KYOCERA

M-FOUR (MEW)

90° Milling with Double-sided 4-edge Inserts

Low Cutting Forces with Chatter Resistance for Excellent Surface Finish

Economical Double-Sided 4-Edge Inserts

Improved Toolholder Durability and Insert Installation Accuracy

Long Tool Life with Next-Generation PR18 Series Inserts with MEGACOAT NANO EX Coating Technology

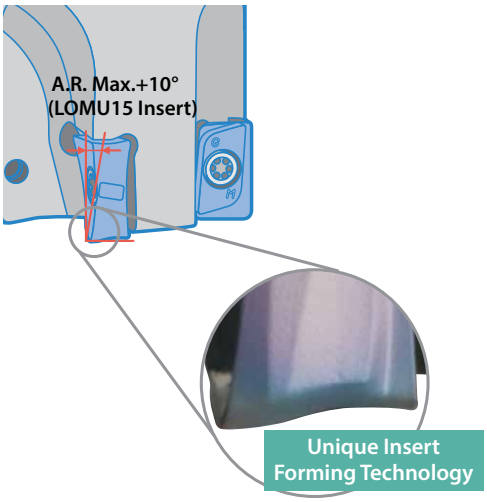
M-FOUR (MEW)

90° Milling with Double-sided 4-edge Insert

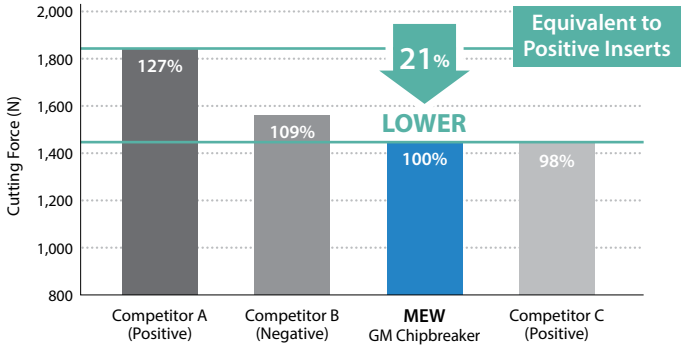
Low Cutting Forces with Chatter Resistance for Excellent Surface Finish
Wide Application Range with New DLC Coating PDL025 for Machining Aluminum

1 Low Cutting Forces Equivalent to Positive Inserts

Kyocera's unique insert forming technology reduces cutting forces equivalent to positive inserts



Cutting Force Comparison (In-house Evaluation)

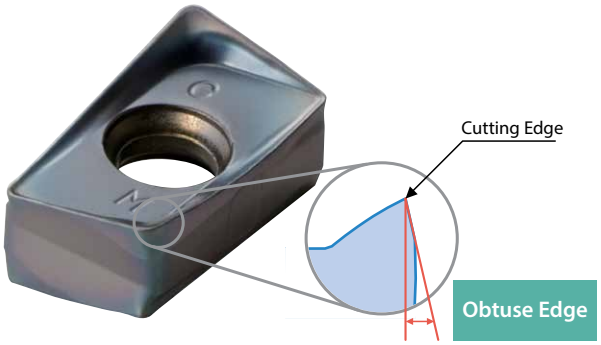


Cutting force is the resultant force of the principal force and the feed force.

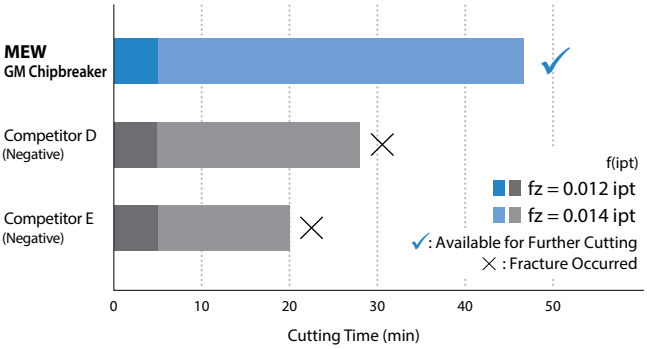
Cutting Conditions : Vc = 490 sfm, fz = 0.006 ipt, D.O.C. × ae = 0.118" × 0.591"
Cutter Dia. Ø0.750" Workpiece : 1040

2 Excellent Fracture Resistance

Obtuse edge for increased cutting edge toughness and stable machining at high feed rates



Fracture Resistance Comparison (In-house Evaluation)



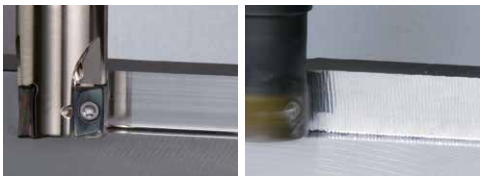
Cutting Conditions : Vc = 390 sfm, fz = 0.012 - 0.014 ipt, D.O.C. × ae = 0.118" × 0.394"
Cutter Dia. Ø0.750" Workpiece : 4140H (28-32 HRC)

3 Improved Surface Finish & Minimized Vibration

Sharp cutting and superior burr and vibration resistance due to helical cutting edge and optimum axial rake design

Surface of Shoulder Wall (In-house Evaluation)

