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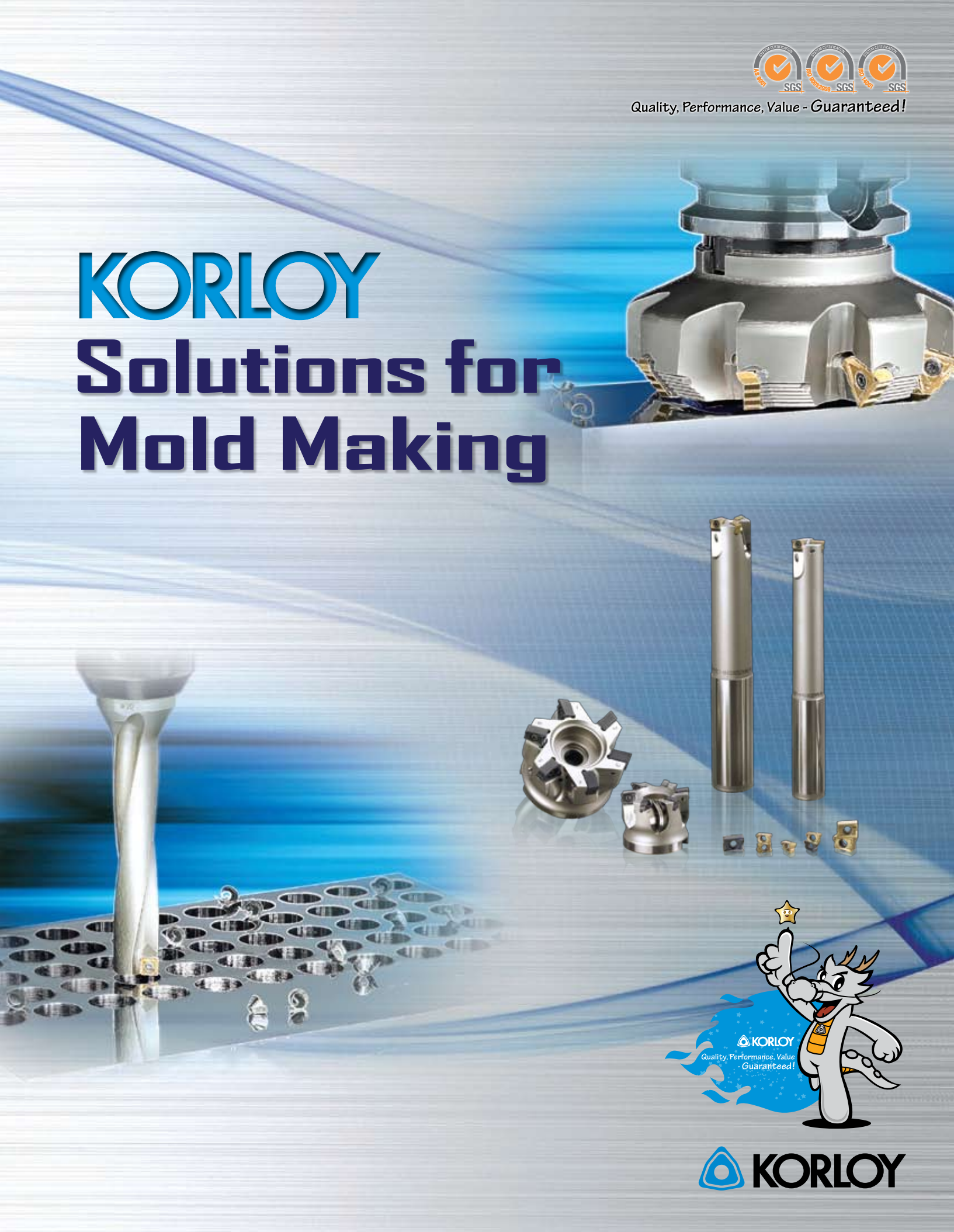
KORLOY

Solutions for Mold Making



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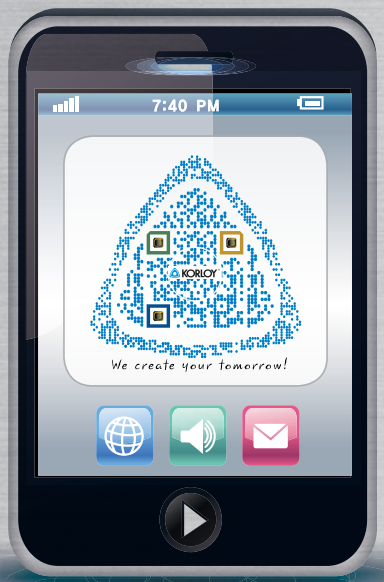

How to use the Website on Mobile and Tablet PC

Access the internet on a smart phone.

1 Get on the website ‘ http://m.korloy.com ’. or

2 Type in the search word, ‘korloy’ in the search box. or

3 Link the website with scanning the QR code.

* Language selection (Korean/English) available

Access the internet on a table PC.

1 **How to download QR code scan Application**

- Search ‘QR code scan’ in the Application download market.

i Phone	Android smart phone
App Store	Android Market

2 **Free QR code scan Application**

- There are many software for QR code scan in the Internet and you can use any of them for downloading the Application.

EggMon	qrooqroo	scany

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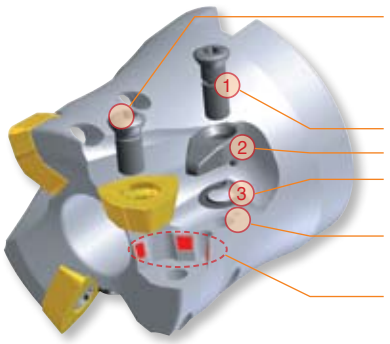
High feed milling tool for better productivity

HRM Tool

Powerful & economic milling tool with double clamping and 3 edge insert.

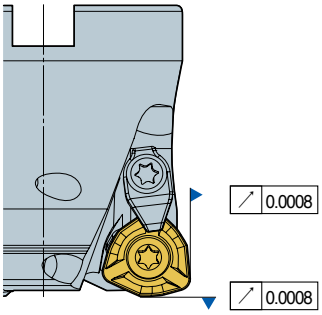
- Revolutionary design of the cutter and the special cutting edge of the insert make superb feed rate possible when compared with conventional tools. (Max. fz=0.138ipt)
- Low-cutting-resistance chip breaker achieves excellent cutting performance and longer tool life.
- HRM can cover various applications due to HRM insert sizes 08,10,13 and 15 line up.

Clamping System

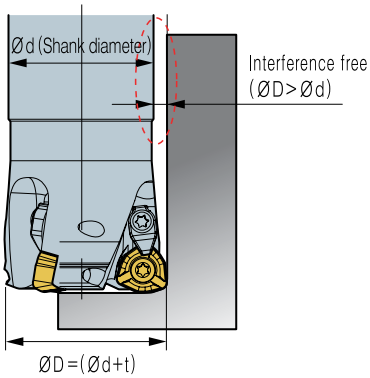


- Insert clamping screw
- Clamp set
  - ① Clamping screw
  - ② Clamp
  - ③ C-ring
- Clamp screw hole
- 3 facial fixing dimensions

HRM□08/10/13/15 Type



- High tolerance of tip seat part prevents chattering and guarantees high quality surface roughness

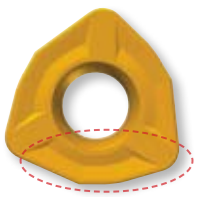


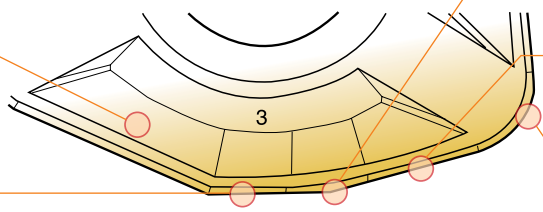
Side clearance range

Designation	øD(inch)	ød(inch)	t(inch)
HRMSA08087HR-2□ 075	0.875	0.75	0.125
HRMSA10106HR-2□ 100	1.063	1.00	0.063
HRMSA13131HR-2□ 125	1.313	1.25	0.063
HRMSA13137HR-2□ 125	1.375	1.25	0.125
HRMSA13150HR-3□ 125	1.500	1.25	0.250
HRMSA15200HR-3□ 125	2.000	1.25	0.750
HRMSA15200HR-3□ 150	2.000	1.50	0.500
HRMSA15250HR-4□ 125	2.000	1.25	0.750
HRMSA15250HR-4□ 150	2.000	1.50	0.500

- The side clearance prevents interference between tool and workpiece even in deep hole machining.

Features of insert



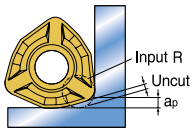


- **Chip breaker**
  - Optimal chip flow
  - Decrease cutting load
- **Major cutting edge 2**
  - Supporting major cutting edge 1.
  - High rigidity of cutting edge
  - Embodiment of high feed cutting
  - Smaller 'un-cut' part than Round type button insert
- **Major cutting edge 1**
  - Optimal chip flow
  - Minimize cutting load
- **Nose-R**
  - Reinforced rigidity for side-face machining
  - Round(nose-R) edge line suitable for high feed
- **Minor cutting edge**
  - Improving surface quality
  - Design for decreasing thrust cutting force (load on cutting tool)

HRM Tool

High feed milling tool for better productivity

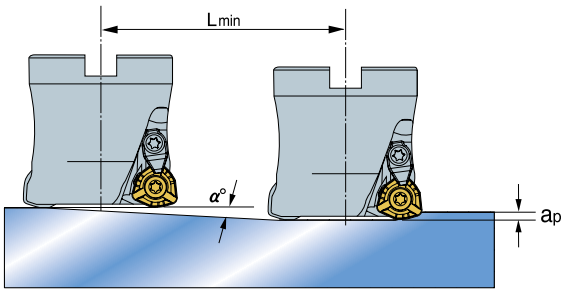
Corner R programming

Designation	Condition		Approx. R (inch)		Configuration
	Max.ap (inch)	Max. fz (ipt)	Input.R	Uncut	
WDKT080316ZDSR-MH	0.040	0.06	0.08	0.015	
WDKT10T320ZDSR-MH	0.060	0.08	0.10	0.018	
WDKT130520ZDSR-MH	0.080	0.12	0.12	0.028	
WDKT150625ZDSR-MH	0.100	0.14	0.12	0.035	

- Information for uncut part by using "Input.R" for CAM program.
- Uncut part can be changed by poor machine condition or weak clamp of workpiece, etc.

Ramping & helical cutting technical data

■ Ramping

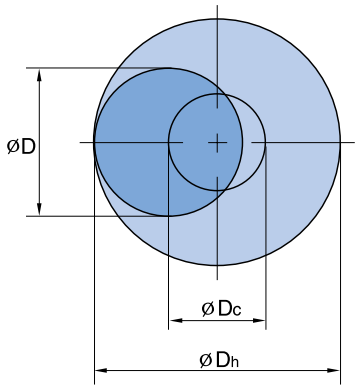


$$L_{min} = \frac{ap}{\tan \alpha^{\circ}} \text{ (inch)}$$

Recommended grade as per workpiece

Workpiece	Recommended grade	
	Light intermittent machining	Heavy intermittent machining
Carbon steel	PC3500	PC3545
Alloy tool steel	PC3500	PC3545
Stainless steel	PC5300	PC3545
Cast iron	PC6510	PC5300
Per-hardened steel	PC3500	PC5300

■ Helical cutting



■ Tool pass diameter

ØDc = ØDh-ØD

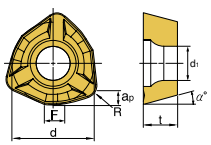
ØDc = Tool pass of tool center
ØDh = Desirable hole diameter on workpiece
ØD = Tool diameter

- Adjust feed to under 70% of recommended cutting condition when ramping & helical cutting.
- In case of helical cutting, maximum machining depth per 1 helical revolution of cutter(ØDc) should not exceed maximum depth of cut(ap) as per insert size.
- In case of ramping, maximum machining depth(ap) for 1 ramping process should not exceed maximum depth of cut as per used insert size.

(inch)

Designation		Tool Diameter øD	Valid Cutting Diameter	Ramping			Helical Cutting	
				Max. ap	Max.Angle α°	Cutting Length L min	Min.hole øDh min	Max.hole øDh max
HRMCA	13200HR-□	2.0	1.528	0.08	2°	2.291	3.063	3.811
	13250HR-□	2.5	2.028	0.08	1°40′	2.751	4.075	4.823
	13300HR-5	3.0	2.528	0.08	1°30′	3.055	5.244	5.992
	15250HR-□	2.5	1.989	0.10	2°40′	2.148	3.996	4.783
	15300HR-□	3.0	2.489	0.10	2°	2.864	5.165	5.953
	15400HR-□	4.0	3.489	0.10	1°30′	3.819	6.953	7.740
	15500HR-□	5.0	4.489	0.10	50′	6.878	8.937	9.724
	15600R-□	6.0	5.489	0.10	30′	11.459	11.315	12.102
HRMSA	0875HR-□□075	0.75	0.404	0.04	3°30′	0.654	1.065	1.380
	08100HR-□□100	1.00	0.567	0.06	4°	0.858	1.315	1.827
	08118HR-□□25	1.188	0.755	0.06	3°30′	0.981	1.699	2.211
	13125HR-□□125	1.25	0.778	0.08	4°	1.144	1.526	2.352
	13137HR-□□125	1.375	0.903	0.08	3°30′	1.308	1.769	2.595
	13150HR-□□□□	1.50	1.028	0.08	3°	1.526	2.091	2.917
	13200HR-□□□□	2.00	1.489	0.10	2°50′	2.021	2.984	3.772
	13250HR-□□□□	2.50	1.989	0.10	2°40′	2.148	3.996	4.783

Available Inserts

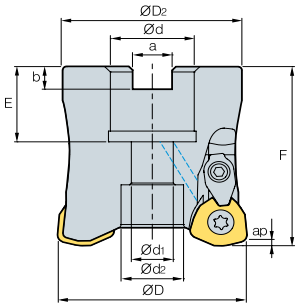
Designation	Coated					d	t	F	R	ød1	Configuration
	PC3500	PC5300	PC3545	PC9530	PC6510						
WDKT 080316ZDSR-MH	●	●	●	●		0.315	1/8	0.071	1/16	0.130	
10T320ZDSR-MH	●	●	●	●	●	0.394	5/32	0.091	0.079	0.169	
130520ZDSR-MH	●	●	●	●	●	0.531	7/32	0.122	0.079	0.219	
150625ZDSR-MH	●	●	●	●	●	0.591	1/4	0.138	0.098	0.219	

● Stock item

HRM Tool

High feed milling tool for better productivity

HRMCA13/15



AA 75°
•AR : 7°
•RR : -15°~-5°

(inch)

Designation		⊙	øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs
HRMCA	13200HR-3	3	2	1.850	3 /4	0.433	0.646	0.313	0.220	0.787	1.75	0.08	0.88
	13200HR-4	4	2	1.850	3 /4	0.433	0.646	0.313	0.220	0.787	1.75	0.08	0.88
	13250HR-4	4	2 1/2	2.362	3/4	0.433	0.669	0.313	0.220	0.787	1.75	0.08	1.54
	13300HR-5	5	3	2.992	1	0.709	1.024	0.375	0.248	0.866	2.00	0.08	3.52
	15250HR-3	3	2 1/2	2.362	3/4	0.433	0.669	0.313	0.220	0.787	1.75	0.10	1.54
	15300HR-4	4	3	2.992	1	0.709	1.024	0.375	0.248	0.866	2.00	0.10	3.74
	15400HR-5	5	4	3.780	1 1/4	0.709	1.024	0.500	0.319	0.866	2.00	0.10	6.16
	15400HR-6	6	4	3.780	1 1/4	0.709	1.024	0.500	0.319	0.866	2.00	0.10	7.04
	15500HR-6	6	5	3.858	1 1/2	0.866	1.260	0.625	0.394	1.181	2.50	0.10	7.26
	15600HR-7	7	6	3.937	2	-	2.835	0.750	0.433	1.181	2.50	0.10	9.46

Note) Through coolant type between Ø2.0~Ø5.0

■ Parts

	Screw	Clamp	Clamp Screw	C–Ring	Wrench
13 Type	FTGA0513-P	CHH4.5R1	CTX04513H	CR03	TW20-100
15 Type	FTGA0513-P	CHH5.5R1	CTX0515	CR04	TW20-100

■ Available Inserts

WDKT-MH

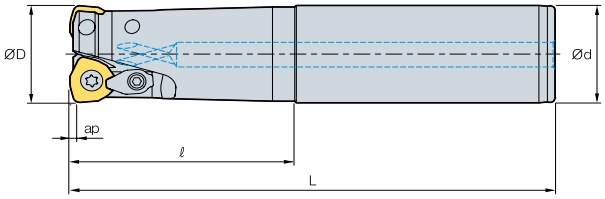
Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
13 Type	WDKT130520ZDSR-MH				●	●	●	●	●									
15 Type	WDKT150625ZDSR-MH				●	●	●	●	●									

● : Stock item

HRMSA08/10/13

AA 75°

•AR : 7°
•RR : -11°~-5°



(inch)

Designation		⊙	ØD	Ød	ℓ	L	ap	lbs
HRMSA	08075HR-2S075	2	3/4	3/4	1.969	5.118	0.04	0.66
	08075HR-2M075	2	3/4	3/4	3.937	7.087	0.04	0.88
	08075HR-2L075	2	3/4	3/4	5.118	9.843	0.04	1.10
	08087HR-2S075	2	7/8	3/4	1.969	5.118	0.04	0.66
	08087HR-2M075	2	7/8	3/4	1.969	7.087	0.04	0.88
	08087HR-2L075	2	7/8	3/4	1.969	9.843	0.04	1.10
	10100HR-2S100	2	1	1	2.362	5.512	0.06	0.88
	10100HR-2M100	2	1	1	4.724	7.874	0.06	0.32
	10100HR-2L100	2	1	1	7.087	11.811	0.06	0.98
	10106HR-2S100	2	1 1/16	1	2.362	5.512	0.06	0.88
	10106HR-2M100	2	1 1/16	1	2.362	7.874	0.06	1.32
	10106HR-2L100	2	1 1/16	1	2.362	11.811	0.06	2.20
	10118HR-2S125	2	1 3/16	1 1/4	2.756	5.906	0.06	1.76
	10118HR-2M125	2	1 3/16	1 1/4	4.724	7.874	0.06	2.20
	10118HR-2L125	2	1 3/16	1 1/4	7.087	11.811	0.06	3.30
	13125HR-2S125	2	1 1/4	1 1/4	2.756	5.906	0.08	1.76
	13125HR-2M125	2	1 1/4	1 1/4	4.724	7.874	0.08	2.20
	13125HR-2L125	2	1 1/4	1 1/4	7.087	11.811	0.08	3.52
	13131HR-2S125	2	1 5/16	1 1/4	2.756	5.906	0.08	1.76
	13131HR-2M125	2	1 5/16	1 1/4	2.756	7.874	0.08	2.42
	13131HR-2L125	2	1 5/16	1 1/4	2.756	11.811	0.08	3.74
	13137HR-2S125	2	1 3/8	1 1/4	1.969	5.906	0.08	1.76
	13137HR-2M125	2	1 3/8	1 1/4	1.969	7.874	0.08	2.42
	13137HR-2L125	2	1 3/8	1 1/4	1.969	11.811	0.08	3.74
	13150HR-3S125	3	1 1/2	1 1/4	1.969	5.906	0.08	1.76
	13150HR-3M125	3	1 1/2	1 1/4	1.969	9.843	0.08	3.08
	13150HR-3L125	3	1 1/2	1 1/4	1.969	11.811	0.08	3.74
	13150HR-3S150	3	1 1/2	1 1/2	2.362	5.906	0.08	2.64
	13150HR-3M150	3	1 1/2	1 1/2	5.118	9.843	0.08	4.62
	13150HR-3L150	3	1 1/2	1 1/2	7.087	11.811	0.08	5.72

Note) Through coolant type between Ø3/4~Ø1 1/2

■ Parts

		Screw	Clamp	Clamp Screw	C–Ring	Wrench
08 Type		FTNA0306	-	-	-	TW09P
10 Type		FTKA0408	CHH3.5R1	CTX03510	CR03	TW15S
13 Type	1 1/4, 1 5/16, 1 3/8	FTGA0510-P	CHH4.5R1	CTX04513H	CR03	TW20
	1 1/2	FTGA0512-P	CHH4.5R1	CTX04513H	CR03	TW20

■ Available Inserts

WDKT-MH

Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC5500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
08Type	WDKT080316ZDSR-MH				●	●	●	●										
10Type	WDKT10T320ZDSR-MH				●	●	●	●	●									
13Type	WDKT130520ZDSR-MH				●	●	●	●	●									

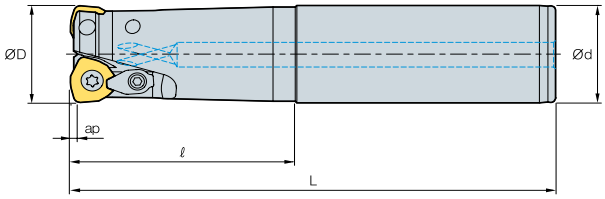
● : Stock item

HRM Tool

High feed milling tool for better productivity

HRMSA15

AA 75° | •AR : 7° •RR : -8°~-6°



(inch)

Designation		⊙	øD	ød	ℓ	L	ap	lbs
HRMSA	15200HR-3S125	3	2	1 1/4	1.969	5.906	0.10	2.20
	15200HR-3M125	3	2	1 1/4	1.969	9.843	0.10	3.52
	15200HR-3L125	3	2	1 1/4	1.969	11.811	0.10	4.18
	15200HR-3S150	3	2	1 1/2	1.969	5.906	0.10	3.08
	15200HR-3M150	3	2	1 1/2	1.969	9.843	0.10	5.06
	15200HR-3L150	3	2	1 1/2	1.969	11.811	0.10	6.16
	15250HR-4S125	4	2 1/2	1 1/4	1.969	5.906	0.10	2.86
	15250HR-4M125	4	2 1/2	1 1/4	1.969	9.843	0.10	4.18
	15250HR-4L125	4	2 1/2	1 1/4	1.969	11.811	0.10	4.84
	15250HR-4S150	4	2 1/2	1 1/2	1.969	5.906	0.10	3.74
	15250HR-4M150	4	2 1/2	1 1/2	1.969	9.843	0.10	5.72
	15250HR-4L150	4	2 1/2	1 1/2	1.969	11.811	0.10	6.82

Note) Through coolant type between Ø2~Ø2 1/2

■ Parts

	Screw	Clamp	Clamp Screw	C–Ring	Wrench
2, 2 1/2	FTGA0513-P	CHH5.5R1	CTX0515	CR04	TW20

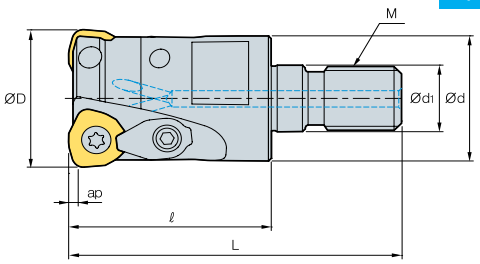
■ Available Inserts

WDKT-MH

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
WDKT 150625ZDSR-MH				●	●	●	●	●									

HRMMA08/10/13

AA 75°
• AR : 7°
• RR : –11°~–5°



(inch)

Designation		ØD	Ød	Ød1	ℓ	L	M	ap	lbs
HRMMA 08075HR-M10	2	3/4	0.689	0.413	1.181	2.008	M10	0.04	0.11
08081HR-M10	2	13/16	0.689	0.413	1.181	2.008	M10	0.04	0.11
08100HR-M12	3	1	0.906	0.492	1.378	2.323	M12	0.04	0.22
08106HR-M12	3	1 1/16	0.906	0.492	1.378	2.323	M12	0.04	0.26
08112HR-M12	3	1 1/8	0.906	0.492	1.378	2.323	M12	0.04	0.46
08125HR-M16	4	1 1/4	1.142	0.669	1.575	2.638	M16	0.04	0.48
08131HR-M16	4	1 5/16	1.142	0.669	1.575	2.638	M16	0.04	0.48
08137HR-M16	4	1 3/8	1.142	0.669	1.575	2.638	M16	0.04	0.51
08150HR-M16	5	1 1/2	1.142	0.669	1.575	2.638	M16	0.04	0.55
10100HR-M12	2	1	0.906	0.492	1.378	2.323	M12	0.06	0.20
10106HR-M12	2	1 1/16	0.906	0.492	1.378	2.323	M12	0.06	0.20
10118HR-M16	2	1 3/16	1.142	0.669	1.575	2.638	M16	0.06	0.37
10125HR-M16	3	1 1/4	1.142	0.669	1.772	2.835	M16	0.06	0.46
10137HR-M16	3	1 3/8	1.142	0.669	1.772	2.835	M16	0.06	0.51
10150HR-M16	4	1 1/2	1.142	0.669	1.772	2.835	M16	0.06	0.59
13125HR-M16	2	1 1/4	1.142	0.669	1.575	2.638	M16	0.08	0.37
13131HR-M16	2	1 5/16	1.142	0.669	1.575	2.638	M16	0.08	0.37
13137HR-M16	2	1 3/8	1.142	0.669	1.575	2.638	M16	0.08	0.42
13150HR-M16	3	1 1/2	1.142	0.669	1.772	2.835	M16	0.08	0.53

Note) Through coolant type between Ø3/4~Ø1 1/2

■ Parts

	Screw	Clamp	Clamp Screw	C–Ring	Wrench	
08 Type	FTNA0306	-	-	-	-	-
10 Type	FTKA0408	CHH3.5R1	CTX03510	CR03	TW15S	-
13 Type (1 1/4, 1 5/16, 1 3/8)	FTGA0510-P	CHH4.5R1	CTX04513H	CR03	-	TW20
13Type(1 1/2)	FTGA0512-P	CHH4.5R1	CTX04513H	CR03	-	TW20

■ Available Inserts

WDKT-MH

Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
08Type	WDKT080316ZDSR-MH			●	●	●	●	●										
10Type	WDKT10T320ZDSR-MH			●	●	●	●	●	●									
13Type	WDKT130520ZDSR-MH			●	●	●	●	●	●									

● : Stock item

More economical due to the use of 6 cutting edges

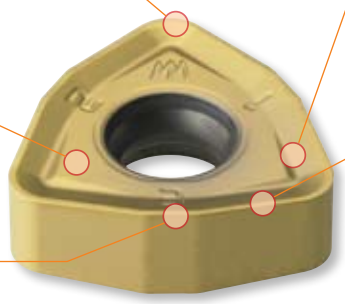
HRMD Tool

HRMD is more economical due to the use of 6 cutting edges compared to HRM tool with positive insert

- High rake angle cutting edge and chip breaker reduce cutting load.
- Negative geometry has been designed for rigidity of cutting edge and double sided function.
- Simple screw on system and stable support achieves strong clamping force.
- Unique insert design for high feed and multifunctional machining
- HRMD insert with symmetrical cutting edge is applicable for both RH and LH type machining

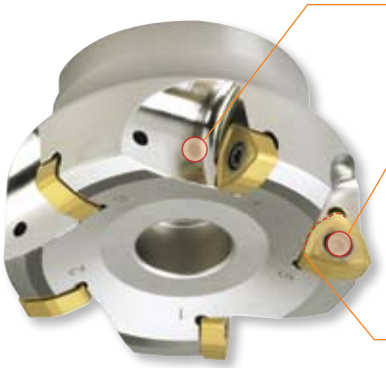
Features of Insert

- **Nose-R**
  - Security of rigid edge in ramping Pocket machining
  - Round edge suitable for high feed rates Insert geometry
  - Possible to use R/L type machining
- **Clamping surface**
  - Design for stable clamping
  - Designed to prevention chip friction
- **Minor cutting edge**
  - Improvement of surface roughness in high feed machining
  - Special design for decreasing thrust force
  - Symmetrical insert design for R/L type tool

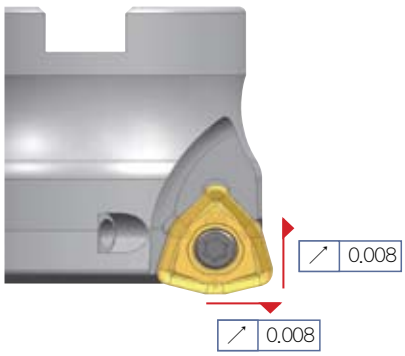


- **Chip breaker**
  - Reduction of cutting load due to high rake angle
  - Improvement of chip flow and evacuation in various applications
  - Reduces damage on the clamping face of the insert
- **Major cutting edge**
  - Symmetrical design insert for R/L type tool
  - Superior cutting performance due to high rake angle cutting edge
  - Low cutting resistance in high feed
  - Special design for decreasing thrust force

Features of Cutter



- **Inner coolant system**
  - Improvement of chip control and evacuation
  - Longer tool life due to reduced cutting temperature
- **Simple screw on system**
  - Strong clamping of screw on system
  - Convenient clamping system
  - Wide chip pocket for better chip evacuation
- **3-surface constrained System**
  - Strong clamping system
  - Stable clamping system against different cutting resistances in various machining applications

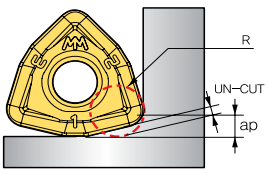


▸ NOTE: Some insert feature information is repeated.This occurs because multiple insert features provide the same benefit. Example: Symmetrical design.

Corner R programming

Designation	Cutting condition		Approx. R (inch)	
	Max.ap(inch)	Max.fz(ipt)	Input. R	Uncut
WNMX060312ZNN-MM	0.04	0.05	0.07	0.015
WNMX09T316ZNN-MM	0.06	0.08	0.10	0.024
WNMX130520ZNN-MM	0.08	0.12	0.12	0.032
WNMX160720ZNN-MM	0.10	0.14	0.14	0.047

• Information for uncut part by using "Input.R" for CAM program



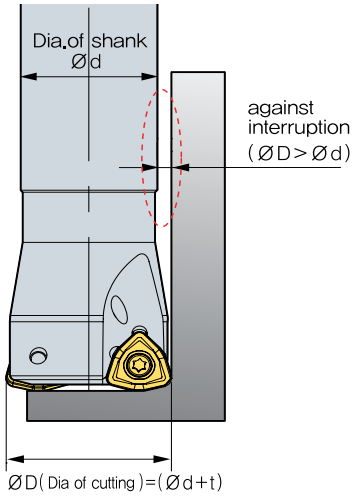
• Uncut part can be changed by poor machine condition or weak clamp of workpiece, etc

HRMD Tool

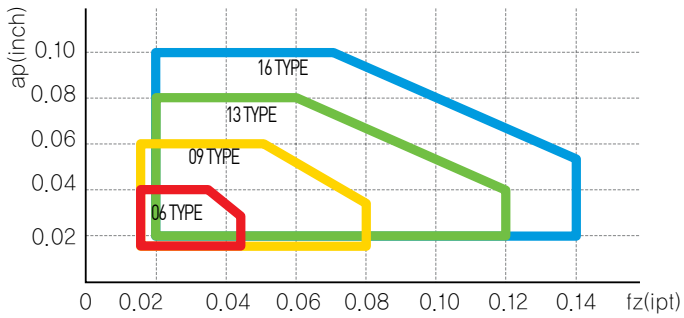
More economical due to the use of 6 cutting edges

Interference prevent system

Designation	ØD(inch)	Ød(inch)	t(inch)
HRMDSA06068HR-2□062	0.6880	0.625	0.063
HRMDSA06087HR-2□075	0.8750	0.750	0.125
HRMDSA06112HR-3□100	1.1250	1.000	0.125
HRMDSA06137HR-4□125	1.3750	1.250	0.125
HRMDSA09106HR-2□□100	1.0625	1.000	0.060
HRMDSA09131HR-3□□125	1.3125	1.250	0.060
HRMDSA09137HR-4□□125	1.3750	1.250	0.130
HRMDSA09150HR-4□□125	1.5000	1.250	0.250
HRMDSA09200HR-4□□150	2.0000	1.500	0.500
HRMDSA13131HR-2□□125	1.3130	1.250	0.060
HRMDSA13137HR-2□□125	1.3750	1.250	0.130
HRMDSA13150HR-3□□125	1.5000	1.250	0.250
HRMDSA13162HR-3□□125	1.6250	1.250	0.380
HRMDSA13162HR-3□□150	1.6250	1.500	0.130
HRMDSA13200HR-3□□150	2.0000	1.500	0.500
HRMDSA13250HR-4□□150	2.5000	1.500	1.000

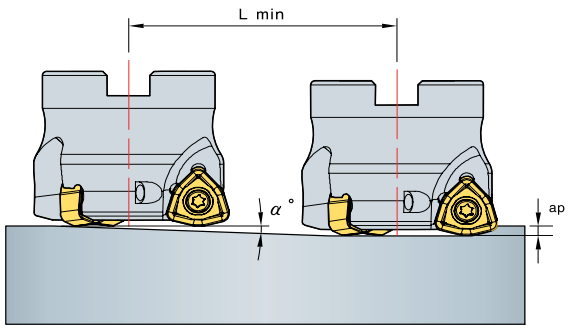


Application area

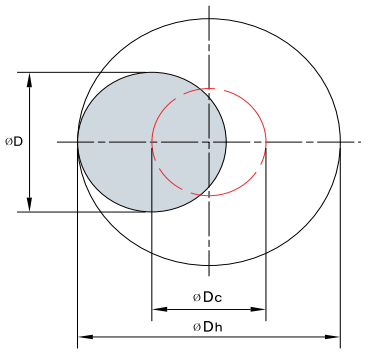


Ramping & Helical cutting technical data

■ Ramping



■ Helical cutting



Tool pass diameter

$$L_{min} = \frac{a_p}{\tan \alpha} \text{ (inch)}$$

$$ØDc = ØDh - ØD$$

ØDc = Tool pass of tool center
ØDh = Desirable hole diameter on workpiece
ØD = Tool diameter

- Adjust feed to under 70% of recommended cutting condition when ramping & helical cutting
- In helical ramping, max. cutting depth per 1 helical revolution of cutter should not exceed max. cutting depth as per insert size
- in ramping, max. cutting depth for 1 ramping process should not exceed max. depth of cut as per used insert size

(inch)

Designation		Tool diameter ØD	Efficient cutting diameter ØDe	Ramping			Helical ramping	
				Max. ap	Max. angle α°	Cutting Length Lmin	Dh Min. Cutting diameter	Dh Max. Cutting diameter
HRMDSA	06068HR	0.688	0.433	0.039	3.7	0.603	1.052	1.281
	06075HR	0.750	0.495	0.039	3.3	0.676	1.177	1.406
	06087HR	0.875	0.619	0.039	2.1	1.063	1.427	1.656
	06100HR	1.000	0.741	0.039	2.6	0.858	1.677	1.906
	06112HR	1.125	0.866	0.039	1.9	1.175	1.927	2.156
	06125HR	1.250	0.992	0.039	0.6	3.724	2.177	2.406
	06137HR	1.375	1.115	0.039	0.4	5.586	2.427	2.656
	09100HR-2□□□	1.000	0.606	0.059	5.4	0.622	1.480	1.843
	09106HR-2□□□	1.063	0.646	0.059	5	0.669	1.559	1.921
	09118HR-3□□□	1.188	0.803	0.059	3.9	0.866	1.874	2.236
	09125HR-3□□□	1.250	0.878	0.059	3.5	0.965	2.031	2.394
	09131HR-3□□□	1.313	0.917	0.059	3.3	1.016	2.110	2.472
	09137HR-4□□□	1.375	1.000	0.059	3	1.114	2.268	2.630
	09150HR-4□□□	1.500	1.125	0.059	2.5	1.351	2.512	2.874
	09162HR-4□□□	1.625	1.189	0.059	2.5	1.358	2.661	3.024
	09200HR-□□□	2.000	1.583	0.059	1.8	1.850	3.449	3.811
	13125HR-□□□	1.250	0.760	0.079	5.7	0.787	1.850	2.362
	13131HR-2□□□	1.313	0.799	0.079	5.4	0.839	1.929	2.441
	13137HR-2□□□	1.375	0.878	0.079	4.8	0.945	2.087	2.598
	13150HR-3□□□	1.500	0.996	0.079	3.7	1.222	2.331	2.843
	13162HR-3□□□	1.625	1.071	0.079	3.7	1.209	2.480	2.992
	13200HR-□□□	2.000	1.457	0.079	2.6	1.732	3.268	3.780
	13250HR-□□□	2.500	1.969	0.079	1.9	2.413	4.291	4.803
HRMDCA	09200HR-□	2.0	1.583	0.059	1.8	1.850	3.449	3.811
	09250HR-□	2.5	2.091	0.059	1.4	2.492	4.472	4.835
	09300HR-□	3.0	2.760	0.059	1	3.327	5.811	6.173
	09400HR-□	4.0	3.543	0.059	0.8	4.311	7.386	7.748
	13200HR-□	2.0	1.457	0.079	2.6	1.732	3.268	3.780
	13250HR-□	2.5	1.969	0.079	1.9	2.413	4.291	4.803
	13300HR-□	3.0	2.634	0.079	1.4	3.307	5.630	6.142
	13400HR-□	4.0	3.421	0.079	1	4.358	7.205	7.717
	13500HR-□	5.0	4.406	0.079	0.8	4.488	9.173	9.685
	16300HR-□	3.0	2.343	0.098	1.5	3.742	5.134	5.843
	16400HR-□	4.0	3.344	0.098	1.0	5.614	7.134	7.843
	16500HR-□	5.0	4.345	0.098	0.8	7.018	9.134	9.843
	16600R-□	6.0	5.345	0.098	0.6	9.357	11.134	11.843
	16800R-□	8.0	7.346	0.098	0.3	18.716	15.134	15.843
	61000R-□	10.0	9.346	0.098	0.2	28.074	19.134	19.843
	161200R-□	12.0	11.346	0.098	0.1	56.149	23.134	23.843

HRMD Tool

More economical due to the use of 6 cutting edges

Recommended cutting condition

Workpiece		Hardness	Grades	vc (sfm)	fz (ipt)
P	General structural steel, Mild steel	Under 200HB	PC3500 PC5300	650 (330~750)	1.0 ~ 2.0
P	Cardon steel, Alloy steel	Under 30HRC	PC3500 PC5300	590 (330~720)	1.0 ~ 1.5
P	High Carbon steel, Alloy steel	30~40 HRC	PC3500 PC5300	520 (330~660)	0.8 ~ 1.3
P	Pre-hardened steel	40~50 HRC	PC5300	390 (260~190)	0.6 ~ 1.2
M	Stainless steel	Under 270HB	PC5300 PC3545	390 (260~490)	0.8 ~ 1.3
K	Cast iron	Under 350N/㎟	PC5300	590 (330~720)	1.2 ~ 1.8

Machining Example - I

- **Workpiece** : AISI 1045 (SM45C, HRC22)
- **Cutting condition** : vc(sfm)=930, fz(ipt)=0.055, vf(ipm)=398
  ap(inch)=0.032, ae(inch)=1.378
  Coolant : Dry, Machining : Copying
  Machine : Horizontal MCT
  Overhang of tool : 10inch
- **Cutting** : HRMDCM13050HR-4
  WNMX130520ZNN-MM(PC3500)

Productivity : 40% increased
Tool cost : 80% decreased

※ **Test result**
In comparing HRMD with our competitor using the same cutting conditions, the cutting speed of HRMD was higher with the same depth of cut (ap*ae), the cycle time was reduced by 40% and the tool life was increased to over 60%. HRMD is economically more efficient due to the use of 6 cutting edges compared to EDNW type with positive insert.

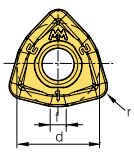
Machining Example - II

- **Workpiece** : AISI 304 (STS304)
- **Cutting condition** : vc(sfm)=430, fz(ipt)=0.047, vf(ipm)=117
  ap(inch)=0.04, ae(inch)= 3.15
  Machining : Facing and Slotting
  Machine : Vertical MCT
  Overhang of tool : 10inc
- **Cutting** : HRMDCM13100HR-6
  WNMX130520ZNN-MM(PC5300)

Productivity : 80% increased
Tool cost : 25% decreased

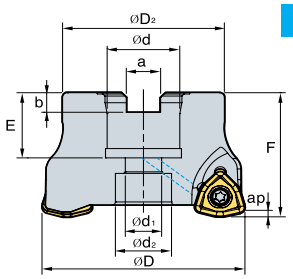
※ **Test result**
In comparing HRMD with our competitor using the same cutting conditions, the cutting speed of HRMD was higher with the same depth of cut (ap*ae), the cycle time was reduced by 80% and the tool life was the same, but HRMD is economically more efficient due to the use of 6 cutting edges compared to SDKN type with positive insert.

Available Inserts



Designation	d	t	r	d1	f
WNMX 060312ZNN-MM	0.250	0.125	0.047	0.113	0.047
09T316ZNN-MM	0.375	0.156	0.063	0.142	0.067
130520ZNN-MM	0.500	0.219	0.079	0.185	0.098
160720ZNN-MM	0.630	0.276	0.079	0.228	0.118

HRMDCA09



AA 76°

•AR : -7°
•RR : -12°~-18°

(inch)

Designation		øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs	Bolt
HRMDCA 09200HR-4	4	2.000	1.772	0.750	0.413	0.630	0.315	0.220	0.787	1.750	0.06	0.662	3/8-24UNF
09200HR-5	5	2.000	1.772	0.750	0.413	0.630	0.315	0.220	0.787	1.750	0.06	0.662	3/8-24UNF
09250HR-5	5	2.500	2.205	0.750	0.413	0.630	0.315	0.220	0.787	1.750	0.06	1.103	3/8-24UNF
09250HR-6	6	2.500	2.205	0.750	0.413	0.630	0.315	0.220	0.787	1.750	0.06	1.103	3/8-24UNF
09300HR-6	6	3.000	2.205	1.000	0.551	0.827	0.374	0.236	0.866	2.000	0.06	3.308	1/2-20UNF
09300HR-7	7	3.000	2.205	1.000	0.551	0.827	0.374	0.236	0.866	2.000	0.06	3.308	1/2-20UNF
09400HR-7	7	4.000	2.874	1.250	0.709	1.024	0.500	0.315	0.866	2.000	0.06	4.631	5/8-18UNF
09400HR-8	8	4.000	2.874	1.250	0.709	1.024	0.500	0.315	0.866	2.000	0.06	4.631	5/8-18UNF

■ Parts

Screw	Wrench
FTKA0307	TW09S

■ Available Inserts

WNMX-MM

Designation	Coated										Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
WNMX 09T316ZNN-MM				●	●	●	●										

● : Stock item

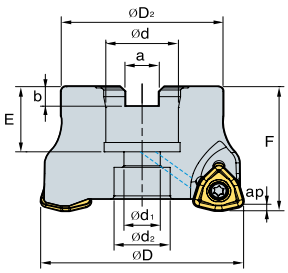
HRMD Tool

More economical due to the use of 6 cutting edges

HRMDCA13

AA 76°

•AR : - 7°
•RR : -12°~-4°



(inch)

Designation	⊚	øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs	Bolt
HRMDCA 13200HR-3	3	2.0	1.772	0.75	0.413	0.630	0.315	0.220	0.787	1.75	0.08	0.662	3/8-24UNF
13200HR-4	4	2.0	1.772	0.75	0.413	0.630	0.315	0.220	0.787	1.75	0.08	0.662	3/8-24UNF
13250HR-4	4	2.5	1.772	0.75	0.413	0.630	0.315	0.220	0.787	1.75	0.08	1.103	3/8-24UNF
13250HR-5	5	2.5	1.772	0.75	0.413	0.630	0.315	0.220	0.787	1.75	0.08	1.103	3/8-24UNF
13300HR-5	5	3.0	2.205	1.00	0.551	0.827	0.374	0.236	0.866	2.0	0.08	2.205	1/2-20UNF
13300HR-6	6	3.0	2.205	1.00	0.551	0.827	0.374	0.236	0.866	2.0	0.08	2.205	1/2-20UNF
13400HR-6	6	4.0	2.874	1.25	0.709	1.024	0.500	0.315	0.866	2.0	0.08	3.528	5/8-18UNF
13400HR-7	7	4.0	2.874	1.25	0.709	1.024	0.500	0.315	0.866	2.0	0.08	3.528	5/8-18UNF
13500HR-7	7	5.0	3.433	1.5	0.827	1.220	0.626	0.394	1.181	2.5	0.08	4.410	3/4-16UNF
13500HR-8	8	5.0	3.433	1.5	0.827	1.220	0.626	0.394	1.181	2.5	0.08	4.410	3/4-16UNF

■ Parts

Screw	Wrench
FTKA0412B	TW15S

■ Available Inserts

WNMX-MM

Designation	Coated										Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
WNMX 130520ZNN-MM				●	●	●	●										

● : Stock item

HRMDCA16

AA 76° | •AR : - 7° •RR : -12°~-4°

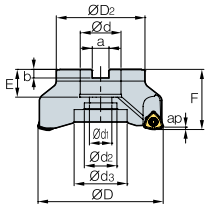


Fig. 1

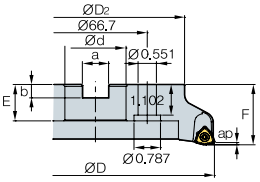


Fig. 2

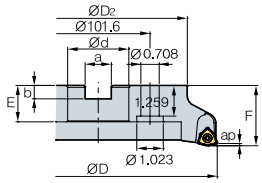


Fig. 3

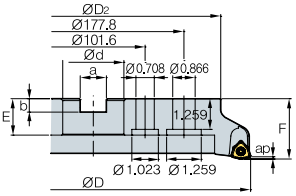


Fig. 4

(inch)

Designation		⊚	øD	øD2	ød	ød1	ød2	ød3	a	b	E	F	ap	lbs	Bolt	Fig.
HRMDCA	16300HR-4	4	3.0	2.362	1.00	0.551	0.827	-	0.374	0.248	0.866	2.00	0.098	1.94	1/2-20UNF	1
	16300HR-5	5	3.0	2.362	1.00	0.551	0.827	-	0.374	0.248	0.866	2.00	0.098	1.81		
	16400HR-5	5	4.0	3.346	1.25	0.709	1.024	-	0.500	0.319	0.866	2.00	0.098	3.77	5/8-18UNF	1
	16400HR-6	6	4.0	3.346	1.25	0.709	1.024	-	0.500	0.319	0.866	2.00	0.098	3.86		
	16500HR-6	6	5.0	3.937	1.50	0.827	1.220	2.205	0.626	0.394	1.181	2.50	0.098	7.23	3/4-16UNF	1
	16500HR-7	7	5.0	3.937	1.50	0.827	1.220	2.205	0.626	0.394	1.181	2.50	0.098	7.25		
	16600R-7	7	6.0	5.039	2.00	-	3.543	-	0.752	0.433	1.181	2.50	0.098	8.99	1-14UNF	2
	16600R-8	8	6.0	5.039	2.00	-	3.543	-	0.752	0.433	1.181	2.50	0.098	9.13		
	16800R-8	8	8.0	5.701	2.50	-	5.197	-	1.000	0.551	1.496	2.50	0.098	14.7	-	3
	16800R-10	10	8.0	5.701	2.50	-	5.197	-	1.000	0.551	1.496	2.50	0.098	14.79		
	161000R-10	10	10.0	7.480	2.50	-	7.087	-	1.000	0.551	1.496	2.50	0.098	24.98	-	3
	161000R-12	12	10.0	7.480	2.50	-	7.087	-	1.000	0.551	1.496	2.50	0.098	24.89		
	161200R-12	12	12.0	9.646	2.50	-	9.370	-	1.000	0.551	1.496	2.50	0.098	37.15	-	4
	161200R-14	14	12.0	9.646	2.50	-	9.370	-	1.000	0.551	1.496	2.50	0.098	37.39		

■ Parts

Screw	Wrench
FTGA0513-P	TW20-100

■ Available Inserts

WNMX-MM

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC5300	PC5545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
WNMX 160720ZNN-MM																

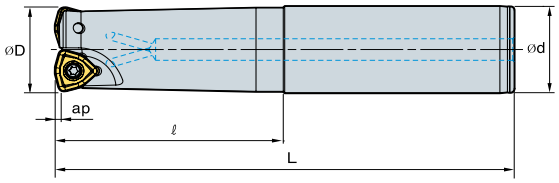
● : Stock item

HRMD Tool

More economical due to the use of 6 cutting edges

HRMDSA06

AA 76°
•AR : -7°
•RR : -17°~-25°



(inch)

Designation		⊖	øD	ød	ℓ	L	ap	lbs
HRMDSA	06068HR-2S062	2	0.688	0.625	0.787	4.331	0.039	0.32
	06068HR-2M062	2	0.688	0.625	0.787	5.906	0.039	0.44
	06068HR-2L062	2	0.688	0.625	0.787	7.874	0.039	0.60
	06075HR-2S075	2	0.750	0.750	1.969	5.118	0.039	0.55
	06075HR-2M075	2	0.750	0.750	3.937	7.087	0.039	0.75
	06075HR-2L075	2	0.750	0.750	5.118	9.843	0.039	1.06
	06087HR-2S075	2	0.875	0.750	0.787	5.118	0.039	0.59
	06087HR-2M075	2	0.875	0.750	0.787	7.087	0.039	0.82
	06087HR-2L075	2	0.875	0.750	0.787	9.843	0.039	1.14
	06100HR-3S100	3	1.000	1.000	2.362	5.512	0.039	1.01
	06100HR-3M100	3	1.000	1.000	3.150	7.087	0.039	1.31
	06100HR-3L100	3	1.000	1.000	4.724	9.843	0.039	1.84
	06112HR-3S100	3	1.125	1.000	1.181	5.512	0.039	1.09
	06112HR-3M100	3	1.125	1.000	1.181	7.087	0.039	1.40
	06112HR-3L100	3	1.125	1.000	1.181	9.843	0.039	1.95
	06125HR-4S125	4	1.250	1.250	2.756	5.906	0.039	1.76
	06125HR-4M125	4	1.250	1.250	3.937	7.874	0.039	2.38
	06125HR-4L125	4	1.250	1.250	7.087	11.811	0.039	3.58
	06137HR-4S125	4	1.375	1.250	1.575	7.874	0.039	2.53
	06137HR-4M125	4	1.375	1.250	1.575	9.843	0.039	3.17
	06137HR-4L125	4	1.375	1.250	1.575	11.811	0.039	3.81

■ Parts

Screw	Wrench
ETNA02506	TW07S

■ Available Inserts

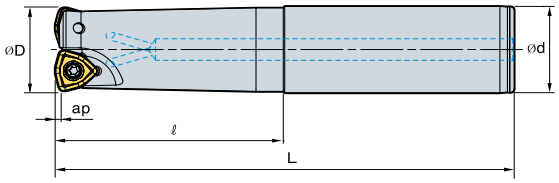
WNMX-MM

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
WNMX 060312ZNN-MM					●												

● : Stock item

HRMDSA09

AA 76°
•AR : -7°
•RR : -17°~-25°



(inch)

Designation		⊙	øD	ød	ℓ	L	ap	lbs
HRMDSA	09100HR-2S100	2	1.0000	1.00	2.362	5.512	0.06	1.103
	09100HR-2M100	2	1.0000	1.00	4.724	7.874	0.06	1.323
	09100HR-2L100	2	1.0000	1.00	7.087	11.811	0.06	2.205
	09106HR-2S100	2	1.0625	1.00	2.362	5.512	0.06	1.103
	09106HR-2M100	2	1.0625	1.00	2.362	7.874	0.06	1.544
	09106HR-2L100	2	1.0625	1.00	2.362	11.811	0.06	2.205
	09118HR-3S125	3	1.1875	1.25	2.756	5.906	0.06	1.764
	09118HR-3M125	3	1.1875	1.25	4.724	7.874	0.06	2.205
	09118HR-3L125	3	1.1875	1.25	7.087	11.811	0.06	3.308
	09125HR-3S125	3	1.2500	1.25	2.756	5.906	0.06	1.764
	09125HR-3M125	3	1.2500	1.25	4.724	7.874	0.06	2.426
	09125HR-3L125	3	1.2500	1.25	7.087	11.811	0.06	3.749
	09131HR-3S125	3	1.3125	1.25	2.756	5.906	0.06	1.764
	09131HR-3M125	3	1.3125	1.25	2.756	7.874	0.06	2.426
	09131HR-3L125	3	1.3125	1.25	2.756	11.811	0.06	3.749
	09137HR-4S125	4	1.3750	1.25	1.969	5.906	0.06	1.985
	09137HR-4M125	4	1.3750	1.25	1.969	7.874	0.06	2.426
	09137HR-4L125	4	1.3750	1.25	1.969	11.811	0.06	3.749
	09150HR-4S125	4	1.5000	1.25	1.969	5.906	0.06	1.985
	09150HR-4M125	4	1.5000	1.25	1.969	9.843	0.06	3.308
	09150HR-4L125	4	1.5000	1.25	1.969	11.811	0.06	3.969
	09200HR-4S150	4	2.0000	1.50	1.575	5.906	0.06	3.087
	09200HR-4M150	4	2.0000	1.50	1.575	9.843	0.06	5.292
	09200HR-4L150	4	2.0000	1.50	1.575	11.811	0.06	6.395
	09200HR-5S150	5	2.0000	1.50	1.575	5.906	0.06	3.087
	09200HR-5M150	5	2.0000	1.50	1.575	9.843	0.06	5.292
	09200HR-5L150	5	2.0000	1.50	1.575	11.811	0.06	6.395

■ Parts

Screw	Wrench
FTKA0307	TW09S

■ Available Inserts

WNMX-MM

Designation	Coated										Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
WNMX 09T316ZNN-MM				●	●	●	●										

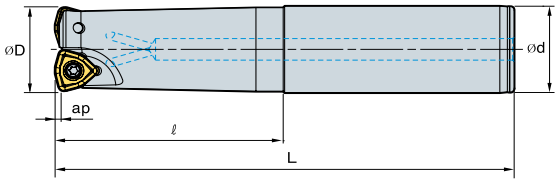
● : Stock item

HRMD Tool

More economical due to the use of 6 cutting edges

HRMDSA13

AA 76°
•AR : -7°
•RR : -14°~-16°



(inch)

Designation		⊙	øD	ød	ℓ	L	ap	lbs
HRMDSA	13125HR-2S125	2	1.250	1.250	2.756	5.906	0.08	1.764
	13125HR-2M125	2	1.250	1.250	4.724	7.874	0.08	2.205
	13125HR-2L125	2	1.250	1.250	7.087	11.811	0.08	3.528
	13131HR-2S125	2	1.313	1.250	2.756	5.906	0.08	1.754
	13131HR-2M125	2	1.313	1.250	2.756	7.874	0.08	2.426
	13131HR-2L125	2	1.313	1.250	2.756	11.811	0.08	3.749
	13137HR-2S125	2	1.375	1.250	1.969	5.906	0.08	1.764
	13137HR-2M125	2	1.375	1.250	1.969	7.874	0.08	2.426
	13137HR-2L125	2	1.375	1.250	1.969	11.811	0.08	3.749
	13150HR-3S125	3	1.500	1.250	1.969	5.906	0.08	1.764
	13150HR-3M125	3	1.500	1.250	1.969	9.843	0.08	3.087
	13150HR-3L125	3	1.500	1.250	1.969	11.811	0.08	3.749
	13150HR-3S150	3	1.500	1.500	2.362	5.906	0.08	2.646
	13150HR-3M150	3	1.500	1.500	5.118	9.843	0.08	4.631
	13150HR-3L150	3	1.500	1.500	7.087	11.811	0.08	5.733
	13162HR-3S125	3	1.625	1.250	1.969	5.906	0.08	1.985
	13162HR-3M125	3	1.625	1.250	1.969	9.843	0.08	2.646
	13162HR-3L125	3	1.625	1.250	1.969	11.811	0.08	3.969
	13162HR-3S150	3	1.625	1.500	1.969	5.906	0.08	2.867
	13162HR-3M150	3	1.625	1.500	1.969	9.843	0.08	4.851
	13162HR-3L150	3	1.625	1.500	1.969	11.811	0.08	5.954
	13200HR-3S150	3	2.000	1.500	1.969	5.906	0.08	2.426
	13200HR-3M150	3	2.000	1.500	1.969	9.843	0.08	3.749
	13200HR-3L150	3	2.000	1.500	1.969	11.811	0.08	4.410
	13200HR-4S150	4	2.000	1.500	1.969	5.906	0.08	3.308
	13200HR-4M150	4	2.000	1.500	1.969	9.843	0.08	5.292
	13200HR-4L150	4	2.000	1.500	1.969	11.811	0.08	6.395
	13250HR-4S150	4	2.500	1.500	1.969	5.906	0.08	3.087
	13250HR-4M150	4	2.500	1.500	1.969	9.843	0.08	4.631
	13250HR-4L150	4	2.500	1.500	1.969	11.811	0.08	5.292
	13250HR-5S150	5	2.500	1.500	1.969	5.906	0.08	3.969
	13250HR-5M150	5	2.500	1.500	1.969	9.843	0.08	6.174
	13250HR-5L150	5	2.500	1.500	1.969	11.811	0.08	7.056

■ Parts

Screw	Wrench
FTKA0412B	TW15S

■ Available Inserts

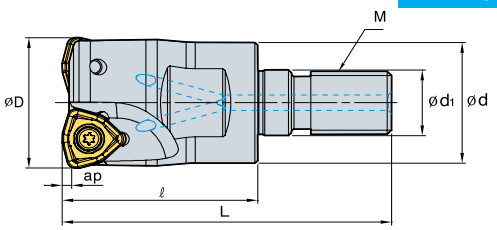
WNMX-MM

Designation	Coated										Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
WNMX 130520ZNN-MM				●	●	●	●										

● : Stock item

HRMDMA06

AA 76°
•AR : -7°
•RR : -18°~25°



(inch)

Designation		⊚	øD	ød	ød1	ℓ	L	M	ap	lbs
HRMDMA	**06068HR-M08**	2	0.688	0.571	0.335	0.984	1.654	M08	0.039	0.07
	06075HR-M10	2	0.750	0.689	0.413	1.181	2.008	M10	0.039	0.13
	06087HR-M10	2	0.875	0.709	0.413	1.181	2.008	M10	0.039	0.15
	06100HR-M12	3	1.000	0.906	0.492	1.378	2.323	M12	0.039	0.23
	06112HR-M12	3	1.125	0.906	0.492	1.378	2.323	M12	0.039	0.28
	06125HR-M16	4	1.250	1.142	0.669	1.575	2.638	M16	0.039	0.45
	06137HR-M16	4	1.375	1.142	0.669	1.575	2.638	M16	0.039	0.51

■ Parts

Screw	Wrench
ETNA02506	TW07S

■ Available Inserts

WNMX-MM

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC5300	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
WNMX 060312ZNN-MM					●												

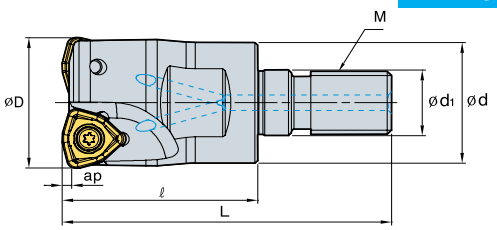
● : Stock item

HRMD Tool

More economical due to the use of 6 cutting edges

HRMDMA 09/13

AA 76°
•AR : -7°
•RR : -18°~25°



(inch)

Designation		⊙	øD	ød	ød₁	ℓ	L	M	ap	lbs	Available Inserts
HRMDMA	**09100HR-M12**	2	1.000	0.906	0.492	1.378	2.323	0.945	0.06	0.22	WNMX09T316ZNN-MM
	09106HR-M12	2	1.063	0.906	0.492	1.378	2.323	0.945	0.06	0.24	
	09118HR-M16	3	1.188	1.142	0.669	1.575	2.638	1.063	0.06	0.42	
	09125HR-M16	3	1.250	1.142	0.669	1.575	2.638	1.063	0.06	0.44	
	09131HR-M16	3	1.313	1.142	0.669	1.575	2.638	1.063	0.06	0.46	
	09137HR-M16	4	1.375	1.142	0.669	1.575	2.638	1.063	0.06	0.49	
	09150HR-M16	4	1.500	1.142	0.669	1.575	2.638	1.063	0.06	0.55	
	13125HR-M16	2	1.250	1.142	0.669	1.575	2.638	1.063	0.08	0.44	WNMX130520ZNN-MM
	13131HR-M16	2	1.313	1.142	0.669	1.575	2.638	1.063	0.08	0.44	
	13137HR-M16	2	1.375	1.142	0.669	1.575	2.638	1.063	0.08	0.49	
	13150HR-M16	3	1.500	1.142	0.669	1.772	2.835	1.063	0.08	0.57	

■ Parts

	Screw	Wrench
09 Type	FTKA0307	TW09S
13 Type	FTKA0412B	TW15S

■ Available Inserts

WNMX-MM

Type	Designation	Coated										Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
09Type	**WNMX09T316ZNN-MM**				●	●	●	●										
13Type	**WNMX130520ZNN-MM**				●	●	●	●										

● : Stock item

Wide coverage for medium to roughing, general steel to high hardness mold materials.

FMR Tool

2 step shape of insert provides strong clamping and can minimize components for replacement shims.

- 4-8 cutting edge available per insert.(Inscribed circle 05, 06, 07, 08, 10, 12, 16, 20).
- Uneven flute spacing prevents vibration at high speed application and provides stable machining.
- Precise design on insert seat part prevents insert from chattering.
- Special design on insert bottom prevents movement and insert chatter.
- Very easy to change cutting edge due to the rotate prevention of the insert.

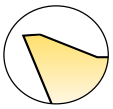
FMR Tool

Wide coverage for medium to roughing

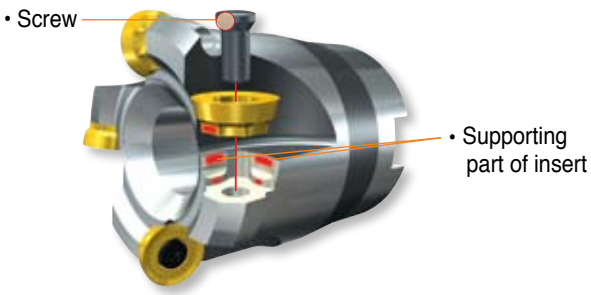
FMR Insert cutting edge shape

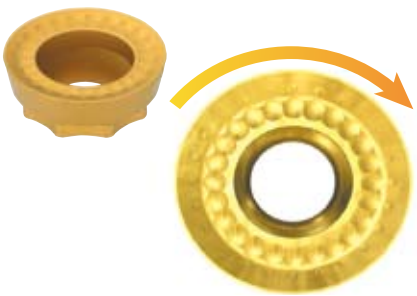
Designation	Cutting edge shape (G calss)
RDHW□□□□M0F	
RDHW□□□□M0E	
RDHW□□□□M0S	

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

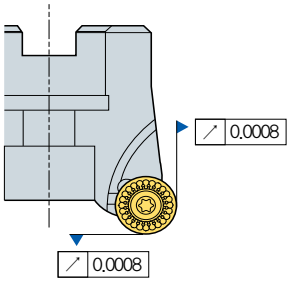
Clamping system



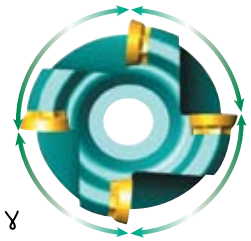


FMR□A 3000 Type	FMR□A 5000 Type	RDKT10T3M0-□□	RDKT1605M0-MM
FMR□A 4000 Type	FMR□A 6000 Type	RDKT1204M0-□□	RDKT2006M0-MM

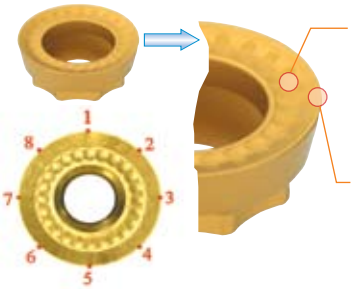
Clamping system



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



4-8 cutting edge available per insert

- **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

(inch)

Workpiece	Test tool	vc (sfm)	n (min^{-1})	vf (ipm)	fz (ipt)	ap x ae	Result (Cutting time)
SCM440 41CrMo4 AISI4140	FMRSA4125HRD-S RDKT1204M0-MM PC3525	660	1,989	63.64	0.016	1.5 X 0.7D	5Hour(VB 0.29)
KP1	FMRSA4200HRD-L RDKT1204M0-MM PC3545	571	1,100	84.00	0.016	1.5 X 1.0D	2Hour(VB 0.32)
KP4M	FMRSA4200HRD-M RDKT1204M0-MM PC3525	693	1,350	84.00	0.016	1.0 X 1.0D	1.5Hour(VB 0.25)
KP4M	FMRSA3100HRD-L RDKT10T3M0-MM PC3545	439	1,700	88.00	0.017	1.0 X 0.4D	3Hour(VB 0.30) Overhang(160)

Chip removal rate (inch^3/min)

	Workpiece	Grades	Ø0.31	Ø0.37	Ø0.50	Ø0.62	Ø0.63	Ø0.75	Ø0.87	Ø1.00	Ø1.10	Ø1.25	Ø1.30	Ø1.50	Ø2.00	Ø63	Ø.50	Ø4.00	Ø5.00	Ø6.00
P	General structure steel(under 200HB)	PC3500 PC5300 PC3545	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(sfm)=820, fz(ipt)=0.010 ap(inch)=0.020, ae=0.5D				vc(sfm)=984, fz(ipt)=0.016 ap(inch)=0.040, ae=0.5D		vc(sfm)=820, fz(ipt)=0.016, ap(inch)=0.060, ae=0.5D											vc(sfm)=656, fz(ipt)=0.020 ap(inch)=0.157, ae=0.5D
	General carbon steel(under 30 HRC)		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(sfm)=656, fz(ipt)=0.010 ap(inch)=0.020, ae=0.5D				vc(sfm)=820, fz(ipt)=0.016 ap(inch)=0.040, ae=0.5D		vc(sfm)=656, fz(ipt)=0.016, ap(inch)=0.060, ae=0.5D											vc(sfm)=590, fz(ipt)=0.020 ap(inch)=0.157, ae=0.5D
	High carbon steel, Alloy steel (30~40 HRC)		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(sfm)=590, fz(ipt)=0.008 ap(inch)=0.020, ae=0.5D				vc(sfm)=656, fz(ipt)=0.016 ap(inch)=0.040, ae=0.5D		vc(sfm)=590, fz(ipt)=0.016, ap(inch)=0.060, ae=0.5D											vc(sfm)=525, fz(ipt)=0.020 ap(inch)=0.157, ae=0.5D
	High carbon steel, Alloy steel (40~50 HRC)		1.24	2.48	2.48	3.72	11.45	11.45	14.32	17.18	14.32	21.48	14.32	28.64	35.8	42.97	50.13	57.29	50.13	249.55
			vc(sfm)=426, fz(ipt)=0.006 ap(inch)=0.016, ae=0.5D				vc(sfm)=558, fz(ipt)=0.012 ap(inch)=0.035, ae=0.5D		vc(sfm)=492, fz(ipt)=0.012, ap(inch)=0.040, ae=0.5D											vc(sfm)=459, fz(ipt)=0.016 ap(inch)=0.138, ae=0.5D
	Alloy steel (over 50 HRC)		0.95	1.9	1.9	2.86	7.63	7.63	9.54	11.45	9.54	14.32	9.54	19.09	23.87	28.64	33.42	38.19	33.42	152.78
			vc(sfm)=328, fz(ipt)=0.006 ap(inch)=0.016, ae=0.5D				vc(sfm)=426, fz(ipt)=0.012 ap(inch)=0.035, ae=0.5D		vc(sfm)=328, fz(ipt)=0.012, ap(inch)=0.040, ae=0.5D											vc(sfm)=328, fz(ipt)=0.016 ap(inch)=0.012, 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
		PC3545	vc(sfm)=426, fz(ipt)=0.010 ap(inch)=0.020, ae=0.5D				vc(sfm)=656, fz(ipt)=0.008 ap(inch)=0.040, ae=0.5D		vc(sfm)=426, fz(ipt)=0.008, ap(inch)=0.060, ae=0.5D											vc(sfm)=426, fz(ipt)=0.020 ap(inch)=0.016, ae=0.5D
K	Cast ironv	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(sfm)=590, fz(ipt)=0.010 ap(inch)=0.020, ae=0.5D				vc(sfm)=590, fz(ipt)=0.008 ap(inch)=0.040, ae=0.5D		vc(sfm)=590, fz(ipt)=0.008, ap(inch)=0.060, ae=0.5D											vc(sfm)=590, fz(ipt)=0.016 ap(inch)=0.016, ae=0.5D

FMR Tool

Wide coverage for medium to roughing

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

■ RDKT10□□

(inch)

Workpiece		Grades	7/8	1	1	1 1/4	1 5/8	2	2 1/2	3 1/4	4	Cutting condition			
												vc	fz	ap	ae
P	General structure steel(under 200HB)	PC3500 PC5300 PC3545	2.2	2.2	2.2	3.3	4.4	5.5	6.6	7.7	8.8	830	0.016	0.06	0.5D
P	General carbon steel (under 30 HRC)	PC3500 PC5300 PC3545	2.1	2.1	2.1	3.1	4.1	5.2	6.2	7.3	8.3	660	0.016	0.06	0.5D
P	High carbon steel, Alloy steel (30~40 HRC)	PC3500 PC5300 PC3545	2.2	2.2	2.2	3.3	4.5	5.6	6.7	7.9	9	600	0.016	0.06	0.5D
P	High carbon steel, Alloy steel (40~50 HRC)	PC3500 PC5300 PC3545	1.1	1.1	1.1	1.6	2.1	2.6	3.2	3.7	4.2	500	0.012	0.04	0.5D
P	Alloy steel(over 50 HRC)	PC3500 PC5300 PC3545	0.7	0.7	0.7	1.1	1.4	1.7	2.1	2.4	2.8	330	0.012	0.04	0.5D
M	Stainless steel	PC5300	0.6	0.6	0.6	0.8	1.2	1.5	1.7	2	2.3	430	0.008	0.06	0.5D
K	Cast iron	PC5300	0.6	0.6	0.6	0.9	1.2	1.5	1.8	2.1	2.4	600	0.008	0.06	0.5D

※The figures in the above chart means Php value.

■ RDKT12□□

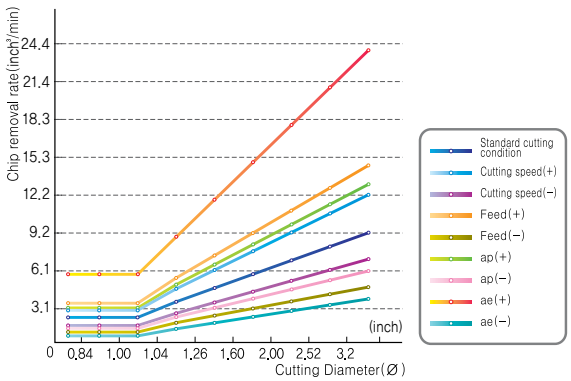
(inch)

Workpiece		Grades	1 1/4	15/16	1 5/8	2	2 1/2	3 1/4	4	5	Cutting condition			
											vc	fz	ap	ae
P	General structure steel(under 200HB)	PC3500 PC5300 PC3545	1.7	1.7	2.6	3.5	3.5	4.4	5.3	6.1	660	0.016	0.06	0.5D
P	General carbon steel (under 30 HRC)	PC3500 PC5300 PC3545	2	2	3.1	4.1	2.6	5.2	6.2	7.2	600	0.016	0.06	0.5D
P	High carbon steel, Alloy steel (30~40 HRC)	PC3500 PC5300 PC3545	2.2	2.2	3.3	4.4	2.8	5.6	6.7	7.8	530	0.016	0.06	0.5D
P	High carbon steel, Alloy steel (40~50 HRC)	PC3500 PC5300 PC3545	1	1	1.5	1.6	2.1	2.6	3.1	3.6	460	0.012	0.04	0.5D
P	Alloy steel(over 50 HRC)	PC3500 PC5300 PC3545	0.7	0.7	1	1.4	0.8	1.7	2.1	2.4	330	0.012	0.04	0.5D
M	Stainless steel	PC5300	0.5	0.5	0.8	1.1	0.7	1.4	1.7	2	430	0.008	0.06	0.5D
K	Cast iron	PC5300	0.6	0.6	0.9	1.2	0.7	1.5	1.8	2.1	600	0.008	0.06	0.5D

※The figures in the above chart means Php value.

