

E Technical Information for Future Mill

Rigid body employs high tensile aluminum

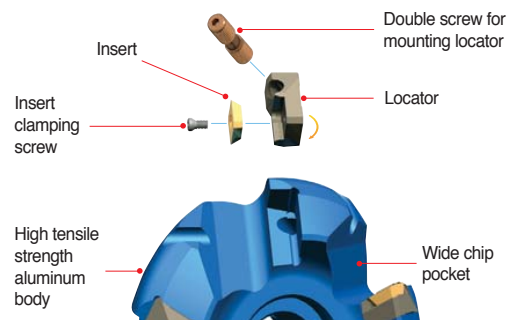
Future Mill

- Light-weight aluminum body (50% of steel body) can be used for high speed cutting, tapping center, and on low power machines
- Easy handling
- It can be used for aluminum alloys, medium cutting of steel, and cast iron
- Rigid body employs high tensile aluminum
- Locators for excellent durability
- A variety of chip breaker are available
- The high rake angle provides low cutting loads and good surface roughness

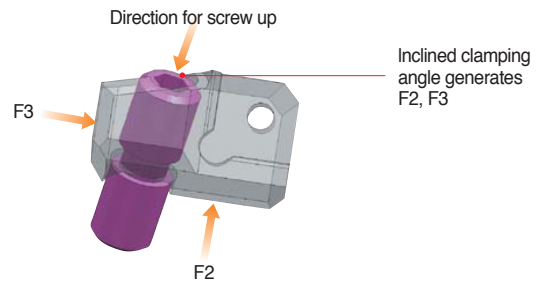
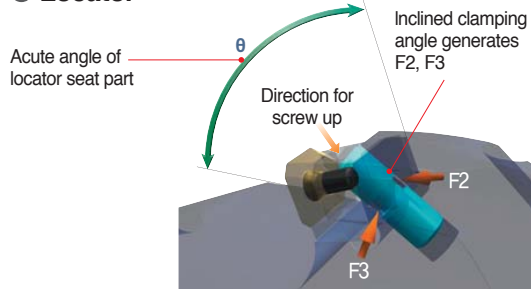
Features of cutter

- Strong clamping between aluminum body and locator with double screw provides high efficiency
- Acute angle of locator seat provides strong clamping
- Wide chip pocket area provides good chip evacuation
- High tensile strength aluminum body

Assembly structure of cutter

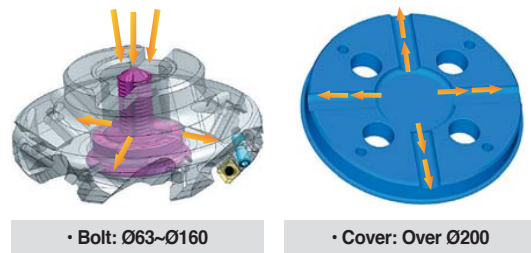


Locator

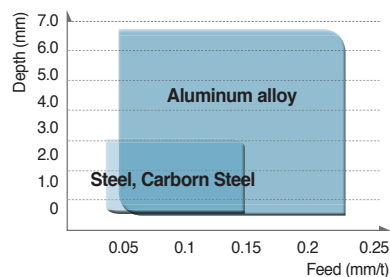


Through coolant system

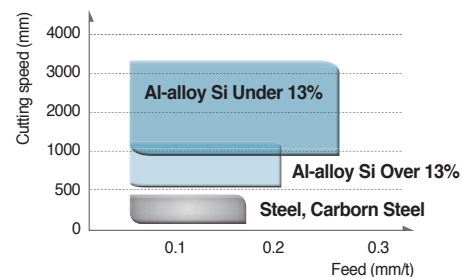
- Exclusively designed coolant bolt and cover provide excellent coolant action and chip evacuation for improved tool life
- Exact coolant direction to cutting area
- Exclusive coolant bolt and cover are sold separately. Through coolant arbor is required



Application range as per workpiece



Cutting speed

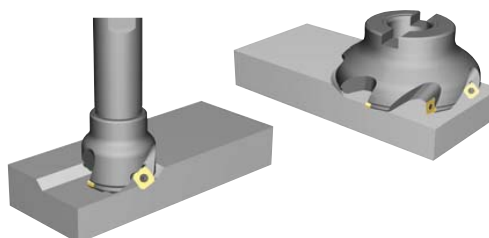


Max. available revolution

Cutter diameter	Max. revolution
Ø63	20,000
Ø80	16,000
Ø100	13,000
Ø125	10,000
Ø160	8,000
Ø200	6,500
Ø250	5,000
Ø315	4,000

Future Mill (FMA)
Features

- General milling cutter for high productivity
- Adjustable pitch of cutter and various chip breaker offer wide application range.
- Light cutter body allows high speed cutting and can be used in low horse power machine
- Smooth cutting with low cutting load is accomplished with High-rake angle


Features of chip breaker

Type	Chip breaker	Cutting-edge	Features
Light cutting	None C/B		• Superior surface roughness at finishing due to ground type cermet insert
	MF		• Superior cutting quality for light and difficult-to-cut material machining through the low cutting load of chip breaker
General cutting	MM		• Suitable for various cutting due to special shape design for general cutting
Roughing	MR		• Tough cutting-edge provides stable cutting performance in severe interruption
For aluminum	MA		• Superior cutting quality for aluminum due to sharp cutting-edge and buffed surface - S□ET-MA: Sharp cutting-edge due to high accurate grinding - S□XT-MA: Suitable cutting-edge for roughing

Recommended cutting condition

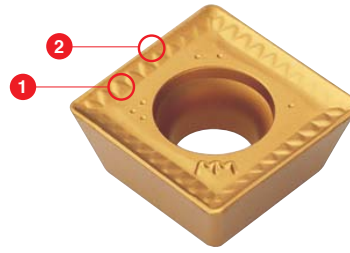
ISO	Grades	vc (m/min)	MF	MM	MR	MA
			fz (mm/t)	fz (mm/t)	fz (mm/t)	fz (mm/t)
P	NC5330	210~350	0.05~0.20	0.10~0.30	0.10~0.30	-
	NCM325	190~310	0.05~0.20	0.10~0.30	0.10~0.30	-
	PC3500	160~270	0.05~0.20	0.10~0.30	0.10~0.30	-
M	PC9530	90~150	0.05~0.15	0.10~0.30	-	-
	NCM335	70~120	0.05~0.15	0.10~0.30	-	-
K	PC5300	110~180	0.05~0.20	0.10~0.30	-	-
Aluminum	H01	260~440	-	-	-	0.10~0.35

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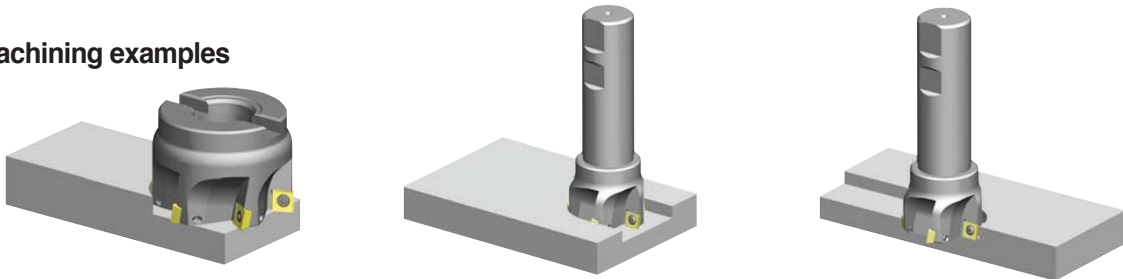
Future Mill (FMP)

Features

- The strong cutting-edge ensures excellent tool life in high feed and high speed, deep depth of cut, with low cutting loads
- Optimal grades for most workpieces make high efficiency cutting possible
- Unique chip breaker makes good chip evacuation and lower cutting loads (1)
- Innovative curve cutting-edge lowers cutting load and provides a stronger cutting-edge (2)



Machining examples



Features of chip breaker

- Innovative special cutting-edge and chip breaker design ensures ideal 90° cutting and low cutting load
- Various applications are available with multi functional cutters (Facing, Slotting, Shouldering)
- Improved tool life due to special coated grades
- Superior cutting quality at deep cutting depth through the low cutting load and strong cutting-edge

Recommended C/B and grade as per workpiece

Chip breaker	Cutter edge	Recommended C/B and grade as per workpiece (●: 1st)									
		Low carbon steel/Mild steel		High carbon steel/Mild steel		Stainless steel		Cast iron		Aluminum alloy	
		C/B	Grades	C/B	Grades	C/B	Grades	C/B	Grades	C/B	Grades
Low cutting load type MF		●	○ NCM325 ○ NC5330 ● NCM335		● NCM325 ○ NC5330 ○ NCM335	●	○ NCM325 ○ NC5330 ● NCM335	●	● PC6510 ○ PC215K	-	-
Reinforced cutting edge type MM			○ NCM325 ○ NC5330 ● NCM335		● NCM325 ○ NC5330 ○ NCM335		○ NCM325 ○ NC5330 ● NCM335		● PC6510 ○ PC215K	-	-
Sharp cutting edge type MA		-	-	-	-	-	-	-	-	●	● H01 ○ G10

Recommended cutting condition

(mm)

ISO	Cutting Speed vc (m/min)					
	CVD Coated		PVD Coated			Carbide
	NCM325	NCM335	PC6510	PC8520	PC9530	H01
P	190~310	180~290	-	-	-	-
M	110~180	100~160	-	110~180	90~150	-
K	-	-	180~230	-	-	-
N	-	-	-	-	-	260~440

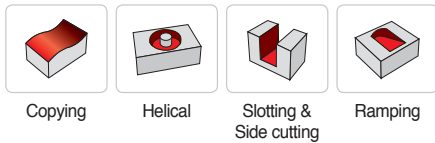


Future Mill (FMR)

Features

- Wide coverage for medium to roughing, general steel to high hardness mold materials
- 2 step shape of insert provides strong clamping and can minimize components to replace the shim
- 4-8 cutting-edge available per insert (Inscribed circle 05, 06, 07, 08, 10, 12, 16, 20)
- Uneven flute spacing prevents vibration on high speed applications and provides more stable machining
- Precise design of the insert seat prevents insert from chattering
- Special design of the insert bottom prevents movement and chatter of insert
- Easy to change cutting-edge due to the rotation prevention design of the insert

Machining examples



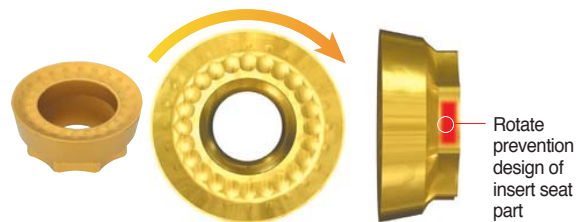
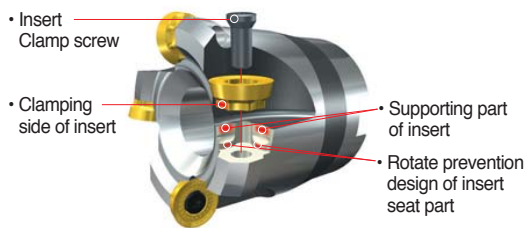
FMR Insert cutting-edge shape

Designation	RDHW□□□□M0F	RDHW□□□□M0E	RDHW□□□□M0S
Cutting edge shape (G calss)			

Features of chip breakers

Chip breakers	Cutter edge	Features
Finishing MF		• Low cutting resistance chip breaker design guarantees long tool life good performance at finishing and difficult-to-cut material machining
Medium MM		• Suitable for general milling at wide application range
Aluminum MA		• Sharp cutting-edge and buffed top face for aluminum machining prevent welding and control chip flow

Clamping system

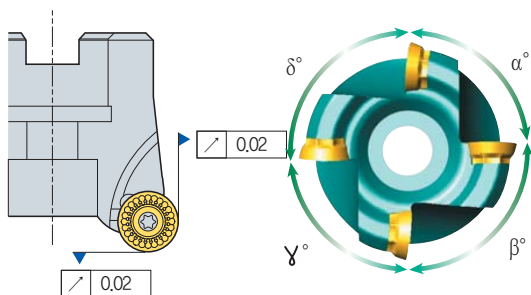


FMR□3000 type
FMR□4000 type

FMR□5000 type
FMR□6000 type

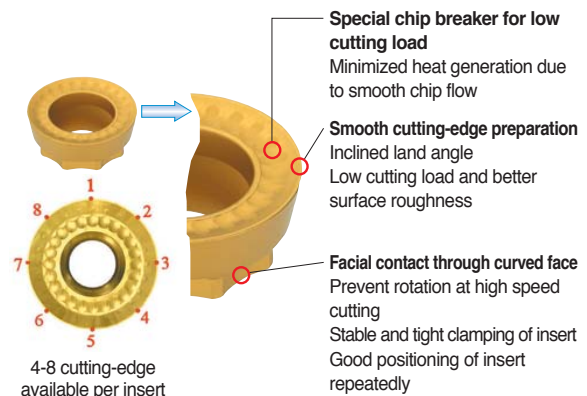
RDKT10T3M0-□□
RDKT1204M0-□□

RDKT1605M0-MM
RDKT2006M0-MM



Good surface finish due to the precise design of insert seat part of cutter

Uneven flute spacing prevents vibration at high speed application and provides stable machining



Special chip breaker for low cutting load
Minimized heat generation due to smooth chip flow

Smooth cutting-edge preparation
Inclined land angle
Low cutting load and better surface roughness

Facial contact through curved face
Prevent rotation at high speed cutting
Stable and tight clamping of insert
Good positioning of insert repeatedly

4-8 cutting-edge available per insert



Future Mill (FMR)

Chip removal rate (cm³/min)

Workpiece	Grades	Ø8	Ø10	Ø12	Ø15	Ø16	Ø20	Ø21	Ø25	Ø26	Ø32	Ø33	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø160
P General structure steel (under 200HB) General carbon steel (under 30 Hrc) High carbon steel, Alloy steel (30-40 Hrc) High carbon steel, Alloy steel (40-50 Hrc) Alloy steel (over 50 Hrc)	PC3500 PC5300	4.97	9.94	9.94	14.92	31.83	31.83	47.74	47.74	47.74	71.61	38.19	95.49	119.36	143.23	167.11	190.98	133.69	509.29
		vc = 250, fz = 0.25, ap = 0.5, ae = 0.5D		vc = 300, fz = 0.4, ap = 1.0, ae = 0.5D		vc = 250, fz = 0.4, ap = 1.5, ae = 0.5D												vc = 200, fz = 0.5, ap = 4.0, ae = 0.5D	
		3.97	7.95	7.95	11.93	25.46	25.46	38.19	38.19	38.19	57.29	38.19	76.39	95.49	114.59	133.69	152.78	133.69	458.36
		vc = 200, fz = 0.25, ap = 0.5, ae = 0.5D		vc = 250, fz = 0.4, ap = 1.0, ae = 0.5D		vc = 200, fz = 0.4, ap = 1.5, ae = 0.5D												vc = 180, fz = 0.5, ap = 4.0, ae = 0.5D	
		2.86	5.72	5.72	8.59	22.91	22.91	34.37	34.37	34.37	51.56	34.37	68.75	85.94	103.13	120.32	137.5	120.32	407.43
		vc = 180, fz = 0.20, ap = 0.5, ae = 0.5D		vc = 200, fz = 0.4, ap = 1.0, ae = 0.5D		vc = 180, fz = 0.4, ap = 1.5, ae = 0.5D												vc = 160, fz = 0.5, ap = 4.0, ae = 0.5D	
vc = 130, fz = 0.15, ap = 0.4, ae = 0.5D		vc = 170, fz = 0.3, ap = 0.9, ae = 0.5D		vc = 150, fz = 0.3, ap = 1.0, ae = 0.5D												vc = 140, fz = 0.4, ap = 3.5, ae = 0.5D			
vc = 100, fz = 0.15, ap = 0.4, ae = 0.5D		vc = 130, fz = 0.3, ap = 0.9, ae = 0.5D		vc = 100, fz = 0.3, ap = 1.0, ae = 0.5D												vc = 100, fz = 0.4, ap = 3.0, ae = 0.5D			
M Stainless steel	PC5300	2.06	4.13	4.13	6.2	16.55	16.55	12.41	24.82	12.41	18.62	12.41	24.82	31.03	37.24	43.44	49.65	43.44	331.04
vc = 130, fz = 0.20, ap = 0.5, ae = 0.5D		vc = 200, fz = 0.2, ap = 1.0, ae = 0.5D		vc = 100, fz = 0.3, ap = 1.0, ae = 0.5D												vc = 130, fz = 0.5, ap = 4.0, ae = 0.5D			
K Cast iron	PC5300	2.86	5.72	5.72	8.59	14.32	14.32	21.48	21.48	21.48	32.22	21.48	42.97	53.71	64.45	75.2	85.94	75.2	366.69
vc = 180, fz = 0.20, ap = 0.5, ae = 0.5D		vc = 180, fz = 0.2, ap = 1.0, ae = 0.5D		vc = 180, fz = 0.2, ap = 1.5, ae = 0.5D												vc = 180, fz = 0.4, ap = 4.0, ae = 0.5D			

Required machine power (P_{KW} = 0.75 x P_{HP})

• RDKT10

Workpiece	Grades	Ø21	Ø25	Ø26	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Cutting condition			
											vc	fz	ap	ae
P General structure steel (under 200HB) General carbon steel (under 30 Hrc) High carbon steel, Alloy steel (30-40 Hrc) High carbon steel, Alloy steel (40-50 Hrc) Alloy steel (over 50 Hrc)	PC3500 PC5300	2.2	2.2	2.2	3.3	4.4	5.5	6.6	7.7	8.8	250	0.4	1.5	0.5D
		2.1	2.1	2.1	3.1	4.1	5.2	6.2	7.3	8.3	200	0.4	1.5	0.5D
		2.2	2.2	2.2	3.3	4.5	5.6	6.7	7.9	9	180	0.4	1.5	0.5D
		1.1	1.1	1.1	1.6	2.1	2.6	3.2	3.7	4.2	150	0.3	1.0	0.5D
		0.7	0.7	0.7	1.1	1.4	1.7	2.1	2.4	2.8	100	0.3	1.0	0.5D
M Stainless steel	PC5300	0.6	0.6	0.6	0.8	1.2	1.5	1.7	2	2.3	130	0.2	1.5	0.5D
K Cast iron	PC5300	0.6	0.6	0.6	0.9	1.2	1.5	1.8	2.1	2.4	180	0.2	1.5	0.5D

• The figures in the above chart means Php value.

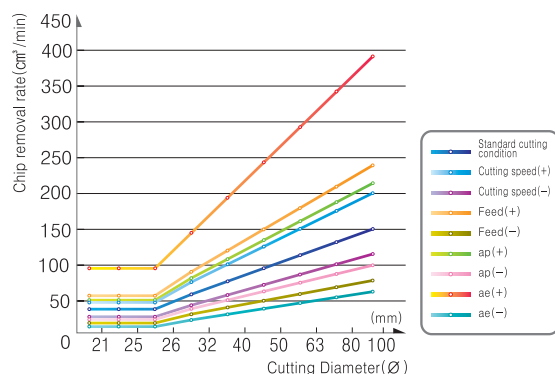
• RDKT12

Workpiece	Grades	Ø32	Ø33	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Cutting condition			
										vc	fz	ap	ae
P General structure steel (under 200HB) General carbon steel (under 30 Hrc) High carbon steel, Alloy steel (30-40 Hrc) High carbon steel, Alloy steel (40-50 Hrc) Alloy steel (over 50 Hrc)	PC3500 PC5300	1.7	1.7	2.6	3.5	3.5	4.4	5.3	6.1	200	0.4	1.5	0.5D
		2	2	3.1	4.1	2.6	5.2	6.2	7.2	180	0.4	1.5	0.5D
		2.2	2.2	3.3	4.4	2.8	5.6	6.7	7.8	160	0.4	1.5	0.5D
		1	1	1.5	1.6	2.1	2.6	3.1	3.6	140	0.3	1.0	0.5D
		0.7	0.7	1	1.4	0.8	1.7	2.1	2.4	100	0.3	1.0	0.5D
M Stainless steel	PC5300	0.5	0.5	0.8	1.1	0.7	1.4	1.7	2	130	0.2	1.5	0.5D
K Cast iron	PC5300	0.6	0.6	0.9	1.2	0.7	1.5	1.8	2.1	180	0.2	1.5	0.5D

• The figures in the above chart means Php value.

