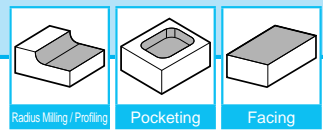
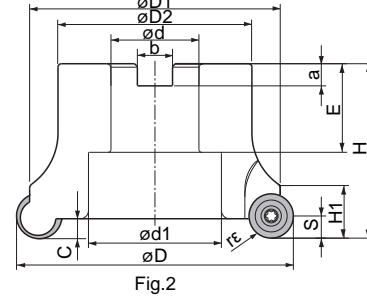
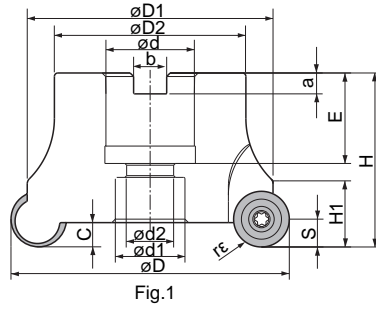


# MRP Radius Mill



## MRP Face Mill



### Toolholder Dimensions

Description	Std.	No. of Inserts	Dimension (mm)														Rake Angle (°)		Drawing	Weight (kg)			
			rε	φD	φD1	φD2	φd	φd1	φd2	H	H1	E	a	b	C	Pd	S	A.R.			R.R.		
MRP 050R-10-6T	<input type="checkbox"/>	6	5	50	45.0	38	22.0	18	12	50	13	20	6.3	10.4	3.5	2.5	5.0	+5°	-5°	Fig.1	0.4		
MRP 063R-10-7T	<input type="checkbox"/>	7		63	57.9	50	25.4	20	14			26	6.0	9.5								2.5	5.0
MRP 050R-12	<input type="checkbox"/>	4	6	50	41.4	38	22.0	18	12	50	15	20	6.3	10.4	5.0	4.0	6.0	+5°	-5°	Fig.1	0.4		
MRP 063R-12	<input type="checkbox"/>	5		63	54.4	50	20	14	26			6.0	9.5	4.5								3.5	-3°
MRP 080R-12	<input type="checkbox"/>	6		80	71.4	55	25.4	20	14			63	19	32	8.0	12.7	6.0	5.0	8.0	+5°	-6°	Fig.2	1.0
MRP 080R-12-7T	<input type="checkbox"/>	7			74.4	59	58	-	38					10.0	15.9	7.0							
MRP 080R-16	<input type="checkbox"/>	5	8	80	70.6	55	25.4	20	14	50	23	24	6.0	9.5	8.5	N.A.	10.0	+5°	-3°	Fig.1	0.8		
MRP 100R-16	<input type="checkbox"/>	6		100	90.5	70	31.75	48	-			32	8.0	12.7								6.0	5.0
MRP 100R-16-7T	<input type="checkbox"/>	7		93.0	70	31.75	48	-	63			38	10.0	15.9	7.0	6.0	6.0	5.0	-5°	-6°	Fig.2	1.7	
MRP 125R-16	<input type="checkbox"/>	6		125	115.5	80	38.10	58	-			38	10.0	15.9	7.0	6.0	6.0	5.0	-5°	-6°			Fig.2
MRP 125R-16-8T	<input type="checkbox"/>	8			118.0	80	40	60	-			55	18.4	30	9.0	16.4	6.0	5.0	8.0	+5°	-6°	Fig.2	
MRP 080R-20	<input type="checkbox"/>	4	10	80	67.3	55	25.4	20	14	50	63	24	6.0	9.5	8.5	N.A.	10.0	+5°	-3°	Fig.1	0.8		
MRP 100R-20	<input type="checkbox"/>	5		100	87.3	70	31.75	48	-			32	8.0	12.7								8.0	12.7
MRP 052R-10E-6T	<input type="checkbox"/>	6	5	52	47.0	41	22	18	11.0	50	13.0	20	6.3	10.4	3.5	2.5	5.0	+5°	-5°	Fig.1	0.4		
MRP 066R-10E-7T	<input type="checkbox"/>	7		66	60.9	49	27	20	13.5			22	7.0	12.4								7.0	12.4
MRP 080R-12E-7T	<input type="checkbox"/>	7	6	80	74.4	59	27	20	13.5	50	14.0	22	7.0	12.4	4.6	3.6	6.0	+5°	-5°	Fig.1	0.8		
MRP 100R-16E-7T	<input type="checkbox"/>	7	8	100	93.0	70	32	45	-	55	18.4	30	8.0	14.4	6.0	5.0	8.0	+5°	-6°	Fig.2	1.0		
MRP 125R-16E-8T	<input type="checkbox"/>	8		125	118.0	80	40	60	-			30	9.0	16.4								6.0	5.0

- Pd: Max. Plunging Depth
- Use BT ○○ -FMC22 (TMT Standard in the market) for MRP050R-10-6T and MRP050R-12.