Chip removal rate by cutting condition

■ Used insert : RDKT10□



■ Variation of cutting condition

	ISO
Standard	vc(sfm)=656, fz(ipt)=0.016, ap(inch)=0.06, ae=0.5D
Speed (+)	830
Speed (-)	500
Feed (+)	0.024
Feed (-)	0.008
ap (+)	0.080
ap (-)	0.040
ae (+)	D
ae (-)	0.008D

Recommended Cutting Condition

■ Side milling, Slotting, Ramping, Copying

	Workpiece	Hardness	Grades	Cutting speed (sfm)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)
P	General structure steel	200HB≤	PC3600	350~850	≤0.04	≤0.016	≤0.05	≤0.016	≤0.06	≤0.016	≤0.07	≤0.016	≤0.08	≤0.020	≤0.09	≤0.024	≤0.12	≤0.028	≤0.16	≤0.031
P	General carbon steel	30HRC≤	PC5300	350~750	≤0.03	≤0.016	≤0.05	≤0.016	≤0.06	≤0.016	≤0.07	≤0.016	≤0.08	≤0.020	≤0.09	≤0.024	≤0.12	≤0.028	≤0.16	≤0.031
P	High carbon steel,Alloy steel	30~40HRC	PC3545	350~650	≤0.03	≤0.008	≤0.04	≤0.008	≤0.05	≤0.008	≤0.06	≤0.008	≤0.07	≤0.012	≤0.08	≤0.016	≤0.11	≤0.020	≤0.15	≤0.024
P	High carbon steel,Alloy steel	40~50HRC	PC3545	300~500	≤0.03	≤0.008	≤0.04	≤0.008	≤0.05	≤0.008	≤0.06	≤0.008	≤0.07	≤0.012	≤0.08	≤0.016	≤0.11	≤0.020	≤0.15	≤0.024
P	Alloy steel	50HRC≥	PC3545	300~500	≤0.03	≤0.008	≤0.04	≤0.008	≤0.05	≤0.008	≤0.06	≤0.008	≤0.07	≤0.012	≤0.08	≤0.016	≤0.11	≤0.020	≤0.15	≤0.024
M	Stainless steel	270HB≤	PC5300	200~650	≤0.03	≤0.008	≤0.04	≤0.008	≤0.05	≤0.008	≤0.06	≤0.008	≤0.07	≤0.012	≤0.08	≤0.016	≤0.11	≤0.020	≤0.15	≤0.024
K	Cast iron, Ductile cast iron	Tensile strength 350Mpa≤	PC5300	500~850	≤0.04	≤0.016	≤0.05	≤0.016	≤0.06	≤0.016	≤0.07	≤0.016	≤0.08	≤0.020	≤0.09	≤0.024	≤0.12	≤0.028	≤0.16	≤0.031

■ Pocketing

	Workpiece	Hardness	Grades	Cutting speed (sfm)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)
P	General structure steel	200HB≤	PC3600	350~850	≤0.04	≤0.012	≤0.05	≤0.012	≤0.06	≤0.012	≤0.07	≤0.012	≤0.08	≤0.016	≤0.09	≤0.020	≤0.12	≤0.024	≤0.16	≤0.028
P	General carbon steel	30HRC≤	PC5300	350~750	≤0.03	≤0.012	≤0.05	≤0.012	≤0.06	≤0.012	≤0.07	≤0.012	≤0.08	≤0.016	≤0.09	≤0.020	≤0.12	≤0.024	≤0.16	≤0.028
P	High carbon steel,Alloy steel	30~40HRC	PC3545	350~650	≤0.03	≤0.004	≤0.04	≤0.004	≤0.05	≤0.004	≤0.06	≤0.004	≤0.07	≤0.008	≤0.08	≤0.012	≤0.11	≤0.016	≤0.15	≤0.020
P	High carbon steel,Alloy steel	40~50HRC	PC3545	300~500	≤0.03	≤0.004	≤0.04	≤0.004	≤0.05	≤0.004	≤0.06	≤0.004	≤0.07	≤0.008	≤0.08	≤0.012	≤0.11	≤0.016	≤0.15	≤0.020
P	Alloy steel	50HRC≥	PC3545	300~500	≤0.03	≤0.004	≤0.04	≤0.004	≤0.05	≤0.004	≤0.06	≤0.004	≤0.07	≤0.008	≤0.08	≤0.012	≤0.11	≤0.016	≤0.15	≤0.020
M	Stainless steel	270HB≤	PC5300	200~650	≤0.03	≤0.004	≤0.04	≤0.004	≤0.05	≤0.004	≤0.06	≤0.004	≤0.07	≤0.008	≤0.08	≤0.012	≤0.11	≤0.016	≤0.15	≤0.020
K	Cast iron, Ductile cast iron	Tensile strength 350Mpa≤	PC5300	500~850	≤0.04	≤0.012	≤0.05	≤0.012	≤0.06	≤0.012	≤0.07	≤0.012	≤0.08	≤0.016	≤0.09	≤0.020	≤0.12	≤0.024	≤0.16	≤0.028

■ Plunging

	Workpiece	Hardness	Grades	Cutting speed (sfm)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ae (inch)	fz (ipt)	ae (inch)	fz (ipt)	ae (inch)	fz (ipt)	ae (inch)	fz (ipt)	ae (inch)	fz (ipt)	ae (inch)	fz (ipt)	ae (inch)	fz (ipt)	ae (inch)	fz (ipt)
P	General structure steel	200HB≤	PC3600	350~850	≤0.10	≤0.008	≤0.12	≤0.008	≤0.14	≤0.008	≤0.16	≤0.008	≤0.20	≤0.012	≤0.24	≤0.016	≤0.31	≤0.020	≤0.39	≤0.024
P	General carbon steel	30HRC≤	PC5300	350~750	≤0.10	≤0.008	≤0.12	≤0.008	≤0.14	≤0.008	≤0.16	≤0.008	≤0.20	≤0.012	≤0.24	≤0.016	≤0.31	≤0.020	≤0.39	≤0.024
P	High carbon steel,Alloy steel	30~40HRC	PC3545	350~650	≤0.10	≤0.004	≤0.12	≤0.004	≤0.14	≤0.004	≤0.16	≤0.004	≤0.20	≤0.008	≤0.24	≤0.012	≤0.31	≤0.016	≤0.39	≤0.020
P	High carbon steel,Alloy steel	40~50HRC	PC3545	300~500	≤0.10	≤0.004	≤0.12	≤0.004	≤0.14	≤0.004	≤0.16	≤0.004	≤0.20	≤0.008	≤0.24	≤0.012	≤0.31	≤0.016	≤0.39	≤0.020
P	Alloy steel	50HRC≥	PC3545	300~500	≤0.10	≤0.004	≤0.12	≤0.004	≤0.14	≤0.004	≤0.16	≤0.004	≤0.20	≤0.008	≤0.24	≤0.012	≤0.31	≤0.016	≤0.39	≤0.020
M	Stainless steel	270HB≤	PC5300	200~650	≤0.10	≤0.004	≤0.12	≤0.004	≤0.14	≤0.004	≤0.16	≤0.004	≤0.20	≤0.008	≤0.24	≤0.012	≤0.31	≤0.016	≤0.39	≤0.020
K	Cast iron, Ductile cast iron	Tensile strength 350Mpa≤	PC5300	500~850	≤0.10	≤0.008	≤0.12	≤0.008	≤0.14	≤0.008	≤0.16	≤0.008	≤0.20	≤0.012	≤0.24	≤0.016	≤0.31	≤0.020	≤0.39	≤0.024

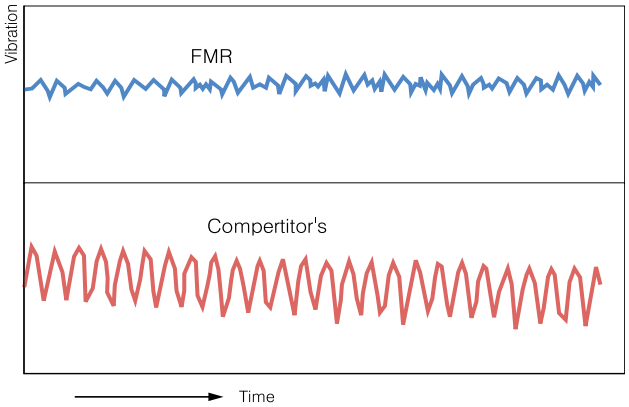
■ Helical cutting

	Workpiece	Hardness	Grades	Cutting speed (sfm)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)
P	General structure steel	200HB≤	PC3600	350~850	≤0.04	≤0.008	≤0.04	≤0.008	≤0.04	≤0.008	≤0.04	≤0.008	≤0.08	≤0.012	≤0.08	≤0.016	≤0.16	≤0.020	≤0.16	≤0.024
P	General carbon steel	30HRC≤	PC5300	350~750	≤0.03	≤0.008	≤0.03	≤0.008	≤0.03	≤0.008	≤0.03	≤0.008	≤0.08	≤0.012	≤0.08	≤0.016	≤0.16	≤0.020	≤0.16	≤0.024
P	High carbon steel,Alloy steel	30~40HRC	PC3545	350~650	≤0.03	≤0.004	≤0.03	≤0.004	≤0.03	≤0.004	≤0.03	≤0.004	≤0.07	≤0.008	≤0.07	≤0.012	≤0.15	≤0.016	≤0.15	≤0.020
P	High carbon steel,Alloy steel	40~50HRC	PC3545	300~500	≤0.03	≤0.004	≤0.03	≤0.004	≤0.03	≤0.004	≤0.03	≤0.004	≤0.07	≤0.008	≤0.07	≤0.012	≤0.15	≤0.016	≤0.15	≤0.020
P	Alloy steel	50HRC≥	PC3545	300~500	≤0.03	≤0.004	≤0.03	≤0.004	≤0.03	≤0.004	≤0.03	≤0.004	≤0.07	≤0.008	≤0.07	≤0.012	≤0.15	≤0.016	≤0.15	≤0.020
M	Stainless steel	270HB≤	PC5300	200~650	≤0.03	≤0.004	≤0.03	≤0.004	≤0.03	≤0.004	≤0.03	≤0.004	≤0.07	≤0.008	≤0.07	≤0.012	≤0.15	≤0.016	≤0.15	≤0.020
K	Cast iron, Ductile cast iron	Tensile strength 350Mpa≤	PC5300	500~850	≤0.04	≤0.008	≤0.04	≤0.008	≤0.04	≤0.008	≤0.04	≤0.008	≤0.08	≤0.012	≤0.08	≤0.016	≤0.16	≤0.020	≤0.16	≤0.024

FMR Tool

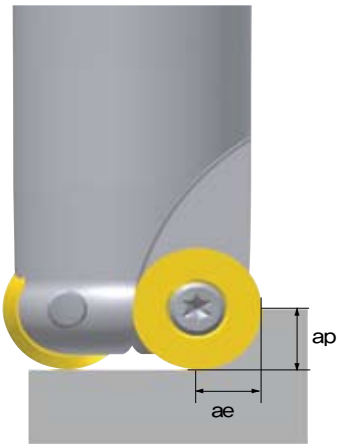
Wide coverage for medium to roughing

FMR Vibration test



- **Machining example**
  - **Test sample** : FMRS3032RD-S / RDKT10T3M0-MM (PC3535)
  - **Workpiece** : STD11
  - **Cutting condition** : vc(sfm) = 650 fz(ipt) = 0.015
    ap(inch) = 0.08 ae(inch) = 0.16

Cutting condition formulas for milling



vc	=	Cutting speed(sfm)
n	=	Revolution per a minute(min^{-1})
D	=	Cutting diameter(inch)
vf	=	Feed per a minute(ipm)
fz	=	Feed per tooth(ipt)
z	=	Number of tooth
Pc	=	Power requirement(kW)
H	=	Horsepower requirement(Hp)
Q	=	Chip removal amount(cm^3/min)
ap	=	Depth of cut(inch)
ae	=	Width of cut(inch)
Kc	=	Specific cutting resistance(MPa)
η	=	Mechanical efficiency(%)

- **Cutting speed**

$$vc = \frac{\times D \times n}{12} \text{ (sfm)}$$

- **RPM**

$$n = \frac{vc \times 12}{\times D} \text{ (min}^{-1}\text{)}$$

- **Feed(per tooth)**

$$fz = \frac{vf}{n \times z} \text{ (ipt)}$$

- **Feed(per minute)**

$$vf = fz \times n \times z \text{ (ipm)}$$

- **Chip removal rate**

$$Q = \frac{ap \times ae \times vf}{1000} \text{ (inch}^3\text{/min)}$$

- **Required machine power**

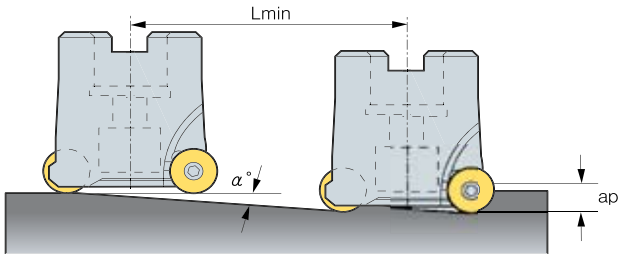
$$Pkw = \frac{Q \times kc}{60 \times 102 \times \eta} \text{ (kW)} \qquad Php = \frac{Pkw}{0.75} \text{ (hp)}$$

Feed as per cutting depth

(inch)

Designation	Chip breaker	Depth of cut								
		0.008~0.020	0.020~0.039	0.079	0.118	0.157	0.197	0.236	0.276	0.315
RDHW0501M0 □	-	0.010	0.006	-	-	-	-	-	-	-
RDHW06T1M0 □	-	0.012	0.008	0.004	-	-	-	-	-	-
RDHW0702M0 □	-	0.014	0.010	0.004	0.003	-	-	-	-	-
RDHW0803M0 □	-	0.016	0.012	0.006	0.0004	-	-	-	-	-
RDKT10T3M0 - □□	MF/MM	-	0.016	0.014	0.012	0.008	-	-	-	-
RDKT1204M0 - □□	MF/MM	-	0.020	0.018	0.012	0.010	0.009	-	-	-
RDHW1605M0 □	-	-	0.024	0.020	0.018	0.014	0.012	0.008	0.004	-
RDHW2006M0 □	-	-	-	0.024	0.020	0.016	0.012	0.010	0.006	0.004
RDKT1605M0 - □□	MM	-	0.024	0.020	0.018	0.014	0.012	0.008	0.004	-
RDKT2006M0 - □□	MM	-	-	0.024	0.020	0.016	0.012	0.010	0.006	0.004

Ramping technical data



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

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

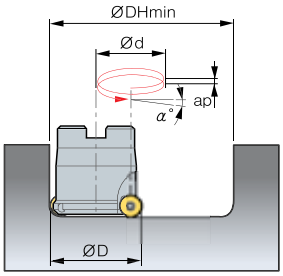
(inch)

Section	Tool diameter(Ø)	Ramping angle α° (Max)	Cutting length L(inch) by ramping angle									
			ap=0.039	ap=0.079	ap=0.098	ap=0.118	ap=0.138	ap=0.157	ap=0.197	ap=0.236	ap=0.315	ap=0.394
FMR1000	0.312	18.14	0.12	0.24	0.30	-	-	-	-	-	-	-
	0.375	11.70	0.19	0.38	0.48	-	-	-	-	-	-	-
	0.500	8.43	0.26	0.53	0.66	-	-	-	-	-	-	-
	0.625	5.93	0.38	0.76	0.95	-	-	-	-	-	-	-
FMR1500	0.375	20.67	0.81	0.21	0.26	0.31	-	-	-	-	-	-
	0.500	10.05	0.40	0.44	0.56	0.67	-	-	-	-	-	-
	0.625	6.12	0.24	0.73	0.92	1.10	-	-	-	-	-	-
	0.750	4.36	0.17	1.03	1.29	1.55	-	-	-	-	-	-
FMR2000	0.625	9.42	0.24	0.47	0.59	0.71	0.83	-	-	-	-	-
	0.750	5.85	0.38	0.77	0.96	1.15	1.34	-	-	-	-	-
FMR2500	0.625	13.70	0.16	0.32	0.40	0.48	0.57	0.65	-	-	-	-
	0.750	9.29	0.24	0.48	0.60	0.72	0.84	0.96	-	-	-	-
	1.000	6.56	0.34	0.68	0.86	1.03	1.20	1.37	-	-	-	-
FMR3000	1.500	9.09	0.25	0.49	0.62	0.74	0.86	0.98	1.23	-	-	-
	2.000	6.52	0.34	0.69	0.86	1.03	1.21	1.38	1.72	-	-	-
	2.500	4.76	0.47	0.95	1.18	1.42	1.65	1.89	2.36	-	-	-
	3.000	3.52	0.64	1.28	1.60	1.92	2.24	2.56	3.20	-	-	-
	4.000	2.69	0.84	1.68	2.09	2.51	2.93	3.35	4.19	-	-	-
FMR4000	2.000	7.13	0.31	0.63	0.79	0.94	1.10	1.26	1.57	1.89	-	-
	2.500	5.08	0.44	0.89	1.11	1.33	1.55	1.77	2.21	2.66	-	-
	3.000	3.69	0.61	1.22	1.53	1.83	2.14	2.44	3.05	3.66	-	-
	4.000	2.79	0.81	1.62	2.02	2.42	2.83	3.23	4.04	4.85	-	-
	5.000	2.14	1.05	2.11	2.63	3.16	3.69	4.21	5.27	6.32	-	-
FMR5000	2.000	5.22	0.43	0.86	1.08	1.29	1.51	1.72	2.15	2.59	3.45	-
	2.500	3.79	0.59	1.19	1.49	1.78	2.08	2.38	2.97	3.57	4.75	-
	3.000	2.97	0.76	1.52	1.90	2.28	2.66	3.04	3.79	4.55	6.07	-
	4.000	2.09	1.08	2.16	2.70	3.24	3.78	4.32	5.39	6.47	8.63	-
	5.000	1.63	1.38	2.77	3.46	4.15	4.84	5.53	6.92	8.30	11.07	-
FMR6000	2.500	3.69	0.61	1.22	1.53	1.83	2.14	2.44	3.05	3.66	4.88	2.44
	3.000	2.72	0.83	1.66	2.07	2.49	2.90	3.31	4.14	4.97	6.63	3.31
	4.000	2.12	1.06	2.13	2.66	3.19	3.72	4.25	5.32	6.38	8.51	4.25
	5.000	1.57	1.44	2.87	3.59	4.31	5.03	5.75	7.18	8.62	11.49	5.74

FMR Tool

Wide coverage for medium to roughing

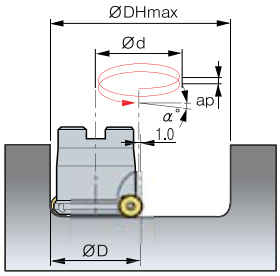
Helical cutting technical data - ØDHmin



(inch)

Section	Insert	Tool diameter(Ø)	Ø DHmix	Ød	Ramping angle (α°) ap 0.039	0.079	0.098	0.118	0.138	0.157	0.197	0.236	0.315	0.394
FMR 1000	0.312	0.31	0.43	0.12	6.11	12.35	15.57	-	-	-	-	-	-	-
	0.375	0.39	0.59	0.20	3.65	7.34	7.34	-	-	-	-	-	-	-
	0.500	0.47	0.75	0.28	2.61	5.23	5.23	-	-	-	-	-	-	-
	0.625	0.59	0.98	0.39	1.83	3.65	3.65	-	-	-	-	-	-	-
FMR 1500	0.375	0.39	0.55	0.16	4.57	9.20	9.20	13.95	-	-	-	-	-	-
	0.500	0.47	0.71	0.24	3.04	6.11	6.11	9.20	-	-	-	-	-	-
	0.625	0.63	1.02	0.39	1.83	3.65	3.65	5.49	-	-	-	-	-	-
	0.750	0.79	1.34	0.55	1.30	2.61	2.61	3.92	-	-	-	-	-	-
FMR 2000	0.625	0.59	0.91	0.31	2.28	4.57	4.57	6.88	8.04	-	-	-	-	-
	0.750	0.79	1.30	0.51	1.40	2.81	2.81	4.22	4.92	-	-	-	-	-
FMR 2500	0.625	0.63	0.94	0.31	2.28	4.57	4.57	6.88	8.04	9.20	-	-	-	-
	0.750	0.79	1.26	0.47	1.52	3.04	3.04	4.57	5.34	6.11	-	-	-	-
	1.000	0.98	1.65	0.67	1.07	2.15	2.15	3.22	3.76	4.30	-	-	-	-
FMR 3000	1.500	1.57	2.76	1.18	0.61	1.22	1.22	1.83	2.13	2.43	3.04	-	-	-
	2.000	1.97	3.54	1.57	0.46	0.91	0.91	1.37	1.60	1.83	2.28	-	-	-
	2.500	2.48	4.57	2.09	0.34	0.69	0.69	1.03	1.21	1.38	1.72	-	-	-
	3.000	3.15	5.91	2.76	0.26	0.52	0.52	0.78	0.91	1.04	1.30	-	-	-
	4.000	3.94	7.48	3.54	0.20	0.41	0.41	0.61	0.71	0.81	1.01	-	-	-
FMR 4000	2.000	1.97	3.46	1.50	0.48	0.96	0.96	1.44	1.68	1.92	2.40	2.88	-	-
	2.500	2.48	4.49	2.01	0.36	0.72	0.72	1.07	1.25	1.43	1.79	2.15	-	-
	3.000	3.15	5.83	2.68	0.27	0.54	0.54	0.81	0.94	1.07	1.34	1.61	-	-
	4.000	3.94	7.40	3.46	0.21	0.41	0.41	0.62	0.73	0.83	1.04	1.24	-	-
	5.000	4.92	9.37	4.45	0.16	0.32	0.32	0.48	0.57	0.65	0.81	0.97	-	-
FMR 5000	2.000	1.97	3.31	1.34	0.54	1.07	1.07	1.61	1.88	2.15	2.69	3.22	4.30	-
	2.500	2.48	4.33	1.85	0.39	0.78	0.78	1.16	1.36	1.55	1.94	2.33	3.11	-
	3.000	3.15	5.67	2.52	0.29	0.57	0.57	0.86	1.00	1.14	1.43	1.71	2.28	-
	4.000	3.94	7.24	3.31	0.22	0.43	0.43	0.65	0.76	0.87	1.09	1.30	1.74	-
	5.000	4.92	9.21	4.29	0.17	0.33	0.33	0.50	0.59	0.67	0.84	1.00	1.34	-
FMR 6000	2.500	3.15	5.51	2.36	0.30	0.61	0.61	0.91	1.06	1.22	1.52	1.83	2.43	3.04
	3.000	3.94	7.09	3.15	0.23	0.46	0.46	0.68	0.80	0.91	1.14	1.37	1.83	2.28
	4.000	4.92	9.06	4.13	0.17	0.35	0.35	0.52	0.61	0.70	0.87	1.04	1.39	1.74
	5.000	6.30	11.81	5.51	0.13	0.26	0.26	0.39	0.46	0.52	0.65	0.78	1.04	1.30

Helical cutting technical data - ØDHmax



(inch)

Section	Insert	Tool diameter(Ø)	Ø DHmix	Ød	Ramping angle(α°) ap 0.039	0.079	0.098	0.118	0.138	0.157	0.197	0.236	0.315	0.394
FMR 1000	0.312	0.31	0.55	0.24	3.04	6.11	7.65	-	-	-	-	-	-	-
	0.375	0.39	0.71	0.31	2.28	4.57	5.72	-	-	-	-	-	-	-
	0.500	0.47	0.87	0.39	1.83	3.65	4.57	-	-	-	-	-	-	-
	0.625	0.59	1.10	0.51	1.40	2.81	3.51	-	-	-	-	-	-	-
FMR 1500	0.375	0.39	0.71	0.31	2.28	4.57	5.72	6.88	-	-	-	-	-	-
	0.500	0.47	0.87	0.39	1.83	3.65	4.57	5.49	-	-	-	-	-	-
	0.625	0.63	1.18	0.55	1.30	2.61	3.26	3.92	-	-	-	-	-	-
	0.750	0.79	1.50	0.71	1.01	2.03	2.54	3.04	-	-	-	-	-	-
FMR 2000	0.625	0.59	1.10	0.51	1.40	2.81	3.51	4.22	4.92	-	-	-	-	-
	0.750	0.79	1.50	0.71	1.01	2.03	2.54	3.04	3.55	-	-	-	-	-
FMR 2500	0.625	0.63	1.18	0.55	1.30	2.61	3.26	3.92	4.57	5.23	-	-	-	-
	0.750	0.79	1.50	0.71	1.01	2.03	2.54	3.04	3.55	4.06	-	-	-	-
	1.000	0.98	1.89	0.91	0.79	1.59	1.98	2.38	2.78	3.18	-	-	-	-
FMR 3000	1.500	1.57	3.07	1.50	0.48	0.96	1.20	1.44	1.68	1.92	2.40	-	-	-
	2.000	1.97	3.86	1.89	0.38	0.76	0.95	1.14	1.33	1.52	1.90	-	-	-
	2.500	2.48	4.88	2.40	0.30	0.60	0.75	0.90	1.05	1.20	1.50	-	-	-
	3.000	3.15	6.22	3.07	0.23	0.47	0.58	0.70	0.82	0.94	1.17	-	-	-
	4.000	3.94	7.80	3.86	0.19	0.37	0.47	0.56	0.65	0.74	0.93	-	-	-
FMR 4000	2.000	1.97	3.86	1.89	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	-	-
	2.500	2.48	4.88	2.40	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	-	-
	3.000	3.15	6.22	3.07	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	-	-
	4.000	3.94	7.80	3.86	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	-	-
	5.000	4.92	9.76	4.84	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	-	-
FMR 5000	2.000	1.97	3.86	1.89	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	3.04	-
	2.500	2.48	4.88	2.40	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	2.39	-
	3.000	3.15	6.22	3.07	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	1.87	-
	4.000	3.94	7.80	3.86	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	1.49	-
	5.000	4.92	9.76	4.84	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	1.19	-
FMR 6000	2.500	3.15	6.22	3.07	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	1.87	2.34
	3.000	3.94	7.80	3.86	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	1.49	1.86
	4.000	4.92	9.76	4.84	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	1.19	1.48
	5.000	6.30	12.52	6.22	0.12	0.23	0.29	0.35	0.40	0.46	0.58	0.69	0.92	1.16

- ØD = Tool diameter(inch), ØDHmin, max = Min, Max diameter(inch)
- Ød = Tool Path (inch)
- ØDHmin(Min diameter) = ØD 2 - Insert size, ØDHmax(Max diameter) = ØD 2 - 2
- Ød(tool path) = ØDHmin, max - ØD

Applicable Inserts

RDCT-MA

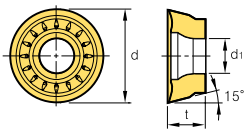
RDHW-E,F,S

RDHW-E,F,S

RDKT-MF,ML

RDKT-MM

RDKW

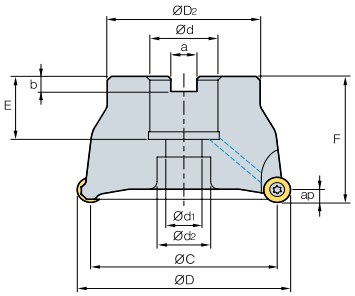


Designation		l	d	t	r	d_1
RDCT	10T3M0-MA	-	25/64	0.156	-	0.157
	1204M0-MA	-	15/32	0.187	-	0.177
RDHW	0501M0F	-	13/64	0.063	-	0.091
	0501M0E	-	13/64	0.063	-	0.091
	0501M0S	-	13/64	0.063	-	0.091
	06T1M0F	-	15/64	0.078	-	0.098
	06T1M0E	-	15/64	0.078	-	0.098
	06T1M0S	-	15/64	0.078	-	0.098
	0702M0F	-	9/32	0.094	-	0.110
	0702M0E	-	9/32	-	-	-
	0702M0S	-	9/32	-	-	-
	0803M0F	-	5/16	-	-	-
	0803M0E	-	5/16	-	-	-
	0803M0S	-	5/16	-	-	-
RDHW	1605M0F	-	5/8	-	-	-
	1605M0E	-	5/8	-	-	-
	1605M0S	-	5/8	-	-	-
	2006M0F	-	25/32	-	-	-
	2006M0E	-	25/32	-	-	-
	2006M0S	-	25/32	-	-	-
RDKT	10T3M0-MF	-	25/64	0.156	-	0.152
	1204M0-MF	-	15/32	0.187	-	0.177
	1605M0-MF	-	5/8	0.219	-	0.217
	1605M0-ML	-	5/8	0.219	-	0.217
RDKT	10T3M0-MM	-	25/64	0.156	-	0.152
	1204M0-MM	-	15/32	0.187	-	0.177
	1605M0-MM	-	5/8	0.219	-	0.217
	2006M0-MM	-	25/32	0.250	-	0.217
RDKW	0501M0E	-	13/64	1/16	-	0.091
	06T1M0E	-	15/64	0.078	-	0.098
	0702M0E	-	9/32	3/32	-	0.110
	0803M0E	-	5/16	1/8	-	0.134

FMR Tool

Wide coverage for medium to roughing

FMRCA3000/4000



•AR : 5°
•RR : -5°

(inch)

Designation		⊙	øD	øC	øD2	ød	a	b	E	F	ød1	ød2	ap
FMRCA	3150HRD	3	1.5	1.11	1.417	0.50	0.250	0.169	0.630	1.50	0.287	0.433	0.196
	3150HRD-H	4	1.5	1.11	1.417	0.50	0.250	0.169	0.630	1.50	0.287	0.433	0.196
	3200HRD	4	2.0	1.61	1.772	0.75	0.313	0.220	0.787	1.75	0.433	0.630	0.196
	3200HRD-H	5	2.0	1.61	1.772	0.75	0.313	0.220	0.787	1.75	0.433	0.630	0.196
	3250HRD	5	2.5	2.11	1.772	0.75	0.313	0.220	0.787	1.75	0.433	0.630	0.196
	3250HRD-H	6	2.5	2.11	1.772	0.75	0.313	0.220	0.787	1.75	0.433	0.630	0.196
	3300HRD	6	3.0	2.61	2.205	1.00	0.375	0.248	0.866	2.00	0.551	0.827	0.196
	3300HRD-H	7	3.0	2.61	2.205	1.00	0.375	0.248	0.866	2.00	0.551	0.827	0.196
	3400HRD	7	4.0	3.61	2.874	1.25	0.500	0.319	0.827	2.00	0.709	1.024	0.196
	3400HRD-H	8	4.0	3.61	2.874	1.25	0.500	0.319	0.827	2.00	0.709	1.024	0.196
	4200HRD	4	2.0	1.53	1.772	0.75	0.313	0.220	0.787	1.75	0.433	0.630	0.236
	4250HRD	4	2.5	2.03	1.772	0.75	0.313	0.220	0.787	1.75	0.433	0.630	0.236
	4250HRD-M	5	2.5	2.03	1.772	0.75	0.313	0.220	0.787	1.75	0.433	0.630	0.236
	4300HRD	5	3.0	2.53	2.205	1.00	0.375	0.248	0.866	2.00	0.551	0.827	0.236
	4300HRD-M	6	3.0	2.53	2.205	1.00	0.375	0.248	0.866	2.00	0.551	0.827	0.236
	4400HRD	6	4.0	3.53	2.874	1.25	0.500	0.319	0.827	2.00	0.709	1.024	0.236
	4400HRD-M	7	4.0	3.53	2.874	1.25	0.500	0.319	0.827	2.00	0.709	1.024	0.236
	4500HRD	7	5.0	4.53	3.386	1.50	0.626	0.394	1.063	2.50	0.827	1.220	0.236
	4500HRD-M	8	5.0	4.53	3.386	1.50	0.626	0.394	1.063	2.50	0.827	1.220	0.236

■ Parts

	Screw	Wrench
3000 Type	FTGA03508	TW15S
4000 Type	FTKA04510	TW15S

■ Available Inserts

RDKT-MF

RDKT-MM

RDCT-MA

Type	Designation	Coated										Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
3000 Type	RDCT_10T3M0-MA														●			
	RDKT_10T3M0-MF					●	●	●										
	10T3M0-MM	●	●		●	●	●	●	●									
4000 Type	RDCT_1204M0-MA														●			
	RDKT_1204M0-MF				●	●	●	●										
	1204M0-MM	●	●	●	●	●	●	●	●									

● : Stock item

FMRCA5000/6000

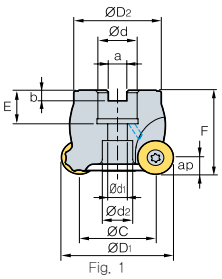


Fig. 1

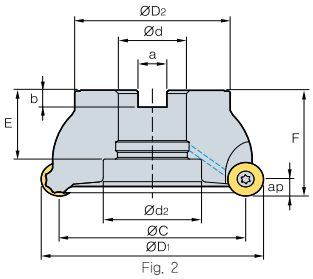


Fig. 2

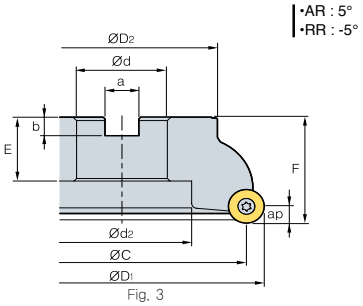


Fig. 3

(inch)

Designation			øD	øC	øD2	ød	a	b	E	F	ød1	ød2	ap	Fig.
FMRCA	5200HRD	3	2.0	1.37	1.772	0.75	0.313	0.220	0.827	2.00	0.433	0.630	0.314	1
	5250HRD	4	2.5	1.87	1.772	0.75	0.313	0.220	0.827	2.00	0.433	0.630	0.314	1
	5250HRD-H	5	2.5	1.87	1.772	0.75	0.313	0.220	0.827	2.00	0.433	0.630	0.314	1
	5300HRD	5	3.0	2.37	2.205	1.00	0.375	0.248	0.866	2.00	0.551	0.827	0.314	1
	5300HRD-H	6	3.0	2.37	2.205	1.00	0.375	0.248	0.866	2.00	0.551	0.827	0.314	1
	5400HRD	6	4.0	3.37	2.874	1.25	0.500	0.319	0.827	2.00	0.709	1.024	0.314	1
	5400HRD-H	7	4.0	3.37	2.874	1.25	0.500	0.319	0.827	2.00	0.709	1.024	0.314	1
	5500HRD	7	5.0	4.37	3.386	1.50	0.626	0.394	1.063	2.50	0.827	1.220	0.314	1
	5500HRD-H	8	5.0	4.37	3.386	1.50	0.626	0.394	1.063	2.50	0.827	1.220	0.314	1
	6250HRD	3	2.5	1.72	1.772	0.75	0.313	0.220	0.787	2.00	0.433	0.630	0.393	1
	6250HRD-M	4	2.5	1.72	1.772	0.75	0.313	0.220	0.787	2.00	0.433	0.630	0.393	1
	6300HRD	4	3.0	2.22	2.205	1.00	0.375	0.248	0.866	2.00	0.551	0.827	0.393	1
	6300HRD-M	5	3.0	2.22	2.205	1.00	0.375	0.248	0.866	2.00	0.551	0.827	0.393	1
	6400HRD	5	4.0	3.22	2.874	1.25	0.500	0.319	0.827	2.00	0.709	1.024	0.393	1
	6400HRD-M	6	4.0	3.22	2.874	1.25	0.500	0.319	0.827	2.00	0.709	1.024	0.393	1
	6500HRD	6	5.0	4.22	3.386	1.50	0.626	0.394	1.063	2.50	0.827	1.220	0.393	1
	6500HRD-M	7	5.0	4.22	3.386	1.50	0.626	0.394	1.063	2.50	0.827	1.220	0.393	1
	6600HRD	7	6.0	5.22	3.937	1.50	0.626	0.394	1.181	2.50	-	3.150	0.393	3
	6600HRD-M	8	6.0	5.22	3.937	1.50	0.626	0.394	1.181	2.50	-	3.150	0.393	3

■ Parts

	Screw	Wrench
5000 Type	FTGA0513-P	TW20S
6000 Type	FTGA0515-P	TW20S

■ Available Inserts

RDHW-E,F,S

RDKT-MM

Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
5000 Type	RDHW 1605M0E																	
	1605M0F																	
	1605M0S																	
	RDKT 1605M0-MM				●		●											
	1605M0-ML																	
6000 Type	RDHW 2006M0E																	
	2006M0F																	
	2006M0S																	
	RDKT 2006M0-MM				●		●											

● : Stock item

FMR Tool

Wide coverage for medium to roughing

FMRSA1000/1500/2000/2500

•AR : 5°
•RR : -5°~-1°

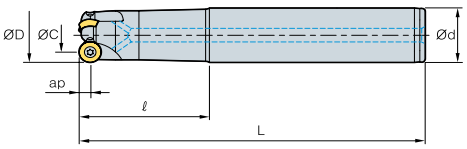


Fig. 1

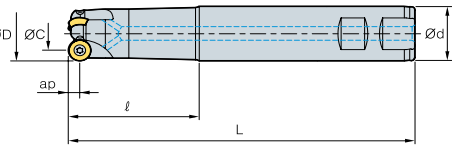


Fig. 2

(inch)

Designation			øD	øC	ød	ℓ	L	ap	Fig.
FMRSA	10031HRD-M	1	0.312	0.118	0.375	1.181	3.150	0.098	1
	10031HRD-L	1	0.312	0.118	0.375	1.969	3.937	0.098	1
	10037HRD-M	1	0.375	0.177	0.500	1.732	3.937	0.098	1
	10037HRD-L	1	0.375	0.177	0.500	2.520	4.724	0.098	1
	10050HRD-M	2	0.500	0.303	0.500	1.732	3.937	0.098	1
	10050HRD-L	2	0.500	0.303	0.625	3.150	6.299	0.098	1
	10062HRD-M	3	0.625	0.425	0.625	3.150	6.299	0.098	1
	10062HRD-L	3	0.625	0.425	0.625	3.937	7.874	0.098	1
	15037HRD-M	1	0.375	0.138	0.500	1.732	3.937	0.118	1
	15037HRD-L	1	0.375	0.138	0.500	2.520	4.724	0.118	1
	15050HRD-M	2	0.500	0.264	0.500	2.126	4.331	0.118	1
	15050HRD-L	2	0.500	0.264	0.625	3.150	6.299	0.118	1
	15062HRD-M	3	0.625	0.386	0.625	2.362	5.118	0.118	1
	15062HRD-L	3	0.625	0.386	0.750	3.543	7.087	0.118	1
	15075HRD-M	3	0.750	0.512	0.750	3.150	5.906	0.118	1
	15075HRD-L	3	0.750	0.512	0.750	3.543	7.874	0.118	1
	20062HRD-S	2	0.625	0.346	0.625	2.165	4.528	0.138	2
	20062HRD-M	2	0.625	0.346	0.750	3.150	5.906	0.138	2
	20062HRD-L	2	0.625	0.346	0.750	3.543	7.874	0.138	2
	20075HRD-S	3	0.750	0.472	0.750	2.559	4.921	0.138	2
	20075HRD-M	3	0.750	0.472	0.750	3.150	5.906	0.138	2
	20075HRD-L	3	0.750	0.472	1.000	3.543	7.874	0.138	2
	25062HRD-S	2	0.625	0.307	0.625	2.559	4.921	0.157	2
	25062HRD-M	2	0.625	0.307	0.625	3.150	5.906	0.157	2
	25062HRD-L	2	0.625	0.307	0.750	3.543	7.874	0.157	2
	25075HRD-S	2	0.750	0.433	0.750	2.559	4.921	0.157	2
	25075HRD-M	2	0.750	0.433	0.750	3.150	5.906	0.157	2
	25075HRD-L	2	0.750	0.433	1.000	3.543	7.874	0.157	2
	250100HRD-S	3	1.000	0.685	1.000	2.165	4.921	0.157	2
	25100HRD-M	3	1.000	0.685	1.000	3.543	7.874	0.157	2
	25100HRD-L	3	1.000	0.685	1.250	4.331	9.843	0.157	2

■ Parts

	Screw	Wrench	
1000 Type	FTNA0203	TW06P	-
1500 Type	FTNA02205	TW06P	-
2000 Type	FTNA02555	-	TW07S
2500 Type	FTNA0305, FTNA0306 (Ø0.75 Over)	-	TW09S

■ Available Inserts

RDHW-E,F,S	RDKW

Type	Designation		Coated									Cermet		Uncoated			
			NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
1000 Type	RDHW	0501M0E							●										
		0501M0F																	
		0501M0S																	
	RDKW	0501M0E				●													
1500 Type	RDHW	06T1M0E							●										
		06T1M0F																	
		06T1M0S																	
	RDKW	06T1M0E				●													
2000 Type	RDHW	0702M0E							●										
		0702M0F																	
		0702M0S																	
	RDKW	0702M0E				●													
2500 Type	RDHW	0803M0E							●										
		0803M0F																	
		0803M0S																	
	RDKW	0803M0E				●													

● : Stock item

FMRSA3000/4000

•AR : 5°
•RR : -8~-5°

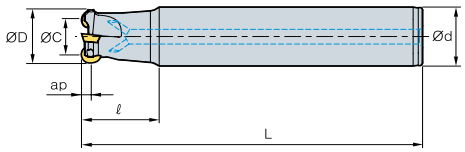


Fig. 1

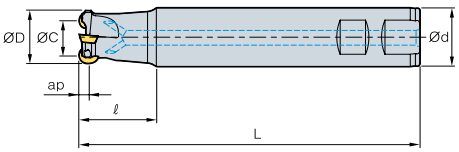


Fig. 2

(inch)

Designation		ØD	ØC	Ød	ℓ	L	ap	Fig.
FMRSA 3075HRD-M	1	0.750	0.358	0.750	1.575	5.906	0.197	1
3087HRD-M	1	0.875	0.480	0.750	1.575	5.906	0.197	1
3087HRD-M2	2	0.875	0.480	0.750	1.575	5.906	0.197	1
3087HRD-L	1	0.875	0.480	0.750	1.969	7.874	0.197	1
3087HRD-L2	2	0.875	0.480	0.750	1.969	7.874	0.197	1
3100HRD-S	2	1.000	0.606	1.000	1.378	4.528	0.197	2
3100HRD-M	2	1.000	0.606	1.000	2.756	7.874	0.197	1
3100HRD-L	2	1.000	0.606	1.000	3.937	9.843	0.197	1
3125HRD-S	3	1.250	0.858	1.250	1.575	4.921	0.197	2
3125HRD-M	3	1.250	0.858	1.250	2.756	7.874	0.197	1
3125HRD-L	3	1.250	0.858	1.250	5.906	11.811	0.197	1
3150HRD-S	4	1.500	1.106	1.250	1.575	4.921	0.197	2
3150HRD-M	4	1.500	1.106	1.250	2.756	7.874	0.197	1
3150HRD-L	4	1.500	1.106	1.250	5.906	11.811	0.197	1
4125HRD-S	2	1.250	0.708	1.250	1.575	4.921	0.197	2
4125HRD-M	2	1.250	0.708	1.250	2.756	7.874	0.236	1
4125HRD-L	2	1.250	0.708	1.250	5.906	11.811	0.236	1
4150HRD-S	3	1.500	1.028	1.250	1.575	4.921	0.236	2
4150HRD-M	3	1.500	1.028	1.250	2.756	7.874	0.236	1
4150HRD-L	3	1.500	1.028	1.250	5.906	11.811	0.236	1
4150HRD-S150	3	1.500	1.028	1.500	1.575	4.921	0.236	2
4150HRD-M150	3	1.500	1.028	1.500	2.756	7.874	0.236	1
4150HRD-L150	3	1.500	1.028	1.500	5.906	11.811	0.236	1
4200HRD-S	4	2.000	1.528	1.500	1.969	5.906	0.236	2
4200HRD-M	4	2.000	1.528	1.500	1.969	9.843	0.236	1
4200HRD-L	4	2.000	1.528	1.500	1.969	11.811	0.236	1

■ Parts

	Screw	Wrench
3000 Type	FTGA03508(07)	TW15S
4000 Type	FTKA0410	TW15S

■ Available Inserts

RDKT-MF

RDKT-MM

RDCT-MA

Type	Designation	Coated										Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
3000 Type	RDCT 10T3M0-MA														●			
	RDKT 10T3M0-MF					●	●	●										
	10T3M0-MM	●	●		●	●	●	●	●									
4000 Type	RDCT 1204M0-MA														●			
	RDKT 1204M0-MF				●	●	●	●										
	1204M0-MM	●	●	●	●	●	●	●	●									

● : Stock item

FMR Tool

Wide coverage for medium to roughing

FMRSA5000/6000

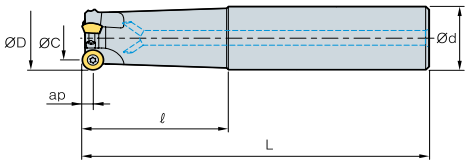


Fig. 1

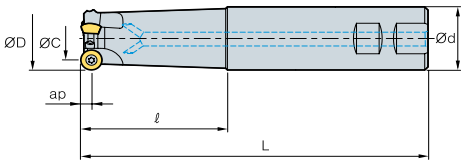


Fig. 2

•AR : 5°
•RR : -5°

(inch)

Designation		ØD	ØC	Ød	ℓ	L	ap	Fig.
FMRSA 5150HRD-S	2	1.500	0.870	1.250	1.575	4.921	0.315	2
5150HRD-M	2	1.500	0.870	1.250	1.969	7.874	0.315	1
5150HRD-L	2	1.500	0.870	1.250	1.969	11.811	0.315	1
5150HRD-S150	2	1.500	0.870	1.500	1.575	4.921	0.315	2
5150HRD-M150	2	1.500	0.870	1.500	2.756	7.874	0.315	1
5150HRD-L150	2	1.500	0.870	1.500	5.906	11.811	0.315	1
5200HRD-S	3	2.000	1.370	1.500	1.969	5.906	0.315	2
5200HRD-M	3	2.000	1.370	1.500	1.969	9.843	0.315	1
5200HRD-L	3	2.000	1.370	1.500	1.969	11.811	0.315	1
5250HRD-S	4	2.500	1.862	1.500	1.969	5.906	0.315	2
5250HRD-M	4	2.500	1.862	1.500	1.969	9.843	0.315	1
5250HRD-L	4	2.500	1.862	1.500	1.969	11.811	0.315	1
6200HRD-S	3	2.000	1.213	1.500	1.969	5.906	0.394	2
6200HRD-M	3	2.000	1.213	1.500	1.969	9.843	0.394	1
6200HRD-L	3	2.000	1.213	1.500	1.969	11.811	0.394	1
6250HRD-S	4	2.500	1.713	1.500	1.969	5.906	0.394	2
6250HRD-M	4	2.500	1.713	1.500	1.969	9.843	0.394	1
6250HRD-L	4	2.500	1.713	1.500	1.969	11.811	0.394	1

■ Parts

	Screw	Wrench
5000 Type	FTGA0513-P	TW20S
6000 Type	FTGA0515-P	TW20S

■ Available Inserts

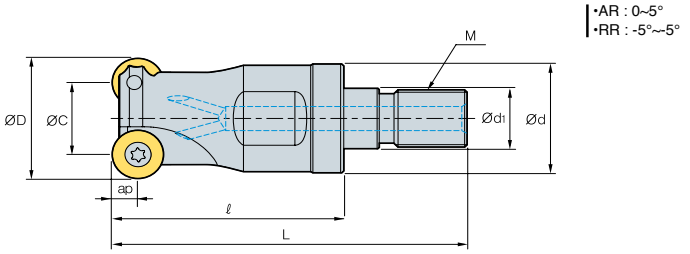
RDHW-E,F,S

RDKT-MM

Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
5000 Type	RDHW 1605M0E																	
	1605M0F																	
	1605M0S																	
	RDKT 1605M0-MM				●		●											
	1605M0-ML																	
6000 Type	RDHW 2006M0E																	
	2006M0F																	
	2006M0S																	
	RDKT 2006M0-MM				●		●											

● : Stock item

FMRMA1000/1500/2000/2500/3000/4000/5000



(inch)

Designation		⊙	øD	øC	ød	ød1	ℓ	L	M	ap
FMRMA	10031HRD-M06	1	0.312	0.118	0.256	0.374	0.984	1.575	M06	0.098
	10037HRD-M06	1	0.375	0.177	0.256	0.374	0.984	1.575	M06	0.098
	10050HRD-M06	2	0.500	0.303	0.256	0.433	0.984	1.575	M06	0.098
	10062HRD-M08	3	0.625	0.425	0.335	0.570	1.181	1.850	M08	0.098
	15037HRD-M06	1	0.375	0.138	0.256	0.374	0.984	1.575	M06	0.118
	15050HRD-M06	2	0.500	0.264	0.256	0.433	0.984	1.575	M06	0.118
	15062HRD-M08	3	0.625	0.390	0.335	0.700	1.181	1.850	M08	0.118
	15075HRD-M10	3	0.750	0.512	0.413	0.709	1.378	2.205	M10	0.118
	20062HRD-M08	2	0.625	0.350	0.335	0.570	1.181	1.850	M08	0.138
	20075HRD-M10	3	0.075	0.472	0.413	0.709	1.378	2.205	M10	0.138
	25062HRD-M08	2	0.625	0.311	0.335	0.570	1.181	1.850	M08	0.157
	25075HRD-M10	2	0.750	0.433	0.413	0.709	1.378	2.205	M10	0.157
	25100HRD-M12	3	1.000	0.685	0.492	0.886	1.772	2.717	M12	0.157
	3087HRD-M10	2	0.875	0.480	0.413	0.709	1.378	2.205	M10	0.197
	3100HRD-M12	2	1.000	0.606	0.492	0.886	1.772	2.717	M12	0.197
	3125HRD-M16	3	1.250	0.858	0.650	1.142	1.969	3,031	M16	0.197
	3150HRD-M16	4	1.500	1.106	0.650	1.142	1.969	3.031	M16	0.197
	4100HRD-M12	2	1.000	0.528	0.492	0.886	1.772	2.717	M12	0.236
	4125HRD-M16	2	1.250	0.780	0.669	1.142	1.969	3.031	M16	0.236
	4150HRD-M16	3	1.500	1.028	0.669	1.142	1.969	3.031	M16	0.236
	5150HRD-M16	2	1.500	0.870	0.669	1.142	1.969	3.031	M16	0.315

■ Parts

	Screw	Wrench	
1000 Type	FTNA0203	TW06P	–
1500 Type	FTNA02205	TW06P	–
2000 Type	FTNA02555	–	TW07S
2500 Type	FTNA0305	–	TW09S
3000 Type	FTGA03508(07)	–	TW15S
4000 Type	FTKA0410	–	TW15S
5000 Type	FTGA05139	–	TW20S

■ Available Adaptors

Designation	Available Adaptors	Designation	Available Adaptors
FMRMA 10031HRD-M06	MATA - M06	FMRMA 25075HRD-M10	MATA - M10
10037HRD-M06	MATA - M06	25100HRD-M12	MATA - M12
10050HRD-M06	MATA - M06	3087HRD-M10	MATA - M10
10062HRD-M08	MATA - M08	3100HRD-M12	MATA - M12
15037HRD-M06	MATA - M06	3125HRD-M16	MATA - M16
15050HRD-M06	MATA - M06	3150HRD-M16	MATA - M16
15062HRD-M08	MATA - M08	4100HRD-M12	MATA - M12
15075HRD-M10	MATA - M10	4125HRD-M16	MATA - M16
20062HRD-M08	MATA - M08	4150HRD-M16	MATA - M16
20075HRD-M08	MATA - M10	4150HRD-M16	MATA - M16
25062HRD-M10	MATA - M08		

Designation : FMRM1031HRD-M06
Modular Head Threading Measure size(M06)

=

Adaptor Spec. : MAT-M06-078-S038S
Adaptor Threading Measure(M06)

■ Available Inserts

RDHW-E,F,S RDKW RDCT-MA RDKT-MF RDKT-MM

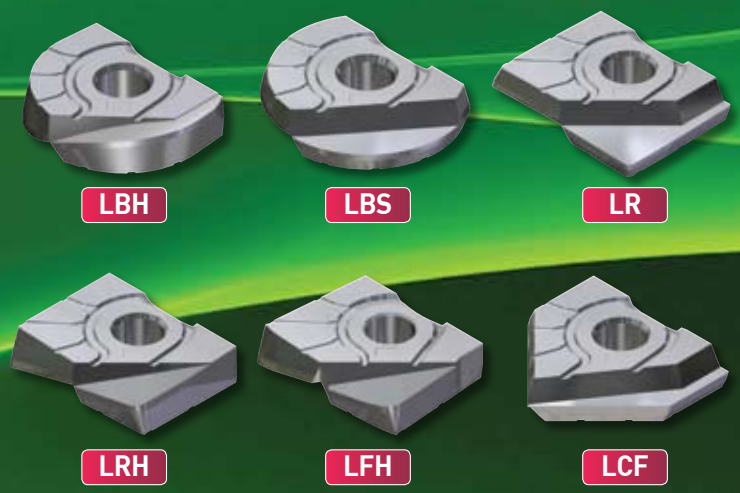
Type	Designation	Coated										Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
1000 Type	RDHW 0501M0E,F,S							●										
	RDKW 0501M0E				●													
1500 Type	RDHW 06T1M0E,F,S							●										
	RDKW 06T1M0E				●													
2000 Type	RDHW 0702M0E.F.S							●										
	RDKW 0702M0E				●													
2500 Type	RDHW 0803M0E,F,S							●										
	RDKW 0803M0E				●													
3000 Type	RDCT 10T3M0-MA																	
	RDKT 10T3M0-MF				●	●	●											
	10T3M0-MM	●	●		●	●	●	●	●									
4000 Type	RDCT 1204M0-MA																	
	RDKT 1204M0-MF				●	●	●	●										
	1204M0-MM	●	●	●	●	●	●	●	●									
5000 Type	RDHW 1605M0E,F,S																	
	RDKT 1605M0-MM					●		●										
	1605M0-ML																	

RDHW □□□M0E Stock item

● : Stock item

Indexable endmill for the finest surface finishing

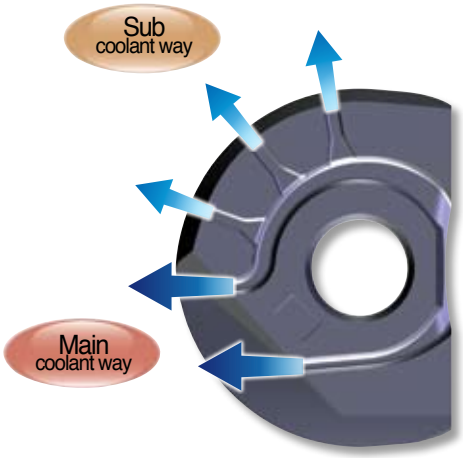
Laser Mill



High accuracy indexable endmill for mold finishing

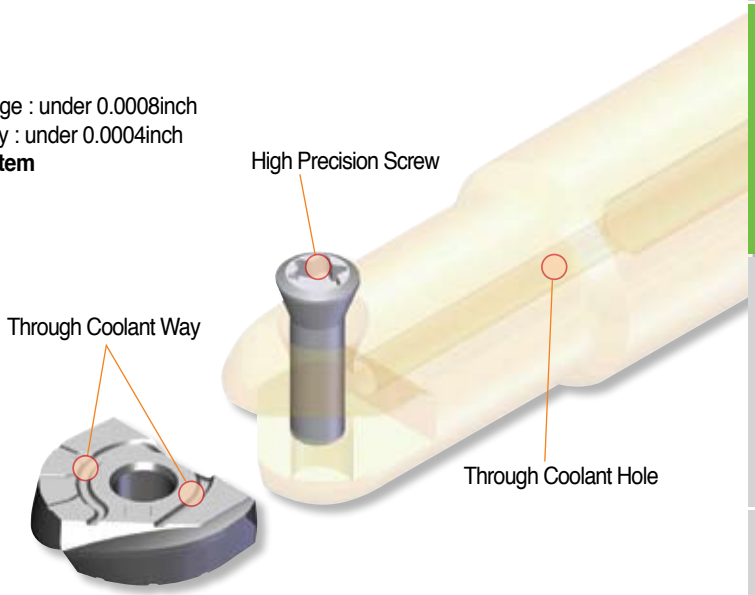
- Indexable endmill for fine finishing of molds
- Long tool life has been achieved due to the excellent cutting performance of the grade
- Optimum machining of mold has been achieved due to the MQL available system
- Easy clamping with simple screw on system
- Variety of holder line up : Steel shank, Carbide shank, Modular type

Features



High tolerance insert
- Run-out of cutting edge : under 0.0008inch
- Radius form accuracy : under 0.0004inch

Through coolant system

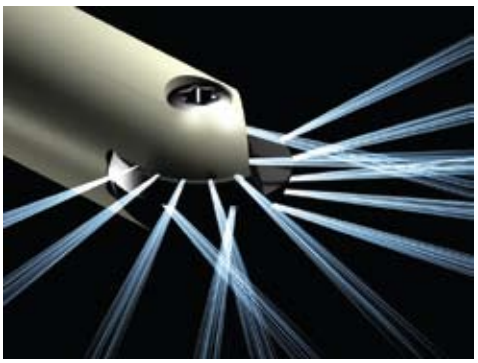


Advantages of MQL system (Minimum quantity lubricant)

LBE

LBE : 6 in 1 System

- Six types of inserts are available with one holder
- Single screw for clamping of insert : Easy clamping system
- Various types of holders
  (Steel shank, Carbide shank, Modular type)
- MQL applicable - Suitable for longer tool life & improving surface quality



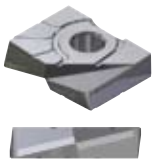
- Environmental friendly system
- Decrease coolant cost
- Lubrication of cutting edge
- Improved chip control property
  (Injection of coolant directly to the cutting edge)
- Increased tool life & improved surface quality

Ball

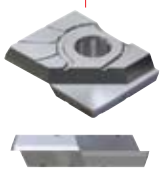
- Helical cutting edge
- Suitable for harder material with high feed
- LBH : Ball type

- Straight cutting edge
- Suitable for precise carving
- LBS : Ball type

Corner Radius

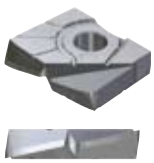


- Helical cutting edge
- Variety of nose -R
- LRH : Corner Radius type



- Straight cutting edge
- Variety of nose-R
- LR : Corner Radius type

High Feed



- Helical cutting edge
- Suitable for high feed
- LFH : High feed

Chamfer

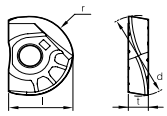
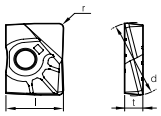
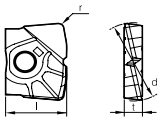
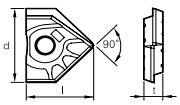
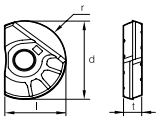
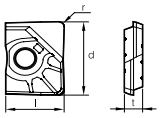
- Straight cutting edge
- Center drilling and chamfering
- LCF : Chamfer type

LBS, LR
: Order-made items

Laser Mill

Indexable endmill for the finest surface finishing

Applicable Inserts

Holders	LBH (Ball type)	LRH (Corner radius type)	LFH (High feed type)	LCF (Chamfer type)	LBS(Ball type)	LR(Corner radius type)
	 R accuracy ±0.005μm	 Corner R ±0.015μm			 R accuracy ±0.005μm	 Corner R ±0.015μm
LBEA031	LBH0312				LBS0312	
LBEA038	LBH0375	LRH0375-R015 LRH0375-R031 LRH0375-R062	LFH0375		LBS0375	LR0375-R015 LR0375-R031 LR0375-R062
LBEA050	LBH0500	LRH0500-R015 LRH0500-R031 LRH0500-R062	LFH0500		LBS0500	LR0500-R015 LR0500-R031 LR0500-R062
LBEA063	LBH0625	LRH0625-R015 LRH0625-R062 LRH0625-R031 LRH0625-R125	LFH0625	LCF0625-D90	LBS0625	LR0625-R015 LR0625-R062 LR0625-R031 LR0625-R125
LBEA075	LBH0750	LRH0750-R015 LRH0750-R062 LRH0750-R031 LRH0750-R125	LFH0750	LCF0750-D90	LBS0750	LR0750-R015 LR0750-R062 LR0750-R031 LR0750-R125
LBEA100	LBH1000	LRH1000-R015 LRH1000-R062 LRH1000-R031 LRH1000-R125	LFH1000	LCF1000-D90	LBS1000	LR1000-R015 LR1000-R062 LR1000-R031 LR1000-R125
LBEA125	LBH1250	LRH1250-R015 LRH1250-R031 LRH1250-R062	LFH1250		LBS1250	LR1250-R015 LR1250-R031 LR1250-R062

Carbide Shank-Ball, Corner R type
LBEA031-C/037-C/050-C/062-C075-C/100-C/125-C

Straight type

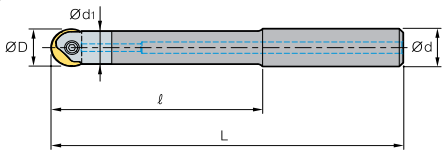


Fig. 1

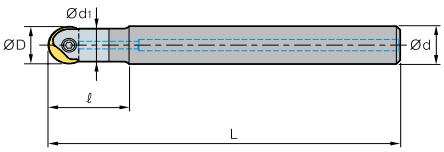


Fig. 2

(inch)

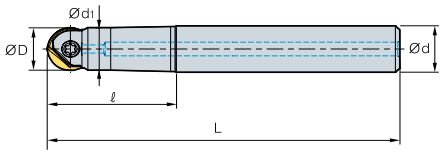
Designation		øD	ød	ød1	ℓ	L	Parts		Available Inserts(Ø)	Fig.
							Clamp screw	Wrench		
LBEA	031 315S-S031C	5/16	5/16	0.283	3.150	5.354	ETND02506F	TWP07S	5/16	1
	031 394S-S031C	5/16	5/16	0.283	3.937	6.142				1
	031 079S-S031C-512	5/16	5/16	0.283	0.787	5.118	ETND02506F	TWP07S	5/16	2
	031 079S-S031C-591	5/16	5/16	0.283	0.787	5.906				2
	038 315S-S038C	3/8	3/8	0.335	3.150	5.354	ETND0307F	TWP08S	3/8	1
	038 472S-S038C	3/8	3/8	0.335	4.724	6.929				1
	038 038S-S038C-512	3/8	3/8	0.335	0.906	5.118	ETND0307F	TWP08S	3/8	2
	038 038S-S038C-669	3/8	3/8	0.335	0.906	6.693				2
	050 394S-S050C	1/2	1/2	0.433	3.937	6.142	ETND03509	TWP10S	1/2	1
	050 591S-S050C	1/2	1/2	0.433	5.906	8.110				1
	050 098S-S050C-591	1/2	1/2	0.433	0.984	5.906	ETND03509	TWP10S	1/2	2
	050 098S-S050C-787	1/2	1/2	0.433	0.984	7.874				2
	063 394S-S063C	5/8	5/8	0.571	3.937	6.299	ETND0413	TWP15S	5/8	1
	063 591S-S063C	5/8	5/8	0.571	5.906	8.268				1
	063 118S-S063C-630	5/8	5/8	0.571	1.181	6.299	ETND0413	TWP15S	5/8	2
	063 118S-S063C-827	5/8	5/8	0.571	1.181	8.268				2
	075 472S-S075C	3/4	3/4	0.689	4.724	7.480	ETKD0516	TWP20	3/4	1
	075 669S-S075C	3/4	3/4	0.689	6.693	9.449				1
	075 138S-S075C-748	3/4	3/4	0.689	1.378	7.480	ETKD0516	TWP20	3/4	2
	075 138S-S075C-945	3/4	3/4	0.689	1.378	9.449				2
	100 551S-S100C	1	1	0.906	5.512	8.661	ETKD0620	TWP25	1	1
	100 669S-S100C	1	1	0.906	6.693	9.843				1
	100 157S-S100C-866	1	1	0.906	1.575	8.661	ETKD0620	TWP25	1	2
	100 157S-S100C-984	1	1	0.906	1.575	9.843				2
	125 551S-S125C	1 1/4	1 1/4	1.142	5.512	9.055	ETGD0825	TWP40	1 1/4	1
	125 669S-S125C	1 1/4	1 1/4	1.142	6.693	10.236				1
	125 197S-S125C-906	1 1/4	1 1/4	1.142	1.969	9.055	ETGD0825	TWP40	1 1/4	2
	125 197S-S125C1024	1 1/4	1 1/4	1.142	1.969	10.236				2

Laser Mill

Indexable endmill for the finest surface finishing

Steel Shank-Ball, Corner R type LBEA031/037/050/062/075/100/125

Taper type

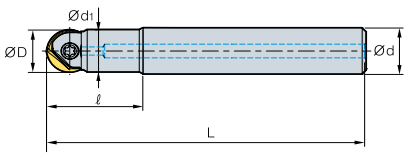


(inch)

Designation		øD	ød	ød1	ℓ	L	Parts		Available Inserts(Ø)
							Clamp screw	Wrench	
LBEA	031138T-S050	5/16	1/2	0.283	1.378	3.583	ETND02506F	TWP07S	5/16
	031217T-S050	5/16	1/2	0.283	2.165	4.370	ETND02506F	TWP07S	5/16
	031295T-S050	5/16	1/2	0.283	2.953	5.157	ETND02506F	TWP07S	5/16
	037138T-S050	3/8	1/2	0.335	1.378	3.583	ETND0307F	TWP08S	3/8
	037217T-S050	3/8	1/2	0.335	2.165	4.370	ETND0307F	TWP08S	3/8
	037217T-S050	3/8	1/2	0.335	2.953	5.157	ETND0307F	TWP08S	3/8
	050217T-S050	1/2	1/2	0.433	2.165	4.370	ETND03509	TWP10S	1/2
	050335T-S050	1/2	5/8	0.433	3.346	5.709	ETND03509	TWP10S	1/2
	062256T-S062	5/8	5/8	0.571	2.559	4.921	ETND0413	TWP15S	5/8
	062394T-S075	5/8	3/4	0.571	3.937	6.693	ETND0413	TWP15S	5/8
	075453T-S0100	3/4	1	0.689	2.953	5.709	ETKD0516	TWP20	3/4
	075453T-S0100	3/4	1	0.689	4.528	7.677	ETKD0516	TWP20	3/4
	100354T-S100	1	1	0.906	3.543	6.693	ETKD0620	TWP25	1
	100532T-S125	1	1 1/4	0.906	5.315	8.858	ETKD0620	TWP25	1
	125413T-S125	1 1/4	1 1/4	1.142	4.134	7.677	ETGD0825	TWP40	1 1/4
	125630T-S125	1 1/4	1 1/4	1.142	6.299	9.843	ETGD0825	TWP40	1 1/4

Steel Shank-Ball, Corner R type LBEA050/062/075/100/125

Straight type



(inch)

Designation		øD	ød	ød1	ℓ	L	Parts		Available Inserts(Ø)
							Clamp screw	Wrench	
LBEA	050138S-S050	1/2	1/2	0.433	1.378	3.583	ETND03509	TWP10S	1/2
	062138S-S062	5/8	5/8	0.571	1.378	3.74	ETND0413	TWP15S	5/8
	075158S-S075	3/4	3/4	0.689	1.575	4.331	ETKD0516	TWP20	3/4
	100177S-S100	1	1	0.906	1.772	4.921	ETKD0620	TWP25	1
	125217S-S125	1 1/4	1 1/4	1.142	2.165	5.709	ETGD0825	TWP40	1 1/4

Carbide Shank-Ball, Corner R type
LREA-C/037-C/050-C062-C/075-C/100-C/125-C

Straight type

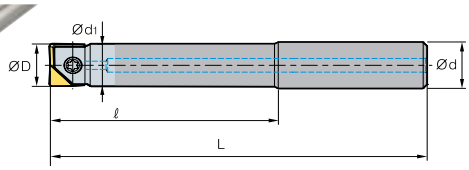


Fig. 1

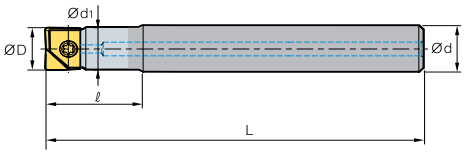


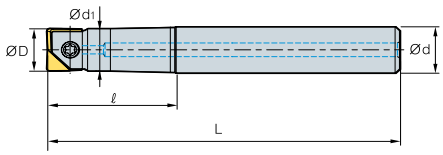
Fig. 2

(inch)

Designation		øD	ød	ød1	ℓ	L	Parts		Available Inserts(Ø)	Fig.
							Clamp screw	Wrench		
LREA	037315S-S037C	3/8	3/8	0.335	3.150	5.354	ETND0307F	TWP08S	3/8	1
	037472S-S037C	3/8	3/8	0.335	4.724	6.929	ETND0307F	TWP08S	3/8	1
	037091S-S037C-512	3/8	3/8	0.335	0.906	5.118	ETND0307F	TWP08S	3/8	2
	037091S-S037C-660	3/8	3/8	0.335	0.906	6.693	ETND0307F	TWP08S	3/8	2
	050 394S-S050C	1/2	1/2	0.433	3.937	6.142	ETND03509	TWP10S	1/2	1
	050 591S-S050C	1/2	1/2	0.433	5.906	8.110	ETND03509	TWP10S	1/2	1
	050 098S-S050C-591	1/2	1/2	0.433	0.984	5.906	ETND03509	TWP10S	1/2	2
	050 098S-S050C-787	1/2	1/2	0.433	0.984	7.874	ETND03509	TWP10S	1/2	2
	062394S-S062C	5/8	5/8	0.571	3.937	6.299	ETND0413	TWP15S	5/8	1
	062591S-S062C	5/8	5/8	0.571	5.906	8.268	ETND0413	TWP15S	5/8	1
	062118S-S062C-630	5/8	5/8	0.571	1.181	6.299	ETND0413	TWP15S	5/8	2
	062118S-S062C-827	5/8	5/8	0.571	1.181	8.268	ETND0413	TWP15S	5/8	2
	075 472S-S075C	3/4	3/4	0.689	4.724	7.480	ETKD0516	TWP20	3/4	1
	075 669S-S075C	3/4	3/4	0.689	6.693	9.449	ETKD0516	TWP20	3/4	1
	075 138S-S075C-748	3/4	3/4	0.689	1.378	7.480	ETKD0516	TWP20	3/4	2
	075 138S-S075C-945	3/4	3/4	0.689	1.378	9.449	ETKD0516	TWP20	3/4	2
	100 551S-S100C	1	1	0.906	5.512	8.661	ETKD0620	TWP25	1	1
	100 669S-S100C	1	1	0.906	6.693	9.843	ETKD0620	TWP25	1	1
	100 158S-S100C-866	1	1	0.906	1.575	8.661	ETKD0620	TWP25	1	2
	100 158S-S100C-984	1	1	0.906	1.575	9.843	ETKD0620	TWP25	1	2
	125 551S-S125C	1 1/4	1 1/4	1.142	5.512	9.055	ETGD0825	TWP40	1 1/4	1
	125 669S-S125C	1 1/4	1 1/4	1.142	6.693	10.236	ETGD0825	TWP40	1 1/4	1
	125 197S-S125C-906	1 1/4	1 1/4	1.142	1.969	9.055	ETGD0825	TWP40	1 1/4	2
	125 197S-S125C1024	1 1/4	1 1/4	1.142	1.969	10.236	ETGD0825	TWP40	1 1/4	2

Carbide Shank-Ball, Corner R type
LREA-C/037-C/050-C062-C/075-C/100-C/125-C

Straight type



(inch)