Chip removal rate by cutting condition

• Used insert: RDKT10



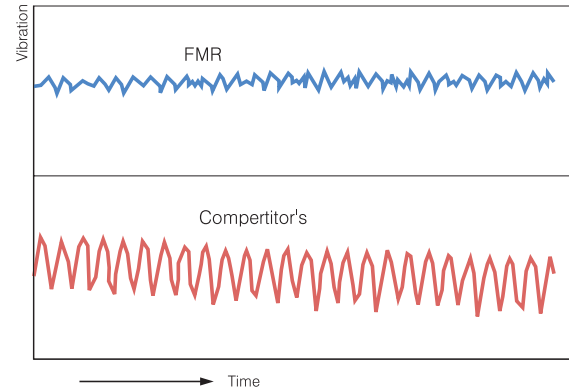
• Variation of cutting condition

Standard	ISO			
	vc = 200	fz = 0.4	ap = 1.5	ae = 0.5D
Speed (+)	250			
Speed (-)	150			
Feed (+)	0.6			
Feed (-)	0.2			
ap (+)	2			
ap (-)	1			
ae (+)	D			
ae (-)	0.2D			

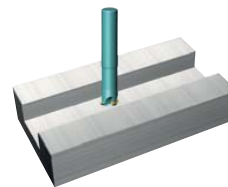


Future Mill (FMR)

FMR Vibration test



Machining example



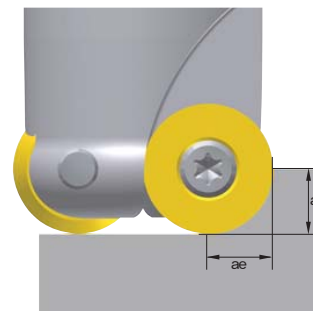
- **Workpiece** STD11
- **Cutting condition**
 - vc = 200m/min
 - fz = 0.40mm/t
 - ap = 2.0mm
 - ae = 4.0mm
- **Designation** FMRS3032RD-S
RDKT10T3M0-MM
(PC3500)

Cutting condition formulas for milling

Cutting speed	RPM
$vc = \frac{\pi \times D \times n}{1000}$ (m/min)	$n = \frac{vc \times 1000}{\pi \times D}$ (min ⁻¹)

Feed (per tooth)	Feed (per minute)
$fz = \frac{vf}{Z \times n}$ (mm/t)	$vf = fz \times n \times z$ (mm/min)

Chip removal rate	Required machine power
$Q = \frac{ap \times ae \times vf}{1000}$ (cm ³ /min)	$P_{kw} = \frac{Q \times kc}{60 \times 102 \times \eta}$ (kW)
	$Php = \frac{Pc}{0.75}$ (hp)

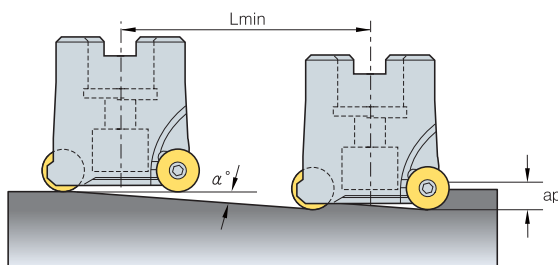


vc = Cutting speed (m/min)	Pkw = Required machine power (kW)
n = Revolution per a minute (min ⁻¹)	Php = Horsepower requirement (hp)
D = Cutting diameter (mm)	Q = Chip removal amount (cm ³ /min)
De = Efficient cutting diameter (mm)	ap = Depth of cut (mm)
vf = Feed per a minute (mm/min)	ae = Width of cut (mm)
fz = Feed per tooth (mm/t)	Kc = Specific cutting resistance (MPa)
z = Number of tooth	η = Mechanical efficiency (%)
Pc = Power requirement (kW)	

Feed as per cutting depth

Designation	Chip breaker	Depth of cut (mm)									
		0.2~0.5	0.5~1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	
RDHW0501M0	-	0.25	0.15	-	-	-	-	-	-	-	
RDHW06T1M0	-	0.30	0.20	0.10	-	-	-	-	-	-	
RDHW0702M0	-	0.35	0.25	0.10	0.07	-	-	-	-	-	
RDHW0803M0	-	0.40	0.30	0.15	0.01	-	-	-	-	-	
RDKT10T3M0 -	MF/MM	-	0.40	0.35	0.30	0.20	-	-	-	-	
RDKT1204M0 -	MF/MM	-	0.50	0.45	0.30	0.25	0.22	-	-	-	
RDHW1605M0	-	-	0.60	0.50	0.45	0.35	0.30	0.20	0.10	-	
RDHW2006M0	-	-	-	0.60	0.50	0.40	0.30	0.25	0.15	0.10	
RDKT1605M0 -	MM	-	0.60	0.50	0.45	0.35	0.30	0.20	0.10	-	
RDKT2006M0 -	MM	-	-	0.60	0.50	0.40	0.30	0.25	0.15	0.10	



Future Mill (FMR)
Ramping technical data


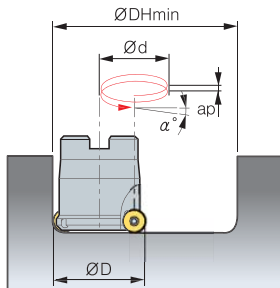
$$L_{min} = \frac{ap}{\tan \alpha} \text{ (mm)}$$

* Lmin: Min. inclination cutting length
 α°: Max. ramping angle
 ap: Depth of cut

Section	Tool dia.	Ramping angle α° (Max)	Cutting length L (mm) by ramping angle									
			ap = 1	ap = 2	ap = 2.5	ap = 3	ap = 3.5	ap = 4	ap = 5	ap = 6	ap = 8	ap = 10
FMR1000	08	18.14	3	6	8	-	-	-	-	-	-	-
	10	11.7	5	10	12	-	-	-	-	-	-	-
	12	8.43	7	13	17	-	-	-	-	-	-	-
	15	5.93	10	19	24	-	-	-	-	-	-	-
FMR1500	10	20.67	21	5	7	8	-	-	-	-	-	-
	12	10.05	10	11	14	17	-	-	-	-	-	-
	16	6.12	6	19	23	28	-	-	-	-	-	-
	20	4.36	4	26	33	39	-	-	-	-	-	-
FMR2000	15	9.42	6	12	15	18	21	-	-	-	-	-
	20	5.85	10	20	24	29	34	-	-	-	-	-
FMR2500	16	13.7	4	8	10	12	14	16	-	-	-	-
	20	9.29	6	12	15	18	21	24	-	-	-	-
FMR2500	25	6.56	9	17	22	26	30	35	-	-	-	-
	25	21.8	3	5	6	8	9	10	13	-	-	-
FMR3000	32	13.24	4	9	11	13	15	17	21	-	-	-
	40	9.09	6	13	16	19	22	25	31	-	-	-
	50	6.52	9	17	22	26	31	35	44	-	-	-
	63	4.76	12	24	30	36	42	48	60	-	-	-
	80	3.52	16	33	41	49	57	65	81	-	-	-
	100	2.69	21	43	53	64	74	85	106	-	-	-
FMR4000	32	15.95	3	7	9	10	12	14	17	21	-	-
	40	10.3	6	11	14	17	19	22	28	33	-	-
	50	7.13	8	16	20	24	28	32	40	48	-	-
	63	5.08	11	22	28	34	39	45	56	67	-	-
	80	3.69	16	31	39	47	54	62	78	93	-	-
	100	2.79	21	41	51	62	72	82	103	123	-	-
FMR5000	125	2.14	27	54	67	80	94	107	134	161	-	-
	40	7.4	8	15	19	23	27	31	38	46	62	-
	50	5.22	11	22	27	33	38	44	55	66	88	-
	63	3.79	15	30	38	45	53	60	75	91	121	-
	80	2.97	19	39	48	58	67	77	96	116	154	-
	100	2.09	27	55	69	82	96	110	137	164	219	-
FMR6000	125	1.63	35	70	88	105	123	141	176	211	281	-
	40	7.44	8	15	19	23	27	31	38	46	61	77
	50	4.97	11	23	29	34	40	46	57	69	92	46
	63	3.69	16	31	39	47	54	62	78	93	124	62
	80	2.72	21	42	53	63	74	84	105	126	168	84
	100	2.12	27	54	68	81	95	108	135	162	216	108
125	1.57	36	73	91	109	128	146	182	219	292	146	

Future Mill (FMR)

Helical cutting technical data - ØDH Min



- ØD = Tool dia. (mm), ØDH Min, Max = Min, Max diameter (mm)
- Ød = Tool path (mm)
- ØDH Min (Min diameter) = ØD × 2 - Insert size, ØDH Max (Max diameter) = ØD × 2 - 2
- Ød (Tool path) = ØDH Min, Max - ØD

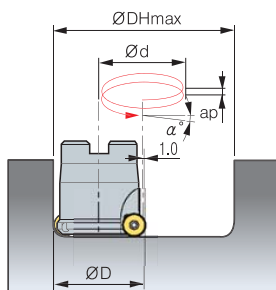
(mm)

Section	Insert	Tool dia.	ØDH Min	Ød	Ramping angle (α°)									
					ap = 1	ap = 2	ap = 2.5	ap = 3	ap = 3.5	ap = 4	ap = 5	ap = 6	ap = 8	ap = 10
FMR1000	5	08	11	3	6.11	12.35	15.57	-	-	-	-	-	-	-
	5	10	15	5	3.65	7.34	7.34	-	-	-	-	-	-	-
	5	12	19	7	2.61	5.23	5.23	-	-	-	-	-	-	-
	5	15	25	10	1.83	3.65	3.65	-	-	-	-	-	-	-
FMR1500	6	10	14	4	4.57	9.20	9.20	13.95	-	-	-	-	-	-
	6	12	18	6	3.04	6.11	6.11	9.20	-	-	-	-	-	-
	6	16	26	10	1.83	3.65	3.65	5.49	-	-	-	-	-	-
FMR2000	6	20	34	14	1.30	2.61	2.61	3.92	-	-	-	-	-	-
	7	15	23	8	2.28	4.57	4.57	6.88	8.04	-	-	-	-	-
	7	20	33	13	1.40	2.81	2.81	4.22	4.92	-	-	-	-	-
FMR2500	8	16	24	8	2.28	4.57	4.57	6.88	8.04	9.20	-	-	-	-
	8	20	32	12	1.52	3.04	3.04	4.57	5.34	6.11	-	-	-	-
	8	25	42	17	1.07	2.15	2.15	3.22	3.76	4.30	-	-	-	-
FMR3000	10	25	40	15	1.22	2.43	2.43	3.65	4.27	4.88	6.11	-	-	-
	10	32	54	22	0.83	1.66	1.66	2.49	2.91	3.32	4.15	-	-	-
	10	40	70	30	0.61	1.22	1.22	1.83	2.13	2.43	3.04	-	-	-
	10	50	90	40	0.46	0.91	0.91	1.37	1.60	1.83	2.28	-	-	-
	10	63	116	53	0.34	0.69	0.69	1.03	1.21	1.38	1.72	-	-	-
	10	80	150	70	0.26	0.52	0.52	0.78	0.91	1.04	1.30	-	-	-
FMR4000	10	100	190	90	0.20	0.41	0.41	0.61	0.71	0.81	1.01	-	-	-
	12	32	52	20	0.91	1.83	1.83	2.74	3.20	3.65	4.57	5.49	-	-
	12	40	68	28	0.65	1.30	1.30	1.96	2.28	2.61	3.26	3.92	-	-
	12	50	88	38	0.48	0.96	0.96	1.44	1.68	1.92	2.40	2.88	-	-
	12	63	114	51	0.36	0.72	0.72	1.07	1.25	1.43	1.79	2.15	-	-
	12	80	148	68	0.27	0.54	0.54	0.81	0.94	1.07	1.34	1.61	-	-
	12	100	188	88	0.21	0.41	0.41	0.62	0.73	0.83	1.04	1.24	-	-
FMR5000	12	125	238	113	0.16	0.32	0.32	0.48	0.57	0.65	0.81	0.97	-	-
	16	40	64	24	0.76	1.52	1.52	2.28	2.66	3.04	3.81	4.57	6.11	-
	16	50	84	34	0.54	1.07	1.07	1.61	1.88	2.15	2.69	3.22	4.30	-
	16	63	110	47	0.39	0.78	0.78	1.16	1.36	1.55	1.94	2.33	3.11	-
	16	80	144	64	0.29	0.57	0.57	0.86	1.00	1.14	1.43	1.71	2.28	-
	16	100	184	84	0.22	0.43	0.43	0.65	0.76	0.87	1.09	1.30	1.74	-
FMR6000	16	125	234	109	0.17	0.33	0.33	0.50	0.59	0.67	0.84	1.00	1.34	-
	20	50	80	30	0.61	1.22	1.22	1.83	2.13	2.43	3.04	3.65	4.88	6.11
	20	63	106	43	0.42	0.85	0.85	1.27	1.49	1.70	2.12	2.55	3.40	4.25
	20	80	140	60	0.30	0.61	0.61	0.91	1.06	1.22	1.52	1.83	2.43	3.04
	20	100	180	80	0.23	0.46	0.46	0.68	0.80	0.91	1.14	1.37	1.83	2.28
	20	125	230	105	0.17	0.35	0.35	0.52	0.61	0.70	0.87	1.04	1.39	1.74
	20	160	300	140	0.13	0.26	0.26	0.39	0.46	0.52	0.65	0.78	1.04	1.30



Future Mill (FMR)

Helical cutting technical data - ØDH Max



- ØD = Tool dia. (mm), ØDH Min, Max = Min, Max diameter (mm)
- Ød = Tool path (mm)
- ØDH Min (Min diameter) = ØD × 2 - Insert size, ØDH Max (Max diameter) = ØD × 2 - 2
- Ød (Tool path) = ØDH Min, Max - ØD

(mm)

Section	Insert	Tool dia.	ØDH Max	Ød	Ramping angle (α°)									
					ap = 1	ap = 2	ap = 2.5	ap = 3	ap = 3.5	ap = 4	ap = 5	ap = 6	ap = 8	ap = 10
FMR1000	5	08	14	6	3.04	6.11	7.65	-	-	-	-	-	-	-
	5	10	18	8	2.28	4.57	5.72	-	-	-	-	-	-	-
	5	12	22	10	1.83	3.65	4.57	-	-	-	-	-	-	-
	5	15	28	13	1.40	2.81	3.51	-	-	-	-	-	-	-
FMR1500	6	10	18	8	2.28	4.57	5.72	6.88	-	-	-	-	-	-
	6	12	22	10	1.83	3.65	4.57	5.49	-	-	-	-	-	-
	6	16	30	14	1.30	2.61	3.26	3.92	-	-	-	-	-	-
FMR2000	6	20	38	18	1.01	2.03	2.54	3.04	-	-	-	-	-	-
	7	15	28	13	1.40	2.81	3.51	4.22	4.92	-	-	-	-	-
	7	20	38	18	1.01	2.03	2.54	3.04	3.55	-	-	-	-	-
FMR2500	8	16	30	14	1.30	2.61	3.26	3.92	4.57	5.23	-	-	-	-
	8	20	38	18	1.01	2.03	2.54	3.04	3.55	4.06	-	-	-	-
	8	25	48	23	0.79	1.59	1.98	2.38	2.78	3.18	-	-	-	-
FMR3000	10	25	48	23	0.79	1.59	1.98	2.38	2.78	3.18	3.97	-	-	-
	10	32	62	30	0.61	1.22	1.52	1.83	2.13	2.43	3.04	-	-	-
	10	40	78	38	0.48	0.96	1.20	1.44	1.68	1.92	2.40	-	-	-
	10	50	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	-	-	-
	10	63	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	-	-	-
	10	80	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	-	-	-
FMR4000	10	100	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	-	-	-
	12	32	62	30	0.61	1.22	1.52	1.83	2.13	2.43	3.04	3.65	-	-
	12	40	78	38	0.48	0.96	1.20	1.44	1.68	1.92	2.40	2.88	-	-
	12	50	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	-	-
	12	63	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	-	-
	12	80	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	-	-
FMR5000	12	100	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	-	-
	12	125	248	123	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	-	-
	16	40	78	38	0.48	0.96	1.20	1.44	1.68	1.92	2.40	2.88	3.85	-
	16	50	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	3.04	-
	16	63	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	2.39	-
	16	80	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	1.87	-
FMR6000	16	100	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	1.49	-
	16	125	248	123	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	1.19	-
	20	50	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	3.04	3.81
	20	63	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	2.39	2.99
	20	80	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	1.87	2.34
	20	100	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	1.49	1.86
FMR6000	20	125	248	123	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	1.19	1.48
	20	160	318	158	0.12	0.23	0.29	0.35	0.40	0.46	0.58	0.69	0.92	1.16



E Technical Information for FMR P-positive

Future Mill series for mold making






FMR P-positive

- Stable clamping system enables stable machining and productivity
- Varied product line-up ensures wide application range
- Optimal shape and grade with high hardness for hard-to-cut material machining

Features

- P-positive relief angle (11°) ensures high rigidity and high machinability in die steel and high-resistant alloy machining
- Flat clearance face of insert prevents interference and revolution while machining
- Optimal grades and chip breakers for various workpieces
- Chip breaker
 - Concave shape ensures wide chip pocket and lowers cutting temperature
 - Clearance face for preventing rotation
 - Prevents rotation in machining
 - Divides corners
 - Prevents interference in high-feed machining
 - Ensures stable clamping
 - Through-coolant system
 - Superb chip evacuation
 - Low cutting heat ensures long tool life

Features of chip breakers

Chip breaker	Cutting-edge	Applications	Features
MA		Aluminum machining	• Optimal cutting-edge for aluminum machining and buffed surface ensure high machinability
ML		Titanium & Inconel machining	• Excellent results in titanium machining thanks to a high hardness cutting-edge and the chip breaker reducing the cutting load
MF		Fine finishing	• Chip breaker for low cutting resistance enables fine finishing.
MM		General machining	• Optimal for general machining
None C/B		Super hard material machining	• Optimal for high hardness die steel and heat resistant alloy