MEW | Competitor F Positive Cutter

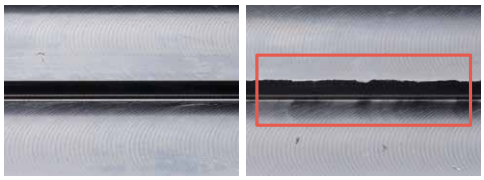


Chatter

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 (In-house Evaluation)

MEW | Competitor G Positive Cutter



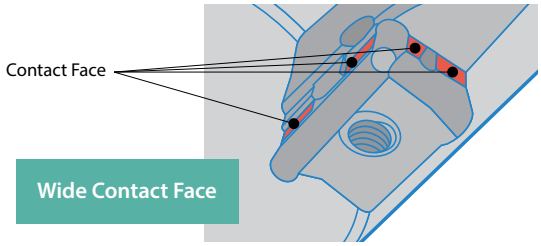
Burr

Cutting Conditions : Vc = 820 sfm, fz = 0.004 ipt, D.O.C. × ae = 0.158" × 0.197"
Cutter Dia. Ø0.750, Dry Workpiece : 1049

Actual Rake Angle (In-house Evaluation)

MEW GM Chipbreaker	**+20°**
Competitor H (Negative)	+17°
Competitor I (Positive)	+17°

4 Improved Toolholder Durability and Insert Installation Accuracy



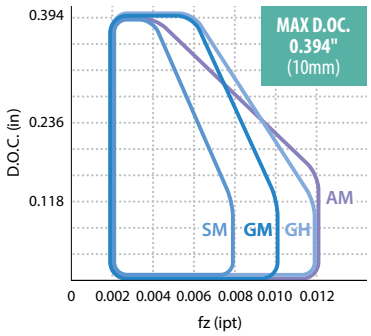
5 Various Chipbreakers for a Wide Range of Applications

4 types of chipbreakers for a wide range of applications along with a large lineup of corner R (rε) for the GM chipbreaker

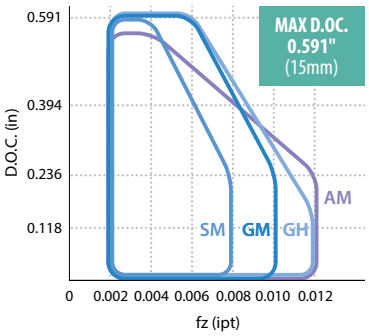
Chipbreaker	Application	Shape
GM	General Purpose	
SM	Low Cutting Force	
GH	Heavy Milling	
AM	Non-ferrous Metals / Aluminum	

Chipbreaker Recommended Applications (Shouldering)

LOMU10 Type



LOMU15 Type



Chips (GM Chipbreaker)

Grooving

Shouldering

PR18 Series

Kyocera's Nano Layer Coating Technology
Longer Tool Life with Next-generation Coating for Milling

MEGACOAT NANO EX | Milling |

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

For hardened material

PR015S MEGACOAT HARD PVD coating

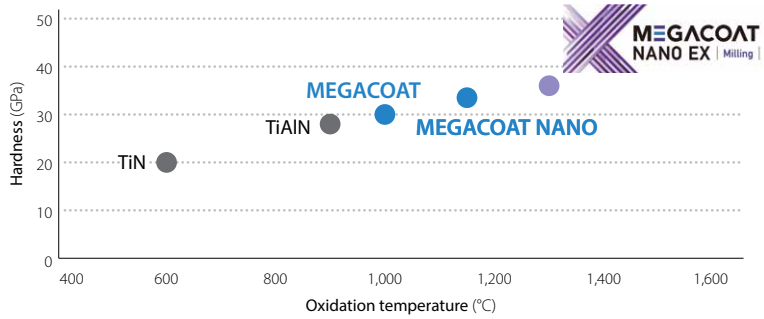
For stainless steel and heat-resistant alloys

CA6535 CVD coating

For aluminum machining

PDL025 DLC coating
GW25 Uncoated Carbide

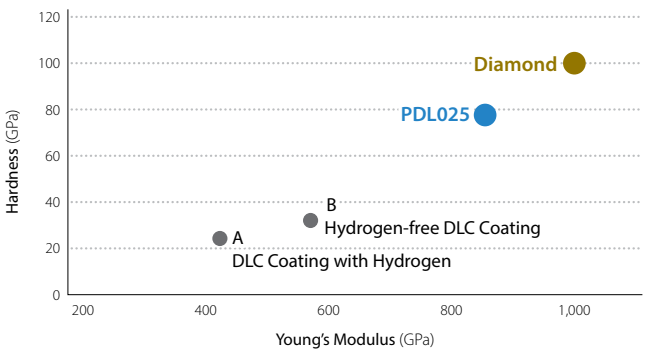
Coating Characteristics (Internal Evaluation)



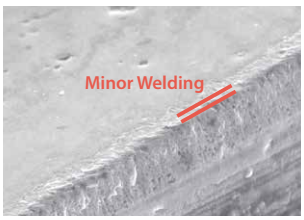
PDL025 DLC Coated Carbide

High Quality and Long Tool Life for Machining Aluminum
High Hardness with Kyocera's Proprietary Hydrogen-free DLC Coating

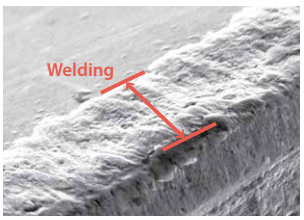
Coating Properties



Welding Resistance Comparison (In-house Evaluation)



