●		21.0								
		LS	-2N	●	M8X1.0	20.0	8.0	-	3.0	3.0	-	-	4.0	
			-3	●		22.0								
			-4N	●		24.0								
			-5	●	M10X1.0	29.0	10.0	-	4.0	4.0	-	-	-	
		LS	-1P	●	M6X1.0	16.5	6.0	-	10IP	10IP	-	-	2.0	IP shows Torx Plus
			-2P	●	M8X1.0	18.2	8.0		15IP	15IP			3.5	
			-3P	●		21.8								
		LS	-11	●	M6X1.0	9.5	-	-	3.0	-	-	-	-	
			-15	●		12.5								
		M	3X8	●	M3X0.5	8.0	5.5	2.0	-	-	-	-	-	Flat fillister head screw equivalent to JIS B-1101
			3X12	●		12.0								
			4X10	●	M4X0.7	10.0	7.0	2.6						
		SB	-1TR	●	M2X0.4	5.3	3.8	-	-	T6	-	-	0.5	R…shows right-hand thread
			-2TR	●	M2.5X0.45	6.2	4.5			T8			1.2	
			-3TR	●	M3X0.5	7.2	4.8			T10		82°	2.0	
			-3STR	●		6.4	5.2							
			-3.5TR	●	M3.5X0.6	9.3	5.6			T15			3.5	
			-4TR	●	M4X0.7	7.7	5.8							
			-5TR	●	M5X0.8	20.0	8.7			T20		90°	4.5	
			-2290TR	●	M2.2X0.45	9.2	2.8			T6		60°	0.5	
			-25100TR	●	M2.5X0.45	10.0	3.5			T7			0.8	
			-40115TR	●	M4X0.7	11.5	5.5			T15			3.5	
			-5070TR	●	M5X0.8	7.0	6.8			T20			4.5	
			-5090TR	●		9.0								
			-50120TR	●		12.0								

Reference

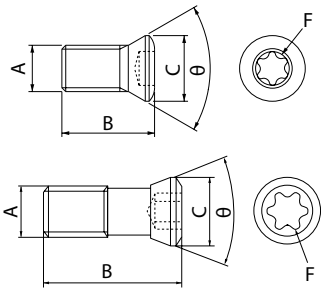
Torx and Torx Plus have different cross-sections.



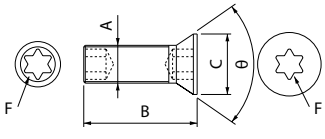
Torx Torx Plus

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Torque (N·m)	Notes
					A	B	C	D	E	F	α	θ		
mm		SB	-1STR	●	M2X0.4	5.0	3.1	-	-	T6	-	60°	0.5	R… shows right-hand thread L… shows left-hand thread IP shows Torx Plus
			-1635TR	●	M1.6X0.35	3.3	2.6							
			-1840TRP	●	M1.8X0.35	4.0	2.5			6IP		55°		
			-2035TR	●	M2X0.4	3.7	3.0			T6		60°		
			-2035TRG	●		3.5	2.7							
			-2037TRP	●		3.7				6IP		55°		
			-2040TR	●		3.8	3.0			T6		60°		
			-2040TRG	●		4.0								
			-2041TRP	●		4.1	2.7			6IP				
			-2042TRG	●						T6				
			-2045TR	●		4.3								
			-2045TRN	●			2.8					37°		
			-2050TR	●		4.8	3.0					60°		
			-2060TR	●		5.8	3.5			T8			1.2	
			-2080TR	●		8.3	2.8			T6			0.5	
		SB	-2250TR	●	M2.2X0.45	5.1	3.1	-	-	T7	-	60°	0.8	
			-2255TR	●		5.5	3.5							
			-2260TR	●		5.8	3.1							
			-2270TR/L	●		6.8	3.2							
		SB	-2545TR	●	M2.5X0.45	4.6	3.5	-	-	T8	-	60°	1.2	
			-2555TRG	●		5.4								
			-2555TRP	●		5.5				8IP				
			-2560TR	●		5.7				T8				
			-2570TR	●		6.8								
		SB	-3060TR	●	M3X0.5	5.3	4.2	-	-	T10	-	60°	2.0	
			-3060TRP	●		6.0				10IP				
			-3065TRP	●		6.5	4.0			8IP			1.2	
			-3070TRG	●		7.0	4.2			T10			2.0	
			-3070TR/L	●			4.0			T8			1.2	
			-3070TRP	●			4.2			10IP			2.0	
			-3076TRP	●		7.6	3.9					55°		
			-3080TR	●		8.0	4.2			T10		60°		
		SB	-3573TRP	●	M3.5X0.6	7.3	5.0	-	-	10IP	-	60°	2.0	
			-3575TRP	●		7.5	4.9							
			-3580TR	●		8.0	5.3			T15			3.5	
			-3590TRP	●		9.0				15IP			4.0	
			-3592TR	●		9.2	5.1			T10			2.0	
			-35120TRP	●		12.0	5.2			15IP			4.0	
		SB	-4050TRN	●	M4X0.5	4.6	5.1	-	-	T10	-	57°	2.0	
			-4065TR	●	M4X0.7	6.7	5.5			T15		60°	3.5	
			-4070TRG	●		7.0								
			-4070TRN	●		7.7	5.4							
			-4070TRS	●		6.7	5.5			T10			2.0	
			-4075TRP	●		7.5				15IP			3.5	
			-4082TPR	●		8.2								
			-4085TR	●		8.5				T15				
			-4085TRP	●						15IP				
			-4086TRP	●		8.6								
			-4090TRP	●		9.0	5.7							
			-4090TRPN	●			5.5							
			-40104TRP	●		10.4	5.7							
			-40120TR	●		12.0	5.1			T15				
			-40125TRN	●		12.5	5.2					50°		
			-40140TR	●		14.0	5.5					60°		
			-40140TRN	●			6.7					75°		
		SB	-44865UTRP	●	UNF No. 4-48	6.5	3.8	-	-	8IP	-	60°	1.2	
			-44880UTRP	●		8.0								
		SB	-4570TRN	●	M4.5X0.5	6.8	6.0	-	-	T10	-	57°	2.0	
			-45130TR	●	M4.5X0.75	13.0	6.6			20IP		55°	4.5	
		SB	-5085TR	●	M5X0.8	8.5	6.8	-	-	T20	-	50°	4.5	
			-50110TRP	●		11.0	7.0			20IP		60°		
			-50120TRP	●		12.0	6.8							
			-50120TRPH	●										
			-50120TRS	●			7.2			15IP			3.5	
			-50140TR	●		14.0	7.3			T15		50°	4.2	
			-50140TRP	●						20IP		60°	4.5	
		SB	-60120TR	●	M6X1.0	12.0	8.5	-	-	T25	-	60°	6.0	
			-60130TRP	●		13.0				20IP			4.5	
			-60200TRP	●		20.0							6.0	
		SB	-4070TRW	●	M4X0.7	6.7	5.5	-	-	T8	-	60°	1.2	R… shows right-hand thread
			-4590TRWN	●	M4.5X0.75	9.3	5.6			T10		57°	2.0	

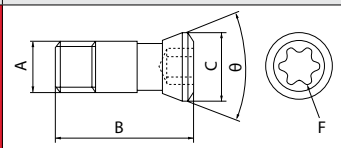
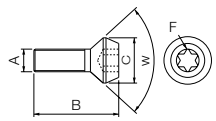
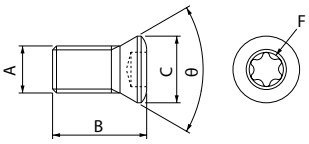
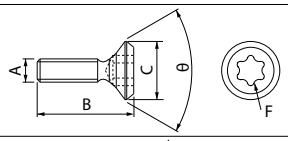
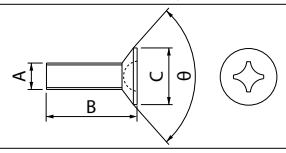
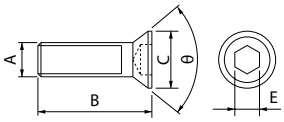
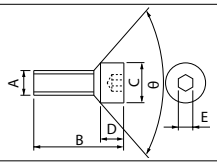
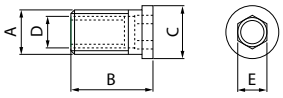
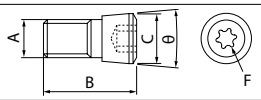
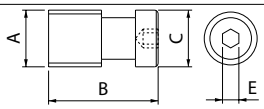
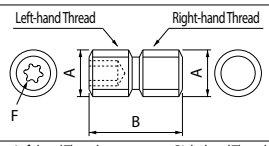
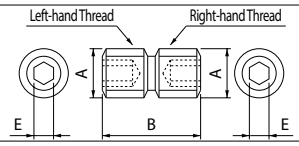
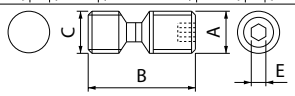
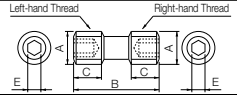


SB-40125TRN



P SPARE PARTS

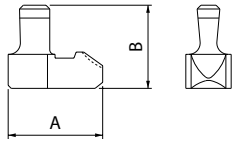
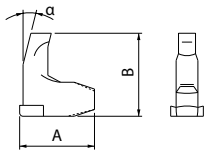
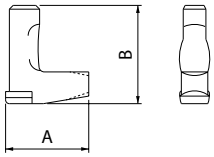
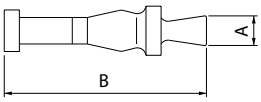
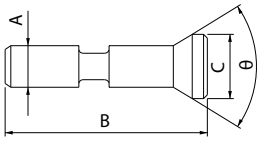
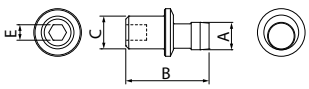
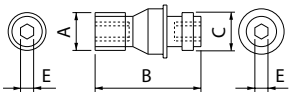
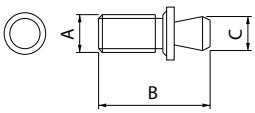
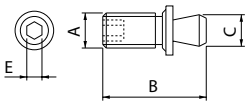
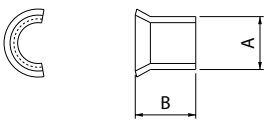
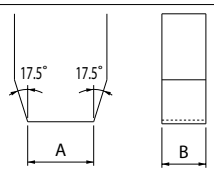
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Torque (N·m)	Notes
					A	B	C	D	E	F	α	θ		
mm		SC	-30067	●	M3X0.35	6.7	4.4			T8			1.2	
			-35085	●	M3.5X0.35	8.5	5.7			T10		60°	2.0	
			-40100	●	M4X0.5	10.0	6.0	-	-	T15	-		3.5	
			-50130	●	M5X0.5	13.0	6.6			T20			4.5	
			-60160	●	M6X0.75	16.0	8.0			T25		40°	6.0	
			-60210	●		21.0	9.6			T30			8.0	
		SCR	-01	●	M2.5X0.45	6.6	3.6	-	-	T7			0.8	
			-03	●	M3X0.5	8.4	4.6	-	-	T9			1.6	
			-04	●	M2.5X0.45	4.6	3.6	-	-	T7	-	60°	0.8	
			-05	●										
			-16	●	M3.5X0.6	6.9	5.0	-	-	T10			2.0	
			-30	●		8.9								
		SE	-3070TRP	△	M3X0.5	7.0	4.3			9IP		43°	1.7	
			-40050TRN	△	M4X0.7	5.0	5.0	-	-	T15	-		3.5	IP shows Torx Plus
			-40055TR	△		5.5						44°		
			-40068TR	●		6.8								
			-40080TR	△		8.0								
			-40090TR	●		9.0								
			-40100TR	●		10.0								
		SE	-40120TR	●	M4X0.7	12.0	5.6	-	-	T15	-	60°	3.5	
			-50125TR	●	M5X0.8	12.5	6.8			T20			4.5	
		SP	3X6	●	M3X0.5	6.0	6.0	-	-	-	-	90°	-	Cross recessed flat head screw equivalent to JIS...B-1111
			3X8	●		8.0								
			3X10	●		10.0								
		SP	4X9	●	M4X0.7	9.0	5.6	-	2.0	-	-	90°	-	
		SP	8X35	●	M8X1.25	35.0	11.0	4.4	5.0	-	-	90°	-	
		SPW	-5035	●	M5X0.5	7.0	6.3	M3.5X0.6	3.5					A shows External, D shows Internal. External and Internal threads are both Right-hand threads.
			-6045	●	M6X0.75	9.0	7.5	M4.5X0.75	4.5	-	-	-	-	
			-7050	●	M7X0.75	9.0	8.8	M5X0.8	5.0					
		SS	-4N	●	M5.5X0.5	8.5	6.6	M4X0.7	4.0	-	-	-	-	
		SV	-60136TR	●	M6X1.0	13.6	6.3	-	-	T20	-	6°	4.5	Torx
		TH	8X15	●	M8X1.25	20.0	8.5	-	4.0	-	-	-	-	
		W	6X17	●	M6X1.0	17.0	-	-	-	T20	-	-	4.5	
			6X18N	●		18.0				T15			3.5	
		W	6X20	●	M6X1.0	20.5	-	-	3.0	-	-	-	-	
			8X18	●	M8X1.25	18.0			4.0					
		W	10X31	●	M10X1.0	31.0	M10X1.5	-	5.0	-	-	-	-	
inch		XNS	610	●	3/8-24UNF	1.250	0.500	-	0.188	-	-	-	-	Differential screw

* No socket on right-hand thread side

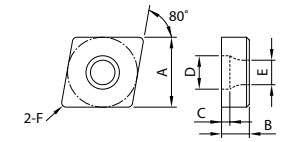
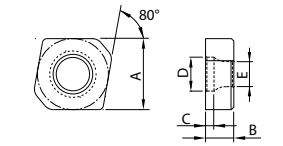
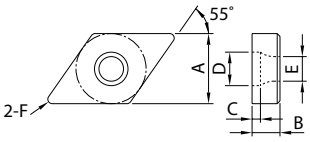
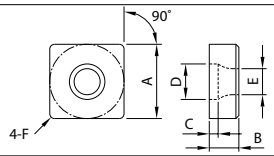
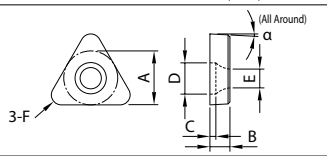
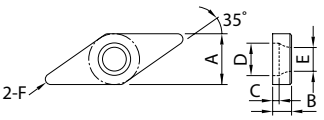
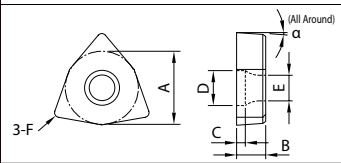
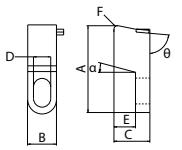
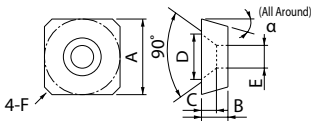
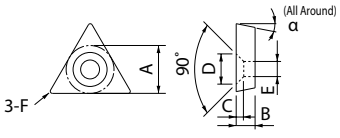
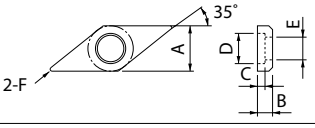
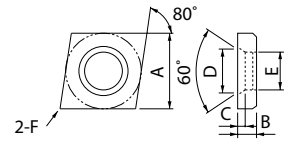
● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

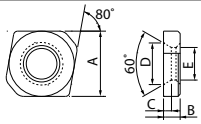
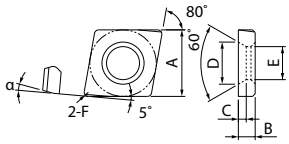
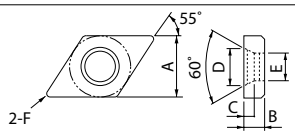
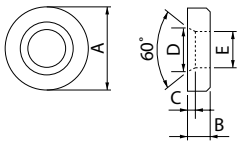
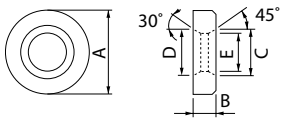
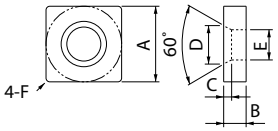
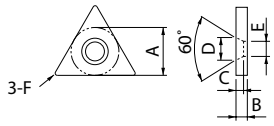
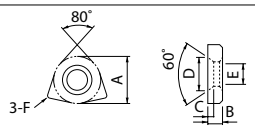
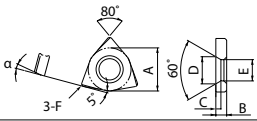
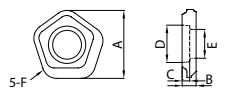
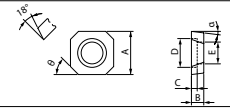
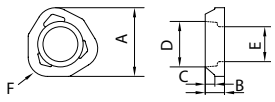
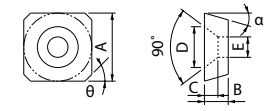
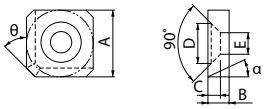
Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Notes
					A	B	C	D	E	F	α	θ	
mm		LL	-03N	●	7.8	6.3	-	-	-	-	-	-	
			-03SN	●	11.1	8.9							
			-03TN	●	8.3	8.9							
		LL	-05C	●	10.7	11.7	-	-	-	-	12°	-	
			-1CN	●	13.0	13.3					14°		
			-2C	●	18.8	17.6					14°		
		LL	-1K	●	10.0	12.0	-	-	-	-	-	-	
			-1N	●	10.3	12.0							
			-1DN	●	12.3	12.0							
			-2K	●	13.3	13.2							
			-2N	●	13.5	13.0							
			-3K	●	16.0	14.8							
			-3N	●	16.4	13.0							
			-4N	●	16.4	14.7							
			-5N	●	17.1	16.7							
			-6	●	20.7	21.0							
		LP	-2S	●	3.65	20.0	-	-	-	-	-	-	
			-6S	●	3.65	25.0	-	-	-	-	-	-	
		LPA	-11	●	2.8	11.0	4.2	-	-	-	-	60°	
			-13	●		13.0							
			-17	●		17.0							
		LPF	-11	●	2.5	11.0	3.5	-	-	-	-	60°	
			-1113	●		13.0							
			-1117	●		17.0							
			-13	●	3.8	13.0	5.5						
			-17	●		17.0							
		PP	-4	●	4.6	14.0	5.5	-	3.0	-	-	-	
		TS	-3S	●	M5X0.8	15.0	3.60	-	2.0	-	-	-	
		WP	-1S	●	M5X0.8	18.0	3.65	-	-	-	-	-	
			5X15	●		15.0	5.0						
		WP	5X11	●	M5X0.8	10.5	5.0	-	2.0	-	-	-	
		LSP	-1	●	5.0	5.3	-	-	-	-	-	-	
			-2	●	6.5	5.6							
			-3	●	8.25	7.9							
			-4	●	9.5	10.0							
		LSP	-2K	●	5.1	5.2							
			-3K	●	6.7	5.7							
		P	-03	●	2.8	1.95	-	-	-	-	-	-	
			-03S	●	3.5	1.95	-	-	-	-	-	-	

P SPARE PARTS

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Unit	Drawing Handed spare parts show right-hand	Part Number		Std. Item	Dimensions						Angle		Notes
					A	B	C	D	E	F	α	θ	
mm		DC	-42	●	12.0	3.2	1.2	6.0	4.4	R1.2	-	-	Shim Screw: SB-4085TR
			-44	●	12.55	5.0	1.5			R0.8			
		DC	-44-C	●	12.55	5.0	1.5	6.0	4.4	-	-	-	Shim Screw: SB-4085TR
		DD	-42	●	12.55	3.2	1.2	6.0	4.4	R1.2	-	-	Shim Screw: SB-4085TR
			-42-16	●						R1.6			
			-43	●		3.4	1.3			R0.8			
			-44	●		5.0	1.5						
		DS	-42	●	12.0	3.2	1.2	6.0	4.4	R1.2	-	-	Shim Screw: SB-4085TR
			-44	●	12.55	5.0	1.5			R0.8			
		DT	-32	●	8.63	3.2	0.95	5.0	3.4	R1.6	3°	-	Shim Screw: SB-3080TR
			-42	●	12.46		1.2	6.0	4.4	R1.2	-		Shim Screw: SB-4085TR
		DV	-33	●	9.40	3.5	1.2	6.0	4.4	R1.0	-	-	Shim Screw: SB-4085TR
		DW	-42	●	11.5	3.2	1.2	6.0	4.4	R1.2	4°	-	Shim Screw: SB-4085TR
			-44	●	12.65	5.0	1.5			R0.8	-		
		556	C*L	●	34.0	10.0	12.7	5.6	5.0	R1.6	0°	55°	R…shows Right-hand L…shows Left-hand Shim Screw: HH5X16
		KPS	-42	●	11.5	3.2	2.0	7.2	3.2	C1.0	7°	-	Shim Screw: SP3X8
		KPT	-32	●	8.0	3.2	1.9	7.0	3.2	R0.4	11°	-	Shim Screw: SP3X8 SP3X10
			-42	●	10.5	3.2	1.9	7.0	3.2	R0.8	11°	-	
		KVN	-32	●	9.52	3.2	2.1	7.6	5.5	R0.8	-	-	Lock pin: LP-2S LP-6S
		LC	-32N	●	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim pin: LSP-1
			-42N	●	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim pin: LSP-2
			-53N	●	15.9	4.8	1.7	10.0	8.0	R1.2	-	-	Shim pin: LSP-3
			-63	△	19.0	4.8	2.0	11.61	9.3	R1.6	-	-	Shim pin: LSP-4

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Unit	Drawing Handed spare parts show right-hand	Part Number		Std. Item	Dimensions						Angle		Notes
					A	B	C	D	E	F	α	θ	
mm		LC	-42N-C	●	12.65	3.2	1.5	8.01	6.28	-	-	-	Shim pin: LSP-2
			-53N-C	●	15.9	4.8	1.7	10.0	8.0	-	-	-	Shim pin: LSP-3
			-63-C	△	19.0	4.8	2.0	11.61	9.3	-	-	-	Shim pin: LSP-4
		LC	-42N℞L	●	12.65	3.2	1.5	8.01	6.28	R0.8	10°	-	R... shows right-hand L... shows left-hand Shim pin: LSP-2
		LD	-32N	●	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim pin: LSP-1
			-4K43	●	11.7	4.8	3.0	8.3	6.60	R1.2	-	-	Shim pin: LSP-3K
			-42	●	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim pin: LSP-2
			-42-20	●						R2.0			
			-43	●	12.65	4.8	3.1	8.5	6.28	R0.8	-	-	
		LR	-80	●	9.47	3.2	1.3	6.25	4.75	-	-	-	Shim pin: LSP-1
			-81	●	12.65	3.2	1.5	8.01	6.28	-	-	-	Shim pin: LSP-2
		LR	-10C	●	8.5	3.2	6.3	6.3	4.7	-	-	-	Shim pin: LSP-1
			-12C	●	10.0	3.2	6.3	6.3	4.7	-	-	-	
			-16C	●	13.6	3.2	7.9	8.01	6.28	-	-	-	Shim pin: LSP-2
		LS	-32	●	9.47	3.2	1.3	6.18	4.68	R0.8	-	-	Shim pin: LSP-1
			-42	●	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim pin: LSP-2
		LT	-3K	●	8.53	2.7	1.0	6.1	5.13	R0.8	-	-	Shim pin: LSP-2K
			-32N	●	9.47	2.7	1.3	6.18	4.68	R0.8	-	-	Shim pin: LSP-1
			-42N	●	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim pin: LSP-2
		LW	-32N	●	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim pin: LSP-1
			-42N	●	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim pin: LSP-2
		LW	-42N℞L	●	12.65	3.2	1.5	8.01	6.28	R0.8	10°	-	R... shows right-hand L... shows left-hand shim pin: LSP-2
		MFPN	-45	●	17.07	3.5	1.95	9.8	7.18	R3.5	-	-	Shim Screw: SPW-7050
		MFSE	-105	●	10.5	3.0	1.4	7.0	5.3	-	7°	45°	
		MFWN	-90	●	15.25	4.0	2.5	9.44	7.25	R3.0	-	-	Shim Screw: SPW-7050
										R4.0			
		MSD	-42	●	10.7	3.2	1.85	7.0	3.3	-	20°	45°	Shim Screw: SP3X8
		MSE	-4245S	●	10.3	3.2	2.0	6.0	5.0	-	20°	45°	Shim Screw: SP4X9
		MSE	-4215	●	10.53	3.2	1.5	6.4	3.4	-	25°	15°	Shim Screw: SP3X8
			-4245	●	10.53	3.2	1.5	6.4	3.4	-	25°	45°	Shim Screw: SP3X8

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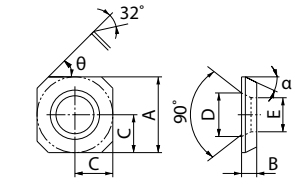
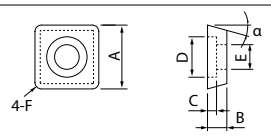
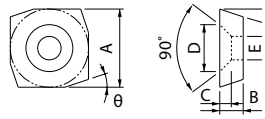
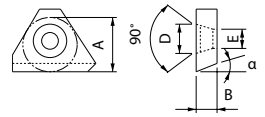
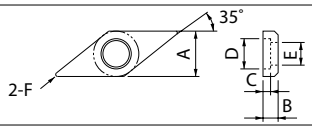
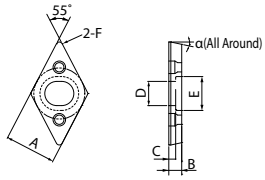
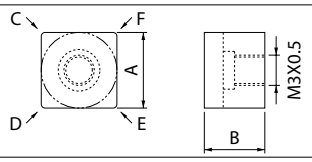
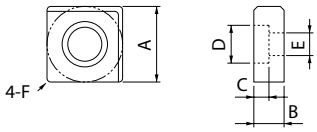
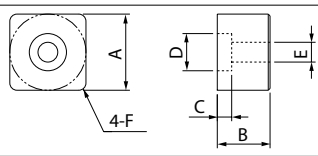
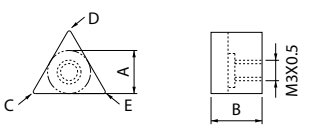
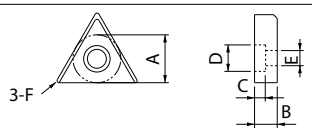
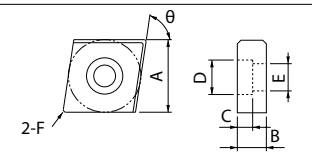
Unit	Drawing	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		MSO -4T245	●	10.0	2.0	4.7	6.4	4.8	-	27°	45°	Shim Screw: SP3X6
		MSO -5200	●	12.6	3.18	1.8	8.27	6.66	R0.8	15°	-	Shim Screw: SPW-6045
		MSP -42	●	11.3	3.2	1.85	7.0	3.3	-	15°	15°	Shim Screw: SP3X8
		MTE -42	●	9.8	3.2	-	6.4	3.4	-	25°	-	Shim Screw: SP3X8
		MVN -32	●	9.52	3.2	2.1	7.4	6.5	R0.8	-	-	Lock pin: TS-3S
		PD -42	●	12.7	3.2	1.7	6.0	8.4	0.8	12°	-	Shim Screw: SB-2050TR
		SP -129	●	9.52	9.52	R0.8	R1.6	R1.2	R1.6	-	-	Shim Screw: HH3X12
		SP -141	●	12.7	4.0	2.4	6.2	3.3	R1.2	-	-	Shim Screw: M3X8
		-143	●	12.7	7.2	2.4	6.2	3.3	R1.2	-	-	Shim Screw: M3X12
		-162	●	15.8	6.0	3.4	8.0	4.4	R1.5	-	-	Shim Screw: M4X10
		SP -148	●	12.7	8.8	2.4	6.2	3.3	R1.2	-	-	Shim Screw: BH3X12
		SP -219	●	6.35	9.52	R0.8	R1.2	R1.6	-	-	-	Shim Screw: HH3X12
		SP -221	●	9.52	4.0	2.5	6.5	3.5	R1.2	-	-	Shim Screw: M3X8
		-223	●	9.52	7.2	2.5	6.5	3.5	R1.2	-	-	Shim Screw: M3X12
		SP -342	●	12.7	6.0	2.5	6.5	3.5	R1.2	-	75°	Shim Screw: M3X8
		-441	●	12.7	4.0	2.5	6.2	3.3	R0.8	-	80°	Shim Screw: M3X8
		-443	●	12.7	7.2	2.5	6.2	3.3	R0.8	-	80°	Shim Screw: M3X12
		-454	●	15.7	8.0	3.4	8.0	4.5	R1.6	-	80°	Shim Screw: M4X10

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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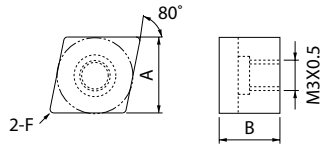
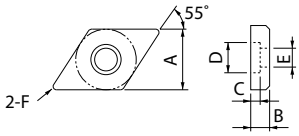
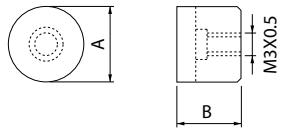
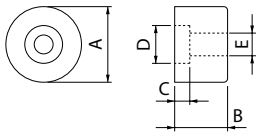
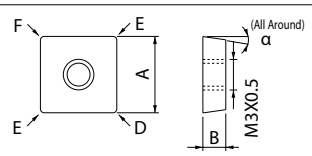
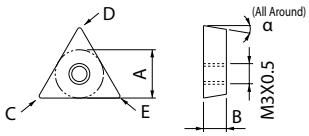
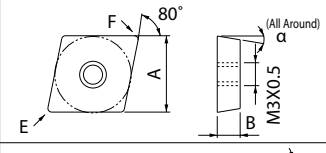
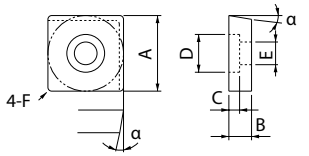
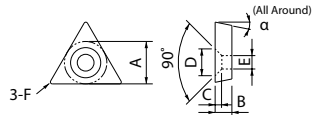
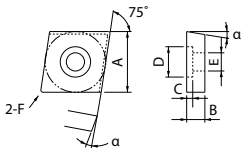
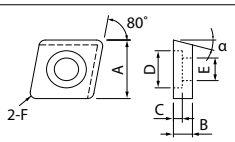
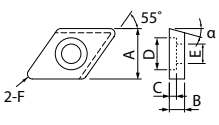
Unit	Drawing	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		SP -429	●	9.52	9.52	-	-	-	R1.2	-	-	Shim Screw : HH3X12
		SP -521	●	10.0	4.0	2.5	6.2	3.3	R1.0	-	-	Shim Screw : M3X8
		SP -826	●	9.52	7.9	-	-	-	-	-	-	Shim Screw : HH3X12
		-829	●	9.52	9.52	-	-	-	-	-	-	
		SP -841	●	12.7	4.0	2.4	6.2	3.3	-	-	-	Shim Screw : M3X8
		-843	●	12.7	7.2	2.4	6.2	3.3	-	-	-	Shim Screw : M3X12
		-849	●	12.7	8.8	2.4	6.2	3.3	-	-	-	Shim Screw : BH3X12
		-861	●	15.8	6.0	3.4	8.0	4.4	-	-	-	Shim Screw : M4X10
		SP -130A	●	9.52	3.2	-	R0.4	R0.8	R1.2	8°	-	Shim Screw : BH3X12
		SP -210A	△	6.35	3.2	R0.4	R0.8	R1.2	-	8°	-	Shim Screw : BH3X6
		SP -420A	●	9.52	3.2	-	-	R0.8	R1.2	8°	-	Shim Screw : BH3X6
		SP -141P	●	12.7	4.0	2.4	6.2	3.3	R1.2	7°	-	Shim Screw : M3X8
		-143P	●	12.7	7.2	2.4	6.2	3.3	R1.2	7°	-	Shim Screw : M3X12
		SP -230P	●	8.3	3.2	2.0	7.2	3.2	R0.5	7°	-	Shim Screw : SP3X10
		SP -341P	●	12.6	4.0	2.5	6.5	3.5	R1.2	7°	-	Shim Screw : M3X8
		SP -441P	●	12.7	4.0	2.5	6.2	3.3	R1.2	11°	-	Shim Screw : M3X8
		SP -521P	●	10.0	4.0	2.5	6.2	3.3	R1.2	11°	-	Shim Screw : M3X8

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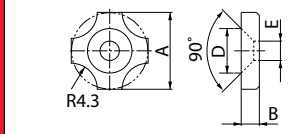
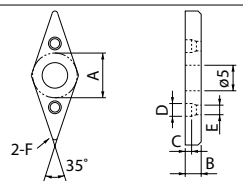
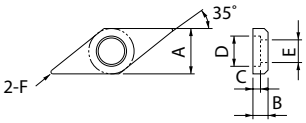
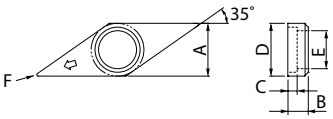
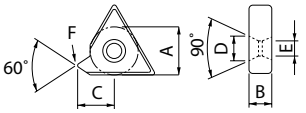
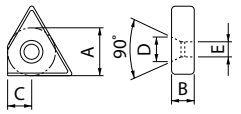
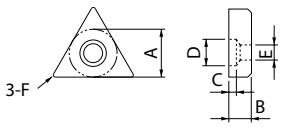
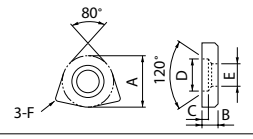
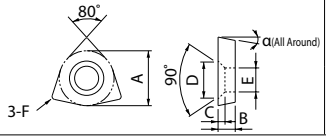
Unit	Drawing Handed spare parts show right-hand	Part Number		Std. Item	Dimensions						Angle		Notes
					A	B	C	D	E	F	α	θ	
mm		SP	-RC	●	12.6	3.0	-	7.35	3.35	-	-	-	Shim Screw: SP3X8
		SVN	-32	●	8.0	3.2	1.5	3.1	2.3	R0.4	-	-	Shim Screw: SB-2050TR
		SVN	-32N	●	8.2	3.2	1.5	7.0	5.9	R0.6	-	-	Shim Screw: SS-4N
		SVN	-32S	●	8.2	3.2	1.5	7.0	5.9	R0.2	-	-	Shim Screw: SS-4N 1-edge
		TN	-32	●	9.52	3.2	6.5	7.0	4.2	R0.4	-	-	Shim Screw: SP3X8
			-43	●	12.70	3.2	8.1	7.0	4.2	R0.5	-	-	
		TNW	-32	●	9.52	3.2	4.8	7.0	4.2	-	-	-	Shim Screw: SP3X8
		WTN	-33	●	9.52	4.76	2.5	7.0	5.3	R0.8	-	-	Shim pin: WP-1S
			-33-20	●						R2.0			
		WWN	-42	●	12.7	3.0	1.4	7.0	5.3	R1.2	-	-	Shim pin: WP5X15
		WWP	-42	●	12.7	3.0	1.5	8.3	5.3	R1.2	11°	-	Shim pin: WP5X11
			-42-16	●						R1.6			

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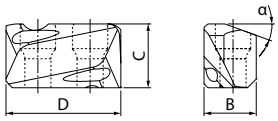
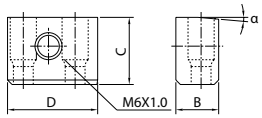
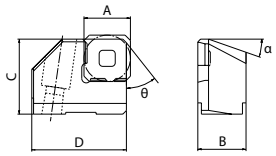
Unit	Drawing Handed spare parts show right-hand	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		MAP -2216	△	-	9.0	11.0	19.8	-	-	20°	-	Clamp Screw SB-40140TR
		MAP -2506	●	-	9.5	14.9	20	-	-	5°	-	Clamp Screw SB-40140TR
		LSE -445R	●	12.7	13.0	19.5	26.0	-	-	20°	45°	Dimension A shows insert I.C.
		LSO -445R	●	13.494	12.0	21.3	23.5	-	-	27°	45°	

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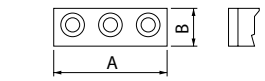
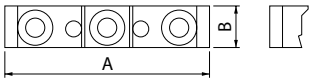
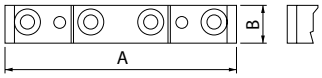
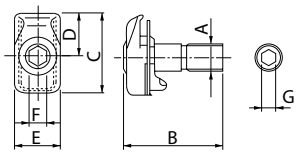
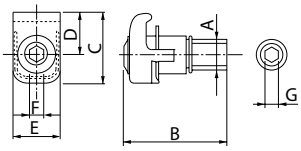
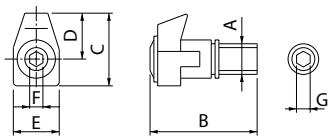
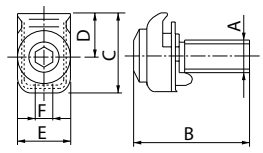
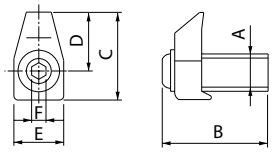
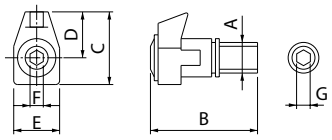
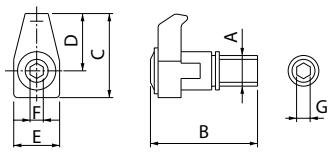
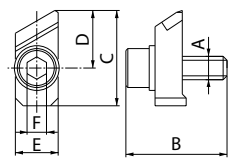
Unit	Drawing Handed spare parts show right-hand	Part Number	Std. Item	Dimensions							Notes
				A	B	C	D	E	F	G	
mm		BCS -1	●	64.0	13.0	-	-	-	-	-	
		-5	●	48.0	16.5	-	-	-	-	-	
		BCS -2	●	74.0	15.0	-	-	-	-	-	
		-3	●	88.0	16.0	-	-	-	-	-	
		BCS -4	●	98.0	16.0	-	-	-	-	-	
		CE -010	●	M8X1.25	28.0	24.0	12.8	13.0	4.0	4.0	G: Indicates hexagon hole two side widths of back side of bolts
		-220	●			27.0	15.8	15.0			
		CE -020	●	M8X1.25	30.0	17.0	10.5	12.7	4.0	4.0	G: Indicates hexagon hole two side widths of back side of bolts
		CE -030	●	M8X1.25	30.0	19.0	12.5	12.7	4.0	4.0	G: Indicates hexagon hole two side widths of back side of bolts
		-040	●			22.5	16.0				
		CE -320	●	M6X1.0	24.5	18.2	9.7	12.7	4.0	-	
		CE -360S	●	M6X1.0	16.0	18.0	10.55	12.4	4.0	-	
		CE -030A	●	M8X1.25	30.0	20.0	13.7	12.7	4.0	-	G: Indicates hexagon hole two side widths of back side of bolts
		CE -410	●	M8X1.25	30.0	26.0	19.5	12.7	4.0	4.0	G: Indicates hexagon hole two side widths of back side of bolts
		-430	●			29.0	22.5				
		CP -RC℀	●	M6X1.0	20.0	24.5	14.8	11.0	5.0	-	R...shows right-hand L...shows left-hand

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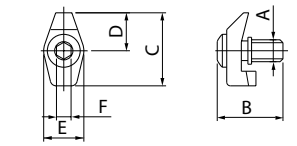
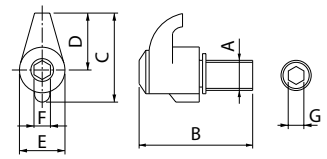
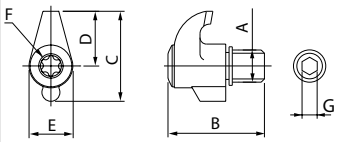
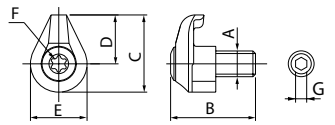
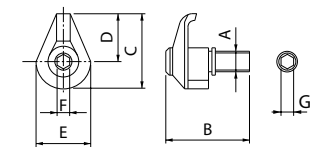
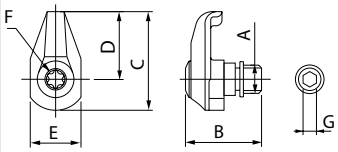
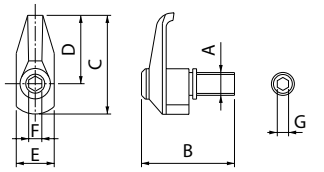
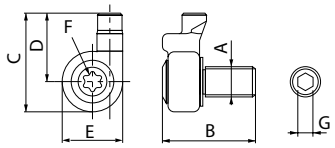
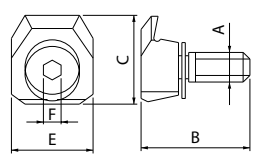
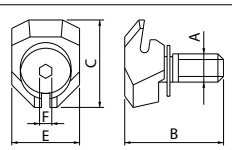
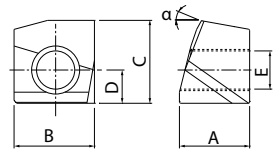
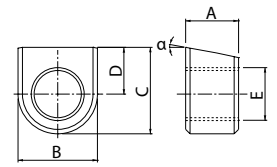
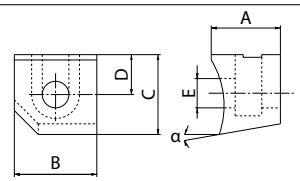
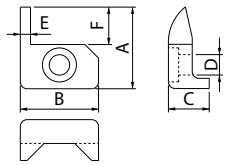
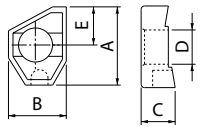
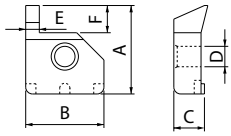
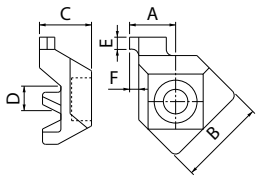
Unit	Drawing Handed Spare Parts show Right-hand	Part Number		Std. Item	Dimensions							Notes
					A	B	C	D	E	F	G	
mm		CPS	-1	●	M3X0.5	9.0	10.0	5.2	5.5	2.0	-	
		CPS	-2	●	M5X0.8	14.5	14.0	8.5	6.8	2.5	2.5	G: Indicates hexagon hole two side widths of back side of bolts
			-2P	●		18.0						
			-3	●	M6X1.0	19.0	16.5	10.0	8.8	3.0	3.0	
		CPS	-2S	●	M5X0.8	13.5	14.0	8.5	6.8	T15	2.0	G: Indicates hexagon hole two side widths of back side of bolts
			-2TR	●		15.0						
		CPS	-4V	●	M4X0.7	8.9	11.3	7.3	8.0	T10	-	G: Indicates hexagon hole two side widths of back side of bolts
			-5F	●	M5X0.8	11.3	12.7	7.5	10.3	T15	2.5	
			-5S	●		18.0	15.0	9.5	11.0		2.0	
			-5V	●		13.5	12.7	7.5	10.3		2.5	
		CPS	-6F	●	M6X1.0	16.5	15.6	9.5	12.2	3.0	-	G: Indicates hexagon hole two side widths of back side of bolts
			-6M	●		18.5	17.5	11.0	13.0		3.0	
			-6S	●			18.0	12.0	12.0			
			-6V	●			15.6	9.5	12.2			
			-8V	●	M8X1.25	24.0	20.8	13.0	15.5	4.0	4.0	
		CPS	-5E	△	M5X0.8	13.5	17.5	12.0	9.0	T15	2.5	G: Indicates hexagon hole two side widths of back side of bolts
		CPS	-5℄	●	M5X0.8	18.0	17.5	12.0	9.0	2.5	2.5	G: Indicates hexagon hole two side widths of back side of bolts R. . . shows Right-hand Thread L. . . shows Left-hand Thread
		LGBA	-16℄S	●	M5X0.8	15.0	16.1	11.2	9.85	T15	2.0	G: Indicates hexagon hole two side widths of back side of bolts R...shows right-hand L...shows left-hand
			-22℄S	●			17.6	12.7				
		WCS	-1N	●	M6X1.0	21.0	15.7	-	15.0	3.0	-	
		WCS	-8	●	M6X1.0	21.0	19.4	-	15.0	3.0	-	

P SPARE PARTS

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Unit	Drawing Handed spare parts show right-hand	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		C 08R	●	7.6	8.7	8.9	3.6	M5X0.8 (Left-hand Thread)	-	10°	-	
		C 09N	●	6.0	9.0	9.8	5.3	M6X1.0 (Left-hand Thread)	-	10°	-	Clamp Screw: W6X18N
		CH -20R	△	13.1	15.5	14.8	7.5	5.3	-	10°	-	Clamp Screw: TH8X15
		CGA -3R/L	●	24.0	17.66	12.0	6.2	1.9	11.0	-	-	R...shows right-hand L...shows left-hand
		-4R/L	●	24.0	17.66	12.0	6.2	2.9	11.0	-	-	
		-5R/L	●	27.5	18.66	12.0	6.2	3.9	14.5	-	-	
		CGB R/L	△	19.0	14.0	8.2	6.35	9.5	-	-	-	R...shows right-hand L...shows left-hand
		CGH -1R/L	●	25.0	22.0	8.0	6.05	3.0	5.5	-	-	R...shows right-hand L...shows left-hand
		-2R/L	●					5.0				
		-3R/L	●	30.0	23.0	8.5		6.0	7.0			
		CGIA -3R	●	10.7	17.0	10.5	5.2	1.8	2.0	-	-	
		-4R	●			11.5		2.5				
		-5R	●	15.7		10.5		3.5	7.0			

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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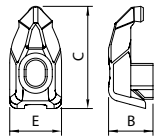
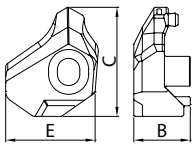
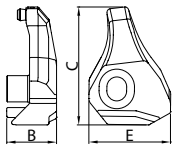
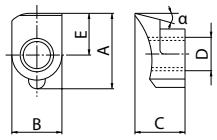
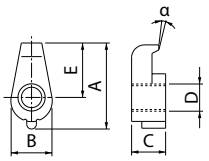
Unit	Drawing Handed spare parts show right-hand	Part Number		Std. Item	Dimensions						Angle		Notes
					A	B	C	D	E	F	α	θ	
mm		CP	-2D	●	-	10.0	21.6	-	10.4	-	-	-	
			-3D	●		12.0	27.6		14.0				
			-5D	●		13.0	32.0						
		CP	-2D-⅝-JCT	●	-	13.5	25.3	-	21.5	-	-	-	
		CP	-3D-⅝-JCT	●	-	13.1	26.4	-	17.9	-	-	-	
			-4D-⅝-JCT	●			28.4		18.2				
			-5D-JCT	●			31.9		21.5				
		CP	-8TE	●	17.9	12.0	12.0	M8X1.25 (Left-hand Thread)	10.0	-	15°	-	
		CP	-8W	●	20.9	12.0	8.0	M8X1.25 (Left-hand Thread)	13.0	-	3°	-	

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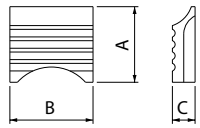
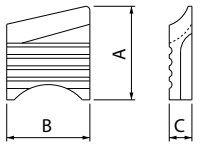
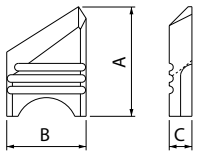
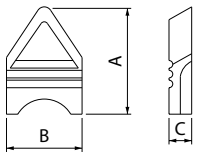
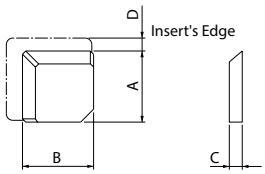
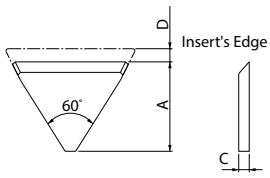
Unit	Drawing Handed spare parts show right-hand	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		CB -11	●	11.5	12.7	3.5	-	-	-	-	-	
		-51	●	16.0	15.6	3.5	-	-	-	-	-	
		CB -12	●	14.0	12.7	3.5	-	-	-	-	-	Right-hand
		-13	●	14.0	12.7	3.5	-	-	-	-	-	Left-hand
		CB -14	●	18.51	12.7	3.5	-	-	-	-	-	Right-hand
		-15	●	18.51	12.7	3.5	-	-	-	-	-	Left-hand
		CB -16	●	18.0	12.7	3.5	-	-	-	-	-	
		-17	●	21.0	15.6	3.5	-	-	-	-	-	
		CB -S3220	△	7.94	7.94	1.0	2.0	-	-	-	-	
		-S4220	△	11.12	11.12	2.0	2.0	-	-	-	-	
		CB -T2212	△	7.48	-	1.5	1.2	-	-	-	-	
		-T3220	△	10.87	-	2.0	2.0	-	-	-	-	

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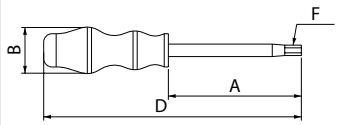
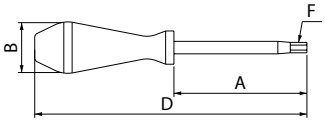
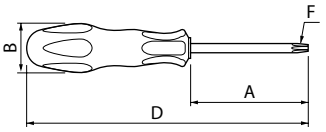
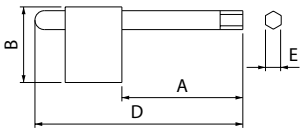
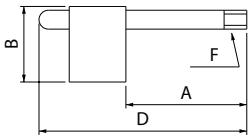
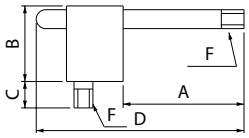
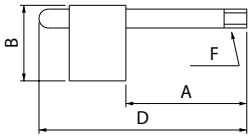
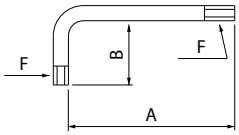
Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Notes
					A	B	C	D	E	F	α	θ	
mm		DT	-8	●	70	26	-	150	-	T8	-	-	Torx
		DT	-10	●	70	29	-	160	-	T10	-	-	Torx
			-15	●	70	32		170		T15			
			-20	●	90	32		190		T20			
			-25	●	82	36		190		T25			
		DTM	-6	●	40	17	-	115	-	T6	-	-	Torx Top of wrench is magnetized
			-7	●	44	17		119		T7			
			-8	●	70	24		150		T8			
			-10	●	70	28		167		T10			
			-15	●	70	31		174		T15			
		DTP	-6	●	73	23	-	150	-	6IP	-	-	IP shows Torx Plus
			-7	●						7IP			
			-9	●	61	30		174		9IP			
			-15	●	81	33		186		15IP			
			-20	●	100			206		20IP			
		DTPM	-8	●	70	24	-	150	-	8IP	-	-	IP shows Torx Plus Top of wrench is magnetized
			-10	●	70	28		165		10IP			
			-15	●	70	31		174		15IP			
		FH	-2	●	40	20	-	71	2.0	-	-	-	Hexagon
			-2.5	●	45	20		76	2.5				
		FT	-6	●	35	15	-	65	-	T6	-	-	Torx
			-7	●	34	15		62		T7			
			-8	●	40	20		74		T8			
			-10	●	40	20		74		T10			
		FT	-15	●	45	25	10	80	-	T15	-	-	Torx
		FTP	-5	●	35	15	-	65	-	5IP	-	-	IP shows Torx Plus
			-6	●	34			62		6IP			
		LTW	-8SS	●	43	6	-	-	-	T8	-	-	Torx
			-10S	●	62	10				T10			
			-10SS	●	47	7				T10			
			-15S	●	62	10				T15			
			-20	●	58	19				T20			
			-25	●	65	20				T25			

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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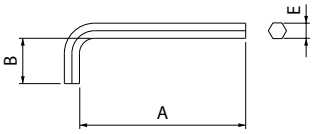
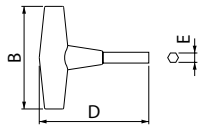
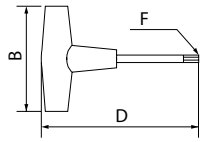
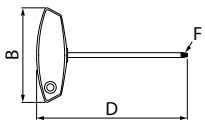
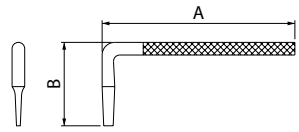
Wrenches

Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Notes
					A	B	C	D	E	F	α	θ	
mm		LW	-1.5	●	45	14	-	-	1.5	-	-	-	Hexagon
			-2	●	50	16			2.0				
			-2.5	●	56	18			2.5				
			-3	●	63	20			3.0				
			-4	●	70	25			4.0				
			-4.5	●	78	26			4.5				
			-5	●	80	28			5.0				
			-6	●	90	32			6.0				
			-8	●	109	36			8.0				
			-10	●	112	40			10.0				
			-14	●	140	56			14.0				
			-17	●	160	63			17.0				
			-19	●	180	70			19.0				
		TH	-4	●	-	80	-	83	4.0	-	-	-	Hexagon
		TT	-15	●	-	70	-	118	-	T15	-	-	Torx
			-25	●		70		69		T25			
			-25L	●		80		145		T25			
			-30	●		80		110		T30			
		TTC	-20	●	-	98	-	130	-	T20	-	-	
			-25	●						T25			
		TTP	-20	●	-	70	-	138	-	20IP	-	-	IP shows Torx Plus
		TTW	-15	●	-	80	-	125	-	T15	-	-	Torx
		LTK	-5	●	70	30	-	-	-	-	-	-	

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DTD500 Electric Torque Insert Driver

Quick and easy insert replacements with precise torque control

Driver Specifications

Part Number	DTD500
Power Source	DC 3.7V (Embedded Li-ion Battery)
Capacity	970mAh
No-Load Rotation Speed	270 RPM
Max. Electric Torque	1 N·m
Manual Preset Torque	1 - 5 N·m (0.05 N·m Increments) 8.9 - 44 in-lb (0.4 in-lb Increments)
Work Capacity Per Charge (approx.)	Can tighten approx. 400 screws per charge (Ex. Screw: SB-50410TR / Cutter: MFPN453000R-5T)
Chuck Capability	1/4in Hexagonal Flat-to-Flat
Charging Time	~110 min
Dimensions	8.7 × 1.97 × 2.17in / 221 × 50 × 55mm
Weight	1.26 lbs / 570g

- ✓ **Includes 5 magnetic bits and a USB Type-C charging cable**
- ✓ **Charging indicator light**

3.7v Li-ion | 270 RPM | Grip Dia. 50 mm | Charge USB Type-C

Included Accessories

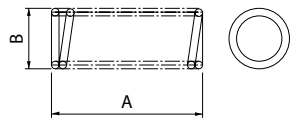
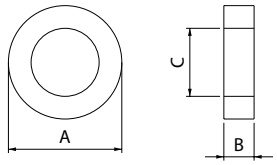
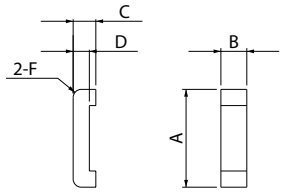
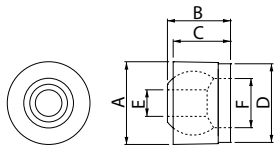
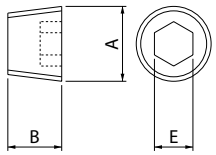
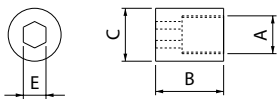
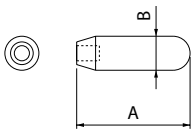
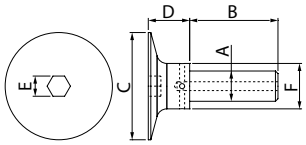
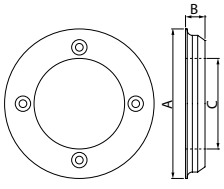
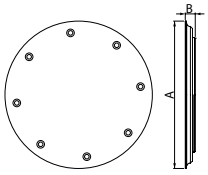
Variety Bit Set :
- (T8×65mm / T15×64mm / 8IP×65mm / 15IP×65mm / 20IP×65mm)
- 1m USB Charging Cable (Type-C)

Bit Shape	Size	Torque (N·m)	Torque (in-lb)	Screw Size
	T8	1.2	10.6	M2 / M2.5 / M3 / M4
	T15	3.5	31	M3.5 / M4 / M5
	8IP	1.2	10.6	M2.5 / M3
	15IP	3.5 / 4	31 / 35	M3.5 / M4 / M5
	20IP	4.5	40	M4.5 / M5 / M6

Optional Accessories (Parts below sold separately in 5-piece packs)

Bit Shape	Part Number	Size	Length (mm)	Length (in)	Torque (N·m)	Torque (in-lb)	Screw Size
	TB-T6x65	T6	65	2.56	0.5	4.4	M1.6 / M2 / M2.2
	TB-T8x65	T8	65	2.56	1.2	10.6	M2 / M2.5 / M3 / M4
	TB-T8x110		110	4.33			
	TB-T10x65	T10	65	2.56	2	18	M3 / M3.5 / M4 / M4.5
	TB-T15x65	T15	65	2.56	3.5	31	M3.5 / M4 / M5
	TB-T15x110		110	4.33			
	TB-T20x65	T20	65	2.56	4.5	40	M5 / M6
	TB-T25x65	T25	65	2.56	5	44	M6 / M8
	TPB-6IPx65	6IP	65	2.56	0.5	4.4	M2 / M3
	TPB-8IPx65	8IP	65	2.56	1.2	10.6	M2.5 / M3 / Inch 4-48
	TPB-8IPx110		110	4.33			
	TPB-10IPx65	10IP	65	2.56	2	18	M3 / M3.5
	TPB-15IPx65	15IP	65	2.56	3.5	31	M3.5 / M4 / M5
	TPB-15IPx110		110	4.33			
	TPB-20IPx65	20IP	65	2.56	4.5	40	M4.5 / M5 / M6
	TPB-20IPx110		110	4.33			
	TPB-25IPx65	25IP	65	2.56	5	44	M6 / M8
Variety Bit Sets	TBTPB-VS65	T8 | 8IP | T15 | 15IP | 20IP	65	2.56	See above for each size		M2 / M2.5 / M3 / M3.5 / M4 / M4.5 / M5 / M6
	TBTPB-VS110	T8 | 8IP | T15 | 15IP | 20IP	110	4.33			

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Notes
					A	B	C	D	E	F	α	θ	
mm		SP	-2D	●	8.5	5.6	-	-	-	-	-	-	Spring
			-3D	●	12.0	7.2							
			-5	●	12.0	6.7							
			-5D	●	12.0	7.2							
			-6	●	12.0	7.7							
		W	-6	●	11.5	1.6	6.4	-	-	-	-	-	Washer
			6-14	●	11.5	1.4	6.4						
		WB	-5	●	10.0	1.0	5.3	-	-	-	-	-	Washer (Brass)
			-6	●	11.5	1.6	6.4						
			-8	●	15.5	1.6	8.4						
		WSP	-1	●	15.1	4.0	3.5	2.5	-	R1.25	-	-	Spacer
		DN	10	●	6.2	5.1	4.5	5.7	2.6	4.0	-	-	Nozzle
			20	●	10.1	7.7	7.0	9.6	M4X0.7	6.0			
		GP	-1	●	PT1/8	7.0	-	-	5.0	-	-	-	Plug
			-2	●	PT1/4	9.0	-	-	6.0	-	-	-	
		WN	-1	●	M5X8	10.0	7.0	-	3.0	-	-	-	Nut
		PC	-1	●	60.0	8.5	-	-	-	-	-	-	Punch
			-2	●	62.2	10.0	-	-	-	-	-	-	
		HH	12X35HC	●	M12X1.75	35.0	42.5	16.4	8.0	18.0	-	-	Arbor bolt
		HF	16X48HC	●	M16X2.0	30.0	62.5	18.4	12.0	40.0	-	-	
		CC	-125-MFAH	●	87.5	11.4	53.0	-	-	-	-	-	Coolant Cover
			-160-MFAH	●	122.5	12.4	70.0	-	-	-	-	-	
		CC	-200-MFAH	●	162.5	14.4	-	-	-	-	-	-	Coolant Cover
			-250-MFAH	●	212.5		-	-	-	-	-	-	
			-315-MFAH	●	277.5		-	-	-	-	-	-	

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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External Turning Toolholders

Part Number			Spare Parts					
			Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PSBN%	1616H	-09	LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
PSKN%	1616H	-09	LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5

External Turning Toolholders for Ceramic Inserts

Part Number			Spare Parts			
			Lever	Lock Screw	Shim Pin	Wrench
PTGN%	1212F	-11	LL-03N	LS-03N	P-03	FH-2
	.....	-11	LL-03TN	LS-03SN	P-03S	FH-2.5
PTFN%	1212F	-11	LL-03N	LS-03N	P-03	FH-2
	.....	-11	LL-03TN	LS-03SN	P-03S	FH-2.5

External Turning Toolholders for Ceramic Inserts

Part Number			Spare Parts				
			Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
CCLNR	2525M	-16	CB-17	CE-220	LW-4	SP-454	M4X10
CS-N%	.....	-12	CB-11	CE-020	LW-4	SP-141 *(SP-143)	M3X8 *(M3X12)
CSKN%	.....	-12	CB-11	CE-020	LW-4	SP-141 *(SP-143)	M3X8 *(M3X12)
CSYN%	.....	-12	CB-11	CE-020	LW-4	SP-141 *(SP-143)	M3X8 *(M3X12)
CSSN%	.....	-12	CB-11	CE-020	LW-4	SP-141 *(SP-143)	M3X8 *(M3X12)

* Shim & shim screw: When using SN□□43.. Insert, purchase spare parts in ( ) separately.

External Turning Toolholders for Solid CBN Inserts

Part Number			Spare Parts			
			Clamp Set	Wrench	Shim	Shim Screw
CCLN%	.....	-12GX	CE-410	LW-4	SP-441	M3X8
CDHN%	.....	-12GX	CE-410	LW-4	SP-521	M3X8
	.....	-15GX	CE-430		SP-541	
CDJN%	.....	-12GX	CE-410	LW-4	SP-521	M3X8
	.....	-15GX	CE-430		SP-541	
CSRN%	.....	-12GX	CE-410	LW-4	SP-141	M3X8
	.....	-15GX			SP-162	M4X10
CSDNN	.....	-12GX	CE-410	LW-4	SP-141	M3X8
	.....	-15GX			SP-162	M4X10
CSSN%	.....	-12GX	CE-410	LW-4	SP-141	M3X8
	.....	-15GX			SP-162	M4X10
CS-N%	.....	-12GX	CE-410	LW-4	SP-141	M3X8
	.....	-15GX			SP-162	M4X10
CSKN%	.....	-12GX	CE-410	LW-4	SP-141	M3X8
	.....	-15GX			SP-162	M4X10
CSYN%	.....	-12GX	CE-410	LW-4	SP-141	M3X8
	.....	-15GX			SP-162	M4X10

External Turning Toolholders for Solid CBN Inserts

Part Number			Spare Parts			
			Clamp Set	Wrench	Shim	Shim Screw
CCLN□□	.....	-09A	CE-030A	LW-4	SP-429	HH3X12
CSRN□□	2525M	-09A	CE-030A	LW-4	SP-129	HH3X12
	2525M	-12A			SP-148 *(SP-143)	BH3X12
CSKN□□	2525M	-09A	CE-030A	LW-4	SP-129	HH3X12
	2525M	-12A			SP-148 *(SP-143)	BH3X12
CSYN□□	2525M	-09A	CE-030A	LW-4	SP-129	HH3X12
	2525M	-12A			SP-148 *(SP-143)	BH3X12
CSDNN	.....	-09A	CE-040	LW-4	SP-129	HH3X12
	2525M	-12A			SP-148 *(SP-143)	BH3X12
CTUN□□	.....	-11A	CE-030A	LW-4	SP-219	HH3X12

* Shim for -12A type toolholder : When using SN□□43.. insert, purchase spare parts in ( ) separately.

Toolholders for Bearing Machining

Part Number			Spare Parts					
			Lever	Lock Screw	Shim	Shim pin	Punch	Wrench
PRGC□□	.....	-12BE	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
	.....	-16BE	LL-2C	LS-1T	LR-16C	LSP-2	PC-2	FH-2.5
PRGC□□	.....	-12BF	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
	.....	-16BF	LL-2C	LS-1T	LR-16C	LSP-2	PC-2	FH-2.5

Toolholders for Back Turning

Part Number			Spare Parts			
			Anchor pin	Lock Screw	Clamp Screw	Wrench
AABSR	0810K	-40F	LPA-11	HSB4X8R	-	FH-2
	1010..	-40F				
	1212..	-40F	LPA-13			
	1616..	-40F	LPA-17			
SABSR	.....	-40F	-	-	SB-3080TR	FT-10
AABWR	0810K	-40F	LPA-11	HSB4X8R	-	FH-2
	1010..	-40F				
	1212..	-40F	LPA-13			
	1616..	-40F	LPA-17			
SABWR	.....	-40F	-	-	SB-3080TR	FT-10
AABWR	0810K	-50F	LPA-11	HSB4X8R	-	FH-2
	1010..	-50F				
	1212..	-50F	LPA-13			
	1616..	-50F	LPA-17			
SABWR	.....	-50F	-	-	SB-3080TR	FT-10

KTKF

Part Number			Spare Parts	
			Clamp Screw	Wrench
KTKF□□	.....	-12	SB-4590TRWN	LTW-10S
	.....	-16		

External Toolholders (Back Clamp)

Part Number			Spare Parts		
			Anchor Pin	Lock Screw	Wrench
ACLC%	0810K	-06F	LPF-11	HSB4X8*%	FH-2
	1010K	-06F			
	1010K	-09F	LPF-13		
	1212M	-09F			
	1616M	-09F	LPF-17		
ADJC%	0810K	-07F	LPF-11	HSB4X8*%	FH-2
	1010K	-07F			
	1010K	-11F	LPF-13		
	1212M	-11F			
	1616M	-11F	LPF-17		
ADNCR	0810K	-07F	LPF-11	HSB4X8R	FH-2
	1010K	-07F			
	1010K	-11F	LPF-13		
	1212M	-11F			
	1616M	-11F	LPF-17		
AVJB%	1010K	-11F	LPF-11	HSB4X8*%	FH-2
	1212M	-11F	LPF-1113		
	1616M	-11F	LPF-1117		
AVVBR	1010K	-11F	LPF-11	HSB4X8R	FH-2
	1212M	-11F	LPF-1113		
	1616M	-11F	LPF-1117		

* Lock Screw: HSB4X8R for R-hand toolholder, HSB4X8L for L-hand toolholder.