Recommended cutting condition

* Recommended chip breaker: ● First ○ Second

Workpiece	Hardness	Grades	Cutting conditions				Chip breaker						
			vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)	MA	ML	MF	MM	None C/B 1 2		
P	Low carbon steel	HB80~180	PC5400	100~250	0.12~0.70	0.3~6.0	0.7D~0.1D	-	-	●	○	-	-
	High carbon steel	HB180~280	PC5400	100~220	0.12~0.70	0.3~6.0	0.7D~0.1D	-	-	●	○	-	-
	Low alloy steel	Under Hrc27	PC3600	180~290	0.20~0.60	0.3~6.0	0.7D~0.1D	-	-	-	●	○	-
			PC5400/PC5300	100~200	0.20~0.60	0.3~6.0	0.7D~0.1D	-	-	-	●	○	-
	Low pre-hardened steel	Hrc20~50	PC3600	130~250	0.30~0.50	~0.5	0.7D~0.1D	-	-	-	-	●	○
			PC2510/PC5300	50~150	0.30~0.50	~0.5	0.7D~0.1D	-	-	-	-	●	○
	High alloy steel	Under Hrc27	PC3600	130~250	0.30~0.50	~0.5	0.7D~0.1D	-	-	-	●	○	-
PC5300			100~220	0.30~0.50	~0.5	0.7D~0.1D	-	-	-	●	○	-	
High pre-hardened steel	Hrc20~48	PC2510/PC5300	50~150	0.30~0.50	~0.5	0.7D~0.1D	-	-	-	-	●	○	
M	Stainless steel	Under HB270	PC5300/PC5400	100~150	0.20~0.60	0.3~6.0	0.7D~0.1D	-	-	○	●	-	-
K	Gray cast iron, Ductile cast iron	Under 350MPa	PC5300	120~210	0.20~0.60	0.3~6.0	0.7D~0.1D	-	-	○	●	-	-
N	Aluminum	-	H01	300~800	0.30~0.60	0.3~6.0	0.7D~0.1D	●	-	-	-	-	-
S	Heat resistant alloy	Fe	Hrc20~30	PC5300/PC5400	35~60	0.30~0.50	~0.5	0.7D~0.1D	-	●	○	-	-
		Ni or Co	Hrc40~45	PC5300/PC5400	30~50	0.30~0.50	~0.5	0.7D~0.1D	-	●	○	-	-
	Titanium	Hrc35~45	PC5300/PC5400	40~70	0.30~0.50	~1.5	0.7D~0.1D	-	●	○	-	-	
H	High hardened materials	Over Hrc50	PC2505/PC2510	30~50	0.30~0.50	~0.5	0.7D~0.1D	-	-	-	-	●	○



Feed per tooth according to ap (fz, mm/t)

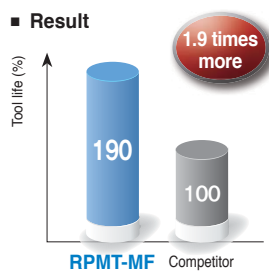
(mm)

Insert	Insert size (d)	Feed per tooth according to ap							
		ap = 1	ap = 2	ap = 3	ap = 4	ap = 5	ap = 6	ap = 8	ap = 10
RPMT08	8	0.30	0.22	0.18	0.15	-	-	-	-
RPMT10	10	0.40	0.28	0.25	0.20	0.12	-	-	-
RPMT12	12	0.60	0.45	0.35	0.30	0.25	0.20	-	-
RPMT16	16	0.65	0.45	0.40	0.32	0.30	0.28	0.23	-
RPMT20	20	0.70	0.50	0.42	0.35	0.32	0.29	0.25	0.22

Performance evaluation

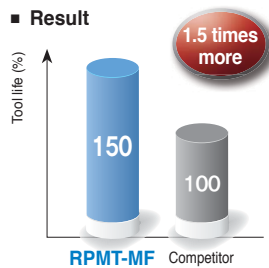
P Alloy steel (E355C Heat treatment, HRC 38~40)

- Cutting conditions**
 - vc (m/min) = 250
 - fz (mm/tooth) = 0.6
 - ap (mm) = 1
 - wet
- Tools**
 - Insert RPMT1204M0E-MF (PC5300)
 - Holder FMRS4032HRP-3L25



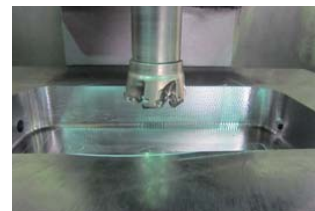
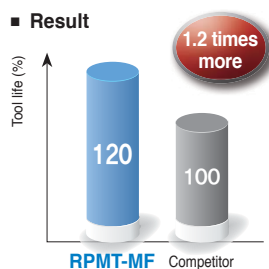
P Low pre-hardened steel (40CrMnNiMo8-6-4 Heat treatment, HRC 30~45)

- Cutting conditions**
 - vc (m/min) = 178
 - fz (mm/tooth) = 0.72
 - ap (mm) = 1.5
 - dry
- Tools**
 - Insert RPMT1606M0S-MM (PC5300)
 - Holder FMRCM5063HRP-4



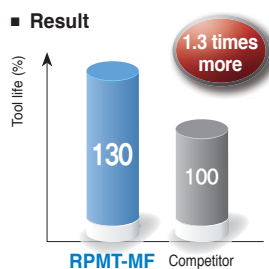
P Low pre-hardened steel (C55E4, HRC 28~33)

- Cutting conditions**
 - vc (m/min) = 178
 - fz (mm/tooth) = 0.74
 - ap (mm) = 0.8
 - dry
- Tools**
 - Insert RPMT1204M0E-MF (PC5300)
 - Holder FMRCM4063HRP-6



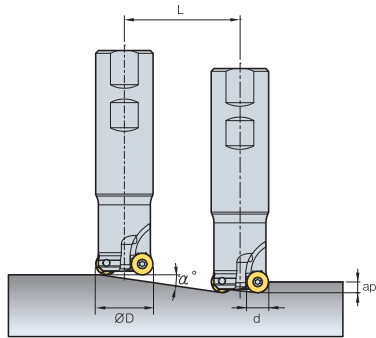
P High pre-hardened steel (X40CrMoV5-1, HRC 50~52)

- Cutting conditions**
 - vc (m/min) = 50
 - fz (mm/tooth) = 0.15
 - ap (mm) = 4.0
 - dry
- Tools**
 - Insert RPMW1204M0S1 (PC5300)
 - Holder FMRS4032HRP-3L25



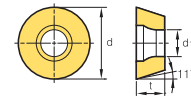
FMR P-positive

Maximum angle table for ramping machining



$$L_{min} = \frac{ap}{\tan \alpha^\circ} \text{ (mm)}$$

※ L (mm): Cutting length
 α°: Max. ramping angle
 ap: Depth of cut



(mm)

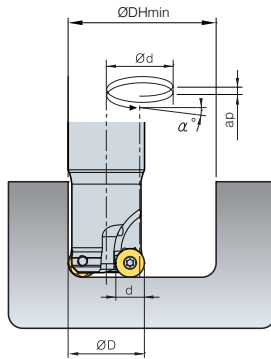
Section	Insert size (d)	Tool dia. (ØD)	Ramping angle α° (max)	Cutting length L (mm) by ap									
				ap = 1	ap = 2	ap = 2.5	ap = 3	ap = 3.5	ap = 4	ap = 5	ap = 6	ap = 8	ap = 10
FMR2500	8	17	4.7	12	24	30	36	42	48	-	-	-	-
	8	18	4.1	14	28	34	41	48	55	-	-	-	-
	8	20	15.4	4	7	9	11	13	14	-	-	-	-
	8	21	13.9	4	8	10	12	14	16	-	-	-	-
	8	25	9.8	6	12	14	17	20	23	-	-	-	-
8	26	9.2	6	12	16	19	22	25	-	-	-	-	
FMR3000	10	25	13.8	4	8	10	12	14	16	20	-	-	-
	10	26	12.6	4	9	11	13	16	18	22	-	-	-
	10	32	8.4	7	14	17	20	24	27	34	-	-	-
	10	33	8.0	7	14	18	21	25	29	36	-	-	-
	10	40	5.8	10	20	25	30	34	39	49	-	-	-
	10	50	4.2	14	27	34	41	48	55	68	-	-	-
10	63	3.1	19	37	47	56	65	75	93	-	-	-	
10	66	2.9	20	40	50	60	69	79	99	-	-	-	
FMR4000	12	25	4.5	13	25	32	38	44	51	63	76	-	-
	12	26	4.1	14	28	35	42	49	56	70	84	-	-
	12	32	14.7	4	8	10	11	13	15	19	23	-	-
	12	33	13.8	4	8	10	12	14	16	20	24	-	-
	12	40	9.6	6	12	15	18	21	24	30	36	-	-
	12	50	6.7	9	17	21	26	30	34	43	51	-	-
	12	63	4.8	12	24	30	36	42	48	60	72	-	-
	12	66	4.5	13	26	32	38	45	51	64	77	-	-
12	80	3.5	17	33	41	50	58	66	83	99	-	-	
12	100	2.6	22	44	55	65	76	87	109	131	-	-	
FMR5000	16	40	17.8	3	6	8	9	11	12	16	19	25	-
	16	50	11.3	5	10	13	15	18	20	25	30	40	-
	16	63	7.6	7	15	19	22	26	30	37	45	60	-
	16	66	7.1	8	16	20	24	28	32	40	48	64	-
	16	80	5.3	11	21	27	32	37	43	53	64	85	-
	16	100	4.0	14	29	36	43	51	58	72	87	116	-
	16	125	3.0	19	38	48	58	67	77	96	115	154	-
16	160	2.2	26	52	65	78	90	103	129	155	207	-	
FMR6000	20	50	17.8	3	6	8	9	11	12	16	19	25	31
	20	63	11.1	5	10	13	15	18	20	25	30	41	51
	20	80	7.4	8	15	19	23	27	31	38	46	61	77
	20	100	5.3	11	21	27	32	37	43	53	64	85	107
	20	125	4.0	14	29	36	43	51	58	72	87	116	145
	20	160	2.9	20	40	49	59	69	79	99	119	158	198
	20	200	2.2	26	52	65	78	90	103	129	155	207	258
20	250	1.7	33	67	84	100	117	134	167	200	267	334	

* Insert size (d): Please refer page E13, applicable insert drawing.

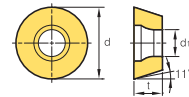


FMR P-positive

Minimum hole diameter table for helical machining (ØDH Min)



- ØD = Tool dia. (mm)
- Ød (Tool path, mm) = ØDH Min, Max - ØD
- ØDH Min (Minimum hole diameter) = ØD × 2 - Insert size (d)
- ØDH Max (Maximum hole diameter) = ØD × 2 + 2
- Ramping angle by ap (α°) = $\tan^{-1}\left(\frac{ap}{\pi \times \text{Ød}}\right)$
- Helical angle adjusted by ap cannot exceed maximum angle
- ap = Depth of cut



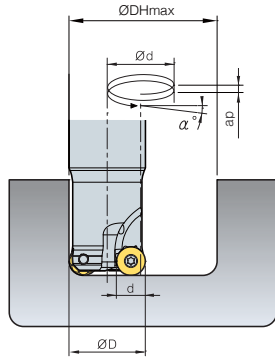
(mm)

Section	Insert size (d)	Tool dia. (ØD)	Ramping angle α° (max)	ØDH Min	Ød	Ramping angle (α°) by ap									
						ap = 1	ap = 2	ap = 2.5	ap = 3	ap = 3.5	ap = 4	ap = 5	ap = 6	ap = 8	ap = 10
FMR2500	8	17	4.7	26	9	2.03	4.06	-	-	-	-	-	-	-	-
	8	18	4.1	28	10	1.83	3.65	-	-	-	-	-	-	-	-
	8	20	15.4	32	12	1.52	3.04	3.81	4.57	5.34	6.11	-	-	-	-
	8	21	13.9	34	13	1.40	2.81	3.51	4.22	4.92	5.63	-	-	-	-
	8	25	9.8	42	17	1.07	2.15	2.69	3.22	3.76	4.30	-	-	-	-
8	26	9.2	44	18	1.01	2.03	2.54	3.04	3.55	4.06	-	-	-	-	
FMR3000	10	25	13.8	40	15	1.22	2.43	3.04	3.65	4.27	4.88	-	-	-	-
	10	26	12.6	42	16	1.14	2.28	2.85	3.43	4.00	4.57	-	-	-	-
	10	32	8.4	54	22	0.83	1.66	2.07	2.49	2.91	3.32	-	-	-	-
	10	33	8.0	56	23	0.79	1.59	1.98	2.38	2.78	3.18	-	-	-	-
	10	40	5.8	70	30	0.61	1.22	1.52	1.83	2.13	2.43	-	-	-	-
	10	50	4.2	90	40	0.46	0.91	1.14	1.37	1.60	1.83	-	-	-	-
10	63	3.1	116	53	0.34	0.69	0.86	1.03	1.21	1.38	-	-	-	-	
10	66	2.9	122	56	0.33	0.65	0.81	0.98	1.14	1.30	-	-	-	-	
FMR4000	12	25	4.5	38	13	1.40	2.81	3.51	-	-	-	-	-	-	-
	12	26	4.1	40	14	1.30	2.61	3.26	-	-	-	-	-	-	-
	12	32	14.7	52	20	0.91	1.83	2.28	2.74	3.20	3.65	4.57	5.49	-	-
	12	33	13.8	54	21	0.87	1.74	2.17	2.61	3.04	3.48	4.35	5.23	-	-
	12	40	9.6	68	28	0.65	1.30	1.63	1.96	2.28	2.61	3.26	3.92	-	-
	12	50	6.7	88	38	0.48	0.96	1.20	1.44	1.68	1.92	2.40	2.88	-	-
	12	63	4.8	114	51	0.36	0.72	0.89	1.07	1.25	1.43	1.79	2.15	-	-
	12	66	4.5	120	54	0.34	0.68	0.84	1.01	1.18	1.35	1.69	2.03	-	-
12	80	3.5	148	68	0.27	0.54	0.67	0.81	0.94	1.07	1.34	1.61	-	-	
12	100	2.6	188	88	0.21	0.41	0.52	0.62	0.73	0.83	1.04	1.24	-	-	
FMR5000	16	40	17.8	64	24	0.76	1.52	1.90	2.28	2.66	3.04	3.81	4.57	6.11	-
	16	50	11.3	84	34	0.54	1.07	1.34	1.61	1.88	2.15	2.69	3.22	4.30	-
	16	63	7.6	110	47	0.39	0.78	0.97	1.16	1.36	1.55	1.94	2.33	3.11	-
	16	66	7.1	116	50	0.36	0.73	0.91	1.09	1.28	1.46	1.83	2.19	2.92	-
	16	80	5.3	144	64	0.29	0.57	0.71	0.86	1.00	1.14	1.43	1.71	2.28	-
	16	100	4.0	184	84	0.22	0.43	0.54	0.65	0.76	0.87	1.09	1.30	1.74	-
	16	125	3.0	234	109	0.17	0.33	0.42	0.50	0.59	0.67	0.84	1.00	1.34	-
16	160	2.2	304	144	0.13	0.25	0.32	0.38	0.44	0.51	0.63	0.76	1.01	-	
FMR6000	20	50	17.8	80	30	0.61	1.22	1.52	1.83	2.13	2.43	3.04	3.65	4.88	6.11
	20	63	11.1	106	43	0.42	0.85	1.06	1.27	1.49	1.70	2.12	2.55	3.40	4.25
	20	80	7.4	140	60	0.30	0.61	0.76	0.91	1.06	1.22	1.52	1.83	2.43	3.04
	20	100	5.3	180	80	0.23	0.46	0.57	0.68	0.80	0.91	1.14	1.37	1.83	2.28
	20	125	4.0	230	105	0.17	0.35	0.43	0.52	0.61	0.70	0.87	1.04	1.39	1.74
	20	160	2.9	300	140	0.13	0.26	0.33	0.39	0.46	0.52	0.65	0.78	1.04	1.30
	20	200	2.2	380	180	0.10	0.20	0.25	0.30	0.35	0.41	0.51	0.61	0.81	1.01
20	250	1.7	480	230	0.08	0.16	0.20	0.24	0.28	0.32	0.40	0.48	0.63	0.79	

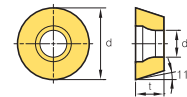
* Insert size (d): Please refer page E13, applicable insert drawing.

FMR P-positive

Maximum hole diameter table for helical machining (ØDH Max)



- ØD = Tool dia. (mm)
- Ød (Tool path, mm) = ØDH Min, Max - ØD
- ØDH Min (Minimum hole diameter) = ØD × 2 - Insert size (d)
- ØDH Max (Maximum hole diameter) = ØD × 2 - 2
- Ramping angle by ap (α°) = $\tan^{-1}\left(\frac{ap}{\pi \times \text{Ød}}\right)$
- Helical angle adjusted by ap cannot exceed maximum angle
- ap = Depth of cut



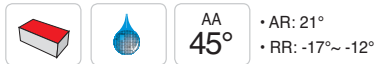
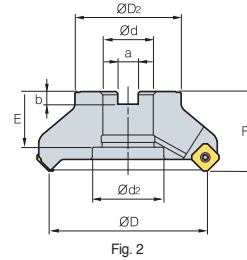
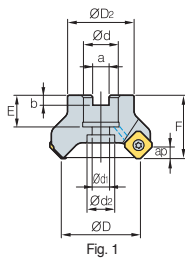
(mm)

Section	Insert size (d)	Tool dia. (ØD)	Ramping angle α° (max)	ØDH Max	Ød	Ramping angle (α°) by ap									
						ap = 1	ap = 2	ap = 2.5	ap = 3	ap = 3.5	ap = 4	ap = 5	ap = 6	ap = 8	ap = 10
FMR2500	8	17	4.7	32	15	1.22	2.43	3.04	3.65	-	-	-	-	-	-
	8	18	4.1	34	16	1.14	2.28	2.85	3.43	-	-	-	-	-	-
	8	20	15.4	38	18	1.01	2.03	2.54	3.04	3.55	4.06	-	-	-	-
	8	21	13.9	40	19	0.96	1.92	2.40	2.88	3.37	3.85	-	-	-	-
	8	25	9.8	48	23	0.79	1.59	1.98	2.38	2.78	3.18	-	-	-	-
	8	26	9.2	50	24	0.76	1.52	1.90	2.28	2.66	3.04	-	-	-	-
FMR3000	10	25	13.8	48	23	0.79	1.59	1.98	2.38	2.78	3.18	-	-	-	-
	10	26	12.6	50	24	0.76	1.52	1.90	2.28	2.66	3.04	-	-	-	-
	10	32	8.4	62	30	0.61	1.22	1.52	1.83	2.13	2.43	-	-	-	-
	10	33	8.0	64	31	0.59	1.18	1.47	1.77	2.06	2.36	-	-	-	-
	10	40	5.8	78	38	0.48	0.96	1.20	1.44	1.68	1.92	-	-	-	-
	10	50	4.2	98	48	0.38	0.76	0.95	1.14	1.33	1.52	-	-	-	-
	10	63	3.1	124	61	0.30	0.60	0.75	0.90	1.05	1.20	-	-	-	-
FMR4000	10	66	2.9	130	64	0.29	0.57	0.71	0.86	1.00	1.14	-	-	-	-
	12	25	4.5	48	23	0.79	1.59	1.98	2.38	2.78	3.18	-	-	-	-
	12	26	4.1	50	24	0.76	1.52	1.90	2.28	2.66	3.04	-	-	-	-
	12	32	14.7	62	30	0.61	1.22	1.52	1.83	2.13	2.43	3.04	3.65	-	-
	12	33	13.8	64	31	0.59	1.18	1.47	1.77	2.06	2.36	2.95	3.54	-	-
	12	40	9.6	78	38	0.48	0.96	1.20	1.44	1.68	1.92	2.40	2.88	-	-
	12	50	6.7	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	-	-
	12	63	4.8	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	-	-
	12	66	4.5	130	64	0.29	0.57	0.71	0.86	1.00	1.14	1.43	1.71	-	-
FMR5000	12	80	3.5	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	-	-
	12	100	2.6	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	-	-
	16	40	17.8	78	38	0.48	0.96	1.20	1.44	1.68	1.92	2.40	2.88	3.85	-
	16	50	11.3	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	3.04	-
	16	63	7.6	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	2.39	-
	16	66	7.1	130	64	0.29	0.57	0.71	0.86	1.00	1.14	1.43	1.71	2.28	-
	16	80	5.3	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	1.87	-
FMR6000	16	100	4.0	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	1.49	-
	16	125	3.0	248	123	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	1.19	-
	16	160	2.2	318	158	0.12	0.23	0.29	0.35	0.40	0.46	0.58	0.69	0.92	-
	20	50	17.8	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	3.04	3.81
	20	63	11.1	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	2.39	2.99
	20	80	7.4	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	1.87	2.34
	20	100	5.3	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	1.49	1.86
	20	125	4.0	248	123	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	1.19	1.48
FMR6000	20	160	2.9	318	158	0.12	0.23	0.29	0.35	0.40	0.46	0.58	0.69	0.92	1.16
	20	200	2.2	398	198	0.09	0.18	0.23	0.28	0.32	0.37	0.46	0.55	0.74	0.92
	20	250	1.7	498	248	0.07	0.15	0.18	0.22	0.26	0.29	0.37	0.44	0.59	0.74

* Insert size (d): Please refer page E13, applicable insert drawing.



