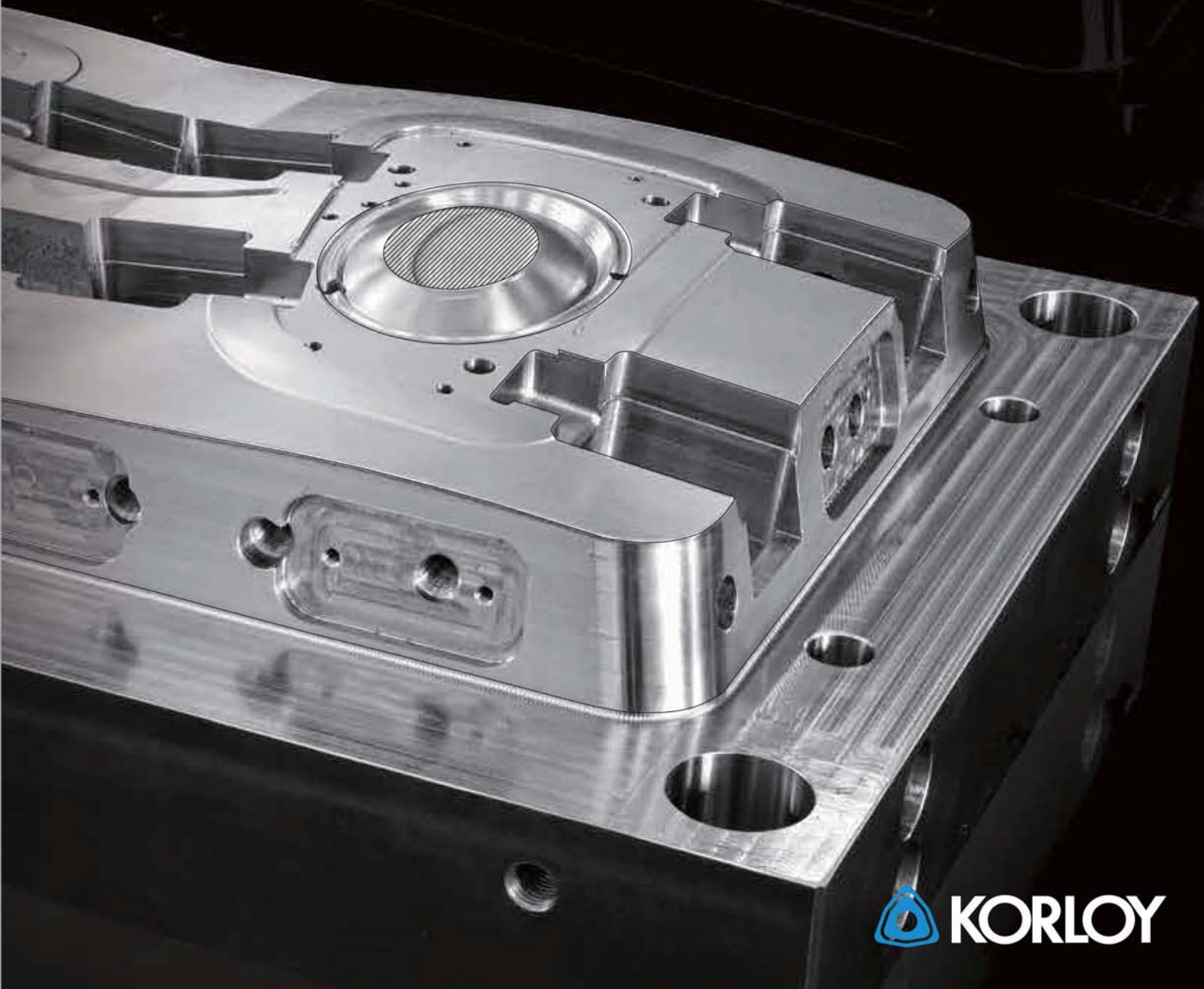
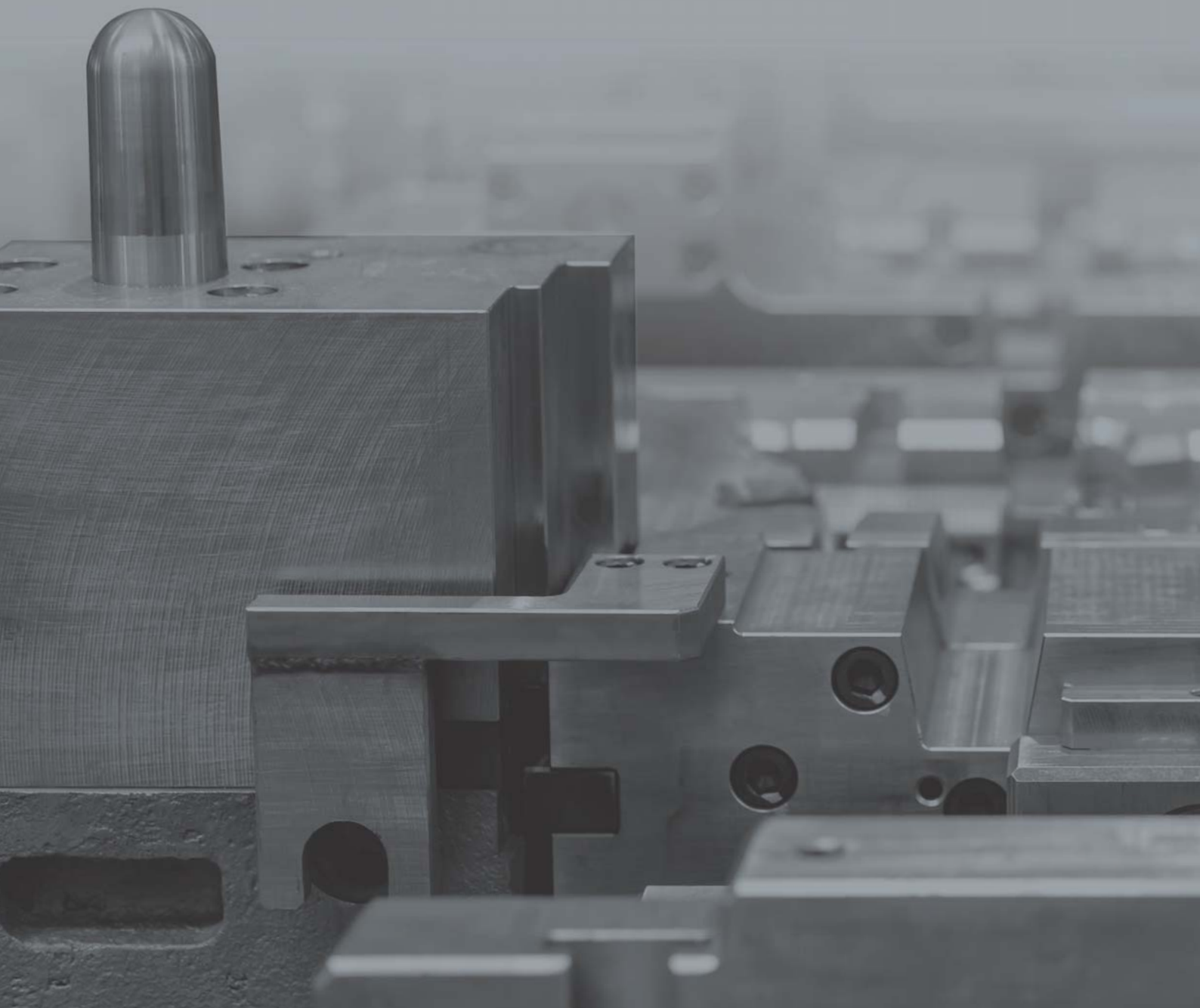
Technical Information **KORLOY**

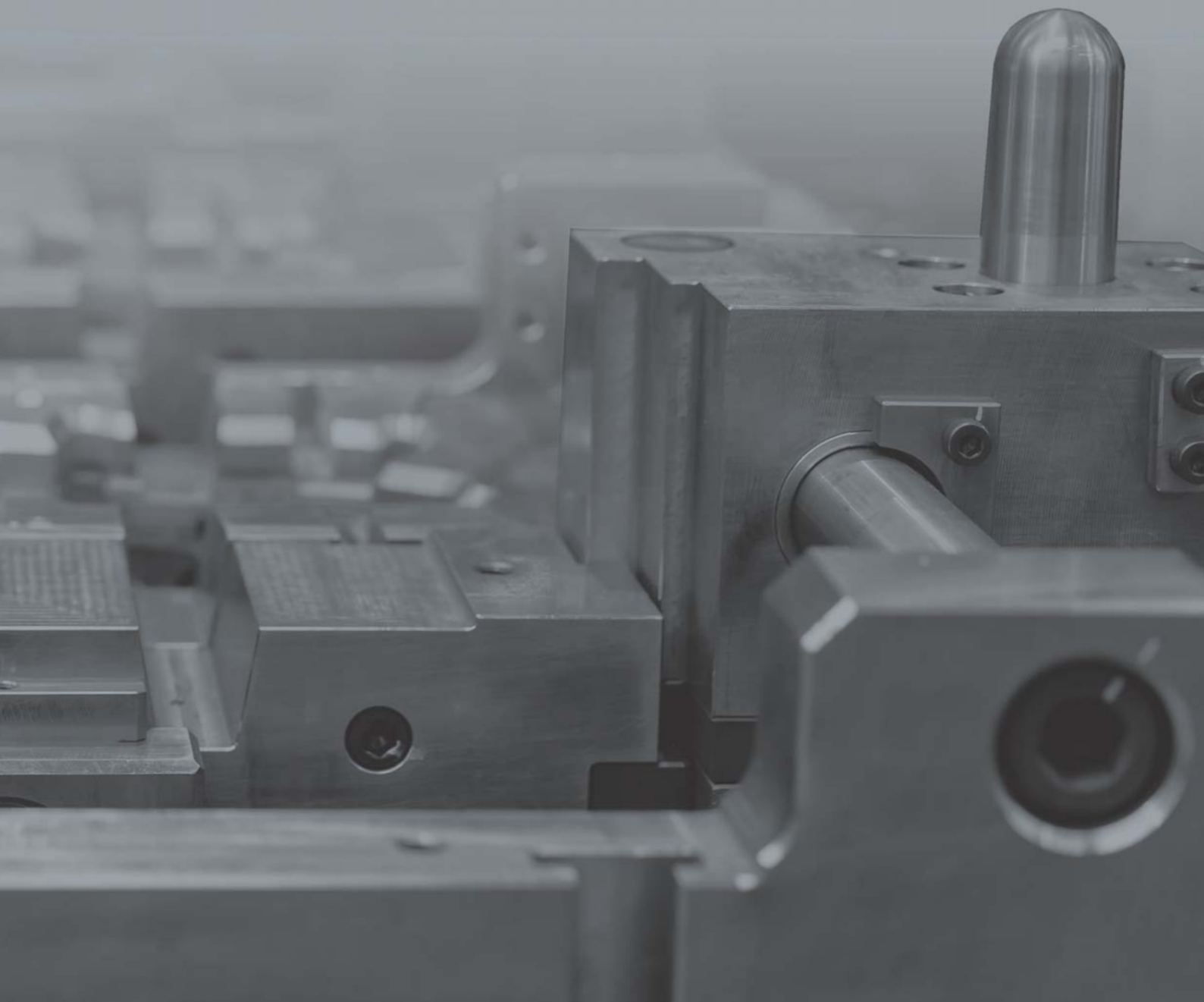
Solutions for MOLD & DIE



KORLOY

Solutions for MOLD & DIE





Solutions for MOLD & DIE

Contents

Recommended Tools for Each MOLD&DIE

Part 1

For Roughing

Part 2

For Medium Cutting

Part 3

For Finishing

Part 4

For High Precision Machining (Solid Endmill)

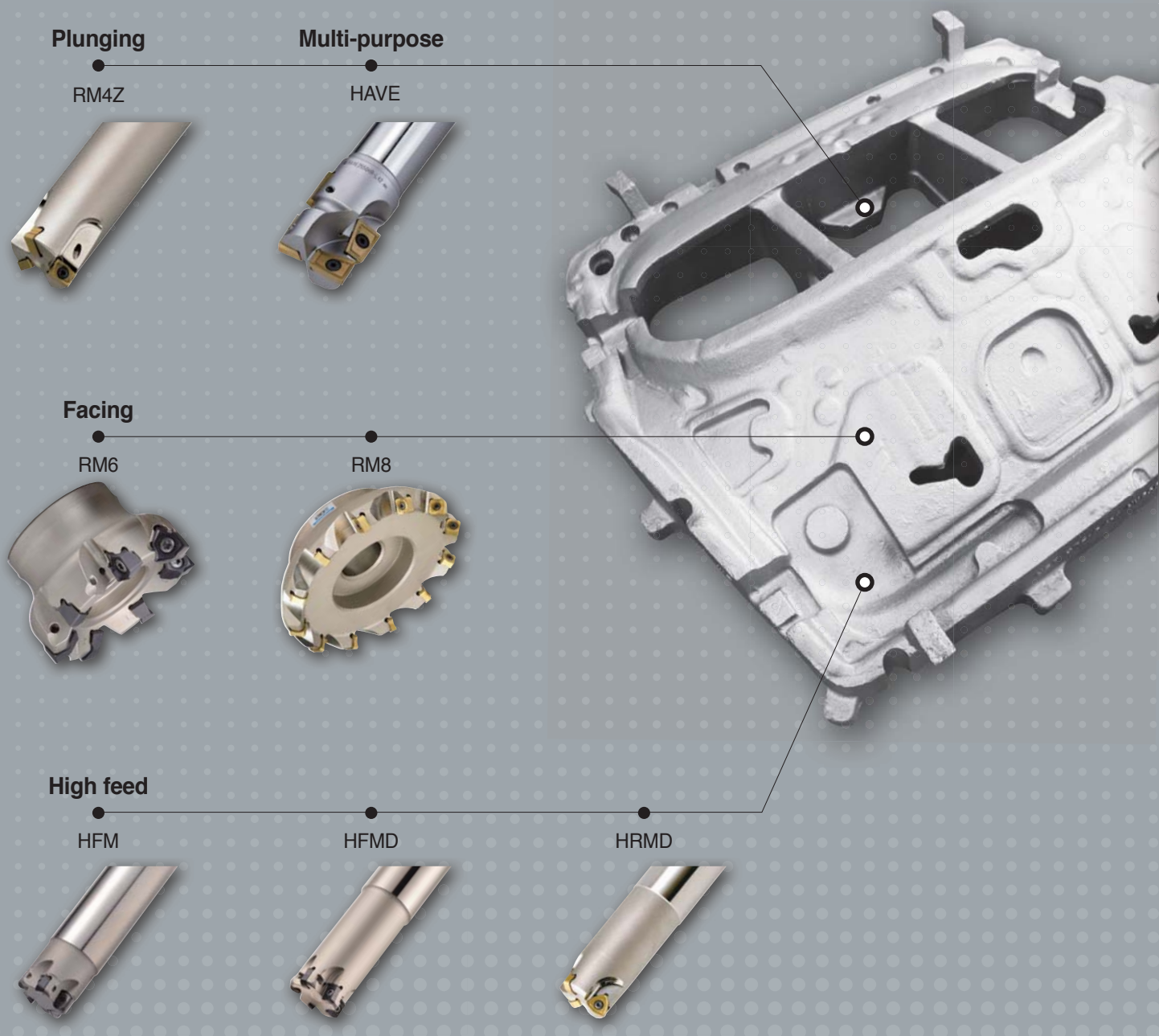
Part 5

For Hole Making

Press mold

• Workpiece materials: GC25, GC45, STD11, SM20C, SM45C

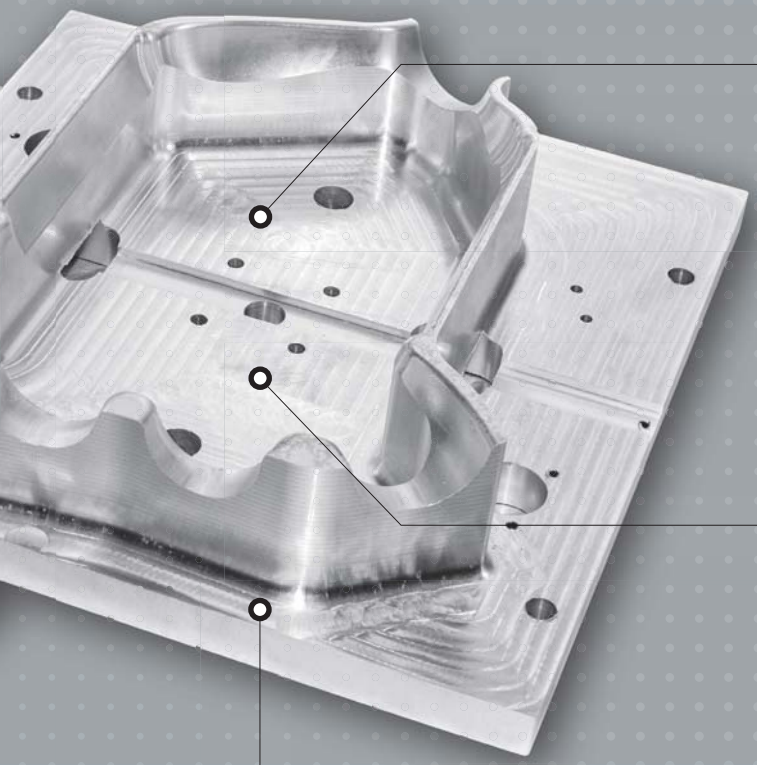
Products are formed by a press machine that makes metal plates flat in straight line motion. Plasticity and ductility of metallic materials enable mass production of an extremely wide range of products in uniform quality each time, including automobiles, electronics, office supplies, toys, building materials and etc.



Injection mold

• Workpiece materials: SM45C, NAK80, KPI, KP4(M)A, STD61, STAVAX

In this process, melted or liquefied plastic resin is injected into the room between the mold and cavity at high pressure or high speed. Items or parts for daily use are manufactured such as toys and parts for electronics, mobile phones and automobiles.



Shouldering

RM4

RM3

Shouldering

Alpha Mill-X

Solid Endmill

Z Endmill

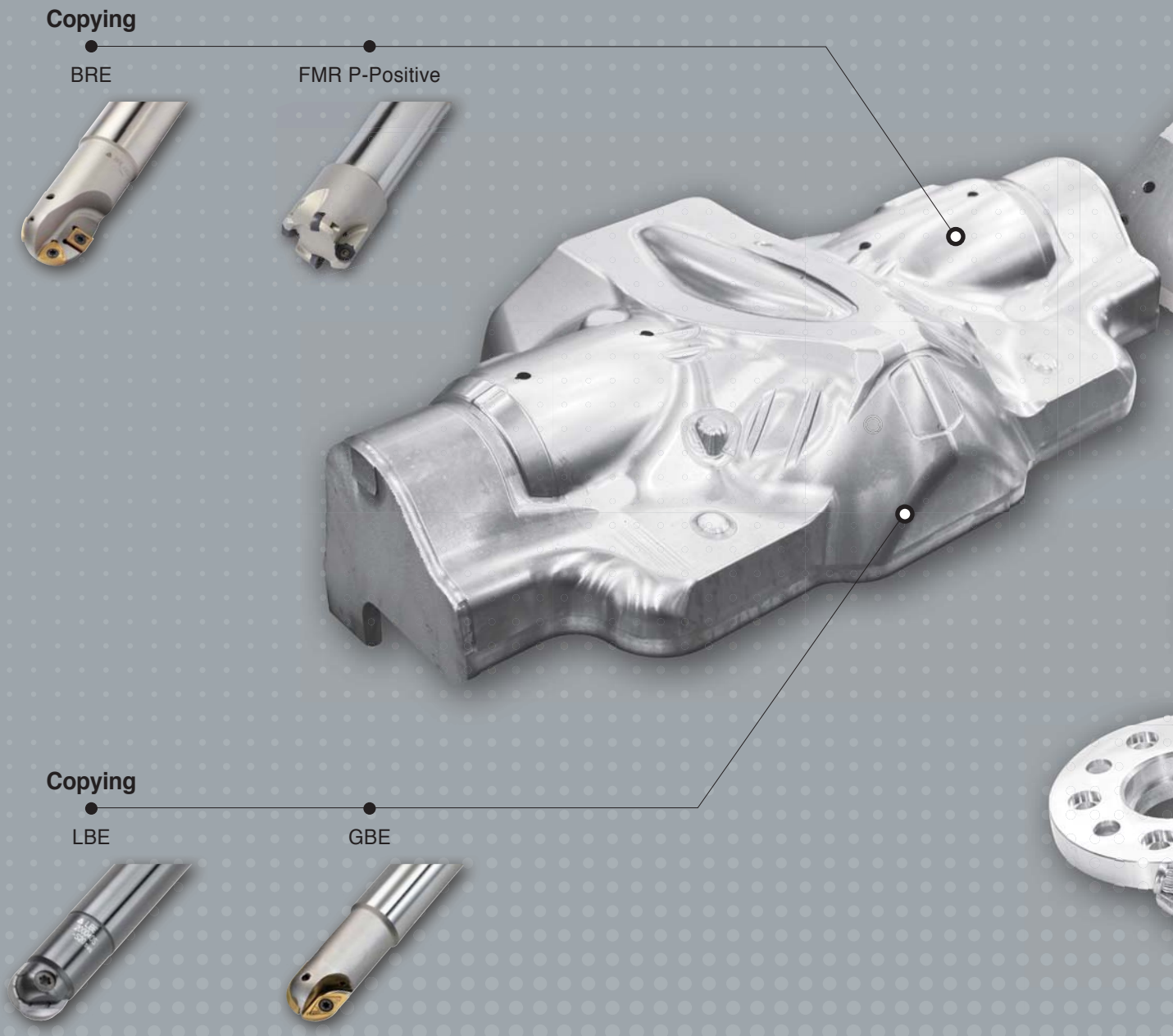
Z^+ Endmill

R^+ Endmill

Die casting

• Workpiece materials: STD61, DAC10

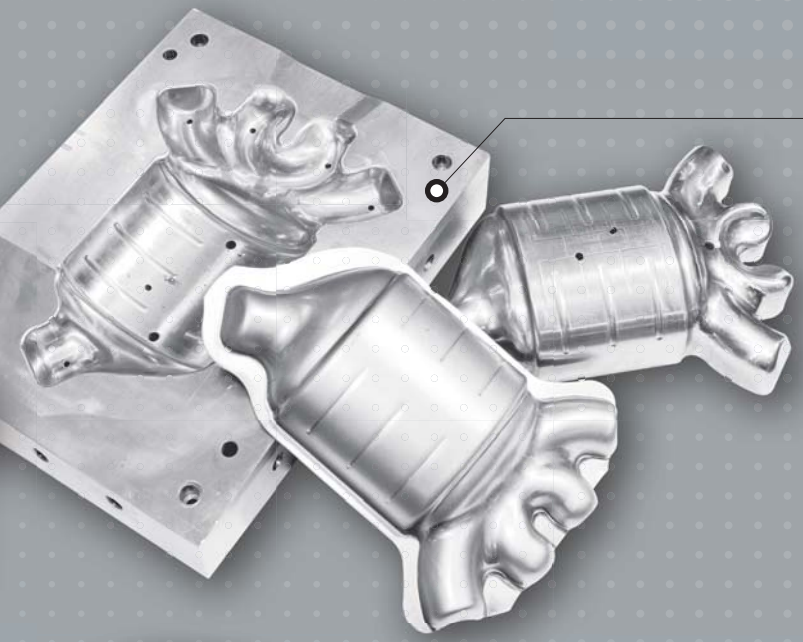
Non ferrous steel alloys-Al, Cu, Mg, Zn that have a low melting point are the main source in this production. They are melted and then injected into the mold at high pressure and high speed. The result is parts for automobiles, electronics, high-precision machine tools and household items. To withstand high temperatures and high pressure, a strong die steel with hard hardness is needed.



Forging mold

• Workpiece materials: STD61, STF4M, STD11

The most common way of using forging mold is making products from a piece of metal by heating the metal and shaping it, which is called hot forging. Other than that, there are cold forging and ultrasonic machining as alternatives.



Hole making

TPDC

King Drill

Hole making

ESD Plus

MSD Plus

TPDB Plus

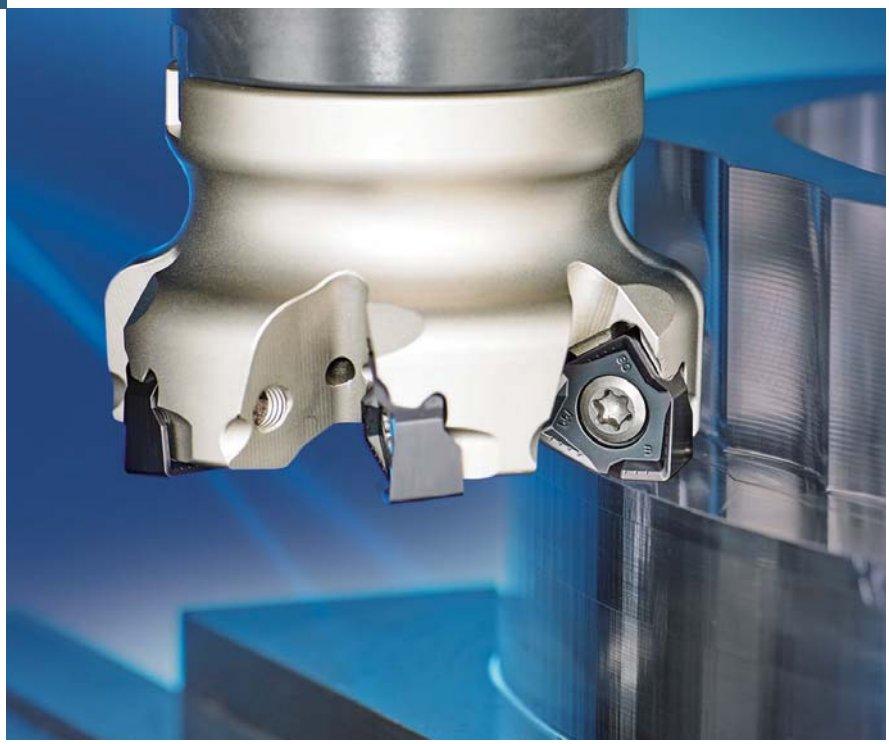
Solutions for MOLD & DIE

Part 1

For Roughing

Part 1

For Roughing



Milling tool for perpendicular shouldering with double sided 6 corners

RM6 new

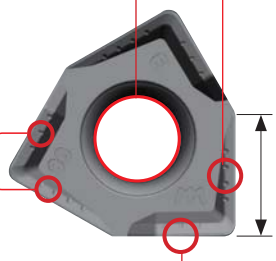
- Stable clamping
  - 3 clamping surfaces on the side and strong clamping screws
    → Improves cutting stability
- High quality results
  - High precision, excellent perpendicularity, outstanding surface finish on the flank, accurate tolerance
- High productivity
  - High rake angle and sharp cutting-edges for lower cutting resistance
    → Ideal for high speed and high feed machining

Features

Higher clamping stability
- Wide clamping areas and strong clamping screws for rigid clamping

High rake angle chip breaker
- Maintains stable clamping
- Induces smooth chip flow → Increases insert life

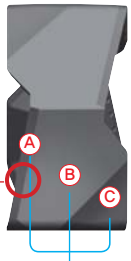
Wide minor cutting-edges
- Improved surface finish
- Enable multi-purpose machining incl. plunging



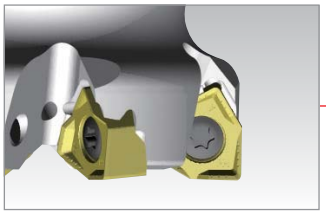
MAX. ap

WNGX08: 8.2mm
WNGX04: 4.3mm

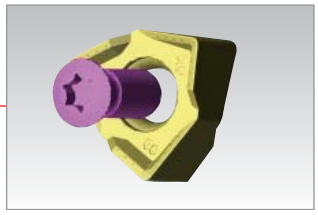
High rake cutting-edges
- Improved machinability and reduces cutting resistance



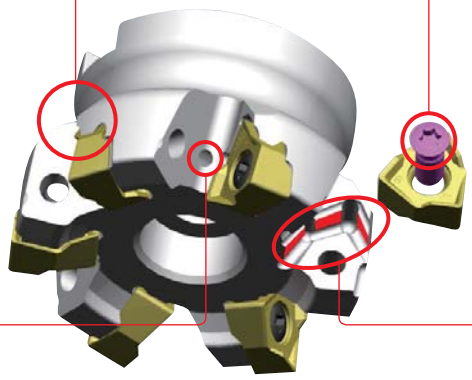
3-level flank relief surface
- Enhances rigidity and enables stable clamping → Improves cutting stability

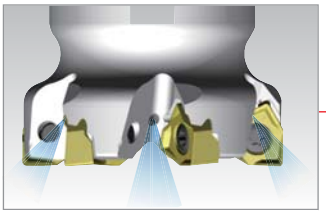


Streamlined holder design
- Improved chip evacuation in deep shouldering and slotting



Strong clamping screws
- Strong clamping screws enable rigid clamping





Through coolant system
- Improved chip flow and tool life thanks to insert cooling

3-side supporting system
- Stable tool life

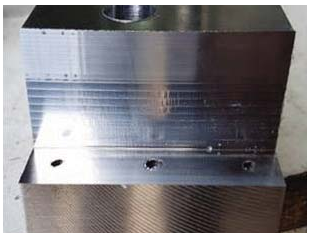
Features of chip breakers

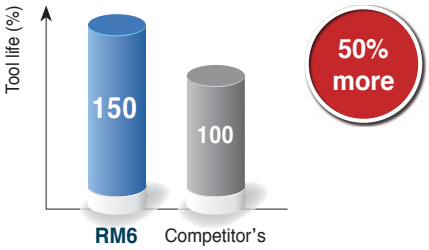
Chip breaker		Cutting-edge	Application	Features
MA			For aluminum	• MA: Milling Aluminum • Sharp cutting-edges for excellent cutting performance in aluminum machining • Buffed surface for excellent chip flow and welding resistance
ML			For light cutting	• ML: Milling Light • Chip breaker design of low cutting resistance, ideal for light cutting and machining hard-to-cut materials • Excellent tool life and quality results
MM			For general cutting	• MM: General shouldering operations • Chip breaker design ideal for general shoulder milling and most applications

[Application Examples]

Carbon steel [C45 (ISO), HB180]

- **Cutting conditions:** vc (m/min) = 250, fz (mm/t) = 0.12, ap (mm) = 7, ae (mm) = 2, dry
- **Machining method:** Shouldering
- **Tools:** **Insert** WNGX080608PNSR-MM (PC5300)
  Holder RM6PS032R-2W32-120-WN08

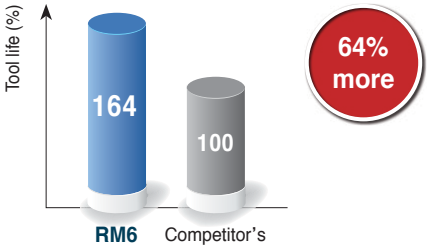




▶ 50% longer tool life compared to the competitor

Cold forged tool steel [X100CrMoV5 1 (DIN), HB255]

- **Cutting conditions:** vc (m/min) = 235, fz (mm/t) = 0.28, ap (mm) = 2, ae (mm) = 5, dry
- **Machining method:** Shouldering
- **Tools:** **Insert** WNGX080608PNER-ML (PC5300)
  Holder RM6PCM063R-22-6-WN08



▶ 64% longer tool life compared to the competitor

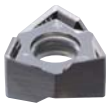
Cast iron [600-3 (ISO), HB230]

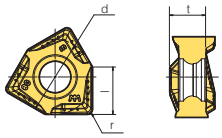
- **Cutting conditions:** vc (m/min) = 226, fz (mm/t) = 0.19, ap (mm) = 1, ae (mm) = 75, dry
- **Machining method:** Facing
- **Tools:** **Insert** WNGX080608PNER-ML (PC5400)
  Holder RM6PCM080R-27-7-WN08

▶ 20% longer tool life compared to the competitor

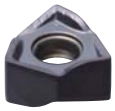
Available inserts

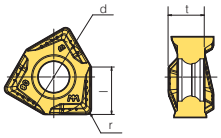
WNGX-MA



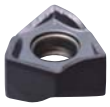


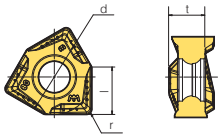
WNGX-ML





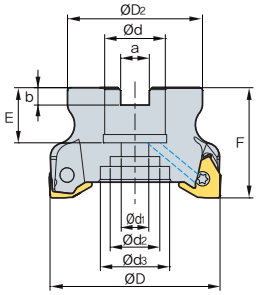
WNGX-MM





Designation		Dimensions (mm)			
		l	d	t	r
WNGX-MA	040304PNFR-MA	4.3	7.0	3.46	0.4
	040308PNFR-MA	4.3	7.0	3.46	0.8
	040312PNFR-MA	4.3	7.0	3.46	1.2
	040316PNFR-MA	4.3	7.0	3.46	1.6
	080604PNFR-MA	8.2	13.0	6.4	0.4
	080608PNFR-MA	8.2	13.0	6.4	0.8
	080612PNFR-MA	8.2	13.0	6.4	1.2
	080616PNFR-MA	8.2	13.0	6.4	1.6
	080620PNFR-MA	8.2	13.0	6.4	2.0
WNGX-ML	040304PNER-ML	4.3	7.0	3.46	0.4
	040308PNER-ML	4.3	7.0	3.46	0.8
	040312PNER-ML	4.3	7.0	3.46	1.2
	040316PNER-ML	4.3	7.0	3.46	1.6
	080604PNER-ML	8.2	13.0	6.4	0.4
	080608PNER-ML	8.2	13.0	6.4	0.8
	080612PNER-ML	8.2	13.0	6.4	1.2
	080616PNER-ML	8.2	13.0	6.4	1.6
	080620PNER-ML	8.2	13.0	6.4	2.0
WNGX-MM	040304PNSR-MM	4.3	7.0	3.46	0.4
	040308PNSR-MM	4.3	7.0	3.46	0.8
	040312PNSR-MM	4.3	7.0	3.46	1.2
	040316PNSR-MM	4.3	7.0	3.46	1.6
	080604PNSR-MM	8.2	13.0	6.4	0.4
	080608PNSR-MM	8.2	13.0	6.4	0.8
	080612PNSR-MM	8.2	13.0	6.4	1.2
	080616PNSR-MM	8.2	13.0	6.4	1.6
	080620PNSR-MM	8.2	13.0	6.4	2.0

RM6PCM-WN04



AA 90°

- AR: -6°
- RR: -14°~ -11°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
RM6PCM	040R-16-6-WN04		6	40	35	16	9	14	-	8.4	5.6	19	40	4.3	0.19
	040R-16-7-WN04		7	40	35	16	9	14	-	8.4	5.6	19	40	4.3	0.19
	050R-22-8-WN04		8	50	42	22	11	18	-	10.4	6.3	20	40	4.3	0.28
	050R-22-9-WN04		9	50	42	22	11	18	-	10.4	6.3	20	40	4.3	0.28
	063R-22-10-WN04		10	63	49	22	11	18	-	10.4	6.3	20	40	4.3	0.47
	063R-22-11-WN04		11	63	49	22	11	18	-	10.4	6.3	20	40	4.3	0.47

● : Stock items

▶ Available inserts

WNGX-MA

WNGX-ML

WNGX-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNGX	040304PNFR-MA																	15
	040308PNFR-MA																	
	040312PNFR-MA																	
	040316PNFR-MA																	
WNGX	040304PNER-ML																	
	040308PNER-ML																	
	040312PNER-ML																	
	040316PNER-ML																	
WNGX	040304PNSR-MM																	
	040308PNSR-MM																	
	040312PNSR-MM																	
	040316PNSR-MM																	

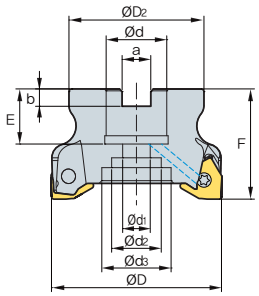
▶ Available arbors

Designation		NC arbors
RM6PCM	040R-16-6-WN04	BT□□-FMC16-□□
	040R-16-7-WN04	
	050R-22-8-WN04	BT□□-FMC22-□□
	050R-22-9-WN04	
	063R-22-10-WN04	
	063R-22-11-WN04	

▶ Parts

Specification	Screw	Wrench
Ø40~Ø63	ETNA02506	TW07S

RM6PC(M)-WN08



AA 90°

- AR: -6°
- RR: -14°~ -11°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
RM6PCM	050R-22-4-WN08	●	4	50	42	22	11	18	-	10.4	6.3	20	40	8.2	0.28
	050R-22-5-WN08	●	5	50	42	22	11	18	-	10.4	6.3	20	40	8.2	0.27
	063R-22-5-WN08	●	5	63	49	22	11	18	-	10.4	6.3	20	40	8.2	0.45
	063R-22-6-WN08	●	6	63	49	22	11	18	-	10.4	6.3	20	40	8.2	0.45
	080R-27-7-WN08	●	7	80	57	27	14	20	35	12.4	7	23	50	8.2	0.90
	080R-27-9-WN08	●	9	80	57	27	14	20	35	12.4	7	23	50	8.2	0.89
	100R-32-8-WN08	●	8	100	67	32	18	26	42	14.4	8	25	50	8.2	1.47
	100R-32-11-WN08	●	11	100	67	32	18	26	42	14.4	8	25	50	8.2	1.45
	125R-40-11-WN08	●	11	125	90	40	22	32	52	16.4	9	29	63	8.2	2.94
	125R-40-14-WN08	●	14	125	90	40	22	32	52	16.4	9	29	63	8.2	2.91
RM6PC	080R-25.4-7-WN08	●	7	80	57	25.4	14	20	35	9.5	6	25	50	8.2	0.91
	080R-25.4-9-WN08		9	80	57	25.4	14	20	35	9.5	6	25	50	8.2	0.91
	100R-31.75-8-WN08	●	8	100	67	31.75	18	26	42	12.7	8	32	63	8.2	1.69
	100R-31.75-11-WN08		11	100	67	31.75	18	26	42	12.7	8	32	63	8.2	1.73
	125R-38.1-11-WN08	●	11	125	90	38.1	22	32	52	15.9	10	35	63	8.2	1.98
	125R-38.1-14-WN08		14	125	90	38.1	22	32	52	15.9	10	35	63	8.2	2.90

● : Stock items

▶ Available inserts

WNGX-MA | WNGX-ML | WNGX-MM



Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC3530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNGX	080604PNFR-MA																	15
	080608PNFR-MA																●	
	080612PNFR-MA																	
	080616PNFR-MA																	
	080620PNFR-MA																	
WNGX	080604PNER-ML									●			●●					
	080608PNER-ML									●			●●					
	080612PNER-ML																	

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC3530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNGX	080616PNER-ML																	15
	080620PNER-ML																	
WNGX	080604PNSR-MM									●			●					
	080608PNSR-MM									●			●●					
	080612PNSR-MM																	
	080616PNSR-MM																	
	080620PNSR-MM																	

▶ Available arbors

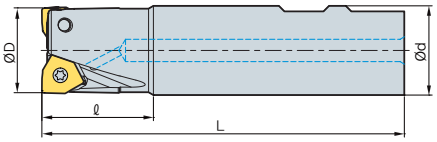
Designation		NC arbors
RM6PC	080R-25.4-7-WN08	BT□□-FMA25.4-□□
	080R-25.4-9-WN08	
	100R-31.75-8-WN08	BT□□-FMA31.75-□□
	100R-31.75-11-WN08	
	125R-38.1-11-WN08	BT□□-FMA38.1-□□
	125R-38.1-14-WN08	
RM6PCM	050R-22-4-WN08	BT□□-FMC22-□□
	050R-22-5-WN08	

Designation		NC arbors
RM6PCM	063R-22-5-WN08	BT□□-FMC22-□□
	063R-22-6-WN08	
	080R-27-7-WN08	BT□□-FMC27-□□
	080R-27-9-WN08	
	100R-32-8-WN08	BT□□-FMC32-□□
	100R-32-11-WN08	
	125R-40-11-WN08	BT□□-FMC40-□□
	125R-40-14-WN08	

▶ Parts

Specification	Screw	Wrench
Ø50~Ø125	FTNA0512	TW20-100

RM6PS-WN04









AA
90°

- AR : -6°
- RR : -20°~-14°

(mm)

	Designation	Stock		ØD	Ød	ℓ	L	ap	kg
RM6PS	020R-2W20-110-WN04		2	20	20	35	110	4.3	0.22
	020R-3W20-110-WN04		3	20	20	35	110	4.3	0.22
	025R-3W25-110-WN04		3	25	25	35	110	4.3	0.36
	025R-4W25-110-WN04		4	25	25	35	110	4.3	0.35
	032R-5W32-110-WN04		5	32	32	35	110	4.3	0.60
	032R-6W32-110-WN04		6	32	32	35	110	4.3	0.60

● : Stock items

▶ Available inserts

WNGX-MA

WNGX-ML

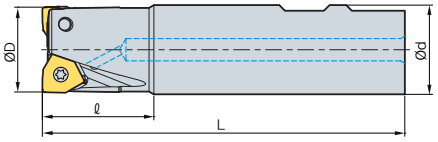
WNGX-MM

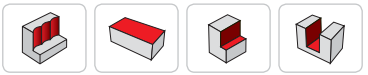
Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNGX	040304PNFR-MA																	15
	040308PNFR-MA																	
	040312PNFR-MA																	
	040316PNFR-MA																	
WNGX	040304PNER-ML																	
	040308PNER-ML																	
	040312PNER-ML																	
	040316PNER-ML																	
WNGX	040304PNSR-MM																	
	040308PNSR-MM																	
	040312PNSR-MM																	
	040316PNSR-MM																	

▶ Parts

Specification	Screw	Wrench
Ø20~Ø32	ETNA02506	TW07S

RM6PS-WN08





AA 90°

- AR : -6°
- RR : -20°~-14°

(mm)

	Designation	Stock		ØD	Ød	ℓ	L	ap	kg
RM6PS	032R-2W32-120-WN08	●	2	32	32	40	120	8.2	0.65
	040R-3W32-120-WN08	●	3	40	32	40	120	8.2	0.69
	040R-4W32-120-WN08	●	4	40	32	40	120	8.2	0.69
	050R-4W32-120-WN08	●	4	50	32	40	120	8.2	0.76
	050R-5W32-120-WN08	●	5	50	32	40	120	8.2	0.76

● : Stock items

▶ Available inserts

WNGX-MA

WNGX-ML

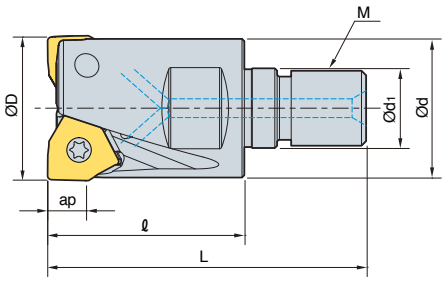
WNGX-MM

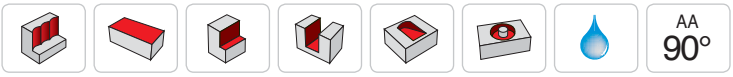
Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNGX	080604PNFR-MA																	15
	080608PNFR-MA																●	
	080612PNFR-MA																	
	080616PNFR-MA																	
	080620PNFR-MA																	
WNGX	080604PNER-ML									●			●	●				
	080608PNER-ML									●			●	●				
	080612PNER-ML																	
	080616PNER-ML																	
	080620PNER-ML																	
WNGX	080604PNSR-MM									●			●					
	080608PNSR-MM									●			●	●				
	080612PNSR-MM																	
	080616PNSR-MM																	
	080620PNSR-MM																	

▶ Parts

Specification	Screw	Wrench
Ø32~Ø50	FTNA0512	TW20-100

RM6PM





AA 90°

- AR : -6°
- RR : -9°~-6°

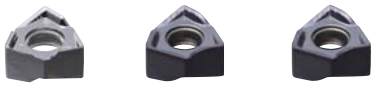
(mm)

	Designation	Stock		ØD	Ød	Ød1	ℓ	L	M	ap	kg
RM6PM	020R-2-M10-WN04		2	20	18	10.5	30	50	10	4.3	0.06
	020R-3-M10-WN04		3	20	18	10.5	30	50	10	4.3	0.06
	025R-4-M12-WN04		4	25	23	12.5	30	53	12	4.3	0.1
	025R-5-M12-WN04		5	25	23	12.5	30	53	12	4.3	0.09
	032R-5-M16-WN04		5	32	29	17	40	66	16	4.3	0.25
	032R-6-M16-WN04		6	32	29	17	40	66	16	4.3	0.24
RM6PM	032R-2-M16-WN08		2	32	29	17	43	69	16	8.2	0.22
	040R-3-M16-WN08		3	40	29	17	43	69	16	8.2	0.31
	040R-4-M16-WN08		4	40	29	17	43	69	16	8.2	0.30

● : Stock items

▶ Available inserts

WNGX-MA WNGX-ML WNGX-MM



Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNGX	040304PNFR-MA																	15
	040308PNFR-MA																	
	040312PNFR-MA																	
	040316PNFR-MA																	
WNGX	040304PNER-ML																	
	040308PNER-ML																	
	040312PNER-ML																	
	040316PNER-ML																	
WNGX	040304PNSR-MM																	
	040308PNSR-MM																	
	040312PNSR-MM																	
	040316PNSR-MM																	

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNGX	080604PNFR-MA																	15
	080608PNFR-MA																●	
	080612PNFR-MA																	
	080616PNFR-MA																	
	080620PNFR-MA																	
WNGX	080604PNER-ML									●			●●					
	080608PNER-ML									●			●●					
	080612PNER-ML																	
	080616PNER-ML																	
	080620PNER-ML																	
WNGX	080604PNSR-MM									●			●					
	080608PNSR-MM									●			●					
	080612PNSR-MM																	
	080616PNSR-MM																	
	080620PNSR-MM																	

▶ Available arbors

Designation		Available adaptor
RM6PM	020R-2-M10-WN04	MAT-M10
	020R-3-M10-WN04	MAT-M10
	025R-4-M12-WN04	MAT-M12
	025R-5-M12-WN04	MAT-M12
	032R-5-M16-WN04	MAT-M16

Designation		Available adaptor
RM6PM	032R-6-M16-WN04	MAT-M16
	032R-2-M16-WN08	MAT-M16
	040R-3-M16-WN08	MAT-M16
	040R-4-M16-WN08	MAT-M16

Designation : RM6PM032R-5-M16-WN04
Modular Head Threading Measure size (M16)

=

Adaptor spec.: MAT-M16-035-S32S
Adaptor Threading Measure (M16)

▶ Parts

Specification		Screw	Wrench	Wrench
WNGX04	Ø20~Ø32	ETNA02506	TW07S	-
WNGX08	Ø32~Ø40	FTNA0512	-	TW20-100

For Roughing

Economical milling tool series

RM8

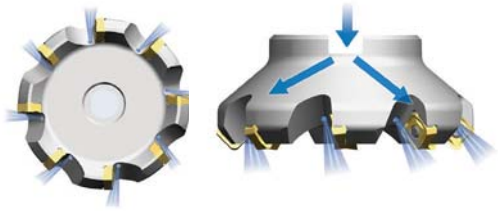
- Rich Mill series is one of the innovations that provides more available cutting edges with double sided inserts and longer tool life for our customers
- The unique geometry and special cutting edge guarantees low cutting loads and long tool life
- Rich Mill series has a wide application range from steel and stainless steel to cast iron and aluminum
- Applying negative inserts makes it even stronger and provides longer tool life
- Rich Mill series has both screw on clamping system and latch clamping system

RM8

Features

- **Double sided insert to use 8 cutting edges**
  - Innovative double sided insert makes it possible to use 8 cutting edges. It is more economical than conventional single sided insert
  - The unique geometry and high rake angle of cutting edge guarantees excellent surface finish. Applicable for various workpieces like steel, stainless steel, cast iron, aluminum
  - Combined with the innovative geometry and various grades provided the tool offfers durability and excellent tool life
  - Various pitches and chip breakers can be applicable for diverse machining.
  - Light Rich mill cutter can be useful for high speed machining and low power machine

- **Through coolant system**
  - Exclusive coolant bolt is adapted to get better chip evacuation and more powerful cooling. To get optimal chip evacuation, the direction of coolant injection has been designed to reach to each cutting-edge directly. Through coolant arbor is required

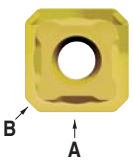
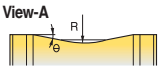
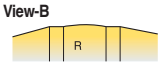


▶Through coolant system for decreasing cutting heat and good chip evacuation

Features of chip breaker

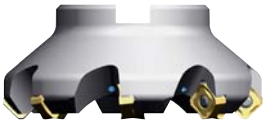
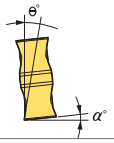
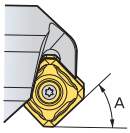
Chip breaker		Cutting-edge	Application	Features
MA			For aluminum	• Due to sharp cutting-edge and buffed surface, it has good chip flow and welding resistance
ML			For hard-to-cut material	• Chip breaker with low cutting load is optimal for machining hard-to-cut materials
MF			For light cutting	• Due to low cutting load, it is good for light cutting and difficult-to-cut material
MM			For general cutting	• It is suitable design for general milling
W			For wiper	• Specialized edge design can be suitable for excellent surface roughness operation

Features of insert

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

RM8

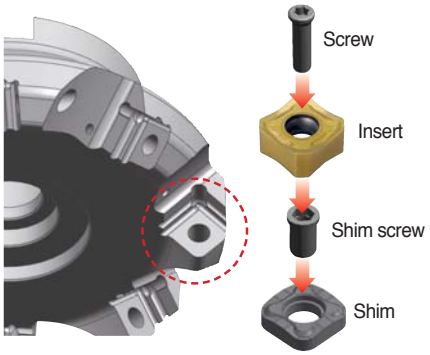
Setting configuration

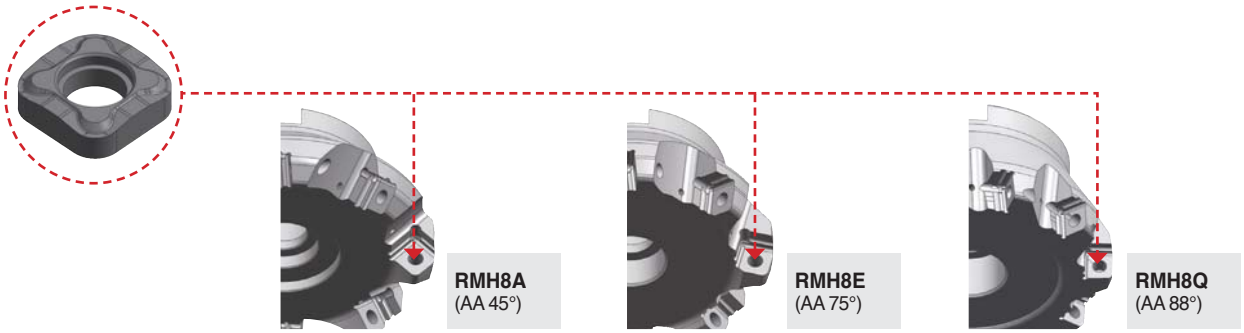
Shape	Setting angle of insert	Features
		High rake angle makes positive setting angle for low cutting load
		Suitable for facing and chamfering • RM8A A = 45° • RM8E A = 75° • RM8Q A = 88°

RMH8

Features

- **Screw on clamping system**
  - Adaptable and Stable clamping system
- **Reinforced rigidity and enhanced clamping power**
  - Appling shim system, prevent cutter damage when insert breaks
- **Adapting/exchangeable shim**
  - Using various kinds of cutter (Approach angle 45°, 75°, 88°)
  - Stable clamping power with insert

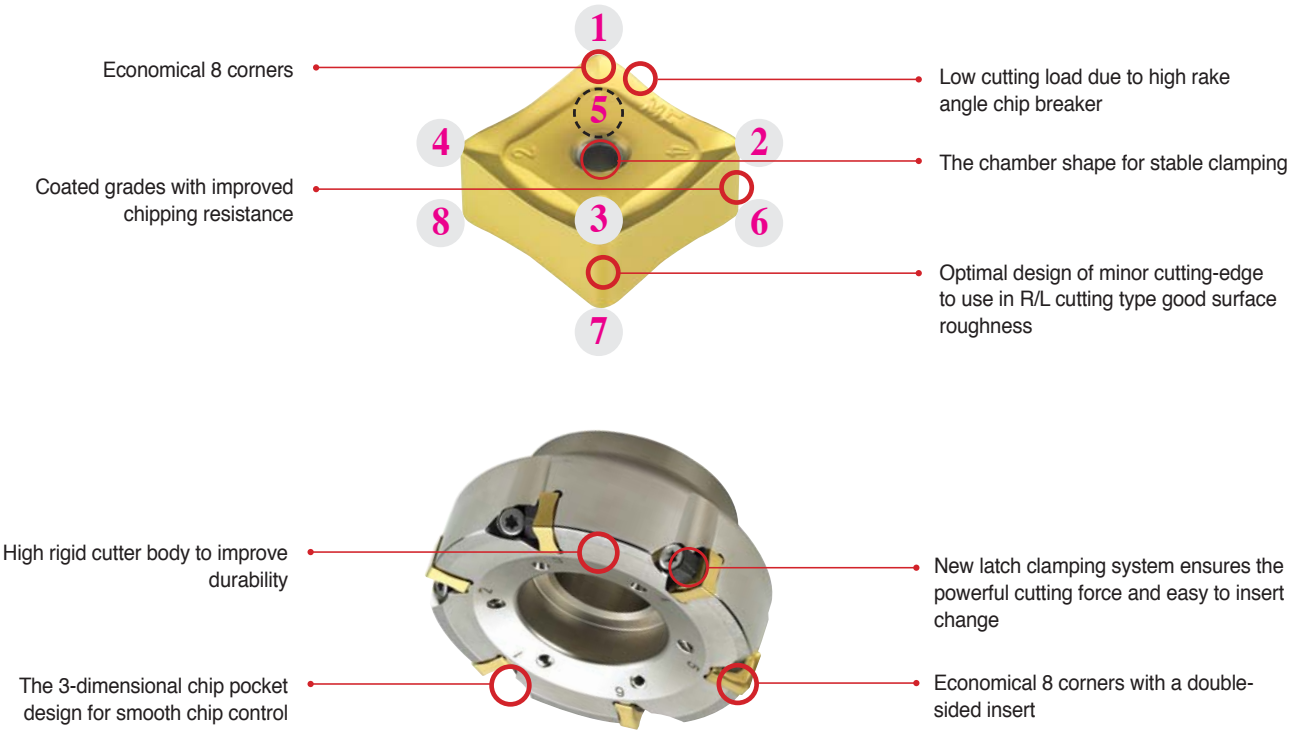




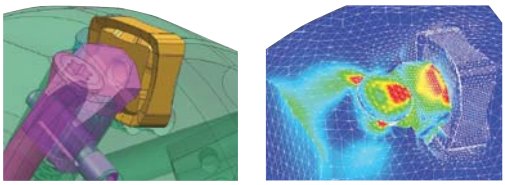
RMT8

Features

- New latch clamping system provides a powerful cutting force and an easy insert change
- New grades with chipping resistance provides good surface roughness and better tool life
- Due to the specially designed chip breaker, all operations are possible
- RMT with various pitches can replace conventional ISO milling tool



Clamping force analysis



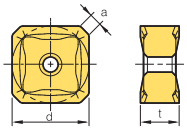
Features of chip breaker

Chip breaker		Cutting-edge	Application	Features
MF			For fine finishing	• Our specialized insert design creates low cutting forces suitable for light cutting, HRSA
MM			For strengthen	• Suitable geometry design for general milling has wider ranges of machining

Available inserts

SNC(M)F-MF

ANN



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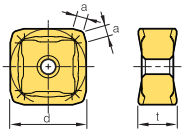

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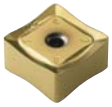

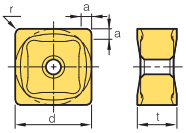

SNC(M)F-MM

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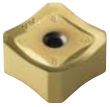

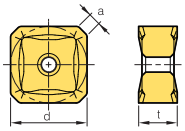

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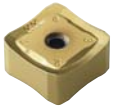

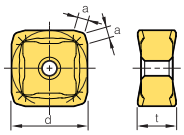

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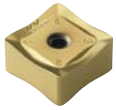
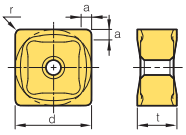
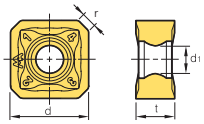
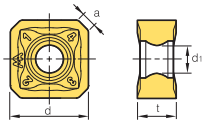




SNEX-MA

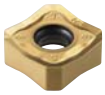


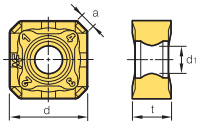
SNEX-ML



SNM(E)X-MF

ANN





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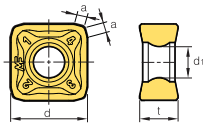

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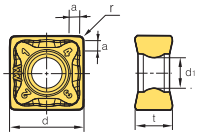
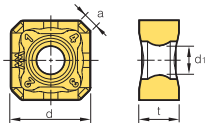


SNM(E)X-MM

ANN



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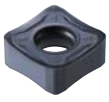

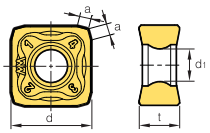

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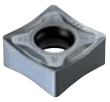
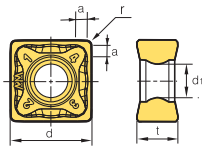
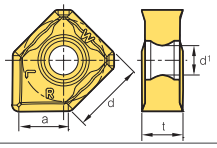




SNEX-W



Designation			Dimensions (mm)				
			d	t	r	d_1	a
SNC(M)F-MF	SNCF	1206ANN-MF	12.7	6.6	-	-	2
		1507ANN-MF	15.875	7.35	-	-	2.1
	SNMF	1206ANN-MF	12.7	6.6	-	-	2
		1507ANN-MF	15.875	7.35	-	-	2.1
SNC(M)F-MF	SNCF	1206ENN-MF	12.7	6.6	-	-	1.8
		1507ENN-MF	15.875	7.35	-	-	1.8
	SNMF	1206ENN-MF	12.7	6.6	-	-	1.8
		1507ENN-MF	15.875	7.35	-	-	1.8
SNC(M)F-MF	SNCF	1206QNN-MF	12.7	6.6	0.8	-	1
	SNMF	1206QNN-MF	12.7	6.6	0.8	-	1
SNC(M)F-MM	SNCF	1206ANN-MM	12.7	6.6	-	-	2
		1507ANN-MM	15.875	7.35	-	-	2.1
	SNMF	1206ANN-MM	12.7	6.6	-	-	2
		1507ANN-MM	15.875	7.35	-	-	2.1
SNC(M)F-MM	SNCF	1206ENN-MM	12.7	6.6	-	-	1.8
		1507ENN-MM	15.875	7.35	-	-	1.8
	SNMF	1206ENN-MM	12.7	6.6	-	-	1.8
		1507ENN-MM	15.875	7.35	-	-	1.8
SNC(M)F-MM	SNCF	1206QNN-MM	12.7	6.6	0.8	-	1
	SNMF	1206QNN-MM	12.7	6.6	0.8	-	1

Available inserts

Designation			Dimensions (mm)				
			d	t	r	d_1	a
SNEX-MA		1206ANN-MA	12.7	6.35	-	4.5	2.36
		1206ENN-MA	12.7	6.35	-	5.2	1.82
		1206QNN-MA	12.7	6.35	-	5.2	1.39
		120612-MA	12.7	6.35	1.2	5.2	-
SNEX-ML		1206ANN-ML	12.7	6.35	-	4.5	2.36
		1206ENN-ML	12.7	6.35	-	4.5	1.82
		1206QNN-ML	12.7	6.35	-	4.5	1.39
		120612-ML	12.7	6.35	1.2	4.5	-
		1507ANN-ML	15.875	7.94	-	5.6	3.16
		1507ENN-ML	15.875	7.94	-	5.6	2.66
SNM(E)X-MF	SNMX	1206ANN-MF	12.7	6.35		4.5	2.36
		1507ANN-MF	15.875	7.94	-	5.6	3.15
	SNEX	1206ANN-MF	12.7	6.35	-	4.5	2.36
		1507ANN-MF	15.875	7.94	-	5.6	3.15
SNM(E)X-MF	SNMX	1206ENN-MF	12.7	6.35	-	4.5	1.82
		1507ENN-MF	15.875	7.94	-	5.6	2.66
	SNEX	1206ENN-MF	12.7	6.35	-	4.5	1.82
		1507ENN-MF	15.875	7.94	-	5.6	2.66
SNM(E)X-MF	SNMX	1206QNN-MF	12.7	6.35	-	5.2	2.36
		120612-MF	12.7	6.35	1.2	5.2	-
	SNEX	1206QNN-MF	12.7	6.35	-	5.2	2.36
		120612-MF	12.7	6.35	1.2	5.2	-
SNM(E)X-MM	SNMX	1206ANN-MM	12.7	6.35	-	4.5	2.36
		1507ANN-MM	15.875	7.94	-	5.6	3.15
	SNEX	1206ANN-MM	12.7	6.35	-	4.5	2.36
		1507ANN-MM	15.875	7.94	-	5.6	3.15
SNM(E)X-MM	SNMX	1206ENN-MM	12.7	6.35	-	5.2	1.82
		1507ENN-MM	15.875	7.94	-	5.6	2.66
	SNEX	1206ENN-MM	12.7	6.35	-	5.2	1.82
		1507ENN-MM	15.875	7.94	-	5.6	2.66
SNM(E)X-MM	SNMX	1206QNN-MM	12.7	6.35	-	4.5	2.36
		120612-MM	12.7	6.35	1.2	4.5	-
	SNEX	1206QNN-MM	12.7	6.35	-	4.5	2.36
		120612-MM	12.7	6.35	1.2	4.5	-
SNEX-W		1206ANN-W	12.7	6.35	-	4.5	7.6

RM8AC(M)4000

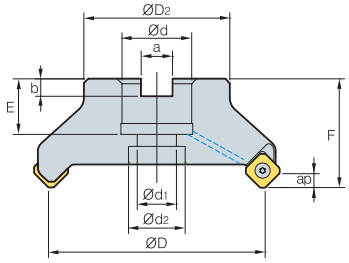


Fig. 1

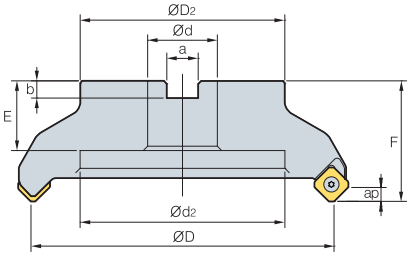


Fig. 2


AA
45°

- AR : -6°
- RR : -9°~-6°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Fig.
RM8ACM	4050HR-M	●	4	50	49	22	11	18	10.4	6.3	20	40	6.0	0.5	1
	4050HR-H	●	6	50	49	22	11	18	10.4	6.3	20	40	6.0	0.5	1
	4063HR-M	●	6	63	49	22	11	18	10.4	6.3	20	40	6.0	0.7	1
	4063HR-H	●	8	63	49	22	11	18	10.4	6.3	20	40	6.0	0.7	1
RM8AC (RM8ACM)	4080HR	●	5	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	6.0	1.2	1
	4080HR-M	● (●)	7	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	6.0	1.2	1
	4080HR-H	● (●)	10	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	6.0	1.3	1
	4100HR	● (●)	6	100	67	31.75(32)	18	26	12.7(14.4)	8	33(25.5)	63(50)	6.0	1.7	1
	4100HR-M	● (●)	8	100	67	31.75(32)	18	26	12.7(14.4)	8	33(25.5)	63(50)	6.0	1.7	1
	4100HR-H	(●)	12	100	67	31.75(32)	18	26	12.7(14.4)	8	33(25.5)	63(50)	6.0	1.7	1
	4125HR	●	8	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	36(30)	63	6.0	3.6	1
	4125HR-M	● (●)	10	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	36(30)	63	6.0	3.6	1
	4125HR-H	(●)	16	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	36(30)	63	6.0	3.7	1
	4160R		10	160	107	50.8(40)	-	107	19(16.4)	11(9)	38(32)	63	6.0	4.8	2
	4160R-M	● (●)	12	160	107	50.8(40)	-	107	19(16.4)	11(9)	38(32)	63	6.0	5.3	2
	4160R-H	(●)	20	160	107	50.8(40)	-	107	19(16.4)	11(9)	38(32)	63	6.0	5.4	2
	4200R-M	●	14	200	130	47.625(60)	-	135	25.4(25.7)	14	38(32)	63	6.0	7.1	2
	4200R-H		24	200	130	47.625(60)	-	135	25.4(25.7)	14	38(32)	63	6.0	7.1	2
	4250R-M		16	250	180	47.625(60)	-	180	25.4(25.7)	14	38(32)	63	6.0	11.9	2
	4250R-H		30	250	180	47.625(60)	-	180	25.4(25.7)	14	38(32)	63	6.0	12.0	2
	4315R		18	315	240	47.625(60)	-	238	25.4(25.7)	14	38	63	6.0	18.8(18.6)	2
	4315R-M		20	315	240	47.625(60)	-	238	25.4(25.7)	14	38	63	6.0	18.8(18.6)	2
	4400R-M		28	400	260	47.625(60)	-	238	25.4(25.7)	14	38	80	6.0	37.7(37.4)	2

( ) Metric size ● : Stock items

▶ Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM | SNEX-MA | SNEX-W

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNEX	1206ANN-MF							●	●			●	●	●				25-26
	1206ANN-ML												●	●				
	1206ANN-MM							●	●	●		●	●	●				
	1206ANN-MA																●	
	1206ANN-W							●				●	●					
SNMX	1206ANN-MF							●	●			●	●	●				
	1206ANN-MM			●				●	●	●		●	●	●				

▶ Available arbors

Designation		Available arbors	
		RM8AC	RM8ACM
RM8ACM	4050HR-□	-	BT□□-FMC22-□□
	4063HR-□		
RM8AC (RM8ACM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	4160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	4250R-□		
	4315R-□		
	4400R-□		

▶ Parts

Specification	Screw	Wrench
Ø50~Ø400	FTKA0410	TW15S

RMH8AC(M)4000

Shim type

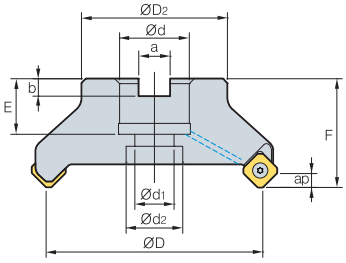


Fig. 1

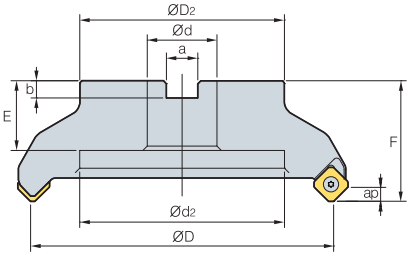


Fig. 2

AA 45°

- AR : -6°
- RR : -9°~-6°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Fig.
RMH8AC (RMH8ACM)	4080HR-M	(●)	7	80	57	25.4(27)	14	20	9.5(12.4)	25(23)	50	6.0	6.0	1.2	1
	4100HR-M	(●)	8	100	67	31.75(32)	18	26	12.7(14.4)	33(25.5)	63(50)	6.0	6.0	1.7	1
	4125HR-M	(●)	10	125	87	38.1(40)	22	32	15.9(16.4)	36(30)	63	6.0	6.0	3.6	1
	4160R-M	(●)	12	160	107	50.8(40)	-	107	19(16.4)	38(32)	63	6.0	6.0	5.3	2
	4200R-M		14	200	130	47.625(60)	-	135	25.4(25.7)	38(32)	63	6.0	6.0	7.1	2
	4250R-M		16	250	180	47.625(60)	-	180	25.4(25.7)	38(32)	63	6.0	6.0	11.9	2
	4315R-M		20	315	240	47.625(60)	-	238	25.4(25.7)	38	63	6.0	6.0	18.8(18.6)	2
	4400R-M		26	400	260	47.625(60)	-	238	25.4(25.7)	38	80	6.0	6.0	37.7(37.4)	2

( ) Metric size ● : Stock items

▶ Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM | SNEX-MA | SNEX-W

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNEX	1206ANN-MF								●	●		●	●	●				25-26
	1206ANN-ML												●	●				
	1206ANN-MM								●	●	●	●	●	●				
	1206ANN-MA																●	
	1206ANN-W								●			●	●					
SNMX	1206ANN-MF								●	●		●	●	●				
	1206ANN-MM			●					●	●	●	●	●	●				

▶ Available arbors

Designation		Available arbors	
		RMH8AC	RMH8ACM
RMH8AC (RMH8ACM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	4160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	4250R-□		
	4315R-□		
	4400R-□		

▶ Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø80~Ø400	FTKA0412B	SS42RM8	SHXN0609F	TW15S

RM8AC(M)5000

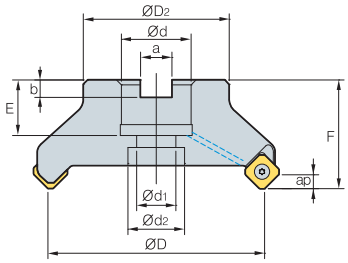


Fig. 1

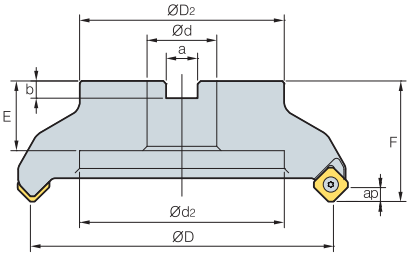


Fig. 2


AA
45°

- AR : -6°
- RR : -9°~-6°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Fig.
RM8AC (RM8ACM)	5080HR-M	● (●)	6	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	7.5	1.2	1
	5100HR-M	● (●)	7	100	67	31.75(32)	18	26	12.7(14.4)	8.0	33(25)	63(50)	7.5	2.5(1.8)	1
	5125HR-M	● (●)	8	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	35(30)	63	7.5	3.6	1
	5160R-M	● (●)	10	160	107	50.8(40)	-	107	19(16.4)	11(9)	38(32)	63	7.5	5(4.56)	2
	5200R-M	● (●)	12	200	130	47.625(60)	-	135	25.4(25.7)	14.0	38	63	7.5	7.1(6.8)	2
	5250R-M	● (●)	15	250	180	47.625(60)	-	180	25.4(25.7)	14.0	38	63	7.5	11.9(10.6)	2
	5315R-M		20	315	240	47.625(60)	-	238	25.4(25.7)	14.0	38	63	7.5	19.1(18.9)	2
	5400R-M		28	400	260	47.625(60)	-	238	25.4(25.7)	14.0	38	80	7.5	37.7(37.5)	2

( ) Metric size ● : Stock items

▶ Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM



Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNEX	1507ANN-MF											●	●	●				25-26
	1507ANN-ML												●	●				
	1507ANN-MM											●	●	●				
SNMX	1507ANN-MF									●		●	●	●				
	1507ANN-MM								●	●		●	●	●				

▶ Available arbors

Designation		Available arbors	
		RM8AC	RM8ACM
RM8AC (RM8ACM)	5080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	5160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	5200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	5250R-□		
	5315R-□		
	5400R-□		

▶ Parts

Specification	Screw	Wrench
Ø80~Ø400	FTGA0513	TW20-100

RMH8AC(M)5000

Shim type

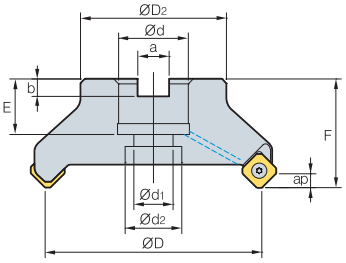


Fig. 1

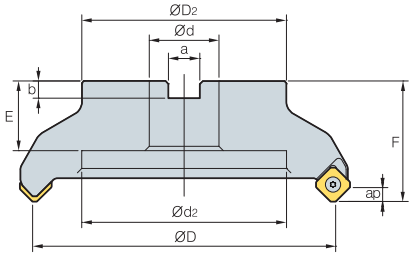


Fig. 2


AA
45°

- AR : -6°
- RR : -9°~-6°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Fig.
RMH8AC (RMH8ACM)	5080HR-M	(●)	6	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	7.5	1.2	1
	5100HR-M	(●)	7	100	67	31.75(32)	18	26	12.7(14.4)	8.0	33(25)	63(50)	7.5	2.5(1.8)	1
	5125HR-M	(●)	8	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	36(30)	63	7.5	3.6	1
	5160R-M	(●)	10	160	107	50.8(40)	-	107	19(16.4)	11(9)	38(32)	63	7.5	5(4.56)	2
	5200R-M		12	200	130	47.625(60)	-	135	25.4(25.7)	14.0	38(32)	63	7.5	7.1(6.8)	2
	5250R-M		15	250	180	47.625(60)	-	180	25.4(25.7)	14.0	38(32)	63	7.5	11.9(10.6)	2
	5315R-M		20	315	240	47.625(60)	-	238	25.4(25.7)	14.0	38	63	7.5	19.1(18.9)	2
	5400R-M		22	400	260	47.625(60)	-	238	25.4(25.7)	14.0	38	80	7.5	37.7(37.5)	2

( ) Metric size ●: Stock items

▶ Available inserts

SNM(E)X-MF SNEX-ML SNM(E)X-MM



Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNEX	1507ANN-MF											●	●	●				25-26
	1507ANN-ML												●	●				
	1507ANN-MM											●	●	●				
SNMX	1507ANN-MF									●		●	●	●				
	1507ANN-MM								●	●		●	●	●				

▶ Available arbors

Designation		Available arbors	
		RMH8AC	RMH8ACM
RMH8AC (RMH8ACM)	5080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	5160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	5200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	5250R-□		
	5315R-□		
	5400R-□		

▶ Parts

Specification	Screw	Shim	Shim Screw	Wrench
Ø80~Ø400	FTGA0513	SS53RM8	SHXN0712F	TW20-100

RM8EC(M)4000

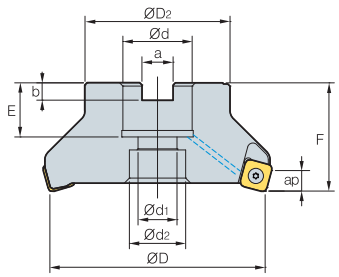


Fig. 1

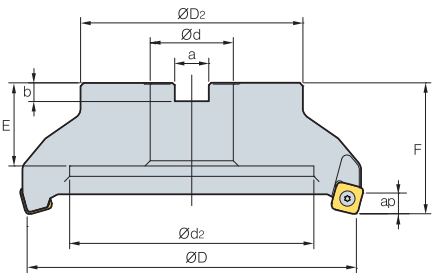


Fig. 2


AA 75°

- AR : -6°
- RR : -8°~-6°

(mm)

Designation		Stock	⌀	ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Fig.
RM8ECM	4050HR-M	●	4	50	49	22	11	18	10.4	6.3	20	40	9.0	0.4	1
	4063HR-M	●	6	63	49	22	11	18	10.4	6.3	20	40	9.0	0.6	1
RM8EC (RM8ECM)	4080HR	●	5	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	9.0	1.2	1
	4080HR-M	(●)	7	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	9.0	1.1	1
	4100HR	●	6	100	67	31.75(32)	18	26	12.7(14.4)	8	33(25)	63(50)	9.0	1.6	1
	4100HR-M	(●)	8	100	67	31.75(32)	18	26	12.7(14.4)	8	33(25)	63(50)	9.0	2.5	1
	4125HR	●	8	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	35(29)	63	9.0	2.9(3.3)	1
	4125HR-M	(●)	10	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	35(29)	63	9.0	3.0	1
	4160R	●	10	160	107	50.8(40)	-	107	19(16.4)	11(9)	38(32)	63	9.0	4.4	2
	4160R-M	(●)	12	160	107	50.8(40)	-	107	19(16.4)	11(9)	38(32)	63	9.0	4.0	2
	4200R-M		16	200	130	47.625(60)	-	135	25.4(25.7)	14	38(32)	63	9.0	5.9	2
	4250R-M		16	250	180	47.625(60)	-	180	25.4(25.7)	14	38	63	9.0	10.9(10.6)	2
	4315R-M		20	315	240	47.625(60)	-	238	25.4(25.7)	14	38	63	9.0	18.1(17.9)	2
	4400R-M		28	400	260	47.625(60)	-	238	25.4(25.7)	14	38	80	9.0	31.8(31.5)	2

( ) Metric size ●: Stock items

▶ Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM | SNEX-MA

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNEX	1206ENN-MF											●	●	●				25-26
	1206ENN-ML												●	●				
	1206ENN-MM									●		●	●	●				
	1206ENN-MA											●					●	
SNMX	1206ENN-MF								●	●		●	●	●				
	1206ENN-MM								●	●		●	●	●				

▶ Available arbors

Designation		NC arbors	
		RM8EC	RM8ECM
RM8ECM	4050HR-□	-	BT□□-FMC22-□□
	4063HR-□		
RM8EC (RM8ECM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	4160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	4250R-□		
	4315R-□		
	4400R-□		

▶ Parts

Specification	Screw	Wrench
Ø50~Ø400	PTKA0411-R3	TW15S

RMH8EC(M)4000

Shim type

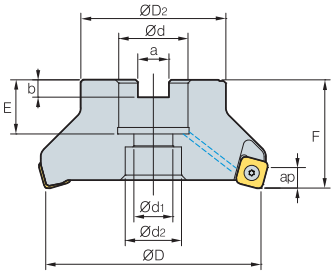


Fig. 1

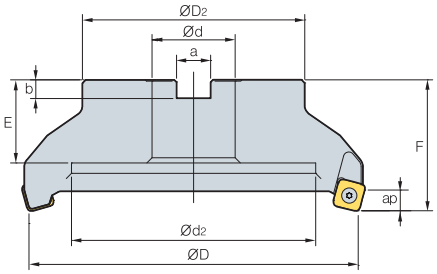


Fig. 2

AA 75°

- AR : -6°
- RR : -8°~-6°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Fig.
RMH8EC (RMH8ECM)	4080HR-M	(●)	7	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	9.0	1.1	1
	4100HR-M	(●)	8	100	67	31.75(32)	18	26	12.7(14.4)	8	33(25.5)	63(50)	9.0	2.5	1
	4125HR-M	(●)	10	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	36(30)	63	9.0	3.0	1
	4160R-M	(●)	12	160	107	50.8(40)	-	107	19(16.4)	11(9)	38(32)	63	9.0	4.0	2
	4200R-M		16	200	130	47.625(60)	-	135	25.4(25.7)	14	38(32)	63	9.0	5.9	2
	4250R-M		16	250	180	47.625(60)	-	180	25.4(25.7)	14	38(32)	63	9.0	10.9(10.6)	2
	4315R-M		20	315	240	47.625(60)	-	238	25.4(25.7)	14	38	63	9.0	18.1(17.9)	2
	4400R-M		24	400	260	47.625(60)	-	238	25.4(25.7)	14	38	80	9.0	31.8(31.5)	2

( ) Metric size ●: Stock items

▶ Available inserts

SNM(E)X-MF SNEX-ML SNM(E)X-MM SNEX-MA

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNEX	1206ENN-MF											●	●	●				25-26
	1206ENN-ML												●	●				
	1206ENN-MM									●		●	●	●				
	1206ENN-MA											●					●	
SNMX	1206ENN-MF								●	●		●	●	●				
	1206ENN-MM								●	●		●	●	●				

▶ Available arbors

Designation		Available arbors	
		RMH8EC	RMH8ECM
RMH8EC (RMH8ECM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□ BT□□-FMC40-□□
	4160R-□	BT□□-FMA50.8-□□	
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	4250R-□		
	4315R-□		
	4400R-□		

▶ Parts

Specification	Screw	Shim	Shim Screw	Wrench
Ø80~Ø400	PTKA0411-R3	SS42RM8	SHXN0609F	TW15S

RM8EC(M)5000

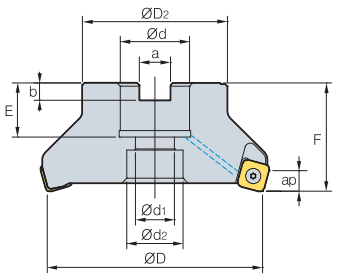


Fig. 1

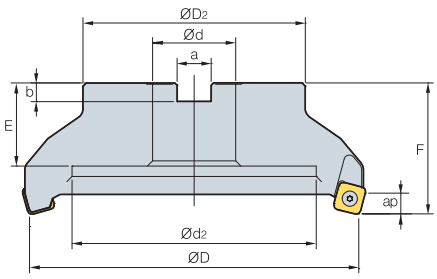


Fig. 2

AA 75°

- AR : -6°
- RR : -8°~-6°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Fig.
RM8EC (RM8ECM)	5080HR-M	● (●)	6	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	11.0	1.1	1
	5100HR-M	● (●)	7	100	67	31.75(32)	18	26	12.7(14.4)	8.0	33(25)	63(50)	11.0	2.1(1.7)	1
	5125HR-M		8	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	35(30)	63	11.0	3.4(3.3)	1
	5160R-M	● (●)	10	160	107	50.8(40)	-	107	19(16.4)	11(9)	38(32)	63	11.0	4.4(4.1)	2
	5200R-M	(●)	12	200	130	47.625(60)	-	135	25.4(25.7)	14.0	38	63	11.0	6.4(6.1)	2
	5250R-M	(●)	15	250	180	47.625(60)	-	180	25.4(25.7)	14.0	38	63	11.0	11.0(10.7)	2
	5315R-M		20	315	240	47.625(60)	-	238	25.4(25.7)	14.0	38	63	11.0	18.0(17.7)	2
	5400R-M		28	400	260	47.625(60)	-	238	25.4(25.7)	14.0	38	80	11.0	35.7(35.4)	2

( ) Metric size ● : Stock items

▶ Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNEX	1507ENN-MF											●	●	●				25-26
	1507ENN-ML												●	●				
	1507ENN-MM											●	●	●				
SNMX	1507ENN-MF									●		●	●	●				
	1507ENN-MM									●		●	●	●				

▶ Available arbors

Designation		Available arbors	
		RM8EC	RM8ECM
RM8EC (RM8ECM)	5080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	5160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	5200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	5250R-□		
	5315R-□		
	5400R-□		

▶ Parts

Specification	Screw	Wrench
Ø80~Ø400	FTGA0513	TW20-100

RMH8EC(M)5000

Shim type

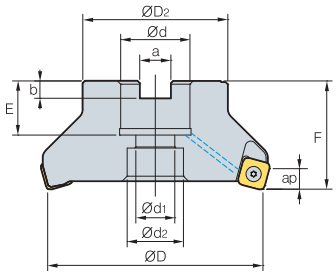


Fig. 1

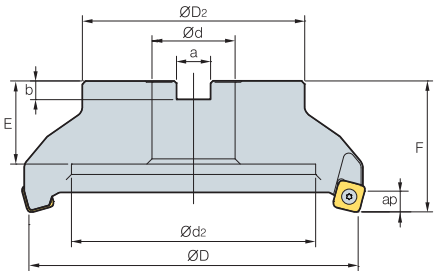


Fig. 2

AA 75°

- AR : -6°
- RR : -8°~-6°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Fig.
RMH8EC (RMH8ECM)	5080HR-M		6	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	11.0	1.1	1
	5100HR-M		7	100	67	31.75(32)	18	26	12.7(14.4)	8.0	33(25.5)	63(50)	11.0	2.1(1.7)	1
	5125HR-M		8	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	36(30)	63	11.0	3.4(3.3)	1
	5160HR-M		10	160	107	50.8(60)	-	107	19(16.4)	11(9)	38(32)	63	11.0	4.4(4.1)	2
	5200R-M		12	200	130	47.625(60)	-	135	25.4(25.7)	14.0	38(32)	63	11.0	6.4(6.1)	2
	5250R-M		15	250	180	47.625(60)	-	180	25.4(25.7)	14.0	38(32)	63	11.0	110(10.7)	2
	5315R-M		20	315	240	47.625(60)	-	238	25.4(25.7)	14.0	38	63	11.0	18.0(17.7)	2
	5400R-H		22	400	260	47.625(60)	-	238	25.4(25.7)	14.0	38	80	11.0	35.7(35.4)	2

( ) Metric size ●: Stock items

▶ Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNEX	1507ENN-MF											●	●	●				25-26
	1507ENN-ML												●	●				
	1507ENN-MM											●	●	●				
SNMX	1507ENN-MF									●		●	●	●				
	1507ENN-MM									●		●	●	●				

▶ Available arbors

Designation		Available arbors	
		RMH8EC	RMH8ECM
RMH8EC (RMH8ECM)	5080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□ BT□□-FMC40-□□
	5160R-□	BT□□-FMA50.8-□□	
	5200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	5250R-□		
	5315R-□		
	5400R-□		

▶ Parts

Specification	Screw	Shim	Shim Screw	Wrench
Ø80~Ø400	FTGA0513	SS53RM8	SHXN0712F	TW20-100

RM8QC(M)4000

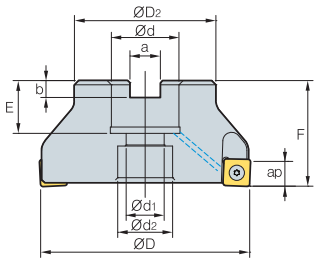


Fig. 1

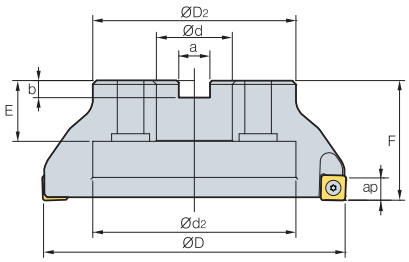


Fig. 2

AA 88°

- AR : -6°
- RR : -8°~-6°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Fig.
RM8QCM	4063HR-M	●	6	63	49	22	11	18	10.4	6.3	20	40	11.5	0.6	1
	4063HR-H		8	63	49	22	11	18	10.4	6.3	20	40	11.5	0.6	1
RM8QC (RM8QCM)	4080HR-M	● (●)	7	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	11.5	1.1	1
	4080HR-H		10	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	11.5	1.0	1
	4100HR-M	● (●)	8	100	67	31.75(32)	18	26	12.7(14.4)	8	33(25.5)	63(50)	11.5	1.7	1
	4100HR-H		12	100	67	31.75(32)	18	26	12.7(14.4)	8	33(25.5)	63(50)	11.5	1.6	1
	4125HR-M	● (●)	10	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	36(30)	63	11.5	3.3	1
	4125HR-H		14	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	36(30)	63	11.5	3.3	1
	4160R-M	(●)	12	160	107	50.8(40)	-	107	19(16.4)	11(9)	38(32)	63	11.5	3.9	2
	4160R-H		18	160	107	50.8(40)	-	107	19(16.4)	11(9)	38(32)	63	11.5	3.9	2
	4200R-M		14	200	130	47.625(60)	-	135	25.4(25.7)	14	38(32)	63	11.5	6.4	2
	4200R-H		22	200	130	47.625(60)	-	135	25.4(25.7)	14	38(32)	63	11.5	6.4	2

