



MG90B

High-Efficiency Slot Mill



Unique Design Delivers Exceptional Stability for High-Efficiency Slot Milling

Economical 6-Edge Insert Design with Sharp Cutting Edges

Rigid Insert Clamping for High-Efficiency, Stable Machining

Large Chip Pockets for Smooth Chip Evacuation

Custom Solutions Available for a Wide Range of Applications

Standard Lineup

Cutting Width 3.0–12.0mm (0.118"–0.472")

Cutting Diameter $\varnothing$ 50– $\varnothing$ 160mm ($\varnothing$ 1.969"– $\varnothing$ 6.299")



High-Efficiency Slot Mill

MG90B

Economical 6-Edge Insert Design with Excellent Sharpness

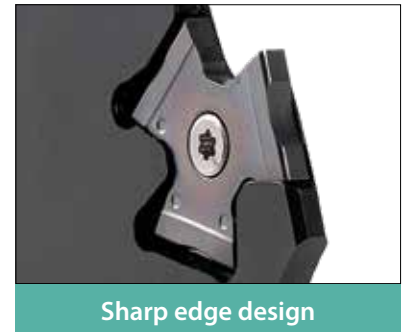
Rigid Clamping and Large Chip Pockets for High-Efficiency, Stable Machining

Custom Solutions Available for a Wide Range of Applications



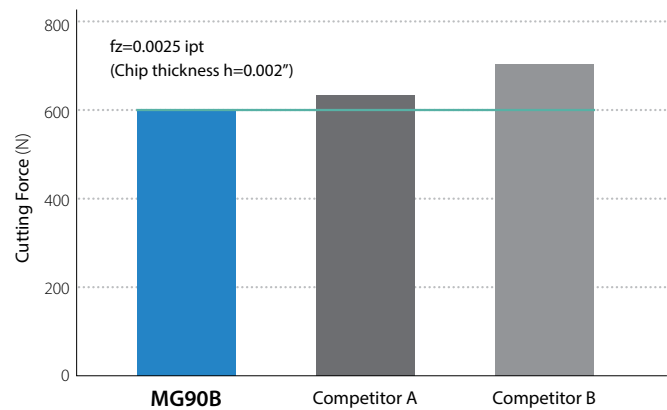
1 Economical 6-Edge Insert Design

Six usable cutting edges improve insert utilization and reduce tooling costs. The staggered insert arrangement positions inserts on both sides of the cutter body. Sharp cutting-edge geometry minimizes cutting forces and reduces spindle load for smooth, stable machining.



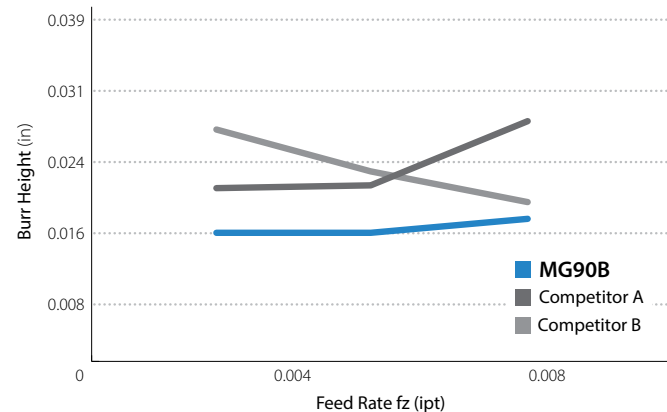
Cutting Force Comparison

(Internal Evaluation)



Burr Height

(Internal Evaluation)

