

MILLING



M

M1 - M12

INDEXABLE END MILLS	
MEC	M3
MECX	M6
MEW	M9

M3 - M12

MEC

M3

MECX

M6

MEW

M9

MILLING INDEXABLE INSERTS

Milling Inserts

- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

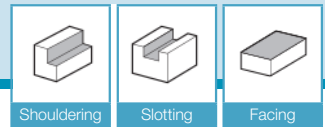
Insert	Part Number	Dimensions (inch)					Angle			Cermat TN100M	CVD CA6535	MN [※] PR1535	MEGA COAT PR1225	PVD Coated Carbide PR1210	PR830	GW25	Ref. Page for Toolholder
		A	T	Ød	W	rε	α	β	γ								
		Handed Insert shows Right-hand															
	BDMT 070302ER-JS	0.181	0.102	0.091	0.264	0.008	16°	15°	-		○	○	●		●		M6
	070304ER-JS	0.181	0.102	0.091	0.264	0.016	16°	15°	-		○	○	●		●		
	070308ER-JS	0.181	0.102	0.091	0.264	0.031	16°	15°	-		○	○	●		●		
	BDMT 070302ER-JT	0.181	0.102	0.091	0.264	0.008	16°	15°	-		○	○	●	●	●		M6
	070304ER-JT	0.181	0.102	0.091	0.264	0.016	16°	15°	-		○	○	●	●	●		
	070308ER-JT	0.181	0.102	0.091	0.264	0.031	16°	15°	-		○	○	●	●	●		
	BDGT 11T302FR-JA	0.264	0.150	0.110	0.433	0.008	18°	13°	-							○	M3
	11T304FR-JA	0.264	0.150	0.110	0.433	0.016	18°	13°	-						●		
	11T308FR-JA	0.264	0.150	0.110	0.433	0.031	18°	13°	-						●		
	BDMT 110302ER-JS	0.248	0.118	0.110	0.433	0.008	18°	15°	-		○	○	●		○		M3
	110304ER-JS	0.248	0.118	0.110	0.433	0.016	18°	15°	-		○	○	●		●		
	110308ER-JS	0.248	0.118	0.110	0.433	0.031	18°	15°	-		○	○	●		●		
	BDMT 11T302ER-JS	0.264	0.150	0.110	0.433	0.008	18°	13°	-		○	○	●		●		
	11T304ER-JS	0.264	0.150	0.110	0.433	0.016	18°	13°	-		●	●	●		●		
	11T308ER-JS	0.264	0.150	0.110	0.433	0.031	18°	13°	-		●	●	●		●		
	BDMT 110302ER-JT	0.248	0.118	0.110	0.433	0.008	18°	15°	-		○	○	●	●	○		M3
	110304ER-JT	0.248	0.118	0.110	0.433	0.016	18°	15°	-		○	○	●	●	●		
	110308ER-JT	0.248	0.118	0.110	0.433	0.031	18°	15°	-		○	○	●	●	●		
	BDMT 11T302ER-JT	0.264	0.150	0.110	0.433	0.008	18°	13°	-		○	○	●	●	●		
	11T304ER-JT	0.264	0.150	0.110	0.433	0.016	18°	13°	-	●	●	●	●	●	●		
	11T308ER-JT	0.264	0.150	0.110	0.433	0.031	18°	13°	-		●	●	●	●	●		
	11T312ER-JT	0.264	0.150	0.110	0.433	0.047	18°	13°	-		○	○	●	●	●		
	11T316ER-JT	0.264	0.150	0.110	0.433	0.063	18°	13°	-		●	●	●	●	●		
	11T320ER-JT	0.264	0.150	0.110	0.433	0.079	18°	13°	-		○	○	●	●	●		
	11T324ER-JT	0.264	0.150	0.110	0.433	0.094	18°	13°	-		○	○	●	●	●		
11T331ER-JT	0.264	0.150	0.110	0.433	0.122	18°	13°	-		○	○	●	●	●			

※ MN = MEGACOAT NANO

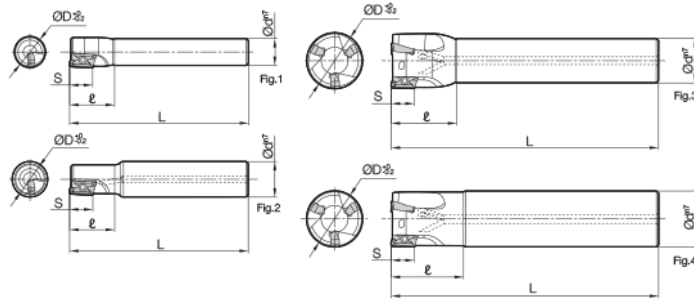
Insert	Part Number	Dimensions (inch)					Angle		PCD			Ref. Page for Toolholder	
		A	T	Ød	W	rε	S	α	β	KPD001	KPD010		KPD230
		Handed Insert shows Right-hand											
	BDMT 11T302FR	0.264	0.150	0.110	0.433	0.008	0.142	18°	13°	●		○	M3
	11T304FR	0.264	0.150	0.110	0.433	0.016	0.142	18°	13°	●		○	