PDL025



Competitor K

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 : 187 ft

Weldon Shank (Standard) Shown

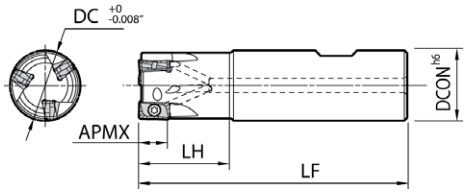


Fig. 1

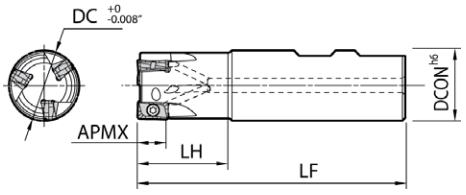


Fig. 2

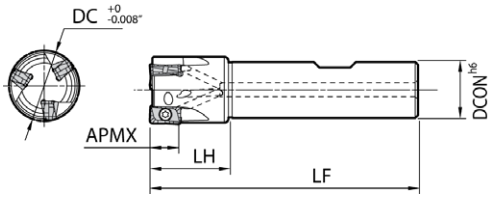


Fig. 3

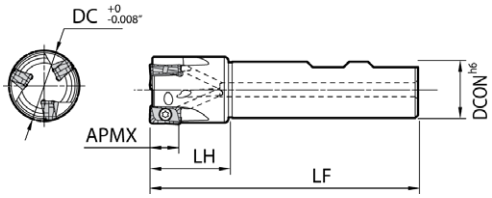


Fig. 4

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 (Page 17)
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		3.25	1.145			-20		42,000	4				
			0750-W750-10-2T	●	2		0.750		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

Cylindrical Shank (Standard) Shown

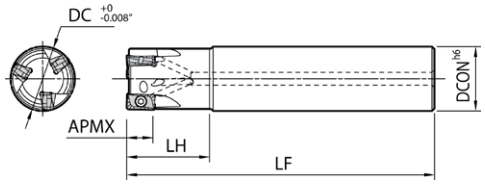


Fig. 1

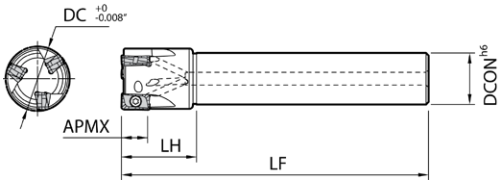


Fig. 2

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 Page 17
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.

● : Standard Item

Weldon Shank (Standard) Shown

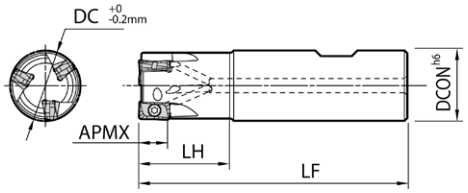


Fig. 1

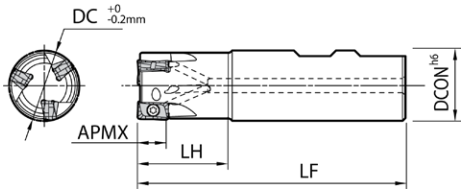


Fig. 2

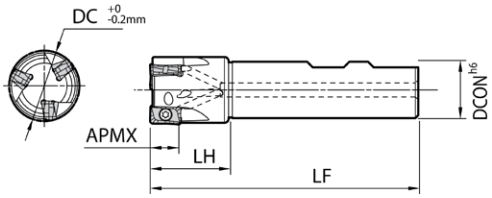


Fig. 3

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 Page 17
						DC	DCON	LF	LH	APMX						Anti-Seize Compound	Insert Screw	Wrench	
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...
			20-W20-10-2T	□	2	20	20	77				-20		41,000	1				
			20-W20-10-3T	●	3										1				
			25-W25-10-3T	●	3	25	25	90	32					37,500	2				
			32-W32-10-4T	□	4	32	32	102	40					33,900	2				
			40-W32-10-5T	●	5	40	32	111	50	10	+7	-19	Yes	30,000	3				
			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...
			32-W32-15-3T	□	3	32	32	102	40					30,000	2				
			40-W32-15-4T	□	4	40	32	111	50	15	+10	-21	Yes	25,000	3				