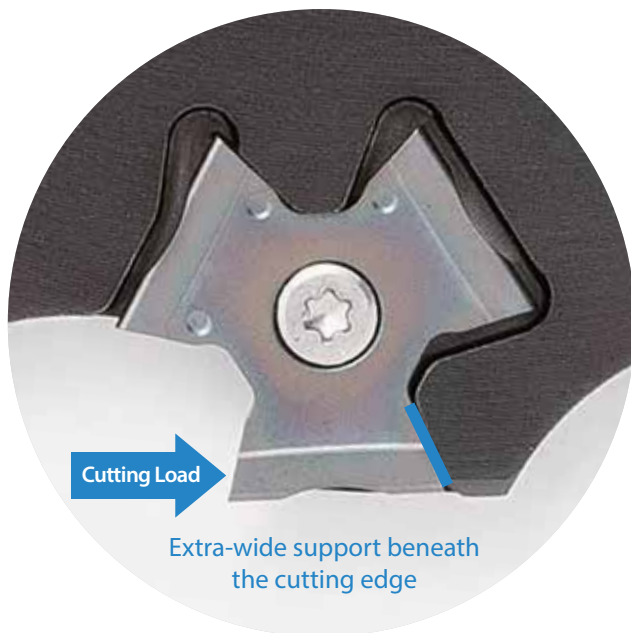


Vc = 520 sfm, ae = 0.591", Dry (Air Blast), 1049 Steel, ø80mm (3.150") (5 Inserts), Cutting Width 6mm (0.236")

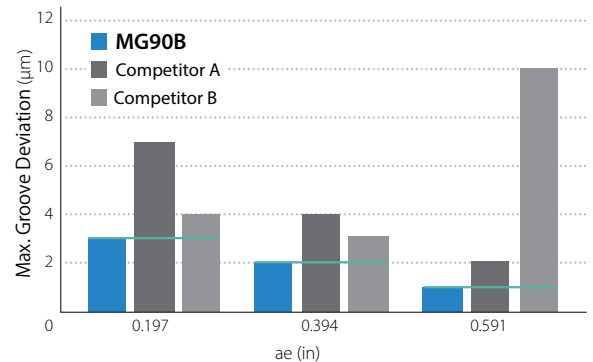
2

Rigid Insert Clamping for High-Efficiency, Stable Machining

A wide support surface directly beneath the cutting edge firmly withstands cutting loads.
Minimizes insert movement for improved cutting diameter and groove width accuracy.



Maximum Groove Deviation
(Internal Evaluation)



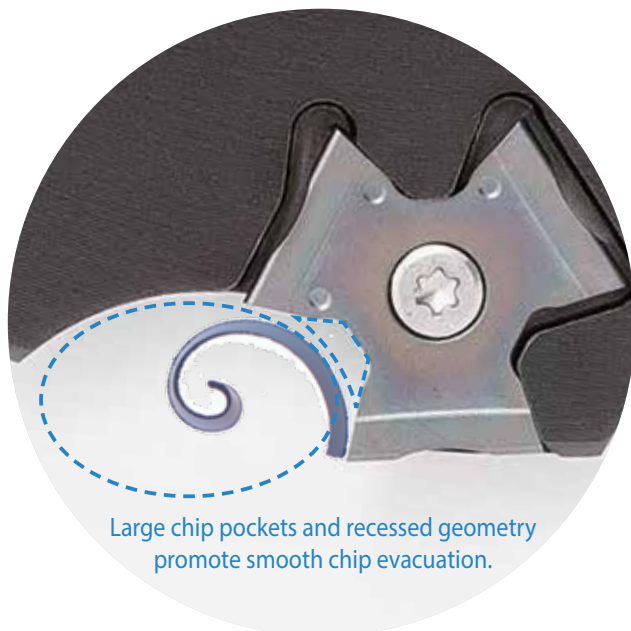
Vc = 520 sfm, fz = 0.003~0.012 ipt (h = 0.002" / 0.004" / 0.006")
Dry (Air Blast), 1049 Steel, ø80mm (3.150") (5 Inserts), Cutting Width 6mm (0.236")



3

Large Chip Pockets for Smooth Chip Evacuation

Wide chip pockets and recessed geometry promote smooth, efficient chip evacuation, preventing chip packing even at high feed rates and producing an excellent groove bottom finish.