( ) Metric size ●: Stock items

▶ Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM | SNEX-MA




Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNEX	1206QNN-MF											●	●	●				25-26
	1206QNN-ML												●	●				
	1206QNN-MM											●	●	●				
	1206QNN-MA																●	
	120612-MF											●	●	●				
	120612-ML												●	●				
	120612-MM											●						
	120612-MA																●	
SNMX	1206QNN-MF								●	●		●	●	●				
	1206QNN-MM								●	●		●	●	●				
	120612-MF									●		●	●	●				
	120612-MM								●	●		●	●	●				

▶ Available arbors

Designation		Available arbors	
		RM8QC	RM8QCM
RM8QCM	4063HR-□	-	BT□□-FMC22-□□
RM8QC (RM8QCM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	4160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□

▶ Parts

Specification	Screw	Wrench
Ø63~Ø200	PTKA0411-R3	TW15S

RMH8QC(M)4000

Shim type

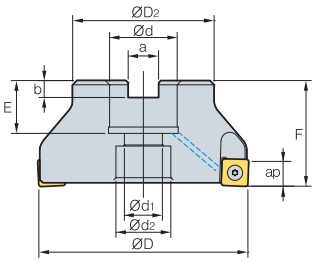


Fig. 1

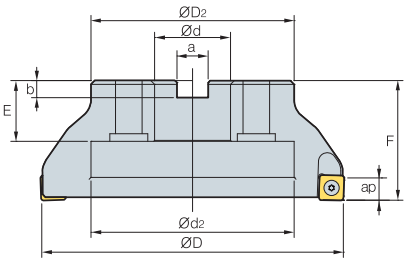


Fig. 2

AA 88°

- AR : -6°
- RR : -8°~-6°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Fig.
RMH8QC (RMH8QCM)	4080HR-M	(●)	7	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(23)	50	11.5	1.1	1
	4100HR-M	(●)	8	100	67	31.75(32)	18	26	12.7(14.4)	8	33(25.5)	63(50)	11.5	2.5	1
	4125HR-M	(●)	10	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	36(30)	63	11.5	3.0	1
	4160R-M	(●)	12	160	107	50.8(40)	-	107	19(16.4)	11(9)	38(32)	63	11.5	4.0	2
	4200R-M		16	200	130	47.625(60)	-	135	25.4(25.7)	14	38(32)	63	11.5	5.9	2

( ) Metric size ● : Stock items

▶ Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM | SNEX-MA

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNEX	1206QNN-MF											●	●	●				25-26
	1206QNN-ML												●	●				
	1206QNN-MM											●	●	●				
	1206QNN-MA																●	
	120612-MF											●	●	●				
	120612-ML												●	●				
	120612-MM											●						
	120612-MA																●	
SNMX	1206QNN-MF								●	●		●	●	●				
	1206QNN-MM								●	●		●	●	●				
	120612-MF									●		●	●	●				
	120612-MM								●	●		●	●	●				

▶ Available arbors

Designation		Available arbors	
		RMH8QC	RMH8QCM
RMH8QC (RMH8QCM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□ BT□□-FMC40-□□
	4160R-□	BT□□-FMA50.8-□□	
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□

▶ Parts

Specification	Screw	Shim	Shim Screw	Wrench
Ø80~Ø200	PTKA0411-R3	SS42RM8	SHXN0609F	TW15S

RMT8A(M)4000

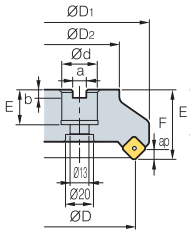


Fig. 1

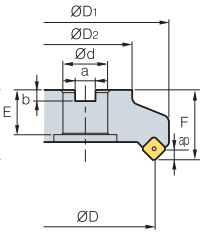


Fig. 2

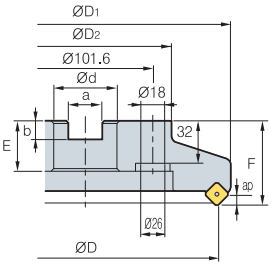


Fig. 3

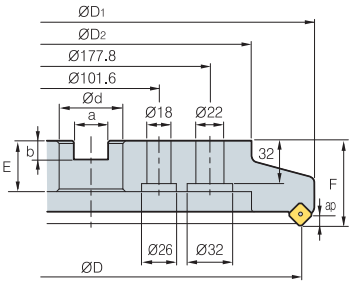


Fig. 4

AA
45°

- AR : -6°
- RR : -6°

(mm)

Designation		Stock		ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
RMT8A (RMT8AM)	4080R		5	80	100	57	25.4(27)	9.5(12.4)	6(7)	25(22)	50	4	1.6	1
	4080R-M		6	80	100	57	25.4(27)	9.5(12.4)	6(7)	25(22)	50	4	1.6	1
	4100R		6	100	120	70	31.75(32)	12.7(14.4)	8(8)	32(28)	50	4	2.3	2
	4100R-M		8	100	120	70	31.75(32)	12.7(14.4)	8(8)	32(28)	50	4	2.3	2
	4125R		8	125	144	87	38.1(40)	15.9(16.4)	10(9)	38(30)	63	4	4.3	2
	4125R-M		10	125	144	87	38.1(40)	15.9(16.4)	10(9)	38(30)	63	4	4.3	2
	4160R		10	160	179	110	50.8(40)	19.0(16.4)	11(9)	38(30)	63	4	6.5	2
	4160R-M		14	160	179	110	50.8(40)	19.0(16.4)	11(9)	38(30)	63	4	6.5	2
	4200R		12	200	219	130	47.625(60)	25.4(25.7)	14(14)	38(38)	63	4	8.8	3
	4200R-M		18	200	219	130	47.625(60)	25.4(25.7)	14(14)	38(38)	63	4	8.8	3
	4250R		16	250	269	180	47.625(60)	25.4(25.7)	14(14)	38(38)	63	4	14.1	3
	4250R-M		22	250	269	180	47.625(60)	25.4(25.7)	14(14)	38(38)	63	4	14.1	3
	4315R		20	315	334	240	47.625(60)	25.4(25.7)	14(14)	38(38)	63	4	22.3	4
	4315R-M		28	315	334	240	47.625(60)	25.4(25.7)	14(14)	38(38)	63	4	22.3	4

( ) Metric size ● : Stock items

▶ Available inserts

SNC(M)F-MF SNC(M)F-MM


Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNCF	1206ANN-MF																	25-26
	1206ANN-MM																	
SNMF	1206ANN-MF																	
	1206ANN-MM																	

▶ Available arbors

Designation		General arbor	NC arbors	
			RMT8A	RMT8AM
RMT8A(M)	□080R	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	□100R	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	□125R	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	□160R	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	
	□200R	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	□250R			
	□315R	KCP-8***(Center ring plug)	-	-

*□□-NT number **□□-BT number ***Over milling 5

▶ Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø80~Ø315	ETKA0523	KHB0417	SPR0315	LTC05SR-RM4	TW20-100

RMT8A(M)5000

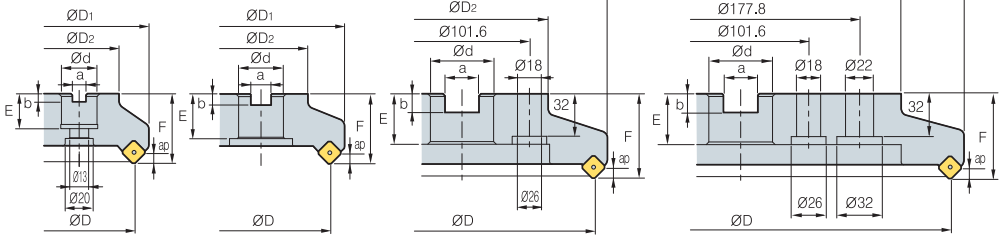


Fig. 1 Fig. 2 Fig. 3 Fig. 4

AA 45°

- AR : -6°
- RR : -6°

(mm)

Designation		Stock		ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
RMT8A (RMT8AM)	5080R		5	80	104	57	25.4(27)	9.5(12.4)	6(7)	25(22)	50	6	1.8	1
	5080R-M		6	80	104	57	25.4(27)	9.5(12.4)	6(7)	25(22)	50	6	1.8	1
	5100R		6	100	124	70	31.75(32)	12.7(14.4)	8(8)	32(28)	50	6	2.6	2
	5100R-M		8	100	124	70	31.75(32)	12.7(14.4)	8(8)	32(28)	50	6	2.6	2
	5125R	●	8	125	149	87	38.1(40)	15.9(16.4)	10(9)	38(30)	63	6	4.3	2
	5125R-M		10	125	149	87	38.1(40)	15.9(16.4)	10(9)	38(30)	63	6	4.3	2
	5160R	●	10	160	184	110	50.8(40)	19.0(16.4)	11(9)	38(30)	63	6	6.5	2
	5160R-M		14	160	184	110	50.8(40)	19.0(16.4)	11(9)	38(30)	63	6	6.5	2
	5200R		12	200	224	130	47.625(60)	25.4(25.7)	14(14)	38(38)	63	6	9.0	3
	5200R-M		18	200	224	130	47.625(60)	25.4(25.7)	14(14)	38(38)	63	6	9.0	3
	5250R		16	250	274	180	47.625(60)	25.4(25.7)	14(14)	38(38)	63	6	14.4	3
	5250R-M		22	250	274	180	47.625(60)	25.4(25.7)	14(14)	38(38)	63	6	14.4	3
	5315R		20	315	339	240	47.625(60)	25.4(25.7)	14(14)	38(38)	63	6	22.2	4
	5315R-M		28	315	339	240	47.625(60)	25.4(25.7)	14(14)	38(38)	63	6	22.2	4

( ) Metric size ● : Stock items

▶ Available inserts

SNC(M)F-MF SNC(M)F-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNCF	1507ANN-MF											●						25-26
	1507ANN-MM																	
SNMF	1507ANN-MF																	
	1507ANN-MM																	

▶ Available arbors

Designation		General arbor	NC arbors	
			RMT8A	RMT8AM
RMT8A (RMT8AM)	□080R	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	□100R	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75	FMC32
	□125R	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1	FMC32
	□160R	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8	
	□200R	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	□250R			
	□315R	KCP-8***(Center ring plug)	-	-

*□□-NT number **□□-BT number ***Over milling 5

▶ Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø80~Ø315	ETKA0625	KHB0417	SPR0415	LTC06SR-RM5	TW20-100

RMT8E(M)4000

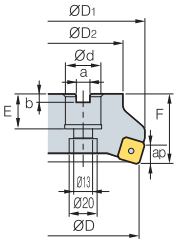


Fig. 1

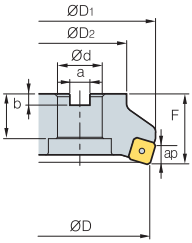


Fig. 2

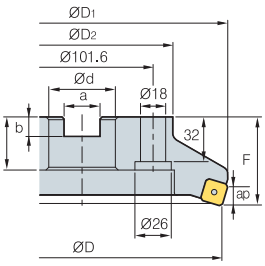


Fig. 3

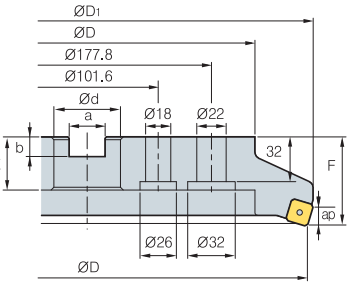


Fig. 4

AA 75°

- AR : -6°
- RR : -8°~-6°

(mm)

Designation		Stock	⊙	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
RMT8E (RMT8EM)	4080R	●	5	80	100	57	25.4(27)	9.5(12.4)	6(7)	25(22)	50	5	1.5	1
	4080R-M		6	80	100	57	25.4(27)	9.5(12.4)	6(7)	25(22)	50	5	1.5	1
	4100R	●	6	100	120	67	31.75(32)	12.7(14.4)	8(8)	32(28)	50	5	2	2
	4100R-M		8	100	120	67	31.75(32)	12.7(14.4)	8(8)	32(28)	50	5	2	2
	4125R		8	125	144	87	38.1(40)	15.9(16.4)	10(9)	38(30)	63	5	3.8	2
	4125R-M		10	125	144	87	38.1(40)	15.9(16.4)	10(9)	38(30)	63	5	3.8	2
	4160R	●	10	160	179	107	50.8(40)	19.0(16.4)	11(9)	38(30)	63	5	5.8	2
	4160R-M		14	160	179	107	50.8(40)	19.0(16.4)	11(9)	38(30)	63	5	5.8	2
	4200R		12	200	219	130	47.625(60)	25.4(25.7)	14(14)	38(38)	63	5	7.9	3
	4200R-M		18	200	219	130	47.625(60)	25.4(25.7)	14(14)	38(38)	63	5	7.9	3
	4250R		16	250	269	180	47.625(60)	25.4(25.7)	14(14)	38(38)	63	5	13.0	3
	4250R-M		22	250	269	180	47.625(60)	25.4(25.7)	14(14)	38(38)	63	5	13.0	3
	4315R		20	315	334	240	47.625(60)	25.4(25.7)	14(14)	38(38)	63	5	20.5	4
	4315R-M		28	315	334	240	47.625(60)	25.4(25.7)	14(14)	38(38)	63	5	20.5	4

( ) Metric size ●: Stock items

▶ Available inserts

SNC(M)F-MF SNC(M)F-MM


Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNCF	1206ENN-MF											●						25-26
	1206ENN-MM																	
SNMF	1206ENN-MF								●									
	1206ENN-MM								●									

▶ Available arbors

Designation		General arbor	NC arbors	
			RMT8E	RMT8EM
RMT8E (RMT8EM)	□080R	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	□100R	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	□125R	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	□160R	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	
	□200R □250R	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	□315R	KCP-8***(Center ring plug)	-	-

*□□-NT number **□□-BT number ***Over milling 5

▶ Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø80~Ø315	ETKA0523	KHB0417	SPR0315	LTC05SR-RM4	TW20-100

RMT8E(M)5000

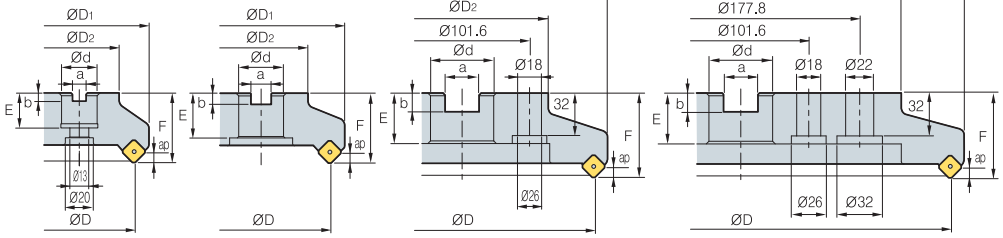


Fig. 1 Fig. 2 Fig. 3 Fig. 4

AA 75°

- AR : -6°
- RR : -8°~-6°

(mm)

Designation		Stock		ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
RMT8E (RMT8EM)	5080R		5	80	88	57	25.4(27)	9.5(12.4)	6(7)	25(22)	50	8	1.4	1
	5080R-M		6	80	88	57	25.4(27)	9.5(12.4)	6(7)	25(22)	50	8	1.4	1
	5100R	●	6	100	108	67	31.75(32)	12.7(14.4)	8(8)	32(28)	50	8	1.9	2
	5100R-M		8	100	108	67	31.75(32)	12.7(14.4)	8(8)	32(28)	50	8	1.9	2
	5125R	●	8	125	133	87	38.1(40)	15.9(16.4)	10(9)	38(30)	63	8	3.7	2
	5125R-M		10	125	133	87	38.1(40)	15.9(16.4)	10(9)	38(30)	63	8	3.7	2
	5160R		10	160	168	107	50.8(40)	19.0(16.4)	11(9)	38(30)	63	8	5.7	2
	5160R-M		14	160	168	107	50.8(40)	19.0(16.4)	11(9)	38(30)	63	8	5.7	2
	5200R		12	200	208	130	47.625(60)	25.4(25.7)	14(14)	38(38)	63	8	7.5	3
	5200R-M		18	200	208	130	47.625(60)	25.4(25.7)	14(14)	38(38)	63	8	7.5	3
	5250R		16	250	258	180	47.625(60)	25.4(25.7)	14(14)	38(38)	63	8	12.4	3
	5250R-M		22	250	258	180	47.625(60)	25.4(25.7)	14(14)	38(38)	63	8	12.4	3
	5315R		20	315	323	240	47.625(60)	25.4(25.7)	14(14)	38(38)	63	8	19.9	4
	5315R-M		28	315	323	240	47.625(60)	25.4(25.7)	14(14)	38(38)	63	8	19.9	4

( ) Metric size ● : Stock items

▶ Available inserts

SNC(M)F-MF SNC(M)F-MM

Designation		Cermet		Coated									Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNCF	1507ENN-MF											●						25-26
	1507ENN-MM																	
SNMF	1507ENN-MF																	
	1507ENN-MM																	

▶ Available arbors

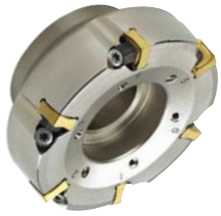
Designation		General arbor	NC arbors	
			RMT8E	RMT8EM
RMT8E (RMT8EM)	□080R	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	□100R	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	□125R	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	□160R	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	
	□200R	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	□250R			
	□315R	KCP-8***(Center ring plug)	-	-

*□□-NT number **□□-BT number ***Over milling 5

▶ Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø80~Ø315	ETKA0625	KHB0417	SPR0415	LTC06SR-RM5	TW20-100

RMT8Q(M)4000



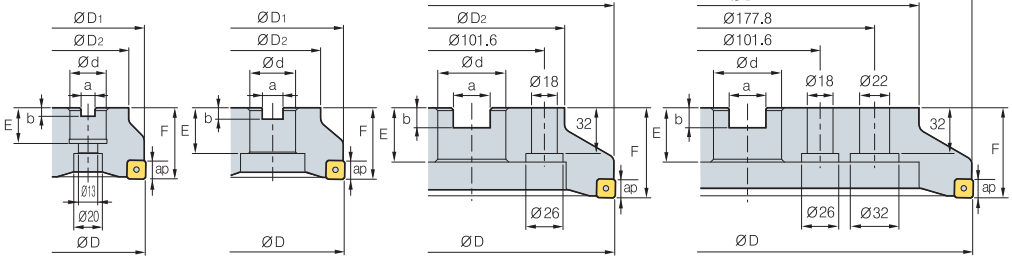


Fig. 1 Fig. 2 Fig. 3 Fig. 4

AA 88°

- AR : -6°
- RR : -11°~-6°

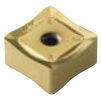
(mm)

Designation		Stock		ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
RMT8Q (RMT8QM)	4080R	●	5	80	79	57	25.4(27)	9.5(12.4)	6(7)	25(22)	50	5	1.4	1
	4080R-M		6	80	79	57	25.4(27)	9.5(12.4)	6(7)	25(22)	50	5	1.4	1
	4100R	●	6	100	99	67	31.75(32)	12.7(14.4)	8(8)	32(28)	50	5	1.8	2
	4100R-M	●	8	100	99	67	31.75(32)	12.7(14.4)	8(8)	32(28)	50	5	1.8	2
	4125R	● (●)	8	125	124	87	38.1(40)	15.9(16.4)	10(9)	38(30)	63	5	3.6	2
	4125R-M		10	125	124	87	38.1(40)	15.9(16.4)	10(9)	38(30)	63	5	3.6	2
	4160R	●	10	160	159	107	50.8(40)	19.0(16.4)	11(9)	38(30)	63	5	5.7	2
	4160R-M		14	160	159	107	50.8(40)	19.0(16.4)	11(9)	38(30)	63	5	5.7	2
	4200R		12	200	199	130	47.625(60)	25.4(25.7)	14(14)	38(38)	63	5	7.5	3
	4200R-M		18	200	199	130	47.625(60)	25.4(25.7)	14(14)	38(38)	63	5	7.5	3
	4250R		16	250	249	180	47.625(60)	25.4(25.7)	14(14)	38(38)	63	5	12.5	3
	4250R-M		22	250	249	180	47.625(60)	25.4(25.7)	14(14)	38(38)	63	5	12.5	3
	4315R		20	315	314	240	47.625(60)	25.4(25.7)	14(14)	38(38)	63	5	19.9	4
	4315R-M		28	315	314	240	47.625(60)	25.4(25.7)	14(14)	38(38)	63	5	19.9	4

( ) Metric size ● : Stock items

▶ Available inserts

SNC(M)F-MF SNC(M)F-MM



Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
SNCF	1206QNN-MF																	25-26
	1206QNN-MM								●									
SNMF	1206QNN-MF																	
	1206QNN-MM								●									

▶ Available arbors

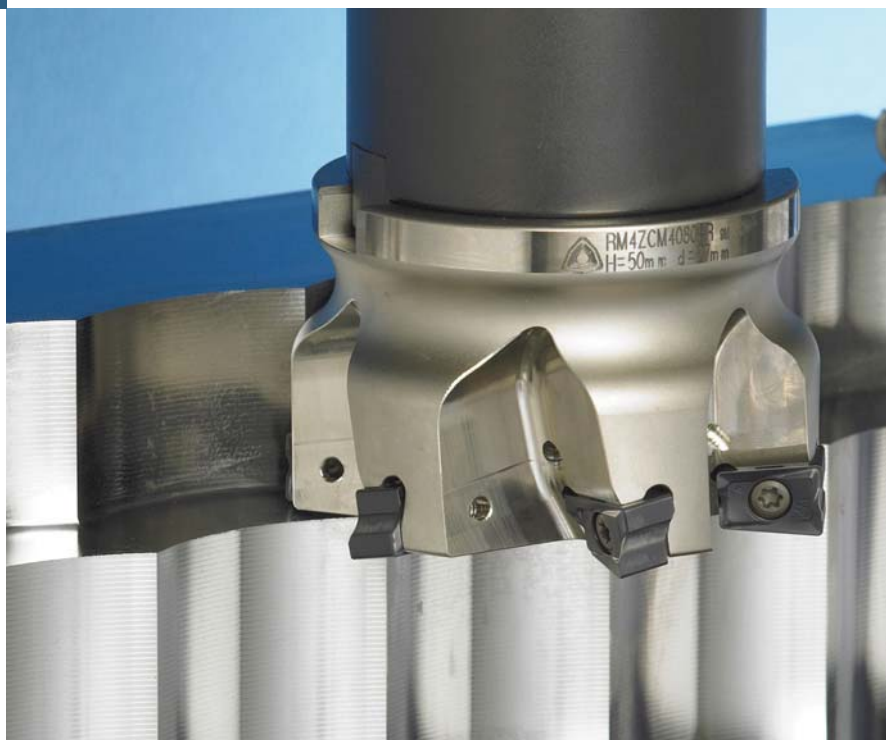
Designation		General arbor	NC arbors	
			RMT8Q	RMT8QM
RMT8Q (RMT8QM)	□080R	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	□100R	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	□125R	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	□160R	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	
	□200R	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	□250R			
	□315R	KCP-8***(Center ring plug)	-	-

*□□-NT number **□□-BT number ***Over milling 5

▶ Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø80~Ø315	ETKA0523	KHB0417	SPR0315	LTC05SR-RM4	TW20-100

For Roughing

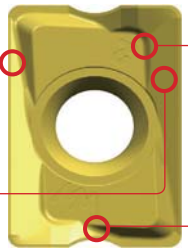


Economical and multi-purpose milling tool

RM4Z

- Rich mill series RM4Z is a plunge mill for high efficiency vertical machining such as slotting and pocketing in roughing applications
- Rich mill series RM4Z is a highly efficient milling tool for plunging, shouldering and facing. It makes operations more economical with the use of its double-sided 4-corner insert
- Plunge machining reduces lead time for high productivity and precision machining.
- In plunging the max depth of RM4Z 3000 type is 9.0 mm and that of RM4Z 4000 type is 14.0 mm

Features

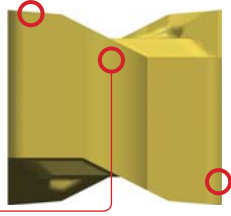


Major cutting-edge
- High rake cutting-edge
- Sharp cutting-edge

Chip breaker
- High rake angle
- Control chip flow

Step design
- Improving chip control
- Reducing cutting load

Concave design
- 4 corner available
- Avoiding interference of cutting-edges

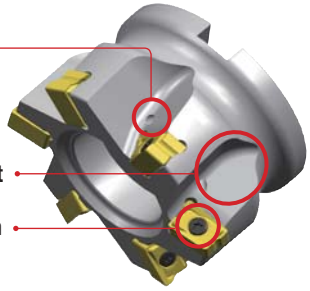


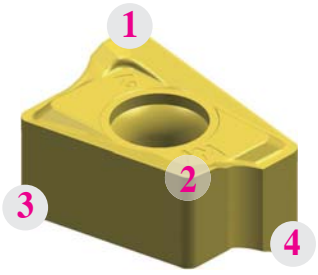
Minor cutting-edge
- Special design for plunge machining

Sides
- Negative type
- Strong cutting-edge

Through coolant system
- Improving chip control
  Cooling inserts increases tool life

Improving chip evacuation
- **Wide chip pocket**
- **Screw on system**



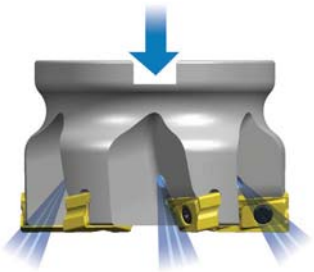


- Double-sided insert ···› 4 corner available
- High rake angle chip breaker and cutting-edge
- Various available machining types
- High efficiency and economical insert
- Negative type insert - Strong cutting-edge

Through coolant system

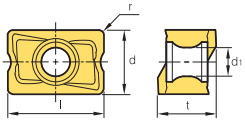
- Exclusive hexagonal coolant socket bolt provides excellent cooling and chip evacuation
- Direct coolant injection to cutting-edge improves cooling effectiveness
- Coolant type arbor should be used

▶Coolant bolt is not included, it is for sale



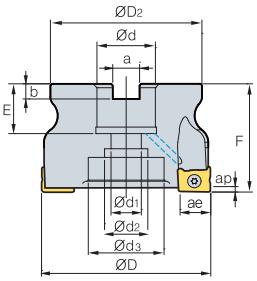
Available inserts

LNM(E)X-MM



Designation			Dimensions (mm)				
			l	d	t	r	d1
LNM(E)X-MM	LNMX	100605PNL-MM	10.0	6.5	6.5	0.5	3.5
		151008PNL-MM	15.0	10.0	10.0	0.8	4.5
	LNEX	100605PNL-MM	10.0	6.5	6.5	0.5	3.5
		151008PNL-MM	15.0	10.0	10.0	0.8	4.5

RM4ZC(M)3000/4000



AA 90°

- AR : -11°
- RR : -12°~-10°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	ae	kg
RM4ZCM	3040HR	●	4	40	37	16	9	14	-	8.4	5.6	19	40	1.5	9.0	0.21
	3050HR	●	5	50	47	22	11	18	-	10.4	6.3	20	40	1.5	9.0	0.33
	3052HR		5	52	48	22	11	18	-	10.4	6.3	20	40	1.5	9.0	0.37
	4063HR	●	5	63	58	22	11	18	-	10.4	6.3	20	40	2.5	14.0	0.56
RM4ZC (RM4ZCM)	4066HR		5	66	61	25.4(27)	14	20	-	9.5(12.4)	6(7)	25	50	2.5	14.0	0.74
	4080HR	(●)	6	80	70	25.4(27)	14	20	35	9.5(12.4)	6(7)	25(23)	50	2.5	14.0	1.09
	4100HR		7	100	80	31.75(32)	18	26	42	12.7(14.4)	8(8)	25(33)	63(50)	2.5	14.0	1.71

( ) Metric size ●: Stock items

▶ Available inserts

LNM(E)X-MM

Designation			Cermet		Coated											Uncoated			page
			CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
3000형	LNEX	100605PNL-MM											●	●	●				43
	LNMX	100605PNL-MM								●	●		●	●	●				
4000형	LNEX	151008PNL-MM											●	●	●				
	LNMX	151008PNL-MM									●			●	●				

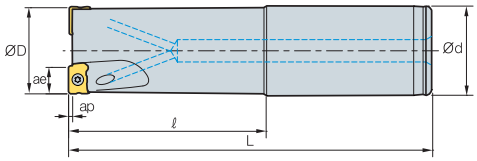
▶ Available arbors

Designation		Available arbors	
		RM4ZC	RM4ZCM
RM4ZCM	3040HR	BT□□-FMC16-□□ BT□□-SCA16-□□	
	3050HR	BT□□-FMC22-□□	
	3052HR		
RM4ZC (RM4ZCM)	4063HR	BT□□-FMC22-□□	
	4066HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4080HR		
	4100HR	BT□□-FMA31.75-□□ BT□□-SCA31.75-□□	BT□□-FMC32-□□

▶ Parts

Specification	Screw	Wrench
Ø40~Ø52	FTKA0307	TW09S
Ø63~Ø100	FTKA0412B	TW15S

RM4ZS3000



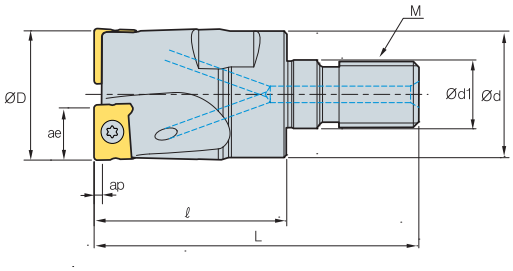
AA 90°

- AR : -11°
- RR : -17°~-14°

Designation		Stock		ØD	Ød	ℓ	L	ap	ae	kg
RM4ZS	3025HR-L25	●	2	25	25	120	200	1.5	9.0	0.62
	3032HR-L32	●	3	32	32	120	210	1.5	9.0	1.13
	3040HR-L32		4	40	32	120	250	1.5	9.0	1.53

● : Stock items

RM4ZM3000



AA 90°

- AR : -11°
- RR : -17°~-14°

Designation		Stock		ØD	Ød	Ød1	ℓ	L	M	ap	ae	kg
RM4ZM	3025HR-M12		2	25	23	12.5	35	59	M12	1.5	9.0	0.11
	3032HR-M16	●	3	32	29	17	40	67	M16	1.5	9.0	0.21
	3040HR-M16		4	40	29	17	40	67	M16	1.5	9.0	0.28

● : Stock items

▶ Available inserts

LNM(E)X-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
LNEX	100605PNL-MM											●	●	●				43
LNMX	100605PNL-MM								●	●		●	●	●				

▶ Parts

Specification	Screw	Wrench
Ø25~Ø40	FTKA0307	TW09S

For Roughing

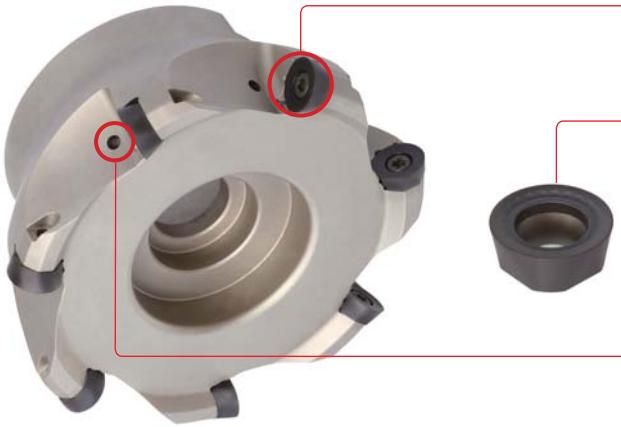
Future Mill series for mold making

FMR P-positive

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

Features

- P-positive relief angle (11˚) ensures high rigidity and high machinability in die steel and high-resistant alloy machining
- Flat clearance face of insert prevents interference and revolution while machining
- Optimal grades and chip breakers for various workpieces



Chip breaker

• Concave shape ensures wide chip pocket and lowers cutting temperature

Clearance face for preventing rotation

• Prevents rotation in machining
• Divides corners
• Prevents interference in high-feed machining
• Ensures stable clamping

Through-coolant system

• Superb chip evacuation
• Low cutting heat ensures long tool life

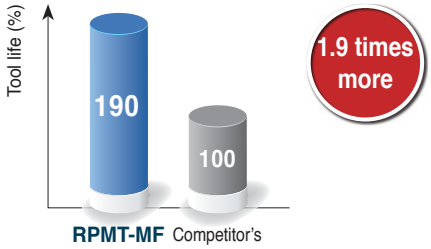
Features of chip breakers

Chip breaker		Cutting-edge	Application	Features
MA			Aluminum machining	• Optimal cutting-edge for aluminum machining and buffed surface ensure high machinability
ML			Titanium & Inconel machining	• Excellent results in titanium machining thanks to a high hardness cutting-edge and the chip breaker reducing the cutting load
MF			Fine finishing	• Chip breaker for low cutting resistance enables fine finishing.
MM			General machining	• Optimal for general machining
무기호			Super hard material machining	• Optimal for high hardness die steel and heat resistant alloy

[Application Examples]

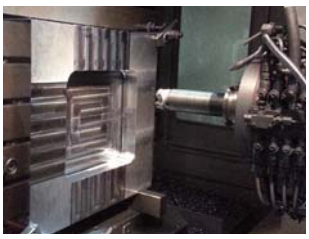
Alloy steel (E355C Heat treatment, HRC 38~40)

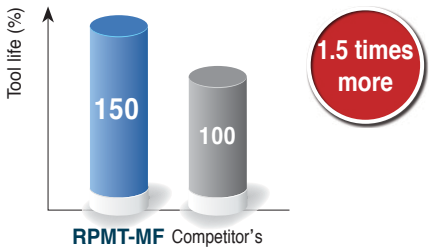
- **Cutting conditions:** vc (m/min) = 250, fz (mm/tooth) = 0.6, ap (mm) = 1, wet
- **Tools:** **Insert** RPMT1204M0E-MF (PC5300)
  Holder FMRS4032HRP-3L25



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

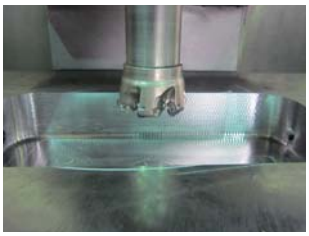
- **Cutting conditions:** vc (m/min) = 178, fz (mm/tooth) = 0.72, ap (mm) = 1.5, dry
- **Tools:** **Insert** RPMT1606M0S-MM (PC5300)
  Holder FMRCM5063HRP-4

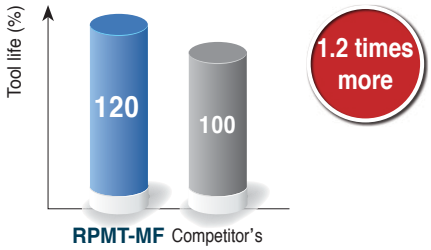




Low pre-hardened steel (C55E4, HRC 28~33)

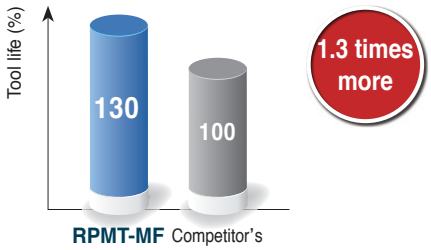
- **Cutting conditions:** vc (m/min) = 178, fz (mm/tooth) = 0.74, ap (mm) = 0.8, dry
- **Tools:** **Insert** RPMT1204M0E-MF (PC5300)
  Holder FMRCM4063HRP-6





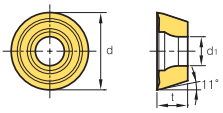
High pre-hardened steel (X40CrMoV5-1, HRC 50~52)

- **Cutting conditions:** vc (m/min) = 50, fz (mm/tooth) = 0.15, ap (mm) = 4.0, dry
- **Tools:** **Insert** RPMW1204M0S1 (PC5300)
  Holder MRS4032HRP-3L25

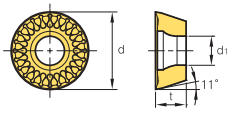


Available inserts

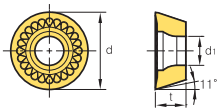
RPCT-MA



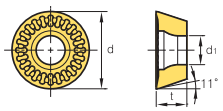
RPET-ML



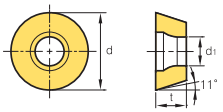
RPMT-MF



RPMT-MM

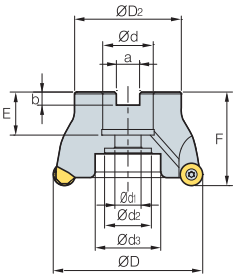


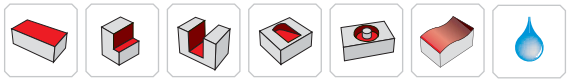
RPMW



Designation		Dimensions (mm)		
		d	t	d_1
RPCT-MA	10T3M0-MA	10	3.97	4.0
	1204M0-MA	12	4.76	4.5
	1606M0-MA	16	6.35	5.5
	2007M0-MA	20	7.00	7.0
RPET-ML	0803M0E-ML	8	3.18	3.4
	103TM0E-ML	10	3.97	4.0
	1204M0E-ML	12	4.76	4.5
	1606M0E-ML	16	6.35	5.5
	2007M0E-ML	20	7.00	7.0
RPMT-MF	0803M0E-MF	8	3.18	3.4
	10T3M0E-MF	10	3.97	4.0
	1204M0E-MF	12	4.76	4.5
	1606M0E-MF	16	6.35	5.5
	2007M0E-MF	20	7.00	7.0
RPMT-MM	0803M0S-MM	8	3.18	3.4
	10T3M0S-MM	10	3.97	4.0
	1204M0S-MM	12	4.76	4.5
	1606M0S-MM	16	6.35	5.5
	2007M0S-MM	20	7.00	7.0
RPMW	0803M0E1	8	3.18	3.4
	10T3M0E1	10	3.97	4.0
	1204M0S1	12	4.76	4.5
	1204M0S2	12	4.76	4.5
	1606M0S1	16	6.35	5.5
	2007M0S1	20	7.00	7.0

FMRCM3000





• AR : 5°
• RR : -4°~ 0°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	d3	a	b	E	F	ap	kg	Insert size
FMRCM	3040HRP-5	●	5	40	38	16	9	14	-	8.4	5.6	19	40	5	0.22	10
	3050HRP-6	●	6	50	45	22	11	18	-	10.4	6.3	20	40	5	0.35	10
	3052HRP-6		6	52	45	22	11	18	-	10.4	6.3	20	40	5	0.37	10
	3063HRP-6	●	6	63	50	22	11	18	-	10.4	6.3	20	40	5	0.55	10
	3063HRP-7	●	7	63	50	22	11	18	-	10.4	6.3	20	40	5	0.56	10
	3066HRP-7		7	66	50	22	11	18	-	10.4	6.3	20	40	5	0.60	10

● : Stock items

▶ Available inserts

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	H01	
RPCT	10T3M0-MA																●	49
RPET	10T3M0E-ML													●	●			
RPMT	10T3M0E-MF										●			●	●			
	10T3M0S-MM							●	●		●			●	●			
RPMW	10T3M0E1							●	●		●			●	●			

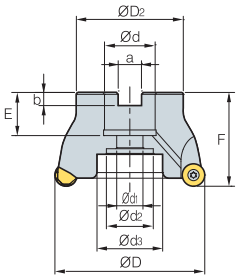
▶ Available arbors

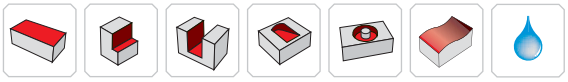
Designation		Ød	Available arbors
FMRCM	3040HRP-5	16	BT□□-FMC16-□□
	3050HRP-6	22	BT□□-FMC22-□□
	3052HRP-6	22	BT□□-FMC22-□□
	3063HRP-6	22	BT□□-FMC22-□□
	3063HRP-7	22	BT□□-FMC22-□□
	3066HRP-7	22	BT□□-FMC22-□□

▶ Parts

Specification	Screw	Wrench
Ø40~Ø66	FTGA03508	TW15S

FMRC(M)4000





• AR : 5°
• RR : -2°~ 0°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg	Insert size
FMRCM	4050HRP-4	●	4	50	45	22	11	18	-	10.4	6.3	20	40	6	0.26	12
	4050HRP-5	●	5	50	45	22	11	18	-	10.4	6.3	20	40	6	0.28	12
	4052HRP-5		5	52	45	22	11	18	-	10.4	6.3	20	40	6	0.30	12
	4063HRP-5	●	5	63	50	22	11	18	-	10.4	6.3	20	40	6	0.44	12
	4063HRP-6	●	6	63	50	22	11	18	-	10.4	6.3	20	40	6	0.48	12
	4066HRP-6		6	66	50	22	11	18	-	10.4	6.3	20	40	6	0.50	12
FMRC (FMRCM)	4080HRP-6	● (●)	6	80	57	25.4(27)	14	25	35	9.5(12.4)	6(7)	24(23)	50	6	0.92	12
	4080HRP-7	● (●)	7	80	57	25.4(27)	14	25	35	9.5(12.4)	6(7)	24(23)	50	6	0.90	12
	4100HRP-7	● (●)	7	100	67	31.75(32)	18	26	42	12.7(14.4)	8(8)	32(25)	63(53)	6	1.46	12

( ) Metric size ● : Stock items

▶ Available inserts


RPCT-MA


RPET-ML


RPMT-MF


RPMT-MM


RPMW

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	H01	
RPCT	1204M0-MA																●	49
RPET	1204M0E-ML													●	●			
RPMT	1204M0E-MF										●			●	●			
	1204M0S-MM							●	●		●			●	●			
RPMW	1204M0S1							●	●		●			●	●			
	1204M0S2													●	●			

▶ Available arbors

Designation		Ød	Available arbors
FMRCM	4050HRP-4	22	BT□□-FMC22-□□
	4050HRP-5		
	4052HRP-5		
	4063HRP-5		
	4063HRP-6		
	4066HRP-6		
FMRC (FMRCM)	4080HRP-6	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	4080HRP-7	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	4100HRP-7	31.75	BT□□-FMA31.5-□□
		32	BT□□-FMC32-□□

▶ Parts

Specification	Screw	Wrench
Ø50~Ø100	FTKA0410	TW15S

FMRC(M)5000

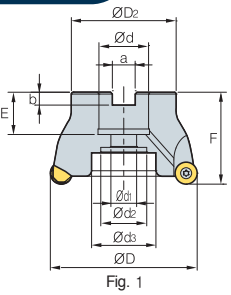


Fig. 1

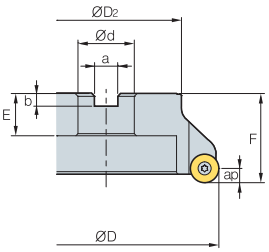


Fig. 2

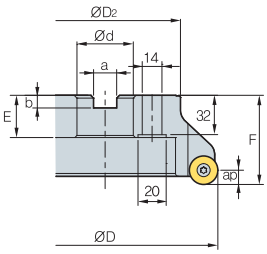


Fig. 3

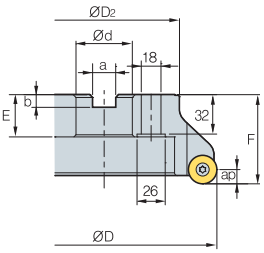


Fig. 4

•AR : 5°
•RR : -1°~ 0°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg	Fig.	Insert size
FMRCM	5063HRP-4	●	4	63	50	22	11	18	-	10.4	6.3	20	40	8	0.43	1	16
	5063HRP-5	●	5	63	50	22	11	18	-	10.4	6.3	20	40	8	0.44	1	16
	5066HRP-5		5	66	50	22	11	18	-	10.4	6.3	20	40	8	0.48	1	16
FMRC (FMRCM)	5080HRP-5	● (●)	5	80	57	25.4(27)	14	25	35	9.5(12.4)	6(7)	24(23)	50	8	0.77	1	16
	5080HRP-6	● (●)	6	80	57	25.4(27)	14	25	35	9.5(12.4)	6(7)	24(23)	50	8	0.82	1	16
	5100HRP-6	● (●)	6	100	67	31.75(32)	18	26	42	12.7(14.4)	8(8)	32(25)	63(55)	8	1.42	1	16
	5125HRP-7	● (●)	7	125	87	38.1(40)	22	32	52	15.9(16.4)	10(9)	35(29)	68(63)	8	2.78	1	16
	5125HRP-8	● (●)	8	125	87	38.1(40)	22	32	52	15.9(16.4)	10(9)	35(29)	68(63)	8	2.79	1	16
	5160RP-8		8	160	107	50.8(40)	-	-	100	19(16.4)	11(9)	38(32)	63	8	4.01	2(3)	16

( ) Metric size ● : Stock items

▶ Available inserts

RPCT-MA RPET-ML RPMT-MF RPMT-MM RPMW

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	H01	
RPCT	1606M0-MA																●	49
RPET	1606M0E-ML													●	●			
RPMT	1606M0E-MF										●			●	●			
	1606M0S-MM							●	●		●			●	●			
RPMW	1606M0S1							●	●		●			●	●			

▶ Available arbors

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

▶ Parts

Specification	 Screw	 Wrench
Ø63~Ø160	FTGA0512-P	TW20-100

FMRC(M)6000

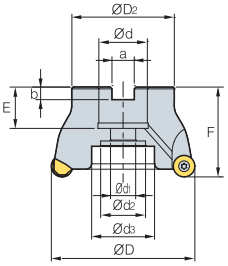


Fig. 1

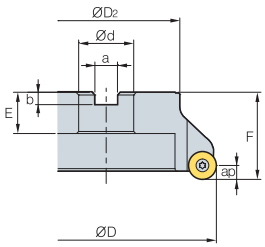


Fig. 2

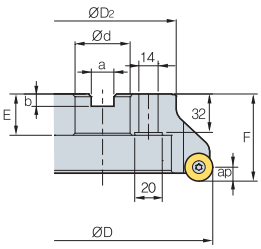


Fig. 3

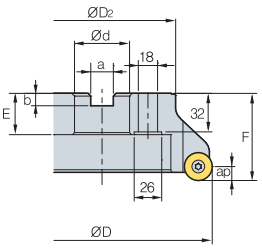
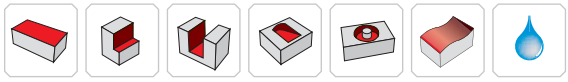


Fig. 4



• AR : 5°
• RR : 0°

(mm)

Designation		Stock		ØD	ØC	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg	Fig.	Insert size
FMRCM	6063HRP-4	●	4	63	43	50	22	11	18	-	10.4	6.3	20	40	10	0.37	1	20
FMRC (FMRCM)	6080HRP-5	● (●)	5	80	60	57	25.4(27)	14	25	35	9.5(12.4)	6(7)	24(23)	50	10	0.87	1	20
	6100HRP-5	● (●)	5	100	80	67	31.75(32)	18	26	42	12.7(14.4)	8(8)	32(25)	63(55)	10	1.31	1	20
	6100HRP-6	● (●)	6	100	80	67	31.75(32)	18	26	42	12.7(14.4)	8(8)	32(25)	63(55)	10	1.40	1	20
	6125HRP-5	● (●)	5	125	105	87	38.1(40)	22	32	52	15.9(16.4)	10(9)	35(29)	68(63)	10	2.77	1	20
	6125HRP-7	● (●)	7	125	105	87	38.1(40)	22	32	52	15.9(16.4)	10(9)	35(29)	68(63)	10	2.89	1	20
	6160RP-6	(●)	6	160	140	107	50.8(40)	-	-	100	19(16.4)	11(9)	38(32)	63	10	3.58	2(3)	20
	6160RP-8	(●)	8	160	140	107	50.8(40)	-	-	100	19(16.4)	11(9)	38(32)	63	10	3.53	2(3)	20
	6200RP-8	(●)	8	200	180	130	47.625(60)	-	-	132	25.4(25.7)	14(14)	38	63	10	5.15	4	20
	6250RP-9	(●)	9	250	230	180	47.625(60)	-	-	180	25.4(25.7)	14(14)	38	63	10	9.72	4	20

( ) Metric size ●: Stock items

▶ Available inserts

RPCT-MA | RPET-ML | RPMT-MF | RPMT-MM | RPMW

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	H01	
RPCT	2007M0-MA																●	49
RPET	2007M0E-ML													●	●			
RPMT	2007M0E-MF										●			●	●			
	2007M0S-MM							●	●		●			●	●			
RPMW	2007M0S1							●	●		●			●	●			

▶ Available arbors

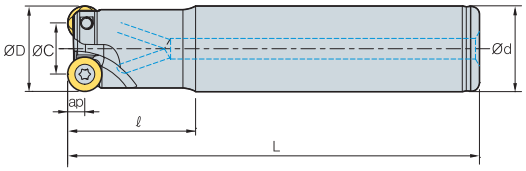
Designation		Ød	NC arbors
FMRCM	6063HRP-4	22	BT□□-FMC22-□□
FMRC (FMRCM)	6080HRP-5	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	6100HRP-5	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	6100HRP-6	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	6125HRP-5	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□

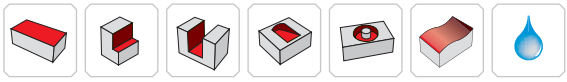
Designation		Ød	NC arbors
FMRC (FMRCM)	6125HRP-7	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□
	6160RP-6	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMC40-□□
	6160RP-8	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMC40-□□
	6200RP-8	47.625	BT□□-FMA47.625-□□
		60	BT□□-FMC60-□□
	6250RP-9	47.625	BT□□-FMA47.625-□□
		60	BT□□-FMC60-□□

▶ Parts

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

FMRS2500





• AR : -4°
• RR : -4°~-1°

(mm)

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

● : Stock items

▶ Available inserts

RPET-ML RPMT-MF RPMT-MM RPMW

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	H01	
RPET	0803M0E-ML													●	●			49
RPMT	0803M0E-MF										●			●	●			
	0803M0S-MM							●	●		●			●	●			
RPMW	0803M0E1							●	●		●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø17	FTNA0305	TW09S
Ø18~Ø26	FTNA0306	

FMRS3000

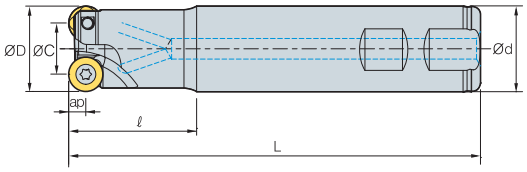


Fig. 1

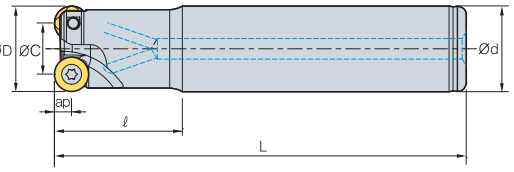
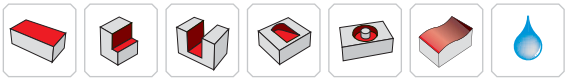


Fig. 2



• AR : -4°
• RR : -1°

(mm)

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

● : Stock items

▶ Available inserts

	RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW
					

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	H01	
RPCT	10T3M0-MA																●	49
RPET	10T3M0E-ML													●	●			
RPMT	10T3M0E-MF										●			●	●			
	10T3M0S-MM							●	●		●			●	●			
RPMW	10T3M0E1							●	●		●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø25~Ø26	FTGA03507	TW15S
Ø32~Ø33	FTGA03508	

FMRS4000

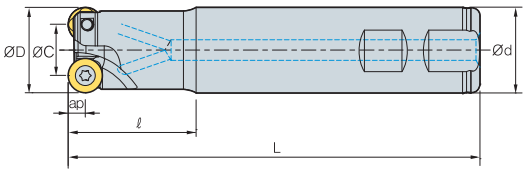


Fig. 1

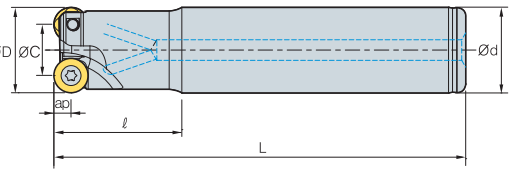
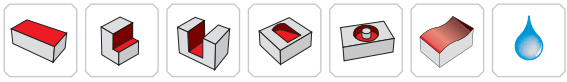


Fig. 2



•AR : -4°
•RR : -2°~ 0°

(mm)

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

● : Stock items

▶ Available inserts

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	H01	
RPCT	1204M0-MA																●	49
RPET	1204M0E-ML													●	●			
RPMT	1204M0E-MF										●			●	●			
	1204M0S-MM							●	●		●			●	●			
RPMW	1204M0S1							●	●		●			●	●			
	1204M0S2													●	●			

▶ Parts

Specification	Screw	Wrench
Ø25~Ø26	FTKA0408	TW15S
Ø32~Ø50	FTKA0410	

FMRS5000/6000

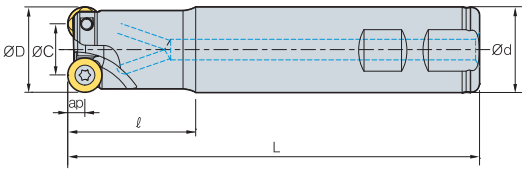


Fig. 1

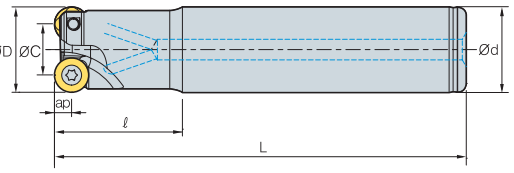
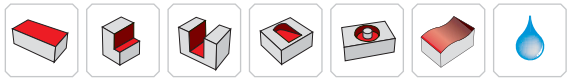


Fig. 2



• AR : -4°
• RR : 0°

(mm)

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

● : Stock items

▶ Available inserts

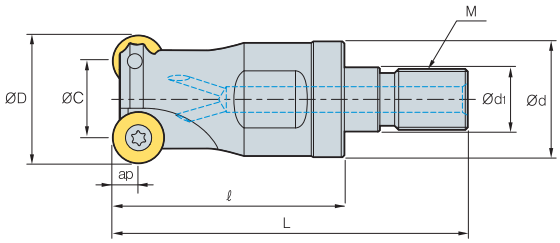
RPCT-MA | RPET-ML | RPMT-MF | RPMT-MM | RPMW

Type	Designation		Cermet		Coated											Uncoated		page
			CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	H01	
5000 type	RPCT	1606M0-MA																●	49
	RPET	1606M0E-ML													●	●			
	RPMT	1606M0E-MF										●			●	●			
		1606M0S-MM										●			●	●			
	RPMW	1606M0S1							●	●		●			●	●			
6000 type	RPCT	2007M0-MA																●	
	RPET	2007M0E-ML													●	●			
	RPMT	2007M0E-MF										●			●	●			
		2007M0S-MM							●	●		●			●	●			
	RPMW	2007M0S1							●	●		●			●	●			

▶ Parts

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

FMRM2500



• AR : -4°
• RR : -4°~ 0°

(mm)

Designation		Stock	⊙	ØD	ØC	Ød	Ød1	ℓ	L	M	ap	kg	Insert size
FMRM	2517HRP-M08		2	17	9	14.5	8.5	25	42	M08	4	0.03	8
	2521HRP-M10		3	21	13	18	10.5	30	51	M10	4	0.06	8
	2526HRP-M12		4	26	18	23	12.5	35	59	M12	4	0.11	8
	2533HRP-M16		4	33	25	29	17	40	67	M16	4	0.22	8
	2540HRP-M16		5	40	32	29	17	40	67	M16	4	0.26	8

● : Stock items

▶ Available inserts

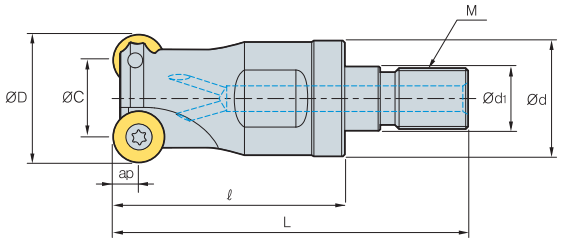
	RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW
					

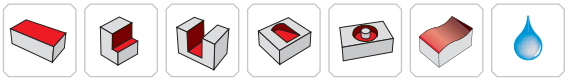
Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	H01	
RPET	0803M0E-ML													●	●			49
RPMT	0803M0E-MF										●			●	●			
	0803M0S-MM							●	●		●			●	●			
RPMW	0803M0E1							●	●		●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø17 Ø21~Ø40	FTNA0305 FTNA0306	TW09S

FMRM3000





•AR : -4°
•RR : -1°~ 0°

(mm)

Designation		Stock		ØD	ØC	Ød	Ød1	ℓ	L	M	ap	kg	Insert size
FMRM	3026HRP-M12		3	26	16	23	12.5	35	59	M12	5	0.10	10
	3033HRP-M16		3	33	23	29	17	40	67	M16	5	0.20	10
	3035HRP-M16		3	35	25	29	17	40	67	M16	5	0.22	10
	3040HRP-M16		3	40	30	29	17	40	67	M16	5	0.25	10
	3042HRP-M16		3	42	32	29	17	40	67	M16	5	0.27	10

● : Stock items

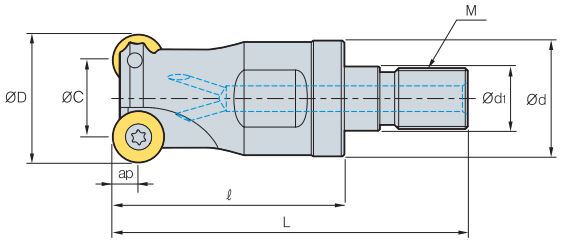
▶ Available inserts

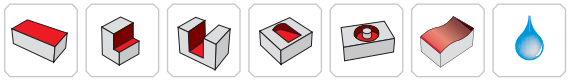
Designation		Cermet		Coated										Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	H01	
RPCT	10T3M0-MA																●	49
RPET	10T3M0E-ML													●	●			
RPMT	10T3M0E-MF										●			●	●			
	10T3M0S-MM							●	●		●			●	●			
RPMW	10T3M0E1							●	●		●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø26	FTGA03507	TW15S
Ø33~Ø42	FTGA03508	

FMRM4000





•AR : -4°
•RR : 0°

(mm)

Designation		Stock		ØD	ØC	Ød	Ød1	ℓ	L	M	ap	kg	Insert size
FMRM	4026HRP-M12		2	26	14	23	12.5	35	59	M12	6	0.10	12
	4033HRP-M16		3	33	21	29	17	40	67	M16	6	0.21	12
	4035HRP-M16		3	35	23	29	17	40	67	M16	6	0.21	12
	4040HRP-M16		4	40	28	29	17	40	67	M16	6	0.24	12
	4042HRP-M16		4	42	30	29	17	40	67	M16	6	0.25	12

● : Stock items

▶ Available inserts

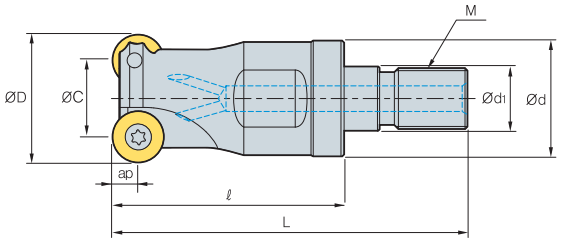
	RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW
					

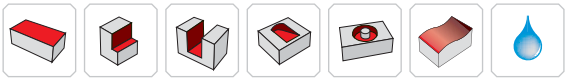
Designation		Cermet		Coated										Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	H01	
RPCT	1204M0-MA																●	49
RPET	1204M0E-ML													●	●			
RPMT	1204M0E-MF										●			●	●			
	1204M0S-MM							●	●		●			●	●			
RPMW	1204M0S1							●	●		●			●	●			
	1204M0S2													●	●			

▶ Parts

Specification	Screw	Wrench
Ø26	FTKA0408	TW15S
Ø33~Ø42	FTKA0410	

FMRM5000





• AR : -4°
• RR : 0°

(mm)

Designation		Stock		ØD	ØC	Ød	Ød1	ℓ	L	M	ap	kg	Insert size
FMRM	5040HRP-M16		2	40	24	29	17	40	67	M16	8	0.21	16
	5042HRP-M16		2	42	26	29	17	40	67	M16	8	0.23	16

● : Stock items

▶ Available inserts

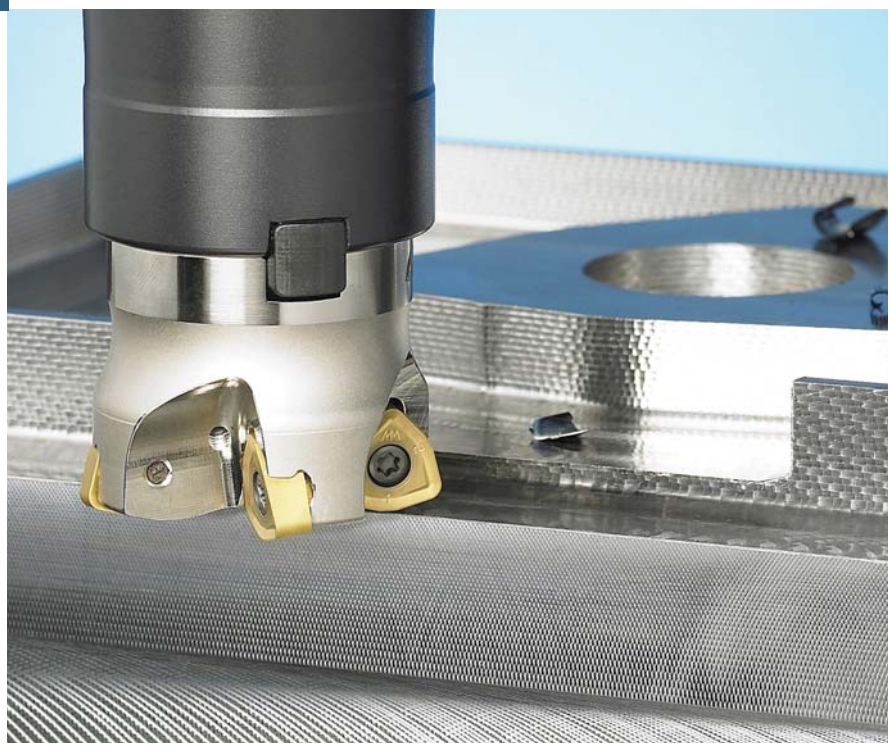
	RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW
					

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	H01	
RPCT	1606M0-MA																●	49
RPET	1606M0E-ML													●	●			
RPMT	1606M0E-MF										●			●	●			
	1606M0S-MM							●	●		●			●	●			
RPMW	1606M0S1							●	●		●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø40~Ø42	FTGA0511-P	TW20-100

For Roughing



HRMD is more economical due to the use of 6 cutting-edges compared to HRM tool with a 3-edge positive insert

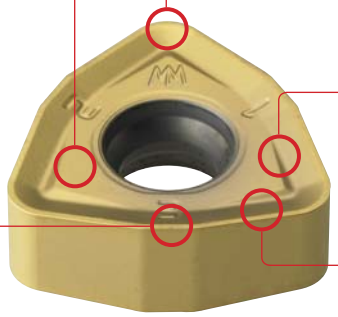
HRMDouble

- HRMD is more economical due to the use of 6 cutting-edges compared to HRM tool with a 3-edge positive insert
- High-rake angle cutting-edge and chip breaker reduces cutting load
- Negative geometry has been designed for rigidity of cutting-edge and double-sided function
- 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 R and L type machining

Features

Clamping surface
- Design for stable clamping
- Prevention of friction by chip

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

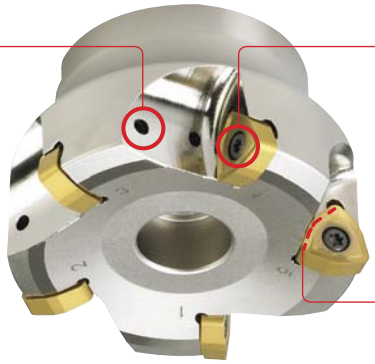


Nose-R
- Security of rigid edge in ramping pocket machining
- Round edge suitable for high feed rates insert geometry
- Possible to use R/L type machining

Chip breaker
- Reduction of cutting load due to High-rake angle
- Improvement of chip flow and evacuation in various applications
- Prevention of damage on clamping face of 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

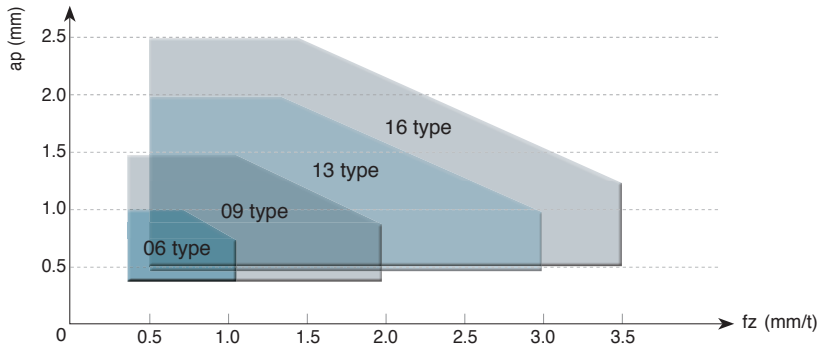
Inner coolant system
- Improvement of chip control and evacuation
- Longer tool life due to reduced cutting temperature



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

Application area



[Application Examples]

Carbon steel (SM45C, HRC22)

• **Cutting conditions:** vc = 283 m/min (1,803^{-1}), fz = 1.4 mm/tooth, vf = 10,097 mm/min, ap = 0.8 mm, ae = 35 mm, dry,
Machining: Copying, Machine: Horizontal MCT, Overhang of tool: 250 mm

• **Tools:** **Insert** WNMX130520ZNN-MM
Holder HRMDCM13050HR-4

40% Increased productivity

80% Reduced tool cost

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

Stainless steel (STS304)

• **Cutting conditions:** vc = 130 m/min (414^{-1}), fz = 1.2 mm/tooth, vf = 2,981 mm/min, ap = 1.0 mm, ae = 80 mm, wet,
Machining: Facing and Slotting, Machine: Vertical MCT, Overhang of tool: 250 mm

• **Tools:** **Insert** WNMX130520ZNN-MM
Holder HRMDCM13100HR-6

80% Increased productivity

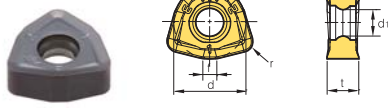
25% Reduced tool cost

Test result

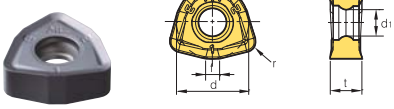
In comparing HRMD with our competitor using the same cutting conditions, the cutting speed of HRMD was higher with the same depth of cut (ap×ae), the cycle time was reduced by 80% and the tool life was same, but HRMD is economically more efficient due to the use of 6 cutting-edges compared to SDKN type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

Available inserts

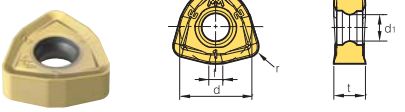
WNMX-MF



WNMX-ML

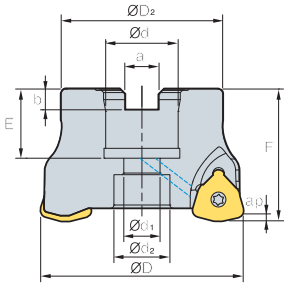


WNMX-MM



Designation		Dimensions (mm)				
		d	t	r	d_1	f
WNMX-MF	060312ZNN-MF	6.35	3.18	1.2	2.86	1.2
	09T316ZNN-MF	9.525	3.97	1.6	3.6	1.7
	130520ZNN-MF	12.7	5.56	2.0	4.7	2.5
	160720ZNN-MF	16.0	7.0	2.0	5.8	3.0
WNMX-ML	060312ZNN-ML	6.35	3.18	1.2	2.86	1.2
	09T316ZNN-ML	9.525	3.97	1.6	3.6	1.7
	130520ZNN-ML	12.7	5.56	2.0	4.7	2.5
	160720ZNN-ML	16.0	7.0	2.0	5.8	3.0
WNMX-MM	060312ZNN-MM	6.35	3.18	1.2	2.86	1.2
	09T316ZNN-MM	9.525	3.97	1.6	3.6	1.7
	130520ZNN-MM	12.7	5.56	2.0	4.7	2.5
	160720ZNN-MM	16.0	7.0	2.0	5.8	3.0

HRMDC(M)09



AA 14°

•AR : -7°
•RR : -12°~-18°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Bolt
HRMDCM	09040HR-3		3	40	34	16	9	14	8.4	5.6	19	40	1.5	0.2	SB0825
	09040HR-4	●	4	40	34	16	9	14	8.4	5.6	19	40	1.5	0.2	
	09050HR-4	●	4	50	42	22	11	18	10.4	6.3	21	40	1.5	0.3	SB1025
	09050HR-5	●	5	50	42	22	11	18	10.4	6.3	21	40	1.5	0.3	
	09063HR-5	●	5	63	49	22	11	18	10.4	6.3	21	40	1.5	0.5	SB1025
	09063HR-6	●	6	63	49	22	11	18	10.4	6.3	21	40	1.5	0.5	
	09080HR-6		6	80	57	27	14	20	12.4	7	23	50	1.5	1.1	SB1230
	09080HR-7	●	7	80	57	27	14	20	12.4	7	23	50	1.5	1.1	
	09100HR-7	●	7	100	67	32	18	26	14.4	8	25	50	1.5	1.7	SB1630
	09100HR-8		8	100	67	32	18	26	14.4	8	25	50	1.5	1.7	
HRMDC	09080HR-6		6	80	57	25.4	14	20	9.5	6	24	50	1.5	1.1	SB1230
	09080HR-7		7	80	57	25.4	14	20	9.5	6	24	50	1.5	1.1	
	09080HR-31.75-6		6	80	67	31.75	18	26	12.7	8	32	63	1.5	1.5	SB1630
	09080HR-31.75-7		7	80	67	31.75	18	26	12.7	8	32	63	1.5	1.5	
	09100HR-7		7	100	67	31.75	18	26	12.7	8	32	63	1.5	2.1	SB1630
	09100HR-8		8	100	67	31.75	18	26	12.7	8	32	63	1.5	2.1	

● : Stock items

▶ Available inserts

WNMX-MF

WNMX-ML

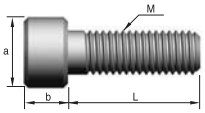
WNMX-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNMX	09T316ZNN-MF									●			●	●				64
	09T316ZNN-ML												●	●				
	09T316ZNN-MM						●	●	●	●	●		●	●				

▶ Available arbors

Designation		NC arbors
HRMDCM	09040HR-□	BT□□-FMC16-□□
		SK□□-FMC16-□□
	09050HR-□	BT□□-FMC22-□□
	09063HR-□	SK□□-FMC22-□□
	09080HR-□	BT□□-FMC27-□□
		SK□□-FMC27-□□
	09100HR-□	BT□□-FMC32-□□
		SK□□-FMC32-□□
HRMDC	09080HR-□	BT□□-FMA25.4-□□
		SK□□-FMA25.4-□□
	09080HR-31.75-□	BT□□-FMA31.75-□□
	09100HR-□	SK□□-FMA31.75-□□

▶ Bolt

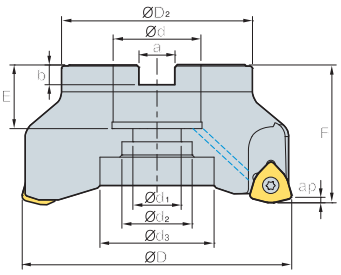


Designation	Dimensions (mm)				
	M	a	b	L	pitch
SB0825	M08	13	8	25	1.25
SB1025	M10	16	10	25	1.5
SB1230	M12	18	12	30	1.75
SB1630	M16	24	16	30	2.0

▶ Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0307	TW09S

HRMDC(M)13



AA 14°

- AR : -7°
- RR : -12°~-4°

Designation		Stock	⊙	ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg	Bolt
HRMDCM	13050HR-3	●	3	50	42	22	11	17	-	10.4	6.3	21	40	2	0.3	SB1025
	13050HR-4	●	4	50	42	22	11	17	-	10.4	6.3	21	40	2	0.3	
	13063HR-4	●	4	63	49	22	11	18	-	10.4	6.3	21	40	2	0.5	SB1025
	13063HR-5	●	5	63	49	22	11	18	-	10.4	6.3	21	40	2	0.5	
	13080HR-5	●	5	80	57	27	14	20	-	12.4	7	23	50	2	1	SB1230
	13080HR-6	●	6	80	57	27	14	20	-	12.4	7	23	50	2	1	
	13100HR-6	●	6	100	67	32	18	26	-	14.4	8	25	50	2	1.6	SB1630
	13100HR-7	●	7	100	67	32	18	26	-	14.4	8	25	50	2	1.6	
	13125HR-7		7	125	87	40	22	32	52	16.4	9	29	63	2	3.2	SB2040
	13125HR-8	●	8	125	87	40	22	32	52	16.4	9	29	63	2	3.2	MBA-M20
HRMDC	13080HR-5		5	80	57	25.4	14	20	-	9.5	6	24	50	2	1	SB1230
	13080HR-6	●	6	80	57	25.4	14	20	-	9.5	6	24	50	2	1	
	13080HR-31.75-5		5	80	67	31.75	18	26	-	12.7	8	32	63	2	1.4	SB1630
	13080HR-31.75-6	●	6	80	67	31.75	18	26	-	12.7	8	32	63	2	1.4	
	13100HR-6	●	6	100	67	31.75	18	26	-	12.7	8	32	63	2	2.1	SB1630
	13100HR-7	●	7	100	67	31.75	18	26	-	12.7	8	32	63	2	2.1	
	13125HR-7		7	125	87	38.1	22	32	52	15.9	10	35	63	2	3.3	SB2040
	13125HR-8	●	8	125	87	38.1	22	32	52	15.9	10	35	63	2	3.3	MBA-M20

● : Stock items

▶ Available inserts

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNMX	130520ZNN-MF									●			●	●				64
	130520ZNN-ML												●	●				
	130520ZNN-MM						●	●	●	●	●		●	●				

▶ Available arbors

Designation		NC arbors
HRMDCM	13050HR-□	BT□□-FMC22-□□
		SK□□-FMC22-□□
	13063HR-□	BT□□-FMC22-□□
	13080HR-□	SK□□-FMC27-□□
	13100HR-□	BT□□-FMC32-□□
		SK□□-FMC32-□□
	13125HR-□	BT□□-FMC40-□□
		SK□□-FMC40-□□
HRMDC	13080HR-□	BT□□-FMA25.4-□□
	13080HR-31.75-□	SK□□-FMA25.4-□□
	13100HR-□	BT□□-FMA31.75-□□
		SK□□-FMA31.75-□□
	13125HR-□	BT□□-FMA38.1-□□
		SK□□-FMA38.1-□□

▶ Bolt

Fig. 1

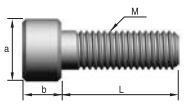
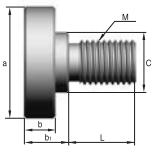


Fig. 2



Designation	Dimensions (mm)							Fig.
	M	a	b	b1	C	L	pitch	
SB1025	M10	16	10	-	-	25	1.5	1
SB1230	M12	18	12	-	-	30	1.75	1
SB1630	M16	24	16	-	-	30	2.0	1
SB2040	M20	30	20	-	-	40	2.5	1
MBA-M20	M20	50	14	20	27	30	2.5	2

▶ Parts

Specification	Screw	Wrench
Ø50~Ø125	FTKA0412B	TW15S

HRMDC(M)16

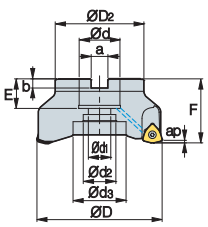


Fig. 1

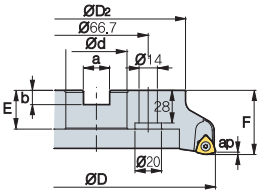


Fig. 2

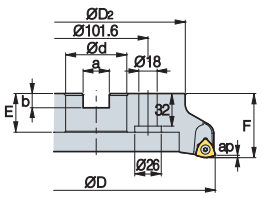


Fig. 3

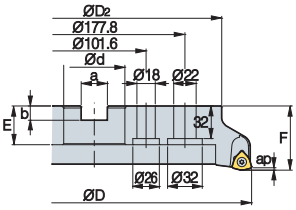


Fig. 4






AA 14°

- AR : -7°
- RR : -12°~-4°

(mm)

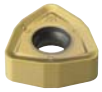
Designation		Stock	⌀	ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg	체결 볼트	Fig.
HRMDC (HRMDCM)	16080HR-4		4	80	65	25.4(27)	14	20	-	9.5(12.4)	6(7)	25(23)	50	2.5	0.99	SB1230	1
	16080HR-5		5	80	65	25.4(27)	14	20	-	9.5(12.4)	6(7)	25(23)	50	2.5	0.91		
	16100HR-5		5	100	85	31.75(32)	18	26	-	12.7(14.4)	8	33(25)	63(50)	2.5	1.68	SB1630	1
	16100HR-6	●	6	100	85	31.75(32)	18	26	-	12.7(14.4)	8	33(25)	63(50)	2.5	1.64		
	16125HR-6		6	125	100	38.1(40)	22	32	52	15.9(16.4)	10(9)	36(29)	63	2.5	3.23	SB2040 MBA-M20	1
	16125HR-7	●	7	125	100	38.1(40)	22	32	52	15.9(16.4)	10(9)	36(29)	63	2.5	3.24		
	16160R-7		7	160	107	50.8(40)	-	90	-	19(16.4)	11(9)	38(32)	63	2.5	3.73	MBA-M24	2
	16160R-8	●	8	160	107	50.8(40)	-	90	-	19(16.4)	11(9)	38(32)	63	2.5	3.77		
	16200R-8		8	200	145	47.625(60)	-	132	-	25.4(25.7)	14	38	63	2.5	6.48	-	3
	16200R-10		10	200	145	47.625(60)	-	132	-	25.4(25.7)	14	38	63	2.5	6.61		
	16250R-10		10	250	190	47.625(60)	-	190	-	25.4(25.7)	14	38	63	2.5	11.01	-	3
	16250R-12		12	250	190	47.625(60)	-	190	-	25.4(25.7)	14	38	63	2.5	11.04		
	16315R-12		12	315	250	47.625(60)	-	238	-	25.4(25.7)	14	38	63	2.5	18.34	-	4
	16315R-14		14	315	250	47.625(60)	-	238	-	25.4(25.7)	14	38	63	2.5	18.35		

( ) Metric size ● : Stock items

▶ Available inserts


WNMX-MF


WNMX-ML


WNMX-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNMX	160720ZNN-MF									●			●	●				64
	160720ZNN-ML												●					
	160720ZNN-MM									●			●	●				

▶ Available arbors

Designation		HRMDC	HRMDCM
HRMDC (HRMDCM)	16080HR-4	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	16080HR-5		
	16100HR-5	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	16100HR-6		
	16125HR-6	BT□□-FMA38.1-□□	BT□□-FMB40-□□ BT□□-FMC40-□□
	16125HR-7		
	16160R-7	BT□□-FMA50.8-□□	
	16160R-8		
	16200R-8	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	16200R-10		
	16250R-10		
	16250R-12		
	16315R-12		
	16315R-14		

▶ Bolt

Fig. 1

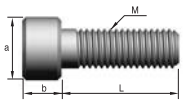
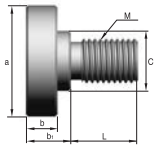


Fig. 2

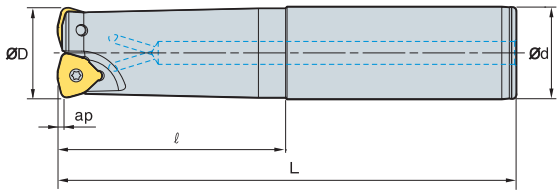


Designation	Dimensions (mm)							Fig.
	M	a	b	b1	C	L	pitch	
SB1025	M10	16	10	-	-	25	1.5	1
SB1230	M12	18	12	-	-	30	1.75	1
SB1630	M16	24	16	-	-	30	2.0	1
SB2040	M20	30	20	-	-	40	2.5	1
MBA-M20	M20	50	14	20	27	30	2.5	2
MBA-M24	M24	65	14	24	37	36	3.0	2

▶ Parts

Specification	Screw	Wrench
Ø80~Ø315	FTGA0513-P	TW20-100

HRMDS06



AA 14°

- AR : -7°
- RR : -17°~-25°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg
HRMDS	0616HR-2S16	●	2	16	16	30	110	1.0	0.15
	0616HR-2M16	●	2	16	16	70	150	1.0	0.20
	0616HR-2L16		2	16	16	100	200	1.0	0.26
	0617HR-2S16	●	2	17	16	20	110	1.0	0.15
	0617HR-2M16	●	2	17	16	20	150	1.0	0.21
	0617HR-2L16		2	17	16	20	200	1.0	0.28
	0618HR-2S16		2	18	16	20	110	1.0	0.15
	0618HR-2M16	●	2	18	16	20	150	1.0	0.21
	0618HR-2L16		2	18	16	20	200	1.0	0.28
	0620HR-2S20	●	2	20	20	50	130	1.0	0.28
	0620HR-2M20	●	2	20	20	100	180	1.0	0.38
	0620HR-2L20		2	20	20	130	250	1.0	0.53
	0621HR-2S20		2	21	20	20	130	1.0	0.29
	0621HR-2M20	●	2	21	20	20	180	1.0	0.40
	0621HR-2L20	●	2	21	20	20	250	1.0	0.57
	0625HR-3S25		3	25	25	60	140	1.0	0.44
	0625HR-3M25	●	3	25	25	80	180	1.0	0.57
	0625HR-3L25	●	3	25	25	120	250	1.0	0.80
	0626HR-3S25		3	26	25	30	140	1.0	0.46
	0626HR-3M25	●	3	26	25	30	180	1.0	0.60
	0626HR-3L25	●	3	26	25	30	250	1.0	0.84
	0632HR-4S32		4	32	32	70	150	1.0	0.82
	0632HR-4M32	●	4	32	32	100	200	1.0	1.10
	0632HR-4L32	●	4	32	32	180	300	1.0	1.66
	0633HR-4S32		4	33	32	40	200	1.0	1.14
	0633HR-4M32	●	4	33	32	40	250	1.0	1.43
	0633HR-4L32	●	4	33	32	40	300	1.0	1.73

● : Stock items

▶ Available inserts

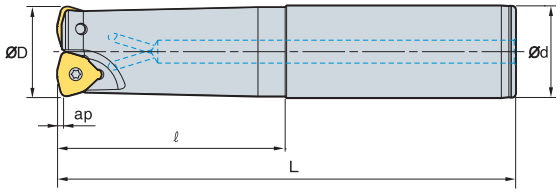
WNMX-MF WNMX-ML WNMX-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNMX	060312ZNN-MF									●			●	●				64
	060312ZNN-ML									●			●	●				
	060312ZNN-MM						●	●		●			●	●				

▶ Parts

Specification	Screw	Wrench
Ø16~Ø33	ETNA02506	TW07S

HRMDS09



AA 14°

- AR : -7°
- RR : -17°~-25°

(mm)

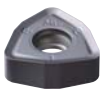
Designation		Stock		ØD	Ød	ℓ	L	ap	kg
HRMDS	0925HR-2S25	●	2	25	25	60	140	1.5	0.5
	0925HR-2M25	●	2	25	25	120	200	1.5	0.6
	0925HR-2L25	●	2	25	25	180	300	1.5	1
	0926HR-2S25	●	2	26	25	60	140	1.5	0.5
	0926HR-2M25	●	2	26	25	60	200	1.5	0.7
	0926HR-2L25	●	2	26	25	60	300	1.5	1
	0930HR-3S32	●	3	30	32	70	150	1.5	0.8
	0930HR-3M32	●	3	30	32	120	200	1.5	1
	0930HR-3L32		3	30	32	180	300	1.5	1.5
	0932HR-3S32	●	3	32	32	70	150	1.5	0.8
	0932HR-3M32	●	3	32	32	120	200	1.5	1.1
	0932HR-3L32		3	32	32	180	300	1.5	1.7
	0933HR-3S32		3	33	32	70	150	1.5	0.8
	0933HR-3M32	●	3	33	32	70	200	1.5	1.1
	0933HR-3L32	●	3	33	32	70	300	1.5	1.7
	0935HR-4S32	●	4	35	32	50	150	1.5	0.9
	0935HR-4M32	●	4	35	32	50	200	1.5	1.1
	0935HR-4L32	●	4	35	32	50	300	1.5	1.7
	0940HR-4S32	●	4	40	32	50	150	1.5	0.9
	0940HR-4M32	●	4	40	32	50	250	1.5	1.5
	0940HR-4L32	●	4	40	32	50	300	1.5	1.8
	0940HR-4S40		4	40	40	60	150	1.5	1.3

● : Stock items

▶ Available inserts

WNMX-MF

WNMX-ML



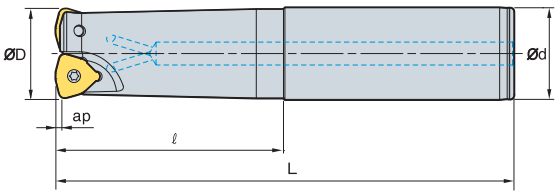
WNMX-MM

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNMX	09T316ZNN-MF									●			●	●				64
	09T316ZNN-ML												●	●				
	09T316ZNN-MM						●	●	●	●	●		●	●				

