

THE NEW VALUE FRONTIER



# MEC

**Ultra Hurricane  
Endmills & Facemills**

**New!**

**Product Line Expansion!**

**Aluminum Machining**

- GW25 with JA Chipbreaker
- KPD001 PCD for High Speed Machining

# ULTRA HURRICANE

Product Line Expansion

**General Steel**  
**PR830**




Work Material	General Steel			
Cutting Range	Finishing		Roughing	
ISO Class	P01	P10	P20	P30
Application Range	PR830			

**Stainless Steel**  
**PR925**



Work Material	Stainless Steel			
Cutting Range	Finishing		Roughing	
ISO Class	M01	M10	M20	M30
Application Range	PR925			

**Cast Iron**  
**PR905**



Work Material	Cast Iron			
Cutting Range	Finishing		Roughing	
ISO Class	K01	K10	K20	K30
Application Range	PR905			

## Chipbreakers

Low resistance  
JS chipbreaker

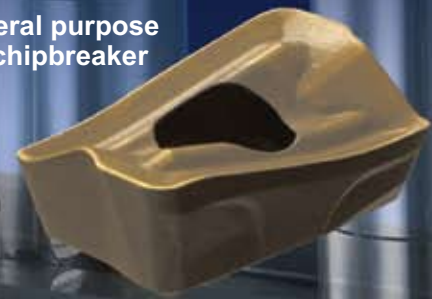
**NEW**



**New!**  
JA chipbreaker  
see p. 4

Seven Available Radii

General purpose  
JT chipbreaker



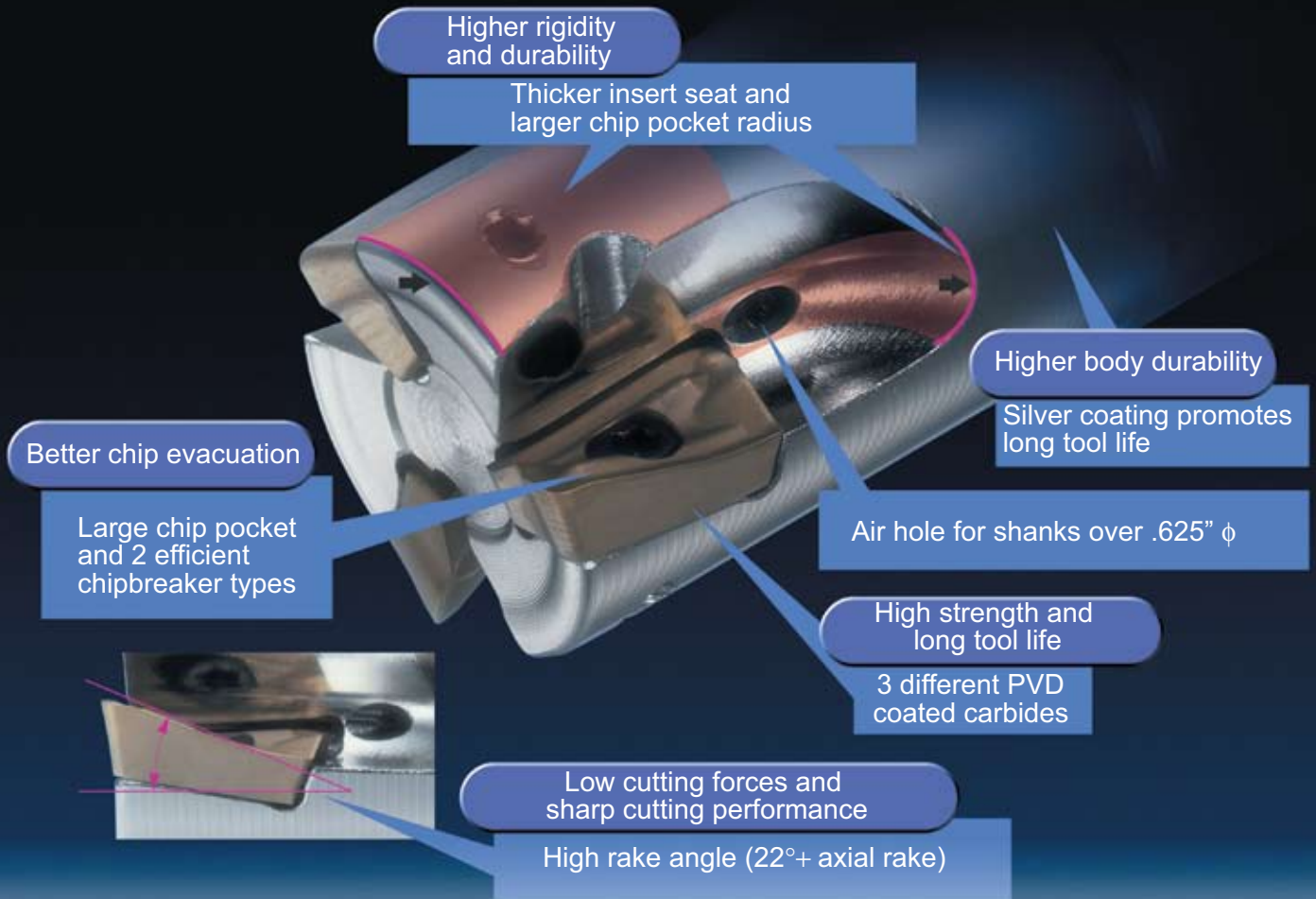
Facemill Cutter



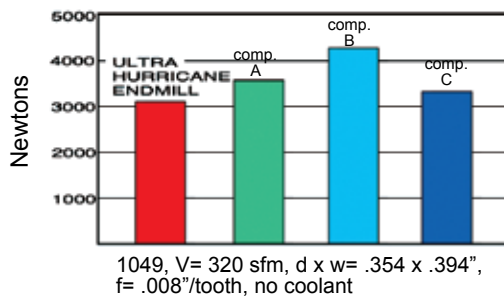
**New!**  
.008 Radius  
see p. 4

		
<b>.016</b>	<b>.031</b>	<b>.047</b>
		
<b>.063</b>	<b>.079</b>	<b>.122</b>

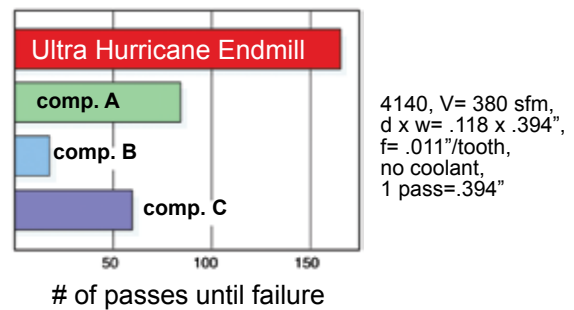
# ENDMILL & FACEMILL



## Low Cutting Forces



## High Feed Rates

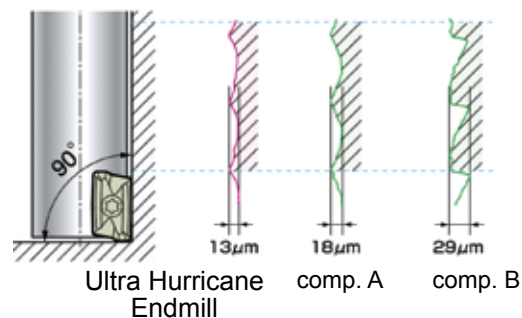