External Toolholders (Screw Clamp)

Part Number			Spare Parts	
			Clamp Screw	Wrench
SCLC%	.....	-06	SB-2570TR	FT-8
	.....	-09	SB-4085TR	FT-15
	.....	-12	SB-5090TR	LTW-20
SCAC%	.....	-06	SB-2570TR	FT-8
	.....	-09	SB-4085TR	FT-15
	1212F	-09FF		
SDJC%	.....	-07F	SB-2570TR	FT-8
	.....	-11F	SB-4085TR	FT-15
SDLC%	.....	-07FF	SB-2570TR	FT-8
	.....	-11FF	SB-4085TR	FT-15
SDXC%	.....	-07	SB-2570TR	FT-8
	.....	-11	SB-4085TR	FT-15
SDNC%	.....	-07F	SB-2570TR	FT-8
	.....	-11F	SB-4085TR	FT-15
SDNCN	.....	-07	SB-2570TR	FT-8
	.....	-11	SB-4085TR	FT-15
SDLP%	.....	-07F	SB-2570TR	FT-8
	.....	-11F	SB-4085TR	FT-15
STGC%	.....	-08	SB-2050TR	FT-6
STGP%	.....	-08	SB-2050TR	FT-6
	.....	-11	SB-3080TR	FT-10
SVJB%	.....	-11F	SB-2570TR	FT-8
SVLP%	.....	-08FF	SB-2050TR	FT-6
	.....	-11FF	SB-2570TR	FT-8
	.....	-11F		
SVPP%	.....	-08FF	SB-2050TR	FT-6
	.....	-11FF	SB-2570TR	FT-8
	.....	-11		
SYXP%	.....	-06F	SB-2050TR	FT-6

External Toolholders (Screw Clamp)

Part Number			Spare Parts		
			Clamp Screw	Wrench	Plug
SCLCR	.....	-09FFJCT	SB-4085TR	FT-15	GP-1
SDJCR	.....	-11..JCT	SB-4085TR	FT-15	GP-1
SVJBR	.....	-11FFJCT	SB-2570TR	FT-8	GP-1
SVJPR	.....	-11FFJCT	SB-2570TR	FT-8	GP-1

External Toolholders (Screw Clamp)

Part Number			Spare Parts				
			Clamp Screw	Wrench	Shim	Shim Screw	Wrench
SVPB%L	.....	-11	SB-2570TR	FT-8	-	-	-
	.....	-16N	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
SVVBN	.....	-11	SB-2570TR	FT-8	-	-	-
	.....	-16N	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4

External Toolholders (Top Clamp)

Part Number			Spare Parts				
			Clamp Set	Wrench	Shim	Shim Screw	Chipbreaker
CSBP%L	.....	-09N	CPS-2P	LW-2.5	-	-	CB-S3220
CSKP%L	.....	-09N	CPS-2P	LW-2.5	-	-	CB-S3220
	.....	-12N	CPS-3	LW-3	KPS-42	SP3X8	CB-S4220
CSSP%L	.....	-09N	CPS-2P	LW-2.5	-	-	CB-S3220
	.....	-12N	CPS-3	LW-3	KPS-42	SP3X8	CB-S4220
CSDPN	.....	-12N	CPS-3	LW-3	KPS-42	SP3X8	CB-S4220
CTGP%L	.....	-11N	CPS-2P	LW-2.5	-	-	CB-T2212
	.....	-16N	CPS-3	LW-3	KPT-32	SP3X8	CB-T3220
CTFP%L	.....	-11N	CPS-2P	LW-2.5	-	-	CB-T2212
	.....	-16N	CPS-3	LW-3	KPT-32	SP3X8	CB-T3220
CTTP%L	.....	-11N	CPS-2P	LW-2.5	-	-	CB-T2212
	.....	-16N	CPS-3	LW-3	KPT-32	SP3X8	CB-T3220

EZ Bar PLUS

Part Number	Spare Parts	
	Clamp Screw	Wrench
S045X-SCLCR03-050EZ	SB-1635TR	FT-6
S060X-SCLCR04-070EZ	SB-2035TR	
C045X-SCLCR03-050EZ	SB-1635TR	FT-6
C060X-SCLCR04-070EZ	SB-2035TR	

Twin Bars

Part Number			Spare Parts	
			Clamp Screw	Wrench
STW%	.....	-15	SB-3080TR	LTW-10S
STWSR	.....	-15T	SB-3080TR	LTW-10S

Swiss IQ Bars

Part Number			Spare Parts			
			Clamp Screw	Wrench	Screw (Side stopper)	Wrench
SVNR	1010H	-12	SB-3080TR	FT-10	HS3X4	LW-1.5
	1212K	-12				
	1616K	-12			HS3X8	
	2020K	-12			HS3X12	
	2525M	-12			HS3X16	
SVNSR	.....	-12-..	SB-3080TR	LTW-10S	HS3X4	LW-1.5
S12F-	SVNR	12	SB-3080TR	FT-10	HS3X4	LW-1.5
S14G-	SVNR	12				
S16H-	SVNR	12			HS3X8	
S19H-	SVNR	12				
S19N-	SVNR	12				
S20H-	SVNR	12				
S25H-	SVNR	12			HS3X12	
S25Q-	SVNR	12				
S....	SVNR	12S	SB-3080TR	FT-10	HS3X4	LW-1.5

Swiss IQ Bars (S-SVN-XN)

Part Number			Spare Parts		
			Clamp Screw	Wrench	Clamp Screw
S...-	SVNR	12XN	SB-3080TR	FT-10	SP3X4

PSH Sleeve

Part Number			Spare Parts	
			Clamp Screw	Wrench
PSH	02..	-..	HS3X4P	LW-1.5
	03..	-..		
PSH	04..	-..	HS4X4P	LW-2
	05..	-..		
	06..	-..		
	07..	-..		

Boring Bars (Screw Clamp)

Part Number	Spare Parts	
	Clamp Screw	Wrench
S10H- SCLC□03-..E	SB-1635TR	FT-6
S10J- SCLC□04-..E	SB-2035TR	
S08X- SCLC□06-10E	SB-2545TR	FT-8
S08X- SCLC□06-10	SB-2545TR	FT-8
C...- SCLC□03-..	SB-1635TR	FT-6
C...- SCLC□04-..	SB-2035TR	
C08L- SCLC□06-10	SB-2545TR	FT-8
A08H- SCLC□06-10E	SB-2545TR	FT-8
E...- SCLC□06-..	SB-2545TR	FT-8
S..M- SCLP□08-..E	SB-3STR	FT-10
S...- SCLP□09-..E	SB-4TR	FT-15
S..M- SCLP□08-..	SB-3STR	FT-10
S...- SCLP□09-..	SB-4TR	FT-15
C10N- SCLP□08-..	SB-3STR	FT-10
C...- SCLP□09-..	SB-4TR	FT-15
A..X- SCLP□08-..E	SB-3STR	FT-10
A...- SCLP□09-..E	SB-4TR	FT-15
E10N- SCLP□08-12	SB-3STR	FT-10
E10N- SCLP□08-12A-..	SB-3060TR	
E...- SCLP□09-..	SB-4TR	FT-15
S...- SDUC□07-..E	SB-2560TR	FT-8
S...- SDUC□11-..E	SB-4085TR	FT-15
S...- SDUC□07-..	SB-2560TR	FT-8
S...- SDUC□11-..	SB-4085TR	FT-15
C...- SDUC□07-..	SB-2560TR	FT-8
C...- SDUC□11-..	SB-4085TR	FT-15
S...- SDZC□07-..E	SB-2560TR	FT-8
S...- SDZC□11-..E	SB-4085TR	FT-15
S...- SDZC□07-..	SB-2560TR	FT-8
S...- SDZC□11-..	SB-4085TR	FT-15
C06J- STLB□06-08A	SB-2035TR	FT-6
E08L- STLP□08-10A	SB-1TR	
E08L- STLP□09-10A	SB-2545TR	FT-8
E10N- STLP□09-..		
E10N- STLP□11-..	SB-3060TR	FT-10
S06H- STUB□06-08E	SB-1STR	FT-6
S08K- STUP□08-10E	SB-1TR	
S..M- STUP□09-..E	SB-2TR	FT-8
S...- STUP□11-..E	SB-3TR	FT-10
S..X- STUP□16-..E	SB-4TR	FT-15
S06H- STUB□06-08	SB-1STR	FT-6
S08K- STUP□08-10	SB-1TR	
S..M- STUP□09-..	SB-2TR	FT-8
S...- STUP□11-..	SB-3TR	FT-10
S25X- STUP□16-32	SB-4TR	FT-15
C10L- STUB□06-08	SB-1STR	FT-6
C08L- STUP□08-10	SB-1TR	
C...- STUP□09-..	SB-2TR	FT-8
C...- STUP□11-..	SB-3TR	FT-10
C20S- STUP□16-..	SB-4TR	FT-15
A08H- STUP□08-10E	SB-1TR	FT-6
A..X- STUP□09-..E	SB-2TR	FT-8
A...- STUP□11-..E	SB-3TR	FT-10
A...- STUP□16-..E	SB-4TR	FT-15
E08L- STUP□08-10	SB-1TR	FT-6
E...- STUP□09-..	SB-2TR	FT-8
E...- STUP□11-..	SB-3TR	FT-10
E20S- STUP□16-25	SB-4TR	FT-15

Boring Bars (Screw Clamp)

Part Number		Spare Parts	
		Clamp Screw	Wrench
S...-	SWUB□08-..E	SB-2050TR	FT-6
S12M-	SWUP□11-14E	SB-2545TR	FT-8
S...-	SWUP□11-..E	SB-2560TR	
S...-	SWUP□16-..E	SB-4065TR	FT-15
S...-	SWUB□06-..	SB-2040TR	FT-6
S10J-	SWUB□08-..	SB-2035TR	
C...-	SWUB□06-..	SB-2035TR	FT-6
C07K-	SWUB□08-..		
C08L-	SWUB□08-..	SB-2050TR	
C10N-	SWUB□08-..		
C12Q-	SWUP□11-14(-./.)	SB-2545TR	FT-8
C12Q-	SWUP□11-16(-./.)	SB-2560TR	
C16X-	SWUP□11-18(-./.)		
C...-	SWUP□16-..	SB-4065TR	FT-15
E...-	SWUB□08-..	SB-2050TR	FT-6
S16Q-	SSKPR09-20	SB-4TR	FT-15
S20R-	SSKPR09-25		
S25X-	SSKPR12-32	GS-50S	LW-3
S32S-	SSKPR12-40	GS-50	
S12M-	SYXP□06-12E	SB-2040TR	FT-6
S16Q-	SYXP□06-16E	SB-2045TR	

Boring Bars (Screw Clamp)

Part Number		Spare Parts				
		Clamp Screw	Wrench	Shim	Shim Screw	Wrench (For shim screw)
S12M-	SVJP□08-16E	SB-2050TR	FT-6	-	-	-
S...-	SVJC□08-..E					
S...-	SVJB□11-..E	SB-2570TR	FT-8			
S...-	SVJB□16-..EN	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
S32S-	SVJB□16-40E	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S40T-	SVJB□16-50E					
S10M-	SVPC□08-16E	SB-2050TR	FT-6	-	-	-
S...-	SVPB□11-..E	SB-2570TR	FT-8			
S...-	SVPB□16-..EN	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
S25X-	SVPB□16-34E	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S32S-	SVPB□16-40E					
S12M-	SVUC□08-16E	SB-2050TR	FT-6	-	-	-
S...-	SVUB□11-..E	SB-2570TR	FT-8			
S...-	SVUB□16-..EN	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
S25X-	SVUB□16-34E	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S32S-	SVUB□16-40E					
S12M-	SVZC□08-16E	SB-2050TR	FT-6	-	-	-
S...-	SVZB□11-..E	SB-2570TR	FT-8			
S...-	SVZB□16-..EN	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
S25X-	SVZB□16-34E	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S32S-	SVZB□16-40E					

Boring Bars (Top Clamp)

Part Number		Spare Parts				
		Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
S12L-	CTUP□09-16	-	CPS-1	FH-2	-	-
S...-	CTUP□11-..	-	CPS-2	FH-2.5	-	-
S25X-	CTUP□16-34	-	CPS-3	LW-3	-	-
S32S-	CTUP□16-43				KPT-32	SP3X10
S40X-	CTUP□16-50					
S32S-	CTUC□16-40	*CB-13/12	CE-320	LW-4	SP-230P	SP3X10
S...-	CCLN□09-..A	-	CE-360S	LW-4	SP-420A	BH3X6
S...-	CSKN□09-..A	-	CE-360S	LW-4	SP-130A	BH3X12
S32S -	CSKPR12-43	CPS-3	-	LW-3	KPS-42	SP3X10

* CB-13 for Right-hand Toolholder, CB-12 for Left-hand Toolholder.

Boring Bars for Ceramic Inserts (Top Clamp)

Part Number	Spare Parts				
	Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
S32S- CCLN□□ -12-40GX	-	CE-410	LW-4	-	-
S40T- CCLN□□ -12-50GX				SP-441P	M3X8
S32S- CDUN□□ -12-40GX	-	CE-410	LW-4	-	-
S40T- CDUN□□ -12-50GX				SP-521P	M3X8
S32S- CSKN□□ -12-40GX	-	CE-410	LW-4	-	-
S40T- CSKN□□ -12-50GX				SP-141P	M3X8
S40T- CSKN□□ -12-50	*1 CB-13/12	CE-320	LW-4	SP-141P *2 (SP-143P)	M3X8 *2 (M3X12)

*1 CB-13 for right-hand toolholder, CB-12 for left-hand toolholder.
*2 When using SN□□43... Insert, please purchase spare parts in ( ) separately.

Bearing Machining - Boring Bars (Square Shank)

Part Number	Spare Parts	
	Clamp Screw	Wrench
SRCP□□ 2020B-12 -A20	SB-4TR	FT-15
2525B-16 -A32	SB-5090TR	LTW-20

Bearing Machining - Internal Filletting (Square Shank)

Part Number	Spare Parts	
	Clamp Set	Wrench
CBSN□□ ....B-12 -A20	CP-RC□□	LW-5

Sleeves for IQ Bars

Part Number	Spare Parts	
	Screw	Wrench
PH 02 ..-..	HS3X4	LW-1.5
03 ..-..		
04 ..-..	HS4X4	LW-2
05 ..-..		
06 ..-..		
07 ..-..		

KTGF

Part Number	Spare Parts	
	Clamp Screw	Wrench
KTGF□□ ..... -16F	SB-4070TRW	FT-8
KTGF□□ ..... -16	SB-4070TRS	FT-10

S-KTGF

Part Number	Spare Parts	
	Clamp Screw	Wrench
S.... -KTGFL16	SB-4070TRS	FT-10

KTG

Part Number	Spare Parts	
	Clamp Screw	Wrench
KTG□□ .... -16	SB-4TR	FT-15
.... 22-..	GS-50	LW-3

KN91

Part Number	Spare Parts				
	Clamp	Clamp Bolt	Washer	Spring	Wrench
KN91□□ 44 -4	*CE-111/121	BH8X30	W-8	SP-8	LW-5
44 -5					
44 -7	*CE-131/141				

* KN91□□44-4/5 ... CE-111 for right-hand toolholder, and CE-121 for left-hand toolholder.
KN91□□44-7 ... CE-131 for right-hand toolholder, and CE-141 for left-hand toolholder.

KGHS

Part Number	Spare Parts				
	Clamp	Clamp Bolt	Washer	Spring	Wrench
KGHS□□ ..... -4	CGH-1 1/8	HH6X25	W-6	SP-6	LW-5
..... -5					
..... -7	CGH-2 1/8				

Clamp: KGHS□□ ... CGH-OL for right-hand toolholder, and CGH-OR for left-hand toolholder.

AD Anti-Vibration Bars

Part Number	Spare Parts									
	Lever	Lock Screw	Punch	Shim Pin	Shim	Clamp Screw	Wrench	Boring Adapter	Clamp Bolt	Wrench
HA32 PCLN□□ 12-40	LL-2K	LS-2P	PC-2K	LSP-3K	LC-4K	-	DTPM-15	AD32U	HH5X20 (3 pc) HH5X30 (1 pc)	LW-4
HA40 PCLN□□ 12-50								AD40V		
HA50 PCLN□□ 12-63								AD50W	HH6X20 (3 pc) HH6X30 (1 pc)	LW-5
HA32 PDUN□□ 15-43	LL-3K	LS-3P			LD-4K43 (LD-4K*)			AD32U	HH5X20 (3 pc) HH5X30 (1 pc)	LW-4
HA40 PDUN□□ 15-50								AD40V		
HA50 PDUN□□ 15-63								AD50W	HH6X20 (3 pc) HH6X30 (1 pc)	LW-5
HA32 PTFN□□ 16-40	LL-1K	LS-1P		LSP-2K	LT-3K		DTPM-10	AD32U	HH5X20 (3 pc) HH5X30 (1 pc)	LW-4
HA40 PTFN□□ 16-50								AD40V		
HA50 PTFN□□ 16-63								AD50W	HH6X20 (3 pc) HH6X30 (1 pc)	LW-5
HA32 SCLC□□ 09-40	-	-	-	-	-	SB-3580TR	FT-15	AD32U	HH5X20 (3 pc) HH5X30 (1 pc)	LW-4
HA32 SDUC□□ 11-40						SB-3580TR	FT-15	AD32U		

*Punch (PC-2K) is not included. Purchase separately.
*When using DN□□44.. inserts, purchase LD-4K separately.

KGA

Part Number	Spare Parts			
	Clamp	Clamp Bolt	Spring	Wrench
KGAR/L .... -3	CGA-3R/L	HH6X20	SP-6	LW-5
.... -4	CGA-4R/L			
.... -5	CGA-5R/L			

Clamp: CGA-OR for right-hand toolholder and CGA-OL for left-hand toolholder.

KGDR/L....-S

Part Number	Spare Parts		
	Clamp Bolt (for insert clamp)	Clamp Screw (for blade)	Wrench
KGDR/L ....-S	BH6X10TR	SB-60120TR	LTW-25

KGD-JCT (for Small Parts Machining)

Part Number	Spare Parts		
	Clamp Screw	Wrench	Plug
KGDR/L ..... - ... JCT	SB-40120TR	LTW-15S	GP-1

KGDFR/L....-S

Part Number	Spare Parts		
	Clamp Bolt (for insert clamp)	Clamp Screw (for blade)	Wrench
KGDFR/L ....-S	BH6X10TR	SB-60120TR	LTW-25

KGM

Part Number		Spare Parts	
		Screw	Wrench
KGMR/L	1212H -3	SB-5TR	LTW-20
	1616H -3	HH5X16	LW-4
	2020K -3		
	2525M -3	HH5X25	
KGMR/L	2020K -4	HH5X16	LW-4
	2525M -4	HH5X25	
KGMR/L	2020K -5	HH5X16	LW-4
	2525M -5	HH5X25	
	3232P -5		
KGMR/L	2525M -8	HH6X25	LW-5
	3232P -8		

KGM-T

Part Number		Spare Parts	
		Screw	Wrench
KGMR/L	2012K-2T17	SB-5TR	LTW-20
	2020K-2T17	HH5X16	LW-4
	2525M-2T17	HH5X25	
KGMR/L	1616H-3T20	HH5X16	LW-4
	2012K-3T20	SB-5TR	LTW-20
	2020K-3T20	HH5X16	LW-4
	2525M-3T20	HH5X25	
KGMR/L	2020K-4T20	HH5X16	LW-4
	2525M-4T20	HH5X25	
	2525M-4T25		
KGMR/L	2525M-5T25	HH5X25	LW-4
	3232P-5T25		
KGMR/L	2525M-6T30	HH5X25	LW-4

KGM (for Small Parts Machining)

Part Number		Spare Parts	
		Clamp Screw	Wrench
KGMR/L	0810K - ...	SE-40120TR	LTW-15S
	1010.. - ...		
	1212.. - 1.5-...		
	1212.. - 2-...		
	1212.. - 2.5-...		
	1616.. - 2-...	SE-50125TR	LTW-20
	1616.. - 2.5-...		
	1616.. - 3-...		

KGMM / KGMS

Part Number		Spare Parts	
		Screw	Wrench
KGMMR/L	1212H-3	SB-5TR	LTW-20
	1616H-3	HH5X16	LW-4
	2020K-3		
	2525M-3	HH5X25	
KGMSR/L	1212H-3	SB-5TR	LTW-20
	1616H-3	GS-50	LW-3
	2020K-3	HH5X16	LW-4
	2525M-3	HH5X25	

KGMU

Part Number		Spare Parts	
		Clamp Bolt	Wrench
KGMU R/L	2020K	HH5X16	LW-4
	2525M	HH5X25	

KIGH

Part Number		Spare Parts				
		Clamp	Clamp Bolt	Washer	Spring	Wrench
KIGHR	....-4	CGH-1L	HH6X25	W-6	SP-6	LW-5
	....-5					
	....-7	CGH-2L				

KIGM-V

Part Number		Spare Parts	
		Clamp Screw	Wrench
KIGM R/L	2016B-3V	GS-50	LW-3
	2520B-3V		
	3225B-3V	SB-5TR	LTW-20
	3225B-4V	SB-5TR	LTW-20
	4032B-4V		

GFVS-AA / GFVT-AA

Part Number		Spare Parts	
		Clamp Set	Wrench
GFVS R/L	..... -08AA	CPS-5V	FT-15
GFVT R/L	..... -08AA	CPS-5V	FT-15

GIFV

Part Number		Spare Parts	
		Clamp Set	Wrench
GIFV R/L	5032B-502B	CPS-6V	LW-3

KTKF-JCT

Part Number		Spare Parts		
		Clamp Screw	Wrench	Plug
KTKF R/L	..... - ... JCT	SB-4590TRWN	FT-10	GP-1

KTKFS (for Sub Spindle Tooling)

Part Number		Spare Parts	
		Clamp Screw	Wrench
KTKFS R/L	..... - ...	SB-4050TRN	LTW-10S

KTKH-S

Part Number		Spare Parts
		Releasing wrench
KTKH R/L	..... - ...S	LTK-5

KTKH-B

Part Number			Spare Parts	
			Clamp Screw	Wrench
KTKH R/L	0808K	- ...B	SE-40120TR	FT-15
	1010K	- ...B		
	1212M	- ...B		
	1414M	- ...B		
	1616M	- ...B	SE-50125TR	LTW-20

KTTX

Part Number		Spare Parts	
		Clamp Screw	Wrench
KTTXR	..... -16F	SB-4070TRW	FT-8

DRS

Part Number			Spare Parts	
			Clamp Screw	Wrench
S20	-DRS	10...	SB-2080TR	FT-6
	-DRS	11...	SB-2290TR	FT-6
	-DRS	12...	SB-25100TR	DT-7

DRX

Part Number			Spare Parts	
			Clamp Screw	Wrench
S..	-DRX	- . -03	SB-2042TRG	DTM-6
	-DRX	- . -04	SB-2042TRG	DTM-6
	-DRX	- . -05	SB-2045TR	DTM-6
	-DRX	- . -06	SB-2250TR	DTM-7
	-DRX	- . -07	SB-2570TR	DTM-8
	-DRX	- . -09	SB-3080TR	DTM-10
	-DRX	- . -11	SB-4085TR	DTM-15
	-DRX	- . -14	SB-5090TR	DT-20
	-DRX	- . -17	SB-60120TR	DT-25

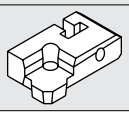
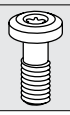
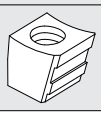
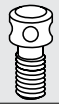
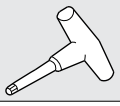
MFPN45 (Face Mill)

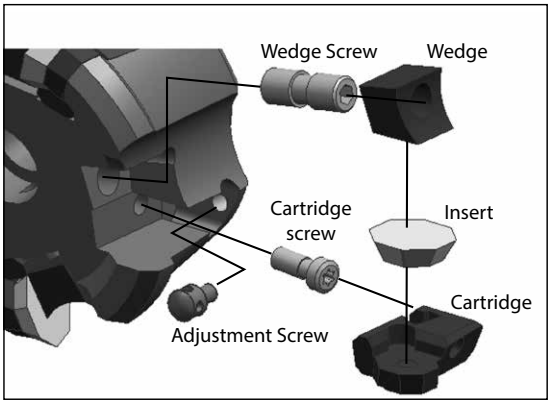
Part Number	Spare Parts		
	Clamp Screw	Wrench	Anti-seize compound
MFPN 45100R-10T-M ~ 45200R-20T-M	SB-40140TRN	DTM-15	P-37

MOF45

Part Number	Spare Parts		
	Clamp Screw	Wrench	Mounting bolt
MOF 45080R-05-6T	SB-4082TPR	DTP-15	HH12X35
45100R-05-.T ~ 45200R-05-..T			-
MOF 45080R-07-5T	SB-50120TRS	DTP-15	HH12X35
45100R-07-.T ~ 45200R-07-..T			-
MOF 45040R-05-3T-M	SB-4082TPR	DTP-15	HH8X25
45050R-05-4T-M			HH10X30
45063R-05-5T-M			
45080R-05-6T-M			HH12X35
45100R-05-.T-M ~ 45200R-05-..T-M			-
MOF 45063R-07-4T-M	SB-50120TRS	DTP-15	HH10X30S
45080R-07-5T-M			HH12X35
45100R-07-.T-M ~ 45200R-07-..T-M			-

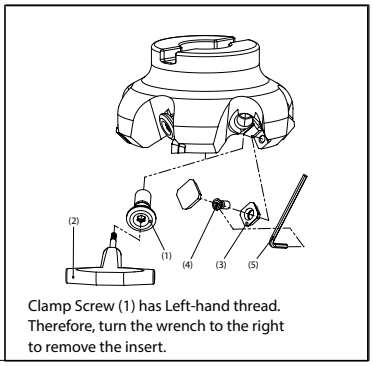
MOFX45

Part Number	Cartridge	Cartridge Screw	Wedge	Wedge Screw
				
MOFX45…	LOF07R	SH-50150TR	WOF07R	W8X21
Part Number	Adjustment Screw	Wrench (for Wedge)	Wrench (for Cartridge)	
				
MOFX45…	AJ-412	TH-4	TTC-20	



MSE45 (Face Mill)

Part Number	(1) Clamp Screw	(2) Wrench	(3) Shim	(4) Shim Screw	(5) Wrench
MSE 45040R-.T-M 45050R-.T-M	CP8X15TL (Left-hand Thread)	TTC-25	MSE-4245S	SP4X9	LW-2 (for Shim Screw)
MSE 45080R-.T ~ 45200R-..T	CP8X23TL (Left-hand Thread)				
MSE 45063R-.T-M ~ 45200R-..T-M					



Clamp Screw (1) has Left-hand thread. Therefore, turn the wrench to the right to remove the insert.

Mounting bolt (SP8X35) is included for MSE45040R-.T-M.
Mounting bolt (HH10X30S) is included for MSE45050R-.T-M and MSE45063R-.T-M.
Mounting bolt (HH12X35) is included for MSE45080R-.T-M and MSE45080R-.T.

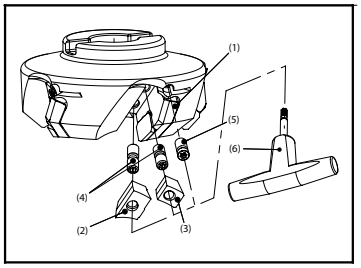
MSE45 (End Mill)

Part Number		Spare Parts			
		Clamp Set	Wrench	Shim	Shim Screw
MSE	4550	CPS-6M	LW-3	MSE-4245	SP3X8
	4563				
	4580-32				

MSE45-SF (Face Mill)

Part Number		(1) Cartridge	(2) Clamp	(3) Clamp	(4) Clamp Screw	(5) Adjustment Screw	(6) Wrench
MSE	45..R-.T-SF	LSE-445SR	C43R (for Insert)	C44R (for Cartridge)	W6X17	SV-60136TR	TTC-20
	45..R-.T-M-SF						

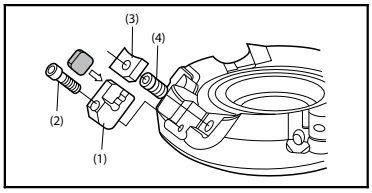
Mounting bolt (HH10X30S) is included for MSE45063R-4T-M-SF.
Mounting bolt (HH12X35) is included for MSE45080R-5T-M-SF.



MSD45 (Face Mill)

Part Number		(1) Cartridge	(2) Cartridge clamp screw	(3) Clamp	(4) Clamp Screw	Wrench
MSD	45...R	LSD-445R	HH4X16	C20R	TH8X15	TH-4

· Mounting bolt (HH12X35) is included for MSD4580R.

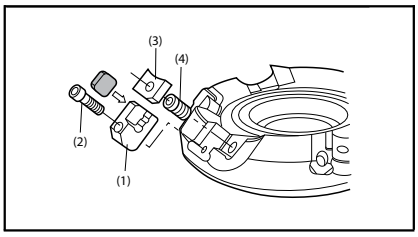


MSD45 (End Mill)

Part Number		Spare Parts			
		Clamp Set	Wrench	Shim	Shim Screw
MSD	4550	CPS-6M	LW-3	MSD-42	SP3X8
	4563				
	4580-32				

MSO45 (Face Mill)

Part Number		(1) Cartridge	(2) Cartridge clamp screw	(3) Clamp	(4) Clamp Screw	Wrench
MSO	45...R	LSO-445R	HH4X16	CH-20R	TH8X15	TH-4



MSO45-S (End Mill)

Part Number		Spare Parts				
		Shim	Shim Screw	Clamp	Clamp Screw	Wrench
MSO	45..-S	MSO-4T245	SP3X6	CH-20R	TH8X15	TH-4

MSO45-09 (Face Mill)

Part Number		Spare Parts	
		Clamp Screw	Wrench
MSO	45...R-09	SB-3060TR	DT-10

MSO45-S-09 (End Mill)

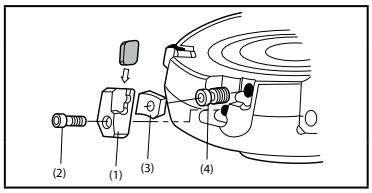
Part Number		Spare Parts	
		Clamp Screw	Wrench
MSO	45..-S32-09	SB-3060TR	DT-10

MSP15 / MSE15 (End Mill)

Part Number		Clamp Set	Wrench	Shim	Shim Screw
MSP	15..	CPS-6M	LW-3	MSP-42	SP3X8
MSE	15..	CPS-6M	LW-3	MSE-4215	SP3X8

MSP15 (Face Mill)

Part Number		(1) Cartridge	(2) Cartridge clamp screw	(3) Clamp	(4) Clamp Screw	Wrench
MSP	15...R	LSP-415R	HH4X16	C25R	TH8X15	TH-4



Mounting bolt (HH12X35) is included in MSP1580R.

MEC (Face Mill)

Part Number		Spare Parts	
		Clamp Screw	Wrench
MEC	...R-11-..T(-M)	SB-2555TRG	DTM-8
	...R-17-..T(-M)	SB-4070TRN	DTM-15

MEC (End Mill)

Part Number		Spare Parts	
		Clamp Screw	Wrench
MEC	..-W..-1103(-H)	SB-2545TR	DTM-8
	..-W..-11T3(-H)	SB-2555TRG	DTM-8
	..-W..-1704-H	SB-4070TRN	DTM-15

MECX (Face Mill)

Part Number		Spare Parts	
		Clamp Screw	Wrench
MECX	050R-07-12T-M	SB-2042TRG	DTM-6
	063R-07-14T-M		

MECX (End Mill)

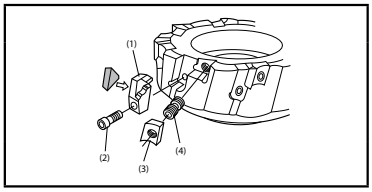
Part Number		Spare Parts	
		Clamp Screw	Wrench
MECX	32-S32-07-6T	SB-2042TRG	DTM-6
	33-S32-200-07-6T		

MTE90-SF

Part Number		Cartridge	Clamp	Clamp	Clamp Screw	Adjustment Screw	Wrench
MTE	90...-SF	LTE-490SR	C91R (for Insert)	C92R (for Cartridge)	W8X16	SV-60136R	TTC-25

MTE90 (Face Mill)

Part Number		(1) Cartridge	(2) Cartridge clamp screw	(3) Clamp	(4) Clamp Screw	Wrench
MTE	90...R	LTE-490R	HH4X16	C17R	W8X18	TH-4



MTE90 (End Mill)

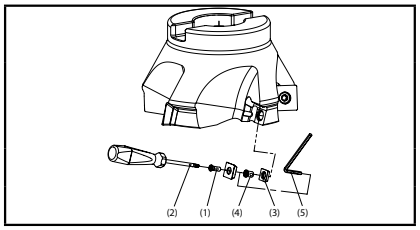
Part Number		Spare Parts				
		Clamp	Clamp Screw	Wrench	Shim	Shim Screw
MTE	9050	CP-8TE	W8X18	LW-4	MTE-42	SP3X8
	9063					
	9080-32					

MFWN (Face Mill)

Part Number	Spare Parts		
	Clamp Screw	Wrench	Anti-seize compound
MFWN 90100R-9T-M ~ 90250R-18T-M	SB-40140TRN	DTM-15	P-37

MSO90 (Face Mill)

Part Number	(1) Clamp Screw	(2) Wrench	(3) Shim	(4) Shim Screw	(5) Wrench
MSO 90...R-15-.T	SB-45130TR	DTP-20	MSO-5200	SPW-6045	Lw-4.5 (For shim screw)
MSO 90...R-15-.T-M					



Mounting bolt (HH12X35) is included for MSO90080R-15-.T-M and MSO90080R-15-.T
Mounting bolt (HH10X30S) is included for MSO90063R-15-.T-M

MSO90-S (End Mill)

Part Number		Spare Parts	
		Clamp Screw	Wrench
MSO	90..-S32-09	SB-3080TR	DT-10
	90..-S32-15	SB-5085TR	DT-20

MSO90-09 (Face Mill)

Part Number		Spare Parts	
		Clamp Screw	Wrench
MSO	90...R-09	SB-3080TR	DT-10

MEA / MEB

Part Number			Spare Parts	
			Clamp Screw	Wrench
MEA	..	-S..(-...)	SB-2560TR	DT-8
MEB	..	-S..	SB-4085TR	DT-15

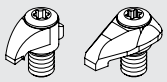
DMC

Part Number			Spare Parts	
			Clamp Screw	Wrench
DMC	8..	(-S..)	SB-2545TR	FT-8
DMC	0..		SB-3060TR	FT-10

MTP

Part Number		Spare Parts				
		Clamp	Clamp Screw	Wrench	Shim	Shim Screw
MTP	90..	CP-8W	W8X18	LW-4	KPT-42	SP3X8

MTPS / MTES

Part Number	Clamp Set	Wrench
	 2S 5ES	
MTPS ...	CPS-2S	FT-15
MTES ...	CPS-5ES	

MEAL

Part Number		Spare Parts	
		Clamp Screw	Wrench
MEAL	.. -S..	SB-5085TR	DT-20

MRP-S (End Mill)

Part Number			Spare Parts	
			Clamp Screw	Wrench
MRP	...-S..	-08(-...)	SB-3060TR	DT-10
	...-S..	-10-.T(-...)	SB-3080TR	DT-10
	...-S..	-12(-.T)(-...)	SB-4085TR	DT-15
	050-S42	-12(-300)	SB-40115TR	
	...-S..	-16(-...)	SB-50120TR	DT-20

MRP (Face Mill)

Part Number			Spare Parts	
			Clamp Screw	Wrench
MRP	...R	-10- .T	SB-3080TR	DT-10
MRP	050R	-12	SB-40115TR	DT-15
	063R	-12		
	080R	-12	SB-4085TR	
	080R	-12-7T		
MRP	...R	-16(- .T)	SB-50120TR	DT-20
MRP	...R	-20	SB-60120TR	DT-25

MHD (Helical End Mill)

Part Number			Spare Parts				
			Clamp Screw	Wrench	Clamp Bolt		Wrench
					1 Front Piece	2 Front Pieces	
MHD	32-S32	-SA	SB-2560TR	DT-8	-	HH8X50	LW-6
	40-S32	-SA	SB-3080TR	DT-10		HH8X65	
	40-S42	-SA					
	50-S42	-SA				HH12X65	LW-10
MHD	40-S42	-SB	SB-3080TR	DT-10	HH8X40	-	LW-6
	50-S42	-SB			HH12X40		LW-10
MHD	20S-S20	-C	SB-2560TR	DT-8	-	-	-
	25-S25	-C					
	32-S32	-C					
	40-S42	-C	SB-3080TR	DT-10			
	50-S42	-C					
MHD	32-S32	-A	SB-2560TR	DT-8	HH8X35	HH8X50	LW-6
	40-S32	-A	SB-3080TR	DT-10	HH8X40	HH8X65	
	40-S42	-A					
	50-S42	-A			HH12X40	HH12X65	LW-10
MHD	32-S32	-A-130	SB-2560TR	DT-8	HH8X35	HH8X50	LW-6
	40-S32	-A-150	SB-3080TR	DT-10	HH8X40	HH8X65	
	50-S42	-A-150			HH12X40	HH12X65	LW-10
MHD	40-S42	-B	SB-3080TR	DT-10	HH8X40	-	LW-6
	50-S42	-B			HH12X40		LW-10
MHD	32	-F	SB-2560TR	DT-8	-	-	-
	40	-F	SB-3080TR	DT-10			
	50	-F					

MHD (Face Mill and Integral Arbor Type)

Part Number			Spare Parts			
			Clamp Screw	Wrench	Clamp Bolt	Wrench
MHD	63-FMA	-SA	SB-3080TR	DT-10	HH16X90	LW-14
	80-FMA	-SA			HH20X110	LW-17
	100-FMA	-SA			HH24X110	LW-19
MHD	63-FMA	-A			HH16X90	LW-14
	80-FMA	-A			HH20X110	LW-17
	100-FMA	-A			HH24X110	LW-19
MHD	63-BT50	-SA			HH16X65	LW-14
	80-BT50	-SA			HH20X90	LW-17
	100-BT50	-SA			HH24X90	LW-19
MHD	63-BT50	-A			HH16X65	LW-14
	80-BT50	-A			HH20X90	LW-17
	100-BT50	-A			HH24X90	LW-19
MHD	63	-F			-	-
	80	-F				
	100	-F				

MHD (Radius Type)

Part Number			Spare Parts						
			Clamp Screw		Wrench		Clamp Bolt		Wrench
			For bottom insert	For middle insert	For bottom insert	For middle insert	1 Front piece	2 Front pieces	
MHD	32-S32	-4RSA	SB-2560TR	SB-2560TR	DT-8	DT-8	-	HH8X50	LW-6
	40-S32	-5RSA	SB-3080TR	SB-3080TR	DT-10	DT-10		HH8X55	
	40-S42	-5RSA							
	50-S42	-6RSA	SB-4085TR		DT-15			HH12X55	LW-10
MHD	32-S32	-A	SB-2560TR		DT-8		-	HH8X50	LW-6
	40-S32	-A	SB-3080TR		DT-10			HH8X65	
	40-S42	-A							
	50-S42	-A						HH12X65	LW-10
MHD	32	-F	SB-2560TR		DT-8		-	-	-
	40	-F	SB-3080TR		DT-10				
	50	-F							
MHD	32	-4RF	SB-2560TR	SB-2560TR	DT-8	DT-8	-	-	-
	40	-5RF	SB-3080TR	SB-3080TR	DT-10	DT-10			
	50	-6RF	SB-4085TR		DT-15				

MEZ

Part Number		Spare Parts	
		Clamp Screw	Wrench
MEZ	16-S16....	SB-2040TRG	DTM-6
	20-S20....	SB-2555TRG	DT-8
	25-S25....	SB-3070TRG	DT-10
	32-S32....	SB-4070TRG	DT-15
	40-S32....	SB-3070TRG	DT-10
	50-S42....	SB-4070TRG	DT-15

MGI

Part Number		Spare Parts	
		Clamp Set	Wrench
MGI	....-1C	CPS-6F	LW-3

MVG

Part Number		Spare Parts	
		Clamp Set	Wrench
MVG	....	CPS-6V	LW-3

Blank Tool

Part Number		Spare Parts
		Coolant pipe
T63H	-BL...-...	CL63-1

Flange Holder

Part Number			Spare Parts					
			Screw	Wrench	Mounting bolt	Wrench	Adjustment Screw	Wrench
SF22F	-SCLCL09	-40P	SB-4085TR	FT-15	HH5X30	LW-4	HS3X4	LW-1.5
	-SDUCL11	-40P	SB-4085TR	FT-15	HH5X30	LW-4	HS3X4	LW-1.5
	-SVUBL11	-40P	SB-2570TR	FT-8	HH5X30	LW-4	HS3X4	LW-1.5
	-KTGFL16	-40P	SB-4070TRS	FT-10	HH5X30	LW-4	HS3X4	LW-1.5
	-KTTXL16	-40P	SB-4070TRW	FT-8	HH5X30	LW-4	HS3X4	LW-1.5

Flange Holder (Sleeve Type)

Part Number			Spare Parts					
			Mounting bolt	Wrench	Adjustment Screw	Wrench	Screw (for fixing toolholder)	Wrench
SF22F	-SH..	-40P	HH5X30	LW-4	HS3X4	LW-1.5	HS6X4P	LW-3

R

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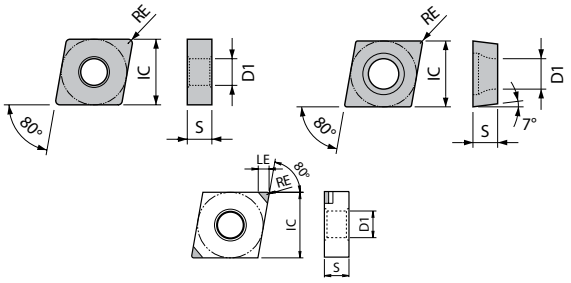
Turning Dimensions

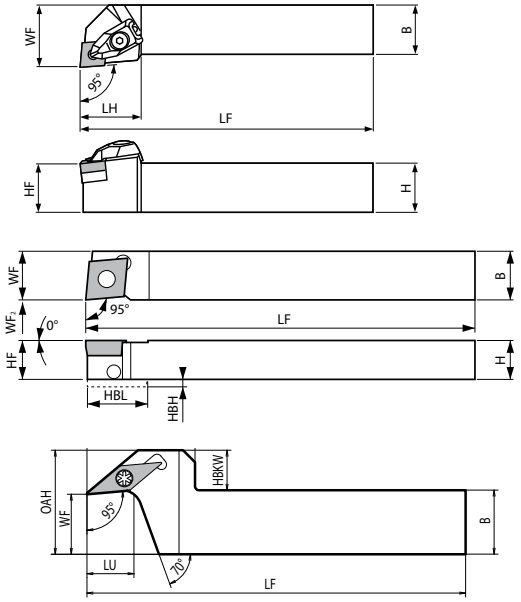
Turning Inserts

Symbol	Description	Previous Symbol
AN	Relief Angle	α
D1	Hole Diameter	Ød
IC	Inscribed Circle Diameter	A
RE	Corner Radius	rε
S	Insert Thickness	T
LE	Edge Length (PCD / CBN Tip)	S



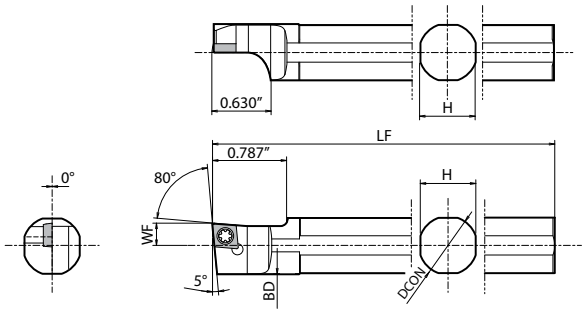
External Turning Holders (Square Shank)

Symbol	Description	Previous Symbol
B	Shank Width	B
H	Shank Height	H1
HF	Cutting Edge Height	h
HBL	Head Bottom Offset Length	L2
HBH	Head Bottom Offset Height	H2
HBKW	Head Back Offset Width	F2
LF	Functional Length	L1
LH	Head Length	L2
LU	Usable Length	T
LN	Neck Length	L3, L4
WF	Cutting Edge Distance	F1
WF_2, WFS	Cutting Edge Distance (Secondary)	F2
OAH	Overall Height	F1
MHD	Mounting Hole Distance	M1
MHD2	Mounting Hole Distance (Secondary)	M2



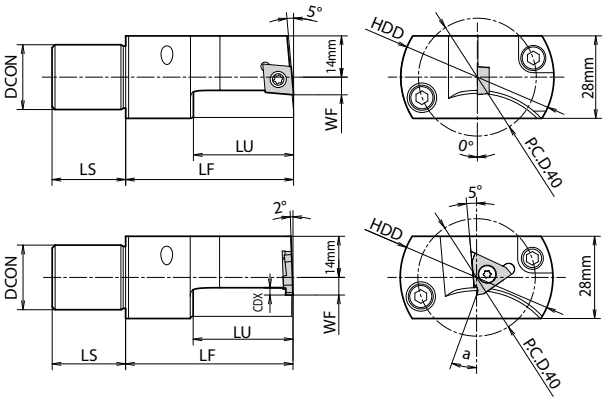
External Turning Holders (Round Shank)

Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD, ØD1
LF	Functional Length	L1
WF	Cutting Edge Distance	F1
WF_2	Cutting Edge Distance (Secondary)	F2
BD	Body Diameter	Ød, Ød1
H	Shank Flat Width	H1



Sub-Spindle Turning Holders

Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD
HDD	Head Diameter	ØD1, ØD2
LF	Functional Length	L2
LS	Shank Length	-
LU	Usable Length	L3
WF	Cutting Edge Distance	F1
WF_2	Cutting Edge Distance (Secondary)	F2
CDX	Maximum Cutting Depth	B



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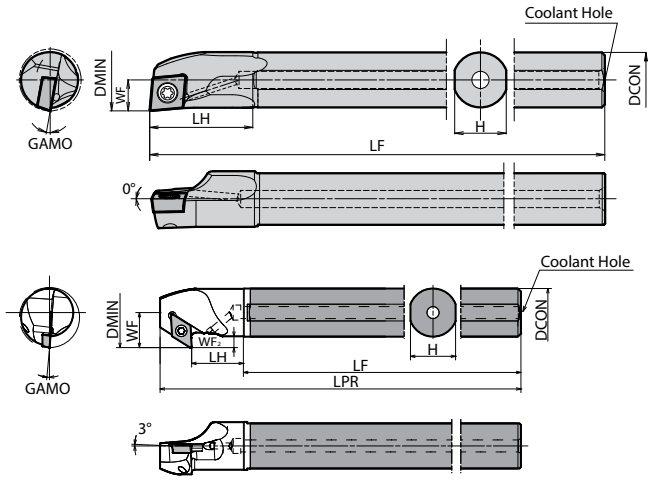
Boring Dimensions

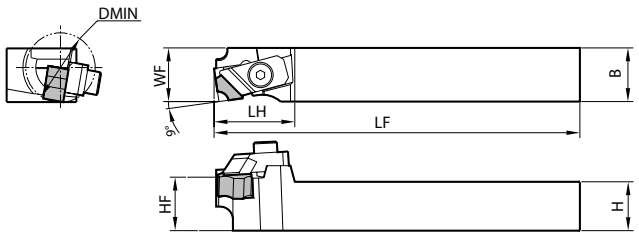
Boring Bars

Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD, ØD1
GAMO	Rake Angle	h
H	Shank Flat Width	H
LF	Functional Length	L1
LH	Head Length	L2
LPR	Full Length	L1
LU	Usable Length	L2
RE	Corner Radius	rh
WF	Cutting Edge Distance	F
WF_2	Cutting Edge Distance (Secondary)	F2



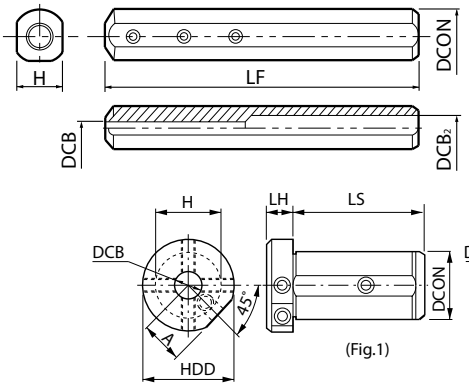
Boring Bars (Square Shank)

Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
B	Shank Width	B
H	Shank Height	H1
HF	Cutting Edge Height	h
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Distance	F1



Boring Bar Sleeves

Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD, ØD1
DCB	Connection Bore Diameter	Ød1
HDD	Head Diameter	ØD2
DCB_2	Connection Bore Diameter (Secondary)	Ød1, Ød2
H	Shank Flat Width	-
LF	Functional Length	L1
LS	Shank Length	L1
LH	Head Length	L2
A	Head Flat Distance	-

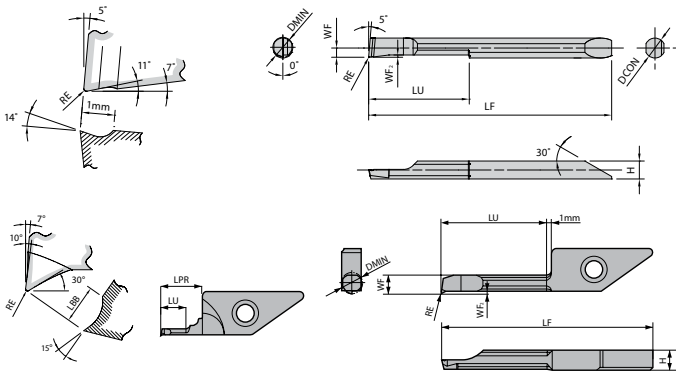


(Fig.1)

Boring Dimensions (Continued)

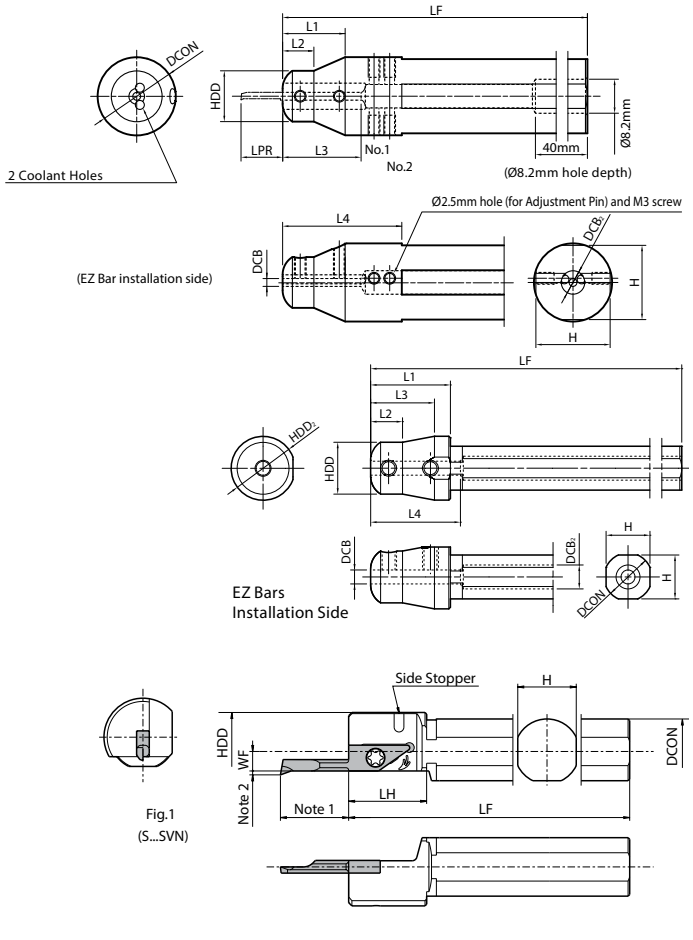
Micro Boring Bars

Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
H	Bar Flat Height	-
LF	Functional Length	L1
LU	Usable Length	L2
LPR	Bar Overhang Length	L3
WF	Cutting Edge Distance	F
WF_2	Cutting Edge Distance (Secondary)	S
RE	Corner Radius	rε
LBB	Cutting Edge Width	W



Micro Boring Bar Sleeves

Symbol	Description	Previous Symbol
DCB	Connection Bore Diameter	Ød1
DCON	Connection Diameter	ØD1
HDD	Neck Diameter	ØD2
HDD_2	Head Diameter	ØD3
DCB_2	Connection Bore Diameter (Secondary)	Ød2
H	Shank Flat Height	-
LF	Functional Length	L1
L1	Head Length	L2
L2	Neck Length	L3
L3	Connection Bore Depth	L4
LPR	Bar Overhang Length	T
No.1	Overhang Length of Bar at Position 1	-
No.2	Overhang Length of Bar at Position 2	-
No.3	Overhang Length of Bar at Position 3	-
No.4	Overhang Length of Bar at Position 4	-



Micro Boring Bar Holders (Round Shank)

Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD1
HDD	Head Diameter	ØD2
H	Shank Flat Height	-
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Height	F1
L2	Neck Length	-

Fig.1
(S...SVN)

Boring Dimensions (Continued)

Micro Boring Bar Holders (Square Shank)

Symbol	Description	Previous Symbol
HF	Cutting Edge Height	h
H	Shank Height	H1
B	Shank Width	-
LF	Functional Length	L1
LPR	Protruding Length	L1
LH	Head Length	L2
HBKL	Head Back Offset Length	F2
HBKW	Head Back Offset Width	F2
WF	Cutting Edge Distance	F1
WF_2	Cutting Edge Distance (Secondary)	F1
LU	Usable Length	F3
L1	Holder Clearance Distance 1	L3
L2	Holder Clearance Distance 2	L4

Fig.1
(SVN-N)

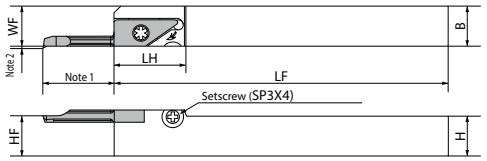
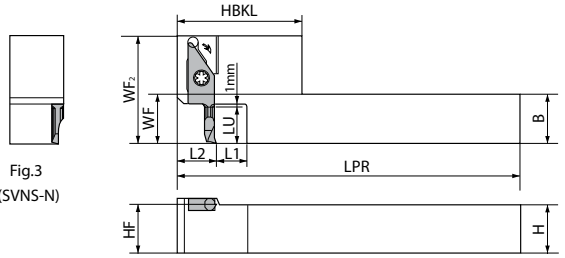
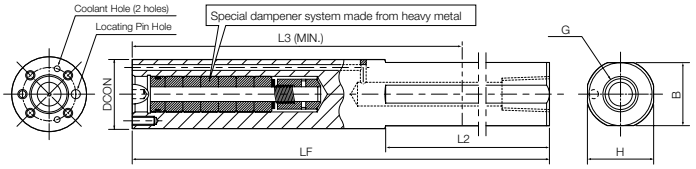


Fig.3
(SVNS-N)



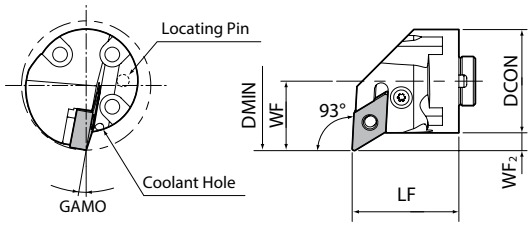
Boring Bar Adapters

Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD1
H	Shank Flat Height	-
B	Shank Flat Width	-
LF	Functional Length	L1
L2	Shank Length	-
L3 (Min)	Minimum Modification Length	-
G	Coolant Hole Thread Size	-



Replaceable Boring Bar Heads

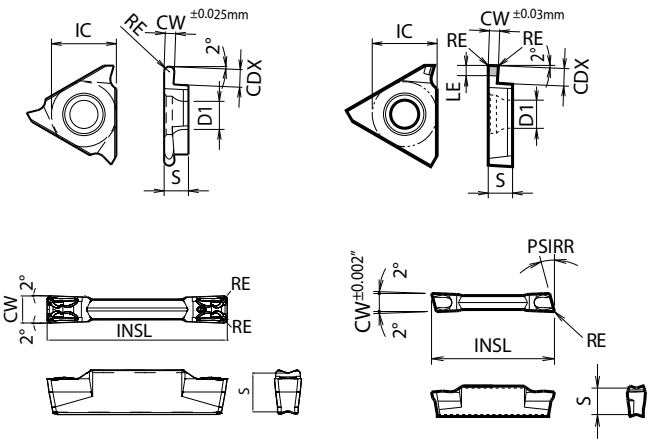
Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD
LF	Functional Length	L1
WF	Cutting Edge Distance	F
WF_2	Cutting Edge Distance (Secondary)	S
GAMO	Rake Angle	ἡ
RE	Corner Radius	rε



Grooving and Cut-Off Dimensions

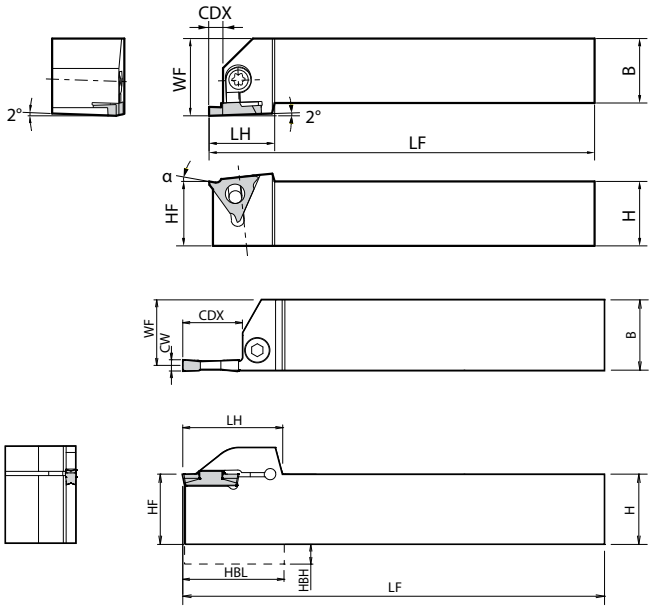
Grooving and Cut-Off Inserts

Symbol	Description	Previous Symbol
IC	Inscribed Circle Diameter	A
BCH	Corner Chamfer Length	C
CDX	Maximum Cutting Depth	B
CW	Cutting Edge Width	W
CUTDIA	Maximum Cut-Off Diameter	ØDmax
LE	Edge Length (PCD / CBN Tip)	S
D1	Hole Diameter	Ød
DAXN	Face Groove Diameter (Min.)	ØD
DAXX	Face Groove Diameter (Max.)	ØD
INSL	Insert Length	L
PSIR§	Lead Angle	ὴ
RE	Corner Radius	rε
S	Insert Thickness	H, T, M
W1	Insert Width	A



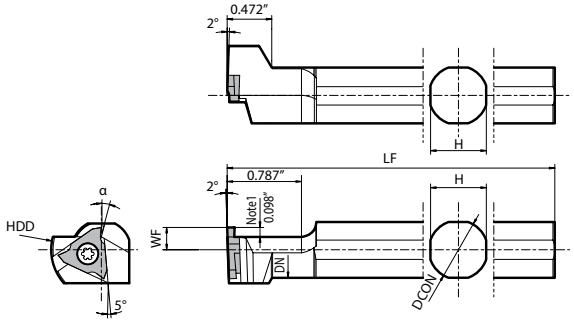
External Grooving Holders (Square Shank)

Symbol	Description	Previous Symbol
B	Shank Width	-
CDX	Maximum Cutting Depth	T
H	Shank Height	H1
HF	Cutting Edge Height	h
HBL	Head Bottom Offset Length	L3
HBH	Head Bottom Offset Height	H2
HBKW	Head Back Offset Width	F2
LF	Functional Length	L1
LH	Head Length	L2
LN	Neck Length	-
WF	Cutting Edge Distance	F1
GAMP	Axial Rake Angle	ὴ
MHD	Mounting Hole Distance	M1
MHD2	Mounting Hole Distance (Secondary)	M2



External Grooving Holders (Round Shank)

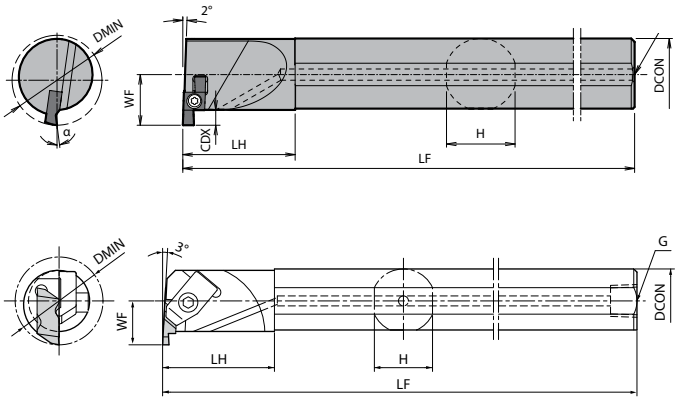
Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD
LF	Functional Length	L1
WF	Cutting Edge Distance	F1
DN	Neck Diameter	Ød1
HDD	Head Diameter	Ød2
H	Shank Flat Height	H1



Grooving and Cut-Off Dimensions (Continued)

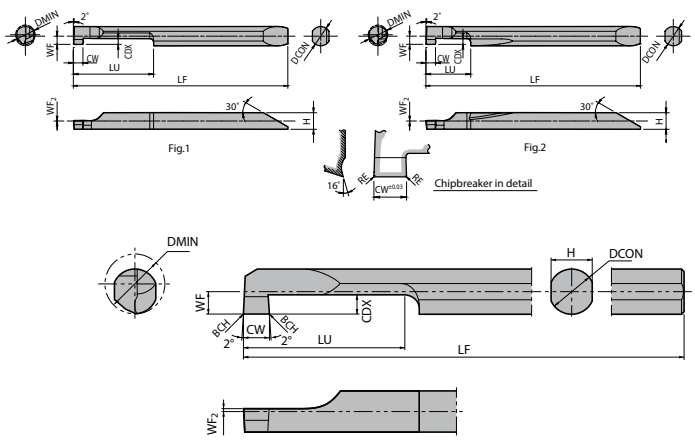
Internal Grooving Holders

Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD
H	Shank Flat Height	H1
LF	Functional Length	L1
LH	Head Length	L2
LU	Usable Length	L2
WF	Cutting Edge Distance	F1
CDX	Maximum Cutting Depth	T
G	Coolant Hole Thread Size	-



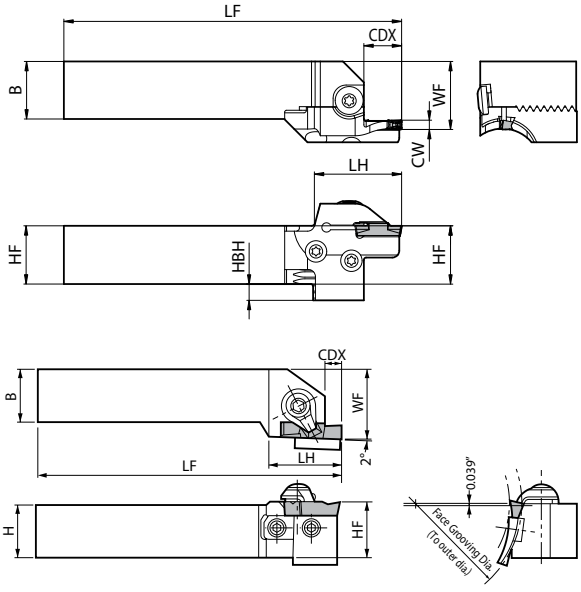
Micro Grooving Bars

Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD
DAXN	Face Groove Diameter (Min.)	ØD
DAXX	Face Groove Diameter (Max.)	ØD
CW	Cutting Edge Width	W
BCH	Corner Chamfer Length	C
H	Bar Flat Height	H1
LF	Functional Length	L1
LU	Usable Length	L2
WF	Cutting Edge Distance	F
WF_2	Cutting Edge Distance (Secondary)	L4
LH	Head Length	L2
CDX	Maximum Cutting Depth	T
RE	Corner Radius	rε