FMAC(M)3000



Designation		⚙️	ØD	ØD ₂	Ød	a	b	E	F	Ød ₁	Ød ₂	ap	kg	Fig.
FMACM	3050HR	4	50	42	22	10.4	6.3	20	40	11	17.5	4.0	0.4	1
	3050HR-H	6	50	42	22	10.4	6.3	20	40	11	17.5	4.0	0.4	1
	3063HR	5	63	49	22	10.4	6.3	20	40	11	17.5	4.0	0.5	1
	3063HR-H	8	63	49	22	10.4	6.3	20	40	11	17.5	4.0	0.6	1
FMAC (FMACM)	3080HR	6	80	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (23)	50	14	20	4.0	1.1	1
	3080HR-H	10	80	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (23)	50	14	20	4.0	1.2	1
	3100HR	7	100	67	31.75 (32)	12.7 (14.4)	8 (8)	35 (25.5)	50	(18)	45 (26)	4.0	1.7	2 (1)
	3100HR-H	12	100	67	31.75 (32)	12.7 (14.4)	8 (8)	35 (25.5)	50	(18)	45 (26)	4.0	1.7	2 (1)
	3125HR	8	125	87	38.1 (40)	15.9 (16.4)	10 (9)	42 (29)	63	(22)	55 (32)	4.0	3.3 (3.5)	2 (1)
	3125HR-H	14	125	87	38.1 (40)	15.9 (16.4)	10 (9)	42 (29)	63	(22)	55 (32)	4.0	3.3 (3.5)	2 (1)

() Metric size

Available inserts

		SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW										
Designation	Cermet		Coated								Uncoated			page				
	CN2000	CN30	NCM325	NCM335	NC5340	NC5350	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	PD2000		ST30A	G10	H01	
SEET	0903AGFN-MA																	
	0903AGSN-MF								●	●	●	●						
	0903AGSN-MM									●	●	●						E19
SEXT	0903AGSN-MF							●		●	●	●						E20
	0903AGSN-MM							●	●	●	●	●						
	0903AGSN-MR																	
SEEW	0903AGTN																	

Available arbors

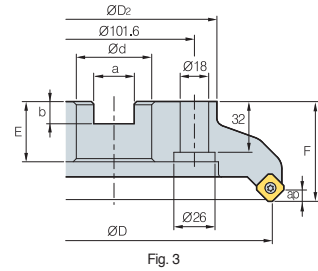
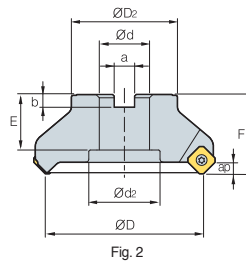
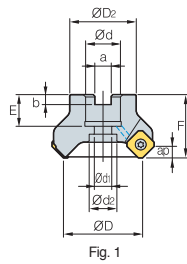
Designation		Ød	NC arbors
FMAC(M)	3050HR-□	22	BT□□-FMC22-□□
	3063HR-□		
	3080HR-□	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HR-□	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	3125HR-□	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMB/FMC40-□□

Parts

Specification		
Ø50~Ø125	FTKA0307	TW09S

Available inserts E19, E20 Available arbors and bolt E371~E373

FMAC(M)4000



- AA 45°
- AR: 21°
- RR: -17°~ -12°

(mm)

Designation	ØD	ØD ₂	Ød	a	b	E	F	Ød ₁	Ød ₂	ap	$\frac{a}{R}$	Fig.
FMACM												
4050HR	3	50	22	10.4	6.3	20	40	11	18	6.5	0.4	1
4063HR	4	63	22	10.4	6.3	20	40	11	18	6.5	0.6	1
4063HR-M	5	63	22	10.4	6.3	20	40	11	18	6.5	0.6	1
4063HR-H	6	63	22	10.4	6.3	20	40	11	18	6.5	0.6	1
FMAC (FMACM)												
4080HR	5	80	25.4 (27)	9.5 (12.4)	6 (7)	25 (23)	50	14	20	6.5	1.1	1
4080HR-M	6	80	25.4 (27)	9.5 (12.4)	6 (7)	25 (23)	50	14	20	6.5	1.1	1
4080HR-H	8	80	25.4 (27)	9.5 (12.4)	6 (7)	25 (23)	50	14	20	6.5	1.1	1
4100HR	5	100	31.75 (32)	12.7 (14.4)	8 (8)	33 (25)	63 (50)	18	26	6.5	2 (1.6)	1
4100HR-M	7	100	31.75 (32)	12.7 (14.4)	8 (8)	33 (25)	63 (50)	18	26	6.5	2 (1.6)	1
4100HR-H	10	100	31.75 (32)	12.7 (14.4)	8 (8)	33 (25)	63 (50)	18	26	6.5	2 (1.6)	1
4125HR	6	125	38.1 (40)	15.9 (16.4)	10 (9)	35 (29)	63	22	32	6.5	3.1	1
4125HR-M	8	125	38.1 (40)	15.9 (16.4)	10 (9)	35 (29)	63	22	32	6.5	3.1	1
4125HR-H	12	125	38.1 (40)	15.9 (16.4)	10 (9)	35 (29)	63	22	32	6.5	3.1	1
4160R	7	160	50.8 (40)	19.0 (16.4)	11 (9)	38 (35)	63	-	-	6.5	4.8	2
4160R-M	10	160	50.8 (40)	19.0 (16.4)	11 (9)	38 (35)	63	-	-	6.5	4.8	2
4160R-H	16	160	50.8 (40)	19.0 (16.4)	11 (9)	38 (35)	63	-	-	6.5	4.8	2
4200R	8	200	47.625 (60)	25.4 (25.7)	14	38 (32)	63	-	-	6.5	6.1	3
4200R-M	12	200	47.625 (60)	25.4 (25.7)	14	38 (32)	63	-	-	6.5	6.1	3
4200R-H	18	200	47.625 (60)	25.4 (25.7)	14	38 (32)	63	-	-	6.5	6.1	3

Available inserts

() Metric size

SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW	SEEW-W											
Designation	Cermet	Coated				Uncoated	page	Designation	Cermet	Coated				Uncoated	page			
	CN2000 CN30	NCM325 NCM335	NC5340 NC5350	PC3500 PC3600	PC9530 PC6510	PC5300 PC9400	PD2000	ST30A G10 H01		CN2000 CN30	NCM325 NCM335	NC5340 NC5350	PC3500 PC3600	PC9530 PC6510	PC5300 PC9400	PD2000	ST30A G10 H01	
SEET 14M4AGFN-MA																		
14M4AGSN-MF				●	●	●												
14M4AGSN-MM				●	●	●												
SEXT 14M4AGSN-MF				●	●	●												
14M4AGSN-MM		●	●	●	●	●												
SEEW 14M4AGTN																		
14M4AGFN-W																		
14M4AGSN-W																		
14M4AGTN-W																		

Available arbors

Designation	Ød	NC arbors	Designation	Ød	NC arbors
FMAC(M) 4125HR-□	38.1	BT□□-FMA38.1-□□	FMAC(M) 4050HR-□	22	BT□□-FMC22-□□
	40	BT□□-FMB40-□□		4063HR-□	
4160R-□	50.8	BT□□-FMA50.8-□□	4080HR-□	25.4	BT□□-FMA25.4-□□
	40	BT□□-FMB/FMC40-□□		27	BT□□-FMC27-□□
4200R-□	47.625	BT□□-FMA47.625-□□	4100HR-□	31.75	BT□□-FMA31.75-□□
	60	BT□□-FMB60-□□		32	BT□□-FMC32-□□

Parts

Specification					
Ø50~Ø200	FTGA03512	SS42SAF	SHXN0509F	TW15S	HW35L

Available inserts E19, E20 Available arbors and bolt E371~E373



FMAC(M)3000-A

Aluminum body

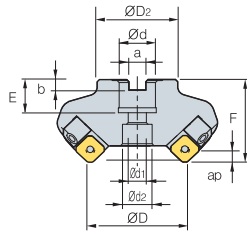


Fig. 1

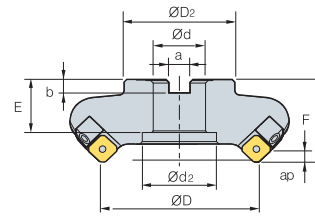


Fig. 2



(mm)

Designation	ØD	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	kg	Fig.	
FMACM 3063R-A	3	63	49	22	10.4	6.3	20	40	11	18	4	0.5	1
FMAC 3080R-A	4	80	57	25.4 (27)	9.5 (12.4)	6 (7)	25	50	13.5	20	4	0.6	1
(FMACM) 3100R-A	5	100	67	31.75 (32)	12.7 (14.4)	8 (8)	32	50	-	45	4	0.8	2
3100R-25.4-A	5	100	67	25.4	9.5	6	25	50	-	38	4	0.9	2
3125R-A	6	125	87	38.1 (40)	15.9 (16.4)	10 (9)	38	63	-	56	4	1.6	2
3125R-25.4-A	6	125	70	25.4	9.5	6	25	63	-	38	4	1.7	2

() Metric size

Available inserts

		SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW											
Designation		Cermet		Coated								Uncoated			page				
		CN2000	CN30	NCM325	NCM335	NC5340	NC5350	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	PD2000		ST30A	G10	H01	
SEET	0903AGFN-MA																		
	0903AGSN-MF																		
	0903AGSN-MM																		
SEXT	0903AGSN-MF																		E19
	0903AGSN-MM																		E20
	0903AGSN-MR																		
SEEW	0903AGTN																		

Available arbors

Designation	Ød	NC arbors
FMAC(M) 3063R-□	22	BT□□-FMC22-□□
3080R-□	25.4	BT□□-FMA25.4-□□
	27	BT□□-FMC27-□□
3100R-□	31.75	BT□□-FMA31.75-□□
	32	BT□□-FMC32-□□
3125R-□	38.1	BT□□-FMA38.1-□□
	40	BT□□-FMB40-□□

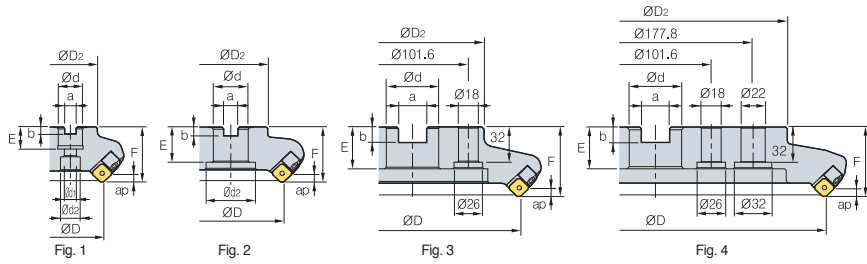
Parts

Specification					
Ø63~Ø125	FTKA0307	TW09S	HW30L	LFMA3R-A	DHA620

Available inserts E19, E20 Available arbors and bolt E371~E373

FMAC(M)4000-A

Aluminum body



AA
45°
• AR: 21°
• RR: -16°~-12°

(mm)

Designation	ØD	ØD ₂	Ød	a	b	E	F	Ød ₁	Ød ₂	ap	$\frac{G}{kg}$	Fig.	
FMACM 4063R-A	3	63	49	22	10.4	6.3	20	50	11	18	6.5	0.6	1
FMAC 4080R-A	4	80	67	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	13.5	20	6.5	0.8	1
(FMACM) 4100R-A	5	100	67	31.75 (32)	12.7 (14.4)	8 (8)	32	50	-	45	6.5	1.1	2
4100R-25.4-A	5	100	67	25.4	9.5	6	25	50	-	38	6.5	1.2	2
4125R-A	6	125	87	38.1 (40)	15.9 (16.4)	10 (9)	38 (35)	63	-	56	6.5	1.7	2
4125R-25.4-A	6	125	70	25.4	9.5	6	25	63	-	38	6.5	1.8	2
4160R-A	7	160	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (35)	63	-	75	6.5	2.5	2
4200R-A	8	200	130	47.625 (60)	25.4 (25.7)	14 (14)	38 (32)	63	-	-	6.5	3.2	3
4250R-A	10	250	180	47.625 (60)	25.4 (25.7)	14 (14)	38	63	-	-	6.5	4.1	3
4315R-A	12	315	240	47.625 (60)	25.4 (25.7)	14 (14)	38	63	-	-	6.5	6.7	4

Note) Through coolant type between Ø50~Ø125

() Metric size

Available inserts

SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW	SEEW-W								
Designation	Cermet	Coated				Uncoated	page	Designation	Cermet	Coated				Uncoated	page
	CN2000 CN30	NCN325 NCN335	NC5340 NC5350	PC3500 PC3600	PC9510 PC5300 PC5400	PD2000			CN2000 CN30	NCN325 NCN335	NC5340 NC5350	PC3500 PC3600	PC6510 PC5300 PC5400	PD2000	
SEET 14M4AGFN-MA								SEXT 14M4AGSN-MR							
14M4AGSN-MF				●●●●			E19	SEEW 14M4AGTN	●						E19
14M4AGSN-MM				●●●●			E20	14M4AGFN-W							E20
SEXT 14M4AGSN-MF				●●●●				14M4AGSN-W				●			
14M4AGSN-MM		●●		●●●●				14M4AGTN-W				●●			

Available arbors

Designation	Ød	NC arbors	Designation	Ød	NC arbors
FMAC(M) 4063R-□	22	BT□□-FMC22-□□	FMAC(M) 4125R-□	40	BT□□-FMB40-□□
4080R-□	25.4	BT□□-FMA25.4-□□	4160R-□	50.8	BT□□-FMA50.8-□□
	27	BT□□-FMC27-□□		40	BT□□-FMB/FMC40-□□
4100HR-□	31.75	BT□□-FMA31.75-□□	4200R-□	47.625	BT□□-FMA47.625-□□
4125R-□	32	BT□□-FMC32-□□	4250R-□	60	BT□□-FMB60-□□
	38.1	BT□□-FMA38.1-□□	4315R-□	60	BT□□-FMB60-□□

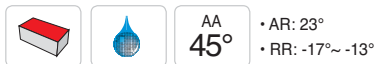
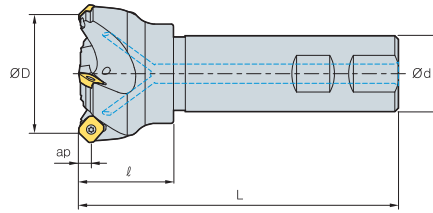
Parts

Specification					
Ø63~Ø315	FTGA03512	TW15S	HW40L	LFMA4R-A	DHA0830

➡ Available inserts E19, E20 ➡ Available arbors and bolt E371~E373



FMAS3000



Designation			ØD	Ød	l	L	ap	
FMAS	3025HR	2	25	25	35	115	4	0.4
	3032HR	3	32	25	40	125	4	0.5
	3032HR-S32	3	32	32	40	130	4	0.8
	3040HR	3	40	32	40	130	4	0.9
	3040HR-S40	3	40	40	40	140	4	1.3
	3040HR-S42	3	40	42	40	140	4	1.4
	3050HR	4	50	32	40	135	4	1
	3050HR-S40	4	50	40	40	140	4	1.3
	3050HR-S42	4	50	42	40	140	4	1.5
	3063HR	5	63	32	45	135	4	1.2
	3063HR-S40	5	63	40	45	145	4	1.6
	3063HR-S42	5	63	42	45	145	4	1.7

Available inserts

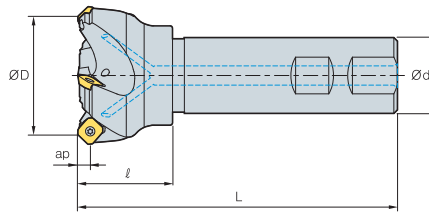
		SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW												
Designation		Cermet		Coated								Uncoated			page					
		CN2000	CN30	NCM325	NCM335	NC5340	NC5350	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	PD2000		ST30A	G10	H01		
SEET	0903AGFN-MA																			
	0903AGSN-MF																			
	0903AGSN-MM																			
SEXT	0903AGSN-MF																			E19
	0903AGSN-MM																			E20
	0903AGSN-MR																			
SEEW	0903AGTN																			

Parts

Specification		
Ø25-Ø63	FTKA0307	TW09S

Available inserts E19, E20

FMAS4000



AA
45°

• AR: 23°
• RR: -17°~ -13°

(mm)

Designation	Flutes	ØD	Ød	l	L	ap	kg	
FMAS	4050HR	3	50	32	45	135	6.5	1
	4050HR-S40	3	50	40	45	135	6.5	1.3
	4050HR-S42	3	50	42	45	135	6.5	1.45
	4063HR	4	63	32	45	135	6.5	1.2
	4063HR-S40	4	63	40	45	135	6.5	1.5
	4063HR-S42	4	63	42	45	135	6.5	1.6

Available inserts

		SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW	SEEW-W											
Designation		Cermet		Coated								Uncoated			page					
		CN2000	CN30	NCM325	NCM335	NC5340	NC5350	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	PD2000		ST30A	G10	H01		
SEET	14M4AGFN-MA																			
	14M4AGSN-MF									•	•	•	•							
	14M4AGSN-MM									•	•	•	•							
SEXT	14M4AGSN-MF									•	•	•	•							
	14M4AGSN-MM			•	•					•	•	•	•							
	14M4AGSN-MR									•	•	•	•							
SEEW	14M4AGTN		•																	
	14M4AGFN-W																			
	14M4AGSN-W										•									
	14M4AGTN-W									•	•									

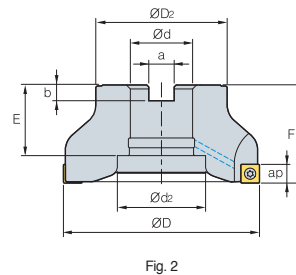
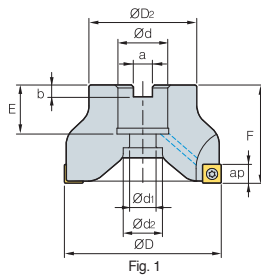
Parts

Specification					
Ø50~Ø63	FTGA03512	SS42SAF	SHXN0509F	TW15S	HW35L

Available inserts E19, E20



FMPC(M)3000



AA
90°

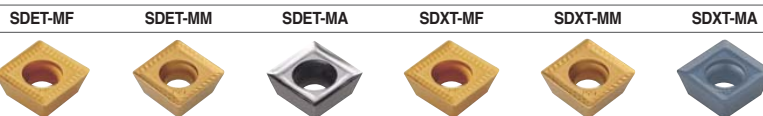
• AR: 10°
• RR: -9°~-8°

(mm)

Designation	ØD	ØD ₂	Ød	a	b	E	F	Ød ₁	Ød ₂	ap	kg	Fig.	
FMPCM 3050HS	5	50	40	22	10.4	6.3	20	40	11	18	7	0.3	1
	6	63	40	22	10.4	6.3	20	40	11	18	7	0.5	1
FMPC (FMPCM) 3080HS	7	80	55	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	14	20	7	1.0	1
	8	100	67	31.75 (32)	12.7 (14.4)	8 (8)	36 (26)	50	18	45 (26)	7	1.5	2 (1)