## Excellent Shoulder Wall Surface Finishes



1049, V= 380 sfm, d x w= .197 x .394", f= .004"/tooth, no coolant

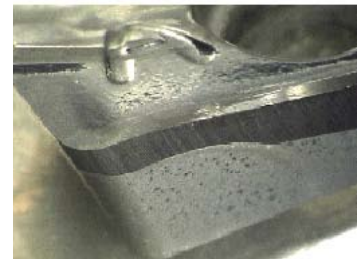
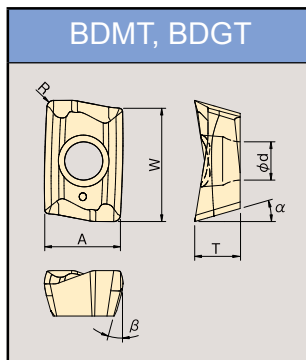
## Perfect 90° Shoulders



**Steels and Cast Iron Inserts**

	Dimension					Angle		Stock		
	A	T	$\phi d$	W	R	$\alpha$	$\beta$	PR830	PR905	PR925
BDMT110304ER-JT	.248	.118	.110	.433	.016	18°	15°	●	●	
BDMT110308ER-JT					.031			●	●	
BDMT110304ER-JS	.248	.118	.110	.433	.016	18°	13°	●		●
BDMT110308ER-JS					.031			●		●
BDMT11T304ER-JT	.264	.150	.110	.433	.016	18°	13°	●	●	
BDMT11T308ER-JT					.031			●	●	
BDMT11T312ER-JT					.047			●	●	
BDMT11T316ER-JT					.063			●	●	
BDMT11T320ER-JT					.079			●	●	
BDMT11T331ER-JT					.122			●	●	
BDMT11T304ER-JS	.264	.150	.110	.433	.016	18°	13°	●		●
BDMT11T308ER-JS					.031			●		●
BDMT170404ER-JT	.378	.193	.173	.669	.016	18°	13°	●	●	
BDMT170408ER-JT					.031			●	●	
BDMT170412ER-JT					.047			●	●	
BDMT170416ER-JT					.063			●	●	
BDMT170420ER-JT					.079			●	●	
BDMT170431ER-JT					.122			●	●	
BDMT170404ER-JS	.378	.193	.173	.669	.016	18°	15°	●		●
BDMT170408ER-JS					.031			●		●

**New!**  
Product Line Expansion!  
Aluminum Machining  
• GW25 with JA Chipbreaker  
• KPD001 PCD for High Speed Machining