Face Grooving Toolholders

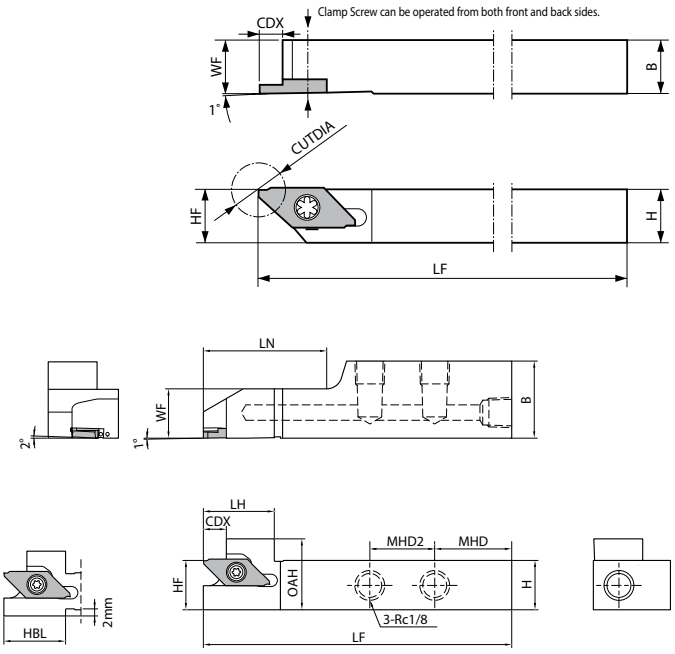
Symbol	Description	Previous Symbol
DAXN	Face Groove Diameter (Min.)	ØD
DAXX	Face Groove Diameter (Max.)	ØD
H	Shank Height	H1
HF	Cutting Edge Height	h
HBH	Head Bottom Offset Height	H2
B	Shank Width	-
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Distance	F, F1
WF_2	Cutting Edge Distance (Secondary)	S
CDX	Maximum Cutting Depth	T
CW	Cutting Edge Width	W



Grooving and Cut-Off Dimensions (Continued)

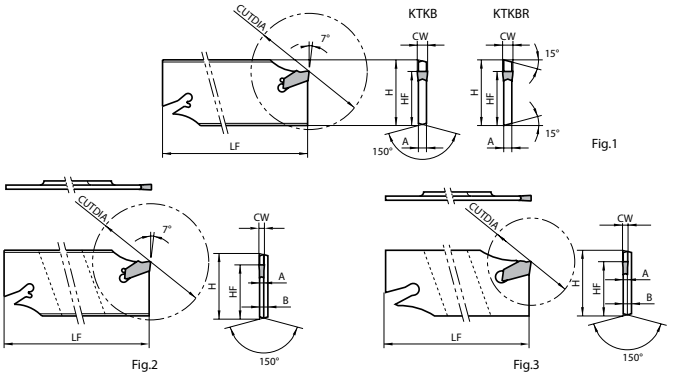
Cut-Off Toolholders

Symbol	Description	Previous Symbol
CUTDIA	Maximum Cut-Off Diameter	ØDmax
H	Shank Height	H1
HF	Cutting Edge Height	h
OAL	Overall Length	L1
B	Shank Width	-
LF	Functional Length	L1
LH	Head Length	L2
LN	Neck Length	L3
LN2	Neck Length (Secondary)	-
HBL	Head Bottom Offset Length	L3
HBH	Head Bottom Offset Height	H2
WF	Cutting Edge Distance	F1
CDX	Maximum Cutting Depth	T
GAMP	Axial Rake Angle	ἡ
MHD	Mounting Hole Distance	M1
MHD2	Mounting Hole Distance (Secondary)	M2



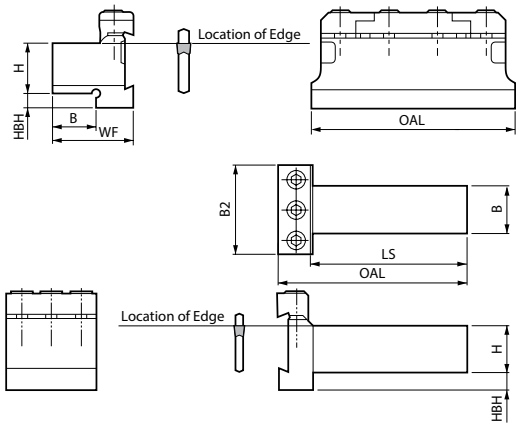
Cut-Off Blades

Symbol	Description	Previous Symbol
CUTDIA	Maximum Cut-Off Diameter	ØDmax
H	Blade Height	H1
HF	Cutting Edge Height	h
B	Blade Width	-
LF	Functional Length	L1
A	Insert Mount Width	-
CW	Cutting Edge Width	W



Cut-Off Tool Blocks

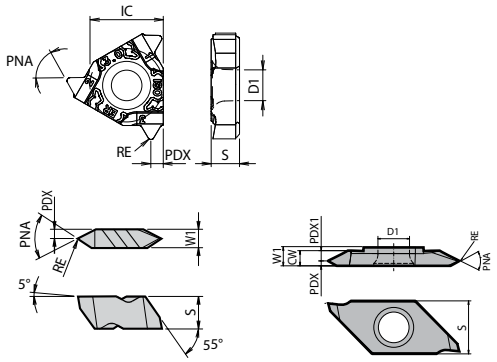
Symbol	Description	Previous Symbol
H	Shank Height	H1
HBH	Head Bottom Offset Height	H2
B	Shank Width	B1
B2	Blade Mount Width	-
OAL	Overall Length	L1
LS	Shank Length	L2



Threading Dimensions

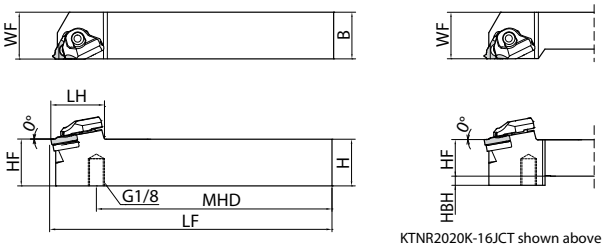
Threading Inserts

Symbol	Description	Previous Symbol
IC	Inscribed Circle Diameter	A
S	Insert Thickness	T
D1	Hole Diameter	Ød
PDX	Profile Distance	S, S1
PDX1	Profile Distance (Secondary)	S2
PNA	Included Angle	ἡ
RE	Corner Radius	rε
W1	Insert Width	T
CW	Cutting Edge Width	W



External Threading Toolholders (Square Shank)

Symbol	Description	Previous Symbol
H	Shank Height	H1
HF	Cutting Edge Height	h
HBH	Head Bottom Offset Height	H2
B	Shank Width	-
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Distance	F1
MHD	Mounting Hole Distance	M1
HBKW	Head Back Offset Width	F2
CDX	Maximum Cutting Depth	T
LPR	Protruding Length	T



KTNR2020K-16JCT shown above

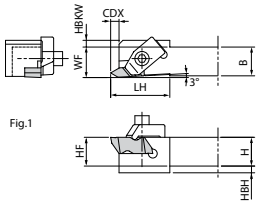


Fig.1

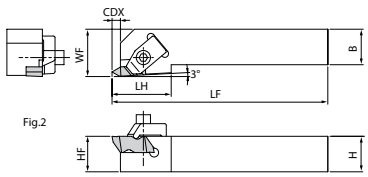
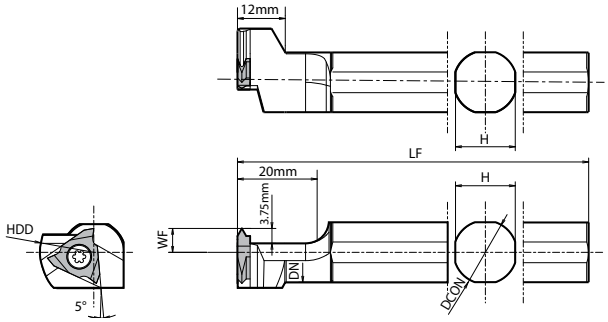


Fig.2

External Threading Toolholders (Round Shank)

Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD
LF	Functional Length	L1
WF	Cutting Edge Distance	F1
DN	Neck Diameter	Ød1
HDD	Head Diameter	Ød2
H	Shank Flat Height	H1



Internal Threading Toolholders

Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD
H	Shank Flat Width	-
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Distance	F1

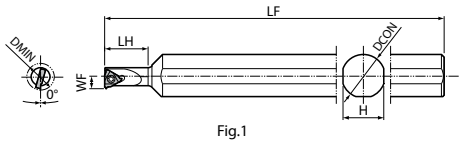


Fig.1

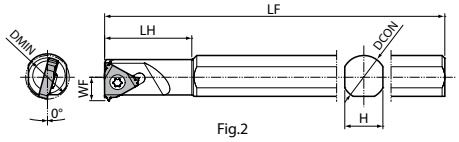
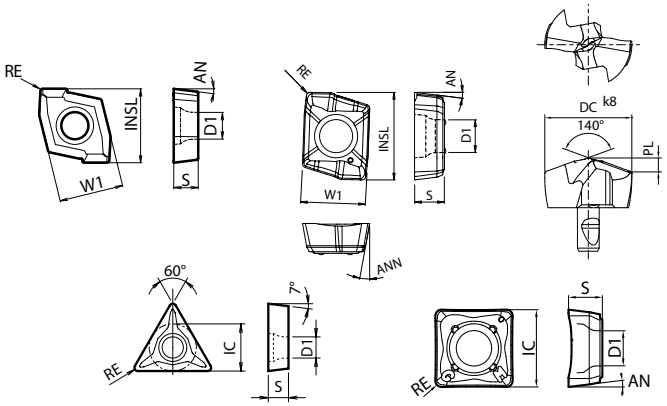


Fig.2

Drilling Dimensions

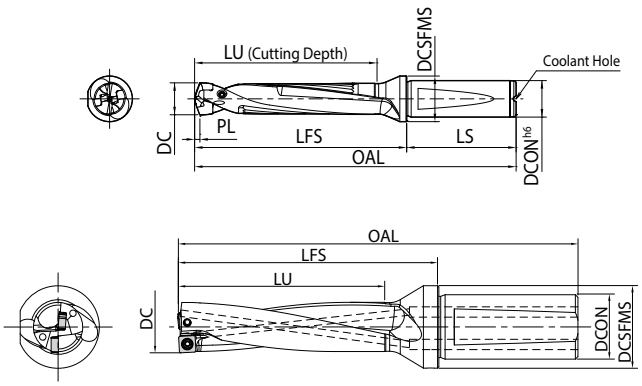
Drilling Inserts

Symbol	Description	Previous Symbol
IC	Inscribed Circle Diameter	A
S	Insert Thickness	T
W1	Insert Width	W
INSL	Insert Length	L
D1	Hole Diameter	Ød
DC	Cutting Diameter	ØDc
DC_2	Cutting Diameter	ØD2
PL	Point Length	Lp
RE	Corner Radius	rε
AN	Relief Angle (Minor)	IJ
ANN	Relief Angle (Major)	ff



Drilling Toolholders

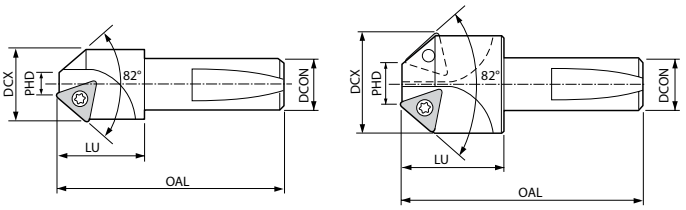
Symbol	Description	Previous Symbol
DC	Cutting Diameter	ØDc
DCON	Connection Diameter	ØD
OAL	Overall Length	L
LFS	Functional Length	L1
LU	Cutting Depth	L3
LS	Shank Length	-
DCSFMS	Contact Surface Diameter Machine Side	Ød1
LCF	Flute Length	L2
Rc	Coolant Hole Thread Size	-



Drilling Dimensions (Continued)

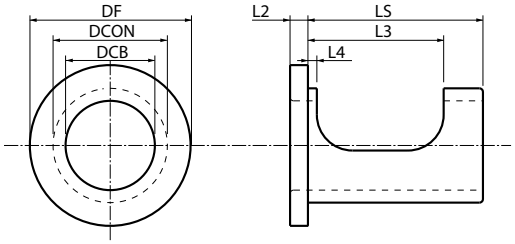
Countersinks

Symbol	Description	Previous Symbol
DCX	Maximum Cutting Diameter	ØD
PHD	Premachined Hole Diameter	ØDs
DCON	Connection Diameter	Ød
OAL	Overall Length	L
LU	Usable Length	L1



Drilling Sleeves

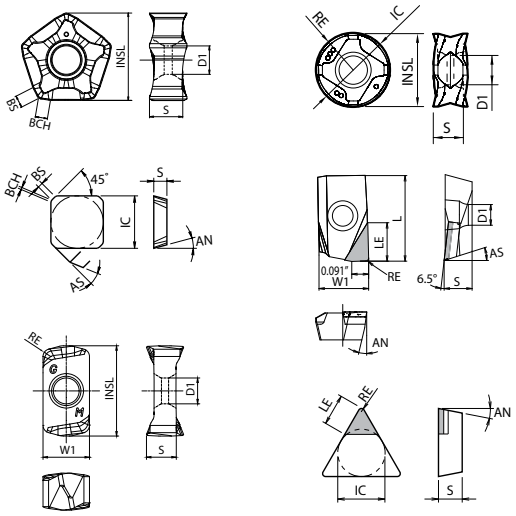
Symbol	Description	Previous Symbol
DCB	Connection Bore Diameter	Ød
DCON	Connection Diameter	ØD1
DF	Flange Diameter	ØD2
LS	Shank Length	L1



Milling Dimensions

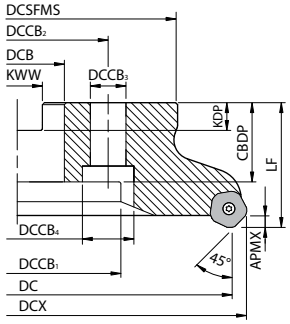
Milling Inserts

Symbol	Description	Previous Symbol
IC	Inscribed Circle Diameter	A
S	Insert Thickness	T
BCH	Corner Chamfer Length	X
RE	Corner Radius	rε
BS	Wiper Edge Length	Z
INSL	Insert Length	L
D1	Hole Diameter	Ød
L	Cutting Edge Length	W
W1	Insert Width	A
AN	Relief Angle (Major)	IJ
AS	Relief Angle (Wiper Edge)	ff
LE	Edge Length (PCD / CBN Tip)	S
GAN	Insert Rake Angle	ṅ



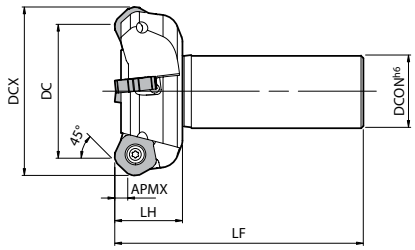
Face Mills

Symbol	Description	Previous Symbol
DC	Cutting Diameter	ØD
DCX	Maximum Cutting Diameter	ØD1
DCSFMS	Contact Surface Diameter Machine Side	ØD2
DCB	Connection Bore Diameter	Ød
$DCCB_1$	Connection Counterbore Diameter	Ød1
$DCCB_2$	Mounting Bolt Hole Diameter	Ød2
LF	Functional Length	H
CBDP	Connection Bore Depth	E
KDP	Keyway Depth	a
KWW	Keyway Width	b
PCD	Secondary Bolt Distance	ØC
APMX	Maximum Cutting Depth	S
KAPR	Lead Angle	-



End Mills

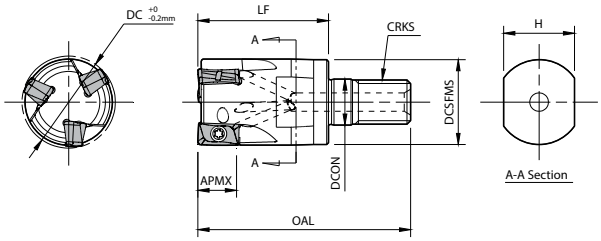
Symbol	Description	Previous Symbol
DC	Cutting Diameter	ØD
DCX	Maximum Cutting Diameter	ØD1
DCON	Connection Diameter	Ød, Ød1
DN	Neck Diameter	Ød2
CW	Cutting Width	W
LF	Functional Length	L
LH	Head Length	κ, κ1, L2
LU	Usable Length	κ2
LS	Shank Length	L3
LN	Neck Length	L1
APMX	Maximum Cutting Depth	S
RMPX	Maximum Ramping Angle	IJ
A.R.	Axial Rake Angle	-
R.R.	Radial Rake Angle	-
KAPR	Lead Angle	-
TA	Taper Angle	ṅ



Milling Dimensions (Continued)

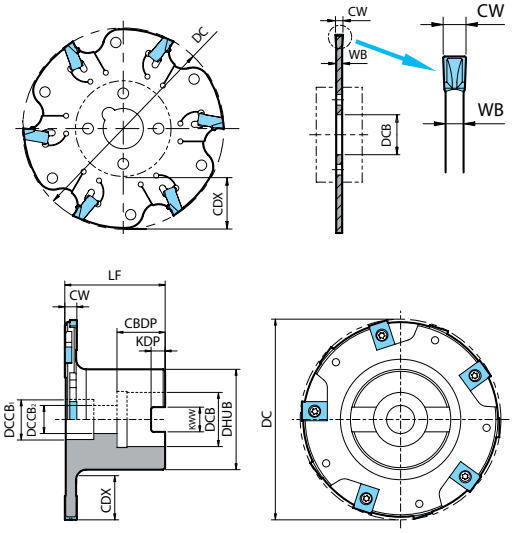
Modular End Mills

Symbol	Description	Previous Symbol
DC	Cutting Diameter	ØD
DCSFMS	Contact Surface Diameter Machine Side	ØD1
DCON	Connection Diameter	Ød
OAL	Overall Length	L
LF	Functional Length	L1
CRKS	Connection Retaining Knob Thread Size	M1
H	Weldon Flat Width	-
APMX	Maximum Cutting Depth	S
RMPX	Maximum Ramping Angle	IJ
A.R.	Axial Rake Angle	-
R.R.	Radial Rake Angle	-
KAPR	Lead Angle	-



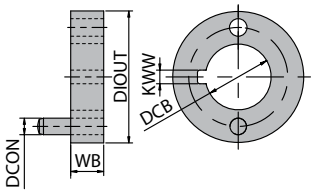
Slot Mills

Symbol	Description	Previous Symbol
CW	Cutting Edge Width	W
CDX	Maximum Cutting Depth	T
DC	Cutting Diameter	ØD
DCB	Connection Bore Diameter	Ød
WB	Body Width	A
DCSFMS	Contact Surface Diameter Machine Side	Ød1
DHUB	Hub Diameter	ØA
THUB	Hub Thickness	A
LF	Functional Length	L1
LN	Neck Leck	H
CBDP	Connection Bore Depth	E
KDP	Keyway Depth	a
KWW	Keyway Width	b
$DCCB_1$	Connection Counterbore Diameter	Ød1
$DCCB_2$	Mounting Bolt Hole Diameter	Ød2
APMX	Maximum Cutting Depth	W.O.C.1, S



Slot Mill Drive Rings

Symbol	Description	Previous Symbol
DCB	Connection Bore Diameter	Ød
DIOUT	Outside Diameter	ØD
WB	Body Width	A1
KWW	Keyway Width	a
DCON	Connection Diameter	Ød1



Inch / Metric Conversion Chart

Cutting Speed (Vc)

Cutting Speed (Vc)	
SFM	m/min
300	91
600	183
900	274

SFM = (0.262 x rpm) x dia.(inch)
3.28feet/min (SFM) = 1m/min

SFM (Surface Feet per Minute)

D.O.C. (ap)

D.O.C. (ap)	
inch	mm
0.02	0.5
0.04	1.0
0.08	2.0

1inch = 25.4mm
0.04inch = 1mm

IPR Feed Rate (f)

Feed Rate (f)	
ipr	m/min
0.002	0.05
0.004	0.1
0.008	0.2

1ipr = 25.4mm/rev
0.004ipr = 0.1mm/rev

ipr (Inch per Revolution)
mm/rev (mm per Revolution)

IPT Feed Rate (fz)

Feed Rate (fz)	
ipt	mm/t
0.002	0.05
0.004	0.1
0.008	0.2

1ipt = 25.4mm/t
0.004ipt = 0.1mm/t

ipt (Inch per Tooth)
mm/t (mm per Tooth)

Torque

lbft	Nm
0.738	1

lbft (Pound x Feet)
Nm (Newton x Meter)

SI Derived Units Conversion Chart

Bold units are the ones by SI derived unit.

Extracted from JIS handbook "Iron and Steel"

Force

N	kgf	dyn
1	$1.019\,72 \times 10^{-1}$	1×10^{5}
9.806 65	1	$9.806\,65 \times 10^{5}$
1×10^{-5}	$1.019\,72 \times 10^{-6}$	1

Stress

1Pa=1N/m^2,1MPa=1N/mm^2

Pa or N/m^2	**MPa or N/mm^2**	kgf/mm^2	kgf/cm^2	kgf/m^2
1	**1×10^{-6}**	$1.019\,72 \times 10^{-7}$	$1.019\,72 \times 10^{-5}$	$1.019\,72 \times 10^{-1}$
1×10^{6}	**1**	$1.019\,72 \times 10^{-1}$	$1.019\,72 \times 10$	$1.019\,72 \times 10^{5}$
$9.806\,65 \times 10^{6}$	**9.806 65**	1	1×10^{2}	1×10^{6}
$9.806\,65 \times 10^{4}$	**$9.806\,65 \times 10^{-2}$**	1×10^{-2}	1	1×10^{4}
9.806 65	**$9.806\,65 \times 10^{-6}$**	1×10^{-6}	1×10^{-4}	1

Pressure

1Pa=1N/m^2

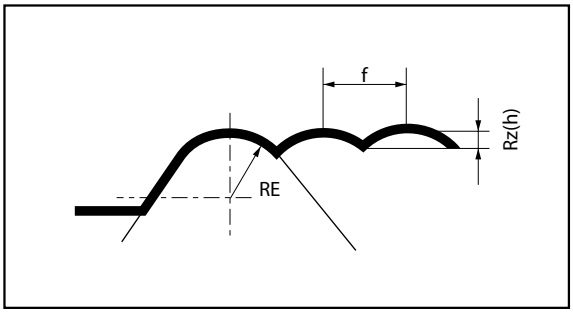
Pa	**kPa**	**MPa**	bar	kgf/cm^2
1	**1×10^{-3}**	**1×10^{-6}**	1×10^{-5}	$1.019\,72 \times 10^{-5}$
1×10^{3}	**1**	**1×10^{-3}**	1×10^{-2}	$1.019\,72 \times 10^{-2}$
1×10^{6}	**1×10^{3}**	**1**	1×10	$1.019\,72 \times 10$
1×10^{5}	**1×10^{2}**	**1×10^{-1}**	1	1.019 72
$9.806\,65 \times 10^{4}$	**$9.806\,65 \times 10$**	**$9.806\,65 \times 10^{-2}$**	$9.806\,65 \times 10^{-1}$	1

Theoretical (Geometrical) Surface Roughness

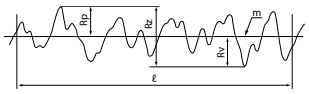
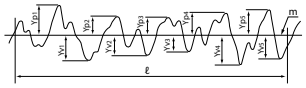
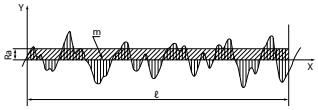
Theoretical surface roughness for turning indicates the minimum roughness value from the cutting conditions and it is shown by the formula as follows.

$$Rz(h) = \frac{f^2}{8RE} \times 10^3$$

Rz(h): Theoretical surface roughness [µm]
f: Feed rate [mm/rev]
RE: Corner radius of insert [mm]



How to obtain surface roughness values

Type	Symbol	How to obtain	Explanation
Max. height roughness	Rz	Rz is a mean value in micron meter obtained from the distance of the highest peaks and the lowest valleys within the range of sampled reference length (" ℓ ") in the direction of the center line of the roughness curve. Note) When calculating Rz, extraordinarily high or low threads are considered as damages and excluded from the calculation, and only standard lengths are used. Rz=Rp+Rv	
Ten points mean roughness	RzJIS	RzJIS is a mean value in micron meter obtained from the distance of 5 highest peaks (Yp) and the 5 lowest valleys (Yv) measured from the center line of the roughness curve within the range of sampled reference length " ℓ ". $RzJIS = \frac{(Yp1+Yp2+Yp3+Yp4+Yp5) + (Yv1+Yv2+Yv3+Yv4+Yv5)}{5}$	 *Yp1,Yp2,Yp3,Yp4,Yp5:* Distance from the mean line to the highest 5 peaks in the range of sampled reference length " ℓ " *Yv1,Yv2,Yv3,Yv4,Yv5:* Distance from the mean line to the lowest 5 valleys in the range of sampled reference length " ℓ "
Arithmetical mean roughness	Ra	Ra is obtained from the following formula in micron meter, the roughness curve is expressed by y=f(x), the X-axis is in the direction of the center line and the Y-axis is the vertical magnification of the roughness curve in the range of sampled reference length " ℓ ". $Ra = \frac{1}{\ell}\int_0^{\ell}\{f(x)\}\,dx$	

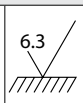
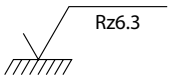
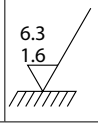
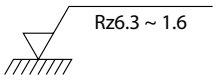
Relationship with triangle symbol

Arithmetical mean roughness Ra(µm)	Max. height roughness Rz(µm)	Ten points mean roughness RzJIS(µm)	*(Triangle symbol)
0.025 0.05 0.1 0.2	0.1 0.2 0.4 0.8	0.1 0.2 0.4 0.8	▽▽▽▽
0.4 0.8 1.6	1.6 3.2 6.3	1.6 3.2 6.3	▽▽▽
3.2 6.3	12.5 25	12.5 25	▽▽
12.5 25	50 100	50 100	▽

* Triangle symbol was removed from JIS standard in the 1994 Revision.

· How to Indicate
1. When Ra is 1.6µm → 1.6µmRa
2. When Rz is 6.3µm → 6.3µmRz
3. When RzJIS is 6.3µm → 6.3µmRzJIS

Indication in JIS standard

Example of Ra indication		Example of Rz indication	
1. When indicating the upper limit only (when upper limit is 6.3µmRa)		1. When indicating the upper limit only indicate surface roughness following the parameter symbol.	
2. When indicating both lower and upper limit (when upper limit is 6.3µmRa, lower limit is 1.6µmRa)		2. When indicating both lower and upper limit indicate surface roughness as (upper limit ~ lower limit) following the parameter symbol.	

Note: The indications of Ra and Rz are different.

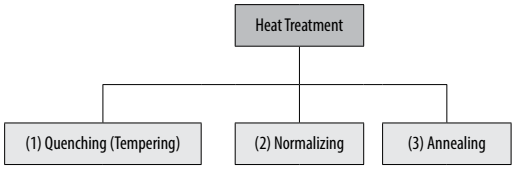
Caution - Symbols for Surface Roughness

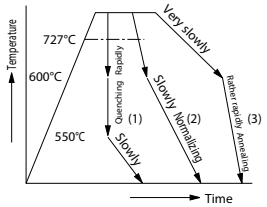
The above information is based on JIS B 0601-2001.
However, some symbols were revised as shown in the right table in accordance with ISO Standard from JIS B 0601-2001 version.
Ten Points Mean Roughness (Rz) was eliminated from 2001 version but it still remains as RzJIS reference, since it was popular in Japan.

Type	Symbol of JIS B 0601-1994		Symbol of JIS B 0601-2001
Max. height roughness	Ry	→	Rz
Ten points mean roughness	Rz	→	(RzJIS)
Arithmetical mean roughness	Ra	→	Ra

Heat Treatment

One of the ways to determine the hardness of steel is the heat treatment and it is classified to 3 types.



Heat Treatment Method		Detail	Effect
	· Quenching (Tempering)	After heating to 727˚C or over, cool rapidly down to 550˚C in water or oil.	Quenching makes steel hard. Because it cools down red-hot steel very rapidly in water or oil, but it may promote internal stress. In order to remove such internal stress, tempering is used. (After cooled down once, reheat it to 200˚C ~ 600˚C)
	· Normalizing	After heating to 727˚C or over, cool down rapidly to 600˚C and then to normal temperature.	It miniaturizes the crystals. (Steel is also composed of small cells.) It is used to improve the mechanical character or machinability.
	· Annealing	After heating to 727˚C or over, cool down very slowly to 600˚C, then to normal temperature.	It miniaturizes the crystals like the process of normalizing, but the crystal size is bigger than that of normalizing. It targets machinability improvement and distortion correction.

Hardness Value

Hardness	Reference Standard	Example	Explanation of Example
Brinell Hardness	JIS Z 2243: 1992	250HB	Hardness value: 250, Hardness symbol: HB
		200 ~ 250HB	When the hardness has the range
Vickers Hardness	JIS Z 2244: 1998	640HV	Hardness value: 640, Hardness symbol: HV
Rockwell Hardness	JIS Z 2245: 1992	60HRC	Hardness value: 60, Hardness symbol: HRC
Shore Hardness	JIS Z 2246: 1992	50HS	Hardness value: 50, Hardness symbol: HS

Vickers Hardness Conversion Chart

Vickers Hardness (HV)	Brinell Hardness 10mm Dia. Ball Load: 3,000kgf (HB)		Rockwell Hardness [2]			Shore Hardness (HS)	Tensile Strength MPa[1]
	Standard Ball	Tungsten Carbide Ball	A Scale Load: 60kgf Diamond Point (HRA)	B Scale Load: 100kgf 1.6mm (1/16in) Dia. Ball (HRB)	C Scale Load: 150kgf Diamond Point (HRC)		
940	-	-	85.6	-	68.0	97	
920	-	-	85.3	-	67.5	96	
900	-	-	85.0	-	67.0	95	
880	-	(767)	84.7	-	66.4	93	
860	-	(757)	84.4	-	65.9	92	
840	-	(745)	84.1	-	65.3	91	
820	-	(733)	83.8	-	64.7	90	
800	-	(722)	83.4	-	64.0	88	
780	-	(710)	83.0	-	63.3	87	
760	-	(698)	82.6	-	62.5	86	
740	-	(684)	82.2	-	61.8	84	
720	-	(670)	81.8	-	61.0	83	
700	-	(656)	81.3	-	60.1	81	
690	-	(647)	81.1	-	59.7	-	
680	-	(638)	80.8	-	59.2	80	
670	-	630	80.6	-	58.8	-	
660	-	620	80.3	-	58.3	79	
650	-	611	80.0	-	57.8	-	
640	-	601	79.8	-	57.3	77	
630	-	591	79.5	-	56.8	-	
620	-	582	79.2	-	56.3	75	
610	-	573	78.9	-	55.7	-	
600	-	564	78.6	-	55.2	74	
590	-	554	78.4	-	54.7	-	2055
580	-	545	78.0	-	54.1	72	2020
570	-	535	77.8	-	53.6	-	1985
560	-	525	77.4	-	53.0	71	1950
550	505	517	77.0	-	52.3	-	1905
540	496	507	76.7	-	51.7	69	1860
530	488	497	76.4	-	51.1	-	1825
520	480	488	76.1	-	50.5	67	1795
510	473	479	75.7	-	49.8	-	1750
500	465	471	75.3	-	49.1	66	1705
490	456	460	74.9	-	48.4	-	1660
480	448	452	74.5	-	47.7	64	1620
470	441	442	74.1	-	46.9	-	1570
460	433	433	73.6	-	46.1	62	1530
450	425	425	73.3	-	45.3	-	1495
440	415	415	72.8	-	44.5	59	1460
430	405	405	72.3	-	43.6	-	1410
420	397	397	71.8	-	42.7	57	1370
410	388	388	71.4	-	41.8	-	1330
400	379	379	70.8	-	40.8	55	1290
390	369	369	70.3	-	39.8	-	1240
380	360	360	69.8	(110.0)	38.8	52	1205
370	350	350	69.2	-	37.7	-	1170
360	341	341	68.7	(109.0)	36.6	50	1130
350	331	331	68.1	-	35.5	-	1095
340	322	322	67.6	(108.0)	34.4	47	1070
330	313	313	67.0	-	33.3	-	1035

Vickers Hardness (HV)	Brinell Hardness 10mm Dia. Ball Load: 3,000kgf (HB)		Rockwell Hardness [2]			Shore Hardness (HS)	Tensile Strength MPa[1]
	Standard Ball	Tungsten Carbide Ball	A Scale Load: 60kgf Diamond Point (HRA)	B Scale Load: 100kgf 1.6mm (1/16in) Dia. Ball (HRB)	C Scale Load: 150kgf Diamond Point (HRC)		
320	303	303	66.4	(107.0)	32.2	45	1005
310	294	294	65.8	-	31.0	-	980
300	284	284	65.2	(105.5)	29.8	42	950
295	280	280	64.8	-	29.2	-	935
290	275	275	64.5	(104.5)	28.5	41	915
285	270	270	64.2	-	27.8	-	905
280	265	265	63.8	(103.5)	27.1	40	890
275	261	261	63.5	-	26.4	-	875
270	256	256	63.1	(102.0)	25.6	38	855
265	252	252	62.7	-	24.8	-	840
260	247	247	62.4	(101.0)	24.0	37	825
255	243	243	62.0	-	23.1	-	805
250	238	238	61.6	99.5	22.2	36	795
245	233	233	61.2	-	21.3	-	780
240	228	228	60.7	98.1	20.3	34	765
230	219	219	-	96.7	(18.0)	33	730
220	209	209	-	95.0	(15.7)	32	695
210	200	200	-	93.4	(13.4)	30	670
200	190	190	-	91.5	(11.0)	29	635
190	181	181	-	89.5	(8.5)	28	605
180	171	171	-	87.1	(6.0)	26	580
170	162	162	-	85.0	(3.0)	25	545
160	152	152	-	81.7	(0.0)	24	515
150	143	143	-	78.7	-	22	490
140	133	133	-	75.0	-	21	455
130	124	124	-	71.2	-	20	425
120	114	114	-	66.7	-	-	390
110	105	105	-	62.3	-	-	-
100	95	95	-	56.2	-	-	-
95	90	90	-	52.0	-	-	-
90	86	86	-	48.0	-	-	-
85	81	81	-	41.0	-	-	-

Extracted from JIS handbook "Iron & steel" (SAE J 417)

Note:

1. 1 MPa = 1 N/mm^2
2. Value in ( ) is not in practical use, but reference only.

Ferrous materials

Classification		Name of JIS standard	Symbol
Structural steel		Rolled steel for welded structure	SM
		Re-rolled steel	SRB
		Rolled steel for general structure	SS
		Light gauge steel for general structure	SSC
		Hot-rolled steel plate, sheet and strip for automobile structural use	SAPH
Steel sheet		Cold-rolled steel plate, sheet and strip	SPC
		Hot-rolled soft steel plate, sheet and strip	SPH
Steel pipe		Carbon steel pipe for ordinary piping	SGP
		Carbon steel pipe for boiler / heat exchanger	STB
		Seamless steel pipe for high pressure gas cylinder	STH
		Carbon steel pipe for general structural use	STK
		Carbon steel pipe for machine structural use	STKM
		Alloy steel pipe for structural use	STKS
		Stainless steel pipe for machine structural use	SUS-TK
		Steel square pipe for general structural use	STKR
		Alloy steel pipe for ordinary piping	STPA
		Carbon steel pipe for pressure service	STPG
		Carbon steel pipe for high-temperature service	STPT
		Carbon steel pipe for high-pressure service	STS
		Stainless steel pipe for ordinary piping	SUS-TP
Machine structural steel		Carbon steel for machine structural use	SxxC,SxxCK
		Aluminum chromium molybdenum steel	SACM
		Chromium molybdenum steel	SCM
		Chromium steel	SCr
		Nickel chromium steel	SNC
		Nickel chromium molybdenum steel	SNCM
		Manganese steel and manganese chromium steel for machine structural use	SMn,SMnC
Special steel	Tool steel	Carbon tool steel	SK
		Hollow drill steel	SKC
		Alloy tool steel	SKS,SKD,SKT
		High speed tool steel	SKH
	Special steel	Free cutting carbon steel	SUM
		High carbon chromium bearing steel	SUJ
		Spring steel	SUP
	Stainless steel	Stainless steel bar	SUS-B
		Hot-rolled stainless steel plate, sheet and strip	SUS-HP,SUS-HS
		Cold-rolled stainless steel plate, sheet and strip	SUS-CP,SUS-CS
	Heat-resisting steel	Heat-resisting steel bar	SUH-B,SUH-CB
		Heat-resisting steel plate and sheet	SUH-HP,SUH-CP
	Superalloy	Corrosion-resisting and heat-resisting superalloy bar	NCF-B
		Corrosion-resisting and heat-resisting superalloy plate and sheet	NCF-P

Classification	Name of JIS standard	Symbol
Forged steel	Carbon steel forging	SF
	Chromium molybdenum steel forging	SFCM
	Nickel chromium molybdenum steel forging	SFNCM
Cast iron	Gray cast iron	FC
	Spheroidal graphite cast iron	FCD
	Blackheart malleable cast iron	FCMB
	Whiteheart malleable cast iron	FCMW
	Pearlitic malleable cast iron	FCMP
Cast steel	Carbon cast steel	SC
	High tensile strength carbon cast steel & low alloy cast steel	SCC
	Stainless cast steel	SCS
	Heat-resisting cast steel	SCH
	High manganese cast steel	SCMnH
	Cast steel for high temperature and high pressure service	SCPH

Non-ferrous metals

Classification	Name of JIS standard	Symbol
Copper	Copper and copper alloy sheet / strip	CxxxxP CxxxxPP CxxxxR
	Copper and copper alloy rod and bar	CxxxxBD CxxxxBDS CxxxxBE
Aluminum alloys and aluminum alloys expanded material	Aluminum and Al. alloy sheet / strip	AxxxxP AxxxxPC
	Aluminum and Al. alloy rod, bar, and wire	AxxxxBE AxxxxBES AxxxxBD AxxxxBDS AxxxxW AxxxxWS
	Aluminum and Al. alloy extruded shape	AxxxxS
	Aluminum and Al. alloy forging	AxxxxFD AxxxxFH
Magnesium alloy expanded material	Magnesium alloy sheet and plate	MP
	Magnesium alloy rod and bar	MB
Nickel alloy	Nickel copper alloy sheet and plate	NCuP
	Nickel copper alloy rod and bar	NCuB
Titanium expanded material	Titanium rod and bar	TB
Casting	Brass casting	CAC20x
	High strength brass casting	CAC30x
	Bronze casting	CAC40x
	Phosphoric bronze casting	CAC50x
	Aluminum bronze casting	CAC70x
	Aluminum alloy casting	AC
	Magnesium alloy casting	MC
	Zinc alloy die casting	ZDCx
	Aluminum alloy die casting	ADC
	Magnesium alloy die casting	MD
	White metal	WJ

Steel

Classification	USA	Japan	China	UK	Germany	France	Russia
	AISI/SAE	JIS	GB	BS	DIN	NF	ГОСТ
Carbon Steel for Machine Structural Use	**1010**	S10C	08 10	040A10 045A10 045M10	C10E C10R	XC10	
	1012	S12C		040A12		XC12	
	1015	S15C	15	055M15	C15E C15R		
	1017	S17C				XC18	
	1020	S20C	20	070M20 C22 C22E C22R	C22 C22E C22R	C22 C22E C22R	
	1023	S22C					
	1025	S25C	25	C25 C25E C22R	C25 C25E C25R	C25 C25E C25R	
	1029	S28C					25Г
	1030	S30C	30	080A30 080M30 C30 C30E C30R	C30 C30E C30R	C30 C30E C30R	30Г
		S33C					30Г
	1035	S35C	35	C35 C35E C35R	C35 C35E C35R	C35 C35E C35R	35Г
	1038	S38C					35Г
	1039 **1040**	S40C	40	080M40 C40 C40E C40R	C40 C40E C40R	C40 C40E C40R	40Г
	1042 **1043**	S43C		080A42			40Г
	1045 **1046**	S45C	45	C45 C45E C45R	C45 C45E C45R	C45 C45E C45R	45Г
		S48C		080A47			45Г
	1049	S50C	50	080M50 C50 C50E C50R	C50 C50E C50R	C50 C50E C50R	50Г
	1050 **1053**	S53C					50Г
	1055	S55C	55	070M55 C55 C55E C55R	C55 C55E C55R	C55 C55E C55R	
	1059 **1060**	S58C	60	C60 C60E C60R	C60 C60E C60R	C60 C60E C60R	60Г
		S09CK		045A10 045M10	C10E	XC10	
		S15CK	15F		C15E	XC12	
		S20CK				XC18	

Steel

Classification	USA	Japan	China	UK	Germany	France	Russia
	AISI/SAE	JIS	GB	BS	DIN	NF	ГОСТ
Nickel Chromium Steel		SNC236			36NiCr6		40XH
		SNC415	12CrNi2		14NiCr10		
		SNC631	30CrNi3		36NiCr10		30XH3A
		SNC815	12Cr2Ni4	655M13	15NiCr13		
		SNC836	37CrNi3		31NiCr14		
Nickel Chromium Molybdenum Steel	**8615** **8617** **8620** **8622**	SNCM220	20CrNiMo	805A20 805M20 805A22 805M22	20NiCrMo2 20NiCrMoS2	20NCD 2	
	8637 **8640**	SNCM240			40NiCrMo2-2		
		SNCM415					
	4320	SNCM420	18CrNiMnMoA		17NiCrMo6-4		20XH2M (20XHM)
		SNCM431			30CrNiMo8		
	4340	SNCM439	40CrNiMoA		40NiCrMo6		
		SNCM447			34CrNiMo6		
		SNCM616					
		SNCM625					
		SNCM630					
		SNCM815					
Chromium Steel		SCr415	15Cr 15CrA		17Cr3 17CrS3		15X 15XA
	5120	SCr420	20Cr				20X
	5130 **5132**	SCr430	30Cr	34Cr4 34CrS4	34Cr4 34CrS4	34Cr4 34CrS4	30X
	5132	SCr435	35Cr	37Cr4 37CrS4	37Cr4 37CrS4	37Cr4 37CrS4	35X
	5140	SCr440	40Cr	530M40 41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X
		SCr445	45Cr 50Cr				45X
Chromium Molybdenum Steel		SCM415	15CrMo		15CrMo4		
		SCM418	20CrMo		18CrMo4 18CrMoS4		20XM
		SCM420		708M20	20CrMo5		20XM
		SCM421					
	4130	SCM430	30CrMo 30CrMoA				30XM 30XMA
		SCM432					
	4137	SCM435	35CrMo	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	35XM
	4140 **4142**	SCM440	42CrMo	708M40 709M40 42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	
	4145 **4147**	SCM445					
		SCM822					

Steel

Classification	USA	Japan	China	UK	Germany	France	Russia
	AISI/SAE	JIS	GB	BS	DIN	NF	ГОСТ
Manganese Chromium Steel Manganese Steel	1522	SMn420	20Mn2	150M19	20Mn5		
	1536	SMn433	30Mn2 35Mn2	150M36	34Mn5		30Г2 35Г2
	1541	SMn438	40Mn2	150M36	36Mn5		35Г2 40Г2
	1541	SMn443	45Mn2				40Г2 45Г2
	5115	SMnC420	15CrMn		16MnCr5		
	5140	SMnC443	40CrMn				
Structural Steel with Specified Hardenability Band (H-Shape Steel)	1522H	SMn420H					
		SMn433H					
	1541H	SMn438H					
	1541H	SMn443H					
		SMnC420H					
		SMnC443H					
		SCr415H	15CrH		17Cr3 17CrS3		15X
	5120H	SCr420H	20Cr1H		17Cr3		20X
	5130H 5132H	SCr430H		34Cr4 34CrS4	34Cr4 34CrS3	34Cr4 34CrS4	30X
	5135H	SCr435H		37Cr4 37CrS4	37Cr4 34CrS4	37Cr4 37CrS4	35X
	5140H	SCr440H	40CrH	41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X
	4118H	SCM415H	15CrMoH		15CrMo5		
		SCM418H			18CrMo4 18CrMoS4		
	4118H	SCM420H	20CrMoH	708H20	18CrMo4		
	4135H 4137H	SCM435H		34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	
	4140H 4142H	SCM440H	42CrMoH	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	
	4145H 4147H	SCM445H					
		SCM822H					
		SNC415H					
		SNC631H					
		SNC815H	12Cr2Ni4H	655H13	15NiCr13		
	8617H 8620H 8622H	SNCM220H	20CrNiMoH	805H17 805H20 805H22	21NiCrMo2	20N CD 2	
	4320H	SNCM420H	20CrNi2MoH		20NiCrMoS6-4		

Steel

Classification	USA		Japan	China	UK	Germany	France	Russia
	UNS	AISI	JIS	GB	BS	DIN	NF	ГОСТ
Stainless Steel	S20100	201	SUS 201	1Cr17Mn6Ni5N			Z12CMN17-07Az	
	S20200	202	SUS 202	1Cr18Mn8Ni5N	284S16			12Х17Г9АН4
	S30100	301	SUS 301	1Cr18Mn10Ni5Mo3N 1Cr17Ni7	301S21	X12CrNi17 7	Z11CN17-08	07Х16Н6
	S30153		SUS 301L			X2CrNiN18-7		
			SUS 301J1			X12CrNi17 7		
	S30200	302	SUS 302	1Cr18Ni9	302S25		Z12CN18-09	12Х18Н9
	S30215	302B	SUS 302B					
	S30300	303	SUS 303	Y1Cr18Ni9	303S21	X10CrNiS18 9	Z8CNF18-09	
	S30323	303Se	SUS 303Se	Y1Cr18Ni9Se	303S41			12Х18Н10Е
	S30400	304	SUS 304	0Cr18Ni9	304S31	X5CrNi18 10	Z7CN18-09	08Х18Н10
	S30403	304L	SUS 304L	00Cr18Ni10	304S11	X2CrNi19 11	Z3CN19-11	03Х18Н11
	S30451	304N	SUS 304N1	0Cr18Ni9N			Z6CN19-09Az	
	S30452		SUS 304N2	0Cr19Ni10NbN				
	S30453	304LN	SUS 304LN	00Cr18Ni10N		X2CrNiN18 10	Z3CN18-10Az	
			SUS 304J1					
			SUS 304J2					
	S30431	S30431	SUS 304J3					
	S30500	305	SUS 305	1Cr18Ni12	305S19	X5CrNi18 12	Z8CN18-12	06Х18Н11
			SUS 305J1					
	S30908	309S	SUS 309S	0Cr23Ni13			Z10CN24-13	
	S31008	310S	SUS 310S	0Cr25Ni20	310S31		Z8CN25-20	10Х23Н18
	S31600	316	SUS 316	0Cr17Ni12Mo2	316S31	X5CrNiMo17 12 2	Z7CND17-12-02	
			SUS 316F			X5CrNiMo17 13 3	Z6CND18-12-03	
	S31603	316L	SUS 316L	00Cr17Ni14Mo2	316S11	X2CrNiMo17 13 2	Z3CND17-12-02	
						X2CrNiMo17 14 3	Z3CND17-13-03	03Х17Н14М3
	S31651	316N	SUS 316N	0Cr17Ni12Mo2N				
	S31653	316LN	SUS 316LN	00Cr17Ni13Mo2N		X2CrNiMoN17 12 2	Z3CND17-11Az	
						X2CrNiMoN17 13 3	Z3CND17-12Az	
	S31635		SUS 316Ti			X6CrNiMoTi17 12 2	Z6CNDT17-12	08Х17Н13М2Т
			SUS 316J1	0Cr18Ni12Mo2Cu2				
			SUS 316J1L	00Cr18Ni14Mo2Cu2				
	S31700	317	SUS 317	0Cr19Ni13Mo3	317S16			
	S31703	317L	SUS 317L	00Cr19Ni13Mo3	317S12	X2CrNiMo18 16 4	Z3CND19-15-04	
	S31753		SUS 317LN				Z3CND19-14Az	
			SUS 317J1	0Cr18Ni16Mo5				
			SUS 317J2					
			SUS 317J3L					
	N08367		SUS 836L					
	N08904	N08904	SUS 890L		904S14		Z2NCDU25-20	
	S32100	321	SUS 321	1Cr18Ni9Ti 0Cr18Ni10Ti	321S31	X6CrNiTi18 10	Z6CNT18-10	08Х18Н10Т
	S34700	347	SUS 347	0Cr18Ni11Nb	347S31	X6CrNiNb18 10	Z6CNNb18-10	08Х18Н12Б
	S38400	384	SUS 384				Z6CN18-16	
	S30430	304Cu	SUS XM7	0Cr18Ni9Cu3	394S17		Z2CNU18-10	
	S38100		SUS XM15J1	0Cr18Ni13Si4			Z15CNS20-12	
	S32900	329	SUS 329J1	0Cr26Ni5Mo2				
	S39240	S31803	SUS 329J3L				Z3CNDU22-05Az	08Х21Н6М2Т
	S39275	S31260	SUS 329J4L				Z3CNDU25-07Az	

Steel

Classification	USA		Japan	China	UK	Germany	France	Russia
	UNS	AISI	JIS	GB	BS	DIN	NF	ГОСТ
Stainless Steel	S40500	405	SUS 405	0Cr13Al 0Cr13	405S17	X6CrAl13	Z8CA12	
			SUS 410L	00Cr12			Z3C14	
	S42900	429	SUS 429					
	S43000	430	SUS 430	1Cr17	430S17	X6Cr17	Z8C17	12X17
	S43020	430F	SUS 430F	Y1Cr17		X7CrMoS18	Z8CF17	
	S43035		SUS 430LX			X6CrTi17	Z4CT17	
			SUS 430J1L			X6CrNb17	Z4CNb17	
	S43400	434	SUS 434	1Cr17Mo	434S17	X6CrMo17 1	Z8CD17-01	
	S43600	436	SUS 436L					
			SUS 436J1L					
	S44400	444	SUS 444				Z3CDT18-02	
	S44700		SUS 447J1	00Cr30Mo2				
	S44627		SUS XM27	00Cr27Mo			Z1CD26-01	
	S40300	403	SUS 403	1Cr12				
	S41000	410	SUS 410	1Cr13	410S21	X10Cr13	Z13C13	
	S41008	410S	SUS 410S		403S17	X6Cr13	Z8C12	08X13
			SUS 410F2					
	S41025		SUS 410J1	1Cr13Mo 1Cr12Mo		X12CrS13		
	S41600	416	SUS 416	Y1Cr13	416S21		Z11CF13	
	S42000	420	SUS 420J1	2Cr13	420S29	X20Cr13	Z20C13	20X13
	S42000	420	SUS 420J2	3Cr13	420S37	X30Cr13	Z33C13	30X13
	S42020	420F	SUS 420F	Y3Cr13			Z30CF13	
			SUS 420F2					
			SUS 429J1					
	S43100	431	SUS 431	1Cr17Ni2	431S29	X20CrNi17 2	Z15CN16-02	20X17H2
	S44002	440A	SUS 440A	7Cr17			Z70C15	
	S44003	440B	SUS 440B	8Cr17				
	S44004	440C	SUS 440C	9Cr18 11Cr17 9Cr18Mo			Z100CD17	95X18
	S44020	S44020	SUS 440F	Y11Cr17				
	S17400	S17400	SUS 630	0Cr17Ni4CuNb		X5CrNiCuNb16-4	Z6CNU17-04	
	S17700	S17700	SUS 631	0Cr17Ni7Al		X7CrNiAl17 7	Z9CNA17-07	09X17H7 Ю
			SUS 632J1					

Representative Classification of Stainless Steel (JIS)

Austenitic Stainless Steel

JIS	
SUS201	SUS309S
SUS202	SUS310S
SUS301	SUS316
SUS302	SUS316L
SUS302B	SUS316N
SUS303	SUS317
SUS303Se	SUS317L
SUS304	SUS321
SUS304L	SUS347
SUS304N1	SUS384
SUS304N2	SUSXM7
SUS305	SUSXM15J1
SUS308	

Ferritic Stainless Steel

JIS
SUS405
SUS429
SUS430
SUS430F
SUS434
SUSXM27

Martensitic Stainless Steel

JIS
SUS403
SUS410
SUS410S
SUS416
SUS420J1
SUS420F
SUS431
SUS440A
SUS440B
SUS440C
SUS440F

Precipitation Hardened Stainless Steel

JIS
SUS630
SUS631

Steel

Classification	USA		Japan	China	UK	Germany	France	Russia
	UNS	**AISI**	JIS	GB	BS	DIN	NF	ГОСТ
Heat Resisting Steel			SUH 31		331S42		Z35CNWS14-14	45Х14Н14В2М
			SUH 35		349S52		Z52CMN21-09Az	
	S63008		SUH 36	5Cr21Mn9Ni4N	349S54	X53CrMnNi21 9	Z55CMN21-09Az	55Х20 Г 9АН4
	S63017		SUH 37	2Cr21Ni12N	381S34			
			SUH 38					
	S30900	**309**	SUH 309	2Cr23Ni13	309S24		Z15CN24-13	
	S31000	**310**	SUH 310	2Cr25Ni20	310S24	CrNi2520	Z15CN25-20	20Х25Н20С2
	N08330	**N08330**	SUH 330	1Cr16Ni35			Z12NCS35-16	
	S66286		SUH 660	0Cr15Ni25Ti2MoAlVB			Z6NCTV25-20	
	R30155		SUH 661					
			SUH 21			CrAl1205		
	S40900	**409**	SUH 409		409S19	X6CrTi12	Z6CT12	
			SUH 409L				Z3CT12	
	S44600	**446**	SUH 446	2Cr25N			Z12C25	15Х28
	S65007		SUH 1	4Cr9Si2	401S45	X45CrSi9 3	Z45CS9	
			SUH 3	4Cr10Si2Mo			Z40CSD10	40Х10С2М
			SUH 4	8Cr20Si2Ni	443S65		Z80CSN20-02	
			SUH 11					40Х 9С2
			SUH 600	2Cr12MoVNbN				20Х12ВНМБФР
	S42200		SUH 616	2Cr12NiMoWV				

Representative Classification of Heat Resisting Steel (JIS)

Austenitic Heat Resisting Steel

JIS
SUH31
SUH35
SUH36
SUH37
SUH38
SUH309
SUH310
SUH330
SUH660
SUH661

Ferritic Heat Resisting Steel

JIS
SUH21
SUH409
SUH446

Martensitic Heat Resisting Steel

JIS
SUH1
SUH3
SUH4
SUH11
SUH600
SUH616

Steel

Classification	USA	Japan	China	UK	Germany	France	Russia
	AISI/ASTM	JIS	GB	BS	DIN	NF	ГОСТ
Carbon Tool Steel		SK140 (SK1)	T13			C140E3U	Y13
	W1-11 1/2	SK120 (SK2)	T12			C120E3U	Y12
	W1-10	SK105 (SK3)	T11		C105W1	C105E2U	Y11
	W1-9	SK95 (SK4)	T10			C90E2U	Y10
	W1-8	SK85 (SK5)	T8Mn T9		C80W1	C90E2U C80E2U	Y8Г Y9
		SK75 (SK6)	T8		C80W1	C80E2U C70E2U	Y8
		SK65 (SK7)	T7		C70W2	C70E2U	Y7
High Speed Tool Steel	T1	SKH2	W18Cr4V	BT1		HS18-0-1	P18
	T4	SKH3	W18Cr4VCo5	BT4	S18-1-2-5	HS18-1-1-5	P18K5Ф2
	T5	SKH4	W18Cr4V2Co8	BT5		HS18-0-2-9	P18K5Ф
	T15	SKH10	W12Cr4V5Co5	BT15	S12-1-4-5	HS12-1-5-5	
	M2	SKH51	W6Mo5Cr4V2	BM2	S6-5-2	HS6-5-2	P6M5
	M3-1	SKH52	CW6Mo5Cr4V2 W6Mo5Cr4V3				P6M5Ф3
	M3-2	SKH53	CW6Mo5Cr4V3		S6-5-3	HS6-5-3	P6M5Ф3
	M4	SKH54		BM4		HS6-5-4	
	M35 M41	SKH55	W6Mo5Cr4V2Co5 W7Mo5Cr4V2Co5	BM35	S6-5-2-5	HS6-5-2-5HC	P6M5K5
	M36	SKH56					
		SKH57		BT42	S10-4-3-10	HS10-4-3-10	
	M7	SKH58	W2Mo9Cr4V2			HS2-9-2	
	M42	SKH59	W2Mo9Cr4VCo8	BM42	S2-10-1-8	HS2-9-1-8	
Alloy Tool Steel	F2	SKS11					XB4
		SKS2			105WCr6	105WCr5	ХВГ
		SKS21	W				
		SKS5					
	L6	SKS51					
		SKS7					
		SKS8	Cr06			C140E3UCr4	13X
	S1	SKS4	5CrW2Si 6CrW2Si				6XB2C 5XB2CФ
	S1	SKS41	4CrW2Si				4XB2C
	W2-9 1/2	SKS43		BW2		100V2	
	W2-8	SKS44					
		SKS3	9CrWMn				9ХВГ
		SKS31	CrWMn		105WCr6	105WCr5	ХВГ
		SKS93					
		SKS94					
		SKS95	8MnSi				
	D3	SKD1	Cr12	BD3	X210Cr12	X200Cr12	X12
	D2	SKD10	Cr12Mo1V1		X153CrMoV12		X12МФ
	D2	SKD11	Cr12MoV	BD2	X153CrMoV12	X160CrMoV12	
	A2	SKD12	Cr5Mo1V	BA2		X100CrMoV5	
		SKD4				X32WCrV3	
	H21	SKD5	3Cr2W8V	BH21	X30WCrV9-3	X30WCrV9	
	H11	SKD6	4Cr5MoSiV	BH11	X38CrMoV51	X38CrMoV5	4X5МФС
	H13	SKD61	4Cr5MoSiV1	BH13	X40CrMoV51	X40CrMoV5	4X5МФ1С
	H12	SKD62		BH12		X35CrWMoV5	3X3M3Ф
	H10	SKD7	4Cr3Mo3SiV	BH10	X32CrMoV33	32CrMoV12-18	
	H19	SKD8		BH19			
		SKT3				55CrNiMoV4	
		SKT4	5CrNiMo	BH224/5	55NiCrMoV6	55NiCrMoV7	5XHM

Steel

Classification	USA	Japan	China	UK	Germany	France	Russia
	AISI/ASTM	JIS	GB	BS	DIN	NF	ГОСТ
Spring Steel	**1075** **1078**	SUP3					75 80 85
		SUP6	55Si2Mn		56SiCr7	60Si7	60C2
	9260	SUP7	60Si2Mn 60Si2MnA		61SiCr7	60Si7	60C2Г
	5155	SUP9	55CrMnA		55Cr3	55Cr3	
	5160	SUP9A	60CrMnA		55Cr3	60Cr3	
	6150	SUP10	50CrVA	735A51, 735H51	50CrV4	51CrV4	ХФА50ХГФА
	51B60	SUP11A	60CrMnBA		51CrV4		50ХГР
	9254	SUP12		685A57, 685H57	54SiCr6	54SiCr6	
	4161	SUP13	60CrMnMoA	705A60, 705H60	60CrMn3-2	60CrMo4	
Free Cutting Carbon Steel	**1110**	SUM11					
	1108	SUM12	Y12				
	1212	SUM21					
	1213	SUM22	Y15	(230M07)	9SMn28	S250	
	12L13	SUM22L	Y12Pb		9SMnPb28	S250Pb	
	1215	SUM23					
		SUM23L					
	12L14	SUM24L	Y15Pb		9SMnPb28	S250Pb	
		SUM25			9SMn36	S300	
	1117	SUM31			15S10		
		SUM31L					
		SUM32	Y20	210M15, 210A15		(13MF4)	
	1137	SUM41	Y30 Y35			(35MF6)	
	1141	SUM42	Y40Mn			(45MF6.1)	
	1144	SUM43		(226M44)		(45MF6.3)	
Carbon Chromium Bearing Steel	**51100**	SUJ1	GCr4				
	52100	SUJ2	GCr15		100Cr6	100Cr6	ЩХ15
	ASTM A 485 Grade 1	SUJ3	GCr15SiMn				
		SUJ4	GCr15SiMo				
		SUJ5	GCr18Mo				

Cast Iron

Classification	USA	Japan	China	UK	Germany	France	Russia
	AISI/SAE	JIS	GB	BS	DIN	NF	ГОСТ
Gray Cast Iron	**NO.20**	FC100	HT100	100	GG10		СУ10
	NO.30	FC150	HT150	150	GG15	FGL150	СУ15
	NO.35	FC200	HT200	200	GG20	FGL200	СУ20
	NO.45	FC250	HT250	250	GG25	FGL250	СУ25
	NO.50	FC300	HT300	300	GG30	FGL300	СУ30
	NO.60	FC350	HT350	350	GG35	FGL350	СУ35
					GG40	FGL400	СУ40
Nodular Cast Iron	**60-40-18**	FCD400	QT400-18	400/17	GGG40	FGS370-17	ВУ40
	65-45-12	FCD450	QT450-10	420/12		FGS400-12	ВУ45
	70-50-05	FCD500	QT500-7	500/7	GGG50	FGS500-7	ВУ50
	80-60-03	FCD600	QT600-3	600/7	GGG60	FGS600-2	ВУ60
	100-70-03	FCD700	QT700-2	700/2	GGG70	FGS700-2	ВУ70
	120-90-02	FCD800	QT800-2	800/2	GGG80	FGS800-2	ВУ80
			QT900-2	900/2			ВУ100

Non-Ferrous Metals

Classification	USA	Japan	China	UK	Germany	France	Russia
	ASTM	JIS	GB	BS	DIN	NF	ГОСТ
Aluminum Alloys	**1199**		1A99		A199.99R		A99
			1A97		A199.98R		A97
			1A95				A95
		A1080	1A80	1080(1A)	A199.90	1080A	A8
	1050	A1050	1A50	1050(1B)	A199.50	1050A	A5
	5052	A5052	5A02	NS4	AlMg2.5	5052	Amg
			5A03	NS5			AMg3
	5056	A5056	5A05	NB6	AlMg5		AMg5V
	5456	A5556	5A30	NG61		5957	
	2036	A2117	2A01		AlCu2.5Mg0.5	2117	D18
		A2017	2A11	HF15	AlCuMg1	2017S	D1
	2124	A2024	2A12		AlCuMg2	2024	D16AVTV
	2319		2B16				
		A2N01	2A80				AK4
	2218	A2018	2A90				AK2
	2014	A2014	2A14		AlCuSiMn	2014	AK8
	7175	A7075	7A09		AlZnMgCu1.5	7075	V95P
Aluminum Alloy Casting	**356.2**	AC4C	ZAlSi7Mn	LM25	G-AlSi7Mg		
	413.2	AC3A	ZAlSi12	LM6	G-Al12	A-S12-Y4	AL2
	355.2		ZAlSi5Cu1Mg				AL5
	413.0	AC8A	ZAlSi2Cu2Mg1		G-Al12(Cu)		
			ZAlCu5Mn				AL19
	201.0		ZAlCu5MnCdVA				
	520.2		ZAlMg10	LM10	G-AlMg10	AG11	AL8
			ZAlMg5Si		G-AlMg5Si		AL13

CVD Coated Carbide (Turning)

