90° Milling with Double Sided 4-edge Inserts

MEW Series

Low Cutting Forces Equivalent to Positive Inserts with Chattering Resistance for Excellent Surface Finish

Economical 4-edge Insert
MEWH Helical End Mill Added
Improved Toolholder Durability and Insert Installation Accuracy

NEW DLC Coating for Machining Aluminum Grade PDL025 Added to the Lineup

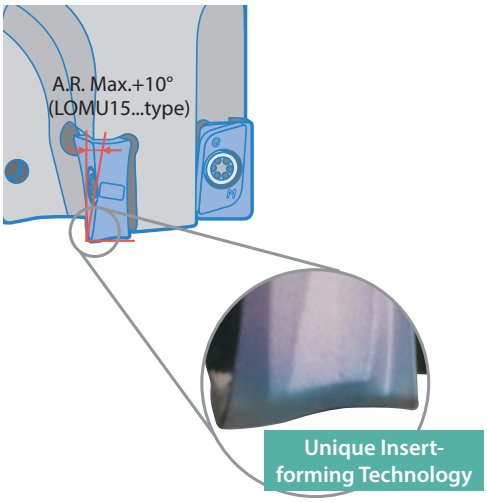
90°End Mill with Double Sided 4-edge Insert

MEW

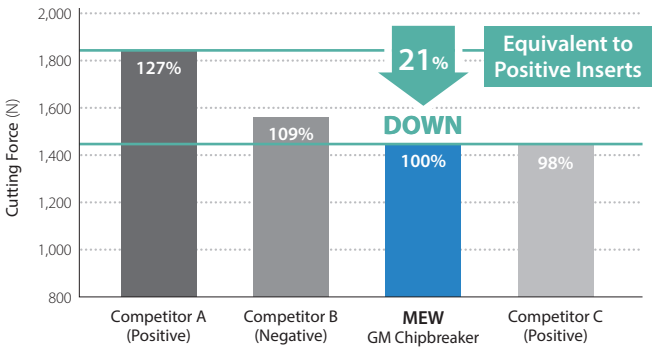
Low Cutting Forces Equivalent to Positive Inserts with Chattering Resistance for Excellent Surface Finish
DLC Coating PDL025 for Machining Aluminum Added to the Lineup for a Wide Range of Milling Applications

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)

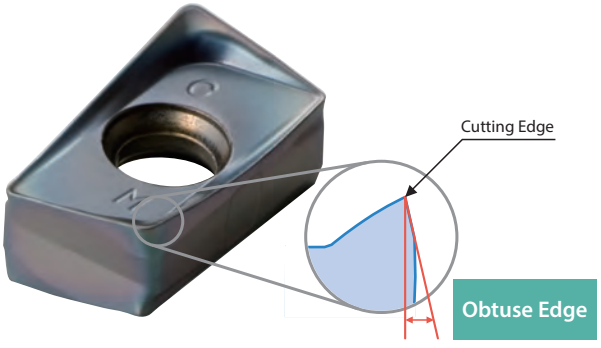


Cutting force is the resultant force of the principal force and the feed force

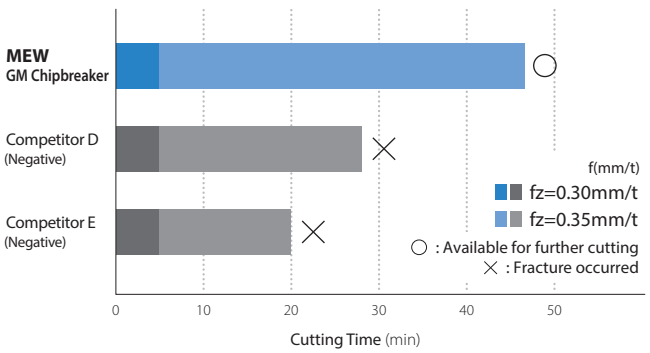
Cutting Conditions : Vc = 150 m/min, fz = 0.15 mm/t, ap × ae = 3 × 15 mm
Cutter Dia. ø20 mm Workpiece : S50C

2 Excellent Fracture Resistance

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



Fracture Resistance Comparison (In-house Evaluation)



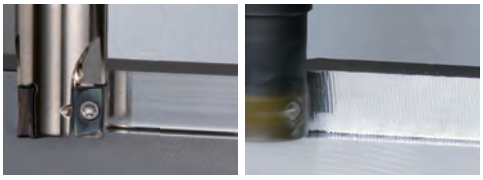
Cutting Conditions : Vc = 120 m/min, fz = 0.3 - 0.35 mm/t, ap × ae = 3 × 10 mm
Cutter Dia. ø20 mm Workpiece : SCM440H (37 - 39HS)

3 Improved Surface Finish & Minimized Vibration

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

Surface of Shoulder Wall (In-house Evaluation)

MEW | Competitor F Positive Cutter

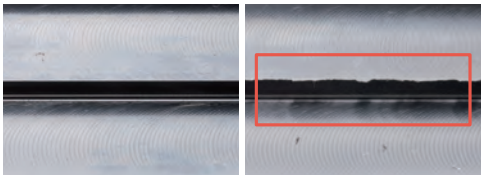


Chatter

Cutting Conditions : Vc = 240 m/min, fz = 0.12 mm/t, ap × ae = 4 × 5 mm
Cutter Dia. ø20 mm, Dry Workpiece : SS400

Burr Comparison with Positive Cutters (In-house Evaluation)

MEW | Competitor G Positive Cutter



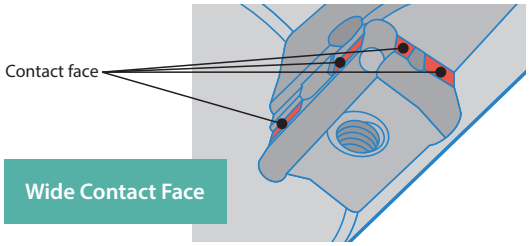
Burr

Cutting Conditions : Vc = 250 m/min, fz = 0.1 mm/t, ap × ae = 4 × 5 mm
Cutter Dia. ø20 mm, Dry Workpiece : S50C

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

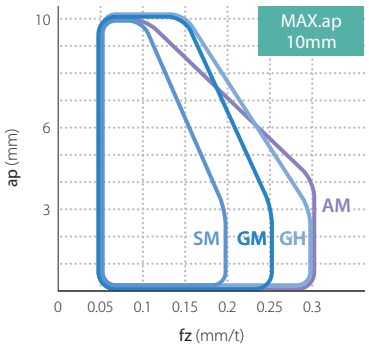
4 types of chipbreakers for a wide range of applications along with a large lineup of corner R (rε) for the GM chipbreaker

Chipbreaker	Application	Shape
GM	General Purpose	
SM	Low cutting force	
GH	Heavy milling	
AM	Non-ferrous Metals・Aluminum	

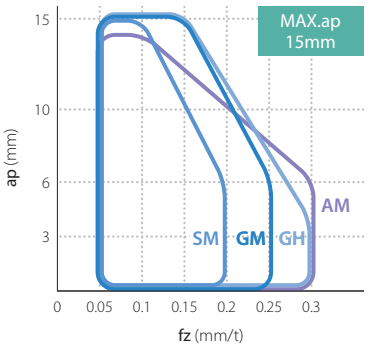
NEW

Chipbreaker Recommended Applications (Shouldering)

LOMU10type



LOMU15type



Chips (GM Chipbreaker)