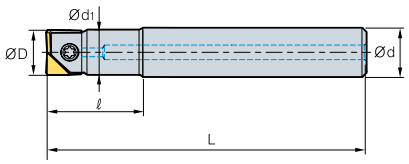
Designation		øD	ød	ød1	ℓ	L	Parts		Available Inserts(Ø)
							Clamp screw	Wrench	
LREA	037098T-S050	3/8	1/2	0.335	0.984	4.370	ETND0307F	TWP08S	3/8
	037197T-S050	3/8	1/2	0.335	1.969	5.906	ETND0307F	TWP08S	3/8
	050236T-S050	1/2	1/2	0.433	2.362	6.299	ETND03509	TWP10S	1/2

Laser Mill

Indexable endmill for the finest surface finishing

Steel Shank-Corner R type LREA050/062/075/100/125

Straight type

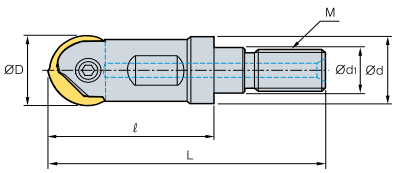


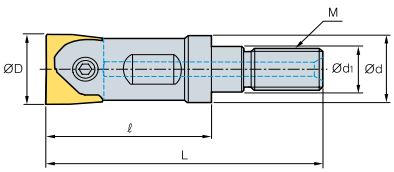
(inch)

Designation		øD	ød	ød1	ℓ	L	Parts		Available Inserts(Ø)
							Clamp screw	Wrench	
LREA	050118S-S050	1/2	1/2	0.433	1.181	4.370	ETND0307F	TWP08S	1/2
	062197S-S062	5/8	5/8	0.571	1.969	5.157	ETND0413	TWP15S	5/8
	062236S-S062	5/8	5/8	0.571	2.362	6.299	ETND0413	TWP15S	5/8
	075236S-S075	3/4	3/4	0.689	2.362	5.709	ETKD0516	TWP20	3/4
	075276S-S075	3/4	3/4	0.689	3.150	7.087	ETKD0516	TWP20	3/4
	100276S-S100	1	1	0.906	2.756	5.709	ETKD0620	TWP20	1
	100394S-S100	1	1	0.906	3.937	8.858	ETKD0620	TWP20	1
	125315S-S125	1 1/4	1 1/4	1.142	2.756	6.299	ETGD0825	TWP40	1 1/4
	125394S-S125	1 1/4	1 1/4	1.142	3.937	8.858	ETGD0825	TWP40	1 1/4

LBEA-MHD

Straight type





(inch)

Designation		M	øD	L	ℓ	ød	ød1	Parts		Available Inserts(Ø)
								Clamp screw	Wrench	
LBEA	0375-MHD-M06	M06	3/8	1.575	0.984	0.335	0.256	ETND0307F	TWP08S	3/8
	0500-MHD-M06	M06	1/2	1.575	0.984	0.433	0.268	ETND03509	TWP10S	1/2
	0625-MHD-M08	M08	5/8	1.850	1.181	0.571	0.335	ETND0413	TWP15S	5/8
	0750-MHD-M10	M10	3/4	2.205	1.378	0.689	0.413	ETKD0516	TWP20	3/4
	1000-MHD-M12	M12	1	2.717	1.772	0.906	0.492	ETKD0620	TWP25	1
	1250-MHD-M16	M16	1 1/4	0.625	1.969	1.142	0.650	ETGD0825	TWP40	1 1/4

Designation : LBEA1250-MHD-M16
Modular Head Threading Measure size(M16)

=

Adaptor Spec. : MATA-M16-216-S125T
Adaptor Threading Measure(M16)

Endmill for optimized medium and roughing

GBE

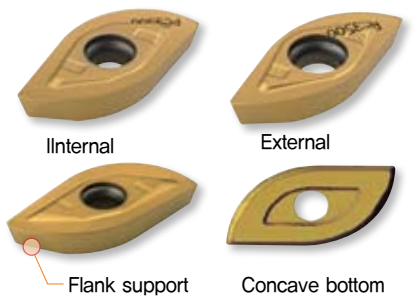
Indexable Ballnose Endmill for Molds in medium & roughing applications

- Indexable Ballnose Endmill for Molds in medium & roughing applications
- Helical cutting edge and high accuracy cutting edge
- Optimized mold machining process with our internal coolant system
- Able to adjust to medium processing in middle & big roughing mold process
- Various holder in normal & long style holders

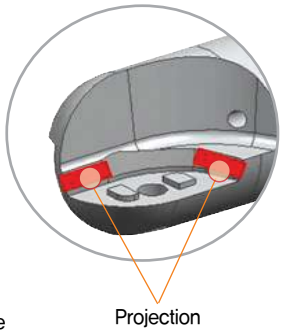
GBE

Endmill for optimized medium and roughing

Features

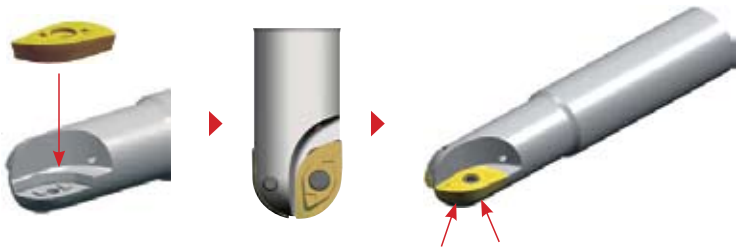


- Ability to handle high accuracy & large depth of cut applications.
  - Run-out : within 0.002inch
  - R accuracy : within 0.002inch
- Various diameters (Ø0.630, Ø0.790, Ø0.980, Ø1.180, Ø1.260, Ø1.530, Ø1.970)
- Minimal cutting resistance due to Helical cutting edge
- Anti-rotate of insert due to concave bottom & Stable setting by flank support
- Long tool life & better processing due to 2 cutting inserts
- Better tool life with new grade



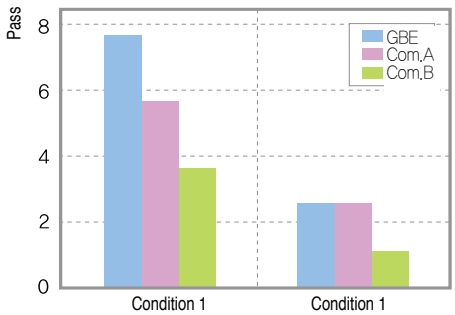
- Various diameters(Ø0.630, Ø0.790, Ø0.980, Ø1.180, Ø1.260, Ø1.530, Ø1.970)
- Improved chip treatment with internal coolant(cutting edge portion)
- Long tool life & better processing
- Easy insert setting with projection part and prevent vibration during processing

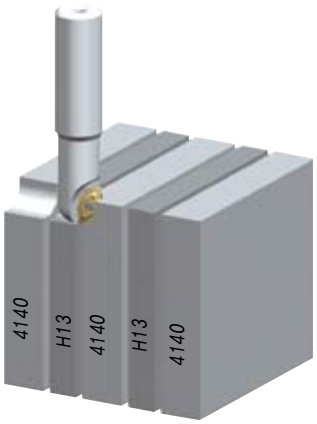
How to set insert



1. Set the insert to the holder projection seat
2. Push the insert into the red arrow direction and screw with wrench

Cutting performance test





Cutting condition

Class.	Cutting speed(vc)	Feed(fz)	Depth of cut(ap)	Depth of cut(ae)	Workpiece	Etc.
Condition 1	492sfm	0.006ipt	0.197inch	0.315inch	H13(HRC50) + 4140(HRC20)	Dry
Condition 1	492sfm	0.004ipt	0.315inch	0.315inch		

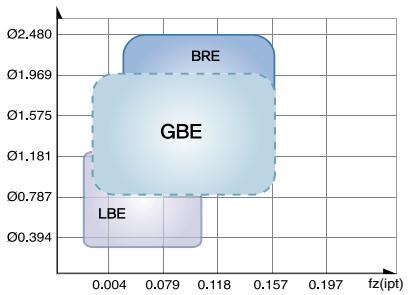
Inserts / Parts

Insert				Parts			
Type							
Dia.	Internal I/S	External I/S	External main I/S	Screw		Wrench	
				Int./Ext. type	Ext. main type	Int./Ext. type	Ext. main type
Ø0.630	ZPET080M-MM	ZPET080S-MM	-	FTKA02555S	-	TW08S	-
Ø0.787	ZPET100M-MM	ZPET100S-MM	SPMT221	FTKA0307	ETNA02506	TW09S	TW07P
Ø0.984	ZPET125M-MM	ZPET125S-MM	SPMT221	FTKA0409	ETNA02506	TW15S	TW07P
Ø1.181	ZPET150M-MM	ZPET150S-MM	SDMT322-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S
Ø1.260	ZPET160M-MM	ZPET160S-MM	SDMT322-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S
Ø1.575	ZPET200M-MM	ZPET200S-MM	SDMT432-MM	FTGA0614	ETNA0511	TW20-100	TW25S
Ø1.969	ZPET250M-MM	ZPET250S-MM	SDMT432-MM	FTGA0818	ETNA0511	TW25S	TW25S

Recommended Cutting Condition

Workpiece	Machining type	Hardness (HRC)	vc(sfm)	fz(ipt)	ap(inch)	ae(inch)
Carbon, Alloy steel	Flank	Under 25	520~820	0.020~0.012	0.012~0.020D	0.008~0.012D
	Groove		300~650	0.020~0.012	0.012~0.020D	-
	Deep flank		520~820	0.020~0.039	0.039~0.059D	0.004~0.008D
Carbon, Alloy steel	Flank	Under 45	300~650	0.020~0.012	0.012~0.020D	0.008~0.012D
	Groove		300~520	0.020~0.012	0.012~0.020D	-
	Deep flank		300~650	0.020~0.039	0.039~0.059D	0.004~0.008D
Mold Alloy steel	Flank	30~40	300~650	0.012~0.012	0.012~0.020D	0.008~0.012D
	Groove		300~520	0.012~0.012	0.012~0.020D	-
	Deep flank		300~650	0.012~0.039	0.039~0.059D	0.004~0.008D
Cast iron(GCGCC)	Flank	20~30	150~300	0.028~0.012	0.012~0.020D	0.008~0.012D
	Groove		150~300	0.028~0.012	0.012~0.020D	-
	Deep flank		150~300	0.028~0.039	0.039~0.059D	0.004~0.008D
Heat treatment steel	Flank	50~60	130~320	0.012~0.012	0.012~0.020D	0.008~0.012D
	Groove		130~320	0.012~0.012	0.012~0.020D	-
	Deep flank		130~320	0.012~0.039	0.039~0.059D	0.004~0.008D

Line-up for Indexable ball Endmill



Type	Application				
	Machining Dignity	Machining Effeiency	Machining Dia. equivalence	Economical	Flank Machining with LongEdge
Laser Mill	●	○	◐	○	○
GBE	◐	●	◐	◐	●
BRE	○	●	●	●	●

●:Very Good ◐:Good ○:Normal

GBE

Endmill for optimized medium and roughing

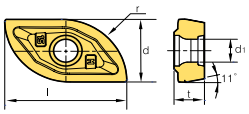
Test Result for wear resistance

Cutting conditioin		Wear resistance photos				
				GBE	Com.A	Com.B
Cutting time : 4 Pass	• **Workpiece** KP4M(HRC33) • **Condition** vc = 920sfm, fz = 0.01ipt, ap = 0.2~0.4inch, ae = 0.2~0.4inch, vf = 58.5sfm, n = 2,971rpm, Dry • **Tool** Holder : GBE118-S125	Top	Internal			
			External			
		Flank	Internal			
			External			
				GBE	Com.A	Com.B
Cutting time : 4 Pass	• **Workpiece** STD11(HRC20) • **Condition** vc = 820sfm, fz = 0.008ipt, ap = 0.2inch, ae = 0.2inch, vf = 42.45sfm, n = 2,653rpm, Dry • **Tool** Holder : GBE118-S125	Top	Internal			
			External			
		Flank	Internal			
			External			

Applicable Inserts

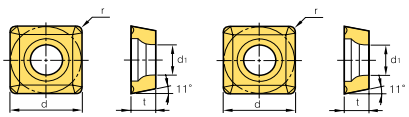
ZPET-M(Internal)

ZPET-S(External)



SPMT

SPMT-MM



(inch)

Designation		l	d	t	r	d_1
ZPET	080M-MM	0.630	0.315	0.138	0.315	0.114
	100M-MM	0.748	0.409	0.177	0.394	0.134
	125M-MM	0.945	0.508	0.209	0.492	0.177
	150M-MM	1.102	0.606	0.276	0.591	0.220
	160M-MM	1.122	0.646	0.276	0.630	0.220
	200M-MM	1.496	0.815	0.315	0.787	0.260
	250M-MM	1.890	1.020	0.374	0.984	0.339
ZPET	080S-MM	0.591	0.260	0.315	0.315	0.114
	100S-MM	0.610	0.331	0.394	0.394	0.134
	125S-MM	0.807	0.421	0.492	0.492	0.177
	150S-MM	0.984	0.488	0.591	0.591	0.220
	160S-MM	1.024	0.528	0.630	0.630	0.220
	200S-MM	1.260	0.657	0.787	0.787	0.260
	250S-MM	1.575	0.815	0.984	0.984	0.339
SPMT	221	-	1/4	0.125	1/64	0.110
SDMT	322-MM	-	1/2	0.187	1/32	0.220
SPMT	432-MM	-	1/2	7/32	1/32	0.220

GBEA(Single Edge)

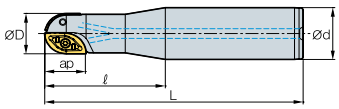


Fig. 1

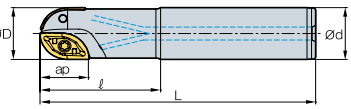


Fig. 2

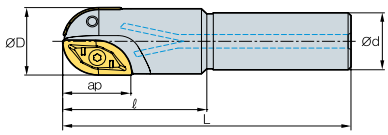


Fig. 3

(inch)

Designation		size					Available Inserts			Parts				Fig.
										Screw		Wrench		
		ØD	Ød	ℓ	L	ap	Internal	External	Ext. main	Int./Ext. type	Ext. main type	Int./Ext. type	Ext. main type	
GBEA	063-S075	0.630	0.750	1.95	5.10	0.6	ZPET080M-MM	ZPET080S-MM	-	FTKA02555S	-	TW08S	-	1
	063-L075	0.630	0.750	3.50	7.90	0.6	ZPET080M-MM	ZPET080S-MM	-	FTKA02555S	-	TW08S	-	1
	079-S100	0.787	1.000	2.35	5.50	0.7	ZPET100M-MM	ZPET100S-MM	-	FTKA0307	-	TW09S	-	1
	079-L100	0.787	1.000	3.10	9.80	0.7	ZPET100M-MM	ZPET100S-MM	-	FTKA0307	-	TW09S	-	1
	098-S125	0.984	1.250	2.70	5.90	0.9	ZPET125M-MM	ZPET125S-MM	-	FTKA0409	-	TW15S	-	1
	098-L125	0.984	1.250	3.90	11.80	0.9	ZPET125M-MM	ZPET125S-MM	-	FTKA0409	-	TW15S	-	1
	118-S125	1.181	1.250	2.70	6.30	1	ZPET150M-MM	ZPET150S-MM	-	FTGA0511-P	-	TW20-100	-	2
	118-L125	1.181	1.250	4.70	13.80	1	ZPET150M-MM	ZPET150S-MM	-	FTGA0511-P	-	TW20-100	-	2
	126-S125	1.260	1.250	2.70	6.30	1.1	ZPET160M-MM	ZPET160S-MM	-	FTGA0511-P	-	TW20-100	-	2
	126-L125	1.260	1.250	4.70	13.80	1.1	ZPET160M-MM	ZPET160S-MM	-	FTGA0511-P	-	TW20-100	-	2
	157-S150	1.575	1.500	3.90	7.90	1.4	ZPET200M-MM	ZPET200S-MM	-	FTGA0614	-	TW20-100	-	2
	157-L150	1.575	1.500	5.90	13.80	1.4	ZPET200M-MM	ZPET200S-MM	-	FTGA0614	-	TW20-100	-	2
	197-S150	1.969	1.500	3.90	7.90	1.8	ZPET250M-MM	ZPET250S-MM	-	FTGA0818	-	TW25-100	-	3
	197-L150	1.969	1.500	3.90	13.80	1.8	ZPET250M-MM	ZPET250S-MM	-	FTGA0818	-	TW25-100	-	3

GBEA-M(Multi Edge)

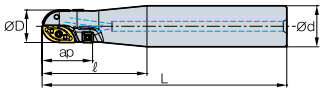


Fig. 4

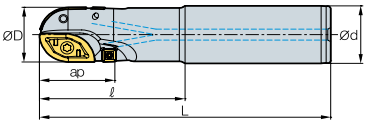


Fig. 5

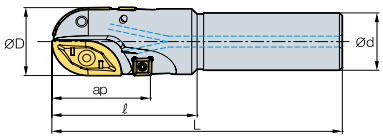


Fig. 6

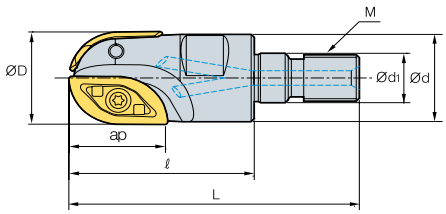
(inch)

Designation		size					Available Inserts			Parts				Fig.
										Screw		Wrench		
		ØD	Ød	ℓ	L	ap	Internal	External	Ext. main	Int./Ext. type	Ext. main type	Int./Ext. type	Ext. main type	
GBEA	079M-S100	0.787	1.000	2.75	5.90	1.1	ZPET100M-MM	ZPET100S-MM	SPMT060304	FTKA0307	ETNA02506	TW09S	TW07P	4
	079M-L100	0.787	1.000	1.75	9.80	1.1	ZPET100M-MM	ZPET100S-MM	SPMT060304	FTKA0307	ETNA02506	TW09S	TW07P	4
	098M-S125	0.984	1.250	3.10	7.10	1.3	ZPET125M-MM	ZPET125S-MM	SPMT060304	FTKA0409	ETNA02506	TW15S	TW07P	4
	098M-L125	0.984	1.250	3.10	11.80	1.3	ZPET125M-MM	ZPET125S-MM	SPMT060304	FTKA0409	ETNA02506	TW15S	TW07P	4
	118M-S125	1.181	1.250	3.90	7.90	1.6	ZPET150M-MM	ZPET150S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	4
	118M-L125	1.181	1.250	3.90	13.80	1.6	ZPET150M-MM	ZPET150S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	4
	126M-S125	1.260	1.250	3.90	7.90	1.6	ZPET160M-MM	ZPET160S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	5
	126M-L125	1.260	1.250	3.90	13.80	1.6	ZPET160M-MM	ZPET160S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	5
	157M-S150	1.575	1.500	3.90	7.90	2.2	ZPET200M-MM	ZPET200S-MM	SPMT120408-MM	FTGA0614	ETNA0511	TW20-100	TW20S	5
	157M-L150	1.575	1.500	3.90	13.80	2.2	ZPET200M-MM	ZPET200S-MM	SPMT120408-MM	FTGA0614	ETNA0511	TW20-100	TW20S	5
	197M-S150	1.969	1.500	3.90	7.90	2.6	ZPET250M-MM	ZPET250S-MM	SPMT120408-MM	FTGA0818	ETNA0511	TW25-100	TW20S	6
	197M-L150	1.969	1.500	3.90	13.80	2.6	ZPET250M-MM	ZPET250S-MM	SPMT120408-MM	FTGA0818	ETNA0511	TW25-100	TW20S	6

GBE

Endmill for optimized medium and roughing

GBEMA



(inch)

Designation	size							Available Inserts	
	øD	ød	ød1	ℓ	L	M	ap	Internal	Internal
GBEMA 063-M08	0.630	0.591	0.335	1.2	1.9	M08	0.6	ZPET080M-MM	ZPET080S-MM
079-M10	0.787	0.732	0.413	1.4	2.2	M10	0.7	ZPET100M-MM	ZPET100S-MM
098-M12	0.984	0.913	0.492	1.8	2.7	M12	0.9	ZPET125M-MM	ZPET125S-MM
118-M16	1.181	1.094	0.669	1.8	3.0	M16	1.0	ZPET150M-MM	ZPET150S-MM
126-M16	1.260	1.173	0.669	2.0	3.0	M16	1.1	ZPET160M-MM	ZPET160S-MM

■ Parts

Screw		Wrench		Applicable cutter Dia.
Int./Ext. type	Ext. main type	Int./Ext. type	Ext. main type	
FTKA02555	-	TW08S	-	Ø0.63
FTKA0307	ETNA02506	TW09S	TW07P	Ø0.787
FTKA0409	ETNA02506	TW15S	TW07P	Ø0.984
FTGA511-P	ETNA0408	TW20-100	TW15S	Ø1.181
FTGA511-P	ETNA0408	TW20-100	TW15S	Ø1.260

Designation : GBEMA**126**-M16
Modular Head Threading Measure size(M16)

=

Adaptor Spec. : MATA-M16-354-S125S-C
Adaptor Threading Measure(M16)

■ Available Inserts (Int./Ext.)

ZPET-M(Int.) ZPET-S(Ext.) SPMT(Ext. main) SPMT-MM(Ext. main)

Designation		Coated			
		NCM325	PC3500	PC5300	PC3545
ZPET	**080M-MM**				
	100M-MM		●		
	125M-MM		●		
	150M-MM		●		
	160M-MM		●		
	200M-MM		●		
	250M-MM				
ZPET	**080S-MM**				
	100S-MM		●		
	125S-MM				
	150S-MM		●		
	160S-MM		●		
	200S-MM		●		
	250S-MM				
SPMT	**221**	●	●		
SDMT	**322-MM**		●		
SPMT	**432-MM**		●		●

● : Stock item

Extended cutting edge endmill

BRE

- **Cutting Performance** : Good chip control & Superior cutting performance with optimal cutting edge line
- **High rigidity body** : Better tool life and quti-bresakage with special surface treatement on the holder
  Easy to set and good durability with TCRX screw
  Good chip control with our 3D flute design & improved external quality
- **Insert** : Able to apply tool in high speed & feed applications due to special grade which has wear & breakage resistance Stable cutting performance with high cutting edge toughness & high rake angle chip breaker

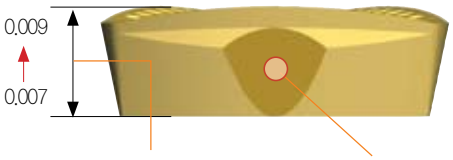
BRE

Extended cutting edge endmill

Features

- Good chip flow
- Good heat emission

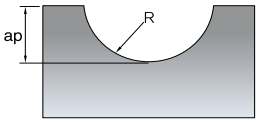
Multi edge holder ISO View



- Wider insert ensures cutting edge strength
- Better setting force by recess

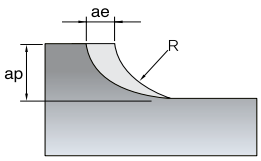
BRE machining type for roughing & recommended cutting condition

■ Machining Type



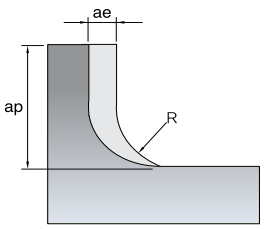
ap=0.3D–0.5D

Machining Type 1



ae=0.2D–0.3D
ap=0.3D–0.5D

Machining Type 2

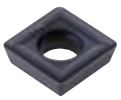


ae=0.1D–0.5D
ap=1.2D–1.5D

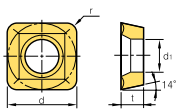
Machining Type 3

Workpiece	Machining Type	Velocity(sfm)	Feed(ipt)	Grade
Carbon / Alloy steel	1	390~720	0.004~0.016	NCM325
	2	390~720	0.008~0.016	NCM325
	3	330~590	0.004~0.012	NCM325
Alloy steel	1	330~655	0.004~0.016	NCM325
	2	330~655	0.008~0.016	NCM325
	3	260~525	0.004~0.012	NCM325
Tool steel	1	260~490	0.004~0.012	NCM325
	2	260~490	0.006~0.014	NCM325
	3	195~395	0.004~0.012	NCM325
High hardness material (HRC35-45)	1	195~395	0.004~0.012	NCM325
	2	195~395	0.004~0.012	NCM325
	3	165~260	0.004~0.008	NCM325
Cast iron	1	330~590	0.008~0.020	NCM320K
	2	330~590	0.008~0.020	NCM320K
	3	260~525	0.006~0.016	NCM320K

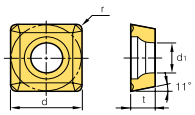
Applicable Inserts



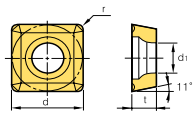
SDMT-MM



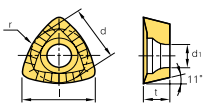
SPMT



SPMT-MM



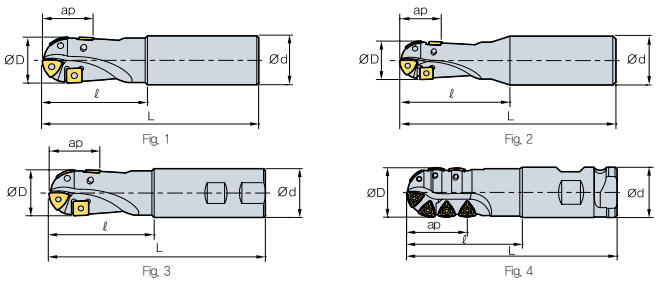
ZPMT-R-MM



(inch)

Designation		l	d	t	r	d_1
SDMT	**322-MM**	-	3/8	1/8	0.031	0.173
SPMT	**221**	-	1/4	0.125	1/64	0.110
	432-MM	-	1/2	0.187	1/32	0.220
	442-MMN	-	1/2	7/32	1/32	0.220
ZDMT	**08T2-R10-MM**	21/64	0.266	0.126	0.394	0.110
	110312.5R-MM	27/64	43/128	0.144	0.492	0.110
	130416R-MM	33/64	53/128	0.187	0.630	0.173
	160520R-MM	81/128	1/2	0.219	-	0.220
	160525R-MM	81/128	1/2	0.219	-	0.220
	160531.5R-MM	11/16	1/2	0.219	-	0.220

BREA



•AR : 0°~10°
•RR : -3°~0°

(inch)

Designation		ØD	Ød	ℓ	L	ap	Available Inserts Main	Available Inserts Ext. main	Parts Screw	Parts Wrench	Fig.	lbs
BREA	079-S	0.787	3/4	0.787	4.921	0.03	ZDMT080310R-MM	SPMT060304	ETNA02506	TW07P	1	2.20
	079-M	0.787	3/4	0.787	5.906	0.03					1	2.20
	079-L	0.787	1	0.787	7.874	0.03					2	4.40
	079-SL	0.787	1	0.787	4.921	0.03					3	6.60
	098-S	0.984	1	0.906	5.906	0.04	ZDMT110312.5R-MM	SPMT060304	ETNA02506	TW07P	1	2.20
	098-M	0.984	1	0.906	6.890	0.04					1	2.20
	098-L	0.984	1 1/4	0.906	7.874	0.04					2	4.40
	098-SL	0.984	1	0.906	5.315	0.04					3	6.60
	126-S	1.260	1 1/4	1.220	6.890	0.05	ZDMT130416R-MM	SDMT090308-MM	ETNA0408	TW15S	1	2.20
	126-M	1.260	1 1/4	1.220	7.874	0.05					1	2.20
	126-L	1.260	1 1/4	1.220	9.843	0.05					1	2.20
	126-SL	1.260	1 1/4	1.220	5.906	0.05					3	6.60
	157-S	1.575	1 1/2	1.614	6.890	0.06	ZPMT160520R-MM	SPMT120408-MM SPMT120508-MMN	ETNA0511	TW20-100	1	2.20
	157-M	1.575	1 1/2	1.614	7.874	0.06					1	2.20
	157-L	1.575	1 1/2	1.614	9.843	0.06					1	2.20
	157-SL	1.575	1 1/2	1.614	6.299	0.06					3	6.60
	197-S	1.969	1 1/2	1.772	7.874	0.07	ZPMT160525R-MM	SPMT120408-MM SPMT120508-MMN	ETNA0511	TW20-100	1	2.20
	197-L	1.969	1 1/2	1.772	11.811	0.07					1	2.20
	197-SL	1.969	1 1/2	1.772	9.843	0.07					3	6.60
	248-S	2.480	1 1/2	2.047	7.874	0.08	ZPMT160531.5R-MM	SPMT120408-MM SPMT120508-MMN	ETNA0511	TW20-100	1	2.20
	248-L	2.480	1 1/2	2.047	11.811	0.08					1	2.20
	248-SL	2.480	1 1/2	2.047	9.843	0.08					3	6.60
	157XR-SC157	1.575	1.500	4.3	7.9	2.1	ZPMT160520R-MM		ETNA0511	TW20-100	4	0.06
	157XR-LC157	1.575	1.500	5.9	9.8	2.1					4	0.07
	197XR-SC200	1.969	2.000	4.3	7.9	2.2	ZPMT160525R-MM		ETNA0511	TW20-100	4	0.01
	197XR-LC200	1.969	2.000	5.9	9.8	2.2	ZPMT160525R-MR				4	0.19

■ Recommended Cutting Condition

Machining • Slotting-A • Shouldering(general cutting edge)-B • Shouldering(long cutting edge)-C

Workpiece		Hardness	Cutting Condition vc(sfm)	Cutting Condition fz(ipt)	Mach-ining
P	Carbon steel, Alloy steel (S50, SCM440)	180 ~ 280HB	860(590~1020)	0.005 (0.004~0.006)	A
				0.006 (0.004~0.008)	B
			790(530~960)	0.004 (0.002~0.006)	C
		280 ~ 380HB	630(430~760)	0.004 (0.002~0.006)	A
				0.006 (0.004~0.008)	B
			560(400~660)	0.004 (0.002~0.006)	C
	Pre-Hardened (NAK55)	35 ~ 45HRC	560(360~630)	0.004 (0.002~0.006)	A
				0.006 (0.004~0.008)	B
			530(360~590)	0.004 (0.002~0.006)	C
	High alloy steel (STD, STT)	≤300HB	630(430~760)	0.004 (0.002~0.006)	A
				0.006 (0.004~0.008)	B
			530(360~590)	0.004 (0.002~0.006)	C
M	Stainless steel (STS4202J)	≤260HB	860(590~1020)	0.004 (0.002~0.006)	A
				0.006 (0.004~0.008)	B
			790(530~960)	0.004 (0.002~0.006)	C
K	General cast iron (GC250)	Tensile strength ≤350MPa	860(590~1020)	0.006 (0.004~0.008)	A
				0.006 (0.004~0.008)	B
			790(530~960)	0.004 (0.002~0.006)	C
	Ductile cast iron (GCD450)	Tensile strength 360~500MPa	660(460~790)	0.004 (0.002~0.006)	A
				0.006 (0.004~0.008)	B
			630(430~760)	0.004 (0.002~0.006)	C
	Ductile cast iron (GCD450)	Tensile strength 500~800MPa	560(330~660)	0.004 (0.002~0.006)	A
				0.006 (0.004~0.008)	B
			490(360~590)	0.004 (0.002~0.006)	C
H	Hardened steel (STD, STT)	45 ~ 60HRC	360(230~430)	0.006 (0.004~0.008)	A
				0.006 (0.004~0.008)	B
			330(200~400)	0.004 (0.002~0.006)	C

■ Available Inserts

SDMT-MM SPMT SPMT-MM ZDMT-R-MM

Designation		Coated NCM325	PC3500	PC5300	PC3525	PC3545	PC6510
SDMT	322-MM		●				
SPMT	221	●	●				
	432-MM		●			●	
	442-MMN						
ZDMT	08T2-R10-MM		●				
	110312.5R-MM		●				
	130416R-MM		●				
	160520R-MM		●				
	160525R-MM		●				
	160531.5R-MM		●				

● : Stock item

■ Parts

Screw	Wrench	
ETNA02506*, ETNA0408**, ETNA0511	TW15S**, TW20S	TW07P*

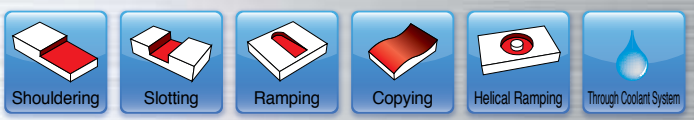
*BREA 20, BREA 25 **BREA 32

High Feed Mill for Aluminum

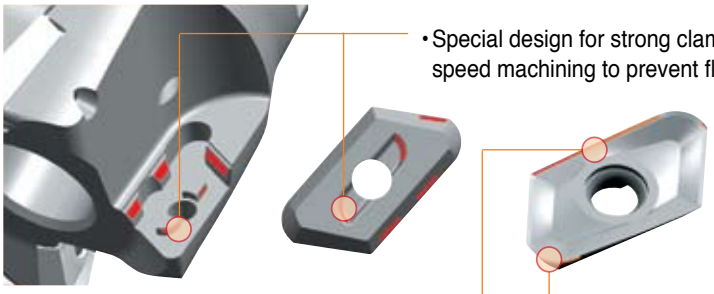
Pro-X Mill

Good chip flow and less build up edge have been acquired due to buffed surface of insert

- High rake angle of insert provides good surface finish and low cutting load
- Specially designed for high speed machining of aluminum
- Suitable for square shouldering and curved surface machining



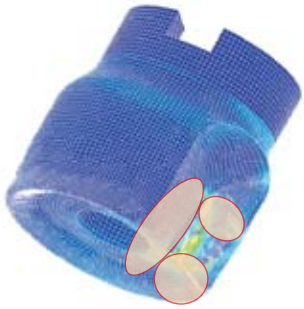
Clamping system for high speed



• Special design for strong clamping at high speed machining to prevent flying out

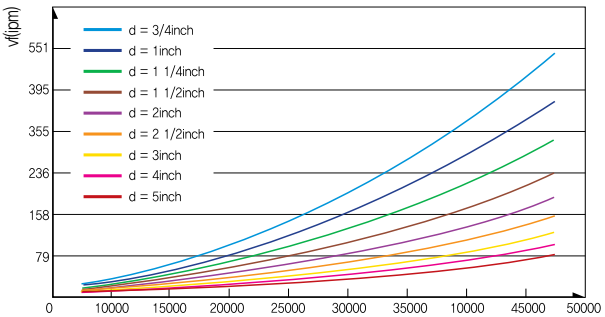
• Chip Breaker 3 dimensional design for low cutting load

• Various inserts corner radius is available (R0.016 ~ R0.197)



• Clamping design as per FEM analysis
• Strong clamping of insert

Centrifugal force as per RPM



※ Screw Torque = 4N · m, Indexable insert : 6.8g

• **Marking**
- Designation
- Max. RPM

■ Max. RPM as per cutting diameter

Cutting diameterØD(mm)		Max. RPM	
5000 type	6000 type	n(min⁻¹)	vc(sfm)
3/4	-	15,000	7,564
1	1	32,600	8,445
1 1/4	1 1/4	28,800	9,549
1 1/2	1 1/2	25,800	10,693
2	2	23,000	11,916
2 1/2	2 1/2	20,500	13,382
3	3	18,200	15,087
4	4	16,300	16,890
5	5	14,600	18,910

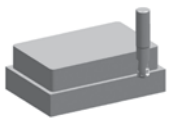
※ In case of actual machining accidental breakage of insert or tool could happen even under the written RPM special cover or door is necessary to prevent damage from broken insert or broken tool

■ Recommended Cutting Condition

Workpiece		Cutting Speed vc(sfm)	Feed fz(ipt)
Aluminum alloy	Rm < 280 MPa	3,960	0.012
	Rm < 280 MPa	3,300	0.010
Copper alloy	Long chipping	1,320	0.008
Thermo plastic	-	1,150	0.006
Aluminum alloy	Si < 12%	3,300	0.010
	Si ≥12%	-	-
Copper alloy	Short chipping	1,650	0.008
Magnesium alloy	-	1,480	0.008
Duroplastics	-	680	0.006

Application Examples

PAXSA5125HR-A

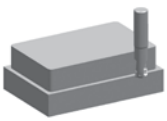


• Workpiece : A6061
• Cutting condition

	vc(sfm)	fz(ipt)	ap(inch)	ae(inch)
Inch	4290	0.008	0.32	0.5D

• Chip evacuation and good surface roughness

PAXCA5200HR-A



• Workpiece : A6061
• Cutting conditionon

	vc(sfm)	fz(ipt)	ap(inch)	ae(inch)
Inch	4290	0.01	0.4	0.5D

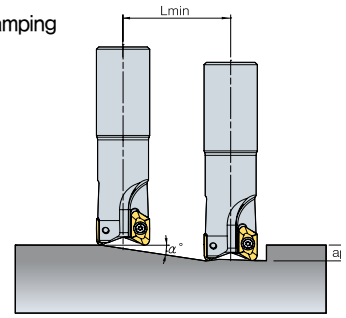
• Long tool life and no built-up edge & chipping

Pro-X Mill

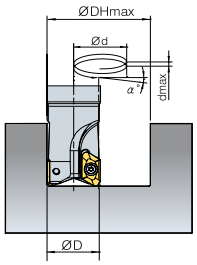
High Feed Mill for Aluminum

Pro-X Mill Ramping & Helical cutting technical data

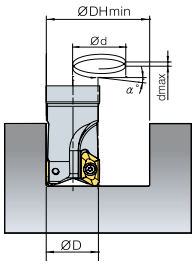
1. Ramping



2. Blind hole Helical cutting



3. Thru hole Helical cutting



(inch)

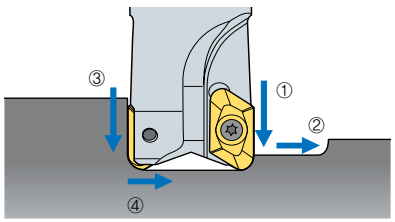
Designation		ØD	Ramping		Blind hole Helical cutting				Thru hole Helical cutting	
			α°(max)	Lmin	ØDHmax	dmax	ØDHmin	dmax	ØDHmin	dmax
PAXSA	5075HR	0.75	9.1	2.47	1.264	0.008	1.185	0.007	0.988	0.006
	5100HR	1.00	11.9	1.86	1.764	0.015	1.685	0.014	1.488	0.012
	5125HR	1.25	9.0	2.49	2.264	0.014	2.185	0.014	1.988	0.012
	5150HR	1.50	7.2	3.11	2.764	0.014	2.685	0.013	2.488	0.012
PAXCA	5200HR	2.00	5.2	4.36	3.764	0.013	3.685	0.013	3.488	0.012
	5250HR	2.50	4.0	5.61	4.764	0.013	4.685	0.013	4.488	0.012
	5300HR	3.00	3.3	6.86	5.764	0.013	5.685	0.013	5.488	0.012
	5400HR	4.00	2.4	9.36	7.764	0.013	7.685	0.013	7.488	0.012
	5500HR	5.00	1.9	11.86	9.764	0.013	9.685	0.013	9.488	0.012
PAXSA	6100HR	1.00	9.0	2.48	1.764	0.011	1.685	0.011	1.488	0.009
	6125HR	1.25	6.8	3.31	2.264	0.011	2.185	0.010	1.988	0.009
	6150HR	1.50	10.8	2.07	2.764	0.021	2.685	0.020	2.488	0.019
PAXCA	6200HR	2.00	7.7	2.91	3.764	0.020	3.685	0.020	3.488	0.019
	6250HR	2.50	6.0	3.74	4.764	0.020	4.685	0.019	4.488	0.019
	6300HR	3.00	4.9	4.57	5.764	0.020	5.685	0.019	5.488	0.019
	6400HR	4.00	3.6	6.24	7.764	0.019	7.685	0.019	7.488	0.019
	6500HR	5.00	2.9	7.91	9.764	0.019	9.685	0.019	9.488	0.019

• Lmin : when ap=0.394inch

• Lmin : Minimum inclination cutting length
α° : Max. rampig angle
ap : Depth of cut

$$Lmin = \frac{ap}{\tan \alpha^\circ} \text{ (inch)}$$

Plunging, Slotting, Drilling technical data



1. When drilling, grooving machining sequence is ① → ② → ③ → ④
2. When drilling, grooving, decrease the feed and cutting speed 30%~50% from the recommended data

• Cutting condition for drilling

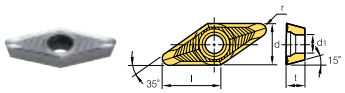
(inch)

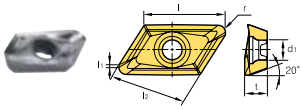
Holder	ap	
	5000 Type	6000 Type
Ø3/4	0.315	-
Ø1	0.157	0.433
Ø1 1/4	0.157	0.236
Ø1 1/2~5	0.157	0.236

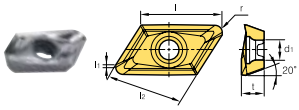
(inch)

Insert	ap
XETK19	0.157
XETK25	0.236

Applicable Inserts





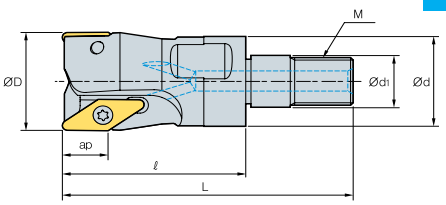


Designation		l	l2	l1	d	t	r	d1
VDKT	21.52.5N-MA	7/16	-	-	1/4	0.113	3/64	0.110
	11T220N-MA	0.264	-	-	1/4	0.113	0.079	0.110
XEKT	19M504FR-MA	0.709	0.646	0.055	-	0.197	0.016	0.173
	19M508FR-MA	0.709	0.646	0.039	-	0.197	0.031	0.173
	19M512FR-MA	0.709	0.646	0.024	-	0.197	0.047	0.173
	19M516FR-MA	0.689	0.646	0.020	-	0.197	0.063	0.173
	19M518FR-MA	0.689	0.646	0.020	-	0.197	0.071	0.173
	19M520FR-MA	0.689	0.646	0.020	-	0.197	0.079	0.173
	19M530FR-MA	0.669	0.646	0.028	-	0.197	0.118	0.173
	19M532FR-MA	0.669	0.646	0.020	-	0.197	0.126	0.173
	19M540FR-MA	0.650	0.646	0.020	-	0.197	0.157	0.173
	19M550FR-MA	0.630	0.646	0.016	-	0.197	0.197	0.173

Designation		l	l2	l1	d	t	r	d1
XEKT	250604FR-MA	0.965	0.862	0.059	-	0.250	0.016	0.236
	250608FR-MA	0.965	0.862	0.047	-	0.250	0.031	0.236
	250612FR-MA	0.965	0.862	0.031	-	0.250	0.047	0.236
	250616FR-MA	0.965	0.862	0.016	-	0.250	0.063	0.236
	250620FR-MA	0.945	0.862	0.020	-	0.250	0.079	0.236
	250630FR-MA	0.933	0.862	0.024	-	0.250	0.118	0.236
	250632FR-MA	0.933	0.862	0.016	-	0.250	0.126	0.236
	250640FR-MA	0.898	0.862	0.047	-	0.250	0.157	0.236
	250650FR-MA	0.894	0.862	0.016	-	0.250	0.197	0.236

PAMA2000

AA 0°
•AR : 7°~10°
•RR : -21°~-9°



(inch)

Designation			ØD	Ød	Ød1	ℓ	L	M	ap	lbs
PAMA	2050HR-M06	1	0.500	0.433	0.256	1.299	1.870	M06	0.315	0.02
	2062HR-M08	2	0.625	0.571	0.335	1.417	2.087	M08	0.315	0.04
	2075HR-M10	2	0.750	0.709	0.413	1.417	2.205	M10	0.315	0.06
	2100HR-M12	3	1.000	0.886	0.492	1.614	2.480	M12	0.315	0.10
	2125HR-M16	4	1.250	1.122	0.669	1.772	2.717	M16	0.315	0.18

Note) Through coolant type between Ø1/2~Ø1 1/2

■ Parts

Screw	Wrench
ETNA02505*, ETNA02506	TW 07S

*PAMA2050·2062

■ Available Adaptors

Designation		Available Adaptors
PAMA	2050HR-M06	MATA - M06
	2062HR-M08	MATA - M08
	2075HR-M10	MATA - M10
	2100HR-M12	MATA - M12
	2125HR-M16	MATA - M16

Designation : PAMA2125HR-M16
Modular Head Threading Measure size(M16)
=
Adaptor Spec. : MATA-M16-354-S125S-C
Adaptor Threading Measure(M16)

■ Available Inserts

VDKT-MA

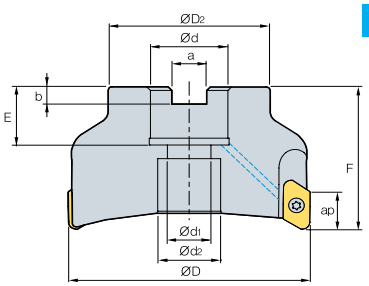
Designation	Uncoated
	H01
VDKT 21.52.5N-MA	●

● : Stock item

Pro-X Mill

High Feed Mill for Aluminum

PAXCA5000/6000



AA 0°
•AR : 8°~17.5°
•RR : -9.5°~-5°

(inch)

Designation		◎	øD	øD2	ød	ød1	ød2	a	b	E	F	Max rpm	ap	lbs
PAXCA	5150HR-A,B	3	1.5	1.417	0.50	0.287	0.433	0.252	0.169	0.630	1.5	25,800	0.67	0.15
	5200HR-A,B	4	2.0	1.772	0.75	0.433	0.630	0.315	0.220	0.787	1.75	23,000	0.67	0.30
	5250HR-A,B	5(4)	2.5	1.772	0.75	0.433	0.630	0.315	0.220	0.787	1.75	20,500	0.67	0.56
	5300HR-A,B	5	3.0	2.205	1.00	0.551	0.827	0.374	0.236	0.866	2	18,200	0.67	1.00
	5400HR-A,B	6	4.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.5	16,300	0.67	2.30
	5500HR-A,B	7	5.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.5	14,600	0.67	3.20
	6200HR-A,B	2	2.0	1.772	0.50	0.287	0.433	0.252	0.169	0.630	1.75	23,000	0.91	0.32
	6250HR-A,B	3	2.5	1.772	0.75	0.433	0.630	0.315	0.220	0.787	2	20,500	0.91	0.53
	6300HR-A,B	4	3.0	2.205	1.00	0.551	1.260	0.374	0.236	0.866	2	18,200	0.91	0.73
	6400HR-A,B	5	4.0	2.874	1.25	0.709	1.024	0.510	0.319	0.866	2.5	16,300	0.91	1.70
	6400HR-A,B	5	4.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.5	16,300	0.91	1.90
	6500HR-A,B	6	5.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.5	14,600	0.91	3.06

•A type : Insert NoseR 0.016~0.126 B type : Insert NoseR 0.157~0.197
Note) Through coolant type between Ø1 1/2~Ø5

■ Parts

	Screw	Wrench
5000Type	PTKA0408	TW 15S
6000Type	FTGA0513-P	TW 20-100

■ Available Inserts

XEKT-MA

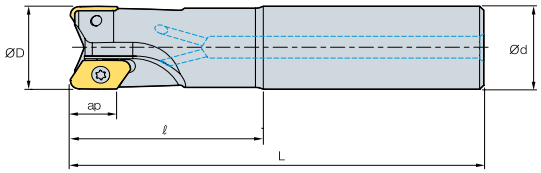
Type	Designation		Coated PD2000	Uncoated H01
5000Type	XEKT	19M504FR-MA	●	●
		19M508FR-MA	●	●
		19M512FR-MA	●	●
		19M516FR-MA		●
		19M518FR-MA		
		19M520FR-MA	●	●
		19M530FR-MA		●
		19M532FR-MA	●	●
		19M540FR-MA	●	●
		19M550FR-MA	●	●
6000Type	XEKT	250604FR-MA		●
		250608FR-MA		●
		250612FR-MA		
		250616FR-MA		
		250620FR-MA		
		250630FR-MA		
		250632FR-MA		
		250640FR-MA		
		250650FR-MA		●

● : Stock item

PAXSA5000/6000

AA 0°

•AR : 5°~10°
•RR : -14°~-5°



(inch)

Designation		ØD	Ød	ℓ	L	Max rpm	ap	lbs
PAXSA 5075HR-A,B	1	0.75	0.75	2.36	5.12	15,000	0.67	0.53
5100HR-A,B	2	1	1	2.36	5.51	32,600	0.67	0.88
5125HR-A,B	2	1.25	1.25	2.76	5.91	28,800	0.67	1.63
5150HR-A,B	3	1.5	1.5	2.76	6.30	25,800	0.67	2.21
6100HR-A,B	1	1	1	2.36	5.51	32,600	0.91	0.93
6125HR-A,B	1	1.25	1.25	2.76	5.91	28,800	0.91	1.68
6150HR-A,B	2	1.5	1.5	2.76	6.30	25,800	0.91	2.65

•A type : Insert NoseR 0.016~0.126, B type : Insert NoseR 0.157~0.197
Note) Through coolant type between Ø3/4~Ø1 1/2

■ Parts

	Screw	Wrench
5000Type	PTKA0408	TW 15S
6000Type	FTGA0510-P(Ø1.0~Ø1.25) FTGA0513-P(Ø1.5)	TW 20-100

■ Available Inserts

XEKT-MA

Type	Designation		Coated PD2000	Uncoated H01
5000Type	**XEKT**	**19M504FR-MA**	●	●
		19M508FR-MA	●	●
		19M512FR-MA	●	●
		19M516FR-MA		●
		19M518FR-MA		
		19M520FR-MA	●	●
		19M530FR-MA		●
		19M532FR-MA	●	●
		19M540FR-MA	●	●
		19M550FR-MA	●	●
6000Type	**XEKT**	**250604FR-MA**		●
		250608FR-MA		●
		250612FR-MA		
		250616FR-MA		
		250620FR-MA		
		250630FR-MA		
		250632FR-MA		
		250640FR-MA		
		250650FR-MA		●

● : Stock item

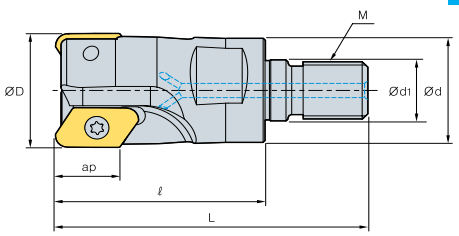
Pro-X Mill

High Feed Mill for Aluminum

PAXMA5000

AA 0°

•AR : 6°~8°
•RR : -7°~5°



(inch)

Designation		ØD	Ød	Ød1	ℓ	L	M	ap	lbs
PAXMA 5100HR-A,B-M12	2	1.00	0.906	0.492	2.165	3.110	M12	0.67	0.12
5125HR-A,B-M16	2	1.25	1.142	0.669	2.165	3.228	M16	0.67	0.24
5150HR-A,B-M16	3	1.50	1.142	0.669	2.165	3.228	M16	0.67	0.32

•A type : Insert NoseR 0.016~0.126, B type : Insert NoseR 0.157~0.197
Note) Through coolant type between Ø1~Ø1 1/2

■ Parts

Screw	Wrench
PTKA0407/PTKA0408	TW 15S

■ Available Adaptors

Designation		Available Adaptors
PAXMA	5100HR-A,B-M12	MATA - M12
	5125HR-A,B-M16	MATA - M16
	5150HR-A,B-M16	MATA - M16

Designation : PAXMA5125HR-M16
Modular Head Threading Measure size(M16)
=
Adaptor Spec. : MATA-M16-354-S125S-C
Adaptor Threading Measure(M16)

■ Available Inserts

XEKT-MA

Designation		Coated	Uncoated
		PD2000	H01
XEKT	19M504FR-MA	●	●
	19M508FR-MA	●	●
	19M512FR-MA	●	●
	19M516FR-MA		●
	19M518FR-MA		
	19M520FR-MA	●	●
	19M530FR-MA		●
	19M532FR-MA	●	●
	19M540FR-MA	●	●
	19M550FR-MA	●	●

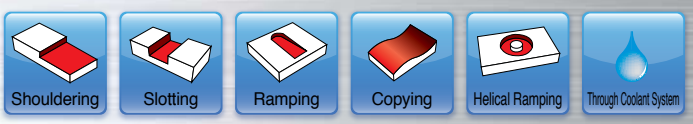
● : Stock item

Multi-functional Endmill for Aluminum

Pro-A Mill

Mirroring on the chip breaker ensures excellent chip removal and reduces built-up edge

- High rake angle ensures excellent finishing and reduces cutting resistance
- For shouldering, curved surface and slanted shouldering
- Multi functional aluminum machining tool
- Buffed on top face of insert ensure good chip control and reduces built-up edge
- Small size modular type for aluminum machining
- Various line up of modular system for aluminum machining
- Improved cooling effect and chip control by through coolant system even deep pocket machining



Pro-A Mill

Multi-functional Endmill for Aluminum

Pro-A Mill series

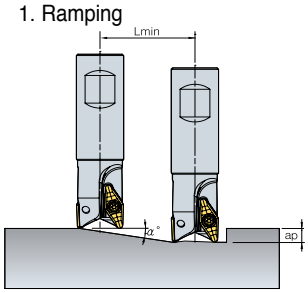
Series	Pro-A mill		Through coolant system
Pro-A 2000		•Modular : Ø1/2~Ø1 1/2 •Shank : Ø1/2~Ø1 1/2 •Insert : VDKT11T210N-MA VDKT11T220N-MA	O
Pro-A 4000		•cutter : Ø1 1/2~Ø4 •Shank : Ø5/8~Ø1 1/2 •Insert : VCKT220530N-MA	O

Recommended Cutting Condition

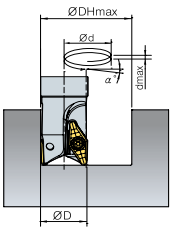
Workpiece		Cutting speed vc(sfm)
Aluminum alloy	Rm 〈 280 MPa Rm 〉 280 MPa	3,300 2,640
Copper alloy	Long chip	830
Thermo plastic	-	990
Aluminum alloy	Si 〈 12%	2,640
Copper alloy	Short chip	1,320
Magnesium alloy	-	1,320
Duroplastics	-	500

Pro-A Mill Ramping & Helical cutting technical data

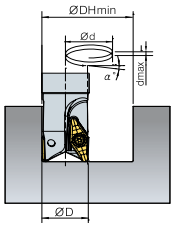
1. Ramping



2. Blind hole Helical cutting



3. Thru hole Helical cutting



(inch)

Designation	ØD	Ramping		Blind hole Helical cutting				Thru hole Helical cutting	
		α°(max)	Lmin	ØDHmax	dmax	ØDHmin	dmax	ØDHmin	dmax
PAS2012HS	0.5	11.1	1.606	0.961	0.007	0.882	0.007	0.803	0.006
PAS2016HS	0.625	12.6	1.404	1.211	0.011	1.132	0.010	1.053	0.009
PAS2020HS	0.75	10.3	1.738	1.461	0.010	1.382	0.010	1.303	0.009
PAS2025HS	1	7.5	2.404	1.961	0.010	1.882	0.010	1.803	0.009
PAS2032HS	1.25	5.9	3.071	2.461	0.010	2.382	0.010	2.303	0.009
PAS2042HS	1.5	4.8	3.738	2.961	0.010	2.882	0.010	2.803	0.009
PAS4032HS	1.25	18.9	0.921	2.461	0.033	2.382	0.032	2.303	0.031
PAS4040HS	1.5	15.7	1.121	2.961	0.033	2.882	0.032	2.803	0.031
PAS4050HS	2	11.7	1.521	3.961	0.032	3.882	0.032	3.803	0.031
PAS4063HS	2.5	9.3	1.921	4.961	0.032	4.882	0.032	4.803	0.031
PAC(M)4080HS	3	7.7	2.321	5.961	0.032	5.882	0.031	5.803	0.031
PAC(M)4100HS	4	5.8	3.121	7.961	0.032	7.882	0.031	7.803	0.031

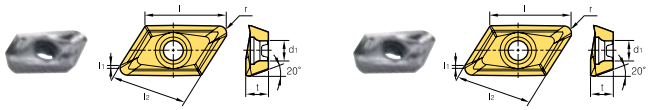
•Lmin : when ap=0.315inch

•Lmin : Minimum inclination cutting length
α° : Max. rampig angle
ap : Depth of cut

$$Lmin = \frac{ap}{\tan \alpha^\circ} \text{ (inch)}$$

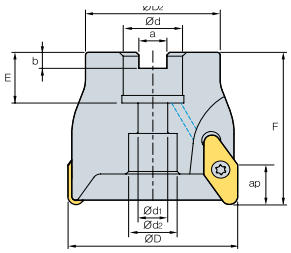
Applicable Inserts

Designation	l	l2	l1	d	t	r	d1
VCKT 43.57.6N-MA	0.614	-	-	1/2	0.219	0.118	0.220
VDKT 21.52.5N-MA	7/16	-	-	1/4	0.113	3/64	0.110
11T220N-MA	0.264	-	-	1/4	0.113	0.079	0.110
XEKT 19M504FR-MA	0.709	0.646	0.055	-	0.197	0.016	0.173
19M508FR-MA	0.709	0.646	0.039	-	0.197	0.031	0.173
19M512FR-MA	0.709	0.646	0.024	-	0.197	0.047	0.173
19M516FR-MA	0.689	0.646	0.020	-	0.197	0.063	0.173
19M518FR-MA	0.689	0.646	0.020	-	0.197	0.071	0.173
19M520FR-MA	0.689	0.646	0.020	-	0.197	0.079	0.173
19M530FR-MA	0.669	0.646	0.028	-	0.197	0.118	0.173
19M532FR-MA	0.669	0.646	0.020	-	0.197	0.126	0.173
19M540FR-MA	0.650	0.646	0.020	-	0.197	0.157	0.173
19M550FR-MA	0.630	0.646	0.016	-	0.197	0.197	0.173



Designation	l	l2	l1	d	t	r	d1
XEKT 250604FR-MA	0.965	0.862	0.059	-	0.250	0.016	0.236
250608FR-MA	0.965	0.862	0.047	-	0.250	0.031	0.236
250612FR-MA	0.965	0.862	0.031	-	0.250	0.047	0.236
250616FR-MA	0.965	0.862	0.016	-	0.250	0.063	0.236
250620FR-MA	0.945	0.862	0.020	-	0.250	0.079	0.236
250630FR-MA	0.933	0.862	0.024	-	0.250	0.118	0.236
250632FR-MA	0.933	0.862	0.016	-	0.250	0.126	0.236
250640FR-MA	0.898	0.862	0.047	-	0.250	0.157	0.236
250650FR-MA	0.894	0.862	0.016	-	0.250	0.197	0.236

PACA4000



AA 0°
•AR : 0°
•RR : -3°

(inch)

Designation			øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs
PACA	4150R	3	1.50	1.378	0.50	0.287	0.406	0.250	0.169	0.787	2.165	0.591	0.20
	4200R	3	2.00	1.772	0.75	0.433	0.630	0.313	0.220	0.787	2.165	0.591	0.37
	4250R	4	2.50	1.969	0.75	0.433	0.630	0.313	0.220	0.787	2.362	0.591	0.64
	4300R	4	3.00	2.205	1.00	0.551	0.827	0.375	0.248	0.984	2.362	0.591	0.83
	4400R	5	4.00	2.874	1.25	0.708	1.024	0.500	0.319	0.866	2.362	0.591	1.60

Note) Through coolant type between Ø1 1/2~Ø4

■ Parts

Screw	Wrench
FTNC04509 (Ø1.50) FTNC04511	TW 20S

■ Available Inserts

VCKT-MA

Designation	Uncoated
	H01
VCKT 43.57.6N-MA	●

● : Stock item

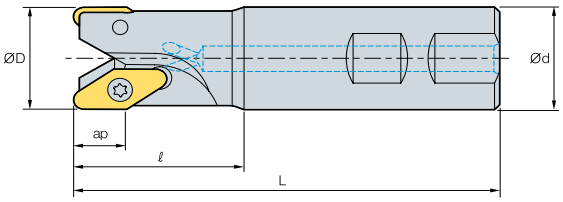
Pro-A Mill

Multi-functional Endmill for Aluminum

PASA2000/4000

AA 0°

•AR : 0°~7°
•RR : -21°~3°



(inch)

Designation		⊙	ØD	Ød	ℓ	L	ap	lbs
PASA	2050R	1	0.500	0.625	0.984	3.346	0.315	0.10
	2062R	2	0.625	0.625	0.984	3.543	0.315	0.11
	2075R	2	0.750	0.750	1.181	3.937	0.315	0.20
	2100R	3	1.000	1.000	1.378	4.528	0.315	0.36
	2125R	4	1.250	1.250	1.575	4.921	0.315	0.66
	2150R	5	1.500	1.250	1.654	5.118	0.315	0.84
	4125R	2	1.25	1.25	4.921	1.969	0.590	0.60
	4150R	3	1.5	1.25	5.512	1.969	0.590	0.80

Note) Through coolant type between Ø1/2~Ø1 1/2

■ Parts

	Screw	Wrench
2000Type	ETNA02505*	TW 07S
	ETNA02506	
4000Type	FTNC04509	TW 20S

* PASA 2050 · 2062

■ Available Inserts

VDKT-MA	VCKT-MA

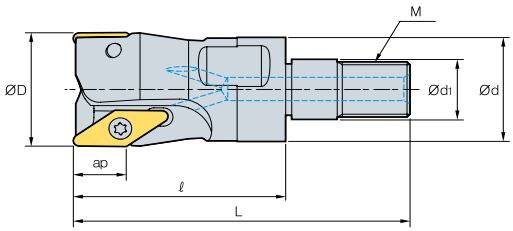
Type	Designation	Uncoated H01
2000Type	VDKT 21.52.5N-MA	●
	11T220N-MA	
4000Type	VCKT 43.57.6N-MA	●

● : Stock item

PAMA2000

AA 0°

•AR : 7°~10°
•RR : -21°~-9°



(inch)

Designation			ØD	Ød	Ød1	ℓ	L	M	ap	lbs
PAMA	2050HR-M06	1	0.500	0.433	0.256	1.299	1.870	M06	0.315	0.02
	2062HR-M08	2	0.625	0.571	0.335	1.417	2.087	M08	0.315	0.04
	2075HR-M10	2	0.750	0.709	0.413	1.417	2.205	M10	0.315	0.06
	2100HR-M12	3	1.000	0.886	0.492	1.614	2.480	M12	0.315	0.10
	2125HR-M16	4	1.250	1.122	0.669	1.772	2.717	M16	0.315	0.18

Note) Through coolant type between Ø1/2~Ø1 1/2

■ Parts

Screw	Wrench
ETNA02505*, ETNA02506	TW 07S

*PAM2012 · 2016

■ Available Adaptors

Designation		Available Adaptors
PAMA	2050HR-M06	MATA - M06
	2062HR-M08	MATA - M08
	2075HR-M10	MATA - M10
	2100HR-M12	MATA - M12
	2125HR-M16	MATA - M16

Designation : PAMA2125HR-M16
Modular Head Threading Measure size(M16)
=
Adaptor Spec. : MATA-M16-354-S125S-C
Adaptor Threading Measure(M16)

■ Available Inserts

VDKT-MA

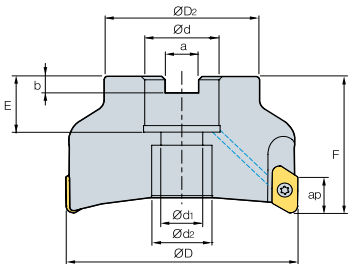
Designation		Uncoated
		H01
VDKT	21.52.5N-MA	●
	11T220N-MA	

● : Stock item

Pro-A Mill

Multi-functional Endmill for Aluminum

PAXCA5000/6000



AA 0°

- AR : 8°~17.5°
- RR : -9.5°~ -5°

(inch)

Designation			ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	Max rpm	ap	lbs
PAXCA	5150HR-A,B	3	1.5	1.417	0.50	0.287	0.433	0.252	0.169	0.630	1.5	25,800	0.67	0.15
	5200HR-A,B	4	2.0	1.772	0.75	0.433	0.630	0.315	0.220	0.787	1.75	23,000	0.67	0.30
	5250HR-A,B	5(4)	2.5	1.772	0.75	0.433	0.630	0.315	0.220	0.787	1.75	20,500	0.67	0.56
	5300HR-A,B	5	3.0	2.205	1.00	0.551	0.827	0.374	0.236	0.866	2	18,200	0.67	1.00
	5400HR-A,B	6	4.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.5	16,300	0.67	2.30
	5500HR-A,B	7	5.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.5	14,600	0.67	3.20
	6200HR-A,B	2	2.0	1.772	0.50	0.287	0.433	0.252	0.169	0.630	1.75	23,000	0.91	0.32
	6250HR-A,B	3	2.5	1.772	0.75	0.433	0.630	0.315	0.220	0.787	2	20,500	0.91	0.53
	6300HR-A,B	4	3.0	2.205	1.00	0.551	1.260	0.374	0.236	0.866	2	18,200	0.91	0.73
	6400HR-A,B	5	4.0	2.874	1.25	0.709	1.024	0.510	0.319	0.866	2.5	16,300	0.91	1.70
	6400HR-A,B	5	4.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.5	16,300	0.91	1.90
	6500HR-A,B	6	5.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.5	14,600	0.91	3.06

Note) A type : Insert NoseR 0.016~0.126 B type : Insert NoseR 0.157~0.197

■ Parts

	Screw	Wrench
5000Type	PTKA0408	TW 15S
6000Type	FTGA0513-P	TW 20-100

■ Available Inserts

XEKT-MA

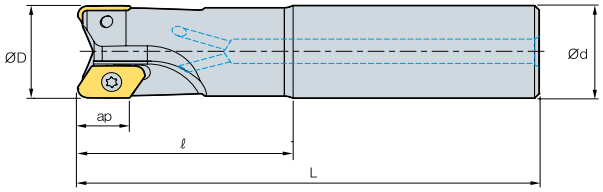
Type	Designation	Coated PD2000	Uncoated H01
5000Type	XEKT 19M504FR-MA	●	●
	19M508FR-MA	●	●
	19M512FR-MA	●	●
	19M516FR-MA		●
	19M518FR-MA		
	19M520FR-MA	●	●
	19M530FR-MA		●
	19M532FR-MA	●	●
	19M540FR-MA	●	●
	19M550FR-MA	●	●
6000Type	XEKT 250604FR-MA		●
	250608FR-MA		●
	250612FR-MA		
	250616FR-MA		
	250620FR-MA		
	250630FR-MA		
	250632FR-MA		
	250640FR-MA		
	250650FR-MA		●

● : Stock item

PAXSA5000/6000

AA 0°

- AR : 5°~10°
- RR : -14°~ -5°



(inch)

Designation		⊙	øD	ød	ℓ	L	Max rpm	ap	lbs
PAXSA	5075HR-A,B	1	0.75	0.75	2.36	5.12	15,000	0.67	0.53
	5100HR-A,B	2	1	1	2.36	5.51	32,600	0.67	0.88
	5125HR-A,B	2	1.25	1.25	2.76	5.91	28,800	0.67	1.63
	5150HR-A,B	3	1.5	1.5	2.76	6.30	25,800	0.67	2.21
	6100HR-A,B	1	1	1	2.36	5.51	32,600	0.91	0.93
	6125HR-A,B	1	1.25	1.25	2.76	5.91	28,800	0.91	1.68
	6150HR-A,B	2	1.5	1.5	2.76	6.30	25,800	0.91	2.65

Note) A type : Insert NoseR 0.016~0.126, B type : Insert NoseR 0.157~0.197

■ Parts

	Screw	Wrench
5000Type	FTGA0510-P (Ø0.984~Ø1.260)	TW 20-100
6000Type	FTGA0513-P (Ø1.575)	TW 20-100

■ Available Inserts

XEKT-MA

Type	Designation	Coated PD2000	Uncoated H01
5000Type	XEKT 19M504FR-MA	●	●
	19M508FR-MA	●	●
	19M512FR-MA	●	●
	19M516FR-MA		●
	19M518FR-MA		
	19M520FR-MA	●	●
	19M530FR-MA		●
	19M532FR-MA	●	●
	19M540FR-MA	●	●
	19M550FR-MA	●	●
6000Type	XEKT 250604FR-MA		●
	250608FR-MA		●
	250612FR-MA		
	250616FR-MA		
	250620FR-MA		
	250630FR-MA		
	250632FR-MA		
	250640FR-MA		
	250650FR-MA		●

● : Stock item

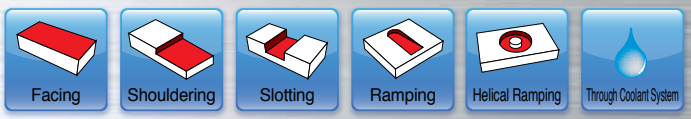
Economical and efficient mill with doubled sided inserts

Rich Mill SERIES

RM8 / RM4 / RM16 / RMT

Negative insert makes it stronger for long tool life

- Rich mill series innovative double sided insert design provides more cuting edges and longer tool life.
- Rich mill has unique geometry and a special cuting edge to provide lower cuting loads and longer tool life.
- Rich mill series has both screw on clamping system and latch clamping system



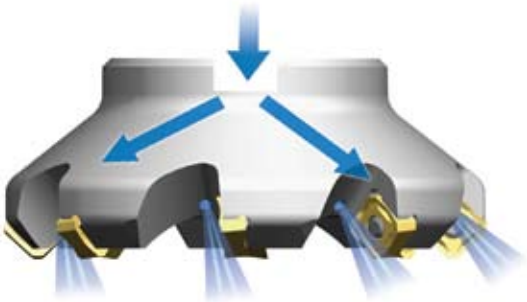
Rich Mill RM8

■ Double sided insert with 8 cutting edges

- Innovative double sided insert makes it possible to use 8 cutting edges. It is more economical than a conventional single sided insert.
- The unique geometry and high rake angle of cutting edge guarantee an excellent surface finish. Applicable for various workpiece like steel, stainless steel, cast iron, aluminum
- The available combinations of innovative geometry and various grades provide developed durability and excellent tool life.
- Various pitches and chip breakers are applicable in a wide variety of machining.
- Light Rich mill cutters can be useful for high speed machining and low power machines.

Through coolant system

- Exclusive coolant bolt is adapted provides better chip evacuation and more powerful cooling. To get optimal chip evacuation, the direction of coolant injection has been designed to reach each cutting edge directly with the use of a through coolant arbor.



Through coolant system decreases cutting heat and provides good chip evacuation

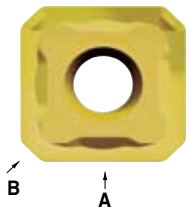
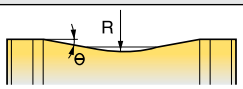
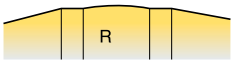
Chip breaker

Insert		Cutting edge	Features
For aluminum MA			Due to sharp cutting edge and buffed surface, it has good chip flow and welding resistance
Light cutting MF			Due to low cutting load, it is good for light cutting and difficult-to-cut material
General cutting MM			It is suitable design for general milling
Wiper **W**			Specialized edge design can be suitable for excellent surface roughness operation

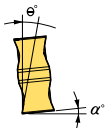
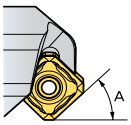
Rich Mill SERIES

Economical and efficient mill with doubled sided inserts

Features of insert

Insert	Cutting edge		Features
	View-A		High rake chip breaker & positive setting angle for low cutting load
	View-B		Designed wiper technology in minor cutting edge for improved surface roughness
	Chip breaker		Low cutting load due to the positive setting and high rake angle chip breaker

Features of cutter

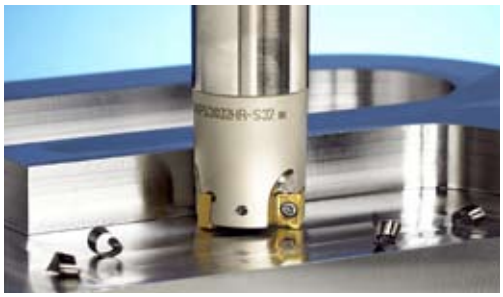
Shape	Cutting edge	Features
		High rake angle makes positive setting angle for low cutting load
		Suitable for facing and chamfering • RM8A A=45° • RM8E A=15° • RM8Q A=2°

Recommended Cutting Condition

ISO	Grade	SNM(E)X1206A(E)NN-MF		SNM(E)X1206A(E)NN-MM		SNEX1206A(E)NN-MA		Max-ap	SNM(E)X1507A(E)NN-MF		SNM(E)X1507A(E)NN-MM		Max-ap
		vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)		vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	
P	NC5330	-	-	490~985	0.004~0.014	-	-	RM8A 0.236 RM8E 0.354 RM8Q 0.453	-	-	490~985	0.004~0.014	RM8A 0.295 RM8E 0.433
	NCM325	655~985	0.002~0.012	490~985	0.004~0.014	655~1150	0.001~0.01		655~985	0.002~0.012	490~985	0.004~0.014	
	PC3500	655~985	0.002~0.012	490~985	0.004~0.014	655~1150	0.001~0.01		655~985	0.002~0.012	490~985	0.004~0.014	
K	PC6510	490~985	0.03~0.014	490~985	0.004~0.0146	-	-		490~985	0.03~0.014	490~985	0.004~0.0146	
	PC5300	490~985	0.003~0.014	490~985	0.004~0.016	-	-		490~985	0.003~0.014	490~985	0.004~0.016	
M	PC9530	330~590	0.002~0.002	390~590	0.004~0.014	390~955	0.001~0.008		-	-	-	-	
	PC5300	-	-	-	-	-	-		330~590	0.002~0.002	390~590	0.004~0.014	

Rich Mill RM4

- RM4 is a multi functional milling tool offering an innovative doubled-sided inserts with economical 4 cutting edges.
- Specially designed chip breaker consists of a high rake angle and strong cutting edge that decreases the cutting load and improves insert toughness.
- RM4 is a multi functional tool for cover facing, side cutting, shouldering, slotting, ramping & helical milling.
- Optimal matching of the special cutting edge geometry with a variety of new grades provides consistently longer tool life.