Chips and Groove Bottom Finish (Internal Evaluation)

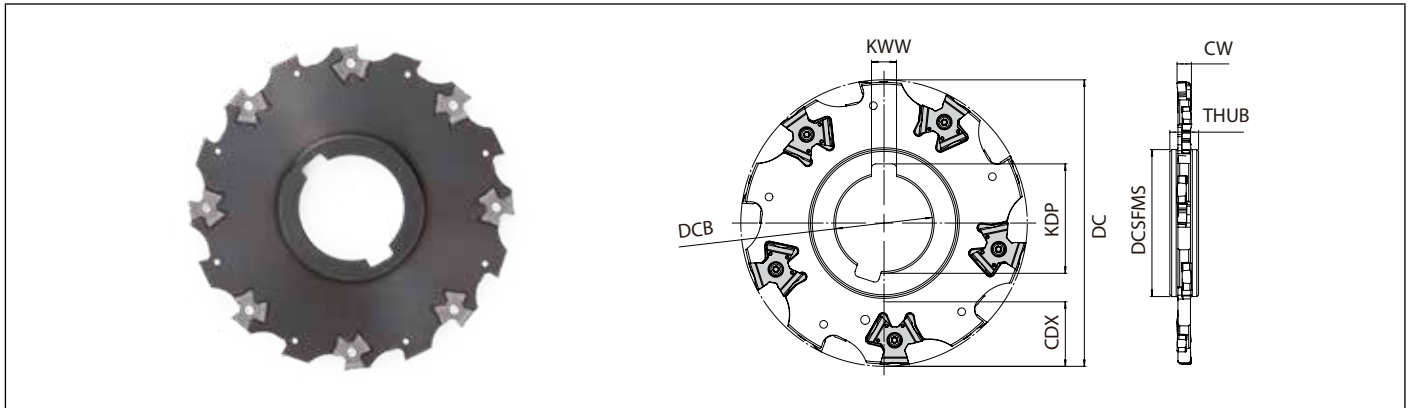
	MG90B	Competitor A
Chips	Good	Chip Packing
Groove Bottom Finish	Good	Scratching Present

Vc = 520 sfm, ae = 0.591", fz = 0.008 ipt (h = 0.006")
Dry (Air Blast), 1049 Steel, ø80mm (3.150") (10 Inserts), Groove Width 6mm (0.236")

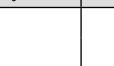
4

Custom Solutions for a Wide Range of Applications

Custom groove widths, cutting diameters, and edge configurations are available to meet specific application requirements.