Grooving

Shouldering

90° Helical End Mill with Double Sided 4-edge Inserts

MEWH

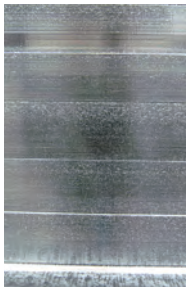
Excellent Surface Finish and Stable Machining due to the Innovative Toolholder Design
Economical 4-edge Inserts

1 Improved Surface Finish & Minimized Vibration

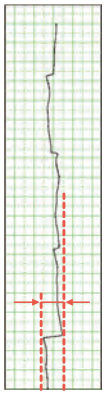
Better Surface Quality than Competitor

Surface Finish Comparison (In-house Evaluation)

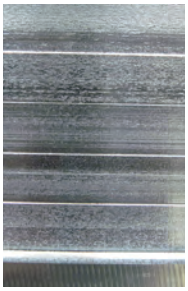
MEWH

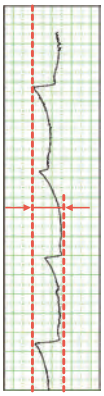


Smooth Surface Finish



Competitor J





Cutting Conditions : Vc = 120 m/min, fz = 0.1 mm/t, ap × ae = 45 × 5 mm, Dry
MEWH040S32-10-5-3T LOMU100408ER-GM (PR1525)
Workpiece : SCM435

2 Excellent Chip Evacuation

Chips are constantly evacuated in the opposite direction of the cutter feed without clogging

Chipbreaker	Workpiece	fz = 0.15 mm/t	fz = 0.2 mm/t
GM	SCM435		
GM	SS400		
SM			

Cutting Conditions : Vc = 120 m/min, ap × ae = 20 × 15 mm, Dry

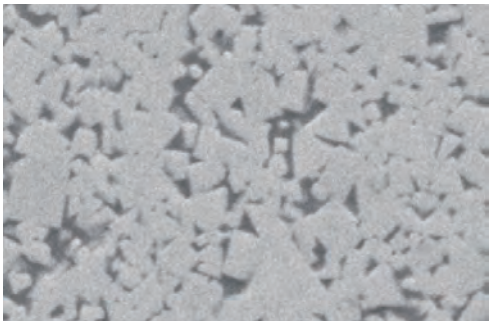
MEGACOAT NANO **PR1535**

Fracture resistant with a tough substrate and high heat-resistant coating

Stable machining of general steel, mold steel, and difficult-to-cut materials

1 Toughening by a New Cobalt Mixing Ratio *In-house Evaluation

High Toughness Carbide Base Material



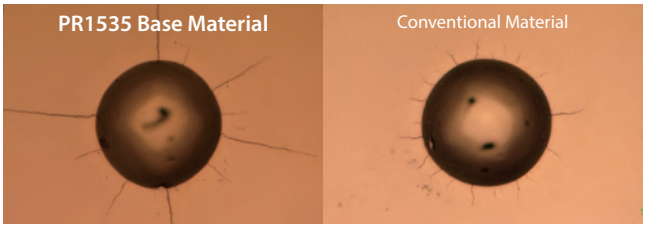
UP 23% Fracture Toughness*

2 Stability Improvement

The coarse grain structure and uniform particle size correspond to improved heat resistance, with conductivity values decreased by 11%. The uniform structure also reduces crack propagation.

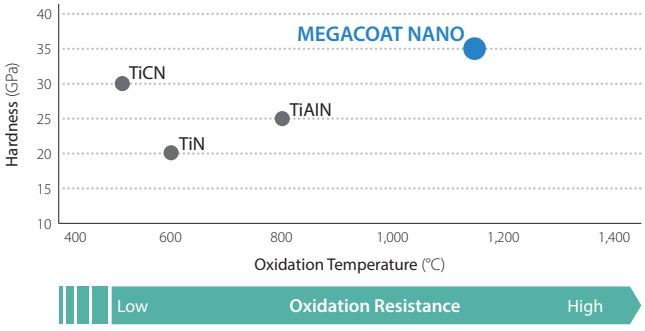
UP Shock Resistance

Cracking Comparison by Diamond Indentor (In-house Evaluation)



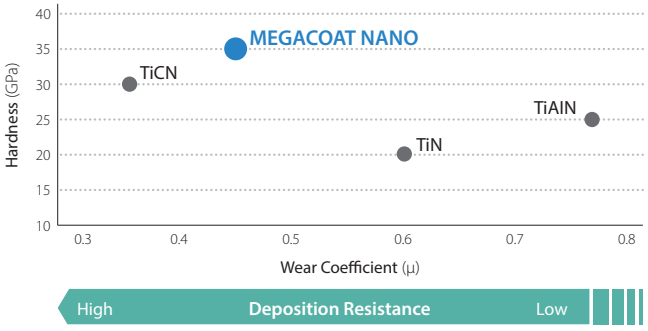
Short Cracks　　Long Cracks

Coating Properties (Abrasion Resistance)



Achieve long tool life with the combination of a tough substrate and a special Nano coating layer

Coating Properties (Deposition Resistance)



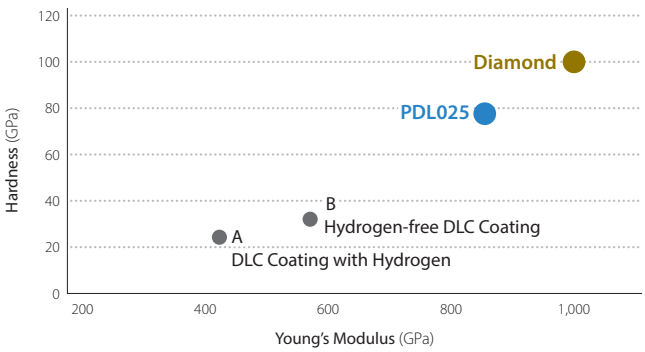
Stable Machining with Excellent Wear Resistance

NEW DLC Coated Carbide **PDL025**

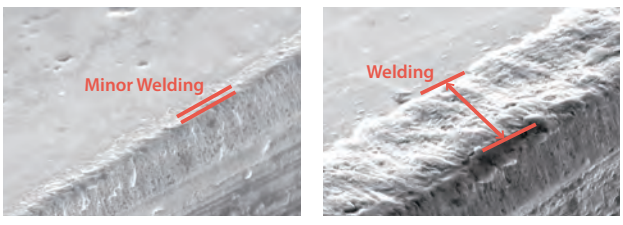
High Quality and Long Tool Life for Machining Aluminum

High Hardness with Kyocera's Proprietary Hydrogen-free DLC Coating

Coating Properties



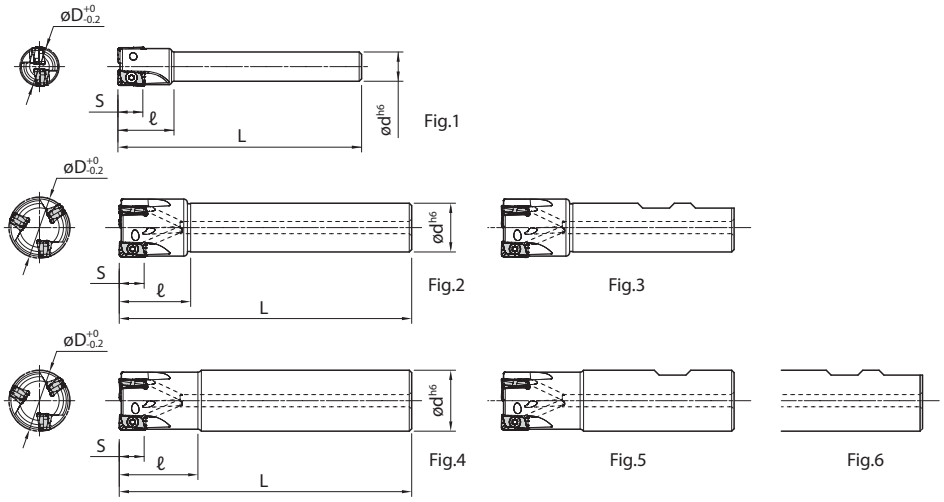
Deposition Resistance Comparison (In-house Evaluation)