### Spare Parts

Description	Clamp Screw	Wrench	Applicable Inserts ➔ M19
MRP 050R-10-6T MRP 063R-10-7T	SB-3080TR	DT-10	RPMT10T3M0
MRP 050R-12 MRP 063R-12 MRP 080R-12 MRP 080R-12-7T	SB-40115TR SB-4085TR	DT-15	RPMT1204M0-H RPMT1204M0
MRP 080R-16 MRP 100R-16 MRP 100R-16-7T MRP 125R-16 MRP 125R-16-8T	SB-50120TR	DT-20	RPMT1606M0-H
MRP 080R-20 MRP 100R-20	SB-60120TR	DT-25	RPMT2006M0-H
MRP 052R-10E-6T MRP 066R-10E-7T	SB-3080TR	DT-10	RPMT10T3M0
MRP 080R-12E-7T	SB-4085TR	DT-15	RPMT1204M0-H RPMT1204M0
MRP 100R-16E-7T MRP 125R-16E-8T	SB-50120TR	DT-20	RPMT1606M0-H

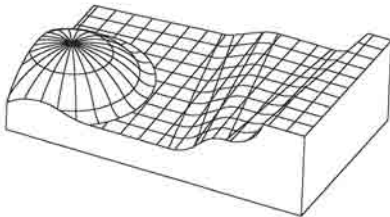
- Mounting Bolt (HH10X25) is included for MRP050R.
- Mounting Bolt (HH12X25) is included for MRP063R and MRP066R-10E-7T.
- Mounting Bolt (HH12X25) is included for MRP080R and MRP080R-12E-7T.
- Mounting Bolt (HH10X25) is included for MRP052R-10E-6T.

● : Std. Item    □ : Check Availability

● Applicable Inserts

Toolholder	Applicable Inserts  M20		
	Tough Edge	Tough Edge	RPMT
<b>MRP</b> ...-08	RDMT08T2M0-H	-	RPMT10T3M0
...-10	-	-	RPMT1204M0
...-12	-	RPMT1204M0-H	-
...-16	-	RPMT1606M0-H	-
...-20	-	RPMT2006M0-H	-

Flexible Curved Facing



← Top Face

Low cutting force and good chip evacuation owing to new chipbreaker design. "H" type insert has a second cutting edge next to the first cutting edge that adds edge strength.

New ratchet design prevents the insert's movement and holds the insert firmly in the insert pocket even during the heavy machining. (Only RPMT)

→ Bottom Face



Insert	Land at Edge	Features	Remarks
RPMT10T3M0 RPMT1204M0	No	Low Cutting Force	Even if the workpiece clamp is weak, or if the workpiece is thin, sharp cutting performance and less chattering is demonstrated.
RPMT08T2M0-H RPMT1204M0-H RPMT1606M0-H RPMT2006M0-H	Parallel Land 0.2mm Width	Tough Edge	Used for General Roughing.

◆ Recommended Cutting Conditions

Workpiece Material	fz (mm/t)	Insert Grade (Cutting Speed Vc: m/min)											
		Cermet			MEGACOAT		PVD Coated Carbide					Carbide	
		TN60	TN100M	TC60	PR1230	PR1210	PR630	PR730	PR830	PR660	PR905	PW30	KW10
Stainless Steel	~0.4		☆ 120-200		★ 120-220	-		☆ 120-200		☆ 100-180	-		-
Carbon Steel	~0.6		★ 120-200		★ 120-250	-		☆ 120-200		☆ 100-180	-		-
Alloy Steel	~0.6		★ 100-180		★ 100-220	-		☆ 100-180		☆ 80-150	-		-
Mold Steel	~0.5		★ 100-180		★ 80-180	-		☆ 80-150		☆ 60-130	-		-
Cast Iron	~0.6		-		-	★ 100-220		-		-	☆ 100-180		☆ 80-150
Non-ferrous Metals	~0.6		-		-	-		-		-	-		★ 100-300