Features

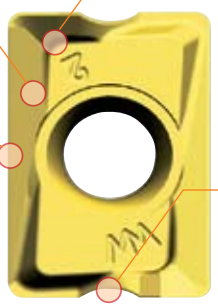
- 4 cutting edges with double-sided insert design
- High rake angle chip breaker and cutting edge produce smooth cutting with low cutting load.
- Strong negative insert
- High efficiency, high economy, multi functional tool

- Through coolant system Longer tool life due to direct cooling injection into the cutting edge of insert
- Wide chip pocket for better chip evacuation
- Simple screw on system

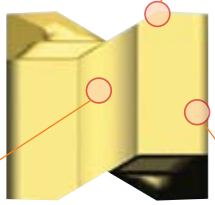
Insert features

- Double-sided insert using 4 cutting edges
- High rake angle chip breaker and cutting edge
- Flexibility of application use
- High efficiency, high economy, multi functional tool
- Negative insert design for a strong cutting edge

- High rake angle chip breaker/Improves chip control.
- Major cutting edge High rake angle chip breaker/Improves surface finish.



- Step design Improving chip control/Reducing cutting loads.
- Concave 4 edge insert design/ Minimizes interference.

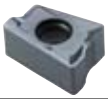


- Minor cutting edge Special design of cutting edge improves surface roughness.
- Clearance face Strong negative face for a strong cutting edge.

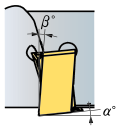
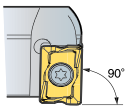
Rich Mill SERIES

Economical and efficient mill with doubled sided inserts

Chip breaker

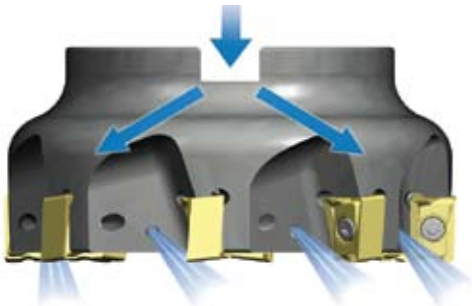
Insert		Cutting edge	Features
For aluminum Light **MA**			With sharp edge application the better productivity has been accomplished, especially for Aluminum or low force cut
Light cutting **MF**			Due to low cutting load, it is good for light cutting and difficult-to-cut material.
General cutting **MM**			It is suitable design for general milling.

Setting configuration

Insert	Cutting edge	Features
		High rake chip breaker & positive setting angle for low cutting load → Improving machinability
		Multi applications for facing, shouldering, slotting, ramping, helical cutting, etc

Through coolant system

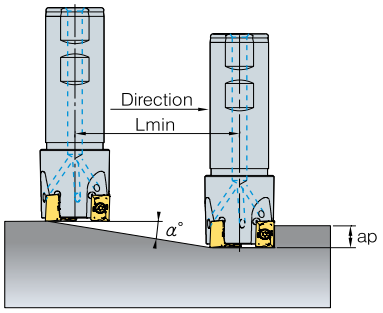
- By using an exclusive coolant bolt (hexagonal socket bolt), more powerful cooling & better chip evacuation are realized.
- To get optimal chip control, the design of the coolant injection directs coolant directly to each cutting edge. (Through coolant arbor is necessary.)



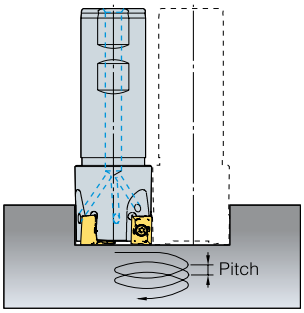
Through coolant system decreases cutting heat and provides good chip evacuation

Ramping and Helical cutting

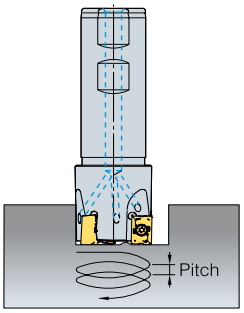
1. Ramping



2. Helical cutting for blind hole



3. Helical cutting for through hole



1. Ramping					2. Helical cutting for blind hole				3.Helical cutting for through hole	
Designation		D	α°	Lmin	Maximum Hole Diameter	Maximum Pitch	Minimum Hole Diameter	Maximum Pitch	Minimum Hole Diameter	Maximum Pitch
RM4PSA	3056HR	0.562	5.0	4.503	1.069	0.13	0.990	0.11	0.785	0.06
	3062HR	0.625	4.0	5.634	1.195	0.12	1.116	0.10	0.911	0.06
	3068HR	0.688	4.0	5.634	1.321	0.13	1.242	0.12	1.037	0.07
	3075HR	0.750	4.0	5.634	1.445	0.15	1.366	0.13	1.161	0.09
	3100HR	1.000	3.5	6.442	1.945	0.18	1.866	0.16	1.661	0.12
	3125HR	1.250	3.0	7.518	2.445	0.19	2.366	0.18	2.161	0.15
	3150HR	1.500	2.0	11.283	2.945	0.15	2.866	0.14	2.661	0.12
	3200HR	2.000	1.5	15.046	3.945	0.15	3.866	0.14	3.661	0.13
RM4PCA	3150HR	1.500	2.0	11.283	2.945	0.15	2.866	0.14	2.661	0.12
	3200HR	2.000	1.5	15.046	3.945	0.15	3.866	0.14	3.661	0.13
	3250HR	2.500	1.0	22.572	4.945	0.13	4.866	0.12	4.661	0.11
	3300HR	3.000	1.0	22.572	5.945	0.15	5.866	0.14	5.661	0.14
	3400HR	4.000	0.5	45.148	7.945	0.10	7.866	0.10	7.661	0.10
RM4PSA	4125HR	1.250	2.5	9.024	2.445	0.16	2.366	0.15	2.161	0.12
	4150HR	1.500	2.0	11.283	2.945	0.15	2.866	0.14	2.661	0.12
	4200HR	2.000	2.0	11.283	3.945	0.20	3.866	0.19	3.661	0.18
	4250HR	2.500	2.0	11.283	4.945	0.25	4.866	0.24	4.661	0.23
RM4PCA	4200HR	2.000	2.0	11.283	3.945	0.20	3.866	0.19	3.661	0.18
	4250HR	2.500	2.0	11.283	4.945	0.25	4.866	0.24	4.661	0.23
	4300HR	3.000	1.5	15.046	5.945	0.23	5.866	0.22	5.661	0.21
	4400HR	4.000	1.0	22.572	7.945	0.20	7.866	0.19	7.661	0.20
	4500HR	5.000	1.0	22.572	9.945	0.26	9.866	0.25	9.661	0.25
	4600R	6.000	0.5	45.148	11.945	0.15	11.866	0.15	11.661	0.15

• The L min is when depth of cut is 0.394inch (Lmin = 10/tan α)

Recommended Cutting Condition

ISO	Grade	LNM(E)X100605PNR-MF		LNM(E)X100605PNR-MM		LNEX100605PNR-MA		Max-ap	LNM(E)X151008PNR-MF		LNM(E)X151008PNR-MM		LNEX151008PNR-MA		Max-ap
		vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)		vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	
P	NCM325	-	-	-	-	-	-	0.354 inch	490~985	0.002~0.01	390~985	0.002~0.012	490~985	0.001~0.008	0.551 inch
	PC3500	490~985	0.002~0.010	390~985	0.002~0.012	490~985	0.001~0.008		490~985	0.002~0.01	390~985	0.002~0.012	490~985	0.001~0.008	
K	PC6510	490~985	0.003~0.012	390~985	0.003~0.014	-	-		490~985	0.003~0.012	390~985	0.003~0.014	-	-	
M	PC5300	390~590	0.002~0.010	330~590	0.002~0.012	390~655	0.001~0.008		390~590	0.002~0.01	330~590	0.002~0.012	390~655	0.001~0.008	

Rich Mill SERIES

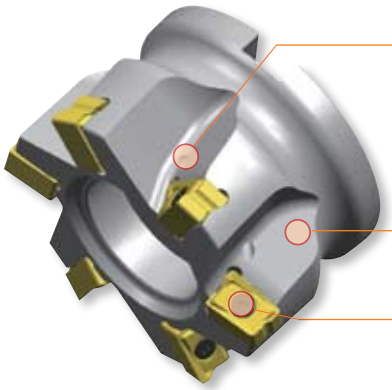
Economical and efficient mill with doubled sided inserts

Rich Mill RM4Z

- Rich mill RM4Z is a plunge milling tool which can machine faster and more effectively in vertical machining such as slotting and pocket machining.
- Multi-functional tool with a double-sided 4 edged insert
- Increased productivity and accurate side machining
- Max. cutting width for RM4Z 3000 : 0.354inch
  Max. cutting width for RM4Z 4000 : 0.551inch

Features

- High rake angle chip breaker and cutting edge
- Multi functional tool
- High efficient & economical tool



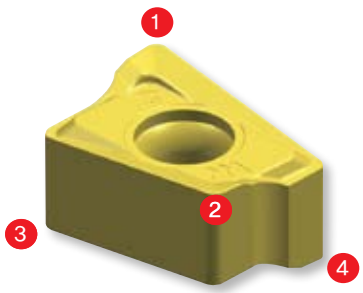
- Through coolant system
- Better chip evacuation
- Longer tool life

- Wide chip pocket
- Screw on system

Improved chip evacuation

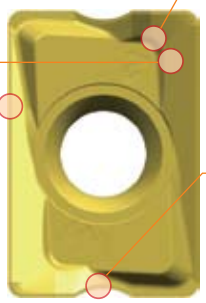
Insert features

- Double sided and 4 cornered insert
- Negative insert strong cutting edge



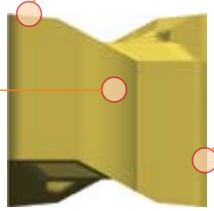
- **Chip breaker**
  - High rake angle
  - Improving chip control

- **Step design**
  - Improving chip control
  - Reducing cutting load



- **Major cutting edge**
  - High rake angle cutting edge
  - Better surface finishes

- **Concave design**
  - 4 cutting edges Minimizes
  - interference

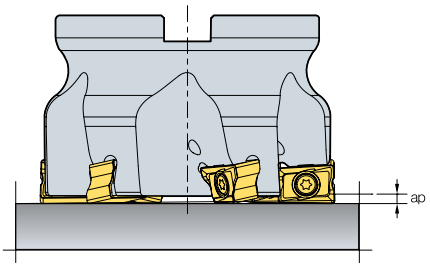


- **Minor cutting edge**
  - Special design
  - Improves surface roughness

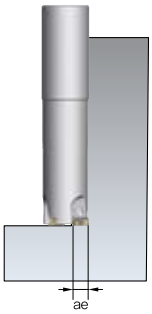
- **Clearance face**
  - Negative face
  - Strong cutting edge

Cutting depth

• Horizontal machining = ap(inch)



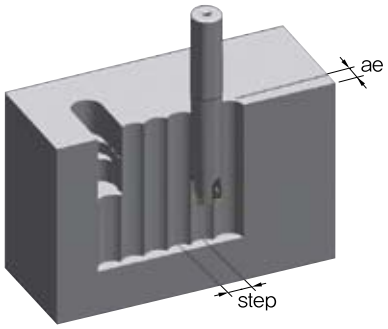
• Vertical machining = ae(inch)



(inch)

RM4Z	Horizontality	Verticality	
	max ap	max ae	step
RM4Z 3000	0.059	0.354	< 0.7D
RM4Z 4000	0.098	0.551	< 0.7D

Maximum step in vertical machining

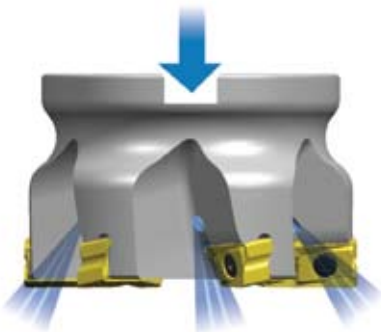


(inch)

ae	Cutter Diameter						
	1.00	1.25	1.50	2.00	2.50	3.00	4.00
	max step						
0.039	9.8	11.0	12.1	14.1	15.8	17.3	20.0
0.079	13.6	15.4	19.9	19.7	22.1	24.3	28.2
0.118	16.3	18.5	20.5	23.9	26.9	29.6	34.3
0.157	18.4	21.0	23.3	27.3	30.85	33.9	39.5
0.197	20.1	23.1	25.7	30.2	34.2	37.7	43.9
0.236	21.5	24.8	27.7	32.7	37.1	41.0	47.8
0.276	22.6	26.3	29.5	35.0	39.7	44.0	51.4
0.315	23.5	27.5	31.0	37.0	42.1	46.7	54.7
0.354	24.2	28.6	32.3	38.7	44.2	49.1	57.7
0.394	-	-	-	-	46.2	51.4	60.5
0.433	-	-	-	-	48.0	53.5	63.1
0.472	-	-	-	-	19.7	55.5	65.5
0.512	-	-	-	-	51.2	57.3	67.8
0.551	-	-	-	-	52.6	59.0	70.0

Inner coolant system

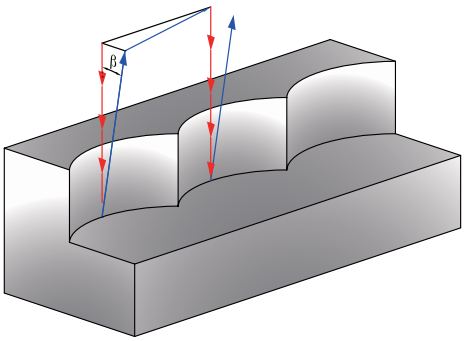
• By using an exclusive coolant bolt (hexagonal socket bolt), more powerful cooling & better chip evacuation are realized.
• To get optimal chip control, the design of the coolant injection directs coolant directly to each cutting edge (through coolant arbor is necessary).



Rich Mill SERIES

Economical and efficient mill with doubled sided inserts

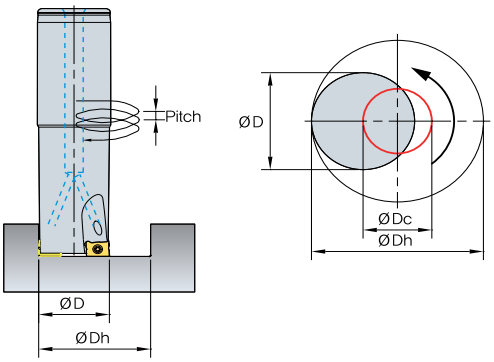
Programming in vertical cutting



- - - - - - Vertical machining route
——— Rapid feed
β Angle between tool and Workpiece (β≥1°)

• Reduce 30% of feed till 0.118inch machining.

Helical machining



ØDc = ØDh-ØD
ØDc = Trace of cutter center
ØDh = Desire hole diameter
ØD = Tool diameter

(inch)

Designation		Diameter ØD	Helical data			
			ØDh max	Max. Pitch	ØDh min	Max. Pitch
RM4ZSA	3100HR-L100	1.00	1.921	0.075	1.213	0.017
	3125HR-L125	1.25	2.421	0.038	1.674	0.013
	3150HR-L125	1.50	2.921	0.023	2.174	0.011
RM4ZCA	3150HR	1.50	2.921	0.023	2.174	0.011
	3200HR	2.00	3.921	0.021	3.174	0.012
RM4ZMA	3100HR-M12	1.00	1.921	0.075	1.213	0.017
	3125HR-M16	1.25	2.421	0.038	1.674	0.013
	3150HR-M16	1.50	2.921	0.023	2.174	0.011
RM4ZCA	4250HR	2.50	4.921	0.039	3.780	0.021
	4300HR	3.00	5.921	0.032	4.780	0.019
	4400HR	4.00	7.921	0.021	6.780	0.015

Cutting conditions

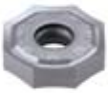
ISO	Grade	LNM(E)X100605PNL-MM				LNM(E)X151008PNL-MM			
		vc(sfm)	fz(ipt)	∗max ae (inch)	∗∗max ap (inch)	vc(sfm)	fz(ipt)	∗max ae (inch)	∗∗max ap (inch)
P	PC3500	350~820	0.002~0.010	0.354	0.059	400~820	0.002~0.01	0.551	0.098
K	PC6510	350~820	0.003~0.012			400~820	0.003~0.012		
M	PC5300	270~600	0.002~0.008			330~600	0.002~0.008		

∗max ae(inch) : (Plunging) max. radial depth of cut
∗∗max ap(inch) : (Shouldering / Facing) max depth of cut

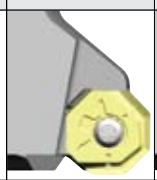
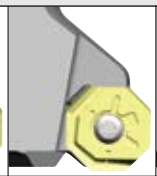
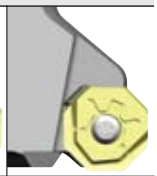
Rich Mill RM16

- Highly economical 16 cutting edges
- Highly effective in reducing costs in medium cutting applications
- Wiper insert can be used for improved surface finishes
- Optimal matching of the special cutting edge geometry with variety of new grades provides consistently longer tool life.
- To utilize all 16 corners, the maximum cutting depth is 0.216 inch, but to use 8 corners, the maximum cutting depth is 0.630 inch.
- Wiper insert is placed 0.002 inch lower than the facing insert in cutter.
- When feed exceeds the wipers cutting edge length (0.28 inch), 2 wiper inserts are placed in symmetrical positions

Chip breaker

Insert		Cutting edge	Features
Aluminum Cutting Light **MA**			With sharp edge application the better productivity has been accomplished, especially for Aluminum cutting
Light cutting **MF**			Due to low cutting load, it is good for light cutting and difficult-to-cut material
General cutting **MM**			It is suitable design for general milling
Wiper **W**			It has good surface roughness than MM,MF chip breaker

Instructions for wiper insert

Hand of tool	Correct setting	Incorrect setting			
Right hand					
	○	×	×	×	×
Left hand					
	○	×	×	×	×

Through coolant system

- Well designed chip pocket for better chip flow
- Through coolant system reduces cutting heat and improves chip evacuation.

Rich Mill SERIES

Economical and efficient mill with doubled sided inserts

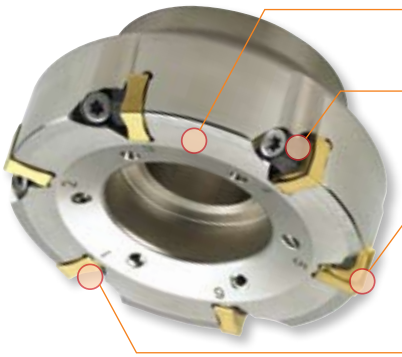
Recommended Cutting Condition

ISO	Grade	ONM(H)X060608-MM		ONM(H)X060608-MF		ONHX060608-W		ONM(H)X080608-MM		ONM(H)X080608-MF		ONHX080608-W	
		vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)
P	NCM325	500 ~ 990	0.004 ~ 0.014	660 ~ 990	0.002 ~ 0.012	660 ~ 990	0.002 ~ 0.008	500 ~ 990	0.004 ~ 0.016	660 ~ 990	0.002 ~ 0.014	660 ~ 990	0.002 ~ 0.010
	PC3500	500 ~ 990	0.004 ~ 0.014	660 ~ 990	0.002 ~ 0.012	660 ~ 990	0.002 ~ 0.008	500 ~ 990	0.004 ~ 0.016	660 ~ 990	0.002 ~ 0.014	660 ~ 990	0.002 ~ 0.010
	PC3535	400 ~ 830	0.004 ~ 0.014	500 ~ 830	0.002 ~ 0.012	500 ~ 830	0.002 ~ 0.008	400 ~ 830	0.004 ~ 0.016	500 ~ 830	0.002 ~ 0.014	500 ~ 830	0.002 ~ 0.010
M	PC5300	400 ~ 590	0.004 ~ 0.014	330 ~ 590	0.002 ~ 0.012	330 ~ 590	0.002 ~ 0.008	400 ~ 590	0.004 ~ 0.016	330 ~ 590	0.002 ~ 0.014	330 ~ 590	0.002 ~ 0.010
K	PC6510	500 ~ 990	0.004 ~ 0.016	500 ~ 990	0.003 ~ 0.014	500 ~ 990	0.002 ~ 0.010	500 ~ 990	0.004 ~ 0.018	500 ~ 990	0.003 ~ 0.016	500 ~ 990	0.002 ~ 0.012

Rich Mill RMT8

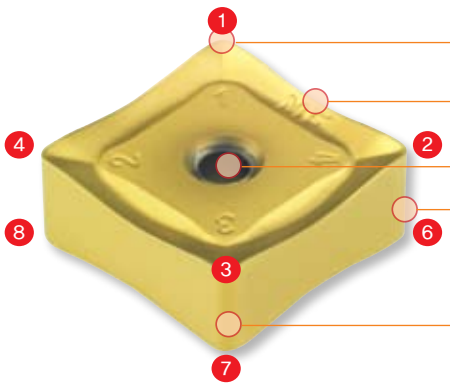
- New latch clamping system withstands powerful cutting force and has an easy to change insert.
- New chip resistant grades provide good surface roughness and improved tool life.
- The specially designed chip breaker is suitable in most applications.
- RMT with various pitches can replace most conventional ISO milling tools.

Features of RMT



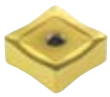
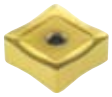
- Highly rigid cutter body improves durability
- New latch clamping system withstands powerful cutting forces with an easy to change insert
- Economical 8 corners by using double-sided insert
- The 3-dimensional chip pocket design provides smooth chip control

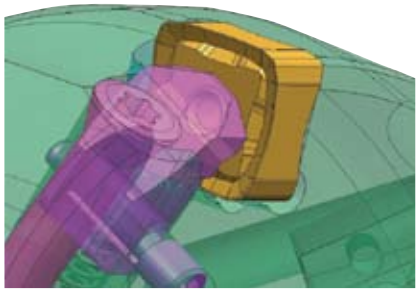
Features of RMT insert(using R/L)

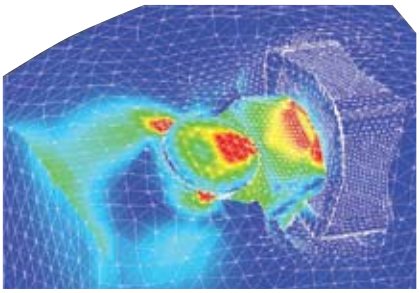


- Economical 8 corners
- Low cutting load due to high rake angle chip breaker
- Special chamber shape for stable clamping
- Coated grades with improved chipping resistance
- Optimal design of minor cutting edge to use in RH/LH cutting type and Good surface roughness

Clamping force analysis

Insert		Cutting edge	Features
Fine finishing MF			Our specialized insert design aimed for low cutting force is suitable for light cutting, HRSA
Streng then MM			Suitable geometry design for general milling has wider ranges of machining





Recommended grades and chip breakers

ISO	Grade	MM	MF
P	NCM325		○
	PC3500		○
	PC5300		○
M	PC5300		◎
K	PC6510		◎

◎ :Optimum ○ :Proper

Recommended cutting condition

ISO	Grade	MM		MF	
		vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)
P	NCM325	500~990	0.002~0.012	500~990	0.002~0.008
	PC3500	500~990	0.002~0.012	500~990	0.002~0.008
	PC5300	500~990	0.002~0.012	500~990	0.002~0.008
M	PC5300	500~990	0.002~0.012	500~990	0.002~0.008
K	PC6510	400~590	0.002~0.008	400~590	0.002~0.008

Rich Mill SERIES

Economical and efficient mill with doubled sided inserts

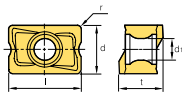
Applicable Inserts

LNM(E)X-MA

LNM(E)X-MM

LNM(E)X-MF

LNM(E)X-MF



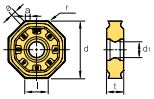
ONHX-MF

ONHX-MM

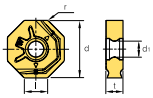
ONHX-MA

ONMX-MF

ONHX-MM



ONHX-W



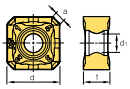
	Designation	l	d	t	r	d_1	a	b
LNEX	100605PNR-MA	25/64	33/128	25/64	1/32	0.177	-	-
	151004PNR-MA	19/32	25/64	25/64	1/32	0.177	-	-
	151008PNR-MA	19/32	26/64	25/64	1/16	0.177	-	-
LNMX	100605PNR-MF	25/64	33/128	33/128	3/128	0.318	-	-
LNEX	100605PNR-MF	25/64	33/128	33/128	3/128	0.318	-	-
LNMX	100608PNR-MF	25/64	33/128	33/128	1/32	0.318	-	-
LNEX	100608PNR-MF	25/64	33/128	33/128	1/32	0.318	-	-
LNMX	151004PNR-MF	19/32	25/64	25/64	1/64	0.177	-	-
LNEX	151004PNR-MF	19/32	25/64	25/64	1/64	0.177	-	-
LNMX	151008PNR-MF	19/32	25/64	25/64	1/32	0.177	-	-
LNEX	151008PNR-MF	19/32	25/64	25/64	1/32	0.177	-	-
LNMX	151016PNR-MF	19/32	25/64	25/64	1/16	0.177	-	-
LNEX	151016PNR-MF	19/32	25/64	25/64	1/16	0.177	-	-
LNMX	100605PNR-MM	25/64	33/128	33/128	3/128	0.318	-	-
LNEX	100605PNR-MM	25/64	33/128	33/128	3/128	0.318	-	-
LNMX	100608PNR-MM	25/64	33/128	33/128	1/32	0.318	-	-
LNEX	100608PNR-MM	25/64	33/128	33/128	1/32	0.318	-	-
LNMX	100605PNL-MM	25/64	33/128	33/128	3/128	0.318	-	-
LNEX	100605PNL-MM	25/64	33/128	33/128	3/128	0.318	-	-
LNMX	151004PNR-MM	19/32	25/64	25/64	1/64	0.177	-	-
LNEX	151004PNR-MM	19/32	25/64	25/64	1/64	0.177	-	-
LNMX	151008PNR-MM	19/32	25/64	25/64	1/32	0.177	-	-
LNEX	151008PNR-MM	19/32	25/64	25/64	1/32	0.177	-	-
LNMX	151016PNR-MM	19/32	25/64	25/64	1/16	0.177	-	-
LNEX	151016PNR-MM	19/32	25/64	25/64	1/16	0.177	-	-
LNMX	151008PNL-MM	19/32	25/64	25/64	1/32	0.177	-	-
LNEX	151008PNL-MM	19/32	25/64	25/64	1/32	0.177	-	-
LNMX	100605PNR-MA	25/64	33/128	33/128	3/128	0.318	-	-
LNEX	151004PNR-MA	19/32	25/64	25/64	1/64	0.177	-	-
LNMX	151008PNR-MA	19/32	26/64	26/64	1/32	0.177	-	-
ONHX	060608-MF	17/64	5/8	15/64	1/32	0.220	-	-
	080608-MF	21/64	51/64	15/64	1/32	0.220	-	-
	0606ANN-MF	17/64	5/8	15/64	1/32	0.220	0.041	-
	0806ANN-MF	21/64	51/64	15/64	1/32	0.220	0.060	-
ONHX	060608-MM	17/64	5/8	15/64	1/32	0.220	-	-
	080608-MM	21/64	51/64	15/64	1/32	0.220	-	-
	0606ANN-MM	17/64	5/8	15/64	1/32	0.220	0.041	-
	0806ANN-MM	21/64	51/64	15/64	1/32	0.220	0.060	-
ONHX	060608-MA	17/64	5/8	15/64	1/32	0.220	-	-
	080608-MA	21/64	51/64	15/64	1/32	0.220	-	-
ONHX	060608-W	17/64	5/8	15/64	1/32	0.220	-	-
	080608-W	21/64	51/64	15/64	1/32	0.220	-	-
ONMX	060608-MF	17/64	5/8	15/64	1/32	0.220	-	-
	080608-MF	21/64	51/64	15/64	1/32	0.220	-	-
ONMX	0606ANN-MF	17/64	5/8	15/64	1/32	0.220	0.041	-
	0806ANN-MF	21/64	51/64	15/64	1/32	0.220	0.060	-
ONMX	060608-MM	17/64	5/8	15/64	1/32	0.220	-	-
	080608-MM	21/64	51/64	15/64	1/32	0.220	-	-

Applicable Inserts

SNEX-MA

SNM(E)X-MF

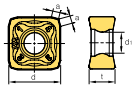
SNM(E)X-MM



SNM(E)X-MF

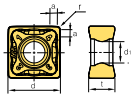
SNC(M)F-MF

SNC(M)F-MM

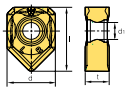


SNM(E)X-MF

SNM(E)X-MM



SNEX-W



Designation	l	d	t	r	d_1	a	b
SNCF 0606ANN-MM	17/64	5/8	15/64	1/32	0.220	0.041	-
0806ANN-MM	21/64	51/64	15/64	1/32	0.220	0.060	-
SNMF 1206ANN-MF	-	1/2	17/64	-	-	0.079	-
1507ANN-MF	-	5/8	0.289	-	-	0.083	-
SNCF 1206ANN-MF	-	1/2	17/64	-	-	0.079	-
1507ANN-MF	-	5/8	0.289	-	-	0.083	-
SNMF 1206ENN-MF	-	1/2	17/64	-	-	0.079	-
1507ENN-MF	-	5/8	0.289	-	-	0.083	-
SNCF 1206ENN-MF	-	1/2	17/64	-	-	0.079	-
SNMF 1507ENN-MF	-	5/8	0.289	-	-	0.083	-
SNCF 1206QNN-MF	-	1/2	33/128	0.039	-	-	-
1206QNN-MF	-	1/2	33/128	0.039	-	-	-
SNMF 1206ANN-MM	-	1/2	33/128	-	-	0.07	-
1507ANN-MM	-	5/8	0.289	-	-	0.071	-
SNCF 1206ANN-MM	-	1/2	33/128	-	-	0.07	-
1507ANN-MM	-	5/8	0.289	-	-	0.071	-
SNMF 1206ENN-MM	-	1/2	33/128	-	-	0.07	-
1507ENN-MM	-	5/8	0.289	-	-	0.07	-
SNCF 1206ENN-MM	-	1/2	33/128	-	-	0.07	-
SNMF 1507ENN-MM	-	5/8	0.289	-	-	0.07	-
1206QNN-MM	-	1/2	33/128	0.031	-	0.039	-
1206QNN-MM	-	1/2	33/128	0.031	-	0.039	-

Designation	l	d	t	r	d_1	a	b
SNEX 1206ANN-MA	-	1/2	1/4	-	0.177	0.093	-
1206ENN-MA	-	1/2	1/4	-	0.205	0.072	-
1206QNN-MA	-	1/2	1/4	-	0.205	0.055	-
120612-MA	-	1/2	1/4	0.047	0.205	-	-
SNMX 1206ANN-MF	-	1/2	1/4	-	0.177	0.093	-
SNEX 1206ANN-MF	-	1/2	1/4	-	0.177	0.093	-
SNMX 1507ANN-MF	-	5/8	-	-	0.220	0.124	-
SNEX 1507ANN-MF	-	5/8	-	-	0.220	0.124	-
SNMX 1206ENN-MF	-	1/2	1/4	-	0.205	0.072	-
SNEX 1206ENN-MF	-	1/2	1/4	-	0.205	0.072	-
SNMX 1507ENN-MF	-	5/8	-	-	0.220	0.105	-
SNEX 1507ENN-MF	-	5/8	-	-	0.220	0.105	-
SNMX 1206QNN-MF	-	1/2	1/4	-	0.177	0.093	-
SNEX 1206QNN-MF	-	1/2	1/4	-	0.177	0.093	-
SNMX 120612-MF	-	1/2	1/4	0.047	0.177	-	-
SNEX 120612-MF	-	1/2	1/4	0.047	0.177	-	-
SNMX 1206ANN-MM	-	1/2	1/4	-	0.177	0.093	-
SNEX 1206ANN-MM	-	1/2	1/4	-	0.177	0.093	-
SNMX 1507ANN-MM	-	5/8	-	-	0.177	0.124	-
SNEX 1507ANN-MM	-	5/8	-	-	0.177	0.124	-
SNMX 1206ENN-MM	-	1/2	1/4	-	0.177	0.072	-
SNEX 1206ENN-MM	-	1/2	1/4	-	0.177	0.072	-
SNMX 1507ENN-MM	-	5/8	-	-	0.220	0.105	-
SNEX 1507ENN-MM	-	5/8	-	-	0.220	0.105	-
SNMX 1206QNN-MM	-	1/2	1/4	-	0.177	0.093	-
SNEX 1206QNN-MM	-	1/2	1/4	-	0.177	0.093	-
SNMX 120612-MM	-	1/2	1/4	0.047	0.177	-	-
SNEX 120612-MM	-	1/2	1/4	0.047	0.177	-	-
SNEX 1206ANN-W	0.674	1/2	1/4	-	0.177	-	-

Rich Mill SERIES RM8

RM8ACA4000

AA 45° | •AR : -6° •RR : -9°~6°

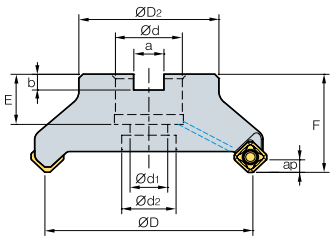


Fig. 1

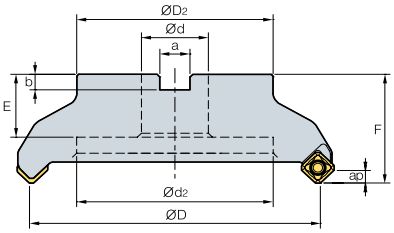


Fig. 2

(inch)

Designation		⊙	øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs	Fig.
RM8ACA	4200HR-M	4	2.0	1.772	0.313	0.413	0.630	0.313	0.220	0.787	1.75	0.236	1.1	1
	4200HR-H	6	2.0	1.772	0.313	0.413	0.630	0.313	0.220	0.787	1.75	0.236	1.1	1
	4250HR-M	6	2.5	2.205	0.375	0.551	0.827	0.375	0.248	0.866	1.75	0.236	1.5	1
	4250HR-H	8	2.5	2.205	0.375	0.551	0.827	0.375	0.248	0.866	1.75	0.236	1.5	1
	4300HR	5	3.0	2.205	0.375	0.551	0.827	0.375	0.248	0.866	2.00	0.236	2.6	1
	4300HR-M	7	3.0	2.205	0.375	0.551	0.827	0.375	0.248	0.866	2.00	0.236	2.6	1
	4300HR-H	10	3.0	2.205	0.375	0.551	0.827	0.375	0.248	0.866	2.00	0.236	2.9	1
	4400HR	6	4.0	2.874	0.500	0.709	1.024	0.500	0.319	0.866	2.00	0.236	3.7	1
	4400HR-M	8	4.0	2.874	0.500	0.709	1.024	0.500	0.319	0.866	2.00	0.236	3.7	1
	4400HR-H	12	4.0	2.874	0.500	0.709	1.024	0.500	0.319	0.866	2.00	0.236	3.7	1
	4500HR	8	5.0	3.386	0.625	0.827	1.220	0.625	0.394	1.181	2.50	0.236	7.9	1
	4500HR-M	10	5.0	3.386	0.625	0.827	1.220	0.625	0.394	1.181	2.50	0.236	7.9	1
	4500HR-H	16	5.0	3.386	0.625	0.827	1.220	0.625	0.394	1.181	2.50	0.236	8.1	1
	4600R	10	6.0	4.882	0.750	-	4.213	0.750	0.433	1.181	2.50	0.236	10.6	2
	4600R-M	12	6.0	4.882	0.750	-	4.213	0.750	0.433	1.181	2.50	0.236	11.7	2
	4600R-H	18	6.0	4.882	0.750	-	4.213	0.750	0.433	1.181	2.50	0.236	11.9	2
	4800R-M	14	8.0	5.118	1.000	-	5.315	1.000	0.551	1.496	2.50	0.236	15.6	2
	4800R-H	24	8.0	5.118	1.000	-	5.315	1.000	0.551	1.496	2.50	0.236	15.6	2
	41000R-M	16	10.0	7.087	1.000	-	7.087	1.000	0.551	1.496	2.50	0.236	26.2	2
	41000R-H	30	10.0	7.087	1.000	-	7.087	1.000	0.551	1.496	2.50	0.236	26.4	2

■ Parts

Screw	Wrench
FTKA0410	TW15S

■ Available Inserts

SNEX-MF	SNEX-MM	SNEX-MA
SNEX-W	SNMX-MF	SNMX-MM

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SNEX	1206ANN-MF				●	●			●									
	1206ANN-MM	●			●	●			●									
SNMX	1206ANN-MF				●	●			●									
	1206ANN-MM	●			●	●		●	●									
SNEX	1206ANN-MA																	
	1206ANN-W				●				●									

● : Stock item

RMH8ACA4000

Shim type

AA 45° | •AR : -6° •RR : -9°~-6°

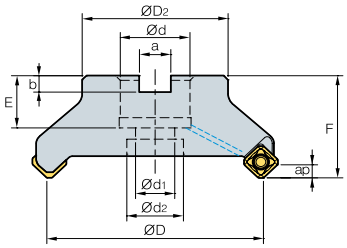


Fig. 1

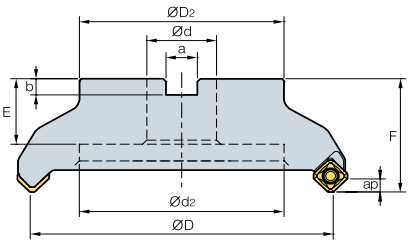


Fig. 2

(inch)

Designation		⊙	øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs	Fig.
RMH8ACA	4300HR-M	7	3.0	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.0	0.236	2.6	1
	4400HR-M	8	4.0	2.874	1.25	0.709	1.024	0.5	0.319	0.866	2.0	0.236	3.7	1
	4500HR-M	10	5.0	3.386	1.50	0.827	1.22	0.625	0.394	1.181	2.5	0.236	7.9	1
	4600R-M	12	6.0	4.882	2.00	-	4.213	0.75	0.433	1.181	2.5	0.236	10.6	2
	4800R-M	14	8.0	5.118	2.50	-	5.315	1.0	0.551	1.496	2.5	0.236	15.6	2
	41000R-M	16	10.0	7.087	2.50	-	7.087	1.0	0.551	1.496	2.5	0.236	26.2	2
	41200R-M	20	12.0	9.449	2.50	-	9.37	1.0	0.551	1.496	2.5	0.236	40.8	2
	41500R-M	26	15.0	9.843	2.50	-	9.37	1.0	0.551	1.496	3.0	0.236	81.8	2

■ Parts

Screw	Shim	Shim Screw	Wrench
FTGA0513	SS42RM8	SHXN0609F	TW20-100

■ Available Inserts

SNEX-MF	SNEX-MM	SNEX-MA
SNEX-W	SNMX-MF	SNMX-MM

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SNEX	1206ANN-MF				●	●			●									
	1206ANN-MM	●			●	●			●									
SNMX	1206ANN-MF				●	●			●									
	1206ANN-MM	●			●	●		●	●									
SNEX	1206ANN-MA																	
	1206ANN-W				●				●									

● : Stock item

RM8ACA5000

AA 45° | •AR : -6° •RR : -9°~-6°

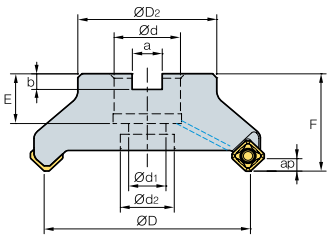


Fig. 1

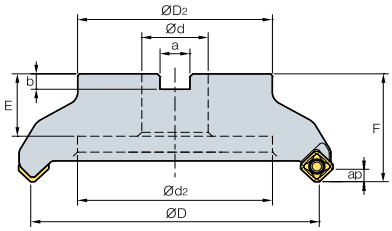


Fig. 2

(inch)

Designation		⊙	øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs	Fig.
RM8ACA	5300HR-M	6	3.0	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.00	0.295	2.6	1
	5400HR-M	7	4.0	2.874	1.25	0.709	1.024	0.500	0.319	0.866	2.00	0.295	3.7	1
	5500HR-M	8	5.0	3.386	1.50	0.827	1.220	0.625	0.394	1.181	2.50	0.295	7.9	1
	5600HR-M	10	6.0	4.882	2.00	-	4.213	0.750	0.433	1.181	2.50	0.295	10.6	2
	5800HR-M	12	8.0	5.118	2.50	-	5.315	1.000	0.551	1.496	2.50	0.295	15.6	2
	51000HR-M	15	10.0	7.087	2.50	-	7.087	1.000	0.551	1.496	2.50	0.295	26.2	2
	51200HR-M	20	12.0	9.449	2.50	-	9.370	1.000	0.551	1.496	2.50	0.295	47.5	2

■ Parts

Screw	Wrench
FTGA0513	TW20-100

■ Available Inserts

SNEX-MF

SNEX-MM

SNEX-MA

SNMX-MF

SNMX-MM

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SNEX	1507ANN-MF				●				●									
	1507ANN-MM				●				●									
SNMX	1507ANN-MF				●				●									
	1507ANN-MM				●													

● : Stock item

RMH8ACA5000

Shim type

AA 45° | •AR : -6° •RR : -9°~-6°

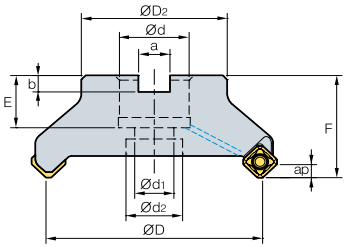


Fig. 1

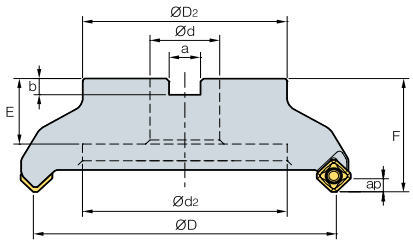


Fig. 2

(inch)

Designation			ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	lbs	Fig.
RMH8ACA	5300HR-M	6	3.0	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.0	0.295	2.6	1
	5400HR-M	7	4.0	2.874	1.25	0.709	1.024	0.5	0.319	0.866	2.0	0.295	5.4	1
	5500HR-M	8	5.0	3.386	1.50	0.827	1.22	0.625	0.394	1.181	2.5	0.295	7.8	1
	5600R-M	10	6.0	4.882	2.00	-	4.213	0.75	0.433	1.181	2.5	0.295	10.8	2
	5800R-M	12	8.0	5.118	2.50	-	5.315	1.0	0.551	1.496	2.5	0.295	15.4	2
	51000R-M	15	10.0	7.087	2.50	-	7.087	1.0	0.551	1.496	2.5	0.295	25.8	2
	51200R-M	20	12.0	9.449	2.50	-	9.37	1.0	0.551	1.496	2.5	0.295	41.4	2
	51500R-M	22	15.0	9.843	2.50	-	9.37	1.0	0.551	1.496	3.0	0.295	81.8	2

■ Parts

Screw	Shim	Shim Screw	Wrench
FTGA0513	SS53RM8	SHXN0712F	TW20-100

■ Available Inserts

SNEX-MF

SNEX-MM

SNEX-MA

SNMX-MF

SNMX-MM

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SNEX	1507ANN-MF								●									
	1507ANN-MM				●				●									
SNMX	1507ANN-MF				●				●									
	1507ANN-MM																	

● : Stock item

Rich Mill SERIES RM8

RM8ECA4000

AA 15° | •AR : -6° •RR : -8°~-6°

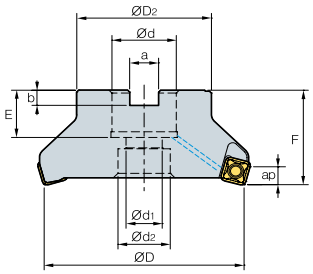


Fig. 1

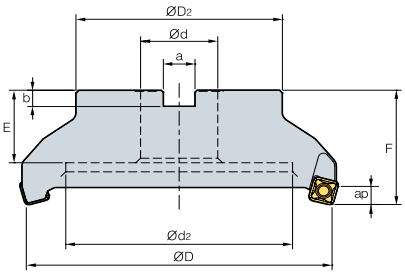


Fig. 2

(inch)

Designation		⊙	øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs	Fig.
RM8ECA	4200HR-M	4	2.0	1.772	0.75	0.413	0.630	0.313	0.220	0.787	1.75	0.354	1.1	1
	4250HR-M	6	2.5	2.205	1.00	0.551	0.827	0.375	0.248	0.866	1.75	0.354	1.3	1
	4300HR	5	3.0	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.00	0.354	2.6	1
	4300HR-M	7	3.0	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.00	0.354	2.4	1
	4400HR	6	4.0	2.874	1.25	0.709	1.024	0.500	0.319	0.866	2.00	0.354	3.7	1
	4400HR-M	8	4.0	2.874	1.25	0.709	0.024	0.500	0.319	0.866	2.00	0.354	5.5	1
	4500HR	8	5.0	3.386	1.50	0.827	0.220	0.625	0.394	1.181	2.50	0.354	6.6	1
	4500HR-M	10	5.0	3.386	1.50	0.827	0.220	0.625	0.394	1.181	2.50	0.354	6.8	1
	4600R	10	6.0	4.882	2.00	-	4.213	0.750	0.433	1.181	2.50	0.354	9.9	2
	4600HR-M	12	6.0	4.882	2.00	-	4.213	0.750	0.433	1.181	2.50	0.354	8.8	2
	4800HR-M	16	8.0	5.118	2.50	-	5.315	1.000	0.551	1.496	2.50	0.354	13.0	2

● : Stock item

■ Parts

Screw	Wrench
PTKA0411-R3	TW15S

■ Available Inserts

SNEX-MF	SNEX-MM	SNEX-MA

SNMX-MF	SNMX-MM

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SNEX 1206ENN-MF				●	●			●									
1206ENN-MM				●				●									
SNMX 1206ENN-MF				●	●			●									
1206ENN-MM				●	●			●									
SNEX 1206ENN-MA				●				●						●			

● : Stock item

RMH8ECA4000

Shim type

AA 15° | •AR : -6° •RR : -8°~-6°

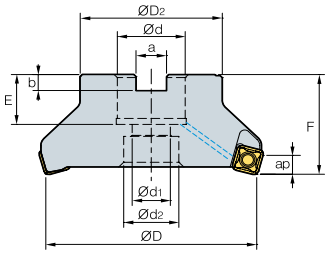


Fig. 1

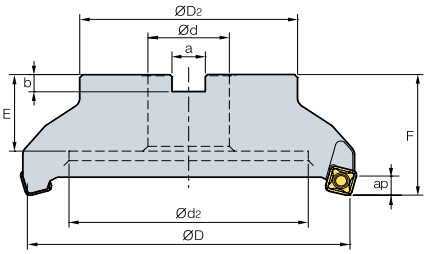


Fig. 2

(inch)

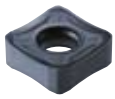
Designation		⊙	øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs	Fig.
RMH8ECA	4300HR-M	7	3.0	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.0	0.354	2.3	1
	4400HR-M	8	4.0	2.874	1.25	0.709	1.024	0.5	0.319	0.866	2.0	0.354	5.4	1
	4500HR-M	10	5.0	3.386	1.50	0.827	1.220	0.625	0.394	1.181	2.5	0.354	6.5	1
	4600R-M	12	6.0	4.882	2.00	-	4.213	0.75	0.433	1.181	2.5	0.354	8.6	2
	4800R-M	16	8.0	5.118	2.50	-	5.315	1.0	0.551	1.496	2.5	0.354	12.8	2
	41000R-M	16	10.0	7.087	2.50	-	7.087	1.0	0.551	1.496	2.5	0.354	23.6	2
	41200R-M	20	12.0	9.449	2.50	-	9.370	1.0	0.551	1.496	2.5	0.354	39.2	2
	41500R-M	24	15.0	9.843	2.50	-	9.370	1.0	0.551	1.496	3.0	0.354	69	2

■ Parts

Screw	Shim	Shim Screw	Wrench
PTKA0411-R3	SS42RM8	SHXN0609F	TW15S

■ Available Inserts

SNEX-MF	SNEX-MM	SNEX-MA

SNMX-MF	SNMX-MM
	

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SNEX	1206ENN-MF				●	●			●									
	1206ENN-MM				●				●									
SNMX	1206ENN-MF				●	●			●									
	1206ENN-MM				●	●			●									
SNEX	1206ENN-MA				●				●						●			

● : Stock item

Rich Mill SERIES RM8

RM8ECA5000

AA 15° | •AR : -6° •RR : -8°~-6°

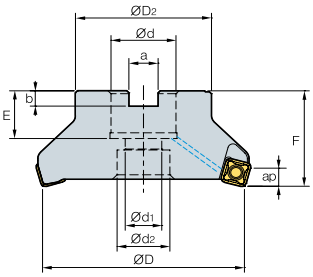


Fig. 1

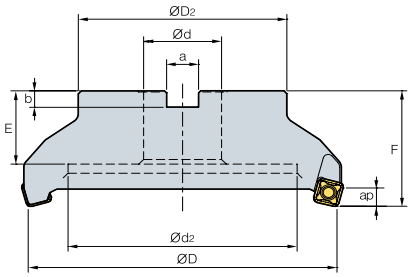


Fig. 2

(inch)

Designation		⊙	øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs	Fig.
RM8ECA	5300HR-M	6	3.0	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.00	0.433	2.6	1
	5400HR-M	7	4.0	2.874	1.25	0.709	1.024	0.500	0.319	0.866	2.00	0.433	3.7	1
	5500HR-M	8	5.0	3.386	1.50	0.827	1.220	0.625	0.394	1.181	2.50	0.433	7.9	1
	5600HR-M	10	6.0	4.882	2.00	-	4.213	0.750	0.433	1.181	2.50	0.433	10.6	2
	5800HR-M	12	8.0	5.118	2.50	-	5.315	1.000	0.551	1.496	2.50	0.433	15.6	2
	51000HR-M	15	10.0	7.087	2.50	-	7.087	1.000	0.551	1.496	2.50	0.433	26.2	2
	51200HR-M	20	12.0	9.449	2.50	-	9.370	1.000	0.551	1.496	2.50	0.433	47.5	2

■ Parts

Screw	Wrench
FTGA0513	TW20-100

■ Available Inserts

SNEX-MF

SNEX-MM

SNEX-MA

SNMX-MF

SNMX-MM

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SNEX	1507ENN-MF				●				●									
	1507ENN-MM				●				●									
SNMX	1507ENN-MF				●				●									
	1507ENN-MM				●				●									

● : Stock item

RMH8ECA5000

Shim type

AA 15°

•AR : -6°
•RR : -8°~-6°

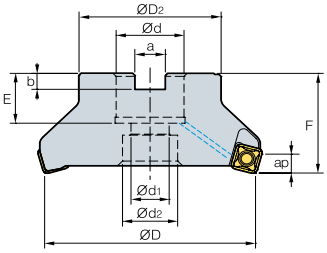


Fig. 1

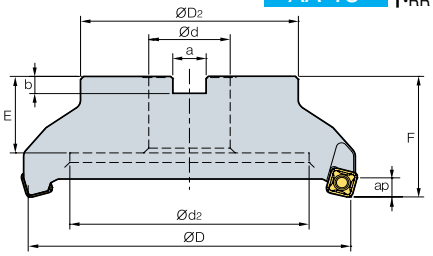


Fig. 2

(inch)

Designation		⊖	øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs	Fig.
RMH8ECA	**5300HR-M**	6	3.0	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.0	0.433	2.3	1
	5400HR-M	7	4.0	2.874	1.25	0.709	1.024	0.5	0.319	0.866	2.0	0.433	4.5	1
	5500HR-M	8	5.0	3.386	1.50	0.827	1.220	0.625	0.394	1.181	2.5	0.433	7.3	1
	5600R-M	10	6.0	4.882	2.00	-	4.213	0.75	0.433	1.181	2.5	0.433	9.5	2
	5800R-M	12	8.0	5.118	2.50	-	5.315	1.0	0.551	1.496	2.5	0.433	13.8	2
	51000R-M	15	10.0	7.087	2.50	-	7.087	1.0	0.551	1.496	2.5	0.433	23.8	2
	51200R-M	20	12.0	9.449	2.50	-	9.370	1.0	0.551	1.496	2.5	0.433	39	2
	51500R-M	22	15.0	9.843	2.50	-	9.370	1.0	0.551	1.496	3.0	0.433	77.4	2

■ Parts

Screw	Shim	Shim Screw	Wrench
FTGA0513	SS53RM8	SHXN0712F	TW20-100

■ Available Inserts

SNEX-MF	SNEX-MM	SNEX-MA

SNMX-MF	SNMX-MM

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SNEX	**1507ENN-MF**								●									
	1507ENN-MM																	
SNMX	**1507ENN-MF**				●				●									
	1507ENN-MM				●				●									

● : Stock item

Rich Mill SERIES RM8

RM8QCA4000

AA 2°
•AR : -6°
•RR : -8°~-6°

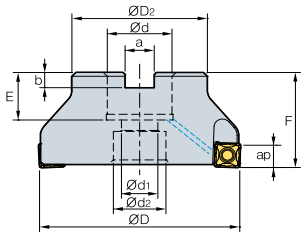


Fig. 1

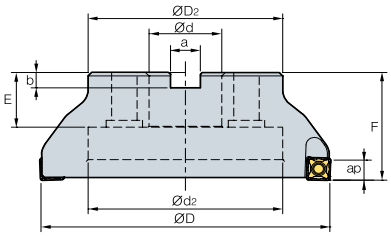


Fig. 2

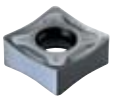
(inch)

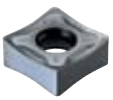
Designation		⊙	ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	lbs	Fig.
RM8QCA	4250HR-M	6	2.5	2.205	1.00	0.551	0.827	0.375	0.248	0.866	1.75	0.453		1
	4250HR-H	8	2.5	2.205	1.00	0.551	0.827	0.375	0.248	0.866	1.75	0.453		1
	4300HR-M	7	3.0	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2	0.453		1
	4300HR-H	10	3.0	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2	0.453		1
	4400HR-M	8	4.0	2.874	1.25	0.709	1.024	0.500	0.319	0.866	2	0.453		1
	4400HR-H	12	4.0	2.874	1.25	0.709	1.024	0.500	0.319	0.866	2	0.453		1
	4500HR-M	10	5.0	3.386	1.50	0.827	1.22	0.625	0.394	1.181	2.5	0.453		1
	4500HR-H	14	5.0	3.386	1.50	0.827	1.22	0.625	0.394	1.181	2.5	0.453		1
	4600R-M	12	6.0	4.882	2.00	-	4.213	0.750	0.433	1.181	2.5	0.453		2
	4600R-H	20	6.0	4.882	2.00	-	4.213	0.750	0.433	1.181	2.5	0.453		2
	4800R-M	14	8.0	5.118	2.50	-	5.315	1.000	0.551	1.496	2.5	0.453		2
	4800R-H	24	8.0	5.118	2.50	-	5.315	1.000	0.551	1.496	2.5	0.453		2

■ Parts

Screw	Wrench
PTKA0411-R3	TW15S

■ Available Inserts

SNEX-MF	SNEX-MM	SNEX-MA
		

SNMX-MF	SNMX-MM
	

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SNEX 1206QNN-MF				●	●			●									
SNMX 1206QNN-MF				●				●									
SNEX 1206QNN-MM				●				●									
SNMX 1206QNN-MM				●				●									
SNEX 1206QNN-MA																	
SNEX 120612-MF																	
SNMX 120612-MF																	
SNEX 120612-MM								●									
SNMX 120612-MM				●				●									
SNEX 120612-MA																	

● : Stock item

RMH8QCA4000

Shim type

AA 2°
•AR : -6°
•RR : -8°~-6°

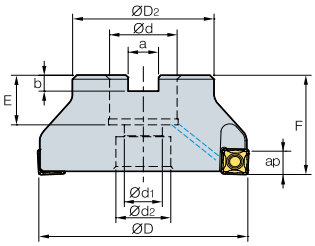


Fig. 1

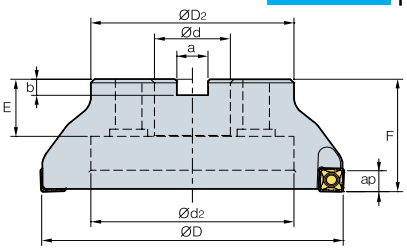


Fig. 2

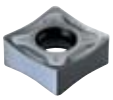
(inch)

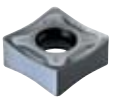
Designation		⊙	øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs	Fig.
RMH8QCA	4300HR-M	7	3.0	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.0	0.453	2.3	1
	4400HR-M	8	4.0	2.874	1.25	0.709	1.024	0.5	0.319	0.866	2.0	0.453	5.4	1
	4500HR-M	10	5.0	3.386	1.50	0.827	1.220	0.625	0.394	1.181	2.5	0.453	6.5	1
	4600R-M	12	6.0	4.882	2.00	-	4.213	0.75	0.433	1.181	2.5	0.453	8.6	2
	4800R-M	16	8.0	5.118	2.50	-	5.315	1.0	0.551	1.496	2.5	0.453	10.8	2

■ Parts

Screw	Shim	Shim Screw	Wrench
PTKA0411-R3	SS42RM8	SHXN0609F	TW15S

■ Available Inserts

SNEX-MF	SNEX-MM	SNEX-MA
		

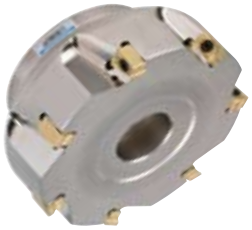
SNMX-MF	SNMX-MM
	

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SNEX 1206QNN-MF				●	●			●									
SNMX 1206QNN-MF				●				●									
SNEX 1206QNN-MM				●				●									
SNMX 1206QNN-MM				●				●									
SNEX 1206QNN-MA																	
SNEX 120612-MF																	
SNMX 120612-MF																	
SNEX 120612-MM								●									
SNMX 120612-MM				●				●									
SNEX 120612-MA																	

● : Stock item

RM4PCA3000

AA 0° | •AR : -6° •RR : -19°~-13°



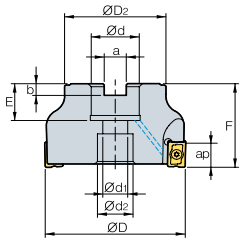


Fig. 1

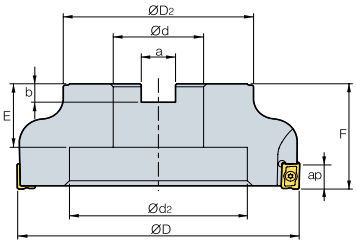


Fig. 2

(inch)

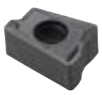
Designation		⊙	ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	lbs	Bolt	Fig.
RM4PCA	**3150HR**	4	1.50	1.417	0.50	0.287	0.433	0.250	0.169	0.630	1.50	0.354	0.5	SB0825	1
	3150HR-M	5	1.50	1.417	0.50	0.287	0.433	0.250	0.169	0.630	1.50	0.354	0.5	SB0825	1
	3200HR	5	2.00	1.772	0.75	0.413	0.630	0.313	0.220	0.787	1.75	0.354	0.8	SB1025	1
	3200HR-M	7	2.00	1.772	0.75	0.413	0.630	0.313	0.220	0.787	1.75	0.354	0.8	SB1025	1
	3250HR	7	2.50	2.205	1.00	0.551	0.827	0.375	0.248	0.866	1.75	0.354	1.3	SB1025	1
	3250HR-M	9	2.50	2.205	1.00	0.551	0.827	0.375	0.248	0.866	1.75	0.354	1.3	SB1025	1
	3300HR	8	3.00	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.00	0.354	2.7	SB1230	1
	3300HR-M	10	3.00	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.00	0.354	2.7	SB1230	1
	3400HR	9	4.00	2.874	1.25	0.709	1.024	0.500	0.319	0.866	2.00	0.354	4.3	SB1630	1
	3400HR-M	12	4.00	2.874	1.25	0.709	1.024	0.500	0.319	0.866	2.00	0.354	4.2	SB1630	1

■ Parts

Screw	Wrench
FTKA0307	TW09S

■ Available Inserts

LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM



Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX 100605PNR-MF				●	●			●									
LNMX 100605PNR-MF				●	●			●									
LNEX 100605PNR-MM				●	●			●									
LNMX 100605PNR-MM				●	●	●	●	●									
LNEX 100608PNR-MF				●				●									
LNMX 100608PNR-MF								●									
LNEX 100608PNR-MM								●									
LNMX 100608PNR-MM				●													
LNEX 100605PNR-MA														●			
LNEX 100605PNL-MM																	
LNMX 100605PNL-MM				●													

● : Stock item

RM4PCA4000

AA 0°
•AR : -6°
•RR : -19°~-13°

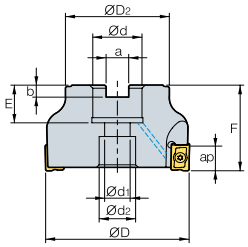


Fig. 1

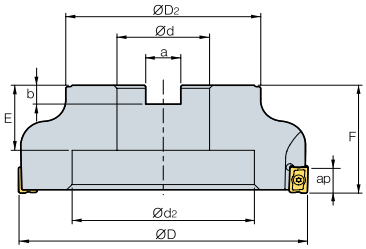


Fig. 2

(inch)

Designation			ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	lbs	Bolt	Fig.
RM4PCA	**4200HR**	3	2.00	1.772	0.75	0.413	0.630	0.313	0.220	0.787	1.75	0.551	0.8	SB1025	1
	4200HR-M	4	2.00	1.772	0.75	0.413	0.630	0.313	0.220	0.787	1.75	0.551	0.8	SB1025	1
	4250HR	4	2.50	2.205	1.00	0.551	0.827	0.375	0.248	0.866	1.75	0.551	1.2	SB1025	1
	4250HR-M	6	2.50	2.205	1.00	0.551	0.827	0.375	0.248	0.866	1.75	0.551	1.3	SB1025	1
	4300HR	5	3.00	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.00	0.551	2.6	SB1230	1
	4300HR-M	7	3.00	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.00	0.551	2.5	SB1230	1
	4400HR	5	4.00	2.874	1.25	0.709	1.024	0.500	0.319	0.866	2.00	0.551	4.0	SB1630	1
	4400HR-M	8	4.00	2.874	1.25	0.709	1.024	0.500	0.319	0.866	2.00	0.551	4.0	SB1630	1
	4500HR	7	5.00	3.386	1.50	0.827	1.220	0.625	0.394	1.181	2.50	0.551	8.3	SB2040	1
	4500HR-M	10	5.00	3.386	1.50	0.827	1.220	0.625	0.394	1.181	2.50	0.551	8.1	SB2040	1
	4600R	8	6.00	4.882	2.00	-	4.213	0.750	0.433	1.181	2.50	0.551	10.5	MBA	2
	4600R-M	11	6.00	4.882	2.00	-	4.213	0.750	0.433	1.181	2.50	0.551	10.4	MBA	2

■ Parts

Screw	Wrench
FTKA0412B	TW15S

■ Available Inserts

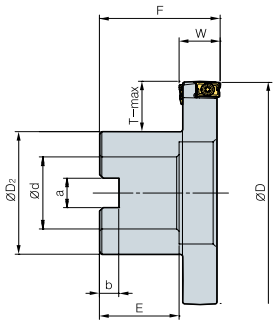
LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM

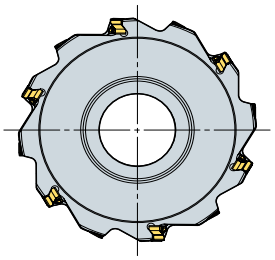
Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX 151004PNR-MF				●				●									
LNMX 151004PNR-MF				●				●									
LNEX 151004PNR-MM																	
LNMX 151004PNR-MM								●									
LNEX 151008PNR-MF					●			●									
LNMX 151008PNR-MF				●	●			●									
LNEX 151008PNR-MM				●	●			●									
LNMX 151008PNR-MM				●	●	●	●	●									
LNEX 151016PNR-MF																	
LNMX 151016PNR-MF																	
LNEX 151016PNR-MM																	
LNMX 151016PNR-MM				●													
LNEX 151004PNR-MA														●			
LNEX 151008PNR-MA														●			
LNEX 151008PNL-MM																	
LNMX 151008PNL-MM																	

● : Stock item

Rich Mill SERIES RM4

RM4PFCBA3000





(inch)

Designation		⊙	ØD	ØD2	Ød	a	b	E	F	W	T–max
RM4PFCBA	3300043R	10	3.0	1.575	1.00	0.375	0.248	0.866	2.0	0.433	0.673
	3300051R	10	3.0	1.575	1.00	0.375	0.248	0.866	2.0	0.512	0.673
	3300059R	10	3.0	1.575	1.00	0.375	0.248	0.866	2.0	0.591	0.673
	3300066R	10	3.0	1.575	1.00	0.375	0.248	0.866	2.0	0.669	0.673
	3400043R	12	4.0	2.126	1.25	0.5	0.319	0.866	2.0	0.433	0.898
	3400051R	12	4.0	2.126	1.25	0.5	0.319	0.866	2.0	0.512	0.898
	3400059R	12	4.0	2.126	1.25	0.5	0.319	0.866	2.0	0.591	0.898
	3400066R	12	4.0	2.126	1.25	0.5	0.319	0.866	2.0	0.669	0.898
	3500043R	14	5.0	2.756	1.50	0.625	0.394	1.181	2.5	0.433	1.083
	3500051R	14	5.0	2.756	1.50	0.625	0.394	1.181	2.5	0.512	1.083
	3500059R	14	5.0	2.756	1.50	0.625	0.394	1.181	2.5	0.591	1.083
	3500066R	14	5.0	2.756	1.50	0.625	0.394	1.181	2.5	0.669	1.083
	3600043R	16	6.0	2.756	1.50	0.625	0.394	1.181	2.5	0.433	1.583
	3600051R	16	6.0	2.756	1.50	0.625	0.394	1.181	2.5	0.512	1.583
	3600059R	16	6.0	2.756	1.50	0.625	0.394	1.181	2.5	0.591	1.583
	3600066R	16	6.0	2.756	1.50	0.625	0.394	1.181	2.5	0.669	1.583

■ Parts

Screw	Wrench
FTKA0307	TW09S

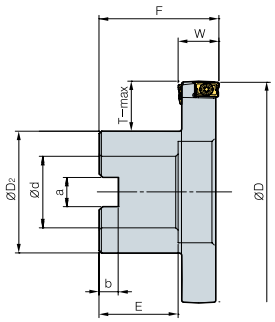
■ Available Inserts

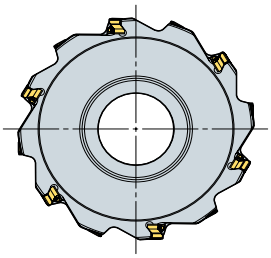
LNEX-MM	LNMX-MM

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX 100605PNR-MM				●	●			●									
LNMX 100605PNR-MM				●	●	●	●	●									
LNEX 100605PNL-MM																	
LNMX 100605PNL-MM				●													

● : Stock item

RM4PFCBA4000





(inch)

Designation		ØD	ØD2	Ød	a	b	E	F	W	T−max
RM4PFCBA4300086R	6	3.0	1.575	1.00	0.375	0.248	0.866	2.0	0.866	0.673
4300094R	6	3.0	1.575	1.00	0.375	0.248	0.866	2.0	0.945	0.673
4300102R	6	3.0	1.575	1.00	0.375	0.248	0.866	2.0	1.024	0.673
4300110R	6	3.0	1.575	1.00	0.375	0.248	0.866	2.0	1.102	0.673
4400086R	8	4.0	2.126	1.25	0.5	0.319	0.866	2.0	0.866	0.898
4400094R	8	4.0	2.126	1.25	0.5	0.319	0.866	2.0	0.945	0.898
4400102R	8	4.0	2.126	1.25	0.5	0.319	0.866	2.0	1.024	0.898
4400110R	8	4.0	2.126	1.25	0.5	0.319	0.866	2.0	1.102	0.898
4500086R	10	5.0	2.756	1.50	0.625	0.394	1.181	2.5	0.866	1.083
4500094R	10	5.0	2.756	1.50	0.625	0.394	1.181	2.5	0.945	1.083
4500102R	10	5.0	2.756	1.50	0.625	0.394	1.181	2.5	1.024	1.083
4500110R	10	5.0	2.756	1.50	0.625	0.394	1.181	2.5	1.102	1.083
4600086R	12	6.0	2.756	1.50	0.625	0.394	1.181	2.5	0.866	1.583
4600094R	12	6.0	2.756	1.50	0.625	0.394	1.181	2.5	0.945	1.583
4600102R	12	6.0	2.756	1.50	0.625	0.394	1.181	2.5	1.024	1.583
4600110R	12	6.0	2.756	1.50	0.625	0.394	1.181	2.5	1.102	1.583

■ Parts

Screw	Wrench
FTKA0412B	TW15S

■ Available Inserts

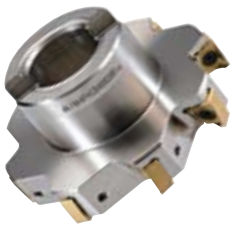
LNEX-MM	LNMX-MM

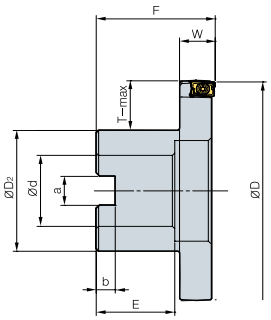
Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX 151008PNR-MM				●	●			●									
LNMX 151008PNR-MM				●	●	●	●	●									
LNEX 151008PNL-MM																	
LNMX 151008PNL-MM																	

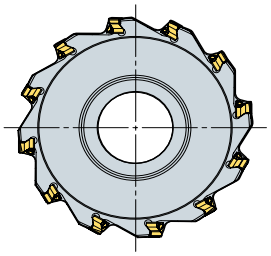
● : Stock item

Rich Mill SERIES RM4

RM4PHCBA3000/4000







(inch)

Designation		ØD	ØD2	Ød	a	b	E	F	W	T–max
RM4PHCBA3300059R	10	3.0	1.575	1.00	0.375	0.248	0.866	2.0	0.591	0.673
3400059R	12	4.0	2.126	1.25	0.5	0.319	0.866	2.0	0.591	0.898
3500059R	14	5.0	2.756	1.50	0.625	0.394	1.181	2.5	0.591	1.083
3600059R	16	6.0	2.756	1.50	0.625	0.394	1.181	2.5	0.591	1.583
4300078R	6	3.0	1.575	1.00	0.375	0.248	0.866	2.0	0.787	0.673
4400078R	8	4.0	2.126	1.25	0.5	0.319	0.866	2.0	0.787	0.898
4500078R	10	5.0	2.756	1.50	0.625	0.394	1.181	2.5	0.787	1.083
4600078R	12	6.0	2.756	1.50	0.625	0.394	1.181	2.5	0.787	1.583