▶ Parts

Specification	Screw	Wrench
Ø25~Ø40	FTKA0307	TW09S

HRMDS09



AA 14°

- AR : -7°
- RR : -17°~-25°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg
HRMDS	0940HR-4M40		4	40	40	130	250	1.5	2.2
	0940HR-4L40		4	40	40	180	300	1.5	2.7
	0940HR-4S42		4	40	42	60	150	1.5	1.4
	0940HR-4M42		4	40	42	130	250	1.5	2.3
	0940HR-4L42		4	40	42	180	300	1.5	2.8
	0950HR-4S32		4	50	32	40	150	1.5	1.1
	0950HR-4M32		4	50	32	40	250	1.5	1.6
	0950HR-4L32		4	50	32	40	300	1.5	2
	0950HR-4S40		4	50	40	40	150	1.5	1.4
	0950HR-4M40		4	50	40	40	250	1.5	2.4
	0950HR-4L40		4	50	40	40	300	1.5	2.9
	0950HR-4S42		4	50	42	40	150	1.5	1.6
	0950HR-4M42	●	4	50	42	40	250	1.5	2.6
	0950HR-4L42		4	50	42	40	300	1.5	3.1
	0950HR-5S32		5	50	32	40	150	1.5	1.1
	0950HR-5M32		5	50	32	40	250	1.5	1.6
	0950HR-5L32		5	50	32	40	300	1.5	2
	0950HR-5S40		5	50	40	40	150	1.5	1.4
	0950HR-5M40		5	50	40	40	250	1.5	2.4
	0950HR-5L40		5	50	40	40	300	1.5	2.9
	0950HR-5S42		5	50	42	40	150	1.5	1.6
	0950HR-5M42		5	50	42	40	250	1.5	2.6
	0950HR-5L42		5	50	42	40	300	1.5	3.1

● : Stock items

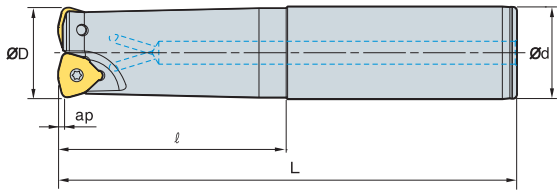
▶ Available inserts

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNMX	09T316ZNN-MF									●			●	●				64
	09T316ZNN-ML												●	●				
	09T316ZNN-MM						●	●	●	●	●		●	●				

▶ Parts

Specification	Screw	Wrench
Ø40~Ø50	FTKA0307	TW09S

HRMDS13



AA 14°

- AR : -7°
- RR : -14°~-16°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg
HRMDS	1332HR-2S32	●	2	32	32	70	150	2	0.8
	1332HR-2M32	●	2	32	32	120	200	2	1
	1332HR-2L32	●	2	32	32	180	300	2	1.6
	1333HR-2S32	●	2	33	32	70	150	2	0.8
	1333HR-2M32	●	2	33	32	70	200	2	1.1
	1333HR-2L32		2	33	32	70	300	2	1.7
	1335HR-2S32		2	35	32	50	150	2	0.8
	1335HR-2M32	●	2	35	32	50	200	2	1.1
	1335HR-2L32	●	2	35	32	50	300	2	1.7
	1340HR-3S32	●	3	40	32	50	150	2	0.8
	1340HR-3M32	●	3	40	32	50	250	2	1.4
	1340HR-3L32	●	3	40	32	50	300	2	1.7
	1340HR-3S40		3	40	40	60	150	2	1.2
	1340HR-3M40		3	40	40	130	250	2	2.1
	1340HR-3L40		3	40	40	180	300	2	2.6
	1340HR-3S42		3	40	42	60	150	2	1.4
	1340HR-3M42		3	40	42	130	250	2	2.3
	1340HR-3L42		3	40	42	180	300	2	2.7
	1350HR-3S32		3	50	32	50	150	2	1.1
	1350HR-3M32		3	50	32	50	250	2	1.7
	1350HR-3L32		3	50	32	50	300	2	2
	1350HR-3S40		3	50	40	50	150	2	1.5
	1350HR-3M40		3	50	40	50	250	2	2.4
	1350HR-3L40		3	50	40	50	300	2	2.9
	1350HR-3S42		3	50	42	50	150	2	1.6
	1350HR-3M42		3	50	42	50	250	2	2.6
	1350HR-3L42		3	50	42	50	300	2	3.1

● : Stock items

▶ Available inserts

WNMX-MF

WNMX-ML

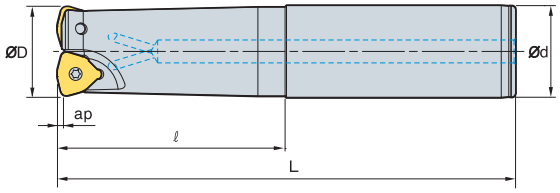
WNMX-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNMX	130520ZNN-MF									●			●	●				64
	130520ZNN-ML												●	●				
	130520ZNN-MM						●	●	●	●	●		●	●				

▶ Parts

Specification	Screw	Wrench
Ø32~Ø50	FTKA0412B	TW15S

HRMDS13



AA 14°

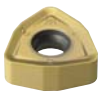
- AR : -7°
- RR : -14°~-16°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg
HRMDS	1350HR-4S32		4	50	32	50	150	2	1.1
	1350HR-4M32		4	50	32	50	250	2	1.7
	1350HR-4L32		4	50	32	50	300	2	2
	1350HR-4S40		4	50	40	50	150	2	1.5
	1350HR-4M40		4	50	40	50	250	2	2.4
	1350HR-4L40		4	50	40	50	300	2	2.9
	1350HR-4S42		4	50	42	50	150	2	1.6
	1350HR-4M42		4	50	42	50	250	2	2.6
	1350HR-4L42		4	50	42	50	300	2	3.1
	1363HR-4S32		4	63	32	50	150	2	1.4
	1363HR-4M32		4	63	32	50	250	2	2.1
	1363HR-4L32		4	63	32	50	300	2	2.4
	1363HR-4S40		4	63	40	50	150	2	1.8
	1363HR-4M40		4	63	40	50	250	2	2.8
	1363HR-4L40		4	63	40	50	300	2	3.2
	1363HR-4S42		4	63	42	50	150	2	1.9
	1363HR-4M42		4	63	42	50	250	2	3
	1363HR-4L42		4	63	42	50	300	2	3.5
	1363HR-5S32		5	63	32	50	150	2	1.5
	1363HR-5M32		5	63	32	50	250	2	2
	1363HR-5L32		5	63	32	50	300	2	2.3
	1363HR-5S40		5	63	40	50	150	2	1.8
	1363HR-5M40		5	63	40	50	250	2	2.8
	1363HR-5L40		5	63	40	50	300	2	3.2
	1363HR-5S42		5	63	42	50	150	2	1.9
	1363HR-5M42		5	63	42	50	250	2	3
	1363HR-5L42		5	63	42	50	300	2	3.5

● : Stock items

▶ Available inserts

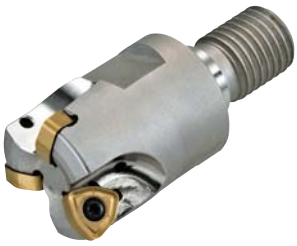
		WNMX-MF	WNMX-ML	WNMX-MM
				

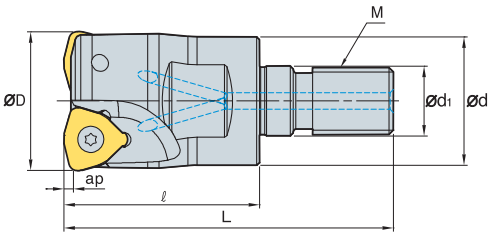
Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNMX	130520ZNN-MF									●			●	●				64
	130520ZNN-ML												●	●				
	130520ZNN-MM						●	●	●	●	●		●	●				

▶ Parts

Specification	Screw	Wrench
Ø50~Ø63	FTKA0412B	TW15S

HRMDM06





AA 14°

- AR : -7°
- RR : -18°~-25°

(mm)

Designation		Stock		ØD	Ød	Ød1	ℓ	L	M	ap	kg
HRMDM	0616HR-M08		2	16	14.5	8.5	25	42	M08	1.0	0.03
	0617HR-M08		2	17	14.5	8.5	25	42	M08	1.0	0.03
	0618HR-M08		2	18	14.5	8.5	25	42	M08	1.0	0.03
	0620HR-M10		2	20	18	10.5	30	51	M10	1.0	0.06
	0621HR-M10		2	21	18	10.5	30	51	M10	1.0	0.07
	0625HR-M12		3	25	23	12.5	35	59	M12	1.0	0.10
	0626HR-M12		3	26	23	12.5	35	59	M12	1.0	0.11
	0632HR-M16		4	32	29	17	40	67	M16	1.0	0.21
	0633HR-M16		4	33	29	17	40	67	M16	1.0	0.22

● : Stock items

▶ Available inserts

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNMX	060312ZNN-MF									●			●	●				64
	060312ZNN-ML									●			●	●				
	060312ZNN-MM						●	●		●			●	●				

▶ Available adaptor

Designation		Available adaptor
HRMDM	0616HR-M08	MAT- M08
	0617HR-M08	MAT- M08
	0618HR-M08	MAT- M08
	0620HR-M10	MAT- M10
	0621HR-M10	MAT- M10

Designation		Available adaptor
HRMDM	0625HR-M12	MAT- M12
	0626HR-M12	MAT- M12
	0632HR-M16	MAT- M16
	0633HR-M16	MAT- M16

Designation: HRMDM0625HR-M12
Modular head threading measure size (M12)

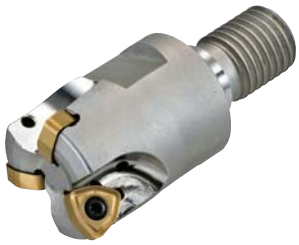
II

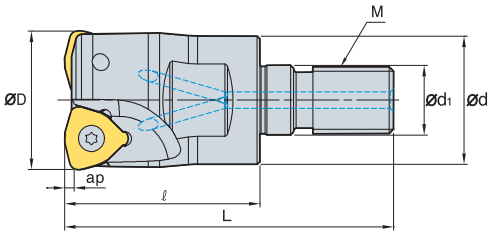
Adaptor spec.: MAT-M12-030-S20S
Adaptor threading measure (M12)

▶ Parts

Specification	Screw	Wrench
Ø16~Ø33	ETNA02506	TW07S

HRMDM09





AA 14°

- AR : -7°
- RR : -18°~-25°

(mm)

Designation		Stock		ØD	Ød	ød1	ℓ	L	M	ap	kg
HRMDM	0925HR-M12	●	2	25	23	12.5	35	59	M12	1.5	0.10
	0926HR-M12	●	2	26	23	12.5	35	59	M12	1.5	0.11
	0930HR-M16	●	3	30	29	17	40	67	M16	1.5	0.19
	0932HR-M16	●	3	32	29	17	40	67	M16	1.5	0.20
	0933HR-M16		3	33	29	17	40	67	M16	1.5	0.21
	0935HR-M16	●	4	35	29	17	40	67	M16	1.5	0.22
	0940HR-M16	●	4	40	29	17	40	67	M16	1.5	0.25

● : Stock items

▶ Available inserts

WNMX-MF WNMX-ML WNMX-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNMX	09T316ZNN-MF									●			●	●				64
	09T316ZNN-ML												●	●				
	09T316ZNN-MM						●	●	●	●	●		●	●				

▶ Available adaptor

Designation		Available adaptor
HRMDM	0925HR-M12	MAT- M12
	0926HR-M12	
	0930HR-M16	MAT- M16
	0932HR-M16	
	0933HR-M16	
	0935HR-M16	
	0940HR-M16	

Designation: HRMDM0932HR-M16
Modular head threading measure size (M16)

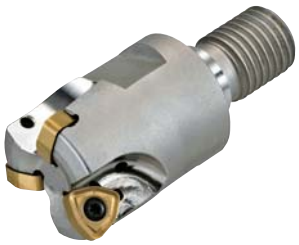
II

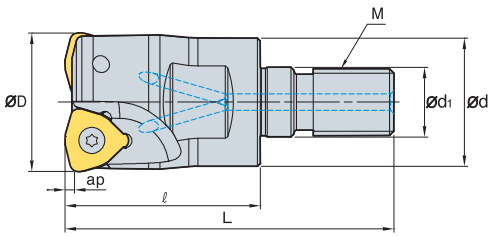
Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

▶ Parts

Specification	Screw	Wrench
Ø25~Ø40	FTKA0307	TW09S

HRMDM13





AA 14°

- AR : -7°
- RR : -18°~-25°

(mm)

Designation		Stock		ØD	Ød	ød1	ℓ	L	M	ap	kg
HRMDM	1332HR-M16	●	2	32	29	17	40	67	M16	2	0.20
	1333HR-M16		2	33	29	17	40	67	M16	2	0.20
	1335HR-M16		2	35	29	17	40	67	M16	2	0.22
	1340HR-M16		3	40	29	17	45	72	M16	2	0.26

● : Stock items

▶ Available inserts

WNMX-MF | WNMX-ML | WNMX-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
WNMX	130520ZNN-MF									●			●	●				64
	130520ZNN-ML												●	●				
	130520ZNN-MM						●	●	●	●	●		●	●				

▶ Available adaptor

Designation		Available adaptor
HRMDM	1332HR-M16	MAT-M16
	1333HR-M16	
	1335HR-M16	
	1340HR-M16	

Designation: HRMDM0932HR-M16
Modular head threading measure size (M16)

=

Adaptor spec.: MAT-M16-120-S32T
Adaptor threading measure (M16)

▶ Parts

Specification	Screw	Wrench
Ø32~Ø40	FTKA0412B	TW15S

For Roughing

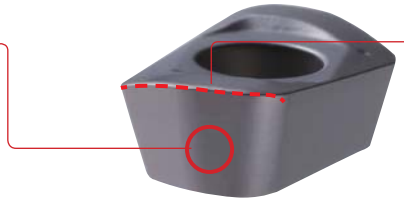
Stable machining, high efficiency milling tools for small diameter machining

HFM

- Increase productivity through improved insert shape and size, high feed per tooth, and many cutting-edges, for small diameter machining
- Stable tool life through the combination of the reinforced toughness on corner and suitable grades of high hardness in the area of high speed and high hardness
- Apply helix cutting-edge on insert, low cutting load and reinforce toughness on corner
- Increased rigidity with double relief angle (11, 13), prevent interference with high feed
- To apply the negative axial rake angle when set up the holder, increased chipping resistance
- Tool life is increased with suitable C/B and grade for every material

Features

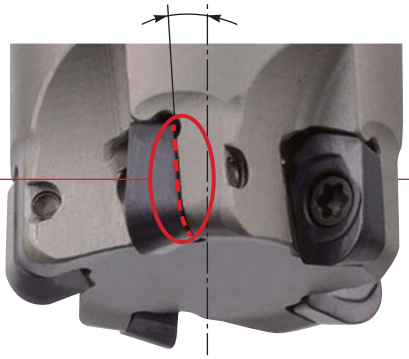
Relief angle
- 11, 13 double relief angle increase rigidity and prevent interference



Major cutting-edge
- Improved sharpness of principle edge
- Improved toughness of corner edge

Axial rake angle '–'

Holder setup
- To set up the negative axial rake angle, increased chipping resistance



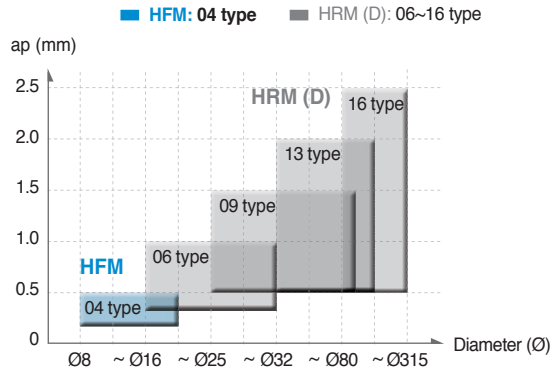
No. of tooth
- Increased tool life with increased flutes
- HRM (D) Ø20 (2 flutes) ➜ HFM Ø20 (5 flutes)

Features of chip breaker

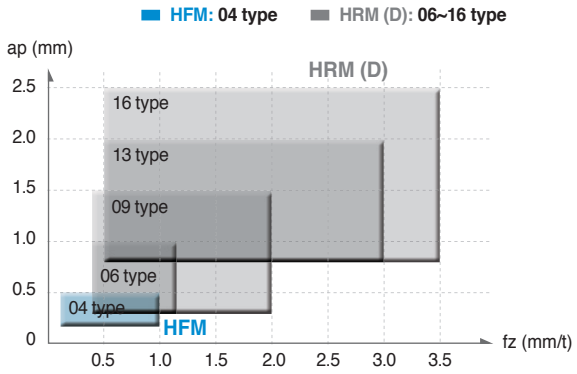
Chip breaker		Cutting-edge	Application	Features
MF			Fine finishing Titanium & Inconel machining	• Low cutting resistance C/B, suitable for light cutting
None C/B			Super hard material machining	• High toughness shape, suitable for hard die steel cutting

Application area

Application area (ap & Diameter)



Application area (ap & fz)

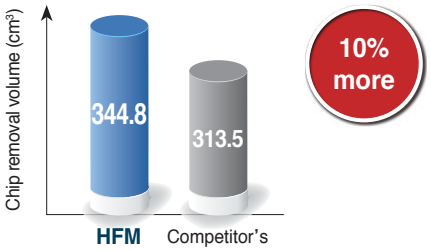


[Application Examples]

Carbon steel [C45 (DIN)/1045 (AISI)/SM45C (KS), HB200]

- **Workpiece use:** Mold
- **Cutting conditions:** vc (m/min) = 150, fz (mm/t) = 0.6, ap (mm) = 0.4, ae (mm) = 5, dry
- **Tools:** **Insert** LPMT040210R-MF(PC5300)
  Holder HFMS1010HR-2S10

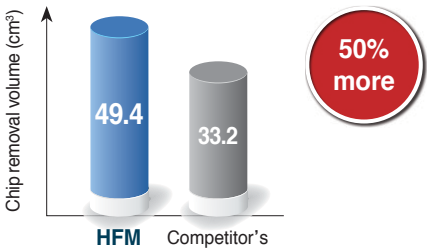
- Chip removal rate Q (cm^3/min): 11.5
- Cutting time (min): 30



Pre-hardened steel [P21 (Improved) (AISI)/NAK80 (KS), HRC40~41]

- **Workpiece use:** Mold
- **Cutting conditions:** vc (m/min) = 100, fz (mm/t) = 1.26, ap (mm) = 0.3, ae (mm) = 10, dry
- **Tools:** **Insert** LPMT040210R-MF (PC5300)
  Holder HFMS1016HR-4S16

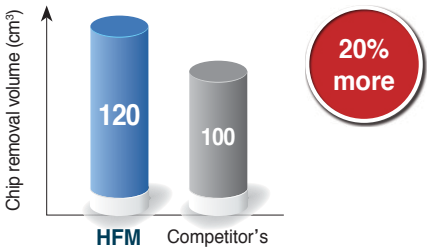
- Chip removal rate Q (cm^3/min): 15
- Cutting time (min): 3.29



Alloy tool steel [X155CrVMo12-1 (DIN)/D2 (AISI)/STD11 (KS), HRC40~45]

- **Workpiece use:** Mold
- **Cutting conditions:** vc (m/min) = 80, fz (mm/t) = 0.5, ap (mm) = 0.3, ae (mm) = 10, dry
- **Tools:** **Insert** LPMW040210R (PC2510)
  Holder HFMS1016HR-4S16

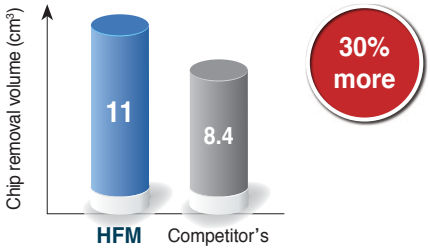
- Chip removal rate Q (cm^3/min): 4.8
- Cutting time (min): 25



Alloy tool steel [X155CrVMo12-1 (DIN)/D2 (AISI)/STD11 (KS), HRC60]

- **Workpiece use:** Mold
- **Cutting conditions:** vc (m/min) = 75, fz (mm/t) = 0.4, ap (mm) = 0.15, ae (mm) = 5, dry
- **Tools:** **Insert** LPMW040210R (PC2505)
  Holder HFMS1010HR-2S10

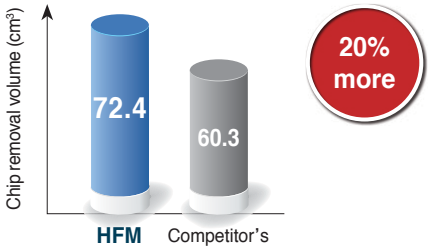
- Chip removal rate Q (cm^3/min): 1.4
- Cutting time (min): 7.85



HRSA [TiAl6V4 (DIN)/R56400 (AISI)/Ti-6Al-4V (KS), HRC48]

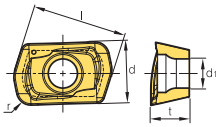
- **Workpiece use:** Aviation parts
- **Cutting conditions:** vc (m/min) = 50, fz (mm/t) = 1.2, ap (mm) = 0.3, ae (mm) = 10, wet
- **Tools:** **Insert** LPMT040210R-MF (PC5300)
  Holder HFMS1016HR-4S16

- Chip removal rate Q (cm^3/min): 7.2
- Cutting time (min): 10.05

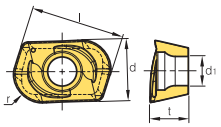


Available inserts

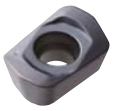
LPMT-MF 040210R-MF

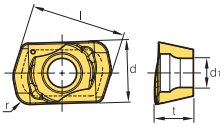


LPMT-MF 040220R-MF

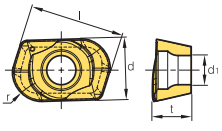


LPMW 040210R

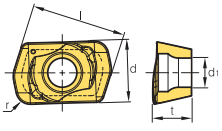




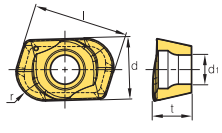
LPMW 040220R



LPEW 040210R

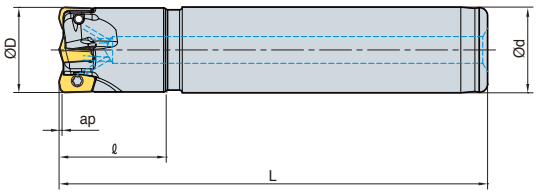


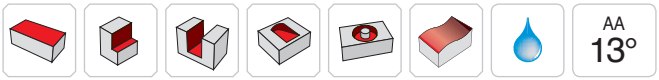
LPEW 040220R



Designation			Dimensions (mm)				
			l	d	t	r	d_1
LPMT	LPMT	040210R-MF	6.4	4.2	2.6	1.0	2.0
	LPMT	040220R-MF	6.4	4.2	2.6	2.0	2.0
LPMW	LPMW	040210R	6.4	4.2	2.6	1.0	2.0
	LPMW	040220R	6.4	4.2	2.6	2.0	2.0
LPEW	LPEW	040210R	6.4	4.2	2.6	1.0	2.0
	LPEW	040220R	6.4	4.2	2.6	2.0	2.0

HFMS1000





AA 13°

- AR : -4°
- RR : -14°~-7°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg
HFMS	1008HR-1S10		1	8	10	20	80	0.4~0.5	0.03
	1008HR-1M10		1	8	10	25	100	0.4~0.5	0.03
	1008HR-1L10	●	1	8	10	35	120	0.4~0.5	0.03
	1010HR-2S08		2	10	8	20	80	0.4~0.5	0.03
	1010HR-2M08		2	10	8	25	100	0.4~0.5	0.04
	1010HR-2L08	●	2	10	8	35	120	0.4~0.5	0.04
	1010HR-2S10		2	10	10	20	80	0.4~0.5	0.04
	1010HR-2M10		2	10	10	25	105	0.4~0.5	0.05
	1010HR-2L10	●	2	10	10	35	120	0.4~0.5	0.06
	1011HR-2S10	●	2	11	10	20	80	0.4~0.5	0.04
	1011HR-2M10	●	2	11	10	25	105	0.4~0.5	0.06
	1011HR-2L10	●	2	11	10	35	120	0.4~0.5	0.07
	1012HR-3S10		3	12	10	20	80	0.4~0.5	0.05
	1012HR-3M10		3	12	10	25	105	0.4~0.5	0.06
	1012HR-3L10	●	3	12	10	35	120	0.4~0.5	0.07
	1012HR-3S12		3	12	12	20	80	0.4~0.5	0.06
	1012HR-3M12		3	12	12	25	105	0.4~0.5	0.08
	1012HR-3L12	●	3	12	12	35	120	0.4~0.5	0.09
	1013HR-3S12	●	3	13	12	20	80	0.4~0.5	0.06
	1013HR-3M12	●	3	13	12	25	105	0.4~0.5	0.09
	1013HR-3L12	●	3	13	12	40	120	0.4~0.5	0.10
	1014HR-3S12		3	14	12	20	80	0.4~0.5	0.07
	1014HR-3M12		3	14	12	25	105	0.4~0.5	0.09
	1014HR-3L12	●	3	14	12	40	120	0.4~0.5	0.10

● : Stock items

▶ Available inserts

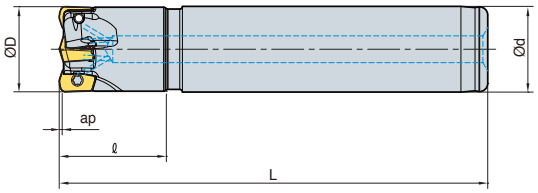
LPMT-MF LPMW LPEW

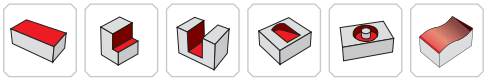
Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
LPMT	040210R-MF							●					●	●				79
	040220R-MF							●					●	●				
LPMW	040210R						●	●					●					
	040220R						●	●					●					
LPEW	040210R						●	●					●					
	040220R						●	●					●					

▶ Parts

Specification	Screw	Wrench
Ø8~Ø10	FTKA01840	TW06S-A
Ø11~Ø14	FTKA01842	

HFMS1000





AA 13°

- AR : -4°
- RR : -6°~-3°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg
HFMS	1015HR-4S12		4	15	12	20	80	0.4~0.5	0.07
	1015HR-4M12		4	15	12	25	105	0.4~0.5	0.09
	1015HR-4L12	●	4	15	12	40	120	0.4~0.5	0.11
	1016HR-4S16		4	16	16	20	80	0.4~0.5	0.11
	1016HR-4M16		4	16	16	25	105	0.4~0.5	0.14
	1016HR-4L16	●	4	16	16	40	120	0.4~0.5	0.16
	1017HR-4S16	●	4	17	16	20	80	0.4~0.5	0.11
	1017HR-4M16	●	4	17	16	25	105	0.4~0.5	0.15
	1017HR-4L16	●	4	17	16	40	120	0.4~0.5	0.17
	1018HR-4S16		4	18	16	20	80	0.4~0.5	0.11
	1018HR-4M16		4	18	16	25	105	0.4~0.5	0.15
	1018HR-4L16	●	4	18	16	40	120	0.4~0.5	0.17
	1019HR-4S16		4	19	16	20	80	0.4~0.5	0.12
	1019HR-4M16		4	19	16	25	105	0.4~0.5	0.16
	1019HR-4L16	●	4	19	16	40	120	0.4~0.5	0.18
	1020HR-4S20		4	20	20	20	80	0.4~0.5	0.17
	1020HR-4M20		4	20	20	25	105	0.4~0.5	0.22
	1020HR-4L20	●	4	20	20	40	120	0.4~0.5	0.26
	1020HR-5S20		5	20	20	20	80	0.4~0.5	0.17
	1020HR-5M20		5	20	20	25	105	0.4~0.5	0.23
	1020HR-5L20	●	5	20	20	40	120	0.4~0.5	0.27
	1021HR-5S20	●	5	21	20	20	80	0.4~0.5	0.17
	1021HR-5M20	●	5	21	20	25	105	0.4~0.5	0.23
	1021HR-5L20	●	5	21	20	40	120	0.4~0.5	0.27

● : Stock items

▶ Available inserts

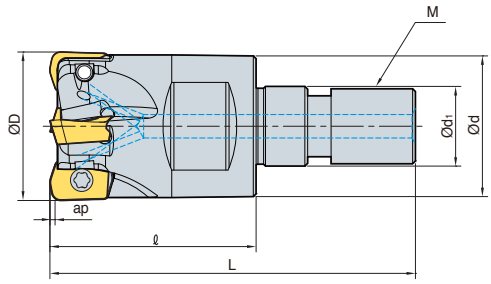
LPMT-MF | LPMW | LPEW

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
LPMT	040210R-MF							●					●	●				79
	040220R-MF							●					●	●				
LPMW	040210R						●	●					●					
	040220R						●	●					●					
LPEW	040210R						●	●					●					
	040220R						●	●					●					

▶ Parts

Specification	Screw	Wrench
Ø15~Ø21	FTKA01842	TW06S-A

HFMM









AA 13°

- AR : -4°
- RR : -14°~-3°

(mm)

Designation		Stock		ØD	Ød	Ød1	ℓ	L	M	ap	kg
HFMM	1008HR-M06	●	1	8	9.5	6.5	17	32	M06	0.4~0.5	0.01
	1010HR-M06	●	2	10	9.5	6.5	17	32	M06	0.4~0.5	0.01
	1011HR-M06	●	2	11	9.5	6.5	17	32	M06	0.4~0.5	0.01
	1012HR-M06	●	3	12	11	6.5	19	34	M6B	0.4~0.5	0.01
	1013HR-M06	●	3	13	11	6.5	19	34	M6B	0.4~0.5	0.01
	1016HR-M08	●	4	16	14.5	8.5	22	39	M08	0.4~0.5	0.03
	1017HR-M08	●	4	17	14.5	8.5	22	39	M08	0.4~0.5	0.03
	1020HR-M10	●	5	20	18	10.5	25	46	M10	0.4~0.5	0.06
	1021HR-M10	●	5	21	18	10.5	25	46	M10	0.4~0.5	0.06
	1025HR-M12	●	6	25	23	12.5	27	51	M12	0.4~0.5	0.11
	1026HR-M12	●	6	26	23	12.5	27	51	M12	0.4~0.5	0.11
	1030HR-M16	●	7	30	29	17	30	60	M16	0.4~0.5	0.17
	1032HR-M16	●	8	32	29	17	30	60	M16	0.4~0.5	0.18
	1033HR-M16	●	8	33	29	17	30	60	M16	0.4~0.5	0.18

● : Stock items

▶ Available inserts

LPMT-MF

LPMW

LPEW

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
LPMT	040210R-MF							●					●	●				79
	040220R-MF							●					●	●				
LPMW	040210R						●	●					●					
	040220R						●	●					●					
LPEW	040210R						●	●					●					
	040220R						●	●					●					

▶ Parts

Specification	Screw	Wrench
Ø8~Ø10	FTKA01840	TW06S-A
Ø11~Ø33	FTKA01842	

For Roughing

High Feed Milling Tool with 4 Corners for Small Diameter

HFMD

- Economical 4-corner double sided insert
- Increased productivity due to thinner and elongated shape of the insert which makes fine pitch available
- Insert designed for low cutting resistance with high rake angle and helix angle which reduces cutting load
- Inhibiting chipping and breakage due to concave clamping system and stronger screw

Features

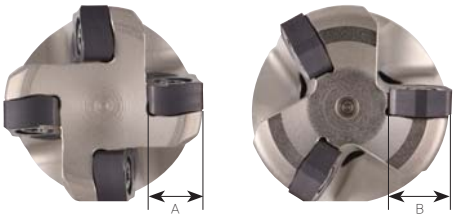
Economical 4-corner insert

• Can use 4 corners with 1 insert by utilizing front/back face; High feed due to finer pitch

Highly efficient insert due to fine pitch

• Able to use fine pitch at the same machining diameter with typical types of milling cutters due to smaller inscribed circle (A < B)

※ Tool diameter: Ø25mm



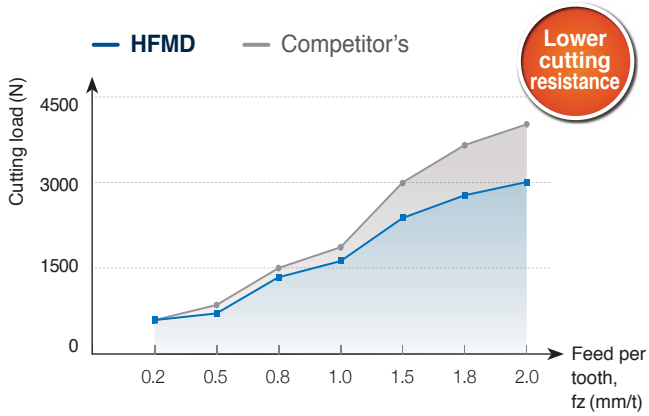
[HFMD] [HRMD]

Insert designed for low cutting resistance

• High rake angle and helix angle minimize cutting resistance compared to competitors' products and positive type of inserts

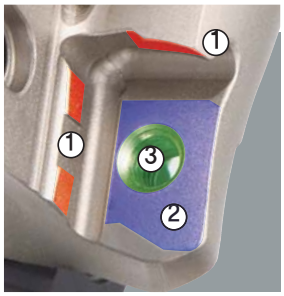
[HFMD] [Competitor's]

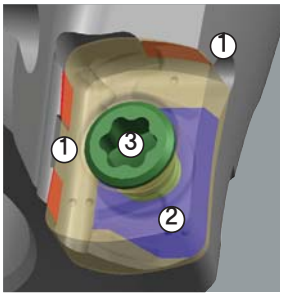
▶ Able to check reduced cutting resistance with bright colored chips



Insert with strong clamping force

① Concave clamping system
② Wider bottom face clamping area
③ Applied a bigger size of screw





[HFMD]

[Competitor's]

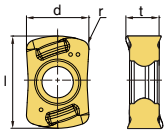
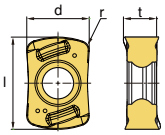
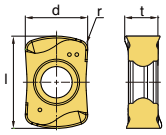
▶ Ehanced HFMD clamping force ensures stable tool life in high feed machining.

▶ Competitor's unstable clamping causes fracture.

Features of Chip Breakers

Chip breaker		Cutting-edge	Application	Features
ML			For hard-to-cut materials For Ti & inconel	• Ensures superior machining quality by applying a low cutting resistance chip breaker and high-strength cutting edge design suitable for machining hard-to-cut materials
MF			For light cutting	• Suitable for light cutting with a low cutting resistance chip breaker design
MM			For multi-purpose	• Available for most cutting area with its exclusive design suitable for general high feed machining

Available inserts

LNMX-ML		LNMX-MF		LNMX-MM	
					

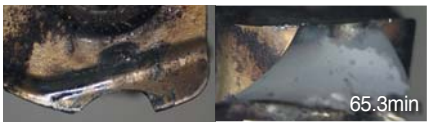
Designation		Dimensions (mm)			
		l	d	t	r
LNMX	060310R-ML	10	6.8	3.6	1
	060310R-MF	10	6.8	3.6	1
	060310R-MM	10	6.8	3.6	1

[Application Examples]

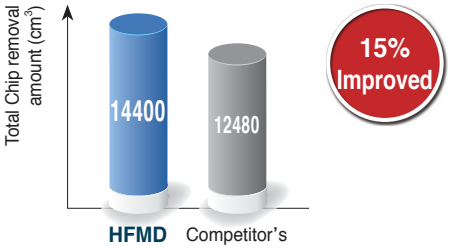
Carbon steel (C45, HB200)

- **Workpiece:** Steel rectangular tube (300×200×100)
- **Cutting conditions:** vc (m/min) = 200, fz (mm/t) = 1.2, ap (mm) = 0.8, ae (mm) = 20, dry
- **Tools:** **Insert** LNMX060310R-MF
  Holder HFMDS032R-5C32-200-LN06 (Ø32, 5T)

[HFMD]



[Competitor's]

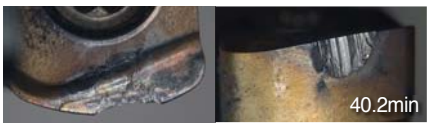


- Chip removal rate Q (cm^3/min): 191.0
- Cutting time (min): 75.4

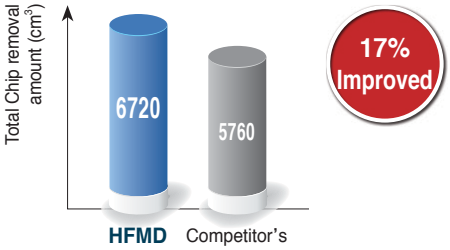
Alloy steel (41CrMo4, HB250)

- **Workpiece:** Steel rectangular tube (300×200×100)
- **Cutting conditions:** vc (m/min) = 180, fz (mm/t) = 1.0, ap (mm) = 0.8, ae (mm) = 20, dry
- **Tools:** **Insert** LNMX060310R-MF
  Holder HFMDS032R-5C32-200-LN06 (Ø32, 5T)

[HFMD]



[Competitor's]



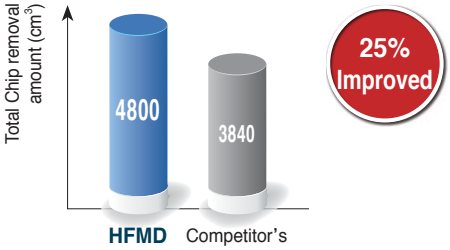
- Chip removal rate Q (cm^3/min): 143.2
- Cutting time (min): 46.9

Pre-hardened steel (1,2738*, HRC30)

- **Workpiece:** Steel rectangular tube (300×200×100)
- **Cutting conditions:** vc (m/min) = 160, fz (mm/t) = 1.2, ap (mm) = 0.8, ae (mm) = 20, dry
- **Tools:** **Insert** LNMX060310R-MF
  Holder HFMDS032R-5C32-200-LN06 (Ø32, 5T)

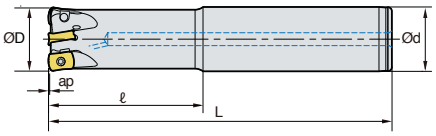
[HFMD]

[Competitor's]



- Chip removal rate Q (cm^3/min): 152.8
- Cutting time (min): 31.4

HFMDS-LN06









• AR : -9°
• RR : 10°~15°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	
HFMDS	016R-2C16-100-LN06	●	2	16	16	30	100	0.7	0.13
	016R-2C16-150-LN06	●	2	16	16	50	150	0.7	0.19
	017R-2C16-100-LN06	●	2	17	16	30	100	1.0	0.13
	017R-2C16-150-LN06	●	2	17	16	40	150	1.0	0.20
	017R-2C16-200-LN06		2	17	16	40	200	1.0	0.27
	018R-2C16-100-LN06		2	18	16	40	100	1.0	0.14
	018R-2C16-160-LN06		2	18	16	40	160	1.0	0.18
	018R-2C16-200-LN06		2	18	16	40	200	1.0	0.28
	019R-2C16-100-LN06		2	19	16	40	100	1.0	0.15
	019R-2C16-160-LN06		2	19	16	40	160	1.0	0.19
	019R-2C16-200-LN06		2	19	16	40	200	1.0	0.29
	020R-3C20-100-LN06		3	20	20	40	100	1.0	0.20
	020R-3C20-130-LN06	●	3	20	20	50	130	1.0	0.26
	020R-3C20-160-LN06		3	20	20	80	160	1.0	0.31
	020R-3C20-200-LN06	●	3	20	20	120	200	1.0	0.40

● : Stock items

▶ Available inserts

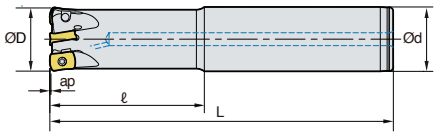
		LNMX-ML	LNMX-MF	LNMX-MM
				

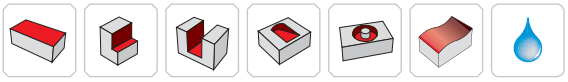
Designation		Coated					page
		UNC840	PC5400	PC5300	PC3700	PC2510	
LNMX	060310R-ML	●	●	●			85
	060310R-MF	●	●	●	●	●	
	060310R-MM		●	●	●	●	

▶ Parts

Specification	 Screw	 Wrench
Ø16~Ø40	FTNA0306	TW09S

HFMDS-LN06





• AR : -9°
• RR : 10°~15°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg
HFMDS	021R-3C20-100-LN06		3	21	20	30	100	1.0	0.21
	021R-3C20-130-LN06		3	21	20	40	130	1.0	0.27
	021R-3C20-160-LN06	●	3	21	20	40	160	1.0	0.34
	021R-3C20-200-LN06	●	3	21	20	40	200	1.0	0.42
	025R-4C25-100-LN06		4	25	25	40	100	1.0	0.33
	025R-4C25-140-LN06	●	4	25	25	60	140	1.0	0.46
	025R-4C25-180-LN06	●	4	25	25	100	180	1.0	0.58
	025R-4C25-250-LN06		4	25	25	150	250	1.0	0.67
	026R-4C25-100-LN06		4	26	25	30	100	1.0	0.34
	026R-4C25-140-LN06		4	26	25	40	140	1.0	0.48
	026R-4C25-180-LN06	●	4	26	25	40	180	1.0	0.63
	026R-4C25-250-LN06	●	4	26	25	40	250	1.0	0.72
	032R-5C32-150-LN06	●	5	32	32	70	150	1.0	0.82
	032R-5C32-200-LN06	●	5	32	32	120	200	1.0	1.08
	032R-5C32-250-LN06		5	32	32	150	250	1.0	1.20
	033R-5C32-150-LN06		5	33	32	40	150	1.0	0.82
	033R-5C32-200-LN06	●	5	33	32	40	200	1.0	1.08
	033R-5C32-250-LN06	●	5	33	32	40	250	1.0	1.20
	035R-5C32-150-LN06		5	35	32	40	150	1.0	0.87
	035R-5C32-200-LN06		5	35	32	40	200	1.0	1.13
	035R-5C32-250-LN06		5	35	32	40	250	1.0	1.25
	040R-6C32-150-LN06		6	40	32	40	150	1.0	0.97
	040R-6C32-200-LN06		6	40	32	40	200	1.0	1.28
	040R-6C32-250-LN06		6	40	32	40	250	1.0	1.38

● : Stock items

▶ Available inserts

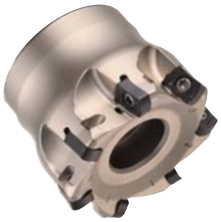
LNMX-ML LNMX-MF LNMX-MM

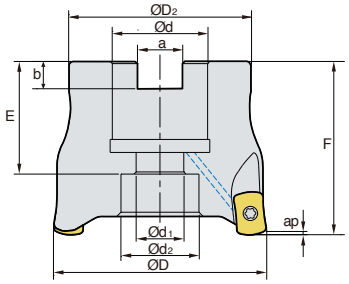
Designation		Coated					page
		UNC840	PC5400	PC5300	PC3700	PC2510	
LNMX	060310R-ML	●	●	●			85
	060310R-MF	●	●	●	●	●	
	060310R-MM		●	●	●	●	

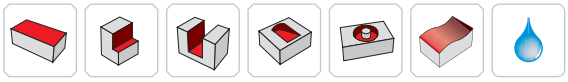
▶ Parts

Specification	Screw	Wrench
Ø16~Ø40	FTNA0306	TW09S

HFMDCM-LN06







• AR : -9°
• RR : 10°~12°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg
HFMDCM	032R-16-5-LN06		5	32	30	16	9	13.5	8.4	5.6	19	40	1.0	0.12
	040R-16-6-LN06	●	6	40	34	16	9	14	8.4	5.6	19	40	1.0	0.21
	050R-22-6-LN06		6	50	45	22	11	18	10.4	6.3	21	40	1.0	0.32
	050R-22-7-LN06		7	50	42	22	11	18	10.4	6.3	21	40	1.0	0.32
	050R-22-8-LN06	●	8	50	42	22	11	18	10.4	6.3	21	40	1.0	0.32
	052R-22-7-LN06		7	52	48	22	11	18	10.4	6.3	21	40	1.0	0.34
	052R-22-8-LN06		8	52	42	22	11	18	10.4	6.3	21	40	1.0	0.34
	063R-22-8-LN06		8	63	50	22	11	18	10.4	6.3	21	40	1.0	0.53
	063R-22-9-LN06	●	9	63	49	22	11	18	10.4	6.3	21	40	1.0	0.53
	066R-22-8-LN06		8	63	49	22	11	18	10.4	6.3	21	40	1.0	0.57
	066R-22-9-LN06		9	66	50	22	11	18	10.4	6.3	21	40	1.0	0.57

● : Stock items

▶ Available inserts

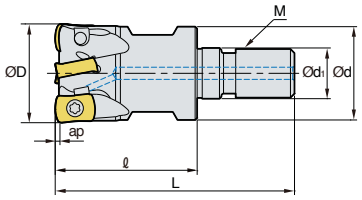
	LNMX-ML	LNMX-MF	LNMX-MM
			

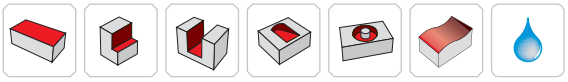
Designation		Coated					page
		UNC840	PC5400	PC5300	PC3700	PC2510	
LNMX	060310R-ML	●	●	●			85
	060310R-MF	●	●	●	●	●	
	060310R-MM		●	●	●	●	

▶ Parts

Specification	Screw	Wrench
Ø32~Ø66	FTNA0306	TW09S

HFMDM-LN06





•AR : -9°
•RR : 10°~15°

(mm)

Designation		Stock		ØD	Ød	Ød1	ℓ	L	M	ap	kg
HFMDM	016R-2-M08-LN06	●	2	16	14.5	8.5	25	42	M08	0.7	0.03
	017R-2-M08-LN06	●	2	17	14.5	8.5	25	42	M08	1.0	0.03
	018R-2-M08-LN06		2	18	14.5	8.5	25	42	M08	1.0	0.04
	019R-2-M08-LN06		2	19	14.5	8.5	25	42	M08	1.0	0.05
	020R-3-M10-LN06	●	3	20	18	10.5	30	51	M10	1.0	0.06
	021R-3-M10-LN06	●	3	21	18	10.5	30	51	M10	1.0	0.07
	025R-4-M12-LN06	●	4	25	23	12.5	35	59	M12	1.0	0.10
	026R-4-M12-LN06		4	26	23	12.5	35	59	M12	1.0	0.10
	032R-5-M16-LN06	●	5	32	29	17	40	67	M16	1.0	0.20
	033R-5-M16-LN06		5	33	29	17	40	67	M16	1.0	0.20
	035R-5-M16-LN06		5	35	29	17	40	67	M16	1.0	0.21
	040R-6-M16-LN06		6	40	29	17	40	67	M16	1.0	0.24
	042R-6-M16-LN06		6	42	29	17	40	67	M16	1.0	0.25

● : Stock items

▶ Available inserts

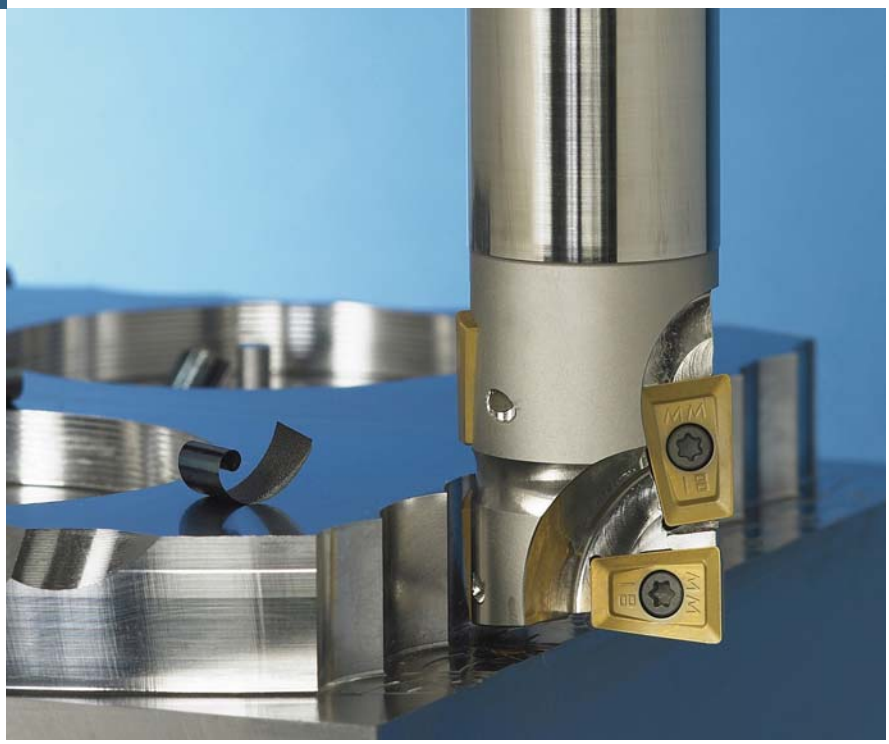
		LNMX-ML	LNMX-MF	LNMX-MM
				

Designation		Coated					page
		UNC840	PC5400	PC5300	PC3700	PC2510	
LNMX	060310R-ML	●	●	●			85
	060310R-MF	●	●	●	●	●	
	060310R-MM		●	●	●	●	

▶ Parts

Specification	 Screw	 Wrench
Ø16~Ø42	FTNA0306	TW09S

For Roughing



Multifunctional milling tool for mold making

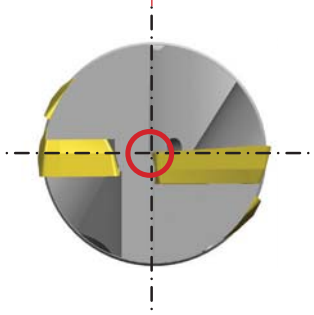
HAVE

- Tools for Z-axis feed plunge machining to cut faster and more effectively in vertical machining
- Machining with whole diameter

Features

Center over cut

- Possible to use for various machining such as drilling, plunging, ramping, helical cutting, etc.



Through coolant system

- Individual coolant for each insert
- Better chip evacuation
- Longler tool life

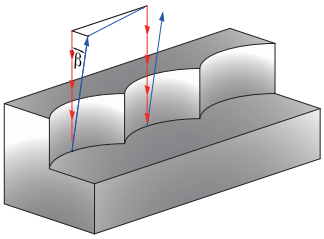
Wide chip pocket & Screw on clamping

- Better chip evacuation

Single insert used

- Easy to maintain tools with the use of single inset

Programming in vertical cutting



Vertical machining route

Rapid feed

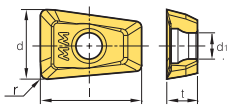
β Angle between tool and workpiece (β ≥ 1°)

▶Reduce 30% of feed till 3 mm machining

▶Have the tool be away from the workpiece more than 1° (b) after finishing the machining or when moving the tool to the next step.

Available inserts

XPMT-MM



Designation		Dimensions (mm)			
		l	d	t	r
XPMT-MM	0802ER-MM	8.5	5.9	2.38	0.8
	1003ER-MM	10.5	7.25	3.18	0.8
	13T3ER-MM	13.1	9	3.97	0.8
	1604ER-MM	16.5	11.5	4.76	0.8
	1805ER-MM	18	12.4	5.56	0.8
	2006ER-MM	20.5	14.1	6.35	0.8
	2507ER-MM	25.5	17.6	7.94	0.8

HAVE (Multi-edge)

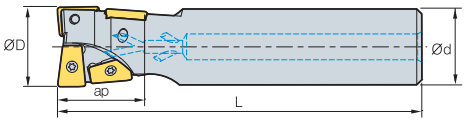


Fig. 1

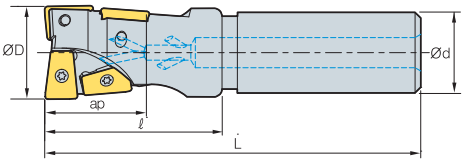


Fig. 2

AA 90°

- AR : 7°~12°
- RR : −12°~−4°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	Available inserts	kg	Fig.
HAVE	0816HR-S16M		4	16	16	30	120	17.6	XPMT0802ER-MM	0.15	1
	0816HR-L16M		4	16	16	30	200	17.6		0.26	
	0817HR-S16M		4	17	16	30	120	17.6		0.18	2
	0817HR-L16M		4	17	16	30	200	17.6		0.27	
	1020HR-S20M		4	20	20	35	130	22	XPMT1003ER-MM	0.26	1
	1020HR-L20M		4	20	20	35	210	22		0.44	
	1021HR-S20M		4	21	20	35	130	22		0.26	2
	1021HR-L20M		4	21	20	35	210	22		0.45	
	1325HR-S25M		4	25	25	45	140	27	XPMT13T3ER-MM	0.41	1
	1325HR-L25M		4	25	25	45	220	27		0.71	
	1326HR-S25M		4	26	25	45	140	27		0.45	2
	1326HR-L25M		4	26	25	45	220	27		0.68	
	1632HR-S32M		4	32	32	50	150	35.2	XPMT1604ER-MM	0.72	1
	1632HR-L32M		4	32	32	50	250	35.2		1.32	
	1633HR-S32M		4	33	32	50	150	35.2		0.76	2
	1633HR-L32M		4	33	32	50	250	35.2		1.27	
	1835HR-S32M		4	35	32	50	150	40	XPMT1805ER-MM	0.75	1
	1835HR-L32M		4	35	32	50	230	40		1.23	
	2040HR-S32M		4	40	32	55	160	44	XPMT2006ER-MM	0.74	2
	2040HR-L32M		4	40	32	55	240	44		1.35	
	2550HR-S42M		4	50	42	70	170	55	XPMT2507ER-MM	1.53	2
	2550HR-L42M		4	50	42	70	250	55		2.60	

● : Stock items

▶ Available inserts

XPMT-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
XPMT	0802ER-MM								●				●					92
	1003ER-MM								●				●					
	13T3ER-MM								●				●					
	1604ER-MM								●				●					
	1805ER-MM								●				●					
	2006ER-MM								●				●					
	2507ER-MM								●				●					

▶ Parts

Specification	Screw	Wrench
Ø16~Ø17	FTNA0204	TW06S
Ø20~Ø21	FTNA02205	
Ø25~Ø26	FTKA0307	TW09S
Ø32~Ø33	FTKA0408	TW15S
Ø35		
Ø40	FTGA0511-P	TW20S
Ø50	FTNA0615	

HAVE (Single-edge)

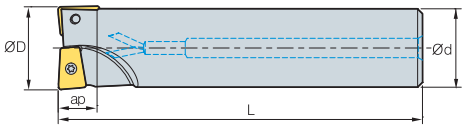


Fig. 1

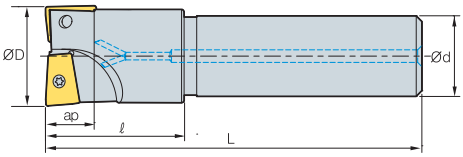


Fig. 2

AA 90°

- AR : 7°~12°
- RR : -12°~-4°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	Available inserts	kg	Fig.
HAVE	0816HR-S16		2	16	16	30	120	7.5	XPMT0802ER-MM	0.16	1
	0816HR-L16		2	16	16	30	200	7.5		0.27	
	0817HR-S16		2	17	16	30	120	7.5		0.16	2
	0817HR-L16		2	17	16	30	200	7.5		0.27	
	1020HR-S20		2	20	20	35	130	9.5	XPMT1003ER-MM	0.28	1
	1020HR-L20		2	20	20	35	210	9.5		0.46	
	1021HR-S20		2	21	20	35	130	9.5		0.28	2
	1021HR-L20		2	21	20	35	210	9.5		0.46	
	1325HR-S25		2	25	25	45	140	12	XPMT13T3ER-MM	0.44	1
	1325HR-L25		2	25	25	45	220	12		0.76	
	1326HR-S25		2	26	25	45	140	12		0.47	2
	1326HR-L25		2	26	25	45	220	12		0.76	
	1632HR-S32		2	32	32	50	150	15.4	XPMT1604ER-MM	0.77	1
	1632HR-L32		2	32	32	50	250	15.4		1.36	
	1633HR-S32		2	33	32	50	150	15.4		0.81	2
	1633HR-L32		2	33	32	50	250	15.4		1.41	
	1835HR-S32		2	35	32	50	150	16.7	XPMT1805ER-MM	0.81	1
	1835HR-L32		2	35	32	50	230	16.7		1.28	
	2040HR-S32		2	40	32	55	160	19.3	XPMT2006ER-MM	0.95	2
	2040HR-L32		2	40	32	55	240	19.3		1.45	
	2550HR-S42		2	50	42	70	170	24	XPMT2507ER-MM	1.68	2
	2550HR-L42		2	50	42	70	250	24		2.54	

● : Stock items

▶ Available inserts

XPMT-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
XPMT	0802ER-MM								●				●					92
	1003ER-MM								●				●					
	13T3ER-MM								●				●					
	1604ER-MM								●				●					
	1805ER-MM								●				●					
	2006ER-MM								●				●					
	2507ER-MM								●				●					

▶ Parts

Specification	Screw	Wrench
Ø16~Ø17	FTNA0204	TW06S
Ø20~Ø21	FTNA02205	
Ø25~Ø26	FTKA0307	TW09S
Ø32~Ø33	FTKA0408	TW15S
Ø35		
Ø40	FTGA0511-P	TW20S
Ø50	FTNA0615	

For Roughing

Indexable ball endmill for roughing

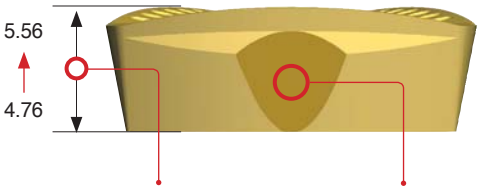
BRE

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

Features

- **Multi edge holder ISO View**

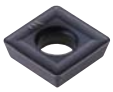
- Good chip flow
- Good heat emission

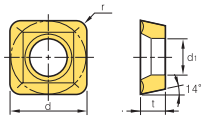


- Wider insert ensures cutting edge strength
- Better setting force by recess

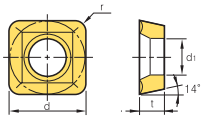
Available inserts

SDMT-MM

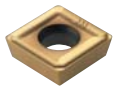


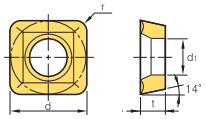


SPMT

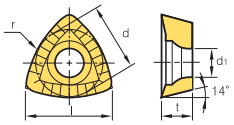


SPMT-MM

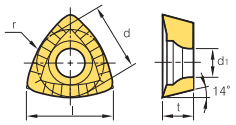




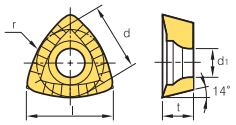
ZDMT-R-MM



ZPMT-R-MM



ZPMT-R-MR



Designation		Dimensions (mm)				
		l	d	t	r	d_1
SDMT-MM	090308-MM	-	9.525	3.18	0.8	4.4
SPMT	060304	-	6.35	3.18	0.4	2.8
SPMT-MM	120408-MM	-	12.7	4.76	0.8	5.6
	120508-MMN	-	12.7	5.56	0.8	5.6
ZDMT-R-MM	080310R-MM	8.4	6.73	3.2	10	2.8
	110312.5R-MM	10.6	8.5	3.65	12.5	2.8
	130416R-MM	13.2	10.5	4.76	16	4.4
ZPMT-R-MM	160520R-MM	16.1	12.7	5.56	20	5.6
	160525R-MM	16.9	12.7	5.56	25	5.6
	160531.5R-MM	17.6	12.7	5.56	31.5	5.6
ZPMT-R-MR	160525R-MR	17.6	12.7	5.56	25	5.6

BRE

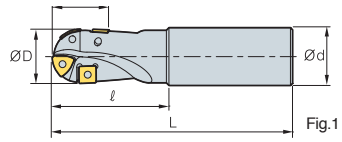


Fig.1

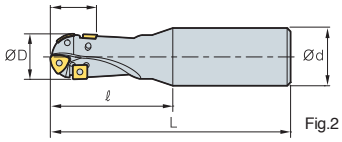


Fig.2

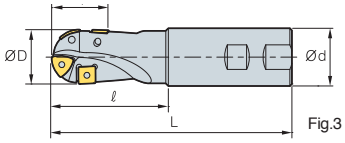


Fig.3

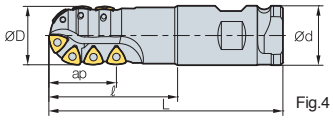


Fig.4


• AR : 0°~10°
• RR : -3°~0°

(mm)

Designation		Stock	Dimensions					Available Inserts		Parts		kg	Fig.
			ØD	Ød	ℓ	L	ap	Main	Ext. main	Screw	Wrench		
BRE	20R-S	●	20	20	50	125	20	ZDMT080310R-MM	SPMT060304	ETNA02506	TW07P	0.3	1
	20R-M	●	20	20	75	150	20						
	20R-L		20	25	100	200	20						2
	20R-SL	●	20	25	65	125	20						3
	25R-S	●	25	25	70	150	23	ZDMT110312.5R-MM	SPMT060304	ETNA02506	TW07P	0.5	1
	25R-M	●	25	25	95	175	23						
	25R-L	●	25	32	100	200	23					0.4	2
	25R-SL		25	25	75	135	23						3
	32R-S	●	32	32	85	175	31	ZDMT130416R-MM	SDMT090308-MM	ETNA0408	TW15S	0.9	1
	32R-M	●	32	32	100	200	31						
	32R-L	●	32	32	150	250	31					0.7	
	32R-SL		32	32	75	150	31						3

● : Stock items

▶ Available inserts

	SDMT-MM	SPMT	ZDMT-R-MM
			

Designation		Coated					page
		NCM325	PC3500	PC5300	PC3525	PC6510	
SDMT	090308-MM		●	●			96
SPMT	060304	●					
ZDMT	080310R-MM		●	●			
	110312.5R-MM		●	●			
	130416R-MM		●	●			

▶ Parts

Specification	Screw	Wrench	Wrench
Ø20~Ø25	ETNA02506	-	TW07P
Ø32	ETNA0408	TW15S	-

BRE

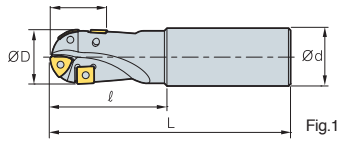


Fig.1

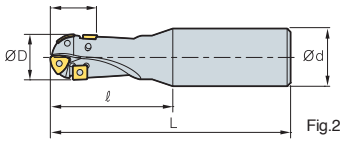


Fig.2

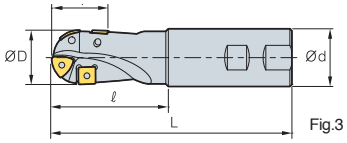


Fig.3

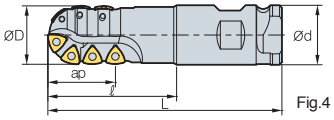


Fig.4


•AR : 0°~10°
•RR : -3°~0°

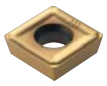
(mm)

Designation		Stock	Dimensions					Available Inserts		Parts			Fig.
			ØD	Ød	ℓ	L	ap	Main	Ext. main	Screw	Wrench	kg	
BRE	40R-S	●	40	42	85	175	41	ZPMT160520R-MM	SPMT120408-MM SPMT120508-MMN	ETNA0511	TW20-100	1.3	1
	40R-S-40		40	40	85	175	41						
	40R-M	●	40	42	100	200	41						
	40R-M-40		40	40	100	200	41						
	40R-L	●	40	42	150	250	41						
	40R-L-40		40	40	150	250	41						
	40R-SL		40	42	80	160	41						3
	40R-SL-40		40	40	80	160	41						
	50R-S	●	50	42	100	200	45	ZPMT160525R-MM	SPMT120408-MM SPMT120508-MMN	ETNA0511	TW20-100	2.6	1
	50R-S-40		50	40	100	200	45						
	50R-L		50	42	100	300	45						
	50R-L-40		50	40	100	300	45						
	50R-SL	●	50	42	100	250	45						3
	50R-SL-40		50	40	100	250	45						

● : Stock items

▶ Available inserts

SPMT-MM



ZPMT-R-MM

ZPMT-R-MR

Designation		Coated					page
		NCM325	PC3500	PC5300	PC3525	PC6510	
SPMT	120408-MM		●	●			96
	120508-MMN						
ZPMT	160520R-MM		●	●			
	160525R-MM		●	●			

▶ Parts

Specification	Screw	Wrench
Ø40~Ø50	ETNA0511	TW20-100

BRE

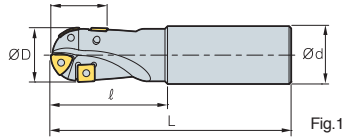


Fig.1

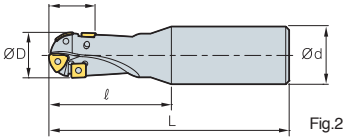


Fig.2

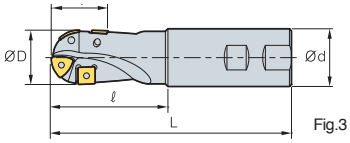


Fig.3

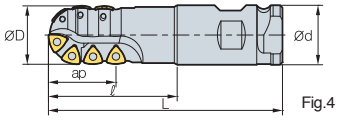


Fig.4


• AR : 0°~10°
• RR : -3°~0°

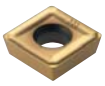
(mm)

Designation		Stock	Dimensions					Available Inserts		Parts			Fig.
			ØD	Ød	ℓ	L	ap	Main	Ext. main	Screw	Wrench	kg	
BRE	63R-S		63	42	100	200	52	ZPMT160531.5R-MM	SPMT120408-MM SPMT120508-MMN	ETNA0511	TW20-100	3.0	1
	63R-S-40		63	40	100	200	52						
	63R-L		63	42	100	300	52						
	63R-L-40		63	40	100	300	52						
	63R-SL	●	63	42	100	250	52						3
	63R-SL-40		63	40	100	250	52						
	40XR-SC40		40	40	110	200	54	ZPMT160520R-MM		ETNA0511	TW20-100	1.4	4
	40XR-LC40	●	40	40	150	250	54					1.9	
	50XR-SC50.8	●	50	50.8	110	200	57	ZPMT160525R-MM ZPMT160525R-MR		ETNA0511	TW20-100	2.3	4
	50XR-LC50.8		50	50.8	150	250	57					3.0	

● : Stock items

▶ Available inserts

SPMT-MM



ZPMT-R-MM

ZPMT-R-MR

Designation		Coated					page
		NCM325	PC3500	PC5300	PC3525	PC6510	
SPMT	120408-MM		●	●			96
	120508-MMN						
ZPMT	160520R-MM		●	●			
	160525R-MM		●	●			
	160525R-MR						
	160531.5R-MM			●			

▶ Parts

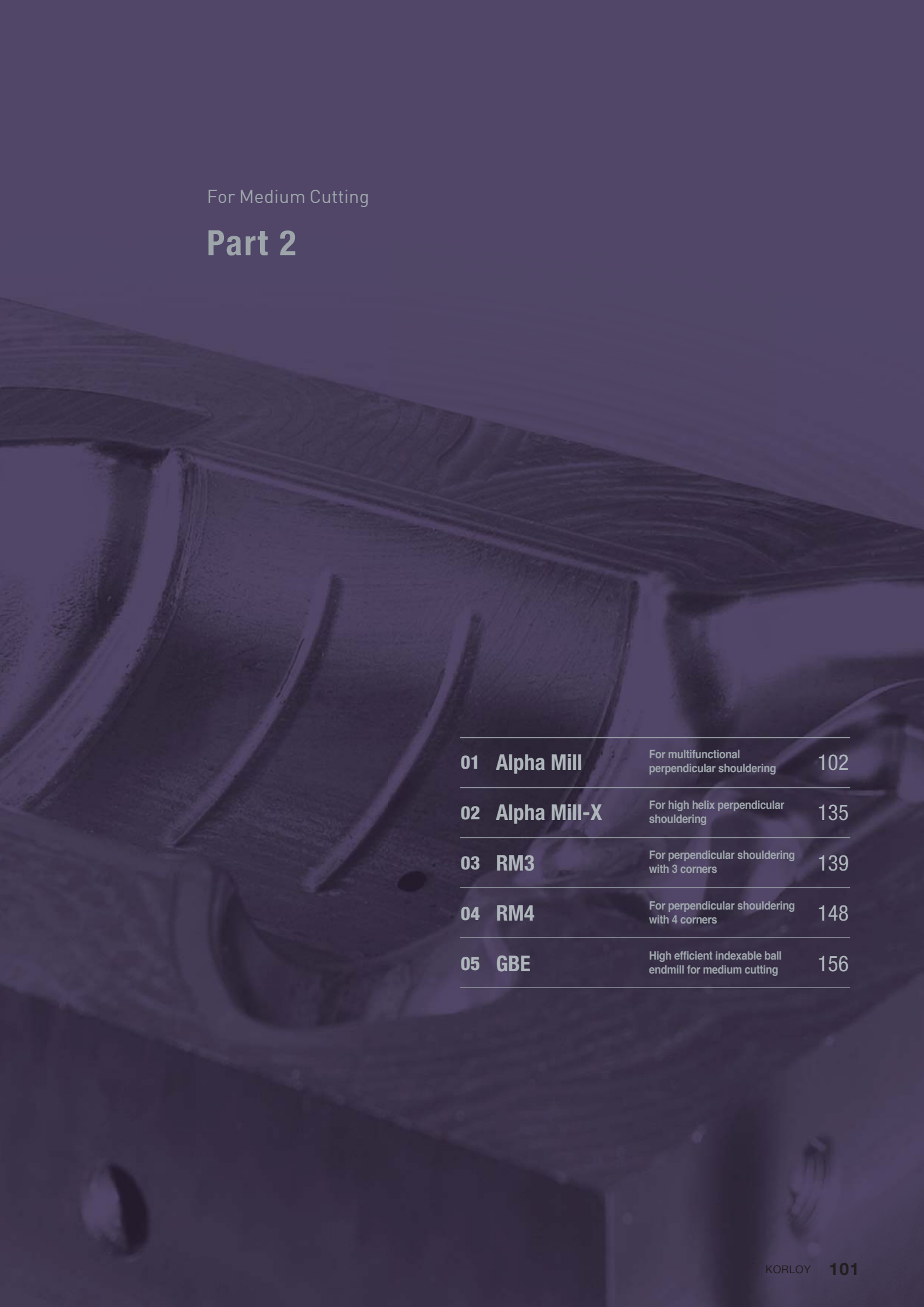
Specification	Screw	Wrench
Ø40~Ø63	ETNA0511	TW20-100

Solutions for MOLD & DIE

Part 2

For Medium Cutting

Part 2



For Medium Cutting

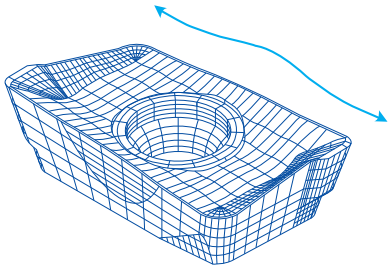
Indexable endmill for shouldering and various applications

Alpha Mill

- Innovative curve cutting edge and chip-breaker design ensures ideal 90 degree cutting and lower cutting resistance
- Various applications are available with multi-functional cutters. (Facing, Slotting, Square shoulder milling and etc.)
- Improved insert life time with optimized with each application
- Excellent perfomance ensured at large depth of cut operations due to strong cutting edge and low cutting resistance

Features

- Long tool life at high speed, high feed and deeper cutting by low cutting resistance and strong cutting-edge
- Distinguished features of Alpha-Curve reduce cutting resistance and improve cutting-edge strength and wear resistance
- Low cutting resistance is realized by KORLOY unique design-the alpha curve cutting-edge and optimal convex and concave design
- Highly efficient machining is available by the ideal application of the grade to material



Chip breaker
- High angle of inclination, increased hardness, and enlarged chip pocket with convex and concave shapes

The side
- All positive shaped sides to minimize interference

Concave shape
- Minimum interference for better chip control

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

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 Ø3.0 inch)

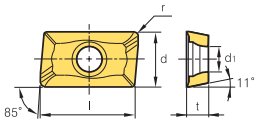
Lighter weight due to bigger inside diameter
- More convenient, more versatile

Features of chip breakers

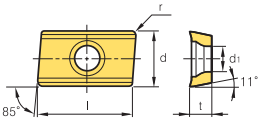
Chip breaker		Cutting-edge	Application	Features
MA			Al	• Optimal cutting-edge and buffed surface for aluminum workpieces ensure high performance in machining
ML			Hard-to-cut material	• Chip breaker with low cutting load is optimal for machining hard-to-cut materials
MF			Light cutting	• Chip breaker with low cutting load and harder cutting-edge than ML's are optimal for light cutting
MM			General cutting	• Optimal for milling in general ranges

Available inserts

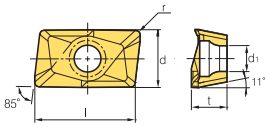
APKT



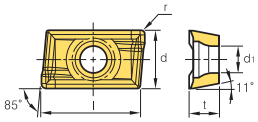
APKT-MA



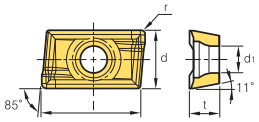
APKT-MA2



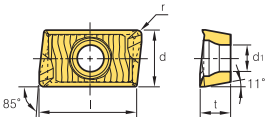
APKT-MA3



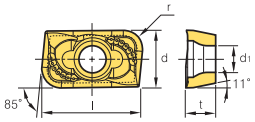
APKT-MF



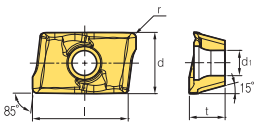
APKT-MM



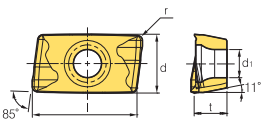
APKT-MM1



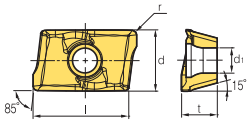
APMT-MA



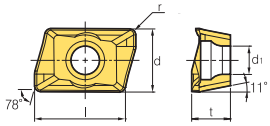
APMT-MF



APMT-ML



APMT-MM
06Type



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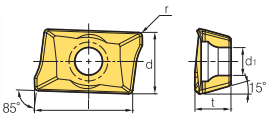

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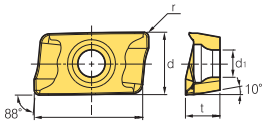
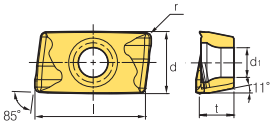
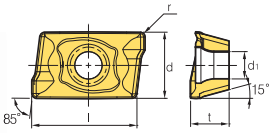
11Type



APMT-MM
16Type



APMT-MM
18Type

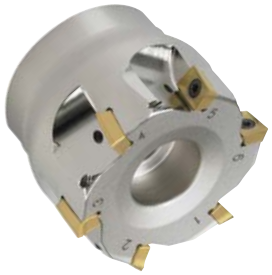


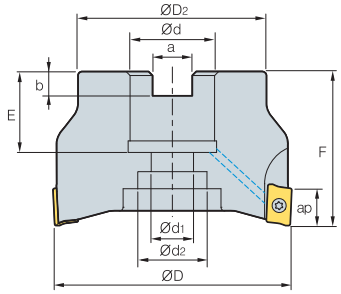
Designation		Dimensions (mm)				
		l	d	t	r	d_1
APKT	1604PDSR	16.4	9.525	4.76	0.8	4.4
APKT-MA	1604PDFR-MA	16.4	9.525	4.76	0.2	4.4
	160416FR-MA	16.4	9.525	4.76	1.6	4.4
APKT-MA2	1604PDFR-MA2	16.5	9.56	5.76	0.8	4.5
	160416FR-MA2	16.5	9.56	5.76	1.6	4.5
	160432FR-MA2	16.5	9.56	5.76	3.2	4.5
APKT-MA3	1604PDFR-MA3	16.4	9.525	5.0	0.8	4.4
	160420FR-MA3	16.0	9.525	5.0	2.0	4.4
APKT-MF	1604PDSR-MF	16.4	9.525	5.0	0.8	4.4
APKT-MM	1604PDSR-MM	16.4	9.525	5.2	0.8	4.4
APKT-MM1	160432R-MM1	16.4	9.525	4.76	3.2	4.4
APMT-MA	0602PDFR-MA	6	4.24	2.6	0.4	2.0
	060208PDFR-MA	6	4.24	2.6	0.8	2.0
	0903PDFR-MA	9.4	6.21	3.6	0.4	2.8
	090308PDFR-MA	9.4	6.21	3.6	0.8	2.8
	11T3PDFR-MA	11.2	6.467	3.6	0.5	2.9
	11T308PDFR-MA	11.2	6.467	3.6	0.8	2.9
	160404PDFR-MA	16.4	9.41	5.76	0.4	4.5
	1604PDFR-MA	16.4	9.41	5.76	0.8	4.5
	180604PDFR-MA	17.4	10.98	6.35	0.4	4.5
	1806PDFR-MA	17.4	10.98	6.35	0.8	4.5
	180612PDFR-MA	17.4	10.98	6.35	1.2	4.5
	180616PDFR-MA	17.4	10.98	6.35	1.6	4.5
	180620PDFR-MA	17.4	10.98	6.35	2.0	4.5
	180624PDFR-MA	17.4	10.98	6.35	2.4	4.5
	180630R-MA	17.4	10.98	6.35	3.0	4.5

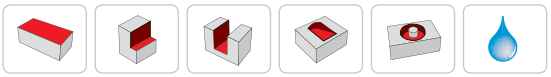
Designation		Dimensions (mm)				
		l	d	t	r	d1
APMT-MF	11T3PDSR-MF	11.2	6.467	3.6	0.5	2.9
	1604PDSR-MF	16.4	9.41	5.76	0.8	4.5
	1806PDSR-MF	17.4	10.98	6.35	0.8	4.5
	180612PDSR-MF	17.4	10.98	6.35	1.2	4.5
APMT-ML	0903PDER-ML	9.4	6.21	3.6	0.4	2.8
	090308PDER-ML	9.4	6.21	3.6	0.8	2.8
	11T3PDER-ML	11.2	6.467	3.6	0.5	2.9
	11T308PDER-ML	11.2	6.467	3.6	0.8	2.9
	160404PDER-ML	16.4	9.41	5.76	0.4	4.5
	1604PDER-ML	16.4	9.41	5.76	0.8	4.5
	180604PDER-ML	17.4	10.98	6.35	0.4	4.5
	1806PDER-ML	17.4	10.98	6.35	0.8	4.5
	180612PDER-ML	17.4	10.98	6.35	1.2	4.5
	180616PDER-ML	17.4	10.98	6.35	1.6	4.5
	180620PDER-ML	17.4	10.98	6.35	2.0	4.5
	180624PDER-ML	17.4	10.98	6.35	2.4	4.5
	180630R-ML	17.4	10.98	6.35	3.0	4.5
APMT-MM	060202PDSR-MM	6	4.24	2.6	0.2	2.0
	0602PDSR-MM	6	4.24	2.6	0.4	2.0
	060208PDSR-MM	6	4.24	2.6	0.8	2.0
	060212R-MM	6	4.24	2.6	1.2	2.0
	060216R-MM ✱	6	4.24	2.6	1.6	2.0
	0903PDSR-MM	9.4	6.21	3.6	0.4	2.8
	090308PDSR-MM	9.4	6.21	3.6	0.8	2.8
	090312R-MM	9.4	6.21	3.6	1.2	2.8
	090316R-MM	9.4	6.21	3.6	1.6	2.8
	090320R-MM	9.2	6.21	3.6	2.0	2.8
	090331R-MM ✱	9.2	6.21	3.6	3.1	2.8
	090332R-MM ✱	9.2	6.21	3.6	3.2	2.8
	11T3PDSR-MM	11.2	6.467	3.6	0.5	2.85
	11T308PDSR-MM	11.2	6.467	3.6	0.8	2.85
	11T312PDSR-MM	11.2	6.467	3.6	1.2	2.85
	11T316R-MM	11.0	6.467	3.6	1.6	2.85
	11T318R-MM	11.0	6.467	3.6	1.8	2.85
	11T324R-MM	11.0	6.467	3.6	2.4	2.85
	1604PDSR-MM	16.4	9.41	5.76	0.8	4.5
	160410PDSR-MM	16.4	9.41	5.76	1.0	4.5
	160416PDSR-MM	16.4	9.41	5.76	1.6	4.5
	160424R-MM	16	9.41	5.76	2.4	4.5
	160430R-MM	16	9.41	5.76	3.0	4.5
	160432R-MM	16	9.41	5.76	3.2	4.5
	160450R-MM ✱	16	9.41	5.76	5.0	4.5
	160464R-MM ✱	16	9.41	5.76	6.4	4.5
	1806PDSR-MM	17.4	10.98	6.35	0.8	4.5
	180612PDSR-MM	17.4	10.98	6.35	1.2	4.5
	180616PDSR-MM	17.4	10.98	6.35	1.6	4.5
	180620PDSR-MM	17.4	10.98	6.35	2.0	4.5
	180624PDSR-MM	17.4	10.98	6.35	2.4	4.5
	180630R-MM	16.7	10.98	6.35	3.0	4.5
	180632R-MM	16.7	10.98	6.35	3.2	4.5
	180640R-MM ✱	16.7	10.98	6.35	4.0	4.5
	180648R-MM ✱	16.7	10.98	6.35	4.8	4.5
	180650R-MM ✱	16.7	10.98	6.35	5.0	4.5
	180660R-MM ✱	16.7	10.98	6.35	6.0	4.5
	180664R-MM ✱	16.7	10.98	6.35	6.4	4.5

Inserts marked with an asterisk (✱) require a custom-made order for special holders.