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 / Quoted Item

Cylindrical Shank (Standard) Shown

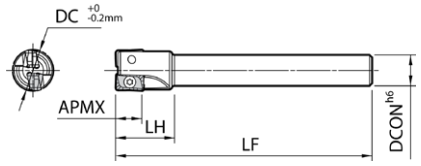


Fig. 1

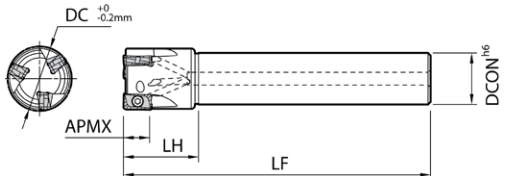


Fig. 2

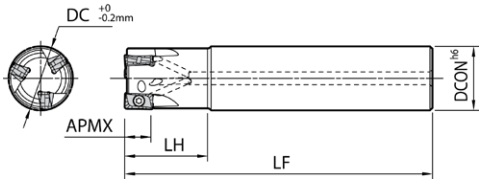


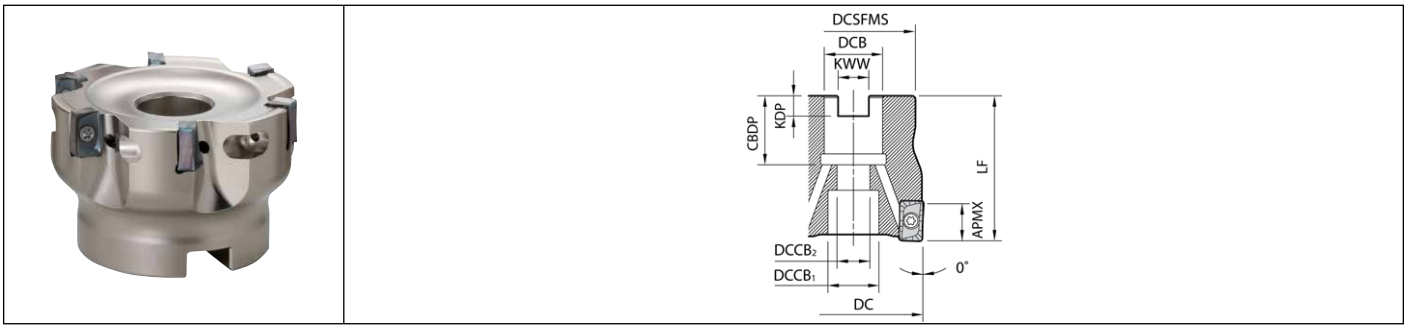
Fig. 3

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 (Page 17)
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	●	2	25	20	120	29	15	+10	-22	Yes	35,000	2	P-37	SB-4090TRP	DTPM-15	LOGT1505... LOMU1505...
			25-S25-15-2T	●			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



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Applicable Inserts Page 17
		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.

● : Standard Item

Spare Parts and Applicable Inserts (Inch End Mill/Face Mill)

Part Number	Spare Parts				Applicable Inserts Page 17			
	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.

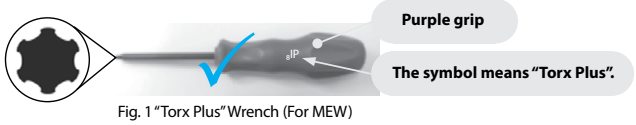


Fig. 1 "Torx Plus" Wrench (For MEW)

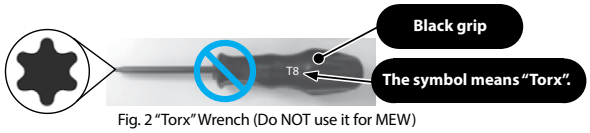
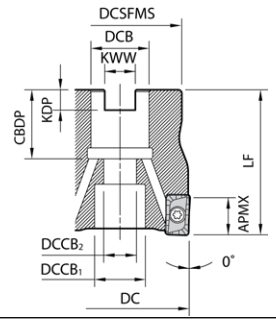


Fig. 2 "Torx" Wrench (Do NOT use it for MEW)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Applicable Inserts Page 17
		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							

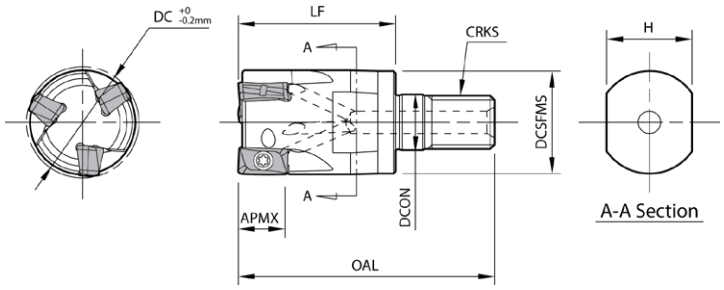
Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

● : Standard Item

Spare Parts and Applicable Inserts (Metric End Mill/Face Mill)

Part Number	Spare Parts				Applicable Inserts Page 17			
	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			HH10×30 (HH10X30H)				
063R-10_-M								
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 ( )



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Applicable Inserts Page 17
				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	●		20	10.5	18.7	48	30		M10x1.5	15				41,000	
	20-M10-10-3T	●	3										-20			
	25-M12-10-3T	●		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 **Page 12** for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

● : Standard Item

Spare Parts and Applicable Inserts (MEW Modular Type)

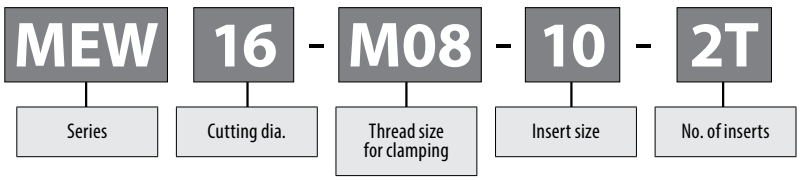
Part Number	Spare Parts			Applicable Inserts Page 17			
	Insert Screw	Wrench	Anti-Seize Compound	General Purpose	Low Cutting Force	Tough Edge (For Heavy Milling)	Non-ferrous Metals
							
MEW 16-M08-10-2T 20-M10-10-2T 20-M10-10-3T 25-M12-10-3T 32-M16-10-4T	SB-3065TRP	DTPM-8	P-37	LOMU10...-GM	LOMU10...-SM	LOMU10...-GH	LOGT10...-AM
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 1.2N·m