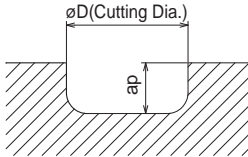
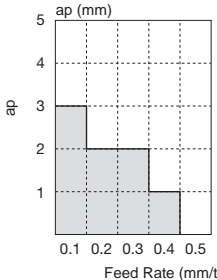
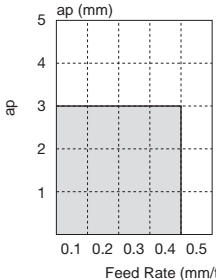
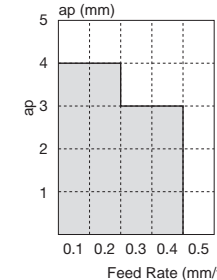
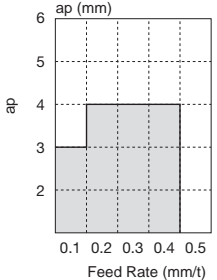
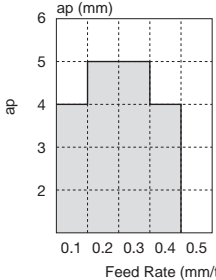
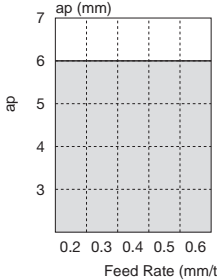
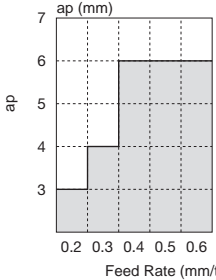
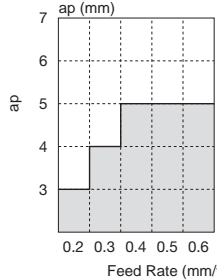
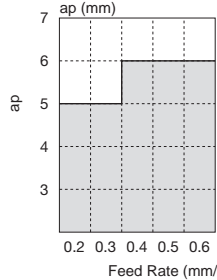
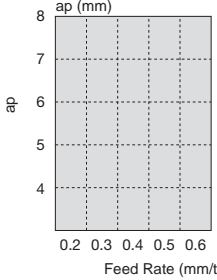
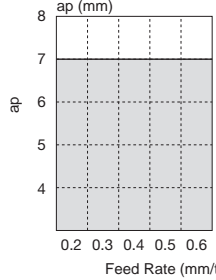
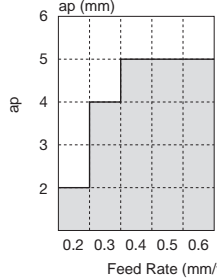
Note) Reduce the ap by 20-50% when machining with long overhang length or using long shank types.