Inserts are sold in 10 piece boxes

PCD Inserts are sold in 1 piece boxes



MEC End Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimensions					Rake Angle (°)		Coolant Hole	Drawing	Spare Parts		Pre-set Torque Wrench* ^{NEW}	Max. Revolution (min ⁻¹)
				ØD	Ød	L	ℓ	S	A.R. (MAX)	R.R.			Insert Screw	Wrench		
MEC 0500-S500-11	●	inch	1	0.500	0.500	2.650	0.787	0.400	12°	-21°	No	Fig.1	SB-2545TR	DTM-8	PST-T8	50,800
MEC 0625-S500-11T	●		2	0.625	0.500	2.750	0.906	0.400	18°	-14°	Yes	Fig.3	SB-2555TRG	DTM-8	PST-T8	43,750
0625-S625-11T	●		2	0.625	0.625	3.000	1.024	0.400	18°	-14°	Yes	Fig.4	SB-2555TRG	DTM-8	PST-T8	43,750
0750-S625-11T	●		3	0.750	0.625	3.050	1.024	0.400	20°	-10°	Yes	Fig.3	SB-2555TRG	DTM-8	PST-T8	41,000
0750-S750-11T	●		3	0.750	0.750	3.250	1.142	0.400	20°	-10°	Yes	Fig.4	SB-2555TRG	DTM-8	PST-T8	41,000
MEC 10-S10-11	○	mm	1	10	10	80	17	10	+10°	-24°	No	Fig.1	SB-2545TR	DTM-8	PST-T8	54,800
10-S16-11	○		1	10	16	80	17	10	+10°	-24°	Yes	Fig.2	SB-2545TR	DTM-8	PST-T8	54,800
12-S10-11	○		1	12	10	80	20	10	+12°	-21°	No	Fig.1	SB-2545TR	DTM-8	PST-T8	50,800
12-S12-11	○		1	12	12	80	20	10	+12°	-21°	No	Fig.1	SB-2545TR	DTM-8	PST-T8	50,800
12-S16-11	○		1	12	16	80	20	10	+12°	-21°	Yes	Fig.2	SB-2545TR	DTM-8	PST-T8	50,800
13-S12-11	○		1	13	12	80	20	10	+12°	-19°	No	Fig.1	SB-2545TR	DTM-8	PST-T8	49,200
14-S12-11	○		1	14	12	80	20	10	+12°	-19°	No	Fig.1	SB-2545TR	DTM-8	PST-T8	47,700
14-S16-11	○		1	14	16	80	20	10	+12°	-19°	Yes	Fig.2	SB-2545TR	DTM-8	PST-T8	47,700
MEC 16-S12-11T	○		2	16	12	100	23	10	+18°	-14°	No	Fig.1	SB-2555TRG	DTM-8	PST-T8	43,750
17-S16-11T	○		2	17	16	100	23	10	+18°	-13°	Yes	Fig.3	SB-2555TRG	DTM-8	PST-T8	43,500
18-S16-11T	○		2	18	16	100	23	10	+19°	-13°	Yes	Fig.3	SB-2555TRG	DTM-8	PST-T8	43,000
19-S16-11T	○		3	19	16	100	26	10	+20°	-10°	Yes	Fig.3	SB-2555TRG	DTM-8	PST-T8	42,000
20-S16-11T	○		3	20	16	110	26	10	+20°	-10°	Yes	Fig.3	SB-2555TRG	DTM-8	PST-T8	41,000
MEC 16-S16-11T	○		Same Shank Size	2	16	16	100	30	10	+18°	-14°	Yes	Fig.4	SB-2555TRG	DTM-8	PST-T8
20-S20-11T	○	3		20	20	110	30	10	+20°	-10°	Yes	Fig.4	SB-2555TRG	DTM-8	PST-T8	41,000

*Pre-set Torque Wrench sold separately

Max. Revolution

When running the end mill and inserts at the maximum revolution, the insert or toolholder may be damaged by centrifugal force. For more details, see "Warning" on page M8.

Applicable Inserts

Toolholders	Applicable Inserts M2			
MEC...-11	BDMT1103OOER-JT	BDMT1103OOER-JS	-	-
MEC...-11T	BDMT11T3OOER-JT	BDMT11T3OOER-JS	BDGT11T3OOFR-JA	BDMT11T3OOFR

Chipbreaker

Recommended Cutting Conditions M4

JT Chipbreaker (General Purpose)

JS Chipbreaker (Low Cutting Force)

JA Chipbreaker (For Alminum)



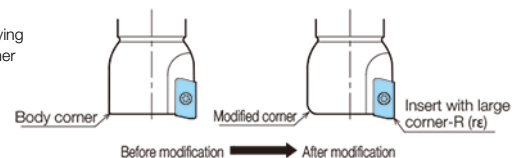
Machining cutting reduced by 20%



When using inserts with corner radius R0.0630" or larger, additional modifications of the cutter body will be necessary. See the chart below for the recommended modifications. (Additional grind off is not necessary when corner-R is 0.0472" or less.)

Insert Corner-R(ℓ)	Additional modifications of the cutter body corner
0.0630	R0.0394
0.0787	R0.0394
0.0945	R0.0472

* Rounded shape is recommended when modifying the cutter corner. When chamfering cutter corner to modify, please make sure not to cut away too much.



GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

Recommended Cutting Conditions

GRADES	INSERTS	CBN & PCD	TURNING	BORING	GROOVING	CUT-OFF	THREADING	SOLID END MILLS	MILLING	SPARE PARTS	TECHNICAL	INDEX	Chipbreaker	Workpiece Material	Toolholder fz (ipt)		Recommended Insert Grade Vc (sfm)							
															MEC0500-MEC0750 MEC10-MEC19	MEC20	Cermet TN100M	MEGACOAT NANO PR1535	MEGACOAT PR1225 PR1210		PVD Coated Carbide PR830	CVD Coated Carbide CA6535		
A	B	C	E	F	G	H	J	L	M	P	R	T	JT	Carbon Steel	0.002- 0.004 -0.006	0.003- 0.006 -0.010	390- 530 -660	390- 590 -820	390- 590 -820	-	390- 520 -660	-		
															Alloy Steel	0.002- 0.004 -0.005	0.003- 0.006 -0.008	330- 460 -590	330- 520 -720	330- 520 -720	-	330- 460 -590	-	
															Mold Steel	0.002- 0.003 -0.004	0.003- 0.005 -0.008	260- 390 -490	260- 460 -590	260- 460 -590	-	260- 390 -490	-	
															Austenitic Stainless Steel	0.002- 0.003 -0.004	0.003- 0.005 -0.006	-	330- 520 -660	330- 520 -660	-	330- 460 -590	-	
															Martensitic Stainless Steel	0.002- 0.003 -0.004	0.003- 0.005 -0.008	-	490- 660 -820	-	-	-	590- 790 -980	-
															Precipitation Hardened Stainless Steel	0.002- 0.003 -0.004	0.003- 0.005 -0.008	-	300- 390 -490	-	-	-	-	-
															Gray Cast Iron	0.002- 0.004 -0.006	0.003- 0.007 -0.010	-	-	-	390- 590 -820	-	-	-
															Nodular Cast Iron	0.002- 0.003 -0.004	0.003- 0.006 -0.008	-	-	-	330- 490 -660	-	-	-
															Ni-base Heat Resistant Alloy	0.002- 0.003 -0.004	0.003- 0.005 -0.006	-	70- 100 -160	-	-	-	-	70- 100 -160
															Titanium Alloy	0.002- 0.003 -0.004	0.003- 0.006 -0.008	-	130- 200 -260	-	100- 160 -230	-	-	-
															Carbon Steel	0.002- 0.004 -0.005	0.003- 0.006 -0.007	-	390- 590 -820	390- 590 -820	-	390- 520 -660	-	
															Alloy Steel	0.002- 0.003 -0.004	0.003- 0.005 -0.006	-	330- 520 -720	330- 520 -720	-	330- 460 -590	-	
															Mold Steel	0.002- 0.003 -0.004	0.003- 0.004 -0.005	-	260- 460 -590	260- 460 -590	-	260- 390 -490	-	
															Austenitic Stainless Steel	0.002- 0.003 -0.004	0.003- 0.004 -0.005	-	330- 520 -660	330- 520 -660	-	330- 460 -590	-	
															Martensitic Stainless Steel	0.002- 0.003 -0.004	0.003- 0.004 -0.005	-	490- 660 -820	-	-	-	590- 790 -980	
															Precipitation Hardened Stainless Steel	0.002- 0.003 -0.004	0.003- 0.004 -0.005	-	300- 390 -490	-	-	-	-	
														Ni-base Heat Resistant Alloy	0.002- 0.003 -0.004	0.003- 0.004 -0.005	-	70- 100 -160	-	-	-	70- 100 -160		
														Titanium Alloy	0.002- 0.003 -0.004	0.003- 0.004 -0.005	-	130- 200 -260	-	-	-	-		

