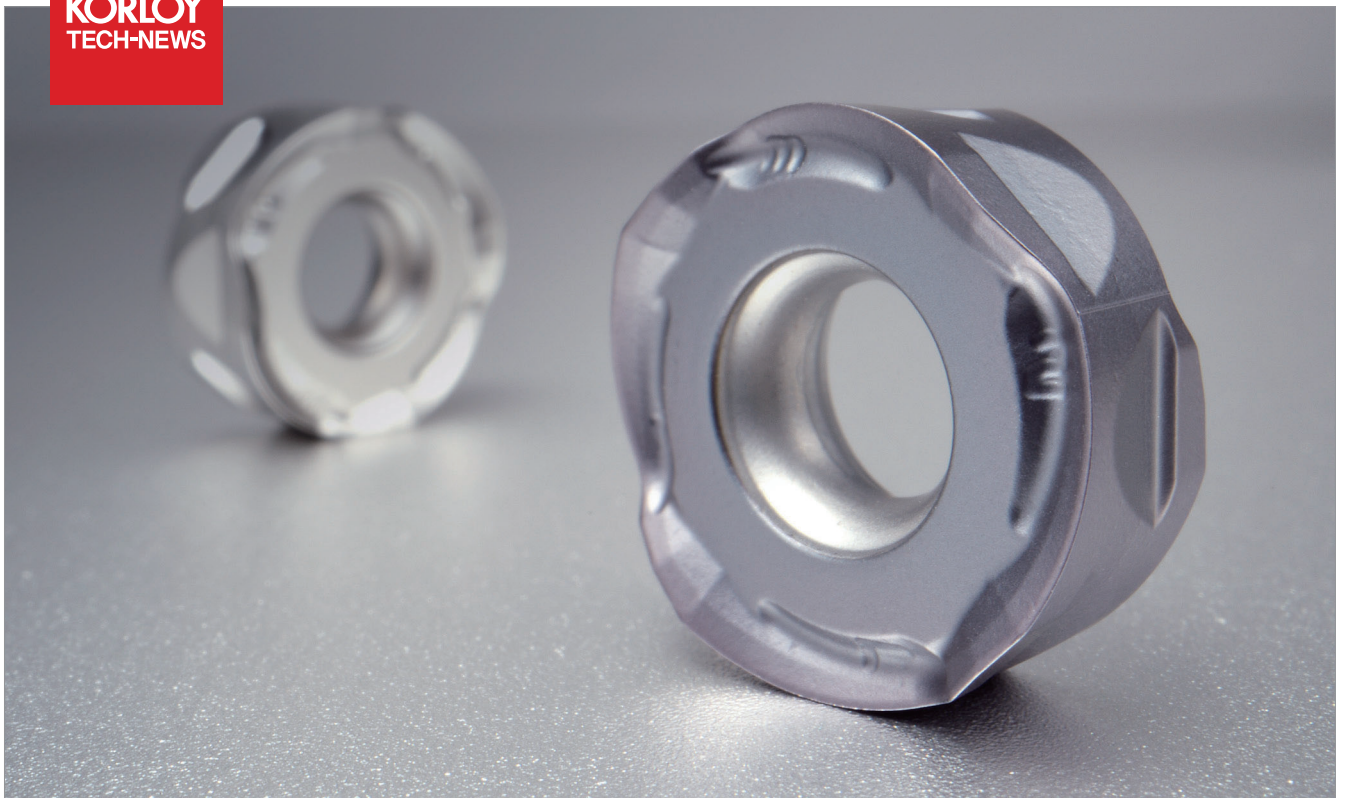


Double-sided round milling tool with 8 corners

# RMR

**KORLOY**  
TECH-NEWS



- The exclusive structure preventing rotation ensures stable machining.
- Double-sided round tool with 8 corners realizes cost efficiency.

## Double-sided round milling tool with 8 corners

# RMR

KORLOY launched double-sided round indexable milling tool, RMR which is the most effective in HRSA machining.

The **RMR**'s exclusive reverse positive structure prevents rotation of tool that has been a big trouble in HRSA cutting occurred by existing tool's round shape and enhances long tool life. In addition, its sharp chip breaker and helix cutting edge help HRSA

cutting smoothly without cutting load.

The wide minor cutting edge with the optimal angle between workpiece and tool enhances machinability and the double-sided shape with 8 corners ensures cost efficiency.

The optimal cutting edge for HRSA cutting and ultra-coating technology with excellent lubrication reduce fracture and enhance wear resistance and tool life.



### High cost efficiency

- Maximum 8 corners are usable due to applying double-sided structure.

### Good surface finish

- The optimal minor cutting edge ensures good surface finish.

### Stable tool life

- The exclusive structure preventing rotation ensures stable machining.