AMC(M)1000S







AA
90°

- AR : 9°~13°
- RR : -14°~5°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg
AMCM	1032HS	●	8	32	30	16	9	14	8.4	5.6	19	40	5.6	0.15
	1040HS-16	●	10	40	34	16	9	14	8.4	5.6	19	40	5.6	0.24
	1040HS-22		10	40	34	22	11	18	10.4	6.3	21	40	5.6	0.24
	1050HS	●	12	50	42	22	11	18	10.4	6.3	21	40	5.6	0.36
	1063HS	●	14	63	49	22	11	18	10.4	6.3	21	40	5.6	0.61

● : Stock items

▶ Available inserts

APMT-MA

APMT-MM

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	0602PDFR-MA																●	104-105
	060208PDFR-MA																	
	060202PDSR-MM				●					●				●	●			
	0602PDSR-MM				●			●	●	●	●	●	●	●	●			
	060208PDSR-MM				●					●	●			●	●			
	060212R-MM				●						●			●	●			

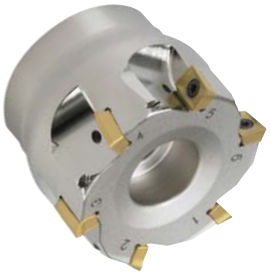
▶ Available arbors

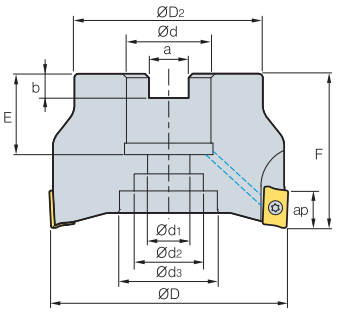
Designation		Ød	NC arbors
AMCM	1032HS	16	BT□□-FMC16-□□
	1040HS-16		
	1040HS-22	22	BT□□-FMC22-□□
	1050HS		
	1063HS		

▶ Parts

Specification	 Screw	 Wrench
Ø32~Ø63	FTKA01842	TW06S-A

AMC(M)1500S





AA 90°

- AR : 9°~13°
- RR : -14°~5°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
AMCM	15040HS	●	5	40	34	16	9	14	-	8.4	5.6	19	40	9	0.22
	15050HS	●	6	50	42	22	11	18	-	10.4	6.3	21	40	9	0.34
	15063HS	●	8	63	49	22	11	18	-	10.4	6.3	21	40	9	0.57
AMC (AMCM)	15080HS	(●)	8	80	57	25.4(27)	14	25	35	9.5(12.4)	6(7)	25(22)	50	9	1.10
	15100HS		10	100	67	31.75(32)	18	26	42	12.7(14.4)	8(8)	32(28)	63	9	2.10

( ) Metric size ●: Stock items

▶ Available inserts

APMT-MA

APMT-ML

APMT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	0903PDFR-MA																●	104-105
	090308PDFR-MA																	
	0903PDER-ML													●	●			
	090308PDER-ML													●	●			
	0903PDSR-MM				●			●	●	●	●		●	●	●			
	090308PDSR-MM				●					●	●			●	●			
	090312R-MM										●			●	●			
	090316R-MM				●					●	●			●	●			
	090320R-MM									●	●			●	●			

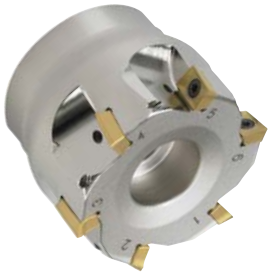
▶ Available arbors

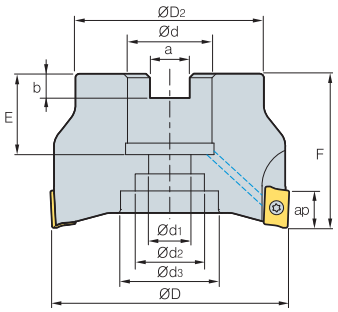
Designation		Ød	NC arbors
AMCM	15040HS	16	BT□□-FMC16-□□
	15050HS 15063HS	22	BT□□-FMC22-□□
AMC (AMCM)	15080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	15100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

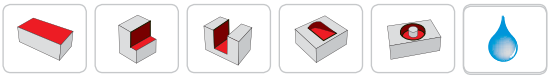
▶ Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA02565S	TW08S

AMC(M)2000S







AA 90°

- AR : 9°~13°
- RR : -14°~5°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
AMCM	2040HS	●	5	40	34	16	9	14	-	8.4	5.6	18	40	11	0.22
	2050HS	●	6	50	42	22	11	18	-	10.4	6.3	20	40	11	0.34
	2063HS	●	8	63	49	22	11	18	-	10.4	6.3	20	40	11	0.57
AMC (AMCM)	2080HS	(●)	8	80	57	25.4(27)	14	25	35	9.5(12.4)	6(7)	25(22)	50	11	1.10
	2100HS		10	100	67	31.75(32)	18	26	42	12.7(14.4)	8(8)	32(28)	63	11	2.10

( ) Metric size ● : Stock items

▶ Available inserts

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	11T3PDFR-MA																●	104-105
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM			●	●			●	●	●	●	●	●	●	●			
	11T3PDSR-MF				●					●	●		●	●	●			
	11T308PDSR-MM				●					●	●	●		●	●			
	11T312PDSR-MM				●					●	●	●		●	●			
	11T316R-MM				●					●	●			●	●			
	11T318R-MM																	
	11T324R-MM				●					●	●			●	●			

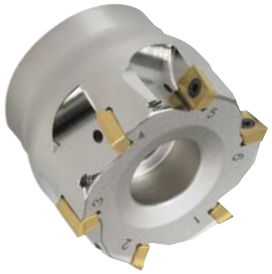
▶ Available arbors

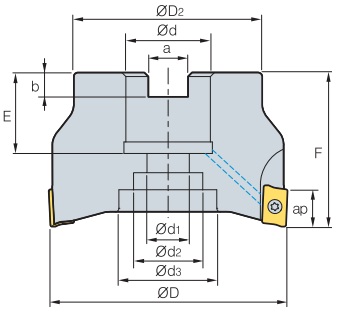
Designation		Ød	NC arbors
AMCM	2040HS	16	BT□□-FMC16-□□
	2050HS 2063HS	22	BT□□-FMC22-□□
AMC (AMCM)	2080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	2100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

▶ Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA02565S	TW08S

AMC(M)3000S










AA 90°

- AR : 14°
- RR : -12°~8°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
AMCM	3040HS	●	4	40	34	16	9	14	-	8.4	5.6	18	40	16	0.18
	3050HS	●	5	50	42	22	11	18	-	10.4	6.3	20	40	16	0.28
	3063HS	●	6	63	49	22	11	18	-	10.4	6.3	20	40	16	0.50
AMC (AMCM)	3080HS	● (●)	7	80	57	25.4(27)	14	25	35	9.5(12.4)	6(7)	25(22)	50	16	1.02
	3100HS	● (●)	8	100	67	31.75(32)	18	26	42	12.7(14.4)	8(8)	32(28)	63	16	2.05

( ) Metric size ● : Stock items

▶ Available inserts

APMT-MA

APMT-ML

APMT-MM

APMT-MF

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	1604PDFR-MA																●	104-105
	160404PDFR-MA																	
	1604PDER-ML													●	●			
	160404PDER-ML													●	●			
	1604PDSR-MM			●	●			●	●	●	●	●	●	●	●			
	1604PDSR-MF				●					●	●		●	●	●			
	160410PDSR-MM										●			●	●			
	160416PDSR-MM				●					●	●			●	●			
	160424R-MM				●					●	●			●	●			
	160430R-MM										●			●	●			
	160432R-MM				●					●	●			●	●			

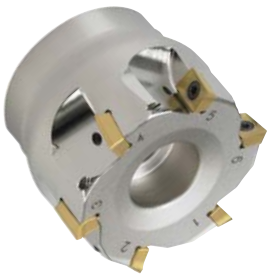
▶ Available arbors

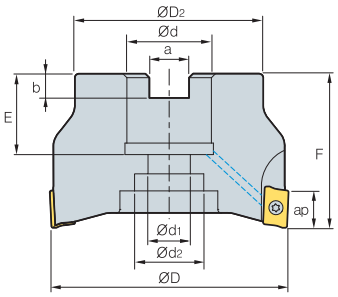
Designation		Ød	NC arbors
AMCM	3040HS	16	BT□□-FMC16-□□
	3050HS 3063HS	22	BT□□-FMC22-□□
AMC (AMCM)	3080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

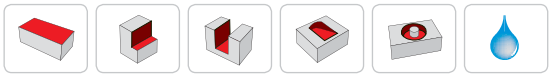
▶ Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0410	TW15S

AMC(M)3000S-K







AA 90°

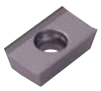
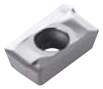
- AR : 14°
- RR : -12°~8°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg
AMCM	3040HS-K		4	40	34	16	9	14	8.4	5.6	18	40	16	0.15
	3050HS-K	●	5	50	42	22	11	18	10.4	6.3	20	40	16	0.24
	3063HS-K	●	6	63	49	22	11	18	10.4	6.3	20	40	16	0.24
AMC (AMCM)	3080HS-K	●	7	80	57	25.4(27)	14	20	9.5(12.4)	6(7)	25(22)	50	16	0.36
	3100HS-K	●	8	100	67	31.75(32)	18	26	12.7(14.4)	8(8)	32(28)	63	16	0.61

( ) Metric size ● : Stock items

▶ Available inserts

APKT	APKT-MF	APKT-MM	APKT-MM1	APKT-MA	APKT-MA2	APKT-MA3
						

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	PD2000	G10E	H01	H05	
APKT	1604PDSR			●						●			●							104-105
	1604PDSR-MF			●										●						
	1604PDSR-MM			●	●					●		●	●	●						
	160432R-MM1																			
	1604PDFR-MA															●		●	●	
	1604PDFR-MA2																	●		
	160416FR-MA2																			
	160432FR-MA2																			
	1604PDFR-MA3																●	●	●	

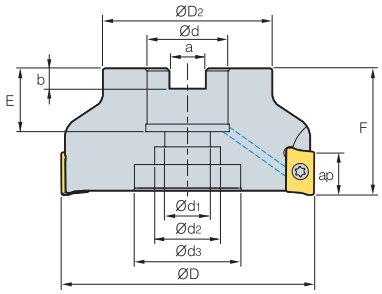
▶ Available arbors

Designation		Ød	NC arbors
AMCM	3040HS-K	16	BT□□-FMC16-□□
	3050HS-K 3063HS-	22	BT□□-FMC22-□□
AMC (AMCM)	3080HS-K	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HS-K	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

▶ Parts

Specification	 Screw	 Wrench
Ø40~Ø100	FTKA0410	TW15S

AMC(M)4000S



AA 90°

- AR : 13°~15°
- RR : -12°~7°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
AMCM	4050HS	●	5	50	42	22	11	18	-	10.4	6.3	21	40	17	0.28
	4063HS	●	6	63	49	22	11	18	-	10.4	6.3	21	40	17	0.50
AMC (AMCM)	4080HS	● (●)	7	80	57	25.4(27)	14	25	35	9.5(12.4)	6(7)	24(23)	50	17	1.00
	4100HS	(●)	8	100	67	31.75(32)	18	26	42	12.7(14.4)	8(8)	32(25)	63(50)	17	2.10
	4125HS	● (●)	9	125	87	38.1(40)	22	32	52	15.9(16.4)	10(9)	35(29)	63	17	3.30
	4160S		10	160	107	50.8(40)	-	-	100	19(16.4)	11(9)	38(32)	63	17	3.6
	4200S		10	200	108	47.625(60)	-	-	132	25.4(25.7)	14(14)	40(38)	63	17	6

( ) Metric size ● : Stock items

▶ Available inserts

APMT-MA | APMT-ML | APMT-MM | APMT-MF

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	1806PDFR-MA																●	104-105
	180604PDFR-MA																●	
	180612PDFR-MA																●	
	180616PDFR-MA																●	
	180620PDFR-MA																●	
	180624PDFR-MA																●	
	180630R-MA																●	
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●	●			

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	180620PDER-ML													●	●			104-105
	180624PDER-ML													●	●			
	180630R-ML													●	●			
	1806PDSR-MM				●			●	●	●	●	●	●	●	●			
	1806PDSR-MF				●						●		●	●	●			
	180612PDSR-MM				●					●	●			●	●			
	180616PDSR-MM				●						●			●	●			
	180620PDSR-MM																	
	180624PDSR-MM				●						●			●	●			
	180630R-MM										●			●	●			
	180632R-MM				●						●			●	●			

▶ Available arbors

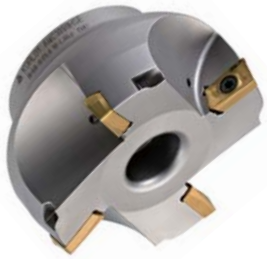
Designation		Ød	NC arbors
AMCM	4050HS 4063HS	22	BT□□-FMC22-□□
AMC (AMCM)	4080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	4100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

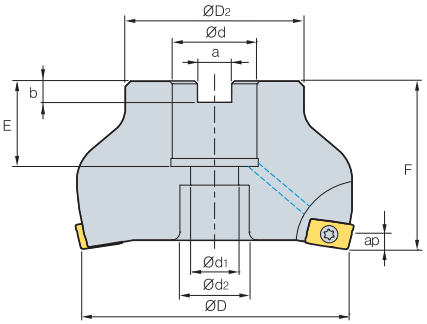
Designation		Ød	NC arbors
AMC (AMCM)	4125HS	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□
	4160S	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMC40-□□
	4200S	47.625	BT□□-FMA47.625-□□
		60	BT□□-FMB60-□□

▶ Parts

Specification	Screw	Wrench
Ø50~Ø200	FTKA0410	TW15S

AMC(M)1000SE/2000SE





AA 75°
- AR : 45°
- RR : 0°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg
AMCM	1040HSE		4	40	34	16	9	14	8.4	5.6	19	40	2.5	0.26
	1050HSE		5	50	42	22	11	18	10.4	6.3	21	40	2.5	0.39
AMC (AMCM)	2080HSE	(●)	5	80	57	25.4(27)	14	20	9.5(12.4)	6.0(7.0)	25(22)	50	4	1.2
	2100HSE		6	100	67	31.75(32)	18	26	12.7(14.4)	8.0(8.0)	32(28)	63	4	2.33

( ) Metric size ● : Stock items

▶ Available inserts

APMT-MM APMT-MF

Type	Designation		Cermet		Coated											Uncoated		page
			CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
1000 type	APMT	060202PDSR-MM				●					●				●	●			104-105
		0602PDSR-MM				●			●	●	●	●	●	●	●	●			
		060208PDSR-MM				●					●	●			●	●			
		060212R-MM				●						●			●	●			
2000 type	APMT	11T3PDSR-MM			●	●			●	●	●	●	●	●	●	●			
		11T3PDSR-MF				●					●	●		●	●	●			
		11T308PDSR-MM				●					●	●	●		●	●			
		11T312PDSR-MM				●					●	●	●		●	●			
		11T316R-MM				●					●	●			●	●			
		11T318R-MM																	
		11T324R-MM				●					●	●			●	●			

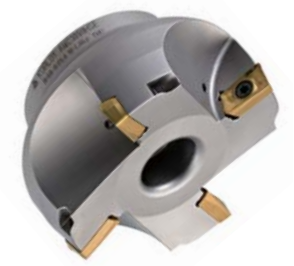
▶ Available arbors

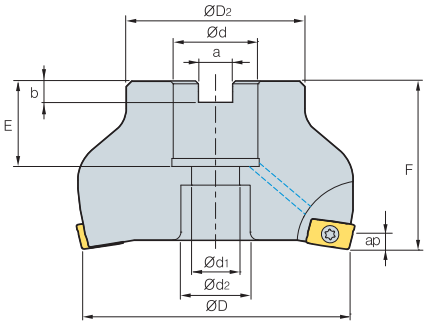
Type	Designation		Ød	NC arbors
1000 type	AMCM	1040HSE	16	BT□□-FMC16-□□
		1050HSE	22	BT□□-FMC22-□□
2000 type	AMC (AMCM)	2080HSE	25.4	BT□□-FMA25.4-□□
			27	BT□□-FMC27-□□
		2100HSE	31.75	BT□□-FMA31.75-□□
			32	BT□□-FMC32-□□

▶ Parts

Specification	Screw	Wrench	Wrench
Ø40~Ø50 (1000 type)	FTKA01842	-	TW06S-A
Ø80~Ø100 (2000 type)	FTKA02565S	TW08S	-

AMC(M)3000SE





AA 75°
• AR : 45°
• RR : 0°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg
AMC (AMCM)	3080HSE		4	80	57	25.4(27)	14	20	9.5(12.4)	6.0(7.0)	25(22)	50	6	1.3
	3100HSE		5	100	67	31.75(32)	18	26	12.7(14.4)	8.0(8.0)	32(28)	63	6	2.3

( ) Metric size ●: Stock items

▶ Available inserts

APMT-MM APMT-MF

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	1604PDSR-MM			●	●			●	●	●	●	●	●	●	●			104-105
	1604PDSR-MF				●					●	●		●	●	●			
	160410PDSR-MM										●			●	●			
	160416PDSR-MM				●					●	●			●	●			
	160424R-MM				●					●	●			●	●			
	160430R-MM										●			●	●			
	160432R-MM				●					●	●			●	●			

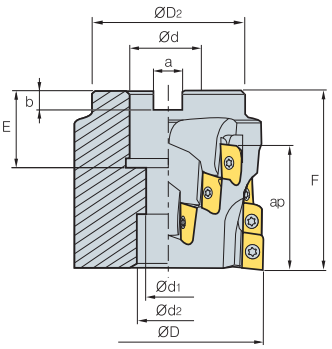
▶ Available arbors

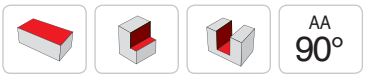
Designation		Ød	NC arbors
AMC (AMCM)	3080HSE	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HSE	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

▶ Parts

Specification	Screw	Wrench
Ø80~Ø100	FTKA0410	TW08S

AMC(M)2000M





AA 90°

• AR : 9°
• RR : -9°~-5°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	No. of flute	ap	kg
AMCM	2050M	●	16	50	40	22	11	18	10.4	6.3	21	58	4	39	0.7
AMC (AMCM)	2063M	● (●)	16	63	50	25.4(27)	13.5	20	9.5(12.4)	6(7)	25(25)	58	4	39	0.8
	2080M	● (●)	20	80	60	31.75(32)	-	45	12.7(14.4)	8(8)	35(28)	63	5	39	0.96
	2100M	(●)	24	100	80	38.1(40)	-	56	15.9(16.4)	10(9)	38(30)	63	6	39	1.2

( ) Metric size ●: Stock items

▶ Available inserts


APMT-MA


APMT-ML


APMT-MM

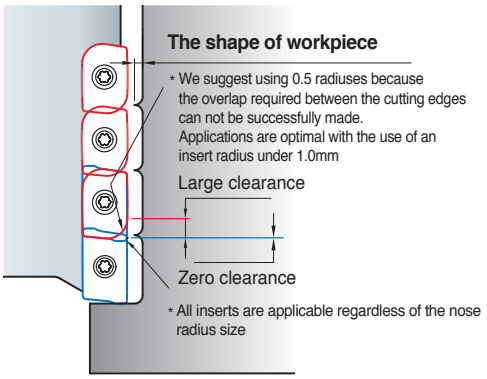

APMT-MF

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	11T3PDFR-MA																●	104-105
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM			●	●			●	●	●	●	●	●	●	●			
	11T3PDSR-MF				●					●	●		●	●	●			
	11T308PDSR-MM				●					●	●	●		●	●			
	11T312PDSR-MM				●					●	●	●		●	●			
	11T316R-MM				●					●	●			●	●			
	11T318R-MM																	
	11T324R-MM				●					●	●			●	●			

▶ Available arbors

Designation		Ød	NC arbors	
AMCM	2050M	22.225	BT□□-FMA22.225-□□	BT□□-SMA22.225-□□
		22	BT□□-FMC22-□□	BT□□-SMC22-□□
AMC (AMCM)	2063M	25.4	BT□□-FMA25.4-□□	BT□□-SMA25.4-□□
		27	BT□□-FMC27-□□	BT□□-SMC27-□□
	2080M	31.75	BT□□-FMA31.75-□□	BT□□-SMA31.75-□□
		32	BT□□-FMC32-□□	BT□□-SMC32-□□
	2100M	38.1	BT□□-FMA38.1-□□	BT□□-SMA38.1-□□
		40	BT□□-FMC40-□□	BT□□-SMC40-□□

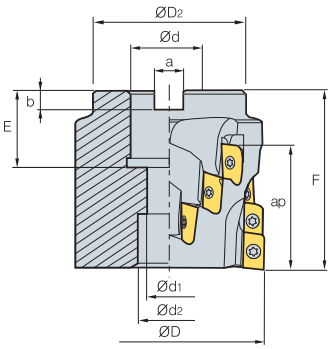
▶ Caution when clamping the inserts

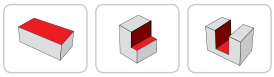


▶ Parts

Specification	Screw	Wrench
Ø50~Ø100	FTKA02565S	TW08S

AMC(M)3000M





AA 90°

- AR : 9°
- RR : -9°~-5°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	No. of flute	ap	kg
AMC (AMCM)	3063M		16	63	57	25.4(27)	14	20	9.5(12.4)	6(7)	38(38)	85	4	57	1.1
	3080M		20	80	67	31.75(32)	14	26	12.7(14.4)	8(8)	40(40)	100	4	71	2.23
	3100M		30	100	87	38.1(40)	22	32	15.9(16.4)	10(9)	40(40)	100	6	71	3.59

( ) Metric size ●: Stock items

▶ Available inserts

APMT-MA | APMT-ML | APMT-MM | APMT-MF

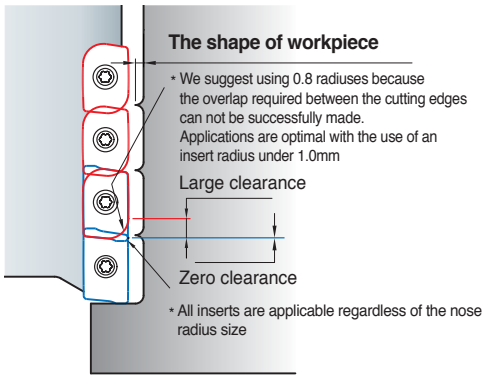



Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	1604PDFR-MA																●	104-105
	160404PDFR-MA																	
	1604PDER-ML													●	●			
	160404PDER-ML													●	●			
	1604PDSR-MM			●	●			●	●	●	●	●	●	●	●			
	1604PDSR-MF				●					●	●		●	●	●			
	160410PDSR-MM										●			●	●			
	160416PDSR-MM				●					●	●			●	●			
	160424R-MM				●					●	●			●	●			
	160430R-MM										●			●	●			
	160432R-MM				●					●	●			●	●			

▶ Available arbors

Designation		Ød	NC arbors	
AMC (AMCM)	3063M	25.4	BT□□-FMA25.4-□□	BT□□-SMA25.4-□□
		27	BT□□-FMC27-□□	BT□□-SMC27-□□
	3080M	31.75	BT□□-FMA31.75-□□	BT□□-SMA31.75-□□
		32	BT□□-FMC32-□□	BT□□-SMC32-□□
	3100M	38.1	BT□□-FMA38.1-□□	BT□□-SMA38.1-□□
		40	BT□□-FMC40-□□	BT□□-SMC40-□□

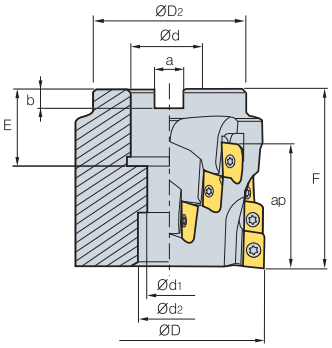
▶ Caution when clamping the inserts

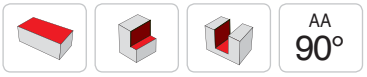


▶ Parts

Specification	Screw	Wrench
Ø63~Ø100	FTKA0410	TW15S

AMC(M)4000M





• AR : 9°
• RR : -9°~-5°

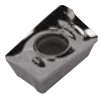
(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	No. of flute	ap	kg
AMC (AMCM)	4063M		16	63	57	25.4(27)	14	20	9.5(12.4)	6(7)	38(38)	85	4	61.1	1.1
	4080M		20	80	67	31.75(32)	14	26	12.7(14.4)	8(8)	40(40)	100	4	76.1	2.23
	4100M		30	100	87	38.1(40)	22	32	15.9(16.4)	10(9)	40(40)	100	6	76.1	3.59
	4125M		18	125	87	38.1(40)	22	32	15.9(16.4)	10(9)	36(29)	68	6	46.1	4.0

( ) Metric size ● : Stock items

▶ Available inserts

APMT-MA



APMT-ML

APMT-MM

APMT-MF

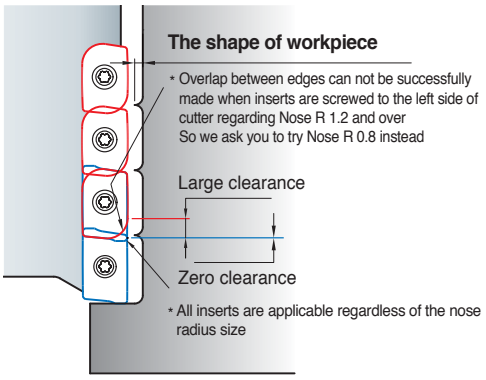
Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	1806PDFR-MA															●		104-105
	180604PDFR-MA															●		
	180612PDFR-MA															●		
	180616PDFR-MA															●		
	180620PDFR-MA															●		
	180624PDFR-MA															●		
	180630R-MA															●		
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●	●			

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	180620PDER-ML													●	●			104-105
	180624PDER-ML													●	●			
	180630R-ML													●	●			
	1806PDSR-MM			●				●	●	●	●	●	●	●	●			
	1806PDSR-MF			●							●		●	●	●			
	180612PDSR-MM			●						●	●			●	●			
	180616PDSR-MM			●							●			●	●			
	180620PDSR-MM																	
	180624PDSR-MM			●							●			●	●			
	180630R-MM										●			●	●			
	180632R-MM			●							●			●	●			

▶ Available arbors

Designation		Ød	NC arbors	
AMC (AMCM)	4063M	25.4	BT□□-FMA25.4-□□	BT□□-SMA25.4-□□
		27	BT□□-FMC27-□□	BT□□-SMC27-□□
	4080M	31.75	BT□□-FMA31.75-□□	BT□□-SMA31.75-□□
		32	BT□□-FMC32-□□	BT□□-SMC32-□□
	4100M	38.1	BT□□-FMA38.1-□□	BT□□-SMA38.1-□□
		40	BT□□-FMC40-□□	BT□□-SMC40-□□
	4125M	38.1	BT□□-FMA38.1-□□	BT□□-SMA38.1-□□
		40	BT□□-FMC40-□□	BT□□-SMC40-□□

▶ Caution when clamping the inserts



▶ Parts

Specification	Screw	Wrench
Ø63~Ø125	FTKA0410	TW15S

AMS1000S

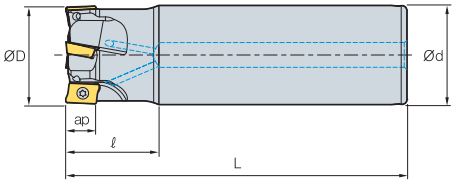


Fig. 1

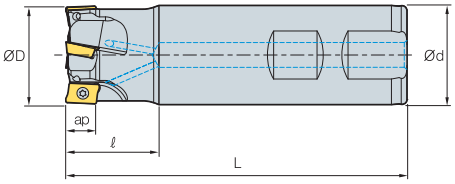
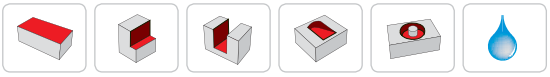


Fig. 2



AA 90°

- AR : 7.5°~13°
- RR : -17°~-6°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg	Fig.
AMS	1010HS	●	2	10	10	20	80	5.6	0.04	2
	1011HS	●	2	11	10	20	80	5.6	0.04	2
	1012HS-2	●	2	12	12	25	80	5.6	0.06	2
	1012HS-2L12	●	2	12	12	25	120	5.6	0.09	1
	1012HS-3	●	3	12	12	25	80	5.6	0.06	2
	1014HS-2	●	2	14	16	25	90	5.6	0.11	2
	1014HS-2L16		2	14	16	25	140	5.6	0.18	1
	1014HS-3	●	3	14	16	25	90	5.6	0.11	2
	1015HS	●	3	15	16	25	90	5.6	0.11	2
	1015HS-3L16		3	15	16	25	140	5.6	0.18	1
	1016HS-3	●	3	16	16	25	90	5.6	0.12	2
	1016HS-3L16		3	16	16	25	160	5.6	0.22	1
	1016HS-4	●	4	16	16	25	90	5.6	0.12	2
	1017HS	●	4	17	16	25	90	5.6	0.12	2
	1017HS-3L16		3	17	16	25	160	5.6	0.22	1
	1018HS	●	4	18	16	25	90	5.6	0.12	2
	1018HS-4L16		4	18	16	25	180	5.6	0.25	1
	1020HS-4	●	4	20	20	30	110	5.6	0.23	2
	1020HS-4L20		4	20	20	30	200	5.6	0.43	1
	1020HS-5		5	20	20	30	110	5.6	0.23	2
	1021HS	●	5	21	20	30	110	5.6	0.24	2
	1021HS-4L20		4	21	20	30	200	5.6	0.43	1
	1022HS	●	5	22	20	30	110	5.6	0.27	2
	1025HS	●	7	25	25	30	120	5.6	0.39	2
	1026HS	●	7	26	25	30	120	5.6	0.39	2
	1032HS	●	8	32	32	35	120	5.6	0.65	2
	1033HS		8	33	32	35	120	5.6	0.65	2

● : Stock items

▶ Available inserts

APMT-MA

APMT-MM

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC3530	PC6510	PC5300	PC5400	G10E	H01	
APMT	0602PDFR-MA																●	104-105
	060208PDFR-MA																	
	060202PDSR-MM				●					●				●	●			
	0602PDSR-MM				●			●	●	●	●	●	●	●	●			
	060208PDSR-MM				●					●	●			●	●			
	060212R-MM				●						●			●	●			
	060216R-MM										●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø10~Ø33	FTKA01842	TW06S-A

AMS1500S

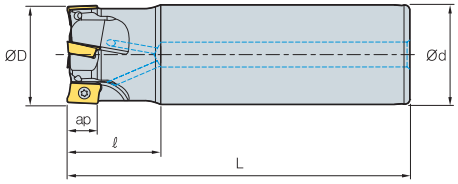


Fig. 1

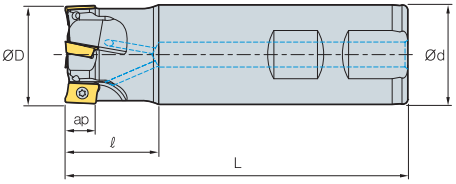


Fig. 2

AA
90°

- AR : 7.5°~12.5°
- RR : -28°~-14°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg	Fig.
AMS	15010HS	●	1	10	10	25	80	9	0.04	2
	15010HS-1L16		1	10	16	30	160	9	0.21	1
	15012HS	●	1	12	16	25	80	9	0.10	2
	15012HS-1L16		1	12	16	30	160	9	0.21	1
	15013HS	●	1	13	16	25	80	9	0.10	2
	15014HS	●	1	14	16	25	80	9	0.10	2
	15014HS-1L16		1	14	16	30	160	9	0.21	1
	15016HS	●	2	16	16	30	90	9	0.11	2
	15016HS-2L16	●	2	16	16	30	160	9	0.21	1
	15017HS	●	2	17	16	30	90	9	0.12	2
	15017HS-2L16		2	17	16	30	160	9	0.21	1
	15018HS	●	2	18	16	30	90	9	0.14	2
	15018HS-2L16		2	18	16	30	160	9	0.21	1
	15019HS	●	2	19	16	30	90	9	0.16	2
	15020HS	●	2	20	20	30	90	9	0.18	2
	15020HS-2L20	●	2	20	20	30	160	9	0.34	1
	15020HS-3	●	3	20	20	30	90	9	0.18	2
	15021HS	●	2	21	20	30	90	9	0.20	2
	15021HS-2L20		2	21	20	30	160	9	0.34	1
	15021HS-3	●	3	21	20	30	90	9	0.20	2
	15022HS	●	3	22	20	30	110	9	0.23	2
	15022HS-3L20		3	22	20	30	180	9	0.38	1
	15024HS	●	3	24	20	30	110	9	0.30	2
	15024HS-4	●	4	24	20	30	110	9	0.30	2
	15025HS-3S20	●	3	25	20	30	110	9	0.35	2
	15025HS	●	3	25	25	30	110	9	0.35	2
	15025HS-3L25	●	3	25	25	30	180	9	0.59	1

● : Stock items

▶ Available inserts

APMT-MA

APMT-ML

APMT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	0903PDFR-MA																●	104-105
	090308PDFR-MA																	
	0903PDER-ML													●	●			
	090308PDER-ML													●	●			
	0903PDSR-MM				●			●	●	●	●		●	●	●			
	090308PDSR-MM				●					●	●			●	●			
	090312R-MM										●			●	●			
	090316R-MM				●					●	●			●	●			
	090320R-MM									●	●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø10~Ø14 Ø16~Ø25	FTKA02555S FTKA02565S	TW08S

AMS1500S

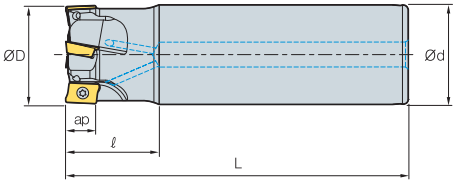


Fig. 1

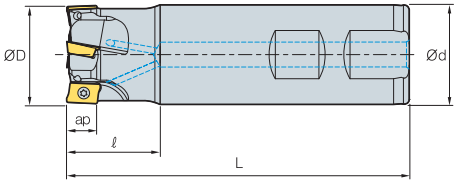


Fig. 2

AA 90°

- AR : 7.5°~12.5°
- RR : -28°~-14°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg	Fig.
AMS	15025HS-4S20	●	4	25	20	30	110	9	0.25	2
	15025HS-4S25	●	4	25	25	30	110	9	0.25	2
	15028HS	●	4	28	25	30	110	9	0.36	2
	15028HS-4L25		4	28	25	30	180	9	0.61	1
	15028HS-5	●	5	28	25	30	110	9	0.36	2
	15030HS	●	4	30	25	30	110	9	0.38	2
	15030HS-4L25		4	30	25	30	180	9	0.62	1
	15030HS-5		5	30	25	30	110	9	0.38	2
	15032HS		4	32	32	30	110	9	0.60	2
	15032HS-4L32	●	4	32	32	30	180	9	1.00	1
	15032HS-5		5	32	32	30	110	9	0.60	2
	15035HS	●	5	35	32	30	110	9	0.70	2
	15035HS-6		6	35	32	30	110	9	0.70	2
	15040HS-S32	●	5	40	32	35	130	9	0.80	2
	15040HS-5L32		5	40	32	35	200	9	1.20	1
	15040HS-6S32		6	40	32	35	130	9	0.80	2
	15040HS-S40		5	40	40	35	130	9	1.13	2
	15040HS-6S40		6	40	40	35	130	9	1.13	2
	15040HS-S42		5	40	42	35	130	9	1.23	2
	15040HS-6S42		6	40	42	35	130	9	1.23	2

● : Stock items

▶ Available inserts

APMT-MA

APMT-ML

APMT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	0903PDFR-MA																●	104-105
	090308PDFR-MA																	
	0903PDER-ML													●	●			
	090308PDER-ML													●	●			
	0903PDSR-MM				●			●	●	●	●		●	●	●			
	090308PDSR-MM				●					●	●			●	●			
	090312R-MM										●			●	●			
	090316R-MM				●					●	●			●	●			
	090320R-MM									●	●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø25~Ø40	FTKA02565S	TW08S

AMS2000S

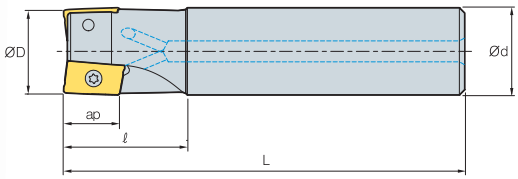


Fig. 1

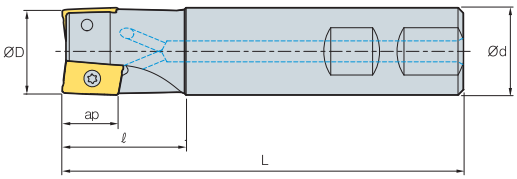
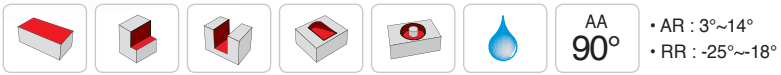


Fig. 2



AA
90°

- AR : 3°~14°
- RR : -25°~-18°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg	Fig.
AMS	2010HS	●	1	10	10	20	85	11	0.04	2
	2010HS-1L16		1	10	16	30	160	11	0.21	1
	2012HS	●	1	12	16	25	85	11	0.10	2
	2012HS-1L16		1	12	16	30	160	11	0.21	1
	2014HS	●	1	14	16	25	90	11	0.12	2
	2014HS-1L16		1	14	16	30	160	11	0.21	1
	2016HS	●	2	16	16	25	90	11	0.12	2
	2016HS-2L16	●	2	16	16	30	180	11	0.21	1
	2018HS	●	2	18	16	25	90	11	0.12	2
	2018HS-2L16		2	18	16	30	180	11	0.21	1
	2020HS	●	2	20	20	30	100	11	0.21	2
	2020HS-2L20	●	2	20	20	30	210	11	0.49	1
	2022HS	●	3	22	20	35	115	11	0.25	2
	2022HS-3L20		3	22	20	35	180	11	0.38	1
	2025HS	●	3	25	25	35	115	11	0.40	2
	2025HS-3L25	●	3	25	25	40	180	11	0.59	1
	2032HS	●	4	32	32	40	125	11	0.70	2
	2032HS-4L32	●	4	32	32	50	180	11	1.00	1
	2040HS	●	5	40	32	42	130	11	0.84	2
	2040HS-5L32	●	5	40	32	50	200	11	1.20	1
	2040HS-S40		5	40	40	42	130	11	1.15	2
	2040HS-S42		5	40	42	42	130	11	2.00	2
	2050HS	●	6	50	32	45	135	11	1.06	2
	2050HS-S40		6	50	40	45	135	11	1.38	2
	2050HS-S42		6	50	42	45	135	11	1.50	2
	2063HS		8	63	32	45	135	11	1.31	2
	2063HS-S40		8	63	40	45	135	11	1.62	2
	2063HS-S42		8	63	42	45	135	11	1.70	2

● : Stock items

▶ Available inserts

APMT-MA

APMT-ML

APMT-MM

APMT-MF

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	11T3PDFR-MA																●	104-105
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM			●	●			●	●	●	●	●	●	●	●			
	11T3PDSR-MF				●					●	●		●	●	●			
	11T308PDSR-MM				●					●	●	●		●	●			
	11T312PDSR-MM				●					●	●	●		●	●			
	11T316R-MM				●					●	●			●	●			
	11T318R-MM																	
	11T324R-MM				●					●	●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø10~Ø14 Ø16~Ø63	FTKA02555S FTKA02565S	TW08S

AMS3000S

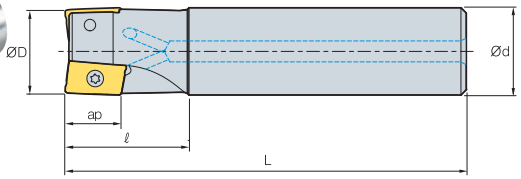


Fig. 1

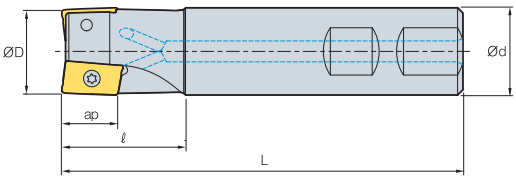


Fig. 2

AA 90°

- AR : 3°~14°
- RR : -18°~-10°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg	Fig.
AMS	3025HS	●	2	25	25	35	115	16	0.40	2
	3025HS-2M25	●	2	25	25	35	180	16	0.65	1
	3025HS-2L25	●	2	25	25	60	220	16	0.75	1
	3032HS	●	3	32	32	40	125	16	0.69	2
	3032HS-2M32	●	2	32	32	40	200	16	1.13	1
	3032HS-2L32		2	32	32	65	260	16	1.52	1
	3032HS-3M32		3	32	32	40	200	16	1.12	1
	3032HS-3L32	●	3	32	32	65	260	16	1.48	1
	3040HS	●	4	40	32	42	130	16	0.80	2
	3040HS-3M32	●	3	40	32	42	200	16	1.24	1
	3040HS-3L32		3	40	32	42	260	16	1.61	1
	3040HS-4M32		4	40	32	42	200	16	1.21	1
	3040HS-4L32	●	4	40	32	42	260	16	1.58	1
	3040HS-S40		4	40	40	42	130	16	1.10	2
	3040HS-S42		4	40	42	42	130	16	1.20	2
	3050HS	●	5	50	32	45	135	16	1.00	2
	3050HS-S40		5	50	40	45	135	16	1.30	2
	3050HS-S42		5	50	42	45	135	16	1.40	2
	3063HS	●	6	63	32	45	135	16	1.25	2
	3063HS-S40		6	63	40	45	135	16	1.50	2
	3063HS-S42	●	6	63	42	45	135	16	1.54	2

● : Stock items

▶ Available inserts

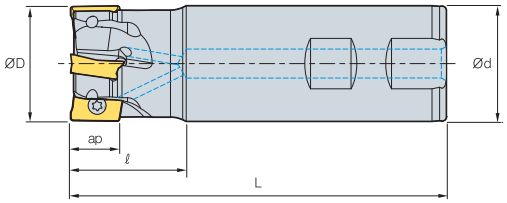
	APMT-MA	APMT-ML	APMT-MM	APMT-MF
				

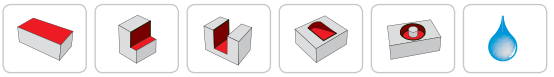
Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	1604PDFR-MA																●	104-105
	160404PDFR-MA																	
	1604PDER-ML													●	●			
	160404PDER-ML													●	●			
	1604PDSR-MM			●	●			●	●	●	●	●	●	●	●			
	1604PDSR-MF				●					●	●		●	●	●			
	160410PDSR-MM										●			●	●			
	160416PDSR-MM				●					●	●			●	●			
	160424R-MM				●					●	●			●	●			
	160430R-MM										●			●	●			
	160432R-MM				●					●	●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø25	FTKA0408	TW15S
Ø32~Ø63	FTKA0410	

AMS3000S-K





AA
90°

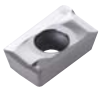
- AR : 14°
- RR : -18°~-10°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg
AMS	3025HS-K	●	2	25	25	35	115	16	0.4
	3032HS-K	●	3	32	32	40	125	16	0.69
	3040HS-K	●	4	40	32	42	130	16	0.8
	3040HS-K-S40		4	40	40	42	130	16	1.1
	3040HS-K-S42		4	40	42	42	130	16	1.2
	3050HS-K		5	50	32	45	135	16	1.0
	3050HS-K-S40	●	5	50	40	45	135	16	1.3
	3050HS-K-S42	●	5	50	42	45	135	16	1.4
	3063HS-K		6	63	32	45	135	16	1.25
	3063HS-K-S40		6	63	40	45	135	16	1.5
	3063HS-K-S42	●	6	63	42	45	135	16	1.54

● : Stock items

▶ Available inserts

APKT	APKT-MF	APKT-MM	APKT-MM1	APKT-MA	APKT-MA2	APKT-MA3
						

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	PD2000	G10E	H01	H05	
APKT	1604PDSR			●						●			●							104-105
	1604PDSR-MF			●										●						
	1604PDSR-MM			●	●					●		●	●	●						
	160432R-MM1																			
	1604PDFR-MA															●		●	●	
	1604PDFR-MA2																	●		
	160416FR-MA2																			
	160432FR-MA2																			
	1604PDFR-MA3																●	●	●	

▶ Parts

Specification	Screw	Wrench
Ø25 Ø32~Ø63	FTKA0408 FTKA0410	TW15S

AMS4000S

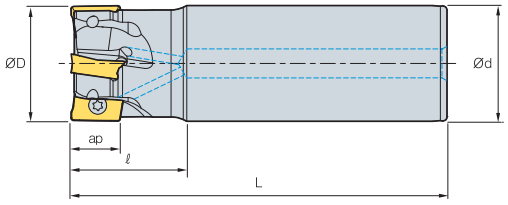


Fig. 1

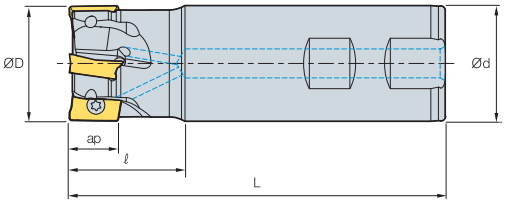
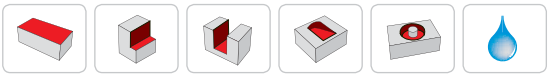


Fig. 2



AA 90°

- AR : 7°~13°
- RR : -20°~-6°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg	Fig.
AMS	4020HS	●	1	20	20	30	90	17	0.18	2
	4020HS-M		1	20	20	30	160	17	0.17	1
	4021HS		1	21	20	30	90	17	0.19	2
	4021HS-M		1	21	20	30	160	17	0.34	1
	4025HS	●	2	25	25	40	110	17	0.35	2
	4025HS-2M25		2	25	25	40	180	17	0.58	1
	4025HS-2L25	●	2	25	25	40	230	17	0.80	1
	4026HS	●	2	26	25	40	110	17	0.37	2
	4026HS-2M25		2	26	25	40	180	17	0.60	1
	4026HS-2L25		2	26	25	40	230	17	0.82	1
	4032HS	●	3	32	32	40	125	17	0.65	2
	4032HS-2M32		2	32	32	50	200	17	1.17	1
	4032HS-2L32	●	2	32	32	50	260	17	1.50	1
	4032HS-3M32	●	3	32	32	50	200	17	1.10	1
	4032HS-3L32		3	32	32	50	260	17	1.48	1
	4033HS	●	3	33	32	40	125	17	0.68	2
	4033HS-2M32		2	33	32	50	200	17	1.12	1
	4033HS-2L32	●	2	33	32	50	260	17	1.55	1
	4033HS-3M32	●	3	33	32	50	200	17	1.12	1
	4033HS-3L32		3	33	32	50	260	17	1.55	1

● : Stock items

▶ Available inserts

APMT-MA

APMT-ML

APMT-MM

APMT-MF

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	1806PDFR-MA															●		104-105
	180604PDFR-MA															●		
	180612PDFR-MA															●		
	180616PDFR-MA															●		
	180620PDFR-MA															●		
	180624PDFR-MA															●		
	180630R-MA															●		
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●	●			

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	180620PDER-ML													●	●			104-105
	180624PDER-ML													●	●			
	180630R-ML													●	●			
	1806PDSR-MM				●			●	●	●	●	●	●	●	●			
	1806PDSR-MF				●						●		●	●	●			
	180612PDSR-MM				●					●	●			●	●			
	180616PDSR-MM				●						●			●	●			
	180620PDSR-MM																	
	180624PDSR-MM				●						●			●	●			
	180630R-MM										●			●	●			
	180632R-MM				●						●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø20~Ø25 Ø32~Ø63	FTKA0408 FTKA0410	TW15S

AMS4000S

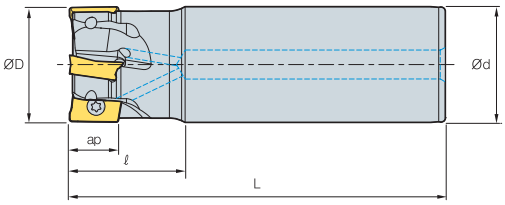


Fig. 1

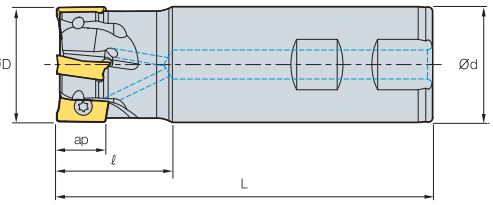
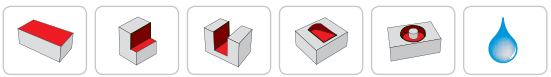


Fig. 2



AA
90°

- AR : 7°~13°
- RR : -20°~-6°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg	Fig.
AMS	4040HS-3M32	●	3	40	32	50	200	17	1.20	1
	4040HS-3L32	●	3	40	32	50	260	17	1.60	1
	4040HS-4M32		4	40	32	50	200	17	1.20	1
	4040HS-4L32		4	40	32	50	260	17	1.60	1
	4040HS-S32	●	4	40	32	40	130	17	0.76	2
	4040HS-S40		4	40	40	40	130	17	1.10	2
	4040HS-S42		4	40	42	40	130	17	1.20	2
	4050HS-S32	●	5	50	32	40	135	17	0.95	2
	4050HS-S40		5	50	40	40	135	17	1.30	2
	4050HS-S42	●	5	50	42	40	135	17	1.40	2
	4063HS-S32	●	6	63	32	40	135	17	1.25	2
	4063HS-S40		6	63	40	40	135	17	1.60	2
	4063HS-S42	●	6	63	42	40	135	17	1.70	2

● : Stock items

▶ Available inserts

APMT-MA

APMT-ML

APMT-MM

APMT-MF

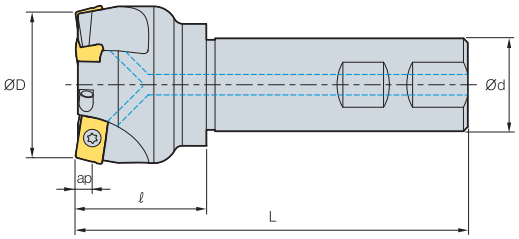
Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	1806PDFR-MA															●		104-105
	180604PDFR-MA															●		
	180612PDFR-MA															●		
	180616PDFR-MA															●		
	180620PDFR-MA															●		
	180624PDFR-MA															●		
	180630R-MA															●		
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●	●			

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	180620PDER-ML													●	●			104-105
	180624PDER-ML													●	●			
	180630R-ML													●	●			
	1806PDSR-MM			●				●	●	●	●	●	●	●	●			
	1806PDSR-MF			●							●		●	●	●			
	180612PDSR-MM			●						●	●			●	●			
	180616PDSR-MM			●							●			●	●			
	180620PDSR-MM																	
	180624PDSR-MM			●							●			●	●			
	180630R-MM										●			●	●			
	180632R-MM			●							●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø40~Ø63	FTKA0410	TW15S

AMS1000SE/2000SE



AA 75°

- AR : -4.5°~-1°
- RR : -3°~0°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg
AMS	1025HSE		3	25	25	30	115	2.5	0.41
AMS	2025HSE	●	2	25	25	30	115	4	0.4
	2032HSE	●	3	32	32	40	125	4	0.72
	2040HSE	●	3	40	32	40	130	4	0.86
	2040HSE-S40		3	40	40	40	130	4	1.2
	2040HSE-S42		3	40	42	40	130	4	1.3
	2050HSE		4	50	32	40	135	4	0.98
	2050HSE-S40		4	50	40	40	135	4	1.3
	2050HSE-S42		4	50	42	40	135	4	1.4
	2063HSE		5	63	32	40	135	4	1.24
	2063HSE-S40		5	63	40	40	135	4	1.57
	2063HSE-S42		5	63	42	40	135	4	1.62

● : Stock items

▶ Available inserts

APMT-MM

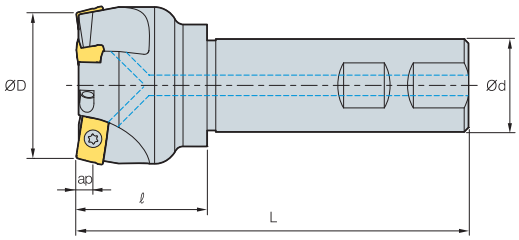
APMT-MF

Type	Designation		Cermet		Coated											Uncoated		page
			CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
1000 type	APMT	060202PDSR-MM				●					●				●	●			104-105
		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				●					●	●			●	●			

▶ Parts

Specification	Screw	Wrench	Wrench
Ø25 (1000 type)	FTKA01842	-	TW06S-A
Ø25~Ø63 (2000 type)	FTKA02565S	TW08S	-

AMS3000SE



AA 75°

- AR : -4.5°~-1°
- RR : -3°~0°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg
AMS	3050HSE		3	50	32	45	135	6	1.0
	3050HSE-S40		3	50	40	45	135	6	1.3
	3050HSE-S42		3	50	42	45	135	6	1.4
	3063HSE		4	63	32	45	135	6	1.3
	3063HSE-S40		4	63	40	45	135	6	1.6
	3063HSE-S42		4	63	42	45	135	6	1.7

● : Stock items

▶ Available inserts

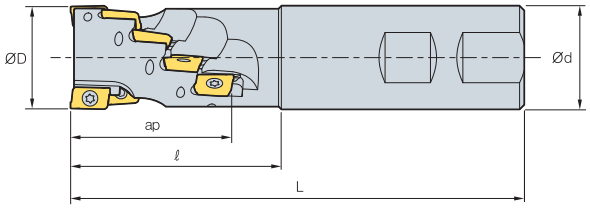
APMT-MM APMT-MF


Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	1604PDSR-MM			●	●			●	●	●	●	●	●	●	●			104-105
	1604PDSR-MF				●					●	●		●	●	●			
	160410PDSR-MM										●			●	●			
	160416PDSR-MM				●					●	●			●	●			
	160424R-MM				●					●	●			●	●			
	160430R-MM										●			●	●			
	160432R-MM				●					●	●			●	●			

▶ Parts

Specification	Screw	Wrench
Ø50~Ø63	FTKA0410	TW15S

AMS1000M/1500M





AA 90°

- AR : 7°~9°
- RR : -13°~-10°

(mm)

Designation		Stock	⊚	ØD	Ød	ℓ	L	No. of flute	ap	kg
AMS	1016M		6	16	16	30	80	2	15.5	0.3
	1020M		12	20	20	32	85	3	20.5	0.3
	1025M		20	25	25	39	95	4	25.5	0.3
AMS	15020M		3	20	20	42	105	1	26.5	0.3
	15025M		8	25	25	50	110	2	35	0.3
	15032M		10	32	32	60	120	2	44	0.3

● : Stock items

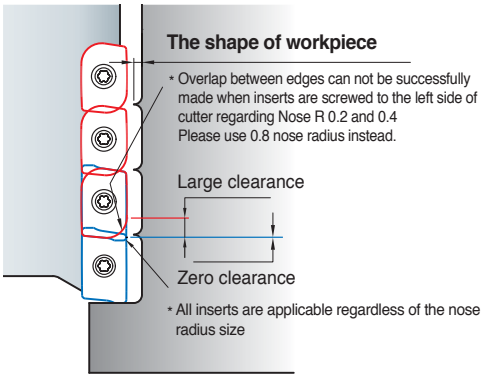
▶ Available inserts

APMT-MA | APMT-ML | APMT-MM



Type	Designation		Cermet		Coated											Uncoated		page
			CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
1000 type	APMT	0602PDFR-MA																●	104-105
		060208PDFR-MA																	
		060202PDSR-MM				●					●				●	●			
		0602PDSR-MM				●			●	●	●	●	●	●	●	●			
		060208PDSR-MM				●					●	●			●	●			
		060212R-MM				●						●			●	●			
		060216R-MM										●			●	●			
1500 type	APMT	0903PDFR-MA																●	
		090308PDFR-MA																	
		0903PDER-ML													●	●			
		090308PDER-ML													●	●			
		0903PDSR-MM				●			●	●	●	●		●	●	●			
		090308PDSR-MM				●					●	●			●	●			
		090312R-MM										●			●	●			
		090316R-MM				●					●	●			●	●			
		090320R-MM									●	●			●	●			

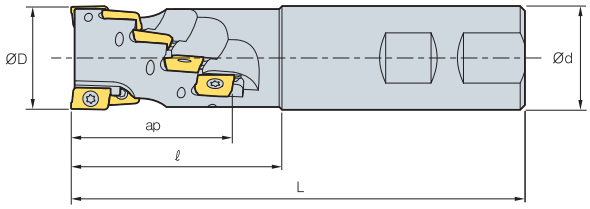
▶ Caution when clamping the inserts



▶ Parts

Specification	Screw	Wrench	Wrench
Ø16~Ø25 (1000 type)	FTKA01842	-	TW06S-A
Ø20~Ø32 (1500 type)	FTKA02565S	TW08S	-

AMS2000M



AA 90°

- AR : 7°~9°
- RR : -13°~-10°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	No. of flute	ap	kg
AMS	2020M	●	3	20	20	45	120	1	29.4	0.32
	2025M	●	8	25	25	55	130	2	38.9	0.40
	2032M	●	10	32	32	65	140	2	48.5	0.65
	2040M	●	14	40	40	75	150	2	58	0.75

● : Stock items

▶ Available inserts

APMT-MA

APMT-ML

APMT-MM

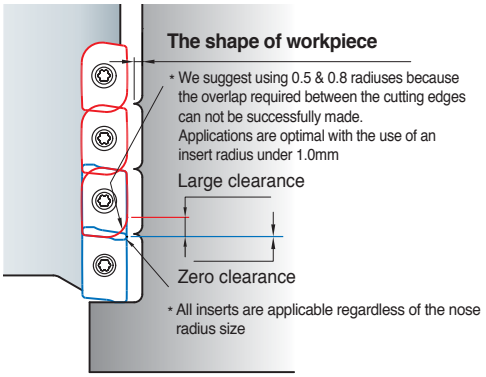
APMT-MF

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	11T3PDFR-MA																●	104-105
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM			●	●			●	●	●	●	●	●	●	●			
	11T3PDSR-MF				●					●	●		●	●	●			
	11T308PDSR-MM				●					●	●	●		●	●			
	11T312PDSR-MM				●					●	●	●		●	●			
	11T316R-MM				●					●	●			●	●			
	11T318R-MM																	
	11T324R-MM				●					●	●			●	●			

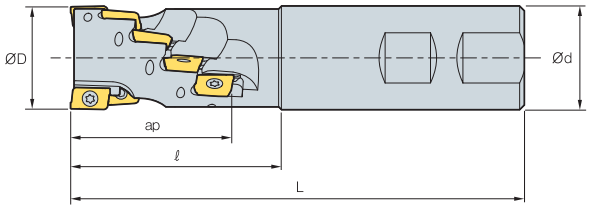
▶ Parts

Specification	Screw	Wrench
Ø20~Ø40	FTKA02565S	TW08S

▶ Caution when clamping the inserts



AMS4000M







AA 90°

- AR : 7°~9°
- RR : -13°~-10°

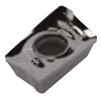
(mm)

Designation		Stock		ØD	Ød	ℓ	L	No. of flute	ap	kg
AMS	4032M		4	32	32	60	130	2	31.6	0.65
	4040M		6	40	40	70	140	2	46	1.11
	4050M-S40		6	50	40	55	125	2	46	1.22
	4050M		8	50	40	70	140	2	61	1.37

● : Stock items

▶ Available inserts

APMT-MA



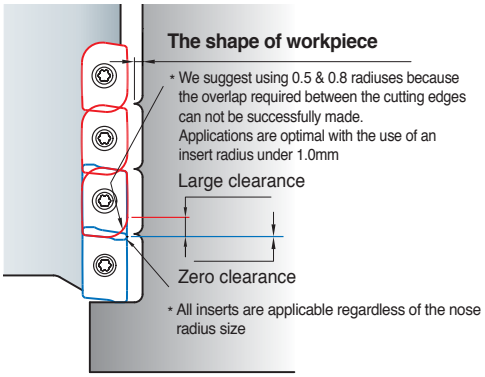
APMT-ML

APMT-MM

APMT-MF

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	1806PDFR-MA																●	104-105
	180604PDFR-MA																●	
	180612PDFR-MA																●	
	180616PDFR-MA																●	
	180620PDFR-MA																●	
	180624PDFR-MA																●	
	180630R-MA																●	
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●	●			
	180620PDER-ML													●	●			
	180624PDER-ML													●	●			
	180630R-ML													●	●			
	1806PDSR-MM				●			●	●	●	●	●	●	●	●			
	1806PDSR-MF				●						●		●	●	●			
	180612PDSR-MM				●					●	●			●	●			
	180616PDSR-MM				●						●			●	●			
	180620PDSR-MM																	
	180624PDSR-MM				●						●			●	●			
	180630R-MM										●			●	●			
	180632R-MM				●						●			●	●			

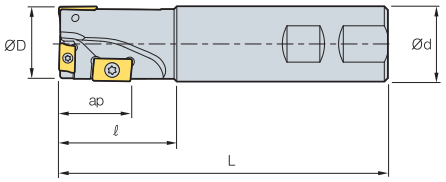
▶ Caution when clamping the inserts

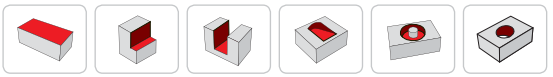


▶ Parts

Specification	Screw	Wrench
Ø32~Ø50	FTKA0410	TW15S

AMS1000MH/1500MH





AA 90°

- AR : 9°~12°
- RR : -12°~-10°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg	APMT 0602	APMT 0903	APM(X)T 11T3 -	APMT 1604	APKT 1604 -
AMS	1014MH	●	3	14	12	30	120	11	0.16	3	-	-	-	-
	1016MH	●	3	16	14	30	140	11	0.20	3	-	-	-	-
	1018MH	●	3	18	16	30	140	11	0.21	3	-	-	-	-
AMS	15020MH	●	3	20	20	35	140	17	0.31	1	2	-	-	-

● : Stock items

▶ Available inserts

Type	Designation		Cermet		Coated												Uncoated		page
			CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
1000 type	APMT	0602PDFR-MA																●	104-105
		060208PDFR-MA																	
		060202PDSR-MM				●					●				●	●			
		0602PDSR-MM				●			●	●	●	●	●	●	●	●			
		060208PDSR-MM				●					●	●			●	●			
1500 type	APMT	0903PDFR-MA																●	
		090308PDFR-MA																	
		0903PDER-ML													●	●			
		090308PDER-ML													●	●			
		0903PDSR-MM				●			●	●	●	●		●	●	●			
		090308PDSR-MM				●					●	●			●	●			

▶ Parts

Specification	Screw	Wrench	Wrench
Ø14~Ø18 (1000 type)	FTKA01842	-	TW06S-A
Ø20 (1500 type)	FTKA02565S	TW08S	-

▶ Recommended cutting condition

	Drilling	Shouldering	Slotting
vc (m/min)	80~200	80~200	80~200
fz (mm/t)	0.03~0.06	0.05~0.25	0.05~0.20

- Please keep the drill depth under 0.25D when you're drilling
- Please keep the step depth from 0.2 to 0.3mm

AMS2000MH/3000MH (-K)

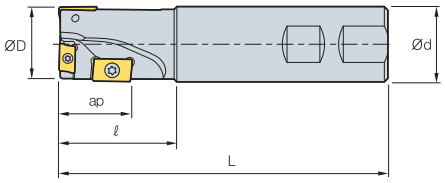


Fig. 1

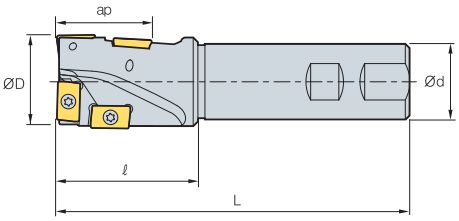
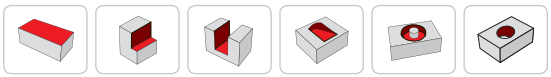


Fig. 2



AA 90°

- AR : 9°~12°
- RR : -12°~-10°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg	APMT 0602	APMT 0903	APM(X)T 11T3 -	APMT 1604	APKT 1604 -	Fig.
AMS	2025MH	●	3	25	25	40	130	20	0.45	-	-	3	-	-	1
	2032MH	●	3	32	32	50	140	30	0.75	-	-	1	2	-	1
AMS	3040MH		4	40	32	60	150	40	0.90	-	-	-	4		2
	3040MH-K	●	4	40	32	60	150	40	0.90	-	-	-	-	4	2

● : Stock items

▶ Available inserts

Type	Designation		Cermet		Coated											Uncoated		page
			CN2000	CN30	NCM325	NCM335	NC5330	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	PD2000	G10E	H01	
2000 type	APMT	11T3PDFR-MA																●	104-105
		11T308PDFR-MA																	
		11T3PDER-ML												●	●				
		11T308PDER-ML												●	●				
		11T3PDSR-MM			●		●	●	●	●	●	●	●	●	●				
		11T3PDSR-MF					●			●	●		●	●	●				
		11T308PDSR-MM					●			●	●	●		●	●				
		11T312PDSR-MM					●			●	●	●		●	●				
		11T316R-MM					●			●	●			●	●				
		11T318R-MM					●												
		11T324R-MM					●			●	●			●	●				
3000 type	APMT	1604PDSR-MM			●		●	●	●	●	●	●	●	●	●				
		1604PDSR-MF					●			●	●		●	●	●				
3000-K type	APKT	1604PDSR-MM			●	●				●		●	●	●					
		1604PDSR-MF			●									●					

▶ Parts

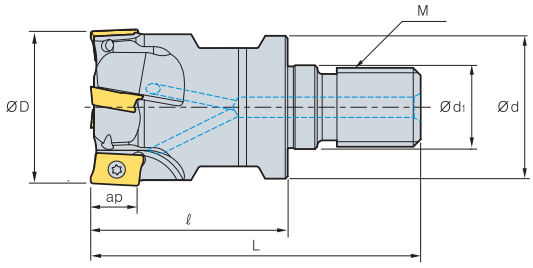
Specification	Screw	Wrench
Ø25 (2000 type)	FTKA02565S	TW08S
Ø32 (2000 type)	FTKA02565S+FTKA0410	TW08S+TW15S
Ø40 (3000 type)	FTKA0410	TW15S

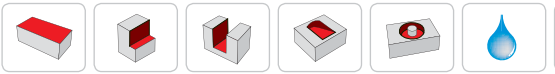
▶ Recommended cutting condition

	Drilling	Shouldering	Slotting
vc (m/min)	80~200	80~200	80~200
fz (mm/t)	0.03~0.06	0.05~0.25	0.05~0.20

- Please keep the drill depth under 0.25D when you're drilling
- Please keep the step depth from 0.2 to 0.3mm

AMM1000





AA 90°

- AR : 7.5°~12.5°
- RR : -28°~-6°

(mm)

Designation		Stock		ØD	Ød	Ød1	ℓ	L	M	ap	kg
AMM	1012HR-M06	●	3	12	11	6.5	25	40	M06	5.6	0.02
	1016HR-M08		4	16	14.5	8.5	25	42	M08	5.6	0.03
	1020HR-M10	●	5	20	18	10.5	30	51	M10	5.6	0.07
	1025HR-M12		7	25	23	12.5	35	59	M12	5.6	0.12
	1032HR-M16		8	32	29	17	40	67	M16	5.6	0.23

● : Stock items

▶ Available inserts

APMT-MA

APMT-MM

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	0602PDFR-MA																●	104-105
	060208PDFR-MA																	
	060202PDSR-MM				●					●				●	●			
	0602PDSR-MM				●			●	●	●	●	●	●	●	●			
	060208PDSR-MM				●					●	●			●	●			
	060212R-MM				●						●			●	●			
	060216R-MM										●			●	●			

▶ Available adaptor

Designation		Available adaptor
AMM	1012HR-M06	MAT-M06
	1016HR-M08	MAT-M08
	1020HR-M10	MAT-M10
	1025HR-M12	MAT-M12
	1032HR-M16	MAT-M16

Designation: AMM1032HR-M16
Modular head threading measure size (M16)

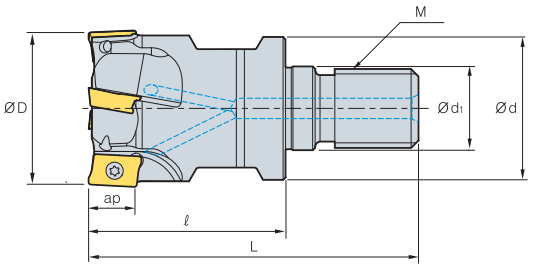
II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

▶ Parts

Specification	Screw	Wrench
Ø12~Ø32	FTKA01842	TW06S-A

AMM1500



AA 90°

- AR : 7.5°~12.5°
- RR : -28°~-6°

(mm)

Designation		Stock		ØD	Ød	Ød1	ℓ	L	M	ap	kg
AMM	15010HR-M06		1	10	9.5	6.5	25	40	M06	9	0.01
	15012HR-M06		1	12	11	6.5	25	40	M06	9	0.02
	15016HR-M08	●	2	16	14.5	8.5	25	42	M08	9	0.03
	15020HR-M10	●	2	20	18	10.5	30	51	M10	9	0.06
	15025HR-M12	●	3	25	23	12.5	35	59	M12	9	0.12
	15032HR-M16	●	4	32	29	17	40	67	M16	9	0.22

● : Stock items

▶ Available inserts

APMT-MA

APMT-ML

APMT-MM

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	0903PDFR-MA																●	104-105
	090308PDFR-MA																	
	0903PDER-ML													●	●			
	090308PDER-ML													●	●			
	0903PDSR-MM				●			●	●	●	●		●	●	●			
	090308PDSR-MM				●					●	●			●	●			
	090312R-MM										●			●	●			
	090316R-MM				●					●	●			●	●			
	090320R-MM									●	●			●	●			

▶ Available adaptor

Designation		Available adaptor
AMM	15010HR-M06	MAT-M06
	15012HR-M06	
	15016HR-M08	MAT-M08
	15020HR-M10	MAT-M10
	15025HR-M12	MAT-M12
	15032HR-M16	MAT-M16

Designation: AMM1032HR-M16
Modular head threading measure size (M16)

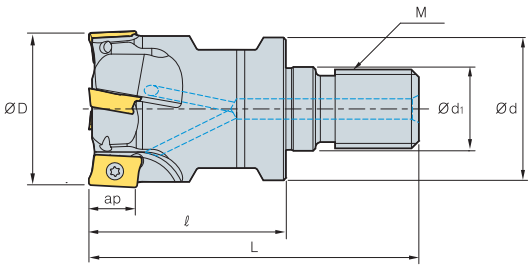
=

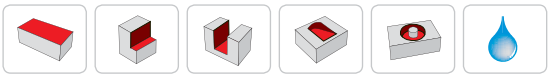
Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

▶ Parts

Specification	Screw	Wrench
Ø10~Ø14	FTKA02555S	TW08S
Ø16~Ø100	FTKA02565S	

AMM2000





AA 90°

- AR : 7.5°~12.5°
- RR : -28°~-6°

(mm)

Designation		Stock		ØD	Ød	Ød1	ℓ	L	M	ap	kg
AMM	2016HR-M08		2	16	14.5	8.5	25	42	M08	11	0.04
	2020HR-M10		2	20	18	10.5	30	51	M10	11	0.07
	2025HR-M12	●	3	25	23	12.5	35	59	M12	11	0.04
	2032HR-M16		4	32	29	17	40	67	M16	11	0.23
	2040HR-M16		5	40	29	17	40	67	M16	11	0.25

● : Stock items

▶ Available inserts

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	G10E	H01	
APMT	11T3PDFR-MA																●	104-105
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM			●	●			●	●	●	●	●	●	●	●			
	11T3PDSR-MF				●					●	●		●	●	●			
	11T308PDSR-MM				●					●	●	●		●	●			
	11T312PDSR-MM				●					●	●	●		●	●			
	11T316R-MM				●					●	●			●	●			
	11T318R-MM																	
	11T324R-MM				●					●	●			●	●			

▶ Available adaptor

Designation		Available adaptor
AMM	2016HR-M08	MAT-M08
	2020HR-M10	MAT-M10
	2025HR-M12	MAT-M12
	2032HR-M16	MAT-M16
	2040HR-M16	

Designation: AMM1032HR-M16
Modular head threading measure size (M16)

=

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

▶ Parts

Specification	Screw	Wrench
Ø16~Ø40	FTKA02565S	TW08S

For Medium Cutting

Milling tool for high productvity with good perpendicularity and minimized cutting load

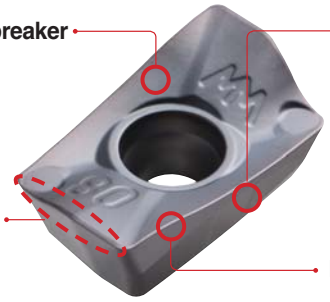
Alpha Mill-X

- Superior perpendicularity is achieved by its design and optimized for high quality surface finish.
- Lower cutting load and minimized burr due to high rake angle cutting edge
- Improved productivity due to high-speed capability and high feed machining (Compared to existing tools, cutting speed and feed per tooth are improved by 15%)

Features

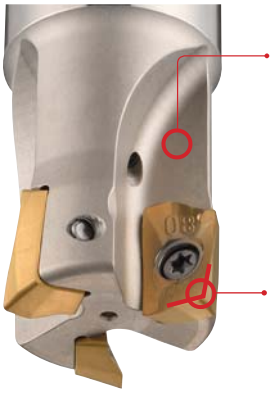
High rake angle chip breaker
- Applied high rake angle
- Improved chip control

Applied minor cutting edge with a wiper function
- Minor cutting edge design optimized to excellent surface in machined surfaces



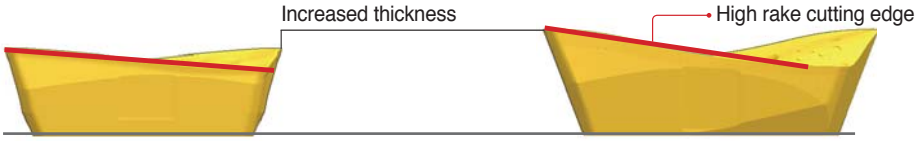
Flat clamping area
- Stable clamping in high speed and high feed machining

High rake cutting edge
- Better surface roughness
- Lower cutting load



Wider chip pocket
- Maximized chip control
- Outstanding chip control in high speed and high feed machining

Perfect perpendicularity

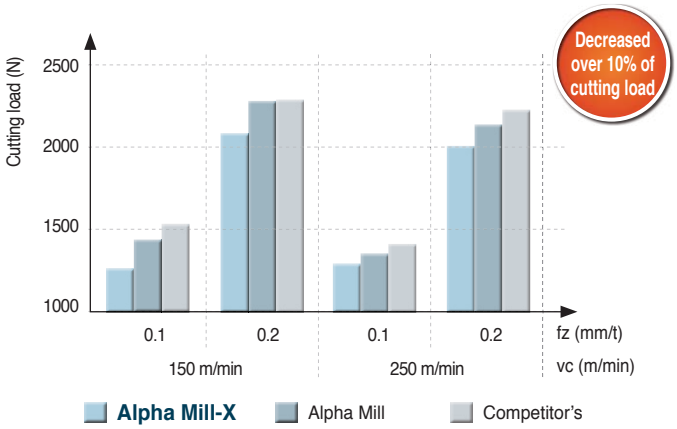


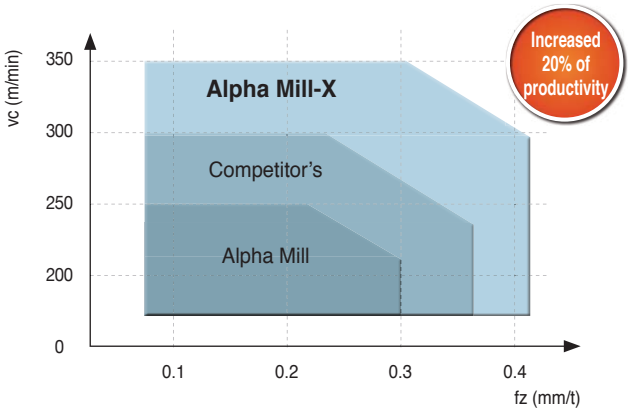
Existing Alpha Mill
APMT1604PDSR-MM

- Applying cutting edge with high rake angle: decreased cutting load
- Thicker insert: high rigidity of insert

Alpha Mill-X
ADKT170608PESR-MM

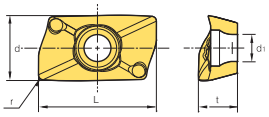
- Optimal for high speed and high feed machining



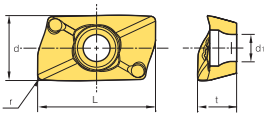


Available inserts

ADKT-ML



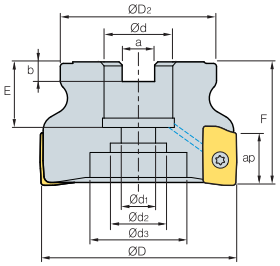
ADKT-MM



Designation		Dimensions (mm)				
		l	d	t	r	d_1
ADKT	170608PESR-MM	19.650	10.843	6.529	0.8	4.5
	170608PESR-ML	19.650	10.843	6.529	0.8	4.5
	170616PESR-MM	19.650	10.843	6.529	1.6	4.5
	170620PESR-MM	19.650	10.843	6.529	2.0	4.5

AMXCM

Cutter type



AA 90°

- AR : 8°
- RR : -10°~-3°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
AMXCM	040R-16-3-AD17	●	3	40	35	16	9	14	-	8.4	5.6	19	40	16.5	0.18
	040R-16-4-AD17	●	4	40	35	16	9	14	-	8.4	5.6	19	40	16.5	0.18
	050R-22-4-AD17	●	4	50	42	22	11	18	-	10.4	6.3	20	40	16.5	0.23
	050R-22-5-AD17	●	5	50	42	22	11	18	-	10.4	6.3	20	40	16.5	0.20
	063R-22-5-AD17	●	5	63	49	22	11	18	-	10.4	6.3	20	40	16.5	0.44
	063R-22-6-AD17	●	6	63	49	22	11	18	-	10.4	6.3	20	40	16.5	0.49
	080R-27-6-AD17	●	6	80	57	27	14	25	38	12.4	7.0	23	50	16.5	0.88
	080R-27-7-AD17	●	7	80	57	27	14	25	38	12.4	7.0	23	50	16.5	0.90

● : Stock items

▶ Available inserts

ADKT-ML

ADKT-MM

Designation		Coated					page
		PC3700	PC6510	PC5300	PC5400	UNC840	
ADKT	170608PESR-MM						136
	170608PESR-ML						
	170616PESR-MM						
	170620PESR-MM						

▶ Available arbors

Designation		NC arbors
AMXCM	040R-16-3-AD17	BT□□-FMC26-□□
	040R-16-4-AD17	BT□□-FMC26-□□
	050R-22-4-AD17	BT□□-FMC22-□□
	050R-22-5-AD17	BT□□-FMC22-□□
	063R-22-5-AD17	BT□□-FMC22-□□
	063R-22-6-AD17	BT□□-FMC22-□□
	080R-27-6-AD17	BT□□-FMC27-□□
	080R-27-7-AD17	BT□□-FMC27-□□

▶ Parts

Specification	Screw	Wrench
Ø40~Ø80	FTKA0410	TW15S

AMXS

Shank type

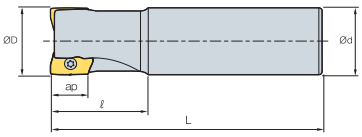


Fig. 1

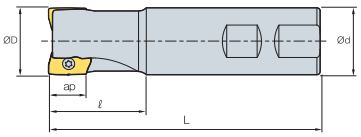


Fig. 2

AA
90°

- AR : 8°
- RR : -10°~-3°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg	Fig.
AMXS	032R-3W32-125-AD17	●	3	32	32	45	125	16.5	1.05	2
	032R-3C32-200-AD17	●	3	32	32	45	200	16.5	0.62	1
	033R-3W32-125-AD17	●	3	33	32	45	125	16.5	1.05	2
	033R-3C32-200-AD17	●	3	33	32	45	200	16.5	0.62	1
	040R-3W32-130-AD17	●	3	40	32	50	130	16.5	1.17	2
	040R-3C32-200-AD17	●	3	40	32	50	200	16.5	0.75	1
	040R-4W32-130-AD17	●	4	40	32	50	130	16.5	1.20	2
	040R-4C32-200-AD17	●	4	40	32	50	200	16.5	0.74	1

● : Stock items

▶ Available inserts

ADKT-ML

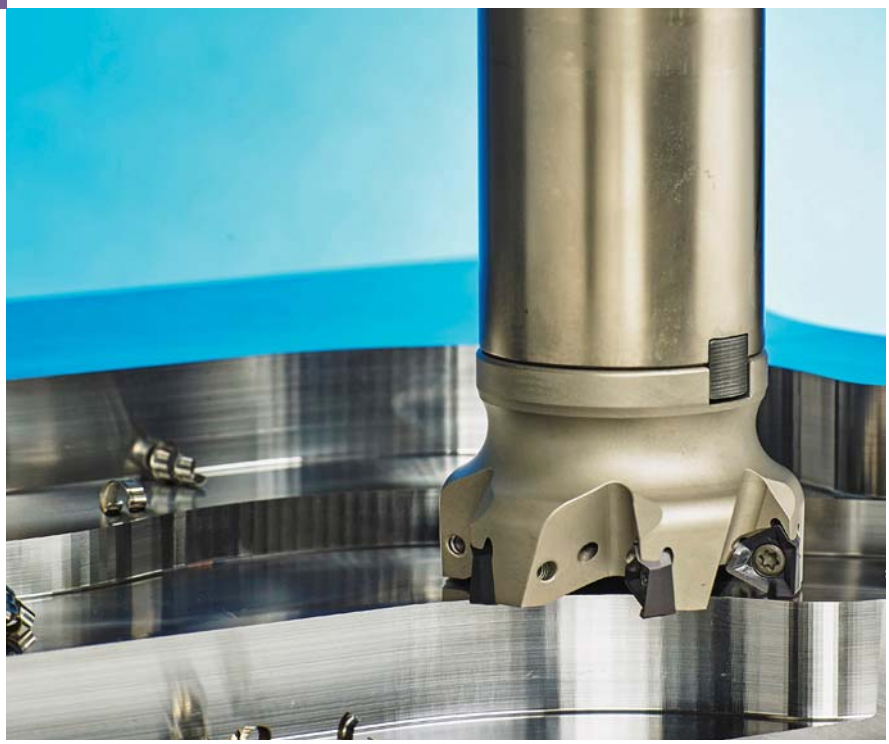
ADKT-MM

Designation		Coated					page
		PC3700	PC6510	PC5300	PC5400	UNC840	
ADKT	170608PESR-MM						136
	170608PESR-ML						
	170616PESR-MM						
	170620PESR-MM						

▶ Parts

Specification	Screw	Wrench
Ø32~Ø40	FTKA0410	TW15S

For Medium Cutting

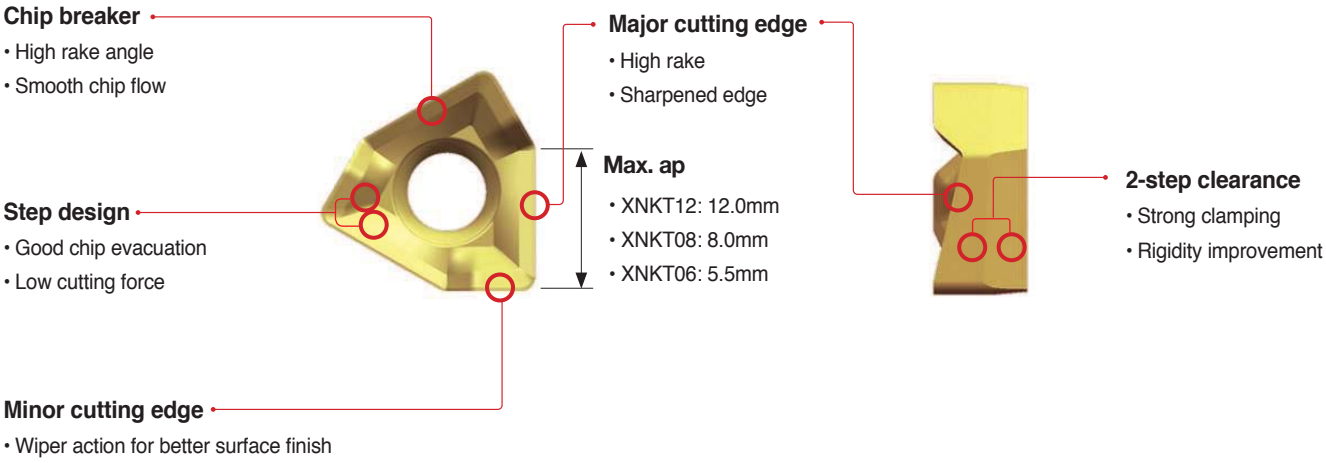


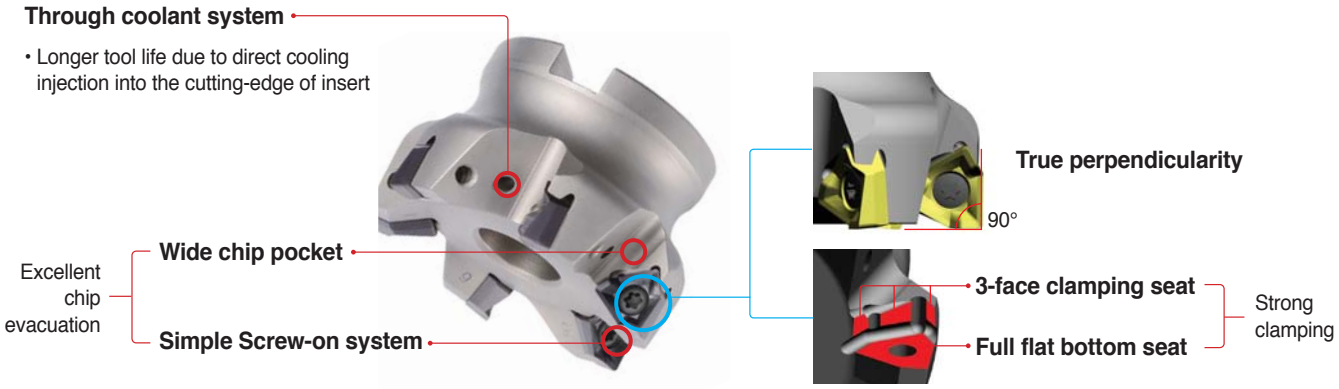
3 corner insert shouldering tool

RM3

- High Quality - True 90° shouldering operation
- High Productivity - Strong thick insert and 3-face clamping ensure stable operation even tough condition.
- High Economics - Long tool life due to optimized manufacturing process

Features





Through coolant system

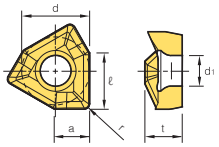
- Exclusive through coolant bolt required
- Effective coolant distribution directly to cutting-edge
- Coolant supporting arbor required

Features of chip breakers

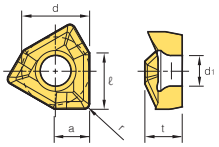
Chip breaker		Cutting-edge	Application	Features
MA			Aluminum	• Superior cutting quality for aluminum due to sharp cutting-edge and buffed surface
ML			Light	• Superior cutting quality for light and light cutting, difficult-to-cut material machining through the low cutting load of chip breaker
MM			General	• Suitable for various cutting due to special shape design for general cutting

Available inserts

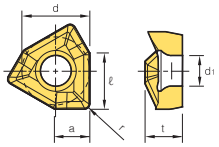
XNCT-MA



XNKT-ML

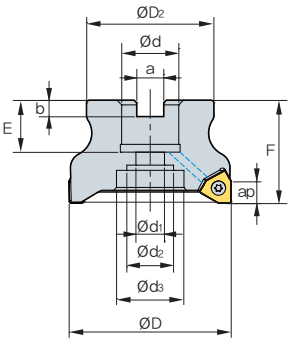


XNKT-MM



Designation		Dimensions (mm)					
		l	d	t	r	d_1	a
XNCT-MA	**080504PNFR-MA**	8.2	10.0	5.5	0.4	4.5	2.9
	080508PNFR-MA	8.2	10.0	5.5	0.8	4.5	2.9
	080512PNFR-MA	8.2	10.0	5.5	1.2	4.5	2.9
	080520PNFR-MA	8.2	10.0	5.5	2.0	4.5	2.9
	120608PNFR-MA	12.0	13.0	6.5	0.8	5.5	3.5
XNKT-ML	**060405PNER-ML**	5.7	6.5	4.0	0.5	3.4	1.8
	060408PNER-ML	5.7	6.5	4.0	0.8	3.4	1.8
	080504PNER-ML	8.2	10.0	5.5	0.4	4.5	2.9
	080508PNER-ML	8.2	10.0	5.5	0.8	4.5	2.9
	080512PNER-ML	8.2	10.0	5.5	1.2	4.5	2.9
	080516PNER-ML	8.2	10.0	5.5	1.6	4.5	2.9
	080520PNER-ML	8.2	10.0	5.5	2.0	4.5	2.9
	120608PNER-ML	12.0	13.0	6.5	0.8	5.5	3.5
	120612PNER-ML	12.0	13.0	6.5	1.2	5.5	3.5
	120616PNER-ML	12.0	13.0	6.5	1.6	5.5	3.5
	120620PNER-ML	12.0	13.0	6.5	2.0	5.5	3.5
XNKT-MM	**060405PNSR-MM**	5.7	6.5	4.0	0.5	3.4	1.8
	060408PNSR-MM	5.7	6.5	4.0	0.8	3.4	1.8
	080504PNSR-MM	8.2	10.0	5.5	0.4	4.5	2.9
	080508PNSR-MM	8.2	10.0	5.5	0.8	4.5	2.9
	080512PNSR-MM	8.2	10.0	5.5	1.2	4.5	2.9
	080516PNSR-MM	8.2	10.0	5.5	1.6	4.5	2.9
	080520PNSR-MM	8.2	10.0	5.5	2.0	4.5	2.9
	120604PNSR-MM	12.0	13.0	6.5	0.4	5.5	3.5
	120608PNSR-MM	12.0	13.0	6.5	0.8	5.5	3.5
	120612PNSR-MM	12.0	13.0	6.5	1.2	5.5	3.5
	120616PNSR-MM	12.0	13.0	6.5	1.6	5.5	3.5
	120620PNSR-MM	12.0	13.0	6.5	2.0	5.5	3.5

RM3PC(M)3000









AA
90°

- AR : -5°
- RR : -9°~-6°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
RM3PCM	3040HR	●	5	40	35	16	9	14	-	8.4	5.6	16	40	5.5	0.2
	3040HR-M	●	6	40	35	16	9	14	-	8.4	5.6	16	40	5.5	0.2
	3050HR	●	6	50	41	22	11	18	-	10.4	6.3	20	40	5.5	0.3
	3050HR-M	●	7	50	41	22	11	18	-	10.4	6.3	20	40	5.5	0.3
	3063HR	●	7	63	49	22	11	18	-	10.4	6.3	20	40	5.5	0.49
	3063HR-M	●	8	63	49	22	11	18	-	10.4	6.3	20	40	5.5	0.49
RM3PC (RM3PCM)	3080HR	(●)	8	80	57	25.4(27)	14	25	35	9.5(12.4)	6(7)	25(23)	50	5.5	0.87
	3080HR-M	(●)	10	80	57	25.4(27)	14	25	35	9.5(12.4)	6(7)	25(23)	50	5.5	0.88