Toolholder Dimensions

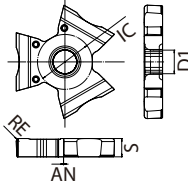
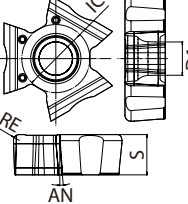
Unit	Part Number	Std. Item	No. of Inserts	No. of Flutes	Dimensions							Weight (kg)	Max RPM	Spare Parts		Clamp Screw Torque	Applicable Inserts 🔌 Page 5							
					DC	CW	CDX	THUB	DCB	KDP	KWW			DCSFMS										
mm	MG90B- 050AN-03T8-M	●	8	4	50	3	10	8	16	18	4	27	0.03	12,000	SB-2225TRPF	FTP-6	0.5N·m	HNLW0518...						
	063AN-03T10-M	●	10	5	63				22	24.5	6	34	0.05	10,000				HNLW0718...						
	080AN-03T10-M	●	10	5	80				27	30	7	41	0.08	6,700				HNLW0525...						
	100AN-03T12-M	●	12	6	100				32	35	8	47	0.13	6,000				HNLW0725...						
	125AN-03T16-M	●	16	8	125				40	43.5	10	55	0.20	5,400				HNLW0530...						
	MG90B- 050AN-04T8-M	●	8	4	50	4	10	8	16	18	4	27	0.04	10,200	SB-2235TRPF			DTPM-8	1.2N·m	HNLW0830...				
	063AN-04T10-M	●	10	5	63				22	24.5	6	34	0.06	9,100							SB-3043TRP			
	080AN-04T10-M	●	10	5	80				27	30	7	41	0.10	5,600								SB-2534TRPF		
	100AN-04T12-M	●	12	6	100				32	35	8	47	0.17	5,000									SB-2239TRPF	
	125AN-04T16-M	●	16	8	125				40	43.5	10	55	0.26	4,500										SB-2244TRPF
	160AN-04T20-M	●	20	10	160				40	43.5	10	55	0.45	4,000										
	MG90B- 050AN-05T8-M	●	8	4	50	5	10	10	16	18	4	27	0.05	9,300	DTPM-10	2.0N·m	HBLW0645...							
	063AN-05T10-M	●	10	5	63				22	24.5	6	34	0.08	8,200				SB-4067TRP						
	080AN-05T10-M	●	10	5	80				27	30	7	41	0.12	6,600					SB-3070TRP					
	100AN-05T12-M	●	12	6	100				32	35	8	47	0.20	5,900						SB-3070TRP				
	125AN-05T16-M	●	16	8	125				40	43.5	10	55	0.32	5,300							SB-4067TRP			
	160AN-05T20-M	●	20	10	160				40	43.5	10	55	0.57	4,600								SB-4067TRP		
	MG90B- 050AN-06T8-M	●	8	4	50	6	10	10	16	18	4	27	0.06	8,500	DTPM-15	3.5N·m	HBLW0945...							
	063AN-06T10-M	●	10	5	63				22	24.5	6	34	0.09	7,600				SB-4067TRP						
	080AN-06T10-M	●	10	5	80				27	30	7	41	0.14	6,100					SB-4067TRP					
	100AN-06T12-M	●	12	6	100				32	35	8	47	0.24	5,400						SB-4067TRP				
	125AN-06T16-M	●	16	8	125				40	43.5	10	55	0.38	4,900							SB-4067TRP			
	160AN-06T20-M	●	20	10	160				40	43.5	10	55	0.69	4,300								SB-4067TRP		
	MG90B- 050AN-08T8-M	●	8	4	50	8	12	12	16	18	4	27	0.07	10,500	DTPM-15	3.5N·m	HBLW0965...							
	063AN-08T10-M	●	10	5	63				22	24.5	6	34	0.12	9,300				SB-4067TRP						
	080AN-08T10-M	●	10	5	80				27	30	7	41	0.18	7,500					SB-4067TRP					
	100AN-08T12-M	●	12	6	100				32	35	8	47	0.32	6,700						SB-4067TRP				
	125AN-08T16-M	●	16	8	125				40	43.5	10	55	0.51	6,000							SB-4067TRP			
	160AN-08T20-M	●	20	10	160				40	43.5	10	55	0.93	5,300								SB-4067TRP		
	MG90B- 050AN-10T8-M	●	8	4	50	10	14	14	16	18	4	27	0.09	9,500	DTPM-15	3.5N·m	HBLW0965...							
	063AN-10T10-M	●	10	5	63				22	24.5	6	34	0.15	8,500				SB-4067TRP						
	080AN-10T10-M	●	10	5	80				27	30	7	41	0.23	6,800					SB-4067TRP					
	100AN-10T12-M	●	12	6	100				32	35	8	47	0.40	6,000						SB-4067TRP				
	125AN-10T16-M	●	16	8	125				40	43.5	10	55	0.65	5,400							SB-4067TRP			
	160AN-10T20-M	●	20	10	160				40	43.5	10	55	1.17	4,800								SB-4067TRP		
	MG90B- 080AN-12T10-M	●	10	5	80	12	16	16	27	30	7	41	0.27	6,300	DTPM-15	3.5N·m	HBLW0965...							
	100AN-12T12-M	●	12	6	100				32	35	8	47	0.48	5,600				SB-4067TRP						
	125AN-12T16-M	●	16	8	125				40	43.5	10	55	0.78	5,000					SB-4067TRP					
	160AN-12T20-M	●	20	10	160				40	43.5	10	55	1.42	4,400										

Maximum RPM

Set the spindle speed within the recommended cutting speed range for each workpiece material. Do not operate the cutter at or above the maximum spindle speed. Even under no-load conditions, centrifugal force may cause inserts or components to be ejected, creating a hazardous condition.