JA chipbreaker with ground edge periphery

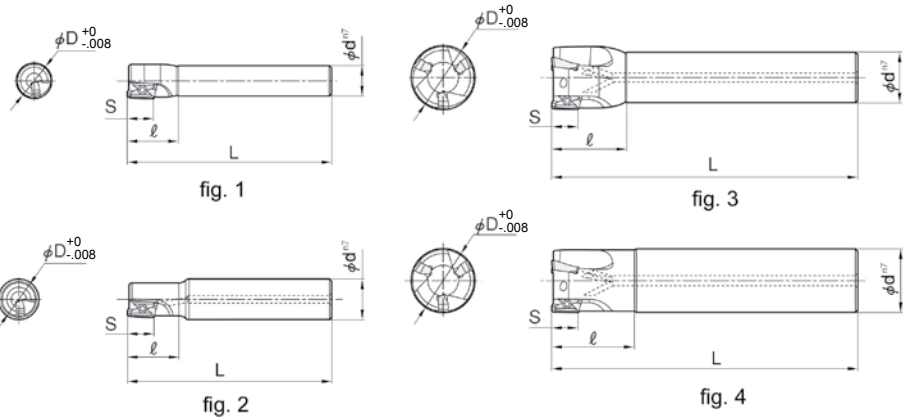
**Aluminum Machining Inserts**

	Dimension					Angle		Stock	
	A	T	$\phi d$	W	R	$\alpha$	$\beta$	Uncoated Carbide GW25	PCD KPD001
BDGT11T302FR-JA	.264	.150	.110	.433	.008	18°	13°	●	
BDGT11T304FR-JA					.016			●	
BDGT11T308FR-JA					.031			●	
BDGT170404FR-JA					.016			●	
BDGT170408FR-JA	.378	.193	.173	.669	.031	18°	13°	●	
BDGT170420FR-JA					.079			●	
BDMT11T302FR	.264	.150	.110	.433	.008	18°	13°		●
BDMT11T304FR					.016				●
BDMT170402FR	.378	.193	.173	.669	.008	18°	13°		●
BDMT170404FR					.016				●

**Aluminum Machining**

- Use the JA chipbreaker with GW25 for precision cutting with minimal edge build-up.
- The JA chipbreaker has a sharp edge that is periphery ground.
- JA is mirror polished for improved adhesion resistance.
- Use KPD001 for high speed machining.
- KPD001 has a micro-grain structure that provides a sharper edge and promotes excellent surface finishes.

■ Endmills (inch)



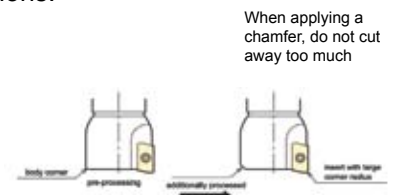
Description	Stock	# inserts	Dimensions (inch)					Rake Angle			Screw	Wrench	Max. RPM
			φD	φd	L	l	S	A.R.	R.R.	Fig.			
MEC0500-S500-11	•	1	0.500	0.500	3.15	.787	0.394	12°	-21°	1	SB-2545TR	DTM-8	50800
MEC0625-S500-11T	•	2	0.625	0.500	2.75	0.906	0.394	18°	-14°	3	SB-2555TRG	DTM-8	43750
MEC0625-S625-11T	•	2	0.625	0.625	3.00	1.024		18°	-14°	4			43750
MEC0750-S625-11T	•	3	0.750	0.625	3.05	1.024		20°	-10°	3			41000
MEC0750-S750-11T	•	3	0.750	0.750	3.25	1.142		20°	-10°	4			41000
MEC1000-S750-11T	•	3	1.000	0.750	3.25	1.142		21°	-10°	3			37500
MEC1000-S100-11T	•	3	1.000	1.000	3.75	1.260		21°	-10°	4			37500
MEC1250-S100-11T	•	4	1.250	1.000	3.75	1.260		23°	-9°	3			33900
MEC1250-S125-11T	•	4	1.250	1.250	4.00	1.575		23°	-9°	4			33900
MEC1500-S125-11T	•	5	1.500	1.250	4.35	1.969		24°	-8°	3			30000
MEC0750-S750-5.2-11T	•	2	0.750	0.750	5.20	2.362		0.394	20°	-10°			4
MEC1000-S100-6.3-11T	•	2	1.000	1.000	6.30	2.362	21°		-10°	4	37500		
MEC1250-S125-7.9-11T	•	2	1.250	1.250	7.87	2.559	23°		-9°	4	33900		
MEC1500-S125-9.5-11T	•	2	1.500	1.250	9.45	2.559	23°		-8°	3	30000		
MEC1000-S750-17	•	2	1.000	0.750	3.50	1.417	0.618	16°	-11°	3	SB-4070TRN	DTM-15	35000
MEC1000-S100-17	•	2	1.000	1.000	3.75	1.417		16°	-11°	4			35000
MEC1250-S100-17	•	3	1.250	1.000	4.00	1.575		17°	-7°	3			30000
MEC1250-S125-17	•	3	1.250	1.250	4.00	1.575		17°	-7°	4			30000
MEC1500-S125-17	•	4	1.500	1.250	4.35	1.969		19°	-7°	3			25000
MEC1000-S100-6.3-17	•	2	1.000	1.000	6.30	2.362	0.618	16°	-11°	4	SB-4070TRN	DTM-15	35000
MEC1250-S125-7.9-17	•	2	1.250	1.250	7.87	2.559		17°	-7°	4			30000
MEC1500-S125-9.5-17	•	2	1.500	1.250	9.45	2.559		17°	-7°	3			25000

● Applicable Inserts

Milling Cutter	Insert
MEC...11	BDMT 1103
MEC...11T	BDMT 11T3
MEC...17	BDMT 1704

- When using inserts with corner radii .063" or larger, additional modifications of the cutter body will be necessary. See the chart below for the recommended modifications.