PDL025　　Competitor K

Cutting Conditions : Vc = 800 m/min, fz = 0.1 mm/t, ap × ae = 3 × 5 mm, Dry
Cutter Dia. ø25 mm　Workpiece : A5052　Cutting Length : 57 m

(Cylindrical)



Dimensions

Description				Stock	No. of Inserts	Dimensions (mm)					A.R.		Coolant Hole	Shape	Max.Revolution (min-1)
						øD	ød	L	ℓ	S	A.R.(MAX.)	R.R.			
Cylindrical	Standard(Straight)	MEW	16-S12-10-2T	●	2	16	12	100	23	10	+7°	-22°	-	Fig.1	43,750
			18-S16-10-2T	●		18	16		25			-21°	Yes	Fig.2	43,000
			20-S16-10-2T	●		20		110	26			-20°			41,000
			22-S20-10-3T	●	3	22	20								39,600
			25-S20-10-3T	●		25		120	29						37,500
			28-S25-10-3T	●		28	25								35,800
			30-S25-10-4T	●	4	30		130	32						34,800
			32-S25-10-4T	●		32									33,900
			40-S32-10-5T	●	5	40	32	150	50			-19°			30,000
			50-S32-10-5T	●		50		120	40						22,500
	Same Shank Size(Straight)	MEW	16-S16-10-2T	●	2	16	16	100	26	10	+7°	-22°	Yes	Fig.4	43,750
			20-S20-10-2T	●		20	20	110	30			-20°			41,000
			20-S20-10-3T	●	3										41,000
			25-S25-10-2T	●	2	25	25	120	32						37,500
			25-S25-10-3T	●	3										37,500
			32-S32-10-3T	●		32	32	130	40						33,900
			32-S32-10-4T	●	4										33,900
	Long Shank (Straight)	MEW	20-S20-10-150-2T	●	2	20	20	150	40	10	+7°	-20°	Yes	Fig.4	41,000
			25-S25-10-170-2T	●		25	25	170	50						37,500
	Standard (Straight)	MEW	25-S20-15-2T	●	2	25	20	120	29	15	+10°	-22°	Yes	Fig.2	35,000
			32-S25-15-2T	●		32	25	130	32						30,000
			40-S32-15-3T	●	3	40	32	150	50			-21°			25,000
			40-S32-15-4T	●	4										25,000
			50-S32-15-4T	●		50		120	40						17,000
	Same Shank Size	MEW	25-S25-15-2T	●	2	25	25	120	32	15	+10°	-22°	Yes	Fig.4	35,000
			32-S32-15-2T	●		32	32	130	40						30,000
			32-S32-15-3T	●	3										30,000
Standard(Weldon)	Standard (Weldon)	MEW	40-W32-10-5T	BTO	5	40	32	111	50	10	+7°	-19°	Yes	Fig.3	30,000
		MEW	40-W32-15-4T	BTO	4					15	+10°	-21°			25,000
	Same Shank Size(Weldon)	MEW	16-W16-10-2T	BTO	2	16	16	75	25	10	+7°	-22°	Yes	Fig.5	43,750
			20-W20-10-2T	BTO		20	20	77				-20°			41,000
			20-W20-10-3T	BTO	3										41,000
			25-W25-10-2T	BTO	2	25	25	90	32					Fig.6	37,500
			25-W25-10-3T	BTO	3										37,500
			32-W32-10-4T	BTO	4	32	32	102	40						33,900
		MEW	25-W25-15-2T	BTO	2	25	25	90	32	15	+10°	-22°	Yes	Fig.6	35,000
			32-W32-15-3T	BTO	3	32	32	102	40						30,000

Caution with Max. Revolution
When running cutters at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

● : Standard Stock
BTO : Build to Order

MEW Face Mill

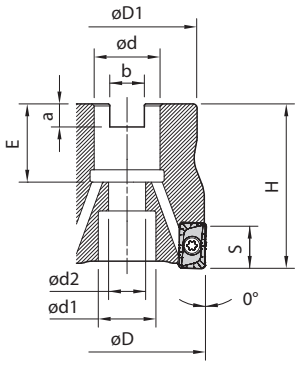


Fig.1

Dimensions

Description		Stock	No. of Inserts	Dimensions (mm)										A.R.		Coolant Hole	Shape	Weight (kg)	Max.Revolution (min-1)
				øD	øD1	ød	ød1	ød2	H	E	a	b	S	A.R. (MAX.)	R.R.				
MEW	032R-10-4T-M	●	4	32	30	16	14	9	35	19	5.6	8.4	10	+7°	-20°	Yes	Fig.1	0.1	33,900
	040R-10-5T-M	●	5	40	34				40						-19°			0.2	30,000
	050R-10-5T-M	●		50	45	22	18	11		21	6.3	10.4						0.4	22,500
	063R-10-6T-M	●	6	63	47													0.5	20,500
MEW	040R-15-4T-M	●	4	40	34	16	14	9	40	19	5.6	8.4	15	+10°	-21°	Yes	Fig.1	0.2	25,000
	050R-15-4T-M	●		50	45	22	18	11		21	6.3	10.4						0.3	17,000
	063R-15-5T-M	●	5	63	47													0.5	14,500
	080R-15-6T-M	●	6	80	60	27	20	13	50	25	7	12.4			-20°			1.0	12,000
	080R-15-6T	●				25.4				27	6	9.5						1.0	12,000

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.

●: Standard Stock

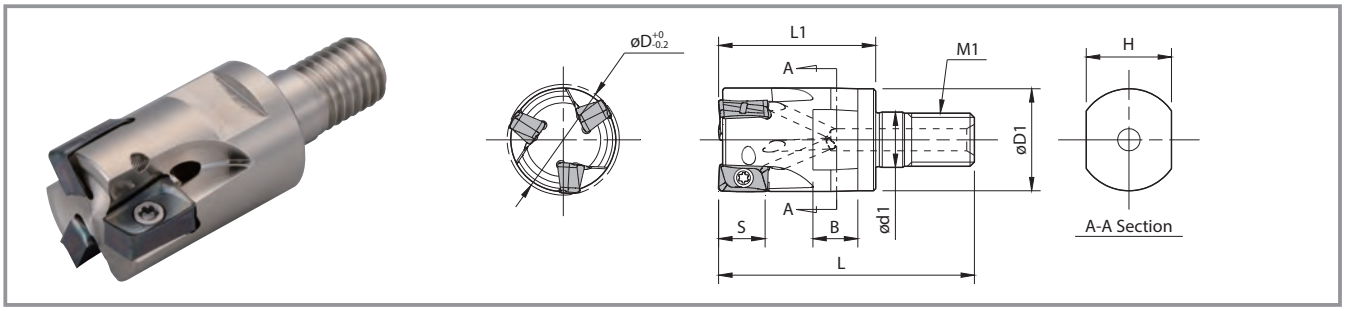
Spare Parts and Applicable Inserts (Common to End Mill and Face Mill)