() Metric size

Available inserts



Designation	Cermet		Coated								Uncoated			page			
	CN2000	CN30	NCM325	NCM335	NC5340	NC5350	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	PD2000		ST30A	G10	H01
SDET 09M402R-MA																	
SDET 09M405R-MF																	
SDET 09M405R-MM																	
SDXT 09M405R-MF			●					●	●	●	●	●					E17
SDXT 09M405L-MF																	E18
SDXT 09M405R-MM			●	●			●	●	●	●	●	●					
SDXT 09M405L-MM								●	●								
SDXT 09M405R-MA																●	

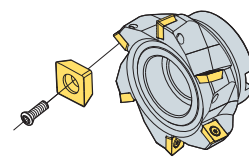
Available arbors

Designation	Ød	NC arbors
FMPC(M) 3050HS	22	BT□□-FMC22-□□
		BT□□-FMA25.4-□□
3080HS	27	BT□□-FMC27-□□
		BT□□-FMA31.75-□□
3100HS	32	BT□□-FMC32-□□

Parts

Specification	Screw	Wrench
Ø50~Ø100	FTGA03508	TW15S

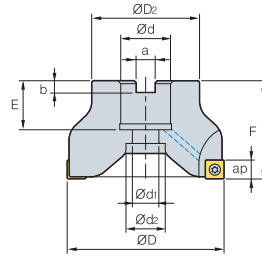
Assembling



Available inserts E17, E18

Available arbors and bolt E371~E373

FMPC(M)4000



(mm)

Designation	⚙️	ØD	ØD ₂	Ød	a	b	E	F	Ød ₁	Ød ₂	ap	⚖️
FMPCM 4063HS	5	63	49	22	10.4	6.3	20 (20)	50 (50)	11	18	11	0.4
FMPC 4080HS	6	80	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (23)	50 (50)	14	20	11	0.9
(FMPCM) 4100HS	7	100	67	31.75 (32)	12.7 (14.4)	8 (8)	33 (25)	63 (50)	18	26	11	1.9 (1.5)
4125HS	8	125	87	38.1 (40)	15.9 (16.4)	10 (9)	35 (29)	63	22	32	11	3.1

()Metric size

Available inserts

		SDET-MF	SDET-MM	SDET-MA	SDXT-MF	SDXT-MM	SDXT-MA												
Designation		Cermet		Coated								Uncoated			page				
		CN2000	CN30	NCM325	NCM335	NC5340	NC5350	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	PD2000		ST30A	G10	H01	
SDET	130504R-MA																		
	130508R-MF																		
	130508R-MM																		
SDXT	130508R-MF			●					●	●	●	●	●						E17
	130508R-MM			●	●				●	●	●	●	●						E18
	130538-MM																		
	130508R-MA																		

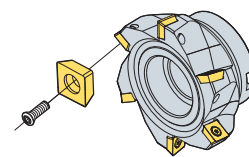
Available arbors

Designation	Ød	NC arbors
FMPC(M) 4063HS	22	BT□□-FMC22-□□
4080HS	25.4	BT□□-FMA25.4-□□
	27	BT□□-FMC27-□□
4100HS	31.75	BT□□-FMA31.75-□□
	32	BT□□-FMC32-□□
4125HS	38.1	BT□□-FMA38.1-□□
	40	BT□□-FMB/FMC40-□□

Parts

Specification		
Ø63-Ø125	Screw FTNC04511	Wrench TW20S

Assembling

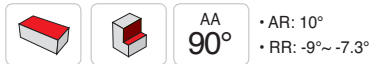
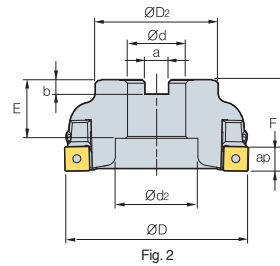
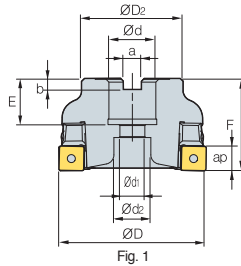
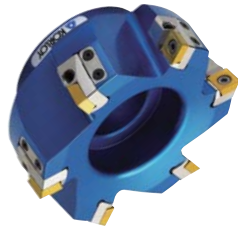


Available inserts E17,E18 Available arbors and bolt E371-E373



FMPC(M)3000-A

Aluminum body



Designation	ØD	ØD ₂	Ød	a	b	E	F	Ød ₁	Ød ₂	ap	kg	Fig.	
FMPCM 3063S-A	3	63	40	22	10.4	6.3	20	40	11.0	18	7	0.2	1
FMPC 3080S-A	4	80	55	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	13.5	20	7	0.4	1
(FMPCM) 3100S-A	5	100	67	31.75 (32)	12.7 (14.4)	8 (8)	32	50	-	45	7	0.6	2
3100S-25.4-A	5	100	67	25.4	9.5	6	25	50	-	38	7	0.7	2

(mm)

()Metric size

Available inserts

		SDET-MF		SDET-MM		SDET-MA		SDXT-MF		SDXT-MM		SDXT-MA					
Designation		Cermet		Coated								Uncoated			page		
		CN2000	CN80	NCM325	NCM335	NC5340	NC5350	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	PD2000		ST30A	G10
SDET	09M402R-MA																
	09M405R-MF																
	09M405R-MM																
SDXT	09M405R-MF			●				●	●	●	●	●					E17
	09M405L-MF																E18
	09M405R-MM			●	●			●	●	●	●	●					
	09M405L-MM								●	●							
	09M405R-MA																

Available arbors

Designation	Ød	NC arbors
FMPC(M) 3063S-□	22	BT□□-FMC22-□□
3080S-□	25.4	BT□□-FMA25.4-□□
	27	BT□□-FMC27-□□
3100S-□	31.75	BT□□-FMA31.75-□□
	32	BT□□-FMC32-□□
3125S-□	38.1	BT□□-FMA38.1-□□
	40	BT□□-FMB/FMC40-□□

Parts

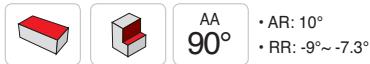
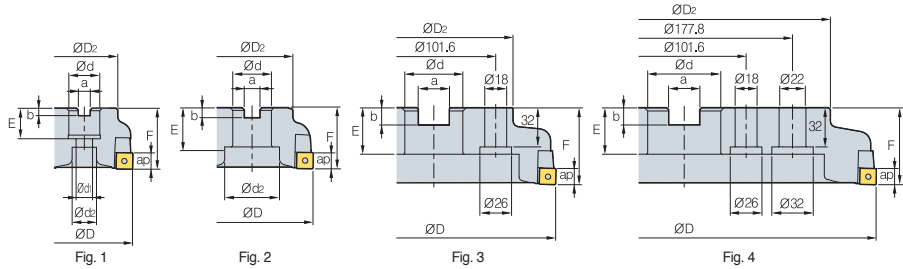
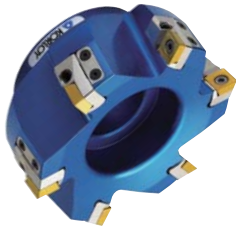
Specification							
Ø63	FTGA03508	TW15S	HW30L	LFMP3R-A	DHA0624	CFMP3R14R1-A	PXMA0306
Ø80~Ø100	FTGA03508	TW15S	HW30L	LFMP3R-A	DHA0624	CFMP3R-A	PXMA0306

Available inserts E17, E18

Available arbors and bolt E371~E373

FMPC(M)4000-A

Aluminum body

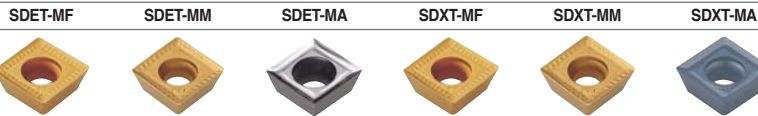


(mm)

Designation	\odot	$\varnothing D$	$\varnothing D_2$	$\varnothing d$	a	b	E	F	$\varnothing d_1$	$\varnothing d_2$	ap	$\frac{G}{kg}$	Fig.
FMPCM 4063S-A	3	63	49	22	10.4	6.3	20	50	11	18	11	0.6	1
FMPC 4080S-A	4	80	67	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	13.5	20	11	0.8	1
(FMPCM) 4100S-A	5	100	67	31.75 (32)	12.7 (14.4)	8 (8)	32	50	-	45	11	1.1	2
4100S-25.4-A	5	100	67	25.4	9.5	6	25	50	-	38	11	1.2	2
4125S-A	6	125	87	38.1 (40)	15.9 (16.4)	10 (9)	38 (35)	63	-	56	11	1.7	2
4125S-25.4-A	6	125	70	25.4	9.5	6	25	63	-	38	11	1.8	2
4160S-A	8	160	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (35)	63	-	75	11	2.5	2
4200S-A	10	200	130	47.625 (60)	25.4 (25.7)	14 (14)	38 (32)	63	-	-	11	3.2	3
4250S-A	12	250	180	47.625 (60)	25.4 (25.7)	14 (14)	38	63	-	-	11	4.1	3
4315S-A	15	315	240	47.625 (60)	25.4 (25.7)	14 (14)	38	63	-	-	11	6.7	4

() Metric size

Available inserts



Designation	Cermet		Coated										Uncoated			page	
	CN2000	CN30	NCM825	NCM835	NC5340	NC5350	PC3500	PC3800	PC9530	PC6510	PC5300	PC5400	PD2000	ST30A	G10		H01
SDET 130504R-MA																	E17
130508R-MF																	
130508R-MM																	
SDXT 130508R-MF			●					●	●	●	●	●					E18
130508R-MM			●	●			●	●	●	●	●						
130538-MM																	
130508R-MA															●		

Available arbors

Designation	$\varnothing d$	NC arbors	Designation	$\varnothing d$	NC arbors
FMAC(M) 4063R-□	22	BT□□-FMC22-□□	FMAC(M) 4125R-□	40	BT□□-FMB40-□□
4080R-□	25.4	BT□□-FMA25.4-□□	4160R-□	50.8	BT□□-FMA50.8-□□
	27	BT□□-FMC27-□□		40	BT□□-FMB/FMC40-□□
4100HR-□	31.75	BT□□-FMA31.75-□□	4200R-□	47.625	BT□□-FMA47.625-□□
	32	BT□□-FMC32-□□	4250R-□	60	BT□□-FMB60-□□
4125R-□	38.1	BT□□-FMA38.1-□□	4315R-□	60	BT□□-FMB60-□□

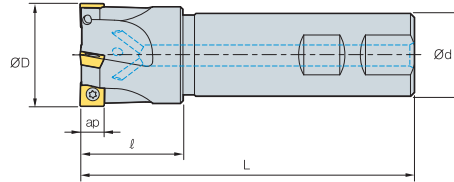
Parts

Specification							
$\varnothing 63$ - $\varnothing 80$	FTNC04509	TW20S	HW40L	LFMP4R1-A	DHA0825	CFMP3R14R1-A	PXMA0306
$\varnothing 100$ - $\varnothing 315$	FTNC04509	TW20S	HW40L	LFMP4R-A	DHA0830	CFMP4R-A	PXMA0306

Available inserts E17, E18 Available arbors and bolt E371-E373

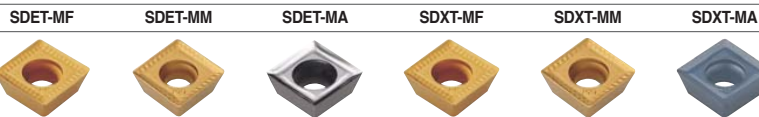


FMPS3000



Designation			ØD	Ød	ℓ	L	ap	
FMPS	3025HS	2	25	25	35	115	7	0.4
	3032HS	3	32	25	40	125	7	0.5
	3040HS	4	40	32	40	130	7	0.8
	3040HS-S40	4	40	40	45	140	7	1.2
	3040HS-S42	4	40	42	45	140	7	1.3
	3050HS	5	50	32	40	135	7	1
	3050HS-S40	5	50	40	40	140	7	1.3
	3050HS-S42	5	50	42	40	140	7	1.4
	3063HS	6	63	32	45	135	7	1.2
	3063HS-S40	6	63	40	45	145	7	1.6
	3063HS-S42	6	63	42	45	145	7	1.7

Available inserts

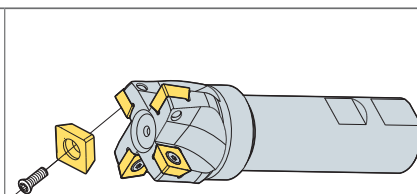


Designation	Cermet		Coated								Uncoated			page			
	CN2000	CN30	NCM325	NCM335	NC5340	NC5350	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	PD2000		ST30A	G10	H01
SDET	09M402R-MA												●			●	E17 E18
	09M405R-MF																
	09M405R-MM																
SDXT	09M405R-MF		●					●	●	●	●	●					
	09M405L-MF																
	09M405R-MM		●	●			●	●	●	●	●	●					
	09M405L-MM							●	●								
	09M405R-MA															●	

Parts

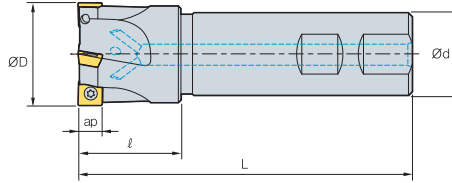
Specification		
Ø25-Ø63	FTGA03508	TW15S

Assembling



Available inserts E17, E18

FMPS4000



Designation		Flutes	ØD	Ød	l	L	ap	kg
FMPS	4040HS	3	40	32	40	130	11	1
	4040HS-S40	3	40	40	40	140	11	1.3
	4040HS-S42	3	40	42	40	140	11	1.4
	4050HS	4	50	32	45	135	11	1.5
	4050HS-S40	4	50	40	45	145	11	1.7
	4050HS-S42	4	50	42	45	145	11	1.6
	4063HS	5	63	32	45	135	11	2.1
	4063HS-S40	5	63	40	45	145	11	2.4
	4063HS-S42	5	63	42	45	145	11	2.6

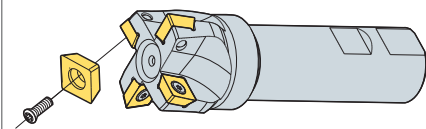
Available inserts

		SDET-MF	SDET-MM	SDET-MA	SDXT-MF	SDXT-MM	SDXT-MA												
Designation		Cermet		Coated								Uncoated			page				
		CN2000	CN30	NCM325	NCM335	NC5340	NC5350	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	PD2000		ST30A	G10	H01	
SDET	130504R-MA																		
	130508R-MF																		
	130508R-MM																		
SDXT	130508R-MF			●				●	●	●	●	●							E17
	130508R-MM			●	●			●	●	●	●	●							E18
	130538-MM																		
	130508R-MA																		

Parts

Specification		
Ø40-Ø63	FTNC04511	TW20S

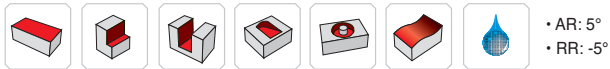
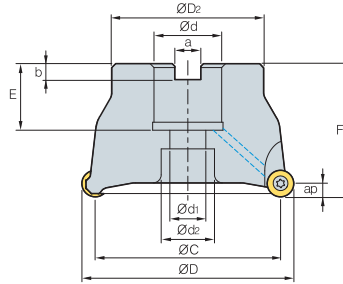
Assembling



Available inserts E17, E18



FMRC(M)3000



Designation		ØD	ØC	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	kg	
FMRCM	3040HRD	3	40	30	36	16	8.4	5.6	18	40	9	14	5.0	0.2
	3040HRD-H	4	40	30	36	16	8.4	5.6	18	40	9	14	5.0	0.2
	3050HRD	4	50	40	42	22	10.4	6.3	20	40	11	16.5	5.0	0.3
	3050HRD-H	5	50	40	42	22	10.4	6.3	20	40	11	16.5	5.0	0.3
	3063HRD	5	63	53	49	22	10.4	6.3	20	50	11	16.5	5.0	0.64
	3063HRD-H	6	63	53	49	22	10.4	6.3	20	50	11	16.5	5.0	0.64
FMRC (FMRCM)	3080HRD	6	80	70	57	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (22)	50 (50)	14	19	5.0	1.1
	3080HRD-H	7	80	70	57	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (22)	50 (50)	14	19	5.0	1.1
	3100HRD	7	100	90	67	31.75 (32)	12.7 (14.4)	8 (8.0)	32 (28)	63 (63)	18	26	5.0	2.1
	3100HRD-H	8	100	90	67	31.75 (32)	12.7 (14.4)	8 (8.0)	32 (28)	63 (63)	18	26	5.0	2.1

Note) It's general that you measure of inner diameter when the diameter of FMRC/FMRCM is Ø40~Ø63 () Metric size

Available inserts

Designation	Cermet		Coated										Uncoated		page		
	CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9500	PC6510	PC5300	PC5400		ST30A	H01
RDCT 10T3M0-MA																	
RDKT 10T3M0-MF																	E15
10T3M0-MM			●					●			●	●					E16

Available arbors

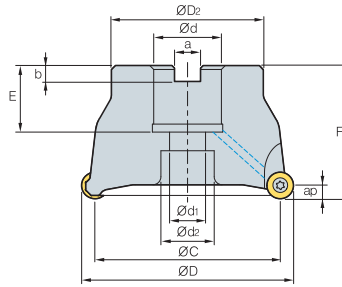
Designation	Ød	Available arbors
FMRC(M) 3040HRD	16	BT□□-FMC16-□□
3040HRD-H		
3050HRD	22	BT□□-FMC22-□□
3050HRD-H		
3063HRD		
3063HRD-H		
3080HRD	25.4	BT□□-FMA/FMB25.4-□□
3080HRD-H	27	BT□□-FMB/FMC27-□□
3100HRD	31.75	BT□□-FMA31.75-□□
3100HRD-H	32	BT□□-FMC32-□□

Parts

Specification	Screw	Wrench
Ø40~Ø100	FTGA03508	TW15S

Available inserts E15, E16 Available arbors and bolt E371~E373

FMRC(M)4000



• AR: 5°
• RR: -5°

(mm)

Designation	ØD	ØC	ØD ₂	Ød	a	b	E	F	Ød ₁	Ød ₂	ap			
FMRCM	4050HRD	4	50	38	42	22	10.4	6.3	20	50	11	18	6.0	0.4
	4063HRD	4	63	51	49	22	10.4	6.3	20	50	11	18	6.0	0.6
	4063HRD-M	5	63	51	49	22	10.4	6.3	20	50	11	18	6.0	0.6
FMRC (FMRCM)	4080HRD	5	80	68	57	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (23)	50 (50)	14	20	6.0	1.0
	4080HRD-M	6	80	68	57	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (23)	50 (50)	14	20	6.0	1.0
	4100HRD	6	100	88	67	31.75 (32)	12.7 (14.4)	8 (8.0)	33 (25)	63 (50)	18	26	6.0	1.9 (1.5)
	4100HRD-M	7	100	88	67	31.75 (32)	12.7 (14.4)	8 (8.0)	33 (25)	63 (50)	18	26	6.0	1.9 (1.5)
	4125HRD	7	125	113	87	38.1 (40)	15.9 (16.4)	10 (9.0)	35 (29)	63 (63)	22	32	6.0	3.0
4125HRD-M	8	125	113	87	38.1 (40)	15.9 (16.4)	10 (9.0)	35 (29)	63 (63)	22	32	6.0	3.0	

Note) It's general that you measure of inner diameter when the diameter of FMRC/FMRCM is Ø40-Ø63