( ) Metric size ● : Stock items

▶ Available inserts

XNKT-ML XNKT-MM


Designation		Cermet		Coated										초경			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC3530	PC6510	PC5300	PC5400	A30	G10E	H01	
XNKT	060405PNER-ML							●		●		●	●	●				141
	060405PNSR-MM						●	●		●		●	●	●				
	060408PNER-ML									●		●	●	●				
	060408PNSR-MM						●	●		●		●	●	●				

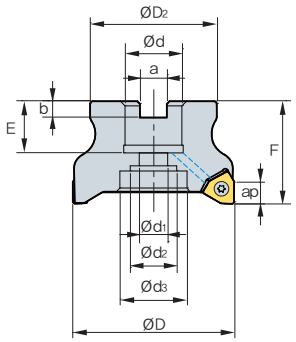
▶ Available arbors

Designation		Available arbors	
		RM3PC	RM3PCM
RM3PCM	3040HR	-	BT□□-FMC16-□□
	3040HR-M		
	3050HR	-	BT□□-FMC22-□□
	3050HR-M		
	3063HR		
	3063HR-M		
RM3PC (RM3PCM)	3080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	3080HR-M		

▶ Parts

Specification	Screw	Wrench
Ø40~Ø80	FTNA0306	TW09S

RM3PC(M)4000



AA 90°

- AR : -5°
- RR : -8°~-6°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
RM3PCM	4040HR	●	3	40	35	16	9	14	-	8.4	5.6	19	40	8.0	0.19
	4040HR-M	●	4	40	35	16	9	14	-	8.4	5.6	19	40	8.0	0.19
	4050HR	●	4	50	42	22	11	18	-	10.4	6.3	20	40	8.0	0.28
	4050HR-M	●	5	50	42	22	11	18	-	10.4	6.3	20	40	8.0	0.29
	4063HR	●	5	63	49	22	11	18	-	10.4	6.3	20	40	8.0	0.54
	4063HR-M	●	6	63	49	22	11	18	-	10.4	6.3	20	40	8.0	0.53
RM3PC (RM3PCM)	4080HR	● (●)	5	80	57	25.4(27)	14	20	35	9.5(12.4)	6(7)	25(23)	50	8.0	1.08
	4080HR-M	● (●)	7	80	57	25.4(27)	14	20	35	9.5(12.4)	6(7)	25(23)	50	8.0	1.06
	4100HR	● (●)	7	100	67	31.75(32)	18	26	42	12.7(14.4)	8(8)	33(25)	63(50)	8.0	1.68
	4100HR-M	● (●)	8	100	67	31.75(32)	18	26	42	12.7(14.4)	8(8)	33(25)	63(50)	8.0	1.67
	4125HR	● (●)	8	125	90	38.1(40)	22	32	52	15.9(16.4)	9(10)	38(29)	63	8.0	3.45
	4125HR-M	● (●)	10	125	90	38.1(40)	22	32	52	15.9(16.4)	9(10)	38(29)	63	8.0	3.45

( ) Metric size ●: Stock items

▶ Available inserts

XNCT-MA | XNKT-ML | XNKT-MM

Designation		Cermet		Coated										서멧		피복	page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
XNCT	080504PNFR-MA																●	141
	080508PNFR-MA																●	
	080512PNFR-MA																●	
	080520PNFR-MA																●	
XNKT	080504PNER-ML									●			●	●				
	080504PNSR-MM									●			●	●				
	080508PNER-ML							●		●		●	●	●				
	080508PNSR-MM						●	●		●		●	●	●				
	080512PNER-ML												●	●				
	080512PNSR-MM						●	●		●			●	●				
	080516PNER-ML												●	●				
	080516PNSR-MM						●	●		●			●	●				
	080520PNER-ML												●	●				
	080520PNSR-MM						●	●		●			●	●				

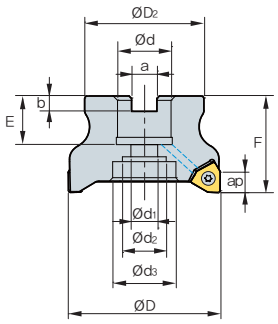
▶ Available arbors

Designation		Available arbors	
		RM3PC	RM3PCM
RM3PCM	4040HR	-	BT□□-FMC16-□□
	4050HR	-	BT□□-FMC22-□□
	4063HR		
RM3PC (RM3PCM)	4080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR	BT□□-FMA38.1-□□	BT□□-FMC40-□□

▶ Parts

Specification	Screw	Wrench
Ø40~Ø125	FTNA0408	TW15S

RM3PC(M)5000



AA 90°
• AR : -5°
• RR : -7°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
RM3PC (RM3PCM)	5080HR	● (●)	5	80	57	25.4(27)	14	20	35	9.5(12.4)	6(7)	24(23)	50	12.0	0.84
	5080HR-M	● (●)	7	80	57	25.4(27)	14	20	35	9.5(12.4)	6(7)	24(23)	50	12.0	0.84
	5100HR	● (●)	7	100	67	31.75(32)	18	28	45	12.7(14.4)	8(8)	32(25)	63	12.0	1.76
	5100HR-M	● (●)	8	100	67	31.75(32)	18	28	45	12.7(14.4)	8(8)	32(25)	63	12.0	1.76
	5125HR	● (●)	8	125	90	38.1(40)	22	32	52	15.9(16.4)	9(10)	38(30)	63	12.0	2.70
	5125HR-M	● (●)	10	125	90	38.1(40)	22	32	52	15.9(16.4)	9(10)	38(30)	63	12.0	2.70

( ) Metric size ● : Stock items

▶ Available inserts

XNCT-MA XNKT-ML XNKT-MM

Designation		Cermet		Coated										초경			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
XNCT	120608PNFR-MA																	141
XNKT	120604PNSR-MM												●	●				
	120608PNER-ML									●		●	●	●				
	120608PNSR-MM						●	●		●		●	●	●				
	120612PNER-ML												●	●				
	120612PNSR-MM						●	●					●	●				
	120616PNER-ML												●	●				
	120616PNSR-MM						●	●					●	●				
	120620PNER-ML												●	●				
	120620PNSR-MM						●	●					●	●				

▶ Available arbors

Designation		Available arbors	
		RM3PC	RM3PCM
RM3PC (RM3PCM)	5080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100HR	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125HR	BT□□-FMA38.1-□□	BT□□-FMC40-□□

▶ Parts

Specification	Screw	Wrench
Ø80~Ø125	FTNA0511	TW20-100

RM3PS3000

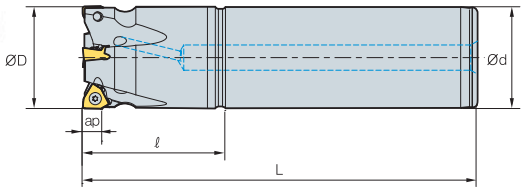


Fig. 1

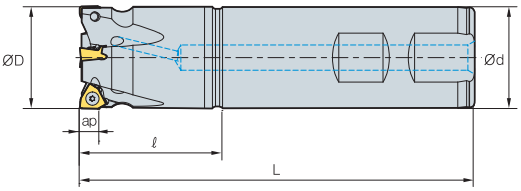


Fig. 2

AA 90°

- AR : -5°
- RR : -16°~-9°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg	Fig.
RM3PS	3020HR-2S20	●	2	20	20	35	100	5.5	0.21	2
	3020HR-2L20	●	2	20	20	35	200	5.5	0.43	1
	3021HR-2S20	●	2	21	20	30	100	5.5	0.21	2
	3021HR-2L20	●	2	21	20	30	200	5.5	0.43	1
	3025HR-3S20	●	3	25	20	35	115	5.5	0.27	2
	3025HR-3L20	●	3	25	20	35	200	5.5	0.46	1
	3025HR-3S25	●	3	25	25	40	115	5.5	0.36	2
	3025HR-3L25	●	3	25	25	40	200	5.5	0.66	1
	3026HR-2S20	●	2	26	20	35	115	5.5	0.29	2
	3026HR-2L20	●	2	26	20	35	200	5.5	0.47	1
	3026HR-3S20	●	3	26	20	35	115	5.5	0.28	2
	3026HR-3L20	●	3	26	20	35	200	5.5	0.47	1
	3026HR-2S25		2	26	25	35	115	5.5	0.37	2
	3026HR-2L25		2	26	25	35	200	5.5	0.68	1
	3026HR-3S25	●	3	26	25	35	115	5.5	0.37	2
	3026HR-3L25	●	3	26	25	35	200	5.5	0.68	1
	3032HR-3S25		3	32	25	42	125	5.5	0.48	2
	3032HR-3L25		3	32	25	42	200	5.5	0.74	1
	3032HR-4S25	●	4	32	25	42	125	5.5	0.48	2
	3032HR-4L25	●	4	32	25	42	200	5.5	0.74	1
	3032HR-4S32	●	4	32	32	42	125	5.5	0.68	2
	3032HR-4L32	●	4	32	32	42	200	5.5	1.13	1
	3033HR-3S25		3	33	25	42	125	5.5	0.49	2
	3033HR-3L25		3	33	25	42	200	5.5	0.75	1
	3033HR-4S25	●	4	33	25	42	125	5.5	0.49	2
	3033HR-4L25	●	4	33	25	42	200	5.5	0.75	1
	3033HR-4S32	●	4	33	32	42	125	5.5	0.70	2
	3033HR-4L32	●	4	33	32	42	200	5.5	1.14	1
	3040HR-4S32		4	40	32	45	130	5.5	0.83	2
	3040HR-4L32		4	40	32	45	200	5.5	1.24	1
	3040HR-5S32		5	40	32	45	130	5.5	0.83	2
	3040HR-5L32		5	40	32	45	200	5.5	1.24	1

● : Stock items

▶ Available inserts

XNKT-ML

XNKT-MM

Designation		Cermet		Coated										초경			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
XNKT	060405PNER-ML							●		●		●	●	●				141
	060405PNSR-MM						●	●		●		●	●	●				
	060408PNER-ML									●		●	●	●				
	060408PNSR-MM						●	●		●		●	●	●				

▶ Parts

Specification	Screw	Wrench
Ø20~Ø40	FTNA0306	TW09S

RM3PS4000

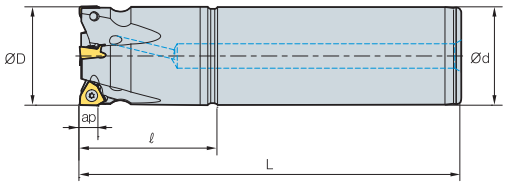


Fig. 1

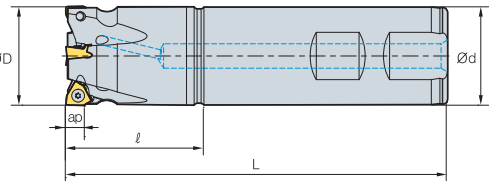


Fig. 2







AA
90°

- AR : -5°
- RR : -11°~-7°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg	Fig.
RM3PS	4032HR-3S32	●	3	32	32	42	125	8	0.67	2
	4032HR-3L32		3	32	32	42	200	8	1.11	1
	4033HR-3S32	●	3	33	32	42	125	8	0.68	2
	4033HR-3L32		3	33	32	42	200	8	1.13	1
	4040HR-3S32	●	3	40	32	42	130	8	0.8	2
	4040HR-3L32		3	40	32	42	200	8	1.21	1
	4040HR-4S32	●	4	40	32	42	130	8	0.81	2
	4040HR-4L32		4	40	32	42	200	8	1.22	1
	4050HR-4S32	●	4	50	32	42	135	8	0.99	2
	4050HR-4L32		4	50	32	42	200	8	1.38	1
	4050HR-4S40	●	4	50	40	42	135	8	1.32	2
	4050HR-4L40		4	50	40	42	200	8	1.94	1
	4050HR-5S32	●	5	50	32	42	135	8	1.02	2
	4050HR-5L32		5	50	32	42	200	8	1.4	1
	4050HR-5S40	●	5	50	40	42	135	8	1.35	2
	4050HR-5L40		5	50	40	42	200	8	1.96	1
	4063HR-5S32	●	5	63	32	42	135	8	1.31	2
	4063HR-5L32		5	63	32	42	200	8	1.7	1
	4063HR-5S40	●	5	63	40	42	135	8	1.64	2
	4063HR-5L40		5	63	40	42	200	8	2.25	1
	4063HR-6S32	●	6	63	32	42	135	8	1.31	2
	4063HR-6L32		6	63	32	42	200	8	1.7	1
	4063HR-6S40	●	6	63	40	42	135	8	1.64	2
	4063HR-6L40		6	63	40	42	200	8	2.26	1

● : Stock items

▶ Available inserts

XNCT-MA

XNKT-ML

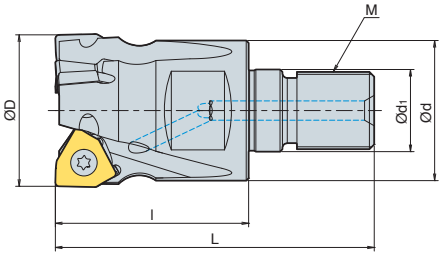
XNKT-MM

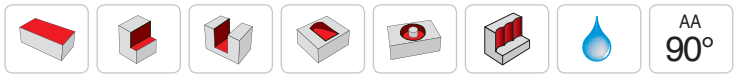
Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
XNCT	080504PNFR-MA																●	141
	080508PNFR-MA																●	
	080512PNFR-MA																●	
	080520PNFR-MA																●	
XNKT	080504PNER-ML									●			●	●				
	080504PNSR-MM									●			●	●				
	080508PNER-ML							●		●		●	●	●				
	080508PNSR-MM						●	●		●		●	●	●				
	080512PNER-ML												●	●				
	080512PNSR-MM						●	●		●			●	●				
	080516PNER-ML												●	●				
	080516PNSR-MM						●	●		●			●	●				
	080520PNER-ML												●	●				
	080520PNSR-MM						●	●		●			●	●				

▶ Parts

Specification	Screw	Wrench
Ø32~Ø63	FTNA0408	TW15S

RM3PM3000/4000





AA 90°

- AR : -5°
- RR : -16°~-7°

(mm)

Designation		Stock		ØD	Ød	Ød1	l	L	M	ap	kg
RM3PM	3020HR-2-M10		2	20	18	10.5	30	50	M10	5.5	0.06
	3025HR-3-M12		3	25	21	12.5	35	58	M12	5.5	0.1
	3032HR-4-M16		4	32	29	17	40	66	M16	5.5	0.21
	3040HR-5-M16		5	40	29	17	40	66	M16	5.5	0.26
RM3PM	4032HR-3-M16		3	32	29	17	40	66	M16	8	0.21
	4040HR-4-M16		4	40	29	17	50	76	M16	8	0.33
	4050HR-5-M16		5	50	29	17	55	81	M16	8	0.49

● : Stock items

▶ Available inserts

XNCT-MA | XNKT-ML | XNKT-MM

Designation			Cermet		Coated										Uncoated			page
			CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
3000 type	XNKT	060405PNER-ML							●		●		●	●	●				141
		060405PNSR-MM						●	●		●		●	●	●				
		060408PNER-ML									●		●	●	●				
		060408PNSR-MM						●	●		●		●	●	●				
4000 type	XNCT	080504PNFR-MA																●	
		080508PNFR-MA																●	
		080512PNFR-MA																●	
		080520PNFR-MA																●	
	XNKT	080504PNER-ML									●			●	●				
		080504PNSR-MM									●			●	●				
		080508PNER-ML							●		●		●	●	●				
		080508PNSR-MM						●	●		●		●	●	●				
		080512PNER-ML												●	●				
		080512PNSR-MM						●	●		●			●	●				
		080516PNER-ML												●	●				
		080516PNSR-MM						●	●		●			●	●				
		080520PNER-ML												●	●				
		080520PNSR-MM						●	●		●			●	●				

▶ Available adaptor

Designation		Available adaptor
RM3PM	3020HR-2-M10	MAT-M10
	3025HR-3-M12	MAT-M12
	3032HR-4-M16	MAT-M16
	3040HR-5-M16	MAT-M16
RM3PM	4032HR-3-M16	MAT-M16
	4040HR-4-M16	MAT-M16
	4050HR-5-M16	MAT-M16

Designation: RM3PM4032HR-M16
Modular head threading measure size (M16)

=

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

▶ Parts

Specification	Screw	Wrench
Ø20~Ø40 (3000 type)	FTNA0306	TW09S
Ø32~Ø50 (4000 type)	FTNA0408	TW15S

For
Medium
Cutting

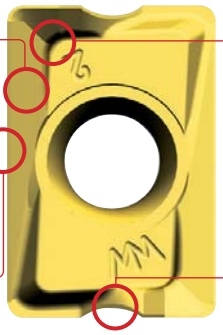
Multifunctioncal and efficient milling tool series

RM4

- RM4, as a multi functional milling tool, offers economical 4 cutting edges by using an innovative double-sided insert
- Special designed chip breaker consists of high rake angle and strong cutting edge to decrease the cutting load
- RM4 is multi functional tool that can cover facing, side cutting, shouldering, slotting, ramping & helical cutting
- Optimal matching of the special cutting edge geometry with variety of new grades provides consistence & long tool life of insert

Features

- 4 cutting edges can be used by using double-sided insert
- High rake angle chip breaker and cutting edge can make smooth cutting with low cutting load
- Strong negative insert
- High efficiency, economical, multi functional tool

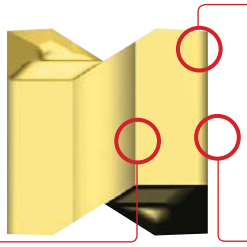


Chip breaker
- High rake angle chip breaker
- Improving chip control

Step design
- Improving chip control
- Reducing cutting load

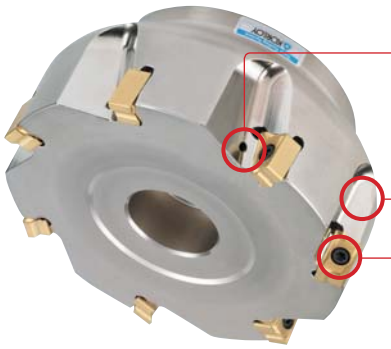
Major cutting-edge
- High rake angle chip breaker
- Better surface roughness

Concave design
- 4 cutting-edges
- Minimize interference



Minor cutting-edge
- Special design of cutting-edge to improve surface roughness

Clearance face
- Strong negative face
- Strong cutting-edge



Through coolant system

Longer tool life due to direct cooling injection into the cutting-edge of insert

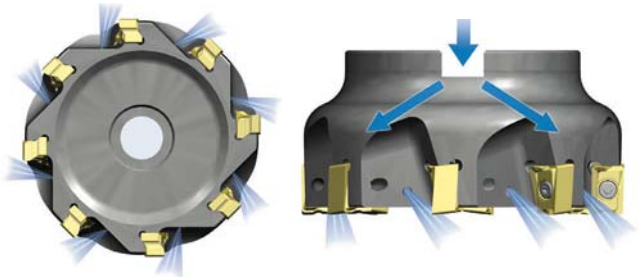
Wide chip pocket

Simple screw on system

Improving chip control

Through coolant system

- By using on exclusive coolant bolt (hexagonal socket bolt) powerful cooling & better chip evacuation can be acquired
- To get optimal chip control, the direction of coolant injection has been designed to reach to each cutting-edge directly (through coolant arbor is required)



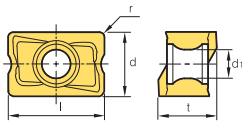
▶Through coolant system for decreasing cutting heat and good chip evacuation

Features of chip breakers

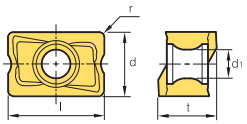
Chip breaker		Cutting-edge	Application	Features
MA			Aluminum, Light machining	• With sharp edge application the better productivity has been accomplished, especially for Aluminum or low force cut
MF			Light cutting	• Due to low cutting load, it is good for light cutting and difficult-to-cut material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

Available inserts

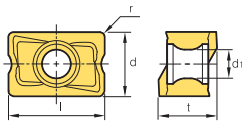
LNEX-MA



LNM(E)X-MF

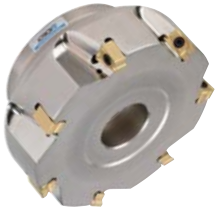


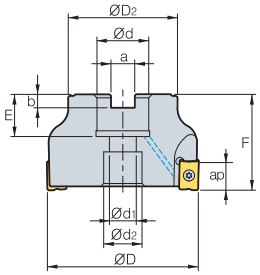
LNM(E)X-MM



Designation		Dimensions (mm)				
		l	d	t	r	d_1
LNMX	100605PNR-MF	10.0	6.5	6.5	0.5	3.5
	100608PNR-MF	10.0	6.5	6.5	0.8	3.5
	151004PNR-MF	15.0	10.0	10.0	0.4	4.5
	151008PNR-MF	15.0	10.0	10.0	0.8	4.5
	151016PNR-MF	15.0	10.0	10.0	1.6	4.5
LNEX	100605PNR-MF	10.0	6.5	6.5	0.5	3.5
	100608PNR-MF	10.0	6.5	6.5	0.8	3.5
	151004PNR-MF	15.0	10.0	10.0	0.4	4.5
	151008PNR-MF	15.0	10.0	10.0	0.8	4.5
	151016PNR-MF	15.0	10.0	10.0	1.6	4.5
LNMX	100605PNR-MM	10.0	6.5	6.5	0.5	3.5
	100608PNR-MM	10.0	6.5	6.5	0.8	3.5
	100605PNL-MM	10.0	6.5	6.5	0.5	3.5
	151004PNR-MM	15.0	10.0	10.0	0.4	4.5
	151008PNR-MM	15.0	10.0	10.0	0.8	4.5
	151016PNR-MM	15.0	10.0	10.0	1.6	4.5
	151008PNL-MM	15.0	10.0	10.0	0.8	4.5
LNEX	100605PNR-MM	10.0	6.5	6.5	0.5	3.5
	100608PNR-MM	10.0	6.5	6.5	0.8	3.5
	100605PNL-MM	10.0	6.5	6.5	0.5	3.5
	151004PNR-MM	15.0	10.0	10.0	0.4	4.5
	151008PNR-MM	15.0	10.0	10.0	0.8	4.5
	151016PNR-MM	15.0	10.0	10.0	1.6	4.5
	151008PNL-MM	15.0	10.0	10.0	0.8	4.5
LNEX	100605PNR-MA	10.0	6.5	6.5	0.5	3.5
	151004PNR-MA	15.0	10.0	10.0	0.4	4.5
	151008PNR-MA	15.0	10.0	10.0	0.8	4.5

RM4PC(M)3000





AA 90°

- AR : -6°
- RR : -19°~-13°

(mm)

Designation		Stock	⌀	ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Bolt
RM4PCM	3040HR	●	4	40	35	16	9	14	8.4	5.6	19	40	9.0	0.24	SB0825
	3040HR-M	●	5	40	35	16	9	14	8.4	5.6	19	40	9.0	0.23	SB0825
	3050HR	●	5	50	42	22	11	18	10.4	6.3	20	40	9.0	0.36	SB1025
	3050HR-M	●	7	50	42	22	11	18	10.4	6.3	20	40	9.0	0.35	SB1025
	3063HR	●	7	63	49	22	11	18	10.4	6.3	20	40	9.0	0.61	SB1025
	3063HR-M	●	9	63	49	22	11	18	10.4	6.3	20	40	9.0	0.6	SB1025
RM4PC (RM4PCM)	3080HR	● (●)	8	80	57	25.4(27)	14	20	9.5(12.4)	6.0(7.0)	25(23)	50	9.0	1.25(1.24)	SB1230
	3080HR-M	(●)	10	80	57	25.4(27)	14	20	9.5(12.4)	6.0(7.0)	25(23)	50	9.0	1.24(1.23)	SB1230
	3100HR	● (●)	9	100	67	31.75(32)	18	26	12.7(14.4)	8.0(8.0)	33(25)	63(50)	9.0	2.46(1.94)	SB1630
	3100HR-M	(●)	12	100	67	31.75(32)	18	26	12.7(14.4)	8.0(8.0)	33(25)	63(50)	9.0	2.44(1.93)	SB1630

( ) Metric size ●: Stock items

▶ Available inserts

LNEX-MA | LNM(E)X-MF | LNM(E)X-MM



Designation		Cermet		Coated											써멧	피막		page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
LNEX	100605PNR-MF											●	●	●				150
	100605PNR-MM								●			●	●	●				
	100605PNR-MA																●	
	100608PNR-MF								●			●	●	●				
	100608PNR-MM											●	●	●				
LNMX	100605PNR-MF									●		●	●	●				
	100605PNR-MM								●	●	●	●	●	●				
	100608PNR-MF									●		●	●	●				
	100608PNR-MM								●	●			●	●				

▶ Available arbors

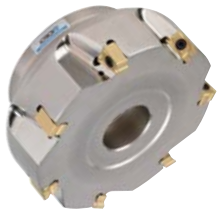
Designation		Available arbors	
		RM4PC	RM4PCM
RM4PCM	3040HR	-	BT□□-FMC16-□□
	3040HR-M		
	3050HR	-	BT□□-FMC22-□□
	3050HR-M		
	3063HR		
	3063HR-M		

Designation		Available arbors	
		RM4PC	RM4PCM
RM4PC (RM4PCM)	3080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	3080HR-M		
	3100HR	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	3100HR-M		

▶ Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0307	TW09S

RM4PC(M)4000



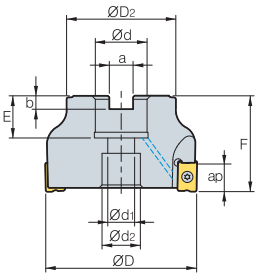


Fig. 1

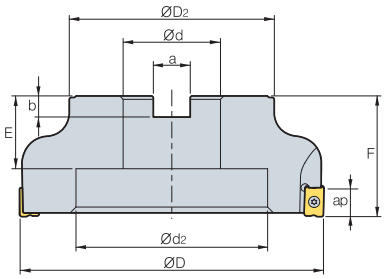


Fig. 2

AA 90°

• AR : -6°
• RR : -19°~-13°

(mm)

Designation		Stock		ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Bolt	Fig.
RM4PCM	4040HR	●	3	40	36	16	11	18	8.4	5.6	19	40	14	0.23	SB0825	1
	4050HR	●	3	50	46	22	11	18	10.4	6.3	20	40	14	0.36	SB1025	1
	4050HR-M	●	4	50	46	22	11	18	10.4	6.3	20	40	14	0.35	SB1025	1
	4050HR-H	●	5	50	46	22	11	18	10.4	6.3	20	40	14	0.36	SB1025	1
	4063HR	●	4	63	49	22	11	18	10.4	6.3	20	40	14	0.56	SB1025	1
	4063HR-M	●	6	63	49	22	11	18	10.4	6.3	20	40	14	0.57	SB1025	1
RM4PC (RM4PCM)	4080HR	● (●)	5	80	57	25.4(27)	14	20	9.5(12.4)	6.0(7.0)	25(23)	50	14	1.18(1.16)	SB1230	1
	4080HR-M	● (●)	7	80	57	25.4(27)	14	20	9.5(12.4)	6.0(7.0)	25(23)	50	14	1.17(1.14)	SB1230	1
	4080HR-H	(●)	8	80	57	25.4(27)	14	20	9.5(12.4)	6.0(7.0)	25(23)	50	14	1.17(1.14)	SB1230	1
	4100HR	● (●)	5	100	67	31.75(32)	18	26	12.7(14.4)	8.0(8.0)	33(25)	63(50)	14	2.35(1.84)	SB1630	1
	4100HR-M	● (●)	8	100	67	31.75(32)	18	26	12.7(14.4)	8.0(8.0)	33(25)	63(50)	14	2.31(1.82)	SB1630	1
	4100HR-H	(●)	9	100	67	31.75(32)	18	26	12.7(14.4)	8.0(8.0)	33(25)	63(50)	14	2.31(1.82)	SB1630	1
	4125HR	● (●)	7	125	87	38.1(40)	22	32	15.9(16.4)	10(9.0)	35(30)	63	14	3.87(3.79)	SB2040	1
	4125HR-M	● (●)	10	125	87	38.1(40)	22	32	15.9(16.4)	10(9.0)	35(30)	63	14	3.82(3.70)	SB2040	1
	4160R	(●)	8	160	107	50.8(40)	-	100	19(16.4)	11(9.0)	38(32)	63	14	5.0(4.75)	MBA	2
	4160R-M	(●)	12	160	107	50.8(40)	-	100	19(16.4)	11(9.0)	38(32)	63	14	4.97(4.71)	MBA	2

( ) Metric size ●: Stock items

▶ Available inserts

LNEX-MA LNM(E)X-MF LNM(E)X-MM



Designation		Cermet		Coated										초경			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
LNEX	151004PNR-MF											●	●	●				150
	151004PNR-MM											●	●	●				
	151004PNR-MA																●	
	151008PNR-MF											●	●	●				
	151008PNR-MM								●			●	●	●				
	151008PNR-MA																●	
	151016PNR-MF											●	●	●				
	151016PNR-MM											●	●	●				

Designation		Cermet		Coated										초경			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
LNMX	151004PNR-MF									●		●	●	●				150
	151004PNR-MM									●		●		●				
	151008PNR-MF									●	●	●	●	●				
	151008PNR-MM									●	●	●	●	●				
	151016PNR-MF									●		●	●	●				
	151016PNR-MM									●	●			●				

▶ Available arbors

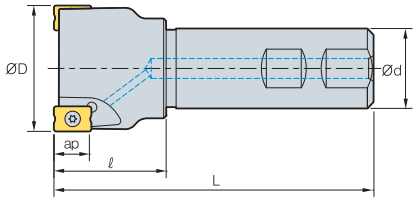
Designation		Available arbors	
		RM4PC	RM4PCM
RM4PCM	4050HR	-	BT□□-FMC22-□□
	4050HR-M		
	4063HR		
	4063HR-M		
RM4PC (RM4PCM)	4080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4080HR-M		

Designation		Available arbors	
		RM4PC	RM4PCM
RM4PC (RM4PCM)	4100HR	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4100HR-M		
	4125HR	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	4125HR-M		
	4160R	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	4160R-M		

▶ Parts

Specification	Screw	Wrench
Ø50~Ø160	FTKA0412B	TW15S

RM4PS3000



AA 90°

- AR : -6°
- RR : -39°~-16°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg
RM4PS	3014HR-S16	●	1	14	16	23	90	9.0	0.11
	3016HR-S16	●	1	16	16	25	90	9.0	0.11
	3018HR-S16	●	2	18	16	23	90	9.0	0.12
	3020HR-S20	●	2	20	20	30	100	9.0	0.21
	3020HR-S20M	●	3	20	20	30	100	9.0	0.21
	3025HR-S25	●	2	25	25	35	115	9.0	0.38
	3025HR-S25M	●	3	25	25	35	115	9.0	0.38
	3032HR-S32	●	3	32	32	40	125	9.0	0.69
	3032HR-S32M	●	4	32	32	40	125	9.0	0.7
	3040HR-S32	●	4	40	32	42	130	9.0	0.86
	3040HR-S32M	●	5	40	32	42	130	9.0	0.85
	3040HR-S40		4	40	40	42	130	9.0	1.17
	3040HR-S40M		5	40	40	42	130	9.0	1.17
	3040HR-S42		4	40	42	42	130	9.0	1.26
	3040HR-S42M		5	40	42	42	130	9.0	1.25
	3050HR-S32	●	5	50	32	45	135	9.0	1.06
	3050HR-S32M	●	7	50	32	45	135	9.0	1.05
	3050HR-S40		5	50	40	45	135	9.0	1.38
	3050HR-S40M		7	50	40	45	135	9.0	1.37
	3050HR-S42		5	50	42	45	135	9.0	1.48
	3050HR-S42M		7	50	42	45	135	9.0	1.48

● : Stock items

▶ Available inserts

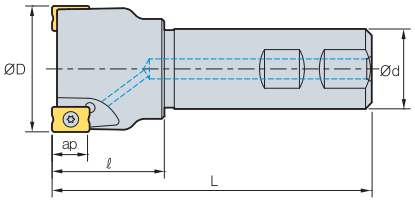
LNEX-MA | LNM(E)X-MF | LNM(E)X-MM

Designation		Cermet		Coated										초경			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
LNEX	100605PNR-MF											●	●	●				150
	100605PNR-MM								●			●	●	●				
	100605PNR-MA																●	
	100605PNL-MM											●	●	●				
	100608PNR-MF								●			●	●	●				
	100608PNR-MM											●	●	●				
LNMX	100605PNR-MF									●		●	●	●				
	100605PNR-MM								●	●	●	●	●	●				
	100608PNR-MF									●		●	●	●				
	100608PNR-MM								●	●			●	●				

▶ Parts

Specification	Screw	Wrench
Ø14~Ø50	FTKA0307	TW09S

RM4PS4000



AA 90°

• AR : -6°
• RR : -24°~-14°

(mm)

Designation		Stock		ØD	Ød	ℓ	L	ap	kg
RM4PS	4032HR-S32	●	2	32	32	40	125	14	0.68
	4032HR-S32M	●	3	32	32	40	125	14	0.69
	4040HR-S32	●	3	40	32	42	125	14	0.83
	4040HR-S32M	●	4	40	32	42	125	14	0.83
	4040HR-S40		3	40	40	42	125	14	1.14
	4040HR-S42		3	40	42	42	125	14	1.23
	4050HR-S32	●	3	50	32	45	125	14	1.02
	4050HR-S32M	●	4	50	32	45	125	14	1.02
	4050HR-S40		3	50	40	45	125	14	1.35
	4050HR-S40M		4	50	40	45	125	14	1.34
	4050HR-S42		3	50	42	45	125	14	1.45
	4050HR-S42M		4	50	42	45	125	14	1.45
	4063HR-S32	●	4	63	32	45	125	14	1.25
	4063HR-S32M	●	6	63	32	45	125	14	1.24
	4063HR-S40		4	63	40	45	125	14	1.62
	4063HR-S40M		6	63	40	45	125	14	1.61
	4063HR-S42		4	63	42	45	125	14	1.71
	4063HR-S42M		6	63	42	45	125	14	1.7

● : Stock items

▶ Available inserts

LNEX-MA LNM(E)X-MF LNM(E)X-MM

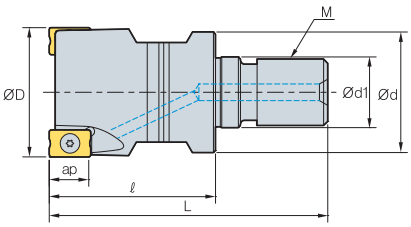


Designation		Cermet		Coated											초경			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
LNEX	151004PNR-MF											●	●	●				150
	151004PNR-MM											●	●	●				
	151004PNR-MA																●	
	151008PNR-MF											●	●	●				
	151008PNR-MM								●			●	●	●				
	151008PNR-MA																●	
	151016PNR-MF											●	●	●				
	151016PNR-MM											●	●	●				
LNMX	151004PNR-MF									●		●	●	●				
	151004PNR-MM									●		●		●				
	151008PNR-MF								●	●		●	●	●				
	151008PNR-MM								●	●	●	●	●	●				
	151016PNR-MF									●		●	●	●				
	151016PNR-MM								●	●		●		●				

▶ Parts

Specification	Screw	Wrench
Ø32~Ø63	FTKA0412B	TW15S

RM4PM3000



AA
90°

- AR : -6°
- RR : -39°~-16°

(mm)

Designation		Stock		ØD	Ød	Ød1	ℓ	L	M	ap	kg
RM4PM	3014HR-M06		1	14	12	6.5	25	40	M06	9.0	0.02
	3016HR-M08	●	1	16	14.5	8.5	25	42	M08	9.0	0.02
	3018HR-M08	●	2	18	14.5	8.5	25	42	M08	9.0	0.03
	3020HR-M10	●	2	20	18	10.5	30	51	M10	9.0	0.06
	3025HR-M12	●	2	25	23	12.5	35	59	M12	9.0	0.11
	3032HR-M16	●	3	32	28	17	40	67	M16	9.0	0.21
	3040HR-M16		4	40	28	17	40	67	M16	9.0	0.26
	3050HR-M16		5	50	30	17	45	72	M16	9.0	0.41

● : Stock items

▶ Available inserts

LNEX-MA | LNM(E)X-MF | LNM(E)X-MM



Designation		Cermet		Coated										초경			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	A30	G10E	H01	
LNEX	100605PNR-MF											●	●	●				150
	100605PNR-MM								●			●	●	●				
	100605PNR-MA																●	
	100608PNR-MF								●			●	●	●				
	100608PNR-MM											●	●	●				
LNMX	100605PNR-MF									●		●	●	●				
	100605PNR-MM								●	●	●	●	●	●				
	100608PNR-MF									●		●	●	●				
	100608PNR-MM								●	●			●	●				

▶ Available adaptor

Designation		Available adaptor
RM4PM	3014HR-M06	MAT-M06
	3016HR-M08	MAT-M08
	3018HR-M08	
	3020HR-M10	MAT-M10
	3025HR-M12	MAT-M12
	3032HR-M16	MAT-M16
	3040HR-M16	
	3050HR-M16	

Designation: RM4PM3032HR-M16
Modular Head Threading Measure size (M16)

=

Adaptor spec.: MAT-M16-035-S32S
Adaptor Threading Measure (M16)

▶ Parts

Specification	Screw	Wrench
Ø14~Ø50	FTKA0307	TW09S

For Medium Cutting

Long tool life due to high hardness grade

GBE

- Indexable ball nose endmill for molds in medium & roughing applications
- Long tool life with high hardness grade
- Helical 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
- Wide variety of holders in normal & long style holders

Features

Internal

External

- Ability to handle high accuracy & large depth of cut applications
  - Run-out: within 0.05 mm
  - R accuracy: within 0.05 mm
- Various diameters (Ø16, 20, 25, 30, 32, 40, 50)
- Minimal cutting resistance due to Helical cutting-edge
- Anti-rotation 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

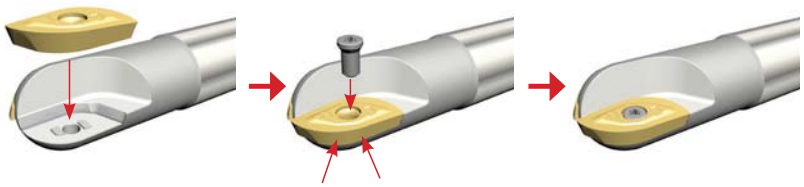
Multi-edge type

Single-edge type

Modular type

- Various diameters (Ø16, 20, 25, 30, 32, 40, 50)
- Improved chip treatment with internal coolant (cutting-edge portion)
- Long tool life & better processing
- Easy insert setting with projection part to prevent vibration during processing

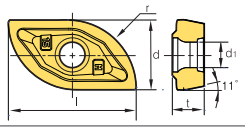
How to set insert



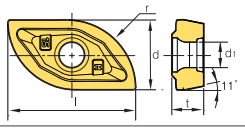
1. Set the insert to the holder projection seat
2. Push the insert into the pocket as shown by red arrows and screw down with wrench

Available inserts

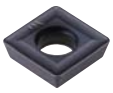
ZPET-MM
Internal

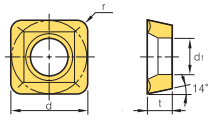


ZPET-MM
External

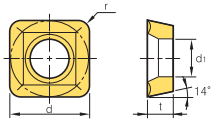


SDMT-MM

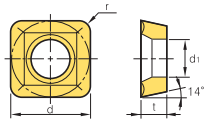




SPMT



SPMT-MM



Designation		Dimensions (mm)				
		l	d	t	r	d_1
ZPET-MM (Internal)	**080M-MM**	16	8.0	3.5	8	2.9
	090M-MM	17.7	7.2	4.3	9	3.4
	100M-MM	19	10.4	4.5	10	3.4
	110M-MM	22.2	11.4	4.8	11	4.5
	125M-MM	24	12.9	5.3	12.5	4.5
	130M-MM	25.7	13.4	5.3	13	4.5
	140M-MM	27.2	14.3	6.3	14	5.6
	150M-MM	28	15.4	7	15	5.6
	160M-MM	28.5	16.4	7	16	5.6
	200M-MM	38	20.7	8	20	6.6
	250M-MM	48	25.9	9.5	25	8.6
ZPET-MM (External)	**080S-MM**	15	6.6	3.1	8	2.9
	090S-MM	15.5	7.4	3.7	9	3.4
	100S-MM	15.5	8.4	3.8	10	3.4
	110S-MM	18.1	9	4.4	11	4.5
	125S-MM	20.5	10.7	4.5	12.5	4.5
	130S-MM	22.2	11	4.4	13	4.5
	140S-MM	24.1	11.2	5.7	14	5.6
	150S-MM	25	12.4	6.5	15	5.6
	160S-MM	26	13.4	6.5	16	5.6
	200S-MM	32	16.7	7	20	6.6
	250S-MM	40	20.7	8.5	25	8.6
SDMT-MM	**090308-MM**	-	9.525	3.18	0.8	4.4
SPMT	**060304**	-	6.35	3.18	0.4	2.8
SPMT-MM	**120408-MM**		12.7	4.76	0.8	5.6

GBE (Single-edge)

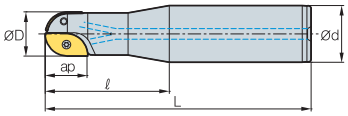


Fig. 1

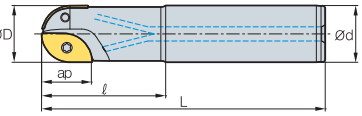


Fig. 2

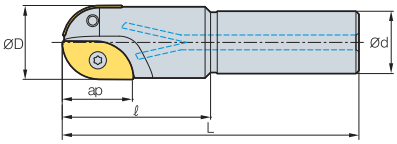
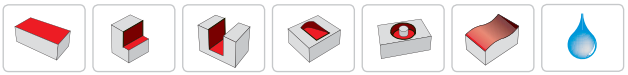


Fig. 3



(mm)

Designation		Stock	Dimensions					Available inserts		Parts		Fig.
			ØD	Ød	ℓ	L	ap	Internal	External	Screw Int./Ext. type	Wrench Ext. main type	
GBE	160-S20		16	20	50	130	15	ZPET080M-MM	ZPET080S-MM	FTKA02555S	TW08S	1
	160-L20		16	20	90	200	15	ZPET080M-MM	ZPET080S-MM	FTKA02555S	TW08S	
	180-S20		18	20	60	130	17	ZPET090M-MM	ZPET090S-MM	FTKA0307	TW09S	
	180-L20		18	20	80	200	17	ZPET090M-MM	ZPET090S-MM	FTKA0307	TW09S	
	200-S25	●	20	25	60	140	18	ZPET100M-MM	ZPET100S-MM	FTKA0307	TW09S	
	200-L25	●	20	25	80	250	18	ZPET100M-MM	ZPET100S-MM	FTKA0307	TW09S	
	220-S25		22	25	70	140	21	ZPET110M-MM	ZPET110S-MM	FTKA0408	TW15S	
	220-L25		22	25	100	250	21	ZPET110M-MM	ZPET110S-MM	FTKA0408	TW15S	
	250-S32	●	25	32	70	150	23	ZPET125M-MM	ZPET125S-MM	FTKA0409	TW15S	
	250-L32	●	25	32	100	300	23	ZPET125M-MM	ZPET125S-MM	FTKA0409	TW15S	
	260-S32		26	32	70	150	24.5	ZPET130M-MM	ZPET130S-MM	FTKA0409	TW15S	
	260-L32		26	32	100	300	24.5	ZPET130M-MM	ZPET130S-MM	FTKA0409	TW15S	
	280-S32		28	32	70	150	26	ZPET140M-MM	ZPET140S-MM	FTGA0511-P	TW20	
	280-L32		28	32	120	300	26	ZPET140M-MM	ZPET140S-MM	FTGA0511-P	TW20	
	300-S32		30	32	70	160	27	ZPET150M-MM	ZPET150S-MM	FTGA0511-P	TW20-100	2
	300-L32	●	30	32	120	350	27	ZPET150M-MM	ZPET150S-MM	FTGA0511-P	TW20-100	
	320-S32	●	32	32	70	160	28	ZPET160M-MM	ZPET160S-MM	FTGA0511-P	TW20-100	
	320-L32	●	32	32	120	350	28	ZPET160M-MM	ZPET160S-MM	FTGA0511-P	TW20-100	
	400-S42	●	40	42	100	200	37	ZPET200M-MM	ZPET200S-MM	FTGA0614	TW20-100	
	400-L42		40	42	150	350	37	ZPET200M-MM	ZPET200S-MM	FTGA0614	TW20-100	
	500-S42		50	42	100	200	47	ZPET250M-MM	ZPET250S-MM	FTGA0818	TW25-100	3
	500-L42		50	42	100	350	47	ZPET250M-MM	ZPET250S-MM	FTGA0818	TW25-100	

●: Stock items

GBE-M (Multi-edge)

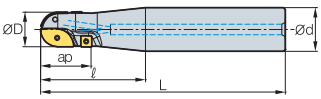


Fig. 1

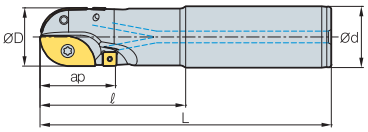


Fig. 2

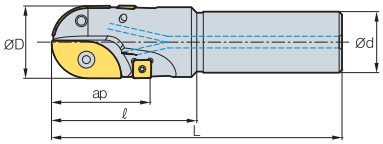
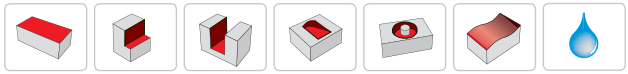


Fig. 3

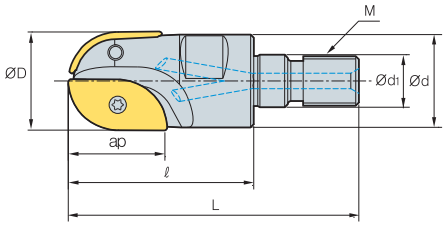


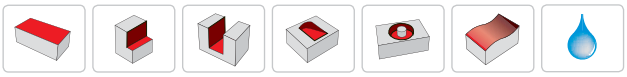
(mm)

Designation		Stock	Dimensions					Available inserts			Parts				Fig.
			ØD	Ød	ℓ	L	ap	Internal	External	Ext. main	Screw		Wrench		
											Int./Ext. type	Ext. main type	Int./Ext. type	Ext. main type	
GBE	200M-S25	●	20	25	70	150	28	ZPET100M-MM	ZPET100S-MM	SPMT060304	FTKA0307	ETNA02506	TW09S	TW07P	1
	200M-L25	●	20	25	70	250	28	ZPET100M-MM	ZPET100S-MM	SPMT060304	FTKA0307	ETNA02506	TW09S	TW07P	
	220M-S25		22	25	80	150	31	ZPET110M-MM	ZPET110S-MM	SPMT060304	FTKA0408	ETNA02506	TW15S	TW07P	
	220M-L25		22	25	80	250	31	ZPET110M-MM	ZPET110S-MM	SPMT060304	FTKA0408	ETNA02506	TW15S	TW07P	
	250M-S32		25	32	80	180	33	ZPET125M-MM	ZPET125S-MM	SPMT060304	FTKA0409	ETNA02506	TW15S	TW07P	
	250M-L32	●	25	32	80	300	33	ZPET125M-MM	ZPET125S-MM	SPMT060304	FTKA0409	ETNA02506	TW15S	TW07P	
	260M-S32		26	32	80	180	39	ZPET130M-MM	ZPET130S-MM	SDMT090308-MM	FTKA0409	ETNA0408	TW15S	TW15S	
	260M-L32		26	32	80	300	39	ZPET130M-MM	ZPET130S-MM	SDMT090308-MM	FTKA0409	ETNA0408	TW15S	TW15S	
	280M-S32		28	32	80	180	41	ZPET140M-MM	ZPET140S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20	TW15S	
	280M-L32		28	32	80	300	41	ZPET140M-MM	ZPET140S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20	TW15S	
	300M-S32	●	30	32	100	200	41	ZPET150M-MM	ZPET150S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	
	300M-L32	●	30	32	100	350	41	ZPET150M-MM	ZPET150S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	
	320M-S32	●	32	32	100	200	42	ZPET160M-MM	ZPET160S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	2
	320M-L32	●	32	32	100	350	42	ZPET160M-MM	ZPET160S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	
	400M-S42		40	42	100	200	56	ZPET200M-MM	ZPET200S-MM	SPMT120408-MM	FTGA0614	ETNA0511	TW20-100	TW20S	
	400M-L42		40	42	100	350	56	ZPET200M-MM	ZPET200S-MM	SPMT120408-MM	FTGA0614	ETNA0511	TW20-100	TW20S	
	500M-S42		50	42	100	200	67	ZPET250M-MM	ZPET250S-MM	SPMT120408-MM	FTGA0818	ETNA0511	TW25-100	TW20S	3
	500M-L42		50	42	100	350	67	ZPET250M-MM	ZPET250S-MM	SPMT120408-MM	FTGA0818	ETNA0511	TW25-100	TW20S	

● : Stock items

GBEM





(mm)

Designation		Stock	Dimensions							Available inserts	
			ØD	Ød	Ød1	ℓ	L	M	ap	Internal	External
GBEM	160-M08		16	15	8.5	30	47	M08	15	ZPET080M-MM	ZPET080S-MM
	200-M10		20	18.6	10.5	35	56	M10	18	ZPET100M-MM	ZPET100S-MM
	250-M12		25	23.2	12.5	45	69	M12	23	ZPET125M-MM	ZPET125S-MM
	300-M16		30	27.8	17	50	77	M16	27	ZPET150M-MM	ZPET150S-MM
	320-M16		32	29.8	17	50	77	M16	28	ZPET160M-MM	ZPET160S-MM

● : Stock items

▶ Available inserts

ZPET-MM	ZPET-MM	SPMT	SPMT-MM
 Internal	 External	 Ext. main	 Ext. main

Designation		Coated				page	Designation		Coated				page
		NCM325	PC2510	PC3500	PC5300				NCM325	PC2510	PC3500	PC5300	
SPMT	060304	●				158	ZPET	080S-MM					158
	120408-MM			●	●			090S-MM					
SDMT	090308-MM			●	●			100S-MM		●	●	●	
ZPET	080M-MM							110S-MM					
	090M-MM							125S-MM		●	●	●	
	100M-MM		●	●	●			130S-MM					
	110M-MM							140S-MM					
	125M-MM		●	●	●			150S-MM			●	●	
	130M-MM							160S-MM		●		●	
	140M-MM							200S-MM			●		
	150M-MM			●	●			250S-MM					
	160M-MM		●	●	●								
	200M-MM			●									
	250M-MM												

▶ Parts

Specification	Screw		Wrench	
	Int./Ext. type	Ext. main type	Int./Ext. type	Ext. main type
Ø16	FTKA02555	-	TW08S	-
Ø20	FTKA0307	ETNA02506	TW09S	TW07P
Ø25	FTKA0409	ETNA02506	TW15S	TW07P
Ø30	FTGA0511-P	ETNA0408	TW20-100	TW15S
Ø32	FTGA0511-P	ETNA0408	TW20-100	TW15S

Designation: GBEM320-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

Solutions for MOLD & DIE

Part 3

For Finishing

Part 3

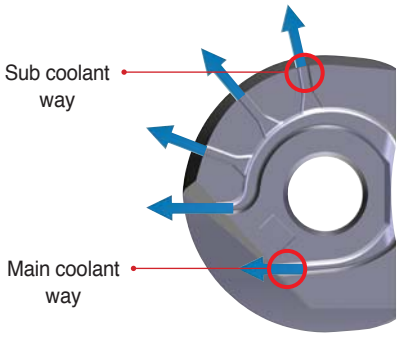
For Finishing

Longer tool life is achieved due to the excellent insert grades' cutting performance

Laser Mill

- Long tool life has been achieved due to the excellent cutting performance of the insert grade
- Optimum machining of molds has been achieved with the MQL available system
- Easy clamping with simple screw on system
- Various holder line up: steel shank, carbide shank, modular type
- High accuracy indexable endmills for mold finishing

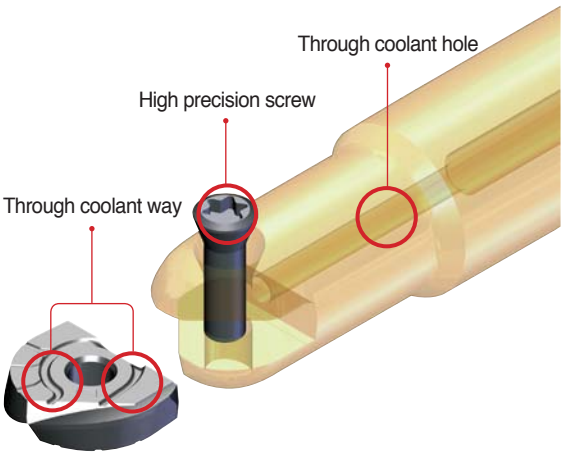
Clamping system



High precision (ground internal diameter)

Run-out: 0.02 mm
Accuracy of 'R part: below 0.01

Through coolant system



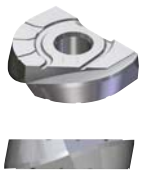
Features

LBE

- 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- environmentally responsible with longer tool life & improved surface quality.

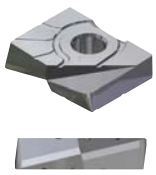
LBS, LR Order-made items

LBH-Ball



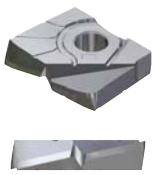
- Helical cutting-edge
- Suitable for harder material with high feed

LRH-Corner radius



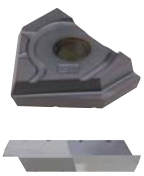
- Helical cutting-edge
- Variety of nose -R

LFH-High feed



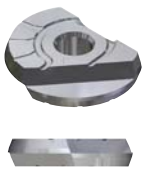
- Helical cutting-edge
- Suitable for high feed

LCF-Chamfer



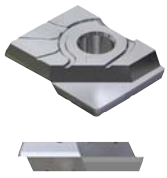
- Straight cutting-edge
- Center drilling and chamfering

LBS-Ball type



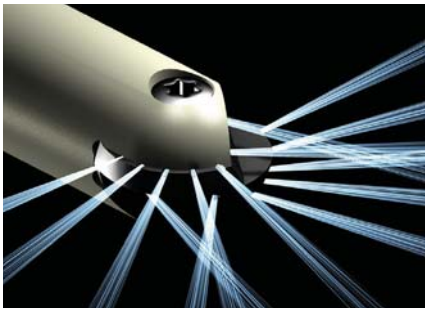
- Straight cutting-edge
- Suitable for precise

LR-Corner R type



- Straight cutting-edge
- Variety of nose-R

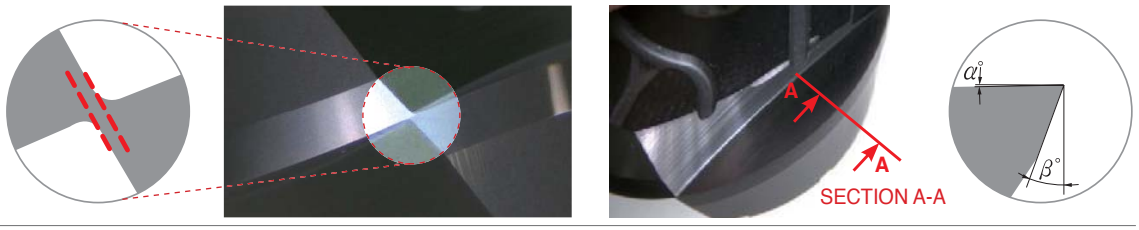
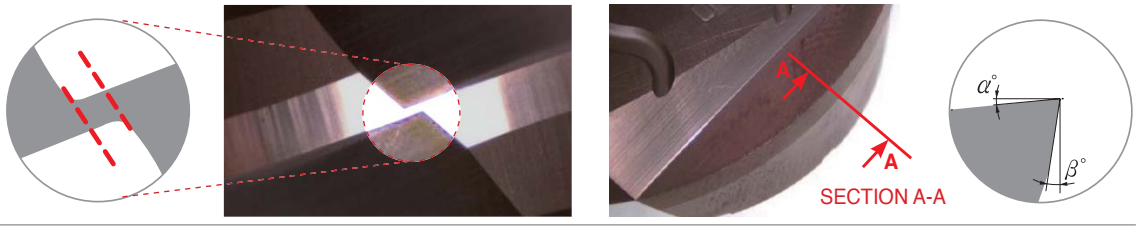
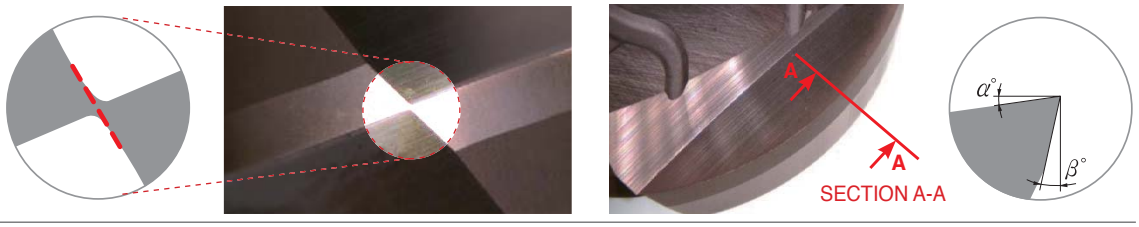
MQL System



- Environmental friendly system
- Decreased coolant cost
- Lubrication of cutting-edge
- Improved chip control property
- Increased tool life & improved surface quality

Features of KF/KH chip breaker

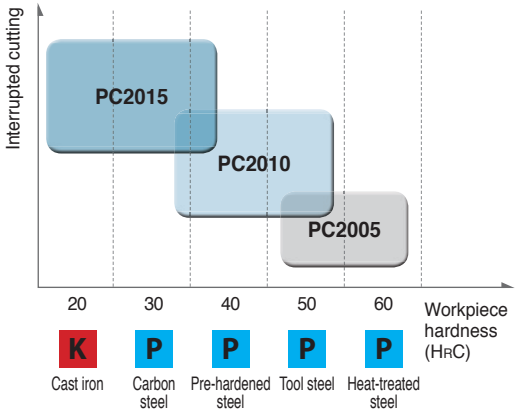
- KF: Exclusive chip breaker for stable machining of carbon steel with its characteristics of high wear resistance at center part and improved blade design
- KH: Stronger insert with the combination of rake angle and relief angle that are ideal for machining high hardness workpiece

Type	Shape comparison
Standard (For general cutting)	 • Proper to general cutting • Insert shape for uniform performance
KH (For high hardness steel)	 • Center shaper proper for machining high hardness workpiece and uniformed tool life at center part • Improved cutting-edge design by higher rake angle (α˚) • Lower relief angle (ß°) increases strength of cutting-edges than universal inserts.
KF (For carbon steel)	 • Smaller chisel improves wear resistance at center for machining carbon steel. • Improved cutting-edge design by higher rake angle (α˚) • Longer tool life and better cutting performance with the use of excellent blade design

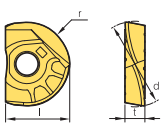
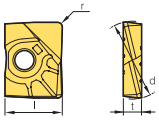
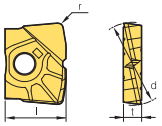
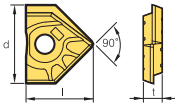
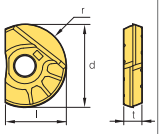
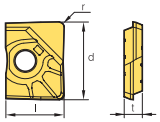
Features of Laser Mill grades

PC2005	• Extremely high hardness grade • The harmony between improved blade design and strong chip breaker • Optimized for machining heat-treated steel and high hardness steel
PC2010	• High wear resistance and excellent toughness • The harmony between excellent thermal shock resistance and strong cutting-edges. • Optimized for machining tool steel and pre-hardened steel
PC2015	• High welding resistance and excellent toughness • The harmony between tough grade and excellent cutting-edge design • Optimized for machining carbon steel

Application guideline per workpiece



Available 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 ±0.005	 Corner R ±0.005			 R accuracy ±0.005	 Corner R ±0.015
LBE080	LBH080 LBH090 LBH080-KF LBH090-KF LBH080-KH LBH090-KH				LBS080 LBS090	
LBE100 **LRE100**	LBH100 LBH110 LBH100-KF LBH110-KF LBH100-KH LBH110-KH	LRH100-R05 LRH100-R10 LRH110-R05 LRH100-R20	LFH100		LBS100 LBS110	LR100-R05 LR100-R20 LR100-R10 LR110-R05
LBE120 **LRE120**	LBH120 LBH130 LBH120-KF LBH130-KF LBH120-KH LBH130-KH	LRH120-R05 LRH120-R10 LRH130-R05 LRH120-R20	LFH120		LBS120 LBS130	LR120-R05 LR120-R20 LR120-R10 LR130-R05
LBE160 **LRE160**	LBH160 LBH170 LBH160-KF LBH170-KF LBH160-KH LBH170-KH	LRH160-R05 LRH160-R10 LRH160-R20 LRH170-R05 LRH160-R30	LFH160	LCF160-D90	LBS160 LBS170	LR160-R05 LR160-R30 LR160-R10 LR170-R05 LR160-R20
LBE200 **LRE200**	LBH200 LBH210 LBH200-KF LBH210-KF LBH200-KH LBH210-KH	LRH200-R05 LRH200-R10 LRH200-R20 LRH210-R05 LRH200-R30	LFH200	LCF200-D90	LBS200 LBS210	LR200-R05 LR200-R30 LR200-R10 LR210-R05 LR200-R20
LBE250 **LRE250**	LBH250 LBH260 LBH250-KF LBH260-KF LBH250-KH LBH260-KH	LRH250-R05 LRH250-R10 LRH250-R20 LRH260-R05 LRH250-R30	LFH250	LCF250-D90	LBS250 LBS260	LR250-R05 LR250-R30 LR250-R10 LR260-R05 LR250-R20
LBE300 **LRE300**	LBH300 LBH310 LBH300-KF LBH310-KF LBH300-KH LBH310-KH	LRH300-R10 LRH300-R20 LRH310-R05 LRH300-R30	LFH300		LBS300 LBS310	LR300-R10 LR300-R30 LR300-R20 LR310-R05
LBE320 **LRE320**	LBH320 LBH330 LBH320-KF LBH330-KF LBH320-KH LBH330-KH	LRH320-R10 LRH330-R05 LRH320-R20 LRH330-R10 LRH320-R30 LRH330-R20 LRH330-R30	LFH320		LBS320	LR320-R10 LR320-R30 LR320-R20

* LBH for general cutting, LBH-KF for carbon steel, and LBH-KH for high hardened steel.

LBE 08/10/12/16/20/25/30/32 Carbide Shank (Ball type)

Straight type

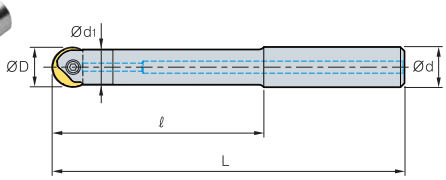


Fig. 1

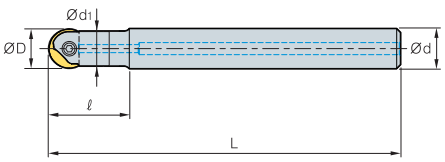
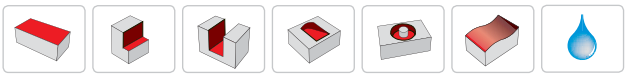


Fig. 2



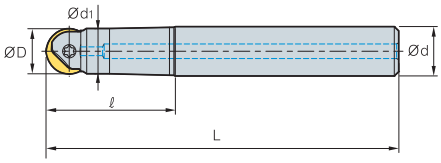
(mm)

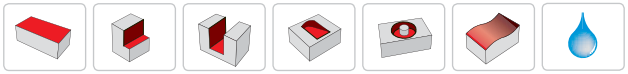
	Designation	Stock	Dimensions					Parts		Available inserts (Ø)	Fig.
			ØD	Ød	Ød1	ℓ	L	Clamp screw	Wrench		
LBE	080080S-S08C	●	8, 9	8	7.5	80	136	ETND02506F	TWP07S	8, 9	1
	080100S-S08C	●	8, 9	8	7.5	100	156				
	080020S-S08C-130	●	8, 9	8	7.5	20	130	ETND02506F	TWP07S	8, 9	2
	080020S-S08C-150	●	8, 9	8	7.5	20	150				
	100080S-S10C	●	10, 11	10	9.5	80	136	ETND0307F	TWP08S	10, 11	1
	100120S-S10C	●	10, 11	10	9.5	120	176				
	100023S-S10C-130	●	10, 11	10	9.5	23	130	ETND0307F	TWP08S	10, 11	2
	100023S-S10C-170	●	10, 11	10	9.5	23	170				
	120100S-S12C	●	12, 13	12	11.5	100	156	ETND03509	TWP10S	12, 13	1
	120150S-S12C	●	12, 13	12	11.5	150	206				
	120025S-S12C-150	●	12, 13	12	11.5	25	150	ETND03509	TWP10S	12, 13	2
	120025S-S12C-200	●	12, 13	12	11.5	25	200				
	160100S-S16C	●	16, 17	16	15.5	100	160	ETND0413	TWP15S	16, 17	1
	160150S-S16C	●	16, 17	16	15.5	150	210				
	160030S-S16C-160	●	16, 17	16	15.5	30	160	ETND0413	TWP15S	16, 17	2
	160030S-S16C-210	●	16, 17	16	15.5	30	210				
	200120S-S20C	●	20, 21	20	19.5	120	190	ETKD0516	TWP20	20, 21	1
	200170S-S20C	●	20, 21	20	19.5	170	240				
	200035S-S20C-190	●	20, 21	20	19.5	35	190	ETKD0516	TWP20	20, 21	2
	200035S-S20C-240	●	20, 21	20	19.5	35	240				
	250140S-S25C		25, 26	25	24.5	140	220	ETKD0620	TWP25	25, 26	1
	250170S-S25C		25, 26	25	24.5	170	250				
	250040S-S25C-220		25, 26	25	24.5	40	220	ETKD0620	TWP25	25, 26	2
	250040S-S25C-250		25, 26	25	24.5	40	250				
	300140S-S32C		30, 31	32	29.5	140	230	ETGD0825	TWP40	30, 31	1
	300170S-S32C		30, 31	32	29.5	170	260				
	300050S-S32C-230		30, 31	32	29.5	50	230	ETGD0825	TWP40	30, 31	2
	300050S-S32C-260		30, 31	32	29.5	50	260				
	320140S-S32C		32	32	31.5	140	230	ETGD0825	TWP40	32, 33	1
	320170S-S32C	●	32	32	31.5	170	260				
	320050S-S32C-230		32	32	31.5	50	230	ETGD0825	TWP40	32, 33	2
	320050S-S32C-260		32	32	31.5	50	260				

● : Stock items

LBE 08/10/12/16/20/25/30/32 Steel Shank (Ball type)

Taper type





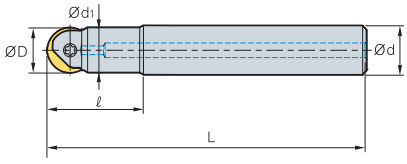
(mm)

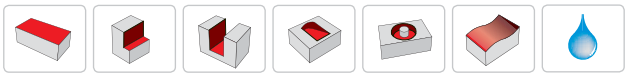
	Designation	Stock	Dimensions					Parts		Available inserts (Ø)
			ØD	Ød	Ød1	ℓ	L	Clamp screw	Wrench	
LBE	080035T-S12	●	8, 9	12	7.5	35	91	ETND02506F	TWP07S	8, 9
	080055T-S12	●	8, 9	12	7.5	55	111			
	080075T-S12	●	8, 9	12	7.5	75	131			
	100035T-S12	●	10, 11	12	9.5	35	91	ETND0307F	TWP08S	10, 11
	100055T-S12	●	10, 11	12	9.5	55	111			
	100075T-S12	●	10, 11	12	9.5	75	131			
	120055T-S12	●	12, 13	12	10.4	55	111	ETND03509	TWP10S	12, 13
	120085T-S16	●	12, 13	16	11.5	85	145			
	160065T-S16	●	16, 17	16	14	65	125	ETND0413	TWP15S	16, 17
	160100T-S20	●	16, 17	20	15.5	100	170			
	200075T-S20	●	20, 21	20	17.5	75	145	ETKD0516	TWP20	20, 21
	200115T-S25	●	20, 21	25	19.5	115	195			
	250090T-S25	●	25, 26	25	22	90	170	ETKD0620	TWP25	25, 26
	250135T-S32	●	25, 26	32	24.5	135	225			
	300105T-S32	●	30, 31	32	29.5	105	195	ETGD0825	TWP40	30, 31
	300160T-S32	●	30, 31	32	29.5	160	250			
	320105T-S32	●	32	32	29	105	195	ETGD0825	TWP40	32, 33
	320160T-S32	●	32	32	29	160	250			

●: Stock items

LBE 12/16/20/25/30/32 Steel Shank (Ball type)

Straight type





(mm)

	Designation	Stock	Dimensions					Parts		Available inserts (Ø)
			ØD	Ød	Ød1	ℓ	L	Clamp screw	Wrench	
LBE	120035S-S12	●	12, 13	12	11.5	35	91	ETND03509	TWP10S	12,13
	160035S-S16	●	16, 17	16	15.5	35	95	ETND0413	TWP15S	16,17
	200040S-S20	●	20, 21	20	19.5	40	110	ETKD0516	TWP20	20,21
	250045S-S25	●	25, 26	25	24.5	40	125	ETKD0620	TWP25	25,26
	300055S-S32	●	30, 31	32	29.5	55	145	ETGD0825	TWP40	30,31
	320055S-S32	●	32	32	31.5	55	145	ETGD0825	TWP40	32,33

●: Stock items

LRE 10/12/16/20/25/30/32 Carbide Shank (Corner R type)

Straight type

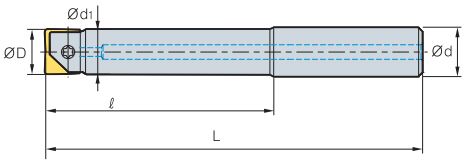


Fig. 1

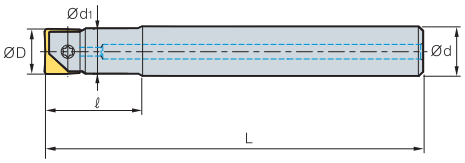
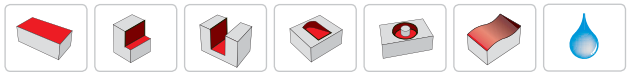


Fig. 2



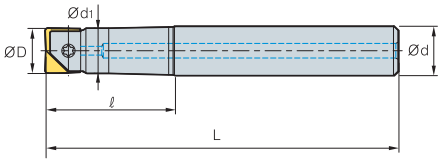
(mm)

	Designation	Stock	Dimensions					Parts		Available inserts (Ø)	Fig.
			ØD	Ød	Ød1	ℓ	L	Clamp screw	Wrench		
LRE	100080S-S10C		10, 11	10	9.5	80	136	ETND0307F	TWP08S	10, 11	1
	100120S-S10C		10, 11	10	9.5	120	176				
	100023S-S10C-130		10, 11	10	9.5	23	130	ETND0307F	TWP08S	10, 11	2
	100023S-S10C-170		10, 11	10	9.5	23	170				
	120100S-S12C		12, 13	12	11.5	100	156	ETND03509	TWP10S	12, 13	1
	120150S-S12C		12, 13	12	11.5	150	206				
	120025S-S12C-150		12, 13	12	11.5	25	150	ETND03509	TWP10S	12, 13	2
	120025S-S12C-200		12, 13	12	11.5	25	200				
	160100S-S16C		16, 17	16	15.5	100	160	ETND0413	TWP15S	16, 17	1
	160150S-S16C		16, 17	16	15.5	150	210				
	160030S-S16C-160		16, 17	16	15.5	30	160	ETND0413	TWP15S	16, 17	2
	160030S-S16C-210		16, 17	16	15.5	30	210				
	200120S-S20C		20, 21	20	19.5	120	190	ETKD0516	TWP20	20, 21	1
	200170S-S20C		20, 21	20	19.5	170	240				
	200035S-S20C-190		20, 21	20	19.5	35	190	ETKD0516	TWP20	20, 21	2
	200035S-S20C-240		20, 21	20	19.5	35	240				
	250140S-S25C		25, 26	25	24.5	140	220	ETKD0620	TWP25	25, 26	1
	250170S-S25C		25, 26	25	24.5	170	250				
	250040S-S25C-220		25, 26	25	24.5	40	220	ETKD0620	TWP25	25, 26	2
	250040S-S25C-250		25, 26	25	24.5	40	250				
	300140S-S32C		30, 31	32	29.5	140	230	ETGD0825	TWP40	30, 31	1
	300170S-S32C		30, 31	32	29.5	170	260				
	300050S-S32C-230		30, 31	32	29.5	50	230	ETGD0825	TWP40	30, 31	2
	300050S-S32C-260		30, 31	32	29..5	50	260				
	320140S-S32C		32	32	31.5	140	230	ETGD0825	TWP40	32, 33	1
	320170S-S32C		32	32	31.5	170	260				
	320050S-S32C-230		32	32	31.5	50	230	ETGD0825	TWP40	32, 33	2
	320050S-S32C-260		32	32	31.5	50	260				

● : Stock items

LRE 10/12 Steel Shank (Corner R type)

Taper type



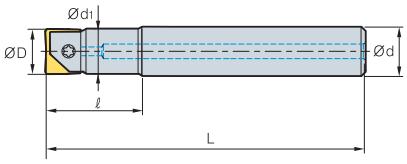
(mm)

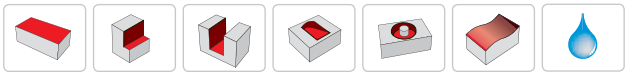
	Designation	Stock	Dimensions					Parts		Available inserts (Ø)
			ØD	Ød	Ød1	ℓ	L	Clamp screw	Wrench	
LRE	100025T-S12		10, 11	12	9.5	25	111	ETND0307F	TWP08S	10, 11
	100050T-S12		10, 11	12	9.5	50	150			
	120060T-S16		12, 13	16	11.5	60	160	ETND03509	TWP10S	12, 13

● : Stock items

LRE 12/16/25/30/32 Steel Shank (Corner R type)

Straight type



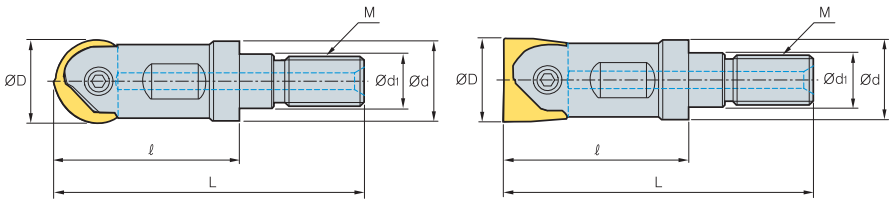


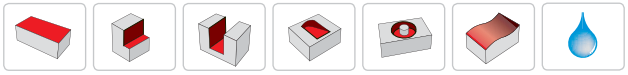
(mm)

	Designation	Stock	Dimensions					Parts		Available inserts (Ø)
			ØD	Ød	Ød1	ℓ	L	Clamp screw	Wrench	
LRE	120030S-S12		12, 13	12	11.5	30	111	ETND03509	TWP10S	12, 13
	160050S-S16		16, 17	16	15.5	50	131	ETND0413	TWP15S	16, 17
	160060S-S16		16, 17	16	15.5	60	160			
	200060S-S20		20, 21	20	19.5	60	145	ETKD0516	TWP20	20, 21
	200080S-S20		20, 21	20	19.5	80	180			
	250070S-S25		25, 26	25	24.5	70	145	ETKD0620	TWP25	25, 26
	250100S-S25		25, 26	25	24.5	100	225			
	300070S-S32		30, 31	32	29.5	70	160	ETGD0825	TWP40	30, 31
	300100S-S32		30, 31	32	29.5	100	225			
	320080S-S32		32	32	31.5	80	160	ETGD0825	TWP40	32, 33
	320100S-S32		32	32	31.5	100	225			

● : Stock items

LBE-MHD





(mm)

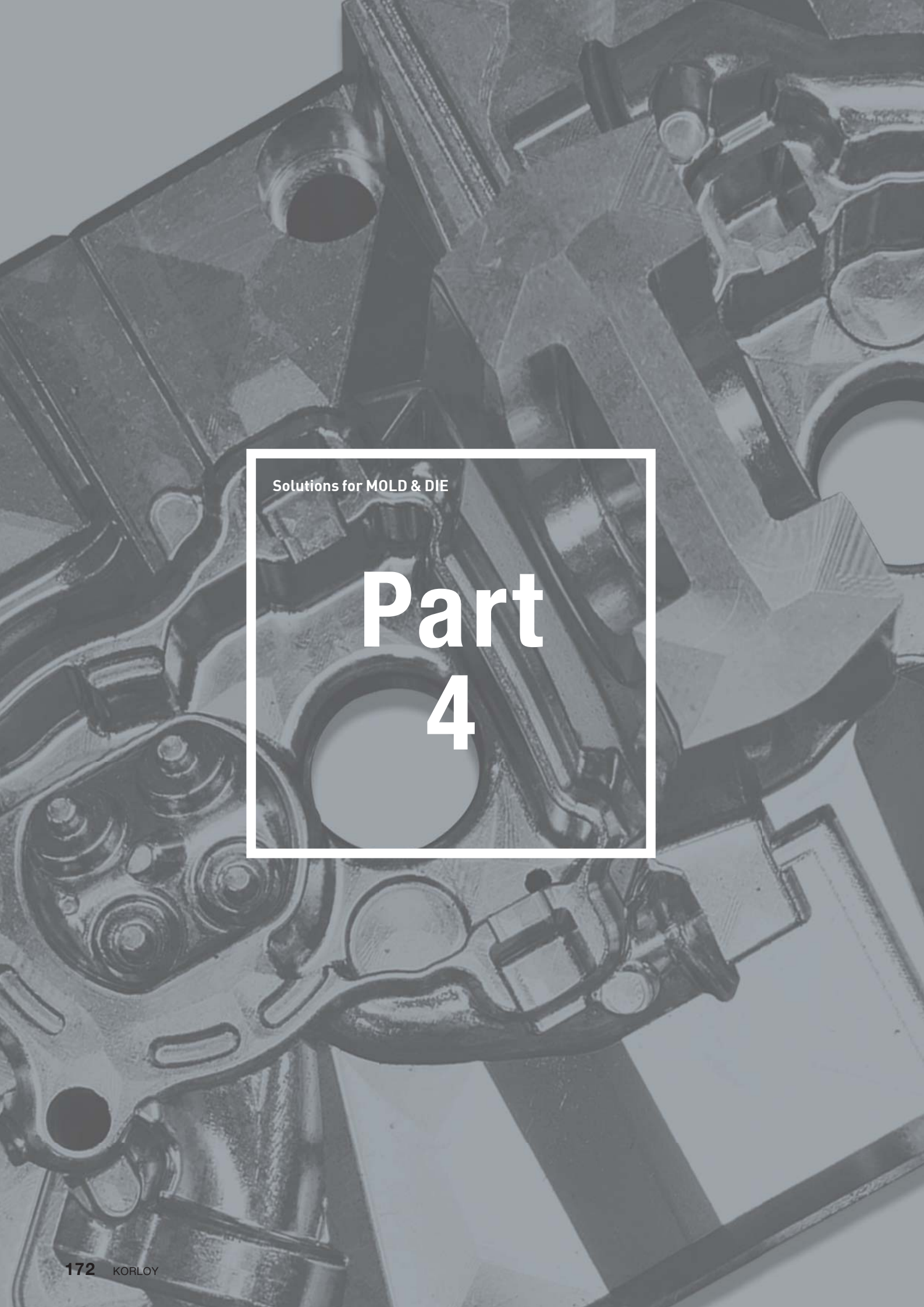
	Designation	Stock	Dimensions						Parts		Available inserts (Ø)
			M	ØD	L	ℓ	Ød	Ød1	Clamp screw	Wrench	
LBE	100-MHD-M06	●	M06	10, 11	40	25	9.5	6.5	ETND0307F	TWP08S	10, 11
	120-MHD-M06	●	M06	12, 13	40	25	11	6.5	ETND03509	TWP10S	12, 13
	160-MHD-M08	●	M08	16, 17	47	30	14.5	8.5	ETND0413	TWP15S	16, 17
	200-MHD-M10	●	M10	20, 21	56	35	18	10.5	ETKD0516	TWP20	20, 21
	250-MHD-M12	●	M12	25, 26	69	45	22.5	12.5	ETKD0620	TWP25	25, 26
	300-MHD-M16	●	M16	30, 31	77	50	28	17	ETGD0825	TWP40	30, 31
	320-MHD-M16	●	M16	32	77	50	29	17	ETGD0825	TWP40	32, 33

● : Stock items

Designation: LBE320-MHD-M16
Modular head threading measure size (M16)

=

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)



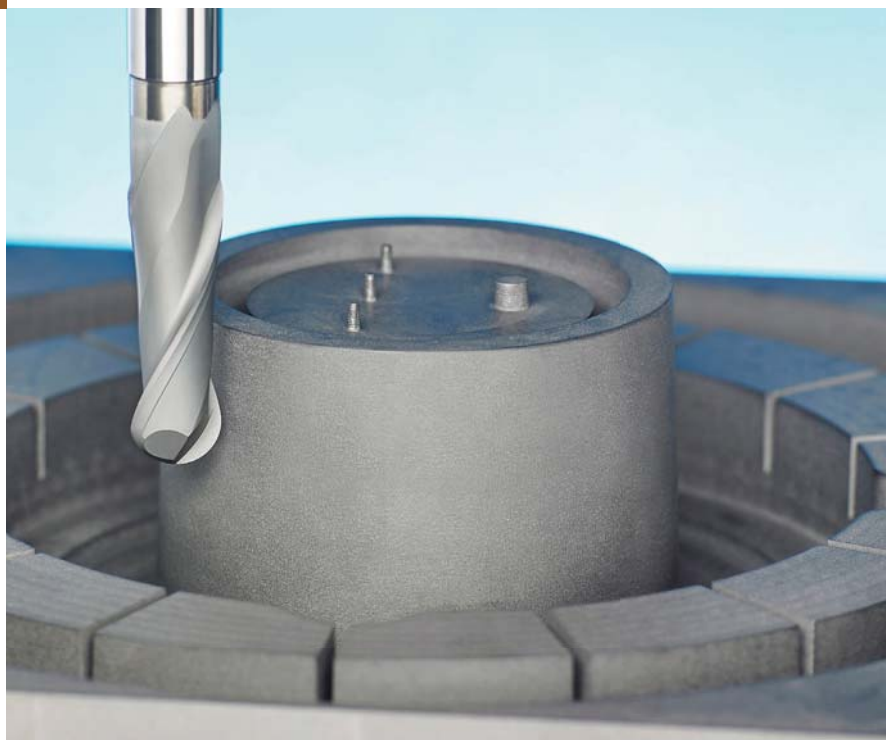
Solutions for MOLD & DIE

Part 4

For High Precision Machining (Solid Endmill)

Part 4

For high Precision Machining



Diamond coated endmill

D Endmill

- Tangential cutting-edge geometries for excellent surface finish
- Excellent wear resistance due to high hardness and high purity diamond coating
- Advanced surface finish and cutting performance thanks to sharp edges and tangential tool geometries

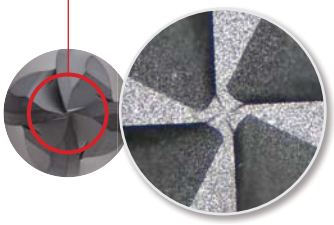
Features

Tangential cutting-edge geometries

- One-Pass grinding system
- Prevents stepped cone on the machined surface
- 2-flutes and 4-flutes tooling with a ball nose

Center-matched ball shape (4-flutes)

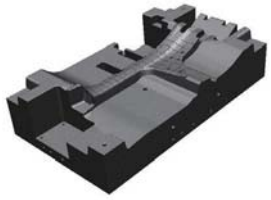
- Ball point shape for high feed machining
- Improved rigidity and excellent surface finish

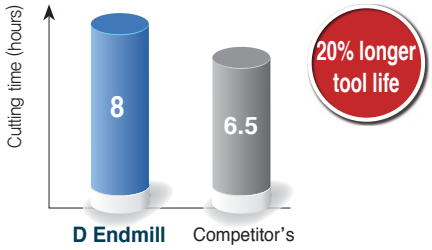


[Application Examples]

Graphite mold

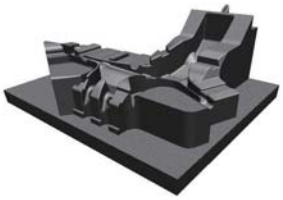
- **Cutting conditions:** vc(m/min) = 100, fz(mm/t) = 0.11, ap(mm) = 0.26, dry
- **Tools:** DBE4060-110-N250S06

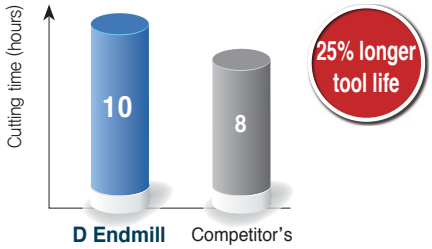




Graphite mold

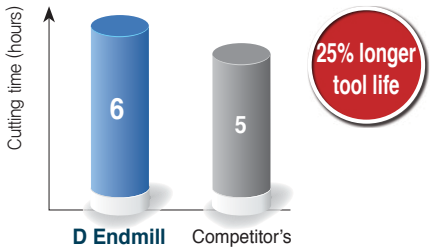
- **Cutting conditions:** vc(m/min) = 180, fz(mm/t) = 0.1, ap(mm) = 0.2, dry
- **Tools:** DBE2060-110-N250S06



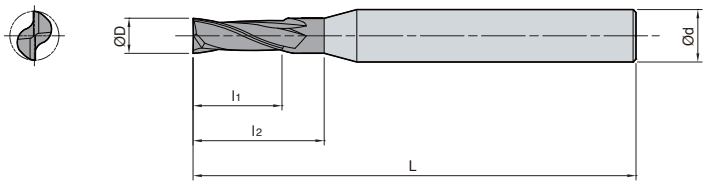


Graphite mold

- **Cutting conditions:** vc(m/min) = 300, fz(mm/t) = 0.1, ap(mm) = 0.15, dry
- **Tools:** DBE2060-080-N250S06