Description		Spare Parts				Applicable Inserts			
		Clamp Screw	Wrench	Anti-Seize Compound	Mounting Bolt	General Purpose	Low Cutting Force	Tough Edge (Heavy Milling)	Non-ferrous Metals • Alminum
MEW	…-10-_T	SB-3065TRP	DTPM-8	P-37	—	LOMU 1004 · · ER-GM	LOMU 100408ER-SM	LOMU 100408ER-GH	LOGT 100408FR-AM
MEW	032R-10-4T-M	Recommended torque for insert clamp1.2N · m			HH8×25				
	040R-10-5T-M								
	050R-10-5T-M				HH10×30				
	063R-10-6T-M								
MEW	…-15-_T	SB-4090TRP	DTPM-15	P-37	—	LOMU 1505 · · ER-GM	LOMU 150508ER-SM	LOMU 150508ER-GH	LOGT 150508FR-AM
MEW	040R-15-4T-M	Recommended torque for insert clamp 3.5N · m			HH8×25				
	050R-15-4T-M				HH10×30				
	063R-15-5T-M								
	080R-15-6T(-M)				HH12×35				

Coat Anti-seize Compound (MP-1) thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions ➡ P14

MEW Modular End Mill



Dimensions

Description		Stock	No. of Inserts	Dimensions (mm)									A.R.		Coolant Hole	Applicable Inserts	Max.Revolution (min-1)
				øD	øD1	ød1	L	L1	M1	H	B	S	A.R. (MAX.)	R.R.			
MEW	16-M08-10-2T	●	2	16	14.7	8.5	43	25	M8×P1.25	12	8	10	+7°	-22°	Yes	LOMU1004 LOGT1004	43,750
	20-M10-10-2T	●		20	18.7	10.5	49	30	M10×P1.5	15	9			-20°			41,000
	20-M10-10-3T	●	3														41,000
	25-M12-10-3T	●		25	23	12.5	57	35	M12×P1.75	19	10						37,500
	32-M16-10-4T	●	4	32	30	17	63	40	M16×P2.0	24	12						33,900
MEW	25-M12-15-2T	●	2	25	23	12.5	57	35	M12×P1.75	19	10	15	+10°	-22°	Yes	LOMU1505 LOGT1505	35,000
	32-M16-15-3T	●	3	32	30	17	63	40	M16×P2.0	24	12						30,000

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.

● : Standard Stock

Spare Parts and Applicable Inserts

Description		Spare Parts			Applicable Inserts			
		Clamp Screw	Wrench	Anti-Seize Compound	General Purpose	Low Cutting Force	Tough Edge (Heavy Milling)	Non-ferrous Metals • Alminum
								
MEW	16-M08-10-2T	SB-3065TRP	DTPM-8	P-37	LOMU 1004 · · ER-GM	LOMU 100408ER-SM	LOMU 100408ER-GH	LOGT 100408FR-AM
	20-M10-10-2T	Recommended torque for insert clamp1.2N · m						
	20-M10-10-3T							
	25-M12-10-3T							
	32-M16-10-4T							
MEW	25-M12-15-2T	SB-4090TRP	DTPM-15	P-37	LOMU 1505 · · ER-GM	LOMU 150508ER-SM	LOMU 150508ER-GH	LOGT 150508FR-AM
	32-M16-15-3T	Recommended torque for insert clamp 3.5N · m						

Coat Anti-seize Compound thinly on portion of taper and thread when insert is fixed.

Modular End Mill Head Identification System

MEW **16** - **M08** - **10** - **2T**

- MEW: Series
- 16: Cutting Dia.
- M08: Thread Size for Clamping
- 10: Insert Size
- 2T: No. of inserts

Wrenches and clamp screws are "Torx Plus".

1) See Fig. 1 for "Torx Plus" Wrench. (Purple Grip)
2) See Fig. 2 for "Torx" Wrench. (Black Grip)

"Torx Plus" Wrench and "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.

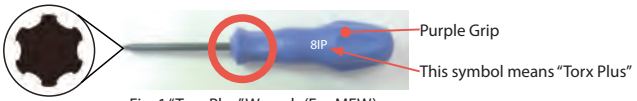


Fig. 1 "Torx Plus" Wrench (For MEW)

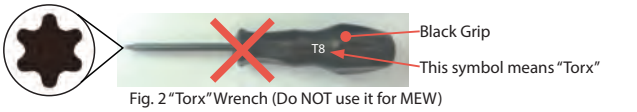
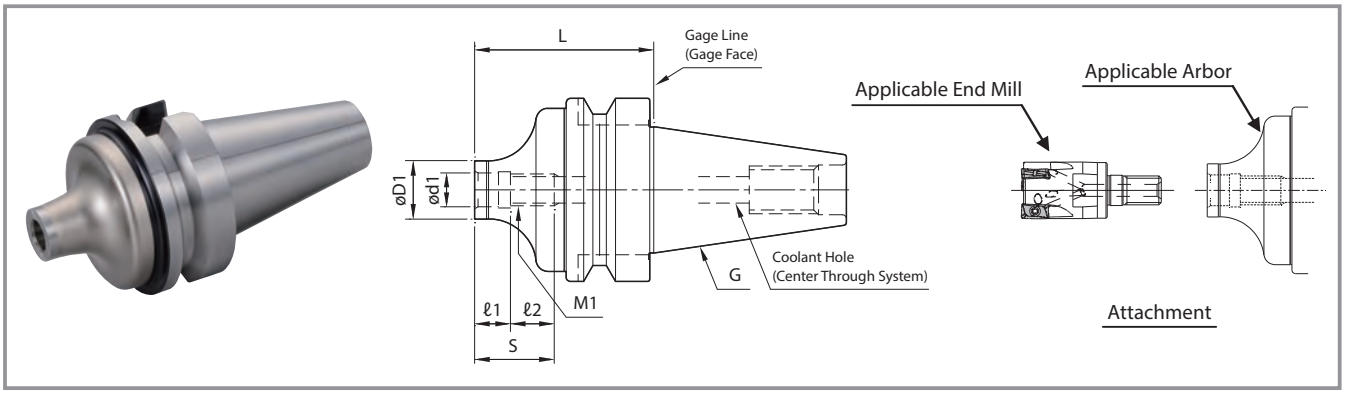


Fig. 2 "Torx" Wrench (Do NOT use it for MEW)

BT Arbor (for exchangeable head/two face contact)

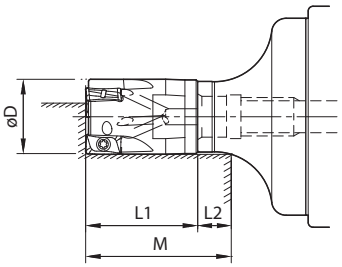


Dimensions

Description		Stock	Dimensions (mm)							Coolant Hole	Arbor(Two-face clamping)	Applicable End Mill (Head)
			L	øD1	ød1	S	ℓ1	ℓ2	M1		G	
BT30K-	M08-45	●	45	14.7	8.5	20	9	11	M8×P1.25	Yes	BT30	MEW16-M08··
	M10-45	●		18.7	10.5	21		12	M10×P1.5			MEW20-M10··
	M12-45	●		23	12.5	24		15	M12×P1.75			MEW25-M12··
BT40K-	M08-55	●	55	14.7	8.5	20	9	11	M8×P1.25	Yes	BT40	MEW16-M08··
	M10-60	●	60	18.7	10.5	21		12	M10×P1.5			MEW20-M10··
	M12-55	●	55	23	12.5	24		15	M12×P1.75			MEW25-M12··
	M16-65	●	65	30	17	25		16	M16×P2.0			MEW32-M16··