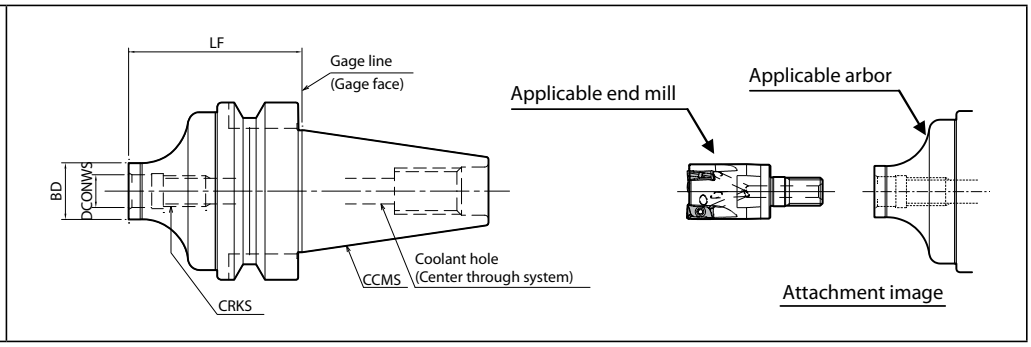
Recommended tightening torque for insert clamp 3.5N·m

 Coat anti-seize compound thinly on portion of taper and thread prior to installation.

Modular End Mill Head Identification System



BT Arbor (for Modular Head / Double-Face Clamping Spindle)

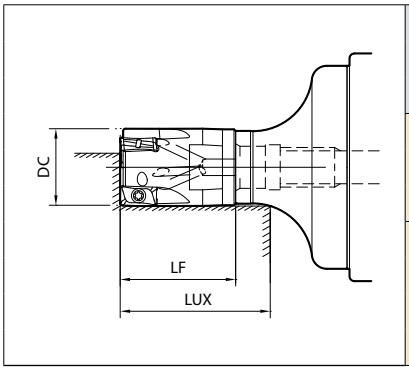


Dimensions

Unit	Part Number		Std. Item	Dimensions				Coolant Hole	Arbor (Double-Face Clamping)	Applicable Modular Head End MIII
				LF	BD	DCONWS	CRKS		CCMS	
mm	BT30K-	M08-45	●	45	14.7	8.5	M8×1.25	Yes	BT30	MEW16-M08··
		M10-45	●		18.7	10.5	M10×1.5			MEW20-M10··
		M12-45	●		23	12.5	M12×1.75			MEW25-M12··
	BT40K-	M08-55	●	55	14.7	8.5	M8×1.25	Yes	BT40	MEW16-M08··
		M10-60	●	60	18.7	10.5	M10×1.5			MEW20-M10··
		M12-55	●	55	23	12.5	M12×1.75			MEW25-M12··
		M16-65	●	65	30	17	M16×2.0			MEW32-M16··

● : Standard Item

Actual End Mill Depth



Arbor Part Number		Unit	Applicable Modular End Mill (Head)			Actual End Mill Depth
			Toolholder Part Number	Cutting Dia.	Dimensions	LUX
				DC	LF	
BT30K-	M08-45	mm	MEW16-M08··	16	25	31.8
	M10-45		MEW20-M10··	20	30	36.8
	M12-45		MEW25-M12··	25	35	42.8
BT40K-	M08-55		MEW16-M08··	16	25	31.7
	M10-60		MEW20-M10··	20	30	38.7
	M12-55		MEW25-M12··	25	35	44.6
	M16-65		MEW32-M16··	32	40	51.2

Arbor Identification System

BT30 K - M08 - 45

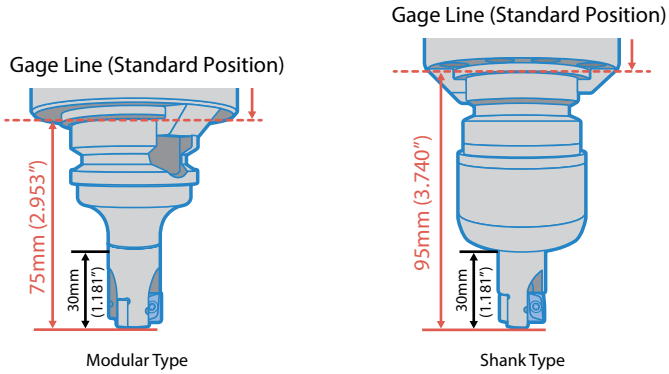
- BT30: Arbor Size
- K: Two-Face Clamping Spindle
- M08: Thread Size for Clamping
- 45: Length from the Gage

Advantages of the Modular MEW

Comparing BT30 M/C (Dual Contact Clamping Spindle) + Cutting Dia. : Ø20mm with MEW End Mill

1 Low Gage Line Reduces Chattering

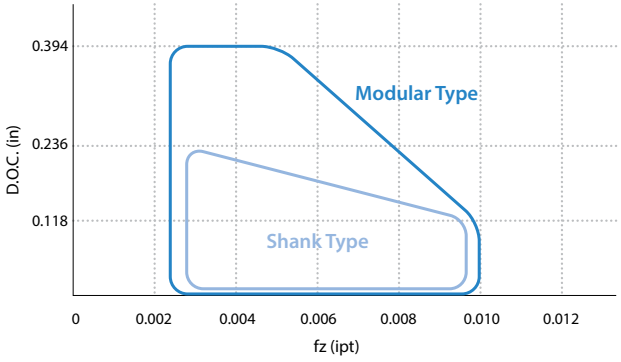
The distance from the cutting edge to the gage line is shorter with the same overhang length (30 mm / 1.181")



High Efficiency and High Quality Machining with Small M/C (BT30/BT40, etc.)