() Metric size

Available inserts

RDKT-MF RDKT-MM RDCT-MA



Designation	Cermet		Coated										Uncoated		page			
	CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400		ST30A	H01	
RDCT	1204M0-MA																●	E15
RDKT	1204M0-MF																	E16
	1204M0-MM			●						●								

Available arbors

Designation	Ød	NC arbors
FMRC(M)	4063HRD	BT□□-FMC22-□□
	4063HRD-M	
	4080HRD	
4080HRD	25.4	BT□□-FMA/FMB25.4-□□
4080HRD-M	27	BT□□-FMB/FMC27-□□
4100HRD	31.75	BT□□-FMA31.75-□□
4100HRD-M	32	BT□□-FMC32-□□
4125HRD	38.1	BT□□-FMA/FMB38.1-□□
4125HRD-M	40	BT□□-FMB/FMC40-□□

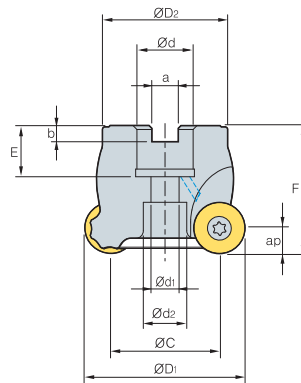
Parts

Specification		
Ø50-Ø125	Screw FTKA0410	Wrench TW15S

Available inserts E15, E16 Available arbors and bolt E371-E373



FMRC(M)5000



(mm)

Designation		ØD	ØC	ØD ₂	Ød	a	b	E	F	Ød ₁	Ød ₂	ap	$\frac{m}{kg}$	
FMRCM	5050HRD	3	50	34	42	22	10.4	6.3	20	50	11	16.5	8.0	0.4
	5063HRD	4	63	47	49	22	10.4	6.3	20	50	11	18	8.0	0.6
	5063HRD-H	5	63	47	49	22	10.4	6.3	20	50	11	18	8.0	0.6
FMRC (FMRCM)	5080HRD	5	80	64	57	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (23)	50 (50)	14	20	8.0	0.9
	5080HRD-H	6	80	64	57	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (23)	50 (50)	14	20	8.0	0.9
	5100HRD	6	100	84	67	31.75 (32)	12.7 (14.4)	8 (8)	33 (25)	63 (50)	18	26	8.0	1.9 (1.4)
	5100HRD-H	7	100	84	67	31.75 (32)	12.7 (14.4)	8 (8)	33 (25)	63 (50)	18	26	8.0	1.9 (1.4)
	5125HRD	7	125	109	87	38.1 (40)	15.9 (16.4)	10 (9)	35 (29)	63 (63)	22	32	8.0	3
	5125HRD-H	8	125	109	87	38.1 (40)	15.9 (16.4)	10 (9)	35 (29)	63 (63)	22	32	8.0	3

Note) It's general that you measure of inner diameter when the diameter of FMRC/FMRCM is Ø40~Ø63

() Metric size

Available inserts

RDHW-E,F,S RDKT-MF RDKT-ML RDKT-MM



Designation	Cermet		Coated										Uncoated		page		
	CN2000	CN80	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9500	PC6510	PC5300	PC5400		ST30A	H01
RDHW	1605M0E																
	1605M0F																
	1605M0S																E15
RDKT	1605M0-MM																E16
	1605M0-MF																
	1605M0-ML																

Available arbors

Designation	Ød	NC arbors	
FMRC(M)	5050HRD		
	5063HRD		
	5063HRD-H	22	BT□□-FMC22-□□
	5080HRD	25.4	BT□□-FMA/FMB25.4-□□
	5080HRD-H	27	BT□□-FMB/FMC27-□□
	5100HRD	31.75	BT□□-FMA31.75-□□
	5100HRD-H	32	BT□□-FMC32-□□
	5125HRD	38.1	BT□□-FMA/FMB38.1-□□
5125HRD-H	40	BT□□-FMB/FMC40-□□	

Parts

Specification	Screw	Wrench
Ø50~Ø125	FTGA0513-P	TW20-100

Available inserts E15, E16

Available arbors and bolt E371~E373

FMRC(M)6000

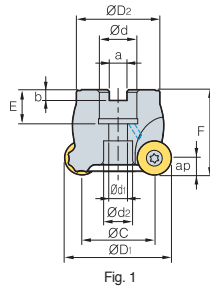


Fig. 1

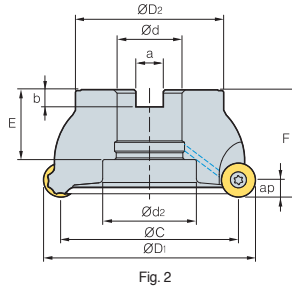


Fig. 2

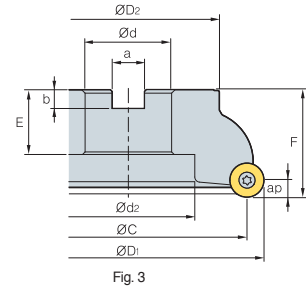


Fig. 3



(mm)

Designation	ØD	ØC	ØD ₂	Ød	a	b	E	F	Ød ₁	Ød ₂	ap	kg	Fig.
FMRCM													
6063HRD	3	63	49	22	10.4	6.3	20	50	11	17	10.0	0.5	1
6063HRD-M	4	63	49	22	10.4	6.3	20	50	11	17	10.0	0.5	1
FMRC (FMRCM)													
6080HRD	4	80	60	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (22)	50	14	20	10.0	0.8	1
6080HRD-M	5	80	60	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (22)	50	14	20	10.0	0.8	1
6100HRD	5	100	80	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	63	18	26	10.0	1.6	1
6100HRD-M	6	100	80	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	63	18	26	10.0	1.6	1
6125HRD	6	125	105	38.1 (40)	15.9 (16.4)	10 (9)	41 (29)	63	- (22)	55 (32)	10.0	2.7 (2.9)	2 (1)
6125HRD-M	7	125	105	38.1 (40)	15.9 (16.4)	10 (9)	41 (29)	63	- (22)	55 (32)	10.0	2.7 (2.9)	2 (1)
6160RD	7	160	140	50.8 (40)	19 (16.4)	11 (9)	38 (35)	63	-	78	10.0	4.4	3
6160RD-M	8	160	140	50.8 (40)	19 (16.4)	11 (9)	38 (35)	63	-	78	10.0	4.4	3

Note) It's general that you measure of inner diameter when the diameter of FMRC/FMRCM is Ø40 - Ø63 is not inner coolant

() Metric size

Available inserts

RDHW-E,F,S RDKT-MM



Designation	Cermet		Coated										Uncoated		page		
	CN2000	CN80	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC8510	PC5300	PC5400		ST30A	H01
RDHW	2006M0E																
	2006M0F																E15
	2006M0S																E16
RDKT	2006M0-MM																

Available arbors

Designation	Ød	NC arbors
FMRC(M) 6063HRD	22	BT□□-FMC22-□□
6063HRD-M		
6080HRD	25.4	BT□□-FMA/FMB25.4-□□
6080HRD-M		
6100HRD	31.75	BT□□-FMA31.75-□□
6100HRD-M		
6125HRD	38.1	BT□□-FMA/FMB38.1-□□
6125HRD-M		
6160RD	50.8	BT□□-FMA50.8-□□
6160RD-M		BT□□-FMB/FMC40-□□

Parts

Specification	Screw	Wrench
Ø63~Ø160	FTGA0515-P	TW20-100

Available inserts E15, E16 Available arbors and bolt E371-E373



FMRS1000/1500

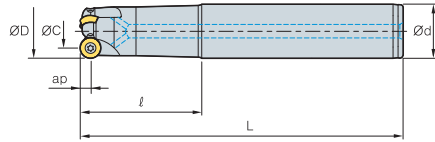


Fig. 1

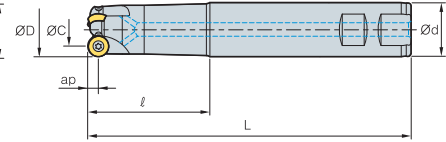


Fig. 2



- AR: 5°
- RR: -5° ~ -1°

(mm)

Designation			ØD	ØC	Ød	ℓ	L	ap		Fig.
FMRS	1008HRD-M	1	8	5.5	10	30	80	2.5	0.2	1
	1008HRD-L	1	8	5.5	10	50	100	2.5	0.2	1
	1010HRD-M	2	10	5	12	44	100	2.5	0.2	1
	1010HRD-L	2	10	5	12	64	120	2.5	0.2	1
	1012HRD-M	2	12	7	12	44	100	2.5	0.3	1
	1012HRD-L	2	12	7	16	80	160	2.5	0.3	1
	1015HRD-M	3	15	10	16	80	160	2.5	0.3	1
1015HRD-L	3	15	10	16	100	200	2.5	0.4	1	
FMRS	1510HRD-M	1	10	6	12	44	100	3.0	0.2	1
	1510HRD-L	1	10	6	12	64	120	3.0	0.2	1
	1512HRD-M	2	12	6	12	54	110	3.0	0.3	1
	1512HRD-L	2	12	6	16	80	160	3.0	0.3	1
	1516HRD-M	3	16	10	16	60	130	3.0	0.3	1
	1516HRD-L	3	16	10	20	90	180	3.0	0.4	1
	1520HRD-M	3	20	14	20	80	150	3.0	0.4	1
1520HRD-L	3	20	14	20	90	200	3.0	0.5	1	

Available inserts

RDHW-E,F,S RDKW



Type	Designation	Cermet		Coated										Uncoated		page		
		CN2000	CN30	NCM825	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400		ST30A	H01
1000 type	RDHW	0501M0E																
		0501M0F																
		0501M0S																
1500 type	RDKW	0501M0E																E15
	RDHW	06T1M0E																E16
		06T1M0F																
		06T1M0S																
	RDKW	06T1M0E																

Parts

Specification		
Ø8-Ø15 (1000 type)	FTNA0203	TW06P
Ø10-Ø20 (1500 type)	FTNA02205	TW06P

Available inserts E15, E16

FMRS2000/2500

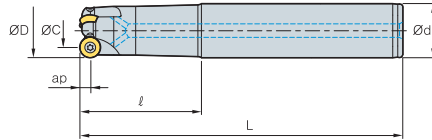


Fig. 1

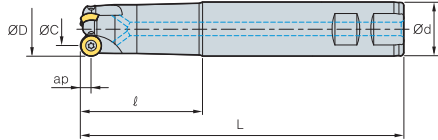


Fig. 2



• AR: 5°
• RR: -5°~ -1°

(mm)

Designation		ØD	ØC	Ød	ℓ	L	ap		Fig.	
FMRS	2015HRD-S	2	15	8	16	55	115	3.5	0.3	2
	2015HRD-M	2	15	8	20	80	150	3.5	0.4	1
	2015HRD-L	2	15	8	20	90	200	3.5	0.5	1
	2020HRD-S	3	20	14	20	65	125	3.5	0.3	2
	2020HRD-M	3	20	14	20	80	150	3.5	0.4	1
	2020HRD-L	3	20	14	25	90	200	3.5	0.5	1
FMRS	2516HRD-S	2	16	8	16	65	125	4.0	0.3	2
	2516HRD-M	2	16	8	16	80	150	4.0	0.4	1
	2516HRD-L	2	16	8	20	90	200	4.0	0.5	1
	2520HRD-S	2	20	12	20	65	125	4.0	0.4	2
	2520HRD-M	2	20	12	20	80	150	4.0	0.5	1
	2520HRD-L	2	20	12	25	90	200	4.0	0.6	1
	2525HRD-S	3	25	17	25	55	125	4.0	0.5	2
	2525HRD-M	3	25	17	25	90	200	4.0	0.6	1
	2525HRD-L	3	25	17	32	110	250	4.0	0.7	1

Available inserts

RDHW-E,F,S RDKW



Type	Designation	Cermet		Coated										Uncoated		page			
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400		ST30A	H01	
2000 type	RDHW	0702MOE																	E15 E16
		0702MOF																	
		0702MOS																	
2500 type	RDKW	0702MOE																	
	RDHW	0803MOE																	
		0803MOF																	
		0803MOS																	
	RDKW	0803MOE																	

Parts

Specification		
Ø15~Ø20 (2000 type)	FTNA02555	TW07S
Ø16~Ø25 (2500 type)	FTNA0305 FTNA0306 (Ø20 over)	TW09S

Available inserts E15, E16



FMRS3000

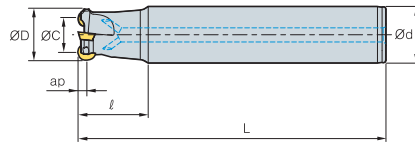


Fig. 1

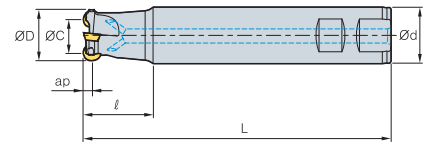


Fig. 2



• AR: 5°
• RR: -8° ~ -5°

(mm)

Designation		ØD	ØC	Ød	l	L	ap		Fig.	
FMRS	3021HRD-M	1	21	11	20	40	150	5	0.4	1
	3021HRD-M2	2	21	11	20	40	150	5	0.4	1
	3021HRD-L	1	21	11	20	50	200	5	0.6	1
	3021HRD-L2	2	21	11	20	50	200	5	0.6	1
	3025HRD-S	2	25	15	25	35	115	5	0.5	2
	3025HRD-M	2	25	15	25	70	200	5	0.7	1
	3025HRD-L	2	25	15	25	100	250	5	1	1
	3026HRD-M	2	26	16	25	70	200	5	0.65	1
	3026HRD-L	2	26	16	25	100	250	5	0.7	1
	3032HRD-S	3	32	22	32	40	125	5	1	2
	3032HRD-M	3	32	22	32	70	200	5	1.3	1
	3032HRD-L	3	32	22	32	150	300	5	1.6	1
	3040HRD-S	4	40	30	32	40	125	5	1.3	2
	3040HRD-M	4	40	30	32	70	200	5	1.5	1
3040HRD-L	4	40	30	32	150	300	5	1.8	1	

Available inserts

RDKT-MF RDKT-MM RDCT-MA



Designation	Cermet		Coated											Uncoated		page			
	CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	ST30A		H01		
RDCT 10T3M0-MA																	●	E15 E16	
RDKT 10T3M0-MF																			
RDKT 10T3M0-MM			●							●		●	●						

Parts

Specification		
Ø21~Ø40	FTGA03508 (07)	TW15S

Available inserts E15, E16

FMRS4000

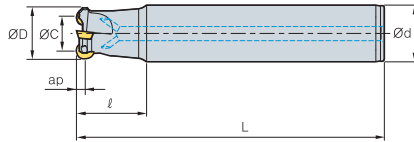


Fig. 1

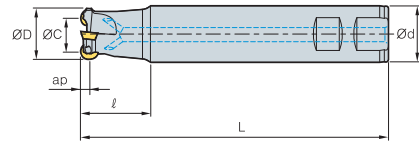


Fig. 2



• AR: 5°
• RR: -8°~-5°

(mm)

Designation		ØD	ØC	Ød	ℓ	L	ap		Fig.
FMRS									
4032HRD-S	2	32	20	32	40	125	6	0.8	2
4032HRD-M	2	32	20	32	70	200	6	1.1	1
4032HRD-L	2	32	20	32	150	300	6	1.6	1
4033HRD-S	2	33	21	32	40	125	6	0.9	2
4033HRD-M	2	33	21	32	70	200	6	1.1	1
4033HRD-L	2	33	21	32	150	300	6	1.7	1
4040HRD-S	3	40	28	32	40	125	6	1	2
4040HRD-M	3	40	28	32	70	200	6	1.6	1
4040HRD-L	3	40	28	32	150	300	6	1.8	1
4040HRD-S40	3	40	28	40	40	125	6	1.3	2
4040HRD-M40	3	40	28	40	70	200	6	2	1
4040HRD-L40	3	40	28	40	150	300	6	2.4	1
4040HRD-S42	3	40	28	42	40	125	6	1.6	2
4040HRD-M42	3	40	28	42	70	200	6	2.4	1
4040HRD-L42	3	40	28	42	150	300	6	2.8	1
4050HRD-S	4	50	38	42	50	125	6	1.5	2
4050HRD-M	4	50	38	42	50	250	6	2.1	1
4050HRD-L	4	50	38	42	50	300	6	2.7	1
4050HRD-S40	4	50	38	40	50	150	6	2	2
4050HRD-M40	4	50	38	40	50	250	6	2.6	1
4050HRD-L40	4	50	38	40	50	300	6	3.2	1

Available inserts

RDKT-MF RDKT-MM RDCT-MA



Designation	Cermet		Coated										Uncoated		page				
	CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400		ST30A	H01		
RDCT 1204M0-MA																	●	E15	
RDKT 1204M0-MF																			E16
RDKT 1204M0-MM			●							●		●	●						

Parts

Specification		
Ø32-Ø50	FTKA0410	TW15S

Available inserts E15, E16



E Milling

FMRS5000

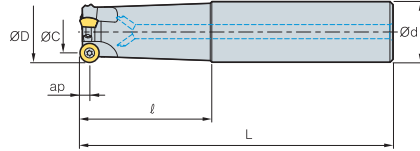


Fig. 1

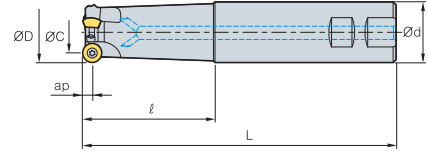


Fig. 2



• AR: 5°
• RR: -8° ~ -5°

(mm)

Designation	Flutes	ØD	ØC	Ød	ℓ	L	ap	Weight (kg)	Fig.
FMRS 5040HRD-S	2	40	24	32	40	125	8	1.4	2
5040HRD-M	2	40	24	32	70	200	8	1.8	1
5040HRD-L	2	40	24	32	150	300	8	2.0	1
5040HRD-S40	2	40	24	40	40	125	8	1.6	2
5040HRD-M40	2	40	24	40	70	200	8	2.0	1
5040HRD-L40	2	40	24	40	150	300	8	2.4	1
5040HRD-S42	2	40	24	42	40	125	8	2.0	2
5040HRD-M42	2	40	24	42	70	200	8	2.4	1
5040HRD-L42	2	40	24	42	150	300	8	2.8	1
5050HRD-S40	3	50	34	40	50	150	8	2.0	2
5050HRD-M40	3	50	34	40	50	250	8	2.4	1
5050HRD-L40	3	50	34	40	50	300	8	2.6	1
5050HRD-S	3	50	34	42	50	150	8	1.5	2
5050HRD-M	3	50	34	42	50	250	8	1.8	1
5050HRD-L	3	50	34	42	50	300	8	2.0	1
5063HRD-S40	4	63	47	40	50	150	8	1.7	2
5063HRD-M40	4	63	47	40	50	250	8	2.0	1
5063HRD-L40	4	63	47	40	50	300	8	2.3	1
5063HRD-S	4	63	47	42	50	150	8	1.6	2
5063HRD-M	4	63	47	42	50	250	8	1.8	1
5063HRD-L	4	63	47	42	50	300	8	2.0	1

Available inserts

RDHW-E,F,S RDKT-MF RDKT-ML RDKT-MM



Designation	Cermet		Coated										Uncoated		page		
	CN2000	CN30	NCM0325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400		ST30A	H01
RDHW 1605M0E																	E15
1605M0F																	
1605M0S																	
RDKT 1605M0-MF																	E16
1605M0-MM																	
1605M0-ML																	