● : Standard Stock

Actual End Mill Depth



Arbor Description		Applicable End Mill (Head)			Actual End Mill Depth (mm)	
		Description	Cutting Dia.	Dimension	M	L2
			øD	L1		
BT30K-	M08-45	MEW16-M08··	ø16	25	31.8	6.8
	M10-45	MEW20-M10··	ø20	30	36.8	6.8
	M12-45	MEW25-M12··	ø25	35	42.8	7.8
BT40K-	M08-55	MEW16-M08··	ø16	25	31.7	6.7
	M10-60	MEW20-M10··	ø20	30	38.7	8.7
	M12-55	MEW25-M12··	ø25	35	44.6	9.6
	M16-65	MEW32-M16··	ø32	40	51.2	11.2

Arbor Identification System

BT30 **K** - **M08** - **45**

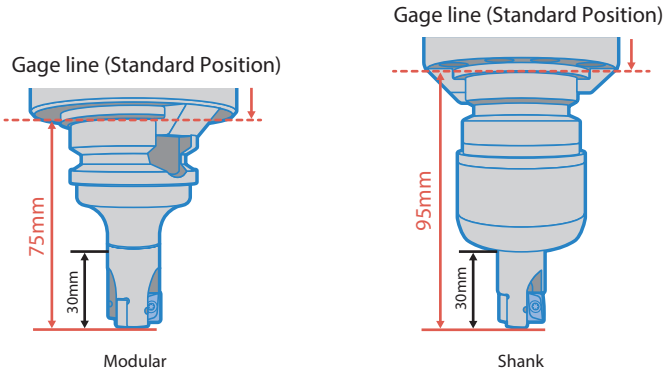
- BT30 — Arbor Size
- K — Two-Face Clamping Spindle
- M08 — Thread Size for Clamping
- 45 — Length from the Gage

Advantages of the Modular MEW

BT30 M/C (Two-face Clamping Spindle) + Cutting Dia. : ø20 Comparison with MEW End Mill

1 Low Gage Line Reduces Chattering

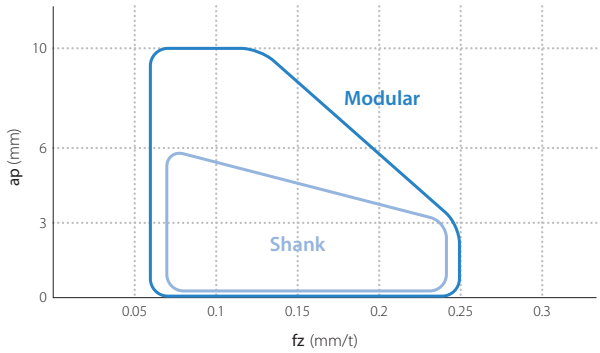
The distance from the cutting edge to the gage line is shorter with the same overhang length (30 mm)



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

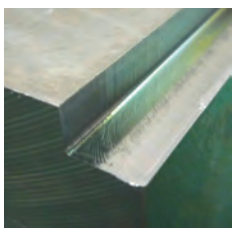


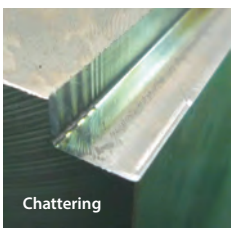
Cutting Conditions : Vc = 150 m/min, ae = 10 mm, Shouldering, Dry
Workpiece : S55C BT30 M/C

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

Shank
Holder : MEW20-S20-10-3T, Arbor : BT30 Milling Chuck(Two-face clamping)
Insert : LOMU100408ER-GM(PR1525)

3 Smooth Surface Finish


Modular



Shank

Cutting Conditions : Vc = 150 m/min, fz = 0.15 mm/t, ae = 10 mm, Shouldering, Dry
Workpiece : S55C 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(Two-face clamping)
Insert : LOMU100408ER-GM(PR1525)

How to Mount the Inserts

1. Be sure to remove dust and chips from the insert mounting pocket.
2. Apply anti-seize compound on portion of taper and thread of clamp screw.
   Attach the screw (magnetic head) to the front end of the wrench.
   While lightly pressing the insert against the pocket walls, put the screw into the hole of the insert and tighten. (See Fig. 1.)
   Tighten M3 screws (SB-3065TRP) slightly inclined from the insert surface. (See Fig. 2.)
3. When tightening the screw, make sure that the wrench is parallel to the screw.
   For recommended torque, see Table 1
4. 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 pocket walls of the holder. If there is any clearance, remove the insert and mount it again according to the above steps.

Fig.1

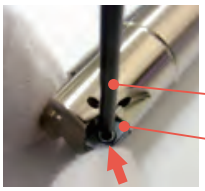
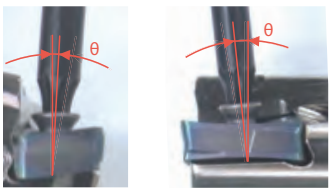


Fig.2



How to Attach Modular MEW 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 Torque

Thread Dia. Tolerance	Wrench Width across flat (mm)	Recommended torque (N・m)
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

Fig.2

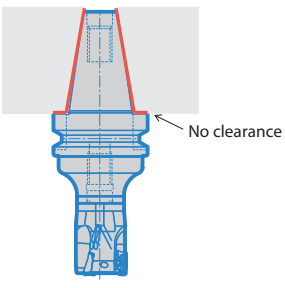
Fig.3

Frequently Asked Question

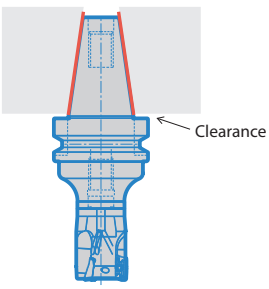
Q. Can the two-face clamping arbor be mounted on a general BT spindle?

A. Yes. It can be used as a general BT arbor with a general BT spindle.

It can be used as a general BT arbor, though the advantage of the two-face clamping will not apply.



Two-face Clamping Arbor Mounted on Two-face Clamping Spindle



Two-face Clamping Arbor Mounted on General Spindle

MEWH End Mill (Coolant hole for bottom insert)