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P01	CA510	JC110V	HG8010 HG3305	MC6115 MC6015		GC4405 GC4305 GC4315	TP0501	AC8015P AC810P	T9205 T9105	KCP05B KCP05 KCPK05	IC8150 IC5005
	P10	CA115P CA510 CA515	JC110V JC215V	GM8015 HG8010	MC6115 MC6015 MY5015 MC6125	CP7	GC4405 GC4415 GC4305 GC4315 GC4325	TP0501 TP1501	AC8015P AC8020P AC810P	T9205 T9105 T9215 T9115	KCP05B KCP05 KCPK05 KCP10B KCP10	IC8150 IC8250 IC5005
	P20	CA125P CA025P CA525 CR9025	JC110V JC215V	GM8020 HG8025	MC6115 MC6015 MY5015 MC6125 MC6025 UE6020	CP7	GC4415 GC4315 GC4425 GC4325 GC4335	TP1501 TP2501 TP3501 TP25 TP40	AC8020P AC8025P AC820P	T9215 T9115 T9225 T9125	KCP10B KCP10 KCP25B KCP25	IC8150 IC8250 IC8350
	P30	CA125P CA025P CA525 CA530 CR9025	JC215V JC325V JC450V	GM25 GM8035 HG8025	MC6125 MC6025 UE6020 MC6035 UH6400	CP7	GC4425 GC4325 GC4335	TP2501 TP3501 TP25 TP40	AC8035P AC830P AC6030M AC630M	T9225 T9125 T9235 T9135	KCP25B KCP25 KCP30B KCP30	IC8250 IC8350
	P40	CA530	JC325V JC450V	GX30	MC6035 UH6400		GC4335 GC4325	TP3501 TP40	AC8035P AC830P AC6030M AC630M	T9235 T9135 T6215	KCP30B KCP30 KCP40B KCP40	IC8350
M (Stainless Steel)	M10	CA6515	JC605X JC110V	HG8025	MC7015 US7020		GC2015 GC1515	TM1501	AC6020M	T6215 T6120	KCM15B KCM15	IC6015 IC8150
	M20	CA6515 CA6525	JC605X JC110V	HG8025 GM8020	MC7015 US7020 MC7025		GC1515 GC2015 GC2025 GC2220	TM1501 TM2501	AC6020M AC6030M AC630M	T6215 T6120 T6130	KCM15B KCM15 KCM25B KCM25	IC6015 IC6025 IC8150 IC8250
	M30	CA6525	JC110V JC525X	HG8025 GM25 GM8035	MC7025 US7020 US735		GC2025 GC2220 GC235	TM1501 TM2501 TM3501	AC6030M AC630M AC8035P AC830P	T6215 T6130	KCM25B KCM25 KCM35B KCM35	IC6025 IC8350
	M40		JC525X	GX30 GM8035	MC7025 US735		GC235	TP40 TM2501 TM3501	AC6030M AC630M		KCM35B KCM35	
K (Cast Iron)	K01	CA410K CA310 CA4505	JC050W JC105V JC605W	HX3505 HX3515	MC5105 MC5005		GC3210 GC3005 GC4305	TK0501	AC4010K	T5105 T505	KCK05B KCK05	IC5005 IC428
	K10	CA410K CA415K CA310 CA315 CA4505 CA4515	JC050W JC105V JC110V JC108W	HX3305 HX3515 HG8010 HG8025 GM8020	MC5105 MC5115 MC5005 MC5015 MY5015 MH515	CP1	GC3210 GC3005 GC4305 GC4315	TK0501 TK1501	AC4010K AC4015K	T5105 T5115 T505 T515	KCK05B KCK05 KCK15B KCK15	IC5005 IC5010 IC418 IC428 IC8150
	K20	CA415K CA315 CA320 CA4515	JC110V JC108W JC215V	HX3515 HG8010 GM8020 HG8025	MC5115 MC5125 MC5015 MY5015 MH515	CP1	GC3210 GC3225 GC4315 GC4325	TK0501 TK1501	AC4015K AC420K AC425K AC8025P	T5115 T5125 T515	KCK15B KCK15 KCK20B KCK20	IC5005 IC5010 IC418 IC428 IC8150
	K30	CA320	JC108W JC215V	GM8020 HG8025	MC5125		GC3225 GC4325	TK1501		T5125	KCP25B KCK20	

PVD Coated Carbide (Turning)

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P01	PR1705										
	P10	PR1705 PR1215 PR1725 PR2015		IP2000	MS6015 VP10MF VP10RT	VM1 DT4 DM4		TS2000 CP200	AC1030U ACZ150 AC5005S AC5015S AC5025S AC520U	AH8005	KCS10 KCU10 KC5010	IC807 IC907 IC1007
	P20	PR1215 PR1225 PR1625 PR1725 PR2015 PR2025		IP2000	MS6015 VP10MF VP10RT VP15TF	VM1 QM3 DT4 TM4 DM4	GC1125 GC15	TS2000 TS2500 CP200	AC1030U AC5025S AC520U AC530U	AH8015 AH6225 AH120 AH725 SH725	KCS10 KCU10 KC5010 KCU25 KC5025	IC807 IC808 IC907 IC908 IC1007
	P30	PR1225 PR1535 PR2025		IP2000 IP3000	MS6015 MS7025 VP15TF VP20MF VP20RT	QM3 TM4	GC1125	TS2500 CP500 CP600	AC1030U AC530U	AH8015 AH6225 AH7025 SH730 J740	KCU25 KC5025	IC808 IC908 IC830 IC1008 IC228 IC528
	P40	PR1535 PR2025		IP3000	VP15TF VP20MF VP20RT	QM3 TM4		CP500 CP600	AC1030U	AH6225		IC830 IC228 IC528 IC3028
M (Stainless Steel)	M10	PR1215 PR1225 PR2025 PR120S	JC5003 JC8015	IP050S IP100S	VP10MF VP10RT	VM1 DT4 DM4	GC1115 GC1125 GC15	TS2000 TS2050 TS2500 CP200	AC5005S AC5015S AC510U AC520U ACZ150	AH8005 AH6225	KCS10 KCU10 KC5010	IC806 IC807 IC907 IC1007
	M20	PR1215 PR1725 PR1225 PR1515 PR2025 PR120S	JC5003 JC8015 JC5015 JC5118	IP100S	MS7025 MS9025 VP10MF VP10RT VP15TF	VM1 QM3 DT4 TM4 DM4 ZM3 ST4	GC1115 GC1125 GC15	TS2000 TS2500 CP200 CP500	AC5015S AC5025S AC1030U AC520U	AH8015 AH6225 AH7025 AH120 AH725	KCS10 KCU10 KC5010 KCU25 KC5025	IC808 IC908 IC1008
	M30	PR1125 PR1535 PR2025	JC5015 JC5118	IP100S	MS7025 MS9025 VP15TF VP20MF VP20RT	QM3 DT4 TM4 DM4 ZM3 ST4	GC2035 GC1125	TS2500 CP500 CP600	AC5025S AC6040M AC1030U AC520U AC530U	AH6235 SH725 SH730 J740	KCU25 KC5025	IC908 IC830 IC1008
	M40	PR1535	JC5118		MP7035 VP15TF VP20MF VP20RT	QM3 TM4 ST4	GC2035	CP500 CP600	AC6040M AC1030U AC530U	AH6235		IC830 IC3028
K (Cast Iron)	K01	PR2015								AH110	KCS10 KCU10 KC5010	
	K10	PR1215 PR2015			VP10RT		GC15	TS2000 CP200	AC1030U AC510U ACZ150 AC5015S	AH110 GH110	KCS10 KCU10 KC5010	
	K20	PR1215 PR2015			VP10RT VP15TF VP20RT			TS2000 TS2500 CP200	AC1030U AC510U ACZ150 AC5015S AC5025S	AH8015 AH6225 AH7025 AH120	KCS10 KCU10 KC5010 KCU25 KC5025	IC807 IC907 IC908 IC1007 IC1008
	K30	PR2015			VP15TF VP20RT			TS2000 TS2500 CP200 CP500	AC1030U AC530U	AH120 GH130	KCU25 KC5025	IC807 IC907 IC908 IC1007 IC1008
S (Difficult-to-cut material)	S01	PR005S PR115S	JC5003		MV9005 MP9005 VP05RT			TH1000		AH8005		IC804
	S10	PR005S PR015S PR115S PR120S	JC8015 JC5015 JC5118	HS9105 JP9105	MP9005 MP9015 VP10RT		GC1105	TH1000 TS2000 TS2050 CP200	AC5005S AC5015S AC510U ACZ150	AH8005 AH8015 AH6225	KCS10 KCU10 KC5010	IC806 IC807 IC907 IC1007
	S20	PR015S PR115S PR120S PR1535	JC5015 JC5118	HS9115 JP9115	MP9015 MP9025 MS9025 VP15TF		GC1105 GC1115 GC1125 GC15	TS2000 TS2050 TS2500 CP200	AC5015S AC5025S AC1030U AC520U	AH8015 AH7025 AH6225	KCS10 KCU10 KCU25	IC907 IC908 IC1007 IC1008
	S30	PR1535			MP9025 MS9025 VP20RT		GC1125			AH7025 AH6235	KCU25 KC5025	IC908 IC1008

Cermet (Turning)

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P01	TN610 **PV710**	LN10		**AP25N** **VP25N**	T15 **Q15**	CT5015 CT525		T1000A **T1500Z**	NS520	**KT315** **KTP10**	IC20N **IC520N**
	P10	TN610 TN620 TN60 **PV710** **PV720** **PV7040** **CCX**	LN10 NIT		NX2525 **AP25N** **VP25N**	T15 **Q15** **Z15**	CT5015 CT525 **GC1525**	TP1020 TP1030	T1000A T1500A **T1500Z**	**AT9530** **GT9530** **J9530**	**KT315** **KTP10**	IC20N IC30N **IC520N** **IC530N**
	P20	TN620 TN90 **PV730** **PV720**	NIT CX75 **PX90**	**CZ25**	NX2525 NX3035 **MP3025** **AP25N** **VP45N**	C7X N40 **C7Z**	CT5015 **GC1525**	TP1020 TP1030	T1500A T2500A **T1500Z** **T2500Z**	NS9530 **AT9530** **GT9530** **J9530**		IC20N IC30N **IC520N** **IC530N**
	P30	**PV730**	CX75 **PX90**	**CZ25**	NX3035 **MP3025** **VP45N**	C7X N40 **C7Z**	**GC1525**		T2500A **T2500Z**	NS9530		IC30N **IC530N**
M (Stainless Steel)	M10	TN610 TN620 **PV710** **PV720**	LN10 NIT CX75		**AP25N** **VP25N**	T15 **Z15** **Q15**	CT525 **GC1525**		T1000A	NS520	**KT315** **KTP10**	IC20N **IC520N**
	M20	TN620 TN90 **PV720** **PV730**	LN10 NIT CX75 **PX90**		NX2525 **AP25N** **VP25N**	**Q15**	**GC1525**	TP1030	T1000A T1500A	NS9530 **AT9530** **GT9530** **J9530**		IC20N IC30N **IC520N** **IC530N**
	M30	**PV730**	**PX90**	**CZ25**					T1500A	NS9530		IC30N **IC530N**
K (Cast Iron)	K01	**PV7005** **CCX**	LN10 NIT		**AP25N** **VP25N**	T15 **Q15**	CT5015			NS520	**KT315** **KTP10**	
	K10	TN610 **CCX** **PV7005** **PV7040**	LN10 NIT	**CZ25**	NX2525 **AP25N** **VP25N**	T15 **Q15** **Z15**	CT5015		T1000A	NS9530 **AT9530** **GT9530** **J9530**	**KT315** **KTP10**	
	K20		NIT	**CZ25**	NX2525 **AP25N** **VP25N**					NS9530		

Boldface grade shows PVD Coated Cermet. (CCX is CVD Coated Cermet grade)

Carbide

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
K (Cast Iron)	K01	KW10	KG03	WH01 WH05	HTi05T				H2 H1	TH03	K313 K68 GH1 K115M	
	K10	KW10 GW15	KG10 KT9 CR1	WH10	HTi05T HTi10		H13A	HX 890	H1 EH510	TH10	K313 K68 K110M	IC20
	K20	GW15 GW25	KT9 CR1 KG20	WH20	HTi10 UTi20T		H13A	HX 890 883	G10E H10E EH520	KS15F KS20	K313 K68 GH2	IC20
	K30		KG30		UTi20T		H13A	HX 883	G10E H10E			
N (Non-Ferrous Alloys)	N01	GW05			HTi10 MT2010		H10	H15		KS05F	GH1 K115M	
	N10	KW10 GW15 GW25	KT9 CR1	WH10	HTi10 MT2010	KM1	H10 H13A	KX HX 890 H15 H25		TH10	K313 K68 K110M	IC4 IC20 IC28
	N20	GW15 GW25	KT9 CR1		HTi10 MT2010 TF15		H10 H13A	KX HX 890 883 H15 H25		KS15F	K313 K68 GH2	IC20 IC28
	N30				TF15			KX HX 883 H25				IC28
S (Difficult-to-Cut Material)	S01	SW05			MT9005 RT9005		H10A					
	S10	KW10 SW10 GW15 GW25	KG10	WH10	MT9005 RT9005 MT9015 RT9010		H10A H10F H13A	HX 890 883	EH510 EH520	KS05F TH10	K313 K68 K110M	IC20
	S20	SW10 SW25 GW25	KG20		MT9015 RT9010 TF15 RT9020	KM1	H10A H10F H13A	HX 890 883 H25	EH510 EH520	KS15F TH10	K313 K68 GH2	IC20 IC28
	S30	SW25			TF15 RT9020		H10F H13A	HX 883				

Coated Carbide (Milling / Drilling)

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P10	PR1825 PR1525	DH108 DH110 DH111 DH115	PCA12M PN15M PN208 JP4105	**MV1020**		GC1010	F40M MK2050 **MP1501** **MP2501**	ACP200 **ACP2000** **ACP100**	AH120 AH725	KC505M KC510M KC515M	IC608 IC902 **IC5400**
	P20	PR1825 PR1835 PR1525 **CA520D**	DH111 DH115 JC8015 JC8118	CY150 CY9020 JP4120	MP6120 VP15TF **MC7020** **FH7020** **F7030**	TM1 DT4 DM4	GC1130 **GC4220** **GC4330** **GC3040**	F40M MP3000 **MP1501** **MP2501** **MP3501**	ACP3000 ACU2500 ACP200 **XCU2500** **ACP2000**	AH3135 AH9030 AH3225 **T3225**	KC522M KC525M	IC808 IC810 IC900 IC908 IC910 **IC5500**
	P30	PR1825 PR1835 PR1525 PR1535	JC8118 JC8050 JC7550 JC7560	HC844 CY25 CY250 JS4045 **GF30**	MP6130 VP15TF VP20RT UP20M **F7030**	ZM3	GC1130 GC2030 **GC4330** **GC3040**	F40M F25M MP3000 **MP2501** **MP3501**	ACP3000 ACU2500 ACP300 **XCU2500**	AH3225 AH6030 AH130 **T3130** **T3225**	KC530M KC725M KC735M KCPM40 **KCPK30**	IC300 IC830 IC845 IC908 IC910
	P40	PR1835 PR1535	JC5240 JC8050 JC7550 JC7560	PTH30E PTH40H JS4060 GX2140 **GX2160**	VP30RT		**GC2040** **GC4340**	F40M MP2050 **MP2501** **MP3501**	ACP3000 ACU2500 ACP300	AH140	KC725M KC735M KCPM40 **KCPK30**	IC328 IC330 IC830 IC928 IC4050
M (Stainless Steel)	M10	PR1835 PR1535 **CA6535**	DH108 DH111 DS108 JC8015	PN15M PN215	**MC7020**		GC1010 GC1130	F40M F25M	ACM100 ACK300 **XCS2000** **ACM200**	AH725	KC515M	IC608 IC902 **IC5400**
	M20	PR1835 PR1525 PR1535 **CA6535**	DH108 DH111 DS108 JC8015 JC8118	JP4120	VP15TF **MC7020** **F7030**	DT4 DM4	GC2030 S30T GC1130	F40M MS2050	ACS2500 ACU2500 ACP300 **XCU2500** **ACM200**	AH3135 AH3225 AH6030 AH725 **T3225**	KC522M KC525M	IC300 IC808 IC900 IC908 **IC5820**
	M30	PR1835 PR1525 PR1535 **CA6535**	JC8118 JC8050 JC7550 JC7560	HC844 CY250 JS4045 PTH30E	MP7130 MP7030 VP20RT UP20M	ZM3	GC1040 S30T **GC2040** **GC4230** **GC4240**	F40M MS2050 **T25M** **MM4500**	ACM300 ACS2500 ACS3000 **XCU2500** **ACM200**	AH3135 AH130 **T3225** **T3130**	KC530M KC725M KC735M KCPM40 KCSM30	IC330 IC830 IC882 IC928 **IC5820**
	M40	PR1835 PR1525 PR1535 **CA6535**	JC8050 JC7550 JC7560	PTH40H JM4160 AX2040 **GX2160**	MP7140 VP30RT		GC1040 **S40T** **GC2040** **GC4240**	F40M MP2050 **MM4500**	ACM300 ACS3000	AH140	KC725M KCPM40 KCSM40	IC328 IC882
K (Cast Iron)	K01	PR1810 PR1510 **CA415D**	DH102 DH103	ATH80D ATH08M TH308	MP8010 **MV1020** **MC5020**		GC1010	MK2050 MH1000 **MK1500**	ACK3000	AH110		IC902
	K10	PR1810 PR1510 **CA415D** **CA420M**	DH108 DH110 DH111 JC8015	ATH10E TH315 CY100H	MP8010 **MV1020** **MC5020**		GC1020 **GC3220** **K15W**	MK2050 MH1000 **MK1500**	ACK3000 **XCK2000** **ACK2000** **ACK200**	AH110 AH120 **T1215** **T1115**	KC514M KCK15 KCK20	IC608 IC903 **IC5100**
	K20	PR1810 PR1510 **CA415D** **CA420M**	DH115 JC8015 JC8118	CY9020 CY150 PTH13S JP4120 **GX2120**	VP15TF **MV1020** **MC5020** **MC520**		**GC3330** **GC3040** **K15W** **K20W** **K20D**	MK2050 **MK1500** **MP3501**	ACK3000 ACU2500 **XCK2000** **XCU2500** **ACK2000**	AH120 AH9030 **T1215**	KC520M KC524M KCK20	IC808 IC810 IC908 IC910 **DT7150**
	K30	PR1810 PR1510	JC8118 JC5240	CY250 JS4045 GX2040 **GX2160**	VP20RT **MC5020**		GC3330 GC3040 K20W	MK2050 F40M **MK1500** **MP3501**	ACK3000 ACU2500 ACK300	AH120	KC522M KC524M **KCPK30**	IC808 IC810 IC908 IC910
S (Difficult-to-Cut Material)	S10	PR1535 **CA6535**	DS108 DS118 JC8015 JC8118	JP4120 JS1025	MP9120 VP15TF		GC1010 GC1130	F40M MS2050 **MS2500**	ACM100 ACU2500 ACK300 ACP300	AH120 AH725	KC510M	IC380 IC902 IC908 IC928
	S20	PR1535 **CA6535**	DS150 JC8050 JC8118	PTH30H	MP9120 MP9130 VP15TF		S30T GC2030 GC1130	F40M MS2050 **MS2500**	ACS2500 ACU2500 ACP300	AH725 AH130 AH6030	KC522M KC525M KCSM30	IC840 IC882 IC900 **IC5280**
	S30	PR1535	JC7550 JC7560	JM4160	MP9140		GC1040 **S40T** **GC2040**	MS2050	ACM300 ACS2500 ACS3000	AH130	KC522M KC725M KCSM40	IC328 IC330 IC830 IC928

Boldface grade shows CVD Coated Carbide

Cermet (Milling)

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P10	TN60 TN620M **PV60M**	CX75	CH550 **MZ1000**	NX2525 **VP25N**		CT530			NS740	KTPK20	IC30N
	P20	TN620M TN100M **PV60M**	CX75 CX90	CH7000	NX2525 MX3020 **VP25N**		CT530			NS740	KTPK20	IC30N
	P30	TN620M TN100M	CX90		MX3030 NX4545				T2500A T250A T4500A			IC30N
M (Stainless Steel)	M10	TN100M	CX75		NX2525 **VP25N**		CT530			NS740		IC30N
	M20	TN100M	CX75	CH550	NX2525 MX3020 **VP25N**		CT530			NS740	KTPK20	IC30N
	M30				MX3030 NX4545							
K (Cast Iron)	K01		CX75									
	K10		CX75		NX2525 **VP25N**					NS740	KTPK20	
	K20		CX75		NX2525 MX3020 MX3030 **VP25N**						KTPK20	

Boldface grade shows PVD Coated Cermet.

Ceramic

Classification		Kyocera	Dijet	Nippon Tungsten	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
K (Cast Iron)	K01	KA30 A65 KS6015 **A66N** **PT600M** **CS7050**		NPC-H2 NPC-A2		HC1 HC2 HC6 HW2 WA1 WA5	CC6190 CC620 CC650		NB90S	TZ120 LX21	KYK10	IN110 IN22 IN23 IS6 IS8 **IS80**
	K10	A65 KS6015 KS6050 **A66N** **PT600M** **CS7050**		NX **NXA** Whisker WIN		HC1 HC2 HC6 HW2 WA1 WA5 SX6 **SP9**	CC6190			FX105 CX710	KYK10 KY3500 **KYK25**	IN110 IN22 IN23 IS6 IS8 **IS420** **IS80**
	K20	KS6050				SX6 SX9				FX105 CX710	KY3500	IS8 **IS80**
S (Difficult-to-Cut Material)	S10	KS6030				JX1 JX3 **JP2 120**	CC6060 CC6160 CC6065 CC670	CS100	WX120	WG300 FX510 TS300		IN110 IS25
	S20	KS6030 KS6040	CA200	Whisker WIN		JX1 JX3 WA1 WA5 SX3 SX7 **JP2 120**	CC6060 CC6160 CC6065 CC670	CS100 CS300 CW100	WX120		KYS30 KYSP30 **KYS25**	IS25 IS35 IS9 IW7
	S30	KS6040				JX1 JX3 SX9 **JP2 120**			WX120		KYS30	IS9 IW7
H (Hardened Materials)	H01	A65 **A66N** **PT600M**		NPC-A2		HC2 HC7 **450 ZC7**	CC6050 CC650		**NB100C**	LX10 **LX11**		
	H10	A65 **A66N** **PT600M**		NPC-A2 Whisker WIN		**450**	CC670		**NB100C**	WG300	KY1615	IN22 IN23 IW7 **IN420**

Boldface grade shows PVD Coated Ceramic.

CBN

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
K (Cast Iron)	K01	KBN475 **KBN60M** **KBN900**	JBN795 JBN330 JBN500		MB710 **BC5110**	B23 B30 B52	CB7925 CB50 **CB7525**	CBN300	BN7125 BN500 NCB100 **BNC500**	BX910 BX930 BX870	KB1630 **KB5630**	IB50
	K10	**KBN60M** **KBN900**	JBN795 JBN300 JBN330 JBN500 JBN245	BH200	MB730 MB4120	B23 B30 B52	CB7925 CB50 **CB7525**	CBN200 CBN300 CBN600 **CK2065** **CH3515** **CBN160C** **CBN300P** **CBN400C**	BN7125 BN500 **BNC500**	BX470 BX480	KB1630 KB1340 **KB5630**	IB50 IB55 IB90
	K20	**KBN900**	JBN245	BH250	MB730 MB4120 MBS140	B16	CB50	CBN200 CBN300 CBN500 CBN600 **CK2065** **CH3515** **CBN160C** **CBN300P** **CBN400C**	BN7125 BNS8125 **BNC8115**	BX90S **BXC90**	KB1630 KB1340 KB1345 **KB5630** **KBK45**	
H (Hardened Materials)	H01	KBN510 **KBN010** **KBN05M** **KBN10M**	JBN245 JBN795 JBN500		BC8105	B52 **B5K**	CB20 CB50 **CB7105**	CBN010 **CH0550**	BN1000 BN2000 BNX10 **BNC2105** **BNC2010** **BNC2115**	BX310 **BXM10**	KBH10	IB50 IB10H **IB10HC**
	H10	KBN510 KBN525 **KBN010** **KBN015** **KBN020** **KBN05M** **KBN10M** **KBN25M** **KBN900**	JBN795 JBN500	BH200	MB8110 MB8120 **BC8110** **BC8120** **BC8210** **BC8220**	B36 **B6K**	CB50 **CB7105** **CB7015**	CBN010 CBN150 **CH0550** **CH1050** **CBN060K**	BN2000 **BNC2010** **BNC2020** **BNC2115** **BNC2125** **BNC160** **BNC200**	BX330 BX530 **BXA10** **BXM10**	KBH10 **KB5610**	IB50 IB55 IB10H **IB10HC**
	H20	**KBN015** **KBN020** **KBN25M** **KBN35M** **KBN900**		BH250	MB8120 **BC8120** **BC8220**	B36 B40	CB7025 **CB7125** **CB7525**	CBN150 **CH1050** **CBN060K** **CH2540** **CH2581** **CH3515**	BN2000 BNX20 **BNC2020** **BNC2125** **BNC200**	BX360 BX850 **BXA20** **BXM20**	KBH10 KBH20 **KB5625**	IB55 IB20H **IB25HA** **IB25HC**
	H30	**KBN020** **KBN35M** **KBN900**		BH250	MB8130 **BC8220** **BC8130**	B40 B22	CB7135 **CB7525**	**CH2540** **CH2581** **CH3515**	BN350 **BNC300**	BX380 **BXC50** **BR35F**	KBH20 KB1630 **KB5625** **KB5630**	IB55 IB20H **IB25HA** **IB25HC**
Sintered Steel	-	KBN570 **KBN70M**	JBN795 JBN330		MB4120	B23 B30	CB7135 **CB7125**	CBN200	BN7115 BN7125	BX470 BX480	**KB5630**	IB05S IB10S IB90

Boldface grade shows PVD Coated CBN.

PCD

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
N (Non-Ferrous Metals)	N01	KPD001 KPD230 KPD250	JDA30 JDA735			UC1 PD1 PD2	CD05 CD10	PCD05	DA90 DA150 DA1000	DX160 DX180	KD1400 KD1405	ID5
	N10	KPD001 KPD010 KPD230 KPD250	JDA735 JDA10		MD220	PD1 PD2	CD05 CD10	PCD05 PCD20 PCD30	DA150 DA1000	DX140 DX160	KD1400 KD1405 KD1410 KD1415 KD1425	ID5
	N20	KPD001 KPD010 KPD230 KPD250	JDA10 JDA715		MD220 MD2030	PD1 PD2		PCD05 PCD20 PCD30 PCD30M	DA1000 DA2200	DX110 DX120	KD1400 KD1425	

Molded Chipbreaker Cross Reference Table

Negative Inserts

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Cutting Range		Kyocera		Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
		General Chipbreaker	Chipbreaker for Gummy Material / Soft Steel										
Carbon Steel / Alloy Steel	Finishing (with wiper edge)	WF WP	-	-	-	SW	-	WL WF	W-FF2 W-MF2	SEW LUW	AFW FW	FW	WF
	Finishing - Medium (with wiper edge)	WE WQ	-	-	-	MW	-	WM WMX	W-M3 W-M5	GUW	ASW SW	MW	WG
	Finishing	DP GP PP	XF XP	F1 FA FT PF	BE BH FE	F FH FS FY PK FP	UL WM ZF1	XF QF	FF1	FP FB FE SP FA FL LU	TF 01 AS TSF	FF UF FS LF	F3P SF PF
	Finishing - Medium	HQ PQ CQ CJ VC VF	XQ	UA UT	AB B CE CT	SH C SA LP SY	WV WR	LC PF	FF2 MF2	SU EX SJ SX UJ SE	TS NS CB 11 17 27 ZF	K RP FN FM	NF SM
	Medium - Roughing	PMG PG GS PS	XS	UR UB	AE DE AH	MV MP MA MH	Z5 ZW1	XM QM SM SMC PM PMC	M3 MF3	UA UG GE GU	AM DM NM TM ZM	MN	M3P TF PP
	Medium - Roughing High Feed Rate	PT GT	-	GC PQ	AR AY	GH RP	GS	MR XMR	M5 MR5 MR6	MU UX ME	TH 32Y 32 37	RP RN	R3P NR
	Roughing	Standard PH	-	GG LG GQ	RE	MT Standard	G	Standard 23 HM	MR7	MC MU MX UZ	31 33 F-K THS	PR MG	GN
	Roughing Single-sided High Feed Rate	PX	-	GS RM UC UP UD	H HX HE TE UE	HV HR HX HZ HL HM	-	QR PR HR	R4 R5 R6 R7 RR6 R57 RP	HG HP MP HF	TU TRS 57 65 TUS	RP RH RM RW	TNM NM
Stainless Steel, Difficult-to-Cut Material	Finishing	MQ SQ	-	SF	BH MP	FS SH FJ LM LS	ZF1	MF	M1	SU EF	SF SS	FP	F3M VL F3S
	Medium - Roughing	MS MU TK SG SX	-	GP SZ	DE SE PV VI	MS MA GM MJ MM ES MH GH GJ RM RS	ZP WS	MM MMC MR XMR SM SMR SF SGF SMC MRR	MF1 MF3 A3 A5 M5 56 R8 RR9 MF4	EG EX MU UP EM	HMM SM SA S SH HRM HPF	P MP MS UP	TF PP M3M R3M
Cast Iron	Medium	KQ KG C Standard	-	-	AH VA V	LK MF Standard	-	KF KM	-	UZ UX UJ	Standard 33 CF	FN	GN
	Roughing	KH GC ZS	-	-	-	GH RK	-	KR KRR	MR9	GZ	CM CH	RP UN	NR
Non-Ferrous Metals	Medium - Roughing	AH	-	-	-	-	-	AL	95	AG	P	GP MS	PP

Molded Chipbreaker Cross Reference Table

Positive Inserts

Cutting Range		Kyocera		Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
		General Chipbreaker	Chipbreaker for Gummy Material / Soft Steel										
Carbon Steel / Alloy Steel	Minute D.O.C.	CF	-	-	-	-	-	-	-	-	01	-	-
	Finishing (with wiper edge)	WP	-	-	-	SW	-	WF WK WM	W-F1 W-F2	LUW SDW	SW	FW	WF
	Finishing	PF DP GP PP VF	XP	ASF	-	FV SQ FP SMG	AZ3 AMX AZ7 FG	PF UF XF	FF1	FB GU FC FK FP LU	PF PSF 23	11 GF UF FP	PF SM
	Finishing - Medium (1)	HQ	XQ	ACB FT	JE	MQ MV LP	AF1	PM UM SMC	F1 M3	LB SF SU SS	PS PSS 24	LF	14
	Finishing - Medium (2)	GK	-	BM	JQ	Standard	QD CL	PF PMC XM	MF2 M5	US GU	-	-	F3P
	Medium	Standard	-	-	J	MP No Indication	AM5 AM3 AZ8	PR UR KM XR	F2	MU SC	PM	GM MP MR	Standard
Stainless Steel, Difficult-to-Cut Material	Finishing - Medium	MQ	-	-	MP	FM FV SV LM LS MS	-	MF MMC SM MR MM	-	LU	PSS JS PF PSF PS PM	FW FP MW	PF WF F2M
Non-Ferrous Metals	Finishing - Medium	AP AH	-	ALU	-	AZ	-	AL	AL	AG AW	AL	HP	AF AS

Positive Inserts (for Small Parts Machining)

Cutting Range		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Carbon Steel / Alloy Steel	Minute D.O.C.	CF	-	-	-	-	-	-	-	01	-	-
	Finishing	PF CK GF SKS	ASF	JQ	FP FV SMG LS-P	AZ7 AMX ZR	PF XF	FF1	SI FC	PF	11 UF FP	PF SM
	Finishing - Medium	GQ SK	ACB FT	JE	LP AM MV	AM3 YL	PM XM	F1 MF2	SU	PS	LF	14
	Medium	GK	-	J	MP Standard	QD CL	PR	F2	SC	PM	MF MP	Standard
Stainless Steel	Finishing	MQ	-	MP	FM FV SV LM	-	MF	-	LU	JS PF PSF	FW FP MW	WF
Non-Ferrous Metals	Finishing - Medium	AP AH	ALU AWI	-	AZ	-	AL	AL	AG AW	AL	HP	AF AS

Cera-Notch Conversion Table

Insert Style		Kyocera	Horizon	Tool-Flo	Kennametal	RTW	Valenite	Sandvik	Mitsubishi
Notch Style Grooving Insert	Face Grooving	KCFP	HF	FLF	NF	-	-	TLF*	EF
	ID/OD Grooving	KCG/KCGP	HG	FLG	NG	PG	VLG	TLG*	EG
	ID/OD with Chipbreaker	KCGP MY	HG RK-LK	FLG CB	NG RK-LK	PG RK-LK	-	-	EG RK-LK
	ID/OD with Positive Rake	KCGP	HGP	FLGP	NGP	-	VLGP	TLGP*	EGP
	ID/OD Deep Grooving	KCGDP	HGD	FLGD	NGD	PGD	-	-	EGD
	Full Nose Radius	KCRP	HR	FLR	NR	PR	VLR	TLR*	EGR
	Full Nose Radius with Postive Rake	KCRP	HRP	FLRP	NRP	PRP	VLRP	TLRP*	-
Notch Style Threading Insert	60° V Partial Profile	KCT	HT	FLT	NT	PT	VLT	TLT*	ET
	60° V Fine Pitch Positive	KCTK	HTK	FLTK	NTK	PTK	VLTK	TLTK*	-
	60° V Postive	KCTP	HTP	FLTP	NTP	PTP	VLTP	TLTP*	-

* Sandvik inserts require a Kyocera or industrial standard clamp due to different clamping system.

Milling Insert Cross Reference Table

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Kyocera		Class	Applications	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	Sandvik	Sumitomo	Tungaloy	Iscar
ANSI	ISO								
SDMR42AUER-H SDKR42AUEN-S	SDMR1203AUER-H SDKR1203AUEN-S	M K	Steel		(SDNR1203AEEN-JS)		SDMR1203AEEN SDMR1203AETN	SDMR1203AETN-MJ SDKR1203AESR-MJ SDKR1203AETN-MJ SDKR1203AEPN-MS SDKR42ZSR-MJ SDKR42ZPN-MS	SDKR1203AUTR-HS SDKR1203AUN-76
SDKN42AUTN	SDKN1203AUTN	K			SDKN1203AEN SDKN1203AETN (SDNN1203AETN1)		SDKN42MT (SDNN1203AETN)	SDKN1203AETN-12 SDKN42ZTN	SDKN1203AETN
SDKN42AUFN	SDKN1203AUFN	K	Cast Iron				SDKN42M (SDNN1203AEEN)	SDKN1203AEFN-12 SDKN42ZFN	
			Non-Ferrous				SDKN42M	(SDCN1203AEFN-D) (SDCN42ZFN-DIA)	
SDKN53AUTN	SDKN1504AUTN	K	Steel		SDKN1504AEN SDKN1504AETN		SDKN53MT	SDKN1504AETN SDKN53ZTN	SDKN1504AETN
SEMR42AFER-H SEKR42AFEN-S	SEMR1203AFER-H SEKR1203AFEN-S	M K	Steel		(SEER1203AFEN-JS)	SEKR1203AZ-WM (SEER1203AZ-WL)	SEMR1203AFEN (SEER1203AFEN)	SEMR1203AFTN-MJ SEKR1203AFSR-MJ SEKR1203AFTN-MJ SEKR1203AFPN-MS	SEKR1203AFTR-HS SEKR1203AFR-HS SEKR1203AFN-76 SEKR1203AF-N-42
SEEN42AFTN	SEEN1203AFTN	E		SEEN1203AFTN	SEEN1203AFTN1		SEEN42MT	SEEN1203AFTNCR-14	
SEKN42AFTN	SEKN1203AFTN	K		SEKN1203AFTN	SEKN1203AFTN1 (SENN1203AFTN1)	SEKN1203AZ (SEMN1203AZ)	SEKN42MT (SENN1203AFTN)	SEKN1203AFTN SEKN1203AFTN-16 SEKN42AFTN SEKN42AFTN16	
SEKN42AFFN	SEKN1203AFFN	K	Cast Iron	SEKN1203AFFN	(SEEN1203AFFN1)	SEKN1203AZ (SEMN1203AZ)	SEKN42M (SENN1203AFEN)	SEKN1203AFFN SEKN42AFFN	
SEEN42AFFN	SEEN1203AFFN	E	Non-Ferrous	(SEKN1203AFFN)	(SECN1203AFFR1)				
SEKN42EFTR	SEKN1203EFTR	K	Steel		SEKN1203EFTR1	(SECN1203EER)		SEKN1203EFTR (SECN1203EFTR) (SEEN1203EFTR) (SECN42EFTRCR) (SEEN42EFTRCR)	
SEKN53AFTN	SEKN1504AFTN	K	Steel	SEKN1504AFTN		SEKN1504AZ	SEKN53MT		SEKN1504AFTN
SPEN42EESR	SPEN1203EESR	E	Cast Iron		SPEN42EFSR1 SPEN1203EESR1 SPEN1203EEER1 (SPNN1203EEER1)				
SPMR42EDER-H SPKR42EDER-S	SPMR1203EDER-H SPKR1203EDER-S	M K	Steel	SPKN1203EDER SPEN1203EDR-WC	(SPER1203EDER-JS)	SPKN1203EDR-WH		SPKR1203EDSR-MJ SPKR42SSR-MJ	SPKR1203EDR-76 SPKR1203EDTR-HS
SPCN42EDTR	SPCN1203EDTR	C		SPKN1203EDT31R SPAN1203EDR	(SPEN1203EDR)	(SPAN1203EDR)	SPCH42TR-R	SPCN1203EDTR SPCN42STR	
SPKN42EDTR	SPKN1203EDTR	K		SPKN1203EDTR	SPKN1203EDR	SPKN1203EDR	(SPCH42TR) (SPCH42TR-R)	SPKN1203EDTR SPKN42STR (SPEN1203EDTR) (SPEN42STR)	SPKN1203EDTR SPKN1203EDTR-42
SPKN42EDFR	SPKN1203EDFR	K	Cast Iron	SPKN1203EDFR		SPKN1203EDR	(SPCH42R)	SPKN1203EDFR SPKN42SFR	SPKN1203EDFR
SPKN53EDTR	SPKN1504EDTR	K	Steel	SPKN1504EDT32R SPKN1504EDTR	SPKN1504EDR	SPKN1504EDR	(SPCH53TR-R)	SPKN1504EDTR SPKN53STR (SPCN1504EDTR) (SPCN53STR)	SPKN1504EDTR
SPKN53EDFR	SPKN1504EDFR	K	Cast Iron	SPKN1504EDFR			(SPCH53R-R) (SPCH53TR-R)	SPKN1504EDFR SPKN53SFR	SPKN1504EDFR

Note 1. Tolerance is different for part numbers in ( ).

2. Since edge shape of milling insert is slightly different by each manufacturer, please adjust edges (Z-axis direction) during operation.

Milling Insert Cross Reference Table

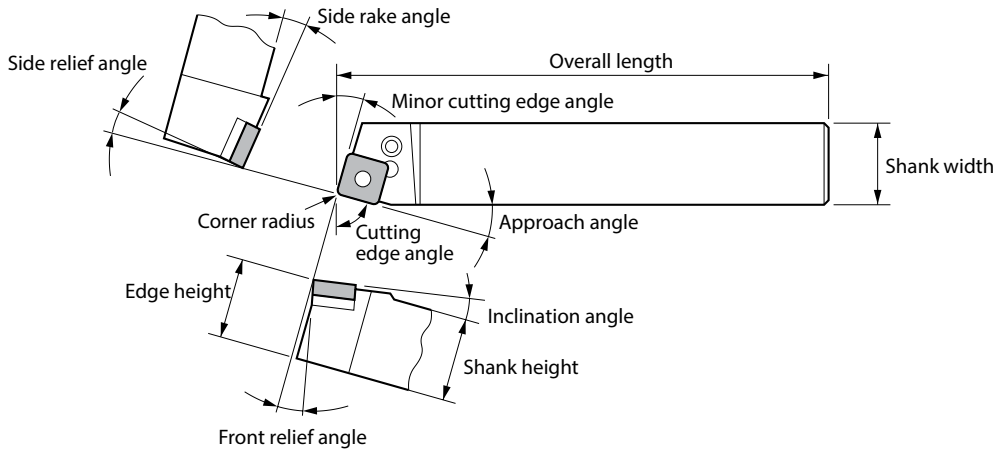
This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Kyocera		Class	Applications	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	Sandvik	Sumitomo	Tungaloy	Iscar
ANSI	ISO								
SPCN42XPTR	SPCN1203XPTR	C	Steel					SPCN1203ZPTR SPCN42ZTR	
SPKN42XPTR	SPKN1203XPTR	K						SPKN1203ZPTR SPKN42ZTR (SPEN1203ZPTR) (SPEN42ZTR)	
SPKN42XPFR	SPKN1203XPFR	K	Cast Iron					SPKN1203ZPFR SPKN42ZFR	
SPKN53XETR	SPKN1504XETR	K	Steel		SPK53C2SR				
TPMR32PDER-H	TPMR1603PDER-H	M	Steel		(TPER1603PPER-JS)	(TPKN1603PPR-WH)			(TPKR1603PPTR-HS)
TPKN32PDTR	TPKN1603PDTR	K		TPKN1603PRR	TPKN1603PPR (TPEN1603PPR)	TPKN1603PPR	TPKN32TR		TPKN1603PPTR
TPKN32PDFR	TPKN1603PDFR	K	Cast Iron	TPKN1603PDR		TPKN1603PPR	TPKN32R		TPKN1603PPFR
TPMR43PDER-H TPKR43PDER-S	TPMR2204PDER-H TPKR2204PDER-S	M K	Steel		(TPER2204PDER-JS)	TPKN2204PDR-WH		TPMR2204PDSR-MJ TPKR2204PDSR-MJ TPKR43ZSR-MJ	TPKR2204PDTR-HS TPKR2204PD-R-76
TPKN43PDTR	TPKN2204PDTR	K		TPKN2204PDR	TPKN2204PDR (TPEN2204PDR)	TPKN2204PDR	(TPCH43TR)	TPKN2204PPTR TPKN43ZTR (TPCN2204PPTR) (TPCN43ZTR)	TPKN2204PDTR TPKN2204PDTR-42
TPKN43PDFR	TPKN2204PDFR	K	Cast Iron	TPKN2204PDFR			(TPCH43R)	TPKN2204PPFR TPKN43ZFR (TPCN2204PPFR) (TPCN43ZFR) (TPEN2204PPTR-16) (TPEN43ZTR)	TPKN2204PDFR
TEMR32PTER-H	TEMR1603PTER-H	M	Steel		(TEER1603PEER-JS)			(TEKR1603PEPR-MS)	
TEKN32PTTR	TEKN1603PTTR	K			(TEEN1603PETR1)		TEKN32TR	(TECN1603PETR) (TEEN1603PETR) (TECN32ZTR) (TEEN32ZTR)	
TEKN32PTFR	TEKN1603PTFR	K	Cast Iron		(TEEN1603PEFR1)		TEKN32R	(TEEN1603PEFR) (TEEN32ZFR)	
TEEN32PTFR	TEEN1603PTFR	E	Non-Ferrous		(TECN1603PEFR1)		TEEN32R	(TECN1603PEFR-D) (TECN32ZFR-DIA)	
TEMR43PTER-H TEKR43PTER-S	TEMR2204PTER-H TEKR2204PTER-S	M K	Steel		(TEER2204PEER-JS)			TEKR2204PEPR-MS	
TEEN43PTTR	TEEN2204PTTR	E			TEEN2204PETR1		TEEN43TR	TEEN2204PETR (TECN2204PETR) TEEN43ZTR (TECN43ZTR)	
TEKN43PTTR	TEKN2204PTTR	K			TEKN2204PETR1		TEKN43TR	(TEEN2204PETR) (TECN2204PETR) (TEEN43ZTR) (TECN43ZTR)	
TEKN43PTFR	TEKN2204PTFR	K	Cast Iron		(TEEN2204PEFR1)		TEKN43R	(TEEN2204PEFR) (TEEN43ZFR)	
			Non-Ferrous		(TECN2204PEFR1)		(TEEN43R)	(TECN2204PEFR-D) (TECN43ZFR-DIA)	
SNCN43XNTN	SNCN1204XNTN	C	Steel		SNC43B2S		(CSN43MT)	SNCN1204ZNTN SNCN43ZTN	
SNKN43XNTN	SNKN1204XNTN	K			SNK43B2S		(CSN43MT)	SNKN1204ZNTN SNKN43ZTN	
SNMF43XNTN	SNMF1204XNTN	M	Steel		(SNKF43B2S)		(CSNB43MT)	(SNKF1204ZNTN) (SNKF43ZFN)	

Note 1. Tolerance is different for part numbers in ( ).

2. Since edge shape of milling insert is slightly different by each manufacturer, please adjust edges (Z-axis direction) during operation.

Terms and Angles of Turning Toolholder



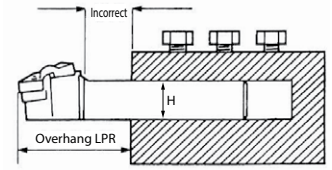
Function of Tool Angles

Tool Angle	Name	Function	Effect
Rake Angle	Side rake angle	· Affects cutting force, cutting heat, chip evacuation and tool life.	· If it is positive (+) angle, sharper cutting performance is obtained. (less cutting force, less edge strength) · Positive (+) angle is recommended for easy to machine workpieces or thin workpieces. · Smaller rake angle or negative (-) angle is recommended when a stronger edge is required like scale machining or interrupted machining.
	Inclination angle		
Relief angle	Front relief angle Side relief angle	· Prevents the tool's contact to the workpiece surface, except the cutting edge.	· When it is small, the cutting edge becomes strong, but the wear at relief faces may shorten the tool life.
Cutting edge angle	Cutting edge angle	· Affects chip control and the direction of cutting force.	· When it is large, chip thickness becomes thick and chip control improves.
	Approach angle	· Affects chip control and the direction of cutting force.	· When it is large, chip thickness becomes thin and chip control worsens, but cutting force is dispersed and edge strength improves. · When it is small, chip control ability improves.
	Minor cutting edge angle	· Prevents friction between cutting edge and workpiece surface.	· When it is large, edge strength deteriorates.

Toolholder Rigidity

1. Flexure of Toolholder

$$\delta = \frac{4 \times F \times (LPR)^3}{E \times B \times H^3} = \frac{4 \times k \times ap \times f \times (LPR)^3}{E \times B \times H^3}$$



Symbol	Name	Unit
δ (Delta)	Deflection	mm
B	Shank width	mm
H	Shank height	mm
E	Young ratio	N/mm²
ap	Depth of cut	mm
f	Feed rate	mm/rev
k	Specific cutting force	N/mm²
LPR	Overhang	mm
F	Cutting force	N

(F = k x ap x f)

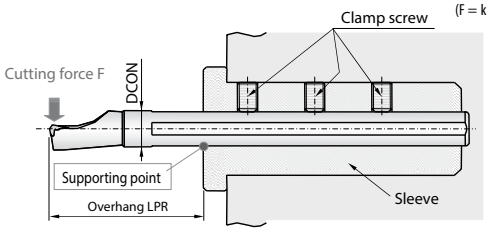
The flexural strength of toolholder will decrease by increasing of shank height by third root and will decrease of reducing overhang by third root. Minimizing toolholder shank overhang as much as possible is important as well as shank's sectional square measure.

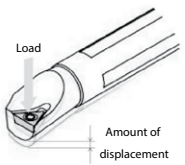
2. Flexure of Boring Bar

$$\delta = \frac{64 \times F \times (LPR)^3}{3 \times E \times \pi \times (DCON)^4} = \frac{64 \times k \times ap \times f \times (LPR)^3}{3 \times E \times \pi \times (DCON)^4}$$

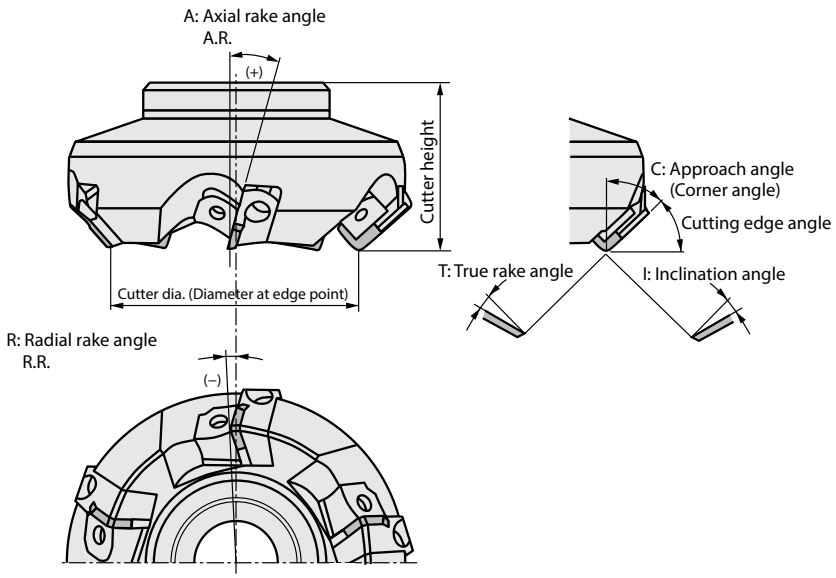
Symbol	Name	Unit
δ (Delta)	Deflection	mm
DCON	Shank dia.	mm
E	Young ratio	N/mm²
ap	Depth of cut	mm
f	Feed rate	mm/rev
k	Specific cutting force	N/mm²
LPR	Overhang	mm
F	Cutting force	N

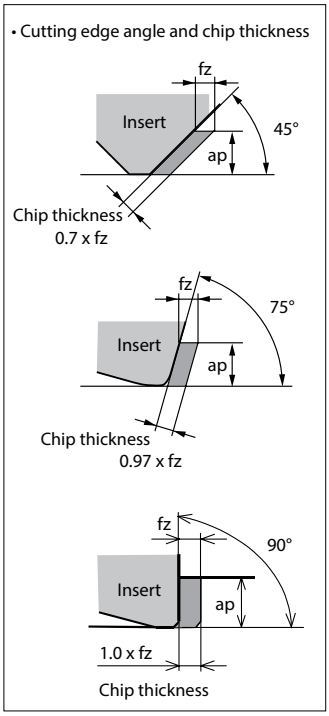
(F = k x ap x f)





Terms and Angles of Milling Cutters





Function of Tool Angles

Symbol	Name	Function	Effect
A	Axial rake angle (A.R.)	Controls chip flow direction and cutting force	When it is positive ··· Good cutting performance and less chip welding
R	Radial rake angle (R.R.)	Controls chip flow direction and cutting force	When it is negative ··· Good chip evacuation
C	Approach angle	Controls chip thickness and chip flow direction	When it is large ··· Thinner chip thickness Lower cutting load
T	True rake angle	Actual rake angle	When it is positive ··· Good cutting performance and less chip welding, but lower edge strength When it is negative ··· Higher edge strength but easier to weld
I	Inclination angle	Controls chip flow direction	When it is positive ··· Good chip evacuation Less cutting force Lower edge stability of the corner part

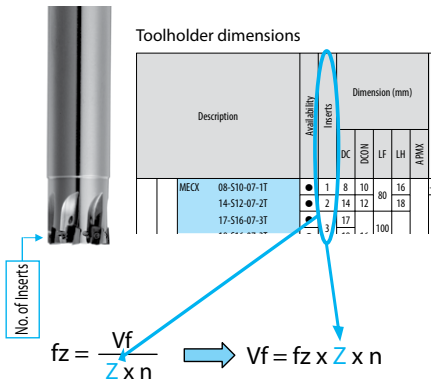
The formula for true rake angle: $\tan T = \tan R \times \cos C + \tan A \times \sin C$

The formula for inclination angle: $\tan I = \tan A \times \cos C - \tan R \times \sin C$

No. of Inserts (Z)

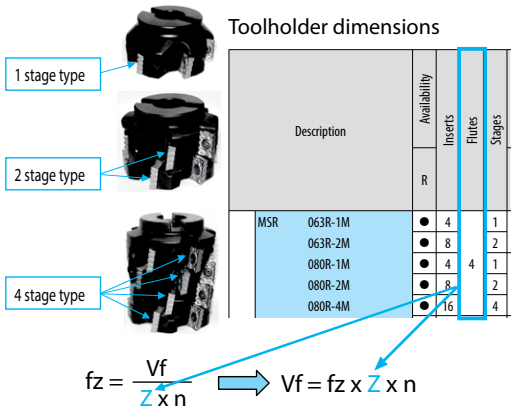
1) If the number of stages is one

If the number of stages is one, it is not indicated on the catalogue. Please use "No. of inserts" of the catalogue for "Z" of the formula to calculate cutting conditions.



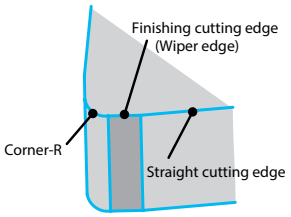
2) If the number of stages is more than two

If the number of stages is more than two, it is indicated on the catalogue. Please use "No. of flutes" of the catalogue for "Z" of the formula to calculate cutting conditions.



About Wiper Inserts

A wiper insert is designed with a wiper edge that is located between corner radius and straight cutting edge shown in figure on the right.

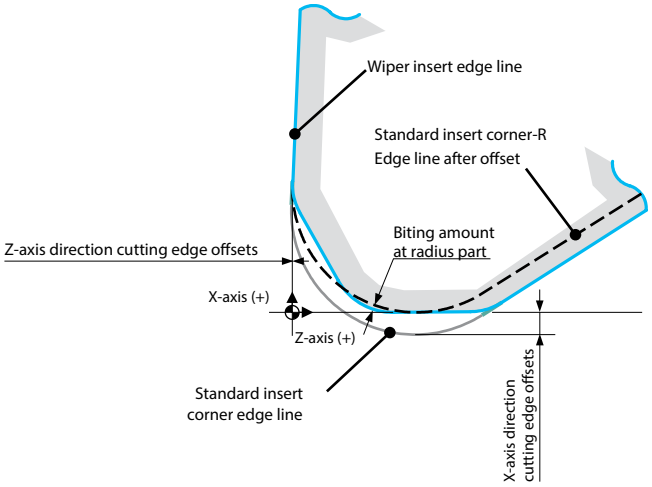


Advantages

- A wiper edge geometry provides improved surface finish quality even at increased feed rates
- Improved machining efficiency : Reduced cutting time with higher feed rate as well as consolidation of roughing and finishing provide high machining efficiency
- Longer tool life : Reduced cutting time with higher feed rate leads to increase part production
- Excellent chip control : Higher feed rate makes chips thicker, which allows chips to be broken easier

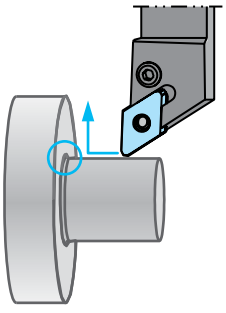
Precautions when using WF / WE Chipbreaker (Negative Insert)

Tip of Corner-R (DNMX, TNMX)



Caution when Machining Inside Corner-R

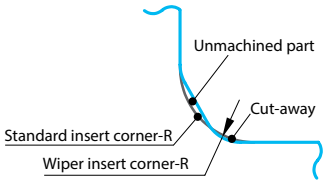
Do not use this wiper insert if a precise inside corner-R is required like shown in the figure below.



* From external turning to up facing without arc complement
(A wiper edge does not work during up facing)

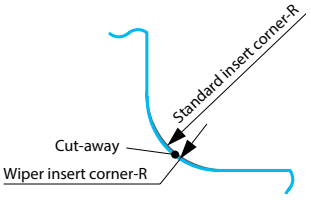
DNMX / TNMX
WF chipbreaker

- More incomplete cutting and excessive cutting during machining with this chipbreaker than the machining with a standard insert
- The inside corner-R dimension become smaller than the requirement.



CNMG / WNMG
WF / WE chipbreaker

- The inside corner-R dimension would be smaller than the requirement (Cutting excessively).

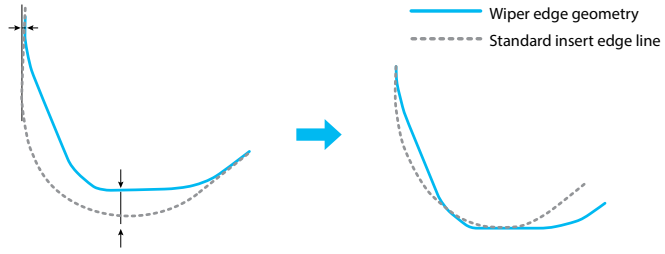


WF / WE Chipbreaker Edge Position Offset Adjustment

For D type and T type inserts, cutting edge offsets are required.

Cutting Edge Offsets (in)					
DNMX431WF DNMX441WF		DNMX432WF DNMX442WF		DNMX433WF DNMX443WF	
X-axis direction	Z-axis direction	X-axis direction	Z-axis direction	X-axis direction	Z-axis direction
0.0094	0.0008	0.0055	0.0004	0.0043	0.0004

Cutting Edge Offsets (in)					
TNMX331WF		TNMX332WF		TNMX333WF	
X-axis direction	Z-axis direction	X-axis direction	Z-axis direction	X-axis direction	Z-axis direction
0.0094	0.0004	0.0063	0.0000	0.0043	0.0000

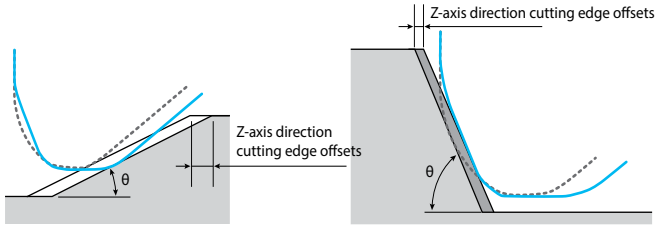


For D type and T type inserts, program corrections are required for ramping and up facing.

Program corrections for tapered part of workpiece (Z-axis direction cutting edge offsets)

DNMX43 / DNMX44 Inserts

	Corner-R (RE) (in)	Ramping Angle θ					
		0°	5°	10°	15°	20°	25°
Z-axis Cutting Edge Offsets (in)	1/64	0.0000	-0.0134	-0.0138	-0.0142	-0.0142	-0.0142
	1/32	0.0000	-0.0102	-0.0102	-0.0098	-0.0094	-0.0087
	3/64	0.0000	-0.0059	-0.0067	-0.0063	-0.0059	-0.0059



	Corner-R (RE) (in)	Up Facing Angle θ																		
		0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
Z-axis Cutting Edge Offsets (in)	1/64	0.0000	-0.0008	-0.0012	-0.0012	-0.0016	-0.0020	-0.0024	-0.0028	-0.0031	-0.0035	-0.0039	-0.0043	-0.0047	-0.0039	-0.0031	-0.0024	-0.0016	-0.0008	0.0000
	1/32	0.0000	0.0051	0.0047	0.0043	0.0035	0.0028	0.0020	0.0016	0.0008	0.0000	-0.0008	-0.0020	-0.0028	-0.0024	-0.0016	-0.0008	-0.0004	-0.0004	0.0000
	3/64	0.0000	0.0142	0.0134	0.0122	0.0106	0.0094	0.0079	0.0063	0.0051	0.0035	0.0020	0.0000	-0.0016	-0.0016	-0.0012	-0.0008	-0.0004	-0.0004	0.0000

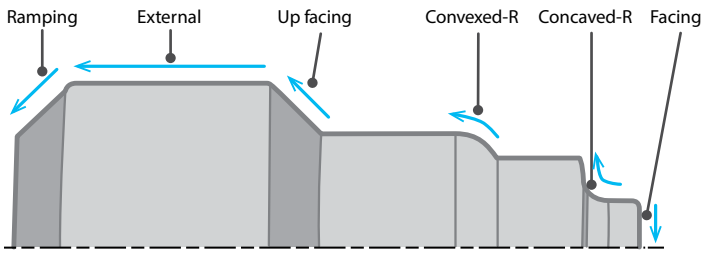
TNMX33 Inserts

	Corner-R (RE) (in)	Ramping Angle θ					
		0°	5°	10°	15°	20°	25°
Z-axis Cutting Edge Offsets (in)	0.4	0.0000					
	0.8	0.0000					
	1.2	0.0000					

Do not use TNMX33 insert for ramping.

	Corner-R (RE) (in)	Up Facing Angle θ																		
		0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
Z-axis Cutting Edge Offsets (in)	1/64	0.0000	-0.0024	-0.0020	-0.0020	-0.0024	-0.0028	-0.0031	-0.0031	-0.0035	-0.0039	-0.0043	-0.0047	-0.0051	-0.0047	-0.0039	-0.0028	-0.0020	-0.0008	0.0000
	1/32	0.0000	0.0043	0.0043	0.0039	0.0031	0.0024	0.0016	0.0008	0.0000	-0.0008	-0.0016	-0.0024	-0.0031	-0.0031	-0.0024	-0.0016	-0.0008	-0.0004	0.0000
	3/64	0.0000	0.0134	0.0126	0.0114	0.0098	0.0087	0.0075	0.0059	0.0055	0.0031	0.0016	0.0000	-0.0020	-0.0020	-0.0012	-0.0004	0.0000	0.0000	0.0000

Caution (Finished Edge Line)

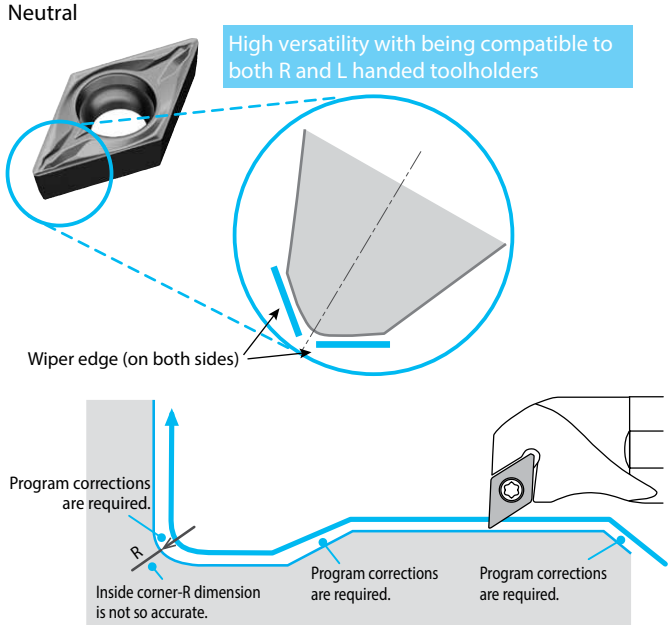


Applications	Notes
External / Facing	Please check the applicable toolholder to confirm the lead angle matches the angle of the wiper.
Up Facing Ramping	For D type and T type inserts, Z-axis program corrections are required.
Convexed-R / Concaved-R	Do not use wiper inserts if a precise radial shape is needed.

Precautions when using WP chipbreaker (Positive insert)

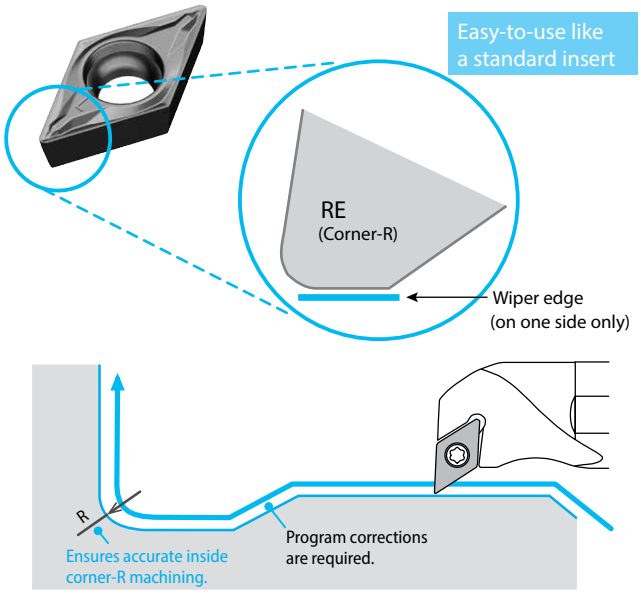
Proper use for a neutral insert and a handed insert

Neutral



When use a neutral type insert,
· you need to correct programs for three areas.
· it should be used for machining which does not require inside corner-R accuracy.

Handed (Left-hand shown)

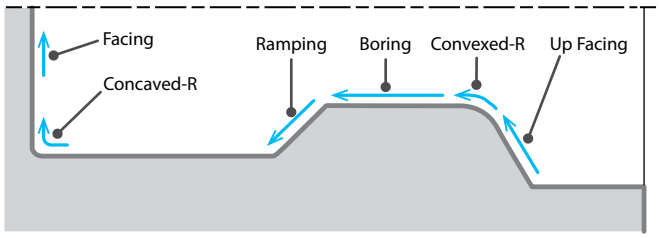


When use a handed insert,
· you need to correct program for ramping.
· it provides accurate inside corner-R machining.

Less program correction is required as well as easy-to-use like a standard insert

* Position of cutting edge differs from a standard insert. Cutting edge adjustment is required.

Caution (Finished Edge Line)



Neutral

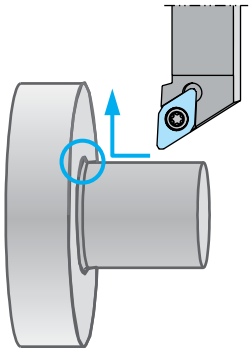
Applications	Caution
Boring / Facing	Please check the applicable toolholder to confirm the lead angle matches the angle of the wiper.
Up Facing / Ramping	For D type and T type inserts, Z-axis program corrections are required.
Convexed-R / Concaved-R	Do not use wiper inserts if a precise R shape is needed.

Handed

Applications	Caution
Boring	Please check the applicable toolholder to confirm the lead angle matches the angle of the wiper.
Ramping	For D type and T type inserts, Z-axis program corrections are required.
Convexed-R / Concaved-R	Surface finish quality is as standard insert is.
Up Facing	Surface finish quality is as standard insert is.
Facing	Surface finish quality is as standard insert is.

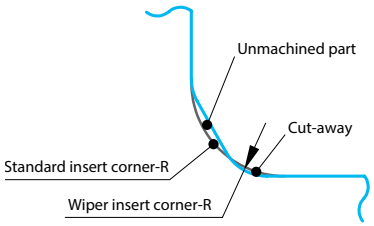
Caution when Machining Inside Corner-R

Do not use this wiper insert if a precise inside corner-R is required when such a machining in the figure below.