● : Standard Item

Applicable Inserts

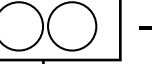
Usage Classification		Carbon Steel / Alloy Steel							★	☆	P				
		Mold and Die Steel							★	☆					
		Austenitic Stainless Steel							☆	★	M				
		Martensitic Stainless Steel							☆	★					
		Precipitation Hardened Stainless Steel							☆	★					
		Gray Cast Iron							★		K				
		Nodular Cast Iron							★						
Aluminum Alloy										★	N				
Insert	Part Number	Cutting Width		Dimensions (mm)				Angle (°)	Carbide				Applicable Toolholder 🔗 Page 4		
		Inch	mm	IC	S	D1	RE	AN	PVD			-			
									PR1810	PR1825	PR1835	GW25			
 Cutting Width: 3-6mm (0.118"-0.236") 	HNLW 051804-GM	0.118	3	5.8	1.8	2.8	0.4	0	●	●	●	●	MG90B-050AN-03... ~MG90B-063AN-03...		
	071804-GM			7.5		3.22	0.4		●	●	●	●	MG90B-080AN-03... ~MG90B-125AN-03...		
	HNLW 052504-GM	0.157	4	5.8	2.5	2.8	0.4		●	●	●	●	MG90B-050AN-04... ~MG90B-063AN-04...		
	072504-GM			7.5		3.22	0.4		●	●	●	●	MG90B-080AN-04... ~MG90B-160AN-04...		
	HNLW 053004-GM	0.197	5	5.8	3.0	2.8	0.4		●	●	●	●	MG90B-050AN-05... ~MG90B-063AN-05...		
	083004-GM			8.5		3.5	0.4		●	●	●	●	MG90B-080AN-05... ~MG90B-160AN-05...		
	HNLW 053504-GM	0.236	6	5.8	3.5	2.8	0.4		●	●	●	●	MG90B-050AN-06... ~MG90B-063AN-06...		
	053508-GM						0.8		●	●	●	●			
	083504-GM			8.5	3.5		0.4		●	●	●	●	MG90B-080AN-06... ~MG90B-160AN-06...		
	083508-GM						0.8		●	●	●	●			
	 Cutting Width: 8-12mm (0.315"-0.472") 	HBLW 064504-GM	0.315	8	6.2	4.5	3.45		0.4	5	●	●	●	●	MG90B-050AN-08... ~MG90B-063AN-08...
		064508-GM							0.8		●	●	●	●	
094504-GM		9.3			4.55		0.4	●	●		●	●	MG90B-080AN-08... ~MG90B-160AN-08...		
094508-GM							0.8	●	●		●	●			
HBLW 065504-GM		0.394	10	6.2	5.5	3.45	0.4	●	●		●	●	MG90B-050AN-10... ~MG90B-063AN-10...		
065508-GM							0.8	●	●		●	●			
095504-GM				9.3	4.55		0.4	●	●		●	●	MG90B-080AN-10... ~MG90B-160AN-10...		
095508-GM							0.8	●	●		●	●			
HBLW 096504-GM		0.472	12	9.3	6.5	4.64	0.4	●	●		●	●	MG90B-080AN-12... ~MG90B-160AN-12...		
096508-GM							0.8	●	●		●	●			

Recommended Cutting Conditions ➡ Page 6

● : Standard Item

HNLW & HBLW Inserts are
sold in 10-piece boxes

Toolholders Identification System

MG90B	-		A	N	-		T		-	M
Medium-Width Slot Mill		Cutting Diameter (mm)	A: No Boss	N: Neutral Hand		Cutting Width (mm)		Number of Inserts		Metric