DFE2000(Flat)

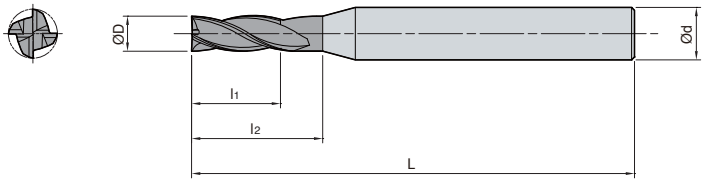


ØD	Tolerance
~Ø5.9	0.00 ~ -0.02
Ø6.0~	0.00 ~ -0.03

(mm)

Designation		ØD	Ød	l_1	l_2	L
DFE	2010-045-N050S04	1	4	3	5	45
2	2010-060-N050S04	1	4	3	5	60
	2010-060-N100S04	1	4	3	10	60
	2010-060-N150S04	1	4	3	15	60
	2010-060-N200S04	1	4	3	20	60
	2010-060-N250S04	1	4	3	25	60
	2015-060-N050S04	1.5	4	4	5	60
	2015-060-N100S04	1.5	4	4	10	60
	2015-060-N150S04	1.5	4	4	15	60
	2015-060-N200S04	1.5	4	4	20	60
	2015-060-N250S04	1.5	4	4	25	60
	2020-045-N080S04	2	4	6	8	45
	2020-080-N080S04	2	4	6	8	80
	2020-080-N100S04	2	4	6	10	80
	2020-080-N150S04	2	4	6	15	80
	2020-080-N200S04	2	4	6	20	80
	2020-080-N250S04	2	4	6	25	80
	2020-080-N300S04	2	4	6	30	80
	2020-080-N400S04	2	4	6	40	80
	2030-050-N100S06	3	6	9	10	50
	2030-080-N100S04	3	4	9	10	80
	2030-080-N200S04	3	4	9	20	80
	2030-080-N250S04	3	4	9	25	80
	2030-080-N300S04	3	4	9	30	80
	2030-080-N400S04	3	4	9	40	80
	2040-050-N160S06	4	6	12	16	50
	2040-080-N160S04	4	4	12	16	80
	2050-060-N200S06	5	6	15	20	60
	2050-110-N200S06	5	6	15	20	110
	2060-060-N180S06	6	6	18	-	60
	2060-110-N250S06	6	6	18	25	110
	2060-150-N250S06	6	6	18	25	150
	2080-070-N250S08	8	8	25	-	70
	2080-150-N400S08	8	8	25	40	150
	2100-080-N300S10	10	10	30	-	80
	2100-150-N500S10	10	10	30	50	150
	2120-080-N350S12	12	12	35	-	80
	2120-150-N600S12	12	12	35	60	150

DFE4000(Flat)



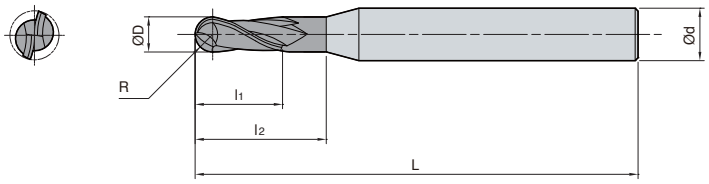
4 | H·A 30° | Substrate ND3000 | h6 shank

ØD	Tolerance
~Ø5.9	0.00 ~ -0.02
Ø6.0~	0.00 ~ -0.03

(mm)

Designation		ØD	Ød	l_1	l_2	L
DFE 4	4020-045-N060S04	2	4	6	8	45
	4020-060-N100S04	2	4	10	12	60
	4030-050-N100S06	3	6	10	12	50
	4030-060-N150S04	3	4	15	18	60
	4040-050-N150S06	4	6	15	18	50
	4040-080-N200S04	4	4	20	-	80
	4060-060-N180S06	6	6	18	-	60
	4060-110-N300S06	6	6	30	-	110
	4060-150-N300S06	6	6	30	-	150
	4080-070-N250S08	8	8	25	-	70
	4080-110-N400S08	8	8	40	-	110
	4080-150-N400S08	8	8	40	-	150
	4100-080-N250S10	10	10	25	-	80
	4100-110-N400S10	10	10	40	-	110
	4100-150-N500S10	10	10	50	-	150
	4120-080-N300S12	12	12	30	-	80
	4120-110-N400S12	12	12	40	-	110
	4120-150-N500S12	12	12	50	-	150

DBE2000(Ball)



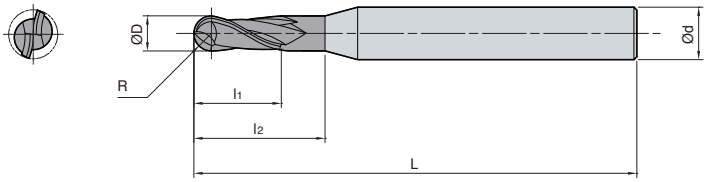
2 | H·A 30° | Substrate ND3000 | h6 shank

ØD	Tolerance
~Ø5.9	0.00 ~ -0.02
Ø6.0~	0.00 ~ -0.03

(mm)

Designation		R	ØD	Ød	l_1	l_2	L
DBE	2006-045-N020S04	0.3	0.6	4	2	2	45
2	2006-045-N050S04	0.3	0.6	4	2	5	45
	2006-045-N080S04	0.3	0.6	4	2	8	45
	2006-045-N100S04	0.3	0.6	4	2	10	45
	2008-045-N030S04	0.4	0.8	4	2.5	3	45
	2008-045-N050S04	0.4	0.8	4	2.5	5	45
	2008-045-N100S04	0.4	0.8	4	2.5	10	45
	2010-060-N030S04	0.5	1	4	3	3	60
	2010-060-N050S04	0.5	1	4	3	5	60
	2010-060-N080S04	0.5	1	4	3	8	60
	2010-060-N100S04	0.5	1	4	3	10	60
	2010-060-N120S04	0.5	1	4	3	12	60
	2010-060-N150S04	0.5	1	4	3	15	60
	2010-060-N200S04	0.5	1	4	3	20	60
	2010-080-N250S04	0.5	1	4	3	25	80
	2010-080-N300S04	0.5	1	4	3	30	80
	2010-080-N350S04	0.5	1	4	3	35	80
	2010-080-N400S04	0.5	1	4	3	40	80
	2015-060-N050S04	0.75	1.5	4	4	5	60
	2015-080-N100S04	0.75	1.5	4	4	10	80
	2015-080-N150S04	0.75	1.5	4	4	15	80
	2015-080-N200S04	0.75	1.5	4	4	20	80
	2015-080-N250S04	0.75	1.5	4	4	25	80
	2015-080-N300S04	0.75	1.5	4	4	30	80
	2015-080-N350S04	0.75	1.5	4	4	35	80
	2015-080-N400S04	0.75	1.5	4	4	40	80
	2020-060-N080S04	1	2	4	6	8	60
	2020-080-N100S04	1	2	4	6	10	80
	2020-080-N150S04	1	2	4	6	15	80
	2020-080-N200S04	1	2	4	6	20	80
	2020-080-N250S04	1	2	4	6	25	80
	2020-080-N300S04	1	2	4	6	30	80
	2020-080-N350S04	1	2	4	6	35	80
	2020-100-N400S04	1	2	4	6	40	100
	2020-100-N450S04	1	2	4	6	45	100
	2020-100-N500S04	1	2	4	6	50	100

DBE2000(Ball)



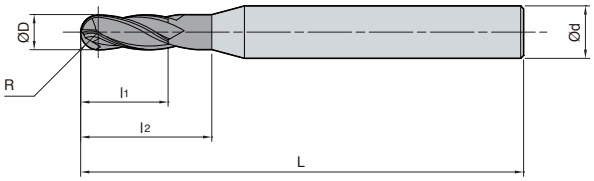
2 | H·A 30° | Substrate ND3000 | h6 shank

ØD	Tolerance
~Ø5.9	0.00 ~ -0.02
Ø6.0~	0.00 ~ -0.03

(mm)

Designation		R	ØD	Ød	l_1	l_2	L
DBE	2030-060-N100S04	1.5	3	4	9	10	60
2	2030-100-N150S04	1.5	3	4	9	15	100
	2030-100-N200S04	1.5	3	4	9	20	100
	2030-100-N250S04	1.5	3	4	9	25	100
	2030-100-N300S04	1.5	3	4	9	30	100
	2030-100-N350S04	1.5	3	4	9	35	100
	2030-100-N400S04	1.5	3	4	9	40	100
	2030-100-N500S04	1.5	3	4	9	50	100
	2040-060-N160S04	2	4	4	12	16	60
	2040-080-N160S04	2	4	4	12	16	80
	2040-080-N300S04	2	4	4	12	30	80
	2040-100-N160S04	2	4	4	12	16	100
	2040-100-N400S04	2	4	4	12	40	100
	2040-130-N160S04	2	4	4	12	16	130
	2040-130-N400S04	2	4	4	12	40	130
	2050-110-N200S06	2.5	5	6	15	20	110
	2060-080-N250S06	3	6	6	20	25	80
	2060-110-N250S06	3	6	6	20	25	110
	2060-150-N300S06	3	6	6	20	30	150
	2080-080-N300S08	4	8	8	25	30	80
	2080-110-N300S08	4	8	8	25	30	110
	2080-150-N500S08	4	8	8	25	50	150
	2080-200-N400S08	4	8	8	25	40	200
	2100-080-N400S10	5	10	10	30	40	80
	2100-110-N400S10	5	10	10	30	40	110
	2100-150-N600S10	5	10	10	30	60	150
	2100-200-N500S10	5	10	10	30	50	200
	2120-110-N500S12	6	12	12	35	50	110
	2120-150-N500S12	6	12	12	35	50	150
	2120-200-N600S12	6	12	12	35	60	200

DBE4000(Ball)

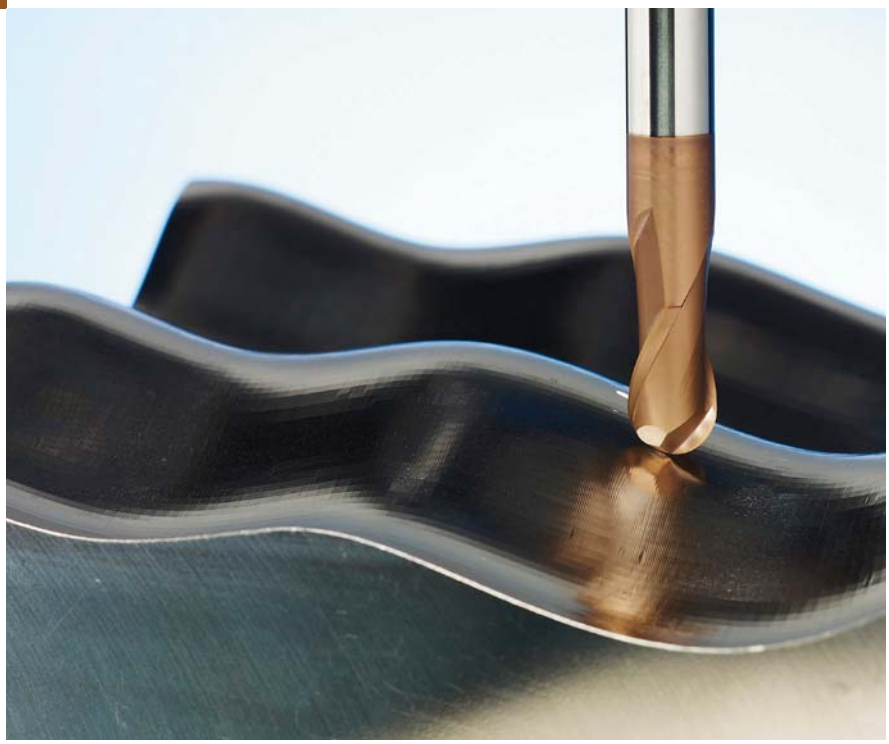


ØD	Tolerance
~Ø5.9	0.00 ~ -0.02
Ø6.0~	0.00 ~ -0.03

(mm)

Designation	R	ØD	Ød	l_1	l_2	L
DBE 4020-060-N080S04	1	2	4	6	8	60
4020-080-N100S04	1	2	4	6	10	80
4020-080-N200S04	1	2	4	6	20	80
4020-080-N300S04	1	2	4	6	30	80
4020-080-N400S04	1	2	4	6	40	80
4030-060-N100S04	1.5	3	4	9	10	60
4030-100-N150S04	1.5	3	4	9	15	100
4030-100-N200S04	1.5	3	4	9	20	100
4030-100-N300S04	1.5	3	4	9	30	100
4030-100-N400S04	1.5	3	4	9	40	100
4030-100-N500S04	1.5	3	4	9	50	100
4040-060-N160S04	2	4	4	12	16	60
4040-080-N160S04	2	4	4	12	16	80
4040-100-N160S04	2	4	4	12	16	100
4040-130-N160S04	2	4	4	12	16	130
4060-080-N250S06	3	6	6	20	25	80
4060-110-N250S06	3	6	6	20	25	110
4060-150-N300S06	3	6	6	20	30	150
4080-080-N300S08	4	8	8	25	30	80
4080-110-N300S08	4	8	8	25	30	110
4080-150-N350S08	4	8	8	25	35	150
4080-200-N400S08	4	8	8	25	40	200
4100-080-N350S10	5	10	10	30	35	80
4100-110-N350S10	5	10	10	30	35	110
4100-150-N400S10	5	10	10	30	40	150
4100-200-N500S10	5	10	10	30	50	200
4120-110-N500S12	6	12	12	35	50	110
4120-150-N500S12	6	12	12	35	50	150
4120-200-N600S12	6	12	12	35	60	200

For high Precision Machining



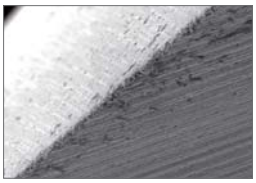
Endmill for high speed machining for high hardened steel

H Endmill

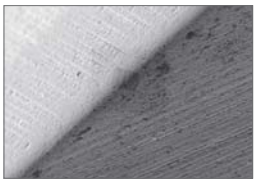
- For cutting high hardened and heat-treated steel under HRC70
- New coating technology improves wear resistance
- A new shape improves machinability
- High speed and highly accurate machining available

Features

- **New grade (PC303S, PC310U)**
  - Ultra fine substrate and AlTiSiN coating guarantee excellent wear resistance
- **Special edge treatment**
  - Special cutting edge design was applied for less chipping and longer tool life
- **High accuracy with tolerance h5**
  - High quality production system enables tolerance-h5 throughout the whole series



before

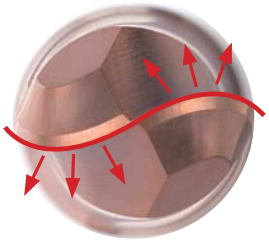


After special edge treatment

Improved stability

PBE (Ball)

- The S shape of ball disperses cutting loads
- The tolerance of ball R is under ±0.005 mm



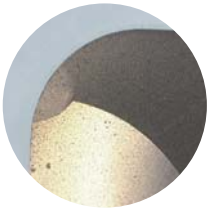
Cutting load is dispersed

S shape of ball

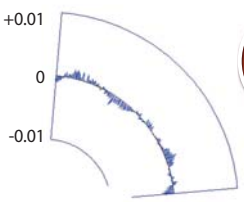
PRE (Radius)

- The new shape of corner R reduces cutting loads
- The tolerance of corner R is under ±0.005 mm

H Endmill radius



New shape of corner R



Measurement result of tolerance of corner R

High precision

[Application Examples]

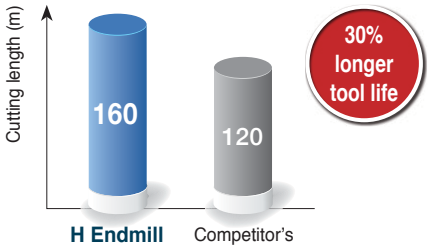
High Hardened Steel (X100CrMoV5 1* heat treated, HRC60)

- **Cutting conditions:** Diameter (mm) = Ø8.0, n (min-1) = 8,000, vc (m/min) = 200, vf (mm/min) = 1,600
  fz (mm/t) = 0.1, ap (mm) = 0.2, ae (mm) = 0.8, wet
- **Tools:** PBE2080-100

[H Endmill]

[Competitor's]

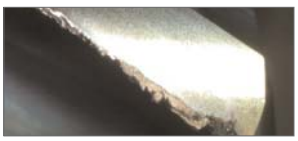
▶ The new grades improve wear resistance



High Hardened Steel (X100CrMoV5 1* heat treated, HRC60)

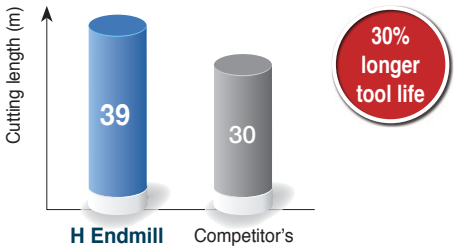
- **Cutting conditions:** Diameter (mm) = Ø8.0, n (min-1) = 4,000, vc (m/min) = 100, vf (mm/min) = 500
  fz (mm/t) = 0.03, ap (mm) = 8.0, ae (mm) = 0.25, dry
- **Tools:** PRE4080-100-R05

[H Endmill]



[Competitor's]

▶ Cutting edge treatment for less chipping



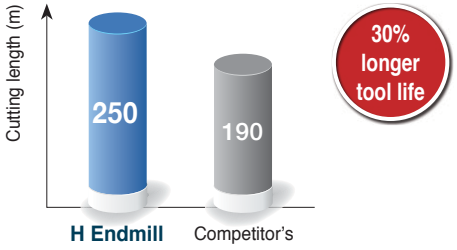
High Hardened Steel (STAVAX, heat treated, HRC50)

- **Cutting conditions:** Diameter (mm) = Ø8.0, n (min-1) = 10,000, vc (m/min) = 250, vf (mm/min) = 2,500
  fz (mm/t) = 0.125, ap (mm) = 0.1, ae (mm) = 0.2, wet
- **Tools:** PBE2080-100

[H Endmill]

[Competitor's]

▶ The new grades improve wear resistance



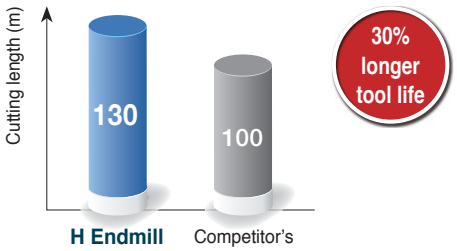
High Hardened Steel (STAVAX, heat treated, HRC50)

- **Cutting conditions:** Diameter (mm) = Ø8.0, n (min-1) = 8,000, vc (m/min) = 200, vf (mm/min) = 1,600
  fz (mm/t) = 0.05, ap (mm) = 8.0, ae (mm) = 0.4, wet
- **Tools:** PRE4080-100-R05

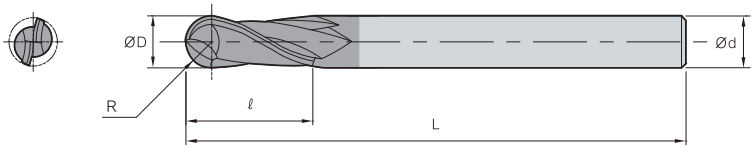
[H Endmill]

[Competitor's]

▶ Cutting edge treatment for less chipping



PBE2000 (Ball)

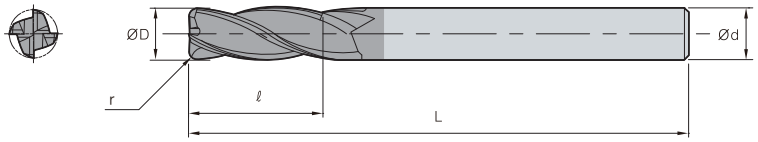


ØD	Tolerance
~ Ø5.9	0.00 ~ -0.015
Ø6.0 ~	0.00 ~ -0.025

(mm)

Designation		R	ØD	Ød	ℓ	L
PBE 2	2005-040	0.25	0.5	6	1	40
	2010-050	0.5	1	6	2.5	50
	2012-050	0.6	1.2	6	3	50
	2015-050	0.75	1.5	6	4	50
	2020-050	1	2	6	5	50
	2025-060	1.25	2.5	6	7	60
	2030-060	1.5	3	6	8	60
	2040-070	2	4	6	8	70
	2050-080	2.5	5	6	10	80
	2060-090	3	6	6	12	90
	2080-100	4	8	8	14	100
	2100-100	5	10	10	18	100
	2120-110	6	12	12	22	110

PRE4000 (Radius)



4 | H·A 30° | h5 shank | Substrate PC310U

ØD	Tolerance
~ Ø5.9	0.00 ~ -0.015
Ø6.0 ~	0.00 ~ -0.025

(mm)

Designation		ØD	Ød	ℓ	L	r
PRE 4	4030-060-R01	3	6	8	60	0.1
	4030-060-R02	3	6	8	60	0.2
	4030-060-R03	3	6	8	60	0.3
	4030-060-R05	3	6	8	60	0.5
	4040-070-R01	4	6	10	70	0.1
	4040-070-R02	4	6	10	70	0.2
	4040-070-R03	4	6	10	70	0.3
	4040-070-R05	4	6	10	70	0.5
	4040-070-R10	4	6	10	70	1
	4060-090-R02	6	6	15	90	0.2
	4060-090-R03	6	6	15	90	0.3
	4060-090-R05	6	6	15	90	0.5
	4060-090-R10	6	6	15	90	1
	4080-100-R02	8	8	20	100	0.2
	4080-100-R03	8	8	20	100	0.3
	4080-100-R05	8	8	20	100	0.5
	4080-100-R10	8	8	20	100	1
	4100-100-R03	10	10	25	100	0.3
	4100-100-R05	10	10	25	100	0.5
	4100-100-R10	10	10	25	100	1
	4120-110-R03	12	12	30	110	0.3
	4120-110-R05	12	12	30	110	0.5
	4120-110-R10	12	12	30	110	1

For high Precision Machining

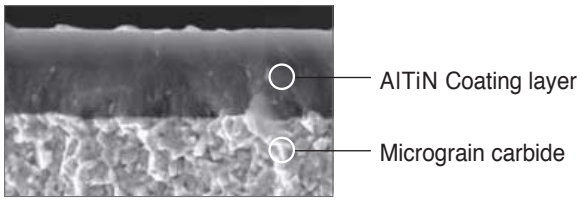
Stable performance guaranteed for workpiece workpieces under HRC45

I+ Endmill

- Tough substrate & wear-resisting coating technology applied
- Wide application range in general use - Stable performance guaranteed for workpiece which is under 45 HRC
- Saving cost by higher productivity

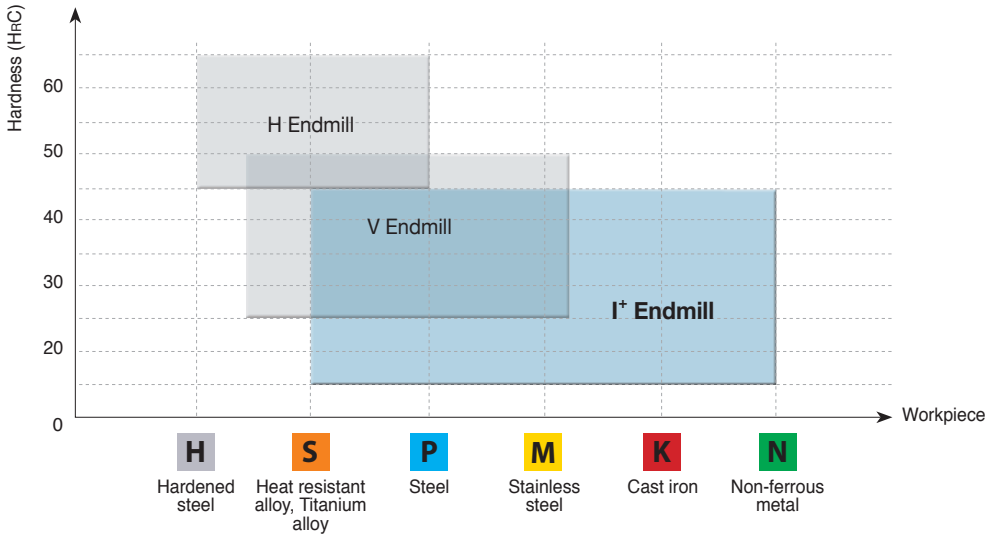
Product line-up

- IPBE: I Plus Ball Endmill (Ø1~Ø20)
- IPFE: I Plus Flat Endmill (Ø1~Ø20)
- IPRE: I Plus Radius Endmill (Ø1~Ø12)



PC320

Application area



[Application Examples]

Carbon steel (SM45C)

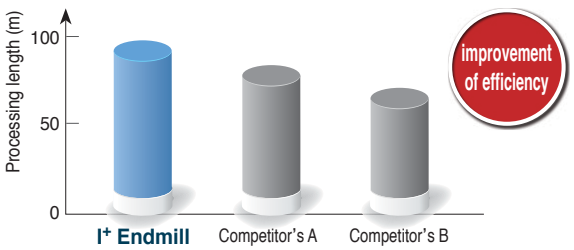
• **Cutting conditions:** Diameter = Ø8.0, n (min-1) = 5.173, vc (m/min) = 130.0, vf (mm/min) = 1.034, fz (mm/t) = 0.1, ap (mm) = 0.5, ae (mm) = 1.6, dry

• **Tools:** IPBE2080-060

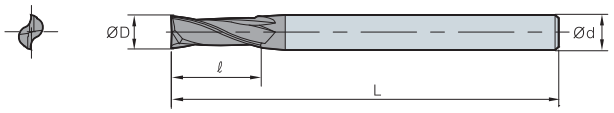
[I+ Endmill]

[Competitor's A]

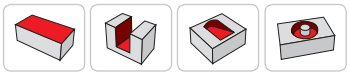
[Competitor's B]



IPFE2000 (Flat)



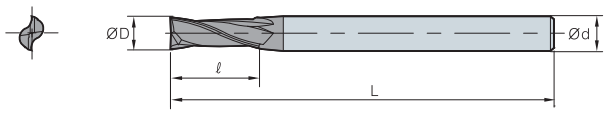
ØD	Tolerance
Ø1~Ø12	0.00 ~ -0.02
Ø12.1~Ø20	0.00 ~ -0.03



(mm)

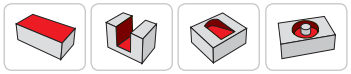
Designation		ØD	Ød	ℓ	L
IPFE	2010-050-S3	1	3	3	50
2	2010-050-S4	1	4	3	50
	2010-050	1	6	3	50
	2015-050-S3	1.5	3	4	50
	2015-050-S4	1.5	4	4	50
	2015-050	1.5	6	4	50
	2020-050-S3	2	3	6	50
	2020-050-S4	2	4	6	50
	2020-050	2	6	6	50
	2025-050-S3	2.5	3	8	50
	2025-050-S4	2.5	4	8	50
	2025-050	2.5	6	8	50
	2030-050-S3	3	3	8	50
	2030-050-S4	3	4	8	50
	2030-050	3	6	8	50
	2035-050-S4	3.5	4	10	50
	2035-050	3.5	6	10	50
	2040-050-S4	4	4	11	50
	2040-050	4	6	11	50
	2045-050	4.5	6	13	50
	2050-050	5	6	13	50
	2055-050	5.5	6	13	50
	2060-050	6	6	16	50
	2065-060	6.5	8	16	60
	2070-060	7	8	16	60
	2075-060	7.5	8	19	60
	2080-060	8	8	20	60
	2085-075	8.5	10	20	75
	2090-075	9	10	20	75
	2095-075	9.5	10	25	75
	2100-075	10	10	25	75
	2105-075	10.5	12	25	75
	2110-075	11	12	30	75
	2115-075	11.5	12	30	75
	2120-075	12	12	32	75
	2140-100	14	16	40	100
	2160-100	16	16	40	100
	2180-100	18	20	45	100
	2200-100	20	20	45	100

IPLFE2000 (Long flat)



2 | H A 35° | Substrate PC320 | h6 shank

ØD	Tolerance
Ø1~Ø12	0.00 ~ -0.02
Ø12.1~Ø20	0.00 ~ -0.03



▶ Long shank type

(mm)

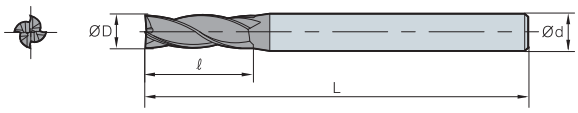
Designation		ØD	Ød	ℓ	L
IPLFE 2	2060-075	6	6	16	75
	2060-100	6	6	16	100
	2080-075	8	8	20	75
	2080-100	8	8	20	100
	2100-100	10	10	25	100
	2100-150	10	10	25	150
	2120-100	12	12	32	100
	2120-150	12	12	32	150

▶ Long flute type

(mm)

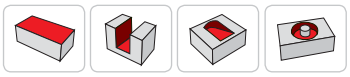
Designation		ØD	Ød	ℓ	L
IPLFE 2	2010-050-V7S4	1	4	7	50
	2015-050-V9S4	1.5	4	9	50
	2020-050-V12S4	2	4	12	50
	2025-050-V12S4	2.5	4	12	50
	2030-060-V15S6	3	6	15	60
	2035-060-V15S6	3.5	6	15	60
	2040-075-V20S6	4	6	20	75
	2045-075-V20S6	4.5	6	20	75
	2050-075-V25S6	5	6	25	75
	2055-075-V25S6	5.5	6	25	75
	2060-075-V30S6	6	6	30	75
	2070-100-V30S8	7	8	30	100
	2080-100-V40S8	8	8	40	100
	2090-100-V40S10	9	10	40	100
	2100-100-V40S10	10	10	40	100
	2110-100-V40S12	11	12	40	100
	2120-100-V50S12	12	12	50	100
	2140-150-V50S16	14	16	50	150
	2160-150-V60S16	16	16	60	150
	2200-200-V90S20	20	20	90	200

IPFE4000 (Flat)



4 | H A 35° | Substrate PC320 | h6 shank

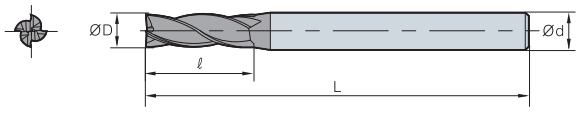
ØD	Tolerance
Ø1~Ø12	0.00 ~ -0.02
Ø12.1~Ø20	0.00 ~ -0.03



(mm)

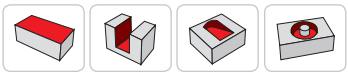
Designation		ØD	Ød	ℓ	L
IPFE 4	4010-050-S3	1	3	3	50
	4010-050-S4	1	4	3	50
	4010-050	1	6	3	50
	4015-050-S3	1.5	3	4	50
	4015-050-S4	1.5	4	4	50
	4015-050	1.5	6	4	50
	4020-050-S3	2	3	6	50
	4020-050-S4	2	4	6	50
	4020-050	2	6	6	50
	4025-050-S3	2.5	3	8	50
	4025-050-S4	2.5	4	8	50
	4025-050	2.5	6	8	50
	4030-050-S3	3	3	8	50
	4030-050-S4	3	4	8	50
	4030-050	3	6	8	50
	4035-050-S4	3.5	4	10	50
	4035-050	3.5	6	10	50
	4040-050-S4	4	4	11	50
	4040-050	4	6	11	50
	4045-050	4.5	6	13	50
	4050-050	5	6	13	50
	4055-050	5.5	6	13	50
	4060-050	6	6	16	50
	4065-060	6.5	8	16	60
	4070-060	7	8	16	60
	4075-060	7.5	8	19	60
	4080-060	8	8	20	60
	4085-075	8.5	10	20	75
	4090-075	9	10	20	75
	4095-075	9.5	10	25	75
	4100-075	10	10	30	75
	4105-075	10.5	12	30	75
	4110-075	11	12	30	75
	4115-075	11.5	12	30	75
	4120-075	12	12	32	75
	4140-100	14	16	40	100
	4160-100	16	16	40	100
	4180-100	18	20	45	100
	4200-100	20	20	45	100

IPLFE4000 (Long Flat)



4 | H A 35° | Substrate PC320 | h6 shank

ØD	Tolerance
Ø1~Ø12	0.00 ~ -0.02
Ø12.1~Ø20	0.00 ~ -0.03



▶ Long shank type

(mm)

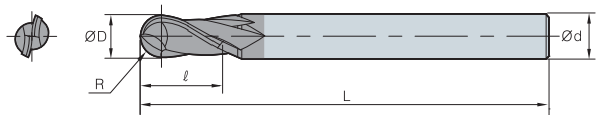
Designation		ØD	Ød	ℓ	L
IPLFE 4	4060-075	6	6	16	75
	4060-100	6	6	16	100
	4080-075	8	8	20	75
	4080-100	8	8	20	100
	4100-100	10	10	30	100
	4100-150	10	10	30	150
	4120-100	12	12	32	100
	4120-150	12	12	32	150

▶ Long flute type

(mm)

Designation		ØD	Ød	ℓ	L
IPLFE 4	4010-050-V6S4	1	4	6	50
	4015-050-V9S4	1.5	4	9	50
	4020-050-V12S4	2	4	12	50
	4025-050-V12S4	2.5	4	12	50
	4030-060-V15S6	3	6	15	60
	4035-060-V15S6	3.5	6	15	60
	4040-075-V20S6	4	6	20	75
	4045-075-V20S6	4.5	6	20	75
	4050-075-V25S6	5	6	25	75
	4055-075-V25S6	5.5	6	25	75
	4060-075-V30S6	6	6	30	75
	4070-100-V30S8	7	8	30	100
	4080-100-V40S8	8	8	40	100
	4090-100-V40S10	9	10	40	100
	4100-100-V40S10	10	10	40	100
	4110-100-V40S12	11	12	40	100
	4120-100-V50S12	12	12	50	100
	4140-150-V50S16	14	16	50	150
	4160-150-V60S16	16	16	60	150
	4200-200-V90S20	20	20	90	200

IPBE2000 (Ball)

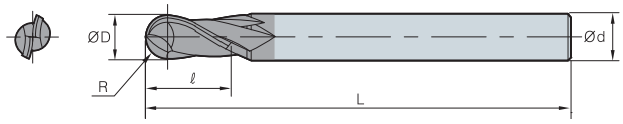


ØD	Tolerance
Ø1~Ø12	0.00 ~ -0.02
Ø12.1~Ø20	0.00 ~ -0.03

(mm)

Designation		R	ØD	Ød	ℓ	L
IPBE	2010-050-S3	0.5	1	3	2	50
2	2010-050-S4	0.5	1	4	2	50
	2010-050	0.5	1	6	2	50
	2015-050-S3	0.75	1.5	3	3	50
	2015-050-S4	0.75	1.5	4	3	50
	2015-050	0.75	1.5	6	3	50
	2020-050-S3	1	2	3	4	50
	2020-050-S4	1	2	4	4	50
	2020-050	1	2	6	4	50
	2025-050-S3	1.25	2.5	3	5	50
	2025-050-S4	1.25	2.5	4	5	50
	2025-050	1.25	2.5	6	5	50
	2030-050-S3	1.5	3	3	6	50
	2030-050-S4	1.5	3	4	6	50
	2030-050	1.5	3	6	6	50
	2035-050-S4	1.75	3.5	4	7	50
	2035-050	1.75	3.5	6	7	50
	2040-050-S4	2	4	4	8	50
	2040-050	2	4	6	8	50
	2045-050	2.25	4.5	6	9	50
	2050-050	2.5	5	6	10	50
	2060-050	3	6	6	12	50
	2070-060	3.5	7	8	14	60
	2080-060	4	8	8	16	60
	2090-075	4.5	9	10	18	75
	2100-075	5	10	10	20	75
	2120-075	6	12	12	24	75
	2140-100	7	14	16	28	100
	2160-100	8	16	16	32	100
	2180-100	9	18	20	36	100
	2200-100	10	20	20	40	100

IPLBE2000 (Long ball)



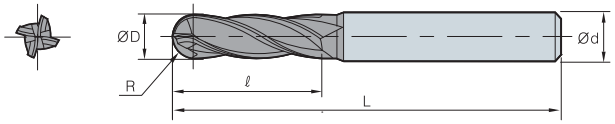
2 | H A 35° | Substrate PC320 | h6 shank

ØD	Tolerance
Ø1~Ø12	0.00 ~ -0.02
Ø12.1~Ø16	0.00 ~ -0.03

(mm)

Designation		R	ØD	Ød	ℓ	L
IPLBE	2010-075	0.5	1	6	2	75
2	2010-100	0.5	1	6	2	100
	2015-075	0.75	1.5	6	3	75
	2015-100	0.75	1.5	6	3	100
	2020-075	1	2	6	4	75
	2020-100	1	2	6	4	100
	2025-075	1.25	2.5	6	5	75
	2025-100	1.25	2.5	6	5	100
	2030-075	1.5	3	6	6	75
	2030-100	1.5	3	6	6	100
	2035-100	1.75	3.5	6	7	100
	2040-075	2	4	6	8	75
	2040-100	2	4	6	8	100
	2050-075	2.5	5	6	10	75
	2050-100	2.5	5	6	10	100
	2060-075	3	6	6	12	75
	2060-100	3	6	6	12	100
	2060-150	3	6	6	12	150
	2080-075	4	8	8	16	75
	2080-100	4	8	8	16	100
	2080-150	4	8	8	16	150
	2100-100	5	10	10	20	100
	2100-150	5	10	10	20	150
	2100-200	5	10	10	20	200
	2120-100	6	12	12	24	100
	2120-150	6	12	12	24	150
	2120-200	6	12	12	24	200
	2160-150	8	16	16	32	150
	2160-200	8	16	16	32	200

IPBE4000 (Ball)

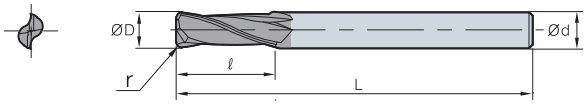


ØD	Tolerance
Ø1~Ø12	0.00 ~ -0.02
Ø12.1~Ø20	0.00 ~ -0.03

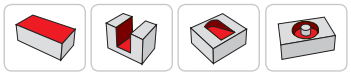
(mm)

Designation		R	ØD	Ød	ℓ	L
IPBE	4010-050-S4	0.5	1	4	2	50
4	4010-050	0.5	1	6	2	50
	4015-050-S4	0.75	1.5	4	3	50
	4015-050	0.75	1.5	6	3	50
	4020-050-S4	1	2	4	4	50
	4020-050	1	2	6	4	50
	4025-050-S4	1.25	2.5	4	5	50
	4025-050	1.25	2.5	6	5	50
	4030-050-S3	1.5	3	3	6	50
	4030-050-S4	1.5	3	4	6	50
	4030-050	1.5	3	6	6	50
	4035-050-S4	1.75	3.5	4	7	50
	4035-050	1.75	3.5	6	7	50
	4040-050-S4	2	4	4	8	50
	4040-050	2	4	6	8	50
	4045-050	2.25	4.5	6	9	50
	4050-050	2.5	5	6	10	50
	4060-050	3	6	6	12	50
	4070-060	3.5	7	8	14	60
	4080-060	4	8	8	16	60
	4090-075	4.5	9	10	18	75
	4100-075	5	10	10	20	75
	4120-075	6	12	12	24	75
	4140-100	7	14	16	28	100
	4160-100	8	16	16	32	100
	4180-100	9	18	20	36	100
	4200-100	10	20	20	40	100

IPRE2000 (Radius)



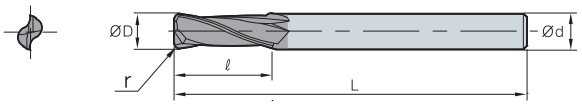
ØD	Tolerance
Ø1~Ø12	0.00 ~ -0.02



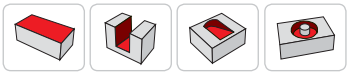
(mm)

Designation		ØD	Ød	ℓ	L	r
IPRE	2010-050-R01	1	4	3	50	0.1
2	2010-050-R02	1	4	3	50	0.2
	2010-050-R03	1	4	3	50	0.3
	2015-050-R02	1.5	4	4	50	0.2
	2015-050-R03	1.5	4	4	50	0.3
	2020-050-R02	2	4	6	50	0.2
	2020-050-R03	2	4	6	50	0.3
	2020-050-R05	2	4	6	50	0.5
	2025-050-R02	2.5	4	8	50	0.2
	2030-050-R02-S3	3	3	8	50	0.2
	2030-050-R03-S3	3	3	8	50	0.3
	2030-050-R05-S3	3	3	8	50	0.5
	2030-050-R10-S3	3	3	8	50	1
	2030-050-R02	3	4	8	50	0.2
	2030-050-R03	3	4	8	50	0.3
	2030-050-R05	3	4	8	50	0.5
	2030-050-R10	3	4	8	50	1
	2040-050-R02	4	4	10	50	0.2
	2040-050-R03	4	4	10	50	0.3
	2040-050-R05	4	4	10	50	0.5
	2040-050-R10	4	4	10	50	1
	2040-050-R15	4	4	10	50	1.5
	2050-050-R02	5	6	13	50	0.2
	2050-050-R03	5	6	13	50	0.3
	2050-050-R05	5	6	13	50	0.5
	2050-050-R10	5	6	13	50	1
	2060-050-R02	6	6	15	50	0.2
	2060-050-R03	6	6	15	50	0.3
	2060-050-R05	6	6	15	50	0.5
	2060-050-R10	6	6	15	50	1
	2060-050-R15	6	6	15	50	1.5
	2060-050-R20	6	6	15	50	2

IPRE2000 (Radius)



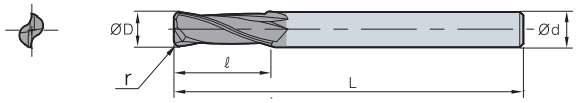
ØD	Tolerance
Ø1~Ø12	0.00 ~ -0.02



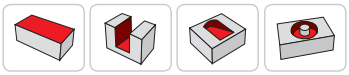
(mm)

Designation		ØD	Ød	ℓ	L	r
IPRE	2080-060-R03	8	8	20	60	0.3
	2080-060-R05	8	8	20	60	0.5
	2080-060-R10	8	8	20	60	1
	2080-060-R15	8	8	20	60	1.5
	2080-060-R20	8	8	20	60	2
	2080-060-R25	8	8	20	60	2.5
	2080-060-R30	8	8	20	60	3
	2100-075-R03	10	10	25	75	0.3
	2100-075-R05	10	10	25	75	0.5
	2100-075-R10	10	10	25	75	1
	2100-075-R15	10	10	25	75	1.5
	2100-075-R20	10	10	25	75	2
	2100-075-R25	10	10	25	75	2.5
	2100-075-R30	10	10	25	75	3
	2120-075-R03	12	12	30	75	0.3
	2120-075-R05	12	12	30	75	0.5
	2120-075-R10	12	12	30	75	1
	2120-075-R15	12	12	30	75	1.5
	2120-075-R20	12	12	30	75	2
	2120-075-R25	12	12	30	75	2.5
	2120-075-R30	12	12	30	75	3

IPLRE2000 (Long ladius)



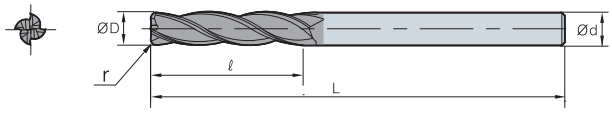

ØD	Tolerance
Ø3~Ø12	0.00 ~ -0.02



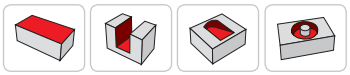
(mm)

Designation		ØD	Ød	ℓ	L	r
IPLRE	2030-075-R03	3	3	8	75	0.3
	2030-075-R05	3	3	8	75	0.5
	2030-075-R10	3	3	8	75	1
	2040-075-R03	4	4	10	75	0.3
	2040-075-R05	4	4	10	75	0.5
	2040-075-R10	4	4	10	75	1
	2040-075-R15	4	4	10	75	1.5
	2060-100-R03	6	6	15	100	0.3
	2060-100-R05	6	6	15	100	0.5
	2060-100-R10	6	6	15	100	1
	2060-100-R15	6	6	15	100	1.5
	2060-100-R20	6	6	15	100	2
	2080-100-R03	8	8	20	100	0.3
	2080-100-R05	8	8	20	100	0.5
	2080-100-R10	8	8	20	100	1
	2080-100-R15	8	8	20	100	1.5
	2080-100-R20	8	8	20	100	2
	2080-100-R25	8	8	20	100	2.5
	2080-100-R30	8	8	20	100	3
	2100-100-R03	10	10	25	100	0.3
	2100-100-R05	10	10	25	100	0.5
	2100-100-R10	10	10	25	100	1
	2100-100-R15	10	10	25	100	1.5
	2100-100-R20	10	10	25	100	2
	2100-100-R25	10	10	25	100	2.5
	2100-100-R30	10	10	25	100	3
	2120-100-R03	12	12	30	100	0.3
	2120-100-R05	12	12	30	100	0.5
	2120-100-R10	12	12	30	100	1
	2120-100-R15	12	12	30	100	1.5
	2120-100-R20	12	12	30	100	2
	2120-100-R25	12	12	30	100	2.5
	2120-100-R30	12	12	30	100	3

IPRE4000 (Radius)



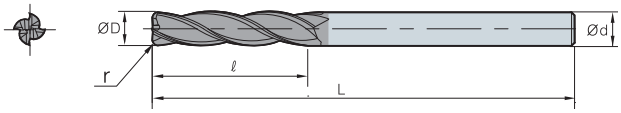

ØD	Tolerance
Ø2~Ø12	0.00 ~ -0.02



(mm)

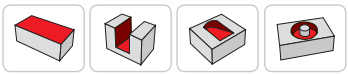
Designation		ØD	Ød	ℓ	L	r
IPRE	4020-050-R02	2	4	6	50	0.2
	4020-050-R03	2	4	6	50	0.3
	4020-050-R05	2	4	6	50	0.5
	4025-050-R02	2.5	4	8	50	0.2
	4030-050-R02-S3	3	3	8	50	0.2
	4030-050-R03-S3	3	3	8	50	0.3
	4030-050-R05-S3	3	3	8	50	0.5
	4030-050-R10-S3	3	3	8	50	1
	4030-050-R02	3	4	8	50	0.2
	4030-050-R03	3	4	8	50	0.3
	4030-050-R05	3	4	8	50	0.5
	4030-050-R10	3	4	8	50	1
	4040-050-R02	4	4	10	50	0.2
	4040-050-R03	4	4	10	50	0.3
	4040-050-R05	4	4	10	50	0.5
	4040-050-R10	4	4	10	50	1
	4040-050-R15	4	4	10	50	1.5
	4050-050-R02	5	6	13	50	0.2
	4050-050-R03	5	6	13	50	0.3
	4050-050-R05	5	6	13	50	0.5
	4050-050-R10	5	6	13	50	1
	4060-050-R02	6	6	15	50	0.2
	4060-050-R03	6	6	15	50	0.3
	4060-050-R05	6	6	15	50	0.5
	4060-050-R10	6	6	15	50	1
	4060-050-R15	6	6	15	50	1.5
	4060-050-R20	6	6	15	50	2
	4080-060-R03	8	8	20	60	0.3
	4080-060-R05	8	8	20	60	0.5
	4080-060-R10	8	8	20	60	1
	4080-060-R15	8	8	20	60	1.5
	4080-060-R20	8	8	20	60	2
	4080-060-R25	8	8	20	60	2.5
	4080-060-R30	8	8	20	60	3
	4100-075-R03	10	10	25	75	0.3
	4100-075-R05	10	10	25	75	0.5
	4100-075-R10	10	10	25	75	1
	4100-075-R15	10	10	25	75	1.5
	4100-075-R20	10	10	25	75	2
	4100-075-R25	10	10	25	75	2.5
	4100-075-R30	10	10	25	75	3
	4120-075-R03	12	12	30	75	0.3
	4120-075-R05	12	12	30	75	0.5
	4120-075-R10	12	12	30	75	1
	4120-075-R15	12	12	30	75	1.5
	4120-075-R20	12	12	30	75	2
	4120-075-R25	12	12	30	75	2.5
	4120-075-R30	12	12	30	75	3

IPLRE4000 (Long ladius)



4 | H A 35° | Substrate PC320 | h6 shank

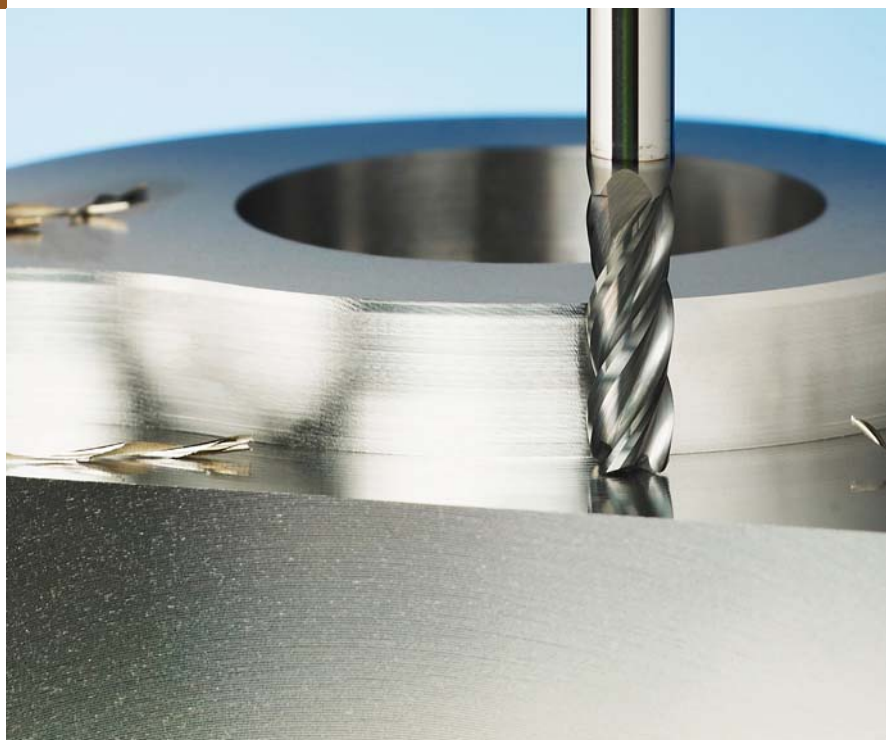
ØD	Tolerance
Ø3~Ø12	0.00 ~ -0.02



(mm)

Designation		ØD	Ød	ℓ	L	r
IPLRE 4	4030-075-R03	3	3	8	75	0.3
	4030-075-R05	3	3	8	75	0.5
	4030-075-R10	3	3	8	75	1
	4040-075-R03	4	4	10	75	0.3
	4040-075-R05	4	4	10	75	0.5
	4040-075-R10	4	4	10	75	1
	4040-075-R15	4	4	10	75	1.5
	4060-100-R03	6	6	15	100	0.3
	4060-100-R05	6	6	15	100	0.5
	4060-100-R10	6	6	15	100	1
	4060-100-R15	6	6	15	100	1.5
	4060-100-R20	6	6	15	100	2
	4080-100-R03	8	8	20	100	0.3
	4080-100-R05	8	8	20	100	0.5
	4080-100-R10	8	8	20	100	1
	4080-100-R15	8	8	20	100	1.5
	4080-100-R20	8	8	20	100	2
	4080-100-R25	8	8	20	100	2.5
	4080-100-R30	8	8	20	100	3
	4100-100-R03	10	10	25	100	0.3
	4100-100-R05	10	10	25	100	0.5
	4100-100-R10	10	10	25	100	1
	4100-100-R15	10	10	25	100	1.5
	4100-100-R20	10	10	25	100	2
	4100-100-R25	10	10	25	100	2.5
	4100-100-R30	10	10	25	100	3
	4120-100-R03	12	12	30	100	0.3
	4120-100-R05	12	12	30	100	0.5
	4120-100-R10	12	12	30	100	1
	4120-100-R15	12	12	30	100	1.5
	4120-100-R20	12	12	30	100	2
	4120-100-R25	12	12	30	100	2.5
	4120-100-R30	12	12	30	100	3

For high Precision Machining



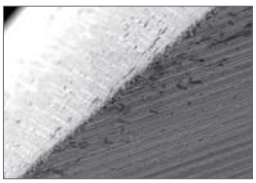
Endmill for general cutting

Z Endmill

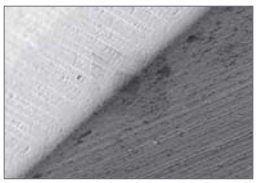
- Endmill for general cutting of various workpieces under HRC45 (carbon steel, alloy steel, cast iron, pre-hardened steel, etc.)
- New shape and coating improves performance and tool life
- Optimized blade design for less chipping and stable machining

Features

- **New grade (PC315E)**
  - Fine substrate and lubricative coating guarantee excellent performance at high speed and high temperature
- **Special edge treatment**
  - Special cutting-edge design was applied for less chipping and longer tool life
- **High accuracy with tolerance-h5**
  - High quality production system enables tolerance-h5 throughout the whole series

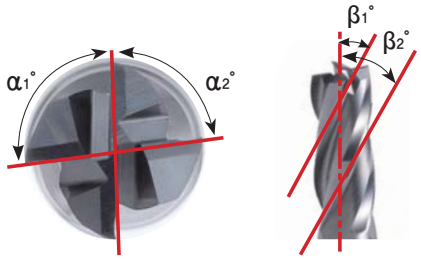


before



After special edge treatment

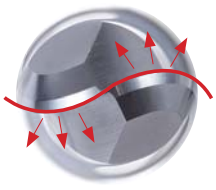
ZFE (Flat)



$\alpha_1^\circ \neq \alpha_2^\circ$, $\beta_1^\circ \neq \beta_2^\circ$ Irregular indexing & helix

- Irregular indexing & helix prevent chattering and improve surface

ZBE (Ball)



Cutting load is dispersed

S shape of ball

- The S shape of ball disperses cutting loads
- The tolerance of ball R is under ±0.005 mm

[Application Examples]

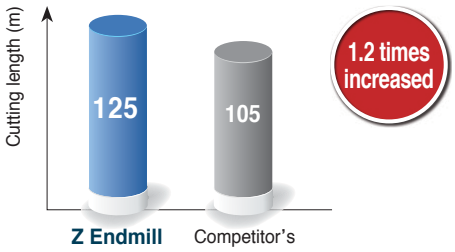
Carbon steel [1045 (AISI)/C45 (DIN)/S45C (JIS), HRC20)]

• **Cutting conditions:** D = Ø8.0, n (min-1) = 7,165, vc (m/min) = 180, vf (mm/min) = 1.433, fz (mm/t) = 0.05, ap (mm) = 8, ae (mm) = 0.8, dry

• **Tools:** ZFE4080-070

[Z Endmill]

[Competitor's]

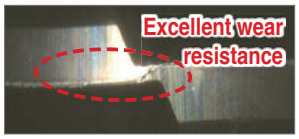


▶ Cutting edge treatment for less chipping

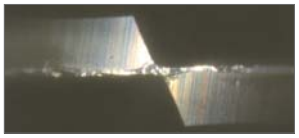
Carbon steel [1045 (AISI)/C45 (DIN)/S45C (JIS), HRC20)]

• **Cutting conditions:** D = Ø8.0, n (min-1) = 5,175, vc (m/min) = 130, vf (mm/min) = 1.035, fz (mm/t) = 0.1, ap (mm) = 0.5, ae (mm) = 1.6, dry

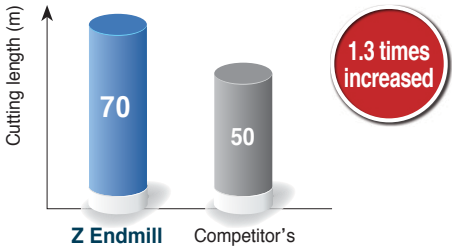
• **Tools:** ZFE2080-100



[Z Endmill]

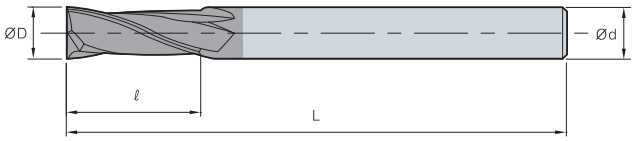


[Competitor's]



▶ New grade improves wear resistance

ZFE2000 (Flat)



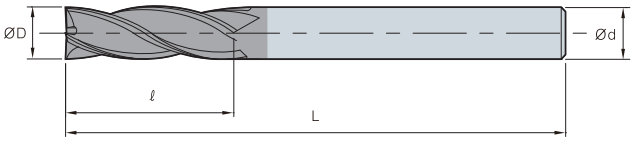
2 | H A 35° | h5 shank | Substrate PC315E

ØD	Tolerance
~ Ø5.9	0.00 ~ -0.015
Ø6.0 ~	0.00 ~ -0.025

(mm)

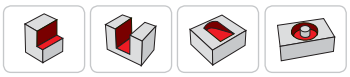
Designation		ØD	Ød	ℓ	L
ZFE 2	2010-050-S4	1	4	2.5	50
	2010-050-S6	1	6	2.5	50
	2012-050-S4	1.2	4	3	50
	2012-050-S6	1.2	6	3	50
	2015-050-S4	1.5	4	4	50
	2015-050-S6	1.5	6	4	50
	2020-050-S4	2	4	6	50
	2020-050-S6	2	6	6	50
	2025-050-S4	2.5	4	7.5	50
	2025-050-S6	2.5	6	7.5	50
	2030-050-S4	3	4	9	50
	2030-050-S6	3	6	9	50
	2035-050	3.5	6	10	50
	2040-050-S4	4	4	11	50
	2040-050-S6	4	6	11	50
	2045-050	4.5	6	14	50
	2050-060	5	6	15	60
	2055-060	5.5	6	15	60
	2060-060	6	6	15	60
	2065-060	6.5	8	18	60
	2070-060	7	8	20	60
	2075-060	7.5	8	20	60
	2080-070	8	8	20	70
	2085-070	8.5	10	22	70
	2090-070	9	10	22	70
	2095-070	9.5	10	24	70
	2100-075	10	10	25	75
	2120-080	12	12	30	80
	2140-100	14	14	35	100
	2160-100	16	16	40	100

ZFE4000 (Flat)



4 | Multiple H·A | h5 shank | Substrate PC315E

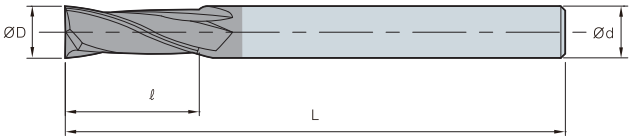
ØD	Tolerance
~ Ø5.9	0.00 ~ -0.015
Ø6.0 ~	0.00 ~ -0.025



(mm)

Designation		ØD	Ød	ℓ	L
ZFE	4010-050-S4	1	4	2.5	50
4	4010-050-S6	1	6	2.5	50
	4012-050-S4	1.2	4	3	50
	4012-050-S6	1.2	6	3	50
	4015-050-S4	1.5	4	4	50
	4015-050-S6	1.5	6	4	50
	4020-050-S4	2	4	6	50
	4020-050-S6	2	6	6	50
	4025-050-S4	2.5	4	7.5	50
	4025-050-S6	2.5	6	7.5	50
	4030-050-S4	3	4	9	50
	4030-050-S6	3	6	9	50
	4035-050	3.5	6	10	50
	4040-050-S4	4	4	11	50
	4040-050-S6	4	6	11	50
	4045-050	4.5	6	14	50
	4050-060	5	6	15	60
	4055-060	5.5	6	15	60
	4060-060	6	6	15	60
	4065-060	6.5	8	18	60
	4070-060	7	8	20	60
	4075-060	7.5	8	20	60
	4080-070	8	8	20	70
	4085-070	8.5	10	22	70
	4090-070	9	10	22	70
	4095-070	9.5	10	24	70
	4100-075	10	10	25	75
	4120-080	12	12	30	80
	4140-100	14	14	35	100
	4160-100	16	16	40	100

ZSFE2000/4000 (Short flat)



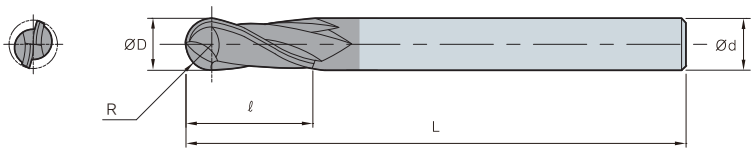
2 | 4 | H A 35° | h5 shank | Substrate PC315E

ØD	Tolerance
~ Ø5.9	0.00 ~ -0.015
Ø6.0 ~	0.00 ~ -0.025

(mm)

Designation		ØD	Ød	ℓ	L
ZSFE 2	2010-040-S4	1	4	1.5	40
	2010-040-S6	1	6	1.5	40
	2012-040-S4	1.2	4	1.5	40
	2012-040-S6	1.2	6	1.5	40
	2015-040-S4	1.5	4	2.2	40
	2015-040-S6	1.5	6	2.2	40
	2020-040-S4	2	4	3	40
	2020-040-S6	2	6	3	40
	2025-040-S4	2.5	4	4	40
	2025-040-S6	2.5	6	4	40
	2030-045-S4	3	4	4.5	45
	2030-045-S6	3	6	4.5	45
	2040-045-S4	4	4	6	45
	2040-045-S6	4	6	6	45
	2060-050	6	6	9	50
	2080-060	8	8	12	60
	2100-065	10	10	15	65
	2120-070	12	12	18	70
ZSFE 4	4010-040-S4	1	4	1.5	40
	4010-040-S6	1	6	1.5	40
	4012-040-S4	1.2	4	1.5	40
	4012-040-S6	1.2	6	1.5	40
	4015-040-S4	1.5	4	2.2	40
	4015-040-S6	1.5	6	2.2	40
	4020-040-S4	2	4	3	40
	4020-040-S6	2	6	3	40
	4025-040-S4	2.5	4	4	40
	4025-040-S6	2.5	6	4	40
	4030-045-S4	3	4	4.5	45
	4030-045-S6	3	6	4.5	45
	4040-045-S4	4	4	6	45
	4040-045-S6	4	6	6	45
	4060-050	6	6	9	50
	4080-060	8	8	12	60
	4100-065	10	10	15	65
	4120-070	12	12	18	70

ZBE2000 (Ball)



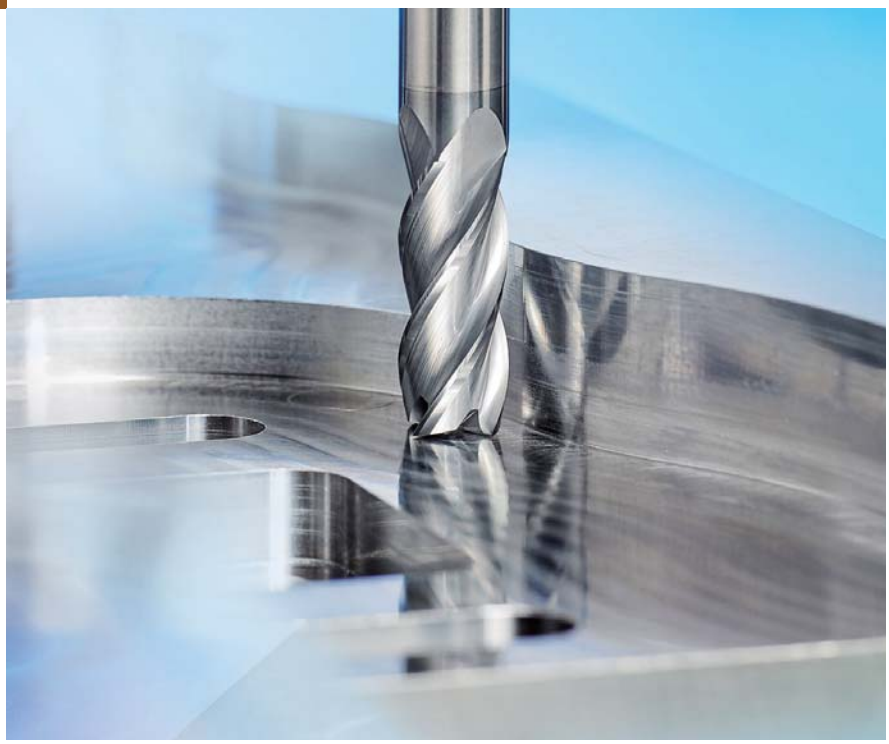
2 | H·A 30° | h5 shank | Substrate PC315E

ØD	Tolerance
~ Ø5.9	0.00 ~ -0.015
Ø6.0 ~	0.00 ~ -0.025

(mm)

Designation		R	ØD	Ød	ℓ	L
ZBE	2010-050-S4	0.5	1	4	2.5	50
2	2010-050-S6	0.5	1	6	2.5	50
	2012-050-S4	0.6	1.2	4	3	50
	2012-050-S6	0.6	1.2	6	3	50
	2015-050-S4	0.75	1.5	4	4	50
	2015-050-S6	0.75	1.5	6	4	50
	2020-050-S4	1	2	4	5	50
	2020-050-S6	1	2	6	5	50
	2025-060-S4	1.25	2.5	4	6	60
	2025-060-S6	1.25	2.5	6	6	60
	2030-060-S4	1.5	3	4	8	60
	2030-060-S6	1.5	3	6	8	60
	2035-070	1.75	3.5	6	8	70
	2040-070-S4	2	4	4	8	70
	2040-070-S6	2	4	6	8	70
	2045-080	2.25	4.5	6	9	80
	2050-080	2.5	5	6	10	80
	2055-090	2.75	5.5	6	11	90
	2060-090	3	6	6	12	90
	2065-090	3.25	6.5	8	13	90
	2070-090	3.5	7	8	14	90
	2080-100	4	8	8	14	100
	2085-100	4.25	8.5	10	16	100
	2090-100	4.5	9	10	18	100
	2100-100	5	10	10	18	100
	2120-110	6	12	12	22	110

For high Precision Machining



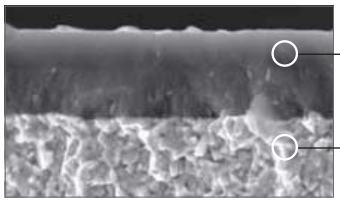
Highly efficient and economical endmill for general cutting

Z+ Endmill

- Wide range of workpiece materials up to HRC47
- Wide application range from roughing to finishing
- Increased tool life thanks to a new substrate and advanced coating layers
- Prevented chipping and extended cutting time thanks to its optimized blade design

Features

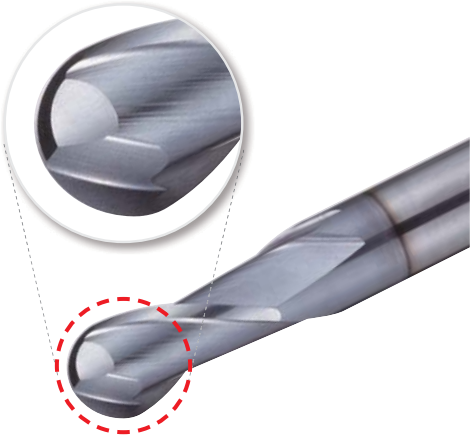
- **Wide range of workpiece materials**
  - Carbon steel, alloy steel, cast iron, etc
- **Extended tool life**
  - Newly invented substrate and high-tech coating layers applied
- **Higher productivity**
  - Wide application range from roughing to finishing



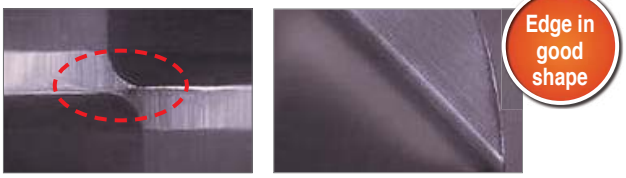
PC320U

AlCrSiN coating layer
: Coating lubrication making possible high temperature/high speed machining

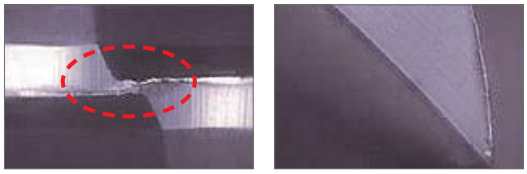
Ultra-fine substrate
: Substrate with excellent wear resistance applied



Exceptional cutting edge rigidity



[Z+ Endmill]

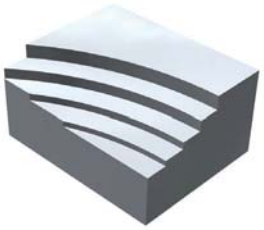


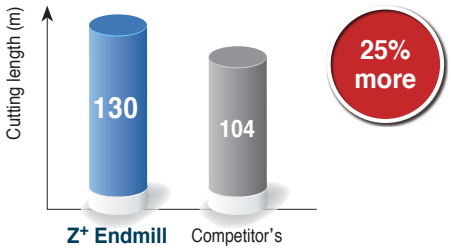
[Competitor's]

[Application Examples]

Carbon steel (C45, ~ HRC20)

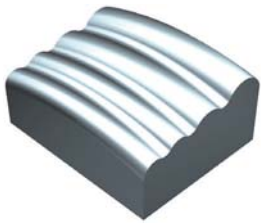
- **Cutting conditions:** vc (m/min) = 180, fz (mm/tooth) = 0.05, ap (mm) = 8, dry
- **Tools:** ZFE4080-060

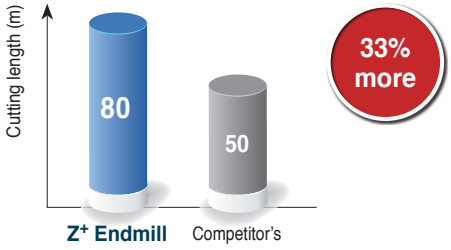




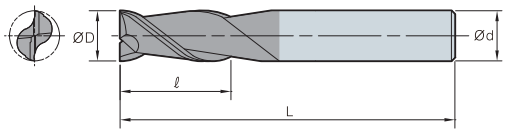
Carbon steel (C45, ~ HRC20)

- **Cutting conditions:** vc (m/min) = 130, fz (mm/tooth) = 0.1, ap (mm) = 0.5, dry
- **Tools:** ZPBE2080-100



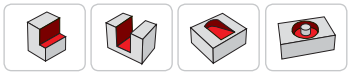


ZPFE2000 (Flat)



2 | H·A 35° | Substrate PC320U | h6 shank

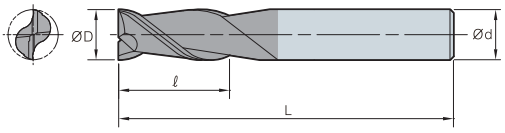
ØD	Tolerance
~ Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03



(mm)

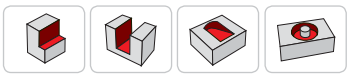
Designation		ØD	Ød	ℓ	L
ZPFE 2	2010-050-S4	1.0	4	3	50
	2015-050-S4	1.5	4	4	50
	2020-050-S4	2.0	4	6	50
	2025-050-V6S4	2.5	4	6	50
	2025-050-V8S4	2.5	4	8	50
	2030-050-S4	3.0	4	9	50
	2030-050	3.0	6	9	50
	2035-050-S4	3.5	4	9	50
	2035-050	3.5	6	9	50
	2040-050-S4	4.0	4	11	50
	2040-050	4.0	6	11	50
	2045-050	4.5	6	11	50
	2050-050	5.0	6	13	50
	2060-050	6.0	6	16	50
	2065-060	6.5	8	16	60
	2070-060	7.0	8	20	60
	2075-060	7.5	8	20	60
	2080-060	8.0	8	20	60
	2085-075	8.5	10	23	75
	2090-075	9.0	10	23	75
	2095-075	9.5	10	25	75
	2100-075	10.0	10	25	75
	2105-075	10.5	12	26	75
	2110-075	11.0	12	28	75
	2120-075	12.0	12	30	75
	2140-100	14.0	14	34	100
	2150-090	15.0	16	36	90
	2160-100	16.0	16	36	100
	2170-100	17.0	20	40	100
	2180-100	18.0	18	40	100
	2190-100	19.0	20	40	100
	2200-100	20.0	20	40	100

ZPSFE2000 (Short flat)



2 | H·A 35° | Substrate PC320U | h6 shank

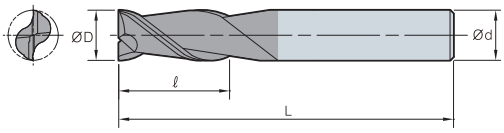
ØD	Tolerance
~ Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03



(mm)

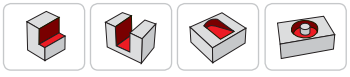
Designation		ØD	Ød	ℓ	L
ZPSFE 2	2010-050-S4	1.0	4	2	50
	2015-050-S4	1.5	4	2	50
	2020-050-S4	2.0	4	3	50
	2025-050-S4	2.5	4	4	50
	2030-050-S4	3.0	4	5	50
	2040-050-S4	4.0	4	6	50
	2050-050	5.0	6	8	50
	2060-050	6.0	6	9	50
	2070-050	7.0	8	10	50
	2080-050	8.0	8	12	50
	2100-075	10.0	10	15	75
	2120-075	12.0	12	18	75
	2160-100	16.0	16	24	100

ZPLFE2000 (Long flat)



2 | H·A 35° | Substrate PC320U | h6 shank

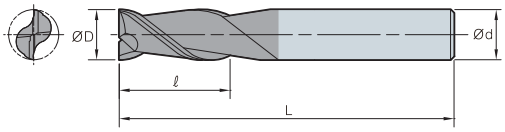
ØD	Tolerance
~ Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03



(mm)

Designation		ØD	Ød	ℓ	L
ZPLFE 2	2020-075-S4	2.0	4	6	75
	2030-075-S4	3.0	4	9	75
	2030-075	3.0	6	12	75
	2040-075-S4	4.0	4	11	75
	2050-075	5.0	6	20	75
	2060-100	6.0	6	16	100
	2060-100-V20S6	6.0	6	20	100
	2080-075	8.0	8	20	75
	2080-100	8.0	8	25	100
	2100-100	10.0	10	30	100
	2120-100	12.0	12	35	100
	2160-150	16.0	16	36	150
	2200-150	20.0	20	45	150

ZPLFE2000 (Long flute)



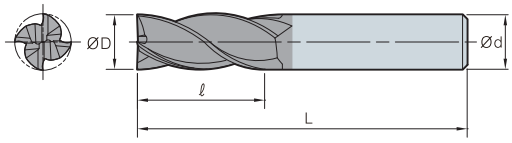
2 | H·A 35° | Substrate PC320U | h6 shank

ØD	Tolerance
~ Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03

(mm)

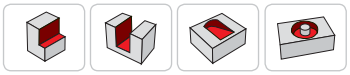
Designation		ØD	Ød	ℓ	L
ZPLFE 2	2020-075-V15S4	2.0	4	15	75
	2030-075-V25S4	3.0	4	25	75
	2040-075-V30S4	4.0	4	30	75
	2050-075-V30S6	5.0	6	30	75
	2060-075-V35S6	6.0	6	35	75
	2080-100-V40S8	8.0	8	40	100
	2100-100-V45S10	10.0	10	45	100
	2120-100-V50S12	12.0	12	50	100
	2140-100-V55S14	14.0	14	55	100
	2160-150-V50S16	16.0	16	50	150
	2160-150-V60S16	16.0	16	60	150
	2180-150-V65S18	18.0	18	65	150
	2200-150-V70S20	20.0	20	70	150

ZPFE4000 (Flat)



4 | H·A 35° | Substrate PC320U | h6 shank

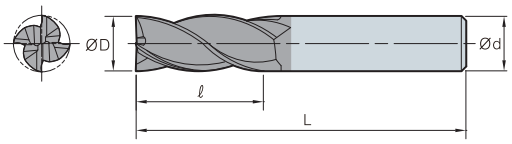
ØD	Tolerance
~ Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03



(mm)

Designation		ØD	Ød	ℓ	L
ZPFE 4	4010-050-S4	1.0	4	3	50
	4015-050-S4	1.5	4	5	50
	4015-050	1.5	6	5	50
	4020-050-S4	2.0	4	6	50
	4020-050	2.0	6	6	50
	4025-050-S4	2.5	4	8	50
	4025-050	2.5	6	8	50
	4030-050	3.0	6	6	50
	4030-050-S4	3.0	4	9	50
	4030-050-V9S6	3.0	6	9	50
	4035-050-S4	3.5	4	11	50
	4035-050	3.5	6	9	50
	4040-050-S4	4.0	4	11	50
	4040-050	4.0	6	11	50
	4045-050	4.5	6	11	50
	4050-050	5.0	6	8	50
	4050-050-V13S6	5.0	6	13	50
	4055-050	5.5	6	16	50
	4060-050	6.0	6	16	50
	4065-060	6.5	8	16	60
	4070-060	7.0	8	20	60
	4075-060	7.5	8	20	60
	4080-060	8.0	8	20	60
	4085-075	8.5	10	23	75
	4090-075	9.0	10	23	75
	4095-075	9.5	10	23	75
	4100-075	10.0	10	25	75
	4110-075	11.0	12	28	75
	4120-075	12.0	12	30	75
	4130-100	13.0	14	32	100
	4140-075	14.0	14	32	75
	4140-100	14.0	14	34	100
	4150-100	15.0	16	36	100
	4160-100	16.0	16	36	100
	4160-100-V40S16	16.0	16	40	100
	4160-100-V45S16	16.0	16	45	100
	4170-100-S18	17.0	18	38	100
	4180-100-S18	18.0	18	45	100
	4200-100-S20	20.0	20	45	100

ZPSFE4000 (Short flat)



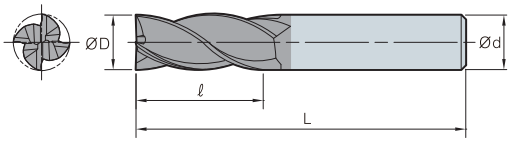
4 | H·A 35° | Substrate PC320U | h6 shank

ØD	Tolerance
~ Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03

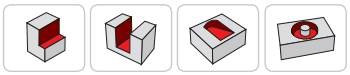
(mm)

Designation		ØD	Ød	ℓ	L
ZPSFE 4	4010-050-S4	1.0	4	2	50
	4015-050-S4	1.5	4	2	50
	4020-050-S4	2.0	4	3	50
	4025-050-S4	2.5	4	4	50
	4030-050-S4	3.0	4	5	50
	4040-050-S4	4.0	4	6	50
	4050-050	5.0	6	8	50
	4060-050	6.0	6	9	50
	4070-050	7.0	8	10	50
	4080-050	8.0	8	12	50
	4100-075	10.0	10	15	75
	4120-075	12.0	12	18	75
	4160-100	16.0	16	24	100

ZPLFE4000 (Long flat)



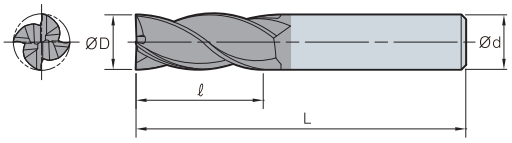
ØD	Tolerance
~ Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03



(mm)

Designation		ØD	Ød	ℓ	L
ZPLFE 4	4020-075-S4	2.0	4	10	75
	4030-075-S4	3.0	4	12	75
	4040-075-S4	4.0	4	11	75
	4040-050-V15S4	4.0	4	15	75
	4050-075	5.0	6	20	75
	4060-075	6.0	6	16	75
	4060-075-V20S6	6.0	6	20	75
	4080-075	8.0	8	20	75
	4080-100-S8	8.0	8	25	100
	4100-100	10.0	10	30	100
	4100-100-V35S10	10.0	10	35	100
	4120-100	12.0	12	35	100
	4160-150	16.0	16	36	150
	4200-150	20.0	20	45	150

ZPLFE4000 (Long flute)



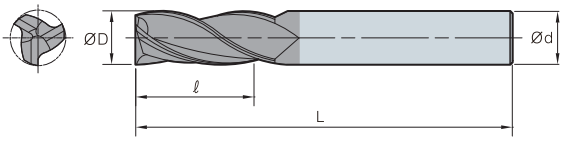
4 | H·A 35° | Substrate PC320U | h6 shank

ØD	Tolerance
~ Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03

(mm)

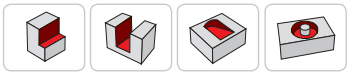
Designation		ØD	Ød	ℓ	L
ZPLFE 4	4010-050-V04S4	1.0	4	4	50
	4020-050-V10S4	2.0	4	10	50
	4030-060-V15S4	3.0	4	15	60
	4030-060-V16S6	3.0	6	16	60
	4040-060-V20S4	4.0	4	20	60
	4040-075-V20S6	4.0	6	20	75
	4040-075-V30S4	4.0	4	30	75
	4050-075-V25S6	5.0	6	25	75
	4050-075-V30S6	5.0	6	30	75
	4060-075-V30S6	6.0	6	30	75
	4060-075-V35S6	6.0	6	35	75
	4080-100-V35S8	8.0	8	35	100
	4080-100-V40S8	8.0	8	40	100
	4100-100-V45S10	10.0	10	45	100
	4100-100-V50S10	10.0	10	50	100
	4120-100-V45S12	12.0	12	45	100
	4120-100-V50S12	12.0	12	50	100
	4140-100-V45S14	14.0	14	45	100
	4160-150-V50S16	16.0	16	50	150
	4160-150-V60S16	16.0	16	60	150
	4160-150-V70S16	16.0	16	70	150
	4180-150-V70S18	18.0	18	70	150
	4200-150-V70S20	20.0	20	70	150

ZPFE3000 (Flat)



3 | H·A 35° | Substrate PC320U | h6 shank

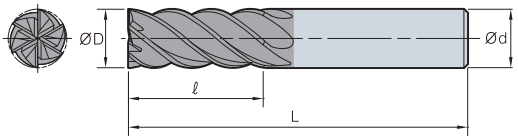
ØD	Tolerance
~Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03



(mm)

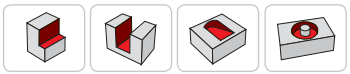
Designation		ØD	Ød	ℓ	L
ZPFE 3	3020-050-S4	2.0	4	6	50
	3030-050-S4	3.0	4	9	50
	3040-050-S4	4.0	4	11	50
	3050-050	5.0	6	13	50
	3060-050	6.0	6	16	50
	3065-060	6.5	8	16	60
	3080-060	8.0	8	20	60
	3095-075	9.5	10	24	75
	3100-075	10.0	10	25	75
	3120-075	12.0	12	30	75
	3106-100	16.0	16	36	100
	3180-100	18.0	18	40	100
	3200-100	20.0	20	45	100
	3250-100	25.0	25	50	100

ZPFE6000 (Flat)



6 | H·A 35° | Substrate PC320U | h6 shank

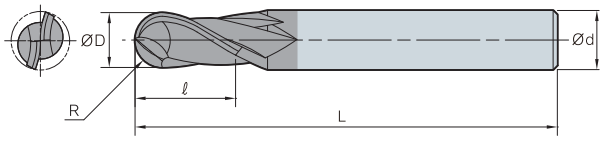
ØD	Tolerance
~Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03



(mm)

Designation		ØD	Ød	ℓ	L
ZPFE 6	6060-050	6.0	6	15	50
	6080-060	8.0	8	20	60
	6100-075	10.0	10	25	75
	6120-075	12.0	12	30	75
	6160-100	16.0	16	36	100
	6200-100	20.0	20	45	100

ZPBE2000 (Ball)



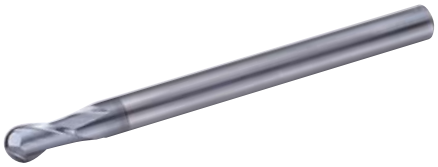
2 | H·A 35° | Substrate PC320U | h6 shank

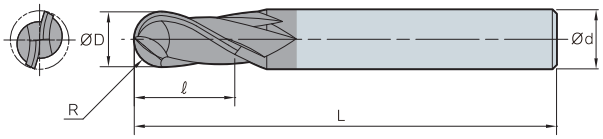
ØD	Tolerance
~ Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03

(mm)

Designation		R	ØD	Ød	ℓ	L
ZPBE 2	2008-050-S4	0.4	0.8	4	1.6	50
	2009-050-S4	0.5	0.9	4	1.8	50
	2010-050-S4	0.5	1.0	4	2	50
	2015-050-S4	0.8	1.5	4	3	50
	2020-050-S4	1.0	2.0	4	4	50
	2020-050	1.0	2.0	6	4	50
	2025-050-S4	1.3	2.5	4	5	50
	2030-050-S4	1.5	3.0	4	6	50
	2030-050	1.5	3.0	6	6	50
	2040-050-S4	2.0	4.0	4	8	50
	2040-050	2.0	4.0	6	8	50
	2050-050	2.5	5.0	6	10	50
	2060-050	3.0	6.0	6	12	50
	2070-060	3.5	7.0	8	14	60
	2080-060	4.0	8.0	8	14	60
	2090-075	4.5	9.0	10	16	75
	2100-075	5.0	10.0	10	18	75
	2110-075	5.5	11.0	12	20	75
	2120-075	6.0	12.0	12	22	75
	2130-090	6.5	13.0	14	26	90
	2140-090	7.0	14.0	14	26	90
	2150-090	7.5	15.0	16	30	90
	2160-100	8.0	16.0	16	30	100
	2200-100	10.0	20.0	20	38	100

ZPLBE2000 (Long ball)





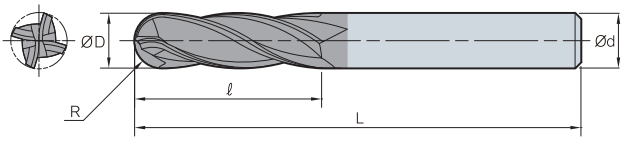
2 | H·A 35° | Substrate PC320U | h6 shank

ØD	Tolerance
~Ø11.9	0.00 ~ -0.02
Ø12~	0.00 ~ -0.03

(mm)

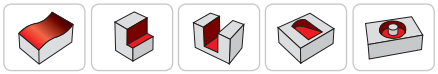
Designation		R	ØD	Ød	ℓ	L
ZPLBE 2	2020-075-S4	1.0	2.0	4	4	75
	2030-075-S4	1.5	3.0	4	6	75
	2030-075	1.5	3.0	6	6	75
	2040-075-S4	2.0	4.0	4	8	75
	2040-075	2.0	4.0	6	8	75
	2050-075	2.5	5.0	6	10	75
	2060-075	3.0	6.0	6	12	75
	2080-100	4.0	8.0	8	14	100
	2100-100	5.0	10.0	10	18	100
	2120-100	6.0	12.0	12	20	100