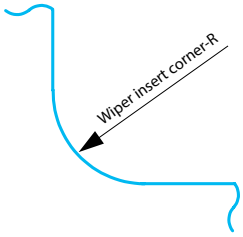
DCMX / TC(P)MX * Neutral
WP chipbreaker

· Incomplete or excessive cutting when machining with this chipbreaker than machining with a standard insert
· The inside corner-R dimension become smaller



CCMT * Neutral
DCMX / TPMX * Handed
WP Chipbreaker

· No problem in the finished line on workpiece (Adjustments are required)



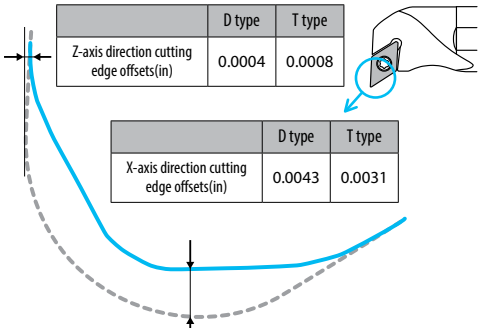
WP Chipbreaker (Positive Insert) Edge Position Offset Adjustment

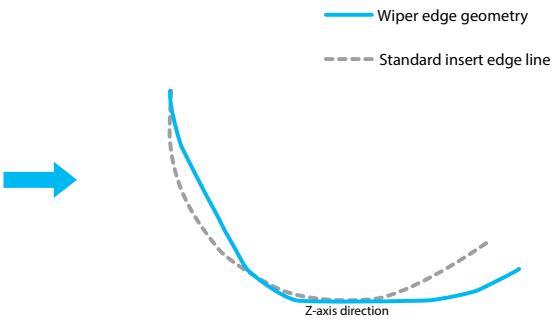
Neutral

For D type and T type inserts, cutting edge offsets are required.

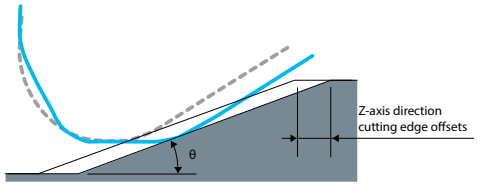
	D type	T type
Z-axis direction cutting edge offsets(in)	0.0004	0.0008

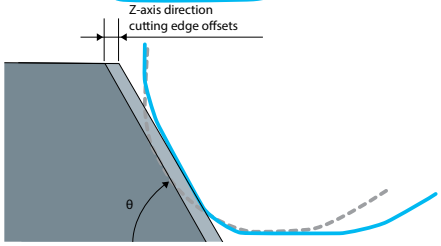
	D type	T type
X-axis direction cutting edge offsets(in)	0.0043	0.0031





For D type and T type inserts, program corrections are required for ramping and up facing.





Ramping Angle θ	0°	5°	10°	15°	20°	25°
Z-axis direction cutting edge offsets (in) D type	0	-0.0055	-0.0059	-0.0063	-0.0063	-0.0067
Z-axis direction cutting edge offsets (in) T type	0	-0.0063	-0.0067	-0.0067	-0.0067	-

Profiling Angle θ	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
Z-axis direction cutting edge offsets (in) D type	0.0000	0.0028	0.0024	0.0016	0.0012	0.0008	0.0004	0.0000	-	-	-
Z-axis direction cutting edge offsets (in) T type	0.0000	0.0028	0.0024	0.0020	0.0020	0.0016	0.0012	0.0008	0.0004	0.0004	0.0000

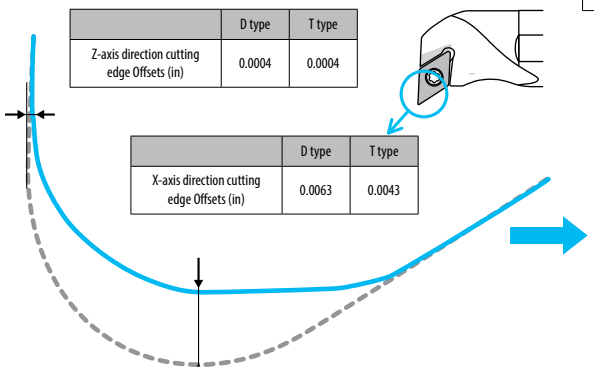
Profiling Angle θ	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
Z-axis direction cutting edge offsets (in) D type	-0.0004	-0.0008	-0.0012	-0.0016	-0.0020	-0.0020	-0.0016	-0.0012	-0.0008	-0.0004	0.0000
Z-axis direction cutting edge offsets (in) T type	-	-	-	-0.0004	-0.0008	-0.0012	-0.0016	-0.0012	-0.0008	-0.0004	0.0000

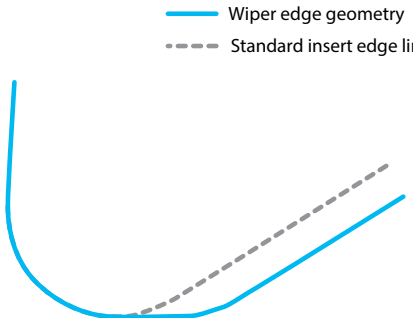
Handed Insert

For D type and T type inserts, cutting edge offsets are required.

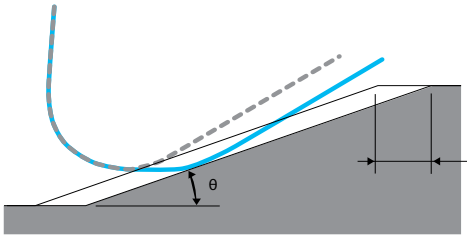
	D type	T type
Z-axis direction cutting edge Offsets (in)	0.0004	0.0004

	D type	T type
X-axis direction cutting edge Offsets (in)	0.0063	0.0043



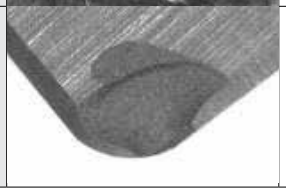


For D type and T type inserts, program corrections are required for ramping.



Ramping angle θ	0°	5°	10°	15°	20°	25°
Z-axis direction cutting edge offsets (in) D type	0	-0.0087	-0.0094	-0.0094	-0.0098	-0.0098
Z-axis direction cutting edge offsets (in) T type	0	-0.0094	-0.0094	-0.0098	-0.0094	-

Cutting Edges Figuration and Countermeasures

Typical Cutting Edge Figuration		Observation	Causes	Countermeasures
Nose wear		• Deterioration of surface roughness and dimensional accuracy	• Too high Vc • End of tool life	• Reduce Vc • Change to higher wear resistant grade
Notching		• Burr formation • Cutting force increase	• Too high f and Vc	• Sharper cutting performance • Reduce Vc • Change to higher heat resistant grade
Crater wear		• Chip control deterioration • Surface finish deterioration (peeled surface)	• Too high Vc	• Reduce Vc • Change to high speed type like Cermet or Al_2O_3 coated insert grade
Plastic deformation		• Workpiece dimension changes • Crack at nose	• Too high cutting load • Inappropriate insert grade	• Change to harder grade • Reduce f and ap
Crack from wear		• Surface finish's sudden deterioration • Workpiece dimension changes	• Too high Vc	• Change the tool earlier • Change to higher wear resistant grade
Chipping		• Cutting force increase • Surface roughness deterioration	• Too high f • Chattering • Lack of insert toughness	• Reduce f and ap • Change to more rigid toolholder • Change to tougher grade
Crack from welding or built-up edge		• Surface finish deterioration • Cutting force increase	• Too low Vc	• Increase Vc • Improve sharp cutting performance (rake angle, chamfer)
Mechanical fracture		• Sudden cracking • Unstable tool life	• Too high f and ap • Chattering	• Change to tougher grade • Enlarge chamfer • Enlarge Corner-R(RE) • Change to more rigid toolholder
Fracture from thermal crack		• Cracking by heat cycle • Possible in interrupted machining and milling	• Too high Vc and f	• Reduce f • Reduce Vc • Change to dry cutting
Flaking		• Possible in hard materials machining • Possible in machining with chattering	• Lack of insert toughness • Poor rigidity of toolholder	• Change to tougher grade (TiC-base ceramic to CBN.) • Change to more rigid toolholder • Change edge preparation

Turning

Trouble	Trouble item	Countermeasures	Insert Grades: Change to Harder Grade	Insert Grades: Change to Tougher Grade	Insert Grades: Change to More Thermal Shock Resistant Grade	Insert Grades: Change to More Welding Resistant Grade	Cutting Conditions: Vc	Cutting Conditions: f	Cutting Conditions: D.O.C.	Cutting Conditions: Tool path review	Cutting Conditions: Coolant: Wet	Cutting Conditions: Coolant: Dry	Tool Geometry: Chipbreaker Review	Tool Geometry: Rake Angle	Tool Geometry: Corner-R (RE)	Tool Geometry: Approach Angle	Tool Geometry: Edge Strength / Honing	Tool Geometry: Change to Higher Tolerance (M→G)	Tool Geometry: Toolholder Rigidity	Setting: Workpiece / Tool Installation	Setting: Overhang Length	Machine: Power, Rigidity
							Higher (Larger) ↑ Lower (Smaller) ↓							Larger ↑ Smaller ↓								
Unstable Dimension	Unstable Workpiece Dimension	Unsuitable insert tolerance																●				
		Tool and workpiece evacuation											●	●↑	●↓	●↓			●	●	●	●
	Frequent Offset During Machining	Flank wear increase	●												●↑							
		Unsuitable cutting conditions					●↓	●↑														
		Built-up edge				●	●↑															
Surface Roughness Deterioration	Poor Surface Roughness	Poor cutting by tool wear	●			●	●↓				●		●	●↑	●↑		●↓	●				
		Chipping		●				●↓	●↓				●		●↑		●↑			●	●	●
		Welding, built-up edge				●	●↑				●		●	●↑			●↓	●				
		Unsuitable cutting conditions					●↑	●↓	●↓		●											
		Unsuitable tool geometry											●		●↑		●↓	●				
		Vibration, chattering		●			●↓	*1 ●↓	●↓				●	●↑	●↓	●↓	●↓		●	●	●	●
Heat	Deterioration of Accuracy or Tool Life by Cutting Heat	Unsuitable cutting conditions					●↓	●↓	●↓		●											
		Unsuitable insert grades and tool geometry	●										●	●↑			●↓					
Burr, Workpiece Chip off and Scuffing	Burr	Unsuitable cutting conditions					●↓	●↑		●	●											
		Unsuitable insert grades and tool geometry	●										●	●↑	●↓	●↓	●↓					
	Workpiece Chip Off	Unsuitable cutting conditions						●↓	●↓	●												
		Unsuitable insert grades and tool geometry	●										●	●↑	●↑	●↑	●↓		●	●	●	●
	Scuffing	Unsuitable cutting conditions					●↑	*2 ●↓			●											
		Unsuitable insert grades and tool geometry	●			●							●	●↑			●↓					
Edge Damage	Wear Increase at Relief Face, Rake Face	Flank wear	●				●↓				●		●	●↑	●↑		●↓					
		Rake face wear	●				●↓	●↓	●↓		●		●	●↑		●↑						
	Notching	Notching				●	●↓				●											
	Chipping	Vibration, chattering		●				●↓	●↓				●			●↑	●↑		●	●	●	●
	Crack	Unsuitable insert grades and cutting conditions		●	●			●↓	●↓				●		●↑	●↑	●↑		●	●	●	●
	Thermal Crack	Work hardness, unsuitable insert grades and cutting conditions			●		●↓	●↓	●↓			●	●	●↑			●↓					
	Edge Nose Deformation	Edge nose deformation during interrupted machining	●				●↓	●↓	●↓				●	●↓	●↑	●↑	●↑					
	Built-up Edge	Work hardness, unsuitable insert grades and cutting conditions				●	●↑	●↑			●		●	●↑			●↓	●				
Chip Control	Long, Tangling Chips	Unsuitable cutting conditions					*3 ●↓	●↑	●↑	●		●										
		Unsuitable tool geometry											●		●↓	●↓						
	Chips Scattering	Unsuitable cutting conditions						●↓	●↓			●										
		Unsuitable tool geometry											●		●↑	●↑						

*1. To prevent chattering, the higher f may be suitable.
*2. To prevent scuffing, the higher f may be suitable.
*3. When using X chipbreaker insert for soft steel and low carbon steel, the higher Vc cuts chips short.

Milling

Trouble	Trouble item	Countermeasures / Check Item	Change to Harder Grade	Change to Tougher Grade	Change to More Thermal Shock Resistant Grade	Change to More Welding Resistant Grade	Vc (Higher (Larger)↑ Lower (Smaller)↓)	fz (Higher (Larger)↑ Lower (Smaller)↓)	D.O.C. (Higher (Larger)↑ Lower (Smaller)↓)	Cutter Dia. Cutting Width Review	Tool Path Review	Coolant: Usage of Mist	Coolant: Dry	Insert with Chipbreaker	Relief Angle (Larger ↑ Smaller ↓)	Corner Angle (Larger ↑ Smaller ↓)	Edge Strength / Honing (Larger ↑ Smaller ↓)	No. of Inserts (More↑ Less↓)	Chip Pocket (Larger↑ Smaller↓)	Wiper Edge (Relief Angle) Review	Insert Runout Check	Cutter Rigidity	Workpiece / Tool Installation	Overhang Length	Power, Rigidity
Edge Damage	Flank Wear Increase	Unsuitable cutting conditions					●↓					●													
		Unsuitable tool geometry	●												●↑		●↓			●					
	Rake Face Wear Increase	Unsuitable cutting conditions					●↓	●↓	●↓			●													
		Unsuitable tool geometry	●												●↑	●↑	●↓								
	Chipping, Cracking	Unsuitable cutting conditions						●↓	●↓	●	●														
		Unsuitable tool geometry		●											●↓	●↑	●↑			●	●	●	●	●	●
	Edge Breakage by Thermal Shock	Unsuitable cutting conditions					●↓	●↓	●↓				●												
		Unsuitable tool geometry			●										●↑		●↓								
	Built-up Edge	Unsuitable cutting conditions					●↑	●↑				●													
		Unsuitable tool geometry				●									●↑		●↓								
Cutting Accuracy	Poor Surface Finish	Unsuitable cutting conditions					●↑	●↓	●↓			●													
		Unsuitable tool geometry	●			●											●↓	●↓		●	●		●	●	●
	Burr Formation	Unsuitable cutting conditions					●↓	●↓	●↓	●	●														
		Unsuitable tool geometry													●↑	●↓	●↓			●					
	Workpiece Chip Off	Unsuitable cutting conditions						●↓	●↓		●														
		Unsuitable tool geometry													●↑	●↑	●↓	●↑		●					
	Poor Planeness / Parallelism	Tool and workpiece evacuation						●↓	●↓			*5 ●		●	●↑	●↓	●↓	●↓		●	●	●	●	●	●
Others	Heavy Chattering, Vibration	Unsuitable cutting conditions, installation					●↓	*1 ●↓	*2 ●↓	●	*4 ●			●	●↑	●↓	●↓	●↓				●	●	●	●
	Damaging Chips	Unsuitable cutting conditions					●↑	*3 ●↓		●		*6 ●	●												
		Unsuitable tool geometry												●	●↑			●↓	●↑						

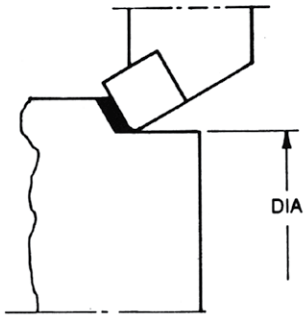
*1. To prevent chattering, the higher fz may be suitable.
*2. To prevent chattering, the larger ap may be suitable.
*3. Higher fz may be suitable.
*4. Down-cut method is recommended for helical end milling.
*5. If the surface is warped by cutting heat.
*6. Compressed air is recommended.

Drilling (Magic Drill Series)

Trouble	Trouble Item	Countermeasures: Change to Harder Grade	Change to Tougher Grade	Vc (Higher (Larger)↑ Lower (Smaller)↓)	fz (Higher (Larger)↑ Lower (Smaller)↓)	Coolant Discharge Condition	Chipbreaker Review	Inner Edge's Center Height Check (Core Dia. Check) (Larger ↑ Smaller ↓)	Toolholder Rigidity Improvement (Short Type)	Workpiece / Tool Installation	Insert Installation	Offset Check	Adjustable Sleeve Usage	Power, Rigidity
Edge Damage	Unusual Wear	Unsuitable cutting speed (too high)	●		●↓									
		Unsuitable cutting speed (too low)		●	●↑									
		Unsuitable coolant discharge					●							
		Poor rigidity of machine / workpiece									●				●
		Small hole dia.											*1 ●	●	
		Unsuitable insert grade	●												
	Inner Edge Cracking	No core, too small core							●↑						
		Poor rigidity of machine / workpiece								●	●				●
		Unstable drilling start				●↓									
		High hardness workpiece	●		●↓	●↓									
		Clogged chips			●↑				●↓						
		Unstable insert installation										●			
	Outer Edge Cracking	Poor rigidity of machine / workpiece									●				●
		Unstable drilling start				●↓									
		High hardness workpiece	●		●↓	●↓									
		Poor chip control		●	●↑										
		Unstable insert installation										●			
Toolholder, Others	Scratches on Tool Body	Poor rigidity of machine / workpiece									●				●
		Inaccurate tool installment											*1 ●	●	
		Clogged chips			●↑	●↓									
		Unstable drilling start				●↓									
	Poor Hole Dia. Accuracy / Surface Finish	Poor rigidity of machine / workpiece									●				●
		Poor rigidity of toolholder								●		●			
		Inaccurate tool installment											*1 ●	●	
		Clogged chips			●↑	●↓			●↓						
		Large core dia.							●↓						
		Unstable drilling start				●↓									
		Unsuitable coolant discharge					●								
	Large Vibration / Chattering	Unsuitable cutting conditions, installation			●↑	●↓				●	●				●
	Long Chips	Unsuitable cutting conditions			●↑										
		Unsuitable chipbreaker						●							
	Machine Failure	Lack of machine power			●↓	●↓		●							●

*1. For lathe operation

Turning



Surface Speed per Minute

$SFM = 0.262 \times DIA \times RPM$

Revolutions per Minute

$$RPM = \frac{3.820 \times SFM}{DIA}$$

Feedrate (inches/minute)

$IPM = IPR \times RPM$

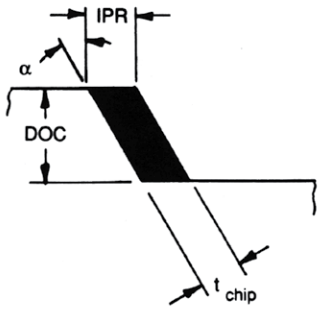
Chip Thinning for Non-Round Inserts (inches/revolution)

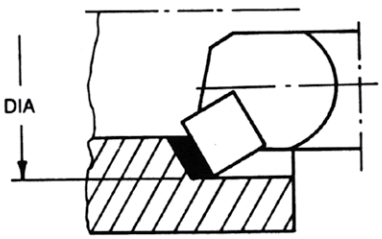
$$\text{Programmed IPR} = \frac{t_{chip\ Max}}{\cos 1}$$

Chip Thinning for Round Inserts (inches/revolution)

$$\text{Programmed IPR} = \frac{t_{chip\ Max}}{\sqrt{\frac{4ap}{ic} - \left(\frac{2ap}{ic}\right)^2}}$$

Boring





Metal Removal Rate

$Q = 12 \times DOC \times IPR \times SFM\ (in^3/minute)$

Horsepower Required at the Spindle

$HPS = Q \times UHP$

Horsepower Required at the Motor

$$HPM = \frac{HPS}{EFF}$$

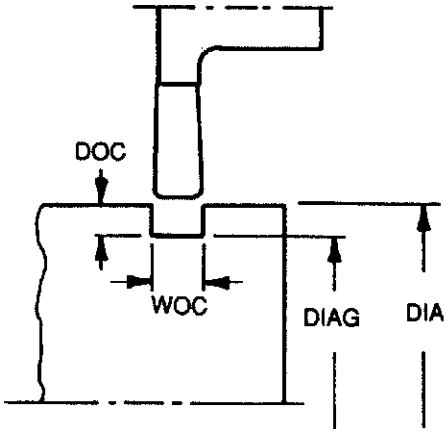
Time in Cut (seconds)

$$T = \frac{15.7 \times DIA \times LOC}{SFM \times IPR}$$

or

$$T = \frac{60 \times LOC}{IPM}$$

External Grooving



Surface Speed per Minute

$SFM = 0.262 \times DIA \times RPM$

Revolutions per Minute

$$RPM = \frac{3.820 \times SFM}{DIA}$$

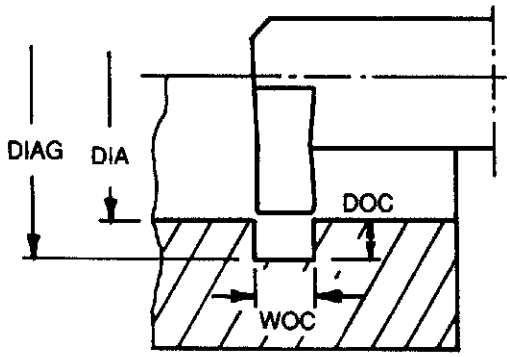
Feedrate (inches/minute)

$IPM = IPR \times RPM$

Feedrate (inches/revolution)

$IPR = t_{chip}$

Internal Grooving



Metal Removal Rate

$Q = 12 \times WOC \times IPR \times SFM\ (cu.in/minute)$

Horsepower Required at the Spindle

$HPS = Q \times UHP$

Horsepower Required at the Motor

$$HPM = \frac{HPS}{EFF}$$

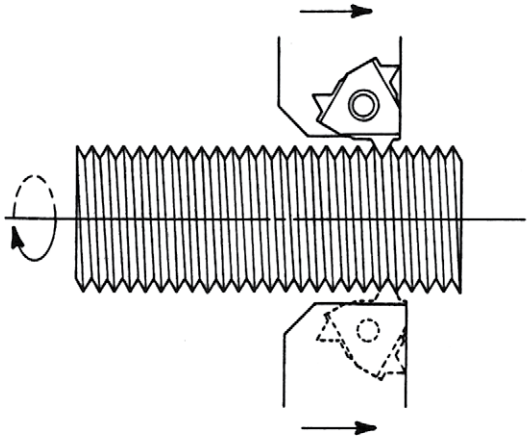
Time in Cut (seconds)

$$T = \frac{7.85 \times DOC \times (DIA + DIAG)}{SFM \times IPR}$$

or

$$T = \frac{60 \times LOC}{IPM}$$

External Threading



Surface Speed per Minute

$$SFM = 0.262 \times DIA \times RPM$$

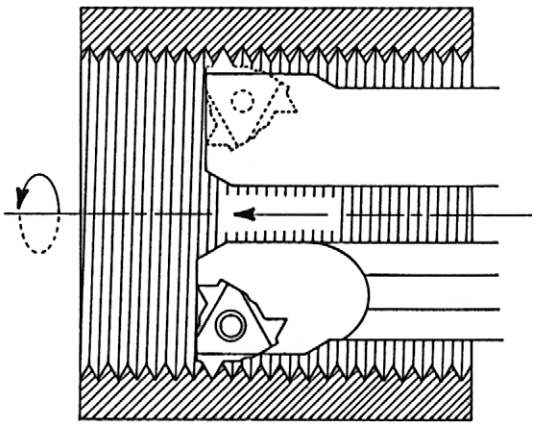
Revolutions per Minute

$$RPM = \frac{3.820 \times SFM}{DIA}$$

Feedrate (inches/minute)

$$IPM = IPR \times RPM$$

Internal Threading



Time in Cut (seconds)

$$T = \frac{60 \times LOC \times NO.\ OF\ PASSES}{IPR \times RPM}$$

Feedrate

Standard Threads

$$IPR = \frac{1}{TPI}$$

Metric Threads

$$IPR = \frac{P_{mm}}{25.4}$$

Definition of Terms

DIA = Diameter of the Workpiece (Inches)

DOC = Depth of Cut (Inches)

EFF = Machine Efficiency

f = Feedrate (See IPM and IPR)

HPM = Horsepower Required at the Motor

HPS = Horsepower Required at the Spindle

IPM = Feedrate (Inches per Minute)

IPR = Feedrate (Inches per Revolution)

IC = Insert inscribed circle (inches)

LOC = Length of Cut (Inches)

Q = Metal Removal Rate (Cubic Inches per Minute)

RPM = Revolutions per Minute

SFM = Surface Speed (Feet per Minute)

T = Time (in Seconds)

tchip Max = Maximum Recommended Chip Thickness (Inches)

UHP = Unit Horsepower Factor

1 = Lead Angle

Turning

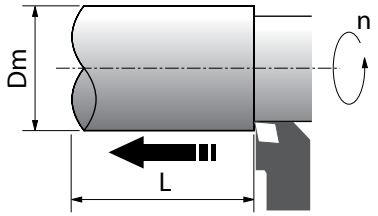
Cutting Speed

$$Vc = \frac{\pi \times Dm \times n}{1{,}000}$$

Vc : Cutting speed [m/min]

Dm : Workpiece dia. [mm]

n : Spindle revolution [min^{-1}]



Power Requirement

$$Pc = \frac{Ks \times Vc \times ap \times f}{6{,}120 \times \eta}$$

$$P_{HP} = \frac{Ks \times Vc \times ap \times f}{4{,}500 \times \eta}$$

Pc : Power requirement [kW]

P_{HP} : Power requirement (Horse power) [HP]

Vc : Cutting speed [m/min]

ap : Depth of cut [mm]

f : Feed rate [mm/rev]

K_S : Specific cutting force [kgf/mm^2]

η : Mechanical efficiency (0.7 ~ 0.8)

Ks [kgf/mm^2]	
Low carbon steel	190
Medium carbon steel	210
High carbon steel	240
Low alloy steel	190
High alloy steel	245
Cast iron	93
Malleable cast iron	120
Bronze, brass	70

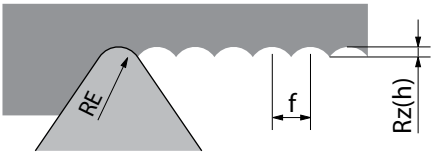
Theoretical Surface Roughness

$$Rz(h) = \frac{f^2}{8 \times RE} \times 1{,}000$$

Rz(h): Theoretical surface roughness [μm]

f : Feed rate [mm/rev]

RE : Corner radius of insert [mm]



Chip Removal Volume

$$Q = Vc \times ap \times f$$

Q : Chip removal volume [$cm^3/min=cc/min$]

Vc : Cutting speed [m/min]

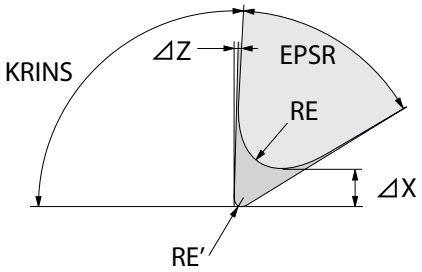
ap : Depth of cut [mm]

f : Feed rate [mm/rev]

Edge Position Compensation when Changing Corner-R(RE)

$$\Delta X = (RE - RE') \times \left\{ \frac{\cos\left(\frac{EPSR}{2} + (KRINS - 90°)\right)}{\sin\frac{EPSR}{2}} - 1 \right\}$$

$$\Delta Z = (RE - RE') \times \left\{ \frac{\sin\left(\frac{EPSR}{2} + (KRINS - 90°)\right)}{\sin\frac{EPSR}{2}} - 1 \right\}$$



ΔX : X-axis direction cutting edge offsets [mm]

ΔZ : Z-axis direction cutting edge offsets [mm]

RE : Corner-R before change [mm]

RE': Corner-R after change [mm]

EPSR : Insert corner angle [°]

KRINS : Toolholder's cutting edge angle [°]

Toolholder type	Insert corner angle EPSR	Cutting edge angle KRINS	ΔX	ΔZ
DCLN/PCLN	80°	95°	0.100 x (RE-RE')	0.100 x (RE-RE')
DTGN/PTGN	60°	91°	0.714 x (RE-RE')	0.030 x (RE-RE')
DDJN/PDJN	55°	93°	0.866 x (RE-RE')	0.099 x (RE-RE')
DDHN/PDHN	55°	107.5°	0.531 x (RE-RE')	0.531 x (RE-RE')
DVLN/PVLN	35°	95°	2.072 x (RE-RE')	0.273 x (RE-RE')
DVPN/PVPN	35°	117.5°	1.351 x (RE-RE')	1.351 x (RE-RE')
DSBN/PSBN	90°	75°	0.225 x (RE-RE')	-0.293 x (RE-RE')

Example: Compensation when changing corner-R from 0.8 to 0.4, using PCLN toolholder,

ΔX=0.100 x (0.8-0.4)=0.04(mm)

ΔZ=0.100 x (0.8-0.4)=0.04(mm)

Turning (Cutting time)

Cutting time (External turning case 1: 1 pass machining)

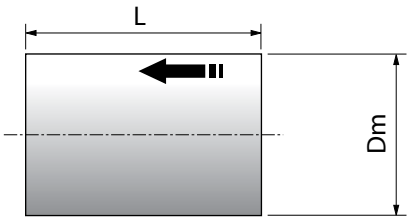
At constant revolution

$$T = \frac{60 \times L}{f \times n}$$

At constant cutting speed

$$T = \frac{60 \times \pi \times L \times Dm}{1{,}000 \times f \times Vc}$$

T : Cutting time [sec]
L : Cutting length [mm]
f : Feed rate [mm/rev]
n : Spindle revolution [min^{-1}]
Dm : Workpiece dia. [mm]
Vc : Cutting speed [m/min]



Cutting time (External turning case 2: multi-pass machining)

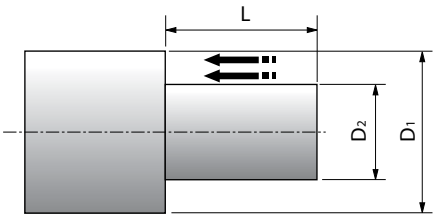
At constant revolution

$$T = \frac{60 \times L}{f \times n} \times N$$

At constant cutting speed

$$T = \frac{60 \times \pi \times L \times (D_1 + D_2)}{2 \times 1{,}000 \times f \times Vc} \times N$$

T : Cutting time [sec]
L : Cutting length per pass [mm]
ap : Depth of cut per pass [mm]
f : Feed rate [mm/rev]
n : Spindle revolution [min^{-1}]
D_1 : Max. dia. of workpiece [mm]
D_2 : Min. dia. of workpiece [mm]
Vc : Cutting speed [m/min]
N : Number of passes = (D1 - D2) / ap / 2 (if it is indivisible, obtain integer by rounding up one place of decimals.)



Cutting time (Facing)

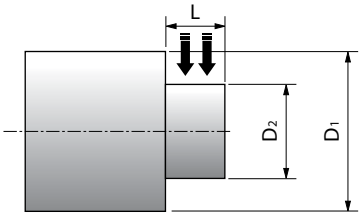
At constant revolution

$$T = \frac{60 \times (D_1 - D_2)}{2 \times f \times n} \times N$$

At constant cutting speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_2) \times (D_1 - D_2)}{4{,}000 \times f \times Vc} \times N$$

T : Cutting time [sec]
T_1 : Cutting time before reaching Max. spindle revolution [sec]
L : Cutting length [mm]
ap : Depth of cut per pass [mm]
f : Feed rate [mm/rev]
n : Spindle revolution [min^{-1}]
D_1 : Max. dia. of workpiece [mm]
D_2 : Min. dia. of workpiece [mm]
Vc : Cutting speed [m/min]
N : Number of passes = L / ap (if it is indivisible, obtain integer by rounding up one place of decimals.)



Cutting time (Grooving)

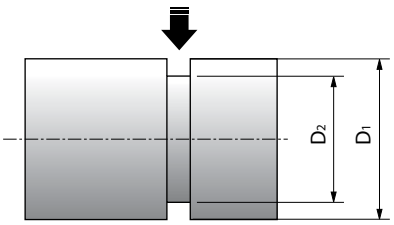
At constant revolution

$$T = \frac{60 \times (D_1 - D_2)}{2 \times f \times n}$$

At constant cutting speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_2) \times (D_1 - D_2)}{4{,}000 \times f \times Vc}$$

T : Cutting time [sec]
T_1 : Cutting time before reaching Max. spindle revolution [sec]
L : Cutting length [mm]
f : Feed rate [mm/rev]
n : Spindle revolution [min^{-1}]
D_1 : Max. dia. of workpiece [mm]
D_2 : Min. dia. of workpiece [mm]
Vc : Cutting speed [m/min]



Cutting time (Cut-off)

At constant revolution

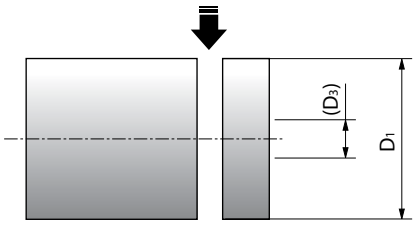
$$T = \frac{60 \times D_1}{2 \times f \times n}$$

At constant cutting speed

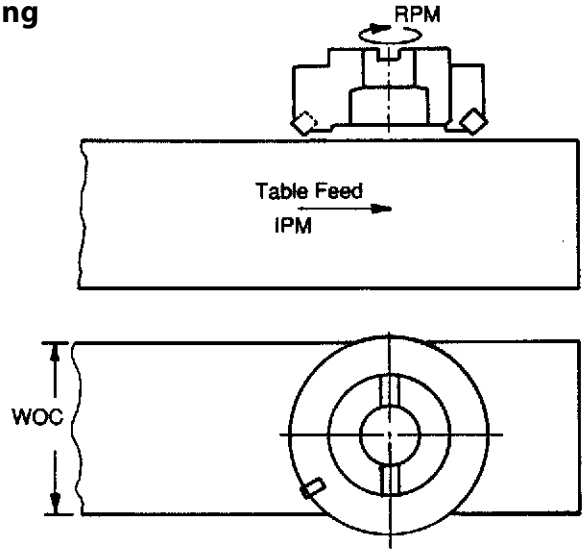
$$T_1 = \frac{60 \times \pi \times (D_1 + D_3) \times (D_1 - D_3)}{4{,}000 \times f \times Vc}$$

$$T_3 = T_1 + \frac{60 \times D_3}{2 \times f \times n_{max}}$$

T : Cutting time [sec]
T_1 : Cutting time before reaching Max. spindle revolution [sec]
T_3 : Cutting time when reaching Max. spindle revolution [sec]
f : Feed rate [mm/rev]
n : Spindle revolution [min^{-1}]
n_{max} : Max. spindle revolution [min^{-1}]
D_1 : Max. dia. of workpiece [mm]
D_3 : Diameter when reaching max. spindle revolution [mm]
Vc : Cutting speed [m/min]



Milling



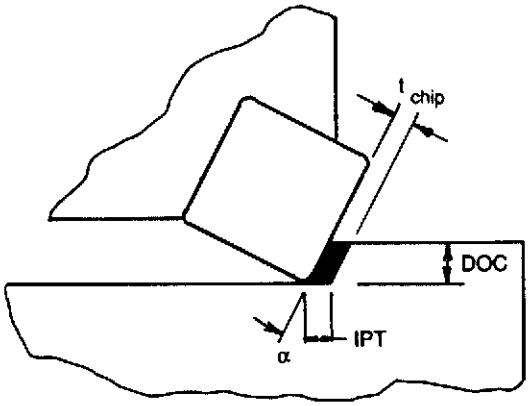


Table Feed with f_1 Compensation (inches/minute)
= IPT × N × RPM × f_1

Surface Speed per Minute

SFM = 0.262 × DIA × RPM

Revolutions per Minute

$$RPM = \frac{3.820 \times SFM}{DIA}$$

Feedrate (inches/minute)

IPM = IPT × N × RPM

Feedrate (inches/tooth)

$$\text{Programmed IPT} = \frac{\text{tchip Max}}{\cos IJ}$$

Radial Chip Thinning for 90° Cutters

$$f_1 = \frac{1/2 \left(\frac{Dia}{Ae}\right)}{\sqrt{\left(\frac{Dia}{Ae}\right) - 1}}$$

Metal Removal Rate

Q = WOC DOC × IPM (in/min)

Horsepower Required at the Spindle

HPS = Q × UHP

Horsepower Required at the Motor

HPM = HPS/EFF

Time in Cut (Seconds)

$$T = \frac{15.7 \times DIA \times LOC}{SFM \times IPR \times N}$$

or

$$T = \frac{60 \times LOC}{IPM}$$

Definition of Terms

DIA = Diameter of the Workpiece (Inches)

D.O.C. = Axial Depth of Cut (Inches)

EFF = Machine Efficiency

f = Feedrate (See IPM, IPR, and IPT)

HPM = Horsepower Required at the Motor (HP)

HPS = Horsepower Required at the Spindle (HP)

IPM = Feedrate (Inches per Minute)

IPR = Feedrate (Inches per Revolution)

IPT = Feedrate (Inches per Tooth)

f_1 = Cutter Compensation Factor

WOC = Width of Cut (Inches)

LOC = Length of Cut (Inches)

N = Number of Effective Teeth in Cutter

Q = Metal Removal Rate (Cubic Inches per Minute)

RPM = Revolutions per Minute

SFM = Surface Speed (Feet per Minute)

T = Time (in Seconds)

tchip Max = Maximum Recommended Chip Thickness (Inches)

UHP = Unit Horsepower Factor

IJ = Lead Angle

Milling

Cutting Speed

$$Vc = \frac{\pi \times DC \times n}{1{,}000}$$

Vc : Cutting speed [m/min]
DC : Cutter dia. [mm]
n : Spindle revolution [min^{-1}]

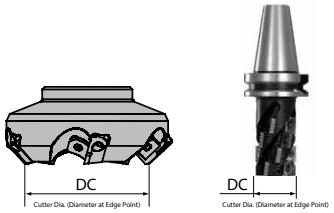
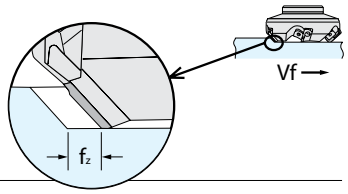


Table Feed and Feed Per Tooth

$$f_z = \frac{Vf}{Z \times n}$$

f_z : Feed per tooth [mm/t]
Vf : Table feed [mm/min]
Z : No. of inserts
n : Spindle revolution [min^{-1}]



Power Requirement

$$Pc = \frac{K_s \times Q}{6{,}120 \times \eta} = \frac{K_s \times ae \times Vf \times ap}{6{,}120{,}000 \times \eta}$$

$$= \frac{K_s \times ae \times f_z \times Z \times n \times ap}{6{,}120{,}000 \times \eta}$$

$$P_{HP} = \frac{6{,}120}{4{,}500} \times Pc$$

Pc : Power requirement [kW]
P_{HP} : Power requirement (Horse power) [HP]
ae : Width of cut [mm]
Vf : Table feed [mm/min]
f_z : Feed per tooth [mm/t]
Z : No. of inserts
n : Spindle revolution [min^{-1}]
ap : Depth of cut [mm]
K_s : Specific cutting force [kgf/mm^2]
η : Mechanical efficiency (0.7 ~ 0.8)
Q : Chip removal volume [cm^3/min=cc/min]

Ks [kgf/mm^2]	
Low carbon steel	190
Medium carbon steel	210
High carbon steel	240
Low alloy steel	190
High alloy steel	245
Cast iron	93
Malleable cast iron	120
Bronze, Brass	70

Chip Removal Volume

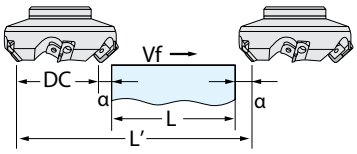
$$Q = \frac{ae \times Vf \times ap}{1{,}000} = \frac{ae \times f_z \times Z \times n \times ap}{1{,}000}$$

Q : Chip removal volume [cm^3/min=cc/min]
ae : Width of cut [mm]
Vf : Table feed [mm/min]
f_z : Feed per tooth [mm/t]
Z : No. of inserts
n : Spindle revolution [min^{-1}]
ap : Depth of cut [mm]

Cutting Time

$$T = \frac{60 \times L'}{Vf} = \frac{60 \times L'}{f_z \times Z \times n}$$

T : Cutting time [sec]
L' : Total table transfer length [mm]
(= L+DC+2α)
L : Workpiece length [mm]
DC : Cutter dia. [mm]
α : Idling distance [mm]
Vf : Table feed [mm/min]
f_z : Feed per tooth [mm/t]
Z : No. of inserts
n : Spindle revolution [min^{-1}]



True Rake Angle

$$\tan T = \tan R \times \cos C + \tan A \times \sin C$$

Inclination Angle

$$\tan I = \tan A \times \cos C - \tan R \times \sin C$$

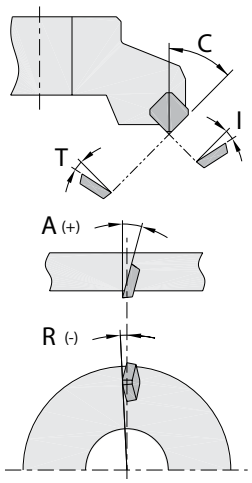
A (GAMP) : Axial rake angle (A.R.) [°] (-90° < A < 90°)

R (GAMF) : Radial rake angle (R.R.) [°] (-90° < R < 90°)

C (KAPR) : Approach angle [°] (0° < C < 90°)

T (GAMN) : True rake angle [°] (-90° < T < 90°)

I (GAMO) : Inclination angle [°] (-90° < I <90°)



Ball-Nose End Mill Cutting Speed and Revolution

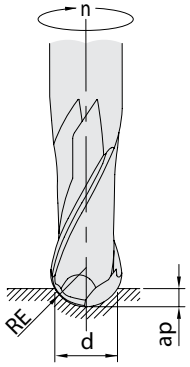
$$n = \frac{1{,}000 \times V_a}{2 \times \pi \times \sqrt{ap(2RE-ap)}}$$

n : Revolution [min^{-1}]

RE : Radius of ball-nose end mill (Ball part's radius) [mm]

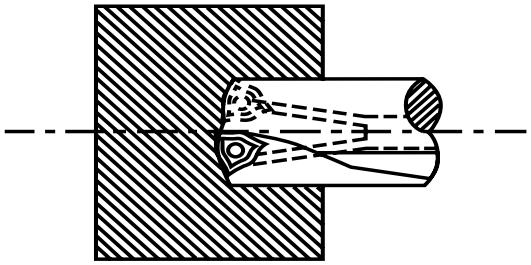
ap : Depth of cut [mm]

V_a : Cutting speed at actual dia. d [m/min]

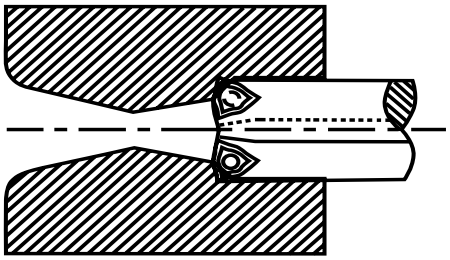


Drilling

DRILLING



CORE DRILLING



Surface Speed Per Minute

SFM = 0.262 x DIA x RPM

Revolutions Per Minute

$$RPM = \frac{3.82 \times SFM}{DIA}$$

Feedrate (inches/minute)

IPM = IPR x RPM

Feedrate (inches/revolution)

IPR = IPT x N

Metal Removal Rate (in³ per minute)

Drill: Q = 3 x DIA x IPR x SFM

Coredrill: Q = 12 x DOC x IPR x SFM

Horsepower Required at the Spindle

HPS = Q x UHP

Horsepower Required at the Motor

$$HPM = \frac{HPS}{EFF}$$

Time in Cut

$$T = \frac{15.7 \times DIA \times LOC}{SFM \times IPR}$$

or

$$T = \frac{60 \times LOC}{IPM}$$

Definition of Terms

DIA = Diameter of the Drill (Inches)
DOC = Depth of Cut (Inches)
EFF = Machine Efficiency
HPM = Horsepower at Motor
HPS = Horsepower at Spindle
IPM = Feedrate (Inches Per Minute)
IPR = Feedrate (Inches Per Revolution)
IPT = Chipload (Inches Per Tooth)
LOC = Length of Cut (Inches)
N = Number of Effective Flutes
N = 1 For Drills
N = 2 For Coredrills
Q = Metal Removal Rate (Cubic Inches Per Minute)
RPM = Revolutions Per Minute
SFM = Surface Speed (Feet Per Minute)
T = Time (Seconds)
UHP = Unit Horsepower (See Table Below)

UNIT HORSEPOWER FACTORS

Material	Hardness (BHN)	UHP Factor (HP/in3/min)	Material	Hardness (BHN)	UHP Factor (HP/in3/min)
Aluminum	---	0.25	1050	225	0.80
Brass	---	0.25	4140	275	0.70
Copper	---	0.30	52100	225	0.67
Gray Cast Iron	200	0.33	6150	375	1.30
Nodular Iron	225	0.54	Cast Steel	225	0.62
Inconel 700	330	1.10	Stainless Steel	225	0.73
1020	165	0.58			

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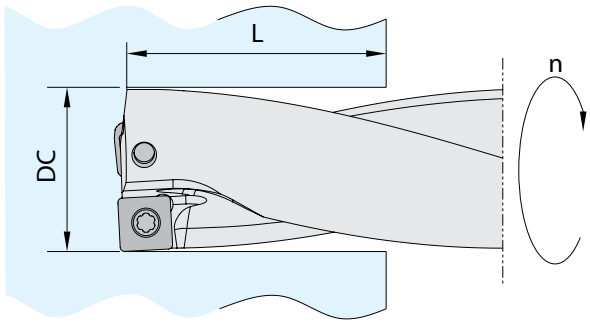
Drilling (Magic Drill Series)

Cutting Speed

$$Vc = \frac{\pi \times DC \times n}{1{,}000}$$

Vc : Cutting speed [m/min]
DC : Drill dia. [mm]
n : Spindle revolution [min^{-1}]



Feed Rate (Milling)

$$Vf = fz \times Z \times n$$

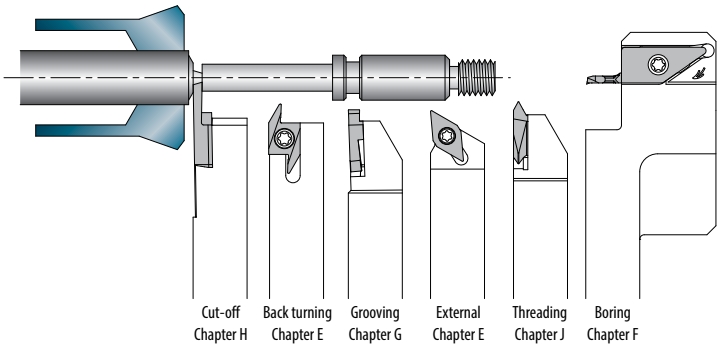
Vf : Table feed [mm/min]
fz : Feed per tooth [mm/t]
Z : No. of inserts (No. of insert = 1)
n : Spindle revolution [min^{-1}]

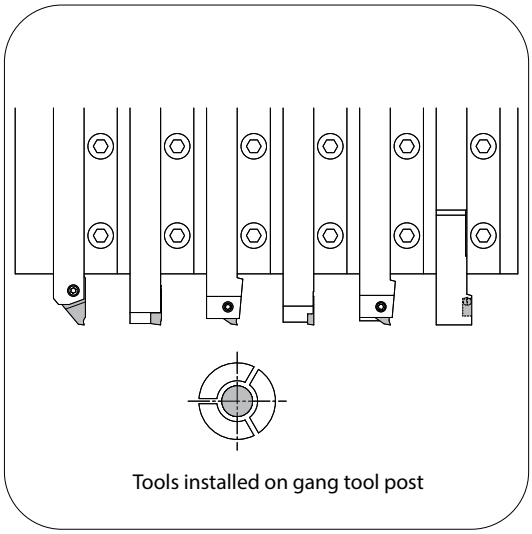
Cutting Time

$$T = \frac{60 \times L}{f \times n} = \frac{60 \times \pi \times DC \times L}{1{,}000 \times Vc \times f}$$

T : Cutting time [sec]
L : Drilling depth [mm]
f : Feed rate [mm/rev]
n : Spindle revolution [min^{-1}]
DC : Drill dia. [mm]
Vc : Cutting speed [m/min]

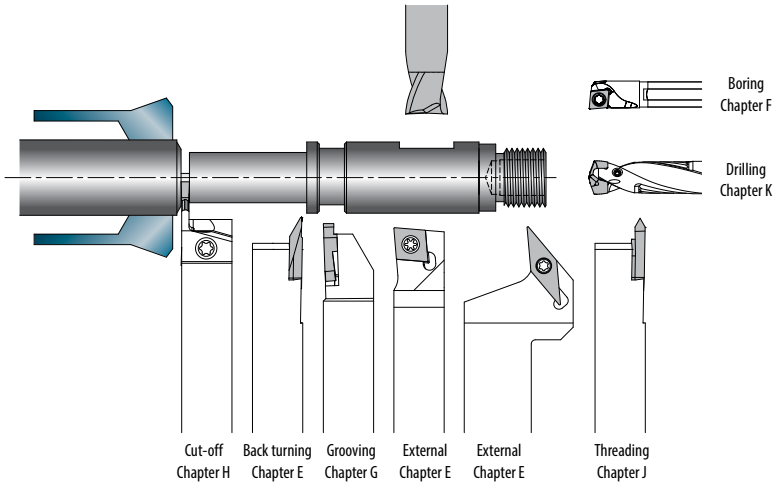
Tooling Example 1: CNC Swiss Style Lathe (Gang Type)

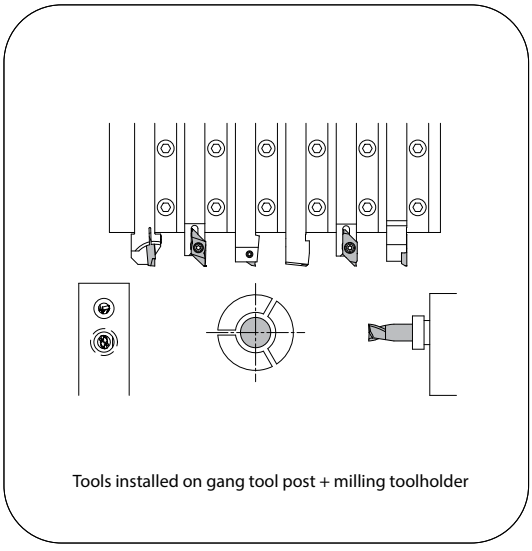




Tools installed on gang tool post

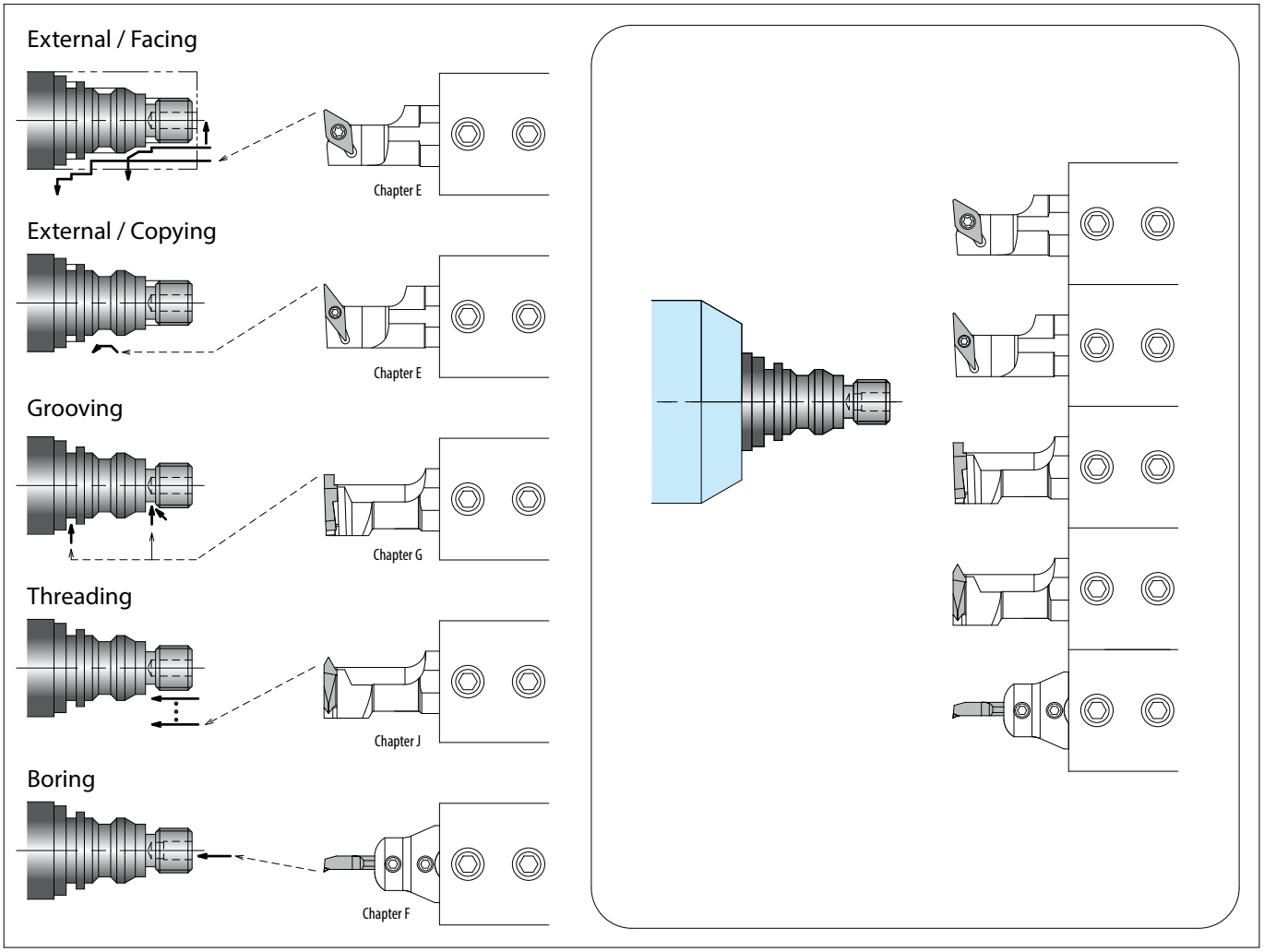
Tooling Example 2: CNC Swiss Style Lathe (Gang Type)



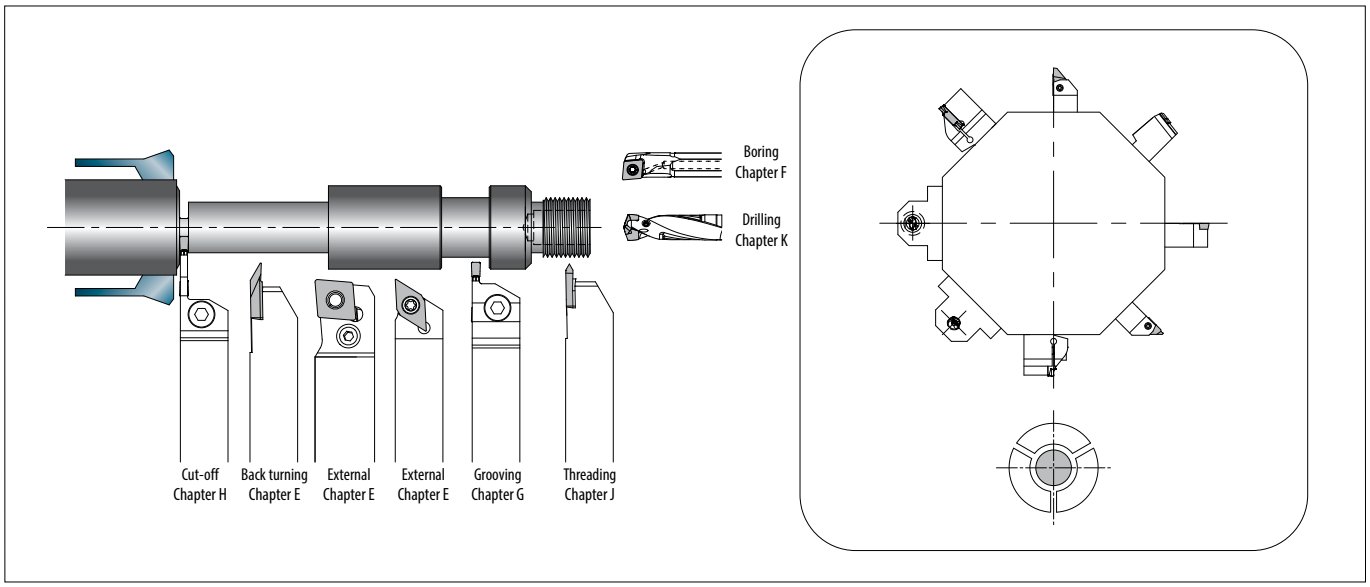


Tools installed on gang tool post + milling toolholder

Tooling Example 3: CNC Swiss Style Lathe (Opposed Gang Type)



Tooling Example 4: CNC Swiss Style Lathe (Turret type)



For Tooling Layout and Swiss Style Lathe List by Manufacturer, See Page **R46~R54**

Citizen Machinery (Cincom Products)

(Dimensions: mm)

Model	Toolholder Dimensions (Gang Tool Post)	Number of Tools	Toolholder Dimensions (Turret Tool Post)	Number of Tools	Sleeve Dia. (Horizontal/Opposed)	Max. Cutting Dia.	Notes
A12/16	10 x 10 x 100	5			ø19.05/ø20	ø12/ø16	
A20	12(13) x 12(13) x 120 * Cut-off toolholder : □16mm	6			ø25.4	ø20	
A20 Ⅶ	12(13) x 12(13) x 120 * Cut-off toolholder : □16mm	6			ø25.4	ø20	
A32	16 x 16 x 150	6			ø25.4	ø32	
B12	10 x 10 x 100	5			ø19.05/ø20	ø12	
B12E/B16E	10 x 10 x 120(60)	5			ø19.05(ø20^{OP})	ø12/ø16	
B20	12(13) x 12(13) x 120	6			ø19.05/ø20	ø20	
BL12	10 x 10 x 60 ~ 120	5			ø20(ø19.05)	ø12	
BL20/25	12(13) x 12(13) x 120	4 ~ 7			ø20(ø19.05)	ø20/ø25	
C12/16	10 x 10 x 120	6			ø19.05	ø12/ø16	
C32	16 x 16 x 130	5			ø25.4	ø32	
D25	16 x 16 x 150 * Cut-off toolholder : □19mm				ø25.4	ø25	
F10			10 x 10 x 60	10	ø19.05	ø10	
F12			10 x 10 x 60	10	ø19.05	ø12	
F16			10 x 10 x 60	10	ø19.05	ø16	
F20			16(19) x 16(13) x 90	10	ø25.4	ø20	
F25			16(19) x 16(13) x 90	10	ø25.4	ø25	
FL25			16 x 16 x 90	12		ø25	
FL42			16 x 16 x 90	12		ø42	
G32			16(19) x 16(19) x 90	10	-	ø32	
K12/16	12(10) x 12(10) x 100	6(7)			ø19.05/ø20	ø12/ø16	
K12E/K16E	12 x 12 x 120	6			ø19.05/ø20	ø12/ø16	
L10	8 x 8 x 100 ~ 130	5			ø15.875	ø10	
L12	10 x 10 x 100	6			ø19.05	ø12	
L16	12(10) x 12(10) x 130	5			ø19.05	ø16	
L20,L20E	12 x 12 x 130 * Cut-off toolholder : □16mm	5			ø19.05	ø20	
L20X,L220	12(13,16) x 12(13,16) x 120 * Cut-off toolholder : □16mm	5 ~ 7			ø19.05	ø20	
L25	16 x 16 x 130	5			ø25.4	ø25	
L32	16 x 16 x 130	5			ø25.4	ø32	
M12	10 x 10 x 120	5	10 x 10 x 60	10 + α	ø19.05	ø12	
M16	10 x 10 x 120	5	10 x 10 x 60	10 + α	ø19.05	ø16	
M20	16 x 16 x 130	5	16 x 16 x 90	10 + α	ø25.4	ø20	
M32	16 x 16 x 130	5	16 x 16 x 90	10 + α	ø25.4	ø32	
MC20	13 x 13 x 120	2 + 2 + 2			ø19.05/ø20.0	ø20.0	
MSL12	10 x 10 x 120				-	ø12	
R04	8 x 8 x 120	5			ø15.875	ø4	
R07	8 x 8 x 120	5			ø15.875	ø7	
RL01	10(8) x 10(8) x 90				ø16(ø20)	ø10	
RL02	16 x 16 x 90				ø20	ø20	
RL21	10(12) x 10(12) x 90				ø19.05	ø35	

Manufacturers are in random order.

Citizen Machinery (Miyano Products)

(Dimensions: mm)

Model	Toolholder Dimensions (Gang Tool Post)	Number of Tools	Toolholder Dimensions (Turret Tool Post)	Number of Tools	Sleeve Dia. (Horizontal/Opposed)	Max. Cutting Dia.	Notes	Notes
ABX-51SY2			20 x 20 x 125(100)	24	ø25	48	ø51	
ABX-51SYY2			20 x 20 x 125(100)	24	ø25	48	ø51	
ABX-51TH5			20 x 20 x 125(100)	36	ø25	72	ø51	
ABX-51THY2			20 x 20 x 125(100)	36	ø25	72	ø51	
ABX-64SY2			20 x 20 x 125(100)	24	ø25	48	ø64	
ABX-64SYY2			20 x 20 x 125(100)	24	ø25	48	ø64	
ABX-64TH5			20 x 20 x 125(100)	36	ø25	72	ø64	
ABX-64THY2			20 x 20 x 125(100)	36	ø25	72	ø64	
BNA-34C			20 x 20 x 125(100)	8(16)	ø25	24	ø34	
BNA-34DHY			20 x 20 x 125(100)	14(22)	ø25	27	ø34	
BNA-34S			20 x 20 x 125(100)	8(16)	ø25	24	ø34	
BNA-42C/C2			20 x 20 x 125(100)	8(16)	ø25	24	ø42	
BNA-42DHY			20 x 20 x 125(100)	14(22)	ø25	27	ø42	
BNA-42DHY2			20 x 20 x 125(100)	14(22)	ø25	27	ø42	
BNA-42DHY3			20 x 20 x 125(100)	14(22)	ø25	27	ø42	
BNA-42GTY	20 x 20 x 125(100)	3	20 x 20 x 125(100)	8(16)	ø25	24(7)	ø42	
BNA-42MSY2			20 x 20 x 125(100)	8(16)	ø25	24	ø42	
BNA-42S/S2			20 x 20 x 125(100)	8(16)	ø25	24	ø42	
BNA-42C5/SY5			20 x 20 x 125(100)	12(24)	ø25	24	ø42	
BNC-42C7			20 x 20 x 125(100)	8(16)	ø25	24	ø42	
BND-51C2			20 x 20 x 125(100)	12	ø25	24	ø51	
BND-51S2			20 x 20 x 125(100)	12	ø25	24	ø51	
BND-51SY2			20 x 20 x 125(100)	12	ø25	24	ø51	
BNE-42S6			20 x 20 x 125(100)	24	ø25	48	ø42	
BNE-42SY6			20 x 20 x 125(100)	24	ø25	48	ø42	
BNE-51S6			20 x 20 x 125(100)	24	ø25	48	ø51	
BNE-51SY6			20 x 20 x 125(100)	24	ø25	48	ø51	
BNE-51MSY			20 x 20 x 125(100)	24	ø25	48	ø51	
BNE-51MYY			20 x 20 x 125(100)	24	ø25	48	ø51	
BNE-65MYY			20 x 20 x 125(100)	24	ø25	48	ø65	
BNJ-34S3/S5			20 x 20 x 125(100)	18	ø25	30	ø34	
BNJ-34SY3/SY5			20 x 20 x 125(100)	18	ø25	30	ø34	
BNJ-42S3/S5			20 x 20 x 125(100)	18	ø25	30	ø42	
BNJ-42S6			20 x 20 x 125(100)	20	ø25	40	ø42	
BNJ-42SY3/SY5			20 x 20 x 125(100)	18	ø25	30	ø42	
BNJ-42SY5			20 x 20 x 125(100)	18	ø25	30	ø42	
BNJ-42SY6			20 x 20 x 125(100)	20	ø25	40	ø42	
BNJ-51S3/S5			20 x 20 x 125(100)	18	ø25	30	ø51	
BNJ-51SY3/SY5			20 x 20 x 125(100)	18	ø25	30	ø51	
BNJ-51SY6			20 x 20 x 125(100)	20	ø25	40	ø51	
GN-3200	12(16) x 12(16) x 70 ~ 120	4 ~ 5			ø20		ø40	
GN-3200W	12(16) x 12(16) x 70 ~ 120	4 ~ 5			ø20		ø40	"Number of tools" is per turret.
GN-4200	12(16) x 12(16) x 70 ~ 120	6 ~ 7			ø20		ø40	
LX-06E2			20 x 20 x 125(100)	8	ø32	8		6 inch power chuck
LX-06E3			20 x 20 x 125(100)	8	ø32	8		6 inch power chuck
LX-08C			25 x 25 x 150	10	ø40	10		8 inch power chuck
LX-08E2			25 x 25 x 150	8	ø40	8		8 inch power chuck
LX-08E3			25 x 25 x 150	8	ø40	8		8 inch power chuck
LX-08R			20 x 20 x 125(100)	10	ø25	20		8 inch power chuck
LZ-01R2			20 x 20 x 125(100)	12	ø25	24		6 inch power chuck
LZ-01RY2			20 x 20 x 125(100)	12	ø25	24		6 inch power chuck
LZ-02R2			20 x 20 x 125(100)	10	ø25	20		8 inch power chuck
LZ-02RY2			20 x 20 x 125(100)	10	ø25	20		8 inch power chuck
RL01Ⅲ	10 x 10 x 70 ~ 120	2 ~ 3			ø16		ø10	
RL01Ⅴ	10 x 10 x 70 ~ 120	2 ~ 3			ø16		ø10	
RL03	12(16) x 12(16) x 70 ~ 120	4 ~ 5			ø20		ø40	
VC03	12(16) x 12(16) x 70 ~ 120	4 ~ 5			ø20		ø40	

* Number of tools shown in parentheses is the maximum number of toolholder mountable including ø25mm sleeves.