Insert Corner R	Material to be removed from cutter body corner
.063	R.040
.079	R.040
.122	R.063



■ Endmills (metric)

Description	Stock	# inserts	Dimensions						Rake Angle			Screw	Wrench	Max. Rev		
			unit	φD	φd	L	ℓ	S	A.R.	R.R.	Fig.					
Standard Shank	MEC10-S10-11	○	1	mm	10	10	80	17	10	+10°	-24°	1	SB-2545TR	DTM-8	54800	
	MEC10-S16-11	○	1	mm	10	16						17			2	54800
	MEC12-S10-11	○	1	mm	12	10						20			1	50800
	MEC12-S16-11	○	1	mm	12	16						20			2	50800
	MEC14-S12-11	○	1	mm	14	12						20			1	47700
	MEC14-S16-11	○	1	mm	14	16						20			2	47700
	MEC16-S12-11T	○	2	mm	16	12	100	23	10	+18°	-14°	1	SB-2555TRG	DTM-8	43750	
	MEC18-S16-11T	○	2	mm	18	16	100	23				1			43000	
	MEC20-S16-11T	○	3	mm	20	16	110	26				3			41000	
	MEC22-S20-11T	○	3	mm	22	20	110	26				3			39600	
	MEC25-S20-11T	○	3	mm	25	20	120	29				3			37500	
	MEC28-S25-11T	○	3	mm	28	25	120	29				3			35800	
	MEC30-S25-11T	○	4	mm	30	25	130	32				3			34800	
	MEC32-S25-11T	○	4	mm	32	25	130	32				3			33900	
MEC40-S32-11T	○	5	mm	40	32	150	50	3				30000				
MEC16-S16-11T	○	2	mm	16	16	100	30	10				+18°			-14°	4
MEC20-S20-11T	○	3	mm	20	20	110	30		4	41000						
MEC25-S25-11T	○	3	mm	25	25	120	32		4	37500						
MEC32-S32-11T	○	4	mm	32	32	130	40		4	33900						
Long Shank	MEC20-S20-140-11T	○	2	mm	20	20	140	60	10	+20°	-10°	4	SB-2555TRG	DTM-8	41000	
	MEC25-S25-160-11T	○	2	mm	25	25	160	60							4	37500
	MEC32-S32-200-11T	○	2	mm	32	32	200	65							4	33900
	MEC40-S32-240-11T	○	2	mm	40	32	240	65							3	30000
Standard Shank	MEC25-S20-17	○	2	mm	25	20	120	36	15.7	+16°	-11°	3	SB-4070TRN	DTM-15	35000	
	MEC32-S25-17	○	3	mm	32	25	130	40							3	30000
	MEC40-S32-17	○	4	mm	40	32	150	50							3	25000
Long Shank	MEC25-S25-17	○	2	mm	25	25	120	36	15.7	+16°	-11°	4	SB-4070TRN	DTM-15	35000	
	MEC32-S32-17	○	3	mm	32	32	130	40							4	30000
	MEC25-S25-160-17	●	2	mm	25	25	160	60	15.7	+16°	-11°	4			35000	
	MEC32-S32-200-17	○	2	mm	32	32	200	65							4	30000
	MEC40-S32-240-17	○	2	mm	40	32	240	65							3	25000

MEC Recommended Cutting Conditions 0.500" - 0.625" Ø cutter								
Work Material	Chipbreaker (IPT)			Insert Grade (SFM)				
	JT	JS	JA / FR	PR830	PR905	PR925	KPD001	GW25
Stainless Steel	.002~.004	.002~.004	-	150~600	-	150~600	-	-
Carbon Steel	.002~.006	.002~.005	-	200~650	-	150~550	-	-
Alloy Steel	.002~.005	.002~.004	-	150~600	-	-	-	-
Tool Steel	.002~.004	.002~.004	-	200~550	-	-	-	-
Gray Cast Iron	.002~.006	-	-	-	100~800	-	-	-
Ductile Iron	.002~.004	-	-	-	100~475	-	-	-
Aluminum	-	-	.004~.008	-	-	-	1000~5000	650~2700