* Machining with coolant is recommended for Ni-base Heat Resistant Alloys and Titanium Alloys.

★ 1st Recommendation ☆ 2nd Recommendation

JA Chipbreaker		
Workpiece Material	fz (ipt)	Insert Grades (Cutting Speed: sfm) Carbide GW25
Aluminum Alloys (Si 13% or less)	0.002~0.012	660~2620
Aluminum Alloys (Si 13% or above)	0.002~0.008	660~980

PCD		
Workpiece Material	fz (ipt)	Insert Grades (Cutting Speed: sfm) PCD KPD230 (KPD001)
Aluminum Alloys (Si 13% or less)	0.002~0.008	1640~4920
Aluminum Alloys (Si 13% or above)	0.002~0.006	980~3280

Ramping, Helical Milling and Plunge Milling

Ramping, Helical Milling

- Ramping angle is recommended to be less than α° .
- Refer to each tool's cutting performance list for the depth of helical milling. Use compressed air during cutting.

Cutting Dia.	Applicable Inserts	Maximum Ramping Angle (α°)
Ø0.625* Ø16-Ø18	BDMT11T3 type BDGT11T3 type	3°
Ø0.750* Ø19-Ø20	BDMT11T3 type BDGT11T3 type	5°

BDMT1103 type is not recommended for ramping and helical milling.

Plunge Milling

Cutting Dia.	Applicable Inserts	Maximum Width of Cut (ae)
Ø0.625* Ø16-Ø19	BDMT11T3 type BDGT11T3 type	0.0591"
Ø0.750* Ø20	BDMT11T3 type BDGT11T3 type	0.1969"

BDMT/BDGT1103 type is not recommended for plunge milling.

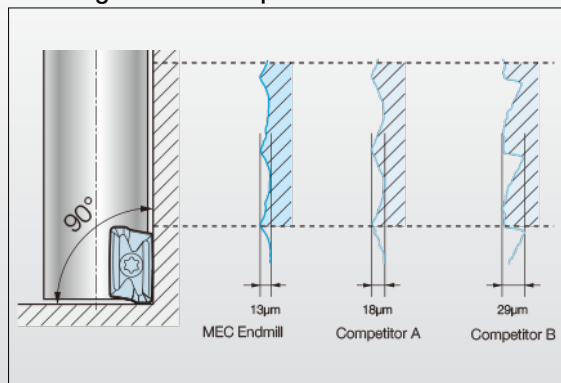
Guidance of minimum cutting dia. for helical cutting.

MEC	Toolholder Dia.	Ø16	Ø18	Ø20
BD_T11T3 type	Guidance of minimum cutting dia. for helical cutting.	Ø21	Ø25	Ø29
	Guidance of minimum cutting dia. to have flat bottom by helical cutting.	Ø28	Ø32	Ø36

● Features of MEC

● Perfect 90° Shoulders

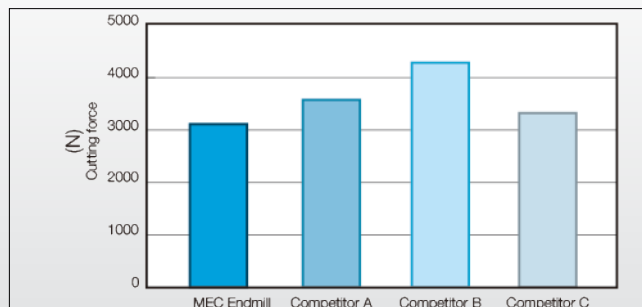
<Cutting Surface Comparison>



(Internal evaluation)

● Low cutting force

<Cutting Force Comparison>



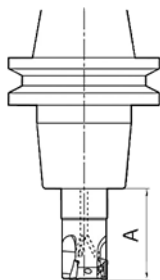
Tool diameter $\varnothing 0.787''$ 1049
 $V_c=328$ sfm Shouldering $ap \times ae=0.3540'' \times 0.3936''$
 $f_z=0.008$ ipt Dry (In house evaluation)

(Internal evaluation)

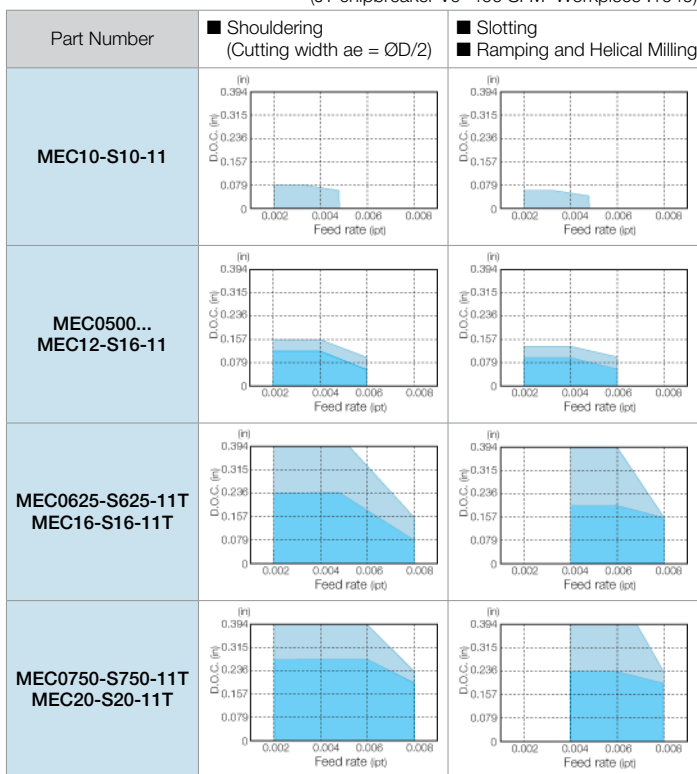
■ Cutting Performance of MEC End Mill

① Overhang Length When Using BDMT 11mm-type Insert (Standard / Straight Shank)