★ : 1st Recommendation ☆ : 2nd Recommendation



# MRP Radius Mill

## ◆ Cutting Performance of Radius Mill (Standard-type)

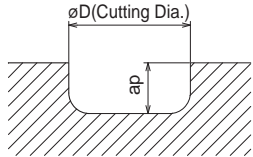
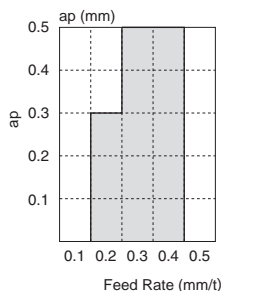
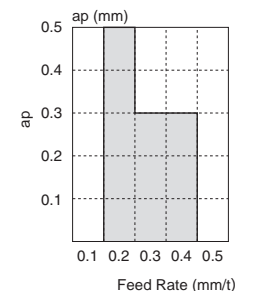
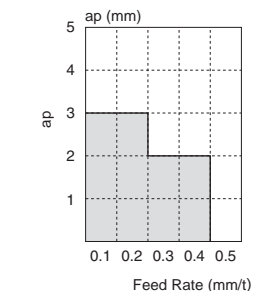
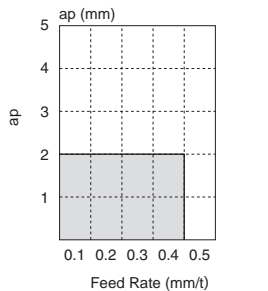
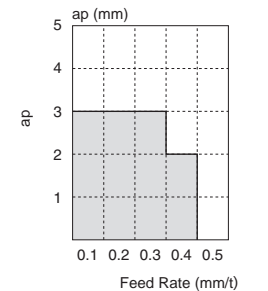
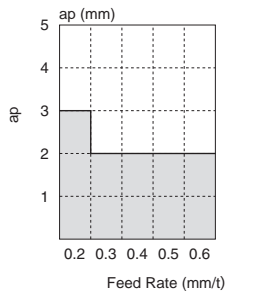
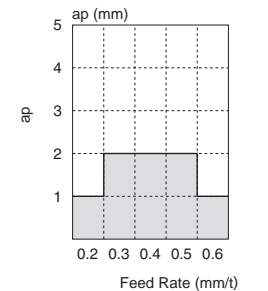
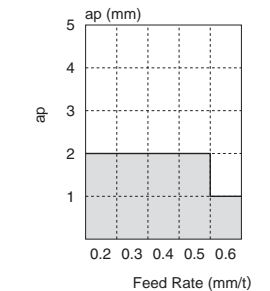
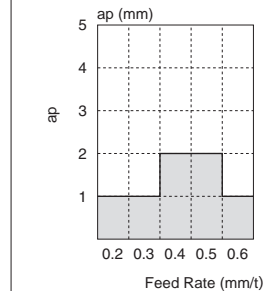
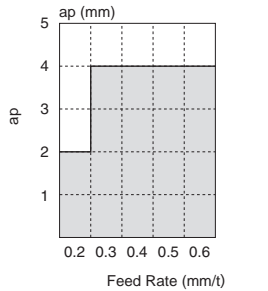
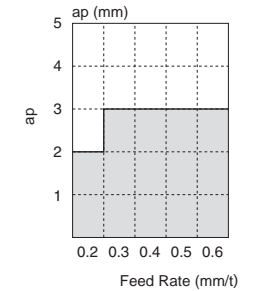
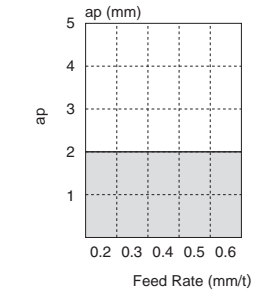
Workpiece Material	Slotting			
C50 (S50C)				<p>●Cutting Conditions</p> <p>Tooholder: Standard</p> <p>Vc=120 ~ 150m/min (See below table)</p> <p>ap = varied fz= varied Dry</p> <p>Overhang Length = L1 (See below table)</p>
	Description			
08 type (RDMT08T2M0-H)	MRP012-S16-08 n=3980min <sup>-1</sup> (Vc=150m/min) L1=42mm	MRP016-S16-08 n=2980min <sup>-1</sup> (Vc=150m/min) L1=42mm	MRP020-S20-08 n=2390min <sup>-1</sup> (Vc=150m/min) L1=42mm	
				
10 type (RPMT10T3M0)	MRP025-S25-10-3T n=1910min <sup>-1</sup> (Vc=150m/min) L1=60mm	MRP032-S32-10-4T n=1490min <sup>-1</sup> (Vc=150m/min) L1=80mm		
				
12 type (RPMT1204M0-H)	MRP032-S25-12 n=1490min <sup>-1</sup> (Vc=150m/min) L1=80mm	MRP040-S32-12 n=1195min <sup>-1</sup> (Vc=150m/min) L1=80mm	MRP040-S32-12-4T n=1195min <sup>-1</sup> (Vc=150m/min) L1=80mm	MRP050-S42-12 n=765min <sup>-1</sup> (Vc=120m/min) L1=80mm
				
16 type (RPMT1606M0-H)	MRP040-S32-16 n=1195min <sup>-1</sup> (Vc=150m/min) L1=90mm	MRP050-S42-16 n=765min <sup>-1</sup> (Vc=120m/min) L1=90mm	MRP063-S42-16 n=605min <sup>-1</sup> (Vc=120m/min) L1=90mm	
				

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Milling

◆ Cutting Performance of Radius Mill (Long Shank type)

Workpiece Material	Slotting			
C50 (S50C)				
	<p>● Cutting Conditions                      Tooholder: Standard                      Vc=120 ~ 150m/min (See below table)                      ap = varied fz= varied Dry                      Overhang Length = L1 (See below table)</p>			
Description				
08 type (RDMT08T2M0-H)	MRP012-S16-08-160 n=3980min <sup>-1</sup> (Vc=150m/min) L1=80mm	MRP016-S16-08-160 n=2980min <sup>-1</sup> (Vc=150m/min) L1=80mm	MRP020-S20-08-180 n=2390min <sup>-1</sup> (Vc=150m/min) L1=90mm	
				
10 type (RPMT10T3M0)	MRP025-S25-10-3T-180 n=1910min <sup>-1</sup> (Vc=150m/min) L1=90mm	MRP032-S32-10-4T-200 n=1490min <sup>-1</sup> (Vc=150m/min) L1=100mm		
				