PR18 Series

Double-Lamination Technology with Special Nano Layer for Longer Tool Life

Three-Grade Lineup: PR1825, PR1835, and PR1810

PR1825

P

PR1835

M

PR1810

K

for Steel
(Wear Resistance Focused)

for Steel (Stability Focused)
for Stainless Steel **1st Recommendation**

for Cast Iron



Double Lamination Technology Maintains Longer Tool Life

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

Recommended Cutting Conditions ★ 1st Recommendation ☆ 2nd Recommendation

Workpiece Material	Feed Rate (fz: ipt)	Recommended Insert Grade (Vc: sfm)			
		MEGACOAT NANO EX			Uncoated
		PR1810	PR1825	PR1835	GW25
Carbon Steel	0.002 ~ 0.004 ~ 0.006	-	330 ~ ★520 ~ 720	330 ~ ☆520 ~ 720	-
Alloy Steel	0.002 ~ 0.004 ~ 0.006	-	330 ~ ★520 ~ 720	330 ~ ☆520 ~ 720	-
Austenitic Stainless Steel	0.002 ~ 0.003 ~ 0.004	-	260 ~ ☆360 ~ 460	260 ~ ★360 ~ 460	-
Martensitic Stainless Steel	0.002 ~ 0.003 ~ 0.004	-	260 ~ ☆360 ~ 460	260 ~ ★360 ~ 460	-
Precipitation Hardened Stainless Steel	0.002 ~ 0.003 ~ 0.004	-	260 ~ ☆360 ~ 460	260 ~ ★360 ~ 460	-
Gray Cast Iron	0.002 ~ 0.004 ~ 0.006	330 ~ ★520 ~ 720	-	-	-
Nodular Cast Iron	0.002 ~ 0.004 ~ 0.006	330 ~ ★520 ~ 720	-	-	-
Aluminum Alloy	0.002 ~ 0.004 ~ 0.006	-	-	-	660 ~ ★1,310 ~ 1,970

Bold values indicate the recommended standard cutting conditions. Adjust cutting speed and feed rate within the specified ranges based on actual machining conditions.

Coolant is recommended when machining precipitation-hardened stainless steels.

Machining with coolant may reduce tool life compared to dry machining. Use lower cutting speeds, feed rates, and D.O.C. than the recommended conditions.

For BT30-class machines, use no more than 80% of the recommended feed rate.

Maximum Feed per Tooth by Engagement Rate (≈ constant chip thickness)

Engagement Rate	ae/DC	5%	10%	15%	20%	25%	30%
Maximum Feed per Tooth	Max fz (ipt)	0.0134	0.0098	0.0083	0.0075	0.0067	0.0063

* Set ae to CDX or less (see [Page 4](#)).



Case Study

Carbon Steel Joint Component

Vc = 660 sfm (n = 1,000 rpm), Vf = 7.9 ipm (fz per flute = 0.002 ipt), ap × ae = 3 × 15mm (0.118" × 0.591")
Wet, ø63mm (2.480") (8 Inserts), Custom Specification

Number of Parts Machined

MG90B

2,000_{pcs/edge}

Conventional

1,600_{pcs/edge}

Tool Life

1.3x



MG90B delivers stable, high-quality machining, achieving 2,000 parts per cutting edge and 1.3x longer tool life.

(User Evaluation)

Precautions

How to Replace an Insert

- 1 Completely remove any dust and chips from the insert mounting pocket.
- 2 Attach the clamp screw to the wrench tip, then tighten while lightly pressing the insert against the seating surface.
* Applying anti-seize compound to the tapered and threaded portions of the clamp screw is recommended.
- 3 Always use the specified wrench size when tightening the clamp screw.
* Using the incorrect wrench size may damage the screw head or wrench tip, making the clamp screw difficult to remove.
- 4 Tighten the clamp screw while keeping the wrench parallel to the screw axis.
* Recommended tightening torque: See [Page 4](#).
- 5 After tightening, confirm that there are no gaps between the insert and the holder support or clamping surfaces. If a gap is present, remove the insert and reinstall it following the procedure above.