Rake Angle	A.R. (MAX.)	R.R.
	+13°	-20°

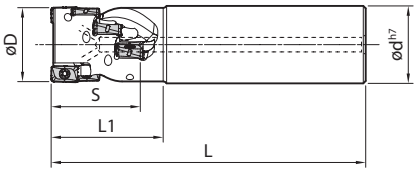


Fig.1

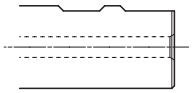


Fig.3

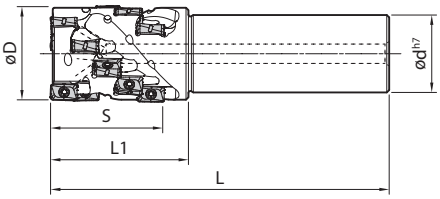


Fig.2

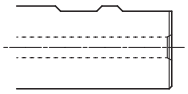


Fig.4

Dimension

Description		Stock	No. of Flute	No. of Stage	No. of Insert	Dimensions (mm)					Coolant Hole	Shape	Spare Parts			Applicable Inserts
						øD	ød	L	L1	S			Clamp Screw	Wrench	Anti-Seize Compound	
MEWH	025-S25-10-3-2T	●	2	3	6	25	25	120	37	28	Yes	Fig.1	SB-3065TRP	DTPM-8	P-37	LOMU1004··
	032-S32-10-4-2T	●		4	8	32	32	130	46	37			Recommended torque for insert clamp 1.2N·m			
	040-S32-10-5-2T	●		5	10	40		140	57	46		Fig.2				
	040-S32-10-5-3T	●	3		15											
MEWH	040-S32-15-4-2T	●	2	4	8	40	32	160	63	53	Yes	Fig.2	SB-4090TRP	DTPM-15	P-37	LOMU1505··
	050-S42-15-4-2T	●				50	42						Recommended torque for insert clamp 3.5N·m			
	050-S42-15-4-3T	●	3		12											
MEWH	025-W25-10-3-2T	●	2	3	6	25	25	95	37	28	Yes	Fig.3	SB-3065TRP	DTPM-8	P-37	LOMU1004··
	032-W32-10-4-2T	●		4	8	32	32	108	46	37			Recommended torque for insert clamp 1.2N·m			
	040-W32-10-5-2T	●		5	10	40		119	57	46		Fig.4				
	040-W32-10-5-3T	●	3		15											
MEWH	040-W32-15-4-2T	●	2	4	8	40	32	125	63	53	Yes	Fig.4	SB-4090TRP	DTPM-15	P-37	LOMU1505··
	050-W40-15-4-2T	●				50	40	135					Recommended torque for insert clamp 3.5N·m			
	050-W40-15-4-3T	●	3		12											

Coat Anti-seize Compound thinly on portion of taper and thread when insert is fixed.
Aluminum machining is not recommended (AM Chipbreaker is not available for MEWH)

● : Standard Stock
Recommended Cutting Conditions ➡ P14

Applicable insert for MEWH

Insert Location Indication	Toolholder Description										
	MEWH···10···					MEWH···15···					
	Corner R(rε) (mm)					Corner R(rε) (mm)					
Bottom Edge	0.4	0.8	1.2	1.6	2.0	0.4	0.8	1.0	1.2	1.6	2.0
*Middle Edge	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 Edges, It is not recommended to use the insert with larger corner R (rε) than shown in the table, because it will make finished surface uneven.

MEWH Shell Mill (without coolant hole)

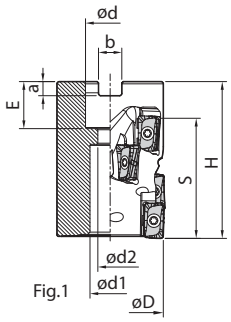


Fig.1

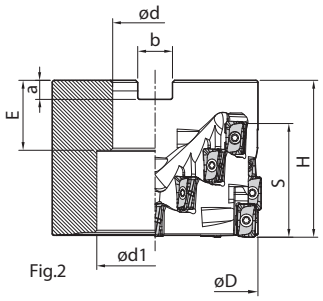


Fig.2

Rake Angle	A.R. (MAX.)	R.R.
	+13°	-20°

Dimension

Description		Stock	No. of Flute	No. of Stage	No. of Insert	Dimensions (mm) øD	ød	ød1	ød2	H	E	a	b	S	Shape	Spare Parts: Clamp Screw	Wrench	Anti-Seize Compound	Mounting Bolt	Applicable Inserts
MEWH	040R-10-4-3T-M	●	3	4	12	40	16	15	9	53	19	5.6	8.4	37	Fig.1	SB-3065TRP	DTPM-8	P-37	HH8X25	LOMU1004··
	050R-10-5-3T-M	●		5	15	50	22	18	11	64	21	6.3	10.4	46		Recommended torque for insert clamp 1.2N·m			HH10X30	
MEWH	050R-15-4-3T-M	●	3	4	12	50	22	18	11	70	21	6.3	10.4	53	Fig.1	SB-4090TRP	DTPM-15	P-37	HH10X30	LOMU1505··
	063R-15-3-3T-M	●		3	9	63	27	20	13	58	24	7	12.4	41		Recommended torque for insert clamp 3.5N·m			HH12X35	
	080R-15-4-4T-M	●	4	4	16	80	32	26	18	70	28	8	14.4	53					HH16X45	
	100R-15-4-5T-M	●	5		20	100	40	55	—	74	33	9	16.4		Fig.2				—	

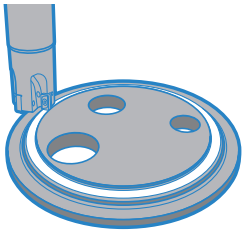
Coat Anti-seize Compound thinly on portion of taper and thread when insert is fixed.
Aluminum machining is not recommended (AM Chipbreaker is not available)

●: Standard Stock
Recommended Cutting Conditions ➡ P14

Case Studies (MEW)

Construction equipment's part SS400

Vc = 250 m/min
fz = 0.14 mm/t (Vf = 1,350 mm/min)
ap × ae = 4 × 20 mm
Wet
MEW32-S32-10-4T (4 inserts)
LOMU100408ER-GM (PR1525)



Chip Removal Rate

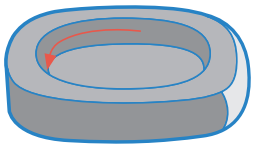
		Machining Efficiency
PR1525	108cc/min	1.5 Times
Competitor L (Positive Cutter)	72cc/min	

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

(User Evaluation)

Mold Part SKD61 (45HRC)

Vc = 100 m/min
fz = 0.1mm/t (Vf = 400 mm/min)
ap × ae = 3.5 × 30 mm
Dry
MEW32-S32-10-4T (4 inserts)
LOMU100408ER-GH (PR1525)



Chip Removal Rate

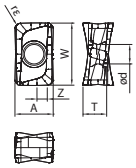
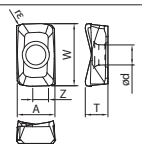
		Machining Efficiency
PR1525	42cc/min(Further Milling Possible)	2 Times
Competitor M (Positive Cutter)	21cc/min (Unable to continue cutting)	

MEW doubled cutting efficiency. Furthermore, MEW inserts have double number of edges (4-edge),which enables a drastic cost reduction

(User Evaluation)

Applicable Inserts

Classification of Usage										Applicable Toolholder
	P	Carbon Steel • Alloy Steel	☆	★					
		Die Steel	☆	★					
★ : Roughing/1st Choice ☆ : Roughing/2nd Choice ■ : Finishing/1st Choice □ : Finishing/2nd Choice (In case hardness is under 45HRC)	M	Austenitic Stainless Steel (SUS304,etc)	★	☆					
		Martensitic Stainless Steel (SUS403,etc)	☆			★			
		Precipitation Hardened Stainless Steel	★						
	K	Gray Cast Iron			★				
		Nodular Cast Iron			★				
	N	Non-ferrous Metals Almium					★	☆	
	S	Ni-base Heat-Resistant Alloy (Inconel®718,etc)	☆			★			
		Titanium Alloy (Ti-6Al-4V)	★		☆				
	H	High Hardness Steel		□					