■ Parts

	Screw	Wrench
3000 Type	FTKA0307	TW09S
4000 Type	FTKA0412B	TW15S

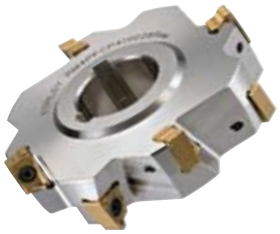
■ Available Inserts

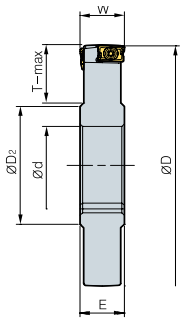
LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM

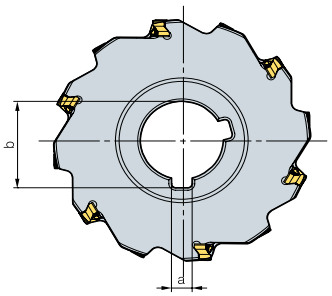
Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
3000 Type	LNEX 100605PNR-MF				●	●			●									
	LNMX 100605PNR-MF				●	●			●									
	LNEX 100605PNR-MM				●	●			●									
	LNMX 100605PNR-MM				●	●	●	●	●									
	LNEX 100608PNR-MF				●				●									
	LNMX 100608PNR-MF								●									
	LNEX 100608PNR-MM								●									
	LNMX 100608PNR-MM				●													
	LNEX 100605PNR-MA														●			
4000 Type	LNEX 151004PNR-MF				●				●									
	LNMX 151004PNR-MF				●				●									
	LNEX 151004PNR-MM																	
	LNMX 151004PNR-MM								●									
	LNEX 151008PNR-MF					●			●									
	LNMX 151008PNR-MF				●	●			●									
	LNEX 151008PNR-MM				●	●			●									
	LNMX 151008PNR-MM				●	●	●	●	●									
	LNEX 151016PNR-MF																	
	LNMX 151016PNR-MF																	
	LNEX 151016PNR-MM																	
	LNMX 151016PNR-MM				●													
	LNEX 151004PNR-MA														●			
	LNEX 151008PNR-MA														●			

● : Stock item

RM4PFCPA3000







(inch)

Designation		⊚	øD	øD2	Ød	a	b	E	W	T–max
RM4PFCPA	3300043R	10	3.0	1.634	1.00	0.25	1.104	0.433	0.433	0.604
	3300051R	10	3.0	1.634	1.00	0.25	1.104	0.512	0.512	0.604
	3300059R	10	3.0	1.634	1.00	0.25	1.104	0.591	0.591	0.604
	3300066R	10	3.0	1.634	1.00	0.25	1.104	0.669	0.669	0.604
	3400043R	12	4.0	1.890	1.25	0.313	1.385	0.433	0.433	0.945
	3400051R	12	4.0	1.890	1.25	0.313	1.385	0.512	0.512	0.945
	3400059R	12	4.0	1.890	1.25	0.313	1.385	0.591	0.591	0.945
	3400066R	12	4.0	1.890	1.25	0.313	1.385	0.669	0.669	0.945
	3500043R	14	5.0	2.283	1.50	0.375	1.666	0.433	0.433	1.280
	3500051R	14	5.0	2.283	1.50	0.375	1.666	0.512	0.512	1.280
	3500059R	14	5.0	2.283	1.50	0.375	1.666	0.591	0.591	1.280
	3500066R	14	5.0	2.283	1.50	0.375	1.666	0.669	0.669	1.280
	3600043R	16	6.0	2.283	1.50	0.375	1.666	0.433	0.433	1.780
	3600051R	16	6.0	2.283	1.50	0.375	1.666	0.512	0.512	1.780
	3600059R	16	6.0	2.283	1.50	0.375	1.666	0.591	0.591	1.780
	3600066R	16	6.0	2.283	1.50	0.375	1.666	0.669	0.669	1.780

■ Parts

Screw	Wrench
FTKA0307	TW09S

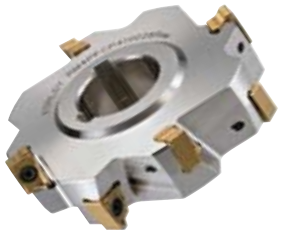
■ Available Inserts

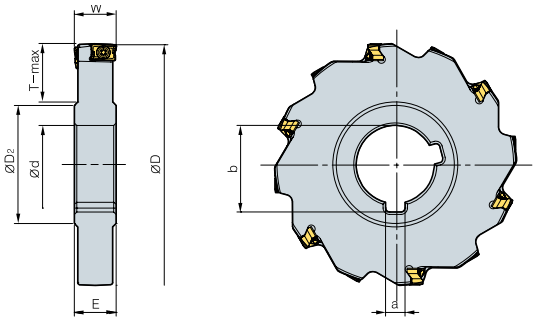
LNEX-MM	LNMX-MM

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX 100605PNR-MM				●	●			●									
LNMX 100605PNR-MM				●	●	●	●	●									
LNEX 100605PNL-MM																	
LNMX 100605PNL-MM				●													

● : Stock item

RM4PFCPA4000





(inch)

Designation		⊙	øD	øD2	ød	a	b	E	W	T-max
RM4PFCPA	4300086R	6	3.0	1.634	1.00	0.25	1.104	0.866	0.866	0.604
	4300094R	6	3.0	1.634	1.00	0.25	1.104	0.945	0.945	0.604
	4300102R	6	3.0	1.634	1.00	0.25	1.104	1.024	1.024	0.604
	4300110R	6	3.0	1.634	1.00	0.25	1.104	1.102	1.102	0.604
	4400086R	8	4.0	1.890	1.25	0.313	1.385	0.866	0.866	0.945
	4400094R	8	4.0	1.890	1.25	0.313	1.385	0.945	0.945	0.945
	4400102R	8	4.0	1.890	1.25	0.313	1.385	1.024	1.024	0.945
	4400110R	8	4.0	1.890	1.25	0.313	1.385	1.102	1.102	0.945
	4500086R	10	5.0	2.283	1.50	0.375	1.666	0.866	0.866	1.280
	4500094R	10	5.0	2.283	1.50	0.375	1.666	0.945	0.945	1.280
	4500102R	10	5.0	2.283	1.50	0.375	1.666	1.024	1.024	1.280
	4500110R	10	5.0	2.283	1.50	0.375	1.666	1.102	1.102	1.280
	4600086R	12	6.0	2.283	1.50	0.375	1.666	0.866	0.866	1.780
	4600094R	12	6.0	2.283	1.50	0.375	1.666	0.945	0.945	1.780
	4600102R	12	6.0	2.283	1.50	0.375	1.666	1.024	1.024	1.780
	4600110R	12	6.0	2.283	1.50	0.375	1.666	1.102	1.102	1.780

■ Parts

Screw	Wrench
FTKA0412B	TW15S

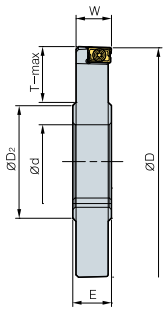
■ Available Inserts

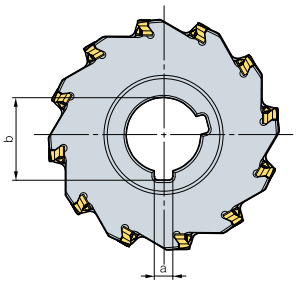
LNEX-MM	LNMX-MM

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX 151008PNR-MM				●	●			●									
LNMX 151008PNR-MM				●	●	●	●	●									
LNEX 151008PNL-MM																	
LNMX 151008PNL-MM																	

● : Stock item

RM4PHCPA3000/4000





(inch)

Designation		⊙	øD	øD2	ød	a	b	E	W	T-max
RM4PHCPA	3300059R	10	3.0	1.634	1.00	0.25	1.104	0.650	0.594	0.604
	3400059R	12	4.0	1.890	1.25	0.313	1.385	0.650	0.594	0.945
	3500059R	14	5.0	2.283	1.50	0.375	1.666	0.650	0.594	1.280
	3600059R	16	6.0	2.283	1.50	0.375	1.666	0.650	0.594	1.780
	4300078R	6	3.0	1.634	1.00	0.25	1.104	0.866	0.780	0.604
	4400078R	8	4.0	1.890	1.25	0.313	1.385	0.866	0.780	0.945
	4500078R	10	5.0	1.890	1.50	0.375	1.666	0.866	0.780	1.280
	4600078R	12	6.0	1.890	1.50	0.375	1.666	0.866	0.780	1.780

■ Parts

	Screw	Wrench
3000 Type	FTKA0307	TW09S
4000 Type	FTKA0412B	TW15S

■ Available Inserts

LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM

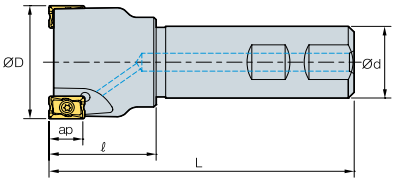
Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
3000 Type	LNEX 100605PNR-MF				●	●			●									
	LNMX 100605PNR-MF				●	●			●									
	LNEX 100605PNR-MM				●	●			●									
	LNMX 100605PNR-MM				●	●	●	●	●									
	LNEX 100608PNR-MF				●				●									
	LNMX 100608PNR-MF								●									
	LNEX 100608PNR-MM								●									
	LNMX 100608PNR-MM				●													
	LNEX 100605PNR-MA														●			
4000 Type	LNEX 151004PNR-MF				●				●									
	LNMX 151004PNR-MF				●				●									
	LNEX 151004PNR-MM																	
	LNMX 151004PNR-MM								●									
	LNEX 151008PNR-MF					●			●									
	LNMX 151008PNR-MF				●	●			●									
	LNEX 151008PNR-MM				●	●			●									
	LNMX 151008PNR-MM				●	●	●	●	●									
	LNEX 151016PNR-MF																	
	LNMX 151016PNR-MF																	
	LNEX 151016PNR-MM																	
	LNMX 151016PNR-MM				●													
	LNEX 151004PNR-MA														●			
	LNEX 151008PNR-MA														●			

● : Stock item

Rich Mill SERIES RM4

RM4PSA3000

AA 0°
•AR : -6°
•RR : -39°~-16°



(inch)

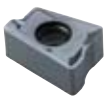
Designation	⊙	øD	ød	ℓ	L	ap	lbs
RM4PSA3056HR-S062	1	0.562	0.625	0.906	3.543	0.354	0.2
3062HR-S062	1	0.625	0.625	0.984	3.543	0.354	0.2
3068HR-S062	2	0.688	0.625	0.906	3.543	0.354	0.3
3075HR-S075	2	0.750	0.750	1.181	3.937	0.354	0.5
3075HR-S075M	3	0.750	0.750	1.181	3.937	0.354	0.5
3100HR-S100	2	1.000	1.000	1.378	4.528	0.354	0.8
3100HR-S100M	3	1.000	1.000	1.378	4.528	0.354	0.8
3125HR-S125	3	1.250	1.250	1.575	4.921	0.354	1.5
3125HR-S125M	4	1.250	1.250	1.575	4.921	0.354	1.5
3150HR-S125	4	1.500	1.250	1.654	5.118	0.354	1.9
3150HR-S125M	5	1.500	1.250	1.654	5.118	0.354	1.9
3150HR-S150	4	1.500	1.500	1.654	5.118	0.354	2.6
3150HR-S150M	5	1.500	1.500	1.654	5.118	0.354	2.6
3150HR-S165	4	1.500	1.654	1.654	5.118	0.354	2.8
3150HR-S165M	5	1.500	1.654	1.654	5.118	0.354	2.8
3200HR-S125	5	2.000	1.250	1.772	5.315	0.354	2.3
3200HR-S125M	7	2.000	1.250	1.772	5.315	0.354	2.3
3200HR-S150	5	2.000	1.500	1.772	5.315	0.354	3.0
3200HR-S150M	7	2.000	1.500	1.772	5.315	0.354	3.0
3200HR-S165	5	2.000	1.654	1.772	5.315	0.354	3.3
3200HR-S165M	7	2.000	1.654	1.772	5.315	0.354	3.3

■ Parts

Screw	Wrench
FTKA0307	TW09S

■ Available Inserts

LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM

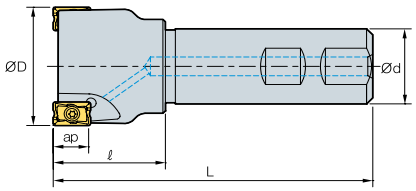


Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NCS330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX 100605PNR-MF				●	●			●									
LNMX 100605PNR-MF				●	●			●									
LNEX 100605PNR-MM				●	●			●									
LNMX 100605PNR-MM				●	●	●	●	●									
LNEX 100608PNR-MF				●				●									
LNMX 100608PNR-MF								●									
LNEX 100608PNR-MM								●									
LNMX 100608PNR-MM				●													
LNEX 100605PNR-MA														●			
LNEX 100605PNL-MM								●									
LNMX 100605PNL-MM				●				●									

● : Stock item

RM4PSA4000

AA 0° | •AR : -6° •RR : -24°~-14°



(inch)

Designation		ØD	Ød	ℓ	L	ap	kg
RM4PSA 44125HR-S125	2	1.250	1.250	1.575	4.921	0.551	1.5
4150HR-S125	3	1.500	1.250	1.654	5.118	0.551	1.8
4150HR-S150	3	1.500	1.500	1.654	5.118	0.551	2.5
4150HR-S165	3	1.500	1.654	1.654	5.118	0.551	2.7
4200HR-S125	3	2.000	1.250	1.772	5.315	0.551	2.2
4200HR-S125M	4	2.000	1.250	1.772	5.315	0.551	2.2
4200HR-S150	3	2.000	1.500	1.772	5.315	0.551	3.0
4200HR-S150M	4	2.000	1.500	1.772	5.315	0.551	2.9
4200HR-S165	3	2.000	1.654	1.772	5.315	0.551	3.2
4200HR-S165M	4	2.000	1.654	1.772	5.315	0.551	3.2
4250HR-S125	4	2.500	1.250	1.772	5.315	0.551	2.8
4250HR-S125M	6	2.500	1.250	1.772	5.315	0.551	2.7
4250HR-S150	4	2.500	1.500	1.772	5.315	0.551	3.6
4250HR-S150M	6	2.500	1.500	1.772	5.315	0.551	3.5
4250HR-S165	4	2.500	1.654	1.772	5.315	0.551	3.8
4250HR-S165M	6	2.500	1.654	1.772	5.315	0.551	3.7

■ Parts

Screw	Wrench
FTKA0412B	TW15S

■ Available Inserts

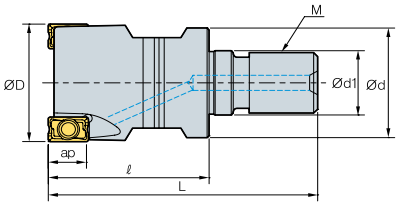
LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX 151004PNR-MF				●				●									
LNMX 151004PNR-MF				●				●									
LNEX 151004PNR-MM																	
LNMX 151004PNR-MM								●									
LNEX 151008PNR-MF					●			●									
LNMX 151008PNR-MF				●	●			●									
LNEX 151008PNR-MM				●	●			●									
LNMX 151008PNR-MM				●	●	●	●	●									
LNEX 151016PNR-MF																	
LNMX 151016PNR-MF																	
LNEX 151016PNR-MM																	
LNMX 151016PNR-MM				●													
LNEX 151004PNR-MA														●			
LNEX 151008PNR-MA														●			

● : Stock item

RM4PMA

AA 0°
•AR : -6°
•RR : -39°~-16°



(inch)

Designation		øD	ød	ød1	ℓ	L	M	ap	lbs
RM4PMA 3056HR-M06	1	0.563	0.433	0.256	1.575	0.984	M06	0.354	0.04
3063HR-M08	1	0.625	0.571	0.335	0.654	0.984	M08	0.354	0.04
3068HR-M08	2	0.688	0.571	0.335	0.654	0.984	M08	0.354	0.07
3075HR-M10	2	0.750	0.689	0.413	2.008	1.181	M10	0.354	0.13
3100HR-M12	2	1.000	0.906	0.492	2.323	1.378	M12	0.354	0.24
3125HR-M16	3	1.250	1.142	0.669	2.638	1.575	M16	0.354	0.46
3150HR-M16	4	1.500	1.142	0.669	2.638	1.575	M16	0.354	0.57
3200HR-M16	5	2.000	1.142	0.669	2.835	1.772	M16	0.354	0.90

■ Parts

Screw	Wrench
FTKA0307	TW09S

■ Available Inserts

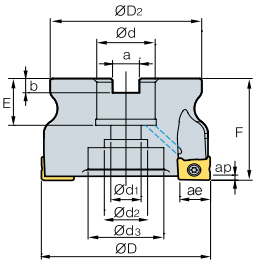
LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX 100605PNR-MF				●	●			●									
LNMX 100605PNR-MF				●	●			●									
LNEX 100605PNR-MM				●	●			●									
LNMX 100605PNR-MM				●	●	●	●	●									
LNEX 100608PNR-MF				●				●									
LNMX 100608PNR-MF								●									
LNEX 100608PNR-MM								●									
LNMX 100608PNR-MM				●													
LNEX 100605PNR-MA														●			
LNEX 100605PNL-MM								●									
LNMX 100605PNL-MM				●				●									

● : Stock item

RM4ZCA3000/4000

AA 0°
•AR : -11°
•RR : -12°~10°



(inch)

Designation		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	ae	lbs
RM4ZCA	3150HR	4	1.50	1.417	0.50	0.287	0.433	-	0.250	0.169	0.630	1.50	0.059	0.354	0.4
	3200HR	5	2.00	1.850	0.75	0.433	0.630	-	0.313	0.220	0.787	1.75	0.059	0.354	0.7
	4250HR	5	2.50	2.283	1.00	0.551	0.827	-	0.375	0.248	0.866	1.75	0.098	0.551	1.2
	4300HR	6	3.00	2.677	1.00	0.551	0.827	-	0.375	0.248	0.866	1.75	0.098	0.551	2.4
	4400HR	7	4.00	3.150	1.25	0.709	1.024	1.575	0.500	0.319	0.866	2.00	0.098	0.551	3.7

■ Parts

	Screw	Wrench
3000 Type	FTKA0307	TW09S
4000 Type	FTKA0412B	TW15S

■ Available Inserts

LNEX-MM

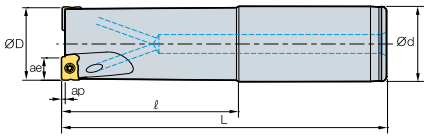
LNMX-MM

Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
3000 Type	LNEX 100605PNL-MM																	
	LNMX 100605PNL-MM				●													
4000 Type	LNEX 151008PNL-MM																	
	LNMX 151008PNL-MM																	

● : Stock item

RM4ZSA3000

AA 0°
•AR : -11°
•RR : -17°~-14°



(inch)

Designation		⊚	øD	ød	ℓ	L	ap	ae	lbs
RM4ZSA	3100HR-L100	2	1.000	1.000	5.000	8.000	0.059	0.354	1.3
	3125HR-L125	3	1.250	1.250	5.000	8.500	0.059	0.354	2.4
	3150HR-L125	4	1.500	1.500	1.654	10.000	0.059	0.354	3.3

■ Parts

Screw	Wrench
FTKA0307	TW09S

■ Available Inserts

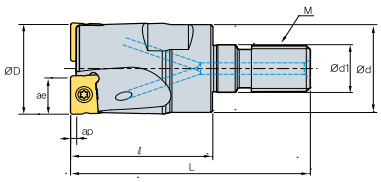
LNEX-MM	LNMX-MM

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC5300	PC3500	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX 100605PNL-MM																	
LNMX 100605PNL-MM				●													

● : Stock item

RM4ZMA3000

AA 0° | •AR : -11° •RR : -17°~-14°



(inch)

Designation	⊛	øD	ød	ød1	ℓ	L	M	ap	ae	lbs
RM4ZMA 3100HR-M12	2	1.000	0.906	0.492	1.378	2.323	M12	0.059	0.354	0.2
3125HR-M16	3	1.250	1.142	0.669	1.575	2.638	M16	0.059	0.354	0.4
3150HR-M16	4	1.500	1.142	0.669	1.575	2.638	M16	0.059	0.354	0.6

■ Parts

Screw	Wrench
FTKA0307	TW09S

■ Available Inserts

LNEX-MM	LNMX-MM

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC5300	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX 100605PNL-MM																	
LNMX 100605PNL-MM				●													

● : Stock item

Rich Mill SERIES RM16 / RMT

RM16ACA6000/8000

AA 45° | •AR : -6° •RR : -6°

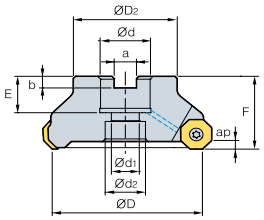


Fig. 1

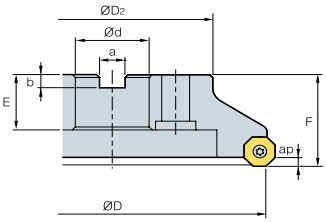


Fig. 2

(inch)

Designation		⊙	øD	øD2	ød	ød1	ød2	a	b	E	F	ap	lbs	Fig.
RM16ACA	6250HR-M	5	2.5	2.205	1.00	0.551	0.827	0.374	0.236	0.866	1.75	0.157	1.5	1
	6250HR-H	7	2.5	2.205	1.00	0.551	0.827	0.374	0.236	0.866	1.75	0.157	1.5	1
	6300HR-M	6	3.0	2.205	1.00	0.551	0.827	0.374	0.236	0.866	2.00	0.157	2.6	1
	6300HR-H	8	3.0	2.205	1.00	0.551	0.827	0.374	0.236	0.866	2.00	0.157	2.6	1
	6400HR-M	7	4.0	2.874	1.25	0.709	1.024	0.500	0.315	0.866	2.00	0.157	4.2	1
	6400HR-H	10	4.0	2.874	1.25	0.709	1.024	0.500	0.315	0.866	2.00	0.157	4.2	1
	6500HR-M	8	5.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.50	0.157	7.7	1
	6500HR-H	14	5.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.50	0.157	7.7	1
	6600R-M	10	6.0	4.882	2.00	-	4.213	0.748	0.433	1.181	2.50	0.157	9.0	2
	6600R-H	16	6.0	4.882	2.00	-	4.213	0.748	0.433	1.181	2.50	0.157	9.0	2
	6800R-M	12	8.0	5.118	2.50	-	5.315	1.012	0.551	1.496	2.50	0.157	13.4	2
	6800R-H	20	8.0	5.118	2.50	-	5.315	1.012	0.551	1.496	2.50	0.157	13.4	2
	8250HR-M	5	2.5	2.205	1.00	0.551	0.827	0.374	0.236	0.866	1.75	0.216	1.5	1
	8250HR-H	6	2.5	2.205	1.00	0.551	0.827	0.374	0.236	0.866	1.75	0.216	1.5	1
	8300HR-M	6	3.0	2.205	1.00	0.551	0.827	0.374	0.236	0.866	2.00	0.216	2.6	1
	8300HR-H	7	3.0	2.205	1.00	0.551	0.827	0.374	0.236	0.866	2.00	0.216	2.6	1
	8400HR-M	7	4.0	2.874	1.25	0.709	1.024	0.500	0.315	0.866	2.00	0.216	4.0	1
	8400HR-H	9	4.0	2.874	1.25	0.709	1.024	0.500	0.315	0.866	2.00	0.216	4.0	1
	8500HR-M	8	5.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.50	0.216	7.7	1
	8500HR-H	10	5.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.50	0.216	7.7	1
	8600R-M	10	6.0	4.882	2.00	-	4.213	0.748	0.433	1.181	2.50	0.216	9.9	2
	8600R-H	14	6.0	4.882	2.00	-	4.213	0.748	0.433	1.181	2.50	0.216	9.9	2
	8800R-M	12	8.0	5.118	2.50	-	5.315	1.012	0.551	1.496	2.50	0.216	12.8	2
	8800R-H	16	8.0	5.118	2.50	-	5.315	1.012	0.551	1.496	2.50	0.216	12.8	2

■ Parts

	Screw	Wrench
6000 Type	FTGA0513	TW20-100
8000 Type	FTGA0513	TW20-100

■ Available Inserts

ONHX-MF

ONHX-MM

ONHX-W

ONHX-MA

ONMX-MF

ONMX-MM

Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
6000 Type	ONMX 060608-MM				●				●									
	ONHX 060608-MM				●				●									
	ONMX 060608-MF				●				●									
	ONHX 060608-MF				●				●									
	ONHX 060608-W				●	●		●	●									
	ONMX 0606ANN-MM				●	●			●									
	ONHX 0606ANN-MM																	
	ONMX 0606ANN-MF					●		●	●									
	ONHX 0606ANN-MF								●									
	ONHX 060608-MA																	
8000 Type	ONMX 080608-MM				●	●		●	●									
	ONHX 080608-MM				●				●									
	ONMX 080608-MF								●									
	ONHX 080608-MF																	
	ONHX 080608-W				●													
	ONMX 0806ANN-MM				●	●		●	●									
	ONHX 0806ANN-MM																	
	ONMX 0806ANN-MF				●	●			●									
	ONHX 0806ANN-MF								●									
	ONHX 080608-MA														●			

● : Stock item

RMT8AA4000/5000

AA 45°
•AR : -5°
•RR : -6°

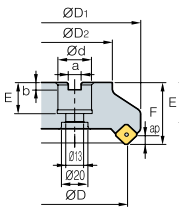


Fig. 1

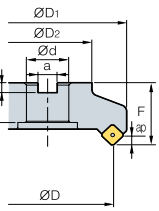


Fig. 2

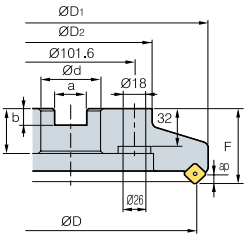


Fig. 3

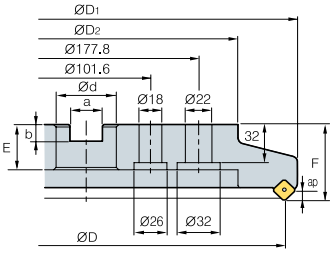


Fig. 4

(inch)

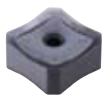
Designation		⊚	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	lbs	Fig.
RMT8AA	4300R/L	5	3.0	3,780	2.205	1.0	0.374	0.248	0.866	2.0	0.157	3.52	1
	4300R/L-M	6	3.0	2,953	2.205	1.0	0.374	0.319	0.866	2.0	0.157	3.52	1
	4400R/L	6	4.0	4,803	2.874	1.3	1.500	0.319	0.866	2.0	0.157	5.06	2
	4400R/L-M	8	4.0	3.996	2.874	1.3	1.500	0.394	0.866	2.0	0.157	5.06	2
	4500R/L	8	5.0	5.748	3.386	1.5	1.626	0.394	1.181	2.5	0.157	9.46	2
	4500R/L-M	10	5.0	4.961	3.386	1.5	1.626	0.433	1.181	2.5	0.157	9.46	2
	4600R/L	10	6.0	6.732	4.882	2.0	0.748	0.433	1.181	2.5	0.157	14.30	2
	4600R/L-M	14	6.0	5.965	4.882	2.0	0.748	0.551	1.181	2.5	0.157	14.30	2
	4800R/L	12	8.0	8.740	5.118	2.5	1.000	0.551	1.496	2.5	0.157	19.36	3
	4800R/L-M	18	8.0	7.953	5.118	2.5	1.000	0.551	1.496	2.5	0.157	19.36	3
	41000R/L	16	10.0	10.748	7.087	2.5	1.000	0.551	1.496	2.5	0.157	31.02	3
	41000R/L-M	22	10.0	9.961	7.087	2.5	1.000	0.551	1.496	2.5	0.157	31.02	3
	41200R/L	20	12.0	8.819	9.449	2.5	1.000	0.551	1.496	2.5	0.157	49.06	4
	41200R/L-M	28	12.0	11.969	9.449	2.5	1.000	0.248	1.496	2.5	0.157	49.06	4
	5300R/L	5	3.0	3.937	2.205	1.0	0.374	0.248	0.866	2.0	0.236	3.96	1
	5300R/L-M	6	3.0	2.953	2.205	1.0	0.374	0.319	0.866	2.0	0.236	3.96	1
	5400R/L	6	4.0	4.961	2.874	1.3	1.500	0.319	0.866	2.0	0.236	5.72	2
	5400R/L-M	8	4.0	3.996	2.874	1.3	1.500	0.394	0.866	2.0	0.236	5.72	2
	5500R/L	8	5.0	5.945	3.386	1.5	1.626	0.394	1.181	2.5	0.236	9.46	2
	5500R/L-M	10	5.0	4.961	3.386	1.5	1.626	0.433	1.181	2.5	0.236	9.46	2
	5600R/L	10	6.0	6.929	4.882	2.0	0.748	0.433	1.181	2.5	0.236	14.30	2
	5600R/L-M	14	6.0	5.965	4.882	2.0	0.748	0.551	1.181	2.5	0.236	14.30	2
	5800R/L	12	8.0	8.937	5.118	2.5	1.000	0.551	1.496	2.5	0.236	19.80	3
	5800R/L-M	18	8.0	7.953	5.118	2.5	1.000	0.551	1.496	2.5	0.236	19.80	3
	51000R/L	16	10.0	10.945	7.087	2.5	1.000	0.551	1.496	2.5	0.236	31.68	3
	51000R/L-M	22	10.0	9.961	7.087	2.5	1.000	0.551	1.496	2.5	0.236	31.68	3
	51200R/L	20	12.0	12.953	9.449	2.5	1.000	0.551	1.496	2.5	0.236	48.84	4
	51200R/L-M	28	12.0	11.969	9.449	2.5	1.000		1.496	2.5	0.236	48.84	4

■ Parts

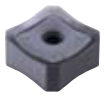
	Screw	Screw	Spring	Latch	Wrench
4000 Type	ETKA0523	KHB0417	SPR0315	LTC05SR-RM4	TW20-100
5000 Type	ETKA0625	KHB0417	SPR0415	LTC06SR-RM5	TW20-100

■ Available Inserts

SNC(M)F-MF



SNC(M)F-MM



Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC5300	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
4000 Type	SNCF 1206ANN-MF																	
	SNCF 1206ANN-MM				●													
	SNMF 1206ANN-MF																	
	SNMF 1206ANN-MM																	
5000 Type	SNCF 1507ANN-MF								●									
	SNCF 1507ANN-MM				●		●											
	SNMF 1507ANN-MF																	
	SNMF 1507ANN-MM				●													

● : Stock item

RMT8EA4000/5000

AA 15° | •AR : -6° •RR : -11°~-8°

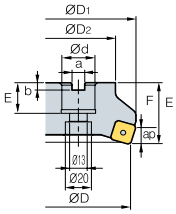


Fig. 1

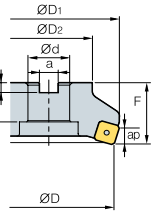


Fig. 2

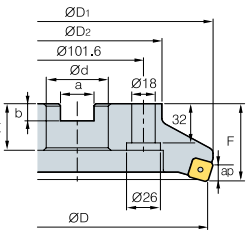


Fig. 3

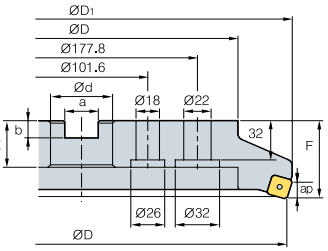


Fig. 4

(inch)

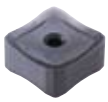
Designation		⊚	øD	øD1	øD2	ød	a	b	E	F	ap	lbs	Fig.
RMT8EA	4300R/L	5	3.0	3.268	2.205	1.0	0.374	0.248	0.866	2.0	0.197	3.30	1
	4300R/L-M	6	3.0	2.953	2.205	1.0	0.374	0.248	0.866	2.0	0.197	3.30	1
	4400R/L	6	4.0	4.291	2.874	1.3	0.500	0.319	0.866	2.0	0.197	4.40	2
	4400R/L-M	8	4.0	3.996	2.874	1.3	0.500	0.319	0.866	2.0	0.197	4.40	2
	4500R/L	8	5.0	5.276	3.386	0.5	0.626	0.394	1.181	2.5	0.197	8.36	2
	4500R/L-M	10	5.0	4.496	3.386	0.5	0.626	0.394	1.181	2.5	0.197	8.36	2
	4600R/L	10	6.0	6.299	4.882	2.0	0.748	0.433	1.181	2.5	0.197	12.76	2
	4600R/L-M	14	6.0	5.965	4.882	2.0	0.748	0.433	1.181	2.5	0.197	12.76	2
	4800R/L	12	8.0	8.268	5.118	2.5	1.000	0.551	1.496	2.5	0.197	17.38	3
	4800R/L-M	18	8.0	7.953	5.118	2.5	1.000	0.551	1.496	2.5	0.197	17.38	3
	41000R/L	16	10.0	10.276	7.087	2.5	1.000	0.551	1.496	2.5	0.197	28.60	3
	41000R/L-M	22	10.0	9.961	7.087	2.5	1.000	0.551	1.496	2.5	0.197	28.60	3
	41200R/L	20	12.0	12.283	9.449	2.5	1.000	0.551	1.496	2.5	0.197	45.10	4
	41200R/L-M	28	12.0	11.969	9.449	2.5	1.000	0.551	1.496	2.5	0.197	45.10	4
	5300R/L	5	3.0	3.307	2.205	1.0	0.374	0.248	0.866	2.0	0.315	3.08	1
	5300R/L-M	6	3.0	2.953	2.205	1.0	0.374	0.248	0.866	2.0	0.315	4.18	1
	5400R/L	6	4.0	4.331	2.874	1.3	0.500	0.319	0.866	2.0	0.315	4.18	2
	5400R/L-M	8	4.0	3.996	2.874	1.3	0.500	0.319	0.866	2.0	0.315	4.18	2
	5500R/L	8	5.0	5.315	3.386	0.5	0.626	0.394	1.181	2.5	0.315	8.14	2
	5500R/L-M	10	5.0	4.961	3.386	0.5	0.626	0.394	1.181	2.5	0.315	8.14	2
	5600R/L	10	6.0	6.339	4.882	2.0	0.748	0.433	1.181	2.5	0.315	12.54	2
	5600R/L-M	14	6.0	5.965	4.882	2.0	0.748	0.433	1.181	2.5	0.315	12.54	2
	5800R/L	12	8.0	8.307	5.118	2.5	1.000	0.551	1.496	2.5	0.315	16.50	3
	5800R/L-M	18	8.0	7.953	5.118	2.5	1.000	0.551	1.496	2.5	0.315	16.50	3
	51000R/L	16	10.0	10.315	7.087	2.5	1.000	0.551	1.496	2.5	0.315	27.28	3
	51000R/L-M	22	10.0	9.961	7.087	2.5	1.000	0.551	1.496	2.5	0.315	27.28	3
	51200R/L	20	12.0	12.323	9.449	2.5	1.000	0.551	1.496	2.5	0.315	43.78	4
	51200R/L-M	28	12.0	11.969	9.449	2.5	1.000	0.551	1.496	2.5	0.315	43.78	4

■ Parts

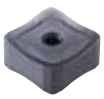
	Screw	Screw	Spring	Latch	Wrench
4000 Type	ETKA0523	KHB0417	SPR0315	LTC05SR-RM4	TW20-100
5000 Type	ETKA0625	KHB0417	SPR0415	LTC06SR-RM5	TW20-100

■ Available Inserts

SNC(M)F-MF



SNC(M)F-MM

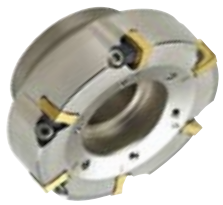


Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC5300	PC3545	PC3530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
4000 Type	SNCF 1206ENN-MF							●									
	1206ENN-MM				●		●										
	SNMF 1206ENN-MF				●												
	1206ENN-MM				●												
5000 Type	SNCF 1507ENN-MF							●									
	1507ENN-MM				●		●										
	SNMF 1507ENN-MF																
	1507ENN-MM				●												

● : Stock item

RMT8QA

AA 2°
•AR : -6°
•RR : -11°~-8°



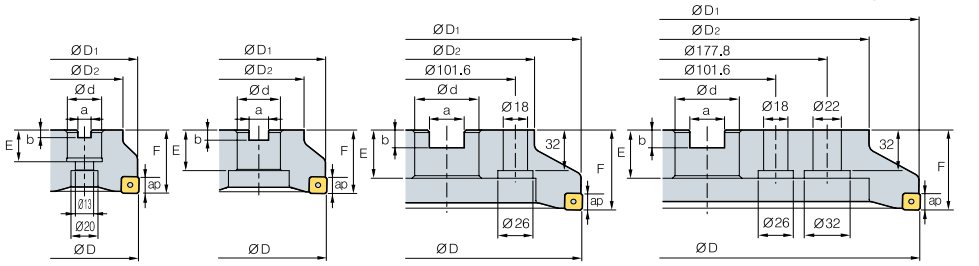


Fig. 1 Fig. 2 Fig. 3 Fig. 4

(inch)

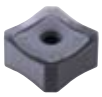
Designation			øD	øD1	øD2	ød	a	b	E	F	ap	lbs	Fig.
RMT8QA	**4300R/L**	5	3.0	2.953	2.205	1.0	9.500	6.300	22.000	2.0	0.197	3.08	1
	4300R/L-M	6	3.0	2.953	2.205	1.0	0.374	0.248	0.866	2.0	0.197	3.08	1
	4400R/L	6	4.0	3.996	2.874	1.3	12.700	8.100	22.000	2.0	0.197	3.86	2
	4400R/L-M	8	4.0	3.996	2.874	1.3	0.500	0.319	0.866	2.0	0.197	3.86	2
	4500R/L	8	5.0	4.961	3.386	1.5	15.900	10.000	30.000	2.5	0.197	7.92	2
	4500R/L-M	10	5.0	4.961	3.386	1.5	0.626	0.394	1.181	2.5	0.197	7.92	2
	4600R/L	10	6.0	5.965	4.882	2.0	19.000	11.000	30.000	2.5	0.197	12.54	2
	4600R/L-M	14	6.0	5.965	4.882	2.0	0.748	0.433	1.181	2.5	0.197	12.54	2
	4800R/L	12	8.0	7.953	5.118	2.5	15.400	14.000	38.000	2.5	0.197	16.50	3
	4800R/L-M	18	8.0	7.953	5.118	2.5	1.000	0.551	1.496	2.5	0.197	16.50	3
	41000R/L	16	10.0	9.961	7.087	2.5	15.400	14.000	38.000	2.5	0.197	27.50	3
	41000R/L-M	22	10.0	9.961	7.087	2.5	1.000	0.551	1.496	2.5	0.197	27.50	3
	41200R/L	20	12.0	11.969	9.449	2.5	25.400	14.000	38.000	2.5	0.197	43.78	4
	41200R/L-M	28	12.0	11.969	9.449	2.5	1.000	0.551	1.496	2.5	0.197	43.78	4

•( )Metric Size

■ Parts

Screw	Screw	Spring	Latch	Wrench
ETKA0523	KHB0417	SPR0315	LTC05SR-RM4	TW20-100

■ Available Inserts

SNMF-MF	SNMF-MM
	

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SNMF	**1206QNN-MF**				●													
	1206QNN-MM				●													

● : Stock item

Multi-functional mill

Alpha Mill

The long edge is for deep depth of cuts and more MRR.

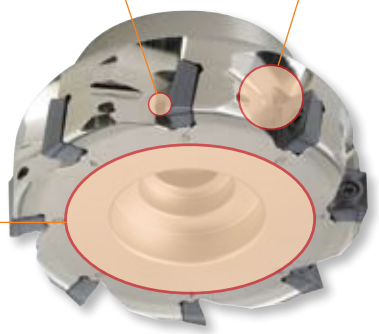
- Alpha mill series line-up makes both high feed and deep depth of cut machining possible with a variety of insert sizes.
- The Alpha mill series line-up makes high feed and deep depth of cut machining possible with a variety of insert sizes.
- The new series provides use of an extra short edge and provides for high feed milling.

Features

- Alpha mill series line-up makes both high feed and deep depth of cut machining possible with a variety of insert sizes.
- The smaller inserts with 1.5 times more edges accomplish high feed.
- The bigger inserts achieve better hardness and deep depth of cutting making 1.3 times better MRR.

- **Through coolant system**
  - Better chip evacuation
  - Longer tool life with less heat

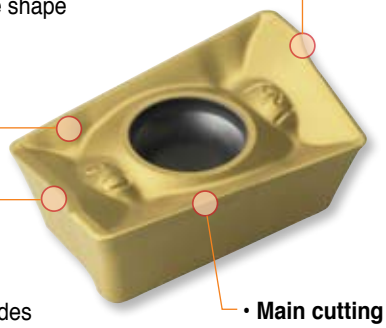
- **Wider chip pocket**
  - Screw on system for better chip control



- Usable with both socket and mounting bolt (bigger than Ø3.0inch)
- Lighter cutter due to bigger inside diameter
  - More convenient

- **Chip breaker**
  - High angle of inclination better hardness and enlarged chip pocket with the convex and concave shape

- **Concave shape**
  - Minimum interference better chip control

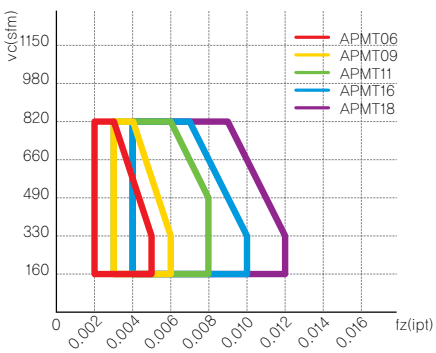


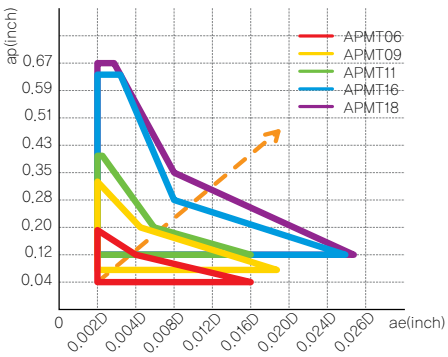
- **The side**
  - All positive shaped sides minimum interference

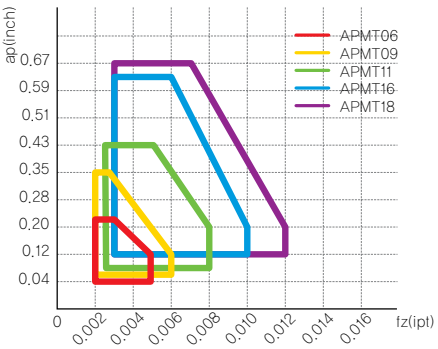
- **Main cutting edge**
  - High rake angle cutting edge
  - Decreasing cutting resistance
  - Sharp cutting edge

Application range

- Please follow this table.
- When L/D=1~1.5D & 2D, 3D, reduce condition by 70~90%.
- Reduce cutting condition by 70% when slotting, ramping and helical ramping.
- Avoid ap=ae, It might tool breakage.







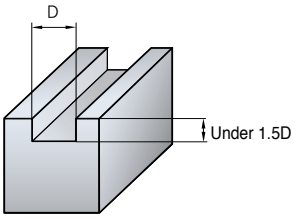
Alpha Mill

Multi-functional mill

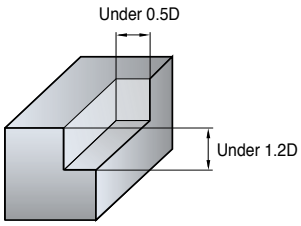
Recommended grades and chip breakers by workpiece

Chip breaker	Cutter edge		Recommended C/B and grade as per workpiece(●: 1st)									
			Low carbon steel Mild steel		High carbon steel Alloy steel		Stainless steel		Cast iron		Aluminum alloy	
			C/B	Grades	C/B	Grades	C/B	Grades	C/B	Grades	C/B	Grades
MF		Light cutting edge	●	● PC3500 ○ NCM325 ○ NCM335		● PC3545 ○ NCM325 ○ NCM335 ○ PC3500		● PC5300 ○ PC9530		● PC5300 ○ PC6510	–	–
MM		Strong cutting edge	–	● PC3500 ○ NCM325 ○ NCM335	●	● PC3500 ○ NCM325 ○ NCM335	●	● PC5300 ○ PC9530	●	● PC5300 ○ PC6510	–	–
MA		Sharp cutting edg	–	–	–	–	–	–	–	–	●	H01

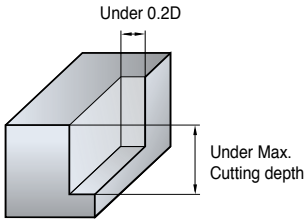
Recommended depth of cut



① Slotting



② Shouldering

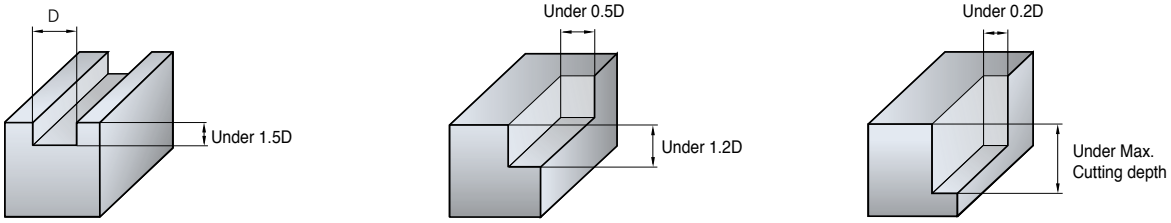


③ Shouldering

■ Recommended cutting condition(for single edge type)

Workpiece	Grades	Fig.	Tool diameter							
			Ø0.75, 1.0		Ø1.25, 1.5		Ø2.0, 2.5		Ø3.0, 4.0	
			vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)
Mild steel, Low carbon steel	NCM325 PC3500 PC5300	①	260~330	0.002~0.003	330~390	0.002~0.003	330~390	0.002~0.003	330~390	0.002~0.003
		②	330~390	0.003~0.004	390~460	0.003~0.004	390~460	0.003~0.004	390~460	0.003~0.004
		③	330~390	0.004~0.006	390~460	0.004~0.006	390~460	0.004~0.006	430~490	0.004~0.006
High carbon steel, Alloy steel	NCM325 PC3500 PC5300	①	200~260	0.002~0.002	260~330	0.002~0.002	260~330	0.002~0.002	260~330	0.002~0.002
		②	260~330	0.002~0.003	330~390	0.003~0.004	330~390	0.003~0.004	330~390	0.003~0.004
		③	260~330	0.004~0.006	360~430	0.004~0.006	330~430	0.004~0.006	360~430	0.004~0.006
Alloy tool steel	NCM325 PC3500 PC5300	①	160~230	0.002~0.002	230~300	0.002~0.002	230~300	0.002~0.002	230~300	0.002~0.002
		②	200~260	0.002~0.003	300~390	0.002~0.003	330~390	0.002~0.003	330~390	0.002~0.003
		③	300~360	0.005~0.007	330~430	0.004~0.006	330~390	0.004~0.006	360~430	0.004~0.006
Stainless steel	NCM325 PC9530 PC5300	①	160~230	0.002~0.002	230~300	0.002~0.002	230~300	0.002~0.002	230~300	0.002~0.002
		②	200~260	0.002~0.003	300~390	0.002~0.003	330~390	0.002~0.003	330~390	0.002~0.003
		③	300~360	0.004~0.006	330~430	0.004~0.006	360~430	0.004~0.006	360~430	0.004~0.006
Cast iron	NCM320K PC6510 PC5300	①	230~300	0.004~0.005	230~300	0.004~0.005	300~390	0.004~0.005	300~390	0.004~0.005
		②	260~330	0.005~0.005	300~390	0.005~0.005	330~460	0.005~0.005	330~460	0.005~0.005
		③	260~330	0.006~0.008	330~430	0.006~0.008	390~490	0.006~0.008	390~490	0.006~0.008
Aluminum alloy	H01	①	660~2,620	0.004~0.008	980~2,950	0.004~0.008	1,310~3,280	0.004~0.008	1,310~3,280	0.004~0.008
		②	820~2,950	0.006~0.012	980~3,120	0.006~0.012	1,310~3,280	0.004~0.016	1,310~3,280	0.004~0.016
		③	820~2,950	0.006~0.012	980~3,120	0.006~0.012	1,310~3,280	0.004~0.016	1,310~3,280	0.004~0.016
Hardened steel	NCM325 PC3500 PC5300	①	160~230	0.001~0.001	200~300	0.001~0.001	200~300	0.001~0.001	200~300	0.001~0.001
		②	200~260	0.002~0.003	260~330	0.002~0.003	260~330	0.002~0.003	260~330	0.002~0.003
		③	260~330	0.002~0.003	260~330	0.002~0.003	260~330	0.002~0.003	260~330	0.002~0.003

Recommended depth of cut



① Slotting ② Shouldering ③ Shouldering

■ Recommended cutting condition(for single edge type)

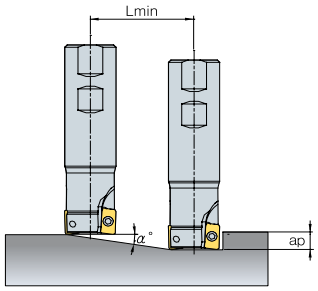
Workpiece	Grades	Fig.	Tool diameter							
			Ø0.75, 1.0		Ø1.25, 1.5		Ø2.0, 2.5		Ø3.0, 4.0	
			vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)	vc(sfm)	fz(ipt)
Mild steel, Low carbon steel	NCM325 PC3500 PC5300	①	200~260	0.002~0.003	260~390	0.002~0.003	390~660	0.002~0.003	490~660	0.002~0.003
		②	260~390	0.003~0.004	390~590	0.003~0.004	590~820	0.003~0.004	660~820	0.003~0.004
		③	260~390	0.004~0.006	390~590	0.004~0.006	590~820	0.004~0.006	660~820	0.004~0.006
High carbon steel, Alloy steel	NCM325 PC3500 PC5300	①	160~260	0.002~0.002	260~360	0.002~0.002	330~490	0.002~0.002	330~490	0.002~0.002
		②	260~330	0.002~0.003	360~490	0.002~0.004	490~660	0.002~0.004	490~660	0.002~0.004
		③	260~330	0.004~0.006	390~490	0.004~0.006	590~660	0.004~0.006	590~660	0.004~0.006
Alloy tool steel	NCM325 PC3500 PC5300	①	160~230	0.002~0.002	260~330	0.002~0.002	330~430	0.002~0.002	330~430	0.002~0.002
		②	230~330	0.002~0.003	330~430	0.002~0.004	430~590	0.002~0.004	430~590	0.002~0.004
		③	230~330	0.004~0.006	330~490	0.004~0.006	430~590	0.004~0.006	430~590	0.004~0.006
Stainless steel	NCM325 PC9530 PC5300	①	160~230	0.002~0.002	260~330	0.002~0.002	330~430	0.002~0.002	330~430	0.002~0.002
		②	230~330	0.002~0.003	330~430	0.002~0.004	430~590	0.002~0.004	430~590	0.002~0.004
		③	230~330	0.004~0.006	330~490	0.004~0.006	430~590	0.004~0.006	430~590	0.004~0.006
Cast iron	NCM320K PC6510 PC5300	①	260~330	0.003~0.005	260~330	0.006~0.006	390~490	0.006~0.006	390~490	0.006~0.006
		②	330~390	0.005~0.006	330~430	0.006~0.007	490~660	0.006~0.007	490~660	0.006~0.007
		③	330~390	0.006~0.008	330~430	0.006~0.008	490~660	0.006~0.008	490~660	0.006~0.008
Aluminum alloy	H01	①	820~2,620	0.006~0.008	980~2,950	0.006~0.008	1,310~3,280	0.004~0.008	1,310~3,280	0.004~0.008
		②	820~2,950	0.008~0.010	1,150~3,120	0.008~0.010	1,310~3,280	0.008~0.012	1,310~3,280	0.008~0.012
		③	820~2,950	0.010~0.012	1,150~3,120	0.010~0.012	1,310~3,280	0.012~0.016	1,310~3,280	0.012~0.016
Hardened steel	NCM325 PC3500 PC5300	①	160~230	0.001~0.001	200~300	0.001~0.001	200~300	0.001~0.001	200~300	0.001~0.001
		②	200~260	0.002~0.003	260~330	0.002~0.003	260~330	0.002~0.003	260~330	0.002~0.003
		③	260~330	0.002~0.003	260~330	0.002~0.003	260~330	0.002~0.003	260~330	0.002~0.003

Alpha Mill

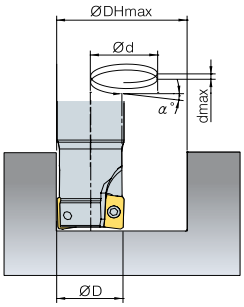
Multi-functional mill

Cutting condition for ramping and helical operation

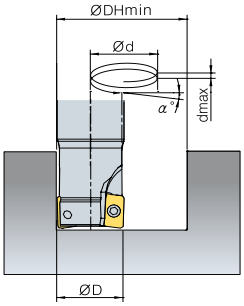
1. Ramping



2. Helical cutting for blind hole



3. Helical cutting for through hole



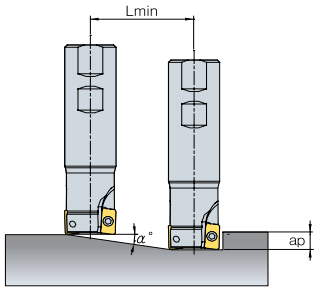
(inch)

Designation	Tool diameter ØD	Ramping		Helical cutting for blind hole				Helical cutting for through hole	
		Maximum angle(α°)	Lmin	Max. Dia ØDHmax	Max. pitch dmax	Min. hole ØDHmin	Max. pitch dmax	Min. hole ØDHmin	Max. pitch dmax
AMSA1044HS	0.438	5.50	2.045	0.828	0.080	0.781	0.075	0.599	0.058
1050HS	0.500	4.52	2.492	0.953	0.075	0.906	0.072	0.724	0.057
1056HS	0.563	3.83	2.938	1.078	0.072	1.031	0.069	0.849	0.057
1063HS	0.625	3.33	3.384	1.203	0.070	1.156	0.067	0.974	0.057
1069HS	0.688	2.94	3.831	1.328	0.068	1.281	0.066	1.099	0.056
1075HS	0.750	2.64	4.277	1.453	0.067	1.406	0.065	1.224	0.056
1081HS	0.813	2.39	4.724	1.578	0.066	1.531	0.064	1.349	0.056
1088HS	0.875	2.18	5.170	1.703	0.065	1.656	0.063	1.474	0.056
1100HS	1.000	1.86	6.063	1.953	0.063	1.906	0.062	1.724	0.056
1106HS	1.063	1.73	6.509	2.078	0.063	2.031	0.061	1.849	0.056
1125HS	1.250	1.44	7.849	2.453	0.062	2.406	0.060	2.224	0.056
1131HS	1.313	1.36	8.295	2.578	0.061	2.531	0.060	2.349	0.056
AMCA1150HS	1.500	1.17	9.634	2.953	0.060	2.906	0.059	2.724	0.056
1200HS	2.000	0.85	13.206	3.953	0.059	3.906	0.058	3.724	0.056
1250HS	2.500	0.67	16.777	4.953	0.058	4.906	0.058	4.724	0.055
AMSA15050HS	0.500	5.93	3.410	0.953	0.099	0.898	0.093	0.646	0.067
15056HS	0.563	6.05	3.342	1.078	0.114	1.023	0.108	0.771	0.082
15063HS	0.625	5.10	3.967	1.203	0.107	1.148	0.103	0.896	0.080
15069HS	0.688	4.41	4.592	1.328	0.102	1.273	0.098	1.021	0.079
15075HS	0.750	3.89	5.217	1.453	0.099	1.398	0.095	1.146	0.078
15081HS	0.813	3.47	5.842	1.578	0.096	1.523	0.092	1.271	0.077
15088HS	0.875	3.14	6.467	1.703	0.093	1.648	0.090	1.396	0.076
15094HS	0.938	2.86	7.092	1.828	0.091	1.773	0.089	1.521	0.076
15100HS	1.000	2.63	7.717	1.953	0.090	1.898	0.087	1.646	0.076
15113HS	1.125	2.26	8.967	2.203	0.087	2.148	0.085	1.896	0.075
15119HS	1.188	2.12	9.592	2.328	0.086	2.273	0.084	2.021	0.075
15125HS	1.250	1.99	10.217	2.453	0.085	2.398	0.083	2.146	0.074
15138HS	1.375	1.77	11.467	2.703	0.084	2.648	0.082	2.396	0.074
15150HS	1.500	1.60	12.717	2.953	0.082	2.898	0.081	2.646	0.074
AMCA15150HS	1.500	1.60	12.717	2.953	0.082	2.898	0.081	2.646	0.074
15200HS	2.000	1.15	17.717	3.953	0.079	3.898	0.078	3.646	0.073
15250HS	2.500	0.89	22.717	4.953	0.077	4.898	0.076	4.646	0.072
15300HS	3.000	0.73	27.717	5.953	0.076	5.898	0.075	5.646	0.072
15400HS	4.000	0.54	37.717	7.953	0.075	7.898	0.074	7.646	0.072

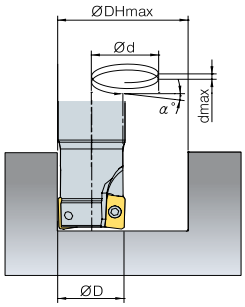
$$L\,min = \frac{ap}{\tan \alpha^\circ} \quad \text{(inch)}$$

Cutting condition for ramping and helical operation

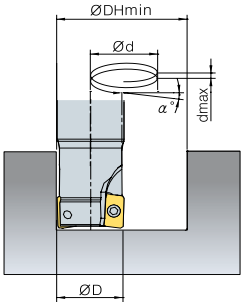
1. Ramping



2. Helical cutting for blind hole



3. Helical cutting for through hole



(inch)

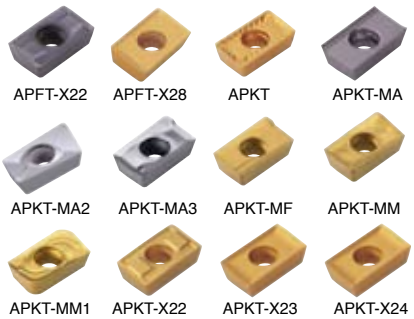
Designation		Tool diameter ØD	Ramping		Helical cutting for blind hole				Helical cutting for through hole	
			Maximum angle (α°)	Lmin	Max. Dia ØDHmax	Max. pitch dmax	Min. hole ØDHmin	Max. pitch dmax	Min. hole ØDHmin	Max. pitch dmax
AMSA	2050HS	0.500	11.69	1.903	0.921	0.191	0.858	0.178	0.646	0.134
	2056HS	0.563	7.55	2.969	1.046	0.139	0.983	0.130	0.771	0.102
	2063HS	0.625	10.30	2.165	1.171	0.213	1.093	0.199	0.896	0.163
	2069HS	0.688	8.23	2.723	1.296	0.187	1.218	0.176	1.021	0.148
	2075HS	0.750	5.60	4.016	1.421	0.139	1.343	0.132	1.146	0.112
	2088HS	0.875	5.15	4.366	1.671	0.151	1.593	0.144	1.396	0.126
	2100HS	1.000	3.92	5.748	1.921	0.132	1.843	0.126	1.646	0.113
	2125HS	1.250	2.70	8.346	2.421	0.114	2.343	0.110	2.146	0.101
	2150HS	1.500	1.98	11.378	2.921	0.101	2.843	0.098	2.646	0.092
	2200HS	2.000	1.48	15.197	3.921	0.102	3.843	0.100	3.646	0.094
	2250HS	2.500	1.11	20.236	4.921	0.096	4.843	0.094	4.646	0.090
AMCA	2150HS	1.500	0.36	62.047	2.921	0.019	2.843	0.018	2.646	0.017
	2200HS	2.000	0.36	62.047	3.921	0.025	3.843	0.024	3.646	0.023
	2250HS	2.500	0.27	82.835	4.921	0.023	4.843	0.023	4.646	0.022
	2300HS	3.000	0.21	109.606	5.921	0.021	5.843	0.021	5.646	0.020
	2400HS	4.000	0.16	141.102	7.921	0.022	7.843	0.022	7.646	0.021
AMSA	3100HS	1.000	4.72	4.764	1.921	0.159	1.843	0.152	1.449	0.120
	3125HS	1.250	3.00	7.520	2.421	0.127	2.343	0.123	1.949	0.102
	3150HS	1.500	2.29	9.843	2.921	0.117	2.843	0.114	2.449	0.098
	3200HS	2.000	1.64	13.780	3.921	0.112	3.843	0.110	3.449	0.099
	3250HS	2.500	1.22	18.504	4.921	0.105	4.843	0.103	4.449	0.095
AMCA	3150HS	1.500	1.99	11.319	2.921	0.102	2.843	0.099	2.449	0.085
	3200HS	2.000	1.67	13.504	3.921	0.114	3.843	0.112	3.449	0.101
	3250HS	2.500	1.22	18.504	4.921	0.105	4.843	0.103	4.449	0.095
	3300HS	3.000	0.90	25.039	5.921	0.093	5.843	0.092	5.449	0.086
	3400HS	4.000	0.69	32.677	7.921	0.095	7.843	0.094	7.449	0.090
AMSA	2100MH	1.000	1.50	30.070	1.921	0.050	1.843	0.048	-	-
	2125MH	1.250	1.50	45.104	2.421	0.063	2.343	0.061	-	-
AMSA	3150MH	1.500	1.50	60.139	2.921	0.076	2.843	0.074	-	-
AMSA	4125HS	1.250	3.42	10.737	2.453	0.147	2.398	0.143	2.146	0.128
	4150HS	1.500	2.65	13.871	2.953	0.137	2.898	0.134	2.646	0.122
	4200HS	2.000	1.82	20.141	3.953	0.126	3.898	0.124	3.646	0.116
	4250HS	2.500	1.39	26.410	4.953	0.120	4.898	0.119	4.646	0.113
AMCA	4200HS	2.000	1.82	20.141	3.953	0.126	3.898	0.124	3.646	0.116
	4250HS	2.500	1.39	26.410	4.953	0.120	4.898	0.119	4.646	0.113
	4300HS	3.000	1.12	32.679	5.953	0.117	5.898	0.116	5.646	0.111
	4400HS	4.000	0.81	45.217	7.953	0.113	7.898	0.112	7.646	0.109
	4500HS	5.000	0.64	57.756	9.953	0.111	9.898	0.110	9.646	0.107

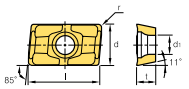
$$L\ min = \frac{ap}{\tan \alpha^{\circ}} \quad \text{(inch)}$$

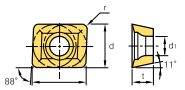
Alpha Mill

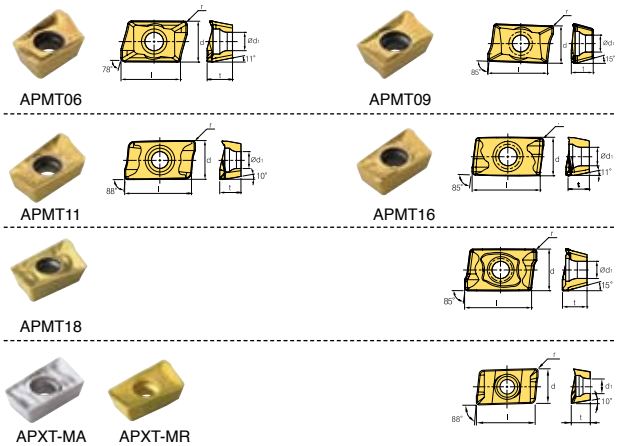
Multi-functional mill

Applicable Inserts







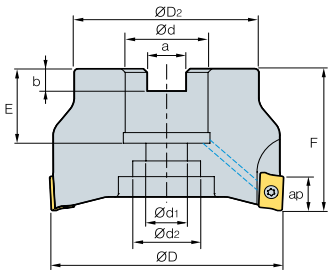


Designation		l	d	t	r	d_1	a	b
APFT	1604PDSR-X22	0.646	0.375	0.187	0.031	0.173	-	-
	1604PDTR-X22	0.646	0.375	0.187	0.031	0.173	-	-
APFT	1604PDR-X28	0.646	0.375	0.187	0.031	0.173	-	-
	1604PDSR-X28	0.646	0.375	0.187	0.031	0.173	-	-
	1604PDTR-X28	0.646	0.375	0.187	0.031	0.173	-	-
APKT	1604PDSR	0.646	0.375	0.187	0.031	0.173	-	-
APKT	1604PDFR-MA	0.646	0.375	0.187	1/128	0.173	-	-
APKT	1604PDFR-MA2	0.650	0.375	0.227	0.031	0.177	-	-
	160416FR-MA2	0.650	0.375	0.227	0.063	0.177	-	-
	160432FR-MA2	0.650	0.375	0.227	0.126	0.177	-	-
APKT	1604PDFR-MA3	0.646	0.375	0.197	0.031	0.173	-	-
	160420FR-MA3	0.646	0.375	0.197	0.079	0.173	-	-
APKT	1604PDSR-MF	0.646	0.375	0.197	0.031	0.173	-	-
APKT	1604PDSR-MM	0.646	0.375	0.205	0.031	0.173	-	-
APKT	160432R-MM1	0.634	0.375	0.187	0.126	0.173	-	-
APKT	1604PDSR-X22	0.646	0.375	0.187	0.031	0.173	-	-
	1604PDTR-X22	0.646	0.375	0.187	0.031	0.173	-	-
APKT	1604PDR-X23	0.642	0.375	0.187	0.039	0.173	-	-
	1604PDTR-X23	0.642	0.375	0.187	0.039	0.173	-	-
APKT	1604PDR-X24	0.642	0.375	0.187	0.039	0.173	-	-
	1604PDFR-X24	0.642	0.375	0.187	0.039	0.173	-	-
APLT	070304R	0.295	0.250	0.125	0.016	0.110	-	-
APMT	11T3PDSR-MF	0.441	0.255	0.142	0.020	0.112	-	-
	1604PDSR-MF	0.646	0.370	0.227	0.031	0.177	-	-
	1806PDSR-MF	0.685	0.432	0.250	0.031	0.177	-	-
APMT	1806PDSR-ML	0.685	0.432	0.250	0.031	0.177	-	-
APMT	060202PDSR-MM	0.236	0.167	0.102	0.008	0.079	-	-
	0602PDSR-MM	0.236	0.167	0.102	0.016	0.079	-	-
	060208PDSR-MM	0.236	0.167	0.102	0.031	0.079	-	-
	060212R-MM	0.236	0.167	0.102	0.047	0.079	-	-
	060216R-MM	0.236	0.167	0.102	0.063	0.079	-	-
	0903PDSR-MM	0.370	0.244	0.142	0.016	0.110	-	-
	090308PDSR-MM	0.370	0.244	0.142	0.031	0.110	-	-
	090312R-MM	0.370	0.244	0.142	0.047	0.110	-	-
	090316R-MM	0.370	0.244	0.142	0.063	0.110	-	-

Designation		l	d	t	r	d_1	a	b
APMT	090320R-MM	0.362	0.244	0.142	0.079	0.110	-	-
	090331R-MM	0.362	0.244	0.142	0.122	0.110	-	-
	090332R-MM	0.362	0.244	0.142	0.126	0.110	-	-
	11T3PDSR-MM	0.441	0.255	0.142	0.020	0.112	-	-
	11T308PDSR-MM	0.441	0.255	0.142	0.031	0.112	-	-
	11T312PDSR-MM	0.441	0.255	0.142	0.047	0.112	-	-
	11T316R-MM	0.433	0.255	0.142	0.063	0.112	-	-
	11T318R-MM	0.433	0.255	0.142	0.071	0.112	-	-
	11T324R-MM	0.433	0.255	0.142	0.094	0.112	-	-
	1604PDSR-MM	0.646	0.370	0.227	0.031	0.177	-	-
	160410PDSR-MM	0.646	0.370	0.227	0.039	0.177	-	-
	160416PDSR-MM	0.646	0.370	0.227	0.063	0.177	-	-
	160424R-MM	0.630	0.370	0.227	0.094	0.177	-	-
	160430R-MM	0.630	0.370	0.227	0.118	0.177	-	-
	160432R-MM	0.630	0.370	0.227	0.126	0.177	-	-
	1806PDSR-MM	0.685	0.432	0.250	0.016	0.177	-	-
	180612PDSR-MM	0.685	0.432	0.250	0.047	0.177	-	-
	180616PDSR-MM	0.685	0.432	0.250	0.063	0.177	-	-
	180620PDSR-MM	0.685	0.432	0.250	0.079	0.177	-	-
	180624PDSR-MM	0.685	0.432	0.250	0.094	0.177	-	-
APMT	180630R-MM	0.657	0.432	0.250	0.118	0.177	-	-
	180632R-MM	0.657	0.432	0.250	0.126	0.177	-	-
	180640R-MM	0.657	0.432	0.250	0.157	0.177	-	-
	180648R-MM	0.657	0.432	0.250	0.189	0.177	-	-
	180650R-MM	0.657	0.432	0.250	0.197	0.177	-	-
	180660R-MM	0.657	0.432	0.250	0.236	0.177	-	-
	180664R-MM	0.657	0.432	0.250	0.252	0.177	-	-
APXT	11T3PDR-MA	0.445	0.260	0.142	0.020	0.112	-	-
	11T318R-MA	0.445	0.260	0.136	0.071	0.112	-	-
APXT	11T3PDSR-MR	0.445	0.260	0.142	0.020	0.112	-	-
	11T308PDR-MR	0.445	0.260	0.142	0.031	0.112	-	-

AMCA1000S/1500S/2000S

AA 0°
•AR : 9°~13°
•RR : -14°~5°



(inch)

Designation			ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	lbs
AMCA	**1150HS**	10	1.500	1.417	0.500	0.287	0.433	-	0.252	0.169	0.630	1.500	0.220	0.53
	1200HS	12	2.000	1.772	0.750	0.433	0.630	-	0.321	0.220	0.787	1.750	0.220	0.79
	1250HS	14	2.500	1.772	0.750	0.433	0.630	-	0.321	0.220	0.787	1.750	0.220	1.34
	15150HS	5	1.500	1.417	0.500	0.287	0.433	-	0.252	0.169	0.630	1.500	0.354	0.48
	15200HS	6	2.000	1.772	0.750	0.433	0.630	-	0.321	0.220	0.787	1.750	0.354	0.75
	15250HS	8	2.500	1.772	0.750	0.433	0.630	-	0.321	0.200	0.787	1.750	0.354	1.25
	15300HS	10	3.000	2.205	1.000	0.551	1.260	1.378	0.384	0.248	0.866	2.000	0.354	2.42
	15400HS	12	4.000	2.874	1.250	0.709	1.024	1.575	0.510	0.319	0.866	2.000	0.354	4.62
	2150HS	5	1.500	1.417	0.500	0.287	0.433	-	0.252	0.169	0.630	1.500	0.433	0.44
	2200HS	6	2.000	1.772	0.750	0.433	0.630	-	0.321	0.220	0.787	1.750	0.433	0.70
	2250HS	8	2.500	1.772	1.000	0.433	0.630	-	0.321	0.220	0.787	1.750	0.433	1.32
	2300HS	10	3.000	2.205	1.000	0.551	1.260	1.378	0.384	0.248	0.866	2.000	0.433	2.64
	2400HS	12	4.000	2.874	1.250	0.709	1.024	1.575	0.510	0.319	0.866	2.000	0.433	4.62

■ Parts

	Screw	Wrench		Applicable cutter Dia.
1000 Type	FTKA01842	-	TW06S-A	Ø1.5~Ø2.5
1500 Type	FTKA02555S	TW08S	-	Ø0.5~Ø0.563
	FTKA02565S			Ø0.625~Ø4.0
2000 Type	FTKA02555S	TW08S	-	Ø0.5~Ø0.563
	FTKA02565S			Ø0.625~Ø4.0