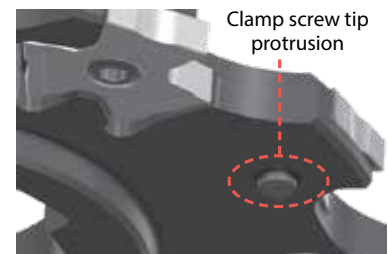
Compatible Inserts and Clamp Screws

The required insert and clamp screw vary depending on the toolholder cutting diameter and groove width. Do not use incompatible combinations.

* Using incompatible components may cause interference between the clamp screw and workpiece or result in insufficient clamping force. Compatible insert and clamp screw part numbers are marked on the toolholder. Always verify that the correct components are installed.

Compatible Inserts and Clamp Screws by Toolholder

Cutting Width CW	Insert Part Number	Clamp Screw Part Number	Toolholder Cutting Diameter (mm)					
			ø50	ø63	ø80	ø100	ø125	ø160
3mm (0.118")	HNLW0518...	SB-2225TRPF	●	●	-	-	-	-
	HNLW0718...	SB-2524TRPF	-	-	●	●	●	-
4mm (0.157")	HNLW0525...	SB-2235TRPF	●	●	-	-	-	-
	HNLW0725...	SB-2534TRPF	-	-	●	●	●	●
5mm (0.197")	HNLW0530...	SB-2239TRPF	●	●	-	-	-	-
	HNLW0830...	SB-3043TRP	-	-	●	●	●	●
6mm (0.236")	HNLW0535...	SB-2244TRPF	●	●	-	-	-	-
	HNLW0835...	SB-3053TRP	-	-	●	●	●	●
8mm (0.315")	HBLW0645...	SB-3070TRP	●	●	-	-	-	-
	HBLW0945...	SB-4067TRP	-	-	●	●	●	●
10mm (0.394")	HBLW0655...	SB-3070TRP	●	●	-	-	-	-
	HBLW0955...	SB-4067TRP	-	-	●	●	●	●
12mm (0.472")	HBLW0965...	SB-4067TRP	-	-	●	●	●	●



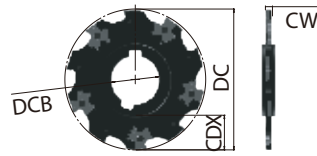
Clamp screw condition when using incompatible inserts and clamp screws

Custom Specification Worksheet

Custom tool configurations are available to meet specific groove profile and application requirements.
Contact your KYOCERA sales representative for more information.

Toolholder (Cutting Diameter, Groove Width, Max. Depth, Pilot Bore Diameter)

Cutting Diameter (DC)	$\emptyset$	mm
Cutting Width (CW)		mm
Max. Cutting Depth (CDX)	(	mm)
Pilot Bore Dia. (DCB)		mm/inch
Notes		



Insert (Corner Configuration)

Specifications	Corner Configuration (Additional Custom Configurations Available)		
	Corner Chamfer	Corner Radius	With Lead Angle
Image			
	C max: 0.5 mm	R max: $\emptyset < 80\text{mm}$: 0.8mm $\emptyset \geq 80\text{mm}$: 1.2mm	$\theta^\circ \times w \text{ mm}$

Insert (Grade)

	Grade		
	Steel	PR1825	
Workpiece	Stainless steel	PR1835	
	Cast iron	PR1810	
	Aluminum	GW25	



KYOCERA Precision Tools

238 Marc Drive
Cuyahoga Falls, OH 44223
Customer Service | 800.823.7284 - Option 1
Technical Support | 800.823.7284 - Option 2



Official Website | www.kyoceraprecisiontools.com
Distributor Website | portal.kyoceraprecisiontools.com
Email | ctsales@kyocerapti.com