Cutting Dia.	Part Number (mm / inch)	Overhang Length A (in)	
		(Colors Refer to charts on right)	
$\varnothing 8$ mm	MEC10-S10-11	0.670	-
$\varnothing 12$ mm	MEC0500... MEC12-S16-11	0.787	1.180
$\varnothing 0.625$ in $\varnothing 16$ mm	MEC0625-S625-11T MEC16-S16-11T	1.180	1.790
$\varnothing 0.750$ in $\varnothing 20$ mm	MEC0750-S750-11T MEC20-S20-11T	1.180	1.790



(JT chipbreaker $V_c=400$ SFM Workpiece :1049)



■ Case Studies

RC55 (Prehardened Tool Steel)

- Test Piece (54~56HRC)
- $V_c=175$ sfm ($n=800$ min-1)
- $ap \times ae=0.08'' \times 0.55''$
- $f_z=0.005$ ipt ($V_f=11.8$ ipm)
- Dry
- MEC20-S20-11T
- 3 Teeth
- BDMT11T308ER-JT (PR830)

Tool	Metal Removal Volume
MEC	4.35 in ³ (continuable)
Competitor A	0.18 in ³ (Chipping)

• Competitor A ($\varnothing 25 : 2$ Teeth) caused chipping after 10 minutes machining with the conditions of $V_c=131$ sfm, $f_z=0.003$ ipt, $ap \times ae=0.08'' \times 0.12''$, and it was noisy. Also, higher feed rate was not possible because it would cause breakage.
 • MEC maintained a good edge condition even after 10 minutes and was still available for further machining.

(User Evaluation)

Structural Steel

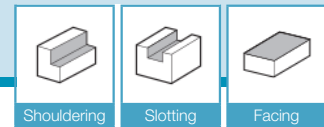
- Plate
- $V_c=300$ sfm ($n=1400$ min-1)
- $ap=0.20'' \times 2$ Passes
- $f_z=0.005$ ipt ($V_f=19.7$ ipm)
- Dry
- MEC20-S20-11T
- 3 Teeth
- BDMT11T308ER-JT (PR830)

Tool	Edge Condition
MEC	23 pcs/edge
Competitor B	10~11 pcs/edge

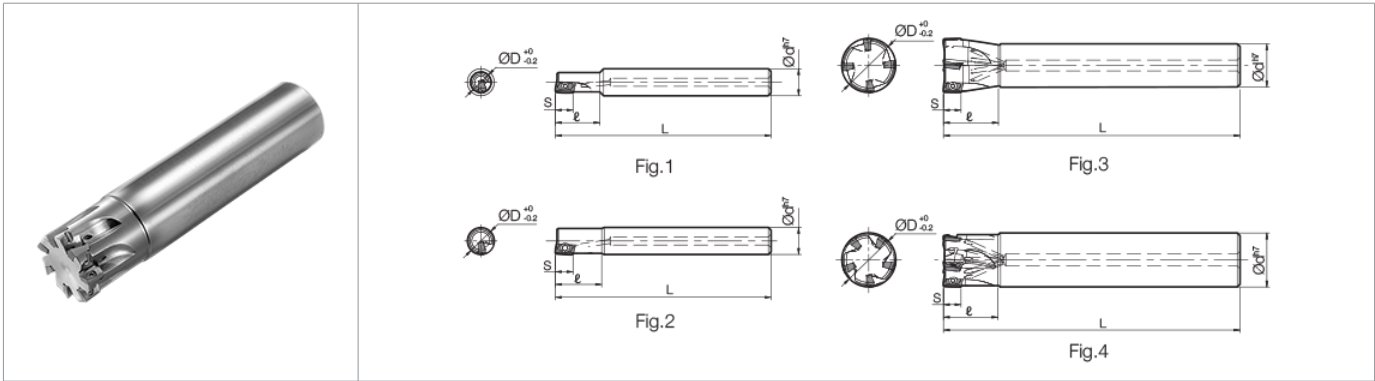
• MEC doubled Competitor B's tool life under the same machining conditions.

(User Evaluation)

GRADES A
 INSERTS B
 CBN & POD C
 TURNING E
 BORING F
 GROOVING G
 CUT-OFF H
 THREADING J
 SOLID END MILLS L
 MILLING M
 SPARE PARTS P
 TECHNICAL R
 INDEX T