Insert		Description		Dimension (mm)						MEGACOAT NANO			CVD Coated Carbide	DLC Coated Carbide	Carbide	Applicable Toolholder
				A	T	ød	W	Z	rε	PR1535	PR1525	PR1510	CA6535	PDL025	GW25	
General Purpose		LOMU	100404ER-GM	6.6	4.0	3.4	10.9	2.1	0.4	●	●	●	●			MEW...-10.. MEWH...-10..
			100408ER-GM					1.7	0.8	●	●	●	●			
			100412ER-GM					1.3	1.2	●	●	●	●			
			100416ER-GM					1.0	1.6	●	●	●	●			
			100420ER-GM					1.0	2.0	●	●	●	●			
		LOMU	150504ER-GM	9.2	5.6	4.8	15.7	2.2	0.4	●	●	●	●			MEW...-15.. MEWH...-15..
			150508ER-GM					1.8	0.8	●	●	●	●			
			150510ER-GM					1.6	1.0		●					
			150512ER-GM					1.4	1.2	●	●	●	●			
			150516ER-GM					1.0	1.6	●	●	●	●			
			150520ER-GM					0.6	2.0	●	●	●	●			
Low Cutting Force		LOMU	100408ER-SM	6.6	4.0	3.4	10.9	1.7	0.8	●	●	●	●			MEW...-10.. MEWH...-10..
		LOMU	150508ER-SM	9.2	5.6	4.8	15.7	1.8	0.8	●	●	●	●			MEW...-15.. MEWH...-15..
Tough Edge (Heavy Milling)		LOMU	100408ER-GH	6.6	4.0	3.4	10.9	1.7	0.8	●	●	●	●			MEW...-10.. MEWH...-10..
		LOMU	150508ER-GH	9.2	5.6	4.8	15.7	1.8	0.8	●	●	●	●			MEW...-15.. MEWH...-15..
NEW Non-ferrous Metals ·Alminum (2-edge Insert)		LOGT	100408FR-AM	6.8	4.0	3.6	11.1	2.8	0.8					●	●	MEW...-10..
		LOGT	150508FR-AM	8.9	5.6	4.9	15.9	2.8	0.8					●	●	MEW...-15..

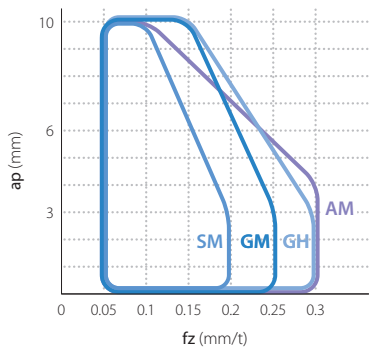
● : Standard Stock

Appearance of LOMU…ER-GM

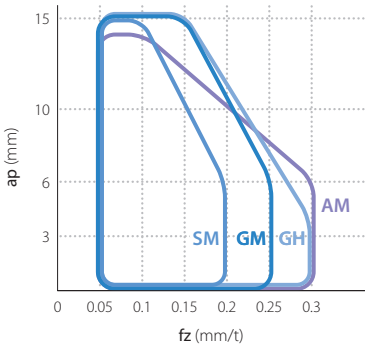
LOMU100404ER-GM LOMU150504ER-GM	LOMU100408ER-GM LOMU150508ER-GM
 04 Marking on Insert	 08 Has No Dimension Marking
LOMU150510ER-GM	LOMU100412ER-GM LOMU150512ER-GM
 10 Marking on Insert	 12 Marking on Insert
LOMU100416ER-GM LOMU150516ER-GM	LOMU100420ER-GM LOMU150520ER-GM
 16 Marking on Insert	 20 Marking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

Applicable Chipbreaker Range (Shouldering)

LOMU10type



LOMU15type



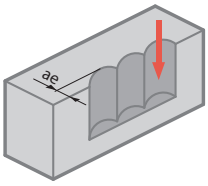
Cutting Conditions : Vc = 150 m/min, ae = øD/2 Workpiece : S50C

Recommended Cutting Conditions ★ 1st Recommendation ☆ 2nd Recommendation

Chipbreaker	Workpiece	fz:mm/t			Recommended Insert Grade (Vc: m/min)					
		Toolholder Descriptions			MEGACOAT NANO			CVD Coated Carbide	DLC Coated Carbide	Carbide
		MEW16 – MEW18	MEW20 – MEW40 MEW040R – MEW080R	MEWH025 – MEWH050 (Helical End Mill)	PR1535	PR1525	PR1510	CA6535	PDL025	GW25
GM	Carbon Steel (SXXC)	0.06 – **0.1** – 0.2	0.08 – **0.15** – 0.25	0.06 – **0.1** – 0.2	☆ 120 – **180** – 250	★ 120 – **180** – 250	—	—	—	—
	Alloy Steel (SCM,etc)	0.06 – **0.1** – 0.14	0.08 – **0.15** – 0.2	0.06 – **0.1** – 0.14	☆ 100 – **160** – 220	★ 100 – **160** – 220	—	—	—	—
	Die Steel (SKD,etc)	0.06 – **0.08** – 0.12	0.08 – **0.12** – 0.2	0.06 – **0.08** – 0.12	☆ 80 – **140** – 180	★ 80 – **140** – 180	—	—	—	—
	Austenitic Stainless Steel (SUS304,etc)	0.06 – **0.08** – 0.12	0.08 – **0.12** – 0.15	0.06 – **0.08** – 0.12	☆ 100 – **160** – 200	☆ 100 – **160** – 200	—	—	—	—
	Martensitic Stainless Steel (SUS403,etc)	0.06 – **0.08** – 0.12	0.08 – **0.12** – 0.2	0.06 – **0.08** – 0.1	☆ 150 – **200** – 250	—	—	★ 180 – **240** – 300	—	—
	Precipitation Hardened Stainless Steel (SUS630,etc)	0.06 – **0.08** – 0.12	0.08 – **0.12** – 0.2	0.06 – **0.08** – 0.1	★ 90 – **120** – 150	—	—	—	—	—
	Gray Cast Iron (FC)	0.06 – **0.1** – 0.17	0.08 – **0.18** – 0.25	0.06 – **0.1** – 0.17	—	—	★ 120 – **180** – 250	—	—	—
	Nodular Cast Iron (FCD)	0.06 – **0.08** – 0.12	0.08 – **0.15** – 0.2	0.06 – **0.08** – 0.12	—	—	★ 100 – **150** – 200	—	—	—
	Ni-base Heat-Resistant Alloy (Inconel®718,etc)	0.06 – **0.08** – 0.12	0.08 – **0.12** – 0.15	0.06 – **0.08** – 0.1	☆ 20 – **30** – 50	—	—	★ 20 – **30** – 50	—	—
	Titanium Alloy (Ti-6Al-4V)	0.06 – **0.08** – 0.12	0.08 – **0.15** – 0.2	0.06 – **0.08** – 0.12	☆ 40 – **60** – 80	—	☆ 30 – **50** – 70	—	—	—
SM	Carbon Steel (SXXC)	0.06 – **0.1** – 0.17	0.08 – **0.15** – 0.2	0.06 – **0.1** – 0.17	☆ 120 – **180** – 250	★ 120 – **180** – 250	—	—	—	—
	Alloy Steel (SCM,etc)	0.06 – **0.08** – 0.12	0.08 – **0.12** – 0.18	0.06 – **0.08** – 0.12	☆ 100 – **160** – 220	★ 100 – **160** – 220	—	—	—	—
	Die Steel (SKD,etc)	0.06 – **0.08** – 0.12	0.08 – **0.1** – 0.15	0.06 – **0.08** – 0.12	☆ 80 – **140** – 180	★ 80 – **140** – 180	—	—	—	—
	Austenitic Stainless Steel (SUS304,etc)	0.06 – **0.08** – 0.12	0.08 – **0.1** – 0.15	0.06 – **0.08** – 0.12	★ 100 – **160** – 200	☆ 100 – **160** – 200	—	—	—	—
	Martensitic Stainless Steel (SUS403,etc)	0.06 – **0.08** – 0.12	0.08 – **0.1** – 0.15	0.06 – **0.08** – 0.1	☆ 150 – **200** – 250	—	—	★ 180 – **240** – 300	—	—
	Precipitation Hardened Stainless Steel (SUS630,etc)	0.06 – **0.08** – 0.12	0.08 – **0.1** – 0.15	0.06 – **0.08** – 0.1	☆ 90 – **120** – 150	—	—	—	—	—
	Ni-base Heat-Resistant Alloy (Inconel®718,etc)	0.06 – **0.08** – 0.1	0.08 – **0.1** – 0.12	0.06 – **0.08** – 0.1	☆ 20 – **30** – 50	—	—	★ 20 – **30** – 50	—	—
	Titanium Alloy (Ti-6Al-4V)	0.06 – **0.08** – 0.12	0.08 – **0.12** – 0.15	0.06 – **0.08** – 0.12	★ 40 – **60** – 80	—	☆ 30 – **50** – 70	—	—	—
GH	Carbon Steel (SXXC)	0.06 – **0.1** – 0.2	0.08 – **0.2** – 0.3	0.06 – **0.1** – 0.2	☆ 120 – **180** – 250	★ 120 – **180** – 250	—	—	—	—
	Alloy Steel (SCM,etc)	0.06 – **0.1** – 0.14	0.08 – **0.2** – 0.25	0.06 – **0.1** – 0.14	☆ 100 – **160** – 220	★ 100 – **160** – 220	—	—	—	—
	Die Steel (SKD,etc)	0.06 – **0.08** – 0.12	0.08 – **0.15** – 0.22	0.06 – **0.08** – 0.12	☆ 80 – **140** – 180	★ 80 – **140** – 180	—	—	—	—
	Austenitic Stainless Steel (SUS304,etc)	0.06 – **0.08** – 0.12	0.08 – **0.12** – 0.15	0.06 – **0.08** – 0.12	☆ 100 – **160** – 200	☆ 100 – **160** – 200	—	—	—	—
	Martensitic Stainless Steel (SUS403,etc)	0.06 – **0.08** – 0.12	0.08 – **0.12** – 0.2	0.06 – **0.08** – 0.1	☆ 150 – **200** – 250	—	—	☆ 180 – **240** – 300	—	—
	Precipitation Hardened Stainless Steel (SUS630,etc)	0.06 – **0.08** – 0.12	0.08 – **0.12** – 0.2	0.06 – **0.08** – 0.1	☆ 90 – **120** – 150	—	—	—	—	—
	Gray Cast Iron (FC)	0.06 – **0.1** – 0.2	0.08 – **0.22** – 0.3	0.06 – **0.1** – 0.2	—	—	☆ 120 – **180** – 250	—	—	—
	Nodular Cast Iron (FCD)	0.06 – **0.08** – 0.15	0.08 – **0.18** – 0.25	0.06 – **0.08** – 0.15	—	—	☆ 100 – **150** – 200	—	—	—
	Ni-base Heat-Resistant Alloy (Inconel®718,etc)	0.06 – **0.08** – 0.12	0.08 – **0.12** – 0.15	0.06 – **0.08** – 0.1	☆ 20 – **30** – 50	—	—	☆ 20 – **30** – 50	—	—
	Titanium Alloy (Ti-6Al-4V)	0.06 – **0.08** – 0.12	0.08 – **0.15** – 0.2	0.06 – **0.08** – 0.12	☆ 40 – **60** – 80	—	☆ 30 – **50** – 70	—	—	—
AM	Alminum (Si less 13%)	0.05 – **0.12** – 0.2	0.05 – **0.18** – 0.3	NOT Recommend	—	—	—	—	★ 200 – 900	☆ 200 – 300
	Alminum (Si over 13%)	0.05 – **0.08** – 0.12	0.05 – **0.12** – 0.2		—	—	—	—		