2 Applicable to a Wide Range of Applications

For a wide range of applications even in BT30 M/C

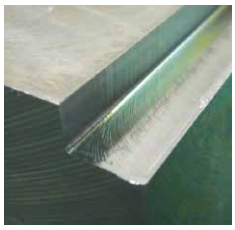


Cutting Conditions : Vc = 490 sfm, ae = 0.394", Shouldering, Dry
Workpiece : 1055 BT30 M/C

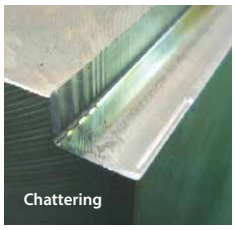
Modular
Head : MEW20-M10-10-3T, Arbor : BT30K-M10-45
Insert : LOMU100408ER-GM (PR1525)

Shank
Holder : MEW20-S20-10-3T, Arbor : BT30 Milling Chuck (Dual Contact Clamping)
Insert : LOMU100408ER-GM (PR1525)

3 Smooth Surface Finish



Modular Type



Shank Type

Cutting Conditions : Vc = 490 sfm, fz = 0.006 ipt, ae = 0.394", Shouldering, Dry
Workpiece : 1055 BT30 M/C

Modular
Head : MEW20-M10-10-3T, Arbor : BT30K-M10-45
Insert : LOMU100408ER-GM (PR1525)

Shank
Holder : MEW20-S20-10-3T, Arbor : BT30 Milling Chuck (Dual Contact Clamping)
Insert : LOMU100408ER-GM (PR1525)

How to Attach MEW Modul Head

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.

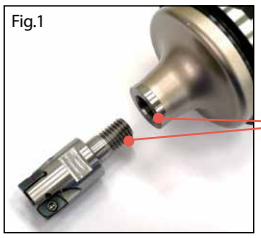
2. Attach the head on the arbor and fix it using the wrench (Fig. 2).
   See Table 1 for Recommended Torque.
   Note) The wrench is NOT included with product.

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

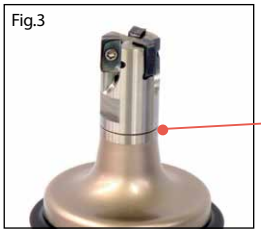


Ensure there are NO chips between the arbor and head.

Fig.2

See Table 1 for wrench size and recommended torque

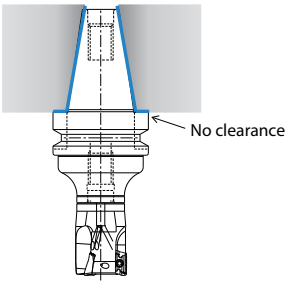
Fig.3



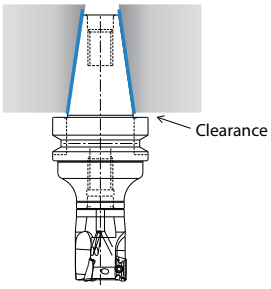
No space in between

Standard BT Spindle Mounting

It can be used as a general BT arbor, though the advantage of the dual contact clamping will not apply.



Double-face clamping arbor mounted on double-face clamping spindle



Double-face clamping arbor mounted on general spindle

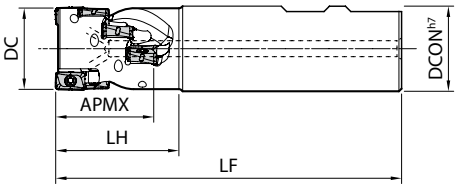


Fig. 1

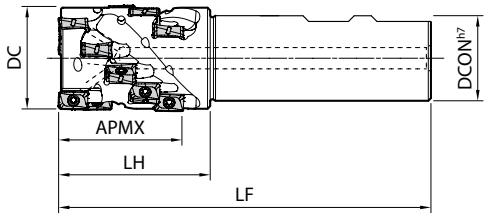


Fig. 2

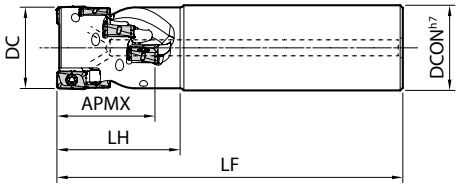


Fig. 3

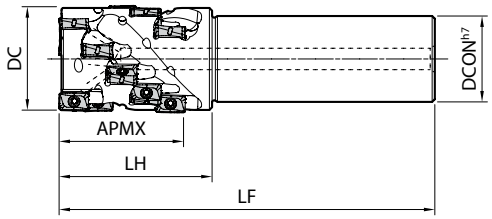


Fig. 4

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
																		
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 Recommended tightening torque for insert clamp 1.2N·m	DTPM-8	LOMU1004...
	1250-W125-10-4-2T	●	8		4	1.250	1.250	4.161	1.878	1.456				1				
	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 Recommended tightening torque for insert clamp 3.5N·m	DTPM-15	LOMU1505...
	2000-W150-15-4-3T	●	3		12	2.000	1.500	5.252						2				
mm	MEWH 025-S25-10-3-2T	●	6	2	3	25	25	120	37	28	+13	-20	Yes	3	P-37	SB-3065TRP Recommended tightening torque for insert clamp 1.2N·m	DTPM-8	LOMU1004...
	032-S32-10-4-2T	●	8		4	32	32	130	46	37				3				
	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 Recommended tightening torque for insert clamp 3.5N·m	DTPM-15	LOMU1505...
	050-S42-15-4-2T	●				50	42							4				
	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