MECX End Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimensions					Rake Angle (°)		Coolant Hole	Drawing	Spare Parts		Pre-set Torque Wrench*	Max. Revolution (min ⁻¹)		
				ØD	Ød	L	ℓ	S	A.R. (MAX)	R.R.			Insert Screw	Wrench				
Standard Shank	Standard	inch	MECX 0750-S625-07-4T	4	0.750	0.625	4.00	0.787	0.236	16.3°	-10.9°	Yes	Fig. 3	SB-2042TRG	DTM-6	PST-T6	40,900	
			0750-S625-07-5T	5	0.750	0.625	4.00	0.787	0.236	16.3°	-10.9°	Yes	Fig. 3	SB-2042TRG	DTM-6	PST-T6	40,900	
			MECX 08-S10-07-1T	1	8	10	80	16	6	11.7°	-24.0°	Yes	Fig.1	SB-2035TRG	DTM-6	PST-T6	48,100	
			14-S12-07-2T	2	14	12	80	18	6	16.3°	-12.1°	Yes	Fig.3	SB-2035TRG	DTM-6	PST-T6	44,800	
			17-S16-07-3T	3	17	16	100	20	6	16.3°	-11.0°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	42,400	
	Fine pitch	mm	inch	18-S16-07-3T	3	18	16	100	20	6	16.3°	-10.9°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	41,600
				20-S16-07-4T	4	20	16	110	20	6	16.3°	-10.4°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	40,200
				21-S20-07-4T	4	21	20	110	20	6	16.3°	-10.1°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	39,500
				25-S20-07-5T	5	25	20	120	25	6	16.3°	-9.7°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	37,000
				MECX 20-S16-07-5T	5	20	16	110	20	6	16.3°	-10.4°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	40,200
Same Shank	Standard	inch	25-S20-07-5T	5	25	20	120	25	6	16.3°	-9.7°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	37,000	
			MECX 0375-S375-07-1T	1	0.375	0.375	3.00	0.669	0.236	12.8°	-19.7°	Yes	Fig.1	SB-2035TRG	DTM-6	PST-T6	47,150	
			0500-S500-07-2T	2	0.500	0.500	3.27	0.709	0.236	14.3°	-12.9°	Yes	Fig.1	SB-2035TRG	DTM-6	PST-T6	45,800	
			0625-S625-07-3T	3	0.625	0.625	3.50	0.787	0.236	16.3°	-11.3°	Yes	Fig. 2	SB-2042TRG	DTM-6	PST-T6	43,300	
			0750-S750-07-4T	4	0.750	0.750	4.00	0.787	0.236	16.3°	-10.9°	Yes	Fig. 2	SB-2042TRG	DTM-6	PST-T6	40,900	
	Fine pitch	mm	inch	0750-S750-07-5T	5	0.750	0.750	4.00	0.787	0.236	16.3°	-10.9°	Yes	Fig. 2	SB-2042TRG	DTM-6	PST-T6	40,900
				MECX 10-S10-07-1T	1	10	10	80	17	6	12.8°	-18.7°	Yes	Fig.2	SB-2035TRG	DTM-6	PST-T6	47,100
				12-S12-07-2T	2	12	12	80	18	6	14.3°	-13.7°	Yes	Fig.4	SB-2035TRG	DTM-6	PST-T6	46,200
				16-S16-07-3T	3	16	16	100	20	6	16.3°	-11.3°	Yes	Fig.4	SB-2042TRG	DTM-6	PST-T6	43,200
				20-S20-07-4T	4	20	20	110	20	6	16.3°	-10.4°	Yes	Fig.4	SB-2042TRG	DTM-6	PST-T6	40,200
Fine pitch	mm	inch	MECX 16-S16-07-4T	4	16	16	100	20	6	16.3°	-11.3°	Yes	Fig.4	SB-2042TRG	DTM-6	PST-T6	43,200	
			20-S20-07-5T	5	20	20	110	20	6	16.3°	-10.4°	Yes	Fig.4	SB-2042TRG	DTM-6	PST-T6	40,200	

*Pre-set Torque Wrench sold separately

Max. Revolution

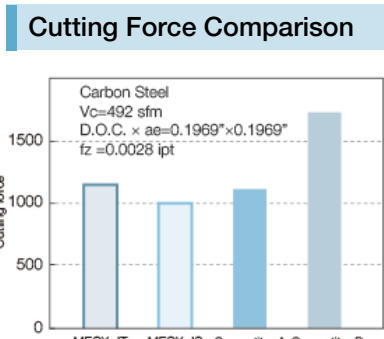
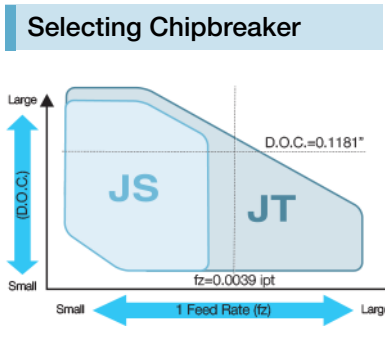
When running the end mill and inserts at the maximum revolution, the insert or toolholder may be damaged by centrifugal force. For more details, see "Warning" in the next page.

For good shoulder finishes when taking multiple depths of cut with MECX.

In order to obtain smooth wall surface set each DOC to less than 0.197"

Applicable Inserts

Part Number	Applicable Inserts M2	
MECX...-07..		
	BDMT 070300ER-JT	BDMT 070300ER-JS



Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)				
	JS Chipbreaker	JT Chipbreaker	MEGACOAT NANO PR1535	MEGACOAT PR1225 PR1210		PVD Coated Carbide PR830	CVD Coated Carbide CA6535
Carbon Steel	0.002- 0.003 -0.004	0.002- 0.004 -0.005	☆ 390- 590 -820	★ 390- 590 -820	-	☆ 390- 490 -590	-
Alloy Steel	0.002- 0.0025 -0.003	0.002- 0.003 -0.004	☆ 330- 520 -720	★ 330- 520 -720	-	☆ 330- 460 -590	-
Mold Steel	0.002- 0.0025 -0.003	0.002- 0.003 -0.004	☆ 260- 460 -590	★ 260- 460 -590	-	☆ 260- 390 -490	-
Austenitic Stainless Steel	0.001- 0.0015 -0.002	0.002- 0.0025 -0.003	★ 390- 590 -820	☆ 390- 590 -820	-	-	-
Martensitic Stainless Steel	0.001- 0.0015 -0.002	0.002- 0.0025 -0.004	☆ 490- 660 -820	-	-	-	★ 590- 790 -980
Precipitation Hardened Stainless Steel	0.001- 0.0015 -0.002	0.002- 0.0025 -0.004	★ 300- 390 -490	-	-	-	-
Gray Cast Iron	0.002- 0.003 -0.004	0.003- 0.004 -0.006	-	-	★ 390- 590 -820	-	-
Nodular Cast Iron	0.002- 0.0025 -0.003	0.003- 0.004 -0.005	-	-	★ 330- 490 -660	-	-
Ni-base Heat Resistant Alloy	0.001- 0.0015 -0.002	0.002- 0.0025 -0.003	☆ 70- 100 -160	-	-	-	★ 70- 100 -160
Titanium Alloy	0.002- 0.0025 -0.003	0.003- 0.004 -0.005	★ 130- 200 -260	-	☆ 100- 160 -230	-	-

※ Machining with coolant is recommended for Titanium Alloy.

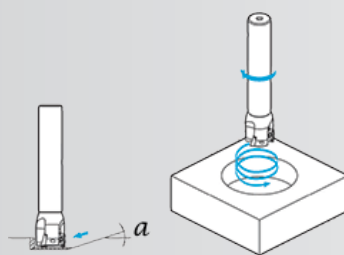
★ 1st Recommendation ☆ 2nd Recommendation

Ramping, Helical Milling

Ramping, Helical Milling

- Ramping angle is recommended to be α°.
- Refer to each tool's cutting performance list for the depth of helical milling.

Use compressed air during cutting.