■ Available Inserts

APMT-MM APMT-MF

Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC5300	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
1000 Type	APMT 060202PDSR-MM			●	●	●	●											
	0602PDSR-MM			●	●	●	●	●	●									
	060208PDSR-MM			●	●	●	●											
	060212R-MM			●	●	●												
1500 Type	APMT 0903PDSR-MM			●	●	●	●											
	090308PDSR-MM			●	●	●	●											
	090312R-MM					●	●											
	090316R-MM				●	●												
	090320R-MM				●	●												
2000 Type	APMT 11T3PDSR-MM	●		●	●	●	●	●										
	11T3PDSR-MF	●		●	●	●	●											
	11T308PDSR-MM	●		●	●	●	●											
	11T312PDSR-MM	●		●	●	●	●											
	11T316R-MM	●		●	●	●												
	11T318R-MM																	
	11T324R-MM			●	●	●	●											

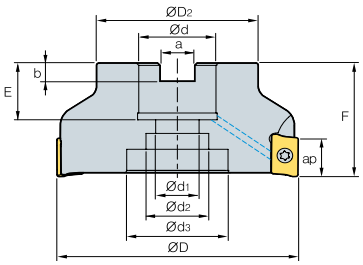
● : Stock item

Alpha Mill

Multi-functional mill

AMCA3000S/3000S-K

AA 0°
•AR : 14°
•RR : -12°~8°



(inch)

Designation		⊙	ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	lbs
AMCA	**3150HS**	4	1.500	1.417	0.500	0.287	0.433	-	0.250	0.169	0.630	1.500	0.630	0.44
	3200HS	5	2.000	1.772	0.750	0.413	0.630	-	0.313	0.220	0.787	1.750	0.630	0.86
	3250HS	6	2.500	1.772	1.000	0.551	0.827	-	0.375	0.248	0.787	1.750	0.630	1.10
	3300HS	7	3.000	2.205	1.000	0.551	0.827	-	0.375	0.248	0.866	2.000	0.630	2.64
	3400HS	8	4.000	2.874	1.250	-	1.772	-	0.500	0.319	0.866	2.000	0.630	5.50
	3150HS-K	4	1.500	1.417	0.500	0.287	0.433	-	0.250	0.169	0.630	1.500	0.630	0.44
	3200HS-K	5	2.000	1.772	0.750	0.413	0.630	-	0.313	0.200	0.787	1.750	0.630	0.66
	3250HS-K	6	2.500	1.772	1.000	0.551	0.827	-	0.375	0.248	0.787	1.750	0.630	1.10
	3300HS-K	7	3.000	2.205	1.000	0.551	0.827	-	0.375	0.248	0.866	2.000	0.630	2.64
	3400HS-K	8	4.000	2.874	1.250	-	1.772	-	0.500	0.319	0.866	2.000	0.630	5.50

■ Parts

Screw	Wrench	Applicable cutter Dia.
FTKA0408	TW15S	Ø1.0
FTKA0410		Ø1.25~Ø4.0

■ Available Inserts

APFT-X22 APFT-X28 APMT-MF APMT-MM APKT APKT-MF APKT-MM APKT-MM1

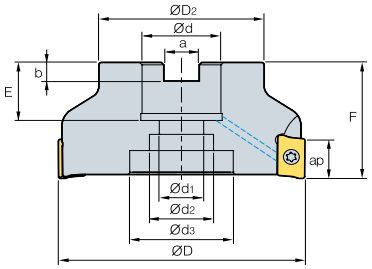
APKT-MA APKT-MA2 APKT-MA3 APKT-X22 APKT-X23 APKT-X24

Applicable cutter	Designation		Coated									Cermet			Uncoated			
			NCM325	NCM335	NC5330	PC5300	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
3000 Type	**APMT**	**1604PDSR-MM**	●		●	●	●	●	●	●									
		1604PDSR-MF	●		●	●	●	●											
		160410PDSR-MM	●			●		●											
		160416PDSR-MM	●		●	●	●	●											
		160424R-MM			●	●	●	●											
		160430R-MM																	
		160432R-MM	●		●	●	●	●											
3000 Type-K	**APFT**	**1604PDSR-X22**				●													
		1604PDTR-X22																	
		1604PDR-X28																	
		1604PDSR-X28																	
		1604PDTR-X28																	
	APKT	**1604PDSR**	●			●				●									
		1604PDSR-MF	●				●												
		1604PDSR-MM	●	●		●	●	●	●	●									
		160432R-MM1	●																
		1604PDFR-MA										●				●			
		1604PDFR-MA2																	
		160416FR-MA2																	
		160432FR-MA2																	
		1604PDFR-MA3														●			
		1604PDSR-X22	●																
		1604PDTR-X22																	
		1604PDR-X23																	
		1604PDTR-X23																	
		1604PDR-X24																	
		1604PDTR-X24																	

● : Stock item

AMCA4000S

AA 0°
•AR : 13°~15°
•RR : -12°~7°



(inch)

Designation		⊚	øD	øD2	ød	ød1	ød2	ød3	a	b	E	F	ap	lbs
AMCA	**4200HS**	5	2.000	1.772	0.750	0.433	0.630	-	0.321	0.220	0.827	1.750	0.669	0.62
	4250HS	6	2.500	1.772	0.750	0.433	0.630	-	0.321	0.220	0.827	1.750	0.669	1.10
	4300HS	7	3.000	2.205	1.000	0.551	0.827	-	0.384	0.248	0.866	2.000	0.669	2.20
	4400HS	8	4.000	2.874	1.250	0.709	1.024	1.575	0.510	0.319	0.866	2.000	0.669	3.74
	4500HS	9	5.000	3.386	1.500	0.827	1.024	1.969	0.636	0.394	1.181	2.500	0.669	7.26

■ Parts

Screw	Wrench	Applicable cutter Dia.
FTKA0408	TW15S	Ø1.0~Ø1.063
FTKA0410		Ø1.25~Ø5.0

■ Available Inserts

APMT-MF APMT-ML APMT-MM

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
APMT	**1806PDSR-MM**	●		●	●	●	●		●									
	1806PDSR-MF			●		●	●											
	1806PDSR-ML			●	●		●											
	180612PDSR-MM	●		●	●	●	●											
	180616PDSR-MM			●														
	180620PDSR-MM																	
	180624PDSR-MM			●	●													
	180630R-MM																	
	180632R-MM			●	●		●											

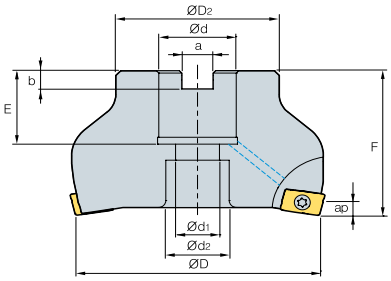
● : Stock item

Alpha Mill

Multi-functional mill

AMCA1000SE/2000SE/3000SE

AA 15° | •AR : 4.5° •RR : 0°



(inch)

Designation		⊙	ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	lbs
AMCA	**1150HSE**	4	1.500	1.417	0.500	0.287	0.433	0.252	0.169	0.630	1.500	0.098	0.57
	1200HSE	5	2.000	1.772	0.750	0.433	0.630	0.315	0.220	0.787	1.750	0.098	0.86
	2300HSE	5	3.000	2.205	1.000	0.551	0.827	0.374	0.236	0.866	2.000	0.157	2.65
	2400HSE	6	4.000	2.874	1.250	0.709	1.024	0.500	0.315	0.866	2.000	0.157	5.14
	3300HSE	4	3.000	2.205	1.000	0.551	0.827	0.374	0.236	0.866	2.000	0.236	2.87
	3400HSE	5	4.000	2.874	1.250	0.709	1.024	0.500	0.315	0.866	2.000	0.236	5.07

■ Parts

	Screw	Wrench		Applicable cutter Dia.
1000 Type	FTKA01842	–	TW06S–A	Ø1.5~Ø2.5
2000 Type	FTKA02550S	TW08S	-	Ø0.5~Ø0.563
	FTKA02565S			Ø0.625~Ø4.0
3000 Type	FTKA0408	TW08S	-	Ø1.0
	FTKA0410			Ø1.25~Ø4.0

■ Available Inserts

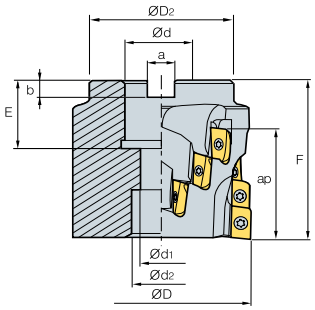
APMT-MM

Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
1000 Type	APMT 060202PDSR-MM			●	●	●	●											
	0602PDSR-MM			●	●	●	●	●	●									
	060208PDSR-MM			●	●	●	●											
	060212R-MM			●	●	●												
2000 Type	APMT 11T3PDSR-MM	●		●	●	●	●	●										
	11T3PDSR-MF	●		●	●	●	●											
	11T308PDSR-MM	●		●	●	●	●											
	11T312PDSR-MM	●		●	●	●	●											
	11T316R-MM	●		●	●	●												
	11T318R-MM																	
	11T324R-MM			●	●	●	●											
3000 Type	APMT 1604PDSR-MM	●		●	●	●	●	●	●									
	1604PDSR-MF	●		●	●	●	●											
	160410PDSR-MM	●					●											
	160416PDSR-MM	●		●	●	●	●											
	160424R-MM	●		●	●	●	●											
	160430R-MM																	
	160432R-MM	●		●	●	●	●											

● : Stock item

AMCA2000M/3000M

AA 0°
•AR : 9°
•RR : -9°~-5°



(inch)

Designation			ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	No,of columm	ap	lbs
AMCA	**2200M**	16	2.0	1.772	0.75	0.433	0.630	0.315	0.220	0.866	2.283	4	1.535	1.54
	2250M	16	2.5	2.205	1.00	0.551	0.827	0.374	0.248	0.866	0.000	4	1.535	1.76
	2300M	20	3.0	2.205	1.25	-	1.250	0.500	0.319	1.181	0.000	5	1.535	2.12
	2400M	24	4.0	3.386	1.50	-	1.500	0.626	0.394	1.181	0.000	6	1.535	2.65
	3250M	16	2.5	2.205	1.00	0.433	0.630	0.374	0.236	1.496	3.346	4	2.244	2.43
	3300M	20	3.0	2.205	1.25	0.551	0.827	0.500	0.315	1.575	3.937	4	2.795	4.92
	3400M	30	4.0	3.386	1.50	0.709	1.024	0.626	0.394	1.575	3.937	6	2.795	7.92

■ Parts

	Screw	Wrench	Applicable cutter Dia.
2000 Type	FTKA02550S	TW08S	Ø0.5~Ø0.563
	FTKA02565S		Ø0.625~Ø4.0
3000 Type	FTKA0408	TW15S	Ø1.0
	FTKA0410		Ø1.25~Ø4.0

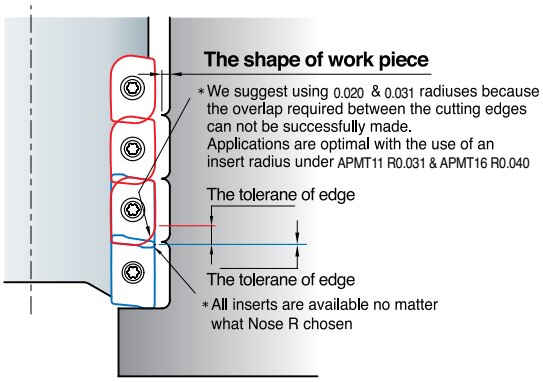
■ Available Inserts

APMT-MF APMT-MM

Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
2000 Type	APMT 11T3PDSR-MM	●		●	●	●	●	●										
	11T3PDSR-MF	●		●	●	●	●											
	11T308PDSR-MM	●		●	●	●	●											
	11T312PDSR-MM	●		●	●	●	●											
	11T316R-MM	●		●	●	●												
	11T318R-MM																	
	11T324R-MM			●	●	●	●											
3000 Type	APMT 1604PDSR-MM	●		●	●	●	●	●	●									
	1604PDSR-MF	●		●	●	●	●											
	160410PDSR-MM	●					●											
	160416PDSR-MM	●		●	●	●	●											
	160424R-MM			●	●	●	●											
	160430R-MM																	
	160432R-MM	●		●	●	●	●											

● : Stock item

■ Caution when insert are screwed

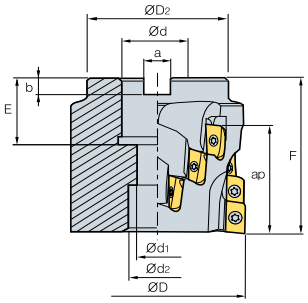


Alpha Mill

Multi-functional mill

AMCA4000M

AA 0°
•AR : 9°
•RR : -9°~-5°



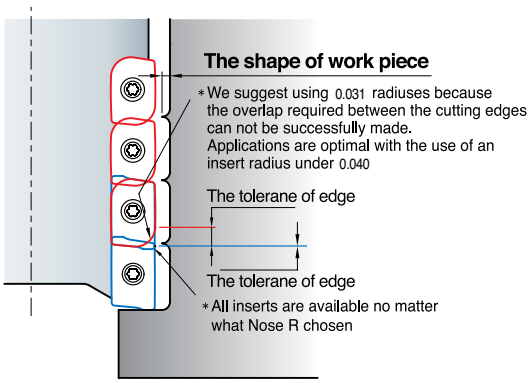
(inch)

Designation		⊚	øD	øD2	ød	ød1	ød2	a	b	E	F	No,of columm	ap	lbs
AMCA	**4250M**	16	2.5	2.205	1.00	0.433	0.630	0.374	0.236	1.496	3.346	4	2.406	2.43
	4300M	20	3.0	2.205	1.25	0.551	0.827	0.500	0.315	1.575	3.937	4	2.996	4.92
	4400M	30	4.0	3.386	1.50	0.709	1.024	0.626	0.394	1.575	3.937	6	2.996	7.92
	4500M	18	5.0	3.386	1.50	0.827	1.142	0.626	0.394	1.417	2.677	6	1.815	8.82

■ Parts

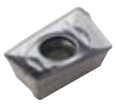
Screw	Wrench	Applicable cutter Dia.
FTKA0408	TW15S	Ø1.0~Ø1.063
FTKA0410		Ø1.25~Ø5.0

■ Caution when insert are screwed



■ Available Inserts

APMT-MF APMT-ML APMT-MM



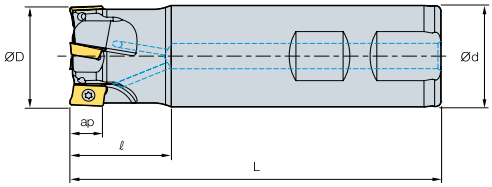
Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
APMT	**1806PDSR-MM**	●		●	●	●	●		●									
	1806PDSR-MF			●		●	●											
	1806PDSR-ML			●	●		●											
	180612PDSR-MM	●		●	●	●	●											
	180616PDSR-MM			●														
	180620PDSR-MM																	
	180624PDSR-MM			●	●													
	180630R-MM																	
	180632R-MM			●	●		●											

● : Stock item

AMSA1000S

AA 0°

•AR : 7.5°~13°
•RR : -17°~-6°



(inch)

Designation		⊙	ØD	Ød	ℓ	L	ap	lbs
AMSA	1044HS	2	0.438	0.375	0.787	3.150	0.22	0.09
	1050HS-2	2	0.500	0.500	0.984	3.150	0.22	0.12
	1050HS-2L050	2	0.500	0.500	0.984	4.724	0.22	0.20
	1050HS-3	3	0.500	0.500	0.984	3.150	0.22	0.12
	1056HS-2	2	0.563	0.625	0.984	3.543	0.22	0.24
	1056HS-2L062	2	0.563	0.625	0.984	5.512	0.22	0.40
	1056HS-3	3	0.563	0.625	0.984	3.543	0.22	0.24
	1063HS-3	3	0.625	0.625	0.984	3.543	0.22	0.26
	1063HS-3L062	3	0.625	0.625	0.984	6.299	0.22	0.49
	1062HS-4	4	0.625	0.625	0.984	3.543	0.22	0.26
	1069HS	4	0.688	0.625	0.984	3.543	0.22	0.26
	1069HS-3L062	3	0.688	0.625	0.984	6.299	0.22	0.49
	1075HS-4	4	0.750	0.750	1.181	4.331	0.22	0.51
	1075HS-4L075	4	0.750	0.750	1.181	7.874	0.22	0.95
	1075HS-5	5	0.750	0.750	1.181	4.331	0.22	0.51
	1081HS	5	0.813	0.750	1.181	4.331	0.22	0.53
	1081HS-4L075	4	0.813	0.750	1.181	7.874	0.22	0.95
	1088HS	5	0.875	0.750	1.181	4.331	0.22	0.60
	1100HS	7	1.000	1.000	1.181	4.724	0.22	0.86
	1106HS	7	1.063	1.000	1.181	4.724	0.22	0.86
	1125HS	8	1.250	1.250	1.378	4.724	0.22	1.43
	1131HS	8	1.313	1.250	1.378	4.724	0.22	1.43

■ Parts

Screw	Wrench	Applicable cutter Dia.
FTKA01842	TW06S-A	Ø0.438~Ø1.313

■ Available Inserts

APMT-MM

Designation	Coated									Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
APMT 060202PDSR-MM			●	●	●	●											
0602PDSR-MM			●	●	●	●	●	●									
060208PDSR-MM			●	●	●	●											
060212R-MM			●	●	●	●											
060216R-MM				●													

● : Stock item

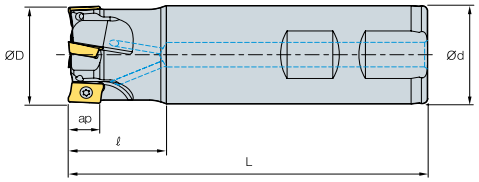
Alpha Mill

Multi-functional mill

AMSA1500S

AA 0°

•AR : 7.5°~12.5°
•RR : -28°~-14°



(inch)

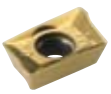
Designation			ØD	Ød	ℓ	L	ap	lbs
AMSA	15050HS	1	0.500	0.625	0.984	3.150	0.354	0.209
	15050HS-1L062	1	0.500	0.625	1.181	6.299	0.354	0.463
	15056HS	1	0.563	0.625	0.984	3.150	0.354	0.221
	15056HS-1L062	1	0.563	0.625	1.181	6.299	0.354	0.463
	15063HS	2	0.625	0.625	1.181	3.543	0.354	0.243
	15063HS-2L062	2	0.625	0.625	1.181	6.299	0.354	0.463
	15069HS	2	0.688	0.625	1.181	3.543	0.354	0.265
	15069HS-2L062	2	0.688	0.625	1.181	6.299	0.354	0.463
	15075HS	2	0.750	0.750	1.181	3.543	0.354	0.397
	15075HS-2L075	2	0.750	0.750	1.181	6.299	0.354	0.750
	15075HS-3	3	0.750	0.750	1.181	3.543	0.354	0.397
	15081HS	2	0.813	0.750	1.181	3.543	0.354	0.441
	15081HS-2L075	2	0.813	0.750	1.181	6.299	0.354	0.750
	15081HS-3	3	0.813	0.750	1.181	3.543	0.354	0.441
	15088HS	3	0.875	0.750	1.181	4.331	0.354	0.507
	15088HS-3L075	3	0.875	0.750	1.181	7.087	0.354	0.838
	15094HS	3	0.938	0.750	1.181	4.331	0.354	0.662
	15094HS-4	4	0.938	0.750	1.181	4.331	0.354	0.662
	15100HS-3S075	3	1.000	0.750	1.181	4.331	0.354	0.772
	15100HS	3	1.000	1.000	1.181	4.331	0.354	0.772
	15100HS-3L100	3	1.000	1.000	1.181	7.087	0.354	1.301
	15100HS-4S075	4	1.000	0.750	1.181	4.331	0.354	0.551
	15100HS-4S100	4	1.000	1.000	1.181	4.331	0.354	0.551
	15113HS	4	1.125	1.000	1.181	4.331	0.354	0.794
	15113HS-4L100	4	1.125	1.000	1.181	7.087	0.354	1.345
	15113HS-5	5	1.125	1.000	1.181	4.331	0.354	0.794
	15119HS	4	1.188	1.000	1.181	4.331	0.354	0.838
	15119HS-4L100	4	1.188	1.000	1.181	7.087	0.354	1.367
	15119HS-5	5	1.188	1.000	1.181	4.331	0.354	0.838
	15125HS	4	1.250	1.250	1.181	4.331	0.354	1.323
	15125HS-4L125	4	1.250	1.250	1.181	7.087	0.354	2.205
	15125HS-5	5	1.250	1.250	1.181	4.331	0.354	1.323
	15138HS	5	1.375	1.250	1.181	4.331	0.354	1.544
	15138HS-6	6	1.375	1.250	1.181	4.331	0.354	1.544
	15150HS-S125	5	1.500	1.250	1.378	5.118	0.354	1.764
	15150HS-5L125	5	1.500	1.250	1.378	7.874	0.354	2.646
	15150HS-6S125	6	1.500	1.250	1.378	5.118	0.354	1.764
	15150HS-S150	5	1.500	1.500	1.378	5.118	0.354	2.492
	15150HS-6S150	6	1.500	1.500	1.378	5.118	0.354	2.492

■ Parts

Screw	Wrench	Applicable cutter Dia.
FTKA02555S	TW08S	Ø0.5~Ø0.563
FTKA02565S		Ø0.625~Ø4.0

■ Available Inserts

APMT-MM



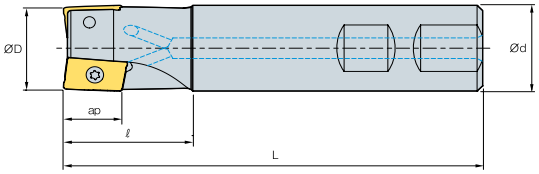
Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
APMT	0903PDSR-MM			●	●	●	●											
	090308PDSR-MM			●	●	●	●											
	090312R-MM					●	●											
	090316R-MM				●	●												
	090320R-MM				●	●												

● : Stock item

AMSA2000S

AA 0°

•AR : 3°~14°
•RR : -25°~-18°



(inch)

Designation		⊙	øD	ød	ℓ	L	ap	lbs
AMSA	2050HS	1	0.500	0.625	0.984	3.346	0.433	0.22
	2050HS-1L062	1	0.500	0.625	1.181	6.299	0.433	0.46
	2056HS	1	0.563	0.625	0.984	3.543	0.433	0.26
	2056HS-1L062	1	0.563	0.625	1.181	6.299	0.433	0.46
	2062HS	2	0.625	0.625	0.984	3.543	0.433	0.26
	2062HS-2L062	2	0.625	0.625	1.181	7.087	0.433	0.46
	2068HS	2	0.688	0.625	0.984	3.543	0.433	0.26
	2068HS-2L062	2	0.688	0.625	1.181	7.087	0.433	0.46
	2075HS	2	0.750	0.750	1.181	3.937	0.433	0.46
	2075HS-2L075	2	0.750	0.750	1.181	8.268	0.433	0.75
	2087HS	3	0.875	0.750	1.378	4.528	0.433	0.55
	2087HS-3L075	3	0.875	0.750	1.378	7.087	0.433	0.84
	2100HS	3	1.000	1.000	1.378	4.528	0.433	0.88
	2100HS-3L100	3	1.000	1.000	1.575	7.087	0.433	1.30
	2125HS	4	1.250	1.250	1.575	4.921	0.433	1.54
	2125HS-4L125	4	1.250	1.250	1.969	7.087	0.433	2.21
	2150HS	5	1.500	1.250	1.654	5.118	0.433	1.85
	2150HS-5L125	5	1.500	1.250	1.969	7.874	0.433	2.65
	2150HS-S150	5	1.500	1.500	1.654	5.118	0.433	2.54
	2200HS	6	2.000	1.250	1.772	5.315	0.433	2.34
	2200HS-S150	6	2.000	1.500	1.772	5.315	0.433	3.04
	2250HS	8	2.500	1.250	1.772	5.315	0.433	2.89
	2250HS-S150	8	2.500	1.500	1.772	5.315	0.433	3.57

■ Parts

Screw	Wrench	Applicable cutter Dia.
FTKA02555S	TW08S	Ø0.5~Ø0.563
FTKA02565S		Ø0.625~Ø4.0

■ Available Inserts

APMT-MM

APXT-MA

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
APMT	11T3PDSR-MM	●		●	●	●	●	●										
	11T3PDSR-MF	●		●	●	●	●											
	11T308PDSR-MM	●		●	●	●	●											
	11T312PDSR-MM	●		●	●	●	●											
	11T316R-MM	●		●	●	●												
	11T318R-MM																	
	11T324R-MM			●	●	●	●											
APXT	11T3PDR-MA																	

● : Stock item

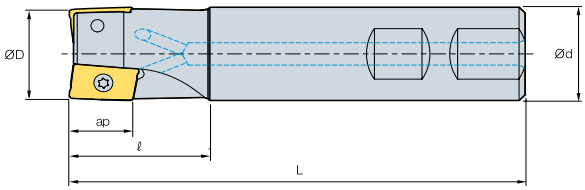
Alpha Mill

Multi-functional mill

AMSA3000S

AA 0°

•AR : 3°~14°
•RR : -18°~-10°



(inch)

Designation		⊚	øD	ød	ℓ	L	ap	lbs
AMSA	3100HS	2	1.000	1.000	1.378	4.528	0.630	0.88
	3100HS-2M100	2	1.000	1.000	1.378	7.087	0.630	1.43
	3100HS-2L100	2	1.000	1.000	2.362	8.661	0.630	1.65
	3125HS	3	1.250	1.250	1.575	4.921	0.630	1.52
	3125HS-2M125	2	1.250	1.250	1.575	7.874	0.630	2.49
	3125HS-2L125	2	1.250	1.250	2.559	10.236	0.630	3.35
	3125HS-3M125	3	1.250	1.250	1.575	7.874	0.630	2.47
	3125HS-3L125	3	1.250	1.250	2.559	10.236	0.630	3.26
	3150HS	4	1.500	1.250	1.654	5.118	0.630	1.76
	3150HS-3M125	3	1.500	1.250	1.654	7.874	0.630	2.73
	3150HS-3L125	3	1.500	1.250	1.654	10.236	0.630	3.55
	3150HS-4M125	4	1.500	1.250	1.654	7.874	0.630	2.67
	3150HS-4L125	4	1.500	1.250	1.654	10.236	0.630	3.48
	3150HS-S150	4	1.500	1.500	1.654	5.118	0.630	2.43
	3200HS	5	2.000	1.250	1.772	5.315	0.630	2.21
	3200HS-S150	5	2.000	1.500	1.772	5.315	0.630	2.87
	3250HS	6	2.500	1.250	1.772	5.315	0.630	2.76
	3250HS-S150	6	2.500	1.500	1.772	5.315	0.630	3.31

■ Parts

Screw	Wrench	Applicable cutter Dia.
FTKA0408	TW15S	Ø1.0
FTKA0410		Ø1.25~Ø4.0

■ Available Inserts

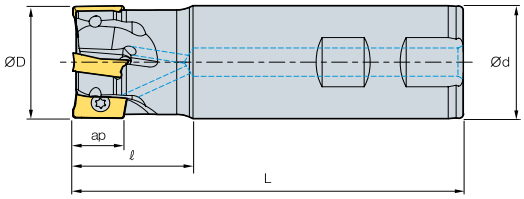
APMT-MM

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
APMT	1604PDSR-MM	●		●	●	●	●	●	●									
	1604PDSR-MF	●		●	●	●	●											
	160410PDSR-MM	●					●											
	160416PDSR-MM	●		●	●	●	●											
	160424R-MM			●	●	●	●											
	160430R-MM																	
	160432R-MM	●		●	●	●	●											

● : Stock item

AMSA3000S-K

AA 0°
•AR : 14°
•RR : -18°~-10°



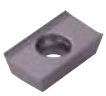
(inch)

Designation		⊙	ØD	Ød	ℓ	L	ap	lbs
AMSA	**3100HS-K**	2	1.000	1.000	1.378	4.528	0.630	0.88
	3125HS-K	3	1.250	1.250	1.575	4.921	0.630	1.52
	3150HS-K	4	1.500	1.250	1.654	5.118	0.630	1.76
	3150HS-K-150	4	1.500	1.500	1.654	5.118	0.630	2.43
	3200HS-K	5	2.000	1.250	1.772	5.315	0.630	2.21
	3200HS-K-150	5	2.000	1.500	1.772	5.315	0.630	2.87
	3250HS-K	6	2.500	1.250	1.772	5.315	0.630	2.76
	3250HS-K-150	6	2.500	1.500	1.772	5.315	0.630	3.31

■ Parts

Screw	Wrench		Applicable cutter Dia.
FTKA0408	TW15S	-	Ø1.0
FTKA0410			Ø1.25~Ø4.0

■ Available Inserts

APKT	APKT-MF	APKT-MM	APKT-MM1	APKT-MA
				

APKT-MA2	APKT-MA3	APKT-X22	APKT-X23	APKT-X24

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
APFT	**1604PDSR-X22**				●													
	1604PDTR-X22																	
	1604PDR-X28																	
	1604PDSR-X28																	
	1604PDTR-X28																	
APKT	**1604PDSR**	●			●				●									
	1604PDSR-MF	●				●												
	1604PDSR-MM	●	●		●	●	●	●	●									
	160432R-MM1	●																
	1604PDFR-MA										●				●			
	1604PDFR-MA2																	
	160416FR-MA2																	
	160432FR-MA2																	
	1604PDFR-MA3														●	●		
	1604PDSR-X22	●																
	1604PDTR-X22																	
	1604PDR-X23																	
	1604PDTR-X23																	
	1604PDR-X24																	
	1604PDTR-X24																	

● : Stock item

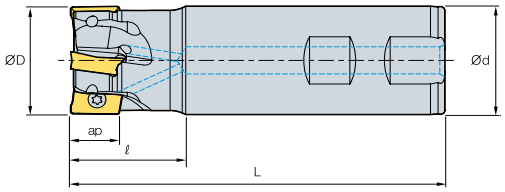
Alpha Mill

Multi-functional mill

AMSA4000S

AA 0°

•AR : 7°~13°
•RR : -20°~-6°



(inch)

Designation		⊙	øD	ød	ℓ	L	ap	lbs
AMSA	4100HS	2	1.000	1.000	1.575	4.331	0.669	0.77
	4100HS-2M100	2	1.000	1.000	1.575	7.087	0.669	1.28
	4100HS-2L100	2	1.000	1.000	1.575	9.055	0.669	1.59
	4106HS	2	1.063	1.000	1.575	4.331	0.669	0.82
	4106HS-2M100	2	1.063	1.000	1.575	7.087	0.669	1.32
	4106HS-2L100	2	1.063	1.000	1.575	9.055	0.669	1.63
	4125HS	3	1.250	1.250	1.575	4.921	0.669	1.43
	4125HS-2M125	2	1.250	1.250	1.969	7.874	0.669	2.58
	4125HS-2L125	2	1.250	1.250	1.969	10.236	0.669	3.35
	4125HS-3M125	3	1.250	1.250	1.969	7.874	0.669	2.43
	4125HS-3L125	3	1.250	1.250	1.969	10.236	0.669	3.26
	4131HS	3	1.313	1.250	1.575	4.921	0.669	1.50
	4131HS-2M125	2	1.313	1.250	1.969	7.874	0.669	2.47
	4131HS-2L125	2	1.313	1.250	1.969	10.236	0.669	3.31
	4131HS-3M125	3	1.313	1.250	1.969	7.874	0.669	2.47
	4131HS-3L125	3	1.313	1.250	1.969	10.236	0.669	3.31
	4150HS-3M125	3	1.500	1.250	1.969	7.874	0.669	2.65
	4150HS-3L125	3	1.500	1.250	1.969	10.236	0.669	3.53
	4150HS-4M125	4	1.500	1.250	1.969	7.874	0.669	2.65
	4150HS-4L125	4	1.500	1.250	1.969	10.236	0.669	3.53
	4150HS-S125	4	1.500	1.250	1.575	5.118	0.669	1.68
	4150HS-S40	4	1.500	1.500	1.575	5.118	0.669	2.43
	4200HS-S125	5	2.000	1.250	1.575	5.315	0.669	2.09
	4200HS-S40	5	2.000	1.500	1.575	5.315	0.669	2.87
	4250HS-S125	6	2.500	1.250	1.575	5.315	0.669	2.76
	4250HS-S40	6	2.500	1.500	1.575	5.315	0.669	3.53

■ Parts

Screw	Wrench	Applicable cutter Dia.
FTKA0408	TW15S	Ø1.0~Ø1.063
FTKA0410		Ø1.25~Ø5.0

■ Available Inserts

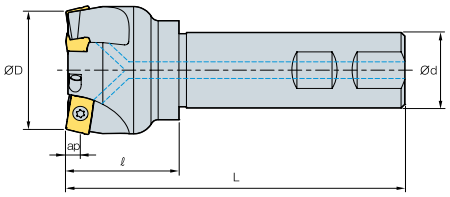
APMT-MM	APMT-MF	APMT-ML

Designation		Coated										Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC5500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
APMT	1806PDSR-MM	●		●	●	●	●		●									
	1806PDSR-MF			●		●	●											
	1806PDSR-ML			●	●		●											
	180612PDSR-MM	●		●	●	●	●											
	180616PDSR-MM			●														
	180620PDSR-MM																	
	180624PDSR-MM			●	●													
	180630R-MM																	
	180632R-MM			●	●													

● : Stock item

AMSA1000SE2000SE/3000SE

AA 15°
•AR : -4.5°~-1°
•RR : -3°~0°



(inch)

Designation		⊙	øD	ød	ℓ	L	ap	lbs
AMSA	1100HSE	3	1.000	1.000	1.181	4.528	0.098	0.90
	2100HSE	2	1.000	1.000	1.181	4.528	0.157	0.88
	2125HSE	3	1.250	1.250	1.575	4.921	0.157	1.59
	2150HSE	3	1.500	1.250	1.575	5.118	0.157	1.90
	2150HSE-S150	3	1.500	1.500	1.575	5.118	0.157	2.65
	2200HSE	4	2.000	1.250	1.575	5.315	0.157	2.16
	2200HSE-S150	4	2.000	1.500	1.575	5.315	0.157	2.87
	2250HSE	5	2.500	1.250	1.575	5.315	0.157	2.73
	2250HSE-S150	5	2.500	1.500	1.575	5.315	0.157	3.46
	3200HSE	3	2.000	1.250	1.772	5.315	0.236	2.21
	3200HSE-S150	3	2.000	1.500	1.772	5.315	0.236	2.87
	3250HSE	4	2.500	1.250	1.772	5.315	0.236	2.87
	3250HSE-S150	4	2.500	1.500	1.772	5.315	0.236	3.53

■ Parts

	Screw	Wrench		Applicable cutter Dia.
1000 Type	FTKA01842	-	TW06S-A	Ø1.5~Ø2.0
2000 Type	FTKA02555S	TW08S	-	Ø0.5~Ø0.563
	FTKA02565S			Ø0.625~Ø4.0
3000 Type	FTKA0408	TW15S	-	Ø1.0
	FTKA0410			Ø1.25~Ø4.0

■ Available Inserts

APMT-MM APXT-MA APXT-MR

Type		Designation	Coated									Cermet			Uncoated			
			NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
1000 Type	APMT	060202PDSR-MM			●	●	●	●											
		0602PDSR-MM			●	●	●	●	●	●									
		060208PDSR-MM			●	●	●	●											
		060212R-MM			●	●	●												
		060216R-MM				●													
2000 Type	APMT	11T3PDSR-MM	●		●	●	●	●	●										
		11T3PDSR-MF	●		●	●	●	●											
		11T308PDSR-MM	●		●	●	●	●											
		11T312PDSR-MM	●		●	●	●	●											
		11T316R-MM	●		●	●	●	●											
		11T318R-MM																	
		11T324R-MM			●	●	●	●											
	APXT	11T3PDSR-MR																	
		11T308PDR-MR																	
		11T3PDR-MA														●			
		11T318R-MA																	
3000 Type	APMT	1604PDSR-MM	●		●	●	●	●	●	●									
		1604PDSR-MF	●		●	●	●	●											
		160410PDSR-MM	●					●											
		160416PDSR-MM	●		●	●	●	●											
		160424R-MM			●	●	●	●											
		160430R-MM																	
		160432R-MM	●		●	●	●	●											

● : Stock item

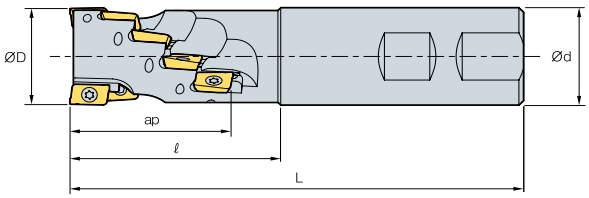
Alpha Mill

Multi-functional mill

AMSA1000M/1500M

AA 0°

•AR : 7°~9°
•RR : -13°~-10°



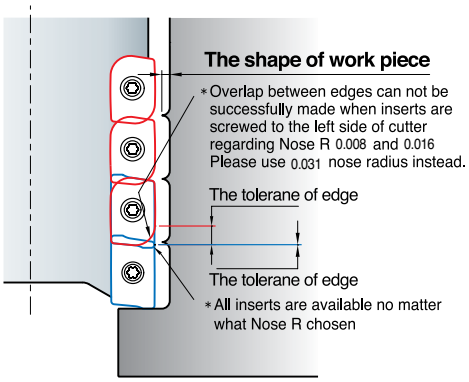
(inch)

Designation		⊚	ØD	Ød	ℓ	L	No. of Flutes	ap	lbs
AMSA	**1062M**	6	0.625	0.625	1.181	3.150	2	0.610	0.66
	1075M	12	0.750	0.750	1.260	3.346	3	0.807	0.66
	1100M	20	1.000	1.000	1.535	3.740	4	1.004	0.66
	15075M	3	0.750	0.750	1.654	4.134	1	1.043	0.66
	15100M	8	1.000	1.000	1.969	4.331	2	1.378	0.66
	15125M	10	1.250	1.250	2.362	4.724	2	1.732	0.66

■ Parts

	Screw	Wrench		Applicable cutter Dia.
1000 Type	FTKA01842	-	TW06S-A	Ø1.5~Ø2.0
1500 Type	FTKA02550S	TW08S	-	Ø0.5~Ø0.563
	FTKA02565S			Ø0.625~Ø4.0

■ Caution when insert are screwed



■ Available Inserts

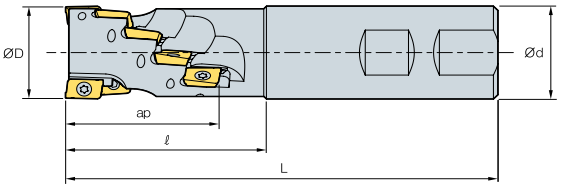
APMT-MM

Type	Designation	Coated										Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
1000 Type	APMT 060202PDSR-MM			●	●	●	●											
	0602PDSR-MM			●	●	●	●	●	●									
	060208PDSR-MM			●	●	●	●											
	060212R-MM			●	●	●												
	060216R-MM				●													
1500 Type	APMT 0903PDSR-MM			●	●	●	●											
	090308PDSR-MM			●	●	●	●											
	090312R-MM					●	●											
	090316R-MM				●	●												
	090320R-MM				●	●												

● : Stock item

AMSA2000M/4000M

AA 0°
•AR : 7°~9°
•RR : -13°~-10°



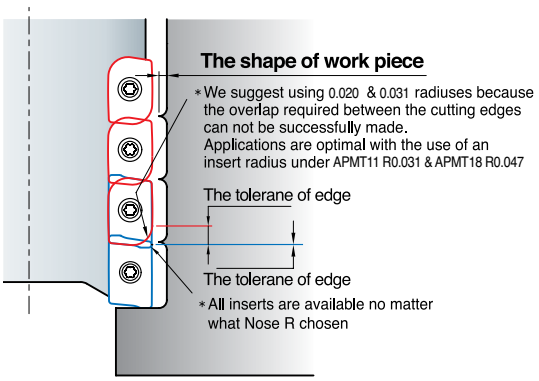
(inch)

Designation		⊚	ØD	Ød	ℓ	L	No. of Flutes	ap	lbs
AMSA	**2075M**	3	0.750	0.750	1.772	4.724	1	1.157	0.71
	2100M	8	1.000	1.000	2.165	5.118	2	1.531	0.88
	2125M	10	1.250	1.250	2.559	5.512	2	1.909	1.43
	2150M	14	1.500	1.654	2.953	5.906	2	2.283	1.65
	4125M	4	1.250	1.250	2.362	5.118	2	1.244	1.43
	4150M	6	1.500	1.500	2.756	5.512	2	1.811	2.45
	4200M-S150	6	2.000	1.500	2.165	4.921	2	1.811	2.69
	4200M	8	2.000	1.500	2.756	5.512	2	2.402	3.02

■ Parts

	Screw	Wrench		Applicable cutter Dia.
2000 Type	FTKA02555S	TW08S	-	Ø0.5~Ø0.563
	FTKA02565S			Ø0.625~Ø4.0
4000 Type	FTKA0408	TW15S	-	Ø1.0~Ø1.063
	FTKA0410			Ø1.25~Ø5.0

■ Caution when insert are screwed



■ Available Inserts

APMT-MF APMT-MM

Type	Designation	Coated										Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
2000 Type	APMT 11T3PDSR-MM	●		●	●	●	●	●										
	11T3PDSR-MF	●		●	●	●	●											
	11T308PDSR-MM	●		●	●	●	●											
	11T312PDSR-MM	●		●	●	●	●											
	11T316R-MM	●		●	●	●	●											
	11T318R-MM																	
	11T324R-MM			●	●	●	●											
4000 Type	APMT 1806PDSR-MM	●		●	●	●	●		●									
	1806PDSR-MF			●		●	●											
	1806PDSR-ML			●	●		●											
	180612PDSR-MM	●		●	●	●	●											
	180616PDSR-MM			●														
	180620PDSR-MM																	
	180624PDSR-MM			●	●													
	180630R-MM																	
	180632R-MM			●	●		●											

● : Stock item

Alpha Mill

Multi-functional mill

AMSA1000MH/2000MH/3000MH

AA 0°

•AR : 9°~12°
•RR : -12°~-10°

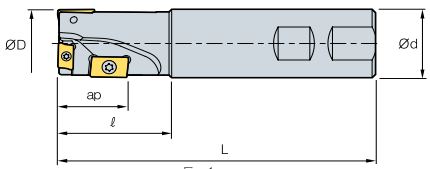


Fig. 1

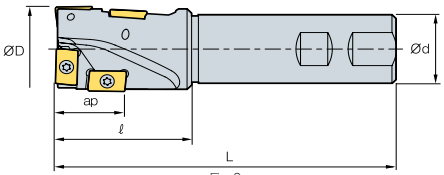


Fig. 2

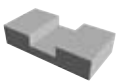
(inch)

Designation		⊙	ØD	Ød	ℓ	L	ap	lbs	APMT 0602	APMT 0903	APXT 11T3–	APKT 1604–	Fig.
AMSA	**1056MH**	3	0.5625	0.500	1.181	4.724	0.433	0.35	3	-	-	-	1
	1062MH	3	0.6250	0.625	1.181	5.512	0.433	0.44	3	-	-	-	1
	1068MH	3	0.6875	0.625	1.181	5.512	0.433	0.46	3	-	-	-	1
	15075MH	3	0.7500	0.750	1.378	5.512	0.669	0.68	1	2	-	-	1
	2100MH	3	1.0000	1.000	1.575	5.118	0.787	0.99	-	-	3	-	1
	2125MH	3	1.2500	1.250	1.969	5.512	1.181	1.65	-	-	1	2	1
	3150MH	4	1.5000	1.250	2.362	5.906	1.575	1.98	-	-	-	4	2

■ Parts

	Screw	Wrench		Applicable cutter Dia.
1000 Type	FTKA01842	-	TW06S-A	Ø1.5~Ø2.5
1500 Type	FTKA02565S	TW08S		Ø0.625~Ø4.0
2000 Type	FTKA02555S	TW08S	-	Ø0.5~Ø0.563
	FTKA02565S			Ø0.625~Ø4.0
32000 Type	FTKA0408	TW15S	-	Ø1.063
	FTKA0410			Ø1.25~Ø4.0

■ Recommended Cutting Condition

	Drilling	Shouldering	Slotting
			
vc(sfm)	80~200	80~200	80~200
fz(ipt)	0.03~0.06	0.05~0.25	0.05~0.2

• Please keep the drill depth under 0.01D when you're drilling
• Please keep the step depth from 0.008 to 0.012inch

■ Available Inserts

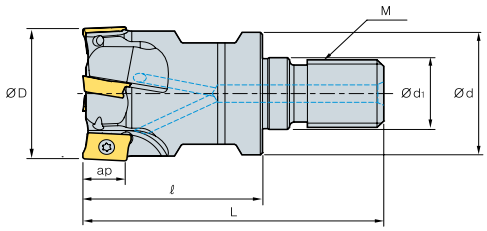
APMT-MM APKT-MM APXT-MA

Type	Designation	Coated										Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
1000 Type	APMT 060202PDSR-MM			●	●	●	●											
	0602PDSR-MM			●	●	●	●	●	●									
	060208PDSR-MM			●	●	●	●											
1500 Type	APMT 0903PDSR-MM			●	●	●	●											
	090308PDSR-MM			●	●	●	●											
2000 Type	APMT 11T3PDSR-MM	●		●	●	●	●	●										
	11T3PDSR-MF	●		●	●	●	●											
	11T308PDSR-MM	●		●	●	●	●											
	11T312PDSR-MM	●		●	●	●	●											
	11T316R-MM	●		●	●	●												
	11T318R-MM																	
	11T324R-MM			●	●	●	●											
3000 Type	APXT 11T3PDR-MA														●			
	APKT 1604PDSR-MM	●	●		●	●	●	●	●									
	1604PDSR-MF	●				●												

● : Stock item

AMMA1000/1500/2000

AA 0°
•AR : 7.5°~12.5 °
•RR : -28°~-6°



(inch)

Designation		⊚	øD	ød	ød1	ℓ	L	M	ap	lbs
AMMA	1050HR-M06	3	0.500	0.433	0.256	0.984	1.575	M06	0.22	0.04
	1063HR-M08	4	0.625	0.571	0.335	0.984	1.654	M08	0.22	0.07
	1075HR-M10	5	0.750	0.689	0.413	1.181	2.008	M10	0.22	0.15
	1100HR-M12	7	1.000	0.906	0.492	1.378	2.323	M12	0.22	0.26
	1125HR-M16	8	1.250	1.142	0.669	1.575	2.638	M16	0.22	0.51
	15050HR-M06	1	0.500	0.433	0.256	0.984	1.575	M06	0.35	0.14
	15063HR-M08	2	0.625	0.571	0.335	0.984	1.654	M08	0.35	0.17
	15075HR-M10	2	0.750	0.689	0.413	1.181	2.008	M10	0.35	0.13
	15100HR-M12	3	1.000	0.906	0.492	1.378	2.323	M12	0.35	0.26
	15125HR-M16	4	1.250	1.142	0.669	1.575	2.638	M16	0.35	0.48
	2063HR-M08	2	0.625	0.571	0.335	0.984	1.654	M8	0.43	0.09
	2075HR-M10	2	0.750	0.689	0.413	1.181	2.008	M10	0.43	0.15
	2100HR-M12	3	1.000	0.906	0.492	1.378	2.323	M12	0.43	0.24
	2125HR-M16	4	1.250	1.142	0.669	1.575	2.638	M16	0.43	0.51
	2150HR-M16	5	1.500	1.142	0.669	1.575	2.638	M16	0.43	0.55

■ Parts

	Screw	Wrench		Applicable cutter Dia.
1000 Type	FTKA01842	-	TW06S-A	Ø1.5~Ø2.5
1500 Type	FTKA02555S	TW08S	-	Ø0.5~Ø0.563
	FTKA02565S			Ø0.625~Ø4.0
2000 Type	FTKA02555S	TW08S	-	Ø0.5~Ø0.563
	FTKA02565S			Ø0.625~Ø4.0

■ Available Adaptor

Designation		Applicable adaptor
AMMA	1050HR-M06	MATA - M06
	1063HR-M08	MATA- M08
	1075HR-M10	MATA - M10
	1100HR-M12	MATA - M12
	1125HR-M16	MATA - M16
	15050HR-M06	MATA - M06
	15063HR-M08	MATA - M08
	15075HR-M10	MATA - M10
	15100HR-M12	MATA - M12
	15125HR-M16	MATA - M16
	2063HR-M08	MATA - M08
	2075HR-M10	MATA - M10
	2100HR-M12	MATA - M12
	2125HR-M16	MATA - M16
	2150HR-M16	MATA - M16

■ Available Inserts

APMT-MM APXT-MA

Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC8530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
1000 Type	APMT 060202PDSR-MM			●	●	●	●											
	0602PDSR-MM			●	●	●	●	●	●									
	060208PDSR-MM			●	●	●	●											
	060212R-MM			●	●	●												
	060216R-MM				●													
1500 Type	APMT 0903PDSR-MM			●	●	●	●											
	090308PDSR-MM			●	●	●	●											
	090312R-MM					●	●											
	090316R-MM				●	●												
	090320R-MM				●	●												
2000 Type	APMT 11T3PDSR-MM	●		●	●	●	●	●										
	11T3PDSR-MF	●		●	●	●	●											
	11T308PDSR-MM	●		●	●	●	●											
	11T312PDSR-MM	●		●	●	●	●											
	11T316R-MM	●		●	●	●												
	11T318R-MM																	
	11T324R-MM			●	●	●	●											
	APXT 11T3PDR-MA														●			

● : Stock item

Multi-functional Z-Axis mill RM4Z

Plunge Mill

Multi functional milling tool

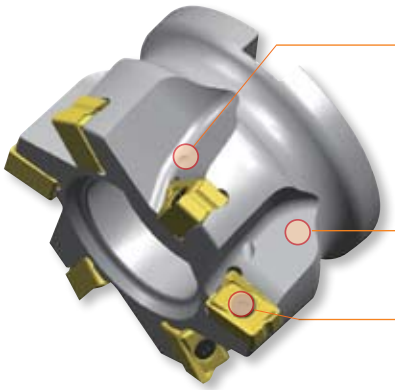
- Tools for feed machining (plunge) in the spindle Direction (Z axis) of machine to cut faster and more effectively in vertical machining
- RM4Z(Half type) : machining as long as the cutting edge of an insert

Rich Mill RM4Z

- Rich mill RM4Z is a plunge milling tool which can machine faster and more effectively in vertical machining such as slotting and pocket machining.
- Multi-functional tool with a double-sided 4 edged insert
- Increased productivity and accurate side machining
- Max. cutting width for RM4Z 3000 : 0.354inch
  Max. cutting width for RM4Z 4000 : 0.551inch

Features

- High rake angle chip breaker and cutting edge
- Multi functional tool
- High efficient & economical tool



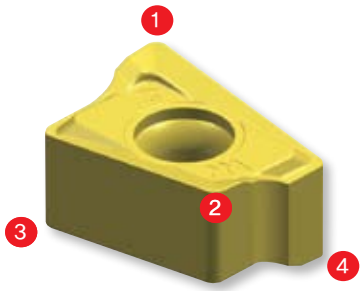
- Through coolant system
- Better chip evacuation
- Longer tool life

- Wide chip pocket
- Screw on system

Improved chip evacuation

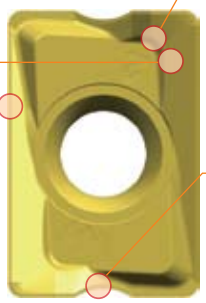
Insert features

- Double sided and 4 cornered insert
- Negative insert strong cutting edge



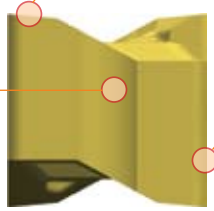
- **Chip breaker**
  - High rake angle
  - Improving chip control

- **Step design**
  - Improving chip control
  - Reducing cutting load



- **Major cutting edge**
  - High rake angle cutting edge
  - Better surface finishes

- **Concave design**
  - 4 cutting edges Minimizes
  - interference



- **Minor cutting edge**
  - Special design
  - Improves surface roughness

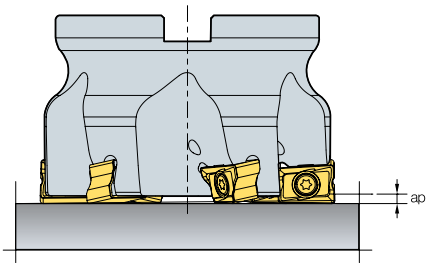
- **Clearance face**
  - Negative face
  - Strong cutting edge

Plunge Mill

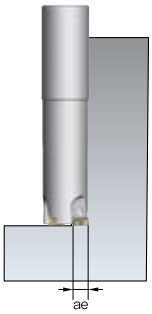
Multi-functional Z-Axis mill RM4Z

Cutting depth

• Horizontal machining = ap(inch)

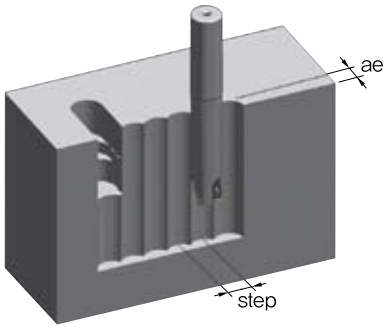


• Vertical machining = ae(inch)



RM4Z	Horizontality	Verticality	
	max ap(inch)	max ae(inch)	step
RM4Z 3000	0.059	0.354	< 0.7D
RM4Z 4000	0.098	0.551	< 0.7D

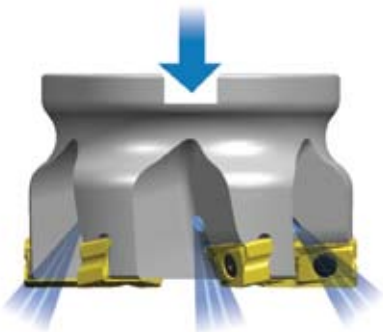
Maximum step in vertical machining



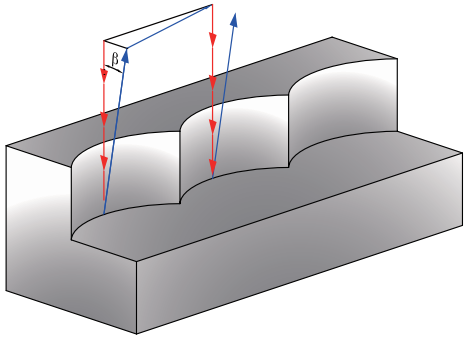
ae	Cutter Diameter(inch)						
	1.00	1.25	1.50	2.00	2.50	3.00	4.00
	max step (inch)						
0.039	9.8	11.0	12.1	14.1	15.8	17.3	20.0
0.079	13.6	15.4	19.9	19.7	22.1	24.3	28.2
0.118	16.3	18.5	20.5	23.9	26.9	29.6	34.3
0.157	18.4	21.0	23.3	27.3	30.85	33.9	39.5
0.197	20.1	23.1	25.7	30.2	34.2	37.7	43.9
0.236	21.5	24.8	27.7	32.7	37.1	41.0	47.8
0.276	22.6	26.3	29.5	35.0	39.7	44.0	51.4
0.315	23.5	27.5	31.0	37.0	42.1	46.7	54.7
0.354	24.2	28.6	32.3	38.7	44.2	49.1	57.7
0.394	-	-	-	-	46.2	51.4	60.5
0.433	-	-	-	-	48.0	53.5	63.1
0.472	-	-	-	-	19.7	55.5	65.5
0.512	-	-	-	-	51.2	57.3	67.8
0.551	-	-	-	-	52.6	59.0	70.0

Inner coolant system

• By using an exclusive coolant bolt (hexagonal socket bolt), more powerful cooling & better chip evacuation are realized.
• To get optimal chip control, the design of the coolant injection directs coolant directly to each cutting edge (through coolant arbor is necessary).



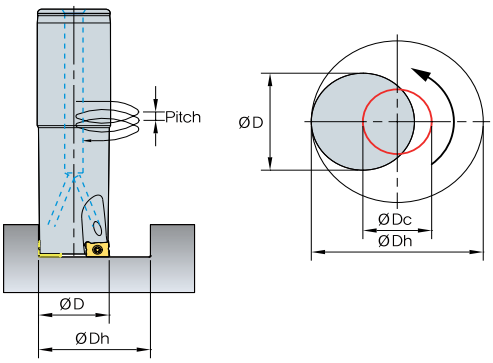
Programming in vertical cutting



- Vertical machining route
- Rapid feed
- β Angle between tool and Workpiece (β≥1°)

• Reduce 30% of feed till 0.118inch machining.

Helical machining



ØDc = ØDh-ØD
ØDc = Trace of cutter center
ØDh = Desire hole diameter
ØD = Tool diameter

(inch)

Designation		Diameter ØD	Helical data			
			ØDh max	Max. Pitch	ØDh min	Max. Pitch
RM4ZSA	3100HR-L100	1.00	1.921	0.075	1.213	0.017
	3125HR-L125	1.25	2.421	0.038	1.674	0.013
	3150HR-L125	1.50	2.921	0.023	2.174	0.011
RM4ZCA	3150HR	1.50	2.921	0.023	2.174	0.011
	3200HR	2.00	3.921	0.021	3.174	0.012
RM4ZMA	3100HR-M12	1.00	1.921	0.075	1.213	0.017
	3125HR-M16	1.25	2.421	0.038	1.674	0.013
	3150HR-M16	1.50	2.921	0.023	2.174	0.011
RM4ZCA	4250HR	2.50	4.921	0.039	3.780	0.021
	4300HR	3.00	5.921	0.032	4.780	0.019
	4400HR	4.00	7.921	0.021	6.780	0.015

Cutting conditions

(inch)

ISO	Grade	LNM(E)X100605PNL-MM				LNM(E)X151008PNL-MM			
		vc(sfm)	fz(ipt)	∗max ae	∗∗max ap	vc(sfm)	fz(ipt)	∗max ae	∗∗max ap
P	PC3500	350~820	0.002~0.01	0.354	0.059	400~820	0.002~0.01	0.551	0.098
K	PC6510	350~820	0.003~0.012			400~820	0.003~0.012		
M	PC5300	270~600	0.002~0.008			330~600	0.002~0.008		

∗max ae(mm) : (Plunging) max. radial depth of cut
∗∗max ap(mm) : (Shouldering / Facing) max depth of cut

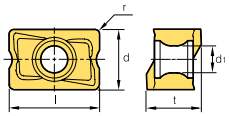
Plunge Mill

Multi-functional Z-Axis mill RM4Z

Applicable Inserts

LNEX-MM

LNMX-MM

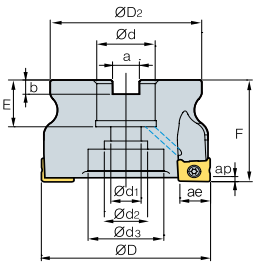


(inch)

Designation	l	d	t	r	d1
LNMX 100605PNR-MM	25/64	33/128	33/128	3/128	0.318
LNEX 100605PNR-MM	25/64	33/128	33/128	3/128	0.318
LNMX 100608PNR-MM	25/64	33/128	33/128	1/32	0.318
LNEX 100608PNR-MM	25/64	33/128	33/128	1/32	0.318
LNMX 100605PNL-MM	25/64	33/128	33/128	3/128	0.318
LNEX 100605PNL-MM	25/64	33/128	33/128	3/128	0.318
LNMX 151004PNR-MM	19/32	25/64	25/64	1/64	0.177
LNEX 151004PNR-MM	19/32	25/64	25/64	1/64	0.177
LNMX 151008PNR-MM	19/32	25/64	25/64	1/32	0.177
LNEX 151008PNR-MM	19/32	25/64	25/64	1/32	0.177
LNMX 151016PNR-MM	19/32	25/64	25/64	1/16	0.177
LNEX 151016PNR-MM	19/32	25/64	25/64	1/16	0.177
LNMX 151008PNL-MM	19/32	25/64	25/64	1/32	0.177
LNEX 151008PNL-MM	19/32	25/64	25/64	1/32	0.177

RM4ZCA3000/4000

AA 0°
•AR : -11°
•RR : -12°~-10°



(inch)

Designation		⊙	øD	øD2	ød	ød1	ød2	ød3	a	b	E	F	ap	ae	lbs
RM4ZCA	3150HR	4	1.50	1.417	0.50	0.287	0.433	-	0.250	0.169	0.630	1.50	0.059	0.354	0.4
	3200HR	5	2.00	1.850	0.75	0.433	0.630	-	0.313	0.220	0.787	1.75	0.059	0.354	0.7
	4250HR	5	2.50	2.283	1.00	0.551	0.827	-	0.375	0.248	0.866	1.75	0.098	0.551	1.2
	4300HR	6	3.00	2.677	1.00	0.551	0.827	-	0.375	0.248	0.866	1.75	0.098	0.551	2.4
	4400HR	7	4.00	3.150	1.25	0.709	1.024	1.575	0.500	0.319	0.866	2.00	0.098	0.551	3.7

■ Parts

	Screw	Wrench
3000 Type	FTKA0307	TW09S
4000 Type	FTKA0412B	TW15S

■ Available Inserts

LNEX-MM

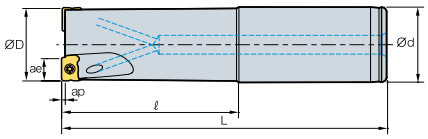
LNMX-MM

Type	Designation	Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
3000 Type	LNEX 100605PNR-MM																	
	LNMX 100605PNR-MM					●												
4000 Type	LNEX 151008PNR-MM																	
	LNMX 151008PNR-MM																	

● : Stock item

RM4ZSA3000

AA 0°
•AR : -11°
•RR : -17°~-14°



(inch)

Designation		⊚	ØD	Ød	ℓ	L	ap	ae	lbs
RM4ZSA	3100HR-L100	2	1.000	1.000	5.000	8.000	0.059	0.354	1.3
	3125HR-L125	3	1.250	1.250	5.000	8.500	0.059	0.354	2.4
	3150HR-L125	4	1.500	1.500	1.654	10.000	0.059	0.354	3.3

■ Parts

Screw	Wrench
FTKA0307	TW09S

■ Available Inserts

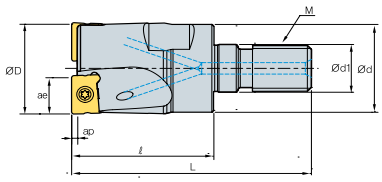
LNEX-MM	LNMX-MM

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX	100605PNR-MM																	
LNMX	100605PNR-MM				●													

● : Stock item

RM4ZMA3000

AA 0°
•AR : -11°
•RR : -17°~-14°



(inch)

Designation		⊚	ØD	Ød	Ød1	ℓ	L	M	ap	ae	lbs
RM4ZMA	3100HR-M12	2	1.000	0.906	0.492	1.378	2.323	M12	0.059	0.354	0.2
	3125HR-M16	3	1.250	1.142	0.669	1.575	2.638	M16	0.059	0.354	0.4
	3150HR-M16	4	1.500	1.142	0.669	1.575	2.638	M16	0.059	0.354	0.6

■ Parts

Screw	Wrench
FTKA0307	TW09S

■ Available Inserts

LNEX-MM	LNMX-MM

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
LNEX	100605PNR-MM																	
LNMX	100605PNR-MM				●													

● : Stock item

Modular Adaptor

MATA(Steel Shank type)

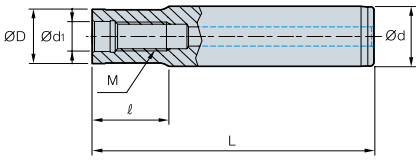


Fig. 1

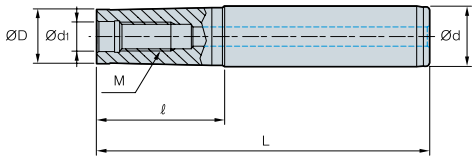


Fig. 2

(inch)

Designation	øD	ød	ød1	ℓ	L	M	Fig.
MATA M06-078-S038S	0.354	3/8	0.256	0.787	2.756	M06	1
M06-157-S050T	0.354	1/2	0.256	1.575	3.780	M06	1
M06-255-S063T	0.354	5/8	0.256	2.559	4.921	M06	1
M6B-078-S050S	0.433	1/2	0.256	0.787	2.992	M08	1
M6B-157-S050S	0.433	1/2	0.256	1.575	3.780	M10	1
M6B-255-S063T	0.433	5/8	0.256	2.559	4.921	M12	1
M6B-315-S063T	0.433	5/8	0.256	3.150	5.512	M16	1
M08-078-S063S	0.571	5/8	0.335	0.787	3.150	M06	2
M08-157-S063T	0.571	5/8	0.335	1.575	3.937	M06	2
M08-255-S063T	0.571	5/8	0.335	2.559	4.921	M06	2
M08-315-S075T	0.571	3/4	0.335	3.150	5.906	M06	2
M08-433-S100T	0.571	1	0.335	4.331	7.480	M08	2
M10-118-S075S	0.689	3/4	0.413	1.181	3.937	M08	2
M10-196-S075T	0.689	3/4	0.413	1.969	4.724	M08	2
M10-275-S075T	0.689	3/4	0.413	2.756	5.512	M08	2
M10-354-S100T	0.689	1	0.413	3.543	6.693	M10	2
M10-433-S100T	0.689	1	0.413	4.331	7.480	M10	2
M10-511-S125T	0.689	1 1/4	0.413	5.118	8.661	M10	2
M12-118-S100S	0.906	1	0.492	1.181	4.331	M10	2
M12-196-S100T	0.906	1	0.492	1.969	5.118	M10	2
M12-275-S100T	0.906	1	0.492	2.756	5.906	M12	2
M12-354-S100T	0.906	1	0.492	3.543	6.693	M12	2
M12-433-S125T	0.906	1 1/4	0.492	4.331	7.874	M12	2
M12-689-S150T	0.906	1 1/2	0.492	6.890	11.811	M12	2
M16-137-S125S	1.142	1 1/4	0.669	1.378	4.921	M12	2
M16-216-S125T	1.142	1 1/4	0.669	2.165	5.709	M16	2
M16-315-S125T	1.142	1 1/4	0.669	3.150	6.693	M16	2
M16-472-S125T	1.142	1 1/4	0.669	4.724	8.268	M16	2
M16-689-S150T	1.142	1 1/2	0.669	6.890	11.811	M16	2

•S : Straight Neck Adapter
•T : Taper Neck Adapter

MATA-C(Carbide Shank type)

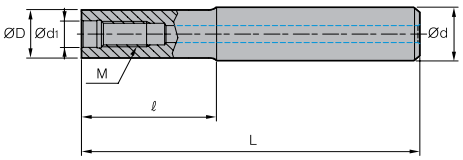


Fig. 1

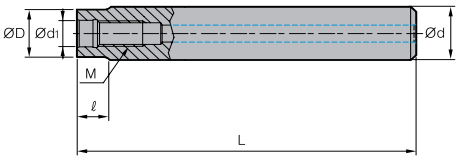


Fig. 2

(inch)

Designation		ØD	Ød	Ød1	ℓ	L	M	Fig.
MATA	M08-315-S063S-C	0.571	5/8	0.335	3.150	5.906	M08	1
	M08-433-S063S-C	0.571	5/8	0.335	4.331	7.087	M08	1
	M08-590-S063S-C	0.571	5/8	0.335	5.906	9.843	M08	1
	M08-394-S063S-C-590	0.571	5/8	0.335	0.394	5.906	M08	2
	M08-394-S063S-C-708	0.571	5/8	0.335	0.394	7.087	M08	2
	M08-394-S063S-C-984	0.571	5/8	0.335	0.394	9.843	M08	2
	M10-354-S075S-C	0.689	3/4	0.413	3.543	6.693	M10	1
	M10-433-S075S-C	0.689	3/4	0.413	4.331	7.874	M10	1
	M10-689-S075S-C	0.689	3/4	0.413	5.890	11.811	M10	1
	M10-394-S075S-C-669	0.689	3/4	0.413	0.394	6.693	M10	2
	M10-394-S075S-C-787	0.689	3/4	0.413	0.394	7.874	M10	2
	M10-394-S075S-C-1181	0.689	3/4	0.413	0.394	11.811	M10	2
	M12-354-S100S-C	0.906	1	0.492	3.543	6.693	M12	1
	M12-433-S100S-C	0.906	1	0.492	4.331	7.874	M12	1
	M12-689-S100S-C	0.906	1	0.492	6.890	11.811	M12	1
	M12-059-S100S-C-669	0.906	1	0.492	0.591	6.693	M12	2
	M12-059-S100S-C-787	0.906	1	0.492	0.591	7.874	M12	2
	M12-059-S100S-C-1181	0.906	1	0.492	0.591	11.811	M12	2
	M16-354-S125S-C	1.142	1 1/4	0.669	3.543	7.087	M16	1
	M16-472-S125S-C	1.142	1 1/4	0.669	4.824	8.268	M16	1
	M16-689-S125S-C	1.142	1 1/4	0.669	6.890	11.811	M16	1
	M16-078-S125S-C-708	1.142	1 1/4	0.669	0.787	70.87	M16	2
	M16-078-S125S-C-826	1.142	1 1/4	0.669	0.787	8.268	M16	2
	M16-078-S125S-C-1181	1.142	1 1/4	0.669	0.787	11.811	M16	2

New serrated edge design increases productivity by reducing insert cutting load

Power Buster

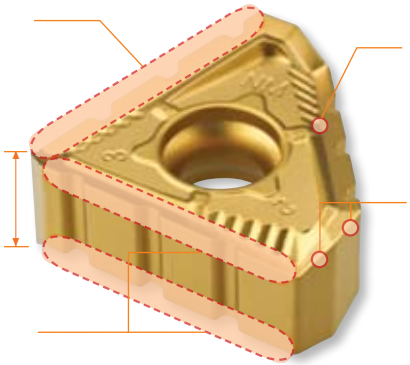
New tooling utilizing a specially designed serrated edge to increase productivity by reducing the cutting load.