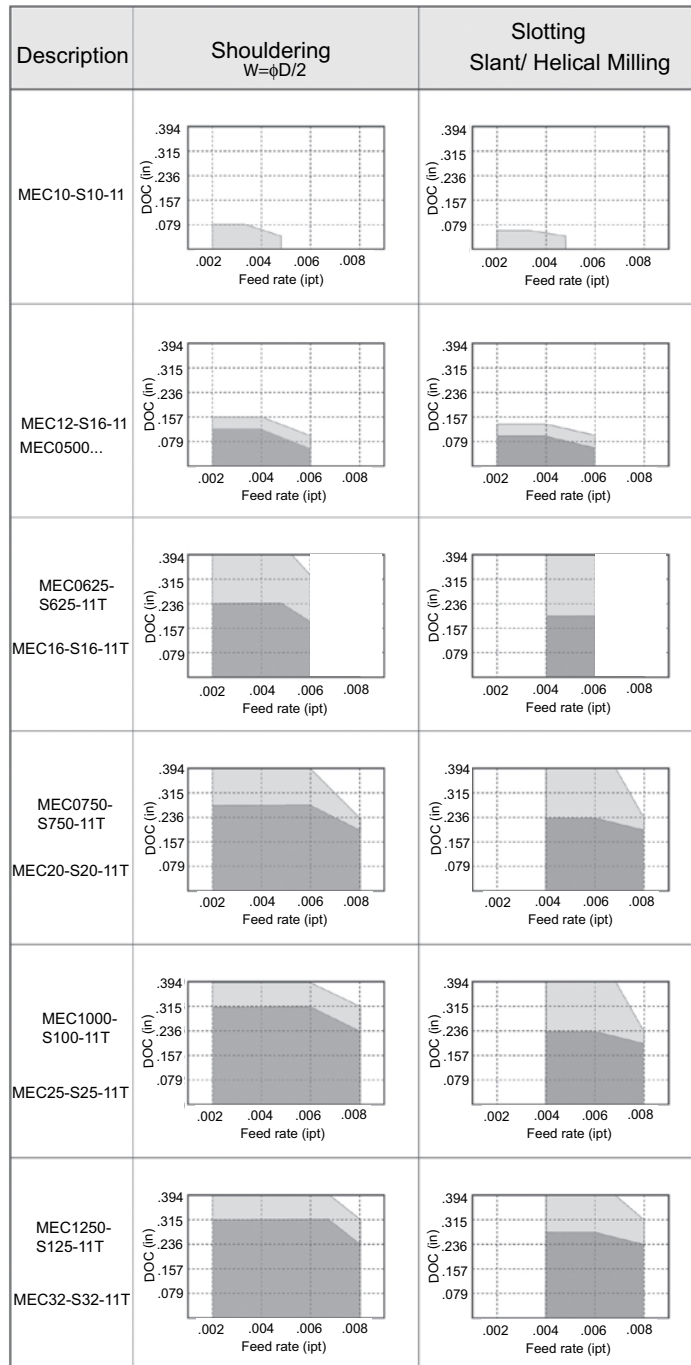
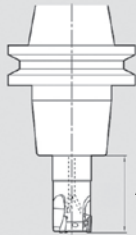
MEC Recommended Cutting Conditions 0.750" - 4.00" Ø cutter								
Work Material	Chipbreaker (IPT)			Insert Grade (SFM)				
	JT	JS	JA / FR	PR830	PR905	PR925	KPD001	GW25
Stainless Steel	.003~.006	.002~.005	-	150~600	-	150~600	-	-
Carbon Steel	.003~.010	.004~.007	-	200~650	-	150~550	-	-
Alloy Steel	.003~.008	.004~.006	-	150~600	-	-	-	-
Tool Steel	.003~.008	.002~.005	-	200~550	-	-	-	-
Gray Cast Iron	.003~.010	-	-	-	100~800	-	-	-
Ductile Iron	.003~.008	-	-	-	100~475	-	-	-
Aluminum	-	-	.005~.010	-	-	-	1000~5000	650~2700

## ■ Endmill Technical Data

Cutting Edge Length .394 in

V= 400sfm, 1050

Description	A Overhang length (in)
MEC10-S10-11	.670 -
MEC12-S16-11 / MEC0500...	.787 1.18
MEC16-S16-11T / MEC0625-S625-11T	1.18 1.79
MEC20-S20-11T / MEC0750-S750-11T	1.18 1.79
MEC25-S25-11T / MEC1000-S100-11T	1.26 1.89
MEC32-S32-11T / MEC1250-S125-11T	1.58 2.36

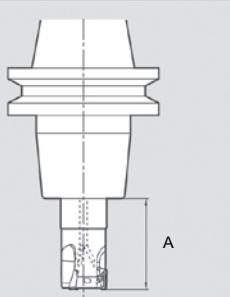


## ■ Endmill Technical Data

Cutting Edge Length .394 in (Long Shank)

v=400 SFM

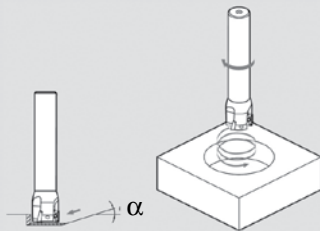
Description	A Overhang length (in)	
	MEC20-S20-140-11T MEC0750-S750-5.2-11T	2.362
MEC25-S25-160-11T MEC1000-S100-6.3-11T	2.362	3.957
MEC32-S32-200-11T MEC1250-S125-7.9-11T	3.957	5.118
MEC40-S32-240-11T MEC1500-S125-9.5-11T	3.957	5.118