Cutting Dia.	Unit	Applicable Inserts	Maximum Ramping Angle (α°)
Ø0.315	inch	BDMT0703 type	Not Recommended
Ø0.400			1.5°
Ø0.472, Ø0.551			2.0°
Ø0.630			3.0°
Ø0.669, Ø0.709			1.5°
Ø8	metric		Not Recommended
Ø10			1.5°
Ø12, Ø14			2.0°
Ø16			3.0°
Ø17, Ø18			1.5°
Ø20		2.0°	
Ø21		1.8°	
Ø25		1.3°	

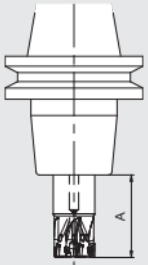
Guidance of minimum cutting dia. for helical cutting.

MECX	Toolholder Dia.	Ø8	Ø10	Ø12	Ø14	Ø16	Ø17	Ø18	Ø20
BDMT0703 type	Guidance of minimum cutting dia. for helical cutting.	Helical cutting is not recommended.	Ø14	Ø18	Ø22	Ø26	Ø28	Ø30	Ø34
	Guidance of minimum cutting dia. to have flat bottom by helical cutting.		Ø17	Ø21	Ø25	Ø29	Ø31	Ø33	Ø37
BDMT0703 type	Toolholder Dia.	Ø21	Ø25						
	Guidance of minimum cutting dia. for helical cutting.	Ø36	Ø44						
	Guidance of minimum cutting dia. to have flat bottom by helical cutting.	Ø39	Ø47						

Cutting Performance of MECX End Mill

(JT chipbreaker Vc=400 SFM Workpiece :1049)

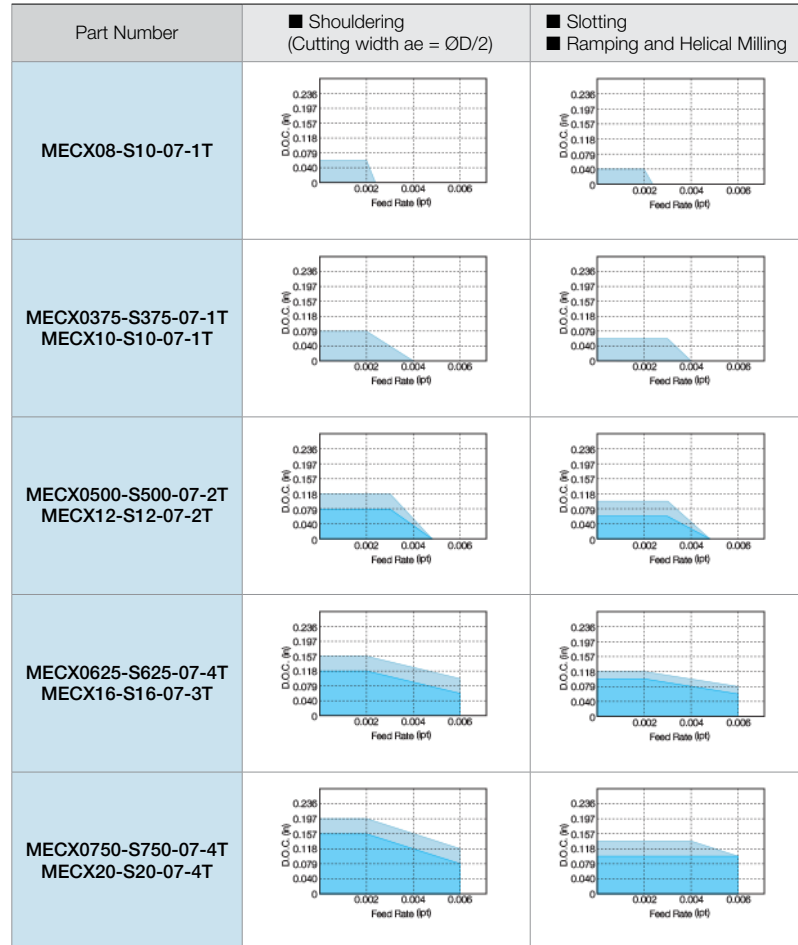
Cutting Dia.	Part Number (mm / inch)	Overhang Length A (in)	
		(Colors Refer to charts on right)	
Ø8mm	MECX08-S10-07-1T	0.630	-
Ø0.375in Ø10mm	MECX0375-S375-07-1T MECX10-S10-07-1T	0.670	-
Ø0.500in Ø12mm	MECX0500-S500-07-2T MECX12-S12-07-2T	0.709	1.18
Ø0.625in Ø16mm	MECX0625-S625-07-4T MECX16-S16-07-3T	0.787	1.57
Ø0.750in Ø20mm	MECX0750-S750-07-4T MECX20-S20-07-4T	0.787	1.57



- Machining with extended overhang length is not recommended for Ø0.315" and Ø0.394".
- The cutting performance chart shows the applicable range of JT Chipbreaker (PR830) with standard flute-number type.
For Multi-Edge type, use with 70% or less of ap.

Cutting conditions of JS Chipbreaker

- ① For MECX0375~MECX0500 / MECX08~MECX12
Decrease the feed rate by 25% according to cutting capability list.
- ② For MECX 0625 / MECX16 and over
Decrease the feed rate and ap by 30% according to cutting application chart



Warning

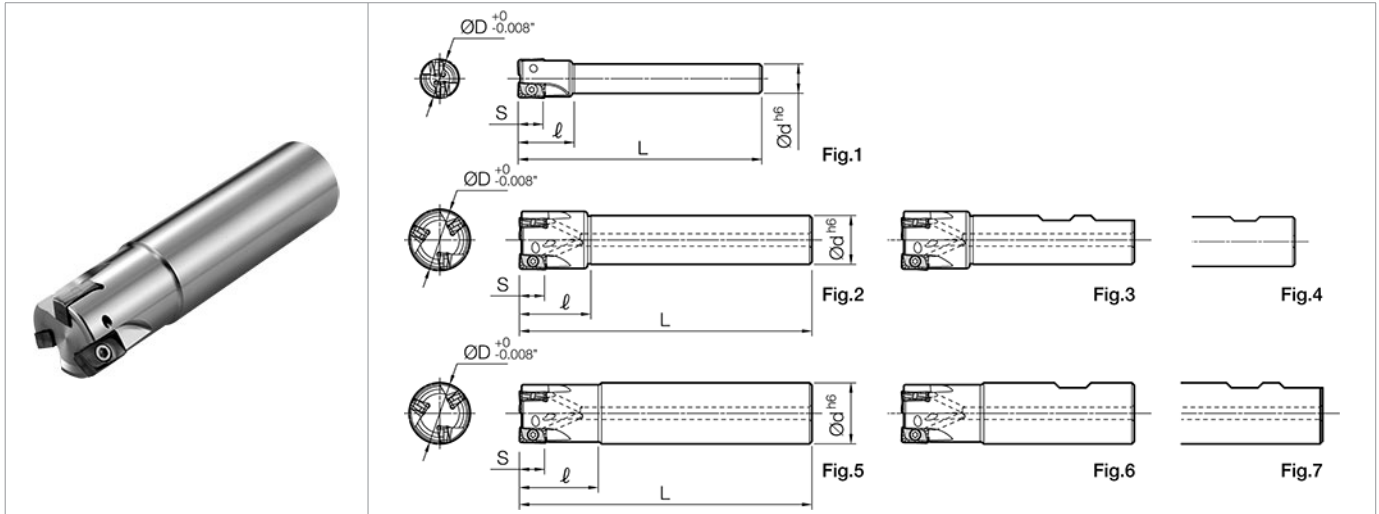
Please observe below precautions fully. Failure to observe the precautions may cause serious damage to human body.