Manufacturers are in random order.

Star Micronics

(Dimensions: mm)

Model	Toolholder Dimensions (Gang Tool Post)	Number of Tools	Toolholder Dimensions (Turret Tool Post)	Number of Tools	Sleeve Dia. (Front/Rear)	Number of Tools	Max. Cutting Dia.	Notes
SB-16 (A/C/D/E)	12 x 12 x 95 ~ 130	5			ø22/ø22	4/4	ø16	Only D/E for rear-end sleeves
	12(10) x 12(10) x 95 ~ 130	6			ø22/ø22	4/4	ø16	
SB-12Ⅱ (C/E)	12 x 12 x 95 ~ 130	6			ø22/ø22	4/4	ø13	Only E for rear-end sleeves
SB-16Ⅱ (C/E)	12(10) x 12(10) x 95 ~ 130	6			ø22/ø22	4/4	ø16	
SB-20 A/C/E	12 x 12 x 95 ~ 130	6			ø22/ø22	4/4	ø20	
SB-12R typeG	12 x 12 x 95 ~ 130	6			ø22/ø22	4/4	ø13	
	10 x 10 x 95 ~ 130	7			ø22/ø22	4/4		
SB-16Ⅲ	12 x 12 x 95 ~ 130	5			ø22/ø22	4/4	ø16	
	10 x 10 x 95 ~ 130	6			ø22/ø22	4/4		
SB-16R/20R typeN	12 x 12 x 95 ~ 130	6			ø22/ø22	4/4	ø16/ø23	
	10 x 10 x 95 ~ 130	7			ø22/ø22	4/4		
SB-16R/20R typeG	12 x 12 x 95 ~ 130	6			ø22/ø22	4/4	ø16/ø23	
	10 x 10 x 95 ~ 130	7			ø22/ø22	4/4		
SB-16R/20R typeGB	12 x 12 x 95 ~ 130	6			ø22/ø22	4/4	ø16/ø23	
	10 x 10 x 95 ~ 130	7			ø22/ø22	4/4		
SC20	12 x 12 x 95 ~ 130	5			ø22/-	4/-	ø20	
	10 x 10 x 95 ~ 130	6			ø22/-	4/-		
SG-42			16 x 16 x 84 ~ 88(71 ~ 82)		ø22+ø32/-		ø42	
			20 x 20 x 84 ~ 88					
SL-7/10	10 x 10 x 95 ~ 115	6			ø16+ø22/ø16+ø22	4~6/6	ø10	
	8 x 8 x 68 ~ 115	6						
SR-10J	8 x 8 x 67 ~ 110 (Spacer is needed)	6			ø16/ø16+ø22	4/4	ø10	
SR-20RⅡ	12 x 12 x 100 ~ 135	6			ø22/ø22	4/4	ø23	
SR-20RⅢ	12 x 12 x 95 ~ 135	6			ø22/ø22	6/4	ø23	Toolpost for 2 toolholders (deep boring) on the front side
SR-20J typeC	12 x 12 x 95 ~ 135	6			ø22/ø22	6/4	ø23	
SR-20J typeN	12 x 12 x 95 ~ 135	6			ø22/ø22	6/4	ø23	
SR-20JⅡ typeA	12 x 12 x 100 ~ 135	6			ø22/ø22	7/4	ø23	
SR-20JⅡ typeB	12 x 12 x 100 ~ 135	6			ø22/ø22	7/8	ø23	
SR-20Ⅳ typeA	12 x 12 x 100 ~ 130	7			ø22/ø22	6/8	ø23	
SR-20Ⅳ typeB	12 x 12 x 100 ~ 130	7			ø22/ø22	6/8	ø23	
SR-25J/32J	16 x 16 x 95 ~ 155	6			ø22+ø32/ø22	4/4	ø32	
SR-32JⅡ typeA	16 x 16 x 95 ~ 165	6			ø22+ø32/ø22	5/6	ø34	
SR-32JⅡ typeB	16 x 16 x 95 ~ 165	6			ø22+ø32/ø22	5/8	ø34	
SB-32JⅢ typeA	16 x 16 x 95 ~ 165	6			ø22+ø32/ø22	5/6	ø34	
SB-32JⅢ typeB	16 x 16 x 95 ~ 165	6			ø22+ø32/ø22	5/8	ø34	
SR-38 typeA	16 x 16 x 95 ~ 135	4			ø22+ø32/ø22	5/8	ø38	
	16 x 16 x 100	2						
	20 x 20 x 105 ~ 135 (Cut-off)	1						
SR-38 typeB	16 x 16 x 95 ~ 135	4			ø22+ø32/ø22	5/8	ø38	
	16 x 16 x 100	2						
	20 x 20 x 105 ~ 135 (Cut-off)	1						
SR-38J	16 x 16 x 95 ~ 135	4			ø22+ø32/ø22	5/4	ø38	
	16 x 16 x 95 ~ 135 (Optional)	3						
	20 x 20 x 105 ~ 135 (Cut-off)	1						
ST-20			12 x 12 x 73 ~ 79		ø22+ø32/ø22+ø32		ø20	
			12 x 12 x 65 ~ 73 (Cut-off)					
			16 x 16 x 64 ~ 73					
			16 x 16 x 65 ~ 73 (Cut-off)					
ST-38			16 x 16 x 83 ~ 88		ø22+ø32/ø22+ø32		ø38	
			16 x 16 x 71 ~ 82					
			16 x 16 x 84 ~ 88 (Cut-off)					
			20 x 20 x 84 ~ 88					
			20 x 20 x 84 ~ 88 (Cut-off)					
SV-12/20	12 x 12 x 95 ~ 135	5	12 x 12 x 70 ~ 78		ø22+ø32/-		ø12/ø20	
	16 x 16 x 95 ~ 135	4	16 x 16 x 65 ~ 70					
SV-20R	12 x 12 x 95 ~ 135	7	12 x 12 x 70 ~ 78		ø22+ø32/ø22	- / 8	ø23	
	16 x 16 x 95 ~ 135	6	16 x 16 x 65 ~ 70					
SV-32	16 x 16 x 95 ~ 135	4	16 x 16 x 60 ~ 78(80 ~ 88)		ø22+ø32/-		ø32	
SV-38R	16 x 16 x 105 ~ 135	4	16 x 16 x 84 ~ 88		ø22+ø32/ø34	- / 8	ø38	
	20 x 20 x 115 ~ 135 (Cut-off)	1	16 x 16 x 71 ~ 82					
			20 x 20 x 84 ~ 88					
SW-12RⅡ	10x 10 x 95 ~ 115	7			ø16/ø22	4/8	ø13	
SW-20	12 x 12 x 80 ~ 150	6			ø22/ø22	4/8	ø23	
	16 x 16 x 80 ~ 144							
SX-38 typeA	16 x 16 x 95 ~ 135	4	16 x 16 x 84 ~ 88		ø22+ø32/ø34	- / 8	ø38	
	20 x 20 x 105 ~ 135 (Cut-off)	1	16 x 16 x 71 ~ 82					
			20 x 20 x 84 ~ 88					
SX-38 typeB	16 x 16 x 95 ~ 135	4	16 x 16 x 84 ~ 88		ø22+ø32/ø34	- / 8	ø38	
	20 x 20 x 105 ~ 135 (Cut-off)	1	16 x 16 x 71 ~ 82					
			20 x 20 x 84 ~ 88					

Manufacturers are in random order.

Eguro

(Dimensions: mm)

Model	Toolholder Dimensions (Gang Tool Post)	Number of Tools	Toolholder Dimensions (Turret Tool Post)	Number of Tools	Sleeve Dia. (Horizontal/Opposed)	Number of Tools	Max. Cutting Dia.	Notes
NUCBOY-8EX	12 x 12	6			ø20 or ø25 or ø30	5	ø20	
NUCLET-10EX/EL	16 x 16	6			ø20 or ø25 or ø30	5	ø25.5	
NUCPAL-10EX/EL	16 x 16	10			ø20 or ø25 or ø30	8	ø25.5	
NUCLET-10vv	16 x 16	6			ø20 or ø25 or ø30	5	ø25.5	
NUCBOY-8LL	12 x 12	2			ø20 or ø25 or ø30	2	ø20	
NUCLET-10LL	16 x 16	2			ø20 or ø25 or ø30	2	ø25.5	
NUCROBO-8EX	12 x 12	6			ø20 or ø25 or ø30	5	ø20	
NUCROBO-101	16 x 16	6			ø20 or ø25 or ø30	5	ø25.5	
NUCROBO-202	16 x 16	10			ø20 or ø25 or ø30	8	ø25.5	
SANAX-6	12 x 12	10			ø12 or ø16/ø30	3~6/2	ø15	
SANAX-10	16 x 16	10			ø20 or ø30/ø30	5~8/3	ø25.5	
SANATURN-6	12 x 12	5			ø16/ø30	3~5/2	ø15	
SANATURN-10	16 x 16	6			ø20/ø30	7/3	ø25.5	
EBN-10EX	12 x 12	5			ø20 or ø25 or ø30	4	ø25.5	
GL-120	12 x 12	4			-		ø20	
EB-6	8 x 8	2			-		ø15	
EB-8	10 x 10	2			-		ø20	
EB-10	10 x 10	2			-		ø25.5	

Manufacturers are in random order.

Tsugami

(Dimensions: mm)

Model	Toolholder Dimensions (Gang Tool Post)	Number of Tools	Toolholder Dimensions (Turret Tool Post)	Number of Tools	Sleeve Dia. (Horizontal/Opposed)	Number of Tools	Max. Cutting Dia.	Notes
B073-Ⅲ	8 x 8 x 85	9	-	-	ø20/-	4/-	ø7	
B074/075-Ⅲ	8 x 8 x 85	9	-	-	ø20/ø20	4/4(8)	ø7	
B0123-Ⅲ	12 x 12 x 85	9	-	-	ø20/-	4/-	ø12	
B0124/125/126-Ⅲ	12 x 12 x 85	9	-	-	ø20/ø20	4/4(8)	ø12	
B0128W	12 x 12 x 85	9	-	-	ø20/ø20	4/8	ø12	
B0203-Ⅲ	12 x 12 x 85	9	-	-	ø20/-	4/-	ø20	
B0204/205/206-Ⅲ	12 x 12 x 85	9	-	-	ø20/ø20	4/4(8)	ø20	
B0208W	12 x 12 x 85	9	-	-	ø20/ø20	4/8	ø20	
BM163-Ⅲ	12 x 12 x 85	9	-	-	ø20/-	4/-	ø16	
BM164/165-Ⅲ	12 x 12 x 85	9	-	-	ø20/ø20	4/4(8)	ø16	
BW127J-Ⅰ/Ⅱ	12 x 12 x 85	7	-	-	ø20/ø20	3/9	ø20	
BW128J-Ⅰ/Ⅱ	12 x 12 x 85	7	-	-	ø20/ø20	3/9	ø20	
BW128ZJ-Ⅰ/Ⅱ	12 x 12 x 85	7	-	-	ø20/ø20	3/9	ø20	
BW129ZJ-Ⅰ/Ⅱ	12 x 12 x 85	7	-	-	ø20/ø20	3/9	ø20	
BW207J-Ⅰ/Ⅱ	12 x 12 x 85/16 x 16 x 85	5/2	-	-	ø20/ø20	3/9	ø20	
BW208J-Ⅰ/Ⅱ	12 x 12 x 85/16 x 16 x 85	5/2	-	-	ø20/ø20	3/9	ø20	
BW208ZJ-Ⅰ/Ⅱ	12 x 12 x 85/16 x 16 x 85	5/2	-	-	ø20/ø20	3/9	ø20	
BW209ZJ-Ⅰ/Ⅱ	12 x 12 x 85/16 x 16 x 85	5/2	-	-	ø20/ø20	3/9	ø20	
B0265/265B/266-Ⅱ	16 x 16 x 100	12	-	-	ø25/ø25	5/4	ø26	
B0325/325B/326-Ⅱ	16 x 16 x 100	12	-	-	ø25/ø25	5/4	ø32	
B0385/385L	20 x 20 x 125	8	-	-	ø32/ø32	3/5	ø38	
B0265/266-Ⅲ B0266/326-Ⅲ	16 x 16 x 100	12	-	-	ø25/ø25	5/4	ø26/ø32	
B0265/325V-Ⅲ B0266/326V-Ⅲ	16 x 16 x 100	6	-	-	ø25/ø25	5/4	ø26/ø32	
B0385/6 (L)-Ⅲ	16 x 16 x 100/20 x 20 x 125	11/1	-	-	ø32,ø25/ø32	3-2/5	ø38	
B0385/6 (L)V-Ⅲ	16 x 16 x 100/20 x 20 x 125	5/1	-	-	ø32,ø25/ø32	3-2/5	ø38	
B038T	-	-	20 x 20 x 125	St.8	ø32/ø25		ø38	
BH20/BH20Z	12 x 12 x 85	4	12 x 12 x 85	St.12	ø25/ø32		ø20	
BH38	16 x 16 x 125	5	20 x 20 x 125	St.12	ø25/ø32		ø38.1	
C150/CH154	12 x 12 x 60 ~ 100	4 ~ 6	-	-	-		ø80	
C180	12 x 12 x 60 ~ 100	4 ~ 6	-	-	-		ø120	
C220/220T	12 x 12 x 60 ~ 100	6 ~ 8	-	-	-		ø120	
C300-Ⅳ	16 x 16 x 100 ~ 130	6 ~ 10	-	-	-		ø165	
C300H	16 x 16 x 100 ~ 130	6 ~ 10	-	-	-		ø165	
P013	8 x 8 x 100 ~ 120	6	-	-	ø16/-	3/-	ø1	
P014	8 x 8 x 100 ~ 120	6	-	-	ø16/ø16	3/3	ø1	
P033	8 x 8 x 100 ~ 120	6	-	-	ø16/-	3/-	ø3	
P034	8 x 8 x 100 ~ 120	6	-	-	ø16/ø16	3/3	ø3	
S205/206	12 x 12 x 100	8	-	-	ø22/ø20	5/4	ø20	
S205/206-Ⅱ	12 x 12 x 100	9	-	-	ø25/ø25	7/4(8)	ø20	
SS207/SS207-5AX	12 x 12 x 100	8	-	-	ø22/ø20	4/4	ø20	
SS26	16 x 16 x 100	7	-	-	ø22/ø20	5/3	ø26	
SS32/32L	16 x 16 x 100	7	-	-	ø22/ø20	5/3	ø32	
SS267/SS267-5AX	16 x 16 x 100	8	-	-	ø25/ø25	4/4	ø26	
SS327/SS327-5AX	16 x 16 x 100	8	-	-	ø25/ø25	4/4	ø32	
BW269ZJ	16 x 16 x 100	7	-	-	ø25/ø25	5/(8)	ø26	
BW329ZJ	16 x 16 x 100	7	-	-	ø25/ø25	5/(8)	ø32	
MB25	-	-	20 x 20 x 90	2 x St.8	ø20/ø32	5/4	ø25	
M06JC-Ⅱ		-	20 x 20 x 125	St.8	ø25		ø220/ø42	
M06J-Ⅱ		-	25 x 25 x 150	St.8	ø32/ø40		ø260/ø51	
M08J-Ⅱ		-	25 x 25 x 150	St.8	ø32/ø40		ø280/ø65	
M08JL5-Ⅱ		-	25 x 25 x 150	St.8	ø32/ø40		ø280/ø65	
M08JL8-Ⅱ		-	25 x 25 x 150	St.8	ø32/ø40		ø280/ø65	
M06D-Ⅱ		-	25 x 25 x 150	St.12	ø40		ø260/ø51	
M08D-Ⅱ		-	25 x 25 x 150	St.12	ø40		ø280/ø65	
M06DY-Ⅱ		-	25 x 25 x 150	St.12	ø40		ø260/ø51	
M08DY-Ⅱ		-	25 x 25 x 150	St.12	ø40		ø280/ø65	
M06SJ-Ⅱ		-	25 x 25 x 150	St.12	ø40		ø260/ø51	
M08SJ-Ⅱ		-	25 x 25 x 150	St.12	ø40		ø280/ø65	
M06SD-Ⅱ		-	25 x 25 x 150	St.12	ø40		ø260/ø51	
M08SD-Ⅱ		-	25 x 25 x 150	St.12	ø40		ø280/ø65	
M06SY-Ⅱ		-	25 x 25 x 150	St.12	ø40		ø260/ø51	
M08SY-Ⅱ		-	25 x 25 x 150	St.12	ø40		ø280/ø65	
TMU1	20 x 20 x 100 ~ 125	1	20 x 20 x 125	St.16	ø32/ø32		ø38	
TMB2	20 x 20 x 100 ~ 125	1	20 x 20 x 125	St.16	ø32/ø32		ø51	
TMA8F	20 x 20 x 100 ~ 125	1			ø32/ø32		ø65	
TMA8J	20 x 20 x 100 ~ 125	1			ø32/ø32		ø65	
TMA8H	20 x 20 x 100 ~ 125	1			ø32/ø32		ø65	

Manufacturers are in random order.

Nomura DS

(Dimensions: mm)

Model	Toolholder Dimensions (Gang Tool Post)	Number of Tools	Toolholder Dimensions (Turret Tool Post)	Number of Tools	Sleeve Dia. (Horizontal/Opposed)	Number of Tools	Max. Cutting Dia.	Notes
NN-10C	10 x 10 x 130	6			ø17		ø10	
NN-10CS	10 x 10 x 130	5			ø17	4	ø10	
NN-10SII	10 x 10 x 130	5			ø23		ø10	
NN-10T	10 x 10 x 130	7			ø23		ø10	
NN-10SB5	10 x 10 x 130	5			ø23		ø13	
NN-10EX2	10 x 10 x 120	6			ø16	4	ø10	
NN-10EX2	10 x 10 x 80	7			ø16	4	ø10	
NN-16SB5	10 x 10 x 130	5			ø23		ø16	
NN-16SB6 Type1	12.7 x 12.7 x 130*	7			ø17(ø22)	4	ø16	
NN-16SB6 Type2	12.7 x 12.7 x 130*	5			ø17(ø22)	4	ø16	
NN-16SB6 Type2.5	12.7 x 12.7 x 130*	6			ø17(ø22)	5	ø16	
NN-16SB6 Type3	12.7 x 12.7 x 130*	5			ø17(ø22)	4	ø16	
NN-16SB7	12.7 x 12.7 x 130*	5			ø16	4	ø16	
NN-16SB7-M8	12.7 x 12.7 x 130*	5			ø16	4	ø16	
NN-20SB	12.7 x 12.7 x 130*	5			ø16	3	ø20	
					ø22	2	ø20	
NN-16HIII	12 x 12 x 130	6			ø23		ø16	
NN-20HIII	12 x 12 x 130	6			ø23		ø20	
NN-16UIII	12 x 12 x 130	5			ø23		ø16	
NN-20UIII	12 x 12 x 130	5			ø23		ø20	
NN-20CS	12.7 x 12.7 x 130	5(6)			ø22	4	ø20(ø25)	
NN-20U5	12.7 x 12.7 x 150	5(6)			ø22	4	ø20(ø25)	
NN-32U5	12.7 x 12.7 x 150	3(4)			ø32	1	ø32	
	16 x 16 x 130	2			ø22	3		
NN-16UB5	12 x 12 x 130	5			ø23		ø16	
NN-20UB5	12 x 12 x 130	5			ø23		ø20	
NN-20UB7	12 x 12 x 130	6			ø23		ø20	
NN-20UB8	12.7 x 12.7 x 150*	5(6)			ø22	4	ø20(ø25)	
NN-20UB10	12.7 x 12.7 x 150*	5(6)			ø22	4	ø20(ø25)	
NN-32UB8	12.7 x 12.7 x 150*	3(4)			ø32	1	ø32	
	16 x 16 x 130	2			ø22	3		
NN-32UB10W	12.7 x 12.7 x 150*	3(4)			ø32	1	ø32	
	16 x 16 x 130	2			ø22	3		
NN-20YB	12 x 12 x 130	6			ø23		ø20	
NN-25YB/32YB	16 x 16 x 130	5			ø23/ø32		ø25/ø32	
NN-32YB5	16 x 16 x 130	5			ø22/ø32	4	ø32	
NN-32YB5 XB	16 x 16 x 130	6			ø22/ø32	5/1	ø32	
NN-16J	12.7 x 12.7 x 130*	6			ø23		ø16	
NN-20J	12.7 x 12.7 x 130*	6			ø23		ø20	
NN-20J2	12.7 x 12.7 x 130*	6			ø22	4	ø20	
NN-20J5	12.7 x 12.7 x 130*	6			ø22	4	ø20	
NN-20J5 XB	12.7 x 12.7 x 130*	5			ø22	4	ø20	
NN-32J	16 x 16 x 130	6			ø25	2	ø32	
					ø32	3		
NN-32DB	16 x 16 x 130	8			ø22	4	ø32	
					ø32	1		
NN-38KM	16 x 16 x 130	5			ø25	3	ø38	
					ø32	2		

* 12 x 12 toolholder mountable

Manufacturers are in random order.

List of instruments and Applicable Small Tools and Toolholders

Models of major machine tool manufacturers				Applicable Toolholders
Manufacturer	Model (Automatic Lathe)	Toolholder Size	Total Length of Attached Toolholder (Max.)	
Citizen Machinery	A12,A16,B12,L12,RL01,RL21	10 x 10	100	…1010F-..
	K12,K16	12 x 12		…1212F-..
	RL02	16 x 16		…1616H-..
	B12E,B16E,BL12,C12,C16,M12,M16 MSL12	10 x 10	120	…1010JX-..
	A20,A20Ⅶ,B20,BL20,BL25,K12E,K16E L20X,L220,MC20	12 x 12		…1212JX-..
	L16,L20,L20E	12 x 12	130	…1212JX-..
	C32,L25,L32,M20,M32	16 x 16		…1616JX-..
	A32,D25		150	
Star Micronics	SW-12RⅡ	10 x 10	120	…1010JX-..
	SB-16A,SB-16C,SB-16D,SB-12Ⅱ,SB-16Ⅱ SB-12R/16R/20R,SR-20ⅠⅤ,SB-20A/C/E,SC20	12 x 12	130	…1212JX-..
	SR-20RⅡ,SR-20Ⅲ,SV-12,SV-20,SR-20J	12 x 12	135	…1212JX-..
	SV-20R,SV-32,SV-38R,SR-38J,SX-38	16 x 16		…1616JX-..
	SR-25J,SR-32J,SW-20	16 x 16	150	…1616JX-..
Tsugami	B0,BH20,BM,BW2	12 x 12	85	…1212F-..
	C150,C180,C220,S205,S206,SS207	12 x 12	100	…1212F-..
	BH38,B0265,B0266,B0325,B0326 SS26,SS32/32L,SS267,SS327	16 x 16		…1616H-..
Nomura DS	NN-10C,NN-10CS,NN-10EX2,NN-10SⅡ NN-10SB5,NN-10T,NN-16SB5	10 x 10	130	…1010JX-..
	NN-16HⅢ,NN-16UB5,NN-16UⅢ NN-20HⅢ,NN-20UⅢ,NN-20UB5,NN-20YB	12 x 12		…1212JX-..
	NN-25YB,NN-32YB5,NN-32J,NN-38KM	16 x 16		…1616JX-..

Manufacturers are in random order.

T

Listed in Alphanumeric Order

Part Numbers in Alphanumeric Order

○ : Number □ : Letter

Part Number		Page	Description
Numeric			
○-○○/○○-	(○○K-)SET	M313	Cartridge Set (API Ring Groover)
○/○(○)-	SHCS-CB	K11	Toolholder (Drilling) Counterbore
02-03		K107	Spare Parts (Cartridge) Coremaster
06IR	○○○○(○)	J17, J19	Insert (Threading)
08IR	○○○○(○)	J17, J19	Insert (Threading)
11IR	○○○○○	J19	Insert (Threading)
11IR	A○○	J17, J19	Insert (Threading)
11IR	○○BSPT	J13	Insert (Threading)
11IR	○○BSPT-TF	J13	Insert (Threading) / TF Series
11IR	○○BSPT-TQ	J13	Insert (Threading) / TQ Series
11IR/L	○○○ISO	J7	Insert (Threading)
11IR	○○○ISO-TF	J7	Insert (Threading) / TF Series
11IR	○○○ISO-TQ	J7	Insert (Threading) / TQ Series
16ER	○○○○	J16, J18	Insert (Threading)
16ER	○○BSPT	J12	Insert (Threading)
16ER	○○BSPT-TF	J12	Insert (Threading) / TF Series
16ER	○○BSPT-TQ	J12	Insert (Threading) / TQ Series
16E R/L	○○○ISO	J6	Insert (Threading)
16ER	○○○ISO-TF	J6	Insert (Threading) / TF Series
16ER	○○○ISO-TQ	J6	Insert (Threading) / TQ Series
16ER	○○(.○)NPT	J14	Insert (Threading)
16ER	○○○TR	J20	Insert (Threading)
16ER	○○UN	J8	Insert (Threading)
16ER	○○UN-TF	J8	Insert (Threading) / TF Series
16ER	○○UN-TQ	J8	Insert (Threading) / TQ Series
16ER	○○W	J10	Insert (Threading)
16ER	○○W-TF	J10	Insert (Threading) / TF Series
16ER	○○W-TQ	J10	Insert (Threading) / TQ Series
16ER	A○○	J16, J18	Insert (Threading)
16ER	A○○-TF	J16, J18	Insert (Threading) / TF Series
16ER	A○○-TQ	J16, J18	Insert (Threading) / TQ Series
16ER	AG○○	J18	Insert (Threading)
16ER	AG○○-TF	J16	Insert (Threading) / TF Series
16ER	AG○○-TQ	J16	Insert (Threading) / TQ Series
16ER	G○○	J18	Insert (Threading)
16ER	G○○-TF	J18	Insert (Threading) / TF Series
16ER	G○○-TQ	J18	Insert (Threading) / TQ Series
16IR	○○○○(○)	J17, J19	Insert (Threading)
16IR	○○BSPT	J13	Insert (Threading)
16IR	○○BSPT-TF	J13	Insert (Threading) / TF Series
16IR	○○BSPT-TQ	J13	Insert (Threading) / TQ Series
16I R/L	○○○ISO	J7	Insert (Threading)
16IR	○○○ISO-TF	J7	Insert (Threading) / TF Series
16IR	○○○ISO-TQ	J7	Insert (Threading) / TQ Series
16IR	○○(.○)NPT	J15	Insert (Threading)
16IR	○○○TR	J21	Insert (Threading)
16IR	○○UN	J9	Insert (Threading)
16IR	○○UN-TF	J9	Insert (Threading) / TF Series
16IR	○○UN-TQ	J9	Insert (Threading) / TQ Series
16IR	○○W	J11	Insert (Threading)
16IR	○○W-TF	J11	Insert (Threading) / TF Series
16IR	○○W-TQ	J11	Insert (Threading) / TQ Series
16IR	A○○	J17, J19	Insert (Threading)
16IR	AG○○	J17, J19	Insert (Threading)
16IR	G○○	J19	Insert (Threading)
22ER	○○○ISO	J6	Insert (Threading)
22ER	○○○TR	J20	Insert (Threading)
22ER	○○UN	J8	Insert (Threading)
22ER	N○○	J16	Insert (Threading)
22IR	○○○ISO	J7	Insert (Threading)
22IR	○○○TR	J21	Insert (Threading)
22IR	○○UN	J9	Insert (Threading)
22IR	N○○	J17, J19	Insert (Threading)
556C R/L		P9	Spare Parts (Shim)
A			
A○○□-	DCLN R/L ○	F147	Boring Bars (Double Clamp)
A○○□-	DCLN R/L ○○-○○	F147	Boring Bars (Double Clamp)
A○○□-	DDUN R/L ○	F152	Boring Bars (Double Clamp)
A○○□-	DDUN R/L ○○-○○	F152	Boring Bars (Double Clamp)
A○○□-	DSKN R/L ○○-○○	F158	Boring Bars (Double Clamp)
A○○□-	DTFN R/L ○○-○○	F159	Boring Bars (Double Clamp)
A○○□-	DWLN R/L ○	F164	Boring Bars (Double Clamp)
A○○□-	DWLN R/L ○○-○○	F164	Boring Bars (Double Clamp)
A○○□-	KKC R/L -○	G94, J36	Toolholder (Cera-Notch Grooving / Threading)
A○○□-	PCLN R/L ○	F148	Boring Bars
A○○□-	PCLN R/L ○○-○○	F148	Boring Bars
A○○□-	PDUN R/L 3	F150	Boring Bars
A○○□-	PDUN R/L 11-○○	F150	Boring Bars
A○○□-	PTUN R/L 11-○○	F160	Boring Bars
A○○□-	PWLN R/L 06-○○	F162	Boring Bars
A○○□-	SCLCR○	F67	Boring Bars (General Purpose)
A○○□-	SCLC R/L ○AE	F62	Boring Bars (Dynamic Bar)
A○○□-	SCLC R/L ○○-○○AE	F62	Boring Bars (Dynamic Bar)
A○○□-	SCLP R/L ○(.○)AE	F70	Boring Bars (Dynamic Bar)
A○○□-	SCLP R/L ○○-○○AE	F70	Boring Bars (Dynamic Bar)
A○○□-	SDQC R/L ○AE	F78	Boring Bars (Dynamic Bar)
A○○□-	SDQC R/L ○○-○○AE	F78	Boring Bars (Dynamic Bar)

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Part Numbers in Alphanumeric Order

○ : Number □ : Letter

Part Number		Page	Description
A○○□-	SDUC R/L ○AE	F74	Boring Bars (Dynamic Bar)
A○○□-	SDUC R/L ○○-○○AE	F74	Boring Bars (Dynamic Bar)
A○○□-	SDZC R/L ○○-○○AE	F82	Boring Bars (Dynamic Bar)
A○○□-	STLB R/L ○.○AE	F90	Boring Bars (Dynamic Bar)
A○○□-	STLC R/L ○○-○○AE	F100	Boring Bars (Dynamic Bar)
A○○□-	STLP R/L ○(.○)AE	F90	Boring Bars (Dynamic Bar)
A○○□-	STLP R/L ○○-○○AE	F90	Boring Bars (Dynamic Bar)
A○○□-	SVJB R/L ○AE	F102	Boring Bars (Dynamic Bar)
A○○□-	SVJB R/L ○○-○○AE	F102	Boring Bars (Dynamic Bar)
A○○□-	SVJC R/L ○○-○○AE	F102	Boring Bars (Dynamic Bar)
A○○□-	SVJP R/L ○○-○○AE	F102	Boring Bars (Dynamic Bar)
A○○□-	SVPB R/L ○AE	F106	Boring Bars (Dynamic Bar)
A○○□-	SVPB R/L ○○-○○AE	F106	Boring Bars (Dynamic Bar)
A○○□-	SVPC R/L ○.○AE	F106	Boring Bars (Dynamic Bar)
A○○□-	SVPC R/L ○○-○○AE	F106	Boring Bars (Dynamic Bar)
A○○□-	SVUB R/L ○AE	F108	Boring Bars (Dynamic Bar)
A○○□-	SVUB R/L ○○-○○AE	F108	Boring Bars (Dynamic Bar)
A○○□-	SVUC R/L ○.○AE	F108	Boring Bars (Dynamic Bar)
A○○□-	SVUC R/L ○○-○○AE	F108	Boring Bars (Dynamic Bar)
A○○□-	SVZB R/L ○AE	F110	Boring Bars (Dynamic Bar)
A○○□-	SVZB R/L ○○-○○AE	F110	Boring Bars (Dynamic Bar)
A○○□-	SVZC R/L ○.○AE	F110	Boring Bars (Dynamic Bar)
A○○□-	SVZC R/L ○○-○○AE	F110	Boring Bars (Dynamic Bar)
A○○□-	SWUB R/L ○.○AE	F116	Boring Bars (Dynamic Bar)
A○○□-	SWUB R/L ○○-○○AE	F116	Boring Bars (Dynamic Bar)
A○○□-	SWUP R/L ○AE	F116	Boring Bars (Dynamic Bar)
A○○□-	SWUP R/L ○○-○○AE	F116	Boring Bars (Dynamic Bar)
A○○□-	SZJB R/L ○○-○○AE	F124	Boring Bars (Dynamic Bar)
A○○□-	SZLB R/L ○○-○○AE	F127	Boring Bars (Dynamic Bar)
A○○□-	SZQB R/L ○○-○○AE	F126	Boring Bars (Dynamic Bar)
A○○□-	SZXB R/L ○○-○○AE	F125	Boring Bars (Dynamic Bar)
A○○□-	SZZB R/L ○○-○○AE	F128	Boring Bars (Dynamic Bar)
AABSR	○(○)-○○□(□)F	E20	Toolholder (Back Turning)
AABSR	○○○○□(□)-○○F	E20	Toolholder (Back Turning)
AABWR	○(○)-○○□(□)F	E21, E22	Toolholder (Back Turning)
AABWR	○○○○□(□)-○○F	E21, E22	Toolholder (Back Turning)
ABS	○○R○○○○	B112	Insert (Back Turning)
ABS	○○R○○○○M	B112	Insert (Back Turning)
ABW	○○R○○○○	B112	Insert (Back Turning)
ABW	○○R○○○○M	B112	Insert (Back Turning)
ACLC R/L	○(○)-○JXFF	E26	Toolholder (Turning)
ACLC R/L	○○○○JX-○○FF	E26	Toolholder (Turning)
ADJC R/L	○(○)-○JXFF	E30	Toolholder (Turning)
ADJC R/L	○○○○JX-○○FF	E30	Toolholder (Turning)
AJ-519TR		P2	Spare Parts (Adjustment Screw)
AJ-12X22		K37	Spare Parts (Adjustment Screw)
AJ-16X30		K37	Spare Parts (Adjustment Screw)
AJ-20X30		K37	Spare Parts (Adjustment Screw)
AJ-22X35		K37	Spare Parts (Adjustment Screw)
APET	○○○○PDFR	M217, M298	Insert (Milling) FM-AL / EM-AL / CM-AL
APET	○○○○○○	M217, M298	Insert (Milling) FM-AL / EM-AL / CM-AL
API-RG-○	BT○○	M313	Body Part (API Ring Groovers)
API-RG-○	CV○○	M313	Body Part (API Ring Groovers)
API-RG-○	DIN-○○○○○	M313	Body Part (API Ring Groovers)
APMT	○○○○○○EL-NB○	M181	Insert (Milling) MSR
APMT	○○○○○○ER-NB○(P)	M181	Insert (Milling) MSR
ASL	○○○○○(○)-○○○	K74	Adjustable Sleeve (Drilling) for Magic Drill (DRV / DRZ)
AVJB R/L	○(○)-○JXFF	E42	Toolholder (Turning)
AVJB R/L	○○○○JX-11FF	E42	Toolholder (Turning)
B			
BB-G1/8		D13, G49, H60	Piping Banjo Bolt
BB-M10X1.5		D13, G49, H60	Piping Banjo Bolt
BCS	-○	P15	Spare Parts (Clamp Set)
BDGT	○○T○○○FR	C62, M105	Insert (Milling) MEC
BDGT	○○(□)○○○(○)FR-JA	M105	Insert (Milling) MEC
BDGT	○○T○○○FR-LE	C62, M105	Insert (Milling) MEC
BDMT	○○(□)○○○(○)ER-JS	M104, M114, M140	Insert (Milling) MEC / MECX / MECHT
BDMT	○○(□)○○○(○)ER-JT	M104, M114	Insert (Milling) MEC / MECX
BDMT	○○(□)○○○(○)ER-N○	M132	Insert (Milling) MECH
BDMT	○○(□)○○○(○)FR	C62, M105	Insert (Milling) MEC
BH3X6		P2	Spare Parts (Screw)
BH3X12		P2	Spare Parts (Screw)
BH6X10TR		P2	Spare Parts (Screw)
BH6X25		P2	Spare Parts (Screw)
BT30K-	M○○-○○	M324	Arbor Attachment
BT40K-	M○○-○○	M324	Arbor Attachment
BX	○○○-SET	M303	Cartridge Set (API Ring Groover)
BX	○○○-R-SET	M303	Cartridge Set (API Ring Groover)
C			
C○○□-	SCLCR R/L	F68	Boring Bars (General Purpose)
C○○□-	SCLC R/L ○○-○○AN	F64	Boring Bars (Dynamic Bar)
C○○○□-	SCLCR○○-○○○EZP	F34	Boring Bars (EZ Bar PLUS)
C○○□-	SCLP R/L ○(.○)	F73	Boring Bars (General Purpose)
C○○□-	SJLC R/L ○○-○○○	F88	Boring Bars
C○○□-	SJZC R/L ○○-○○○	F89	Boring Bars
C○○□-	STLB R/L ○○-○○A	F92	Boring Bars (Dynamic Bar)
C○○□-	STLB R/L ○○-○○AN	F92	Boring Bars (Dynamic Bar)
C○○○□-	STLBR○○-○○○EZP	F36	Boring Bars (EZ Bar PLUS)

Part Numbers in Alphanumeric Order

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Part Number		Page	Description
C○○○□-	STLPR○○-○○○EZP	F36	Boring Bars (EZ Bar PLUS)
C○○□-	STXB R/L ○○-○○○	F98	Boring Bars
C○○□-	STXP R/L ○○-○○	F98	Boring Bars
C○○□-	STZB R/L ○○-○○○	F99	Boring Bars
C○○○(○)□-	SWUB R/L ○.○	F121	Boring Bars (General Purpose)
C○○□-	SWUB R/L ○○-○○AN	F118	Boring Bars (Dynamic Bar)
C○○○□-	SWUBR○○-○○○EZP	F38	Boring Bars (EZ Bar PLUS)
C08R		P17	Spare Parts (Clamp)
C09N		P17	Spare Parts (Clamp)
CB-11		P19	Spare Parts (Chipbreaker)
CB-12		P19	Spare Parts (Chipbreaker)
CB-13		P19	Spare Parts (Chipbreaker)
CB-14		P19	Spare Parts (Chipbreaker)
CB-15		P19	Spare Parts (Chipbreaker)
CB-16		P19	Spare Parts (Chipbreaker)
CB-17		P19	Spare Parts (Chipbreaker)
CB-51		P19	Spare Parts (Chipbreaker)
CB-S3220		P19	Spare Parts (Chipbreaker)
CB-S4220		P19	Spare Parts (Chipbreaker)
CBSN R/L	○○○○□-○○	D74	Toolholder (Turning)
CBSN R/L	○○○○B-12-A20	F133	Boring Bar (for Bearing Machining)
CB-T2212		P19	Spare Parts (Chipbreaker)
CB-T3220		P19	Spare Parts (Chipbreaker)
CC-125-MFAH		P23	Spare Parts (Coolant Cover)
CC-160-MFAH		P23	Spare Parts (Coolant Cover)
CC-200-MFAH		P23	Spare Parts (Coolant Cover)
CC-250-MFAH		P23	Spare Parts (Coolant Cover)
CC-315-MFAH		P23	Spare Parts (Coolant Cover)
CCET	○○○○○F R/L -USF	B63	Insert (Turning)
CCET	○○○○(○)(○)MF R/L -J	B65	Insert (Turning)
CCET	○○○○(○)(○)MF R/L -U	B63	Insert (Turning)
CCET	○○○○○(○)MF R/L -USF	B63	Insert (Turning)
CCET	○○○○○(○)(○)M R/L -F	B62	Insert (Turning)
CCET	○○○○○(○)(○)M R/L -FSF	B61	Insert (Turning)
CCET	○○○○(○)M R/L -P	B63	Insert (Turning)
CCET	○○○○○(○) R/L -FSF	B61	Insert (Turning)
CCGT	○○○○(○)	B60	Insert (Turning)
CCGT	○○○○AH	B66	Insert (Turning)
CCGT	○○○○(○)AP	B66	Insert (Turning)
CCGT	○○○○(○)E R/L -U	B65	Insert (Turning)
CCGT	○○○○○F R/L -U	B64	Insert (Turning)
CCGT	○○○○(○)ME R/L -U	B65	Insert (Turning)
CCGT	○○○○(○)(○)MF	B61	Insert (Turning)
CCGT	○○○○(○)MFP-GF	B58	Insert (Turning)
CCGT	○○○○(○)MFP-GQ	B59	Insert (Turning)

Part Number		Page	Description
CCGT	○○○○(○)(○)MFP-PF	B58	Insert (Turning)
CCGT	○○○○(○)MFP-SK	B59	Insert (Turning)
CCGT	○○○○(○)(○)MFP-SKS	B59	Insert (Turning)
CCGT	○○○○(○)(○)MF R/L -U	B64	Insert (Turning)
CCGT	○○○○○○MP-CF	B58	Insert (Turning)
CCGT	○○○○(○)MP-CK	B59	Insert (Turning)
CCGT	○○○○○(○)(○)M R/L -F	B62	Insert (Turning)
CCGT	○○○(○)(○) R/L -A3	B66	Insert (Turning)
CCGT	○○○○○(○)(○) R/L -F	B62	Insert (Turning)
CCGW	○○○○(○)(○)	B66, C39	Insert (Turning)
CCGW	○○○○(○)(○)NE	C39	Insert (Turning)
CCGW	○○○○(○)(○)SE	C39	Insert (Turning)
CCLN R/L	○○○○□-○○	D53	Toolholder (Turning)
CCLN R/L	○○○○□-○○A	D66	Toolholder (Turning)
CCMT	○○○○(○)	B60, C39	Insert (Turning)
CCMT	○○○○(○)APD	C40	Insert (Turning)
CCMT	○○○(○)(○)GK	B60	Insert (Turning)
CCMT	○○○○(○)HQ	B60	Insert (Turning)
CCMT	○○○○MQ	B61	Insert (Turning)
CCMT	○○○○(○)NE	C39	Insert (Turning)
CCMT	○○○○(○)PP	B60	Insert (Turning)
CCMT	○○○○(○)SE	C39	Insert (Turning)
CCMT	○○○○(○)WP	B60	Insert (Turning)
CCMW	○○○○MEF	C20	Insert (Turning)
CCMW	○○○○S○○○○○MES	C20	Insert (Turning)
CCMW	○○○○(○)(○)S○○○○○SET	C20	Insert (Turning)
CCMW	○○○○(○)T○○○○○ME	C20	Insert (Turning)
CCMW	○○○○(○)(○)T○○○○○SE	C20	Insert (Turning)
CCMW	○○○○S○○○○○MET	C20	Insert (Turning)
CCN-5		H60	Coolant Piping
CCRN R/L	○○○○□-○○A	D66	Toolholder (Turning)
CD	-○○○○(-C)	K107	Toolholder (Drilling) Coremaster Coredrill (CD)
CD	-○○○○-LC	K108	Toolholder (Drilling) Coremaster Coredrill (CD-LC)
CD	-○○○○-XL	K108	Toolholder (Drilling) Coremaster Coredrill (CD-XL)
CDJN R/L	○○○○□-○○	D54	Toolholder (Turning)
CE-010		P15	Spare Parts (Clamp Set)
CE-020		P15	Spare Parts (Clamp Set)
CE-030		P15	Spare Parts (Clamp Set)
CE-030A		P15	Spare Parts (Clamp Set)
CE-040		P15	Spare Parts (Clamp Set)
CE-220		P15	Spare Parts (Clamp Set)
CE-320		P15	Spare Parts (Clamp Set)
CE-360S		P15	Spare Parts (Clamp Set)

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Part Number	Page	Description
CE-410	P15	Spare Parts (Clamp Set)
CE-430	P15	Spare Parts (Clamp Set)
CELNR/L ○○○○□-○○	D55	Toolholder (Turning)
CGA-3R/L	P17	Spare Parts (Clamp)
CGA-4R/L	P17	Spare Parts (Clamp)
CGA-5R/L	P17	Spare Parts (Clamp)
CGBR/L	P17	Spare Parts (Clamp)
CGH-1R/L	P17	Spare Parts (Clamp)
CGH-2R/L	P17	Spare Parts (Clamp)
CGH-3R/L	P17	Spare Parts (Clamp)
CGIA-3R	P17	Spare Parts (Clamp)
CGIA-4R	P17	Spare Parts (Clamp)
CGIA-5R	P17	Spare Parts (Clamp)
CH0503-45	K69	Insert (Drilling) DRV Magic Drill
CH-20R	P17	Spare Parts (Clamp)
CINR/L ○○○○S-○○	J27	Toolholder (Threading)
CL63-1	N20~N21	Spare Parts (Coolant Pipe)
CL100-1	N20~N21	Spare Parts (Coolant Pipe)
CM ○○○○-○○(.○)	M296	End Mill (Chamfering)
CM ○○○○-○○-○○	M296	End Mill (Chamfering)
CM ○○○○-○○-AL	M298	End Mill (Chamfering)
CNGA ○○○	B22	Insert (Turning)
CNGA ○○○ME	C8	Insert (Turning)
CNGA ○○○ME4	C8	Insert (Turning)
CNGA ○○○S○○○○○	B113	Insert (Turning)
CNGA ○○○(○)S○○○○○ME	C8	Insert (Turning)
CNGA ○○○S○○○○○MEH	C8	Insert (Turning)
CNGA ○○○S○○○○○MEP	C8	Insert (Turning)
CNGA ○○○S○○○○○MET	C8	Insert (Turning)
CNGA ○○○S○○○○○MEW	C8	Insert (Turning)
CNGA ○○○T○○○○○	B113	Insert (Turning)
CNGA ○○○T○○○○○AA	B113	Insert (Turning)
CNGA ○○○T○○○○○ME	C8	Insert (Turning)
CNGG ○○○AH	B23	Insert (Turning)
CNGG ○○○FL	B23	Insert (Turning)
CNGG ○○○FP-TK	B19	Insert (Turning)
CNGG ○○○FR	B23	Insert (Turning)
CNGG ○○○L	B23	Insert (Turning)
CNGG ○○○L-25R	B23	Insert (Turning)
CNGG ○○○L-A3	B23	Insert (Turning)
CNGG ○○○(○)L-S	B23	Insert (Turning)
CNGG ○○○(○)MFP-SK	B19	Insert (Turning)
CNGG ○○○R	B23	Insert (Turning)
CNGG ○○○R-25R	B23	Insert (Turning)
CNGG ○○○R-A3	B23	Insert (Turning)

Part Number	Page	Description
CNGG ○○○(○)R-S	B23	Insert (Turning)
CNGG ○○○TK	B20	Insert (Turning)
CNGG ○○○Z	B23	Insert (Turning)
CNGM ○○○ME-HD	C9	Insert (Turning)
CNGM ○○○ME-HH	C9	Insert (Turning)
CNGM ○○○ME-HL	C9	Insert (Turning)
CNG ○○○T○○○○○AA	B113	Insert (Turning)
CNG ○○○T○○○○○	B113	Insert (Turning)
CNGU ○○○○(○)(○)MFR-F	B55	Insert (Turning)
CNGU ○○○○(○)(○)MFR-U	B55	Insert (Turning)
CNGU ○○○○○MFP-SK	B55	Insert (Turning)
CNM ○○○	C16	Insert (Turning)
CNM ○○○T○○○○○	B113	Insert (Turning)
CNMA ○○○	B22	Insert (Turning)
CNMA ○○○T○○○○○	B113	Insert (Turning)
CNMA ○○○T○○○○○AA	B113	Insert (Turning)
CNMG ○○○	B18	Insert (Turning)
CNMG ○○○AH	B23	Insert (Turning)
CNMG ○○○C	B22	Insert (Turning)
CNMG ○○○CJ	B17	Insert (Turning)
CNMG ○○○CQ	B17	Insert (Turning)
CNMG ○○○GC	B22	Insert (Turning)
CNMG ○○○(○)GP	B16	Insert (Turning)
CNMG ○○○GS	B17	Insert (Turning)
CNMG ○○○GT	B18	Insert (Turning)
CNMG ○○○HQ	B17	Insert (Turning)
CNMG ○○○HS	B18	Insert (Turning)
CNMG ○○○HX	B19	Insert (Turning)
CNMG ○○○KG	B21	Insert (Turning)
CNMG ○○○KH	B21	Insert (Turning)
CNMG ○○○KQ	B21	Insert (Turning)
CNMG ○○○MQ	B20	Insert (Turning)
CNMG ○○○MS	B20	Insert (Turning)
CNMG ○○○MU	B20	Insert (Turning)
CNMG ○○○PG	B17	Insert (Turning)
CNMG ○○○PH	B18	Insert (Turning)
CNMG ○○○PMG	B17	Insert (Turning)
CNMG ○○○(○)PP	B16	Insert (Turning)
CNMG ○○○PQ	B16	Insert (Turning)
CNMG ○○○PS	B18	Insert (Turning)
CNMG ○○○PT	B18	Insert (Turning)
CNMG ○○○SG	B21	Insert (Turning)
CNMG ○○○SQ	B20	Insert (Turning)
CNMG ○○○TK	B20	Insert (Turning)
CNMG ○○○TN-V	B17	Insert (Turning)

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Part Number		Page	Description
CNMG	○○○WE	B16	Insert (Turning)
CNMG	○○○WF	B16	Insert (Turning)
CNMG	○○○WP	B16	Insert (Turning)
CNMG	○○○WQ	B16	Insert (Turning)
CNMG	○○○XF	B19	Insert (Turning)
CNMG	○○○XP	B19	Insert (Turning)
CNMG	○○○XQ	B19	Insert (Turning)
CNMG	○○○XS	B19	Insert (Turning)
CNMG	○○○ZS	B22	Insert (Turning)
CNMM	○○○HX	B19	Insert (Turning)
CNMM	○○○(○)M	C34	Insert (Turning)
CNMM	○○○(○)M-NE	C34	Insert (Turning)
CNMM	○○○(○)M-SE	C34	Insert (Turning)
CNMM	○○○PX	B19	Insert (Turning)
CNMM	○○XL-SX	B21	Insert (Turning)
CNMM	○○XR-SX	B21	Insert (Turning)
CNMU	○○○○(○)E-GK	B55	Insert (Turning)
CP-2D		P18	Spare Parts (Clamp)
CP-2D-R/L-JCT		P18	Spare Parts (Clamp)
CP-3D		P18	Spare Parts (Clamp)
CP-3D-R/L-JCT		P18	Spare Parts (Clamp)
CP-4D-R/L-JCT		P18	Spare Parts (Clamp)
CP-5D		P18	Spare Parts (Clamp)
CP-5D-JCT		P18	Spare Parts (Clamp)
CP-8TE		P18	Spare Parts (Clamp)
CP-8W		P18	Spare Parts (Clamp)
CP8X23TL		P2	Spare Parts (Screw)
CP-CH10		K37	Spare Parts (Clamp)
CP-CH12		K37	Spare Parts (Clamp)
CP-CH14		K37	Spare Parts (Clamp)
CP-CH16		K37	Spare Parts (Clamp)
CP-CH18		K37	Spare Parts (Clamp)
CP-CH20		K37	Spare Parts (Clamp)
CPGB	○○○S○○○○○MES	C21	Insert (Turning)
CPGB	○○○(○)(○)S○○○○○MET	C21	Insert (Turning)
CPGB	○○○(○)(○)T○○○○○ME	C21	Insert (Turning)
CPGB	○○○(○)(○)(○) T○○○○○SE	C21	Insert (Turning)
CPGT	○○○○(○)	B66	Insert (Turning)
CPMB	○○○(○)(○)(○)	B67	Insert (Turning)
CPMH	○○○(○)(○)(○)	B67, C41	Insert (Turning)
CPMH	○○○(○)(○)HQ	B67	Insert (Turning)
CPMH	○○○(○)(○)(○)NE	C41	Insert (Turning)
CPMH	○○○(○)(○)R/L-Y	B67	Insert (Turning)
CPMH	○○○(○)SE	C41	Insert (Turning)
CPMT	○○○(○)(○)GP	B67	Insert (Turning)
CPMT	○○○(○)(○)(○)PP	B67	Insert (Turning)
CPMT	○○○(○)(○)XP	B67	Insert (Turning)
CPMT	○○○XQ	B67	Insert (Turning)
CP-RCR/L		P15	Spare Parts (Clamp Set)
CPS-1		P16	Spare Parts (Clamp Set)
CPS-2		P16	Spare Parts (Clamp Set)
CPS-2P		P16	Spare Parts (Clamp Set)
CPS-2S		P16	Spare Parts (Clamp Set)
CPS-2TR		P16	Spare Parts (Clamp Set)
CPS-3		P16	Spare Parts (Clamp Set)
CPS-4V		P16	Spare Parts (Clamp Set)
CPS-5E		P16	Spare Parts (Clamp Set)
CPS-5F		P16	Spare Parts (Clamp Set)
CPS-5R/L		P16	Spare Parts (Clamp Set)
CPS-5S		P16	Spare Parts (Clamp Set)
CPS-5V		P16	Spare Parts (Clamp Set)
CPS-6F		P16	Spare Parts (Clamp Set)
CPS-6M		P16	Spare Parts (Clamp Set)
CPS-6S		P16	Spare Parts (Clamp Set)
CPS-6V		P16	Spare Parts (Clamp Set)
CPS-8V		P16	Spare Parts (Clamp Set)
CP-ST-R1/8		H17	Coolant Coupler
CRDCN	○○-○	D64	Toolholder (Turning)
CRDNN	○○-○□	D64	Toolholder (Turning)
CRDNN	○○○○□-○○	D64	Toolholder (Turning)
CRDNN	○○○○□-○○A	D67	Toolholder (Turning)
CRSNR/L	○○○○□-○○	D63	Toolholder (Turning)
CRSNR/L	○○○○□-○○A	D67	Toolholder (Turning)
CS	○○-○○○	K113	Toolholder (Drilling) Countersink (CS)
CS-2D		P2	Spare Parts (Screw)
CS-3D		P2	Spare Parts (Screw)
CS-5D		P2	Spare Parts (Screw)
CS-3D-TR		P2	Spare Parts (Screw)
CSDNN	○○○○□-○○	D60	Toolholder (Turning)
CSDNN	○○○○□-○○A	D70	Toolholder (Turning)
CSKNR/L	○○○○□-○○	D58	Toolholder (Turning)
CSKNR	○○○○□-○○A	D69	Toolholder (Turning)
CS-NR/L	○○○○□-○○	D58	Toolholder (Turning)
CSRNR/L	○○-○□	D56	Toolholder (Turning)
CSRNR/L	○○○○□-○○	D56	Toolholder (Turning)
CSRNR/L	○○○○□-○○A	D69	Toolholder (Turning)
CSSNR/L	○○-○□	D59	Toolholder (Turning)
CSSNR/L	○○○○□-○○	D59	Toolholder (Turning)

Part Numbers in Alphanumeric Order

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Part Number		Page	Description
CSSN R/L	○○○○□-○○A	D70	Toolholder (Turning)
CSYN R/L	○○○○□-○○	D59	Toolholder (Turning)
CT12T3-45DA		K36	Chamfer Insert (Drilling) DRA
CTJN R/L	○○-○□	D62	Toolholder (Turning)
CTJN R/L	○○○○□-○○	D62	Toolholder (Turning)
CTJN R/L	○○○○□-○○A	D72	Toolholder (Turning)
CTUN R/L	○○○○□-○○	D62	Toolholder (Turning)
D			
DA	○○○○M-FTP	K10	Insert (Drilling) DRA Magic Drill
DA	○○○○M-FTP-H	K11	Insert (Drilling) DRA Magic Drill
DA	○○○○M-GM	K6~K9	Insert (Drilling) DRA Magic Drill
DA	○○○○M-HQP	K13~K15	Insert (Drilling) DRA Magic Drill
DA	○○○○M-HQS	K16~K17	Insert (Drilling) DRA Magic Drill
DB	○○○R○○	G71	Insert (Grooving)
DB	○○○□(□□)T00420	G71	Insert (Grooving)
DC	○-○.○○	M316	End Mill (DC Dovetail)
DC-42		P9	Spare Parts (Shim)
DC-44		P9	Spare Parts (Shim)
DC-44-C		P9	Spare Parts (Shim)
DCET	○○○○○F R/L -JSF	B76	Insert (Turning)
DCET	○○○○○F R/L -USF	B74	Insert (Turning)
DCET	○○○○(○)(○)MF R/L -J	B77	Insert (Turning)
DCET	○○○○○MF R/L -JSF	B76	Insert (Turning)
DCET	○○○○○FR-U	B74	Insert (Turning)
DCET	○○○○(○)(○)MF R/L -U	B74	Insert (Turning)
DCET	○○○○○(○)MF R/L -USF	B74	Insert (Turning)
DCET	○○○○(○)(○)M R/L -F	B72	Insert (Turning)
DCET	○○○○(○)(○)M R/L -FSF	B72	Insert (Turning)
DCET	○○○○(○) R/L -FSF	B72	Insert (Turning)
DCGT	○○○○(○)	B70	Insert (Turning)
DCGT	○○○○AH	B78	Insert (Turning)
DCGT	○○○○(○)AP	B78	Insert (Turning)
DCGT	○○○○○CF	B68	Insert (Turning)
DCGT	○○○○○CK	B68	Insert (Turning)
DCGT	○○○○(○)E R/L -J	B77	Insert (Turning)
DCGT	○○○○(○)E R/L -U	B76	Insert (Turning)
DCGT	○○○○(○)F R/L -J	B77	Insert (Turning)
DCGT	○○○○○F R/L -U	B75	Insert (Turning)
DCGT	○○○○(○)FN-Z	B70	Insert (Turning)
DCGT	○○○○(○)M	B70	Insert (Turning)
DCGT	○○○○(○)ME R/L -J	B77	Insert (Turning)
DCGT	○○○○(○)ME R/L -U	B76	Insert (Turning)
DCGT	○○○○(○)(○)MF	B70	Insert (Turning)
DCGT	○○○○(○)MFP-GF	B68	Insert (Turning)
DCGT	○○○○(○)MFP-GQ	B69	Insert (Turning)
DCGT	○○○○(○)MFP-SK	B68	Insert (Turning)
DCGT	○○○○(○)(○)MFP-SKS	B68	Insert (Turning)
DCGT	○○○○(○)(○)MF R/L -J	B77	Insert (Turning)
DCGT	○○○○(○)(○)MF R/L -U	B75	Insert (Turning)
DCGT	○○○○○MP-CF	B68	Insert (Turning)
DCGT	○○○○○MP-CK	B68	Insert (Turning)
DCGT	○○○○(○)(○)M R/L -F	B73	Insert (Turning)
DCGT	○○○○(○) R/L -A3	B78	Insert (Turning)
DCGT	○○○○(○) R/L -F	B73	Insert (Turning)
DCGT	○○○○(○) R/L -FS	B73	Insert (Turning)
DCGW	○○○○(○)	B78	Insert (Turning)
DCLN R/L	○○-○□	D8	Toolholder (Turning)
DCLN R/L	○○-○□JCT	D9	Toolholder (Turning)
DCLN R/L	○○○○□-○○	D8	Toolholder (Turning)
DCLN R/L	○○○○□-○○JCT	D9	Toolholder (Turning)
DCMT	○○○○(○)	B70, C42	Insert (Turning/Milling)
DCMT	○○○○(○)APD	C42	Insert (Turning)
DCMT	○○○○CQ	M314	Insert (Milling) / API Insert (Ring Grooving)
DCMT	○○○○(○)GK	B70	Insert (Turning)
DCMT	○○○○(○)GP	B69	Insert (Turning)
DCMT	○○○○(○)HQ	B70, M314, M317	Insert (Turning/Milling) / API Insert (Ring Grooving, Dovetail)
DCMT	○○○○(○)MQ	B71	Insert (Turning)
DCMT	○○○○(○)NE	C42	Insert (Turning)
DCMT	○○○○(○)PP	B69	Insert (Turning)
DCMT	○○○○(○) R/L -NE	C42	Insert (Turning)
DCMT	○○○○(○)SE	C42	Insert (Turning)
DCMT	○○○○(○)XP	B71	Insert (Turning)
DCMT	○○○○XQ	B71	Insert (Turning)
DCMW	○○○○MEF	C22	Insert (Turning)
DCMW	○○○○(○)S○○○○○MES	C22	Insert (Turning)
DCMW	○○○○(○)S○○○○○MET	C22	Insert (Turning)
DCMW	○○○○S○○○○○SET	C22	Insert (Turning)
DCMW	○○○○(○)T○○○○○ME	C22	Insert (Turning)
DCMW	○○○○(○)T○○○○○SE	C22	Insert (Turning)
DCMX	○○○○(○)WP	B69	Insert (Turning)
DCMX	○○○○ R/L -WP	B69	Insert (Turning)
DD-42		P9	Spare Parts (Shim)
DD-42-16		P9	Spare Parts (Shim)
DD-43		P9	Spare Parts (Shim)
DD-44		P9	Spare Parts (Shim)
DDJN R/L	○○-○□	D14	Toolholder (Turning)
DDJN R/L	○○-○□JCT	D15	Toolholder (Turning)
DDJN R/L	○○○○□-○○○○	D14	Toolholder (Turning)

Part Numbers in Alphanumeric Order

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Part Number		Page	Description
DDJN R/L	○○○○□-○○JCT	D15	Toolholder (Turning)
DDHN R/L	○○○○□-○○○○	D16	Toolholder (Turning)
DMC	○○○H	M187	End Mill (DMC-H)
DMC	○○○SX	M186	End Mill (DMC-SX)
DMC	○○○SXT	M186	End Mill (DMC-SX)
DMC	○○○SX-○○○	M186	End Mill (DMC-SX)
DN10		P23	Spare Parts (Nozzle)
DN20		P23	Spare Parts (Nozzle)
DNG	○○○T○○○○○	B114	Insert (Turning)
DNG	○○○T○○○○○AA	B114	Insert (Turning)
DNGA	○○○MEF	C10	Insert (Turning)
DNGA	○○○ME4	C10	Insert (Turning)
DNGA	○○○S○○○○○	B114	Insert (Turning)
DNGA	○○○(○)S○○○○○ME	C10	Insert (Turning)
DNGA	○○○S○○○○○MEH	C10	Insert (Turning)
DNGA	○○○S○○○○○MEP	C10	Insert (Turning)
DNGA	○○○S○○○○○MET	C10	Insert (Turning)
DNGA	○○○T○○○○○	B114	Insert (Turning)
DNGA	○○○T○○○○○AA	B114	Insert (Turning)
DNGG	○○○AH	B31	Insert (Turning)
DNGG	○○○FP-TK	B28	Insert (Turning)
DNGG	○○○L	B32	Insert (Turning)
DNGG	○○○L-A3	B31	Insert (Turning)
DNGG	○○○(○)L-S	B32	Insert (Turning)
DNGG	○○○(○)MFP-SK	B28	Insert (Turning)
DNGG	○○○R	B32	Insert (Turning)
DNGG	○○○R-A3	B31	Insert (Turning)
DNGG	○○○(○)R-S	B32	Insert (Turning)
DNGG	○○○TK	B28	Insert (Turning)
DNGM	○○○ME-HD	C11	Insert (Turning)
DNGM	○○○ME-HH	C11	Insert (Turning)
DNGM	○○○ME-HL	C11	Insert (Turning)
DNGU	○○○○(○)MER-U	B56	Insert (Turning)
DNGU	○○○○(○)MFP-SK	B56	Insert (Turning)
DNGU	○○○○(○)(○)MFR-F	B56	Insert (Turning)
DNGU	○○○○(○)(○)MFR-U	B56	Insert (Turning)
DNMA	○○○	B31	Insert (Turning)
DNMG	○○○	B27	Insert (Turning)
DNMG	○○○AH	B31	Insert (Turning)
DNMG	○○○C	B30	Insert (Turning)
DNMG	○○○CJ	B25	Insert (Turning)
DNMG	○○○CQ	B25	Insert (Turning)
DNMG	○○○GC	B30	Insert (Turning)
DNMG	○○○(○)GP	B24	Insert (Turning)
DNMG	○○○GS	B25	Insert (Turning)