- Double-sided 6 corner insert geometry ensures high rigidity, long tool life and cost efficiency.
- The serrated edges divide the chips into smaller pieces. This feature provides excellent chip control, reduces interference jof the cutter and ensures good durability of the cutter body.
- AA (approach angle) : 45° and 10° available (same insert used)
- Application : High depth of cut and high feed rate (Steel, Cast iron)

Facing

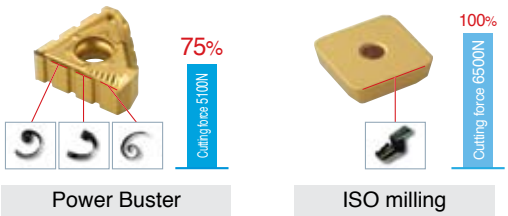
Features of Insert

Major cutting edge (Nick edge)
- Low cutting load
- Ideal for chip control, divides chips into small pieces for proper chip evacuation. Double sided 6 corner insert
- Ideal edge design for Steel and Cast iron rough milling

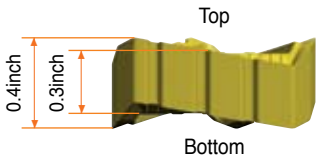


• **Comparison of chip control and cutting force**
- **Workpiece** : 24CrMo4
- **Cutting condition** : vc=695sfm, ap=0.31inch
  ae=3.54inch, fz=0.012ipt

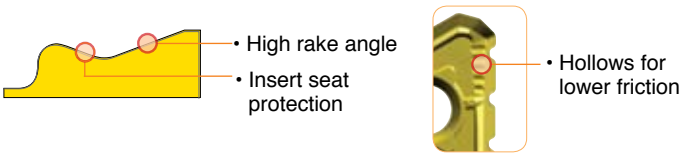
• **Tools** : Power Buster PBACA 5600R
Insert TMMX2710AZNR-NM
Milling Tool ADNA5600R
Insert SDCN 53AESN-RH



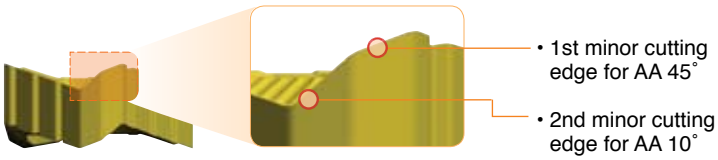
Thick insert
- Thick insert guarantees high rigidity
- Balanced insert design for stable mounting



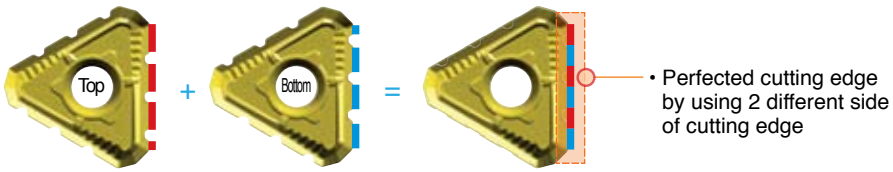
NM Chip breaker
- High rake angle for low cutting force
- Good chip flow at various feed and depth of cut
- Inserts are protected with seats for a precise mounting.
- Low friction and good heat evacuation at high depth cut



Minor cutting edge
- High rake angle to avoid interference with chip
- Calculated minor cutting edge angle for both AA 45° & 10° cutter



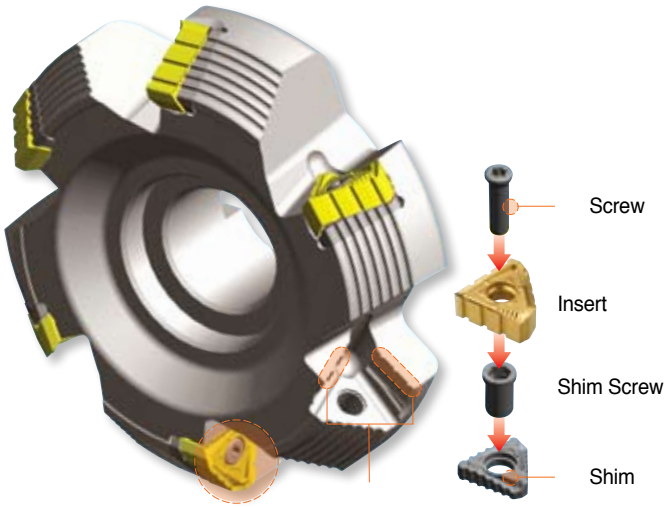
Mirror system
- Cutting edge on the both side of insert covers all overlapped cutting area



Power Buster

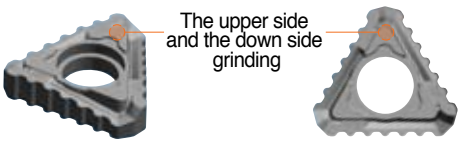
New serrated edge design increases productivity by reducing insert cutting load

Features of Cutter

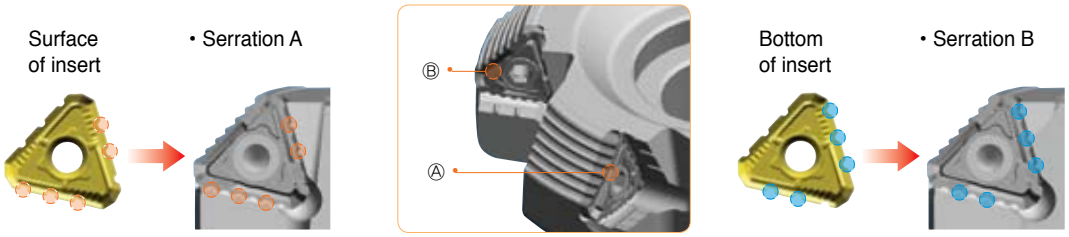


Screw on clamping system
- Simple and strong screw on clamping system

Better rigidity & Stable Assembly system
- The shim protects the cutter from insert damage
- High accuracy shim ensures tighter clamping

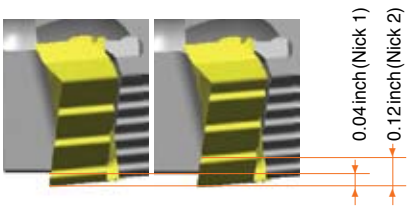


Foolproof System
- Insert serrations match pocket design to prevent improper seating and alignment.

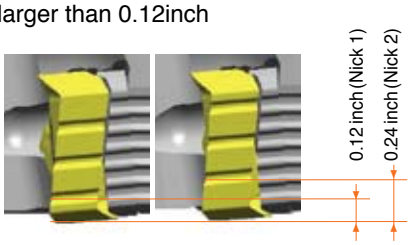


Multi-application system
- Same insert for multi use (45˚and 10˚)

• **AA 45˚**
The nicks are effective with a depth of cut larger than 0.04inch

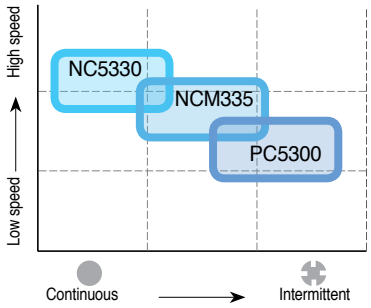


• **AA 10˚**
The nicks are effective with a depth of cut larger than 0.12inch



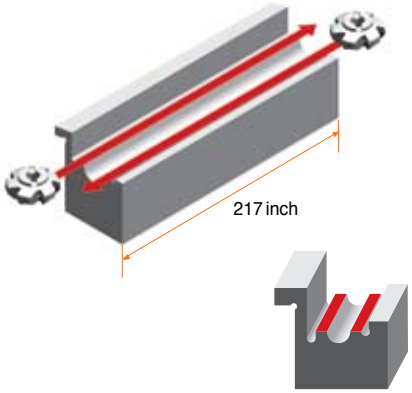
Recommended cutting condition

Workpiece	P (Steel)		K (Cast Iron)	
	vc (sfm)	vc (sfm)	vc (sfm)	fz (ipt)
NC5330	656 (492~820)	0.004~0.012	656 (492~984)	0.004~0.012
NCM335	591 (492~820)	0.004~0.012	656 (492~919)	0.004~0.014
PC5300	591 (427~755)	0.004~0.012	591 (427~820)	0.004~0.014

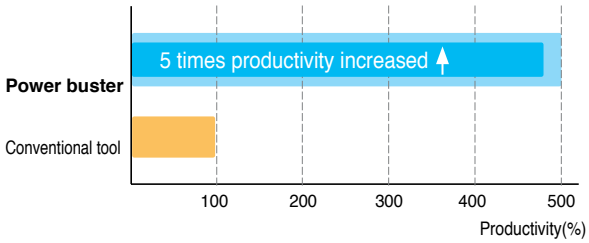


Power Buster Test

• **Cylinder block for ship engine** (Cast iron)
- Cutting width(ae) = 6.3inch x 2
- Cutting depth(ap) = 0.4inch x 2

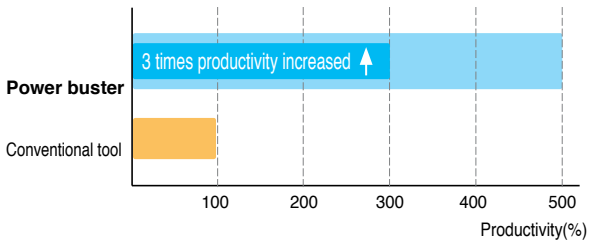


Item	Power Buster	Conventional tool
Diameter (ØD)	8inch	8inch
⊛	12teeth	12teeth
Grade	NC5330	PVD coating for Cast iron
vc	558sfm	427sfm
fz	0.009ipt	0.006ipt
ap	0.4inch x 2 passes	0.16inch x 5 passes
min	28.2min/ea	137.5min/ea



• **Heavy machinery part** (Alloy steel)
- Cutting width(ae) = 6.3inch x 2
- Cutting depth(ap) = 0.4inch x 2

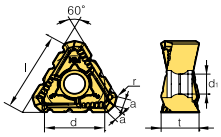
Item	Power Buster	Conventional tool
Diameter (ØD)	5inch	5inch
⊛	8teeth	8teeth
Grade	NCM335	PVD coating for Steel
vc	591sfm	492sfm
fz	0.006ipt	0.004ipt
ap	0.2inch x 2 passes	0.1inch x 4 passes
min	5min/ea	14.7min/ea



Power Buster

New serrated edge design increases productivity by reducing insert cutting load

Applicable Inserts



(inch)

Designation	l	d	t	r	d_1	a	b
TNMX 2710AZNR-NM	1.063	5/8	0.394	1/32	0.22	0.104	-
2710AZNL-NM	1.063	5/8	0.394	1/32	0.22	0.104	-

PBACA 5000

AA 45° | •AR : -5° •RR : -11°

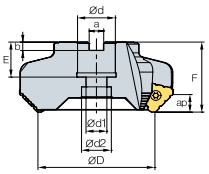


Fig. 1

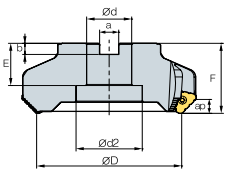


Fig. 2

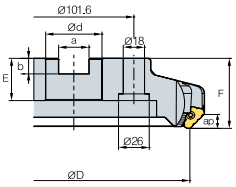


Fig. 3

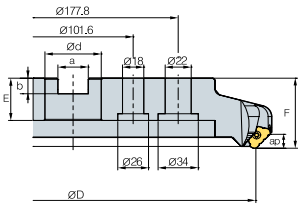


Fig. 4

(inch)

	Designation		⊚	øD	ød	ød1	ød2	a	b	E	F	ap	Fig.
Coarse pitch	PBACA	5300R/L	4	3	1.000	0.551	0.827	0.374	0.248	0.866	2.000	0.472	1
		5400R/L	4	4	1.250	-	1.772	0.500	0.319	0.866	2.000	0.472	2
		5500R/L	6	5	1.500	-	2.205	0.626	0.394	1.181	2.500	0.472	2
		5600R/L	8	6	2.000	-	3.937	0.748	0.433	1.181	2.500	0.472	2
		5800R/L	10	8	2.500	-	-	1.000	0.551	1.496	2.500	0.472	2
		51000R/L	12	10	2.500	-	-	1.000	0.551	1.496	2.500	0.472	3
		51200R/L	14	12	2.500	-	-	1.000	0.551	1.496	2.500	0.472	4
Close pitch	PBACA	5300R/L-M	6	3	1.000	0.551	0.827	0.374	0.248	0.866	2.000	0.472	1
		5400R/L-M	6	4	1.250	-	1.772	0.500	0.319	0.866	2.000	0.472	2
		5500R/L-M	8	5	1.500	-	2.205	0.626	0.394	1.181	2.500	0.472	2
		5600R/L-M	10	6	2.000	-	3.937	0.748	0.433	1.181	2.500	0.472	2
		5800R/L-M	12	8	2.500	-	-	1.000	0.551	1.496	2.500	0.472	2
		51000R/L-M	14	10	2.500	-	-	1.000	0.551	1.496	2.500	0.472	3
		51200R/L-M	16	12	2.500	-	-	1.000	0.551	1.496	2.500	0.472	4

■ Parts

Screw	Screw	Shim Screw	Wrench
FTGA0518	ST53AZR	SHXN0712F	TW20-100

■ Available Inserts

TNMX-NM

Designation	Coated										Cermet			Uncoated			
	NCM325	NCM335	NC5330	PC3500	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
TNMX 2710AZNR-NM		●	●	●	●		●										
2710AZNL-NM																	

● : Stock item

PBZCA 5000

AA 80° | •AR : -5° •RR : -12°

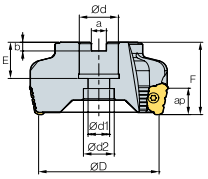


Fig. 1

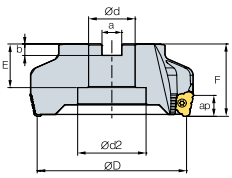


Fig. 2

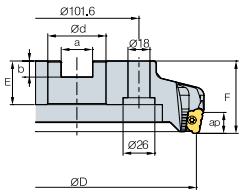


Fig. 3

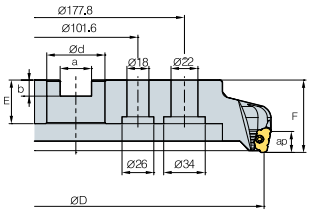


Fig. 4

(inch)

	Designation		⊚	øD	ød	ød1	ød2	a	b	E	F	ap	Fig.
Coarse pitch	**PBZCA**	**5300R/L**	4	3	1.000	0.551	0.827	0.374	0.248	0.866	2.000	0.709	1
		5400R/L	4	4	1.250	-	1.772	0.500	0.319	0.866	2.500	0.709	2
		5500R/L	6	5	1.500	-	2.205	0.626	0.394	1.181	2.500	0.709	2
		5600R/L	8	6	2.000	-	3.937	0.748	0.433	1.181	2.500	0.709	2
		5800R/L	10	8	2.500	-	-	1.000	0.551	1.496	2.500	0.709	2
		51000R/L	12	10	2.500	-	-	1.000	0.551	1.496	2.500	0.709	3
		51200R/L	14	12	2.500	-	-	1.000	0.551	1.496	2.500	0.709	4
Close pitch	**PBZCA**	**5300R/L-M**	6	3	1.000	0.551	0.827	0.374	0.248	0.866	2.000	0.709	1
		5400R/L-M	6	4	1.250	-	1.772	0.500	0.319	0.866	2.500	0.709	2
		5500R/L-M	8	5	1.500	-	2.205	0.626	0.394	1.181	2.500	0.709	2
		5600R/L-M	10	6	2.000	-	3.937	0.748	0.433	1.181	2.500	0.709	2
		5800R/L-M	12	8	2.500	-	-	1.000	0.551	1.496	2.500	0.709	2
		51000R/L-M	14	10	2.500	-	-	1.000	0.551	1.496	2.500	0.709	3
		51200R/L-M	16	12	2.500	-	-	1.000	0.551	1.496	2.500	0.709	4

■ Parts

Screw	Screw	Shim Screw	Wrench
FTGA0518	ST53AZR	SHXN0712F	TW20-100

■ Available Inserts

TNMX-NM

Designation		Coated									Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC5300	PC5500	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
TNMX	**2710AZNR-NM**		●	●	●	●		●										
	2710AZNL-NM																	

● : Stock item

Strong and Versatile Mill

ADNA/EPNA/PPNA

EPNA

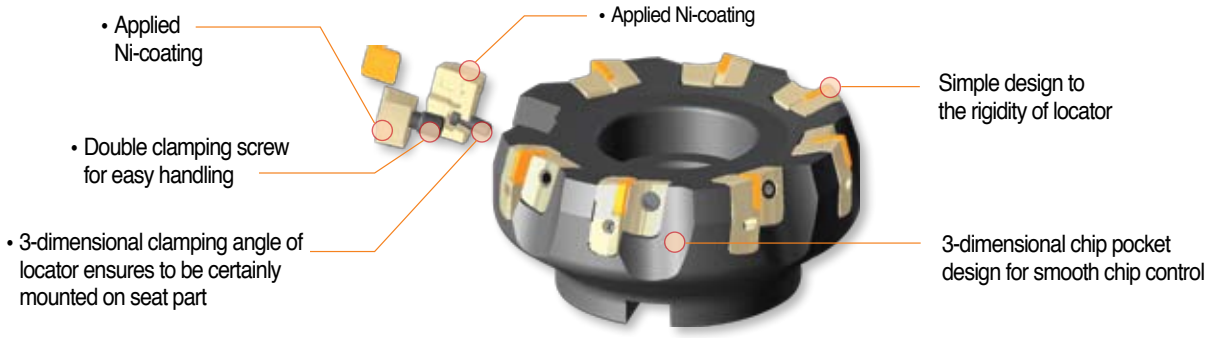
ADNA

PPNA

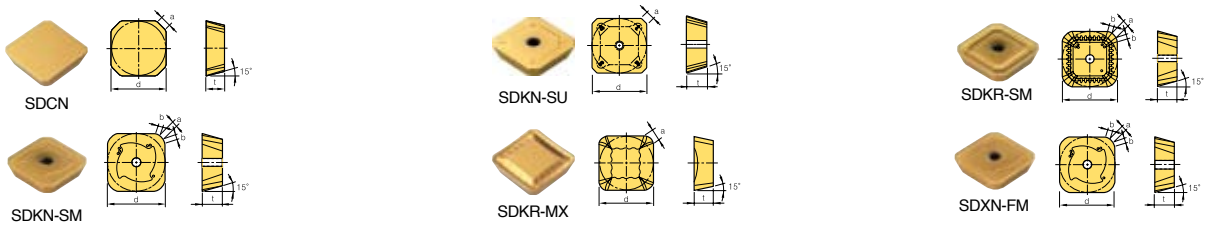
The parts applied with Ni-coating can acquire greatly increasing durability.

- The simple design and 3-dimensional clamping system ensure the rigidity of cutter for strong cutting force.
- Double clamping screw for wedge system makes handling easy and clamp powerful.
- Korloy´s various coating grades for wide application guarantee longer tool life.

Features



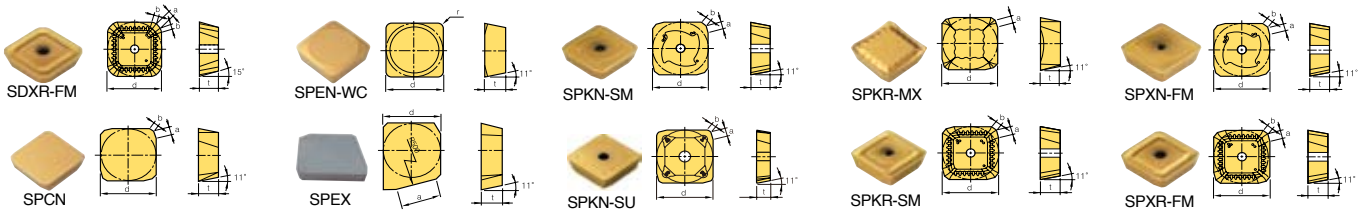
Applicable Inserts



Designation		l	d	t	r	d_1	a	b
SDCN	42M	-	1/2	1/8	-	-	0.059	-
	42M-G	-	1/2	1/8	-	-	0.059	-
	42MT	-	1/2	1/8	-	-	0.059	-
	42MT-RH	-	1/2	1/8	-	-	0.059	-
	42MT-S20	-	1/2	1/8	-	-	0.059	-
	53M	-	5/8	3/16	-	-	0.059	-
	53M-G	-	5/8	3/16	-	-	0.059	-
	53MT	-	5/8	3/16	-	-	0.059	-
	53MT-RH	-	5/8	3/16	-	-	0.059	-
	53MT-S20	-	5/8	3/16	-	-	0.059	-
	42AEEN	-	1/2	1/8	-	-	0.059	-
	42AEEN-RH	-	1/2	1/8	-	-	0.056	-
	42AESN	-	1/2	1/8	-	-	0.059	-
	42AESN-RH	-	1/2	1/8	-	-	0.056	-
	53AEEN	-	5/8	3/16	-	-	0.059	-
	53AEEN-RH	-	5/8	3/16	-	-	0.056	-
	53AESN	-	5/8	3/16	-	-	0.059	-
	53AESN-RH	-	5/8	3/16	-	-	0.056	-
SDKN	42AESN-SM	-	1/2	1/8	-	-	0.065	0.023
	42AEEN-SM	-	1/2	1/8	-	-	0.065	0.023
	53AESN-SM	-	5/8	3/16	-	-	0.065	0.023
	53AEEN-SM	-	5/8	3/16	-	-	0.065	0.023
SDKN	42AESN-SU	-	1/2	1/8	-	-	0.065	0.023
	53AESN-SU	-	5/8	3/16	-	-	0.065	0.023
SDKR	42AESN-MX	-	1/2	1/8	-	-	0.057	-
	42AETN-MX	-	1/2	1/8	-	-	0.057	-
	42AEN-MX	-	1/2	1/8	-	-	0.057	-
	53AESN-MX	-	5/8	3/16	-	-	0.057	-
	53AETN-MX	-	5/8	3/16	-	-	0.057	-
	53AEN-MX	-	5/8	3/16	-	-	0.057	-
SDKR	42AESN-SM	-	1/2	1/8	-	-	0.065	0.023
	53AESN-SM	-	5/8	3/16	-	-	0.065	0.023
SDXN	42AESN-FM	-	1/2	1/8	-	-	0.056	0.028
	42AEEN-FM	-	1/2	1/8	-	-	0.056	0.028
	53AESN-FM	-	5/8	3/16	-	-	0.056	0.028
	53AEEN-FM	-	5/8	3/16	-	-	0.056	0.028

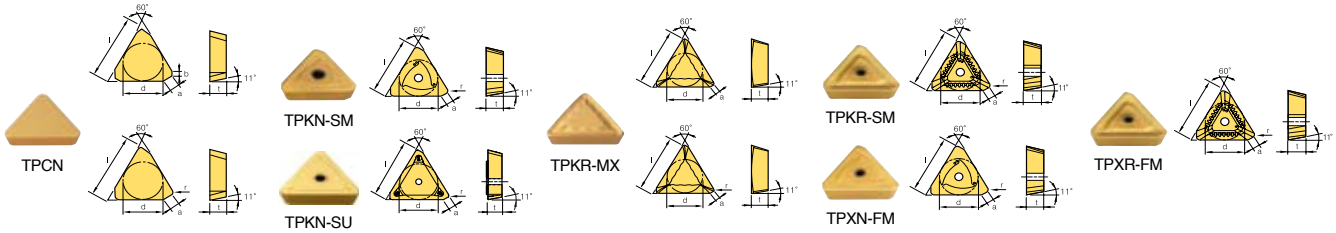
ADNA/EPNA/PPNA Strong and Versatile Mill

Applicable Inserts



Designation		l	d	t	r	d_1	a	b
SDXR	1203AESN-FM	-	1/2	1/8	-	-	0.056	0.028
	1504AESN-FM	-	5/8	3/16	-	-	0.056	0.028
SPCN	42EDR	-	1/2	1/8	-	-	0.055	0.039
	42EDL	-	1/2	1/8	-	-	0.055	0.039
	42EDR-G	-	1/2	1/8	-	-	0.055	0.039
	42EDER-RH	-	1/2	1/8	-	-	0.064	0.031
	42EDSR-RH	-	1/2	1/8	-	-	0.055	0.039
	42EDTR-RH	-	1/2	1/8	-	-	0.055	0.039
	42EDR-S20	-	1/2	1/8	-	-	0.055	0.039
	43EDR	-	1/2	3/16	-	-	0.055	0.039
	5312T	-	5/8	3/16	0.047	-	-	-
	53EDR	-	5/8	3/16	-	-	0.055	0.039
	53EDSR	-	5/8	3/16	-	-	0.055	0.039
	53EDL	-	5/8	3/16	-	-	0.055	0.039
	53EDR-G	-	5/8	3/16	-	-	0.055	0.039
	53EDER-RH	-	5/8	3/16	-	-	0.065	0.031
	53EDSR-RH	-	5/8	3/16	-	-	0.055	0.039
	53EDTR-RH	-	5/8	3/16	-	-	0.055	0.039
	53EDR-S20	-	5/8	3/16	-	-	0.055	0.039
SPEN	434-WC	-	1/2	3/16	1/16	-	-	-
	533-WC	-	5/8	3/16	3/64	-	-	-
	534-WC	-	5/8	3/16	1/16	-	-	-
	535-WC	-	5/8	3/16	5/64	-	-	-
	636-WC	-	3/4	3/16	3/32	-	-	-
SPEX	42EDR-1	-	1/2	1/8	-	-	0.402	-
	42EDL-1	-	1/2	1/8	-	-	0.402	-
	53EDR-1	-	5/8	3/16	-	-	0.402	-
	53EDL-1	-	5/8	3/16	-	-	0.402	-
	63EDR-1	-	3/4	3/16	-	-	0.402	-
	63EDL-1	-	3/4	3/16	-	-	0.402	-
SPKN	42EDSR-SM	-	1/2	1/8	-	-	0.065	0.036
	42EDER-SM	-	1/2	1/8	-	-	0.065	0.036
	53EDSR-SM	-	5/8	3/16	-	-	0.064	0.037
	53EDER-SM	-	5/8	3/16	-	-	0.064	0.037
SPKN	42EDSR-SU	1/2	1/2	1/8	-	-	0.065	0.036
	42EDSL-SU	1/2	1/2	1/8	-	-	0.065	0.036
	53EDSR-SU	5/8	5/8	3/16	-	-	0.064	0.037
	53EDSL-SU	5/8	5/8	3/16	-	-	0.064	0.037
SPKR	42EDSR-MX	-	1/2	1/8	-	-	0.055	-
	42EDSL-MX	-	1/2	1/8	-	-	0.055	-
	53EDR-MX	-	5/8	3/16	-	-	0.057	-
	53EDSR-MX	-	5/8	3/16	-	-	0.057	-
SPKR	42EDSR-SM	-	1/2	1/8	-	-	0.065	0.036
	53EDSR-SM	-	5/8	4.76	-	-	0.064	0.037
SPXN	42EDSR-FM	-	1/2	0.125	-	-	0.056	0.039
	42EDER-FM	-	1/2	0.125	-	-	0.056	0.039
	53EDSR-FM	-	5/8	0.187	-	-	0.054	0.040
	53EDER-FM	-	5/8	0.187	-	-	0.054	0.040
SPXR	42EDSR-FM	-	1/2	0.125	-	-	0.056	0.039
	53EDSR-FM	-	5/8	0.187	-	-	0.054	0.040

Applicable Inserts



Designation		l	d	t	r	d_1	a	b
TPCN	22PPN	.433	1/4	1/8	-	-	0.028	0.028
	22PPTN	0.433	1/4	1/8	-	-	0.028	0.028
	32PDR	0.650	3/8	1/8	-	-	0.047	0.028
	32PPN	0.650	3/8	1/8	-	-	0.047	0.047
	32PPR	0.650	3/8	1/8	-	-	0.047	0.039
	32PPR-G	0.650	3/8	1/8	-	-	0.047	0.039
	32PPSR	0.650	3/8	1/8	-	-	0.047	0.039
	32PPTN	0.650	3/8	1/8	-	-	0.047	0.047
	32PPTR	0.650	3/8	1/8	-	-	0.047	0.039
	32PPR-RH	0.650	3/8	1/8	-	-	0.047	0.039
	32PDER-RH	0.650	3/8	1/8	0.8	-	0.059	-
	32PDSR-RH	0.650	3/8	1/8	0.8	-	0.059	-
	32PDR-S20	0.650	3/8	1/8	-	-	0.047	0.028
	43PDR	0.866	1/2	3/16	-	-	0.055	0.028
	43PDR-G	0.866	1/2	3/16	-	-	0.055	0.028
	43PDL	0.866	1/2	3/16	-	-	0.055	0.028
	43PDSR	0.866	1/2	3/16	-	-	0.055	0.028
	43PDTR	0.866	1/2	3/16	-	-	0.055	0.028
	43PDR-RH	0.866	1/2	3/16	0.8	-	0.071	-
	43PDER-RH	0.866	1/2	3/16	0.8	-	0.071	-
	43PDSR-RH	0.866	1/2	3/16	0.8	-	0.071	-
	43PDR-S20	0.866	1/2	3/16	-	-	0.055	0.028
TPKN	32PDSR-SM	0.650	3/8	1/8	0.039	-	0.067	
	32PDER-SM	0.650	3/8	1/8	0.039	-	0.067	
	43PDSR-SM	0.866	1/2	3/16	0.039	-	0.075	
	43PDER-SM	0.866	1/2	3/16	0.039	-	0.075	
TPKN	32PDSL-SU	0.650	3/8	1/8	0.039	-	0.067	-
	32PDSR-SU	0.650	3/8	1/8	0.039	-	0.067	-
	43PDSL-SU	0.866	1/2	3/16	0.039	-	0.075	-
	43PDSR-SU	0.866	1/2	3/16	0.039	-	0.075	-
TPKR	32PDSN-MX	0.650	3/8	1/8	-	-	0.047	0.047
	32PDSR-MX	0.650	3/8	1/8	-	-	0.047	0.028
	32PPR-MX	0.650	3/8	1/8	-	-	0.047	0.039
	32PPSN-MX	0.650	3/8	1/8	-	-	0.047	0.047
	32PPSR-MX	0.650	3/8	1/8	-	-	0.047	0.039
	43PDR-MX	0.866	1/2	3/16	0.039	-	0.055	-
	43PDSR-MX	0.866	1/2	3/16	0.039	-	0.055	-
	43PPR-MX	0.866	1/2	3/16	0.039	-	0.055	-
TPKR	32PDSR-SM	0.650	3/8	1/8	0.039	-	0.067	-
	43PDSR-SM	0.866	1/2	3/16	0.039	-	0.075	-
TPXN	32PDSR-FM	0.650	3/8	1/8	0.039	-	0.051	-
	32PDER-FM	0.650	3/8	1/8	0.039	-	0.051	-
	43PDSR-FM	0.866	1/2	3/16	0.039	-	0.059	-
	43PDER-FM	0.866	1/2	3/16	0.039	-	0.059	-
TPXR	32PDSR-FM	0.650	3/8	1/8	0.039			
	43PDSR-FM	0.866	1/2	3/16	0.039			

ADNA/EPNA/PPNA Strong and Versatile Mill

ADNA4000

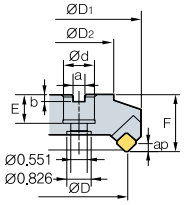


Fig. 1

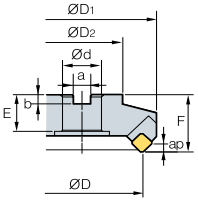


Fig. 2

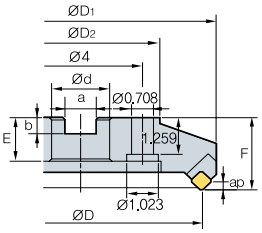


Fig. 3

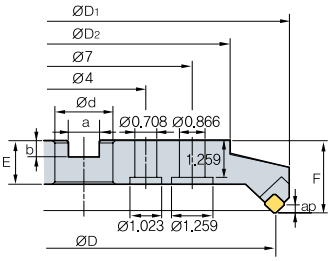


Fig. 4

(Inch)

Designation			øD	øD1	øD2	ød	a	b	E	F	ap	lbs	Fig.
ADNA	4300R/L	4	3	3.98	2.205	1	0.375	0.248	0.866	2.000	0.24	4.2	1
	4400R/L	5	4	4.98	2.874	1 1/4	0.500	0.319	0.866	2.000	0.24	5.5	2
	4500R/L	6	5	5.94	3.389	1 1/2	0.625	0.394	1.181	2.5	0.24	9.5	2
	4600R/L	8	6	6.91	4.882	2	0.750	0.433	1.181	2.5	0.24	14.1	2
	4800R/L	10	8	8.91	5.118	2 1/2	1.000	0.551	1.496	2.5	0.24	19.1	3
	41000R/L	12	10	10.91	7.087	2 1/2	1.000	0.551	1.496	2.5	0.24	30.8	3
	41200R/L	14	12	12.91	9.449	2 1/2	1.000	0.551	1.496	2.5	0.24	46.2	4

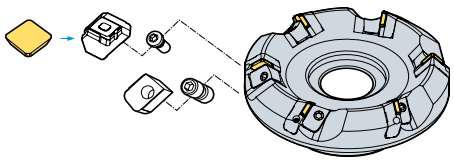
■ Parts

Locator	Wedge	Wedge Screw	Locator Screw	Wrench
LADN4R/L	WEPN4R/L	DHA0821F	LTX0514	HW40

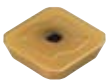
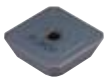
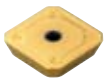
■ Recommended Cutting Condition

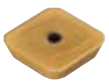
Workpiece	Cutting Condition vc(sfm)	Cutting Condition fz(ipt)	Grades
P	500~1000	0.002~0.006	NCM325
	400~800	0.002~0.008	PC3600
	300~600	0.002~0.008	ST30A
M	150~600	0.002~0.008	PC9530
	150~400	0.002~0.008	ST30A
K	500~900	0.002~0.120	PC6510
	300~600	0.002~0.012	G10

Assembling



■ Available Inserts

SDCN	SDKN-SM	SDKN-SU	SDKR-MX
			

SDKR-MX	SDKR-SM	SDXN-FM	SDXR-FM
			

Designation		Coated NCM325	NCM335	NC5330	PC3500	PC3600	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	Cermet CN2000	CN20	CN30	Uncoated H01	G10	ST30A	ST20
SDCN	42M																●		
	42M-G															●			
	42MT		●										●		●			●	●
	42MT-RH				●														
	42MT-S20								●										
	42AEEN																		
	42AEEN-RH																		
	42AESN																		
	42AESN-RH																		
SDKN	42AESN-SM																		
	42AEEN-SM																		
	42AESN-MU																		
	42AESN-SU					●		●											
SDKR	42AESN-MX																		
	42AETN-MX																		
	42AEN-MX	●																	
	42AESN-SM																		
SDXN	42AESN-FM																		
	42AEEN-FM																		
SDXR	42AESN-FM																		

● : Stock item

ADNA5000

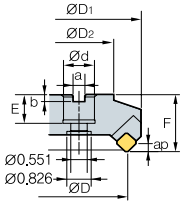


Fig. 1

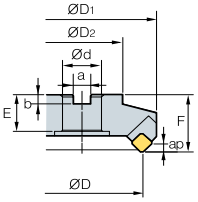


Fig. 2

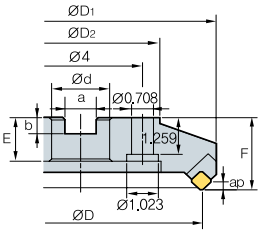


Fig. 3

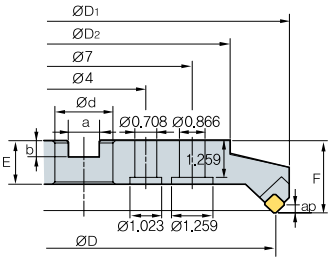


Fig. 4

(Inch)

Designation			øD	øD1	øD2	ød	a	b	E	F	ap	lbs	Fig.
ADNA	5300R/L	4	3	4.06	2.205	1	0.375	0.248	0.866	2.0	0.32	4.4	1
	5400R/L	5	4	5.02	2.874	1 1/4	0.500	0.319	0.866	2.0	0.32	5.9	2
	5500R/L	6	5	5.98	30389	1 1/2	0.625	0.394	1.181	2.5	0.32	9.5	2
	5600R/L	8	6	6.98	4.882	2	0.750	0.433	1.181	2.5	0.32	14.3	2
	5800R/L	10	8	8.98	5.118	2 1/2	1.000	0.551	1.496	2.5	0.32	20.0	3
	51000R/L	12	10	10.98	7.087	2 1/2	1.000	0.551	1.496	2.5	0.32	31.9	3
	51200R/L	14	12	12.98	9.449	2 1/2	1.000	0.551	1.496	2.5	0.32	46.2	4

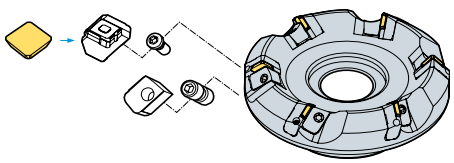
■ Parts

Locator	Wedge	Wedge Screw	Locator Screw	Wrench
LADN4R/L	WEPN4R/L	DHA0821F	LTX0514	HW40

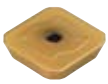
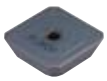
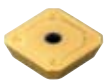
■ Recommended Cutting Condition

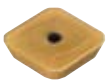
Workpiece	Cutting Condition		Grades
	vc(sfm)	fz(ipt)	
P	500~1000	0.002~0.006	NCM325
	400~800	0.002~0.008	PC3600
	300~600	0.002~0.008	ST30A
M	150~600	0.002~0.008	PC9530
	150~400	0.002~0.008	ST30A
K	500~900	0.002~0.120	PC6510
	300~600	0.002~0.012	G10

Assembling



■ Available Inserts

SDCN	SDKN-SM	SDKN-SU	SDKR-MX
			

SDKR-MX	SDKR-SM	SDXN-FM	SDXR-FM
			

Designation		Coated										Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC3600	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SDCN	53M																●		
	53M-G															●			
	53MT												●		●			●	●
	53MT-RH	●	●																
	53MT-S20				●			●											
	53AEEN																		
	53AEEN-RH						●			●									
	53AESN																		
	53AESN-RH									●									
SDKN	53AESN-SM																		
	53AEEN-SM																		
	53AESN-MU																		
	53AESN-SU					●		●											
SDKR	53AESN-MX		●																
	53AETN-MX																		
	53AEN-MX	●																	
	53AESN-SM																		
SDXN	53AESN-FM																		
	53AEEN-FM																		
SDXR	53AESN-FM																		

● : Stock item

ADNA/EPNA/PPNA Strong and Versatile Mill

EPNA4000

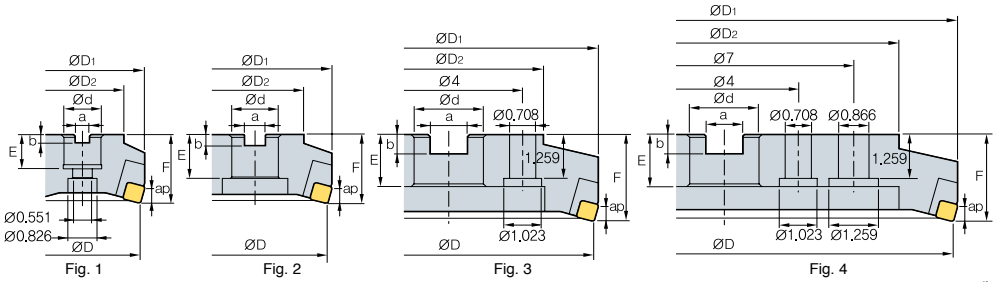


Fig. 1 Fig. 2 Fig. 3 Fig. 4

(Inch)

Designation			øD	øD1	øD2	ød	a	b	E	F	ap	lbs	Fig.
EPNA	4300R/L	5	3	3.31	2.205	1	0.375	0.248	0.866	2.0	0.35	3.1	1
	4400R/L	6	4	4.28	2.874	1 1/4	0.500	0.319	0.866	2.0	0.35	4.6	2
	4500R/L	8	5	5.28	3.389	1 1/2	0.625	0.394	1.181	2.5	0.35	8.4	2
	4600R/L	10	6	6.24	4.882	2	0.750	0.433	1.181	2.5	0.35	12.5	2
	4800R/L	12	8	8.24	5.118	2 1/2	1.000	0.551	1.496	2.5	0.35	18	3
	41000R/L	16	10	10.24	7.087	2 1/2	1.000	0.551	1.496	2.5	0.35	29.7	3
	41200R/L	20	12	12.24	9.449	2 1/2	1.000	0.551	1.496	2.5	0.35	46.4	4

■ Parts

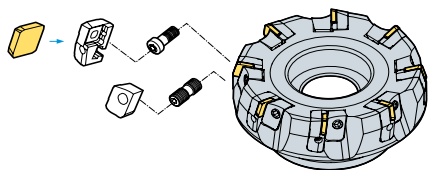
Locator	Wedge	Wedge Screw	Locator Screw	Wrench
LADN4R/L	WEPN4R/L	DHA0821F	LTX0514	HW40
LEPN4R1*/L1*		DHA0818F*		

* : Ø3 ~ Ø4

■ Recommended Cutting Condition

Workpiece	Cutting Condition vc(sfm)	Cutting Condition fz(ipt)	Grades
P	500~1000	0.002~0.006	NCM325
	400~800	0.002~0.008	PC3600
	300~600	0.002~0.008	ST30A
M	150~600	0.002~0.008	PC9530
	150~400	0.002~0.008	ST30A
K	500~900	0.002~0.120	PC6510
	300~600	0.002~0.012	G10

Assembling



■ Available Inserts

SPCN	SPKN-SM	SPKN-SU	SPKN-MU

SPKR-MX	SPKR-SM	SPXN-FM	SPXR-FM

Designation		Coated										Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC3600	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
SPCN	12EDR	●	●												●	●	●	●	●
	12EDL																●	●	
	12EDR-G															●			
	12EDER-RH						●			●									
	12EDSR-RH									●	●								
	12EDTR-RH					●													
	12EDR-S20								●										
SPKN	12EDSR-SM																		
	12EDER-SM																		
	12EDER-MU																		
	12EDSR-SU					●	●	●											
	12EDSL-SU					●													
SPKR	12EDSR-MX	●	●		●														
	12EDSL-MX	●																	
	12EDSR-SM																		
SPXN	12EDSR-FM																		
	12EDER-FM																		
SPXR	12EDSR-FM																		

● : Stock item

EPNA5000

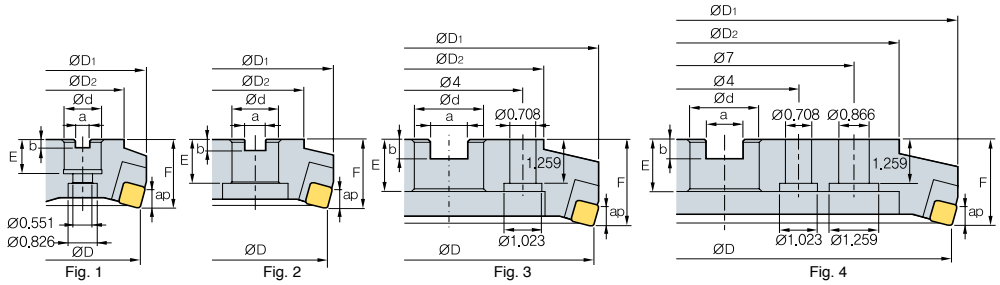


Fig. 1 Fig. 2 Fig. 3 Fig. 4

(Inch)

Designation			øD	øD1	øD2	ød	a	b	E	F	ap	lbs	Fig.
EPNA	5300R/L	5	3	3.43	2.205	1	0.375	0.248	0.866	2.0	0.47	3.3	1
	5400R/L	6	4	4.39	2.874	1 1/4	0.500	0.319	0.866	2.0	0.47	4.6	2
	5500R/L	8	5	5.35	3.389	1 1/2	0.625	0.394	1.181	2.5	0.47	8.6	2
	5600R/L	10	6	6.35	4.882	2	0.750	0.433	1.181	2.5	0.47	12.5	2
	5800R/L	12	8	8.35	5.118	2 1/2	1.000	0.551	1.496	2.5	0.47	18.5	3
	51000R/L	16	10	10.35	7.087	2 1/2	1.000	0.551	1.496	2.5	0.47	29.9	3
	51200R/L	20	12	12.35	9.449	2 1/2	1.000	0.551	1.496	2.5	0.47	47.5	4

■ Parts

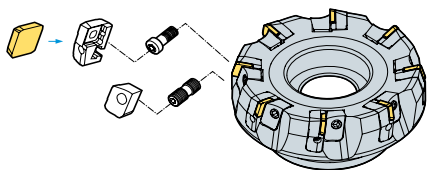
Locator	Wedge	Wedge Screw	Locator Screw	Wrench
LEPN5R/L	WEPN5R/L	DHA0821F	LTX0514	HW40
LEPN5R1*/L1*		DHA0818F*		

* : Ø3 ~ Ø4

■ Recommended Cutting Condition

Workpiece	Cutting Condition vc(sfm)	Cutting Condition fz(ipt)	Grades
P	500~1000	0.002~0.006	NCM325
	400~800	0.002~0.008	PC3600
	300~600	0.002~0.008	ST30A
M	150~600	0.002~0.008	PC9530
	150~400	0.002~0.008	ST30A
K	500~900	0.002~0.120	PC6510
	300~600	0.002~0.012	G10

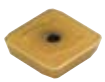
Assembling



■ Available Inserts

SPCN

SPKN-SM

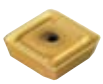


SPKN-SU

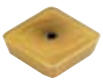
SPKN-MU

SPKR-MX

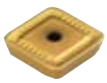
SPKR-SM



SPXN-FM



SPXR-FM



Designation		Coated NCM325	NCM335	NC5330	PC3500	PC3600	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	Cermet CN2000	CN20	CN30	Uncoated H01	G10	ST30A	ST20
SPCN	5312T																		
	53EDR	●													●		●	●	●
	53EDSR		●																
	53EDL									●								●	
	53EDR-G															●			
	53EDER-RH						●			●									
	53EDSR-RH									●									
	53EDTR-RH				●														
	53EDR-S20								●										
SPKN	53ESR-SM																		
	53EDER-SM																		
	53EDSR-MU																		
	53EDSR-SU					●	●	●											
	53EDSL-SU																		
SPKR	53EDR-MX	●																	
	53EDSR-MX		●		●														
	53EDSR-SM																		
SPXN	53EDSR-FM																		
	53EDER-FM																		
SPXR	53EDSR-FM																		

● : Stock item

ADNA/EPNA/PPNA Strong and Versatile Mill

PPNA4000

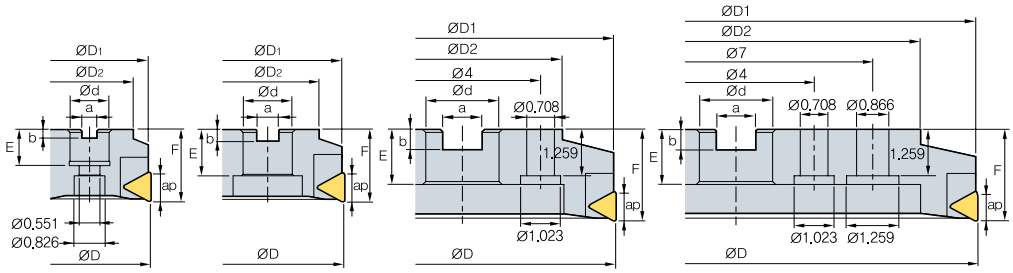


Fig. 1 Fig. 2 Fig. 3 Fig. 4

(Inch)

Designation			øD	øD1	øD2	ød	a	b	E	F	ap	lbs	Fig.
PPNA	4300R/L	5	3	2.96	2.205	1	0.375	0.248	0.866	2.0	0.70	2.9	1
	4400R/L	6	4	3.96	2.874	1 1/4	0.500	0.319	0.866	2.0	0.70	4.2	2
	4500R/L	8	5	4.96	3.389	1 1/4	0.625	0.394	1.181	2.5	0.70	7.7	2
	4600R/L	10	6	5.92	4.882	2	0.750	0.433	1.181	2.5	0.70	12.3	2
	4800R/L	12	8	7.92	5.118	2 1/2	1.000	0.551	1.496	2.5	0.70	17.8	3
	41000R/L	16	10	9.92	7.087	2 1/2	1.000	0.551	1.496	2.5	0.70	29.3	3
	41200R/L	20	12	11.92	9.449	2 1/2	1.000	0.551	1.496	2.5	0.70	47.1	4

■ Parts

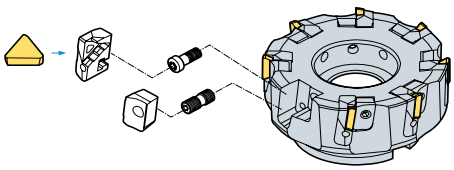
Locator	Wedge	Wedge Screw	Locator Screw	Wrench
LPPN4R/L LPPN4R1*/L1*	WPPN4R/L	DHA0821F DHA0817F*	LTX0514	HW40

* : Ø3 ~ Ø4

■ Recommended Cutting Condition

Workpiece	Cutting Condition		Grades
	vc(sfm)	fz(ipt)	
P	500~1000	0.002~0.006	NCM325
	400~800	0.002~0.008	PC3500
	300~600	0.002~0.008	ST30A
M	150~600	0.002~0.008	PC9530
	150~400	0.002~0.008	ST30A
K	500~900	0.002~0.12	PC6510
	300~600	0.002~0.012	G10

Assembling



■ Available Inserts

TPCN	TPKN-SM	TPKN-SU	TPKN-MU
TPKR-MX	TPKR-SM	TPXN-FM	TPXR-FM

Designation		Coated										Cermet			Uncoated			
		NCM325	NCM335	NC5330	PC3500	PC3600	PC5300	PC3545	PC9530	PC6510	PC215K	PD2000	CN2000	CN20	CN30	H01	G10	ST30A	ST20
TPCN	43PDR	●													●		●	●	●
	43PDR-G															●			
	43PDL																	●	
	43PDSR		●																
	43PDTR																		
	43PDR-RH																		
	43PDER-RH						●			●	●								
	43PDSR-RH									●	●								
	43PDR-S20								●										
TPKN	43PDSR-SM																		
	43PDER-SM																		
	43PDSR-MU																		
	43PDSR-SU					●	●	●											
	43PDSL-SU					●													
TPKR	43PDR-MX	●																	
	43PDSR-MX	●	●																
	43PPR-MX																		
	43PDSR-SM																		
TPXN	43PDSR-FM																		
	43PDER-FM																		
TPXR	43PDSR-FM																		

● : Stock item

Optimized design of inserts for maximum drilling efficiency

KING Drill

Optimized design of inserts for maximum drilling efficiency

- Excellent cutting performance and chip control due to the optimized geometry and chip breaker of both inserts, central & peripheral.
- 2 different inserts, optimized for the central and peripheral insert locations in order to maximize cutting tool life.

Through Coolant System

KING Drill

Optimized design of inserts for maximum drilling efficiency

Features of Insert

- **Optimized design of inserts for maximum drilling efficiency.**
  - Excellent cutting performance and chip control due to the optimized geometry and chip breaker of both inserts, central & peripheral.
  - 2 different inserts, optimized for the central and peripheral insert locations in order to maximize cutting tool life.

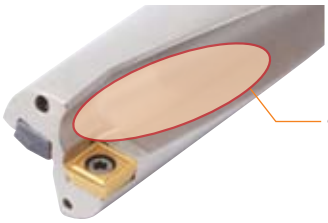
Central insert

Peripheral insert

Features of Drill

- 3 coolant hole system

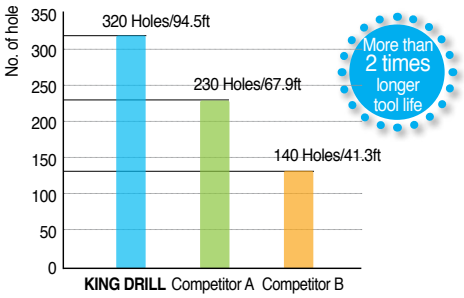
- The center coolant hole system helps prevent wear on the chip pocket of the central insert and improves chip control.



- The optimized shape of the flute increases the rigidity of the drill body and improves chip evacuation.

Machining performance

■ Tool life comparison

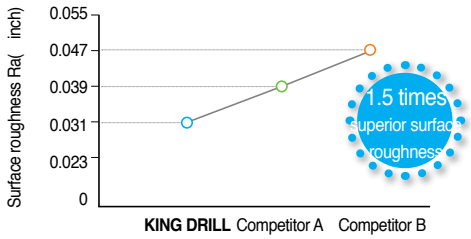


- KING DRILL has the best tool life.

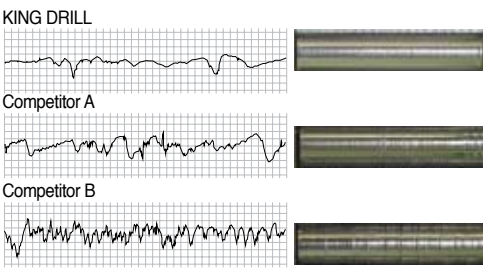
- **KING DRILL** 320 Holes (94.5ft)
  Normal wear
- **Competitor A** 230 Holes (67.9ft)
  Chipping on cutting edge
- **Competitor B** 140 Holes (41.3ft)
  Wear and chipping on cutting edge

- **Workpiece** : AISI 4140
- **Cutting condition** : vc(sfm)=492, fn(ipr)=0.0039
  Depth of drilling : 3.15inch(pass though), wet
- **Tools : Insert** SPMT060205-PD(PC3500), XOMT060204-PD(PC5300)
  Holder K5DA0875100-07

■ Surface roughness

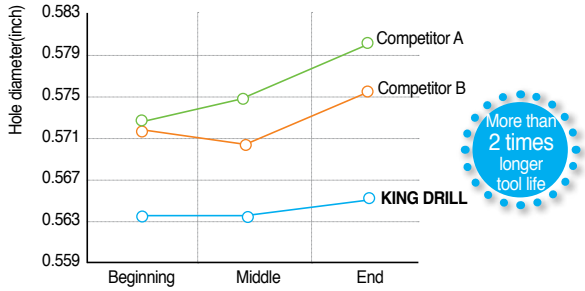


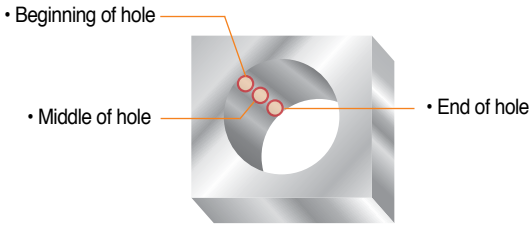
- Superior surface roughness of KING DRILL



- **Workpiece** : AISI 4140
- **Cutting condition** : vc(sfm)=492, fn(ipr)=0.0031, Depth of drilling : 2.36inch(pass though), wet
- **Tools : Insert** SPMT050204-PD(PC3500), XOMT050204-PD(PC5300)
  Holder K5DA0562075-05

■ Precision of machining





- **Workpiece** : AISI 4140
- **Cutting condition** : vc(sfm)=492, fn(ipr)=0.0031
  Depth of drilling 19.7ft(pass though), wet
- **Tools : Insert** SPMT050204-PD(PC3500), XOMT050204-PD(PC5300)
  Holder K5DA0562075-05

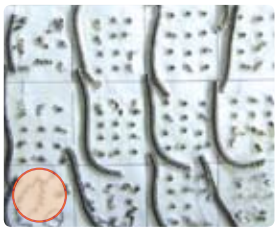
•The diameters of beginning, middle, and end of hole are regular after drilling with KING DRILL.

- **KING DRILL**
  Regular hole diameters at the beginning, middle and end of hole.
- **Competitor A**
  Hole diameter : beginning<middle<end
- **Competitor B**
  Bigger hole diameter at the end of hole.

■ Chip evacuation

KING DRILL
•Stable chip control

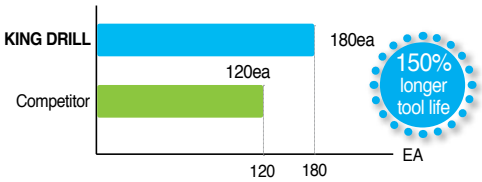
Competitor A
• Thin and long chips are coiled around the holder.



Competitor B
• Folded chips under certain cutting condition.
• Poorchip evacuation

- **Workpiece** : AISI 1045
- **Cutting condition** : vc(sfm)=295~590, fn(ipr)=0.0024~0.0047, t(inch)=3.5, Through coolant system, pass through
- **Tools : Insert** SPMT07T208-PD(PC3500), XOMT07T205-PD(PC5300)
  Holder K5DA0812100-07

Application examples



•Superior surface finish and chip evacuation.
•KING DRILL : 180ea, Competitor's : 120ea
•150% longer tool life.

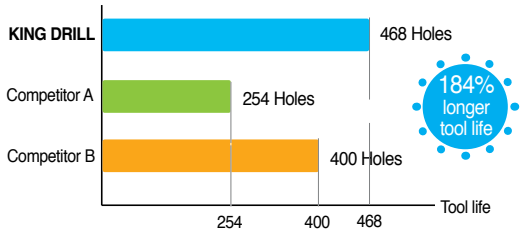
[workpiece]

- **Workpiece** : Track link bush
- **Cutting condition** : vc(sfm)=394, fn(ipr)=0.0039
  Through coolant system
- **Tools : Insert** SPMT07T208-PD(PC3500), XOMT07T205-PD(PC5300)
  Holder K5DA0812100-07
- **Machine** : Drilling Machine

KING Drill

Optimized design of inserts for maximum drilling efficiency

■ Example of longer tool life

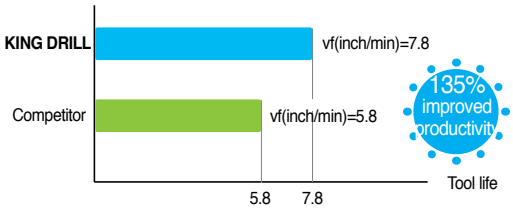


[workpiece]

- **Workpiece** : Hydraulic oil pump(AISI 4140)
- **Cutting condition** : vc(sfm)=449
  fn(ipr)=0.0051
  ap(inch)=2.3(not pass though)
  through coolant system
- **Tools : Insert** SPMT090308-PD(PC3500)
  XOMT090305-PD(PC5300)
  Holder K5DA1000125-09
- **Machine** : KV45

- Superior chip evacuation and surface finish
- 184% longer tool life comparing to competitor A
- 117% longer tool life comparing to competitor B

■ Example of improved productivity

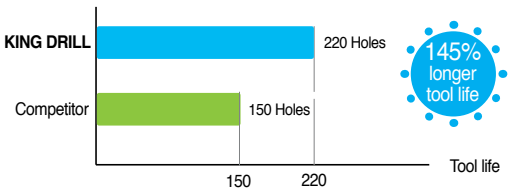


[workpiece]

- **Workpiece** : Track link bush(AISI 4130)
- **Cutting condition** : Competitor's vc(sfm)=459, fn(ipr)=0.0039
  Korloy's vc(sfm)=459, fn(ipr)=0.0047
- **Tools : Insert** SPMT090308-PD(PC3500)
  XOMT090305-PD(PC5300)
  Holder K3DA1062125-09
- **Machine** : MCT

- KING DRILL : 95 Holes, Competitor : 70 Holes, 135% longer tool life.
- 135% improved productivity.

■ Example of improved productivity and tool life.



[workpiece]

Chips from KING DRILL

Chips from competitor's

- **Workpiece** : Track link(AISI 4140)
- **Cutting condition** : Competitor's vc(sfm)=154, fn(ipr)=0.0039, Through coolant system
  Korloy's vc(sfm)=360, fn(ipr)=0.0039, Through coolant system
- **Tools : Insert** SPMT090308-PD(PC3500)
  XOMT090305-PD(PC5300)
  Holder K3DA1062125-09
- **Machine** : MCT

- KING DRILL has 145% longer tool life and 200% improved productivity.
- Good surface finish, improved chip control and less chattering.

Recommended cutting condition

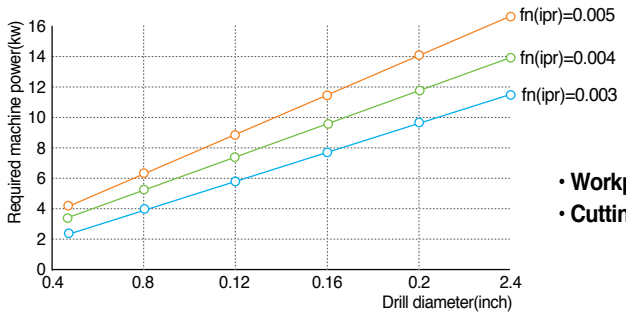
(inch)

Workpiece				Grade	vc	Feed(aspect ratio=3D)				
						Feed (ipr) depending on drill diameter				
ISO		Workpiece	Hardness(HD)		sfm	0.47~0.63	0.64~0.91	0.92~1.14	1.15~1.65	1.66~2.36
P	Carbon steel	Low carbon steel	80-180	Central insert PC5300 Peripheral insert PC3500	623(426~820)	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031
		High carbon	180-280	Central insert PC5300 Peripheral insert PC3500	459(262~656)	0.0016~0.0039	0.0016~0.0047	0.002~0.0063	0.0031~0.0071	0.0039~0.0087
	Alloy steel	Low alloy steel	140-260	Central insert PC5300 Peripheral insert PC3500	427(229~656)	0.0016~0.004	0.002~0.005	0.003~0.0063	0.0031~0.0079	0.0031~0.0094
		Low pre - hardened	200-400	Central insert PC5300 Peripheral insert PC3500	328(164~492)	0.0016~0.004	0.002~0.005	0.003~0.0063	0.0031~0.0071	0.0031~0.0087
		Low alloy stee	50-260	Central insert PC5300 Peripheral insert PC3500	328(164~524)	0.0016~0.007	0.002~0.005	0.003~0.0063	0.0031~0.0071	0.0031~0.0087
		High pre-hardenedsteel	220-450	Central insert PC5300 Peripheral insert PC3500	230(98~393)	0.0016~0.005	0.002~0.006	0.0031~0.0067	0.0031~0.0067	0.0031~0.0079
M	Stainless steel	Austenite series	135-275 Ni>8%	PC5300	295(131~492)	0.0016~0.004	0.0024~0.0047	0.0024~0.0055	0.0024~0.0063	0.0024~0.0079
		Ferrite series Martensite series	135-275	PC5300	328(196~524)	0.0016~0.004	0.0016~0.0047	0.0024~0.0055	0.0024~0.0063	0.0024~0.0079
K	Cast iron	Gray cast iron	150-230	PC6510	623(492~820)	0.0016~0.004	0.002~0.0055	0.0024~0.0063	0.0039~0.0087	0.0039~0.0102
		Ductile cast iron	150-230	PC6510	492(328~656)	0.0016~0.005	0.0024~0.0063	0.0031~0.0071	0.0031~0.0079	0.0039~0.0087
S	Heat resisting alloy	Ni-heat resisting alloy	130-400	PC5300	164(98~328)	0.0016~0.002	0.0016~0.0031	0.0016~0.0039	0.0024~0.0047	0.0024~0.0047
		Ti-heat resisting alloy	130-400	PC5300	131(98~295)	0.0016~0.003	0.0016~0.0039	0.0024~0.0047	0.0031~0.0055	0.0031~0.0063
		High hardened steel	over400	PC5300	131(98~262)	0.0016~0.003	0.0016~0.0039	0.0031~0.0047	0.0031~0.0055	0.0031~0.0063

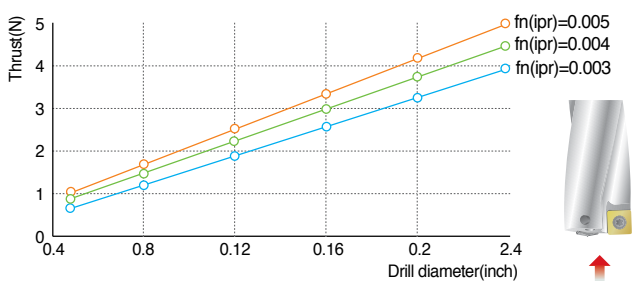
- In case of 5D, reduce 30~40% of cutting condition from the above.
- In interrupted machining part, reduce 30~50% of feed from the above machining around interrupted part.

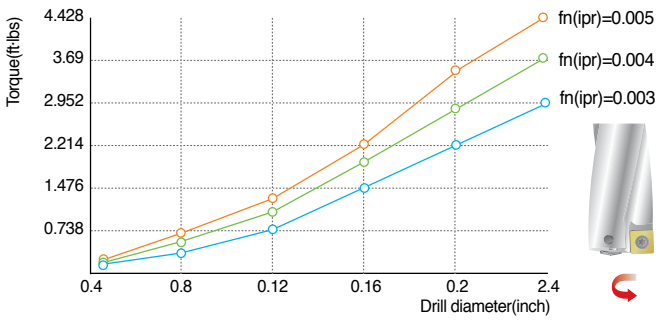
Required machine power

- The graphs below show the cutting force required in drilling.
- Machining with the KING DRILL and a machine with high rigidity and power.



- **Workpiece** : AISI 4140(240HB)
- **Cutting condition** : vc(sfm)=328
  Through coolant system

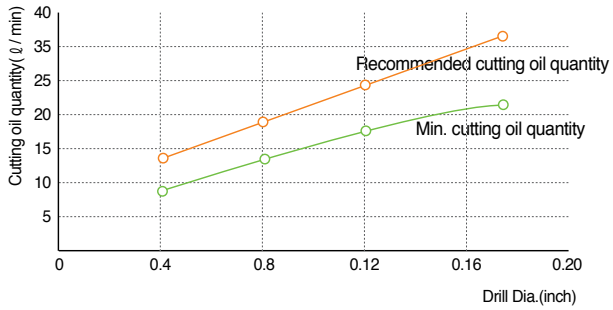




KING Drill

Optimized design of inserts for maximum drilling efficiency

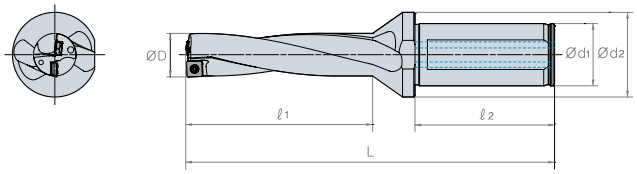
Cutting oil quantity



- **Workpiece** : AISI4140(240HB)
- **Cutting condition** : vc(sfm)=328, Through coolant system

- Recommended pressure of coolant : 5bar above
- The data of the graph above could be changed depending on workpiece and cutting condition.

Drill tolerance and hole tolerance



(inch)

Drill diameter		Ø0.472 ~Ø1.141	Ø1.181 ~Ø1.771	Ø1.811~ Ø2.362
2D~3D	Drill tolerance(ØD)	0 ~ -0.006	0 ~ -0.006	0 ~ -0.006
	Hole tolerance	-0.016 ~ +0.008	-0.004 ~ +0.010	-0.004 ~ +0.011
4D~5D	Drill tolerance(ØD)	0 ~ -0.006	0 ~ -0.006	0 ~ -0.006
	Hole tolerance	-0.002 ~ +0.010	-0.002 ~ +0.012	-0.002 ~ +0.013

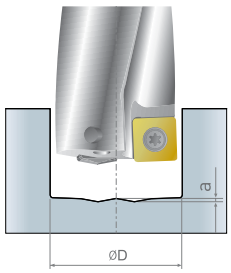
•The actual hole tolerance of KING DRILL is as shown in the chart above.
•The length of drill, kind of workpiece, machine stability, and cutting condition could affect the hole tolerance.

The shape of the bottom of blind hole

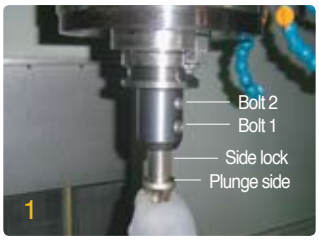
(inch)

Drill diameter	Peripheral insert	Central insert	a
Ø0.472~Ø0.531	SPMT040204-PD	XOMT040204-PD	0.016
Ø0.535~Ø0.653	SPMT050204-PD	XOMT050204-PD	0.016
Ø0.634~Ø0.768	SPMT060205-PD	XOMT060204-PD	0.020
Ø0.772~Ø0.925	SPMT07T208-PD	XOMT07T205-PD	0.020
Ø0.929~Ø1.161	SPMT090308-PD	XOMT090305-PD	0.028
Ø1.165~Ø1.398	SPMT11T308-PD	XOMT11T306-PD	0.031
Ø1.402~Ø1.673	SPMT130410-PD	XOMT130406-PD	0.039
Ø1.677~Ø1.988	SPMT15M510-PD	XOMT15M508-PD	0.043
Ø1.992~Ø2.398	SPMT180510-PD	XOMT180508-PD	0.047

- KING DRILL drills with two inserts, central and peripheral.
- Refer to the above chart for remaining insert curve of blind hole bottom.

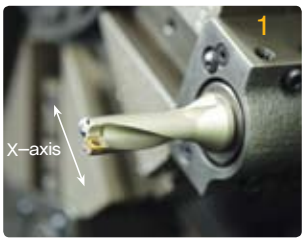


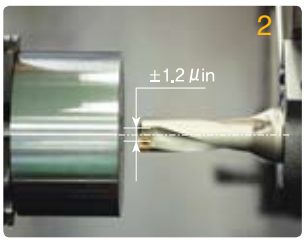
How to clamp KING DRILL to side lock arbor

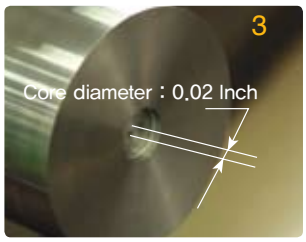


Recommendation to use side lock arbor for KING DRILL.
1. Insert the part of side lock of drill to the same direction of clamping the bolt to the arbor.
2. Push the plunge side of drill into the arbor.
3. Clamp the bolt 1 first.
4. Next, clamp the bolt 2.

Notice for setting the drill in the lathe



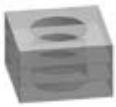




• Set the peripheral insert parallel to the X axis. (based on the side lock)
• If the machined core is 0.02Inch after machining 0.2Inch, that is the proper setting.
Please make sure that the location of the side lock could be different depending on manufacturers of machine.

Machining required attention

Workpiece	Machining	
	Machining irregular face	• Possible chipping and fracture of the insert. • Reduce normal feed 25%.
	Machining convex side	• Possible initial contact with central insert. • Reduce feed 50% until both inserts are engaged.
	Machining concave side	• Reduce feed 50% until both inserts are engaged.
	Boring	• Reduce feed 50% from normal conditions.

Workpiece	Machining	
	Ramping	• Reduce feed 50% from normal conditions.
	Machining cross holes	• Reduce feed 50% in the overlapped section.
	Machining overlapped holes	• Reduce feed 50% from normal conditions.
	Machining overlapped panels	• Possible chipping and fracture of insert. • Reduce normal feed 25%.

KING Drill

Optimized design of inserts for maximum drilling efficiency

Solutions for machining failure

Failure	Detail	Solution
Different diameters of one machined hole	Different diameters of one machined hole → The end of hole Diameter is bigger.	• Use more coolant and check the coolant evacuation. • Change the drill to one with small aspect ratio. • Change the cutting condition for better chip control.
Enlarging or reducing hole diameter	Enlarging or reducing hole diameter	• Milling → Use more coolant. → Check the coolant evacuation. • Turning → Check the center of drill and workpiece. → Rotate the drill to 180°
Chattering	Vibration while machining	• Set the overhang of drill short. • Reduce the cutting speed and feed. • Stable clamping. • Check the torque of machine.
Poor chip evacuation	Long chip	• Mild steel/STS → speed up, feed down
		• Alloy steel/carbon steel → speed up, feed up
	Short chip	• Speed down, feed down, pressure of coolant up
Poor surface finish	Scratch on the machined side	• Set the cutting condition for better chip control. • Feed down or speed up • Increase the coolant flow and check the coolant evacuation. • Set the overhang of drill short and more stable clampin
Short tool life of insert	Too much wear or chipping on insert	• Check the cutting condition • Use more coolant and check the coolant evacuation. • Set the overhang of drill short and more stable clamping. • Change the insert grade.

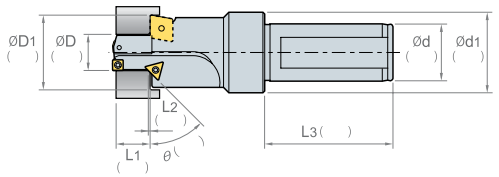
Insert and parts

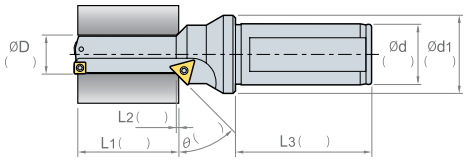
Diameter of drill	Peripheral insert	Central insert	Screw	drill	Torque(Nm)
Ø0.472~Ø0.531	SPMT040204-PD	XOMT040204-PD	FTNA0204	TW06S	0.300
Ø0.535~Ø0.653	SPMT050204-PD	XOMT050204-PD	FTNA0204	TW06S	0.300
Ø0.634~Ø0.768	SPMT060205-PD	XOMT060204-PD	FTKA02206S	TW07S	0.590
Ø0.772~Ø0.925	SPMT07T208-PD	XOMT07T205-PD	FTKA02565	TW07S	0.590
Ø0.929~Ø1.161	SPMT090308-PD	XOMT090305-PD	FTKA0307	TW09S	0.885
Ø1.165~Ø1.398	SPMT11T308-PD	XOMT11T306-PD	FTKA03508	TW15S	2.214
Ø1.402~Ø1.673	SPMT130410-PD	XOMT130406-PD	FTKA0410	TW15S	2.214
Ø1.677~Ø1.988	SPMT15M510-PD	XOMT15M508-PD	FTNC04511	TW20-100	3.690
Ø1.992~Ø2.398	SPMT180510-PD	XOMT180508-PD	FTNA0511	TW20-100	3.690

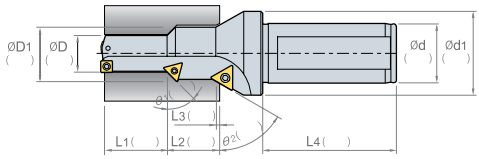
• In clamping insert, clean the tip seat and apply the CASMOLY1000 on screw.
• Make sure to use Korloy's screw and wrench only.