Warning about Max. Revolution indicated on main body

1. When running the end mill and the face mill at revolutions exceeding the maximum revolution limit, the inserts or toolholder may be damaged due to the centrifugal force.
2. For actual practical revolution, please set within recommended cutting condition.
3. When using at a higher revolution (over 10,000RPM), refer to the table to adjust the balance of MECX and suitable arbor.

Max. Revolution (RPM)	Balance quality grade G ISO 1940-1 / 8821 (JIS B0905)
~20,000	G16.0
~30,000	G6.3
30,000~	G2.5

MEW End Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimension (inch)					Rake Angle (°)		Coolant Hole	Drawing	Max. Revolution (min ⁻¹)
				ØD	Ød	L	ℓ	S	A.R. (MAX)	R.R.			
Weldon Standard Shank MEW 0625-W500-10-2T 0625-W625-10-2T 0750-W625-10-2T 0750-W750-10-2T 0750-W750-10-3T	●	inch	2	0.625	0.500	2.75	0.969	0.393	+7°	-22°	No	Fig.4	43,900
	●		2	0.625	0.625	3.00	1.046	0.393	+7°	-22°	Yes	Fig.6	43,900
	●		2	0.750	0.625	3.25	1.145	0.393	+7°	-20°	Yes	Fig.3	42,000
	●		2	0.750	0.750	3.25	1.170	0.393	+7°	-20°	Yes	Fig.6	42,000
	●		3	0.750	0.750	3.25	1.170	0.393	+7°	-20°	Yes	Fig.6	42,000
Cylindrical Standard Shank MEW 16-S12-10-2T 18-S16-10-2T 20-S16-10-2T Same Shank MEW 16-S16-10-2T 20-S20-10-2T 20-S20-10-3T	○	metric	2	16	12	100	23	10	+7°	-22°	No	Fig.1	43,750
	○		2	18	16	100	25	10	+7°	-21°	Yes	Fig.5	43,000
	○		2	20	16	110	26	10	+7°	-20°	Yes	Fig.2	41,000
	○		2	16	16	100	26	10	+7°	-21°	Yes	Fig.2	43,750
	○		2	20	20	110	30	10	+7°	-20°	Yes	Fig.5	41,000
	○		3	20	20	110	30	10	+7°	-20°	Yes	Fig.5	41,000

Max. Revolution

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

Spare parts and applicable inserts (end mill / face mill)

Part Number	Spare Parts				Applicable Inserts M10		
	Insert Screw	Wrench	Anti-seize Compound	Pre-set Torque Wrench	General Purpose	Low Cutting Force	Tough Edge (Heavy Milling)
MEW ...-10_T	SB-3065TRP for Insert Screw Recommended torque 1.2Nm	DTPM-8	MP-1	PST-IP8*	LOMU 100408ER-GM	LOMU 100408ER-SM	LOMU 100408ER-GH

Coat Anti-seize Compound (MP-1) thinly on portion of taper and thread when insert is fixed.

*Pre-set Torque Wrench sold separately

Recommended Cutting Conditions M11

About wrench specifications

Wrenches and clamp screws are "Torx Plus".

- 1) Ref. to Fig. 2 for "Torx Plus" Wrench. (Blue grip)
- 2) Ref. to Fig. 3 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.

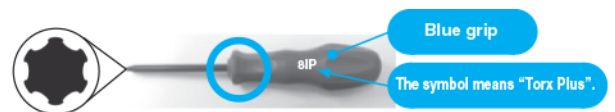


Fig. 2 "Torx Plus" Wrench (For MEW)

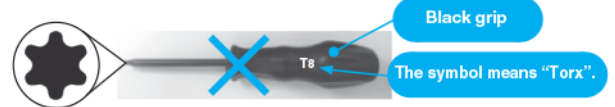


Fig. 3 "Torx" Wrench (Do NOT use it for MEW)

● : U.S. Stock Standard
○ : World Express (Shipping: 7-10 Business Days)



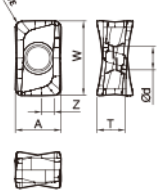

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

Milling Inserts

- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

Classification of Usage
 ★ : Roughing / 1st Choice
 ☆ : Roughing / 2nd Choice
 ■ : Finishing / 1st Choice
 □ : Finishing / 2nd Choice
 In case hardness is under 45HRC

P	Carbon Steel / Alloy Steel			★	
	Mold Steel			★	
M	Austenitic Stainless Steel		★	☆	
	Martensitic Stainless Steel	★		☆	
	Precipitation Hardened Stainless Steel			★	
K	Gray Cast Iron				★
	Nodular Cast Iron				★
N	Non-Ferrous Metal				
S	Heat-resistant Alloy	★			
	Titanium Alloy			★	
H	Hard Materials				□

Insert	Part Number	Dimensions (inch)						Angle			CVD MEGACOAT NANO			
		A	T	Ød	W	Z	rε	α	β	γ	CA6535	PR1535	PR1525	PR1510
 General Purpose Handed Insert shows Right-hand	LOMU 100408ER-GM	0.260	0.157	0.134	0.429	0.067	0.031	-	-	-	●	●	●	●
 Low Cutting Force 	LOMU 100408ER-SM	0.260	0.157	0.134	0.429	0.067	0.031	-	-	-	○	●	●	●
 Tough Edge (Heavy Milling)	LOMU 100408ER-GH	0.260	0.157	0.134	0.429	0.067	0.031	-	-	-	○	○	●	●

Inserts are sold in 10 piece boxes

Mounting the Insert

- Be sure to remove dust and chips from the insert mounting pocket.
- 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. (Ref. to Fig. 1.)
Align M3 screw slightly inclined.
(Ref. to Fig. 2.) surface of the insert.
- When tightening the screw, make sure that the wrench is parallel to the screw.
For recommended torque, Ref. to **M9**
- 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.