Bold numbers in the graph indicates 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.

Vertical milling



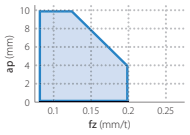
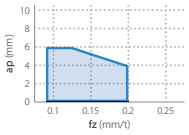
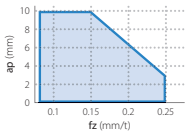
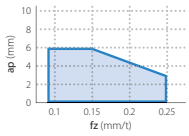
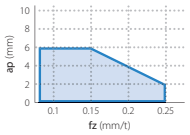
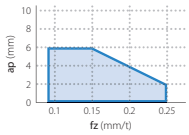
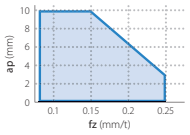
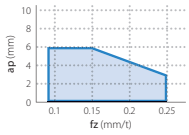
Available for vertical milling

Insert Description	Maximum Width of Cut (ae)
LOMU10 LOGT10	5 mm
LOMU15 LOGT15	7 mm

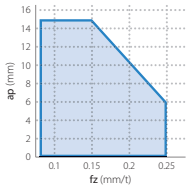
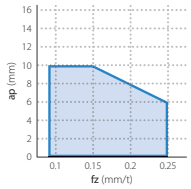
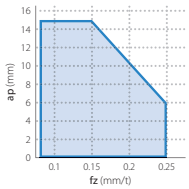
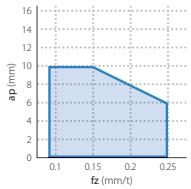
NOT available for ramping and helical milling, because interference between workpiece and insert may occur.

MEW Cutting Performance

LOMU1004type

Description	Shouldering (ae=φD/2)	Slotting
MEW16・・・-10 MEW18・・・-10		
MEW20・・・-10 〜 MEW50・・・-10		
MEW20-S20 -10-150-2T MEW25-S25 -10-170-2T (Long Shank)		
MEW032R・・・-10 〜 MEW063R・・・-10		

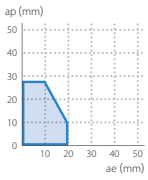
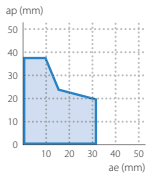
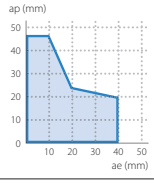
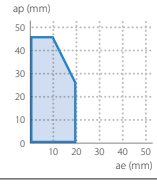
LOMU1505type

Description	Shouldering (ae=φD/2)	Slotting
MEW25・・・-15 〜 MEW50・・・-15		
MEW040R・・・-15 〜 MEW080・・・-15		

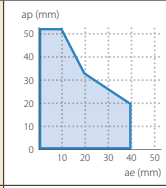
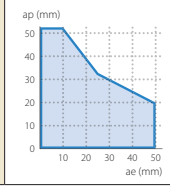
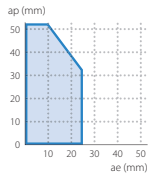
Cutting Conditions : Vc = 180 m/min, GM Chipbreaker Workpiece : S50C
Overhang Length
1. End Mill : Overhang length is "ℓ" of the dimension list
2. Face Mill : Overhang length is "H" of the dimension list + minimum arbor overhang

MEWH Cutting Performance

LOMU1004type

Cutting Dia.	Description	2 Flute (ap×ae)	Description	3 Flute (ap×ae)
ø25	MEWH025 -S25-10-3- 2T		–	–
ø32	MEWH032 -S32-10-4- 2T		–	–
ø40	MEWH040 -S32-10-5- 2T		MEWH040 -S32-10-5- 3T	

LOMU1505type

Cutting Dia.	Description	2 Flute (ap×ae)	Description	3 Flute (ap×ae)
ø40	MEWH040 -S32-15-4- 2T		–	–
ø50	MEWH050 -S42-15-4- 2T		MEWH050 -S42-15-4- 3T	

Cutting Conditions : Vc = 120 m/min, fz = 0.08 - 0.12 mm/t, GM Chipbreaker Workpiece : SCM435
Overhang Length
End Mill : Overhang length is "L1" of the dimension list