Description	Shouldering $W=\phi D/2$	Slotting Slant/Helical Milling
	MEC20-S20-140-11T MEC0750-S750-5.2-11T	
MEC25-S25-160-11T MEC1000-S100-6.3-11T		
MEC32-S32-200-11T MEC1250-S125-7.9-11T		
MEC40-S32-240-11T MEC1500-S125-9.5-11T		

### Slant Milling, Helical Milling

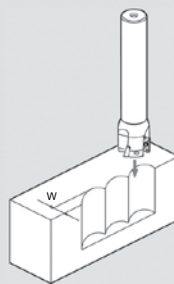
- Ramping angle should be under  $\alpha$  °



Cutting diameter	Applicable Insert	Max. ramping angle ( $\alpha$ °)
.625	BDMT 11T3	3°
.750		5°
1.00		2.5°
1.25		1.5°
1.50		.7°
1.00	BDMT 1704	8°
1.25		5°
1.50		2.5°

BDMT 1103 insert not recommended for slant or helical milling

### Vertical Milling



Cutting diameter	Applicable Insert	Max. D.O.C. (W)
.625"	BDMT 11T3	.060
.750" 1.000" 1.250" 1.500"	BDMT 11T3	.197
.250" .500" .750"	BDMT 1704	.315

BDMT 1103 insert not recommended for vertical milling

### Maximum Revolution

When running the endmill at revolutions exceeding the maximum revolution limit, the inserts or toolholder may be damaged due to the centrifugal force.

When using at a higher revolution (over 10,000min), refer to the table to adjust the balance of MEC and suitable arbor

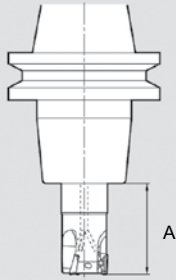
Max. Revolution	JIS ISO
~20,000	G16
~30,000	G6.3
30,000~	G2.5

■ Endmill Technical Data

Cutting Edge Length .618 in

v=400 SFM

Description	A Overhang length (in)	
	1.417	2.126
MEC25-S25-17 / MEC1000-S100-17	1.575	2.362
MEC32-S32-17 / MEC1250-S125-17	1.969	2.953
MEC25-S25-160-17 MEC1000-S100-6.3-17	2.362	3.937
MEC32-S32-200-17 MEC1250-S125-7.9-17	3.937	5.118
MEC40-S32-240-17 MEC1500-S125-9.5-17	3.937	5.118



Description	Shouldering	Slotting Slant/Helical Milling
MEC1000-S100-17 MEC250S25-17	<p>Graph showing DOC (in) vs Feed rate (ipt) for Shouldering. Y-axis: .157, .315, .472, .630, .787. X-axis: .002, .004, .006, .008. Shaded area shows performance range.</p>	<p>Graph showing DOC (in) vs Feed rate (ipt) for Slotting. Y-axis: .157, .315, .472, .630, .787. X-axis: .002, .004, .006, .008. Shaded area shows performance range.</p>
MEC1250-S125-17 MEC32-S32-17	<p>Graph showing DOC (in) vs Feed rate (ipt) for Shouldering. Y-axis: .157, .315, .472, .630, .787. X-axis: .002, .004, .006, .008. Shaded area shows performance range.</p>	<p>Graph showing DOC (in) vs Feed rate (ipt) for Slotting. Y-axis: .157, .315, .472, .630, .787. X-axis: .002, .004, .006, .008. Shaded area shows performance range.</p>
MEC1500-S125-17 MEC40-S32-17	<p>Graph showing DOC (in) vs Feed rate (ipt) for Shouldering. Y-axis: .157, .315, .472, .630, .787. X-axis: .002, .004, .006, .008. Shaded area shows performance range.</p>	<p>Graph showing DOC (in) vs Feed rate (ipt) for Slotting. Y-axis: .157, .315, .472, .630, .787. X-axis: .002, .004, .006, .008. Shaded area shows performance range.</p>
MEC1000-S100-6.3-17 MEC25-S25-160-17	<p>Graph showing DOC (in) vs Feed rate (ipt) for Shouldering. Y-axis: .157, .315, .472, .630, .787. X-axis: .002, .004, .006, .008. Shaded area shows performance range.</p>	<p>Graph showing DOC (in) vs Feed rate (ipt) for Slotting. Y-axis: .157, .315, .472, .630, .787. X-axis: .002, .004, .006, .008. Shaded area shows performance range.</p>
MEC1250-S125-7.9-17 MEC32-S32-200-17	<p>Graph showing DOC (in) vs Feed rate (ipt) for Shouldering. Y-axis: .157, .315, .472, .630, .787. X-axis: .002, .004, .006, .008. Shaded area shows performance range.</p>	<p>Graph showing DOC (in) vs Feed rate (ipt) for Slotting. Y-axis: .157, .315, .472, .630, .787. X-axis: .002, .004, .006, .008. Shaded area shows performance range.</p>
MEC1500-S125-9.5-17 MEC40-S32-240-17	<p>Graph showing DOC (in) vs Feed rate (ipt) for Shouldering. Y-axis: .157, .315, .472, .630, .787. X-axis: .002, .004, .006, .008. Shaded area shows performance range.</p>	<p>Graph showing DOC (in) vs Feed rate (ipt) for Slotting. Y-axis: .157, .315, .472, .630, .787. X-axis: .002, .004, .006, .008. Shaded area shows performance range.</p>