12 type (RPMT1204M0-H)	MRP032-S25-12-300 n=1490min <sup>-1</sup> (Vc=150m/min) L1=150mm	MRP040-S32-12-300 n=1195min <sup>-1</sup> (Vc=150m/min) L1=150mm	MRP040-S32-12-4T-200 n=1195min <sup>-1</sup> (Vc=150m/min) L1=100mm	MRP050-S42-12-300 n=765min <sup>-1</sup> (Vc=120m/min) L1=150mm
				
16 type (RPMT1606M0-H)	MRP040-S32-16-300 n=1195min <sup>-1</sup> (Vc=150m/min) L1=150mm	MRP050-S42-16-300 n=765min <sup>-1</sup> (Vc=120m/min) L1=150mm	MRP063-S42-16-300 n=605min <sup>-1</sup> (Vc=120m/min) L1=150mm	
				



# MRP Radius Mill

## ● Guide for Drilling

### 【Depth of Drilling】

• See Pd value of Toolholder Dimension Table on page M127, M128.

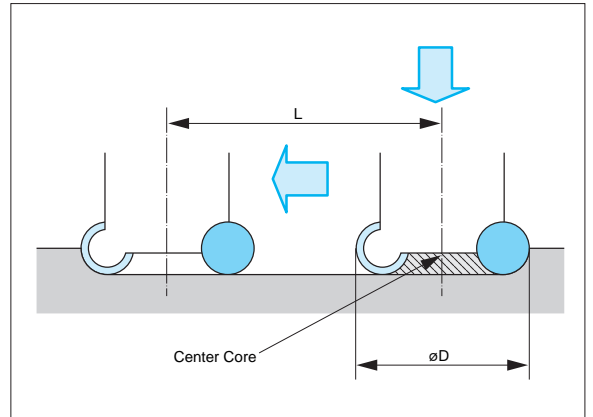
(Pd Shows the maximum plunge depth.)

### 【Traversing after Drilling】

When Traversing after Drilling

- ① Reduce the table feed by 50% until the center core part (do not forget to grind) is completely cut off.  
(The internal cutting edge's radial rake angle is larger in the negative direction)
- ② The Min. transfer length "L" to make the flat face is as follows.

Insert	L (mm)
RDMT08T2M0-H	$\phi D-7$
RPMT10T3M0	$\phi D-9$
RPMT1204M0	$\phi D-11$
RPMT1204M0-H	
RPMT1606M0-H	$\phi D-15$



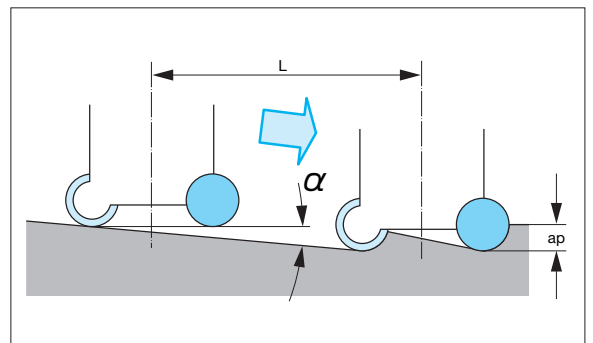
## ● Guide for Ramping (Slant Milling)

The transfer length "L" at the maximum slant angle  $\alpha$  in the ramping operation depends on the  $a_p$ .

Toolholder	Angle $\alpha$ (°)	$\tan \alpha$
MRP 012-S16-08(-160)	Ramping is not available	
016-S16-08(-160)	4°	0.070
020-S20-08(-180)	14°	0.249
MRP 025-S25-10-3T(-180)	14°	0.249
032-S32-10-4T(-200)	8°	0.141
MRP 032-S25-12(-300)	15°	0.268
040-S32-12(-300)	10°	0.176
040-S32-12-4T(-200)	9°	0.158
050-S42-12(-300)	7°	0.123
MRP 040-S32-16(-300)	20°	0.364
050-S42-16(-300)	13°	0.231
063-S42-16(-300)	8°	0.141
MRP 050R-10-6T	4°	0.070
063R-10-7T	3°	0.052
MRP 050R-12	7°	0.123
063R-12	5°	0.087
080R-12	3°	0.052
080R-12-7T	3°	0.052
MRP 080R-16	6°	0.105
100R-16	4°	0.070
100R-16-7T	3°	0.052
125R-16	3°	0.052
125R-16-8T	2°	0.035
MRP 080R-20	8°	0.141
100R-20	6°	0.105

Formula of the Transfer Length "L" at Max. Slant Angle

$$L = \frac{a_p}{\tan \alpha}$$



\* Above is the value considering the clearance 1mm between the tool body and the workpiece.

M

Milling