Part Number		Page	Description
DNMG	○○○GT	B26	Insert (Turning)
DNMG	○○○(○)HQ	B25	Insert (Turning)
DNMG	○○○KG	B30	Insert (Turning)
DNMG	○○○KH	B30	Insert (Turning)
DNMG	○○○KQ	B30	Insert (Turning)
DNMG	○○○MQ	B28	Insert (Turning)
DNMG	○○○MS	B29	Insert (Turning)
DNMG	○○○MU	B29	Insert (Turning)
DNMG	○○○PG	B26	Insert (Turning)
DNMG	○○○PH	B27	Insert (Turning)
DNMG	○○○PMG	B25	Insert (Turning)
DNMG	○○○(○)PP	B24	Insert (Turning)
DNMG	○○○PQ	B24	Insert (Turning)
DNMG	○○○PS	B26	Insert (Turning)
DNMG	○○○PT	B26	Insert (Turning)
DNMG	○○○(○)R-LD	B28	Insert (Turning)
DNMG	○○○R/L-ST	B29	Insert (Turning)
DNMG	○○○SG	B29	Insert (Turning)
DNMG	○○○SQ	B29	Insert (Turning)
DNMG	○○○TK	B28	Insert (Turning)
DNMG	○○○TN-V	B25	Insert (Turning)
DNMG	○○○XF	B27	Insert (Turning)
DNMG	○○○XP	B27	Insert (Turning)
DNMG	○○○XQ	B27	Insert (Turning)
DNMG	○○○XS	B27	Insert (Turning)
DNMG	○○○ZS	B30	Insert (Turning)
DNMM	○○○(○)M	C35	Insert (Turning)
DNMM	○○○(○)M-NE	C35	Insert (Turning)
DNMM	○○○(○)M-SE	C35	Insert (Turning)
DNMM	○○○PX	B27	Insert (Turning)
DNMP	○○○TK	B28	Insert (Turning)
DNMU	○○○○(○)E-GK	B56	Insert (Turning)
DNMX	○○○WF	B24	Insert (Turning)
DPET	○○○○○FR/L-USF	B79	Insert (Turning)
DPET	○○○○○MFR/L-USF	B79	Insert (Turning)
DPET	○○○○○MR/L-FSF	B79	Insert (Turning)
DPET	○○○○○R/L-FSF	B79	Insert (Turning)
DR-	○○-○○(□)	M267	Spare Parts (Drive Ring)
DR-	○○○○-○○○○(□)	M266	Spare Parts (Drive Ring)
DR-	○○○○	K100~K103	Toolholder (Drilling) HOLESHOT Drill (DR)
DR-	○○○○-X1	K102~K103	Toolholder (Drilling) HOLESHOT Drill (DR)
DR-	○○○○-X3N	K100~K103	Toolholder (Drilling) HOLESHOT Drill (DR)
DRV	-CH○○	K68	Chamfering Attachment DRV

Part Numbers in Alphanumeric Order

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Part Number	Page	Description
DS-42	P9	Spare Parts (Shim)
DS-44	P9	Spare Parts (Shim)
DSBN R/L ○○○○□-○○	D21	Toolholder (Turning)
DT-8	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DT-10	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DT-15	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DT-20	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DT-25	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DT-32	P9	Spare Parts (Shim)
DT-42	P9	Spare Parts (Shim)
DTD500	P22	Electric Wrench (Insert Torque Driver)
DTGN R/L ○○○○□-○○	D25	Toolholder (Turning)
DTGN R/L ○○○○□-○○JCT	D26	Toolholder (Turning)
DTM-6	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DTM-7	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DTM-8	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DTM-10	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DTM-15	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DTP-6	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTP-7	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTP-9	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTP-15	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTP-20	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTPM-8	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTPM-10	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTPM-15	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DV-33	P9	Spare Parts (Shim)
DVJN R/L ○○-○□	D34	Toolholder (Turning)
DVLN R/L ○○○○□-○○	D34	Toolholder (Turning)
DVLN R/L ○○-○□JCT	D35	Toolholder (Turning)
DVLN R/L ○○○○□-○○JCT	D35	Toolholder (Turning)
DVPN R/L ○○-○□	D36	Toolholder (Turning)
DVPN R/L ○○○○□-○○	D36	Toolholder (Turning)
DVPN R/L ○○○○□-○○JCT	D37	Toolholder (Turning)
DW-42	P9	Spare Parts (Shim)
DW-44	P9	Spare Parts (Shim)
DWLN R/L ○○-○□	D48	Toolholder (Turning)
DWLN R/L ○○○○□-○○	D48	Toolholder (Turning)
DWLN R/L ○○-○□JCT	D49	Toolholder (Turning)
DWLN R/L ○○○○□-○○JCT	D49	Toolholder (Turning)
DVVNN ○○-○□	D38	Toolholder (Turning)
DVVNN ○○○○□-○○	D38	Toolholder (Turning)
DVVNN ○○○○□-○○JCT	D39	Toolholder (Turning)
E		
E○○□- SCLC R/L ○A	F64	Boring Bars (Dynamic Bar)
E○○□- SCLC R/L ○A-○/○	F64	Boring Bars (Dynamic Bar)
E○○□- SCLC R/L ○○-○○A	F64	Boring Bars (Dynamic Bar)
E○○□- SCLC R/L ○○-○○A-○/○	F64	Boring Bars (Dynamic Bar)
E○○□- SCLC R/L ○○-○○AN	F64	Boring Bars (Dynamic Bar)
E○○□- SCLC R/L ○○-○○AN-○/○	F64	Boring Bars (Dynamic Bar)
E○○□- SCLP R/L ○○-○○A	F71	Boring Bars (Dynamic Bar)
E○○□- SCLP R/L ○○-○○A-○/○	F71	Boring Bars (Dynamic Bar)
E○○□- SCLP R/L ○○-○○AN	F71	Boring Bars (Dynamic Bar)
E○○□- SCLP R/L ○○-○○AN-○/○	F71	Boring Bars (Dynamic Bar)
E○○□- SDQC R/L ○A	F80	Boring Bars (Dynamic Bar)
E○○□- SDQC R/L ○A-○/○	F80	Boring Bars (Dynamic Bar)
E○○□- SDQC R/L ○○-○○A	F80	Boring Bars (Dynamic Bar)
E○○□- SDQC R/L ○○-○○A-○/○	F80	Boring Bars (Dynamic Bar)
E○○□- SDUC R/L ○A	F76	Boring Bars (Dynamic Bar)
E○○□- SDUC R/L ○A-○/○	F76	Boring Bars (Dynamic Bar)
E○○□- SDUC R/L ○○-○○A	F76	Boring Bars (Dynamic Bar)
E○○□- SDUC R/L ○○-○○A-○/○	F76	Boring Bars (Dynamic Bar)
E○○□- SDZC R/L ○○-○○A	F84	Boring Bars (Dynamic Bar)
E○○□- STLP R/L ○○-○○A	F92	Boring Bars (Dynamic Bar)
E○○□- STLP R/L ○○-○○A-○/○	F92	Boring Bars (Dynamic Bar)
E○○□- STLP R/L ○○-○○AN	F92	Boring Bars (Dynamic Bar)
E○○□- STLP R/L ○○-○○AN-○/○	F92	Boring Bars (Dynamic Bar)
E○○□- SVPB R/L ○○-○○A	F107	Boring Bars (Dynamic Bar)
E○○□- SVPC R/L ○○-○○A	F107	Boring Bars (Dynamic Bar)
E○○□- SVUB R/L ○○-○○A	F109	Boring Bars (Dynamic Bar)
E○○□- SVUC R/L ○○-○○A	F109	Boring Bars (Dynamic Bar)
E○○□- SWUB R/L ○○-○○AN	F118	Boring Bars (Dynamic Bar)
E○○□- SWUB R/L ○○-○○AN-○/○	F118	Boring Bars (Dynamic Bar)
E○○□- SWUP R/L ○○-○○A	F118	Boring Bars (Dynamic Bar)
E○○□- SWUP R/L ○○-○○A-○/○	F118	Boring Bars (Dynamic Bar)
EGTR 16-1	G70	Toolholder (External Grooving)
EM ○○○○	M190	End Mill
EM ○○○○-○○	M190	End Mill
EM ○○○○-○○-3F	M190	End Mill
EM ○○○○-○○○S	M190	End Mill

Part Numbers in Alphanumeric Order

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Part Number		Page	Description
EM	○○○○-○.○	M190	End Mill (Extended Length)
EM	○○○○-AL	M216	End Mill (for Aluminum Machining)
EM	○○○○-○.○○(○)-AL	M216	End Mill (for Aluminum Machining)
EM	○○○○-3F	M190	End Mill
EM	○○○○-○○○○-LE	M191	End Mill (Long Edge)
ENG	○○○T○○○○○	B115	Insert (Turning)
ENG	○○○T○○○○○AA	B115	Insert (Turning)
ENET	○○○○PAER-□	M205	Insert (Milling) MFAH
EZBCR	○○○○○○-○○○-○○	F29	EZ Bars (Chamfering)
EZBFR	○○○○○○-○○○	F26	EZ Bars (Boring)
EZBPR	○○○○○○-○○○(-○○)	F28	EZ Bars (Internal Profiling)
EZBR	○○○○○○-○○○NB	C32, C58, F24	EZ Bars (Boring)
EZBR/L	○○○○○○HP-○○○F	F21	EZ Bars (Boring)
EZBR	○○○○○○HP-○○○G	F20	EZ Bars (Boring)
EZBR/L	○○○○○○HP-○○○H	F18	EZ Bars (Boring)
EZBR	○○○○○○HP-○○○H-LT	F19	EZ Bars (Boring)
EZBR	○○○○○○ST-○○○F	F23	EZ Bars (Boring)
EZBR	○○○○○○ST-○○○H	F22	EZ Bars (Boring)
EZBTR	○○○○○○-○○○	F32	EZ Bars (Back Boring)
EZFGR/L	○○○○○○-○○○	G99	EZ Bars (Internal Face Grooving)
EZGR/L	○○○○○○-○○○	G75	EZ Bars (Internal Grooving)
EZGR/L	○○○○○○-○○○S	G75	EZ Bars (Internal Grooving)
EZH	○○○○○(.○)CT-○○○	F40~F41	Sleeve
EZH	○○○○○(.○)HP-○○○	F42~F43	Sleeve
EZH	○○○○○(.○)ST-○○○	F44~F45	Sleeve
EZTR	○○○○○○-○○-○○○	J44	EZ Bars (Internal Threading)
EZVBR	○○○○○○-○○○	F30	EZ Bars (Boring / Internal Facing / Internal Profiling)
F			
FH-2		P20	Spare Parts (Hexagon Wrench / Flag Type)
FM	○○○○-90RH	M192	Face Mill (Fixed Pocket)
FM	○○○○-90AL-(125)	M216	Face Mill (Fixed Pocket)
FM	AL-○○○○-90-○	M216	Face Mill (Fixed Pocket)
FMM	○○-○○	G148	Insert (Grooving)
FMN	○	G148	Insert (Grooving)
FT-6		P20	Spare Parts (Torx Wrench / Flag Type)
FT-7		P20	Spare Parts (Torx Wrench / Flag Type)
FT-8		P20	Spare Parts (Torx Wrench / Flag Type)
FT-10		P20	Spare Parts (Torx Wrench / Flag Type)
FT-15		P20	Spare Parts (Torx Wrench / Flag Type)
FTK	○	G151	Insert (Face Grooving)
FTP-5		P20	Spare Parts (Torx Plus Wrench / Flag Type)
FTP-6		P20	Spare Parts (Torx Plus Wrench / Flag Type)

Part Number		Page	Description
G			
GBA	○○R/L○○○-(○○○)	C29, C52, G6~G9, G12	Insert (Grooving)
GBA	○○R/L○○○-○○○F	G7, G10	Insert (Grooving)
GBA	○○R/L○○○-○○○GM	G11	Insert (Grooving)
GBA	○○R/L○○○-○○○R	G7, G12	Insert (Grooving)
GBA	○○R/L○○○-○○○RF	G12	Insert (Grooving)
GBF	○○R/L○○○-○○○	G19~G20	Insert (Grooving)
GBF	○○R/L○○○-○○○F	G18	Insert (Grooving)
GBF	○○R/L○○○-○○○GL	G18	Insert (Grooving)
GC	○○R/L○○○-○○○	G79	Insert (Grooving)
GC	○○R○○○-○○○R	G79	Insert (Grooving)
GDFG	○○○○N-○○○GS	G107	Insert (Face Grooving)
GDFM	○○○○N-○○○DM	G107	Insert (Face Grooving)
GDFM	○○○○N-○○○GH	G107	Insert (Face Grooving)
GDFM	○○○○N-○○○GM	G107	Insert (Face Grooving)
GDFM	○○○○N-○○○R-CM	G107	Insert (Face Grooving)
GDFMS	○○○○N-○○○DM	G107	Insert (Face Grooving)
GDG	○○○○N-○○○AM	G41	Insert (Grooving)
GDG	○○○○N-○○○GS	G41, G90	Insert (Grooving)
GDG	○○○○N-○○○PG	H32	Insert (Cut-Off)
GDG	○○○○R/L-○○○PG-○○D	H32	Insert (Cut-Off)
GDGS	○○○○N-○○○NB	C30, C54, G43	Insert (Grooving)
GDM	○○○○N-○○○GL	G41	Insert (Grooving)
GDM	○○○○N-○○○GM	G40	Insert (Grooving)
GDM	○○○○N-○○○GMI	G90	Insert (Grooving)
GDM	○○○○N-○○○PF	H32	Insert (Cut-Off)
GDM	○○○○N-○○○PH	G42, H33	Insert (Grooving / Cut-Off)
GDM	○○○○N-○○○PM	H33	Insert (Cut-Off)
GDM	○○○○N-○○○PQ	H32	Insert (Cut-Off)
GDM	○○○○N-○○○R-CM	G42, G90	Insert (Grooving)
GDM	○○○○R/L-○○○PF-○○D	H32	Insert (Cut-Off)
GDM	○○○○R/L-○○○PM-○D	H33	Insert (Cut-Off)
GDM	○○○○R/L-○○○PQ-○○D	H32	Insert (Cut-Off)
GDMS	○○○○N-○○○GM	G40	Insert (Grooving)
GDMS	○○○○N-○○○PH	G42, H33	Insert (Grooving / Cut-Off)
GDMS	○○○○N-○○○PM	H33	Insert (Cut-Off)
GDMS	○○○○R/L-○○○PM-○D	H33	Insert (Cut-Off)
GER/L	○○○-○○○A	G82	Insert (Grooving)
GER	○○○-○○○AR	G82	Insert (Grooving)
GER/L	○○○-○○○B	G82	Insert (Grooving)
GER	○○○-○○○BR	G82	Insert (Grooving)
GER/L	○○○-○○○C	G84	Insert (Grooving)
GER	○○○-○○○CM	G83	Insert (Grooving)
GER	○○○-○○○CR	G84	Insert (Grooving)

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Part Number		Page	Description
GE R/L	○○○-○○○D	G84	Insert (Grooving)
GER	○○○-○○○DM	G83	Insert (Grooving)
GER	○○○-○○○DR	G84	Insert (Grooving)
GE R/L	○○○-○○○E	G85	Insert (Grooving)
GE R/L	○○○-○○○EM	G85	Insert (Grooving)
GFV R/L	○○○○□-○○○(○)□	G137	Toolholder (Face Grooving)
GFVS R/L	○○-H□	G143	Toolholder (Face Grooving)
GFVS R/L	○○○○□-H□	G143	Toolholder (Face Grooving)
GFVS R/L	○○○○□-○○AA	G135	Toolholder (Face Grooving)
GFVS R/L	○○-○○○(○)□	G139	Toolholder (Face Grooving)
GFVS R/L	○○○○□-○○○(○)□	G140	Toolholder (Face Grooving)
GFVT R/L	○○-H□	G143	Toolholder (Face Grooving)
GFVT R/L	○○○○□-H□	G143	Toolholder (Face Grooving)
GFVT R/L	○○○○□-○○AA	G135	Toolholder (Face Grooving)
GFVT R/L	○○-○○○(○)□	G141	Toolholder (Face Grooving)
GFVT R/L	○○○○□-○○○(○)□	G142	Toolholder (Face Grooving)
GG	○○○-○○T00320	G70	Insert (Grooving)
GH	○○○○(○)-○○	B124, G66, G92	Insert (Grooving)
GHU	○○-○○	G66, G92	Insert (Grooving)
GIFV R/L	○○○○B-○○○□	G145	Toolholder (Face Grooving)
GMGW	○○○○-○○R	C56, G72	Insert (Grooving)
GMGW	○○○○-○○R-HR	C56, G72	Insert (Grooving)
GMN	○	C31, G55	Insert (Grooving)
GOMT	○○(□)○○○ER-D	M262	Insert (Milling) MEY
GP-1		P23	Spare Parts (Plug)
GP-2		P23	Spare Parts (Plug)
GS-50		P2	Spare Parts (Screw)
GV R/L	○○○□R	M309	Insert (Grooving / Previous Description)
GV R/L	○○○□(□)	M309	Insert (Grooving / Previous Description)
GV R/L	○○○-○○○□(□)	M309	Insert (Grooving)
GVF R/L	○○○□	M310	Insert (Grooving / Previous Description)
GVF R/L	○○○-○○○AA	G134	Insert (Grooving)
GVF R/L	○○○-○○○□	C53, G136, M310	Insert (Grooving)
GVF R/L	○○○-○○○□R	G136	Insert (Grooving)
GZG	○○○○N-○○○GS	G28	Insert (Grooving)
GZG	○○○○N-○○○PG	H22	Insert (Cut-Off)
GZG	○○○○ R/L -○○○PG-15D	H22	Insert (Cut-Off)
GZM	○○○○N-○○○CM	G28	Insert (Grooving)
GZM	○○○○N-○○○GL	G28	Insert (Grooving)
GZM	○○○○N-○○○GM	G28	Insert (Grooving)
GZM	○○○○N-○○○PF	H22	Insert (Cut-Off)
GZM	○○○○N-○○○PH	G28, H23	Insert (Grooving / Cut-Off)
GZM	○○○○N-○○○PM	H23	Insert (Cut-Off)
GZM	○○○○ R/L -○○○PF-15D	H22	Insert (Cut-Off)
GZM	○○○○ R/L -○○○PM-6D	H23	Insert (Cut-Off)
GZGS	○○○○N-○○○NB	G28	Insert (Grooving)
GZMS	○○○○N-○○○GM	G28	Insert (Grooving)
GZMS	○○○○N-○○○PH	G28	Insert (Grooving)
GZMS	○○○○N-○○○PM	H23	Insert (Cut-Off)
H			
HF0500X35HC		P2	Spare Parts (Screw with Coolant Hole)
HF0625X44HC		P2	Spare Parts (Screw with Coolant Hole)
HF0625X48HC		P2	Spare Parts (Screw with Coolant Hole)
HF16X48HC		P2	Spare Parts (Screw with Coolant Hole)
HF20X53H		M102	Spare Parts (Screw)
HF20X53HA		P2	Spare Parts (Screw with Coolant Hole)
HF24X60H		P2	Spare Parts (Screw)
HF24X60HA		M202	Spare Parts (Screw with Coolant Hole)
HH1/2-1.25		P3	Spare Parts (Arbor / Mounting Bolt)
HH1/2-1.25H		P3	Spare Parts (Arbor / Mounting Bolt)
HH1/4-0.75		P3	Spare Parts (Arbor / Mounting Bolt)
HH3/4-2.3H		P3	Spare Parts (Arbor / Mounting Bolt)
HH3/8-1.25		P3	Spare Parts (Arbor / Mounting Bolt)
HH3/8-1.25H		P3	Spare Parts (Arbor / Mounting Bolt)
HH3X6		P3	Spare Parts (Screw)
HH3X10S		P3	Spare Parts (Screw)
HH3X12		P3	Spare Parts (Screw)
HH3.5X10S		P3	Spare Parts (Screw)
HH4X12		P4	Spare Parts (Screw)
HH4X12S		P3	Spare Parts (Screw)
HH4X16		P3	Spare Parts (Screw)
HH5X12		P3	Spare Parts (Screw)
HH5X15		P3	Spare Parts (Screw)
HH5X15L		P3	Spare Parts (Screw)
HH5X16		P3	Spare Parts (Screw)
HH5X20		P3	Spare Parts (Screw)
HH5X25		P3	Spare Parts (Screw)
HH5X30		P3	Spare Parts (Screw)
HH6X12		P3	Spare Parts (Screw)
HH6X18		P3	Spare Parts (Clamp Screw)
HH6X20		P3	Spare Parts (Screw)
HH6X25		P3	Spare Parts (Screw)
HH6X30		P3	Spare Parts (Screw)
HH8X20		P3	Spare Parts (Clamp Screw)
HH8X25		P3	Spare Parts (Screw)
HH8X25H		M87, M113	Spare Parts (Screw)
HH10X30		P3	Spare Parts (Screw)

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Part Number	Page	Description
HH10X30H	P4	Spare Parts (Screw)
HH10X35HK	P4	Spare Parts (Screw)
HH12X35	P3	Spare Parts (Screw)
HH12X35H	P4	Spare Parts (Screw)
HH12X35HC	P2	Spare Parts (Screw with Coolant Hole)
HH12X40	P3	Spare Parts (Screw)
HH16X40	P3	Spare Parts (Screw)
HH16X45	P3	Spare Parts (Screw)
HH20X40	P3	Spare Parts (Screw)
HH20X55	P3	Spare Parts (Screw)
HRSN R/L ○○-○□	D63	Toolholder (Turning)
HS3X3P	P4	Spare Parts (Screw)
HS3X4	P4	Spare Parts (Screw)
HS3X4P	P4	Spare Parts (Screw)
HS4X4	P4	Spare Parts (Screw)
HS4X4P	P4	Spare Parts (Screw)
HS5X4LP	P4	Spare Parts (Screw)
HS5X5	P4	Spare Parts (Screw)
HS6X4P	P4	Spare Parts (Screw)
HS6X6	P4	Spare Parts (Screw)
HS6X14	P4	Spare Parts (Screw)
HS6X22	P4	Spare Parts (Screw)
HS10X10	P4	Spare Parts (Screw)
HS12X25	P4	Spare Parts (Screw)
HS-2524TRP	P4	Spare Parts (Clamp Screw)
HS-2534TRP	P4	Spare Parts (Clamp Screw)
HS-3048TRP	P4	Spare Parts (Clamp Screw)
HS-4067TRP	P4	Spare Parts (Clamp Screw)
HS-50100TRP	P4	Spare Parts (Clamp Screw)
HSB4X8 R/L	P5	Spare Parts (Screw)
HS-G1/8-G1/8- ○○○	H17	Coolant Hose
HSDNN ○○-○□	D60	Toolholder (Turning)
HSRN R/L ○○-○□	D57	Toolholder (Turning)
HS-AN-AN- ○○○	D13, G49, H60	Spare Parts (Hose)
HS-ST-AN- ○○○	D13, G49, H60	Spare Parts (Hose)
HS-ST-ST- ○○○	D13, G49, H60	Spare Parts (Hose)
I		
J		
JCET ○○○○○(○)M R/L -F	B80	Insert (Turning)
JCET ○○○○○(○)M R/L -FSF	B80	Insert (Turning)
JCET ○○○○○(○) R/L -FSF	B80	Insert (Turning)
JCGT ○○○○○(○) R/L -F	B80	Insert (Turning)
J-AN-R1/8-G1/8 (-L)	H17	Coolant Joint
J-G1/8-UNF3/8	D13, G49, H60	Piping Joint
J-M10X1.5-UNF3/8	D13, G49, H60	Piping Joint
JOMT ○○(□)○○○ER-D	M262	Insert (Milling) MEY
J-ST-G1/4-G1/8	F145	Coolant Joint
J-ST-G3/8-G1/4	F145	Coolant Joint
J-ST-G1/2-G3/8	F145	Coolant Joint
J-ST-NPT1/8-G1/8	H17	Coolant Joint
J-ST-NPT1/8-RC1/8	H17	Coolant Joint
J-ST-R1/4-G1/8	H17	Coolant Joint
J-ST-R1/4-RC1/8	H17	Coolant Joint
J-ST-R1/8-G1/8 (-L)	H17	Coolant Joint
J-ST-R1/8-RC1/8	H17	Coolant Joint
K		
KAVH ○○-PCLN R/L ○○	F138	Anti-Vibration Boring Bar Head
KAVH ○○-PDUN R/L ○○	F140	Anti-Vibration Boring Bar Head
KAVH ○○-PTFN R/L ○○	F142	Anti-Vibration Boring Bar Head
KAVH ○○-SCLC R/L ○○	F134	Anti-Vibration Boring Bar Head
KAVH ○○-SDUC R/L ○○	F135	Anti-Vibration Boring Bar Head
KAVH ○○-STLP R/L ○○	F136	Anti-Vibration Boring Bar Head
KAVH ○○-SVUB R/L ○○	F137	Anti-Vibration Boring Bar Head
KAV- D○○-○(○)D	F144	Anti-Vibration Boring Bar Shank
KAV- G○○-○○D	F144	Anti-Vibration Boring Bar Shank
KCFP ○○○○ R/L	G146	Insert (Cera-Notch Face Grooving)
KCG ○○○○ R/L	G64	Insert (Cera-Notch Grooving)
KCGDP ○○○○ R/L	G64	Insert (Cera-Notch Grooving)
KCGP ○○○○L	G63	Insert (Cera-Notch Grooving)
KCGP ○○○○R	G62	Insert (Cera-Notch Grooving)
KCGT ○○○○○○ER-AM	M213	Insert (Milling) MEAS
KCGT ○○○○○○FR-AL	M213	Insert (Milling) MEAS
KCRP ○○○○ R/L	G64	Insert (Cera-Notch Grooving)
KCT ○ R/L	J34	Insert (Cera-Notch Threading)
KCTP ○ R/L	J34	Insert (Cera-Notch Threading)
KCTK ○ R/L	J34	Insert (Cera-Notch Threading)
KDBR 16-1	G71	Toolholder (External Grooving)
KFMS R/L ○○-○-○○○○(○)(○)	G149~G150	Toolholder (Face Grooving)
KFMS R/L ○○○○□○○(○)○○(○)-○	G149~G150	Toolholder (Face Grooving)
KFTB R/L ○○○○○(○)-○S	G152	Blade (Face Grooving)
KGBA R/L ○○-○	G13	Toolholder (Grooving)
KGBA R/L ○○-○-○○	G13	Toolholder (Grooving)
KGBA R/L ○○○○□-○○	G13	Toolholder (Grooving)
KGBA R/L ○○○○□-○○JCT	G15	Toolholder (Grooving)
KGBA R/L ○○○○□22-○○	G13	Toolholder (Grooving)
KGBA R/L ○○○○□22-○○JCT	G15	Toolholder (Grooving)
KGBA R/L ○○○○□22-○○T5	G13	Toolholder (Grooving)
KGBAS R/L ○○-○	G14	Toolholder (Grooving)

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Part Number		Page	Description
KGBAS R/L	○○-○-○○	G14	Toolholder (Grooving)
KGBAS R/L	○○○○□-○○	G14	Toolholder (Grooving)
KGBAS R/L	○○○○□22-○○	G14	Toolholder (Grooving)
KGBAS R/L	○○○○□22-○○T5	G14	Toolholder (Grooving)
KGBF R/L	○(○)-3JXF	G21	Toolholder (Grooving)
KGBF R/L	○○○○JX-16F	G21	Toolholder (Grooving)
KGBFR	○(○).○(○)-○○FJCTM	G22	Toolholder (Grooving)
KGBFR	○○○○JX-○○FJCTM	G22	Toolholder (Grooving)
KGBFS R/L	○○○○JX-16	G23	Toolholder (Grooving)
KGD R/L	○○-C	G52, G56, G110~G114, H43	Toolholder Body (Grooving / Cut-Off)
KGD R/L	○T○○-C	G52~G56, H43~H44	Blade (Grooving / Cut-Off)
KGD R/L	○○○○-C	G53, G56, G115~G119, H44	Toolholder Body (Grooving / Cut-Off)
KGD R/L	○(○)-○(.○)JX	G46, H34	Toolholder (Grooving / Cut-Off)
KGD R/L	○○-○D○○JX	G46, H34	Toolholder (Grooving / Cut-Off)
KGD R/L	○○○○□(□)-○(.○)	G47, H35	Toolholder (Grooving / Cut-Off)
KGD R/L	○○○○□(□)-○(.○)D○○	G47, H35	Toolholder (Grooving / Cut-Off)
KGD R/L	○(○).○(○)-○(.○)JCTM	G51, H39	Toolholder (Grooving / Cut-Off)
KGD R/L	○○○○□-○(.○)JCTM	G51, H40	Toolholder (Grooving / Cut-Off)
KGD R/L	○○-○T○○(○)	G44, H41	Toolholder (Grooving / Cut-Off)
KGD R/L	○○-○T○○(.○)JCT	G48, H46	Toolholder (Grooving / Cut-Off)
KGD R/L	○○○○□-○T○○JCT	G48, H46	Toolholder (Grooving / Cut-Off)
KGD R/L	○○○○□(□)-○(.○)T○○	G45, H42	Toolholder (Grooving / Cut-Off)
KGD R/L	○○X-○T○○S	G52, H43	Toolholder (Grooving / Cut-Off)
KGD R/L	○○○○X-○T○○S	G53, H44	Toolholder (Grooving / Cut-Off)
KGDF R/L	-○○(○)-○□-C	G131	Blade (Face Grooving)
KGDF R/L	○○○○○○(○)-○B-Z	G120	Toolholder (Face Grooving)
KGDIR	○○B-○	G91	Toolholder (Internal Grooving)
KGDI R/L	○○○○B-○	G91	Toolholder (Internal Grooving)
KGDS R/L	○○-C	G54, G121~G125	Toolholder (Grooving)
KGDS R/L	○○○○-C	G55, G126~G130	Toolholder (Grooving)
KGDS R/L	○○○○JX-○(.○)B	H36	Toolholder (Cut-Off)
KGH R/L	○○○○□-○(○)	G67	Toolholder (Grooving)
KGHS R/L	○○○○□-○	G68	Toolholder (Grooving)
KGMWR	○○○○□-○	G72	Toolholder (Grooving)
KGZ R/L	○(○).○(○)-○(D○○)JX	G32, H26	Toolholder (Grooving / Cut-Off)
KGZ R/L	○○○○□(□)-○(.○)(D○○)	G33, H27	Toolholder (Grooving / Cut-Off)
KGZ R/L	○(○).○(○)-○(.○)JCTM	G30, H24	Toolholder (Grooving / Cut-Off)
KGZ R/L	○○○○JX-○(.○)JCTM	G31, H25	Toolholder (Grooving / Cut-Off)
KGZ R/L	○○○○JX-○(.○)D26JCTM	G31, H25	Toolholder (Grooving / Cut-Off)
KGZS R/L	○○○○□(□)-○(.○)A/B	H28	Toolholder (Grooving / Cut-Off, Subspindle)
KIGBA R/L	○○-○	G89	Toolholder (Grooving)
KIGBA R/L	○○○○-○○	G89	Toolholder (Grooving)
KIGHR	○○○○B-○	G93	Toolholder (Grooving)

Part Number		Page	Description
KITG R/L	○○○○T-○○	J43	Toolholder (Grooving / Threading)
KKC R/L	○(○)-○□(□)	G65, J35	Toolholder (Cera-Notch Grooving / Threading)
KKC R/L	○○○○□-○-○○○F	G65, J35	Toolholder (Cera-Notch Grooving / Threading)
KKCE R/L	○○-○□	G147	Toolholder (Cera-Notch Face Grooving)
KPC○-DCLN	R/L ○○○○○-○○□	N4	Polygon Shank Holder (Turning)
KPC○-DDHN	R/L ○○○○○-○○□	N6	Polygon Shank Holder (Turning)
KPC○-DDJN	R/L ○○○○○-○○□	N6	Polygon Shank Holder (Turning)
KPC○-DTGN	R/L ○○○○○-○○□	N8	Polygon Shank Holder (Turning)
KPC○-DVLN	R/L ○○○○○-○○□	N10	Polygon Shank Holder (Turning)
KPC○-DVPN	R/L ○○○○○-○○□	N10	Polygon Shank Holder (Turning)
KPC○-DVVN	N○○○○○-○○□	N11	Polygon Shank Holder (Turning)
KPC○-DWLN	R/L ○○○○○-○○□	N12	Polygon Shank Holder (Turning)
KPC○-KGBA	R/L ○○○○○-○○(○○)	N15	Polygon Shank Holder (Shallow Grooving)
KPC○-KGD	R/L ○○○○○-○○T○	N16	Polygon Shank Holder (Grooving / Cut-Off)
KPC○-KTN	R/L ○○○○○-○○□	N17	Polygon Shank Holder (Threading)
KPC○-SVJB	R/L ○○○○○-○○□	N13	Polygon Shank Holder (Turning)
KPC○-SVVB	N○○○○○-○○□	N14	Polygon Shank Holder (Turning)
KPKB	○○-○	H55	Blade (Cut-Off)
KPKB	○○-○JCT	H54	Blade (Cut-Off)
KPKH	○○-○	H62	Toolholder (Cut-Off)
KPKH	○○○○□-○	H62	Toolholder (Cut-Off)
KPKH	○○○○□-○D○○	H62	Toolholder (Cut-Off)
KPKH	○○-○JCT	H61	Toolholder (Cut-Off)
KPKH	○○○○□-○JCT	H61	Toolholder (Cut-Off)
KPKTB	○○-○○JCT	H56	Block (Cut-Off)
KPS-42		P9	Spare Parts (Shim)
KPT-32		P9	Spare Parts (Shim)
KPT-42		P9	Spare Parts (Shim)
KSTB	SR○○/○○ CCET○○○	E72	Sub-Spindle Tools
KSTB	SR○○□ CCET○○○	E72	Sub-Spindle Tools
KSTB	SR○○/○○ DCET○○○	E72	Sub-Spindle Tools
KSTB	SR○○□ DCET○○○	E72	Sub-Spindle Tools
KSTB	SR○○/○○ VBET○○○	E72	Sub-Spindle Tools
KSTB	SR○○□ VBET○○○	E72	Sub-Spindle Tools
KSTB	SR○○/○○ TT○○	E73	Sub-Spindle Tools
KSTB	SR○○□ TT○○	E73	Sub-Spindle Tools
KTKB	○○-○S	H66	Blade (Cut-Off)
KTKB	○○-○SS	H66	Blade (Cut-Off)
KTKB R/L	○○-○S	H66	Blade (Cut-Off)
KTKFL	○○(.○)-○○□□	E16, H10, J30	Goose-neck Toolholder (Back Turning / Cut-Off / Threading)
KTKFL	○○○○□□-○○	E16, H10, J30	Goose-neck Toolholder (Back Turning / Cut-Off / Threading)

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Part Number	Page	Description
KTKF R/L ○(○)-○○□□	E15, H9, J29	Toolholder (Back Turning / Cut-Off / Threading)
KTKF R/L ○○○○□(□)-○○	E15, H9, J29	Toolholder (Back Turning / Cut-Off / Threading)
KTKF R/L ○○○○□(□)-○○SA/B	H18	Toolholder (Cut-Off / Sub-spindle)
KTKF R/L ○○○○JX-○○-Y	E16, H12, J31	Toolholder (Back Turning / Cut-Off / Threading)
KTKF R/L ○○(.○)-○○JCTM	H14~H15	Toolholder (Cut-Off)
KTKF R/L ○○○○JX-○○JCTM	H14~H15	Toolholder (Cut-Off)
KTKH R/L ○○-○S	H67~H68	Toolholder (Cut-Off)
KTKH R/L ○○○○□-○S	H68	Toolholder (Cut-Off)
KTKH R/L ○○○○□-○T○○S	H68	Toolholder (Cut-Off)
KTKTB ○○(.○)-○○	H57	Block (Cut-Off)
KTKTBF ○○-○○	H57	Block (Cut-Off)
KTN R/L ○○-○	J22	Toolholder (Threading)
KTN R/L ○○○○□-○○	J22	Toolholder (Threading)
KTN R/L ○○○○□□-○○F	J22	Toolholder (Threading)
KTNR ○○-○○JCT	J23	Toolholder (Threading)
KTNR ○○○○□-○○JCT	J23	Toolholder (Threading)
KTNSR ○○○○□-○○	J24	Toolholder (Threading)
KTT R/L ○○○○□-○○	J41	Toolholder (Threading)
KTTXR ○(○)-○□□F	J39	Toolholder (Threading)
KTTXR ○○○○□(□)-○○F	J39	Toolholder (Threading)
KVN-32	P9	Spare Parts (Shim)
L		
LC-32N	P9	Spare Parts (Shim)
LC-42N	P9	Spare Parts (Shim)
LC-42N-C	P10	Spare Parts (Shim)
LC-42N R/L	P10	Spare Parts (Shim)
LC-53N	P9	Spare Parts (Shim)
LC-53N-C	P10	Spare Parts (Shim)
LC-63	P9	Spare Parts (Shim)
LC-63-C	P10	Spare Parts (Shim)
LCMT ○○○○○○-GH-E	K46	Insert (Drilling) DRV Magic Drill
LCMT ○○○○○○-GH-I	K48	Insert (Drilling) DRV Magic Drill
LCMT ○○○○○○-GM-E	K46	Insert (Drilling) DRV Magic Drill
LCMT ○○○○○○-GM-I	K48	Insert (Drilling) DRV Magic Drill
LCMT ○○○○○○-SM-E	K46	Insert (Drilling) DRV Magic Drill
LCMT ○○○○○○-SM-I	K48	Insert (Drilling) DRV Magic Drill
LD-4K43	P10	Spare Parts (Shim)
LD-32N	P10	Spare Parts (Shim)
LD-42	P10	Spare Parts (Shim)
LD-42-20	P10	Spare Parts (Shim)
LD-43	P10	Spare Parts (Shim)
LGBA-16 R/L S	P16	Spare Parts (Clamp Set)
LGBA-22 R/L S	P16	Spare Parts (Clamp Set)

Part Number	Page	Description
LL-03N	P8	Spare Parts (Lock Pin)
LL-03SN	P8	Spare Parts (Lock Pin)
LL-03TN	P8	Spare Parts (Lock Pin)
LL-05C	P8	Spare Parts (Lock Pin)
LL-1CN	P8	Spare Parts (Lock Pin)
LL-1DN	P8	Spare Parts (Lock Pin)
LL-1K	P8	Spare Parts (Lock Pin)
LL-1N	P8	Spare Parts (Lock Pin)
LL-2C	P8	Spare Parts (Lock Pin)
LL-2K	P8	Spare Parts (Lock Pin)
LL-2N	P8	Spare Parts (Lock Pin)
LL-3K	P8	Spare Parts (Lock Pin)
LL-3N	P8	Spare Parts (Lock Pin)
LL-4N	P8	Spare Parts (Lock Pin)
LL-5N	P8	Spare Parts (Lock Pin)
LL-6	P8	Spare Parts (Lock Pin)
LNGX ○○○○○○	M42, M222	Insert (Milling) MFSE45 / MFF
LNGX ○○○○○○R-TT	M42, M222	Insert (Milling) MFSE45 / MFF
LNGX ○○○○PDFR-G	M198	Insert (Milling) MD90
LNGX ○○○○PDFR-L	M198	Insert (Milling) MD90
LNGX ○○○○○○PDFR-RR	M198	Insert (Milling) MD90
LNU 6688T08015625A	B123	Insert (Turning)
LOGU ○○○○○○ER-GH	M78, M251	Insert (Milling) MA90 / MFH
LOGU ○○○○○○ER-GM	M48, M78, M167, M251	Insert (Milling) MFLN / MA90 / MFH
LOGU ○○○○○○ER-SM	M78	Insert (Milling) MA90
LOGU ○○○○PAER-GM	M167	Insert (Milling) MFLN
LOGT ○○○○○○ER-GM	M78	Insert (Milling) MA90
LOGT ○○○○○○FR-AM	M93	Insert (Milling) MEW
LOMU ○○○○○○ER-GH	M93, M134	Insert (Milling) MEW / MEWH
LOMU ○○○○○○ER-GM	M93, M134, M244	Insert (Milling) MEW / MEWH / MFH
LOMU ○○○○○○ER-SM	M93, M134	Insert (Milling) MEW / MEWH
LP-2S	P8	Spare Parts (Lock Pin)
LP-6S	P8	Spare Parts (Lock Pin)
LPA-11	P8	Spare Parts (Anchor Pin)
LPA-13	P8	Spare Parts (Anchor Pin)
LPA-17	P8	Spare Parts (Anchor Pin)
LPF-11	P8	Spare Parts (Anchor Pin)
LPF-1113	P8	Spare Parts (Anchor Pin)
LPF-1117	P8	Spare Parts (Anchor Pin)
LPF-13	P8	Spare Parts (Anchor Pin)
LPF-17	P8	Spare Parts (Anchor Pin)
LPGT ○○○○○○ER-GM	M257	Insert (Milling) MFH
LR-10C	P10	Spare Parts (Shim)
LR-12C	P10	Spare Parts (Shim)
LR-16C	P10	Spare Parts (Shim)

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LR-80	P10	Spare Parts (Shim)
LR-81	P10	Spare Parts (Shim)
LS-03N	P5	Spare Parts (Lock Screw)
LS-03SN	P5	Spare Parts (Lock Screw)
LS-05	P5	Spare Parts (Lock Screw)
LS-1N	P5	Spare Parts (Lock Screw)
LS-1P	P5	Spare Parts (Lock Screw)
LS-1SN	P5	Spare Parts (Lock Screw)
LS-1T	P5	Spare Parts (Lock Screw)
LS-2N	P5	Spare Parts (Lock Screw)
LS-2P	P5	Spare Parts (Lock Screw)
LS-3	P5	Spare Parts (Lock Screw)
LS-3P	P5	Spare Parts (Lock Screw)
LS-4N	P5	Spare Parts (Lock Screw)
LS-5	P5	Spare Parts (Lock Screw)
LS-11	P5	Spare Parts (Lock Screw)
LS-15	P5	Spare Parts (Lock Screw)
LS-32	P10	Spare Parts (Shim)
LS-42	P10	Spare Parts (Shim)
LSE-445R	P14	Spare Parts (Cartridge)
LSO-445R	P14	Spare Parts (Cartridge)
LSP-1	P8	Spare Parts (Shim Pin)
LSP-2	P8	Spare Parts (Shim Pin)
LSP-2K	P8	Spare Parts (Shim Pin)
LSP-3	P8	Spare Parts (Shim Pin)
LSP-3K	P8	Spare Parts (Shim Pin)
LSP-4	P8	Spare Parts (Shim Pin)
LT-3K	P10	Spare Parts (Shim)
LT-32N	P10	Spare Parts (Shim)
LT-42N	P10	Spare Parts (Shim)
LTK-5	P21	Spare Parts (Wrench)
LTW-8SS	P20	Spare Parts (Torx Wrench / L-shaped Type)
LTW-10S	P20	Spare Parts (Torx Wrench / L-shaped Type)
LTW-10SS	P20	Spare Parts (Torx Wrench / L-shaped Type)
LTW-15S	P20	Spare Parts (Torx Wrench / L-shaped Type)
LTW-20	P20	Spare Parts (Torx Wrench / L-shaped Type)
LTW-25	P20	Spare Parts (Torx Wrench / L-shaped Type)
LW-1.5	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-2	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-2.5	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-3	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-4	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-4.5	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-5	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-6	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-8	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-10	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-14	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-17	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-19	P21	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-32N	P10	Spare Parts (Shim)
LW-42N	P10	Spare Parts (Shim)
LW-42N R/L	P10	Spare Parts (Shim)
M		
M○(○)- SHCS-CB	K111	Toolholder (Drilling) Counterbore (SHCS-CB)
M3X8	P5	Spare Parts (Screw)
M3X12	P5	Spare Parts (Screw)
M4X10	P5	Spare Parts (Screw)
MA90- ○○(○○)M○○-○○T○C	M76~M77	Modular End Mill (MA90)
MA90- ○○○(○)R-○○T○(○)C	M74~M75	Face Mill (MA90)
MA90- ○○○R-○○T○(○)C-M	M75	Face Mill (MA90)
MA90- ○○S○○-○○T○C(L)	M72~M73	End Mill (MA90)
MA90- ○○○○S○○-○○T○C(L)	M70~M71	End Mill (MA90)
MA90- ○○○○W○○-○○T○C	M70~M71	End Mill (MA90)
MAP-2216	P14	Spare Parts (Cartridge)
MAP-2506	P14	Spare Parts (Cartridge)
MB45- ○○○R-○○T○(○)	M15	Face Mill (MB45)
MB45- ○○○(○)R-○○T○(○)C	M14~M15	Face Mill (MB45)
MB45- ○○○R-○○T○(○)C-(○○)M	M16	Face Mill (MB45)
MB45- ○○○R-○○T○(○)-M	M16	Face Mill (MB45)
MB45- ○○(○)(○)S○○(○)-○○T○C	M17	End Mill (MB45)
MCLN R/L ○○-○□	D10	Toolholder (Turning)
MCSE ○○○	M299	End Mill (Chamfering)
MCSE ○○○-○○D	M299	End Mill (Chamfering)
MD90- ○○○RA-T○○CMSF	M197	Face Mill (MD90)
MD90- ○○○RA-T○○CSF	M197	Face Mill (MD90)
MD90- ○○○RA-T○○C○○(○)SF	M197	Face Mill (MD90)
MD90- ○○○RA-T○○C○○(○)MSF	M197	Face Mill (MD90)
MD90- ○○○RS-T○(○)CMSF	M196	Face Mill (MD90)

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Part Number		Page	Description
MD90-	○○○○RS-T○○CSF	M196	Face Mill (MD90)
MDJN R/L	○○-○□	D17	Toolholder (Turning)
MEAS	○○○○-S○○○○-○○-○T	M216	End Mill (for Aluminum Machining)
MEAS	○○○○S○○○○○○○T○○○	M216	End Mill (for Aluminum Machining)
MEAS	○○-S○○-○○-○T	M216	End Mill (for Aluminum Machining)
MEAS	○○-S○○-○○-○T-○○○	M216	End Mill (for Aluminum Machining)
MEAS	○○○○R-○○-○T	M216	Face Mill (for Aluminum Machining)
MEAS	○○○R-○○-○T-M	M216	Face Mill (for Aluminum Machining)
MEC	○○○○-S○○○-○○	M96	End Mill (MEC)
MEC	○○○○-S○○○-○○T	M96	End Mill (MEC)
MEC	○○○○-S○○○-○.○-○○	M97	End Mill (MEC)
MEC	○○○○-S○○○-○.○-○○T	M97	End Mill (MEC)
MEC	○○-M○○-○○(T)-○T	M103	Modular Head End Mill (MEC)
MEC	○○-S○○-○○	M98, M100	End Mill (MEC)
MEC	○○-S○○-○○T	M98, M99	End Mill (MEC)
MEC	○○-S○○-○○○-○○	M100	End Mill (MEC)
MEC	○○-S○○-○○○-○○-○	M100	End Mill (MEC)
MEC	○○-S○○-○○○-○○T	M99	End Mill (MEC)
MEC	○○-S○○-○○○-○○T-○	M99	End Mill (MEC)
MEC	○○○○R-○○(T)-○T(N)	M101	Face Mill (MEC)
MEC	○○○R-○○-○(○)T(N)	M102	Face Mill (MEC)
MEC	○○○R-○○-○(○)T-M(N)	M102	Face Mill (MEC)
MEC	○○○R-○○-○(○)(□)	M102	Face Mill (MEC)
MECH	○○○R-○○-○-○T	M131	Shell Mill (MECH)
MECH	○○○○R-○○-○-○T	M131	Shell Mill (MECH)
MECH	○○○R-○○-○-○T-M	M131	Shell Mill (MECH)
MECH	○○○-S○○-○○-○-○T	M130	End Mill (MECH)
MECH	○○○○-W○○○(○)-○○-○-○T	M130	End Mill (MECH)
MECHT	○○R-○○-○○(○○)-○-○T-M	M142	Shell Mill (MECHT)
MECHT	○○-S○○-○○-○-○T	M142	End Mill (MECHT)
MECX(L)	○○○○-S○○○-○○-○T	M112	End Mill (MECX)
MECX	○○-S○○-○○-○T	M112	End Mill (MECX)
MECX	○○-S○○-○○○-○○-○T	M112	End Mill (MECX)
MECX	○○○○R-○○-○(○)T	M113	Face Mill (MECX)
MECX	○○○R-○○-○(○)T-M	M113	Face Mill (MECX)
MEF	○○-S○○	M302	End Mill (Countersinking)
METS	○○-S○○	M305	End Mill (T-Slotting)
METS	○○-S○○-H	M305	End Mill (T-Slotting)
MEV	○○○○-S○○○-○-○○-○T	M120	End Mill (MEV)
MEV	○○○○-W○○○-○○-○T	M120	End Mill (MEV)
MEV	○○-M○○-○○-○T	M122	Modular Head End Mill (MEV)
MEV	○○-S○○-○○-○T	M121	End Mill (MEV)
MEV	○○-S○○-○○-○○○-○T	M121	End Mill (MEV)
MEV	○○○○R-○○-○T	M122	Face Mill (MEV)
MEV	○○○R-○○-○T-M	M122	Face Mill (MEV)

Part Number		Page	Description
MEW	○○-M○○-○○-○T	M90	Modular Head End Mill (MEW)
MEW	○○-S○○-○○-○T	M87	End Mill (MEW)
MEW	○○-S○○-○○-○○○-○T	M87	End Mill (MEW)
MEW	○○-W○○-○○-○T	M86	End Mill (MEW)
MEW	○○○○R-○○-○T	M88	Face Mill (MEW)
MEW	○○○R-○○-○T(-M)	M89	Face Mill (MEW)
MEW	○○○○-S○○○-○-○○-○T	M85	End Mill (MEW)
MEW	○○○○-W○○○-○○-○T	M84	End Mill (MEW)
MEW	○○○○-W○○○-○-○○-○T	M84	End Mill (MEW)
MEW	○○○○-W○○○-○○○-○○-○T	M84	End Mill (MEW)
MEWH	○○○R-○○-○-○T-M	M127	Shell Mill (MEWH)
MEWH	○○○○R-○○-○-○T	M127	Shell Mill (MEWH)
MEWH	○○○-S○○-○○-○-○T	M126	End Mill (MEWH)
MEWH	○○○○-W○○○-○○-○-○T	M126	End Mill (MEWH)
MEY	○○○○-S○○○-HG	M254	End Mill (Multi-functional)
MEY	○○-S○○	M261	End Mill (Multi-functional)
MEY	○○-S○○-○○○	M261	End Mill (Multi-functional)
MEY	○○-S○○-○○○H	M261	End Mill (Multi-functional)
MFAH	○○○RA-○(○)T-M(○○)-SF	M203	Face Mill (MFAH)
MFAH	○○○RA-○(○)T(-○○○)-SF	M202	Face Mill (MFAH)
MFAH	○○○RS-○(○)T-M-SF	M204	Face Mill (MFAH)
MFAH	○○○RS-○(○)T-SF	M204	Face Mill (MFAH)
MFF	○○○R-SF	M221	Face Mill (MFF)
MFF	○○○R-M-SF	M221	Face Mill (MFF)
MFH	○○○○-M○○-01-○T	M256	Modular End Mill (MFH-Micro)
MFH	○○-M○○-01-○T	M256	Modular End Mill (MFH-Micro)
MFH	○○○○-M○○-03-○T	M250	Modular End Mill (MFH-Mini)
MFH	○○-M○○-03-○T	M250	Modular End Mill (MFH-Mini)
MFH	○○○○-M○○-04-○T	M243	Modular End Mill (MFH-MAX)
MFH	○○-M○○-04-○T	M243	Modular End Mill (MFH-MAX)
MFH	○○-M○○-10-○T	M232	Modular End Mill (MFH-RAPTOR)
MFH	○○○○R-03-○T	M249	Face Mill (MFH-Mini)
MFH	○○○R-03-○T-M	M249	Face Mill (MFH-Mini)
MFH	○○○○R-04-○T	M242	Face Mill (MFH-MAX)
MFH	○○○R-04-○T(-M)	M242	Face Mill (MFH-MAX)
MFH	○○○R-04-○T(-□□M)	M242	Face Mill (MFH-MAX)
MFH	○○○○R-10-○T	M225	Face Mill (MFH-RAPTOR)
MFH	○○○R-10-○T	M227	Face Mill (MFH-RAPTOR)
MFH	○○○○R-14-○T(-○○○○)	M225	Face Mill (MFH-RAPTOR)
MFH	○○○R-14-○T(-M)	M227	Face Mill (MFH-RAPTOR)
MFH	○○○R-14-○T(-□□M)	M227	Face Mill (MFH-RAPTOR)
MFH	○○○○-S○○○-01-○T(○○)	M255	End Mill (MFH-Micro)
MFH	○○-S○○-01-○T	M255	End Mill (MFH-Micro)
MFH	○○○○-S○○○-03-○T(-○○)	M248	End Mill (MFH-Mini)
MFH	○○-S○○-03-○T(-○○○)	M248	End Mill (MFH-Mini)

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Part Number		Page	Description
MFH	○○○○-S○○○-04-○T(-○)	M241	End Mill (MFH-MAX)
MFH	○○-S○○-04-○T(-○○○)	M241	End Mill (MFH-MAX)
MFH	○○○○-S○○○-10-○T(-○)	M229	End Mill (MFH-RAPTOR)
MFH	○○-S○○-10-○T(-○○○)	M230	End Mill (MFH-RAPTOR)
MFH	○○-S○○-14-○T	M231	End Mill (MFH-RAPTOR)
MFH	○○○○-W○○○-03-○T(-○○)	M248	End Mill (MFH-Mini)
MFH	○○-W○○-03-○T	M248	End Mill (MFH-Mini)
MFH	○○○○-W○○○-04-○T	M241	End Mill (MFH-MAX)
MFH	○○-W○○-04-○T	M241	End Mill (MFH-MAX)
MFH	○○○○-W○○○-10-○T	M229	End Mill (MFH-RAPTOR)
MFH	○○-W○○-10-○T	M230	End Mill (MFH-RAPTOR)
MFK	○○○(○)R-11-○(○)T	M52	Face Mill (MFK)
MFK	○○○R-11-○(○)T-M	M54	Face Mill (MFK)
MFK	○○○R-11-○(○)T-M-SF	M56	Face Mill (MFK-SF)
MFK	○○○(○)R-11-○(○)T-SF	M56	Face Mill (MFK-SF)
MFLN	45○○○○○R-○(○)T	M46	Face Mill (MFLN45)
MFLN	45○○○○○R-○(○)T-M	M46	Face Mill (MFLN45)
MFLN	70○○○○○R-○(○)T	M47	Face Mill (MFLN70)
MFLN	70○○○○○R-○(○)T-M	M47	Face Mill (MFLN70)
MFLN	90○○○○○R-○(○)T	M166	Face Mill (MFLN90)
MFLN	90○○○○○R-○(○)T-M	M166	Face Mill (MFLN90)
MFPN-45		P10	Spare Parts (Shim)
MFPN	45○○○○(○)R-○(○)T	M22	Face Mill (MFPN45)
MFPN	45○○○R/L-○(○)T	M24	Face Mill (MFPN45)
MFPN	45○○○R-○(○)T-M	M25	Face Mill (MFPN45)
MFPN	45○○○R-S32-○T	M27	End Mill (MFPN45)
MFPN	45○○○○R-W125-○T	M27	End Mill (MFPN45)
MFPN	66○○○R-○(○)T-G	M33	Face Mill (MFPN66)
MFPN	66○○○R-○(○)T-M-G	M33	Face Mill (MFPN66)
MFPN	66○○○R-S32-○T-G	M35	End Mill (MFPN66)
MFSE-105		P10	Spare Parts (Shim)
MFSE	45○○○R/L-○(○)T	M40	Face Mill (MFSE45)
MFSE	45○○○R-○(○)T-M	M40	Face Mill (MFSE45)
MFSE	45○○○R-○(○)T-W(-M)	M40	Face Mill (MFSE45)
MFSN	88○○○R-○(○)T-G	M159	Face Mill (MFSN88)
MFSN	88○○○R-○(○)T-M-G	M159	Face Mill (MFSN88)
MFSN	88○○○R-S32-○T-G	M161	End Mill (MFSN88)
MFWN-90		P10	Spare Parts (Shim)
MFWN	90○○○○(○)R-○(○)T	M144	Face Mill (MFWN)
MFWN	90○○○○R-W125-○T	M148	End Mill (MFWN)
MFWN	90○○○R-○(○)T(-M)	M146, M147	Face Mill (MFWN)
MFWN	90○○○R-05-○(○)T(-M)	M153	Face Mill (MFWN-Mini)
MFWN	90○○○R-S○○-○T	M148	End Mill (MFWN)
MFWN	90○○○R-S○○-05-○T	M154	Face Mill (MFWN-Mini)
MGI	○○○○-1□(□)	M308	End Mill (Grooving for M/C)
MRF	○○-S○○	M270	End Mill (Ball-Nose)
MRF	○○-S○○-○○○	M270	End Mill (Ball-Nose)
MRFW	○○-S○○	M271	End Mill (Ball-Nose)
MRFW	○○-S○○-○○○	M271	End Mill (Ball-Nose)
MRW	○○○○R-○○-○(○)T	M276	Face Mill (MRW)
MRW	○○○R-○○-○(○)T	M277	Face Mill (MRW)
MRW	○○○R-○○-○(○)T-M	M277	Face Mill (MRW)
MRW	○○○○-S○○○-○○-○T-○(○)	M279	End Mill (MRW)
MRW	○○-S○○-○○-○T	M280	End Mill (MRW)
MRW	○○-S○○-○○-○T-○○○	M280	End Mill (MRW)
MRW	○○○○-W○○○-○○-○T	M279	End Mill (MRW)
MRW	○○-W○○-○○-○T	M280	End Mill (MRW)
MRX	○○-M○○-○○-○T	M290	Modular Head End Mill (MRX)
MRX	○○○○R-○○-○T	M285	Face Mill (MRX)
MRX	○○○R-○○-○T	M286	Face Mill (MRX)
MRX	○○○R-○○-○T-M	M286	Face Mill (MRX)
MRX	○○-S○○-○○-○T	M289	End Mill (MRX)
MRX	○○-S○○-○○-○T-○○○	M289	End Mill (MRX)
MRX	○○○○-W○○○-○○-○T	M288	End Mill (MRX)
MRX	○○-W○○-○○-○T	M289	End Mill (MRX)
MSD-42		P10	Spare Parts (Shim)
MSE-4215		P10	Spare Parts (Shim)
MSE-4245		P10	Spare Parts (Shim)
MSE-4245S		P10	Spare Parts (Shim)
MSO-4T245		P11	Spare Parts (Shim)
MSO-5200		P11	Spare Parts (Shim)
MSP-42		P11	Spare Parts (Shim)
MSR	○○○○R-○	M178	Face Mill (MSR)
MSR	○○○○R-○-1.5ID	M178	Face Mill (MSR)
MSR	○○○R-○	M179	Face Mill (MSR)
MSR	○○○R-○M	M179	Face Mill (MSR)
MSR	○○○R-○-31.75	M179	Face Mill (MSR)
MSR	○○○R-BT50-○	M180	End Mill (Integral Arbor Type)
MSRS	15○○○○R-○(○)T	M63	Face Mill (MSRS15)
MSRS	15○○○R-○(○)T-M	M64	Face Mill (MSRS15)
MSRS	90○○○○R-○-○T	M172	Face Mill (MSRS90)
MSRS	90○○○R-○-○(○)T	M173	Face Mill (MSRS90)
MSRS	90○○○R-○-○(○)T-M	M173	Face Mill (MSRS90)
MSSN R/L	○○-○□	D22	Toolholder (Turning)
MSTA	○○N○○-○(○)T	M267	Slot Mill (MSTA)
MSTA	○○N○○○-○(○)T	M266	Slot Mill (MSTA)
MTE-42		P11	Spare Parts (Shim)
MTGN R/L	○○-○□	D27	Toolholder (Turning)
MTP	90-○○○-○○(○)W	M184	End Mill (MTP90)
MTP	90-○○○-R8	M184	End Mill (MTP90)

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Part Number		Page	Description
MVG	○○○○	M310	End Mill (Ring Grooving for M/C)
MVJN R/L	○○-○□	D40	Toolholder (Turning)
MVLN R/L	○○○○□-○○	D41	Toolholder (Turning)
MVN-32		P11	Spare Parts (Shim)
MVVNN	○○-○□	D42	Toolholder (Turning)
MVVNN	○○○○□-○○	D42	Toolholder (Turning)
MWLN R/L	○○-○□	D50	Toolholder (Turning)
N			
NDCT	○○○TRX	M188	Insert (Milling) DMC-SX / DMC-H
NDCT	○○○FR	M188	Insert (Milling) DMC / DMC-SX, CEM
NDCW	○○○○FRX	C62, M188, M322	Insert (Milling) DMC-H
NDCW	○○○○FRX-NE	C62, M188, M322	Insert (Milling) DMC-H
NDCW	○○○(○)TR	M188	Insert (Milling) DMC-SX
NDCW	○○○FRX	M188	Insert (Milling) DMC-SX / DMC-H / CEM
NDCW	○○○TRX	M188	Insert (Milling) DMC-SX / DMC-H / CEM
O			
P			
P-03		P8	Spare Parts (Shim Pin)
P-03S		P8	Spare Parts (Shim Pin)
PC-1		P23	Spare Parts (Punch)
PC-2		P23	Spare Parts (Punch)
PCLN R/L	○○-○□	D11	Toolholder (Turning)
PCLN R/L	○○○○□-○○	D11	Toolholder (Turning)
PCLNR	○○○○JX-○○FF	E67	Toolholder (Double Sided Tooling)
PD-42		P11	Spare Parts (Shim)
PDHN R/L	○○○○□-○○	D19	Toolholder (Turning)
PDJN R/L	○○-○□	D18	Toolholder (Turning)
PDJN R/L	○○○○□-○○	D18	Toolholder (Turning)
PDJN R/L	○○○○□-○○U	D18	Toolholder (Turning)
PKM	○○N-○○○PH	H52	Insert (Cut-Off)
PKM	○○N-○○○PM	H52	Insert (Cut-Off)
PKM	○○R/L-○○○PM-6D	H52	Insert (Cut-Off)
PNEA	○○○○XNTN-T01020	M58	Insert (Milling) MFK
PNEG	○○○○XNEN-GL	M58	Insert (Milling) MFK
PNEG	○○○○XNER-W	M58	Insert (Milling) MFK
PNEG	○○○○XNTR-T00515(W)	M58	Insert (Milling) MFK
PNEU	○○○○ANEL-GL	M28	Insert (Milling) MFPN45
PNEU	○○○○ANER-GL	M28	Insert (Milling) MFPN45
PNEU	○○○○ANER-W	M28	Insert (Milling) MFPN45
PNMG	○○○○XNEN-GH	M58	Insert (Milling) MFK
PNMG	○○○○XNEN-GM	M58	Insert (Milling) MFK
PNMU	○○○○ANER-GH	M28	Insert (Milling) MFPN45
PNMU	○○○○ANEL-GM	M28	Insert (Milling) MFPN45
PNMU	○○○○ANER-GM	M28	Insert (Milling) MFPN45
PNMU	○○○○ANER-SM	M28	Insert (Milling) MFPN45
PNMU	○○○○XNER-GH	M36	Insert (Milling) MFPN66
PNMU	○○○○XNER-GM	M36	Insert (Milling) MFPN66
PNMU	○○○○XNER-SM	M36	Insert (Milling) MFPN66
PP-4		P8	Spare Parts (Lock Pin)
PR07-ST-UNF3/8		F145	Resin Join (with O-Ring)
PRGC R/L	○○-○○□□	D45	Toolholder (Turning)
PRGC R/L	○○○○□-○○	D45	Toolholder (Turning)
PRGC R/L	○○○○□-○○BE	D73	Toolholder (Turning)
PRGN R/L	○○○○□-○○	D47	Toolholder (Turning)
PRXC R/L	○○-○○□□	D46	Toolholder (Turning)
PRXC R/L	○○○○□-○○	D46	Toolholder (Turning)
PSBN R/L	○○○○□-○○	D21	Toolholder (Turning)
PSDNN	○○○○□-○○	D22	Toolholder (Turning)
PSKN R/L	○○○○□-○○	D23	Toolholder (Turning)
PSSN R/L	○○○○□-○○	D23	Toolholder (Turning)
P-ST-RC1/8		H17	Coolant Coupler
PTFN R/L	○○-○□	D29	Toolholder (Turning)
PTFN R/L	○○○○□-○○	D29	Toolholder (Turning)
PTGN R/L	○○-○□	D28	Toolholder (Turning)
PTGN R/L	○○○○□-○○	D28	Toolholder (Turning)
PTLNR	○○○○JX-○○FF	E68	Toolholder (for Small Double-Sided Tools)
PVLN R/L	○○○○□-○○Q	D43	Toolholder (Turning)
PVPN R/L	○○○○□-○○Q	D43	Toolholder (Turning)
PVVNN	○○○○□-○○Q	D44	Toolholder (Turning)
PWLN R/L	○○-○□	D50	Toolholder (Turning)
PWLN R/L	○○○○□-○○	D50	Toolholder (Turning)
Q			
R			
R	○○-(R)(-SET)	M313	Cartridge Set (API Ring Groover)
R	○○-SET	M313	Cartridge Set (API Ring Groover)
RBG	○○K○○○○○	B123	Insert (Turning)
RCGX	○○○○M0-AQ	B81	Insert (Turning)
RCGX	○○E○○○	B123	Insert (Turning)
RCGX	○○○H○○○T○○○○○	B123	Insert (Turning)
RCGX	○○(○)S○○○○○	B123	Insert (Turning)
RCGX	○○(○)T○○○○○	B123	Insert (Turning)
RCGX	○○○T○○○○○○○○AA	B123	Insert (Turning)
RCMA	○○(○)T○○○○○○○○AA	B123	Insert (Turning)
RCMT	○○○○M0-BB	B109	Insert (Turning)
RCMT	○○SR	B81	Insert (Turning)
RCMX	○○○○M0	B81	Insert (Turning)