### Excellent performance

- Chip breaker for good surface finish and helix cutting edge realizes excellent cutting performance.

## Code system


### 【Cutter type】

<b>RMR</b>	<b>C</b>	<b>M</b>	<b>050</b>	<b>R</b>	<b>-</b>	<b>22</b>	<b>-</b>	<b>5</b>	<b>-</b>	<b>RN12</b>
Rich Mill Round	Type C: Cutter	Arbor M: Metric A: Inch None: Asia	Machining dia. 050: Ø50 mm	Oil hole & Hand R: With oil hole, Right-handed NR: Without oil hole, Right-handed		Internal dia. 22: Ø22 mm	No. of tooth 5: 5 Teeth	Available insert RN12: RNMX12		

### 【Shank type】

<b>RMR</b>	<b>S</b>	<b>040</b>	<b>R</b>	<b>-</b>	<b>3</b>	<b>W</b>	<b>32</b>	<b>-</b>	<b>110</b>	<b>-</b>	<b>RN12</b>
Rich Mill Round	Type S: Shank	Machining dia. 040: Ø40 mm	Oil hole & Hand R: With oil hole, Right-handed NR: Without oil hole, Right-handed		No. of tooth 3: 3 Teeth	Shank type W: Weldon C: Cylinder	Shank dia. 032: Ø32 mm	Overall length 110: 110 mm	Available insert RN12: RNMX12		

## Recommended grade and cutting edge

Chip breaker	Cutting edge	Recommended insert and grade for different workpieces (●: 1st recommendation)	
		<b>S</b>	<b>M</b>
		Grade	Grade
ML		● UNC840 ○ UPC845	● PC9540 ○ UPC845

## Recommended cutting conditions

Workpiece	ISO	AISI	Specific cutting force (N/mm <sup>2</sup> )	Hardness (HB)	<<< Wear resistance >>>		<<< Toughness >>>		ML
					Grade	C/B	Grade	C/B	
					UNC840	ML	UPC845	ML	
					vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	ap (mm)
<b>S</b>	15156-3	Inconel625	2650	250	30	0.40	25	0.40	1~3
					45	0.20	40	0.20	
					60	0.05	55	0.10	
	9723	Inconel718	3000	320	25	0.40	20	0.40	
					40	0.20	35	0.20	
					55	0.05	50	0.10	
	Stellite	Stellite	3000~3100	300~320	30	0.40	20	0.40	
					45	0.20	35	0.20	
					60	0.05	50	0.10	
	5832-11	Ti-6Al-4V	1400	320	30	0.40	20	0.40	
					50	0.20	40	0.20	
					70	0.05	60	0.10	

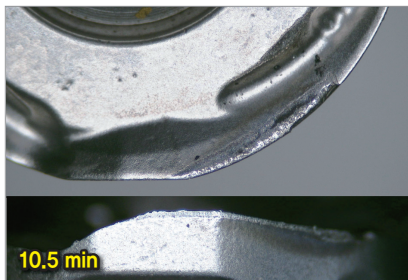
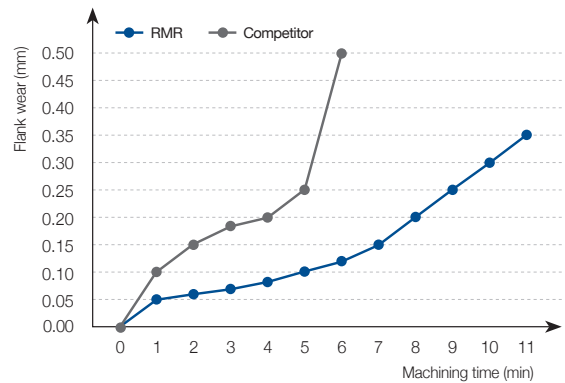
## Recommended cutting conditions

Workpiece	ISO	AISI	Specific cutting force (N/mm <sup>2</sup> )	Hardness (HB)	Grade	C/B	ML	
					PC9540	ML		
					vc (m/min)	fz (mm/t)		ap (mm)
<b>M</b>	Ferritic/ martensitic	X6CrAl13 X6Cr17	405 430	1800	200	120	0.30	1~3
						160	0.15	
						200	0.05	
		X12CrS13 X6CrMo17-1	416 434	2850	330	100	0.30	
						140	0.15	
						180	0.05	
	X12Cr13	403 410	2350	330	100	0.30		
					140	0.15		
					180	0.05		
	Austenitic	X5CrNi18-9 X2CrNi18-9 X5CrNiMo17-12-2 X2CrNiMo17-12-3	304 316	2000	180	90	0.30	
						120	0.15	
						150	0.05	
Austenitic/ ferritic (Duplex)	-	S31803 S32750	2450	260	60	0.30		
					90	0.15		
					120	0.10		