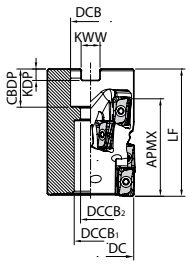


Fig. 1

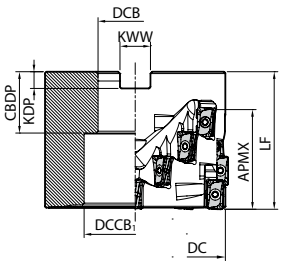


Fig. 2

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions									A.R. Max. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts				Applicable Inserts Page 17
		R				DC	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX					Anti-Seize Compound	Arbor Bolt	Insert Screw	Wrench	
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			
	080R-15-4-4T-M	●	16	4	4	80	32	26	18	70	28	8	14.4	53				1		HH16X45	Recommended tightening torque for insert clamp 3.5N-m		
	100R-15-4-5T-M	●	20	5		100	40	55	-	74	33	9	16.4					2		-			

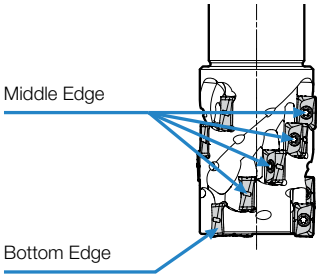
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
Aluminum machining is not recommended (AM chipbreaker is not available for MEWH)

● : Standard Item

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

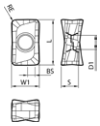
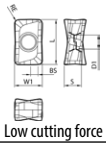
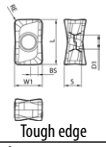
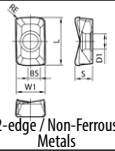
* For middle inserts, it is not recommended to use the insert with larger corner-R(RE) than shown in the table, because it will make finished surface uneven.



Applicable Inserts

LOMU/LOGT

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) S	D1	RE	L	W1	BS	Carbide CVD CA6535	DLC PDL025	PVD PR015S	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835	- GW25	Applicable Toolholder (Page 5~11, Page 15~16)
	 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 Page 18

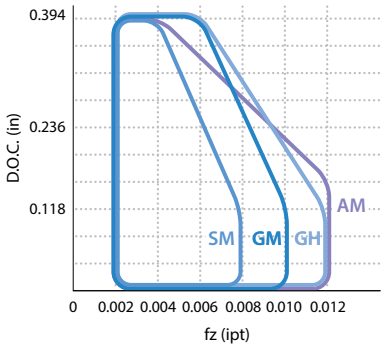
● : Standard Item △ : Phase-Out Item

LOMU...ER-GM Insert Appearance

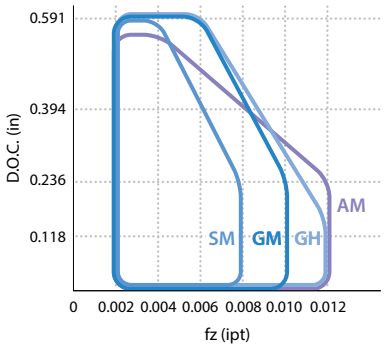
LOMU100404ER-GM LOMU150504ER-GM	LOMU100408ER-GM LOMU150508ER-GM
 04 Marking on Insert	 08 Has No Dimension Marking
LOMU150510ER-GM	LOMU100412ER-GM LOMU150512ER-GM
 10 Marking on Insert	 12 Marking on Insert
LOMU100416ER-GM LOMU150516ER-GM	LOMU100420ER-GM LOMU150520ER-GM
 16 Marking on Insert	 20 Marking on Insert

Applicable Chipbreaker Range (Shouldering)

LOMU10 Insert



LOMU15 Insert



Cutting Conditions : Vc = 490 sfm, ae = DC/2 Workpiece : 1049

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.

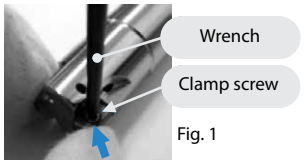


Fig. 1

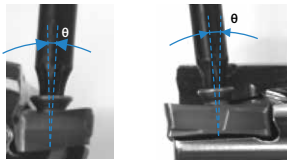


Fig. 2

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	-	-	-	-	-		

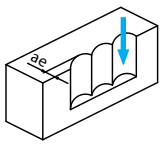
Bold numbers in the table indicate the most recommended value of feed (f). Adjust cutting speed and feed rate according to the actual machining conditions.
Coolant is recommended for Ni-base heat-resistant alloy and titanium alloy with MEW.
Coolant is recommended for stainless steel, Ni-base heat-resistant alloy, and titanium alloy with MEWH.