Parts

Specification	Screw	Wrench
Ø40~Ø63	FTGA0513-P	TW20-100

Available inserts E15, E16

FMRS6000

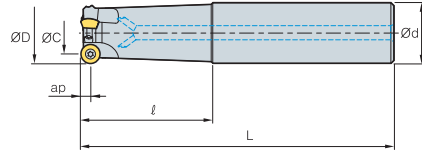


Fig. 1

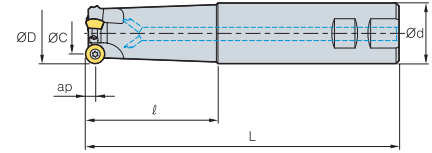


Fig. 2



• AR: 5°
• RR: -8°~ -5°

(mm)

Designation		ØD	ØC	Ød	ℓ	L	ap		Fig.	
FMRS	6050HRD-S40	3	50	31	40	50	150	1.3	2	
	6050HRD-S42	3	50	31	42	50	150	1.4	2	
	6050HRD-M40	3	50	31	40	50	250	10	2.2	1
	6050HRD-M42	3	50	31	42	50	250	10	2.4	1
	6050HRD-L40	3	50	31	40	50	300	10	2.7	1
	6050HRD-L42	3	50	31	42	50	300	10	3.0	1
	6063HRD-S40	4	63	44	40	50	150	10	1.5	2
	6063HRD-S42	4	63	44	42	50	150	10	1.6	2
	6063HRD-M40	4	63	44	40	50	250	10	2.5	1
	6063HRD-M42	4	63	44	42	50	250	10	2.7	1
6063HRD-L40	4	63	44	40	50	300	10	3.0	1	
6063HRD-L42	4	63	44	42	50	300	10	3.2	1	

Available inserts

RDHW-E,F,S RDKT-MM



Designation	Cermet		Coated										Uncoated		page		
	CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400		ST30A	H01
RDHW	2006MOE																E15
	2006MOF																
	2006MOS																
RDKT	2006MO-MM								●								E16

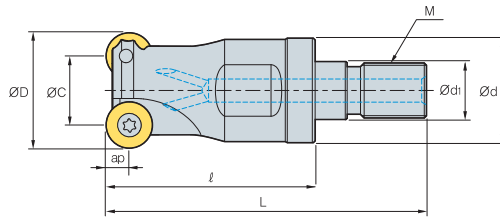
Parts

Specification		
Ø50~Ø63	FTGA0515-P	TW20-100

Available inserts E15, E16



FMRM1000/1500



• AR: 0°~5°
• RR: -5°~ -1°

Designation		⌚	ØD	ØC	Ød	Ød1	l	L	M	ap	⚖️
FMRM	1008HRD-M06	1	8	5.5	9.5	6.5	25	40	M06	2.5	0.02
	1010HRD-M06	2	10	5	9.5	6.5	25	40	M06	2.5	0.02
	1012HRD-M06	2	12	7	11	6.5	25	40	M06	2.5	0.02
	1015HRD-M08	3	15	10	14.5	8.5	30	47	M08	2.5	0.04
	1510HRD-M06	1	10	7	9.5	6.5	25	40	M06	3.0	0.02
	1512HRD-M06	2	12	6	11	6.5	25	40	M06	3.0	0.02
	1516HRD-M08	3	16	10	14.5	8.5	30	47	M08	3.0	0.02
	1520HRD-M10	3	20	14	18	10.5	35	56	M10	3.0	0.07

Available inserts

RDHW-E,F,S RDKW



Type	Designation	Cermet		Coated										Uncoated		page		
		CN2000	CN30	NCM325	NC6330	NC6340	NC6350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400		ST30A	H01
1000 type	RDHW 0501M0E (F,S)																	
	RDKW 0501M0E																	E15
1500 type	RDHW 06T1M0E (F,S)																	E16
	RDKW 06T1M0E																	

Available adaptor

Designation	Available adaptor
FMRM 1008HRD-M06	MAT-M06
1010HRD-M06	
1012HRD-M06	
1015HRD-M08	MAT-M08
1510HRD-M06	MAT-M06
1512HRD-M06	
1515HRD-M08	MAT-M08
1520HRD-M10	MAT-M10

Designation: FMRM1008HRD-M06
Modular head threading measure size (M06)

||

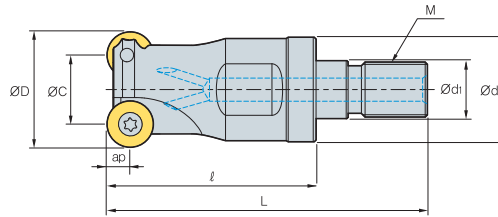
Adaptor spec.: MAT-M06-020-S10S
Adaptor threading measure (M06)

Parts

Specification	Screw	Wrench
Ø8~Ø15 (1000 type)	FTNA0203	TW06P
Ø10~Ø20 (1500 type)	FTNA02205	TW06P

Available inserts E15, E16 Available adaptor E342~E343

FMRM2000/2500



• AR: 0°~5°
• RR: -5°~-1°

(mm)

Designation		ØD	ØC	Ød	Ød1	ℓ	L	M	ap	$\frac{G}{kg}$	
FMRM	2015HRD-M08	2	15	8	14.5	8.5	30	47	M08	3.5	0.04
	2020HRD-M10	3	20	13	18	10.5	35	56	M10	3.5	0.07
	2516HRD-M08	2	16	8	14.5	8.5	30	47	M08	4.0	0.04
	2520HRD-M10	2	20	12	18	10.5	35	56	M10	4.0	0.07
	2525HRD-M12	3	25	17	22.5	12.5	45	69	M12	4.0	0.13

Available inserts

RDHW-E,F,S RDKW



Type	Designation	Cermet		Coated										Uncoated		page		
		CN2000	CN30	NCM825	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC3630	PC6510	PC5300	PC5400		ST30A	H01
2000 type	RDHW 0702M0E (F,S)																	E15
	RDKW 0702M0E									●	●							
2500 type	RDHW 0803M0E (F,S)																	E16
	RDKW 0803M0E																	
	1605MO-MF																	

Available adaptor

Designation	Available adaptor
FMRM 2015HRD-M08	MAT-M08
2020HRD-M10	MAT-M10
2516HRD-M08	MAT-M08
2520HRD-M10	MAT-M10
2525HRD-M12	MAT-M12

Designation: FMRM1008HRD-M06
Modular Head Threading Measure size (M06)

II

Adaptor spec.: MAT-M06-020-S10S
Adaptor Threading Measure (M06)

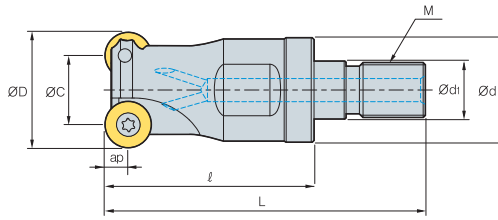
Parts

Specification	Screw	Wrench
Ø15~Ø20 (2000 type)	FTNA02555	TW07S
Ø16~Ø25 (2500 type)	FTNA0305	TW09S

Available inserts E15, E16 Available adaptor E342~E343



FMRM3000



• AR: 5°
• RR: -8° ~ -5°

Designation		⌚	ØD	ØC	Ød	Ød ₁	l	L	M	ap	⚖️
FMRM	3021HRD-M10	2	21	11	18	10.5	35	56	M10	5.0	0.1
	3025HRD-M12	2	25	15	22.5	12.5	45	69	M12	5.0	0.15
	3032HRD-M16	3	32	22	29	17	50	77	M16	5.0	0.2
	3042HRD-M16	4	42	32	29	17	50	77	M16	5.0	0.24

Available inserts

		RDHW-E,F,S	RDCT-MA	RDKT-MF	RDKT-ML	RDKT-MM													
Designation		Cermet		Coated								Uncoated		page					
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC5630	PC6510		PC5300	PC5400	ST30A	H01	
RDCT	10T3M0-MA																		
RDKT	10T3M0-MF																		E15
	10T3M0-MM																		E16

Available adaptor

Designation	Available adaptor
FMRM 3021HRD-M10	MAT-M10
3025HRD-M12	MAT-M12
3032HRD-M16	MAT-M16
3042HRD-M16	

Designation: FMRM1008HRD-M06
Modular Head Threading Measure size (M06)

||

Adaptor spec.: MAT-M06-020-S10S
Adaptor Threading Measure (M06)

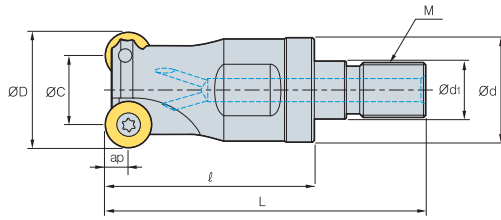
Parts

Specification		
Ø21~Ø42	FTGA03508 (07)	TW15S

Available inserts E15, E16

Available adaptor E342~E343

FMRM4000/5000



• AR: 5°
• RR: -8°~ -5°

(mm)

Designation		ØD	ØC	Ød	Ød1	ℓ	L	M	ap		
FMRM	4025HRD-M12	2	25	13	22.5	12.5	45	69	M12	6.0	0.12
	4032HRD-M16	2	32	20	29	17	50	77	M16	6.0	0.22
	4040HRD-M16	3	40	28	29	17	50	77	M16	6.0	0.23
	4042HRD-M16	4	42	28	29	17	50	77	M16	6.0	0.25
	5040HRD-M16	2	40	24	29	17	50	77	M16	8.0	0.25

Available inserts



Type	Designation	Cermet		Coated										Uncoated		page			
		CN2000	CN80	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400		ST30A	H01	
4000 type	RDCT 1204M0-MA																	E15	
	RDKT 1204M0-MF																		E16
	RDKT 1204M0-MM																		
5000 type	RDHW 1605M0E,F,S																	E16	
	RDKT 1605M0-MF																		
	RDKT 1605M0-ML																		
	RDKT 1605M0-MM																		

Available adaptor

Designation	Available adaptor
FMRM 4025HRD-M12	MAT-M12
4032HRD-M16	MAT-M16
4040HRD-M16	
4042HRD-M16	
5040HRD-M16	

Designation: FMRM1008HRD-M06
Modular head threading measure size (M06)

||

Adaptor spec.: MAT-M06-020-S10S
Adaptor threading measure (M06)

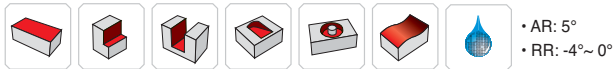
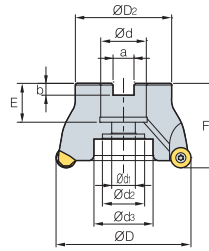
Parts

Specification		
Ø25~Ø42 (4000 type)	FTKA0410	TW15S
Ø40 (5000 type)	FTGA0513-P	TW20-100

Available inserts E15, E16 Available adaptor E342~E343



FMRCM3000 new



Designation		⊙	ØD	ØD ₂	Ød	Ød ₁	Ød ₂	d ₃	a	b	E	F	ap	kg	Insert size
FMRCM	3040HRP-5	5	40	38	16	9	14	-	8.4	5.6	19	40	5	0.22	10
	3050HRP-6	6	50	45	22	11	18	-	10.4	6.3	20	40	5	0.35	10
	3052HRP-6	6	52	45	22	11	18	-	10.4	6.3	20	40	5	0.37	10
	3063HRP-6	6	63	50	22	11	18	-	10.4	6.3	20	40	5	0.55	10
	3063HRP-7	7	63	50	22	11	18	-	10.4	6.3	20	40	5	0.56	10
	3066HRP-7	7	66	50	22	11	18	-	10.4	6.3	20	40	5	0.60	10

Available inserts

		RPCT-MA		RPET-ML		RPMT-MF		RPMT-MM		RPMW							
Designation		Cermet		Coated								Uncoated		page			
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3800	PC3930	PC6510		PC5300	PC5400	ST30A
RPCT	10T3M0-MA																●
RPET	10T3M0E-ML													●	●		
RPMT	10T3M0E-MF										●			●	●		
	10T3M0S-MM							●	●		●			●	●		
RPMW	10T3M0E1							●	●	●				●	●		

Available arbors

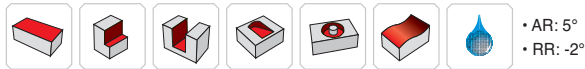
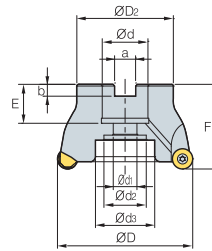
Designation	Ød	Available arbors
FMRCM 3040HRP-5	16	BT□□-FMC16-□□
3050HRP-6	22	BT□□-FMC22-□□
3052HRP-6	22	BT□□-FMC22-□□
3063HRP-6	22	BT□□-FMC22-□□
3063HRP-7	22	BT□□-FMC22-□□
3066HRP-7	22	BT□□-FMC22-□□

Parts

Specification		
Ø40~Ø66	FTGA03508	TW15S

Available inserts E16 Available arbors and bolt E371~E373

FMRC(M)4000 new



Designation		⚙️	ØD	ØD ₂	Ød	Ød ₁	Ød ₂	Ød ₃	a	b	E	F	ap	⚖️	Insert size
FMRCM	4050HRP-4	4	50	45	22	11	18	-	10.4	6.3	20	40	6	0.26	12
	4050HRP-5	5	50	45	22	11	18	-	10.4	6.3	20	40	6	0.28	12
	4052HRP-5	5	52	45	22	11	18	-	10.4	6.3	20	40	6	0.30	12
	4063HRP-5	5	63	50	22	11	18	-	10.4	6.3	20	40	6	0.44	12
	4063HRP-6	6	63	50	22	11	18	-	10.4	6.3	20	40	6	0.48	12
	4066HRP-6	6	66	50	22	11	18	-	10.4	6.3	20	40	6	0.50	12
FMRC (FMRCM)	4080HRP-6	6	80	57	25.4 (27)	14	25	35	9.5 (12.4)	6 (7)	24 (23)	50	6	0.92	12
	4080HRP-7	7	80	57	25.4 (27)	14	25	35	9.5 (12.4)	6 (7)	24 (23)	50	6	0.90	12
	4100HRP-7	7	100	67	31.75 (32)	18	26	42	12.7 (14.4)	8 (8)	32 (25)	63 (53)	6	1.46	12

() Metric size

Available inserts

		RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW												
Designation		Cermet		Coated						Uncoated		page						
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600		PC9530	PC6510	PC5300	PC5400	ST30A	H01
RPCT	1204M0-MA																	
RPET	1204M0E-ML																	
RPMT	1204M0E-MF																	
	1204M0S-MM																	
RPMW	1204M0S1																	
	1204M0S2																	

E16

Available arbors

Designation	Ød	Available arbors
FMRCM	4050HRP-4	BT□□-FMC22-□□
	4050HRP-5	
	4052HRP-5	
	4063HRP-5	
	4063HRP-6	
	4066HRP-6	
FMRC(M)	4080HRP-6	BT□□-FMA25.4-□□
		BT□□-FMC27-□□
	4080HRP-7	BT□□-FMA25.4-□□
		BT□□-FMC27-□□
	4100HRP-7	BT□□-FMA31.5-□□
		BT□□-FMC32-□□

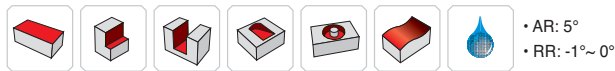
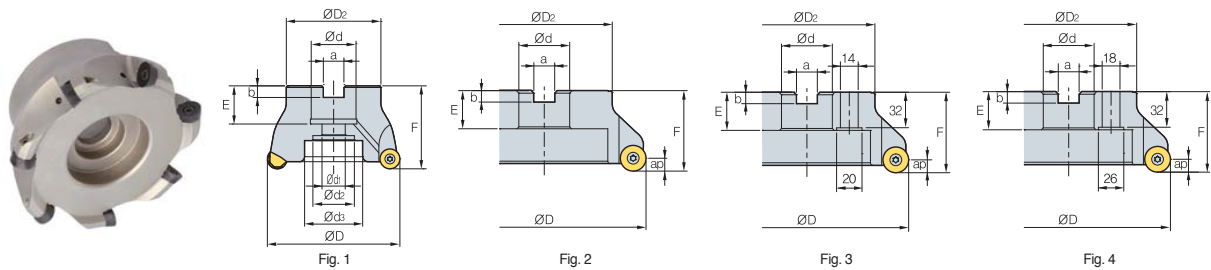
Parts

Specification	Screw	Wrench
Ø50-Ø100	FTKA0410	TW15S

Available inserts E16 Available arbors and bolt E371-E373



FMRC(M)5000 new



• AR: 5°
• RR: -1°~ 0°

Designation			ØD	ØD ₂	Ød	Ød ₁	Ød ₂	Ød ₃	a	b	E	F	ap		Fig.	Insert size
FMRCM	5063HRP-4	4	63	50	22	11	18	-	10.4	6.3	20	40	8	0.43	1	16
	5063HRP-5	5	63	50	22	11	18	-	10.4	6.3	20	40	8	0.44	1	16
	5066HRP-5	5	66	50	22	11	18	-	10.4	6.3	20	40	8	0.48	1	16
FMRC (FMRCM)	5080HRP-5	5	80	57	25.4 (27)	14	25	35	9.5 (12.4)	6 (7)	24 (23)	50	8	0.77	1	16
	5080HRP-6	6	80	57	25.4 (27)	14	25	35	9.5 (12.4)	6 (7)	24 (23)	50	8	0.82	1	16
	5100HRP-6	6	100	67	31.75 (32)	18	26	42	12.7 (14.4)	8 (8)	32 (25)	63 (55)	8	1.42	1	16
	5125HRP-7	7	125	87	38.1 (40)	22	32	52	15.9 (16.4)	10 (9)	35 (29)	68 (63)	8	2.78	1	16
	5125HRP-8	8	125	87	38.1 (40)	22	32	52	15.9 (16.4)	10 (9)	35 (29)	68 (63)	8	2.79	1	16
	5160HRP-8	8	160	107	50.8 (40)	-	-	100	19 (16.4)	11 (9)	38 (32)	63	8	4.01	2 (3)	16

() Metric size

Available inserts

		RPCT-MA		RPET-ML		RPMT-MF		RPMT-MM		RPMW							
Designation		Cermet		Coated						Uncoated		page					
		CN2000	CN30	NCM325	NCS330	NCS340	NCS350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	ST30A	H01
RPCT	1606M0-MA																
RPET	1606M0E-ML																
RPMT	1606M0E-MF																
	1606M0S-MM																
RPMW	1606M0S1																

Available arbors

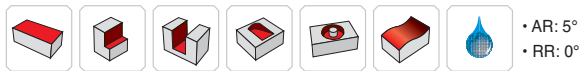
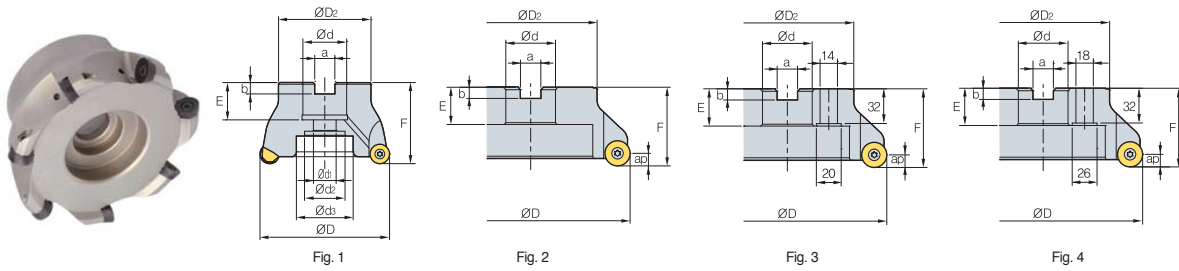
Designation		Ød	Available arbors
FMRCM	5063HRP-4	22	BT□□-FMC22-□□
	5063HRP-5		
	5066HRP-5		
FMRC(M)	5080HRP-5	25.4	BT□□-FMA25.4-□□
	5080HRP-6	25.4	BT□□-FMA25.4-□□
			BT□□-FMC27-□□
	5100HRP-6	31.75	BT□□-FMA31.75-□□
			BT□□-FMC32-□□
	5125HRP-7	38.1	BT□□-FMA38.1-□□
			BT□□-FMC40-□□
	5125HRP-8	38.1	BT□□-FMA38.1-□□
			BT□□-FMC40-□□
5160RP-8	50.8	BT□□-FMA50.8-□□	
		BT□□-FMC40-□□	