**■ Facemills**

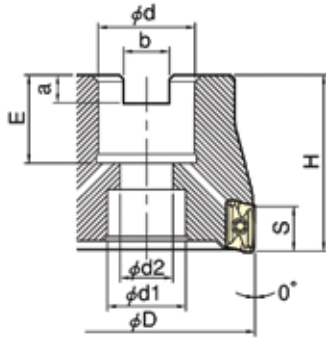


Fig.1

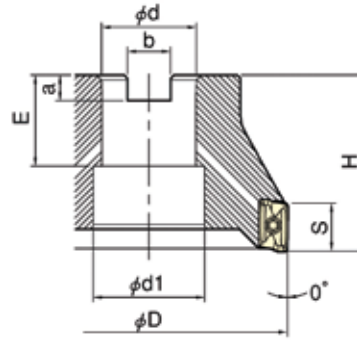


Fig.2



Description	Stock	# inserts	Unit	Dimensions									Rake Angle		Fig.	Screw	Wrench	Max. Rev									
				φD	φd	φd1	φd2	H	E	a	b	S	A.R.	R.R.													
MEC1500R-11T-5T	●	5	in	1.500	0.750	.630	.417	1.575	.807	.188	.312	.394	+11.7°	-7.8°	1	SB-2555TRG	DTM-8	30,700									
MEC2000R-11T-5T	●	5		2.000	0.750	.646	.417	1.575	.819	.188	.312	.394	+11°	-7°	1			22,300									
MEC2500R-11T-6T	●	6		2.500	0.750	.630	.417	1.575	.819	.188	.312	.394	+11°	-7°	1			20,400									
MEC3000R-11T-7T	●	7		3.000	1.000	.827	.555	1.969	.878	.223	.375	.394	+11°	-7.3°	1			18,500									
MEC4000R-11T-9T	●	9		4.000	1.500	1.969	-	2.480	1.654	.375	.625	.394	+11°	-6.8°	1			16,800									
MEC2000R-17-4T	●	4		2.000	0.750	.646	.417	1.575	.819	.188	.312	.618	+10°	-7°	1			SB-4070TRN	DTM-15	16,800							
MEC2500R-17-5T	●	5		2.500	0.750	.646	.417	1.575	.819	.188	.312	.618	+10°	-6°	1					14,400							
MEC3000R-17-6T	●	6		3.000	1.000	.827	.555	1.969	.878	.223	.375	.618	+10°	-6.8°	1					12,250							
MEC4000R-17-7T	●	7		4.000	1.500	1.969	-	2.480	1.654	.375	.625	.618	+10°	-6°	2					10,400							
MEC040R-11-5T-M	○	5	mm	40	16	14	8.5	40	18	5.5	8.5	10	+23°	-7°	1	SB-2555TRG	DTM-8	30,000									
MEC050R-11-5T-M	○	5		50	22	18	12		20	6.3	10.4							20,500									
MEC063R-11-6T-M	○	6		63															25.4	20	14	50	26	6	9.5	20,500	
MEC063R-11-6T	○	6		63	80	18,500																					
MEC080R-11-7T	○	7		80			100	31.75	46	-	63							32									8
MEC100R-11-9TN	○	9		100	15.7	+19°													-7°	1	SB-4070TRN	DTM-15	25,000				
MEC040R-17-4T-M	○	4		40																			16	14	8.5	40	
MEC050R-17-4T-M	○	4		50			22	18	12	20	6.3							10.4					14,500				
MEC063R-17-5T-M	○	5		63																				25.4	20		14
MEC063R-17-5T	○	5	63	80			12,000																				
MEC080R-17-6T	○	6	80					100	31.75	46	-	63	32	8	12.7	2	10,500										
MEC100R-17-7TN	○	7	100																								