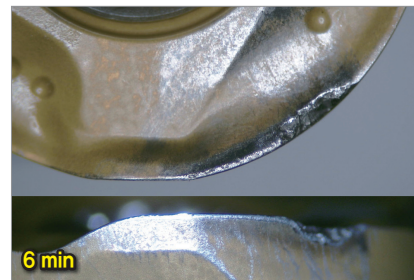
## Performance evaluation

### Wear resistance

- **Workpiece** 15156-3  
100(L)x100(W)x100(H)  
Steel rectangular tube
- **Cutting conditions** vc (m/min) = 30  
fz (mm/t) = 0.4  
ap (mm) = 1.8  
ae (mm) = 35, wet
- **Tools** Insert RNMX1204M0E-ML (UNC840)  
Holder RMRCM050R-22-5-RN12

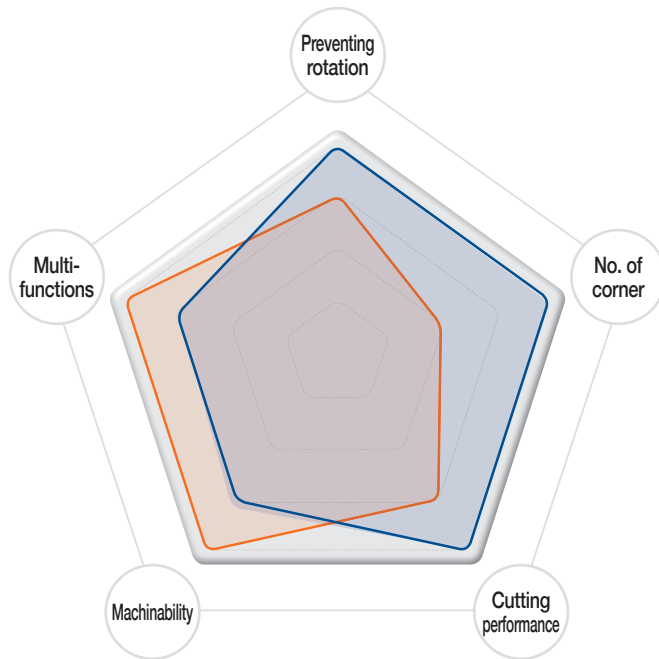


[RMR]



[Competitor]

# Tool selection guide



— RMR

— FMR P-positive

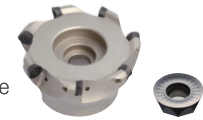
## RMR

- Excellent clamping force due to preventing rotation with reverse positive angle
- High cost efficiency from double-sided corners (max. 8 corners)
- High cutting performance with an optimal minor edge structure



## FMR P-positive

- Multi-functions by applying one sided shape
- Low cutting resistance due to positive setting



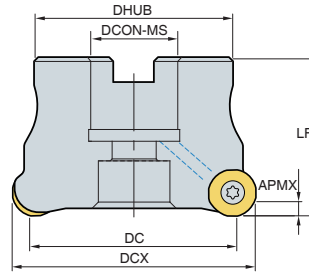
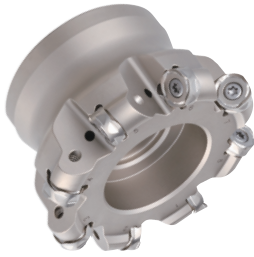
Tools	Preventing rotation	No. of corners	Cutting performance	Machinability	Multi-functions
<b>RMR</b>	★★★★★	★★★★★	★★★★★	★★★	★★★
FMR P-positive	★★★	★★	★★★	★★★★★	★★★★★

# Insert

Inserts	Designation	Coated			Dimensions (mm)				Geometries
		PC9540	UNC840	UPC845	IC	BS	RE	S	
	RNMX 1204M0E-ML		●	●	12.0	2.0	6.0	4.75	

● : Stock item

# RMRC(M)-RN12



- AR: -7°
- RR: -13°

(mm)

Designation	Stock		DCX	DC	DHUB	DCON-MS	LF	APMX		MIID
RMRCM	050R-22-5-RN12	●	50	40.4	42	22	40	3.5	0.28	RNMX12
	050R-22-6-RN12	●	50	40.4	42	22	40	3.5	0.29	
	063R-22-6-RN12	●	63	53.4	42	22	40	3.5	0.45	
	063R-22-7-RN12	●	63	53.4	42	22	40	3.5	0.46	
	080R-27-6-RN12		80	70.4	60	27	50	3.5	0.83	
	080R-27-8-RN12		80	70.4	60	27	50	3.5	0.82	
	100R-32-7-RN12		100	90.4	70	32	63	3.5	1.67	
	100R-32-9-RN12		100	90.4	70	32	63	3.5	1.67	
	125R-40-10-RN12		125	115.4	90	40	63	3.5	2.82	
	125R-40-12-RN12		125	115.4	90	40	63	3.5	2.83	
RMRC	080R-25.4-6-RN12		80	70.4	60	25.4	50	3.5	0.85	RNMX12
	080R-25.4-8-RN12		80	70.4	60	25.4	50	3.5	0.85	
	100R-31.75-7-RN12		100	90.4	70	31.75	63	3.5	1.71	
	100R-31.75-9-RN12		100	90.4	70	31.75	63	3.5	1.71	
	125R-38.1-10-RN12		125	115.4	90	38.1	63	3.5	2.88	
	125R-38.1-12-RN12		125	115.4	90	38.1	63	3.5	2.88	