Parts

Specification		
Ø63~Ø160	FTGA0512-P	TW20-100

Available inserts E16 Available arbors and bolt E371~E373

FMRC(M)6000 new



Designation	ØD	ØC	ØD ₂	Ød	Ød ₁	Ød ₂	Ød ₃	a	b	E	F	ap	Fig.	Insert size		
FMRCM 6063HRP-4	4	63	43	50	22	11	18	-	10.4	6.3	20	40	10	0.37	1	20
FMRC (FMRCM) 6080HRP-5	5	80	60	57	25.4 (27)	14	25	35	9.5 (12.4)	6 (7)	24 (23)	50	10	0.87	1	20
6100HRP-5	5	100	80	67	31.75 (32)	18	26	42	12.7 (14.4)	8 (8)	32 (25)	63 (55)	10	1.31	1	20
6100HRP-6	6	100	80	67	31.75 (32)	18	26	42	12.7 (14.4)	8 (8)	32 (25)	63 (55)	10	1.40	1	20
6125HRP-5	5	125	105	87	38.1 (40)	22	32	52	15.9 (16.4)	10 (9)	35 (29)	68 (63)	10	2.77	1	20
6125HRP-7	7	125	105	87	38.1 (40)	22	32	52	15.9 (16.4)	10 (9)	35 (29)	68 (63)	10	2.89	1	20
6160RP-6	6	160	140	107	50.8 (40)	-	-	100	19 (16.4)	11 (9)	38 (32)	63	10	3.58	2 (3)	20
6160RP-8	8	160	140	107	50.8 (40)	-	-	100	19 (16.4)	11 (9)	38 (32)	63	10	3.53	2 (3)	20
6200RP-8	8	200	180	130	47.625 (60)	-	-	132	25.4 (25.7)	14 (14)	38	63	10	5.15	4	20
6250RP-9	9	250	230	180	47.625 (60)	-	-	180	25.4 (25.7)	14 (14)	38	63	10	9.72	4	20

() Metric size

Available inserts

Designation	RPCT-MA		RPET-ML		RPMT-MF		RPMT-MM		RPMW		page						
	CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600		PC9530	PC6510	PC5300	PC5400	ST30A	H01
RPCT 2007M0-MA																	
RPET 2007M0E-ML																	
RPMT 2007M0E-MF																	
2007M0S-MM																	
RPMW 2007M0S1																	

Available arbors

Designation	Ød	Available arbors	Designation	Ød	Available arbors
FMRCM 6063HRP-4	22	BT□□-FMC22-□□	FMRC(M) 6125HRP-7	38.1	BT□□-FMA38.1-□□
FMRC(M) 6080HRP-5	25.4	BT□□-FMA25.4-□□		40	BT□□-FMC40-□□
6100HRP-5	27	BT□□-FMC27-□□	6160RP-6	50.8	BT□□-FMA50.8-□□
	31.75	BT□□-FMA31.75-□□		40	BT□□-FMC40-□□
6100HRP-6	32	BT□□-FMC32-□□	6160RP-8	50.8	BT□□-FMA50.8-□□
	31.75	BT□□-FMA31.75-□□		40	BT□□-FMC40-□□
6125HRP-5	32	BT□□-FMC32-□□	6200RP-8	47.625	BT□□-FMA47.625-□□
	38.1	BT□□-FMA38.1-□□		60	BT□□-FMC60-□□
	40	BT□□-FMC40-□□	6250RP-9	47.625	BT□□-FMA47.625-□□
				60	BT□□-FMC60-□□

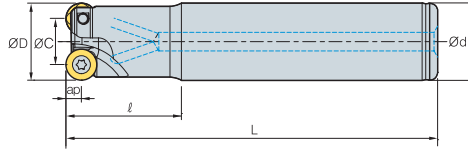
Parts

Specification	Screw	Wrench
Ø63~Ø250	FTKA0615-P	TW25-100

Available inserts E16 Available arbors and bolt E371~E373



FMRS2500 new



• AR: -4°
• RR: -4° ~ -1°

Designation			ØD	ØC	Ød	ℓ	L	ap		Insert size
FMRS	2517HRP-2S16	2	17	9	16	35	90	4	0.11	8
	2517HRP-2M16	2	17	9	16	35	150	4	0.20	8
	2517HRP-2L16	2	17	9	16	35	200	4	0.27	8
	2518HRP-2M16	2	18	10	16	35	150	4	0.20	8
	2518HRP-2L16	2	18	10	16	35	200	4	0.28	8
	2520HRP-3S20	3	20	12	20	35	130	4	0.27	8
	2520HRP-3M20	3	20	12	20	100	180	4	0.36	8
	2520HRP-3L20	3	20	12	20	130	250	4	0.50	8
	2521HRP-3S20	3	21	13	20	35	130	4	0.28	8
	2521HRP-3M20	3	21	13	20	35	180	4	0.40	8
	2521HRP-3L20	3	21	13	20	35	250	4	0.55	8
	2525HRP-4S25	4	25	17	25	35	150	4	0.48	8
	2525HRP-4M25	4	25	17	25	60	180	4	0.60	8
	2525HRP-4L25	4	25	17	25	130	250	4	0.81	8
	2526HRP-4S25	4	26	18	25	35	150	4	0.48	8
2526HRP-4L25	4	26	18	25	130	250	4	0.85	8	

Available inserts

		RPET-ML new		RPMT-MF new		RPMT-MM new		RPMW new									
Designation	Cermet		Coated								Uncoated		page				
	CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510		PC5300	PC5400	ST30A	H01
RPET	0803M0E-ML												●	●			E16
RPMT	0803M0E-MF								●				●	●			
	0803M0S-MM						●	●	●				●	●			
RPMW	0803M0E1						●	●	●				●	●			

Parts

Specification		
Ø17	FTNA0305	TW09S
Ø18-Ø26	FTNA0306	

Available inserts E16

FMRS3000 new

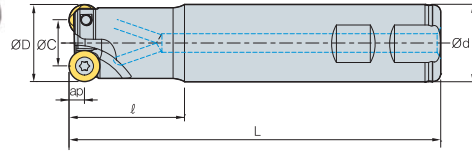


Fig. 1

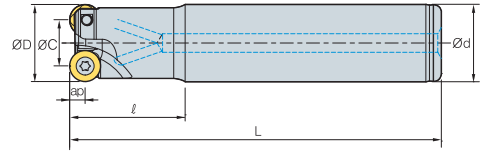
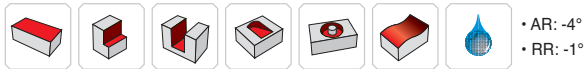


Fig. 2



• AR: -4°
• RR: -1°

(mm)

Designation		ØD	ØC	Ød	ℓ	L	ap		Fig.	Insert size	
FMRS	3025HRP-2M20	2	25	15	20	40	170	5	0.40	2	10
	3025HRP-2S25	2	25	15	25	40	120	5	0.39	1	10
	3025HRP-2M25	2	25	15	25	60	160	5	0.52	2	10
	3025HRP-2L25	2	25	15	25	130	250	5	0.80	2	10
	3026HRP-2L25	2	26	16	25	30	200	5	0.69	2	10
	3032HRP-3S32	3	32	22	32	40	125	5	0.68	1	10
	3032HRP-3L32	3	32	22	32	60	200	5	1.08	2	10
	3032HRP-4S32	4	32	22	32	40	125	5	0.66	1	10
	3032HRP-4L25	4	32	22	25	60	200	5	0.74	2	10
	3033HRP-4S32	4	33	23	32	40	125	5	0.67	1	10
	3033HRP-4M32	4	33	23	32	60	180	5	1.00	2	10
	3033HRP-4L32	4	33	23	32	180	300	5	1.64	2	10

Available inserts

		RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW												
Designation		Cermet		Coated								Uncoated		page				
		CN2000	CN30	NCM825	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510		PC5300	PC5400	ST30A	H01
RPCT	10T3M0-MA																●	E16
RPET	10T3M0E-ML												●	●				
RPMT	10T3M0E-MF									●			●	●				
RPMT	10T3M0S-MM									●			●	●				
RPMW	10T3M0E1									●			●	●				

Parts

Specification		
Ø25-Ø26 Ø32-Ø33	FTGA03507 FTGA03508	TW15S

Available inserts E16



FMRS4000 new

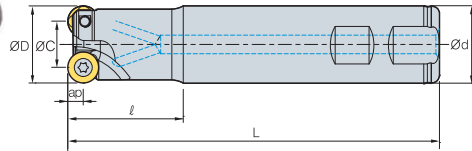


Fig. 1

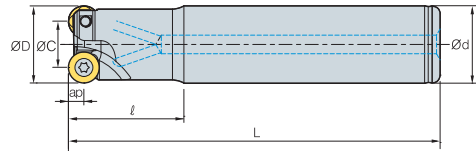


Fig. 2



- AR: -4°
- RR: -2°~0°

(mm)

Designation		ØD	ØC	Ød	l	L	ap		Fig.	Insert size
FMRS										
4025HRP-2S25	2	25	13	25	60	160	6	0.46	1	12
4026HRP-2L25	2	26	14	25	60	200	6	0.48	2	12
4032HRP-2L25	2	32	20	25	40	190	6	0.68	2	12
4032HRP-2S32	2	32	20	32	50	125	6	0.64	1	12
4032HRP-2L32	2	32	20	32	50	250	6	1.40	2	12
4032HRP-3S32	3	32	20	32	50	125	6	0.64	1	12
4032HRP-3M32	3	32	20	32	60	160	6	0.85	2	12
4033HRP-3M32	3	33	21	32	60	200	6	1.01	2	12
4033HRP-3L32	3	33	21	32	60	300	6	1.67	2	12
4040HRP-3S32	3	40	28	32	35	105	6	0.60	1	12
4040HRP-3M32	3	40	28	32	50	160	6	0.96	2	12
4040HRP-4S32	4	40	28	32	35	105	6	0.60	1	12
4040HRP-4M32	4	40	28	32	35	150	6	0.87	2	12
4040HRP-4L32	4	40	28	32	35	250	6	1.46	2	12
4050HRP-4M32	4	50	38	32	50	150	6	1.10	2	12
4050HRP-4M40	4	50	38	40	50	150	6	1.44	2	12
4050HRP-4M42	4	50	38	42	50	150	6	1.55	2	12

Available inserts

		RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW												
Designation		Cermet		Coated								Uncoated		page				
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510		PC5300	PC5400	ST30A	H01
RPCT	1204M0-MA																	
RPET	1204M0E-ML																	
RPMT	1204M0E-MF																	
	1204M0S-MM																	
RPMW	1204M0S1																	
	1204M0S2																	

Parts

Specification		
Ø25~Ø26	FTKA0408	TW15S
Ø32~Ø50	FTKA0410	

Available inserts E16

E FMR P-positive

FMRS5000/6000 **new**

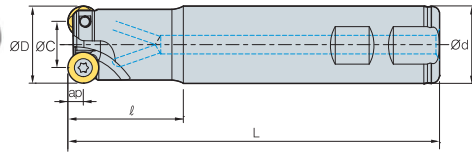


Fig. 1

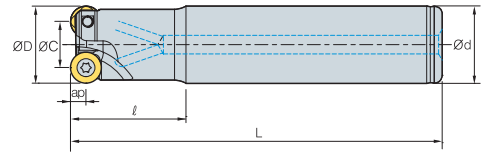
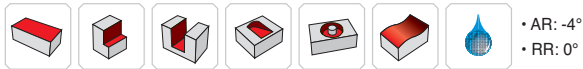


Fig. 2



(mm)

Designation		ØD	ØC	Ød	l	L	ap		Insert size	Fig.	
FMRS	5040HRP-2M32	2	40	24	32	50	160	8	0.92	16	2
	5040HRP-2L32	2	40	24	32	50	250	8	1.45	16	2
	5050HRP-3M40	3	50	34	40	50	160	8	1.48	16	2
	5050HRP-3L40	3	50	34	40	50	300	8	2.86	16	2
	6050HRP-3S32	3	50	30	32	50	160	10	1.06	20	1
	6050HRP-3M32	3	50	30	32	50	200	10	1.30	20	2
	6050HRP-3S40	3	50	30	40	50	125	10	1.45	20	1
6050HRP-3M40	3	50	30	40	50	200	10	1.85	20	2	

Available inserts



Type	Designation	Cermet		Coated										Uncoated		page		
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC3630	PC3610	PC5300	PC5400		ST30A	H01
5000 type	RPCT 1606M0-MA																	
	RPET 1606M0E-ML																	
	RPMT 1606M0E-MF																	
	1606M0S-MM																	
RPMW 1606M0S1																		
6000 type	RPCT 2007M0-MA																	
	RPET 2007M0E-ML																	
	RPMT 2007M0E-MF																	
	2007M0S-MM																	
RPMW 2007M0S1																		

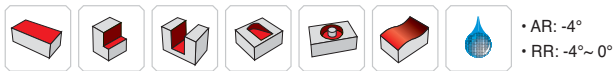
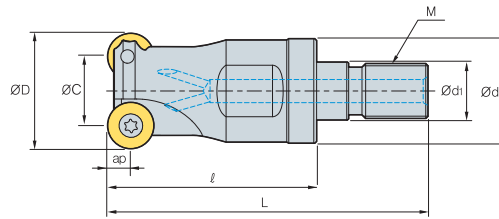
Parts

Specification		
Ø40~Ø50 (5000 type)	FTGA0511-P	TW20-100
Ø50 (6000 type)	FTKA0615-P	TW25-100

Available inserts E16



FMRM2500 new



Designation			ØD	ØC	Ød	Ød ₁	l	L	M	ap		Insert size
FMRM	2517HRP-M08	2	17	9	14.5	8.5	25	42	M08	4	0.03	8
	2521HRP-M10	3	21	13	18	10.5	30	51	M10	4	0.06	8
	2526HRP-M12	4	26	18	23	12.5	35	59	M12	4	0.11	8
	2533HRP-M16	4	33	25	29	17	40	67	M16	4	0.22	8
	2540HRP-M16	5	40	32	29	17	40	67	M16	4	0.26	8

Available inserts

		RPCT-MA new		RPET-ML new		RPMT-MF new		RPMT-MM new		RPMW new									
Designation		Cermet		Coated						Uncoated		page							
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC8510	PC5300	PC5400	ST30A	H01		
RPET	0803M0E-ML													●	●			E16	
RPMT	0803M0E-MF									●				●	●				
	0803M0S-MM							●	●		●			●	●				
RPMW	0803M0E1							●	●		●			●	●				

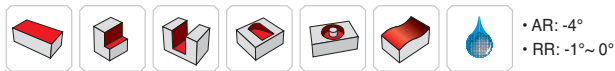
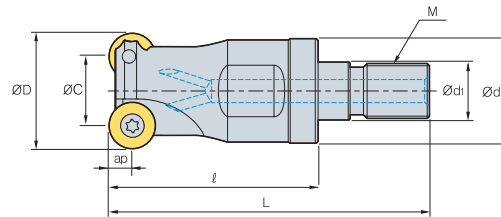
Parts

Specification		
Ø17 Ø21~Ø40	FTNA0305 FTNA0306	TW09S

Available inserts E16 Available adaptor E342~E343

E FMR P-positive

FMRM3000 new



• AR: -4°
• RR: -1°~0°

Designation		3	ØD	ØC	Ød	Ød ₁	l	L	M	ap	$\frac{G}{kg}$	Insert size
FMRM	3026HRP-M12	3	26	16	23	12.5	35	59	M12	5	0.10	10
	3033HRP-M16	3	33	23	29	17	40	67	M16	5	0.20	10
	3035HRP-M16	3	35	25	29	17	40	67	M16	5	0.22	10
	3040HRP-M16	3	40	30	29	17	40	67	M16	5	0.25	10
	3042HRP-M16	3	42	32	29	17	40	67	M16	5	0.27	10

Available inserts

		RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW											
Designation	Cermet		Coated								Uncoated		page				
	CN2000	CN30	NCM825	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510		PC5300	PC5400	ST30A	H01
RPCT	10T3M0-MA															●	E16
RPET	10T3M0E-ML												●	●			
RPMT	10T3M0E-MF												●	●			
	10T3M0S-MM						●	●		●			●	●			
RPMW	10T3M0E1						●	●		●			●	●			

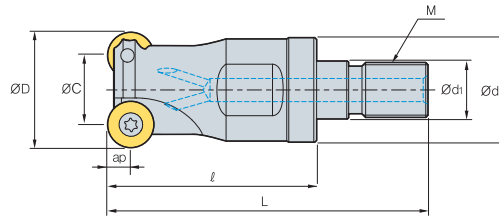
Parts

Specification		
Ø26	FTGA03507	TW15S
Ø33~Ø42	FTGA03508	

Available inserts E16 Available adaptor E342~E343



FMRM4000 new



Designation			ØD	ØC	Ød	Ød ₁	l	L	M	ap		Insert size
FMRM	4026HRP-M12	2	26	14	23	12.5	35	59	M12	6	0.10	12
	4033HRP-M16	3	33	21	29	17	40	67	M16	6	0.21	12
	4035HRP-M16	3	35	23	29	17	40	67	M16	6	0.21	12
	4040HRP-M16	4	40	28	29	17	40	67	M16	6	0.24	12
	4042HRP-M16	4	42	30	29	17	40	67	M16	6	0.25	12

Available inserts

		RPCT-MA		RPET-ML			RPMT-MF				RPMT-MM			RPMW					
Designation		Cermet		Coated										Uncoated		page			
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC3630	PC6510	PC5300	PC5400	ST30A	H01		
RPCT	1204M0-MA																		
RPET	1204M0E-ML																		
RPMT	1204M0E-MF																		
	1204M0S-MM																		
RPMW	1204M0S1																		
	1204M0S2																		

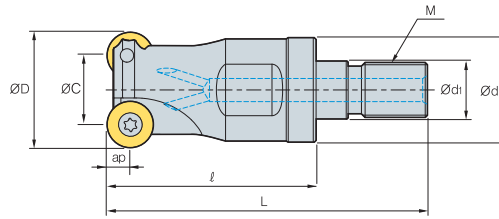
Parts

Specification		
Ø26	FTKA0408	TW15S
Ø33~Ø42	FTKA0410	

Available inserts E16 Available adaptor E342~E343

E FMR P-positive

FMRM5000 new



• AR: -4°
• RR: 0°

Designation			ØD	ØC	Ød	Ød ₁	l	L	M	ap		Insert size
FMRM	5040HRP-M16	2	40	24	29	17	40	67	M16	8	0.21	16
	5042HRP-M16	2	42	26	29	17	40	67	M16	8	0.23	16

(mm)

Available inserts

		RPCT-MA		RPET-ML		RPMT-MF		RPMT-MM		RPMW								
Designation		Cermet		Coated								Uncoated		page				
		CN2000	CN30	NCM325	NCS330	NCS340	NCS350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510		PC5300	PC5400	ST30A	H01
RPCT	1606M0-MA																	
RPET	1606M0E-ML																	
RPMT	1606M0E-MF																	
	1606M0S-MM																	
RPMW	1606M0S1																	

Parts

Specification			
Ø40~Ø42	FTGA0511-P	-	TW20-100

Available inserts E16 Available adaptor E342~E343