ZPBE4000 (Ball)



4 | H·A 35° | Substrate PC320U | h6 shank

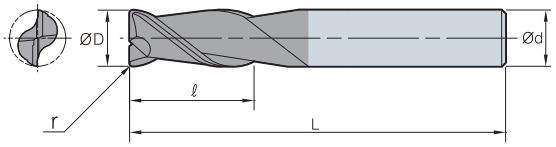
ØD	Tolerance
~Ø11.9	0.00 ~ -0.02
Ø12~	0.00 ~ -0.03



(mm)

Designation		R	ØD	Ød	ℓ	L
ZPBE 4	4020-050-S4	1.0	2.0	4	4	50
	4025-050-S4	1.3	2.5	4	5	50
	4030-050-S4	1.5	3.0	4	6	50
	4030-050	1.5	3.0	6	6	50
	4040-050-S4	2.0	4.0	4	8	50
	4040-050	2.0	4.0	6	8	50
	4050-050	2.5	5.0	6	10	50
	4060-050	3.0	6.0	6	12	50
	4070-060	3.5	7.0	8	14	60
	4080-060	4.0	8.0	8	14	60
	4090-075	4.5	9.0	10	16	75
	4100-075	5.0	10.0	10	18	75
	4110-075	5.5	11.0	12	20	75
	4120-075	6.0	12.0	12	22	75
	4140-075	7.0	14.0	14	24	75
	4160-100	8.0	16.0	16	30	100
	4200-100	10.0	20.0	20	38	100

ZPRE2000 (Radius)



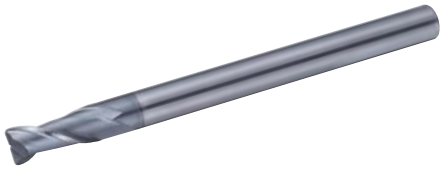
2 | H·A 35° | Substrate PC320U | h6 shank

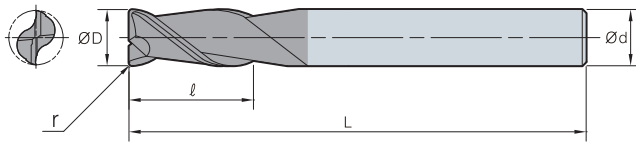
ØD	Tolerance
~ Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03

(mm)

Designation		ØD	Ød	ℓ	L	r
ZPRE 2	2010-050-S4-R02	1.0	4	3	50	0.2
	2020-050-S4-R02	2.0	4	6	50	0.2
	2030-050-S4-R02	3.0	4	9	50	0.2
	2030-050-R02	3.0	6	9	50	0.2
	2030-050-S4-R03	3.0	4	9	50	0.3
	2030-050-R03	3.0	6	9	50	0.3
	2030-050-S4-R05	3.0	4	9	50	0.5
	2030-050-R05	3.0	6	9	50	0.5
	2040-050-S4-R02	4.0	4	11	50	0.2
	2040-050-R02	4.0	6	11	50	0.2
	2040-050-S4-R03	4.0	4	11	50	0.3
	2040-050-R03	4.0	6	11	50	0.3
	2040-050-S4-R05	4.0	4	11	50	0.5
	2040-050-R05	4.0	6	11	50	0.5
	2040-050-S4-R10	4.0	4	11	50	1.0
	2050-050-R02	5.0	6	13	50	0.2
	2050-050-R03	5.0	6	13	50	0.3
	2050-050-R05	5.0	6	13	50	0.5
	2050-050-R010	5.0	6	13	50	1.0
	2060-050-R05	6.0	6	16	50	0.5
	2060-050-R10	6.0	6	16	50	1.0
	2060-050-R15	6.0	6	16	50	1.5
	2060-050-R20	6.0	6	16	50	2.0
	2080-060-R03	8.0	8	20	60	0.3
	2080-060-R05	8.0	8	20	60	0.5
	2080-060-R10	8.0	8	20	60	1.0
	2080-060-R15	8.0	8	20	60	1.5
	2080-060-R20	8.0	8	20	60	2.0
	2100-075-R03	10.0	10	25	75	0.3
	2100-075-R05	10.0	10	25	75	0.5
	2100-075-R10	10.0	10	25	75	1.0
	2100-075-R15	10.0	10	25	75	1.5
	2100-075-R20	10.0	10	25	75	2.0
	2100-075-R30	10.0	10	25	75	3.0
	2120-075-R05	12.0	12	30	75	0.5
	2120-075-R10	12.0	12	30	75	1.0
	2120-075-R15	12.0	12	30	75	1.5
	2120-075-R20	12.0	12	30	75	2.0
	2120-075-R30	12.0	12	30	75	3.0
	2160-100-R10	16.0	16	36	100	1.0
	2160-100-R20	16.0	16	36	100	2.0
	2160-100-R30	16.0	16	36	100	3.0

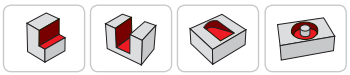
ZPLRE2000 (Long radius)





2 | H·A 35° | Substrate PC320U | h6 shank

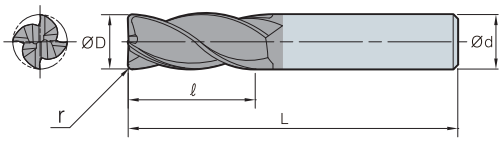
ØD	Tolerance
~Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03



(mm)

Designation		ØD	Ød	ℓ	L	r
ZPLRE 2	2060-075-R05	6.0	6	16	75	0.5
	2060-075-R10	6.0	6	16	75	1.0
	2060-075-R15	6.0	6	16	75	1.5
	2080-100-R05	8.0	8	20	100	0.5
	2080-100-R10	8.0	8	20	100	1.0
	2080-100-R15	8.0	8	20	100	1.5
	2100-100-R05	10.0	10	25	100	0.5
	2100-100-R10	10.0	10	25	100	1.0
	2100-100-R15	10.0	10	25	100	1.5
	2100-100-R20	10.0	10	25	100	2.0
	2120-100-R05	12.0	12	30	100	0.5
	2120-100-R10	12.0	12	30	100	1.0
	2120-100-R15	12.0	12	30	100	1.5
	2120-100-R20	12.0	12	30	100	2.0
	2160-150-R05	16.0	16	36	150	0.5
	2160-150-R10	16.0	16	36	150	1.0
	2160-150-R15	16.0	16	36	150	1.5
	2160-150-R20	16.0	16	36	150	2.0

ZPRE4000 (Radius)



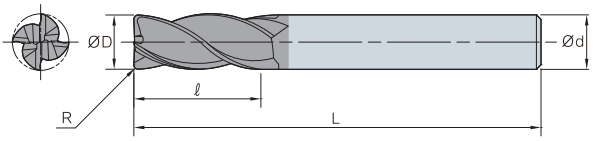
4 | H·A 35° | Substrate PC320U | h6 shank

ØD	Tolerance
~ Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03

(mm)

Designation		ØD	Ød	ℓ	L	r
ZPRE 4	4015-050-S4-R02	1.5	4	5	50	0.2
	4020-050-S4-R02	2.0	4	6	50	0.2
	4030-050-S4-R02	3.0	4	9	50	0.2
	4030-050-S4-R03	3.0	4	9	50	0.3
	4030-050-S4-R05	3.0	4	9	50	0.5
	4040-050-S4-R02	4.0	4	11	50	0.2
	4040-050-S4-R03	4.0	4	11	50	0.3
	4040-050-S4-R05	4.0	4	11	50	0.5
	4040-050-S4-R10	4.0	4	11	50	1.0
	4045-050-R10	4.5	6	12	50	1.0
	4050-050-R02	5.0	6	13	50	0.2
	4050-050-R05	5.0	6	13	50	0.5
	4050-050-R10	5.0	6	13	50	1.0
	4050-050-R15	5.0	6	13	50	1.5
	4060-050-R05	6.0	6	16	50	0.5
	4060-050-R10	6.0	6	16	50	1.0
	4060-050-R15	6.0	6	16	50	1.5
	4080-060-R03	8.0	8	20	60	0.3
	4080-060-R05	8.0	8	20	60	0.5
	4080-060-R10	8.0	8	20	60	1.0
	4080-060-R15	8.0	8	20	60	1.5
	4080-060-R20	8.0	8	20	60	2.0
	4100-075-R03	10.0	10	25	75	0.3
	4100-075-R05	10.0	10	25	75	0.5
	4100-075-R10	10.0	10	25	75	1.0
	4100-075-R15	10.0	10	25	75	1.5
	4100-075-R20	10.0	10	25	75	2.0
	4100-075-R25	10.0	10	25	75	2.5
	4100-075-R30	10.0	10	25	75	3.0
	4120-075-R05	12.0	12	30	75	0.5
	4120-075-R10	12.0	12	30	75	1.0
	4120-075-R15	12.0	12	30	75	1.5
	4120-075-R20	12.0	12	30	75	2.0
	4120-075-R25	12.0	12	30	75	2.5
	4120-075-R30	12.0	12	30	75	3.0
	4160-100-R05	16.0	16	36	100	0.5
	4160-100-R10	16.0	16	36	100	1.0
	4160-100-R20	16.0	16	36	100	2.0
	4160-100-R30	16.0	16	36	100	3.0

ZPLRE4000 (Long radius)



4 | H·A 35° | Substrate PC320U | h6 shank

ØD	Tolerance
~Ø11.9	0.00 ~ -0.02
Ø12 ~	0.00 ~ -0.03

(mm)

Designation		ØD	Ød	ℓ	L	r
ZPLRE 4	4060-075-R05	6.0	6	16	75	0.5
	4060-075-R10	6.0	6	16	75	1.0
	4060-075-R15	6.0	6	16	75	1.5
	4080-100-R05	8.0	8	20	100	0.5
	4080-100-R10	8.0	8	20	100	1.0
	4080-100-R15	8.0	8	20	100	1.5
	4080-100-R20	8.0	8	20	100	2.0
	4100-100-R05	10.0	10	25	100	0.5
	4100-100-R10	10.0	10	25	100	1.0
	4100-100-R15	10.0	10	25	100	1.5
	4100-100-R20	10.0	10	25	100	2.0
	4120-100-R05	12.0	12	30	100	0.5
	4120-100-R10	12.0	12	30	100	1.0
	4120-100-R15	12.0	12	30	100	1.5
	4120-100-R20	12.0	12	30	100	2.0
	4120-100-R30	12.0	12	30	100	3.0
	4160-150-R05	16.0	16	36	150	0.5
	4160-150-R10	16.0	16	36	150	1.0
	4160-150-R15	16.0	16	36	150	1.5
	4160-150-R20	16.0	16	36	150	2.0
	4160-150-R30	16.0	16	36	150	3.0

For high Precision Machining

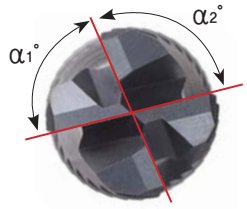
High efficient roughing endmill

R+ Endmill

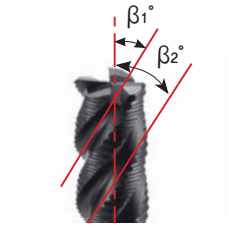
- Cost-effective cutting-edge design for rough machining
- Specifically designed corners as irregular flute spacing and lead angle

Features

- **Excellent machining efficiency**
  - Special design for medium to rough cutting
- **Longer cutting life**
  - Extended tool cost thanks to newly applied grades
- **Higher cutting performance**
  - Blade design ideal for roughing



• Irregular flute spacing to prevent chattering
($\alpha_1^\circ \neq \alpha_2^\circ$)



• Irregular lead angles to disperse cutting force
($\beta_1^\circ \neq \beta_2^\circ$)

• Lower cutting
- Ideal for medium to rough cutting
- Special edge design

• Soft cutting
- Serrated cutting edges
- 3 Combo R

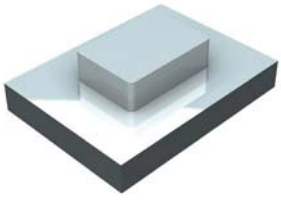
Grade system

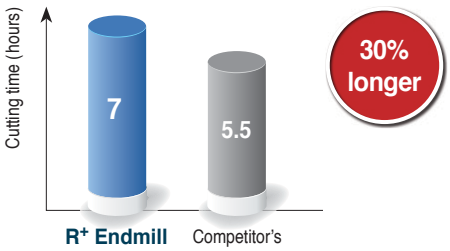
Carbide roughing		HSS roughing	
FN30T	Carbide, uncoated	HN30T	HSS PM, uncoated
PC10T	Carbide, TiCN coated	HN20T	HSS, uncoated
PC20T	Carbide, TiN coated	HC10T	HSS, TiCN coated
PC30T	Carbide, TiAlN coated	HC20T	HSS, TiN coated
PC40T	Carbide, TiAlCrN coated	HC30T	HSS PM, TiAlN coated

[Application Examples]

Mold

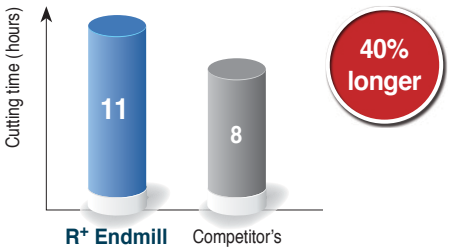
• **Cutting conditions:** vc (m/min) = 57, fz (mm/tooth) = 0.03, ap (mm) = 8, dry
• **Tools:** RPE4080-075-FF





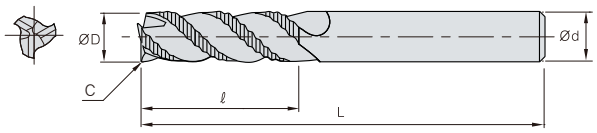
Mold

• **Cutting conditions:** vc (m/min) = 68, fz (mm/tooth) = 0.06, ap (mm) = 8, dry
• **Tools:** RPE4080-063-FP-H



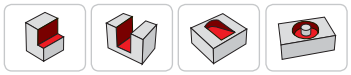
RPAE (Roughing endmill for wave form of Al)

Carbide



3 | H·A 45° | Substrate FN30T | h6 shank

ØD	Tolerance
Ø6 ~ Ø25	0.00 ~ -0.05

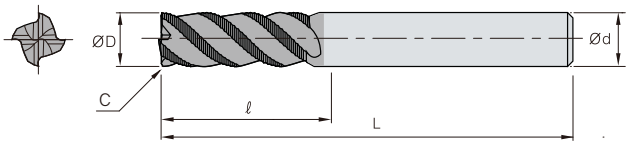


(mm)

Designation		ØD	Ød	ℓ	L	C
RPAE	3060-063	6.0	6	18	63	0.3
3	3070-063	7.0	8	23	63	0.3
	3080-063	8.0	8	23	63	0.3
	3090-080	9.0	10	30	80	0.3
	3100-080	10.0	10	30	80	0.3
	3110-080	11.0	12	32	80	0.5
	3120-080	12.0	12	32	80	0.5
	3140-080	14.0	14	32	80	0.5
	3160-105	16.0	16	48	105	0.5
	3180-105	18.0	18	48	105	0.5
	3200-105	20.0	20	50	105	0.5
	3250-105	25.0	25	50	105	0.5

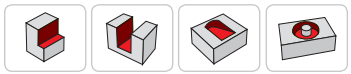
RPE-FP-H (Standard roughing endmill for fine pitches)

Carbide,
high helix angle,
irregular flute spacing and lead



4 | H·A 40/42° | Substrate PC30T | h6 shank

ØD	Tolerance
Ø5 ~ Ø20	0.00 ~ -0.05

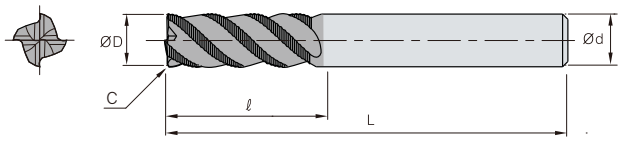


(mm)

Designation		ØD	Ød	ℓ	L	C
RPE	4050-057-FP-H	5.0	6	13	57	0.3
4	4060-057-FP-H	6.0	6	13	57	0.5
	4080-063-FP-H	8.0	8	19	63	0.5
	4100-072-FP-H	10.0	10	22	72	0.5
	4120-082-FP-H	12.0	12	26	82	0.5
	4140-082-FP-H	14.0	16	26	82	0.6
	4160-092-FP-H	16.0	16	32	92	0.6
	4180-092-FP-H	18.0	20	32	92	0.6
	4200-0104-FP-H	20.0	20	38	104	0.6

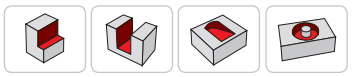
RPLE-FP-H (Long type roughing endmill for fine pitches)

Carbide, high helix angle, irregular flute spacing and lead



4 | H·A 40°/42° | Substrate PC30T | h6 shank

ØD	Tolerance
Ø5 ~ Ø20	0.00 ~ -0.05

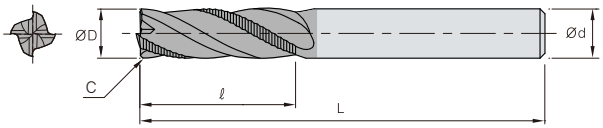


(mm)

Designation		ØD	Ød	ℓ	L	C
RPLE 4	4050-063-FP-H	5.0	6	19	63	0.3
	4060-063-FP-H	6.0	8	19	63	0.5
	4080-072-FP-H	8.0	8	28	72	0.5
	4100-082-FP-H	10.0	10	34	82	0.5
	4120-097-FP-H	12.0	12	40	97	0.5
	4140-097-FP-H	14.0	16	40	97	0.6
	4160-108-FP-H	16.0	16	48	108	0.6
	4180-108-FP-H	18.0	20	48	108	0.6
	4200-122-FP-H	20.0	20	56	122	0.6

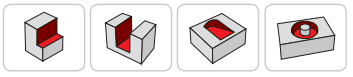
RPE-XG (Roughing endmill with finishing capability)

Carbide



4 | H·A 30° | Substrate PC30T | h6 shank

ØD	Tolerance
Ø6 ~ Ø20	0.00 ~ -0.05

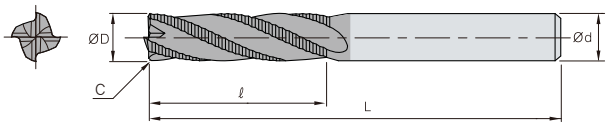


(mm)

Designation		ØD	Ød	ℓ	L	C
RPE 4	4060-052-XG	6.0	6	14	52	0.25
	4070-063-XG	7.0	8	18	63	0.3
	4080-063-XG	8.0	8	18	63	0.3
	4090-080-XG	9.0	10	22	80	0.3
	4100-080-XG	10.0	10	22	80	0.3
	4110-080-XG	11.0	12	26	80	0.4
	4120-080-XG	12.0	12	26	80	0.4
	4140-080-XG	14.0	14	30	80	0.4
	4160-105-XG	16.0	16	34	105	0.6
	4180-105-XG	18.0	18	38	105	0.6
	4200-105-XG	20.0	20	42	105	0.6

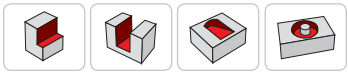
RPE-FP-L (Roughing endmill for fine pitches)

Carbide, irregular flute spacing and lead



4 | H·A 18/23° | Substrate PC30T | h6 shank

ØD	Tolerance
Ø5 ~ Ø20	0.00 ~ -0.05

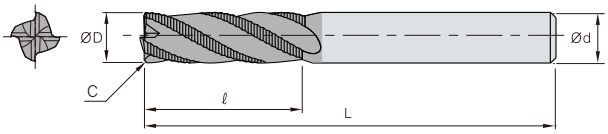


(mm)

Designation		ØD	Ød	ℓ	L	C
RPE 4	4050-060-FP-L	5.0	6	13	60	0.3
	4060-080-FP-L	6.0	8	13	80	0.5
	4080-080-FP-L	8.0	8	19	80	0.5
	4100-080-FP-L	10.0	10	22	80	0.5
	4120-080-FP-L	12.0	12	26	80	0.5
	4140-085-FP-L	14.0	16	26	85	0.6
	4160-100-FP-L	16.0	16	32	100	0.6
	4180-100-FP-L	18.0	20	32	100	0.6
	4200-105-FP-L	20.0	20	38	105	0.6

RPE-RG (Standard roughing endmill)

Carbide



4 | H·A 30° | Substrate PC40T | h6 shank

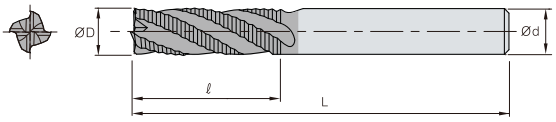
ØD	Tolerance
Ø5 ~ Ø20	0.00 ~ -0.05

(mm)

Designation		ØD	Ød	ℓ	L	C
RPE 4	4050-050-RG	5.0	6	13	50	0.3
	4060-050-RG	6.0	6	16	50	0.3
	4080-060-RG	8.0	8	20	60	0.3
	4100-075-RG	10.0	10	25	75	0.3
	4120-080-RG	12.0	12	30	80	0.4
	4140-100-RG	14.0	16	35	100	0.6
	4160-100-RG	16.0	16	40	100	0.6
	4180-110-RG	18.0	20	40	110	0.6
	4200-110-RG	20.0	20	45	110	0.6

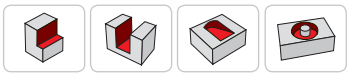
RPE-RG (4F roughing endmill)

HSS PM



4 | H·A 30° | HSS PM | Substrate HN30T HC30T | h6 shank

ØD	Tolerance
Ø6 ~ Ø20	±0.1

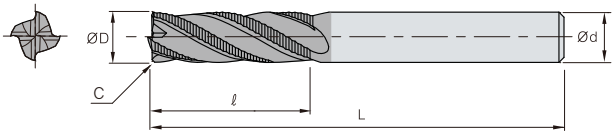


(mm)

Designation		ØD	Ød	ℓ	L
RPE 4	4060-060-RG	6.0	6	20	60
	4070-070-RG	7.0	10	20	70
	4080-075-RG	8.0	10	25	75
	4090-075-RG	9.0	10	30	75
	4100-085-RG	10.0	10	35	85
	4120-100-RG	12.0	12	40	100
	4140-100-RG	14.0	16	40	100
	4160-110-RG	16.0	16	50	110
	4180-110-RG	18.0	20	50	110
	4200-125-RG	20.0	20	60	125

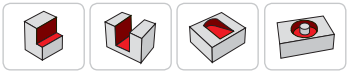
RPE-FF (Roughing endmill for fine pitches)

HSS PM, irregular flute spacing



4 | H·A 25/30° | HSS PM | Substrate HC30T | h6 shank

ØD	Tolerance
Ø6 ~ Ø20	±0.1

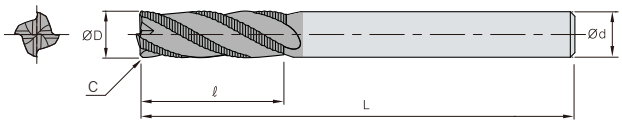


(mm)

Designation		ØD	Ød	ℓ	L	C
RPE 4	4060-060-FF	6.0	6	20	60	0.5
	4070-070-FF	7.0	10	20	70	0.5
	4080-075-FF	8.0	10	25	75	0.5
	4090-075-FF	9.0	10	30	75	0.5
	4100-085-FF	10.0	10	35	85	0.5
	4120-100-FF	12.0	12	40	100	0.6
	4140-100-FF	14.0	12	40	100	0.6
	4160-110-FF	16.0	16	50	110	0.6
	4180-110-FF	18.0	16	50	110	0.6
	4200-125-FF	20.0	20	60	125	0.6

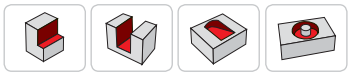
RPE-FP (Roughing endmill for fine pitches)

HSS PM, irregular flute spacing and lead



4 | H·A 25/30° | HSS PM | Substrate HC30T | h6 shank

ØD	Tolerance
Ø6 ~ Ø12	0.00 ~ -0.05
Ø12.1 ~ Ø20.0	0.00 ~ -0.1

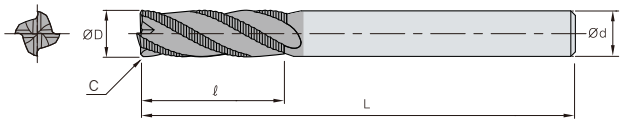


(mm)

Designation		ØD	Ød	ℓ	L	C
RPE	4060-080-FP	6.0	6	13	80	0.5
4	4070-080-FP	7.0	10	16	80	0.5
	4080-085-FP	8.0	10	19	85	0.5
	4090-095-FP	9.0	10	19	95	0.5
	4100-100-FP	10.0	10	22	100	0.5
	4120-110-FP	12.0	12	26	110	0.6
	4140-110-FP	14.0	12	26	110	0.6
	4160-125-FP	16.0	16	32	125	0.6
	4180-125-FP	18.0	16	32	125	0.6
	4200-140-FP	20.0	20	38	140	0.6

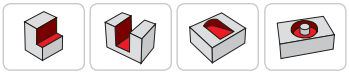
RPE-RG (Roughing endmill)

HSS



4 | H·A 30° | HSS Co 8% | Substrate HN20T HC20T HC10T | h6 shank

ØD	Tolerance
Ø6 ~ Ø50	±0.1



(mm)

Designation		ØD	Ød	ℓ	L
RPE 4	4060-060-RG	6.0	6	15	60
	4070-065-RG	7.0	8	20	65
	4080-065-RG	8.0	8	20	65
	4090-075-RG	9.0	10	25	75
	4100-075-RG	10.0	10	25	75
	4110-080-RG	11.0	12	30	80
	4120-080-RG	12.0	12	30	80
	4130-090-RG	13.0	12	35	90
	4140-090-RG	14.0	12	35	90
	4150-095-RG	15.0	12	40	95
	4160-095-RG	16.0	16	40	95
	4170-095-RG	17.0	16	40	95
	4180-105-RG	18.0	16	40	105
	4190-110-RG	19.0	16	45	110
	4200-110-RG	20.0	20	45	110
	4210-110-RG	21.0	20	45	110
	4220-110-RG	22.0	20	45	110
	4230-110-RG	23.0	20	45	110
	4240-120-RG	24.0	25	50	120
	4250-120-RG	25.0	25	50	120
	4260-120-RG	26.0	25	50	120
	4270-125-RG	27.0	25	55	125
	4280-125-RG	28.0	25	55	125
	4300-125-RG	30.0	25	55	125
	4320-145-RG	32.0	32	60	145
	4340-145-RG	34.0	32	60	145
	4350-145-RG	35.0	32	60	145
	4360-145-RG	36.0	32	60	145
	4380-150-RG	38.0	32	65	150
	4400-150-RG	40.0	32	65	150
	4420-155-RG	42.0	42	65	155
	4440-155-RG	44.0	42	65	155
	4450-160-RG	45.0	42	70	160
	4460-160-RG	46.0	42	70	160
	4500-160-RG	50.0	42	70	160

For high Precision Machining

High efficiency and high feed machining

F Endmill

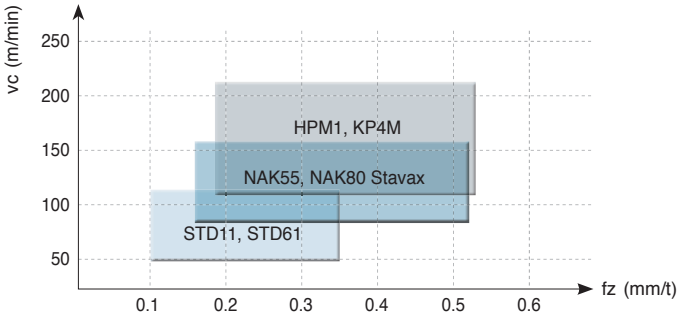
- Improved productivity and shortened working time thanks to high feed capability
- Reduced costs thanks to the highly efficient machining process

Features

Wider chip pocket area highly efficient operation

High feed machining possible by dispersing cutting forces

Application by workpiece

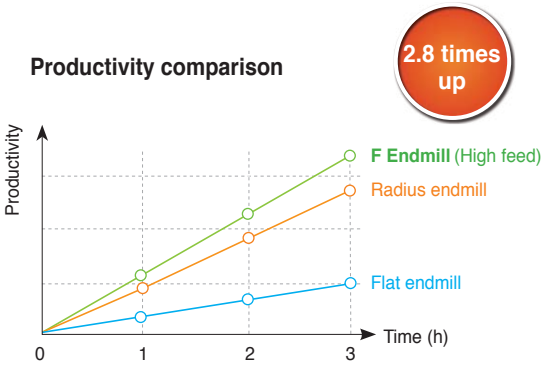


Productivity example

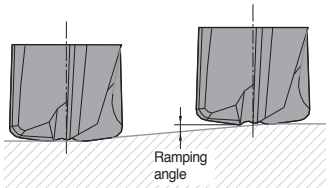
Type	Speed (vc)	Feed (fz)	D.O.C		Machining volume (mm^3/min)
			ap	ae	
F Endmill (High feed)	180	0.30	0.5	5.0	135,000
Radius Endmill	200	0.09	1.0	5.0	90,000
Flat Endmill	120	0.05	8.0	0.2	48,000

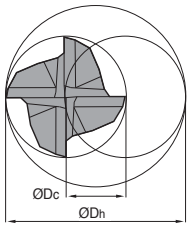
Higher productivity by feed increase. 2.8 times

Productivity comparison

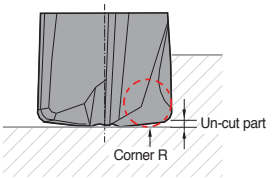


Programing information

Ramping	Ramping angle	Feed
	1°	100%
	2°	80%
	3°	60%
	4°	50%

Helical Ramping	Diameter (ØD)	Min. diameter	Max. diameter
	6	7.8	12
	8	10.2	16
	10	12.4	20
	12	14.9	24

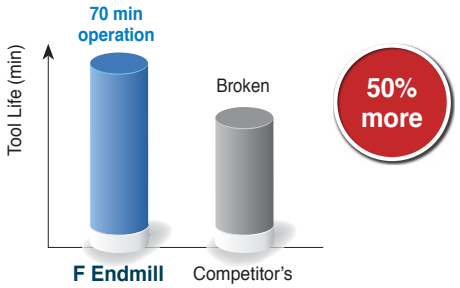
∗ ØDc: Feed(Tool center) ∗ ØDh: Machining area

CAM Ramping	Diameter (ØD)	Endmill-R	CAM-Radius	Un-cut part
	6	0.5	0.7	0.21
	8	0.5	0.8	0.32
	10	1.0	1.3	0.36
	12	1.2	1.6	1.45

[Application Examples]

STD61+SKT4 (HRC45 ~ 50)

- **Cutting conditions:** D = Ø12, n (min-1) = 4.000, vc (m/min) = 150.8, vf (mm/min) = 4.000
  fz (mm/t) = 0.25, ap (mm) = 3.6, ae (mm) = 0.6, dry
- **Tools:** FME4120-075-R12



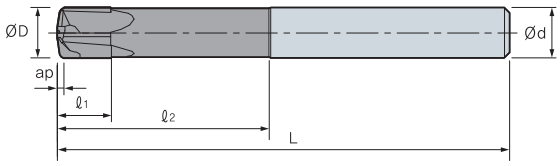
SKD61

- **Cutting conditions:** n (min-1) = 4.000, vc (m/min) = 125.7, vf (mm/min) = 4.000
  fz (mm/t) = 0.25, ap (mm) = 0.45, ae (mm) = 5
- **Cutting time:** 108M
- **Tools:** FME4100-070-R10

[F Endmill]

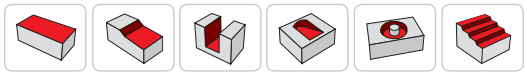
[Competitor's]

FME4000 (Standard)



4 | H·A 0° | h6 shank | Substrate PC203F

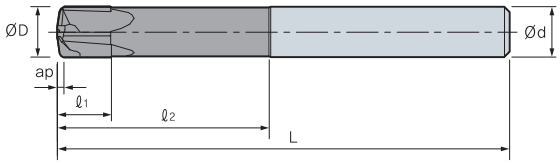
ØD	Tolerance
Ø6~Ø12	-0.01 ~ -0.03



(mm)

Designation		R	ØD	Ød	ℓ1	ℓ2	L	Max. ap (mm)	CAM-Radius
FME 4	4060-050-R05	0.5	6	6	4.5	18	50	0.35	0.7
	4080-060-R05	0.5	8	8	6	24	60	0.45	0.8
	4100-070-R10	1.0	10	10	7.5	30	70	0.65	1.3
	4120-075-R12	1.2	12	12	9	36	75	0.78	1.6

FMLE4000 (Long)



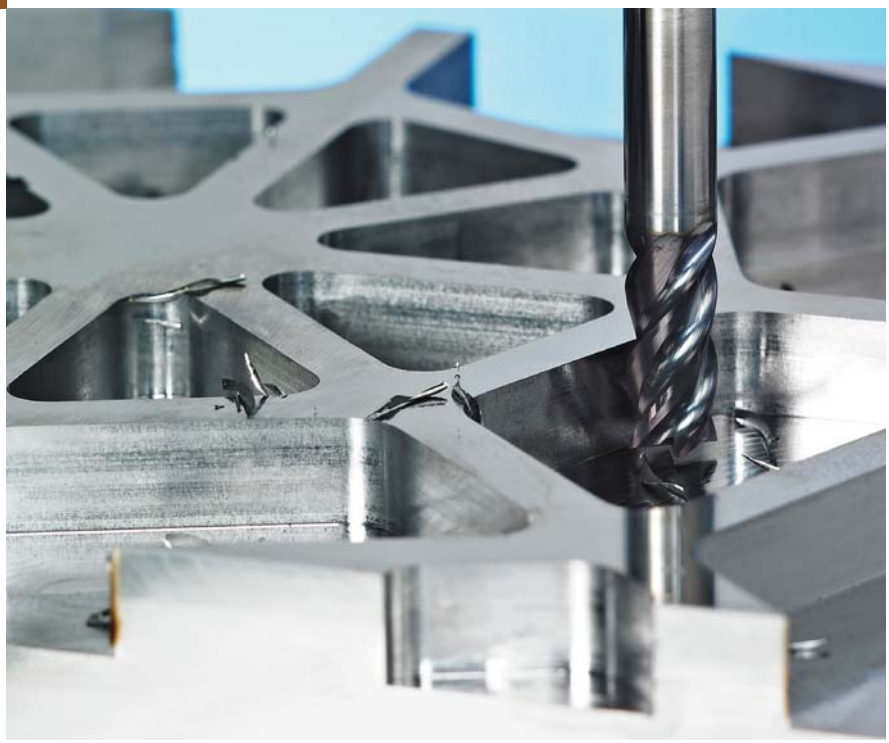
4 | H·A 0° | h6 shank | Substrate PC203F

ØD	Tolerance
Ø6~Ø12	-0.01 ~ -0.03

(mm)

Designation		R	ØD	Ød	ℓ1	ℓ2	L	Max. ap (mm)	CAM-Radius
FMLE 4	4060-090-R05	0.5	6	6	4.5	30	90	0.35	0.7
	4080-090-R05	0.5	8	8	6	40	90	0.45	0.8
	4100-100-R10	1.0	10	10	7.5	50	100	0.65	1.3
	4120-110-R12	1.2	12	12	9	60	110	0.78	1.6

For high Precision Machining



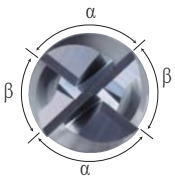
Improved productivity with effective machining due to less vibration

V Endmill

- 30% increased cutting speed (vc) and feed rate (vf) to boost productivity
- High quality machining available thanks to minimized tool vibrations and excellent surface finish

Features

- **30% increased cutting speed(vc) and feed(vf) realize high productivity.**
- **Minimized vibration of tools**
  - High graded machining with good surface finish



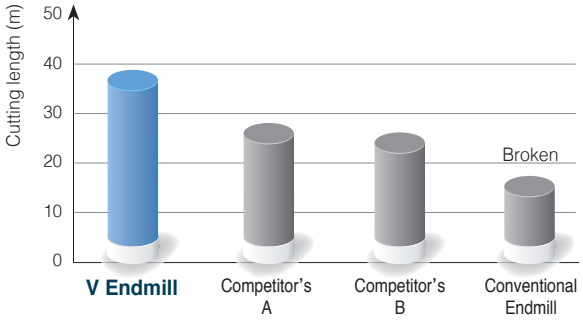
- Irregular helix angle
- Irregular indexing angle

※ Irregular flute spacing = Decreased vibration

Performance (Surface finish)

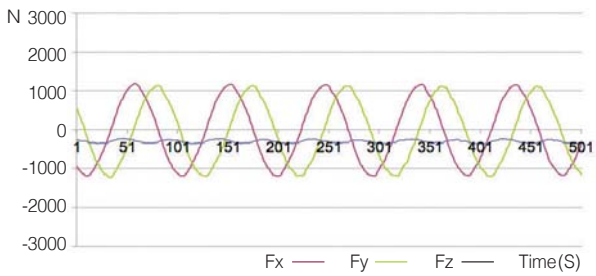
- **Workpiece:** STS304
- **Cutting conditions:** D = Ø8.0, n (min-1) = 3,979, vc (m/min) = 100, vf (mm/min) = 796, fz (mm/t) = 0.05, ap (mm) = 12, ae (mm) = 0.8, dry
- **Tools:** VFE4080-060

Edge			
Surface finish			
Division	V Endmill	Competitor's A Irregular flute spacing Endmill	Competitor's B Irregular flute spacing Endmill

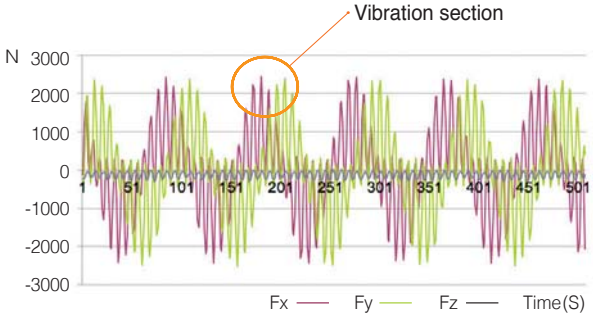


Performance (Vibration test)

- **Workpiece:** SCM440
- **Cutting conditions:** D = Ø8.0, n (min-1) = 3,183, vc (m/min) = 80, vf (mm/min) = 713, fz (mm/t) = 0.055, ap (mm) = 8.0, ae (mm) = 8, dry
- **Tools:** V Endmill (VFE4080-060) Conventional endmill



[V Endmill]



[Conventional]

[Application Examples]

Alloy steel (SNCM439, HRC43~45)

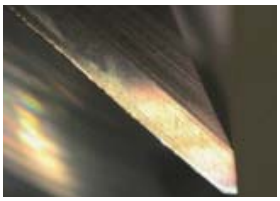
- **Cutting conditions:** D = Ø8.0, n (min-1) = 6,000, vc (m/min) = 150, vf (mm/min) = 600, fz (mm/t) = 0.025, ap (mm) = 7, ae (mm) = 0.8, wet (water-soluble)
- **Tools:** VFE4080-060

[V Endmill]

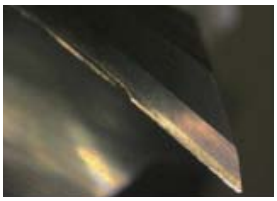
[Competitor's]

Mold steel (KP4M)

- **Cutting conditions:** n (min-1) = 4,000, vc (m/min) = 100, vf (mm/min) = 800, fz (mm/t) = 0.05, ap (mm) = 12, ae (mm) = 0.8
- **Cutting time:** 1H 30M
- **Tools:** VFE4080-060



[V Endmill]



[Competitor's]

VFE4000 (Flat)

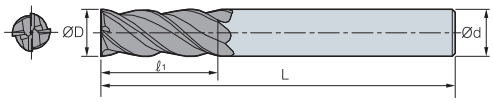


Fig. 1

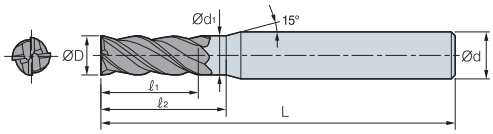
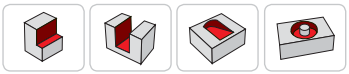


Fig. 2

4 | H·A 40°/43° | h6 shank | Substrate PC215F

ØD	Tolerance
Ø2.5~Ø9	0.00 ~ -0.02
Ø10~Ø16	0.00 ~ -0.03



(mm)

Designation		ØD	Ød	d1	ℓ1	ℓ2	L	Fig.
VFE	4025-045	2.5	6.0	2.48	6.0	8.0	45	2
4	4030-050	3.0	6.0	2.98	7.0	9.5	50	2
	4035-050	3.5	6.0	3.48	8.0	11.0	50	2
	4040-050	4.0	6.0	3.98	9.0	12.0	50	2
	4050-050	5.0	6.0	4.98	12.0	16.0	50	2
	4060-050	6.0	6.0	-	14.0	-	50	1
	4070-060	7.0	8.0	6.97	16.0	21.0	60	2
	4080-060	8.0	8.0	-	19.0	-	60	1
	4090-070	9.0	10.0	8.97	20.0	27.0	70	2
	4100-075	10.0	10.0	-	23.0	-	75	1
	4120-080	12.0	12.0	-	27.0	-	80	1
	4140-085	14.0	14.0	-	31.0	-	85	1
	4160-090	16.0	16.0	-	36.0	-	90	1

Solutions for MOLD & DIE

Part 5

For Hole Making

Part 5

For Hole Making

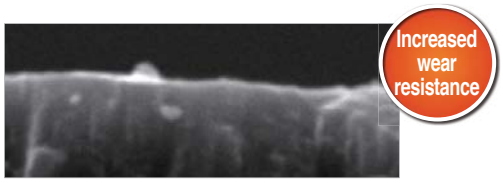
High efficient hole machining of various workpieces

MSD Plus new

- Good chip evacuation due to with a wide chip pocket
- New grade (PC325U) increases wear resistance and welding resistance.
- Longer tool life ensures high productivity.

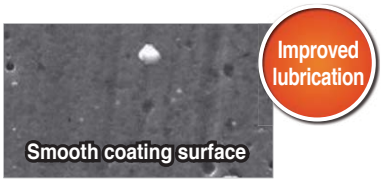
Features

- **New grade (PC325U)**
  - Lubricative coating layer improves welding resistance at middle to high speed.
  - Increase wear resistance in machining carbon steel

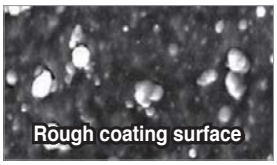


[PC325U]

- **Surface of coating layer**
  - Increased welding resistance and lower cutting load
  - Reduced frictional resistance at cutting edges and on the flute



[PC325U]



[Competitor's]

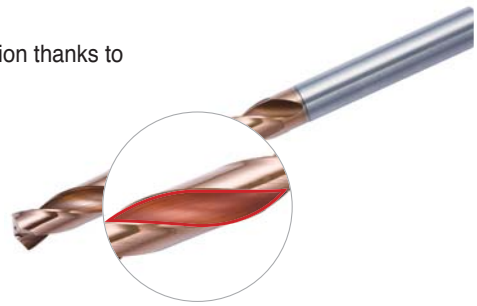
- **Chip control**
  - Workpiece: SCM440
  - Cutting conditions: vc (m/min) = 90, fn (mm/rev) = 0.2, ap (mm) = 30, wet
  - Tools: MSDPH060–5P(PC325U)

Chip in good shape

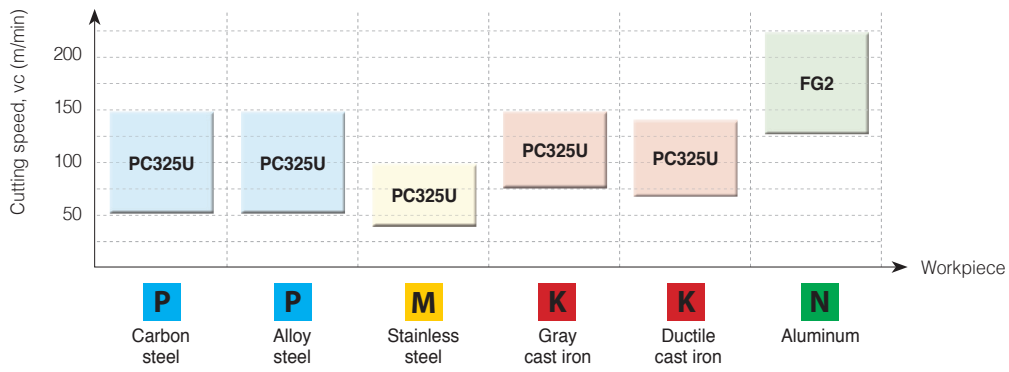
[MSD Plus]

[Competitor's]

- **Flute shape**
  - Improved chip evacuation thanks to wider chip pocket



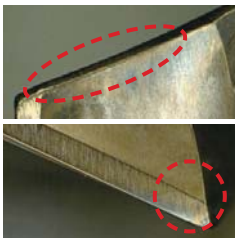
Application area



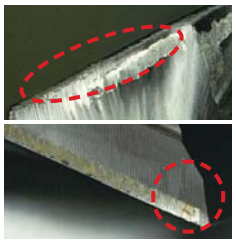
[Application Examples]

Carbon steel (SM45C)

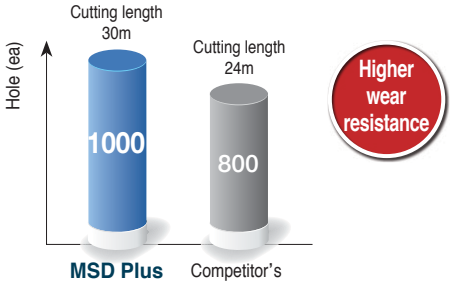
- **Workpiece use:** Part of Automobile
- **Cutting conditions:** vc (m/min) = 124, fn (mm/rev) = 0.15, ap (mm) = 30, Through coolant
- **Tools:** MSDP120-5P (PC325U)



[MSD Plus]



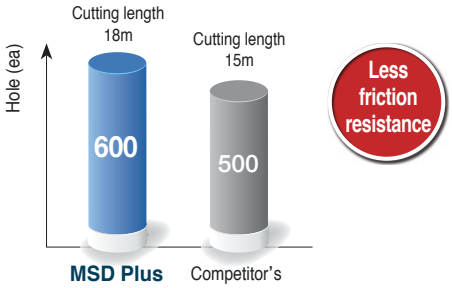
[Competitor's]



▶ Lubricative coating layer of the new grade PC325U maximizes wear resistance.

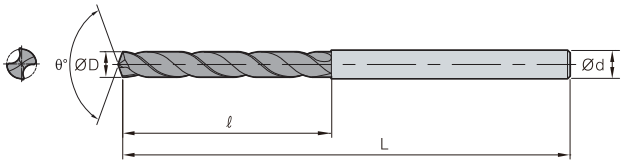
Carbon steel (SM53C)

- **Workpiece use:** Part of Automobile
- **Cutting conditions:** vc (m/min) = 60, fn (mm/rev) = 0.25, ap (mm) = 30, External coolant
- **Tools:** MSDP120-5P (PC325U)



▶ Special treatment on coating surface minimized frictional resistance.

MSDP-□(P/M/K/N)



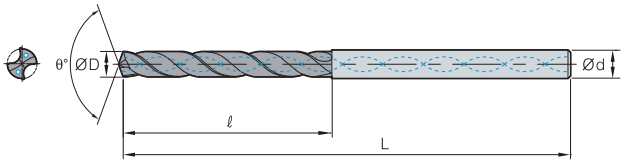
Terminology	P	M	K	N
Grade	PC325U			FG2
Tolerance (drill Dia.)	h7			
Tolerance (shank Dia.)	h6			
Point angle	140°			135°
Twist angle	30°			
Thinning	X type			
Coolant	External			

P Steel M Stainless steel K Cast iron N Non-ferrous metal

(mm)

Designation		ØD	Ød	3P,M,K,N		5P,M,K,N	
				ℓ	L	ℓ	L
MSDP	010 - □ P,M,K,N	1.0	3.0	6	45	12	66
	011 - □ P,M,K,N	1.1	3.0	7	45	12	66
	012 - □ P,M,K,N	1.2	3.0	8	45	12	66
	013 - □ P,M,K,N	1.3	3.0	8	45	12	66
	014 - □ P,M,K,N	1.4	3.0	9	45	12	66
	015 - □ P,M,K,N	1.5	3.0	9	45	12	66
	016 - □ P,M,K,N	1.6	3.0	10	45	15	66
	017 - □ P,M,K,N	1.7	3.0	10	45	15	66
	018 - □ P,M,K,N	1.8	3.0	11	45	15	66
	019 - □ P,M,K,N	1.9	3.0	11	45	15	66
	020 - □ P,M,K,N	2.0	3.0	14	53	20	66
	021 - □ P,M,K,N	2.1	3.0	14	53	20	66
	022 - □ P,M,K,N	2.2	3.0	14	53	20	66
	023 - □ P,M,K,N	2.3	3.0	14	53	20	66
	024 - □ P,M,K,N	2.4	3.0	14	53	20	66

MSDP(H)-□(P/M/K/N)



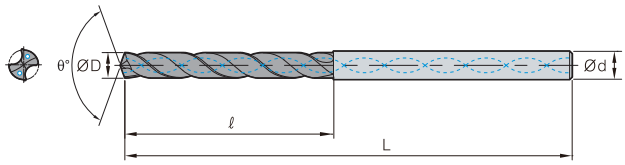
Terminology	P	M	K	N
Grade	PC325U			FG2
Tolerance (drill Dia.)	h7			
Tolerance (shank Dia.)	h6			
Point angle	140°			135°
Twist angle	30°			
Thinning	X type			
Coolant	Through/External			

P Steel M Stainless steel K Cast iron N Non-ferrous metal

(mm)

Designation		ØD	Ød	3P,M,K,N		5P,M,K,N		7P,M,K,N	
				ℓ	L	ℓ	L	ℓ	L
MSDP(H)	025 - □ P,M,K,N	2.5	3.0	14	53	20	66	30	70
	026 - □ P,M,K,N	2.6	3.0	17	53	20	66	30	70
	027 - □ P,M,K,N	2.7	3.0	17	53	20	66	30	70
	028 - □ P,M,K,N	2.8	3.0	17	53	20	66	30	70
	029 - □ P,M,K,N	2.9	3.0	17	53	20	66	30	70
	030 - □ P,M,K,N	3.0	3.0	17	53	20	66	30	70
	031 - □ P,M,K,N	3.1	4.0	20	58	28	74	30	70
	032 - □ P,M,K,N	3.2	4.0	20	58	28	74	30	70
	033 - □ P,M,K,N	3.3	4.0	20	58	28	74	30	70
	034 - □ P,M,K,N	3.4	4.0	20	58	28	74	37.5	75
	035 - □ P,M,K,N	3.5	4.0	20	58	28	74	37.5	75
	036 - □ P,M,K,N	3.6	4.0	22	58	32	74	37.5	75
	037 - □ P,M,K,N	3.7	4.0	22	58	32	74	37.5	75
	038 - □ P,M,K,N	3.8	4.0	22	58	32	74	37.5	75
	039 - □ P,M,K,N	3.9	4.0	22	58	32	74	37.5	75
	040 - □ P,M,K,N	4.0	4.0	22	58	32	74	37.5	75
	041 - □ P,M,K,N	4.1	5.0	24	62	36	82	37.5	75
	042 - □ P,M,K,N	4.2	5.0	24	62	36	82	37.5	75
	043 - □ P,M,K,N	4.3	5.0	24	62	36	82	45	85
	044 - □ P,M,K,N	4.4	5.0	24	62	36	82	45	85
	045 - □ P,M,K,N	4.5	5.0	24	62	36	82	45	85
	046 - □ P,M,K,N	4.6	5.0	26	62	38	82	45	85
	047 - □ P,M,K,N	4.7	5.0	26	62	38	82	45	85
	048 - □ P,M,K,N	4.8	5.0	26	62	38	82	50	90
	049 - □ P,M,K,N	4.9	5.0	26	62	38	82	50	90
	050 - □ P,M,K,N	5.0	5.0	26	62	38	82	50	90
	051 - □ P,M,K,N	5.1	6.0	28	66	44	82	50	90
	052 - □ P,M,K,N	5.2	6.0	28	66	44	82	50	90
	053 - □ P,M,K,N	5.3	6.0	28	66	44	82	50	90
	054 - □ P,M,K,N	5.4	6.0	28	66	44	82	50	90
	055 - □ P,M,K,N	5.5	6.0	28	66	44	82	57	97
	056 - □ P,M,K,N	5.6	6.0	28	66	44	82	57	97
	057 - □ P,M,K,N	5.7	6.0	28	66	44	82	57	97
	058 - □ P,M,K,N	5.8	6.0	28	66	44	82	57	97
	059 - □ P,M,K,N	5.9	6.0	28	66	44	82	57	97
	060 - □ P,M,K,N	6.0	6.0	28	66	44	82	57	97
	061 - □ P,M,K,N	6.1	7.0	34	74	50	91	66	106
	062 - □ P,M,K,N	6.2	7.0	34	74	50	91	66	106
	063 - □ P,M,K,N	6.3	7.0	34	74	50	91	66	106
	064 - □ P,M,K,N	6.4	7.0	34	74	50	91	66	106
	065 - □ P,M,K,N	6.5	7.0	34	74	50	91	66	106
	066 - □ P,M,K,N	6.6	7.0	34	74	50	91	66	106
	067 - □ P,M,K,N	6.7	7.0	34	74	50	91	66	106
	068 - □ P,M,K,N	6.8	7.0	34	74	50	91	66	106
	069 - □ P,M,K,N	6.9	7.0	34	74	50	91	76	116
	070 - □ P,M,K,N	7.0	7.0	34	74	50	91	76	116
	071 - □ P,M,K,N	7.1	8.0	41	79	53	91	76	116
	072 - □ P,M,K,N	7.2	8.0	41	79	53	91	76	116

MSDP(H)-□(P/M/K/N)



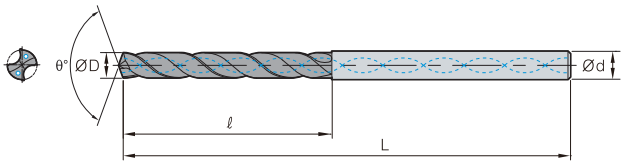
Terminology	P	M	K	N
Grade	PC325U			FG2
Tolerance (drill Dia.)	h7			
Tolerance (shank Dia.)	h6			
Point angle	140°			135°
Twist angle	30°			
Thinning	X type			
Coolant	Through/External			

P Steel M Stainless steel K Cast iron N Non-ferrous metal

(mm)

Designation		ØD	Ød	3P,M,K,N		5P,M,K,N		7P,M,K,N	
				ℓ	L	ℓ	L	ℓ	L
MSDP(H)	073 - □ P,M,K,N	7.3	8.0	41	79	53	91	76	116
	074 - □ P,M,K,N	7.4	8.0	41	79	53	91	76	116
	075 - □ P,M,K,N	7.5	8.0	41	79	53	91	76	116
	076 - □ P,M,K,N	7.6	8.0	41	79	53	91	76	116
	077 - □ P,M,K,N	7.7	8.0	41	79	53	91	76	116
	078 - □ P,M,K,N	7.8	8.0	41	79	53	91	76	116
	079 - □ P,M,K,N	7.9	8.0	41	79	53	91	76	116
	080 - □ P,M,K,N	8.0	8.0	43	84	58	98	87	131
	081 - □ P,M,K,N	8.1	9.0	43	84	58	98	87	131
	082 - □ P,M,K,N	8.2	9.0	43	84	58	98	87	131
	083 - □ P,M,K,N	8.3	9.0	43	84	58	98	87	131
	084 - □ P,M,K,N	8.4	9.0	43	84	58	98	87	131
	085 - □ P,M,K,N	8.5	9.0	43	84	58	98	87	131
	086 - □ P,M,K,N	8.6	9.0	43	84	58	98	87	131
	087 - □ P,M,K,N	8.7	9.0	43	84	58	98	87	131
	088 - □ P,M,K,N	8.8	9.0	43	84	58	98	87	131
	089 - □ P,M,K,N	8.9	9.0	43	84	58	98	87	131
	090 - □ P,M,K,N	9.0	9.0	43	84	58	98	87	131
	091 - □ P,M,K,N	9.1	10.0	47	89	61	105	95	139
	092 - □ P,M,K,N	9.2	10.0	47	89	61	105	95	139
	093 - □ P,M,K,N	9.3	10.0	47	89	61	105	95	139
	094 - □ P,M,K,N	9.4	10.0	47	89	61	105	95	139
	095 - □ P,M,K,N	9.5	10.0	47	89	61	105	95	139
	096 - □ P,M,K,N	9.6	10.0	47	89	61	105	95	139
	097 - □ P,M,K,N	9.7	10.0	47	89	61	105	95	139
	098 - □ P,M,K,N	9.8	10.0	47	89	61	105	95	139
	099 - □ P,M,K,N	9.9	10.0	47	89	61	105	95	139
	100 - □ P,M,K,N	10.0	10.0	47	89	61	105	95	139
	101 - □ P,M,K,N	10.1	11.0	55	95	68	114	106	155
	102 - □ P,M,K,N	10.2	11.0	55	95	68	114	106	155
	103 - □ P,M,K,N	10.3	11.0	55	95	68	114	106	155
	104 - □ P,M,K,N	10.4	11.0	55	95	68	114	106	155
	105 - □ P,M,K,N	10.5	11.0	55	95	68	114	106	155
	106 - □ P,M,K,N	10.6	11.0	55	95	68	114	106	155
	107 - □ P,M,K,N	10.7	11.0	55	95	68	114	106	155
	108 - □ P,M,K,N	10.8	11.0	55	95	68	114	106	155
	109 - □ P,M,K,N	10.9	11.0	55	95	68	114	106	155
	110 - □ P,M,K,N	11.0	11.0	55	95	68	114	106	155
	111 - □ P,M,K,N	11.1	12.0	55	102	71	120	114	163
	112 - □ P,M,K,N	11.2	12.0	55	102	71	120	114	163
	113 - □ P,M,K,N	11.3	12.0	55	102	71	120	114	163
	114 - □ P,M,K,N	11.4	12.0	55	102	71	120	114	163
	115 - □ P,M,K,N	11.5	12.0	55	102	71	120	114	163
	116 - □ P,M,K,N	11.6	12.0	55	102	71	120	114	163
	117 - □ P,M,K,N	11.7	12.0	55	102	71	120	114	163
	118 - □ P,M,K,N	11.8	12.0	55	102	71	120	114	163
	119 - □ P,M,K,N	11.9	12.0	55	102	71	120	114	163
	120 - □ P,M,K,N	12.0	12.0	55	102	71	120	114	163

MSDP(H)-□(P/M/K/N)



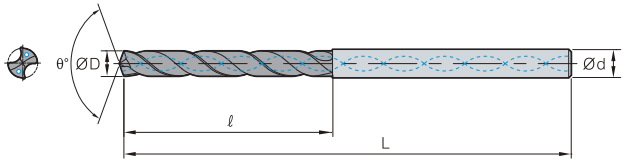
Terminology	P	M	K	N
Grade	PC325U			FG2
Tolerance (drill Dia.)	h7			
Tolerance (shank Dia.)	h6			
Point angle	140°			135°
Twist angle	30°			
Thinning	X type			
Coolant	Through/External			

P Steel M Stainless steel K Cast iron N Non-ferrous metal

(mm)

Designation		ØD	Ød	3P,M,K,N		5P,M,K,N		7P,M,K,N	
				ℓ	L	ℓ	L	ℓ	L
MSDP(H)	121 - □ P,M,K,N	12.1	13.0	60	107	77	124	133	182
	122 - □ P,M,K,N	12.2	13.0	60	107	77	124	133	182
	123 - □ P,M,K,N	12.3	13.0	60	107	77	124	133	182
	124 - □ P,M,K,N	12.4	13.0	60	107	77	124	133	182
	125 - □ P,M,K,N	12.5	13.0	60	107	77	124	133	182
	126 - □ P,M,K,N	12.6	13.0	60	107	77	124	133	182
	127 - □ P,M,K,N	12.7	13.0	60	107	77	124	133	182
	128 - □ P,M,K,N	12.8	13.0	60	107	77	124	133	182
	129 - □ P,M,K,N	12.9	13.0	60	107	77	124	133	182
	130 - □ P,M,K,N	13.0	13.0	60	107	77	124	133	182
	131 - □ P,M,K,N	13.1	14.0	62	107	80	133	133	182
	132 - □ P,M,K,N	13.2	14.0	62	107	80	133	133	182
	133 - □ P,M,K,N	13.3	14.0	62	107	80	133	133	182
	134 - □ P,M,K,N	13.4	14.0	62	107	80	133	133	182
	135 - □ P,M,K,N	13.5	14.0	62	107	80	133	133	182
	136 - □ P,M,K,N	13.6	14.0	62	107	80	133	133	182
	137 - □ P,M,K,N	13.7	14.0	62	107	80	133	133	182
	138 - □ P,M,K,N	13.8	14.0	62	107	80	133	133	182
	139 - □ P,M,K,N	13.9	14.0	62	107	80	133	133	182
	140 - □ P,M,K,N	14.0	14.0	62	107	80	133	133	182
	141 - □ P,M,K,N	14.1	15.0	65	115	85	143	152	204
	142 - □ P,M,K,N	14.2	15.0	65	115	85	143	152	204
	143 - □ P,M,K,N	14.3	15.0	65	115	85	143	152	204
	144 - □ P,M,K,N	14.4	15.0	65	115	85	143	152	204
	145 - □ P,M,K,N	14.5	15.0	65	115	85	143	152	204
	146 - □ P,M,K,N	14.6	15.0	65	115	85	143	152	204
	147 - □ P,M,K,N	14.7	15.0	65	115	85	143	152	204
	148 - □ P,M,K,N	14.8	15.0	65	115	85	143	152	204
	149 - □ P,M,K,N	14.9	15.0	65	115	85	143	152	204
	150 - □ P,M,K,N	15.0	15.0	65	115	85	143	152	204
	151 - □ P,M,K,N	15.1	16.0	68	115	88	143	152	204
	152 - □ P,M,K,N	15.2	16.0	68	115	88	143	152	204
	153 - □ P,M,K,N	15.3	16.0	68	115	88	143	152	204
	154 - □ P,M,K,N	15.4	16.0	68	115	88	143	152	204
	155 - □ P,M,K,N	15.5	16.0	68	115	88	143	152	204
	156 - □ P,M,K,N	15.6	16.0	68	115	88	143	152	204
	157 - □ P,M,K,N	15.7	16.0	68	115	88	143	152	204
	158 - □ P,M,K,N	15.8	16.0	68	115	88	143	152	204
	159 - □ P,M,K,N	15.9	16.0	68	115	88	143	152	204
	160 - □ P,M,K,N	16.0	16.0	68	115	88	143	152	204
	161 - □ P,M,K,N	16.1	17.0	73	123	93	153	171	223
	162 - □ P,M,K,N	16.2	17.0	73	123	93	153	171	223
	163 - □ P,M,K,N	16.3	17.0	73	123	93	153	171	223
	164 - □ P,M,K,N	16.4	17.0	73	123	93	153	171	223
	165 - □ P,M,K,N	16.5	17.0	73	123	93	153	171	223
	166 - □ P,M,K,N	16.6	17.0	73	123	93	153	171	223
	167 - □ P,M,K,N	16.7	17.0	73	123	93	153	171	223
	168 - □ P,M,K,N	16.8	17.0	73	123	93	153	171	223

MSDP(H)-□(P/M/K/N)



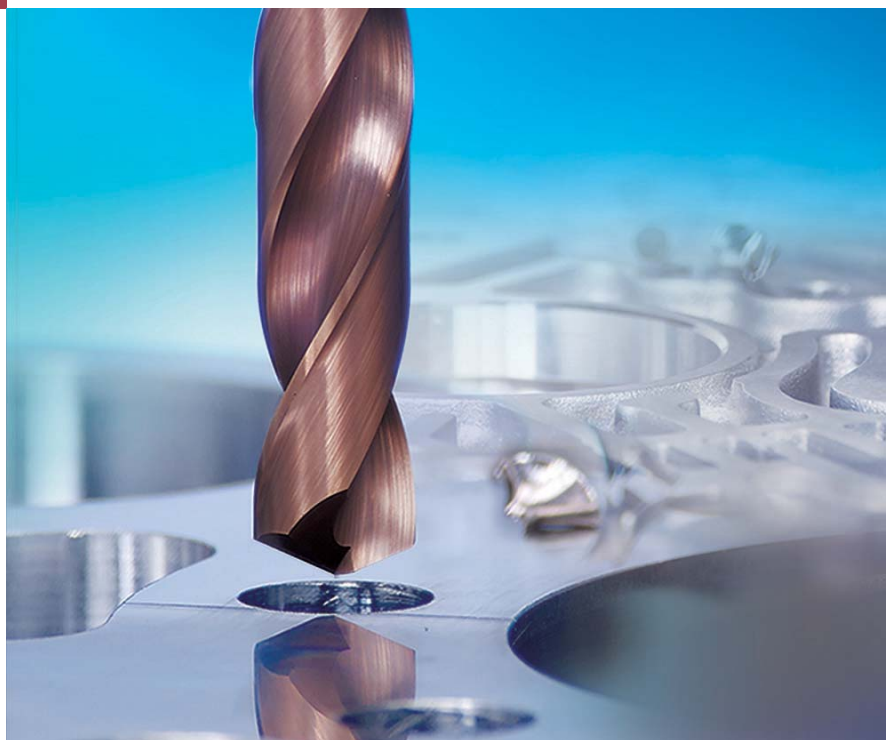
Terminology	P	M	K	N
Grade	PC325U			FG2
Tolerance (drill Dia.)	h7			
Tolerance (shank Dia.)	h6			
Point angle	140°			135°
Twist angle	30°			
Thinning	X type			
Coolant	Through/External			

P Steel M Stainless steel K Cast iron N Non-ferrous metal

(mm)

Designation		ØD	Ød	3P,M,K,N		5P,M,K,N		7P,M,K,N	
				ℓ	L	ℓ	L	ℓ	L
MSDP(H)	169 - □ P,M,K,N	16.9	17.0	73	123	93	153	171	223
	170 - □ P,M,K,N	17.0	17.0	73	123	93	153	171	223
	171 - □ P,M,K,N	17.1	18.0	73	123	98	153	171	223
	172 - □ P,M,K,N	17.2	18.0	73	123	98	153	171	223
	173 - □ P,M,K,N	17.3	18.0	73	123	98	153	171	223
	174 - □ P,M,K,N	17.4	18.0	73	123	98	153	171	223
	175 - □ P,M,K,N	17.5	18.0	73	123	98	153	171	223
	176 - □ P,M,K,N	17.6	18.0	73	123	98	153	171	223
	177 - □ P,M,K,N	17.7	18.0	73	123	98	153	171	223
	178 - □ P,M,K,N	17.8	18.0	73	123	98	153	171	223
	179 - □ P,M,K,N	17.9	18.0	73	123	98	153	171	223
	180 - □ P,M,K,N	18.0	18.0	73	123	98	153	171	223
	181 - □ P,M,K,N	18.1	19.0	79	131	103	153	190	244
	182 - □ P,M,K,N	18.2	19.0	79	131	103	153	190	244
	183 - □ P,M,K,N	18.3	19.0	79	131	103	153	190	244
	184 - □ P,M,K,N	18.4	19.0	79	131	103	153	190	244
	185 - □ P,M,K,N	18.5	19.0	79	131	103	153	190	244
	186 - □ P,M,K,N	18.6	19.0	79	131	103	153	190	244
	187 - □ P,M,K,N	18.7	19.0	79	131	103	153	190	244
	188 - □ P,M,K,N	18.8	19.0	79	131	103	153	190	244
	189 - □ P,M,K,N	18.9	19.0	79	131	103	153	190	244
	190 - □ P,M,K,N	19.0	19.0	79	131	103	153	190	244
	191 - □ P,M,K,N	19.1	20.0	79	131	107	153	190	244
	192 - □ P,M,K,N	19.2	20.0	79	131	107	153	190	244
	193 - □ P,M,K,N	19.3	20.0	79	131	107	153	190	244
	194 - □ P,M,K,N	19.4	20.0	79	131	107	153	190	244
	195 - □ P,M,K,N	19.5	20.0	79	131	107	153	190	244
	196 - □ P,M,K,N	19.6	20.0	79	131	107	153	190	244
	197 - □ P,M,K,N	19.7	20.0	79	131	107	153	190	244
	198 - □ P,M,K,N	19.8	20.0	79	131	107	153	190	244
	199 - □ P,M,K,N	19.9	20.0	79	131	107	153	190	244
	200 - □ P,M,K,N	20.0	20.0	79	131	107	153	190	244

For Hole Making



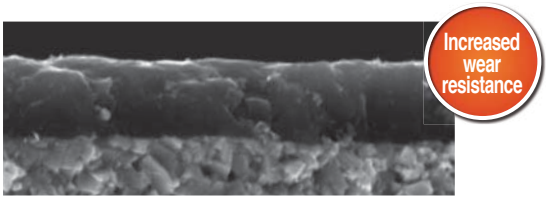
Economical Solid Drill

ESD Plus

- Highly efficient hole machining for various workpieces including automotive components
- Great value for budget
  - Excellent performance and cost efficiency
- Increased wear resistance
  - Strong wear resistance due to our new PC325U grade

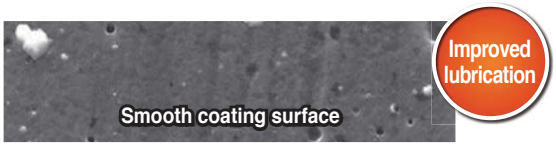
Features

- **New grade (PC325U)**
  - Lubricative coating layer improves welding resistance at middle to high speed
  - Increase wear resistance in machining carbon steel

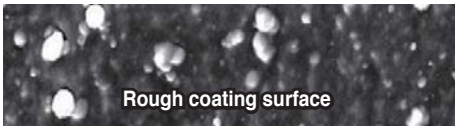


[PC325U]

- **Surface of coating layer**
  - Excellent welding resistance and lower cutting load
  - Reduced frictional resistance at cutting edges and on the flute



[PC325U]



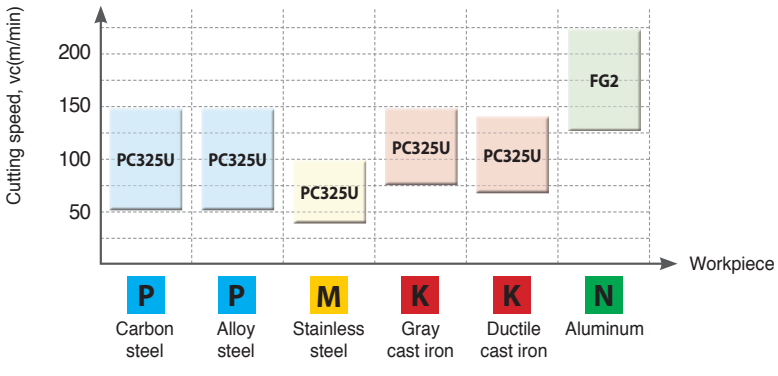
[Competitor's]

- **Chip control**
  - Workpiece: 42CrMo4*
  - Cutting conditions: vc (m/min) = 40, fn (mm/rev) = 0.1, ap (mm) = 30, wet
  - Tools: ESDP060-5P

[ESD Plus]

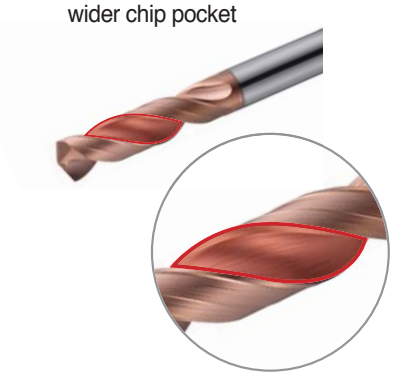
[Competitor's]

Application area



Flute shape

- Improved chip evacuation due to wider chip pocket

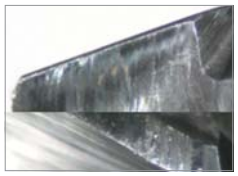


[Application Examples]

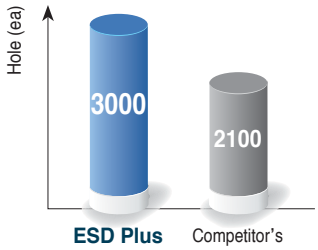
Alloy steel (42CrMo4*)

- **Cutting conditions:** vc (m/min) = 95, fn (mm/rev) = 0.12, ap (mm) = 20, External coolant
- **Tools:** ESDP060-5P

[MSD Plus]



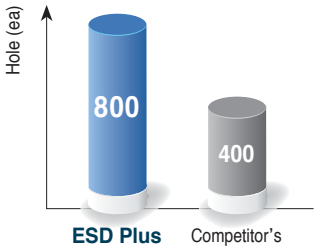
[Competitor's]



▶ Lubricative coating layer of the new grade PC325U maximizes wear resistance.

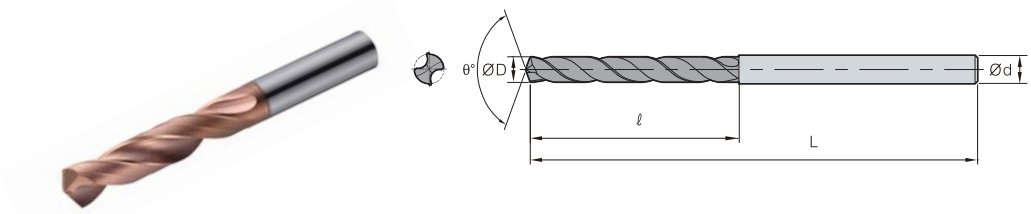
Carbon steel (C45*)

- **Cutting conditions:** vc (m/min) = 50, fn (mm/rev) = 0.08, ap (mm) = 23.5, External coolant
- **Tools:** ESDP090-5P



▶ Special treatment on coating surface minimizes frictional resistance.

ESDP-□P



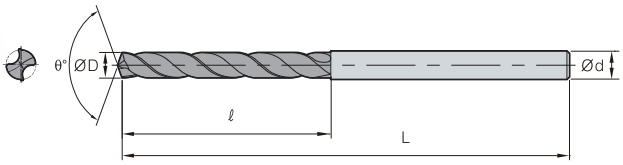
Terminology	P	M	K	N
Grade	PC325U			FG2
Tolerance (drill Dia.)	h7			
Tolerance (shank Dia.)	h6			
Point angle	140°			135°
Twist angle	30°			
Thinning	X type			
Coolant	External			

P Steel M Stainless steel K Cast iron N Non-ferrous metal

(mm)

Designation		ØD	Ød	3P		5P		7P	
				ℓ	L	ℓ	L	ℓ	L
ESDP	010 - □ P	1.0	3	5	45	8	45	12	60
	011 - □ P	1.1	3	6	45	9	45	12	60
	012 - □ P	1.2	3	6	45	10	45	12	60
	013 - □ P	1.3	3	7	45	10	45	15	60
	014 - □ P	1.4	3	7	45	11	45	15	60
	015 - □ P	1.5	3	7	45	11	45	15	60
	016 - □ P	1.6	3	8	45	12	45	20	60
	017 - □ P	1.7	3	8	45	12	45	20	60
	018 - □ P	1.8	3	9	45	13	45	20	60
	019 - □ P	1.9	3	9	45	14	45	20	60
	020 - □ P	2.0	3	10	50	18	50	25	66
	021 - □ P	2.1	3	10	50	18	50	25	66
	022 - □ P	2.2	3	12	50	18	50	25	66
	023 - □ P	2.3	3	12	50	18	50	25	66
	024 - □ P	2.4	3	12	50	18	50	30	66
	025 - □ P	2.5	3	12	50	18	50	30	66
	026 - □ P	2.6	3	12	50	18	50	30	66
	027 - □ P	2.7	3	15	50	18	50	30	66
	028 - □ P	2.8	3	15	50	18	50	30	66
	029 - □ P	2.9	3	15	50	18	50	30	66
	030 - □ P	3.0	3	16	55	20	55	45	80
	031 - □ P	3.1	4	16	55	20	55	45	80
	032 - □ P	3.2	4	16	55	20	55	45	80
	033 - □ P	3.3	4	16	55	20	55	45	80
	034 - □ P	3.4	4	16	55	20	55	45	80
	035 - □ P	3.5	4	16	55	20	55	45	80
	036 - □ P	3.6	4	18	55	25	55	45	80
	037 - □ P	3.7	4	18	55	25	55	45	80
	038 - □ P	3.8	4	20	55	25	55	45	80
	039 - □ P	3.9	4	20	55	25	55	45	80
	040 - □ P	4.0	4	20	55	25	55	45	80
	041 - □ P	4.1	5	20	55	25	55	45	80
	042 - □ P	4.2	5	20	63	33	63	45	80
	043 - □ P	4.3	5	23	63	33	63	45	80
	044 - □ P	4.4	5	23	63	33	63	45	80
	045 - □ P	4.5	5	23	63	33	63	45	80
	046 - □ P	4.6	5	23	63	33	63	45	80
	047 - □ P	4.7	5	23	63	33	63	45	80
	048 - □ P	4.8	5	25	63	33	63	45	80
	049 - □ P	4.9	5	25	63	33	63	45	80
	050 - □ P	5.0	5	25	63	33	63	45	80
	051 - □ P	5.1	6	25	63	33	63	45	80
	052 - □ P	5.2	6	28	66	36	66	50	83
	053 - □ P	5.3	6	28	66	36	66	50	83
	054 - □ P	5.4	6	28	66	36	66	50	83
	055 - □ P	5.5	6	28	66	36	66	50	83
	056 - □ P	5.6	6	28	66	36	66	50	83
	057 - □ P	5.7	6	28	66	36	66	50	83

ESDP-□P



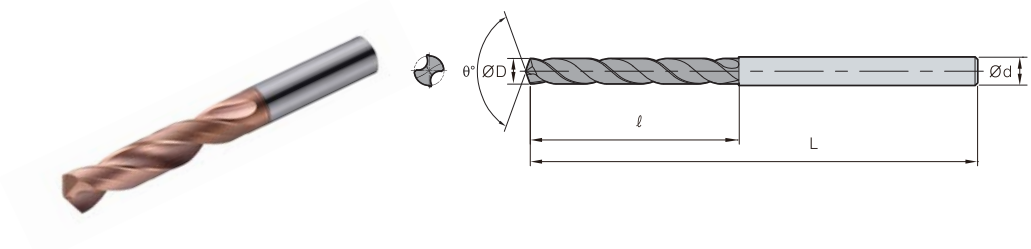
Terminology	P	M	K	N
Grade	PC325U			FG2
Tolerance (drill Dia.)	h7			
Tolerance (shank Dia.)	h6			
Point angle	140°			135°
Twist angle	30°			
Thinning	X type			
Coolant	External			

P Steel M Stainless steel K Cast iron N Non-ferrous metal

(mm)

Designation		ØD	Ød	3P		5P		7P	
				ℓ	L	ℓ	L	ℓ	L
ESDP	058 - □ P	5.8	6	28	66	36	66	50	83
	059 - □ P	5.9	6	28	66	36	66	50	83
	060 - □ P	6.0	6	30	66	36	66	50	83
	061 - □ P	6.1	7	30	66	36	66	50	83
	062 - □ P	6.2	7	32	75	42	75	53	85
	063 - □ P	6.3	7	32	75	42	75	53	85
	064 - □ P	6.4	7	32	75	42	75	53	85
	065 - □ P	6.5	7	32	75	42	75	53	85
	066 - □ P	6.6	7	32	75	42	75	53	85
	067 - □ P	6.7	7	32	75	42	75	53	85
	068 - □ P	6.8	7	32	75	42	75	53	85
	069 - □ P	6.9	7	32	75	42	75	53	85
	070 - □ P	7.0	7	32	75	42	75	53	85
	071 - □ P	7.1	8	32	75	42	75	53	85
	072 - □ P	7.2	8	36	80	46	80	58	90
	073 - □ P	7.3	8	36	80	46	80	58	90
	074 - □ P	7.4	8	36	80	46	80	58	90
	075 - □ P	7.5	8	36	80	46	80	58	90
	076 - □ P	7.6	8	36	80	46	80	58	90
	077 - □ P	7.7	8	36	80	46	80	58	90
	078 - □ P	7.8	8	36	80	46	80	58	90
	079 - □ P	7.9	8	36	80	46	80	58	90
	080 - □ P	8.0	8	36	80	46	80	58	90
	081 - □ P	8.1	9	36	80	46	80	58	90
	082 - □ P	8.2	9	38	85	50	85	64	98
	083 - □ P	8.3	9	38	85	50	85	64	98
	084 - □ P	8.4	9	38	85	50	85	64	98
	085 - □ P	8.5	9	38	85	50	85	64	98
	086 - □ P	8.6	9	40	85	50	85	64	98
	087 - □ P	8.7	9	40	85	50	85	64	98
	088 - □ P	8.8	9	40	85	50	85	64	98
	089 - □ P	8.9	9	40	85	50	85	64	98
	090 - □ P	9.0	9	40	85	50	85	64	98
	091 - □ P	9.1	10	42	85	50	85	64	98
	092 - □ P	9.2	10	42	90	55	90	68	105
	093 - □ P	9.3	10	42	90	55	90	68	105
	094 - □ P	9.4	10	42	90	55	90	68	105
	095 - □ P	9.5	10	42	90	55	90	68	105
	096 - □ P	9.6	10	45	90	55	90	68	105
	097 - □ P	9.7	10	45	90	55	90	68	105
	098 - □ P	9.8	10	45	90	55	90	68	105
	099 - □ P	9.9	10	45	90	55	90	68	105
	100 - □ P	10.0	10	45	90	55	90	68	105
	101 - □ P	10.1	11	-	-	55	90	68	105
	102 - □ P	10.2	11	-	-	57	95	73	110
	103 - □ P	10.3	11	-	-	57	95	73	110
	104 - □ P	10.4	11	-	-	57	95	73	110
	105 - □ P	10.5	11	-	-	57	95	73	110

ESDP-□P



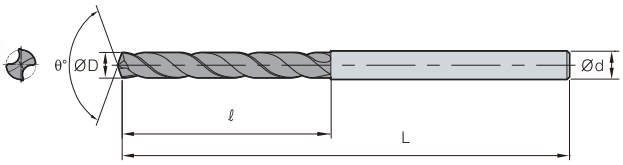
Terminology	P	M	K	N
Grade	PC325U			FG2
Tolerance (drill Dia.)	h7			
Tolerance (shank Dia.)	h6			
Point angle	140°			135°
Twist angle	30°			
Thinning	X type			
Coolant	External			

P Steel M Stainless steel K Cast iron N Non-ferrous metal

(mm)

Designation		ØD	Ød	5P		7P	
				ℓ	L	ℓ	L
ESDP	106 - □ P	10.6	11	57	95	73	110
	107 - □ P	10.7	11	57	95	73	110
	108 - □ P	10.8	11	57	95	73	110
	109 - □ P	10.9	11	57	95	73	110
	110 - □ P	11.0	11	57	95	73	110
	111 - □ P	11.1	12	57	95	73	110
	112 - □ P	11.2	12	63	102	80	120
	113 - □ P	11.3	12	63	102	80	120
	114 - □ P	11.4	12	63	102	80	120
	115 - □ P	11.5	12	63	102	80	120
	116 - □ P	11.6	12	63	102	80	120
	117 - □ P	11.7	12	63	102	80	120
	118 - □ P	11.8	12	63	102	80	120
	119 - □ P	11.9	12	63	102	80	120
	120 - □ P	12.0	12	63	102	80	120
	121 - □ P	12.1	13	63	102	80	120
	122 - □ P	12.2	13	63	102	90	137
	123 - □ P	12.3	13	63	102	90	137
	124 - □ P	12.4	13	63	102	90	137
	125 - □ P	12.5	13	63	102	90	137
	126 - □ P	12.6	13	63	102	90	137
	127 - □ P	12.7	13	63	102	90	137
	128 - □ P	12.8	13	63	102	90	137
	129 - □ P	12.9	13	63	102	90	137
	130 - □ P	13.0	13	63	102	90	137
	131 - □ P	13.1	14	63	102	90	137
	132 - □ P	13.2	14	65	107	96	147
	133 - □ P	13.3	14	65	107	96	147
	134 - □ P	13.4	14	65	107	96	147
	135 - □ P	13.5	14	65	107	96	147
	136 - □ P	13.6	14	65	107	96	147
	137 - □ P	13.7	14	65	107	96	147
	138 - □ P	13.8	14	65	107	96	147
	139 - □ P	13.9	14	65	107	96	147
	140 - □ P	14.0	14	65	107	96	147
	141 - □ P	14.1	15	65	107	96	147
	142 - □ P	14.2	15	68	115	100	153
	143 - □ P	14.3	15	68	115	100	153
	144 - □ P	14.4	15	68	115	100	153
	145 - □ P	14.5	15	68	115	100	153
	146 - □ P	14.6	15	68	115	100	153
	147 - □ P	14.7	15	68	115	100	153
	148 - □ P	14.8	15	68	115	100	153
	149 - □ P	14.9	15	68	115	100	153
	150 - □ P	15.0	15	68	115	100	153
	151 - □ P	15.1	16	68	115	100	153
	152 - □ P	15.2	16	70	120	112	160
	153 - □ P	15.3	16	70	120	112	160

ESDP-□P



Terminology	P	M	K	N
Grade	PC325U			FG2
Tolerance (drill Dia.)	h7			
Tolerance (shank Dia.)	h6			
Point angle	140°			135°
Twist angle	30°			
Thinning	X type			
Coolant	External			

P Steel M Stainless steel K Cast iron N Non-ferrous metal

(mm)

Designation		ØD	Ød	5P		7P	
				ℓ	L	ℓ	L
ESDP	154 - □P	15.4	16	70	120	112	160
	155 - □P	15.5	16	70	120	112	160
	156 - □P	15.6	16	70	120	112	160
	157 - □P	15.7	16	70	120	112	160
	158 - □P	15.8	16	70	120	112	160
	159 - □P	15.9	16	70	120	112	160
	160 - □P	16.0	16	70	120	112	160
	161 - □P	16.1	17	70	120	112	160
	162 - □P	16.2	17	70	120	112	160
	163 - □P	16.3	17	70	120	112	160
	164 - □P	16.4	17	70	120	112	160
	165 - □P	16.5	17	72	125	112	160
	166 - □P	16.6	17	72	125	112	160
	167 - □P	16.7	17	72	125	112	160
	168 - □P	16.8	17	72	125	112	160
	169 - □P	16.9	17	72	125	112	160
	170 - □P	17.0	17	72	125	112	160
	171 - □P	17.1	18	72	125	112	160
	172 - □P	17.2	18	72	125	112	160
	173 - □P	17.3	18	72	125	112	160
	174 - □P	17.4	18	72	125	112	160
	175 - □P	17.5	18	75	130	112	160
	176 - □P	17.6	18	75	130	112	160
	177 - □P	17.7	18	75	130	112	160
	178 - □P	17.8	18	75	130	112	160
	179 - □P	17.9	18	75	130	112	160
	180 - □P	18.0	18	75	130	112	160
	181 - □P	18.1	19	75	130	112	160
	182 - □P	18.2	19	75	130	112	160
	183 - □P	18.3	19	75	130	112	160
	184 - □P	18.4	19	75	130	112	160
	185 - □P	18.5	19	78	130	112	160
	186 - □P	18.6	19	78	130	112	160
	187 - □P	18.7	19	78	130	112	160
	188 - □P	18.8	19	78	130	112	160
	189 - □P	18.9	19	78	130	112	160
	190 - □P	19.0	19	78	130	112	160
	191 - □P	19.1	20	78	130	112	160
	192 - □P	19.2	20	78	130	112	160
	193 - □P	19.3	20	78	130	112	160
	194 - □P	19.4	20	78	130	112	160
	195 - □P	19.5	20	82	135	112	160
	196 - □P	19.6	20	82	135	112	160
	197 - □P	19.7	20	82	135	112	160
	198 - □P	19.8	20	82	135	112	160
	199 - □P	19.9	20	82	135	112	160
	200 - □P	20.0	20	82	135	112	160

For Hole Making

Highly precise and efficient top solid indexable drill

TPDB Plus new

- Stable machining increases productivity.
- Optimized flute design and excellent chip evacuation ensure high quality of production.