● Applicable Inserts

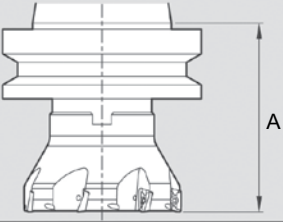
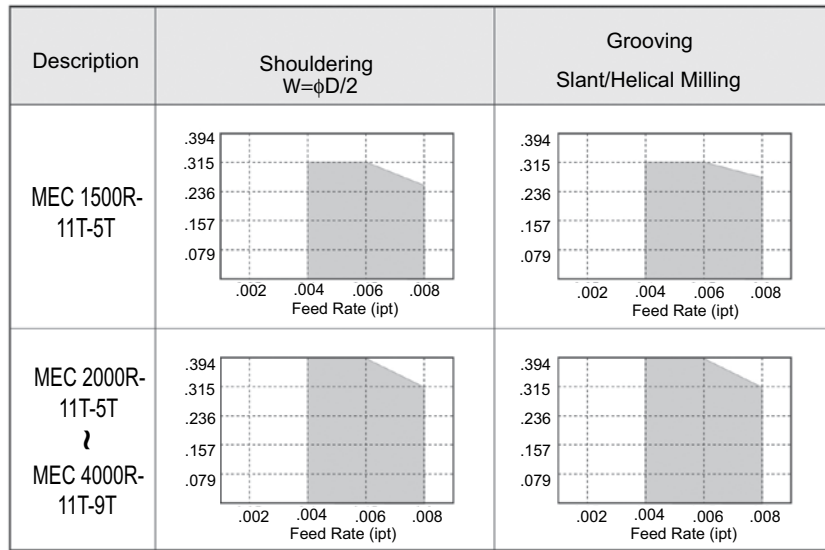
Milling Cutter	Insert p.
MEC...11T	BDMT 11T3
MEC...17	BDMT 1704

## ■ Facemill Technical Data

Cutting Edge Length .394 in

V= 400sfm 1050

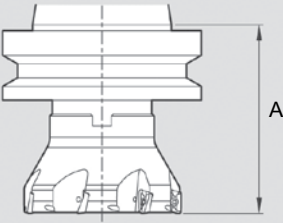
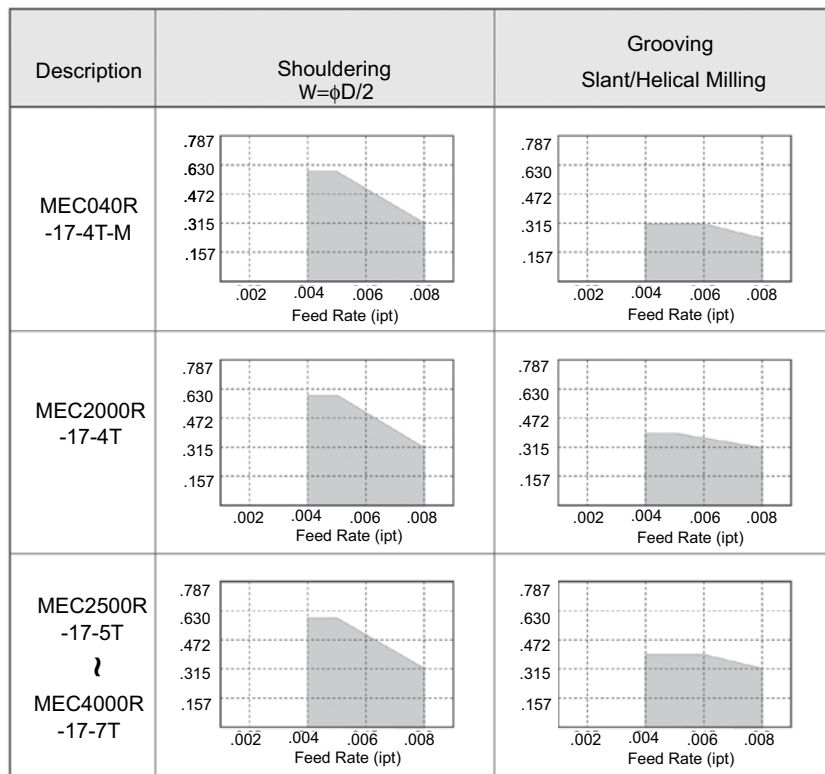
Description	A Overhang length
MEC 1500R-11T-5T	4.528
MEC 2000R-11T-5T	3.937
MEC 2500R-11T-6T	3.740
MEC 3000R-11T-7T	3.740
MEC 4000R-11T-9T	4.252

Cutting Edge Length .618 in

V= 400sfm 1050

Description	A Overhang length
MEC 040R-17-4T	4.528
MEC 2000R-17-4T	3.937
MEC 2500R-17-5T	3.740
MEC 3000R-17-6T	3.740
MEC 4000R-17-7T	4.252

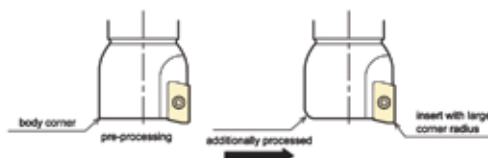



### ■ Maximum Revolution

When running the facemill at revolutions exceeding the maximum revolution limit, the inserts or toolholder may be damaged due to the centrifugal force.

■ When using inserts with corner radii .063" or larger, additional modifications of the cutter body will be necessary. See the chart below for the recommended modifications.

Insert Corner R	Material to be removed from cutter body corner
.063	R.040
.079	R.040
.122	R.063



When applying a chamfer, do not cut away too much

THE NEW VALUE FRONTIER



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