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Part Number		Page	Description
RDFG	○○FR	M272	Insert (Milling) MRF / MRFW
RDGT	○○○○M0ER-GM	M291	Insert (Milling) MRX
RDGT	○○○○M0ER-SM	M291	Insert (Milling) MRX
RDHX	○○(□)○(○)M0T	M323	Insert (Milling)
RDMT	○○T○M0-H	M323	Insert (Milling)
RDMT	○○○○M0EN-GH	M291	Insert (Milling) MRX
RDMT	○○○○M0ER-GM	M291	Insert (Milling) MRX
RNG	○○E○○○	B116	Insert (Turning)
RNG	○○K○○○○○	B116	Insert (Turning)
RNG	○○S○○○○○	B116	Insert (Turning)
RNG	○○T○○○○○	B116	Insert (Turning)
RNG	○○T○○○○○AA	B116	Insert (Turning)
RNM	○○	C17	Insert (Turning)
RNMG	○○	B33	Insert (Turning)
ROMU	○○○○M0ER-GH	M281	Insert (Milling) MRW
ROMU	○○○○M0ER-GM	M281	Insert (Milling) MRW
ROMU	○○○○M0ER-SM	M281	Insert (Milling) MRW
RPG	○○E○○○	B120	Insert (Turning)
RPG	○○T○○○○○	B120	Insert (Turning)
RPGT	○○(□)○(○)M0ER-GM	M291	Insert (Milling) MRX
RPGT	○○(□)○(○)M0ER-SM	M291	Insert (Milling) MRX
RPGX	○○E○○○	B123	Insert (Turning)
RPGX	○○T○○○○○	B123	Insert (Turning)
RPMT	○○(□)○(○)M0	M313	Insert (Milling)
RPMT	○○(○)(○)M0-BB	B109	Insert (Turning)
RPMT	○○(□)○(○)M0EN-GH	M291	Insert (Milling) MRX
RPMT	○○(□)○(○)M0ER-GM	M291	Insert (Milling) MRX
RPMT	○○○○M0-H	M323	Insert (Milling)
RPMW	○○○○M0TN	M291	Insert (Milling) MRX
S			
S○○-	CH○○-DRA	K36	Chamfering Attachment (Drilling) DRA Magic Drill
S○○○-	DRV○○○○-○-○○	K50~K54	Toolholder (Drilling) DRV Magic Drill
S○○-	DRV○○○M-○-○○	K56~K64	Toolholder (Drilling) DRV Magic Drill
S○○-	DRZ○○○○(○)(○)-○○	K86~K92	Toolholder (Drilling) DRZ Magic Drill
S○○(○)-	DRZ○○○○(○○)(○)(○)-○○G	K80~K85	Toolholder (Drilling) DRZ Magic Drill
S○○□-	CELNR○○-○○	F167	Boring Bars
S○○□-	CSKPR○○-○○	F130	Boring Bars
S○○□-	CTUN R/L ○○-○○A	F168	Boring Bars
S○○□-	CTUP R/L ○	F131	Boring Bars
S○○□-	CTUP R/L ○○-○○	F131	Boring Bars
S○○(.○)□-	KGBFL16	G24	Sleeve Holder (Grooving)
S○○(.○)□-	KTNL16	J25	Sleeve Holder (Threading)
S○○(.○)□-	KTTXL16	J39	Sleeve Holder (Threading)
S○○□-	PCLN R/L ○	F148	Boring Bars

Part Number		Page	Description
S○○□-	PCLN R/L ○○-○○	F148	Boring Bars
S○○□-	PDQN R/L 15-○○	F155	Boring Bars
S○○□-	PDUN R/L 11-○○	F150	Boring Bars
S○○□-	PDUN R/L 15-○○	F154	Boring Bars
S○○□-	PDZN R/L 15-○○	F156	Boring Bars
S○○□-	PTUN R/L ○○-○○	F160	Boring Bars
S○○□-	PWLN R/L ○○-○○	F162	Boring Bars
S○○(.○)□-	SCLCL○○	E58	Sleeve Holder (Turning)
S○○□-	SCLC R/L ○○-○○A	F63	Boring Bars (Dynamic Bar)
S○○□-	SCLC R/L ○	F67	Boring Bars (General Purpose)
S○○□-	SCLC R/L ○.○E	F66	Boring Bars (General Purpose)
S○○□-	SCLC R/L ○○-○○AE	F62	Boring Bars (Dynamic Bar)
S○○○□-	SCLCR○○-○○○EZP	F33	Boring Bars (EZ Bar PLUS)
S○○□-	SCLP R/L ○(.○)	F72	Boring Bars (General Purpose)
S○○□-	SCLP R/L ○○-○○A	F70	Boring Bars (Dynamic Bar)
S○○(.○)□-	SDLCL○○	E60	Sleeve Holder (Turning)
S○○□-	SDQC R/L ○○-○○A	F79	Boring Bars (Dynamic Bar)
S○○(.○)□-	SDUCL○○	E59	Sleeve Holder (Turning)
S○○□-	SDUC R/L ○	F86	Boring Bars (General Purpose)
S○○□-	SDUC R/L ○○-○○A	F75	Boring Bars (Dynamic Bar)
S○○□-	SDZC R/L ○	F87	Boring Bars (General Purpose)
S○○□-	SDZC R/L ○○-○○A	F83	Boring Bars (Dynamic Bar)
S○○□-	SINR-○	J26	Toolholder (Threading)
S○○□-	SSKPR○○-○○	F129	Boring Bars (General Purpose)
S○○□-	STLB R/L ○.○AE	F90	Boring Bars (Dynamic Bar)
S○○□-	STLB R/L ○○-○○A	F91	Boring Bars (Dynamic Bar)
S○○□-	STLB R/L ○○-○○AE	F90	Boring Bars (Dynamic Bar)
S○○○□-	STLBR○○-○○○EZP	F35	Boring Bars (EZ Bar PLUS)
S○○□-	STLC R/L ○○-○○A	F101	Boring Bars (Dynamic Bar)
S○○□-	STLP R/L ○○-○○A	F91	Boring Bars (Dynamic Bar)
S○○○□-	STLPR○○-○○○EZP	F35	Boring Bars (EZ Bar PLUS)
S○○□-	STUB R/L ○.○	F94	Boring Bars (General Purpose)
S○○□-	STUP R/L ○.(○)	F94	Boring Bars (General Purpose)
S○○(.○)□-	STWL15	G103	Toolholder (for Twin Bars)
S○○□-	STWP R/L ○	F97, J51	Toolholder (Boring / Threading)
S○○□-	STWP R/L ○○-○○	F97, J51	Toolholder (Boring / Threading)
S○○□-	STWP R/L ○○-○○E	F97, J51	Toolholder (Boring / Threading)
S○○(.○)□-	STWR15	F59	Toolholder (for Twin Bars)
S○○□-	SVJB R/L ○	F112	Boring Bars (General Purpose)
S○○□-	SVJB R/L ○○-○○A	F103	Boring Bars (Dynamic Bar)
S○○□-	SVJC R/L ○○-○○A	F103	Boring Bars (Dynamic Bar)
S○○□-	SVJP R/L ○○-○○A	F103	Boring Bars (Dynamic Bar)
S○○□-	SVNR12N	F52	Toolholder (for Swiss IQ Bars)
S○○(.○)□-	SVNR12SN	F53	Toolholder (for Swiss IQ Bars)
S○○(.○)□-	SVNR12SXN	F57	Toolholder (for Swiss IQ Bars)

Part Numbers in Alphanumeric Order

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Part Number		Page	Description
S○○□-	SVNR12XN	F56	Toolholder (for Swiss IQ Bars)
S○○□-	SVPB R/L ○○-○○A	F106	Boring Bars (Dynamic Bar)
S○○□-	SVPB R/L ○E	F113	Boring Bars (General Purpose)
S○○□-	SVPC R/L ○○-○○A	F106	Boring Bars (Dynamic Bar)
S○○(.○)□-	SVUBL○○	E62	Sleeve Holder (Turning)
S○○□-	SVUB R/L ○○-○○A	F108	Boring Bars (Dynamic Bar)
S○○□-	SVUB R/L ○E	F113	Boring Bars (General Purpose)
S○○(.○)□-	SVUCL○○	E63	Sleeve Holder (Turning)
S○○□-	SVUC R/L ○.○E	F113	Boring Bars (General Purpose)
S○○□-	SVUC R/L ○○-○○A	F108	Boring Bars (Dynamic Bar)
S○○□-	SVZB R/L ○E	F114	Boring Bars (General Purpose)
S○○□-	SVZB R/L ○○-○○A	F111	Boring Bars (Dynamic Bar)
S○○□-	SVZC R/L ○○-○○A	F111	Boring Bars (Dynamic Bar)
S○○□-	SWUB R/L ○.○	F120	Boring Bars (General Purpose)
S○○□-	SWUB R/L ○.○AE	F116	Boring Bars (Dynamic Bar)
S○○□-	SWUB R/L ○○-○○A	F117	Boring Bars (Dynamic Bar)
S○○□-	SWUB R/L ○○-○○AE	F116	Boring Bars (Dynamic Bar)
S○○○□-	SWUBR○○-○○○EZP	F38	Boring Bars (EZ Bar PLUS)
S○○□-	SWUP R/L ○○-○○A	F117	Boring Bars (Dynamic Bar)
S○○□-	WWLN R/L ○○-○○E	F165	Boring Bars
SABSR	○(○)-○○□(□)F	E20	Toolholder (Turning)
SABSR	○○○○□(□)-○○F	E20	Toolholder (Turning)
SABWR	○(○)-○○□□F	E21	Toolholder (Turning)
SABWR	○○○○□(□)-○○F	E21	Toolholder (Turning)
SB-1STR		P6	Spare Parts (Screw)
SB-1TR		P5	Spare Parts (Screw)
SB-2TR		P5	Spare Parts (Screw)
SB-3STR		P5	Spare Parts (Screw)
SB-3TR		P5	Spare Parts (Screw)
SB-3.5TR		P5	Spare Parts (Screw)
SB-4TR		P5	Spare Parts (Screw)
SB-5TR		P5	Spare Parts (Screw)
SB-1635TR		P6	Spare Parts (Screw)
SB-1840TRP		P6	Spare Parts (Screw)
SB-2035TR		P6	Spare Parts (Screw)
SB-2035TRG		P6	Spare Parts (Screw)
SB-2037TRP		P6	Spare Parts (Screw)
SB-2040TR		P6	Spare Parts (Screw)
SB-2040TRG		P6	Spare Parts (Screw)
SB-2041TRP		P6	Spare Parts (Screw)
SB-2042TRG		P6	Spare Parts (Screw)
SB-2045TR		P6	Spare Parts (Screw)
SB-2045TRN		P6	Spare Parts (Screw)
SB-2050TR		P6	Spare Parts (Screw)
SB-2060TR		P6	Spare Parts (Screw)

Part Number	Page	Description
SB-2080TR	P6	Spare Parts (Screw)
SB-2250TR	P6	Spare Parts (Screw)
SB-2255TR	P6	Spare Parts (Screw)
SB-2260TR	P6	Spare Parts (Screw)
SB-2270T R/L	P6	Spare Parts (Screw)
SB-2290TR	P5	Spare Parts (Screw)
SB-2545TR	P6	Spare Parts (Screw)
SB-2555TRG	P6	Spare Parts (Screw)
SB-2555TRP	P6	Spare Parts (Screw)
SB-2560TR	P6	Spare Parts (Screw)
SB-2570TR	P6	Spare Parts (Screw)
SB-25100TR	P5	Spare Parts (Screw)
SB-3060TR	P6	Spare Parts (Screw)
SB-3060TRP	P6	Spare Parts (Screw)
SB-3065TRP	P6	Spare Parts (Screw)
SB-3070TRG	P6	Spare Parts (Screw)
SB-3070TR R/L	P6	Spare Parts (Screw)
SB-3070TRP	P6	Spare Parts (Screw)
SB-3076TRP	P6	Spare Parts (Screw)
SB-3080TR	P6	Spare Parts (Screw)
SB-3573TRP	P6	Spare Parts (Screw)
SB-3575TRP	P6	Spare Parts (Screw)
SB-3580TR	P6	Spare Parts (Screw)
SB-3590TRP	P6	Spare Parts (Screw)
SB-3592TR	P6	Spare Parts (Screw)
SB-35120TRP	P6	Spare Parts (Screw)
SB-4050TRN	P6	Spare Parts (Screw)
SB-4060TR	P6	Spare Parts (Screw)
SB-4070TRG	P6	Spare Parts (Screw)
SB-4070TRN	P6	Spare Parts (Screw)
SB-4070TRS	P6	Spare Parts (Screw)
SB-4070TRW	P6	Spare Parts (Screw)
SB-4075TRP	P6	Spare Parts (Screw)
SB-4082TPR	P6	Spare Parts (Screw)
SB-4085TR	P6	Spare Parts (Screw)
SB-4085TRP	P6	Spare Parts (Screw)
SB-4086TRP	P6	Spare Parts (Screw)
SB-4090TRP	P6	Spare Parts (Screw)
SB-4090TRPN	P6	Spare Parts (Screw)
SB-40104TRP	P6	Spare Parts (Screw)
SB-40115TR	P5	Spare Parts (Screw)
SB-40120TR	P6	Spare Parts (Screw)
SB-40125TRN	P6	Spare Parts (Screw)
SB-40140TR	P6	Spare Parts (Screw)
SB-40140TRN	P6	Spare Parts (Screw)

Part Numbers in Alphanumeric Order

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Part Number	Page	Description
SB-44865UTRP	P6	Spare Parts (Screw)
SB-44880UTRP	P6	Spare Parts (Screw)
SB-4570TRN	P6	Spare Parts (Screw)
SB-45130TR	P6	Spare Parts (Screw)
SB-4590TRWN	P6	Spare Parts (Screw)
SB-5070TR	P5	Spare Parts (Screw)
SB-5085TR	P6	Spare Parts (Screw)
SB-5090TR	P5	Spare Parts (Screw)
SB-50110TRP	P6	Spare Parts (Screw)
SB-50120TR	P5	Spare Parts (Screw)
SB-50120TRP	P6	Spare Parts (Screw)
SB-50120TRPH	P6	Spare Parts (Screw)
SB-50120TRS	P6	Spare Parts (Screw)
SB-50140TR	P6	Spare Parts (Screw)
SB-50140TRP	P6	Spare Parts (Screw)
SB-60120TR	P6	Spare Parts (Screw)
SB-60130TRP	P6	Spare Parts (Screw)
SB-60200TRP	P6	Spare Parts (Screw)
SC-30067	P7	Spare Parts (Screw)
SC-35085	P7	Spare Parts (Screw)
SC-40100	P7	Spare Parts (Screw)
SC-50130	P7	Spare Parts (Screw)
SC-60160	P7	Spare Parts (Screw)
SC-60210	P7	Spare Parts (Screw)
SCLC R/L ○(○)-○□	E29	Toolholder (Turning)
SCLC R/L ○○○○□-○○	E29	Toolholder (Turning)
SCLC R/L ○○-○JXFF	E27	Toolholder (Turning)
SCLC R/L ○○○○□(□)-○○FF	E27	Toolholder (Turning)
SCLCR ○(◎).○(◎)-○FFJCTM	E28	Toolholder (Turning)
SCLCR ○○○○JX-○○FFJCTM	E28	Toolholder (Turning)
SCLNR ○(○)-○.○□F	E64	Toolholder (for Small Double-Sided Tools)
SCLNR ○○○○□-○○FF	E64	Toolholder (for Small Double-Sided Tools)
SCMT ○○○○HQ	B82	Insert (Turning)
SCMT ○○○○○○-GH-E	K47	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-GH-I	K49	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-GM-E	K47	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-GM-I	K49	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-SM-E	K47	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-SM-I	K49	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-XM-E	K47	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-XM-I	K49	Insert (Drilling) DRV Magic Drill
SCR-01	P7	Spare Parts (Screw)
SCR-03	P7	Spare Parts (Screw)
SCR-04	P7	Spare Parts (Screw)

Part Number	Page	Description
SCR-05	P7	Spare Parts (Screw)
SCR-16	P7	Spare Parts (Screw)
SCR-30	P7	Spare Parts (Screw)
SDJC R/L ○(○)-○□(□)	E33	Toolholder (Turning)
SDJC R/L ○○○○□-○○	E33	Toolholder (Turning)
SDJCR ○○(.○)-○JX-F○	E23	Toolholder (Goose-neck Holder)
SDJCR ○○○○JX-○○-F○○	E23	Toolholder (Goose-neck Holder)
SDJC R/L ○(○)-○JXFF	E31	Toolholder (Turning)
SDJC R/L ○○○○□(□)-○○FF	E31	Toolholder (Turning)
SDJCR ○○(.○)-○□□JCTM	E32	Toolholder (Turning)
SDJCR ○○○○JX-○○FFJCTM	E32	Toolholder (Turning)
SDJCR ○○○○JX-○○-F○○JCTM	E32	Toolholder (Turning)
SDJCR ○○○○□□-○○FF-Y	E34	Toolholder (Turning)
SDKN ○○AUFN	C62, M318, M322	Insert (Milling)
SDKN ○○AUTN	M318	Insert (Milling)
SDKR ○○AUEN-S	M318	Insert (Milling)
SDKW ○○○○AESN	M323	Insert (Milling)
SDKW ○○○○AETN	M323	Insert (Milling)
SDKW ○○(□)○○○○FN	M300	Insert (Milling) MCSE
SDKW ○○(□)○○○○TN	M300	Insert (Milling) MCSE
SDLC R/L ○(○)-○JXFF	E36	Toolholder (Turning)
SDLC R/L ○○○○□(□)-○○FF	E36	Toolholder (Turning)
SDLNR ○(○)-○.○□F	E65	Toolholder (for Small Double-Sided Tools)
SDLNR ○○○○□-○○FF	E65	Toolholder (for Small Double-Sided Tools)
SDLP R/L ○○○○□(□)-○○FF	E39	Toolholder (Turning)
SDMR ○○AUER-H	M318	Insert (Milling)
SDMT ○○.○○C	M290	Insert (Milling) MCSE
SDMT ○○○○AESR-H	M323	Insert (Milling)
SDMT ○○○(○)(○)(○)E-K	M306	Insert (Milling) METS
SDMT ○○○E-K	M306	Insert (Milling) METS
SDNCN ○(○)-○JX	E37	Toolholder (Turning)
SDNCN ○○○○□(□)-○○	E37	Toolholder (Turning)
SDXC R/L ○○○○JX-○○	E36	Toolholder (Turning)
SE-3070TRP	P7	Spare Parts (Screw)
SE-40050TRN	P7	Spare Parts (Screw)
SE-40055TR	P7	Spare Parts (Screw)
SE-40068TR	P7	Spare Parts (Screw)
SE-40080TR	P7	Spare Parts (Screw)
SE-40090TR	P7	Spare Parts (Screw)
SE-40100TR	P7	Spare Parts (Screw)
SE-40120TR	P7	Spare Parts (Screw)
SE-50125TR	P7	Spare Parts (Screw)
SEC ○○○	M318	Insert (Milling)
SEEN ○○AFFN	C62, M322	Insert (Milling)

Part Numbers in Alphanumeric Order

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Part Number		Page	Description
SEEN	○○AFFR-W	M318	Insert (Milling)
SEEN	○○AFTN	M318	Insert (Milling)
SEEN	○○AFTR-W	M318	Insert (Milling)
SEET	○○T○AGFN-AL	M42	Insert (Milling) MFSE45
SEET	○○T○AGSN-GL	M42	Insert (Milling) MFSE45
SEET	○○T○AGSN-SL	M42	Insert (Milling) MFSE45
SEKN	○○AFFN	M318	Insert (Milling)
SEKN	○○AFTN	M318	Insert (Milling)
SEKN	○○EFTR	M318	Insert (Milling)
SEKR	○○AFEN-S	M318	Insert (Milling)
SEKT	○○AFEN-S	M323	Insert (Milling)
SEKW	○○AFTN	M323	Insert (Milling)
SEKW	○○○FN	M300	Insert (Milling) MCSE
SEKW	○○○TN	M300	Insert (Milling) MCSE
SEMR	○○AFER-H	M318	Insert (Milling)
SEMT	○○○C	M300	Insert (Milling) MCSE
SF○○-	DRA○○○M-○(.○)	K26~K30	Toolholder (Drilling) DRA Magic Drill
SF○○○○-	DRA○○○M-○(.○)	K18~K21	Toolholder (Drilling) DRA Magic Drill
SF R/L -	○○○(○)□	G144	Blade (Face Grooving)
SF22F-	SH20-○□(-HA)	E71	Sub-Spindle Holders
SH	○○○○-○○○	F172	Sleeve (for Boring Bar)
SHA	○○○○(.○)-○○○	F171	Sleeve
SHC	○○○○-○○	F172	Coolant Sleeve (for Boring Bar)
SHE	○○○○-○○	K74	Adjustable Sleeve (Drilling) for Magic Drill (DRV / DRZ)
SHEM	○○○○-○○	F144	Anti-Vibration Boring Bar Sleeve
SHS	○○○○N-○○	F144	Anti-Vibration Boring Bar Sleeve
SHS	○○○○-○○	F144	Anti-Vibration Boring Bar Sleeve
SIGC R/L	○○○○-EH	G80	Toolholder (Grooving)
SIGC R/L	○○○○-WH	G81	Toolholder (Grooving)
SIGC R/L	○○○○-WH-L○○(○)	G81	Toolholder (Grooving)
SIGE R/L	○○EH	G86	Toolholder (Grooving)
SIGE R/L	○○○○□-EH	G86	Toolholder (Grooving)
SIGE R/L	○○○○□-WH	G87	Toolholder (Grooving)
SIGER	○○○○□-WH-90	G88	Toolholder (Grooving / for Small Tools)
SIN R/L	○○○○S-○○	J26	Toolholder (Threading)
SIN R/L	○○○○S-○○E	J26	Toolholder (Threading)
SJS-	○	F173	Coolant Joint
SL-	○(.○-○○)	F172	Sleeve (for Boring Bar)
SLT	○○-○○KB	M268	Insert (Slot Milling) MSTA
SLT	○○-○○KD	M268	Insert (Slot Milling) MSTA
SNCN	○○XNTN	M320	Insert (Milling)
SNEU	○○○○ANEN-W	M18	Insert (Milling) MB45
SNEU	○○○○ANER-GM	M18	Insert (Milling) MB45
SNEU	○○○○ANER-SM	M18	Insert (Milling) MB45

Part Number		Page	Description
SNEU	○○○○ANFR-AM	M18	Insert (Milling) MB45
SNG	○○○S○○○○○	B117	Insert (Turning)
SNG	○○○T○○○○○	B117	Insert (Turning)
SNG	○○○T○○○○○AA	B117	Insert (Turning)
SNGA	○○○	B37	Insert (Turning)
SNGA	○○○MEF	C12	Insert (Turning)
SNGA	○○○S○○○○○	B117	Insert (Turning)
SNGA	○○○S○○○○○ME	C12	Insert (Turning)
SNGA	○○○S○○○○○MEH	C12	Insert (Turning)
SNGA	○○○S○○○○○MEP	C12	Insert (Turning)
SNGA	○○○S○○○○○MET	C12	Insert (Turning)
SNGA	○○○T○○○○○	B117	Insert (Turning)
SNGA	○○○T○○○○○AA	B117	Insert (Turning)
SNGG	○○○L-25R	B37	Insert (Turning)
SNGG	○○○L-B/C	B37	Insert (Turning)
SNGG	○○○R-25R	B37	Insert (Turning)
SNGG	○○○R-B/C	B37	Insert (Turning)
SNKN	○○XNTN	M320	Insert (Milling)
SNM	○○○	B38, C18, M320	Insert (Turning / Milling)
SNM	○○○T○○○○○	B117	Insert (Turning)
SNMA	○○○	B37	Insert (Turning)
SNMA	○○○T○○○○○AA	B117	Insert (Turning)
SNMF	○○○○○○-21	B109	Insert (Turning)
SNMF	○○XNTN	M320	Insert (Milling)
SNMG	○○○	B34	Insert (Turning)
SNMG	○○○C	B36	Insert (Turning)
SNMG	○○○(○)GC	B37	Insert (Turning)
SNMG	○○○HQ	B34	Insert (Turning)
SNMG	○○○KG	B36	Insert (Turning)
SNMG	○○○KH	B36	Insert (Turning)
SNMG	○○○L-C	B37	Insert (Turning)
SNMG	○○○MQ	B36	Insert (Turning)
SNMG	○○○MS	B36	Insert (Turning)
SNMG	○○○MU	B36	Insert (Turning)
SNMG	○○○PMG	B34	Insert (Turning)
SNMG	○○○PG	B34	Insert (Turning)
SNMG	○○○PH	B35	Insert (Turning)
SNMG	○○○PQ	B34	Insert (Turning)
SNMG	○○○PS	B34	Insert (Turning)
SNMG	○○○PT	B34	Insert (Turning)
SNMG	○○○R-C	B37	Insert (Turning)
SNMG	○○○SG	B36	Insert (Turning)
SNMG	○○○XP	B35	Insert (Turning)
SNMG	○○○XQ	B35	Insert (Turning)
SNMG	○○○XS	B35	Insert (Turning)

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Part Numbers in Alphanumeric Order

○ : Number □ : Letter

Part Number	Page	Description
SNMG ○○○ZS	B37	Insert (Turning)
SNMM ○○○PX	B35	Insert (Turning)
SNMU ○○○○○○EN-GH	M162	Insert (Milling) MFSN88
SNMU ○○○○○○EN-GM	M162	Insert (Milling) MFSN88
SNMU ○○○○○○EN-SM	M162	Insert (Milling) MFSN88
SNMU ○○○○ANER-GH	M18	Insert (Milling) MB45
SNMU ○○○○ANER-GM	M18	Insert (Milling) MB45
SOMT ○○○○○○ER-FL	M233	Insert (Milling) MFH
SOMT ○○○○○○ER-GH	M233	Insert (Milling) MFH
SOMT ○○○○○○ER-GM	M233	Insert (Milling) MFH
SOMT ○○○○○○ER-LD	M233	Insert (Milling) MFH
SP-2D	P23	Spare Parts (Spring)
SP-3D	P23	Spare Parts (Spring)
SP-5	P23	Spare Parts (Spring)
SP-5D	P23	Spare Parts (Spring)
SP-6	P23	Spare Parts (Spring)
SP3X6	P7	Spare Parts (Screw)
SP3X8	P7	Spare Parts (Screw)
SP3X10	P7	Spare Parts (Screw)
SP4X9	P7	Spare Parts (Screw)
SP8X35	P7	Spare Parts (Screw)
SP-129	P11	Spare Parts (Shim)
SP-130A	P12	Spare Parts (Shim)
SP-141	P11	Spare Parts (Shim)
SP-141P	P12	Spare Parts (Shim)
SP-143	P11	Spare Parts (Shim)
SP-143P	P12	Spare Parts (Shim)
SP-148	P11	Spare Parts (Shim)
SP-162	P11	Spare Parts (Shim)
SP-210A	P12	Spare Parts (Shim)
SP-219	P11	Spare Parts (Shim)
SP-221	P11	Spare Parts (Shim)
SP-223	P11	Spare Parts (Shim)
SP-230P	P12	Spare Parts (Shim)
SP-341P	P12	Spare Parts (Shim)
SP-342	P11	Spare Parts (Shim)
SP-420A	P12	Spare Parts (Shim)
SP-429	P12	Spare Parts (Shim)
SP-441	P11	Spare Parts (Shim)
SP-441P	P12	Spare Parts (Shim)
SP-443	P11	Spare Parts (Shim)
SP-454	P11	Spare Parts (Shim)
SP-521	P12	Spare Parts (Shim)
SP-521P	P12	Spare Parts (Shim)
SP-826	P12	Spare Parts (Shim)
SP-829	P12	Spare Parts (Shim)
SP-841	P12	Spare Parts (Shim)
SP-843	P12	Spare Parts (Shim)
SP-849	P12	Spare Parts (Shim)
SP-861	P12	Spare Parts (Shim)
SPCN ○○EDTR	M319	Insert (Milling)
SPCN ○○EETR1	M319	Insert (Milling)
SPCN ○○XPTR	M319	Insert (Milling)
SPEN ○○EEER	M319	Insert (Milling)
SPEN ○○EESR	M319	Insert (Milling)
SPG ○○○	B83, C43, M319	Insert (Turning / Milling)
SPG ○○○NE	C43	Insert (Turning / Milling)
SPG ○○○T○○○○○AA	B121	Insert (Turning)
SPG ○○○T○○○○○	B121	Insert (Turning)
SPGH ○○○L	B82	Insert (Turning)
SPGR ○○○R/L	B83	Insert (Turning)
SPKN ○○EDER	M319	Insert (Milling)
SPKN ○○EDFR	M319	Insert (Milling)
SPKN ○○EDTR/L	M319	Insert (Milling)
SPKN ○○XETR	M319	Insert (Milling)
SPKN ○○XPFR	M319	Insert (Milling)
SPKN ○○XPTR	M319	Insert (Milling)
SPKR ○○EDER-S	M319	Insert (Milling)
SPM ○○○	B83, M319	Insert (Turning / Milling)
SPMR ○○○	B83	Insert (Turning / Milling)
SPMR ○○○G	B83	Insert (Turning / Milling)
SPMR ○○EDER-H	M319	Insert (Milling)
SPMT ○○○○EDER-NB○	M66	Insert (Milling) MSRS15
SPMT ○○○○EDER-NB○P	M66	Insert (Milling) MSRS15
SPMT ○○○○EDER-V	M66	Insert (Milling) MSRS15
SPMT ○○○○EDSR-NB○T	M66	Insert (Milling) MSRS15
SPMT ○○○○○○EN-GM	M303	Insert (Milling) MEF
SPMT ○○○○○○EN-NB○	M174	Insert (Milling) MSRS90
SPMT ○○○○○○EN-NB○P	M174	Insert (Milling) MSRS90
SPMT ○○○○○○EN-V	M174	Insert (Milling) MSRS90
SPMT ○○○○○○E-Z	M303	Insert (Milling) MEF
SP-RC	P13	Spare Parts (Shim)
SPW-5035	P7	Spare Parts (Screw)
SPW-6045	P7	Spare Parts (Screw)
SPW-7050	P7	Spare Parts (Screw)
SRCPR/L ○○○○B-○○-A○○	F132	Boring Bar (for Bearing Machining)
SS-4N	P7	Spare Parts (Shim Screw)
SS○○- DRA○○○M-○(.○)	K31~K34	Toolholder (Drilling) DRA Magic Drill
SS○○○○- DRA○○○M-○(.○)	K22~K25	Toolholder (Drilling) DRA Magic Drill
STGCR/L ○○○○□-○○	E40	Toolholder (Turning)

Part Numbers in Alphanumeric Order

○ : Number □ : Letter

Part Number		Page	Description
STGP R/L	○○○○□-○○	E41	Toolholder (Turning)
STLNR	○-○.○□F	E66	Toolholder (for Small Double-Sided Tools)
STLNR	○○○○□-○○FF	E66	Toolholder (for Small Double-Sided Tools)
STWL	○○○○□-15	G102	Toolholder (for Twin Bars)
STWR	○○○○□-15	F58	Toolholder (for Twin Bars)
STWSR	○○○○□(□)-15T	F61, G105	Toolholder (for Twin Bars)
SV-60136TR		P7	Spare Parts (Screw)
SVJB R/L	○(○)-○□	E43, E45	Toolholder (Turning)
SVJB R/L	○○○○□-○○	E45	Toolholder (Turning)
SVJB R/L	○(○)-○□□FF	E43	Toolholder (Turning)
SVJB R/L	○○○○□□-○○FF	E43	Toolholder (Turning)
SVJB R/L	○○○○□-○○(N)	E45	Toolholder (Turning)
SVJBR	○(○)(.○)-○FFJCTM	E44	Toolholder (Turning)
SVJBR	○○○○JX-○○FFJCTM	E44	Toolholder (Turning)
SVJC R/L	○○○○□(□)-○○FF	E48	Toolholder (Turning)
SVJP R/L	○(○)-○□□FF	E51	Toolholder (Turning)
SVJP R/L	○○○○□(□)-○○FF	E51	Toolholder (Turning)
SVJPR	○(○)(.○)-○FFJCTM	E51	Toolholder (Turning)
SVJPR	○○○○JX-○○FFJCTM	E51	Toolholder (Turning)
SVLC R/L	○○○○□(□)-○○FF	E48	Toolholder (Turning)
SVLP R/L	○-○□□FF	E52	Toolholder (Turning)
SVLP R/L	○○○○□(□)-○○FF	E52	Toolholder (Turning)
SVLPR	○○(.○)-○JX-F○	E24	Toolholder (Goose-neck Holder)
SVLPR	○○○○JX-○○-F○○	E24	Toolholder (Goose-neck Holder)
SVNR	○○○○□-12N	F50	Toolholder (for Swiss IQ Bars)
SVN-32		P13	Spare Parts (Shim)
SVN-32N		P13	Spare Parts (Shim)
SVN-32S		P13	Spare Parts (Shim)
SVNSR	○○○○□-12-○○N	F51	Toolholder (for Swiss IQ Bars)
SVNSR	○○○○□-12-○○XN	F55	Toolholder (for Swiss IQ Bars)
SVPB R/L	○○○○□(□)-○○	E46	Toolholder (Turning)
SVPB R/L	○○○○□-○○N	E46	Toolholder (Turning)
SVPCR	○○○○□(□)-○○FF	E49	Toolholder (Turning)
SVPPR	○(○)-○(○)□□FF	E53	Toolholder (Turning)
SVPPR	○○○○□(□)-○○FF	E53	Toolholder (Turning)
SVVBN	○(○)-○□□	E47	Toolholder (Turning)
SVVBN	○○○○□(□)-○○	E47	Toolholder (Turning)
SVVBN	○○○○□-○○N	E47	Toolholder (Turning)
SVVCN	○○○○JX-11	E50	Toolholder (Turning)
SZLB R/L	○○-○□-C	E56	Toolholder (Turning)
SZLB R/L	○○○○□-13C	E56	Toolholder (Turning)
SZPB R/L	○○-○□-C	E56	Toolholder (Turning)
SZPB R/L	○○○○□-13C	E56	Toolholder (Turning)
SZVBN	○○-○□-C	E57	Toolholder (Turning)
SZVBN	○○○○□-13C	E57	Toolholder (Turning)

T

Part Number		Page	Description
T63H-	KGBA R/L -16	N32	Grooving (HSK Tooling)
T63H-	KGBA R/L -22-○○	N32	Grooving (HSK Tooling)
T63H-	KTNR-○○	N32	Threading (HSK Tooling)
T63H-	N○○-○○(○)	N33	Toolholder (HSK Tooling)
T63H-	PCLN R/L -DX12	N22	Toolholder (HSK Tooling)
T63H-	PCMNN-□12	N22	Toolholder (HSK Tooling)
T63H-	PDJN R/L -DX15	N24	Toolholder (HSK Tooling)
T63H-	PDNNN-□15	N24	Toolholder (HSK Tooling)
T63H-	PTGN R/L -DX16	N26	Toolholder (HSK Tooling)
T63H-	PWLN R/L -DX08	N28	Toolholder (HSK Tooling)
T63H-	S2020R-10ST	N20	Toolholder (HSK Tooling)
T63H-	S2525-○○(○)F	N21	Toolholder (HSK Tooling)
T63H-	S2525 R/L -○○○	N20	Toolholder (HSK Tooling)
T63H-	SVLB R/L -DX16N	N30	Toolholder (HSK Tooling)
T63H-	SVVBN-□16N	N30	Toolholder (HSK Tooling)
T63H-	WTENN-□16	N26	Toolholder (HSK Tooling)
T63H-	WWMNN-□08	N28	Toolholder (HSK Tooling)
T100H-	S2525-○○○F	N21	Toolholder (HSK Tooling)
T100H-	S2525R-○○○T	N20	Toolholder (HSK Tooling)
T100H-	S2525 R/L -○○○	N20	Toolholder (HSK Tooling)
TBET	○○○○(○)(○)M R/L	B84	Insert (Turning)
TBG	○○○○(○)T○○○○○AA	B122	Insert (Turning)
TBG	○○○○(○)T○○○○○	B122, C25	Insert (Turning)
TBGT	○○○○○CF	B84	Insert (Turning)
TBGT	○○○○(○)MFP-PF	B84	Insert (Turning)
TBGT	○○○○○MP-CF	B84	Insert (Turning)
TBGT	○○○○(○) R/L	B84	Insert (Turning)
TBGW	○○○○(○)	B84	Insert (Turning)
TBGW	○○○○(○)NE	C44	Insert (Turning)
TBMT	○○○○(○)	C44	Insert (Turning)
TBMT	○○○○(○)DP	B84	Insert (Turning)
TBMT	○○○○(○)NE	C44	Insert (Turning)
TB-	T○(○)x65	P22	Wrench Bit Set (DTD500)
TB-	T○(○)x110	P22	Wrench Bit Set (DTD500)
TBTPB-	VS65	P22	Wrench Bit Variety Set (DTD500)
TBTPB-	VS110	P22	Wrench Bit Variety Set (DTD500)
TCET	○○○○(○)(○)F R/L -USF	B85	Insert (Turning)
TCET	○○○○MF R/L -USF	B85	Insert (Turning)
TCGT	○○○(○)(○)(○)E R/L -U	B86	Insert (Turning)
TCGT	○○○○(○)(○)F R/L -U	B86	Insert (Turning)
TCGT	○○○(○)(○)(○)ME R/L -U	B86	Insert (Turning)
TCGT	○○○(○)(○)(○)(○)MF R/L -U	B86	Insert (Turning)

Part Numbers in Alphanumeric Order

○ : Number □ : Letter

Part Number		Page	Description
TCGT	○○○(○)□-A3	B87	Insert (Turning)
TCGW	○○○(○)(○)(○)	B87	Insert (Turning)
TCGW	○○○(○)NE	C45	Insert (Turning)
TCGW	○○○(○)SE	C45	Insert (Turning)
TCMT	○○○○(○)(○)	C45	Insert (Turning)
TCMT	○○○○○HP	K110	Insert (Drilling) Counterbore
TCMT	○○○○(○)(○)HQ	B85, K110, K112	Insert (Turning/Drilling) Counterbore/Countersink
TCMT	○○○(○)(○)(○)NE	C45	Insert (Turning)
TCMT	○○○(○)SE	C45	Insert (Turning)
TCMX	○○○○(○)WP	B85	Insert (Turning)
TEEN	○○PTFR	C62, M322	Insert (Milling)
TEEN	○○PTFR-NE	C62, M322	Insert (Milling)
TEEN	○○PTTR	M321	Insert (Milling)
TEKN	○○PTFR	C62, M321	Insert (Milling)
TEKN	○○PTFR-NE	C62, M322	Insert (Milling)
TEKN	○○PTTR	M321	Insert (Milling)
TEKR	○○PTER-S	M321	Insert (Milling)
TEMR	○○PTER-H	M321	Insert (Milling)
TH-4		P21	Spare Parts (Hexagon Wrench / T-shaped Type)
TH8X15		P7	Spare Parts (Screw)
TKN	○(.○)	H64	Insert (Cut-Off)
TKN	○(.○)-P	H64	Insert (Cut-Off)
TK□	○(.○)	H64	Insert (Cut-Off)
TK□	○(.○)-P	H64	Insert (Cut-Off)
TKF	○○R○○○-AGT	C57, E14	Insert (Grooving / Turning)
TKF	○○□○○○-AS	C57, E14	Insert (Grooving / Turning)
TKF	○○□○○○-GTP	B111, E12	Insert (Grooving / Turning)
TKF	○○□○○○-NB	C57, E14, H6, H8	Insert (Grooving / Turning)
TKF	○○□○○○-NB-○○DR	H7, H8	Insert (Cut-Off)
TKF	○○□○○○-S	H6, H8	Insert (Cut-Off)
TKF	○○□○○○-S-○○DR	H6, H8	Insert (Cut-Off)
TKF	○○□○○○-T	H6, H8	Insert (Cut-Off)
TKF	○○□○○○-T-○○DR	H6, H8	Insert (Cut-Off)
TKFB	○○L○○○○○MR	B110, E12	Insert (Back Turning)
TKFB	○○R○○○○○-GQ	B110, E12	Insert (Back Turning)
TKFB	○○R○○○○○P-GQ	B110, E12	Insert (Back Turning)
TKFB	○○R○○○○○M	B110, E12	Insert (Back Turning)
TKFT	12□○○○○(○)	J28	Insert (Threading)
TN-32		P13	Spare Parts (Shim)
TN-43		P13	Spare Parts (Shim)
TNEG	○○○(○)□-SSF	B45	Insert (Turning)
TNG	○○○S○○○○○	B118	Insert (Turning)
TNG	○○○T○○○○○	B118	Insert (Turning)
TNG	○○○T○○○○○AA	B118	Insert (Turning)

Part Number		Page	Description
TNGA	○○○	B44	Insert (Turning)
TNGA	○○○MEF	C13	Insert (Turning)
TNGA	○○○ME6	C13	Insert (Turning)
TNGA	○○○S○○○○○	B118	Insert (Turning)
TNGA	○○○(○)S○○○○○ME	C13	Insert (Turning)
TNGA	○○○S○○○○○MEH	C13	Insert (Turning)
TNGA	○○○S○○○○○MEP	C13	Insert (Turning)
TNGA	○○○S○○○○○MET	C13	Insert (Turning)
TNGA	○○○T○○○○○	B118	Insert (Turning)
TNGA	○○○T○○○○○AA	B118	Insert (Turning)
TNGG	○○○AH	B44	Insert (Turning)
TNGG	○○○FP-TK	B42	Insert (Turning)
TNGG	○○○(○)L	B46	Insert (Turning)
TNGG	○○○L-25R	B46	Insert (Turning)
TNGG	○○○L-A3	B44	Insert (Turning)
TNGG	○○○(○)L-B	B45	Insert (Turning)
TNGG	○○○(○)L-C	B46	Insert (Turning)
TNGG	○○○(○)L-S	B45	Insert (Turning)
TNGG	○○○(○)M-SK	B42	Insert (Turning)
TNGG	○○○(○)MFP-SK	B42	Insert (Turning)
TNGG	○○○TK	B42	Insert (Turning)
TNGG	○○○(○)R	B46	Insert (Turning)
TNGG	○○○R-25R	B46	Insert (Turning)
TNGG	○○○R-A3	B44	Insert (Turning)
TNGG	○○○(○)R-B	B45	Insert (Turning)
TNGG	○○○(○)R-C	B46	Insert (Turning)
TNGG	○○○(○)R-S	B45	Insert (Turning)
TNGU	○○○○(○)MER-U	B57	Insert (Turning)
TNGU	○○○○(○)(○)MFR-F	B57	Insert (Turning)
TNGU	○○○○(○)(○)MFR-U	B57	Insert (Turning)
TNM	○○○	C19	Insert (Turning)
TNMA	○○○	B44	Insert (Turning)
TNMG	○○○	B40	Insert (Turning)
TNMG	○○○AH	B44	Insert (Turning)
TNMG	○○○C	B43	Insert (Turning)
TNMG	○○○CQ	B39	Insert (Turning)
TNMG	○○○GC	B43	Insert (Turning)
TNMG	○○○(○)GP	B39	Insert (Turning)
TNMG	○○○GS	B40	Insert (Turning)
TNMG	○○○GT	B40	Insert (Turning)
TNMG	○○○HQ	B39	Insert (Turning)
TNMG	○○○KG	B43	Insert (Turning)
TNMG	○○○KH	B43	Insert (Turning)
TNMG	○○○KQ	B43	Insert (Turning)

Part Numbers in Alphanumeric Order

○ : Number □ : Letter

Part Number		Page	Description
TNMG	○○○L-ST	B43	Insert (Turning)
TNMG	○○○MQ	B42	Insert (Turning)
TNMG	○○○MS	B42	Insert (Turning)
TNMG	○○○MU	B42	Insert (Turning)
TNMG	○○○PG	B40	Insert (Turning)
TNMG	○○○PH	B41	Insert (Turning)
TNMG	○○○PMG	B40	Insert (Turning)
TNMG	○○○(○)PP	B39	Insert (Turning)
TNMG	○○○PQ	B39	Insert (Turning)
TNMG	○○○PS	B40	Insert (Turning)
TNMG	○○○PT	B40	Insert (Turning)
TNMG	○○○(○)R-LD	B42	Insert (Turning)
TNMG	○○○R-ST	B43	Insert (Turning)
TNMG	○○○SG	B43	Insert (Turning)
TNMG	○○○TK	B42	Insert (Turning)
TNMG	○○○XF	B41	Insert (Turning)
TNMG	○○○XP	B41	Insert (Turning)
TNMG	○○○XQ	B41	Insert (Turning)
TNMG	○○○XS	B41	Insert (Turning)
TNMG	○○○ZS	B43	Insert (Turning)
TNMM	○○○(○)M	C36	Insert (Turning)
TNMM	○○○(○)M-NE	C36	Insert (Turning)
TNMM	○○○(○)M-SE	C36	Insert (Turning)
TNMM	○○○PX	B41	Insert (Turning)
TNMX	○○○WF	B39	Insert (Turning)
TNW-32		P13	Spare Parts (Shim)
TOMT	○○○○○○ER-GM	M123	Insert (Milling) MEV
TOMT	○○○○○○ER-SM	M123	Insert (Milling) MEV
TP	○○○	B92	Insert (Turning)
TPB-	T○(○)IPx65	P22	Wrench Bit Set (DTD500)
TPB-	T○(○)IPx110	P22	Wrench Bit Set (DTD500)
TPC	32P4R	M321	Insert (Milling)
TPEH	○○○(○)(○)(○)M□-P	B92	Insert (Turning)
TPET	○○○○(○)(○)F□-USF	B94	Insert (Turning)
TPET	○○○○(○)(○)MF□-USF	B94	Insert (Turning)
TPET	○○○○(○)(○)M□-FSF	B92	Insert (Turning)
TPET	○○○○(○)(○)□-FSF	B92	Insert (Turning)
TPG	○○○(○)(○)(○)	B96, C48, M185, M321, M322	Insert (Turning / Milling)
TPG	○○○NE	C48	Insert (Turning / Milling)
TPG	○○○(○)SE	C48	Insert (Turning / Milling)
TPG	○○○S○○○○○SET	C25	Insert (Turning)
TPG	○○○(○)(○)T○○○○○	B122	Insert (Turning)
TPG	○○○(○)(○)T○○○○○AA	B122	Insert (Turning)
TPG	○○○(○)T○○○○○ME	C25	Insert (Turning)
TPG	○○○(○)T○○○○○SE	C25	Insert (Turning)
TPGB	○○○(○)(○)(○)	B94, C46, J50	Insert (Turning / Threading)
TPGB	○○○MEF	C23	Insert (Turning)
TPGB	○○○(○)(○)(○)NE	C46	Insert (Turning)
TPGB	○○○(○)(○)(○)SE	C46	Insert (Turning)
TPGB	○○○S○○○○○MES	C23	Insert (Turning)
TPGB	○○○(○)S○○○○○MET	C23	Insert (Turning)
TPGB	○○○(○)(○)(○) S○○○○○SET	C23	Insert (Turning)
TPGB	○○○(○)T○○○○○ME	C23	Insert (Turning)
TPGB	○○○(○)(○)(○)T○○○○○SE	C23	Insert (Turning)
TPGH	○○○(○)(○)(○)M□	B91	Insert (Turning)
TPGH	○○○(○)ML-H	B93	Insert (Turning)
TPGH	○○○(○)(○)(○)□	B90	Insert (Turning)
TPGH	○○○(○)(○)(○)□-H	B93	Insert (Turning)
TPGR	○○○(○)□-A/B/C	B96	Insert (Turning)
TPGR	○○○○○(○)□-F	B96	Insert (Turning)
TPGT	○○○(○)(○)AP	B94	Insert (Turning)
TPGT	○○○○○○CF	B88	Insert (Turning)
TPGT	○○○(○)L-H	B93	Insert (Turning)
TPGT	○○○○○(○)MFP-PF	B88	Insert (Turning)
TPGT	○○○○○○MP-CF	B88	Insert (Turning)
TPGW	○○○S○○○○○MET	C24	Insert (Turning)
TPGW	○○○T○○○○○ME	C24	Insert (Turning)
TPGW	○○○T○○○○○SE	C24	Insert (Turning)
TPK	○○PDFR	M185, M321	Insert (Milling) MTP90
TPK	○○PDTR	M185, M321	Insert (Milling) MTP90
TPKR	○○PDER-S	M185, M321	Insert (Milling) MTP90
TPM	○○○	B96, M185, M321	Insert (Turning / Milling)
TPMH	○○○(○)(○)(○)	C47	Insert (Turning)
TPMH	○○○(○)(○)(○)NE	C47	Insert (Turning)
TPMH	○○○(○)(○)(○)SE	C47	Insert (Turning)
TPMR	○○○	B95	Insert (Turning)
TPMR	○○○DP	B95	Insert (Turning)
TPMR	○○○(○)(○)(○)G	B95	Insert (Turning)
TPMR	○○○GP	B95	Insert (Turning)
TPMR	○○○HQ	B95	Insert (Turning)
TPMR	○○PDER-H	M185, M321	Insert (Milling) MTP90
TPMT	○○○(○)APD	C47	Insert (Turning)
TPMT	○○○(○)(○)(○)GP	B89	Insert (Turning)
TPMT	○○○(○)(○)(○)HQ	B89	Insert (Turning)
TPMT	○○○(○)(○)(○)PP	B88	Insert (Turning)
TPMT	○○○(○)(○)XP	B89	Insert (Turning)
TPMT	○○○XQ	B89	Insert (Turning)
TPMX	○○○(○)(○)(○)WP	B88	Insert (Turning)

Part Numbers in Alphanumeric Order

○ : Number □ : Letter

Part Number		Page	Description
TPMX	○○○R/L-WP	B88	Insert (Turning)
TS-3S		P8	Spare Parts (Lock Pin)
TT-15		P21	Spare Parts (Torx Wrench / T-shaped Type)
TT-25		P21	Spare Parts (Torx Wrench / T-shaped Type)
TT-25L		P21	Spare Parts (Torx Wrench / T-shaped Type)
TT-30		P21	Spare Parts (Torx Wrench / T-shaped Type)
TT	43ER○○○M	J40	Insert (Threading)
TT	○○R/L○○○○	J40, J42	Insert (Threading)
TTC-20		P21	Spare Parts (Torx Wrench / T-shaped Type)
TTC-25		P21	Spare Parts (Torx Wrench / T-shaped Type)
TTP-20		P21	Spare Parts (Torx Plus Wrench / T-shaped Type)
TTW-15		P21	Spare Parts (Torx Wrench / T-shaped Type)
TTX	32R○○○○(○)	J38	Insert (Threading)
TTX	32R○○○○(○)S	J38	Insert (Threading)
TWBR	○○○○○-○○○	F58	Twin Bars (Boring)
TWBTR	○○○○○-○○○	F60	Twin Bars (Boring)
TWFGL	○○○	G102	Twin Bars (Face Grooving)
TWFGTR	○○○	G104	Twin Bars (Face Grooving)
U			
V			
VBET	○○○○(○)MR/L-F	B98	Insert (Turning)
VBET	○○○○(○)MR/L-FSF	B98	Insert (Turning)
VBET	○○○(○)R/L-FSF	B98	Insert (Turning)
VBET	○○○(○)(○)MR/L-Y	B99	Insert (Turning)
VBGT	○○○(○)FN-Z	B98	Insert (Turning)
VBGT	○○○○(○)MR/L-F	B98	Insert (Turning)
VBGT	○○○(○)(○)MR/L-Y	B99	Insert (Turning)
VBGT	○○○○R/L-F	B98	Insert (Turning)
VBGT	○○○(○)R/L-Y	B99	Insert (Turning)
VBGW	○○○MEF	C26	Insert (Turning)
VBGW	○○○S○○○○○MES	C26	Insert (Turning)
VBGW	○○○(○)S○○○○○MET	C26	Insert (Turning)
VBGW	○○○S○○○○○SET	C26	Insert (Turning)
VBGW	○○○(○)T○○○○○ME	C26	Insert (Turning)
VBGW	○○○(○)T○○○○○SE	C26	Insert (Turning)
VBMT	○○○(○)(○)	C49	Insert (Turning)
VBMT	○○○GP	B97	Insert (Turning)
VBMT	○○○HQ	B97	Insert (Turning)
VBMT	○○○(○)NE	C49	Insert (Turning)
VBMT	○○○(○)PP	B97	Insert (Turning)

Part Number		Page	Description
VBMT	○○○(○)SE	C49	Insert (Turning)
VBMT	○○○(○)VF	B97	Insert (Turning)
VCET	○○○(○)MR/L-F	B101	Insert (Turning)
VCET	○○○(○)(○)MR/L-Y	B101	Insert (Turning)
VCGT	○○○	B101	Insert (Turning)
VCGT	○○○AH	B101	Insert (Turning)
VCGT	○○○AP	B101	Insert (Turning)
VCGT	○○○R/L-A3	B101	Insert (Turning)
VCGT	○○○(○)FN-Z	B101	Insert (Turning)
VCGT	○○○○MFP-GF	B100	Insert (Turning)
VCGT	○○○○MP-CF	B100	Insert (Turning)
VCGT	○○○(○)MFP-SKS	B100	Insert (Turning)
VCGW	○○○○○(○)S○○○○○MET	C27	Insert (Turning)
VCGW	○○○○○S○○○○○SET	C27	Insert (Turning)
VCGW	○○○○○(○)T○○○○○ME	C27	Insert (Turning)
VCGW	○○○○○(○)T○○○○○SE	C27	Insert (Turning)
VCMT	○○○○○(○)	C50	Insert (Turning)
VCMT	○○○(○)(○)(○)HQ	B100, M314	Insert (Turning/Milling) / API Insert (Ring Grooving)
VCMT	○○○○○(○)NE	C50	Insert (Turning)
VCMT	○○○(○)(○)(○)PP	B100	Insert (Turning)
VCMT	○○○○○(○)SE	C50	Insert (Turning)
VCMT	○○○○○(○)VF	B100	Insert (Turning)
VNBR	○○○○-○○(○)	F47	Swiss IQ Bars (Boring)
VNBR	○○○○-○○(○)NB	C59, F48	Swiss IQ Bars (Boring)
VNBR	○○○○(○○)-○○(○)S	F46	Swiss IQ Bars (Boring)
VNBTR	○○○○-○○(○)	F49	Swiss IQ Bars (Boring)
VNBXR	○○○○(○)-○○(○)S	F54	Swiss IQ Bars (Boring)
VNFGR	○○○○-○○	G101	Swiss IQ Bars (Face Grooving)
VNFGR	○○○○-○○NB	C61, G101	Swiss IQ Bars (Face Grooving)
VNGA	○○○	B49	Insert (Turning)
VNGA	○○○MEF	C14	Insert (Turning)
VNGA	○○○ME4	C14	Insert (Turning)
VNGA	○○○S○○○○○	B119	Insert (Turning)
VNGA	○○○(○)S○○○○○ME	C14	Insert (Turning)
VNGA	○○○S○○○○○MEH	C14	Insert (Turning)
VNGA	○○○S○○○○○MEP	C14	Insert (Turning)
VNGA	○○○S○○○○○MET	C14	Insert (Turning)
VNGA	○○○T○○○○○	B119	Insert (Turning)
VNGA	○○○T○○○○○AA	B119	Insert (Turning)
VNGG	○○○(○)L	B49	Insert (Turning)
VNGG	○○○(○)L-S	B49	Insert (Turning)
VNGG	○○○(○)MFP-SK	B48	Insert (Turning)
VNGG	○○○(○)M-SK	B48	Insert (Turning)
VNGG	○○○(○)R	B49	Insert (Turning)

Part Numbers in Alphanumeric Order

○ : Number □ : Letter

Part Number		Page	Description
VNGG	○○○(○)R-S	B49	Insert (Turning)
VNGR	○○○○-○○	G77	Swiss IQ Bars (Grooving)
VNGR	○○○○-○○NB	C60, G77	Swiss IQ Bars (Grooving)
VNMA	○○○T○○○○○AA	B119	Insert (Turning)
VNMG	○○○	B47	Insert (Turning)
VNMG	○○○(○)GP	B47	Insert (Turning)
VNMG	○○○HQ	B47	Insert (Turning)
VNMG	○○○KG	B48	Insert (Turning)
VNMG	○○○KH	B48	Insert (Turning)
VNMG	○○○L-VC	B47	Insert (Turning)
VNMG	○○○MQ	B48	Insert (Turning)
VNMG	○○○MS	B48	Insert (Turning)
VNMG	○○○MU	B48	Insert (Turning)
VNMG	○○○(○)PP	B47	Insert (Turning)
VNMG	○○○PQ	B47	Insert (Turning)
VNMG	○○○R-VC	B47	Insert (Turning)
VNMG	○○○SG	B48	Insert (Turning)
VNMG	○○○TN-V	B47	Insert (Turning)
VNMG	○○○VF	B47	Insert (Turning)
VNMM	○○○(○)M	C37	Insert (Turning)
VNMM	○○○(○)M-NE	C37	Insert (Turning)
VNMM	○○○(○)M-SE	C37	Insert (Turning)
VNTR	○○○-○○	J48	Swiss IQ Bars (Threading)
VPET	○○○○(○)(○)F□/L -USF	B104	Insert (Turning)
VPET	○○○○(○)(○)M□/L -F	B103	Insert (Turning)
VPET	○○○○(○)(○)M□/L -FSF	B103	Insert (Turning)
VPET	○○○○(○)MF□/L -J	B104	Insert (Turning)
VPET	○○○○(○)(○)MF□/L -U	B104	Insert (Turning)
VPET	○○○○(○)(○)MF□/L -USF	B104	Insert (Turning)
VPET	○○○○(○)(○)□/L -FSF	B103	Insert (Turning)
VPGT	○○○○CF	B102	Insert (Turning)
VPGT	○○○○(○)(○)CK	B102	Insert (Turning)
VPGT	○○○○MFP-GF	B102	Insert (Turning)
VPGT	○○○(○)MFP-SKS	B102	Insert (Turning)
VPGT	○○○○MP-CF	B102	Insert (Turning)
VPGT	○○○○(○)(○)MP-CK	B102	Insert (Turning)
W			
W-6		P23	Spare Parts (Washer)
W6-14		P23	Spare Parts (Washer)
W6X20		P7	Spare Parts (Screw)
W8X18		P7	Spare Parts (Screw)
W10X31		P7	Spare Parts (Screw)
WB-5		P23	Spare Parts (Washer)
WB-6		P23	Spare Parts (Washer)
WB-8		P23	Spare Parts (Washer)
WBET	○○○○(○)(○)M□/L -F	B105	Insert (Turning)
WBET	○○○○○(○)M□/L -P	B106	Insert (Turning)
WBGT	○○○○○(○)MFP□/L -PF	B105	Insert (Turning)
WBGT	○○○○○MP□/L -CF	B105	Insert (Turning)
WBGT	○○○○(○)(○)□/L -F	B106	Insert (Turning)
WBGW	○○○○(○)(○)□/L	B106	Insert (Turning)
WBGW	○○○○(○)(○) S○○○○○□/L -SET	C28	Insert (Turning)
WBGW	○○○○(○)T○○○○○□/L -SE	C28	Insert (Turning)
WBMT	○○○○(○)(○)L	C51	Insert (Turning)
WBMT	○○○○L-NE	C51	Insert (Turning)
WBMT	○○○○○(○)L-SE	C51	Insert (Turning)
WBMT	○○○○(○)(○)□/L -DP	B105	Insert (Turning)
WCMX	○○○○○○-M1(A)	K99, K106	Insert (Drilling) HOLESHOT Drill (DR) / Coremaster Coredrill
WCMX	○○T○○○-M1(A)	K99, K106	Insert (Drilling) HOLESHOT Drill (DR) / Coremaster Coredrill
WCS-1N		P16	Spare Parts (Clamp Set)
WCS-8		P16	Spare Parts (Clamp Set)
WN-1		P23	Spare Parts (Shim Nut)
WNEU	○○○○○○EN-GL	M149	Insert (Milling) MFWN
WNGA	○○○MEF	C15	Insert (Turning)
WNGA	○○○S○○○○○ME	C15	Insert (Turning)
WNGA	○○○S○○○○○MET	C15	Insert (Turning)
WNGA	○○○T○○○○○ME	C15	Insert (Turning)
WNGA	○○○T○○○○○AA	B119	Insert (Turning)
WNGA	○○○T○○○○○	B119	Insert (Turning)
WNGG	○○○AH	B54	Insert (Turning)
WNGG	○○○L	B54	Insert (Turning)
WNGG	○○○(○)L-S	B54	Insert (Turning)
WNGG	○○○R	B54	Insert (Turning)
WNGG	○○○(○)R-S	B54	Insert (Turning)
WNGG	○○○TK	B52	Insert (Turning)
WNGT	○○○○○○FN-AM	M149	Insert (Milling) MFWN
WNMA	○○○	B54	Insert (Turning)
WNMG	○○○	B52	Insert (Turning)
WNMG	○○○C	B54	Insert (Turning)
WNMG	○○○CJ	B51	Insert (Turning)
WNMG	○○○CQ	B51	Insert (Turning)
WNMG	○○○GC	B54	Insert (Turning)
WNMG	○○○GP	B50	Insert (Turning)
WNMG	○○○GS	B51	Insert (Turning)
WNMG	○○○GT	B52	Insert (Turning)
WNMG	○○○(○)HQ	B51	Insert (Turning)
WNMG	○○○KG	B53	Insert (Turning)

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Part Numbers in Alphanumeric Order

○ : Number □ : Letter

Part Number		Page	Description
WNMG	○○○KH	B53	Insert (Turning)
WNMG	○○○KQ	B53	Insert (Turning)
WNMG	○○○MQ	B53	Insert (Turning)
WNMG	○○○MS	B53	Insert (Turning)
WNMG	○○○MU	B53	Insert (Turning)
WNMG	○○○PG	B51	Insert (Turning)
WNMG	○○○PH	B52	Insert (Turning)
WNMG	○○○PMG	B51	Insert (Turning)
WNMG	○○○(○)PP	B50	Insert (Turning)
WNMG	○○○PQ	B50	Insert (Turning)
WNMG	○○○PS	B51	Insert (Turning)
WNMG	○○○PT	B51	Insert (Turning)
WNMG	○○○SG	B53	Insert (Turning)
WNMG	○○○TK	B52	Insert (Turning)
WNMG	○○○WE	B50	Insert (Turning)
WNMG	○○○WF	B50	Insert (Turning)
WNMG	○○○WP	B50	Insert (Turning)
WNMG	○○○WQ	B50	Insert (Turning)
WNMG	○○○XP	B52	Insert (Turning)
WNMG	○○○XQ	B52	Insert (Turning)
WNMG	○○○XS	B52	Insert (Turning)
WNMG	○○○ZS	B54	Insert (Turning)
WNMM	○○○(○)M-NE	C38	Insert (Turning)
WNMM	○○○(○)M-SE	C38	Insert (Turning)
WNMU	○○○○○○EN-GH	M149, M155	Insert (Milling) MFWN / MFWN-Mini
WNMU	○○○○○○EN-GM	M149, M155	Insert (Milling) MFWN / MFWN-Mini
WNMU	○○○○○○EN-SM	M149, M155	Insert (Milling) MFWN / MFWN-Mini
WNMX	○○○EL	B50	Insert (Turning)
WNMX	○○○ER	B50	Insert (Turning)
WP-1S		P8	Spare Parts (Shim Pin)
WP5X11		P8	Spare Parts (Shim Pin)
WP5X15		P8	Spare Parts (Shim Pin)
WPGT	○○○(○)M R/L -Y	B107	Insert (Turning)
WPGT	○○○(○)(○) R/L -Y	B107	Insert (Turning)
WPGW	○○○(○)(○)	B107	Insert (Turning)
WPMT	○○○○○	C51	Insert (Turning)
WPMT	○○○(○)GP	B107	Insert (Turning)
WPMT	○○○(○)(○)HQ	B107	Insert (Turning)
WPMT	○○○○○NE	C51	Insert (Turning)
WPMT	○○○○○SE	C51	Insert (Turning)
WS-10		D13, G49, H60	Spare Parts (Washer)
WSP-1		P23	Spare Parts (Spacer)
WTENN	○○○○□-○○N	D32	Toolholder (Turning)
WTJN R/L	○○-○□	D31	Toolholder (Turning)
WTJN R/L	○○○○□-○○N	D31	Toolholder (Turning)
WTKN R/L	○○-○□	D31	Toolholder (Turning)
WTKN R/L	○○○○□-○○N	D31	Toolholder (Turning)
WTN-33		P13	Spare Parts (Shim)
WTN-33-20		P13	Spare Parts (Shim)
WWLN R/L	○○○○□-○○	D51	Toolholder (Turning)
WWN-42		P13	Spare Parts (Shim)
WWP-42		P13	Spare Parts (Shim)
WWP-42-16		P13	Spare Parts (Shim)
X			
XNS610		P7	Spare Parts (Mounting Screw)
XPMT	○○○○○○	M193, M297	Insert (Milling) EM / CM
XPMT	○○TO○○	M193, M297	Insert (Milling) EM / FM90 / CM
Y			
Z			
ZBMT	○○TO○○GF	B108	Insert (Turning / Boring)
ZBMT	○○TO○○R-GF-15D	B108	Insert (Turning / Boring)
ZCMT	○○○○○○	K78	Insert (Drilling) DRZ Magic Drill
ZCMT	○○○○○○SP	K78	Insert (Drilling) DRZ Magic Drill
ZCMT	○○○○○○SU	K78	Insert (Drilling) DRZ Magic Drill

Part Numbers in Alphanumeric Order

○ : Number □ : Letter

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