● : Stock item

## Available inserts



RNMX-ML

Designation	Coated		
	PC9540	UNC840	UPC845
RNMX 1204M0E-ML		●	●

● : Stock item

## Available arbors

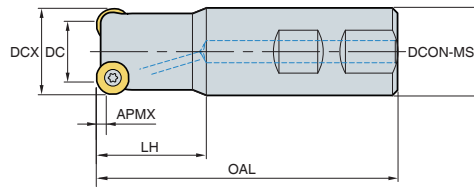
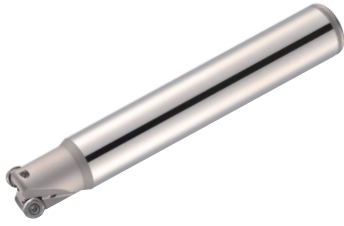
Designation	DCON	Available arbors
RMRCM 050R-22-□-RN12	22	BT□□-FMC22-□□
063R-22-□-RN12		BT□□-FMC27-□□
080R-27-□-RN12	27	BT□□-FMC32-□□
100R-32-□-RN12	32	BT□□-FMC40-□□
125R-40-□-RN12	40	

Designation	DCON	Available arbors
RMRCM 080R-25.4-□-RN12	25.4	BT□□-FMC25.4-□□
100R-31.75-□-RN12	31.75	BT□□-FMC31.75-□□
125R-38.1-□-RN12	38.1	BT□□-FMC38.1-□□

## Parts

Specification	Screw	Wrench
Ø50~Ø125	FTNA0411-A	TW15S

# RMRS-RN12



- AR: -7°
- RR: -15° ~ -13°

(mm)

Designation	Stock		DCX	DC	DCON-MS	LH	OAL	Shank	APMX		MIID
RMRS 032R-2W32-110-RN12	●	2	32	22.4	32	40	110	W	3.5	0.56	RNMX12
032R-3W32-110-RN12	●	3	32	22.4	32	40	110	W	3.5	0.55	
032R-2C32-200-RN12	●	2	32	22.4	32	40	200	C	3.5	1.09	
032R-3C32-200-RN12	●	3	32	22.4	32	40	200	C	3.5	1.09	
040R-3W32-110-RN12	●	3	40	30.4	32	40	110	W	3.5	0.62	
040R-4W32-110-RN12	●	4	40	30.4	32	40	110	W	3.5	0.62	
040R-3C32-200-RN12	●	3	40	30.4	32	40	200	C	3.5	1.15	
040R-4C32-200-RN12	●	4	40	30.4	32	40	200	C	3.5	1.15	
050R-5W40-120-RN12		5	50	40.4	40	40	120	W	3.5	1.08	
050R-6W40-120-RN12		6	50	40.4	40	40	120	W	3.5	1.08	
050R-5C42-300-RN12		5	50	40.4	42	40	300	C	3.5	3.05	
050R-6C42-300-RN12		6	50	40.4	42	40	300	C	3.5	3.05	
063R-6W40-130-RN12		6	63	53.4	40	50	130	W	3.5	1.43	
063R-7W40-130-RN12		7	63	53.4	40	50	130	W	3.5	1.43	
063R-6C42-300-RN12		6	63	53.4	42	50	300	C	3.5	3.30	
063R-7C42-300-RN12		7	63	53.4	42	50	300	C	3.5	3.26	

● : Stock item

## Available inserts



RNMX-ML

Designation	Coated		
	PC9540	UNC840	UPC845
RNMX 1204M0E-ML		●	●

● : Stock item

## Parts

Specification	Screw 	Wrench 
Ø32~Ø63	FTNA0411-A	TW15S

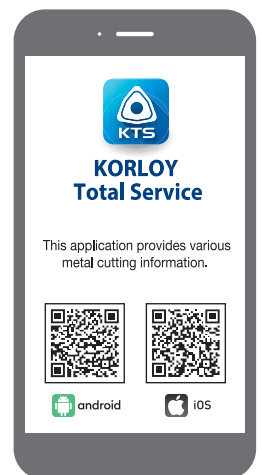
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