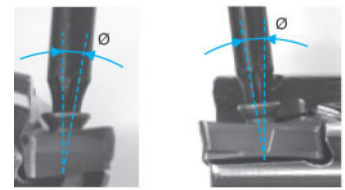
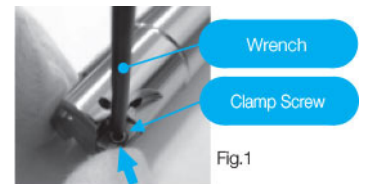


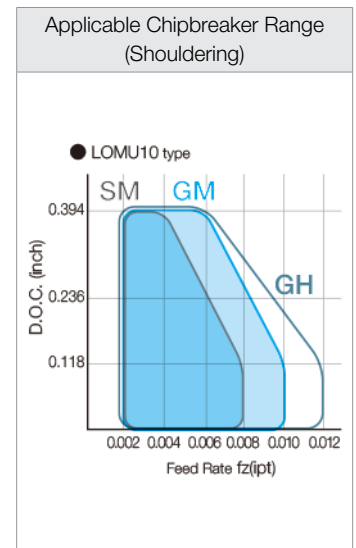
Fig.2

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)			
		Toolholder Description		MEGACOAT NANO			CVD Coated Carbide
		MEW0625-MEW0750 MEW16-MEW18	MEW20	PR1535	PR1525	PR1510	CA6535
GM	Carbon Steel	0.002-0.004-0.008	0.003-0.006-0.010	390-590-820	400-600-825	-	-
	Alloy Steel	0.002-0.004-0.006	0.003-0.006-0.008	330-520-720	325-525-725	-	-
	Mold Steel	0.002-0.003-0.005	0.003-0.005-0.008	260-460-590	250-450-600	-	-
	Austenitic Stainless Steel	0.002-0.003-0.005	0.003-0.005-0.006	325-525-650	325-525-650	-	-
	Martensitic Stainless Steel	0.002-0.003-0.005	0.003-0.005-0.008	500-650-825	-	-	600-775-975
	Precipitation Hardened Stainless Steel	0.002-0.003-0.005	0.003-0.005-0.008	300-400-500	-	-	-
	Gray Cast Iron	0.002-0.004-0.007	0.003-0.007-0.010	-	-	400-600-825	-
	Nodular Cast Iron	0.002-0.003-0.005	0.003-0.006-0.008	-	-	325-500-650	-
	Ni-base Heat Resistant Alloy	0.002-0.003-0.005	0.003-0.005-0.006	250-325-500	-	-	75-100-150
	Titanium Alloys	0.002-0.003-0.005	0.003-0.006-0.008	125-200-250	-	100-150-225	-
SM	Carbon Steel	0.002-0.004-0.007	0.003-0.006-0.008	390-590-820	400-600-825	-	-
	Alloy Steel	0.002-0.003-0.005	0.003-0.005-0.007	330-520-720	325-525-725	-	-
	Mold Steel	0.002-0.003-0.005	0.003-0.004-0.006	260-460-590	250-450-600	-	-
	Austenitic Stainless Steel	0.002-0.003-0.005	0.003-0.004-0.006	325-525-650	325-525-650	-	-
	Martensitic Stainless Steel	0.002-0.003-0.005	0.003-0.004-0.006	500-650-825	-	-	600-775-975
	Precipitation Hardened Stainless Steel	0.002-0.003-0.005	0.003-0.004-0.006	300-400-500	-	-	-
	Ni-base Heat Resistant Alloy	0.002-0.003-0.004	0.003-0.004-0.005	75-100-150	-	-	75-100-150
	Titanium Alloys	0.002-0.003-0.005	0.003-0.005-0.006	125-200-250	-	100-150-225	-
GH	Carbon Steel	0.002-0.004-0.008	0.003-0.008-0.012	390-590-820	400-600-825	-	-
	Alloy Steel	0.002-0.004-0.006	0.003-0.008-0.010	330-520-720	325-525-725	-	-
	Mold Steel	0.002-0.003-0.005	0.003-0.006-0.009	260-460-590	250-450-600	-	-
	Austenitic Stainless Steel	0.002-0.003-0.005	0.003-0.005-0.006	325-525-650	325-500-650	-	-
	Martensitic Stainless Steel	0.002-0.003-0.005	0.003-0.005-0.008	500-650-825	-	-	590-790-980
	Precipitation Hardened Stainless Steel	0.002-0.003-0.005	0.003-0.005-0.008	300-400-500	-	-	-
	Gray Cast Iron	0.002-0.004-0.008	0.003-0.009-0.012	-	-	400-600-825	-
	Nodular Cast Iron	0.002-0.003-0.006	0.003-0.007-0.010	-	-	325-500-650	-
	Ni-base Heat Resistant Alloy	0.002-0.003-0.005	0.003-0.005-0.006	70-100-160	-	-	70-100-160
	Titanium Alloys	0.002-0.003-0.005	0.003-0.006-0.008	130-200-260	-	100-160-230	-

* Machining with coolant is recommended for Titanium Alloy.

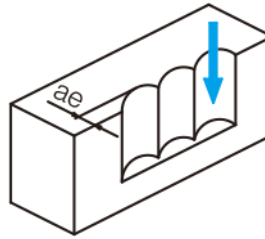
★ 1st Recommendation ☆ 2nd Recommendation



Ramping, Helical milling and Plunge milling

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

Plunge milling



Insert Part Number	Max. Width of Cut (ae)
LOMU10	0.197" (5mm)

Cutting Performance

Part Number	Shouldering (Cutting width ae = ØD/2)	Slotting
MEW0625...-10 MEW0750...-10 MEW16...-10 MEW18...-10		
MEW20...-10		

<Cutting Conditions>

- Vc=600 sfm
- GM Chipbreaker
- Workpiece Material: S50C
- Overhang Length
 1. End mill: Same length as ℓ of the dimension
 2. Face mill: H of the dimension + minimum overhang length of the arbor