★ : 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.

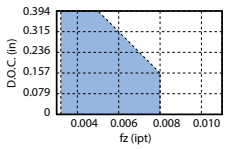
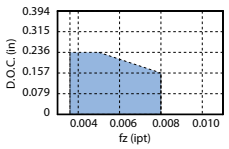
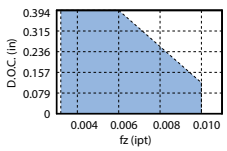
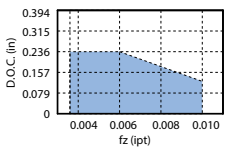
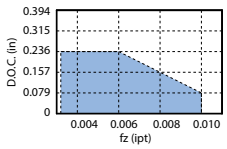
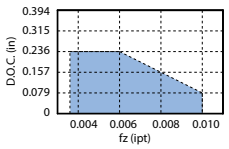
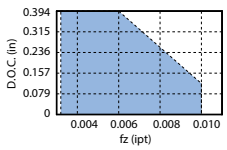
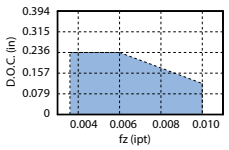
Vertical Milling (Plunging)



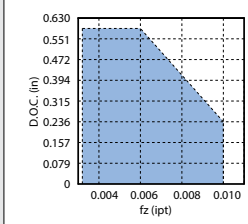
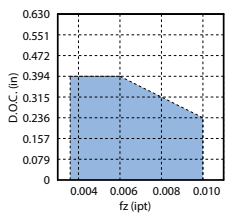
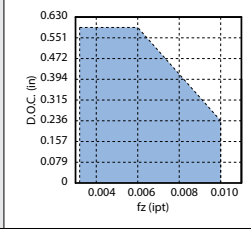
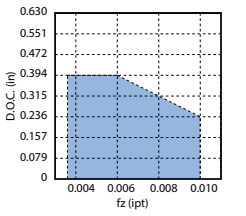
Insert description	Max. width of cut
LOMU10 type	5mm
LOMU15 type	7mm

MEW Cutting Performance

LOMU1004 Inserts

Part Number	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		

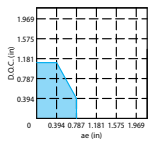
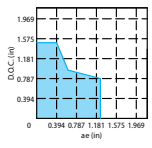
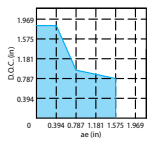
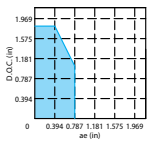
LOMU1505 Inserts

Part Number	Shouldering (Cutting Width ae=DC/2)	Slotting
MEW1000...-15 ~ MEW1500...-15 MEW25...-15 ~ MEW50...-15		
MEW2000R...-15 ~ MEW3000R...-15 MEW040R...-15 ~ MEW080R...-15		

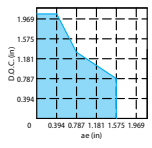
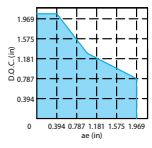
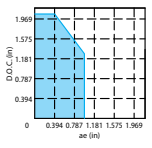
<Cutting Conditions>
· Vc = 600 sfm
· GM Chipbreaker
· Workpiece Material: 1049
· Overhang Length
1. End Mill: Same length as LH of the dimension
2. Face Mill: LF of the dimension + minimum overhang length of the arbor

MEWH Cutting Performance

LOMU1004 Inserts

Cutting Dia.	Part Number	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	

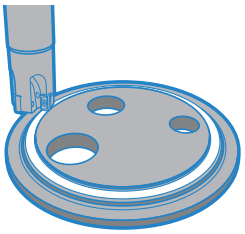
LOMU1505 Inserts

Cutting Dia.	Part Number	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

Case Studies (MEW)

Construction Equipment Part
A36



Vc = 820 sfm
fz = 0.006 ipt (Vf = 53.150 ipm)
D.O.C. × ae = 0.158" × 0.787"
Wet
MEW1250-W100-10-4T (4 Flutes)
LOMU100408ER-GM (PR1525)

Chip Removal Rate

Machining Efficiency

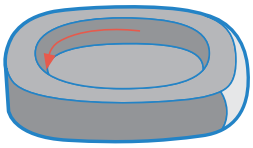
PR1525 **108 cc/min** 1.5x

Competitor L (Positive Cutter) **72 cc/min**

MEW showed stable milling without chattering at higher feed rates, improving the cutting efficiency by 150%. Burrs are prevented and excellent surface finish is achieved.

(User Evaluation)

Mold Part
H13 (45HRC)



Vc = 330 sfm
fz = 0.004 ipt (Vf = 15.748 ipm)
D.O.C. × ae = 0.138" × 1.181"
Dry
MEW1250-W100-10-4T (4 Flutes)
LOMU100408ER-GH (PR1525)

Chip Removal Rate

Machining Efficiency

PR1525 **42 cc/min (Further Milling Possible)** 2x

Competitor M (Positive Cutter) **21 cc/min** **(Unable to Continue Cutting)**

MEW doubled cutting efficiency while MEW inserts also have double the number of edges (4-edge) for drastic cost reduction.

(User Evaluation)

KYOCERA

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