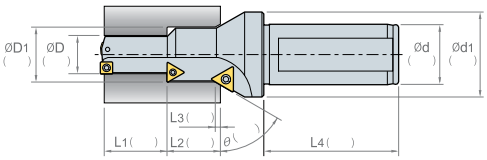
Special drill order form

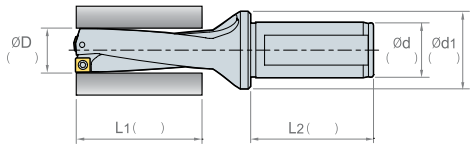
(V Mark 'V' in the box)









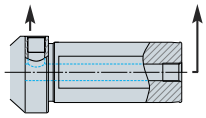


■ Note

- Currently using tool :
- Current cutting condition
  - RPM or vc(sfm) :
  - vf(ipm) or fn(ipr) :
  - depth of cut(inch) :
- Tool life :
- Currently using machine
  - Machining center :
  - General lathe :
  - CNC lathe :

■ Coolant System with PT TAP

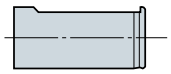
☐ Oil hole on the flange part ☐ Oil hole on the shank



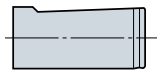
■ Hole type

☐ Blind hole
☐ Thru hole

■ Types of shank

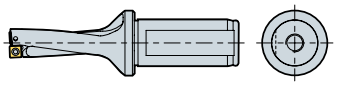
☐  (Flat Type : stendard)

☐ (Weldon Type)

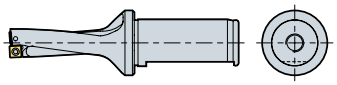
☐  (Whistle Notch Type)

■ Location of side lock

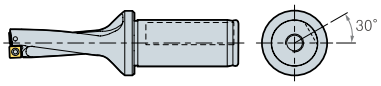
☐ Parallel to peripheral insert(standard)



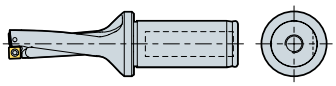
☐ 90° angle to peripheral insert



☐ 150° angle to peripheral insert



☐ 180° angle to peripheral insert

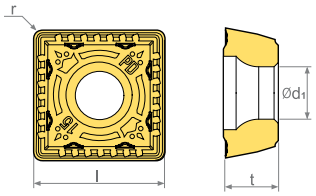


KING Drill

Optimized design of inserts for maximum drilling efficiency

Applicable Inserts

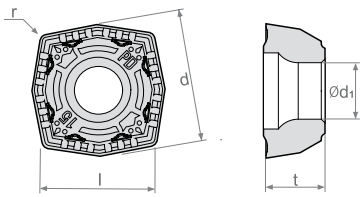
Peripheral insert



(inch)

Drill diameter	Designation	Grade	l	t	r	d1
Ø0.472~Ø0.531	SPMT 040204-PD	PC3500	0.19	0.09	0.02	0.09
Ø0.535~Ø0.653	050204-PD	PC3500	0.20	0.09	0.02	0.09
Ø0.634~Ø0.768	060205-PD	PC3500	0.24	0.10	0.02	0.10
Ø0.772~Ø0.925	07T208-PD	PC3500	0.30	0.11	0.03	0.11
Ø0.929~Ø1.161	090308-PD	PC3500	0.36	0.13	0.03	0.13
Ø1.165~Ø1.398	11T308-PD	PC3500	0.43	0.16	0.03	0.16
Ø1.402~Ø1.673	130410-PD	PC3500	0.51	0.18	0.04	0.18
Ø1.677~Ø1.988	15M510-PD	PC3500	0.60	0.20	0.04	0.22
Ø1.992~Ø2.398	180510-PD	PC3500	0.72	0.22	0.04	0.24

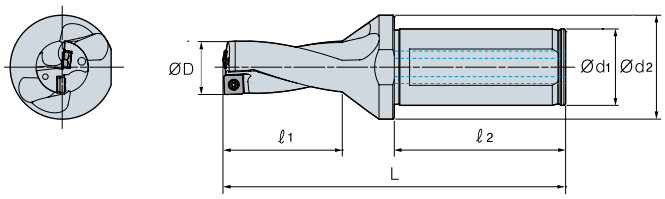
Central insert



(inch)

Drill diameter	Designation	Grade	l	d	t	r	d1
Ø0.472~Ø0.531	XOMT 040204-PD	PC5300	0.17	0.19	0.09	0.02	0.09
Ø0.535~Ø0.653	050204-PD	PC5300	0.19	0.21	0.09	0.02	0.09
Ø0.634~Ø0.768	060204-PD	PC5300	0.23	0.26	0.10	0.02	0.10
Ø0.772~Ø0.925	07T205-PD	PC5300	0.27	0.31	0.11	0.02	0.11
Ø0.929~Ø1.161	090305-PD	PC5300	0.33	0.38	0.13	0.02	0.13
Ø1.165~Ø1.398	11T306-PD	PC5300	0.39	0.45	0.16	0.02	0.16
Ø1.402~Ø1.673	130406-PD	PC5300	0.47	0.54	0.18	0.02	0.18
Ø1.677~Ø1.988	15M508-PD	PC5300	0.55	0.63	0.20	0.03	0.22
Ø1.992~Ø2.398	180508-PD	PC5300	0.65	0.74	0.22	0.03	0.24

KING DRILL-2D



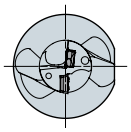
(inch)

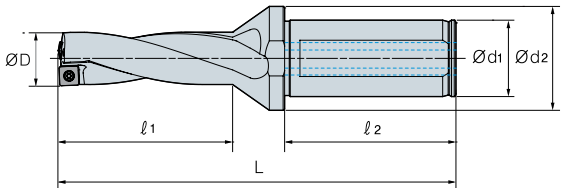
Designation		øD		ød1	ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K2DA	0484075-04	0.484	31/64	0.75	0.98	1.06	1.97	3.58	SPMT040204-PD XOMT040204-PD	FTNA0204	TW06P
	0500075-04	0.500	1/2	0.75	0.98	1.14	1.97	3.66			
	0531075-04	0.531	17/32	0.75	0.98	1.14	1.97	3.66			
	0562075-05	0.562	9/16	0.75	0.98	1.22	1.97	3.78	SPMT050204-PD XOMT050204-PD	FTNA0204	TW06P
	0625075-05	0.625	5/8	0.75	0.98	1.38	1.97	3.98			
	0687100-06	0.687	11/16	1.00	1.34	1.46	2.20	4.29	SPMT060205-PD XOMT060204-PD	FTKA02206S	TW07S
	0750100-06	0.750	3/4	1.00	1.34	1.61	2.20	4.49			
	0812100-07	0.812	13/16	1.00	1.34	1.77	2.20	4.72	SPMT07T208-PD XOMT07T205-PD	FTKA02565	TW07S
	0875100-07	0.875	7/8	1.00	1.34	1.85	2.20	4.80			
	0937125-09	0.937	15/16	1.25	1.73	2.01	2.36	5.24	SPMT090308-PD XOMT090305-PD	FTKA0307	TW09S
	1000125-09	1.000	1	1.25	1.73	2.09	2.36	5.31			
	1031125-09	1.031	1 1/32	1.25	1.73	2.17	2.36	5.39			
	1062125-09	1.062	1 1/16	1.25	1.73	2.24	2.36	5.51			
	1125125-09	1.125	1 1/8	1.25	1.73	2.40	2.36	5.71			
	1187125-11	1.187	1 3/16	1.25	1.73	2.48	2.36	5.91	SPMT11T308-PD XOMT11T306-PD	FTKA0307	TW15S
	1250125-11	1.250	1 1/4	1.25	1.73	2.64	2.36	6.06			
	1312125-11	1.312	1 5/16	1.25	1.73	2.72	2.36	6.18			
	1375125-11	1.375	1 3/8	1.25	1.73	2.87	2.36	6.34			
	1437150-13	1.437	1 7/16	1.50	1.89	2.99	2.76	6.93	SPMT130410-PD XOMT130406-PD	FTKA0410	TW15S
	1500150-13	1.500	1 1/2	1.50	1.89	3.15	2.76	7.13			
	1562150-13	1.562	1 9/16	1.50	1.89	3.31	2.76	7.32			
	1625150-13	1.625	1 5/8	1.50	1.89	3.39	2.76	7.40			
	1687150-13	1.687	1 11/16	1.50	2.28	3.58	2.76	7.72			
	1750150-15	1.750	1 3/4	1.50	2.28	3.66	2.76	7.80	SPMT15M510-PD XOMT15M508-PD	FTNC04511	TW20-100
	1812150-15	1.812	1 13/16	1.50	2.28	3.82	2.76	7.99			
	1875150-15	1.875	1 7/8	1.50	2.28	3.98	2.76	8.19			
	1937150-15	1.937	1 15/16	1.50	2.28	4.06	2.76	8.27			
	2000150-15	2.000	2	1.50	2.68	4.25	2.76	8.58			
	2062150-18	2.062	2 1/16	1.50	2.68	4.33	2.76	8.66	SPMT180510-PD XOMT180508-PD	FTNA0511	TW20-100
	2125150-18	2.125	2 1/8	1.50	2.68	4.49	2.76	8.82			
	2187150-18	2.187	2 3/16	1.50	2.68	4.65	2.76	9.06			
	2250150-18	2.250	2 1/4	1.50	2.68	4.76	2.76	9.17			
	2313150-18	2.313	2 5/16	1.50	2.68	5.00	2.76	9.41			
	2375150-18	2.375	2 3/8	1.50	2.68	5.12	2.76	9.53			

KING Drill

Optimized design of inserts for maximum drilling efficiency

KING DRILL-3D

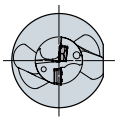


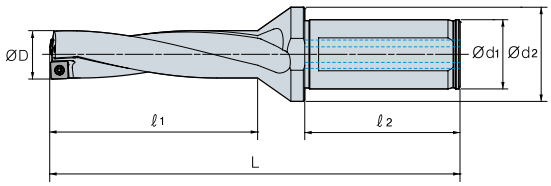


(inch)

Designation		øD		ød1	ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K3DA	0484075-04	0.484	31/64	0.75	0.98	1.54	1.97	4.06	SPMT040204-PD XOMT040204-PD	FTNA0204	TW06P
	0500075-04	0.500	1/2	0.75	0.98	1.65	1.97	4.17			
	0531075-04	0.531	17/32	0.75	0.98	1.65	1.97	4.17			
	0562075-05	0.562	9/16	0.75	0.98	1.77	1.97	4.33	SPMT050204-PD XOMT050204-PD	FTNA0204	TW06P
	0625075-05	0.625	5/8	0.75	0.98	2.01	1.97	4.61			
	0687100-06	0.687	11/16	1.00	1.34	2.13	2.20	4.96	SPMT060205-PD XOMT060204-PD	FTKA02206S	TW07S
	0750100-06	0.750	3/4	1.00	1.34	2.36	2.20	5.24			
	0812100-07	0.812	13/16	1.00	1.34	2.60	2.20	5.55	SPMT07T208-PD XOMT07T205-PD	FTKA02565	TW07S
	0875100-07	0.875	7/8	1.00	1.34	2.72	2.20	5.67			
	0937125-09	0.937	15/16	1.25	1.73	2.95	2.36	6.18	SPMT090308-PD XOMT090305-PD	FTKA0307	TW09S
	1000125-09	1.000	1	1.25	1.73	3.07	2.36	6.30			
	1031125-09	1.031	1 1/32	1.25	1.73	3.19	2.36	6.42			
	1062125-09	1.062	1 1/16	1.25	1.73	3.31	2.36	6.57			
	1125125-09	1.125	1 1/8	1.25	1.73	3.54	2.36	6.85			
	1187125-11	1.187	1 3/16	1.25	1.73	3.66	2.36	7.09	SPMT11T308-PD XOMT11T306-PD	FTKA0307	TW15S
	1250125-11	1.250	1 1/4	1.25	1.73	3.90	2.36	7.32			
	1312125-11	1.312	1 5/16	1.25	1.73	4.02	2.36	7.48			
	1375125-11	1.375	1 3/8	1.25	1.73	4.25	2.36	7.72			
	1437150-13	1.437	1 7/16	1.50	1.89	4.41	2.76	8.35	SPMT130410-PD XOMT130406-PD	FTKA0410	TW15S
	1500150-13	1.500	1 1/2	1.50	1.89	4.65	2.76	8.62			
	1562150-13	1.562	1 9/16	1.50	1.89	4.88	2.76	8.90			
	1625150-13	1.625	1 5/8	1.50	1.89	5.00	2.76	9.02			
	1687150-13	1.687	1 11/16	1.50	2.28	5.28	2.76	9.41			
	1750150-15	1.750	1 3/4	1.50	2.28	5.39	2.76	9.53	SPMT15M510-PD XOMT15M508-PD	FTNC04511	TW20-100
	1812150-15	1.812	1 13/16	1.50	2.28	5.63	2.76	9.80			
	1875150-15	1.875	1 7/8	1.50	2.28	5.87	2.76	10.08			
	1937150-15	1.937	1 15/16	1.50	2.28	5.98	2.76	10.20			
	2000150-15	2.000	2	1.50	2.68	6.26	2.76	10.59			
	2062150-18	2.062	2 1/16	1.50	2.68	6.38	2.76	10.71	SPMT180510-PD XOMT180508-PD	FTNA0511	TW20-100
	2125150-18	2.125	2 1/8	1.50	2.68	6.61	2.76	10.94			
	2187150-18	2.187	2 3/16	1.50	2.68	6.85	2.76	11.26			
	2250150-18	2.250	2 1/4	1.50	2.68	7.01	2.76	11.42			
	2313150-18	2.313	2 5/16	1.50	2.68	7.32	2.76	11.73			
	2375150-18	2.375	2 3/8	1.50	2.68	7.48	2.76	11.89			

KING DRILL-4D





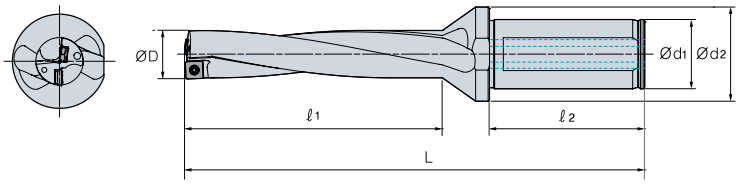
(inch)

Designation		øD		ød1	ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K4DA	0484075-04	0.484	31/64	0.75	0.98	2.01	1.97	4.53	SPMT040204-PD XOMT040204-PD	FTNA0204	TW06P
	0500075-04	0.500	1/2	0.75	0.98	2.17	1.97	4.69			
	0531075-04	0.531	17/32	0.75	0.98	2.17	1.97	4.69			
	0562075-05	0.562	9/16	0.75	0.98	2.32	1.97	4.88	SPMT050204-PD XOMT050204-PD	FTNA0204	TW06P
	0625075-05	0.625	5/8	0.75	0.98	2.64	1.97	5.24			
	0687100-06	0.687	11/16	1.00	1.34	2.80	2.20	5.63	SPMT060205-PD XOMT060204-PD	FTKA02206S	TW07S
	0750100-06	0.750	3/4	1.00	1.34	3.11	2.20	5.98			
	0812100-07	0.812	13/16	1.00	1.34	3.43	2.20	6.38	SPMT07T208-PD XOMT07T205-PD	FTKA02565	TW07S
	0875100-07	0.875	7/8	1.00	1.34	3.58	2.20	6.54			
	0937125-09	0.937	15/16	1.25	1.73	3.90	2.36	7.13	SPMT090308-PD XOMT090305-PD	FTKA0307	TW09S
	1000125-09	1.000	1	1.25	1.73	4.06	2.36	7.28			
	1031125-09	1.031	1 1/32	1.25	1.73	4.21	2.36	7.44			
	1062125-09	1.062	1 1/16	1.25	1.73	4.37	2.36	7.64			
	1125125-09	1.125	1 1/8	1.25	1.73	4.69	2.36	7.99			
	1187125-11	1.187	1 3/16	1.25	1.73	4.84	2.36	8.27	SPMT11T308-PD XOMT11T306-PD	FTKA0307	TW15S
	1250125-11	1.250	1 1/4	1.25	1.73	5.16	2.36	8.58			
	1312125-11	1.312	1 5/16	1.25	1.73	5.31	2.36	8.78			
	1375125-11	1.375	1 3/8	1.25	1.73	5.63	2.36	9.09			
	1437150-13	1.437	1 7/16	1.50	1.89	5.83	2.76	9.76	SPMT130410-PD XOMT130406-PD	FTKA0410	TW15S
	1500150-13	1.500	1 1/2	1.50	1.89	6.14	2.76	10.12			
	1562150-13	1.562	1 9/16	1.50	1.89	6.46	2.76	10.47			
	1625150-13	1.625	1 5/8	1.50	1.89	6.61	2.76	10.63			
	1687150-13	1.687	1 11/16	1.50	2.28	6.97	2.76	11.10			
	1750150-15	1.750	1 3/4	1.50	2.28	7.13	2.76	11.26	SPMT15M510-PD XOMT15M508-PD	FTNC04511	TW20-100
	1812150-15	1.812	1 13/16	1.50	2.28	7.44	2.76	11.61			
	1875150-15	1.875	1 7/8	1.50	2.28	7.76	2.76	11.97			
	1937150-15	1.937	1 15/16	1.50	2.28	7.91	2.76	12.13			
	2000150-15	2.000	2	1.50	2.68	8.27	2.76	12.60			
	2062150-18	2.062	2 1/16	1.50	2.68	8.43	2.76	12.76	SPMT180510-PD XOMT180508-PD	FTNA0511	TW20-100
	2125150-18	2.125	2 1/8	1.50	2.68	8.74	2.76	13.07			
	2187150-18	2.187	2 3/16	1.50	2.68	9.06	2.76	13.46			
	2250150-18	2.250	2 1/4	1.50	2.68	9.25	2.76	13.66			
	2313150-18	2.313	2 5/16	1.50	2.68	9.65	2.76	14.06			
	2375150-18	2.375	2 3/8	1.50	2.68	9.84	2.76	14.25			

KING Drill

Optimized design of inserts for maximum drilling efficiency

KING DRILL-5D

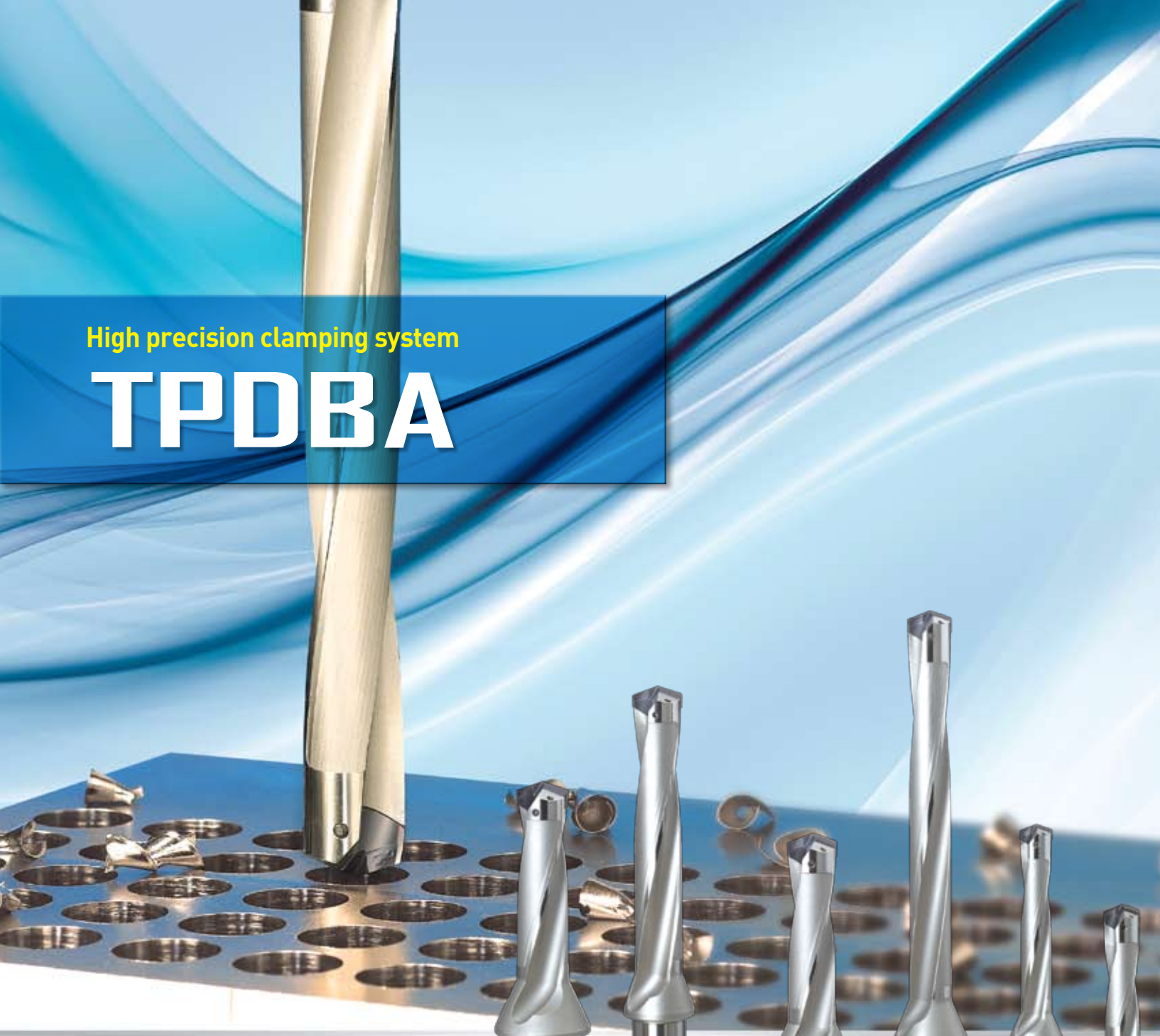


(inch)

Designation		øD		ød1	ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K5DA	0484075-04	0.484	31/64	0.75	0.98	2.48	1.97	5.00	SPMT040204-PD XOMT040204-PD	FTNA0204	TW06P
	0500075-04	0.500	1/2	0.75	0.98	2.48	1.97	5.00			
	0531075-04	0.531	17/32	0.75	0.98	2.68	1.97	5.20			
	0562075-05	0.562	9/16	0.75	0.98	2.87	1.97	5.43	SPMT050204-PD XOMT050204-PD	FTNA0204	TW06P
	0625075-05	0.625	5/8	0.75	0.98	3.27	1.97	5.87			
	0687100-06	0.687	11/16	1.00	1.34	3.46	2.20	6.30	SPMT060205-PD XOMT060204-PD	FTKA02206S	TW07S
	0750100-06	0.750	3/4	1.00	1.34	3.86	2.20	6.73			
	0812100-07	0.812	13/16	1.00	1.34	4.25	2.20	7.20	SPMT07T208-PD XOMT07T205-PD	FTKA02565	TW07S
	0875100-07	0.875	7/8	1.00	1.34	4.45	2.20	7.40			
	0937125-09	0.937	15/16	1.25	1.73	4.84	2.36	8.07	SPMT090308-PD XOMT090305-PD	FTKA0307	TW09S
	1000125-09	1.000	1	1.25	1.73	5.04	2.36	8.27			
	1031125-09	1.031	1 1/32	1.25	1.73	5.24	2.36	8.46			
	1062125-09	1.062	1 1/16	1.25	1.73	5.43	2.36	8.70			
	1125125-09	1.125	1 1/8	1.25	1.73	5.83	2.36	9.13			
	1187125-11	1.187	1 3/16	1.25	1.73	6.02	2.36	9.45	SPMT11T308-PD XOMT11T306-PD	FTKA0307	TW15S
	1250125-11	1.250	1 1/4	1.25	1.73	6.42	2.36	9.84			
	1312125-11	1.312	1 5/16	1.25	1.73	6.61	2.36	10.08			
	1375125-11	1.375	1 3/8	1.25	1.73	7.01	2.36	10.47			
	1437150-13	1.437	1 7/16	1.50	1.89	7.24	2.76	11.18	SPMT130410-PD XOMT130406-PD	FTKA0410	TW15S
	1500150-13	1.500	1 1/2	1.50	1.89	7.64	2.76	11.61			
	1562150-13	1.562	1 9/16	1.50	1.89	8.03	2.76	12.05			
	1625150-13	1.625	1 5/8	1.50	1.89	8.23	2.76	12.24			
	1687150-13	1.687	1 11/16	1.50	2.28	8.66	2.76	12.80			
	1750150-15	1.750	1 3/4	1.50	2.28	8.86	2.76	12.99	SPMT15M510-PD XOMT15M508-PD	FTNC04511	TW20-100
	1812150-15	1.812	1 13/16	1.50	2.28	9.25	2.76	13.43			
	1875150-15	1.875	1 7/8	1.50	2.28	9.65	2.76	13.86			
	1937150-15	1.937	1 15/16	1.50	2.28	9.84	2.76	14.06			
	2000150-15	2.000	2	1.50	2.68	10.28	2.76	14.61			
	2062150-18	2.062	2 1/16	1.50	2.68	10.47	2.76	14.80	SPMT180510-PD XOMT180508-PD	FTNA0511	TW20-100
	2125150-18	2.125	2 1/8	1.50	2.68	10.87	2.76	15.20			
	2187150-18	2.187	2 3/16	1.50	2.68	11.26	2.76	15.67			
	2250150-18	2.250	2 1/4	1.50	2.68	11.50	2.76	15.91			
	2313150-18	2.313	2 5/16	1.50	2.68	11.97	2.76	16.38			
	2375150-18	2.375	2 3/8	1.50	2.68	12.20	2.76	16.61			

High precision clamping system

TPDBA



Cutting edge produces good surface finishes

- Holder with superb durability
- High precision clamping system
- Screw on clamping system
- Sharp cutting edge
- Holder with excellent durability

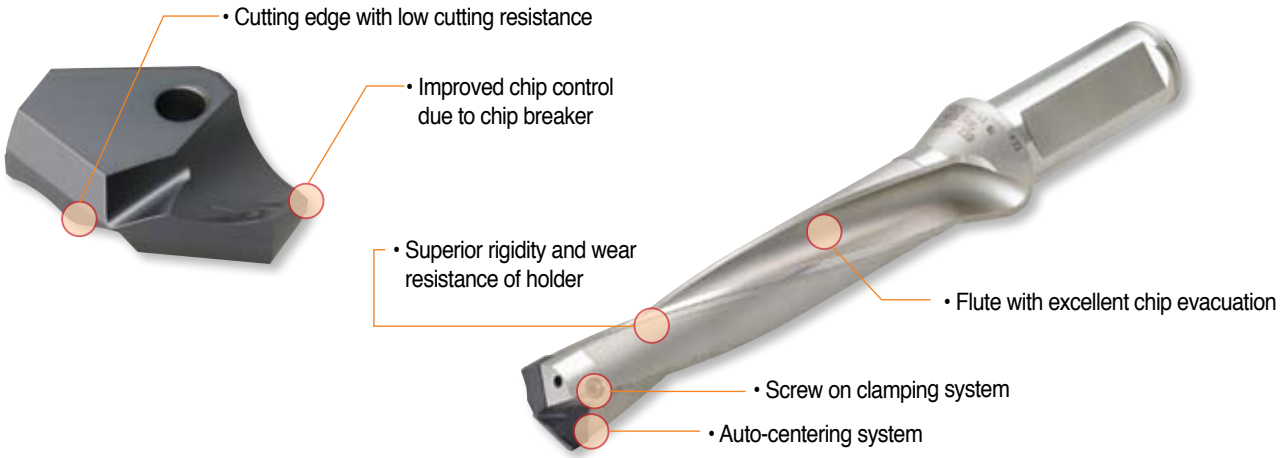
Through Coolant System

TPDBA High precision clamping system

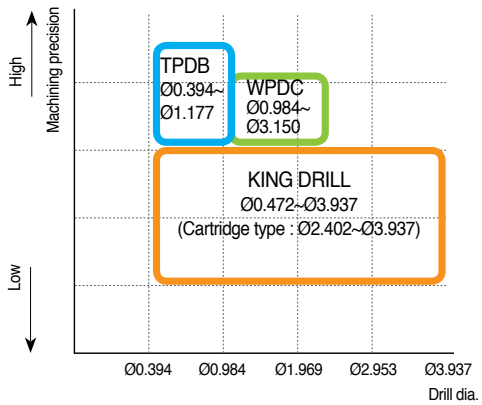
Features

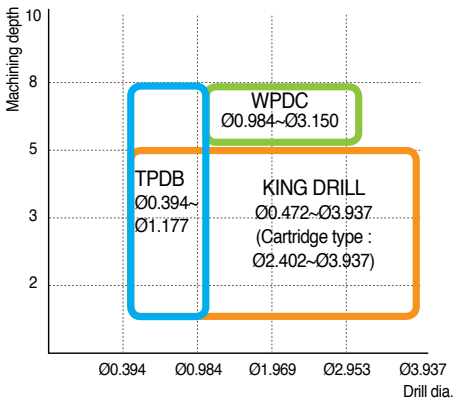
- **High precision clamping system**
  - High precision grinding and superior clamping precision with auto-centering system.
- **Screw on clamping system**
  - Easy clamping system of TPDB insert.
- **Sharp cutting edge**
  - Improved chip evacuation, low cutting load, longer tool life with ultra-fine substrate and exclusive coating layer.
- **Holder with excellent durability**
  - Holder with high rigidity and superb wear resistance due to special surface treatment.

Features of holder



Application range

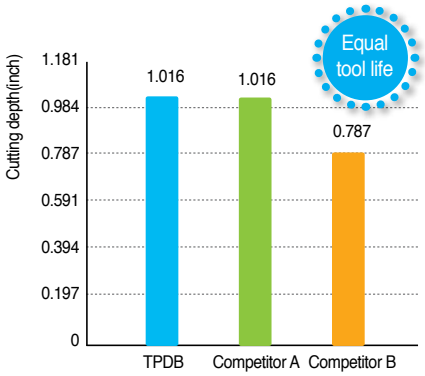




Drill Dia.	Application range					
	Drill Dia.	L/D	Tolerance of drill dia.	Tolerance	Surface finish of hole	Material
TPDB	Ø0.394~Ø1.177	~8D	h7	IT10	Ra ~0.079㎛	P M K S H
KING DRILL	Ø0.472~Ø3.937	~5D	h12	-0.004~+0.012	Ra ~0.157㎛	P M K N S H
WPDC	Ø0.984~Ø3.150	~8D	h12	-0.004~+0.012	Ra ~0.118㎛	P M K N S H

Cutting performance

■ Insert tool life



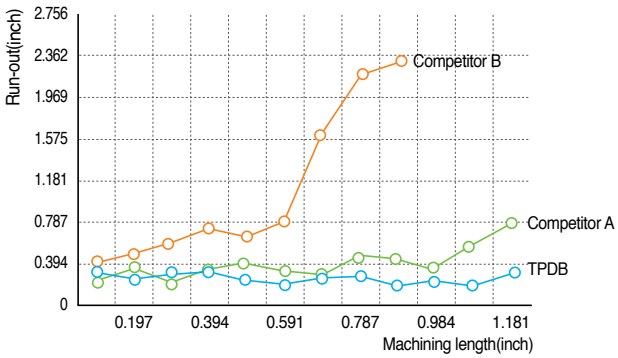
• TPDB
1.016inch
Normal wear,
more machinable

• Competitor A
1.016inch
Fracture on cutting edge

• Competitor B
0.787inch
Notch wear, chipping

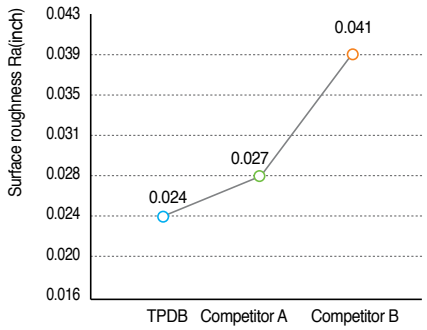
- **Workpiece** : AISI 4140
- **Cutting condition** : vc(sfm)=331.5, fn(ipr)=0.0118
  ap(inch)=3.543(pass through), wet
- **Tools : Insert** TPD0787BA(PC5300), **Holder** TPDBA0787-100-5

■ Run-out



- **Workpiece** : AISI 4140
- **Cutting condition** : vc(sfm)=298.3
  fn(ipr)=0.0098
  ap(inch)=3.149(pass through), wet
- **Tools : Insert** TPD0709BA(PC5300)
  Holder TPDBA0709-100-5

■ Surface roughness



• TPDB : Good surface roughness
(No scratch or rifling from chip)

• Competitor A : Scratch from chip
evacuating

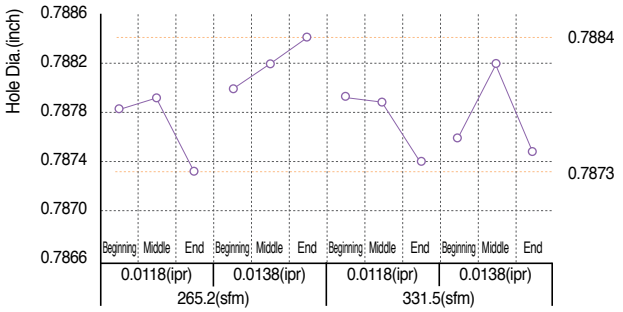
• Competitor B : Scratch and rifling from chip
evacuating

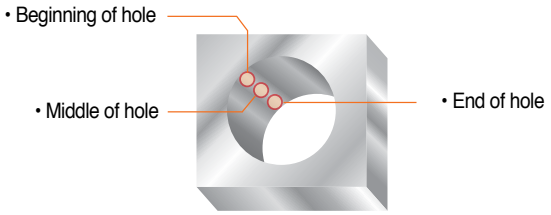
- **Workpiece** : AISI 4140
- **Cutting condition** : vc(sfm)=3.543, fn(ipr)=0.0078, ap(inch)=2.362(pass through), wet
- **Tools : Insert** TPD0709BA(PC5300), **Holder** TPDBA0709-100-5

TPDBA

High precision clamping system

■ Precision



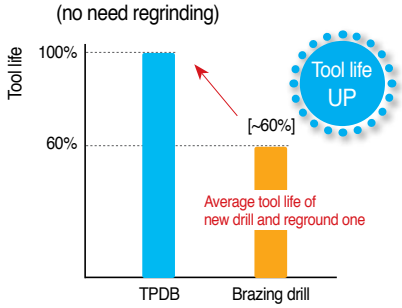


- **Workpiece** : AISI1045
- **Cutting condition** : vc(sfm)=265.2/331.5, fn(ipr)=0.0118/0.0138
  ap(inch)=3.543(pass though), wet
- **Tools : Insert** TPD0787BA(PC5300)
  Holder TPDBA0787-100-5

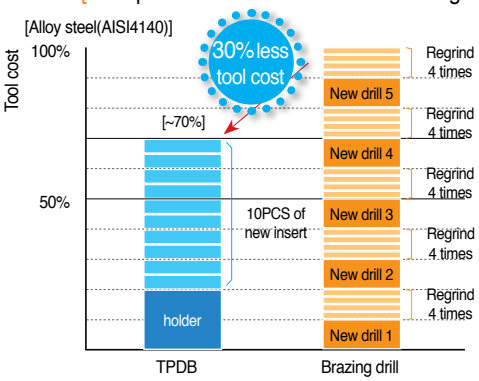
■ Tool Cost

[Comparison of 1 insert tool life]

- Exclusive coating and substrate
- Usable till the end of wear
  (no need regrinding)



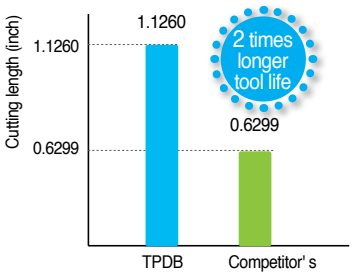
[Comparison of tool cost when machining 1000PCS of workpiece]



- 40% longer tool life
- No need regrind
- Less insert change
- 30% less tool cost

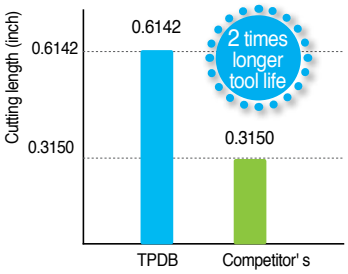
Application example

■ Part of automobile



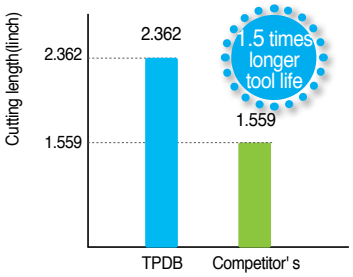
- 200% longer tool life than competitor's
- **Workpiece** : AISI80-55-06
- **Cutting condition** : vc(sfm)=324.8 fn(ipr)=0.0122, ap(inch)=1.575
  Inner coolant system
- **Tools : Insert** TPD0768BA(PC5300)
  Holder TPDBA0768-100-5
- **Machine** : MCT(vertical)

■ Part of heavy equipment



- 200% longer tool life than competitor's
- **Workpiece** : Hot Forged Stee
- **Cutting condition** : vc(sfm)=281.8 fn(ipr)=0.0079, ap(inch)=0.787
  Inner coolant system
- **Tools : Insert** TPD0827BA(PC5300)
  Holder TPDBA0827-100-3
- **Machine** : MCT(vertical)

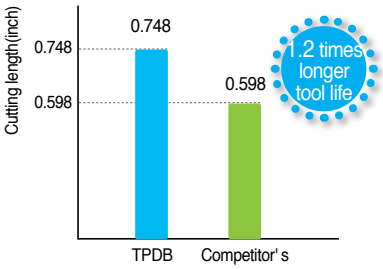
■ Part of machine



• 200% longer tool life than competitor's

• **Workpiece** : AISI No35B
• **Cutting condition** : vc(sfm)=248.6 fn(ipr)=0.0102
ap(inch)=2.362, Outer coolant
• **Tools : Insert** TPD0630BA(PC5300)
Holder TPDBA0630-075-5
• **Machine** : MCT / vertical

• Part of heavy equipment



• 150% longer tool life than competitor's

• **Workpiece** : AISI 1045
• **Cutting condition** : vc(sfm)=132.6 fn(ipr)=0.0055
ap(inch)=3.740, Inner coolant system
• **Tools : Insert** TPD0512BA(PC5300)
Holder TPDBA0512-063-8
• **Machine** : MCT / Horizontal

Recommended Cutting Condition

(inch)

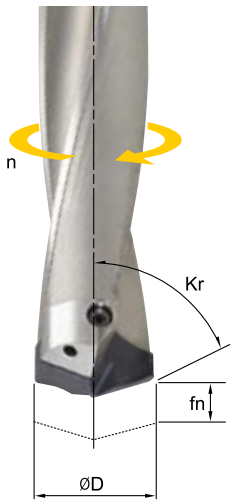
Workpiece			Grade	vc	fn(aspect ratio=3D~5D) Feed(ipr) per drill diameter		
ISO	Workpiece	HB		sfm	0.3937~0.6260	0.6300~0.9803	0.9843~1.1772
P Carbon steel	Low carbon steel	80~120	PC5300	365(265 - 464)	0.0059~0.0118	0.0079~0.0138	0.0098~0.0157
	High carbon steel	180~280	PC5300	332(232 - 431)	0.0059~0.0118	0.0079~0.0138	0.0098~0.0157
P Alloy steel	Low alloy steel	140~260	PC5300	365(265 - 464)	0.0071~0.0138	0.0091~0.015	0.0110~0.0169
	Low pre-hardened steel	200~400	PC5300	249(166 - 332)	0.0071~0.0138	0.0091~0.015	0.0110~0.0169
	High alloy steel	50~260	PC5300	232(166 - 298)	0.0071~0.0118	0.0079~0.0138	0.0098~0.0157
	High pre-hardened steel	220~450	PC5300	199(133 - 265)	0.0071~0.0118	0.0079~0.0138	0.0098~0.0157
M Stainless Steel	Austenite series	135~275 Ni>8%	PC5300	166(99-232)	0.0051~0.0098	0.0059~0.0118	0.0067~0.0130
	Ferrite series Martensite series	135~275	PC5300	182(133-232)	0.0051~0.0098	0.0059~0.0118	0.0067~0.0130
K Cast Iron	Gray cast iron	150~230	PC5300	365(265 - 464)	0.0071~0.0138	0.0079~0.0157	0.0098~0.0177
	Ductile cast iron	160~260	PC5300	332(232 - 431)	0.0071~00.0138	0.0079~0.0157	0.0098~0.0177
S Heat Resisting Steel	Ni pre-hardened steel	130~400	PC5300	133(66 - 199)	0.0039~0.0079	0.0047~0.0087	0.0051~0.0098
	Ti pre-hardened steel	130~400	PC5300	133(66 - 199)	0.0039~0.0079	0.0047~0.0087	0.0051~0.0098
	High hardened steel	400 above	PC5300	116(66 - 166)	0.0039~0.0079	0.0047~0.0087	0.0051~0.0098

• In case of 8D, reduce the cutting conditions to 40~50% or machine the beginning of hole first.(1.5D)
• In case of interrupted machining, reduce the feed to 30~50% machining around the interrupted part.

TPDBA

High precision clamping system

Formulas for machining



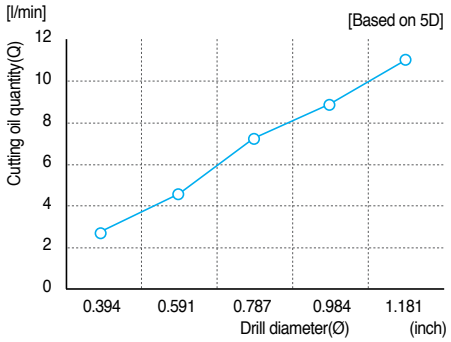
vc	fn	tc
vc=(×D×n)/12 vc(sfm) : Cutting speed π : Circular constant (3.14) D(inch) : Drill diameter n(min^{-1}) : RPM	**fn=vf/n** fn(ipr) : Feed per revolution vf(ipr) : Table feed n(min^{-1}) : RPM	**tc=(ld×i)/(n×fn)** tc(min) : Machining time ld(inch) : Depth of drilling i : Number of drilling holes n(min^{-1}) : RPM fn(ipr) : Feed per revolution

Cutting torque and thrust (Formulas)	
Mc=(Pc×5252)/n(ft×lbs) Mc(ftxlbs) : Cutting torque Tc(lbs) : Cutting thrust vc(sfm) : Cutting speed fn(ipr) : Feed per revolution D(inch) : Drill diameter K : Material coefficient	**Cutting power** **Pc=425×kc×vc×fn×D/10^7(kW)** **Feed force** **Ff=0.7×(D/2)×fn×kc×sinKr(lbs)** Cutting load : kc=277000(Lbf/$inch^2$)

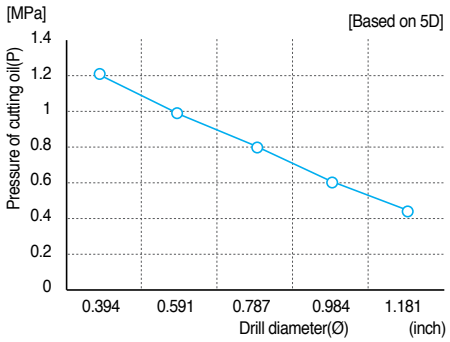
Workpiece		Tensile strength(Lbf/$inch^2$)	HB	Material coefficient
Cast iron	Common grade cast iron	29,875	177	1.00
	Cast iron	39,833	198	1.39
	High grade cast iron	49,791	224	1.88
General steel	Carbon steel(C0.2)	78,244	160	2.22
	Free-cutting steel(C0.12, S0.2)	88,202	183	1.42
	Manganese steel(Mn1.75)	89,624	197	1.45
Ni-chrome steel	3115(Ni1.25, Cr0.6, Mn0.5)	75,398	163	1.56
	3120(Ni1.25, Cr0.6, Mn0.7)	98,160	174	2.02
	3140	125,190	241	2.32
Chrome-molybdenum steel	4115(Cr0.5, Mo0.11, Mn0.8)	89,624	167	1.62
	4130(Cr0.95, Mo0.2, Mn0.5)	109,541	229	2.10
	4140(Cr0.95, Mo0.2, Mn0.85)	133,725	269	2.41
Ni-molybdenum steel	4615(Ni1.8, Mo0.25, Mn0.5)	106,696	212	2.12
	4820(Ni3.5, Mo0.25, Mn0.6)	199,165	390	3.44
Chrome steel	5150(Cr0.8, Mn0.8)	135,148	277	2.46
Chrome-vanadium steel	6115(Cr0.6, Mn0.6, V0.12)	82,511	174	2.08
	6120(Cr0.8, Mn0.8, V0.1)	113,809	255	2.22

Technical information

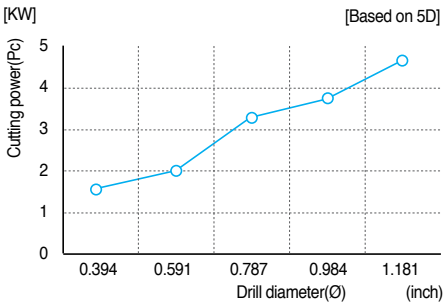
■ Cutting oil quantity



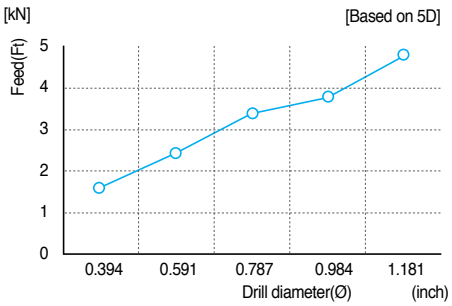
■ Pressure of cutting oil



■ Cutting power



■ Feed

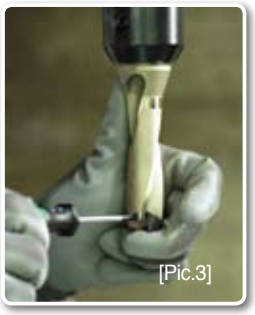


How to clamp a TPDB insert

■ Clamping an insert on a holder

- Put an insert in the holder.
- As the [Pic.1], clamp the insert while pushing it to the V shaped groove of the holder.
- Screw the insert.

■ Changing an insert on the machine



- Separate the insert from the holder.
- As the [Pic.2], clean the insert seat
- Place the insert to the mounting seat.
- As the [Pic.3], clamp the insert while pushing it to the V shaped groove of the holder.

TPDBA High precision clamping system

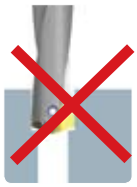
Solution for cutting failure

↑ increasing ↓ decreasing ○ coolant

Failure	Factor	Solution															
		Cutting condition					Dimension							Etc.			
		vc	fn	Coolant	fn (inthe beginning)	Depth of cut	Relief angle	Point angle	Thinning angle	Honing	Flute width rate	Toughness Hardness	Hardness	Rigidity of machine	Chattering of machine	Fixing workpiece	Overhang
Chipping	Improper cutting condition Less rigidity of tool Built-up-edge Improper grade Chattering	↓	↓	○			↓		↓	↑		↑		↑	↓	↑	↓
Wear	Excessive cutting speed (wear on margine)	↓	↓	○													
	Low cutting speed (wear in the center of drill)	↑	↓	○													
Fracture	Improper cutting condition Too much cutting load Too long overhang Less rigidity of machine	↓	↓	○	↓	↓								↑		↑	↓
Bad chip evacuation	Improper cutting condition		↓	○		↓					↑						
Poor surface roughness	Built-up-edge Chattering Improper cutting condition	↑	↓	○	↓			↓		↓				↑	↓		↓
Precision of hole	Low cutting speed (wear in the center of drill)	↑	↓											↑	↓		↓

Precaution in drilling

Machining of bevel	Machining of stack panel
The approach angle and departure angle should be below 6 ˚ Reduce the feed to 3~50% in the beginning and end of machining bevel.	Clamp the insert tightly to prevent fracture of drill.

Plunging	Boring
Fracture and deformation of drill are expected due to cutting load.	Possibility to have wear and chipping on the corner of insert. 

Types of damage to drill and solutions

Scratches on the margin	
Factor	• Lack of coolant. • Lack of lubrication in deep drilling of MQL machining. • Bend of drill due to improper holding or insufficient rigidity drill length. • Low rigidity or concentricity.
Solution	• Use more coolant. • Low cutting speed. • Fix the workpiece tightly and check the concentricity. • Check the precision of installment of drill(below 0.787㎛)

Wear on the margin	
Factor	• Machining of all-metal or heat resisting alloy. • Dissolution of back-tapper due to excessive drill wear. • Unstable machining on the end of hole due to interrupted part. • Lack of lubrication of coolant due to contacting the workpiece and outside of holder.
Solution	• Check grade and cutting parameters for material. • Check the types of machining. • Check the kind and concentration of coolant.

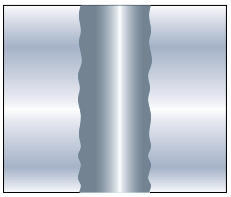
Chipping on the corner	
Factor	• In interrupted machining. • Chattering in drilling. (unstable clamping, low rigidity of machine and bending) • Chattering due to concentricity of drill.
Solution	• Check the machining part. • Low cutting speed. • Fix the workpiece accurately. • Check the machinability of the machine. • Check the precision of drill installment. (below 0.787㎛)

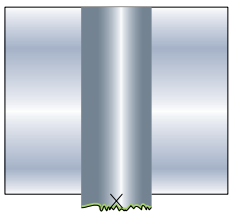
Wear on the bevel	
Factor	• Machining in low cutting speed. • Machining in free-cutting steel. • Chip erosion of flute. • Lack of coolant.
Solution	• Increase cutting speed. • Low thinning angle. • Reduce the honing. • Use more coolant.

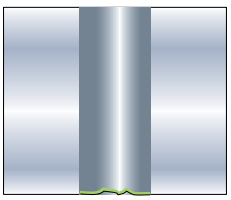
Chipping on the bevel	
Factor	• Pre-treatment on the center of hole makes fracture on the cutting edge partially. • Unstable chip evacuation due to step drilling. • Chattering in drilling and less precision of installment.
Solution	• Check the pre-machining. • Check the clamping of workpiece. • Check the precision of drill installment. (below 0.787㎛)

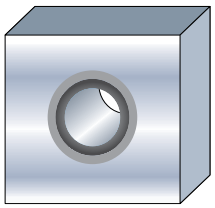
TPDBA High precision clamping system

Types of damage to workpiece and check-point









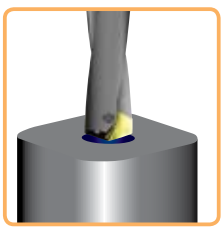
Poor surface roughness (bending, scratch)	
Factor	• Low rigidity of machine, improper clamping of workpiece. • Poor concentricity, lack of coolant.
Solution	• Clamp the workpiece properly and check the concentricity. • Use more coolant and increase the pressure.
Burr in the end of hole	
Factor	• High feed, excess honing on the cutting edge. • Too much wear and chipping.
Solution	• Reduce feed, use a new drill. • Increase point angle or reduce honing.
Flaking the end of hole	
Factor	• In machining of low toughness materials as cast iron. • Rapid feed and much honing on the cutting edge. • Too much wear and chipping.
Solution	• Reduce the feed. • Reduce honing on the cutting edge. • Use a new drill.
Thermal deformation and oxidation of the end of hole	
Factor	• Rapid feed. • Excessive cutting load. • Lack of coolant. • Too much wear and chipping.
Solution	• Reduce the feed and honing on the cutting edge. • Use more coolant and use a new drill.

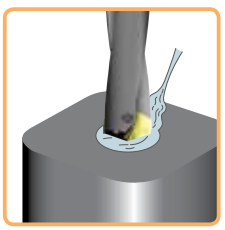
Check-point of drilling

- Clamping of workpiece
- Holder
- Coolant (pressure, flow, concentration)
- Revolution of the main axis of machine
- Run-out of drill (Max.1.181min)
- Chip evacuation

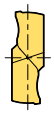
Supply of coolant

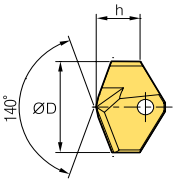
- Supply enough coolant to the beginning of the hole.
- Minimum oil pressure of coolant : above 5 bar
- Minimum flow : above 5ℓ/min





Applicable Inserts





(inch)

Designation	Grade	ØD	h	t
TPD □□□□ BA	PC5300	0.394 ~ 0.432	0.217	0.138
	PC5300	0.433 ~ 0.471	0.228	0.138
	PC5300	0.472 ~ 0.511	0.248	0.138
	PC5300	0.512 ~ 0.550	0.256	0.157
	PC5300	0.551 ~ 0.590	0.268	0.157
	PC5300	0.591 ~ 0.629	0.276	0.157
	PC5300	0.630 ~ 0.668	0.303	0.217
	PC5300	0.669 ~ 0.708	0.311	0.217
	PC5300	0.709 ~ 0.747	0.319	0.236
	PC5300	0.748 ~ 0.786	0.327	0.236
	PC5300	0.787 ~ 0.826	0.382	0.256
	PC5300	0.827 ~ 0.865	0.370	0.256
	PC5300	0.866 ~ 0.905	0.378	0.276
	PC5300	0.906 ~ 0.944	0.386	0.276
	PC5300	0.945 ~ 0.983	0.421	0.295
	PC5300	0.984 ~ 1.023	0.429	0.295
	PC5300	1.024 ~ 1.062	0.433	0.335
	PC5300	0.063 ~ 1.101	0.465	0.335
	PC5300	1.102 ~ 1.141	0.496	0.374
	PC5300	1.142 ~ 1.180	0.508	0.374

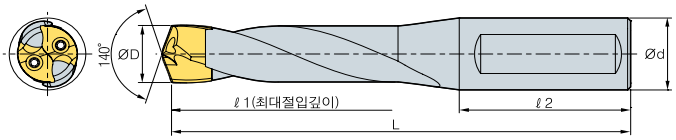
■ Parts

Designation	ØD(inch)	Screw	Wrench	Torgue Value(in/lbs)
TPD 0394BA~0508BA	0.394 ~ 0.508	FTNB0209	TW06P	3.5
0513BA~0587BA	0.513 ~ 0.587	FTNB02512	TW07S	7.1
0591B~0705B	0.591~ 0.705	FTNB02514	TW07S	7.1
0709B~0783B	0.709 ~ 0.783	FTNB0316	TW09S	10.6
0787B~0941B	0.787 ~ 0.941	FTNB0319	TW09S	10.6
0945B~1018B	0.945~ 1.018	FTNB03522	TW15S	26.6
1024B~1098B	1.024 ~ 1.098	FTNB03524	TW15S	26.6
1102B~1177B	1.102 ~ 1.177	FTNB0426	TW15S	26.6

TPDBA

High precision clamping system

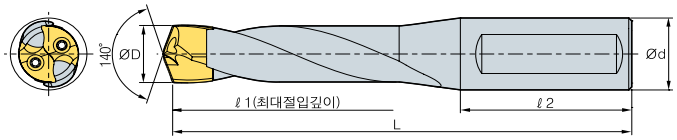
TPDBA-3D



(inch)

Designation		øD	ød	ød1	ℓ1	ℓ2	L	Insert
TPDBA	0394-063-3	0.394~0.412	0.625	0.787	1.181	1.890	3.740	TPD0394BA–0412BA
	0413-063-3	0.413~0.432	0.625	0.787	1.240	1.890	3.780	TPD0413BA–0432BA
	0433-063-3	0.433~0.452	0.625	0.787	1.299	1.890	3.858	TPD0433BA–0452BA
	0453-063-3	0.453~0.471	0.625	0.787	1.358	1.890	3.898	TPD0453BA–0471BA
	0472-063-3	0.472~0.491	0.625	0.787	1.417	1.890	4.016	TPD0472BA-0491BA
	0492-063-3	0.492~0.511	0.625	0.787	1.476	1.890	4.094	TPD0492BA-0511BA
	0512-063-3	0.512~0.530	0.625	0.787	1.535	1.890	4.213	TPD0512BA-0530BA
	0531-063-3	0.531~0.550	0.625	0.787	1.594	1.890	4.291	TPD0531BA-0550BA
	0551-063-3	0.551~0.570	0.625	0.787	1.654	1.890	4.370	TPD0551BA-0570BA
	0571-063-3	0.571~0.590	0.625	0.787	1.713	1.890	4.488	TPD0571BA-0590BA
	0591-075-3	0.591~0.609	0.750	0.984	1.772	1.969	4.646	TPD0591BA-0609BA
	0610-075-3	0.610~0.629	0.750	0.984	1.831	1.969	4.724	TPD0610BA-0629BA
	0630-075-3	0.630~0.649	0.750	0.984	1.890	1.969	4.803	TPD0630BA-0649BA
	0650-075-3	0.650~0.669	0.750	0.984	1.949	1.969	4.882	TPD0650BA-0669BA
	0669-075-3	0.669~0.688	0.750	0.984	2.008	1.969	5.000	TPD0669BA-0688BA
	0689-075-3	0.689~0.708	0.750	0.984	2.067	1.969	5.079	TPD0689BA-0708BA
	0709-100-3	0.709~0.727	1.000	1.299	2.126	2.205	5.394	TPD0709BA-0727BA
	0728-100-3	0.728~0.747	1.000	1.299	2.185	2.205	5.472	TPD0728BA-0747BA
	0748-100-3	0.748~0.767	1.000	1.299	2.244	2.205	5.591	TPD0748BA-0767BA
	0768-100-3	0.768~0.787	1.000	1.299	2.303	2.205	5.669	TPD0768BA-0787BA
	0787-100-3	0.787~0.806	1.000	1.299	2.362	2.205	5.748	TPD0787BA-0806BA
	0807-100-3	0.807~0.826	1.000	1.299	2.421	2.205	5.827	TPD0807BA-0826BA
	0827-100-3	0.827~0.845	1.000	1.299	2.480	2.362	5.945	TPD0827BA-0845BA
	0846-100-3	0.846~0.865	1.000	1.299	2.539	2.362	6.024	TPD0846BA-0865BA
	0866-100-3	0.866~0.885	1.000	1.299	2.598	2.362	6.102	TPD0866BA-0885BA
	0886-100-3	0.886~0.905	1.000	1.299	2.657	2.362	6.181	TPD0886BA-0905BA
	0906-100-3	0.906~0.924	1.000	1.299	2.717	2.362	6.299	TPD0906BA-0924BA
	0925-100-3	0.925~0.944	1.000	1.299	2.776	2.362	6.378	TPD0925BA-0944BA
	0945-125-3	0.945~0.964	1.250	1.693	2.835	2.362	6.614	TPD0945BA-0964BA
	0965-125-3	0.965~0.983	1.250	1.693	2.894	2.362	6.693	TPD0965BA-0983BA
	0984-125-3	0.984~1.003	1.250	1.693	2.953	2.362	6.811	TPD0984BA-1003BA
	1004-125-3	1.004~1.023	1.250	1.693	3.012	2.362	6.890	TPD1004BA-1023BA
	1024-125-3	1.024~1.062	1.250	1.693	3.071	2.362	6.969	TPD1024BA-1062BA
	1063-125-3	1.063~1.101	1.250	1.693	3.189	2.362	7.165	TPD1063BA-1101BA
	1102-125-3	1.102~1.141	1.250	1.693	3.307	2.362	7.323	TPD1102BA-1141BA
	1142-125-3	1.142~1.180	1.250	1.693	3.425	2.362	7.520	TPD1142BA-1180BA

TPDBA-5D



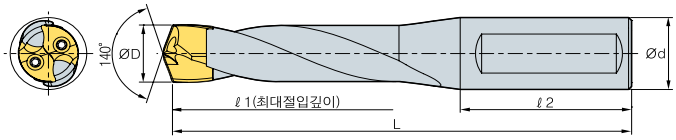
(inch)

Designation		øD	ød	ød1	ℓ1	ℓ2	L	Insert
TPDBA	0394-063-5	0.394~0.412	0.625	0.787	1.969	1.890	4.528	TPD0394BA–0412BA
	0413-063-5	0.413~0.432	0.625	0.787	2.067	1.890	4.606	TPD0413BA–0432BA
	0433-063-5	0.433~0.452	0.625	0.787	2.165	1.890	4.724	TPD0433BA–0452BA
	0453-063-5	0.453~0.471	0.625	0.787	2.264	1.890	4.843	TPD0453BA–0471BA
	0472-063-5	0.472~0.491	0.625	0.787	2.362	1.890	4.961	TPD0472BA-0491BA
	0492-063-5	0.492~0.511	0.625	0.787	2.461	1.890	5.079	TPD0492BA-0511BA
	0512-063-5	0.512~0.530	0.625	0.787	2.559	1.890	5.236	TPD0512BA-0530BA
	0531-063-5	0.531~0.550	0.625	0.787	2.657	1.890	5.354	TPD0531BA-0550BA
	0551-063-5	0.551~0.570	0.625	0.787	2.756	1.890	5.472	TPD0551BA-0570BA
	0571-063-5	0.571~0.590	0.625	0.787	2.854	1.890	5.630	TPD0571BA-0590BA
	0591-075-5	0.591~0.609	0.750	0.984	2.953	1.969	5.827	TPD0591BA-0609BA
	0610-075-5	0.610~0.629	0.750	0.984	3.051	1.969	5.945	TPD0610BA-0629BA
	0630-075-5	0.630~0.649	0.750	0.984	3.150	1.969	6.063	TPD0630BA-0649BA
	0650-075-5	0.650~0.669	0.750	0.984	3.248	1.969	6.181	TPD0650BA-0669BA
	0669-075-5	0.669~0.688	0.750	0.984	3.346	1.969	6.339	TPD0669BA-0688BA
	0689-075-5	0.689~0.708	0.750	0.984	3.445	1.969	6.457	TPD0689BA-0708BA
	0709-100-5	0.709~0.727	1.000	1.299	3.543	2.205	6.811	TPD0709BA-0727BA
	0728-100-5	0.728~0.747	1.000	1.299	3.642	2.205	6.929	TPD0728BA-0747BA
	0748-100-5	0.748~0.767	1.000	1.299	3.740	2.205	7.087	TPD0748BA-0767BA
	0768-100-5	0.768~0.787	1.000	1.299	3.839	2.205	7.205	TPD0768BA-0787BA
	0787-100-5	0.787~0.806	1.000	1.299	3.937	2.205	7.323	TPD0787BA-0806BA
	0807-100-5	0.807~0.826	1.000	1.299	4.035	2.205	7.441	TPD0807BA-0826BA
	0827-100-5	0.827~0.845	1.000	1.299	4.134	2.362	7.598	TPD0827BA-0845BA
	0846-100-5	0.846~0.865	1.000	1.299	4.232	2.362	7.717	TPD0846BA-0865BA
	0866-100-5	0.866~0.885	1.000	1.299	4.331	2.362	7.835	TPD0866BA-0885BA
	0886-100-5	0.886~0.905	1.000	1.299	4.429	2.362	7.953	TPD0886BA-0905BA
	0906-100-5	0.906~0.924	1.000	1.299	4.528	2.362	8.110	TPD0906BA-0924BA
	0925-100-5	0.925~0.944	1.000	1.299	4.626	2.362	8.228	TPD0925BA-0944BA
	0945-125-5	0.945~0.964	1.250	1.693	4.724	2.362	8.504	TPD0945BA-0964BA
	0965-125-5	0.965~0.983	1.250	1.693	4.823	2.362	8.622	TPD0965BA-0983BA
	0984-125-5	0.984~1.003	1.250	1.693	4.921	2.362	8.780	TPD0984BA-1003BA
	1004-125-5	1.004~1.023	1.250	1.693	5.020	2.362	8.898	TPD1004BA-1023BA
	1024-125-5	1.024~1.062	1.250	1.693	5.118	2.362	9.016	TPD1024BA-1062BA
	1063-125-5	1.063~1.101	1.250	1.693	5.315	2.362	9.291	TPD1063BA-1101BA
	1102-125-5	1.102~1.141	1.250	1.693	5.512	2.362	9.528	TPD1102BA-1141BA
	1142-125-5	1.142~1.180	1.250	1.693	5.709	2.362	9.803	TPD1142BA-1180BA

TPDBA

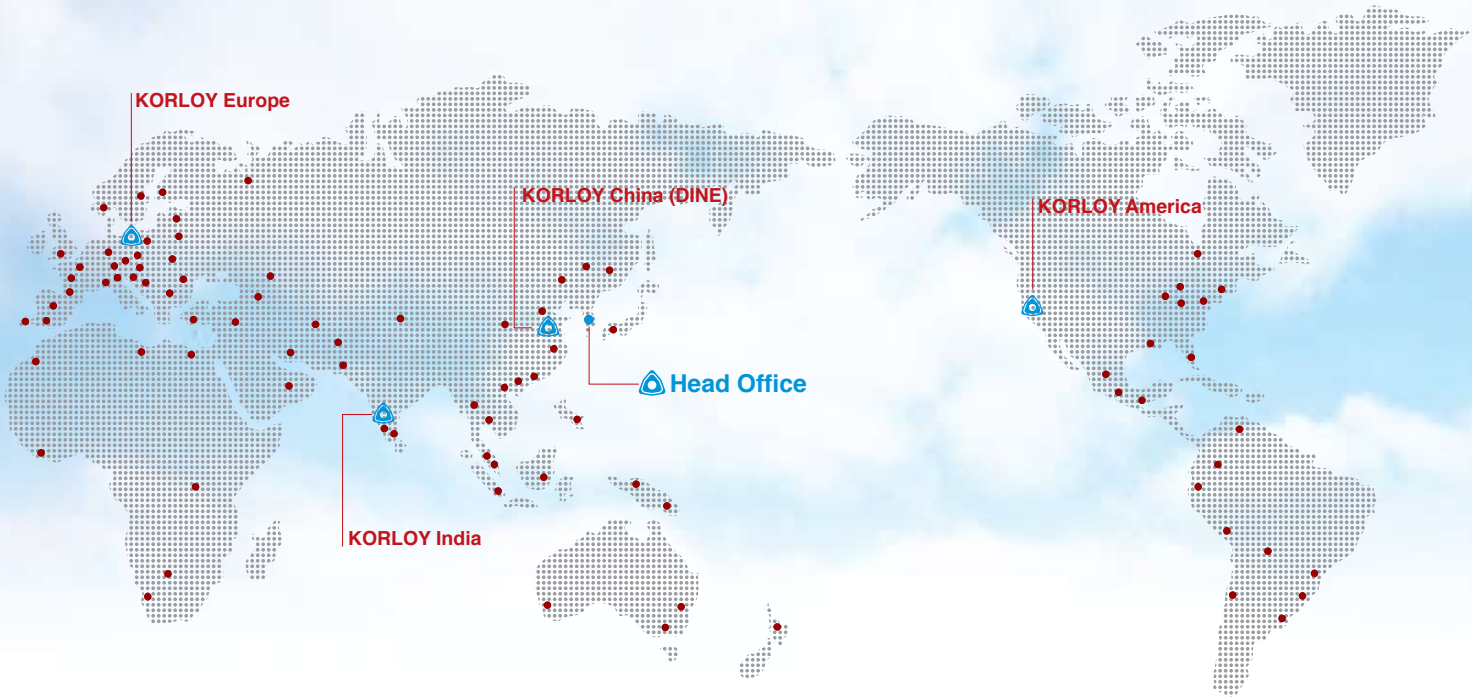
High precision clamping system

TPDBA-8D



(inch)

Designation		øD	ød	ød1	ℓ1	ℓ2	L	Insert
TPDBA	0394-063-8	0.394~0.412	0.625	0.787	3.150	1.890	5.709	TPD0394BA–0412BA
	0413-063-8	0.413~0.432	0.625	0.787	3.307	1.890	5.866	TPD0413BA–0432BA
	0433-063-8	0.433~0.452	0.625	0.787	3.465	1.890	6.024	TPD0433BA–0452BA
	0453-063-8	0.453~0.471	0.625	0.787	3.622	1.890	6.181	TPD0453BA–0471BA
	0472-063-8	0.472~0.491	0.625	0.787	3.780	1.890	6.378	TPD0472BA-0491BA
	0492-063-8	0.492~0.511	0.625	0.787	3.937	1.890	6.555	TPD0492BA-0511BA
	0512-063-8	0.512~0.530	0.625	0.787	4.094	1.890	6.772	TPD0512BA-0530BA
	0531-063-8	0.531~0.550	0.625	0.787	4.252	1.890	6.949	TPD0531BA-0550BA
	0551-063-8	0.551~0.570	0.625	0.787	4.409	1.890	7.126	TPD0551BA-0570BA
	0571-063-8	0.571~0.590	0.625	0.787	4.567	1.890	7.343	TPD0571BA-0590BA
	0591-075-8	0.591~0.609	0.750	0.984	4.724	1.969	7.598	TPD0591BA-0609BA
	0610-075-8	0.610~0.629	0.750	0.984	4.882	1.969	7.776	TPD0610BA-0629BA
	0630-075-8	0.630~0.649	0.750	0.984	5.039	1.969	7.953	TPD0630BA-0649BA
	0650-075-8	0.650~0.669	0.750	0.984	5.197	1.969	8.130	TPD0650BA-0669BA
	0669-075-8	0.669~0.688	0.750	0.984	5.354	1.969	8.346	TPD0669BA-0688BA
	0689-075-8	0.689~0.708	0.750	0.984	5.512	1.969	8.524	TPD0689BA-0708BA
	0709-100-8	0.709~0.727	1.000	1.299	5.669	2.205	8.937	TPD0709BA-0727BA
	0728-100-8	0.728~0.747	1.000	1.299	5.827	2.205	9.114	TPD0728BA-0747BA
	0748-100-8	0.748~0.767	1.000	1.299	5.984	2.205	9.331	TPD0748BA-0767BA
	0768-100-8	0.768~0.787	1.000	1.299	6.142	2.205	9.508	TPD0768BA-0787BA
	0787-100-8	0.787~0.806	1.000	1.299	6.299	2.205	9.685	TPD0787BA-0806BA
	0807-100-8	0.807~0.826	1.000	1.299	6.457	2.205	9.862	TPD0807BA-0826BA
	0827-100-8	0.827~0.845	1.000	1.299	6.614	2.362	10.079	TPD0827BA-0845BA
	0846-100-8	0.846~0.865	1.000	1.299	6.772	2.362	10.256	TPD0846BA-0865BA
	0866-100-8	0.866~0.885	1.000	1.299	6.929	2.362	10.433	TPD0866BA-0885BA
	0886-100-8	0.886~0.905	1.000	1.299	7.087	2.362	10.610	TPD0886BA-0905BA
	0906-100-8	0.906~0.924	1.000	1.299	7.244	2.362	10.827	TPD0906BA-0924BA
	0925-100-8	0.925~0.944	1.000	1.299	7.402	2.362	11.004	TPD0925BA-0944BA
	0945-125-8	0.945~0.964	1.250	1.693	7.559	2.362	11.339	TPD0945BA-0964BA
	0965-125-8	0.965~0.983	1.250	1.693	7.717	2.362	11.516	TPD0965BA-0983BA
	0984-125-8	0.984~1.003	1.250	1.693	7.874	2.362	11.732	TPD0984BA-1003BA
	1004-125-8	1.004~1.023	1.250	1.693	8.031	2.362	11.909	TPD1004BA-1023BA
	1024-125-8	1.024~1.062	1.250	1.693	8.189	2.362	12.087	TPD1024BA-1062BA
	1063-125-8	1.063~1.101	1.250	1.693	8.504	2.362	12.480	TPD1063BA-1101BA
	1102-125-8	1.102~1.141	1.250	1.693	8.819	2.362	12.835	TPD1102BA-1141BA
	1142-125-8	1.142~1.180	1.250	1.693	9.134	2.362	13.228	TPD1142BA-1180BA



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