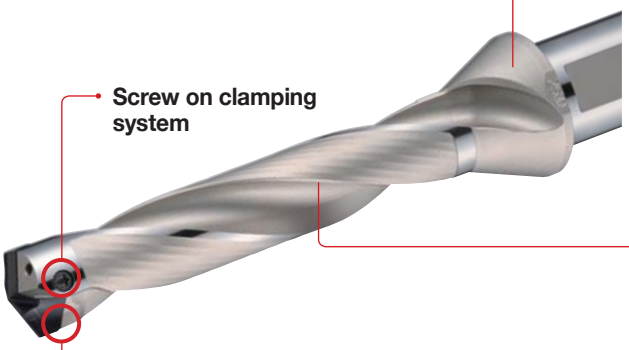
Features

- **Highly precise clamping system**
  - Superior clamping precision with auto-centering system and highly precise grinding clamping parts
- **Screw on clamping system**
  - Easy to replace inserts
- **Sharp cutting edge**
  - Low cutting load and good chip control
- **Holder with excellent durability**
  - Holder with high rigidity and excellent wear resistance due to special surface treatment
- **Holder with excellent chip control**
  - Low cutting resistance and outstanding chip evaluation applying high helix angle

Advanced chip control due to a chip breaker

Cutting edge with low cutting resistance
- Low cutting load and excellent chip control

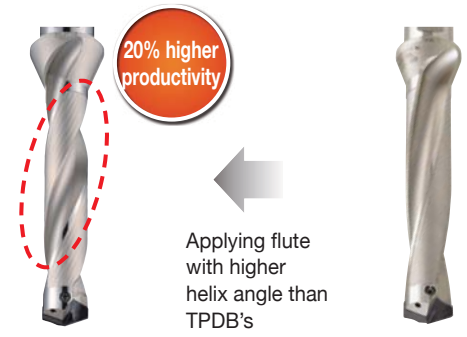
Special surface treatment
- Improved durability of a holder



Screw on clamping system

High helix angle
- **High productivity**
  - Stable chip evacuation realizes stable machinability
  - Improved cutting conditions decrease cycle time.
- **High processing grade**
  - Good surface finish and regular size of the hole

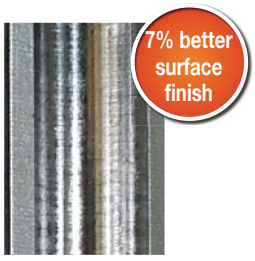
Auto-centering system



[Application Examples]

Alloy steel (42CrMo4)

- **Cutting conditions:** D (mm) = Ø25, vc (m/min) = 120, fn(mm/rev) = 0.35, ap(mm) = 120, wet (20 bar)
- **Tools:** TPDB250-32-5-P(PC5300)

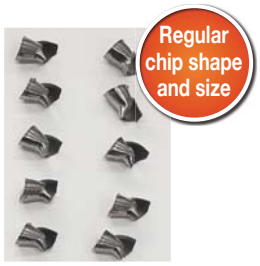


[TPDB Plus]
Ra = 0.542㎛

[Competitor's]
Ra = 0.569㎛

Alloy steel (42CrMo4)

- **Cutting conditions:** D (mm) = Ø25, vc (m/min) = 120, fn(mm/rev) = 0.35, ap(mm) = 120, wet (20 bar)
- **Tools:** TPDB250-32-5-P(PC5300)



[TPDB Plus]

[Competitor's]

Alloy steel (42CrMo4)

- **Cutting conditions:** D (mm) = Ø25, vc (m/min) = 100, fn(mm/rev) = 0.3, ap(mm) = 100, wet (30 bar)
- **Tools:** TPDB250-32-5-P(PC5300)

[TPDB Plus]

[Competitor's]

▶ Improved built up edge and chipping resistance lead stable wear on TPDB Plus insert's edge and obtain longer Max. tool life.

Carbon steel (C45)

- **Cutting conditions:** D (mm) = Ø25, vc (m/min) = 100, fn(mm/rev) = 0.3, ap(mm) = 100, wet (30 bar)
- **Tools:** TPDB250-32-5-P(PC5300)

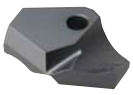
[TPDB Plus]

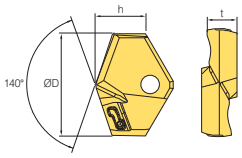
[Competitor's]

▶ Sharper cutting edge than competitor's improves built up edge resistance and tool life.

Available inserts

TPDB





(mm)

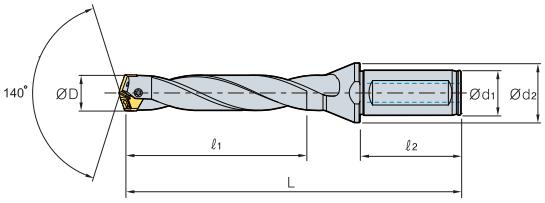
Designation		재 종	ØD	h	t
TPD	100B-109B		10.0-10.9	5.5	3.5
	110B-119B		11.0-11.9	5.8	3.5
	120B-129B		12.0-12.9	6.3	3.5
	130B-139B		13.0-13.9	6.5	4.0
	140B-149B		14.0-14.9	6.8	4.0
	150B-159B		15.0-15.9	7.0	4.0
	160B-169B		16.0-16.9	7.7	5.5
	170B-179B		17.0-17.9	7.9	5.5
	180B-189B		18.0-18.9	8.1	6.0
	190B-199B		19.0-19.9	8.3	6.0
	200B-209B	PC5300	20.0-20.9	9.7	6.5
	210B-219B	PC5335	21.0-21.9	9.4	6.5
	220B-229B	PC330P	22.0-22.9	9.6	7.0
	230B-239B		23.0-23.9	9.8	7.0
	240B-249B		24.0-24.9	10.7	7.5
	250B-259B		25.0-25.9	10.9	7.5
	260B-269B		26.0-26.9	11.0	8.5
	270B-279B		27.0-27.9	11.8	8.5
	280B-289B		28.0-28.9	12.6	9.5
	290B-299B		29.0-29.9	12.9	9.5
	300B-309B		30.0-30.9	13.0	10.0
	310B-319B		31.0-31.9	13.3	10.0
	320B-329B		32.0-32.9	13.5	10.0

▶ Parts

(mm)

Designation		Drill diameter ØD (mm)	Screw	Wrench	Torque (N·m)
TPD	100B-129B	10.0-12.9	FTNB0209-P	TW06P	0.4
	130B-149B	13.0-14.9	FTNB02512-P	TW07S	0.8
	150B-179B	15.0-17.9	FTNB02514-P	TW07S	0.8
	180B-199B	18.0-19.9	FTNB0316-P	TW09S	1.2
	200B-239B	20.0-23.9	FTNB0319	TW09S	1.2
	240B-259B	24.0-25.9	FTNB03522	TW15S	3.0
	260B-279B	26.0-27.9	FTNB03524	TW15S	3.0
	280B-299B	28.0-29.9	FTNB0426	TW15S	3.0
	300B-329B	30.0-32.9	FTNB0528	TW20-100	4.0

TPDB Plus - 3D

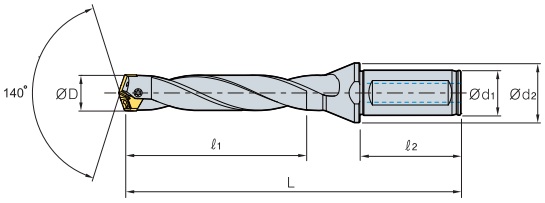


(mm)

Designation		Stock	ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert
TPDB	100-16-3-P	●	10.0-10.4	16	20	30.0	48	95	TPD100B - 104B
	105-16-3-P	●	10.5-10.9	16	20	31.5	48	96	TPD105B - 109B
	110-16-3-P	●	11.0-11.4	16	20	33.0	48	98	TPD110B - 114B
	115-16-3-P	●	11.5-11.9	16	20	34.5	48	99	TPD115B - 119B
	120-16-3-P	●	12.0-12.4	16	20	36.0	48	102	TPD120B - 124B
	125-16-3-P	●	12.5-12.9	16	20	37.5	48	104	TPD125B - 129B
	130-16-3-P	●	13.0-13.4	16	20	39.0	48	107	TPD130B - 134B
	135-16-3-P	●	13.5-13.9	16	20	40.5	48	109	TPD135B - 139B
	140-16-3-P	●	14.0-14.4	16	20	42.0	48	111	TPD140B - 144B
	145-16-3-P	●	14.5-14.9	16	20	43.5	48	114	TPD145B - 149B
	150-20-3-P	●	15.0-15.4	20	25	45.0	50	118	TPD150B - 154B
	155-20-3-P	●	15.5-15.9	20	25	46.5	50	120	TPD155B - 159B
	160-20-3-P	●	16.0-16.4	20	25	48.0	50	122	TPD160B - 164B
	165-20-3-P	●	16.5-16.9	20	25	49.5	50	124	TPD165B - 169B
	170-20-3-P	●	17.0-17.4	20	25	51.0	50	127	TPD170B - 174B
	175-20-3-P	●	17.5-17.9	20	25	52.5	50	129	TPD175B - 179B
	180-25-3-P	●	18.0-18.4	25	33	54.0	56	137	TPD180B - 184B
	185-25-3-P	●	18.5-18.9	25	33	55.5	56	139	TPD185B - 189B
	190-25-3-P	●	19.0-19.4	25	33	57.0	56	142	TPD190B - 194B
	195-25-3-P	●	19.5-19.9	25	33	58.5	56	144	TPD195B - 199B
	200-25-3-P	●	20.0-20.4	25	33	60.0	56	146	TPD200B - 204B
	205-25-3-P	●	20.5-20.9	25	33	61.5	56	148	TPD205B - 209B
	210-25-3-P	●	21.0-21.4	25	33	63.0	60	151	TPD210B - 214B
	215-25-3-P	●	21.5-21.9	25	33	64.5	60	153	TPD215B - 219B
	220-25-3-P	●	22.0-22.4	25	33	66.0	60	155	TPD220B - 224B
	225-25-3-P	●	22.5-22.9	25	33	67.5	60	157	TPD225B - 229B
	230-25-3-P	●	23.0-23.4	25	33	69.0	60	160	TPD230B - 234B
	235-25-3-P	●	23.5-23.9	25	33	70.5	60	162	TPD235B - 239B
	240-32-3-P	●	24.0-24.4	32	43	72.0	60	168	TPD240B - 244B
	245-32-3-P	●	24.5-24.9	32	43	73.5	60	170	TPD245B - 249B
	250-32-3-P	●	25.0-25.4	32	43	75.0	60	173	TPD250B - 254B
	255-32-3-P	●	25.5-25.9	32	43	76.5	60	175	TPD255B - 259B
	260-32-3-P	●	26.0-26.9	32	43	78.0	60	177	TPD260B - 269B
	270-32-3-P	●	27.0-27.9	32	43	81.0	60	182	TPD270B - 279B
	280-32-3-P	●	28.0-28.9	32	43	84.0	60	186	TPD280B - 289B
	290-32-3-P	●	29.0-29.9	32	43	87.0	60	191	TPD290B - 299B
	300-32-3-P	●	30.0-30.9	32	43	90.0	60	195	TPD300B - 309B
	310-32-3-P	●	31.0-31.9	32	43	93.0	60	200	TPD310B - 319B
	320-32-3-P	●	32.0-32.9	32	43	96.0	60	204	TPD320B - 329B

※ Available inserts: 258page ● : Stock items

TPDB Plus - 5D



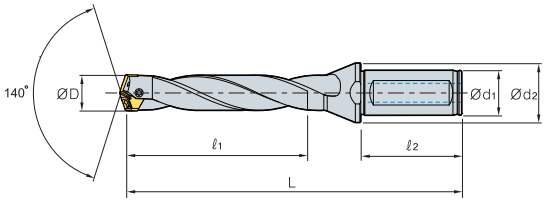
(mm)

Designation		Stock	ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert
TPDB	100-16-5-P	●	10.0-10.4	16	20	50.0	48	115	TPD100B - 104B
	105-16-5-P	●	10.5-10.9	16	20	52.5	48	117	TPD105B - 109B
	110-16-5-P	●	11.0-11.4	16	20	55.0	48	120	TPD110B - 114B
	115-16-5-P	●	11.5-11.9	16	20	57.5	48	123	TPD115B - 119B
	120-16-5-P	●	12.0-12.4	16	20	60.0	48	126	TPD120B - 124B
	125-16-5-P	●	12.5-12.9	16	20	62.5	48	129	TPD125B - 129B
	130-16-5-P	●	13.0-13.4	16	20	65.0	48	133	TPD130B - 134B
	135-16-5-P	●	13.5-13.9	16	20	67.5	48	136	TPD135B - 139B
	140-16-5-P	●	14.0-14.4	16	20	70.0	48	139	TPD140B - 144B
	145-16-5-P	●	14.5-14.9	16	20	72.5	48	143	TPD145B - 149B
	150-20-5-P	●	15.0-15.4	20	25	75.0	50	148	TPD150B - 154B
	155-20-5-P	●	15.5-15.9	20	25	77.5	50	151	TPD155B - 159B
	160-20-5-P	●	16.0-16.4	20	25	80.0	50	154	TPD160B - 164B
	165-20-5-P	●	16.5-16.9	20	25	82.5	50	157	TPD165B - 169B
	170-20-5-P	●	17.0-17.4	20	25	85.0	50	161	TPD170B - 174B
	175-20-5-P	●	17.5-17.9	20	25	87.5	50	164	TPD175B - 179B
	180-25-5-P	●	18.0-18.4	25	33	90.0	56	173	TPD180B - 184B
	185-25-5-P	●	18.5-18.9	25	33	92.5	56	176	TPD185B - 189B
	190-25-5-P	●	19.0-19.4	25	33	95.0	56	180	TPD190B - 194B
	195-25-5-P	●	19.5-19.9	25	33	97.5	56	183	TPD195B - 199B
	200-25-5-P	●	20.0-20.4	25	33	100.0	56	186	TPD200B - 204B
	205-25-5-P	●	20.5-20.9	25	33	102.5	56	189	TPD205B - 209B
	210-25-5-P	●	21.0-21.4	25	33	105.0	60	193	TPD210B - 214B
	215-25-5-P	●	21.5-21.9	25	33	107.5	60	196	TPD215B - 219B
	220-25-5-P	●	22.0-22.4	25	33	110.0	60	199	TPD220B - 224B
	225-25-5-P	●	22.5-22.9	25	33	112.5	60	202	TPD225B - 229B
	230-25-5-P	●	23.0-23.4	25	33	115.0	60	206	TPD230B - 234B
	235-25-5-P	●	23.5-23.9	25	33	117.5	60	209	TPD235B - 239B
	240-32-5-P	●	24.0-24.4	32	43	120.0	60	216	TPD240B - 244B
	245-32-5-P	●	24.5-24.9	32	43	122.5	60	219	TPD245B - 249B
	250-32-5-P	●	25.0-25.4	32	43	125.0	60	223	TPD250B - 254B
	255-32-5-P	●	25.5-25.9	32	43	127.5	60	226	TPD255B - 259B
	260-32-5-P	●	26.0-26.9	32	43	130.0	60	229	TPD260B - 269B
	270-32-5-P	●	27.0-27.9	32	43	135.0	60	236	TPD270B - 279B
	280-32-5-P	●	28.0-28.9	32	43	140.0	60	242	TPD280B - 289B
	290-32-5-P	●	29.0-29.9	32	43	145.0	60	249	TPD290B - 299B
	300-32-5-P	●	30.0-30.9	32	43	150.0	60	255	TPD300B - 309B
	310-32-5-P	●	31.0-31.9	32	43	155.0	60	262	TPD310B - 319B
	320-32-5-P	●	32.0-32.9	32	43	160.0	60	268	TPD320B - 329B

※ Available inserts: 258page

● : Stock items

TPDB Plus - 8D

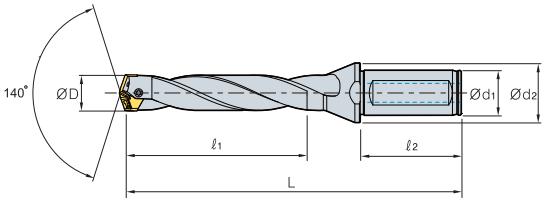


(mm)

Designation		Stock	ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert
TPDB	100-16-8-P	●	10.0-10.4	16	20	80	48	145	TPD100B - 104B
	105-16-8-P	●	10.5-10.9	16	20	84	48	149	TPD105B - 109B
	110-16-8-P	●	11.0-11.4	16	20	88	48	153	TPD110B - 114B
	115-16-8-P	●	11.5-11.9	16	20	92	48	157	TPD115B - 119B
	120-16-8-P	●	12.0-12.4	16	20	96	48	162	TPD120B - 124B
	125-16-8-P	●	12.5-12.9	16	20	100	48	166.5	TPD125B - 129B
	130-16-8-P	●	13.0-13.4	16	20	104	48	172	TPD130B - 134B
	135-16-8-P	●	13.5-13.9	16	20	108	48	176.5	TPD135B - 139B
	140-16-8-P	●	14.0-14.4	16	20	112	48	181	TPD140B - 144B
	145-16-8-P	●	14.5-14.9	16	20	116	48	186.5	TPD145B - 149B
	150-20-8-P	●	15.0-15.4	20	25	120	50	193	TPD150B - 154B
	155-20-8-P	●	15.5-15.9	20	25	124	50	197.5	TPD155B - 159B
	160-20-8-P	●	16.0-16.4	20	25	128	50	202	TPD160B - 164B
	165-20-8-P	●	16.5-16.9	20	25	132	50	206.5	TPD165B - 169B
	170-20-8-P	●	17.0-17.4	20	25	136	50	212	TPD170B - 174B
	175-20-8-P	●	17.5-17.9	20	25	140	50	216.5	TPD175B - 179B
	180-25-8-P	●	18.0-18.4	25	33	144	56	227	TPD180B - 184B
	185-25-8-P	●	18.5-18.9	25	33	148	56	231.5	TPD185B - 189B
	190-25-8-P	●	19.0-19.4	25	33	152	56	237	TPD190B - 194B
	195-25-8-P	●	19.5-19.9	25	33	156	56	241.5	TPD195B - 199B
	200-25-8-P	●	20.0-20.4	25	33	160	56	246	TPD200B - 204B
	205-25-8-P	●	20.5-20.9	25	33	164	56	250.5	TPD205B - 209B
	210-25-8-P	●	21.0-21.4	25	33	168	60	256	TPD210B - 214B
	215-25-8-P	●	21.5-21.9	25	33	172	60	260.5	TPD215B - 219B
	220-25-8-P	●	22.0-22.4	25	33	176	60	265	TPD220B - 224B
	225-25-8-P	●	22.5-22.9	25	33	180	60	269.5	TPD225B - 229B
	230-25-8-P	●	23.0-23.4	25	33	184	60	275	TPD230B - 234B
	235-25-8-P	●	23.5-23.9	25	33	188	60	279.5	TPD235B - 239B
	240-32-8-P	●	24.0-24.4	32	43	192	60	288	TPD240B - 244B
	245-32-8-P	●	24.5-24.9	32	43	196	60	292.5	TPD245B - 249B
	250-32-8-P	●	25.0-25.4	32	43	200	60	298	TPD250B - 254B
	255-32-8-P	●	25.5-25.9	32	43	204	60	302.5	TPD255B - 259B
	260-32-8-P	●	26.0-26.9	32	43	208	60	307	TPD260B - 269B
	270-32-8-P	●	27.0-27.9	32	43	216	60	317	TPD270B - 279B
	280-32-8-P	●	28.0-28.9	32	43	224	60	326	TPD280B - 289B
	290-32-8-P	●	29.0-29.9	32	43	232	60	336	TPD290B - 299B
	300-32-8-P	●	30.0-30.9	32	43	240	60	344	TPD300B - 309B
	310-32-8-P	●	31.0-31.9	32	43	248	60	354	TPD310B - 319B
	320-32-8-P	●	32.0-32.9	32	43	256	60	361	TPD320B - 329B

※ Available inserts: 258page ● : Stock items

TPDB Plus - 10D



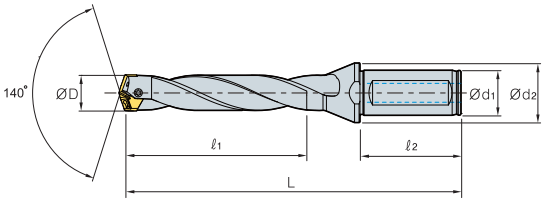
(mm)

Designation		Stock	ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert
TPDB	100-16-10-P		10.0-10.4	16	20	100	48	165	TPD100B - 104B
	105-16-10-P		10.5-10.9	16	20	105	48	170	TPD105B - 109B
	110-16-10-P		11.0-11.4	16	20	110	48	175	TPD110B - 114B
	115-16-10-P		11.5-11.9	16	20	115	48	180	TPD115B - 119B
	120-16-10-P		12.0-12.4	16	20	120	48	186	TPD120B - 124B
	125-16-10-P		12.5-12.9	16	20	125	48	191.5	TPD125B - 129B
	130-16-10-P		13.0-13.4	16	20	130	48	198	TPD130B - 134B
	135-16-10-P		13.5-13.9	16	20	135	48	203.5	TPD135B - 139B
	140-16-10-P		14.0-14.4	16	20	140	48	209	TPD140B - 144B
	145-16-10-P		14.5-14.9	16	20	145	48	215.5	TPD145B - 149B
	150-20-10-P		15.0-15.4	20	25	150	50	223	TPD150B - 154B
	155-20-10-P		15.5-15.9	20	25	155	50	228.5	TPD155B - 159B
	160-20-10-P		16.0-16.4	20	25	160	50	234	TPD160B - 164B
	165-20-10-P		16.5-16.9	20	25	165	50	239.5	TPD165B - 169B
	170-20-10-P		17.0-17.4	20	25	170	50	246	TPD170B - 174B
	175-20-10-P		17.5-17.9	20	25	175	50	251.5	TPD175B - 179B
	180-25-10-P		18.0-18.4	25	33	180	56	263	TPD180B - 184B
	185-25-10-P		18.5-18.9	25	33	185	56	268.5	TPD185B - 189B
	190-25-10-P		19.0-19.4	25	33	190	56	275	TPD190B - 194B
	195-25-10-P		19.5-19.9	25	33	195	56	280.5	TPD195B - 199B
	200-25-10-P		20.0-20.4	25	33	200	56	286	TPD200B - 204B
	205-25-10-P		20.5-20.9	25	33	205	56	291.5	TPD205B - 209B
	210-25-10-P		21.0-21.4	25	33	210	60	298	TPD210B - 214B
	215-25-10-P		21.5-21.9	25	33	215	60	303.5	TPD215B - 219B
	220-25-10-P		22.0-22.4	25	33	220	60	309	TPD220B - 224B
	225-25-10-P		22.5-22.9	25	33	225	60	314.5	TPD225B - 229B
	230-25-10-P		23.0-23.4	25	33	230	60	321	TPD230B - 234B
	235-25-10-P		23.5-23.9	25	33	235	60	326.5	TPD235B - 239B
	240-32-10-P		24.0-24.4	32	43	240	60	336	TPD240B - 244B
	245-32-10-P		24.5-24.9	32	43	245	60	341.5	TPD245B - 249B
	250-32-10-P		25.0-25.4	32	43	250	60	348	TPD250B - 254B
	255-32-10-P		25.5-25.9	32	43	255	60	353.5	TPD255B - 259B
	260-32-10-P		26.0-26.9	32	43	260	60	359	TPD260B - 269B
	270-32-10-P		27.0-27.9	32	43	270	60	371	TPD270B - 279B
	280-32-10-P		28.0-28.9	32	43	280	60	382	TPD280B - 289B
	290-32-10-P		29.0-29.9	32	43	290	60	394	TPD290B - 299B
	300-32-10-P		30.0-30.9	32	43	300	60	404	TPD300B - 309B
	310-32-10-P		31.0-31.9	32	43	310	60	416	TPD310B - 319B
	320-32-10-P		32.0-32.9	32	43	320	60	425	TPD320B - 329B

※Available inserts: 258page

● : Stock items

TPDB Plus - 12D



(mm)

Designation		Stock	ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert
TPDB	100-16-12-P		10.0-10.4	16	20	120	48	185	TPD100B - 104B
	105-16-12-P		10.5-10.9	16	20	126	48	191	TPD105B - 109B
	110-16-12-P		11.0-11.4	16	20	132	48	197	TPD110B - 114B
	115-16-12-P		11.5-11.9	16	20	138	48	203	TPD115B - 119B
	120-16-12-P		12.0-12.4	16	20	144	48	210	TPD120B - 124B
	125-16-12-P		12.5-12.9	16	20	150	48	216.5	TPD125B - 129B
	130-16-12-P		13.0-13.4	16	20	156	48	224	TPD130B - 134B
	135-16-12-P		13.5-13.9	16	20	162	48	230.5	TPD135B - 139B
	140-16-12-P		14.0-14.4	16	20	168	48	237	TPD140B - 144B
	145-16-12-P		14.5-14.9	16	20	174	48	244.5	TPD145B - 149B
	150-20-12-P		15.0-15.4	20	25	180	50	253	TPD150B - 154B
	155-20-12-P		15.5-15.9	20	25	186	50	259.5	TPD155B - 159B
	160-20-12-P		16.0-16.4	20	25	192	50	266	TPD160B - 164B
	165-20-12-P		16.5-16.9	20	25	198	50	272.5	TPD165B - 169B
	170-20-12-P		17.0-17.4	20	25	204	50	280	TPD170B - 174B
	175-20-12-P		17.5-17.9	20	25	210	50	286.5	TPD175B - 179B
	180-25-12-P		18.0-18.4	25	33	216	56	299	TPD180B - 184B
	185-25-12-P		18.5-18.9	25	33	222	56	305.5	TPD185B - 189B
	190-25-12-P		19.0-19.4	25	33	228	56	313	TPD190B - 194B
	195-25-12-P		19.5-19.9	25	33	234	56	319.5	TPD195B - 199B
	200-25-12-P		20.0-20.4	25	33	240	56	326	TPD200B - 204B
	205-25-12-P		20.5-20.9	25	33	246	56	332.5	TPD205B - 209B
	210-25-12-P		21.0-21.4	25	33	252	60	340	TPD210B - 214B
	215-25-12-P		21.5-21.9	25	33	258	60	346.5	TPD215B - 219B
	220-25-12-P		22.0-22.4	25	33	264	60	353	TPD220B - 224B
	225-25-12-P		22.5-22.9	25	33	270	60	359.5	TPD225B - 229B
	230-25-12-P		23.0-23.4	25	33	276	60	367	TPD230B - 234B
	235-25-12-P		23.5-23.9	25	33	282	60	373.5	TPD235B - 239B
	240-32-12-P		24.0-24.4	32	43	288	60	384	TPD240B - 244B
	245-32-12-P		24.5-24.9	32	43	294	60	390.5	TPD245B - 249B
	250-32-12-P		25.0-25.4	32	43	300	60	398	TPD250B - 254B
	255-32-12-P		25.5-25.9	32	43	306	60	404.5	TPD255B - 259B
	260-32-12-P		26.0-26.9	32	43	312	60	411	TPD260B - 269B
	270-32-12-P		27.0-27.9	32	43	324	60	425	TPD270B - 279B
	280-32-12-P		28.0-28.9	32	43	336	60	438	TPD280B - 289B
	290-32-12-P		29.0-29.9	32	43	348	60	452	TPD290B - 299B
	300-32-12-P		30.0-30.9	32	43	360	60	464	TPD300B - 309B
	310-32-12-P		31.0-31.9	32	43	372	60	478	TPD310B - 319B
	320-32-12-P		32.0-32.9	32	43	384	60	489	TPD320B - 329B

※ Available inserts: 258page ● : Stock items

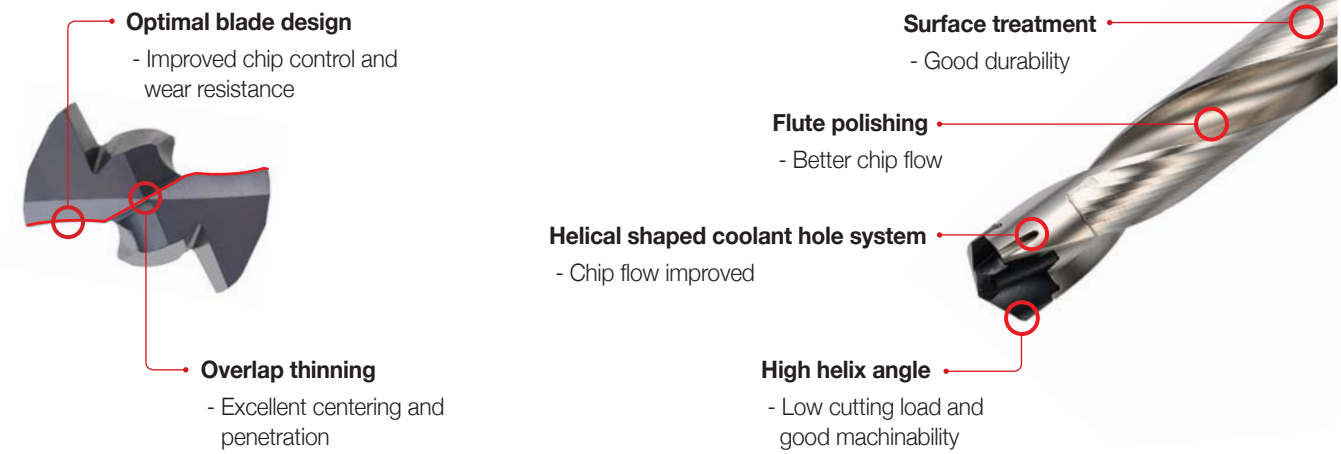
For Hole Making

Cone shaped head indexable drill

TPDC

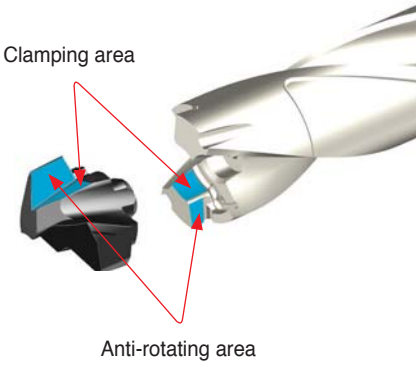
- One step clamp system - Increased stability
- Clamping system allowing to change inserts while the holder is attached on the machine - Shortened setting time
- Excellent chip control - Possibility to use for various types of workpieces
- Wide chip pocket area secured - Better lubrication + chip flow improved
- Ultra-fine substrate + Multi-layer coating applied - Excellent anti chipping & wear resistance

Features

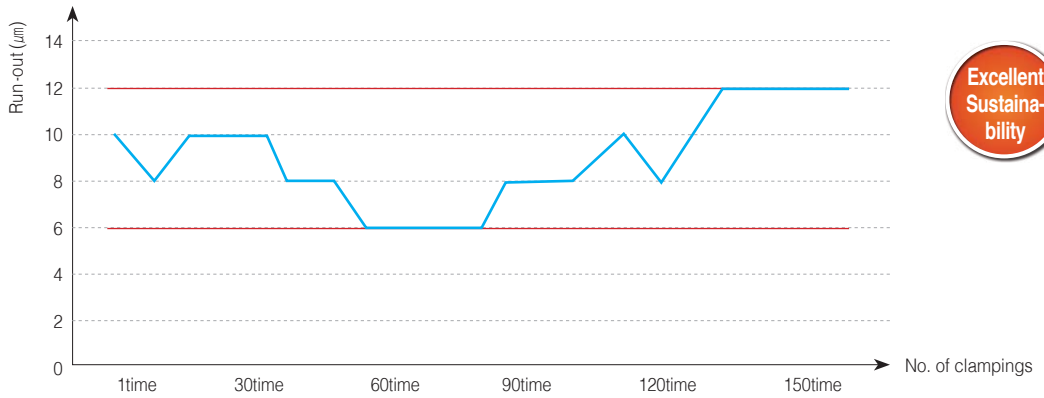


Features of clamping system

- **One Step Clamp System**
  - Easy and quick tool change with good repeatability
  - Clamping area: Easy and fast tool change
  - Anti-rotating area: Performs as a stopper
  - Clamping and anti-rotating area make an acute angle to prevent insert rotation while machining



Sustainability test



After clamping 150 times, the drill run-out remains

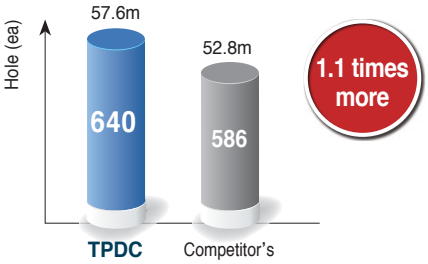
[Application Examples]

Alloy steel (SCM440, HRC22)

- **Workpiece use:** Part of machine
- **Cutting conditions:** D (mm) = Ø19.0, vc (m/min) = 100, fn (mm/rev) = 0.3, ap (mm) = 90, wet
- **Tools:** **Insert** TPD1900CP (PC5335) **Holder** TPDC5D-19025-95

[TPDC]

[Competitor's]



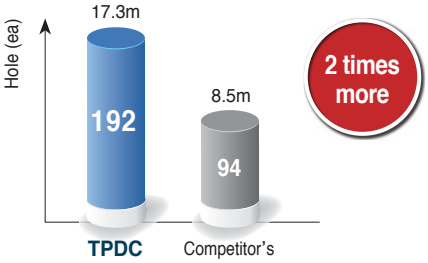
Lubricative multi layer coating prevents chipping on cutting edges.

Carbon steel (SM490A, HRC20)

- **Workpiece use:** Part of welding machine
- **Cutting conditions:** D (mm) = Ø19.0, vc (m/min) = 100, fn (mm/rev) = 0.2, ap (mm) = 90, wet
- **Tools:** **Insert** TPD1900CP (PC5335) **Holder** TPDC5D-19025-95

[TPDC]

[Competitor's]



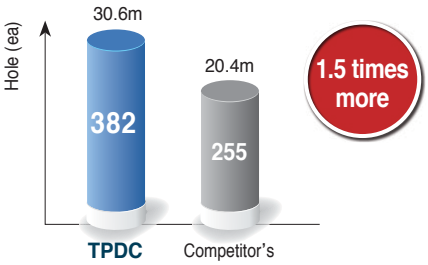
Optimized blade design secures better chip flow and chip geometry.

Carbon steel (SM45C, HRC19)

- **Workpiece use:** Part of machine
- **Cutting conditions:** D (mm) = Ø17.0, vc (m/min) = 110, fn (mm/rev) = 0.25, ap (mm) = 80, wet
- **Tools:** **Insert** TPD1700CP (PC5335) **Holder** TPDC5D-17020-85

[TPDC]

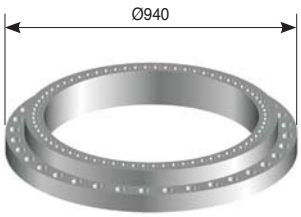
[Competitor's]

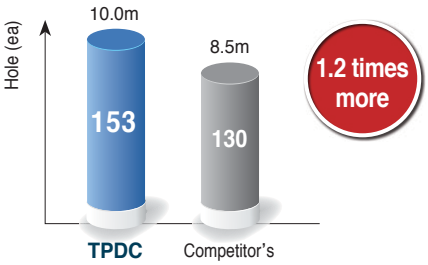


Lubricative multi layer coating enhances wear resistance.

Carbon steel (SM45C, HRC40)

- **Workpiece use:** Part of machine
- **Cutting conditions:** D (mm) = Ø18.0, vc (m/min) = 60, fn (mm/rev) = 0.15, ap (mm) = 65, wet
- **Tools:** **Insert** TPD1800CP (PC5335) **Holder** TPDC5D-18025-90

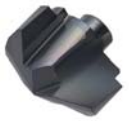


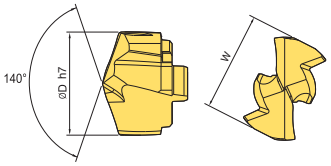


Lubricative multi layer coating enhances wear resistance.

Available inserts

TPDC





(mm)

Designation		Drill dia. (ØD)	W	Coated PC5335	Uncoated H01	Holder	Wrench
TPD	1200CP,N	12.0	11.4	●		TPDC(3, 5, 8)D-12016-(36, 60, 96)	TPDC-W12
	1220CP,N	12.2					
	1250CP,N	12.5				TPDC(3, 5, 8)D-12516-(38, 63, 100)	
	1260CP,N	12.6					
	1300CP,N	13.0	12.3	●		TPDC(3, 5, 8)D-13016-(39, 65, 104)	TPDC-W13
	1350CP,N	13.5				TPDC(3, 5, 8)D-13516-(41, 68, 108)	
	1400CP,N	14.0	13.4	●		TPDC(3, 5, 8)D-14016-(42, 70, 112)	TPDC-W14
	1420CP,N	14.2					
	1430CP,N	14.3					
	1450CP,N	14.5				TPDC(3, 5, 8)D-14516-(44, 73, 116)	
	1500CP,N	15.0	14.3	●		TPDC(3, 5, 8)D-15020-(45, 75, 120)	TPDC-W15
	1550CP,N	15.5					
	1600CP,N	16.0	15.3	●		TPDC(3, 5, 8)D-16020-(48, 80, 128)	TPDC-W16
	1630CP,N	16.3					
	1650CP,N	16.5					
	1670CP,N	16.7					
	1700CP,N	17.0	16.3	●		TPDC(3, 5, 8)D-17020-(51, 85, 136)	TPDC-W17
	1750CP,N	17.5					
	1770CP,N	17.7					
	1800CP,N	18.0	17.3	●		TPDC(3, 5, 8)D-18025-(54, 90, 144)	TPDC-W18
	1810CP,N	18.1					
	1850CP,N	18.5					
	1860CP,N	18.6					
	1870CP,N	18.7					
	1900CP,N	19.0	18.3	●		TPDC(3, 5, 8)D-19025-(57, 95, 152)	TPDC-W19
	1920CP,N	19.2					
	1950CP,N	19.5					
	1970CP,N	19.7					
	2000CP,N	20.0	19.2	●		TPDC(3,5,8)D-20025-(60,100,160)	TPDC-W20
	2050CP,N	20.5					
	2100CP,N	21.0	20.1	●		TPDC(3,5,8)D-21025-(63,105,168)	TPDC-W21
	2150CP,N	21.5					
	2200CP,N	22.0	21	●		TPDC(3,5,8)D-22025-(66,110,176)	TPDC-W22
	2250CP,N	22.5					
	2260CP,N	22.6					
	2270CP,N	22.7					
	2300CP,N	23.0	21.9	●		TPDC(3,5,8)D-23025-(69,115,184)	TPDC-W23
	2350CP,N	23.5					
	2400CP,N	24.0	22.9	●		TPDC(3,5,8)D-24032-(72,120,192)	TPDC-W24
	2450CP,N	24.5					
	2500CP,N	25.0	23.9	●		TPDC(3,5,8)D-25032-(75,125,200)	TPDC-W25
	2530CP,N	25.3					
	2550CP,N	25.5					
	2580CP,N	25.8					
	2590CP,N	25.9					
	2600CP,N	26.0	24.9	●		TPDC(3, 5, 8)D-26032-(78,130,208)	TPDC-W26
	2650CP,N	26.5					
	2700CP,N	27.0	25.9	●		TPDC(3, 5, 8)D-27032-(81,135,216)	TPDC-W27
	2750CP,N	27.5					
	2800CP,N	28.0	26.9	●		TPDC(3, 5, 8)D-28032-(84,140,224)	TPDC-W28
	2850CP,N	28.5					
	2900CP,N	29.0	27.9	●		TPDC(3, 5, 8)D-29032-(87,145,232)	TPDC-W29
	2950CP,N	29.5					
	3000CP,N	30.0	28.9	●		TPDC(3, 5, 8)D-30032-(90,150,240)	TPDC-W30
	3050CP,N	30.5					

※ Nonstock items: order made items are available. (ex. Ø15.4 ···› designation: TPD1540CP / grade: PC5335)　　● : Stock items

▶ Parts (Recommended torque per wrench)

※ The shank is based on DIN6535 and ISO9677

(mm)

Designation	Drill dia. (ØD)	Torque (N.m)
TPDC-W12	12	2.5
TPDC-W13	13	2.5
TPDC-W14	14	2.5
TPDC-W15	15	2.5
TPDC-W16	16	2.5
TPDC-W17	17	2.5

Designation	Drill dia. (ØD)	Torque (N.m)
TPDC-W18	18	2.5
TPDC-W19	19	2.5
TPDC-W20	20	3.5
TPDC-W21	21	3.5
TPDC-W22	22	3.5
TPDC-W23	23	3.5

Designation	Drill dia. (ØD)	Torque (N.m)
TPDC-W24	24	3.5
TPDC-W25	25	3.5
TPDC-W26	26	5.5
TPDC-W27	27	5.5
TPDC-W28	28	5.5
TPDC-W29	29	5.5
TPDC-W30	30	5.5

TPDC3D/5D/8D

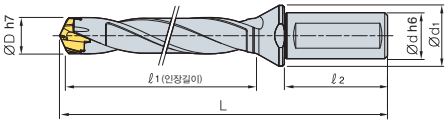


Fig.1

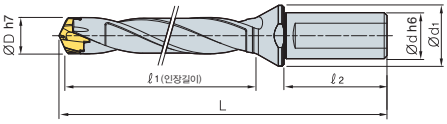


Fig.2

(mm)

Designation		ØD	Ød	Ød1	ℓ1	ℓ2	L	Insert	Fig.
TPDC	3D-12016-36	12.00~12.49	16	20	36	48	99	TPD1200C□-1249C□	1
	3D-12516-38	12.50~12.99	16	20	38	48	101	TPD1250C□-1299C□	1
	3D-13016-39	13.00~13.49	16	20	39	48	103	TPD1300C□-1349C□	1
	3D-13516-41	13.50~13.99	16	20	41	48	105	TPD1350C□-1399C□	1
	3D-14016-42	14.00~14.49	16	20	42	48	106	TPD1400C□-1449C□	1
	3D-14516-44	14.50~14.99	16	20	44	48	107	TPD1450C□-1499C□	1
	3D-15020-45	15.00~15.99	20	25	45	50	113	TPD1500C□-1599C□	2
	3D-16020-48	16.00~16.99	20	25	48	50	117	TPD1600C□-1699C□	2
	3D-17020-51	17.00~17.99	20	25	51	50	120	TPD1700C□-1799C□	2
	3D-18025-54	18.00~18.99	25	33	54	56	132	TPD1800C□-1899C□	2
	3D-19025-57	19.00~19.99	25	33	57	56	135	TPD1900C□-1999C□	2
	3D-20025-60	20.00~20.99	25	33	60	56	138	TPD2000C□-2099C□	2
	3D-21025-63	21.00~21.99	25	33	63	56	141	TPD2100C□-2199C□	2
	3D-22025-66	22.00~22.99	25	33	66	56	145	TPD2200C□-2299C□	2
	3D-23025-69	23.00~23.99	25	33	69	56	149	TPD2300C□-2399C□	2
	3D-24032-72	24.00~24.99	32	43	72	60	159	TPD2400C□-2499C□	2
	3D-25032-75	25.00~25.99	32	43	75	60	162	TPD2500C□-2599C□	2
	3D-26032-78	26.00~26.99	32	43	78	60	173	TPD2600C□-2699C□	2
	3D-27032-81	27.50~27.99	32	43	81	60	176	TPD2700C□-2799C□	2
	3D-28032-84	28.00~28.99	32	43	84	60	180	TPD2800C□-2899C□	2
	3D-29032-87	29.50~29.99	32	43	87	60	185	TPD2900C□-2999C□	2
	3D-30032-90	30.00~30.99	32	43	90	60	188	TPD3000C□-3099C□	2
	5D-12016-60	12.00~12.49	16	20	60	48	123	TPD1200C□-1249C□	1
	5D-12516-63	12.50~12.99	16	20	63	48	126	TPD1250C□-1299C□	1
	5D-13016-65	13.00~13.49	16	20	65	48	129	TPD1300C□-1349C□	1
	5D-13516-68	13.50~13.99	16	20	68	48	132	TPD1350C□-1399C□	1
	5D-14016-70	14.00~14.49	16	20	70	48	134	TPD1400C□-1449C□	1
	5D-14516-73	14.50~14.99	16	20	73	48	136	TPD1450C□-1499C□	1
	5D-15020-75	15.00~15.99	20	25	75	50	143	TPD1500C□-1599C□	2
	5D-16020-80	16.00~16.99	20	25	80	50	149	TPD1600C□-1699C□	2
	5D-17020-85	17.00~17.99	20	25	85	50	154	TPD1700C□-1799C□	2
	5D-18025-90	18.00~18.99	25	33	90	56	168	TPD1800C□-1899C□	2
	5D-19025-95	19.00~19.99	25	33	95	56	173	TPD1900C□-1999C□	2
	5D-20025-100	20.00~20.99	25	33	100	56	178	TPD2000C□-2099C□	2
	5D-21025-105	21.00~21.99	25	33	105	56	183	TPD2100C□-2199C□	2
	5D-22025-110	22.00~22.99	25	33	110	56	189	TPD2200C□-2299C□	2
	5D-23025-115	23.00~23.99	25	33	115	56	195	TPD2300C□-2399C□	2
	5D-24032-120	24.00~24.99	32	43	120	60	207	TPD2400C□-2499C□	2
	5D-25032-125	25.00~25.99	32	43	125	60	212	TPD2500C□-2599C□	2
	5D-26032-130	26.00~26.99	32	43	130	60	225	TPD2600C□-2699C□	2
	5D-27032-135	27.00~27.99	32	43	135	60	230	TPD2700C□-2799C□	2
	5D-28032-140	28.00~28.99	32	43	140	60	236	TPD2800C□-2899C□	2
	5D-29032-145	29.00~29.99	32	43	145	60	243	TPD2900C□-2999C□	2
	5D-30032-150	30.00~30.99	32	43	150	60	248	TPD3000C□-3099C□	2
	8D-12016-96	12.00~12.49	16	20	96	48	159	TPD1200C□-1249C□	1
	8D-12516-100	12.50~12.99	16	20	100	48	163	TPD1250C□-1299C□	1
	8D-13016-104	13.00~13.49	16	20	104	48	168	TPD1300C□-1349C□	1
	8D-13516-108	13.50~13.99	16	20	108	48	173	TPD1350C□-1399C□	1
	8D-14016-112	14.00~14.49	16	20	112	48	176	TPD1400C□-1449C□	1
	8D-14516-116	14.50~14.99	16	20	116	48	180	TPD1450C□-1499C□	1
	8D-15020-120	15.00~15.99	20	25	120	50	188	TPD1500C□-1599C□	2
	8D-16020-128	16.00~16.99	20	25	128	50	197	TPD1600C□-1699C□	2
	8D-17020-136	17.00~17.99	20	25	136	50	205	TPD1700C□-1799C□	2
	8D-18025-144	18.00~18.99	25	33	144	56	222	TPD1800C□-1899C□	2
	8D-19025-152	19.00~19.99	25	33	152	56	230	TPD1900C□-1999C□	2
	8D-20025-160	20.00~20.99	25	33	160	56	238	TPD2000C□-2099C□	2
	8D-21025-168	21.00~21.99	25	33	168	56	246	TPD2100C□-2199C□	2
	8D-22025-176	22.00~22.99	25	33	176	56	255	TPD2200C□-2299C□	2
	8D-23025-184	23.00~23.99	25	33	184	56	264	TPD2300C□-2399C□	2
	8D-24032-192	24.00~24.99	32	43	192	60	279	TPD2400C□-2499C□	2
	8D-25032-200	25.00~25.99	32	43	200	60	287	TPD2500C□-2599C□	2
	8D-26032-208	26.00~26.99	32	43	208	60	303	TPD2600C□-2699C□	2
	8D-27032-216	27.00~27.99	32	43	216	60	311	TPD2700C□-2799C□	2
	8D-28032-224	28.00~28.99	32	43	224	60	320	TPD2800C□-2899C□	2
	8D-29032-232	29.00~29.99	32	43	232	60	330	TPD2900C□-2999C□	2
	8D-30032-240	30.00~30.99	32	43	240	60	338	TPD3000C□-3099C□	2

※ Available inserts: 267page

※ The shank is based on DIN6535 and ISO9677

For Hole Making

Optimized insert design for maximum drilling efficiency

King Drill

- Excellent cutting performance and chip control due to the optimized geometry and chip breaker of both inserts, central & peripheral
- The optimized shape of the flute increases the rigidity of the drill body and improves chip evacuation

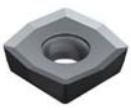
Features

- **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
  - Different inserts, optimized for the central and peripheral insert locations in order to maximize cutting tool life

Optimized flute system - 2 coolant holes applied

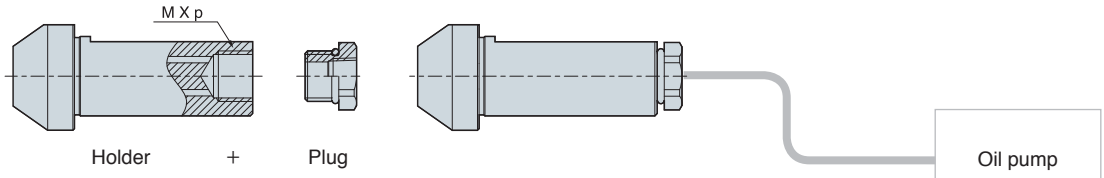
- The optimized shape of the flute increases the rigidity of the drill body and improves chip evacuation

Features of chip breaker

Chip breaker	PD		LD		ND		RD
Features	- Universal - At medium speed and medium feed		- Superior chip control for machining mild steel and stainless steel - Light cutting (at low ~ medium speed and low feed)		- Sharp cutting edge for aluminum machining - Insert surface buffed for high quality result - E Class Tolerance		- Improved chipping resistance - Excellent performance in case of frequent fracture and chipping on the cutting edge
Insert	Peripheral insert	Central insert	Peripheral insert	Central insert	Peripheral insert	Central insert	Central insert
Shape							
Grades for workpiece	NC5330: P, M, K PC3500: P PC5300: P, M, K, S PC6510: K	PC5300: P, M, K, S	PC5335: P, M		H01: N		PC5300: P,M,K,S

King Drill (For through coolant system with a lathe)

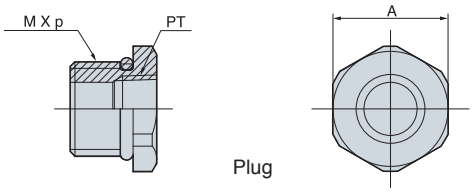
- **Drill with through coolant system for general lathe and CNC lathe without through coolant system**
  - Through coolant system with drill holder, plug, oil-hole hose and oil-hole pump
  - PT TAP in the plug is combined to PT TAP connected to oil hose
  - Available to use the drill without a plug in milling machine



• Clamping oil hose to the bottom of plug and connect the oil pump to the holder

(mm)

Tap type	Diameter	Shank dia.	M x p	Plug
K□D120~16020HP-□□	Ø12.0~Ø16.0	Ø20	M12x1.5	PLG12PT18
K□D161~23525HP-□□	Ø16.1~Ø23.5	Ø25	M16x1.5	PLG16PT18
K□D236~35532HP-□□	Ø23.6~Ø35.5	Ø32	M20x2.0	PLG20PT14
K□D356~60940HP-□□	Ø35.6~Ø60.5	Ø40	M27x2.0	PLG27PT38



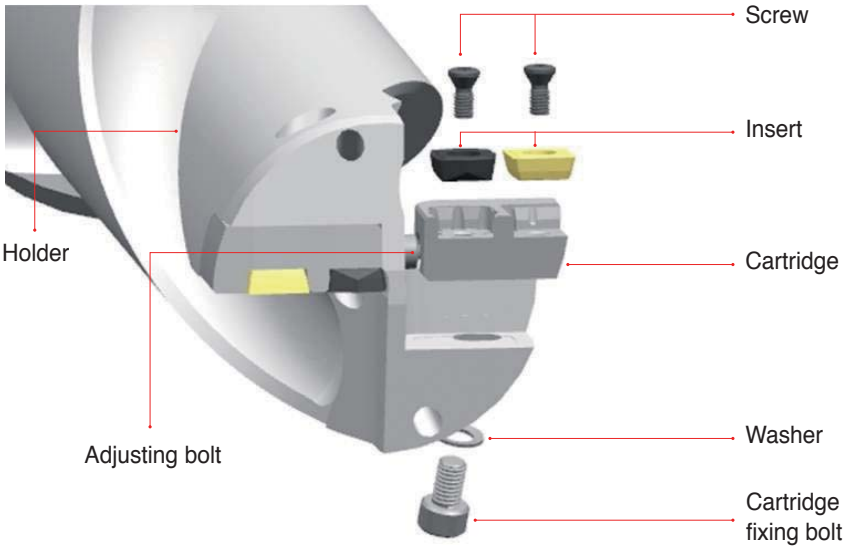
• Plug is assembled

Plug type	M x p	PT tap	A
PLG12PT18	M12x1.5	1/8	16
PLG16PT18	M16x1.5	1/8	19
PLG20PT14	M20x2.0	1/4	26
PLG27PT38	M27x2.0	3/8	35

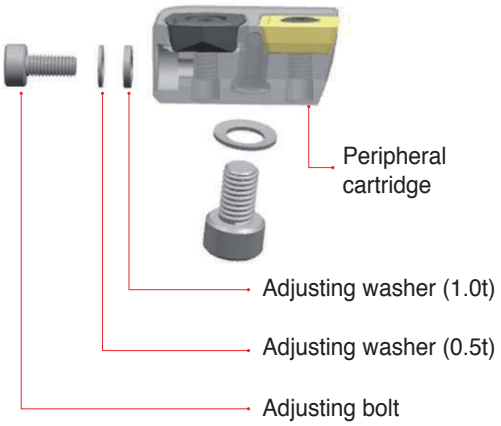
King Drill (For large diameter drilling)

- **High rigidity drill produces cost efficiency due to cartridge replacement**
  - Cartridge type for Ø61~Ø100 drilling
  - Peripheral cartridge can adjust the drilling diameter within 5mm
  - Easy to adjust drilling diameter with adjusting bolt

▶ Structure of King Drill (for wide diameter) parts



▶ Adjustment of drill diameter



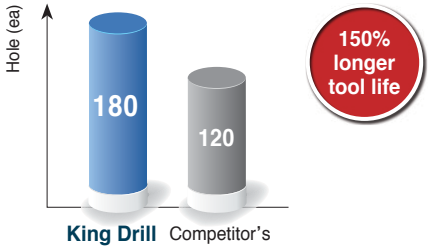
Adjustment Ø (mm)	Adjusting washer	
	Designation	Width (mm)
1	WA0305	0.5
2	WA0310	1.0
3	WA0305 + WA0310	1.5
4	WA0310 x 2	2.0
5	WA0305 + WA0310 x 2	2.5

※ Adjusting washer adjusts the drilling diameter within 5 mm

[Application Examples]

Carbon steel (SM45C)

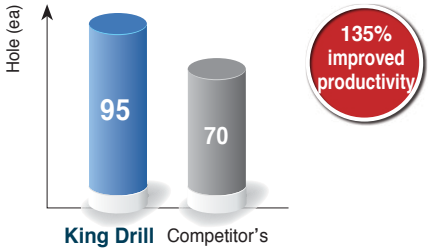
- **Workpiece use:** Track link bush
- **Cutting conditions:** vc (m/min) = 120, fn (mm/rev) = 0.1, Through coolant system
- **Machining:** Drilling machine
- **Tools:** **Insert** SPMT07T208-PD (PC3500), XOMT07T205-PD (PC5300)
  Holder K5D20025-07



▶ Superior surface finish and chip evacuation

Alloy steel (SCM415H)

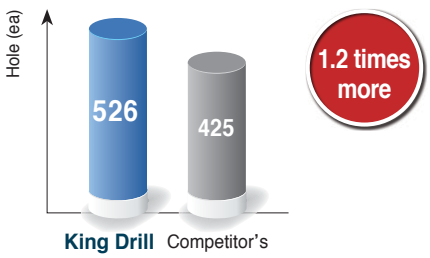
- **Workpiece use:** Track link bush
- **Cutting conditions:** King Drill: vc (m/min) = 140, fn (mm/rev) = 0.12, Competitor: vc (m/min) = 125, fn (mm/rev) = 0.1
- **Machining:** MCT
- **Tools:** **Insert** SPMT090308-PD (PC3500), XOMT090305-PD (PC5300)
  Holder K3D27032-09



▶ Increased productivity due to higher capabilities for cutting conditions compared to the competitor

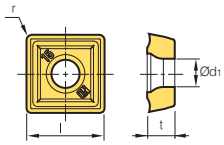
Carbon steel (SM50C, HB210)

- **Cutting conditions:** vc(m/min) = 126, fn(mm/rev) = 0.12, ap(mm) = 20
- **Machining:** Drilling
- **Tools:** **Insert** SPMT090308-PD(PC3500), XOMT090305-PD(PC5300)
  Holder K3D25032-09

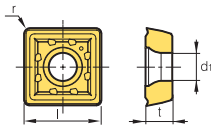


Available inserts

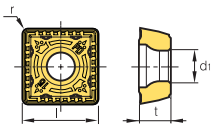
SPET-ND



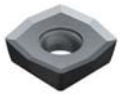
SPMT-LD

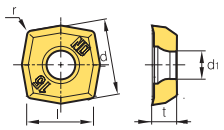


SPMT-PD

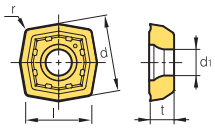


XOMT-ND

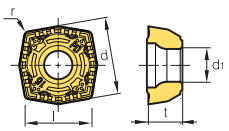




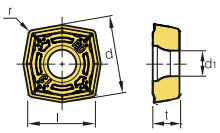
XOMT-LD



XOMT-PD



XOMT-RD

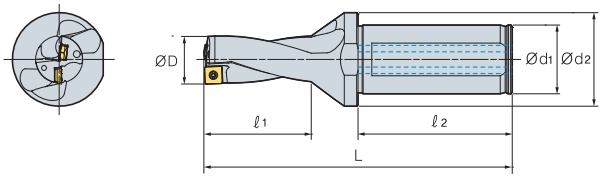


Designation		Dimensions (mm)				
		l	d	t	r	d_1
SPET-ND	**040204-ND**	4.7	-	2.4	0.4	2.3
	050204-ND	5.1	-	2.4	0.4	2.3
	060205-ND	6.2	-	2.5	0.5	2.5
	07T208-ND	7.5	-	2.8	0.7	2.8
	090308-ND	9.2	-	3.3	0.8	3.4
	11T308-ND	11.0	-	4.0	0.8	4.0
	130410-ND	13.0	-	4.5	1.0	4.5
	15M510-ND	15.2	-	5.0	1.0	5.5
	180510-ND	18.2	-	5.5	1.0	6.0
SPMT-LD	**060205-LD**	6.2	-	2.5	0.5	2.5
	07T208-LD	7.5	-	2.8	0.7	2.8
	090308-LD	9.2	-	3.3	0.8	3.4
	11T308-LD	11.0	-	4.0	0.8	4.0
	130410-LD	13.0	-	4.5	1.0	4.5
	15M510-LD	15.2	-	5.0	1.0	5.5
	180510-LD	18.2	-	5.5	1.0	6.0
SPMT-PD	**040204-PD**	4.7	-	2.4	0.4	2.3
	050204-PD	5.1	-	2.4	0.4	2.3
	060205-PD	6.2	-	2.5	0.5	2.5
	07T208-PD	7.5	-	2.8	0.7	2.8
	090308-PD	9.2	-	3.3	0.8	3.4
	11T308-PD	11.0	-	4.0	0.8	4.0
	130410-PD	13.0	-	4.5	1.0	4.5
	15M510-PD	15.2	-	5.0	1.0	5.5
	180510-PD	18.2	-	5.5	1.0	6.0
XOMT-ND	**040204-ND**	4.3	4.9	2.4	0.4	2.3
	050204-ND	4.8	5.4	2.4	0.4	2.3
	060204-ND	5.8	6.6	2.5	0.4	2.5
	07T205-ND	6.9	7.8	2.8	0.5	2.8
	090305-ND	8.4	9.6	3.3	0.5	3.4
	11T306-ND	10.0	11.4	4.0	0.6	4.0
	130406-ND	11.9	13.6	4.5	0.6	4.5
	15M508-ND	13.9	15.9	5.0	0.8	5.5
	180508-ND	16.5	18.9	5.5	0.8	6.0

Available inserts

Designation		Dimensions (mm)				
		l	d	t	r	d_1
XOMT-LD	060204-LD	5.8	6.6	2.5	0.4	2.5
	07T205-LD	6.9	7.8	2.8	0.5	2.8
	090305-LD	8.4	9.6	3.3	0.5	3.4
	11T306-LD	10.0	11.4	4.0	0.6	4.0
	130406-LD	11.9	13.6	4.5	0.6	4.5
	15M508-LD	13.9	15.9	5.0	0.8	5.5
	180508-LD	16.5	18.9	5.5	0.8	6.0
XOMT-PD	040204-PD	4.3	4.9	2.4	0.4	2.3
	050204-PD	4.8	5.4	2.4	0.4	2.3
	060204-PD	5.8	6.6	2.5	0.4	2.5
	07T205-PD	6.9	7.8	2.8	0.5	2.8
	090305-PD	8.4	9.6	3.3	0.5	3.4
	11T306-PD	10.0	11.4	4.0	0.6	4.0
	130406-PD	11.9	13.6	4.5	0.6	4.5
	15M508-PD	13.9	15.9	5.0	0.8	5.5
	180508-PD	16.5	18.9	5.5	0.8	6.0
XOMT-RD	07T207-RD	6.9	7.8	2.8	0.7	2.8
	090308-RD	8.4	9.6	3.3	0.8	3.4
	11T309-RD	10.0	11.4	4.0	0.9	4.0
	130410-RD	11.9	13.6	4.5	1.0	4.5
	15M511-RD	13.9	15.9	5.0	1.1	5.5
	180512-RD	16.5	18.9	5.5	1.2	6.0

King Drill - 2D

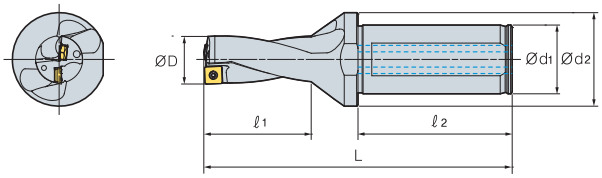


(mm)

Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K2D	12020-04	12.0	20	25	27	50	91	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	12520-04	12.5	20	25	27	50	91			
	13020-04	13.0	20	25	29	50	93			
	13520-04	13.5	20	25	29	50	93			
	14020-05	14.0	20	25	31	50	96	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	14520-05	14.5	20	25	31	50	96			
	15020-05	15.0	20	25	33	50	99			
	15520-05	15.5	20	25	33	50	99			
	16020-05	16.0	20	25	35	50	101			
	16525-06	16.5	25	34	35	56	107	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025-06	17.0	25	34	37	56	109			
	17525-06	17.5	25	34	37	56	109			
	18025-06	18.0	25	34	39	56	112			
	18525-06	18.5	25	34	39	56	112			
	19025-06	19.0	25	34	41	56	114			
	19525-06	19.5	25	34	41	56	114			
	20025-07	20.0	25	34	43	56	118	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525-07	20.5	25	34	43	56	118			
	21025-07	21.0	25	34	45	56	120			
	21525-07	21.5	25	34	45	56	120			
	22025-07	22.0	25	34	47	56	122			
	22525-07	22.5	25	34	47	56	122			
	23025-07	23.0	25	34	49	56	126			
	23525-07	23.5	25	34	49	56	126			
	24032-09	24.0	32	44	51	60	133	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532-09	24.5	32	44	51	60	133			
	25032-09	25.0	32	44	53	60	135			
	25532-09	25.5	32	44	53	60	135			
	26032-09	26.0	32	44	55	60	137			
	26532-09	26.5	32	44	55	60	137			
	27032-09	27.0	32	44	57	60	140			
	27532-09	27.5	32	44	57	60	140			
	28032-09	28.0	32	44	59	60	143			
	28532-09	28.5	32	44	59	60	143			
	29032-09	29.0	32	44	61	60	145			
	29532-09	29.5	32	44	61	60	145			
	30032-11	30.0	32	44	63	60	150	SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	30532-11	30.5	32	44	63	60	150			
	31032-11	31.0	32	44	65	60	152			
	31532-11	31.5	32	44	65	60	152			
	32032-11	32.0	32	44	67	60	154			
	32532-11	32.5	32	44	67	60	154			
	33032-11	33.0	32	44	69	60	157			
	33532-11	33.5	32	44	69	60	157			
	34032-11	34.0	32	44	71	60	159			
	34532-11	34.5	32	44	71	60	159			
	35032-11	35.0	32	44	73	60	161			
	35532-11	35.5	32	44	73	60	161			

※Available inserts: 274-275page

King Drill - 2D

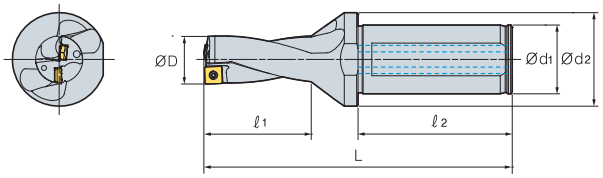


(mm)

Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K2D	36040-13	36.0	40	48	76	70	176	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	36540-13	36.5	40	48	76	70	176			
	37040-13	37.0	40	48	78	70	178			
	37540-13	37.5	40	48	78	70	178			
	38040-13	38.0	40	48	80	70	181			
	38540-13	38.5	40	48	80	70	181			
	39040-13	39.0	40	48	82	70	183			
	39540-13	39.5	40	48	82	70	183			
	40040-13	40.0	40	48	84	70	186			
	40540-13	40.5	40	48	84	70	186			
	41040-13	41.0	40	48	86	70	188			
	41540-13	41.5	40	48	86	70	188			
	42040-13	42.0	40	48	88	70	191			
	42540-13	42.5	40	48	88	70	191			
	43040-15	43.0	40	58	91	70	196	SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	43540-15	43.5	40	58	91	70	196			
	44040-15	44.0	40	58	93	70	198			
	44540-15	44.5	40	58	93	70	198			
	45040-15	45.0	40	58	95	70	201			
	45540-15	45.5	40	58	95	70	201			
	46040-15	46.0	40	58	97	70	203			
	46540-15	46.5	40	58	97	70	203			
	47040-15	47.0	40	58	99	70	206			
	47540-15	47.5	40	58	99	70	206			
	48040-15	48.0	40	58	101	70	208			
	48540-15	48.5	40	58	101	70	208			
	49040-15	49.0	40	58	103	70	210			
	49540-15	49.5	40	58	103	70	210			
	50040-15	50.0	40	58	105	70	212			
	50540-15	50.5	40	58	105	70	212			
	51040-18	51.0	40	68	108	70	218	SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	51540-18	51.5	40	68	108	70	218			
	52040-18	52.0	40	68	110	70	220			
	52540-18	52.5	40	68	110	70	220			
	53040-18	53.0	40	68	112	70	222			
	53540-18	53.5	40	68	112	70	222			
	54040-18	54.0	40	68	114	70	224			
	54540-18	54.5	40	68	114	70	224			
	55040-18	55.0	40	68	116	70	226			
	55540-18	55.5	40	68	116	70	226			
	56040-18	56.0	40	68	118	70	230			
	56540-18	56.5	40	68	118	70	230			
	57040-18	57.0	40	68	121	70	233			
	57540-18	57.5	40	68	121	70	233			
	58040-18	58.0	40	68	124	70	236			
	58540-18	58.5	40	68	124	70	236			
	59040-18	59.0	40	68	127	70	239			
	59540-18	59.5	40	68	127	70	239			
	60040-18	60.0	40	68	130	70	242			
	60540-18	60.5	40	68	130	70	242			

※ Available inserts: 274-275page

King Drill - 3D



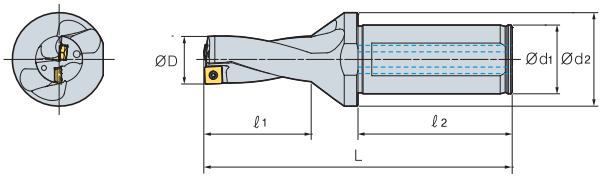
(mm)

Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K3D	12020-04＊	12.0	20	25	39	50	103	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	12220-04	12.2	20	25	39	50	103			
	12520-04	12.5	20	25	39	50	103			
	12920-04	12.9	20	25	42	50	106			
	13020-04	13.0	20	25	42	50	106			
	13520-04	13.5	20	25	42	50	106			
	14020-05＊	14.0	20	25	45	50	110	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	14520-05	14.5	20	25	45	50	110			
	15020-05	15.0	20	25	48	50	114			
	15520-05＊	15.5	20	25	48	50	114			
	16020-05	16.0	20	25	51	50	117			
	16525-06	16.5	25	34	51	56	123	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025-06	17.0	25	34	54	56	126			
	17525-06＊	17.5	25	34	54	56	126			
	18025-06	18.0	25	34	57	56	130			
	18525-06	18.5	25	34	57	56	130			
	19025-06	19.0	25	34	60	56	133			
	19525-06＊	19.5	25	34	60	56	133			
	20025-07	20.0	25	34	63	56	138	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525-07	20.5	25	34	63	56	138			
	21025-07＊	21.0	25	34	66	56	141			
	21525-07	21.5	25	34	66	56	141			
	22025-07	22.0	25	34	69	56	144			
	22525-07	22.5	25	34	69	56	144			
	23025-07	23	25	34	72	56	149			
	23525-07	23.5	25	34	72	56	149			
	24032-09＊	24.0	32	44	75	60	157	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532-09	24.5	32	44	75	60	157			
	25032-09	25.0	32	44	78	60	160			
	25532-09	25.5	32	44	78	60	160			
	26032-09	26.0	32	44	81	60	163			
	26532-09＊	26.5	32	44	81	60	163			
	27032-09	27.0	32	44	84	60	167			
	27532-09	27.5	32	44	84	60	167			
	28032-09	28.0	32	44	87	60	171			
	28532-09	28.5	32	44	87	60	171			
	29032-09＊	29.0	32	44	90	60	174			
	29532-09	29.5	32	44	90	60	174			

＊Available inserts: 274-275page

The items marked ＊ can machine a tap foundation hole

King Drill - 3D



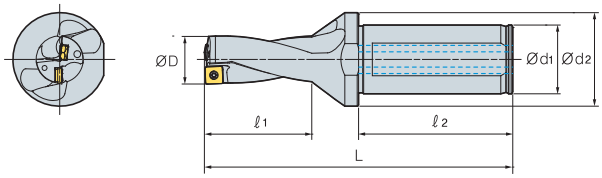
(mm)

Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K3D	30032-11 *	30.0	32	44	93	60	180	SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	30532-11	30.5	32	44	93	60	180			
	31032-11	31.0	32	44	96	60	183			
	31532-11	31.5	32	44	96	60	183			
	32032-11	32.0	32	44	99	60	186			
	32532-11	32.5	32	44	99	60	186			
	33032-11	33.0	32	44	102	60	190			
	33532-11	33.5	32	44	102	60	190			
	34032-11	34.0	32	44	105	60	193			
	34532-11	34.5	32	44	105	60	193			
	35032-11 *	35.0	32	44	108	60	196			
	35532-11	35.5	32	44	108	60	196			
	36040-13	36.0	40	48	112	70	212	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	36540-13	36.5	40	48	112	70	212			
	37040-13	37.0	40	48	115	70	215			
	37540-13	37.5	40	48	115	70	215			
	38040-13	38.0	40	48	118	70	219			
	38540-13	38.5	40	48	118	70	219			
	39040-13	39.0	40	48	121	70	222			
	39540-13	39.5	40	48	121	70	222			
	40040-13	40.0	40	48	124	70	226			
	40540-13	40.5	40	48	124	70	226			
	41040-13	41.0	40	48	127	70	229			
	41540-13	41.5	40	48	127	70	229			
	42040-13	42.0	40	48	130	70	233			
	42540-13	42.5	40	48	130	70	233			
	43040-15	43.0	40	58	134	70	239	SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	43540-15	43.5	40	58	134	70	239			
	44040-15	44.0	40	58	137	70	242			
	44540-15	44.5	40	58	137	70	242			
	45040-15	45.0	40	58	140	70	246			
	45540-15	45.5	40	58	140	70	246			
	46040-15	46.0	40	58	143	70	249			
	46540-15	46.5	40	58	143	70	249			
	47040-15	47.0	40	58	146	70	253			
	47540-15	47.5	40	58	146	70	253			
	48040-15	48.0	40	58	149	70	256			
	48540-15	48.5	40	58	149	70	256			
	49040-15	49.0	40	58	152	70	259			
	49540-15	49.5	40	58	152	70	259			
	50040-15	50.0	40	58	155	70	262			
	50540-15	50.5	40	58	155	70	262			

※Available inserts: 274-275page

The items marked * can machine a tap foundation hole

King Drill - 3D

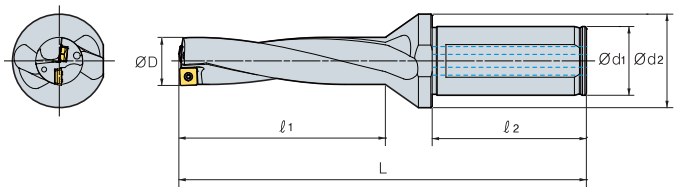


(mm)

Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K3D	51040-18	51.0	40	68	159	70	269	SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	51540-18	51.5	40	68	159	70	269			
	52040-18	52.0	40	68	162	70	272			
	52540-18	52.5	40	68	162	70	272			
	53040-18	53.0	40	68	165	70	275			
	53540-18	53.5	40	68	165	70	275			
	54040-18	54.0	40	68	168	70	278			
	54540-18	54.5	40	68	168	70	278			
	55040-18	55.0	40	68	171	70	281			
	55540-18	55.5	40	68	171	70	281			
	56040-18	56.0	40	68	174	70	286			
	56540-18	56.5	40	68	174	70	286			
	57040-18	57.0	40	68	178	70	290			
	57540-18	57.5	40	68	178	70	290			
	58040-18	58.0	40	68	182	70	294			
	58540-18	58.5	40	68	182	70	294			
	59040-18	59.0	40	68	186	70	298			
	59540-18	59.5	40	68	186	70	298			
	60040-18	60.0	40	68	190	70	302			
	60540-18	60.5	40	68	190	70	302			

※ Available inserts: 274-275page

King Drill - 4D

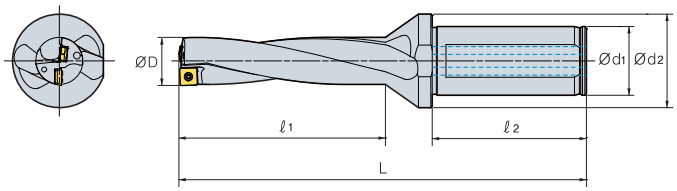


(mm)

Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K4D	12020-04	12.0	20	25	51	50	115	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	12520-04	12.5	20	25	51	50	115			
	13020-04	13.0	20	25	55	50	119			
	13520-04	13.5	20	25	55	50	119			
	14020-05	14.0	20	25	59	50	124	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	14520-05	14.5	20	25	59	50	124			
	15020-05	15.0	20	25	63	50	129			
	15520-05	15.5	20	25	63	50	129			
	16020-05	16.0	20	25	67	50	133			
	16525-06	16.5	25	34	67	56	139	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025-06	17.0	25	34	71	56	143			
	17525-06	17.5	25	34	71	56	143			
	18025-06	18.0	25	34	75	56	148			
	18525-06	18.5	25	34	75	56	148			
	19025-06	19.0	25	34	79	56	152			
	19525-06	19.5	25	34	79	56	152			
	20025-07	20.0	25	34	83	56	158	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525-07	20.5	25	34	83	56	158			
	21025-07	21.0	25	34	87	56	162			
	21525-07	21.5	25	34	87	56	162			
	22025-07	22.0	25	34	91	56	166			
	22525-07	22.5	25	34	91	56	166			
	23025-07	23.0	25	34	95	56	172			
	23525-07	23.5	25	34	95	56	172			
	24032-09	24.0	32	44	99	60	181	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532-09	24.5	32	44	99	60	181			
	25032-09	25.0	32	44	103	60	185			
	25532-09	25.5	32	44	103	60	185			
	26032-09	26.0	32	44	107	60	189			
	26532-09	26.5	32	44	107	60	189			
	27032-09	27.0	32	44	111	60	194			
	27532-09	27.5	32	44	111	60	194			
	28032-09	28.0	32	44	115	60	199			
	28532-09	28.5	32	44	115	60	199			
	29032-09	29.0	32	44	119	60	203			
	29532-09	29.5	32	44	119	60	203			
	30032-11	30.0	32	44	123	60	210	SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	30532-11	30.5	32	44	123	60	210			
	31032-11	31.0	32	44	127	60	214			
	31532-11	31.5	32	44	127	60	214			
	32032-11	32.0	32	44	131	60	218			
	32532-11	32.5	32	44	131	60	218			
	33032-11	33.0	32	44	135	60	223			
	33532-11	33.5	32	44	135	60	223			
	34032-11	34.0	32	44	139	60	227			
	34532-11	34.5	32	44	139	60	227			
	35032-11	35.0	32	44	143	60	231			
	35532-11	35.5	32	44	143	60	231			

※Available inserts: 274-275page

King Drill - 4D

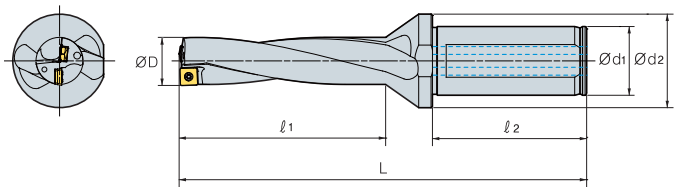


(mm)

Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K4D	36040-13	36.0	40	48	148	70	248	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	36540-13	36.5	40	48	148	70	248			
	37040-13	37.0	40	48	152	70	252			
	37540-13	37.5	40	48	152	70	252			
	38040-13	38.0	40	48	156	70	257			
	38540-13	38.5	40	48	156	70	257			
	39040-13	39.0	40	48	160	70	261			
	39540-13	39.5	40	48	160	70	261			
	40040-13	40.0	40	48	164	70	266			
	40540-13	40.5	40	48	164	70	266			
	41040-13	41.0	40	48	168	70	270			
	41540-13	41.5	40	48	168	70	270			
	42040-13	42.0	40	48	172	70	275			
	42540-13	42.5	40	48	172	70	275			
	43040-15	43.0	40	58	177	70	282	SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	43540-15	43.5	40	58	177	70	282			
	44040-15	44.0	40	58	181	70	286			
	44540-15	44.5	40	58	181	70	286			
	45040-15	45.0	40	58	185	70	291			
	45540-15	45.5	40	58	185	70	291			
	46040-15	46.0	40	58	189	70	295			
	46540-15	46.5	40	58	189	70	295			
	47040-15	47.0	40	58	193	70	300			
	47540-15	47.5	40	58	193	70	300			
	48040-15	48.0	40	58	197	70	304			
	48540-15	48.5	40	58	197	70	304			
	49040-15	49.0	40	58	201	70	308			
	49540-15	49.5	40	58	201	70	308			
	50040-15	50.0	40	58	205	70	312			
	50540-15	50.5	40	58	205	70	312			
	51040-18	51.0	40	68	210	70	320	SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	51540-18	51.5	40	68	210	70	320			
	52040-18	52.0	40	68	214	70	324			
	52540-18	52.5	40	68	214	70	324			
	53040-18	53.0	40	68	218	70	328			
	53540-18	53.5	40	68	218	70	328			
	54040-18	54.0	40	68	222	70	332			
	54540-18	54.5	40	68	222	70	332			
	55040-18	55.0	40	68	226	70	336			
	55540-18	55.5	40	68	226	70	336			
	56040-18	56.0	40	68	230	70	342			
	56540-18	56.5	40	68	230	70	342			
	57040-18	57.0	40	68	235	70	347			
	57540-18	57.5	40	68	235	70	347			
	58040-18	58.0	40	68	240	70	352			
	58540-18	58.5	40	68	240	70	352			
	59040-18	59.0	40	68	245	70	357			
	59540-18	59.5	40	68	245	70	357			
	60040-18	60.0	40	68	250	70	362			
	60540-18	60.5	40	68	250	70	362			

※ Available inserts: 274-275page

King Drill - 5D

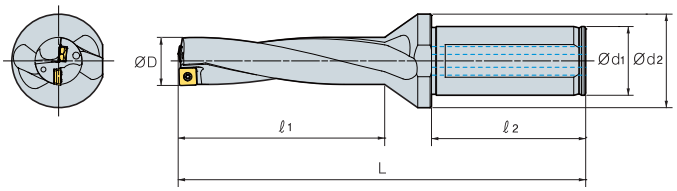


(mm)

Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K5D	12020-04	12.0	20	25	63	50	127	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	12520-04	12.5	20	25	63	50	127			
	13020-04	13.0	20	25	68	50	132			
	13520-04	13.5	20	25	68	50	132			
	14020-05	14.0	20	25	73	50	138	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	14520-05	14.5	20	25	73	50	138			
	15020-05	15.0	20	25	78	50	144			
	15520-05	15.5	20	25	78	50	144			
	16020-05	16.0	20	25	83	50	149			
	16525-06	16.5	25	34	83	56	155	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025-06	17.0	25	34	88	56	160			
	17525-06	17.5	25	34	88	56	160			
	18025-06	18.0	25	34	93	56	166			
	18525-06	18.5	25	34	93	56	166			
	19025-06	19.0	25	34	98	56	171			
	19525-06	19.5	25	34	98	56	171			
	20025-07	20.0	25	34	103	56	178	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525-07	20.5	25	34	103	56	178			
	21025-07	21.0	25	34	108	56	183			
	21525-07	21.5	25	34	108	56	183			
	22025-07	22.0	25	34	113	56	188			
	22525-07	22.5	25	34	113	56	188			
	23025-07	23.0	25	34	118	56	195			
	23525-07	23.5	25	34	118	56	195			
	24032-09	24.0	32	44	123	60	205	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532-09	24.5	32	44	123	60	205			
	25032-09	25.0	32	44	128	60	210			
	25532-09	25.5	32	44	128	60	210			
	26032-09	26.0	32	44	133	60	215			
	26532-09	26.5	32	44	133	60	215			
	27032-09	27.0	32	44	138	60	221			
	27532-09	27.5	32	44	138	60	221			
	28032-09	28.0	32	44	143	60	227			
	28532-09	28.5	32	44	143	60	227			
	29032-09	29.0	32	44	148	60	232			
	29532-09	29.5	32	44	148	60	232			
	30032-11	30.0	32	44	153	60	240	SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	30532-11	30.5	32	44	153	60	240			
	31032-11	31.0	32	44	158	60	245			
	31532-11	31.5	32	44	158	60	245			
	32032-11	32.0	32	44	163	60	250			
	32532-11	32.5	32	44	163	60	250			
	33032-11	33.0	32	44	168	60	256			
	33532-11	33.5	32	44	168	60	256			
	34032-11	34.0	32	44	173	60	261			
	34532-11	34.5	32	44	173	60	261			
	35032-11	35.0	32	44	178	60	266			
	35532-11	35.5	32	44	178	60	266			

※ Available inserts: 274-275page

King Drill - 5D



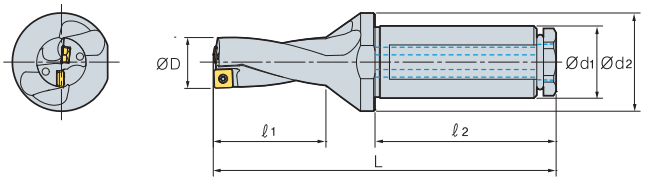
(mm)

Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K5D	36040-13	36.0	40	48	184	70	284	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	36540-13	36.5	40	48	184	70	284			
	37040-13	37.0	40	48	189	70	289			
	37540-13	37.5	40	48	189	70	289			
	38040-13	38.0	40	48	194	70	295			
	38540-13	38.5	40	48	194	70	295			
	39040-13	39.0	40	48	199	70	300			
	39540-13	39.5	40	48	199	70	300			
	40040-13	40.0	40	48	204	70	306			
	40540-13	40.5	40	48	204	70	306			
	41040-13	41.0	40	48	209	70	311			
	41540-13	41.5	40	48	209	70	311			
	42040-13	42.0	40	48	214	70	317			
	42540-13	42.5	40	48	214	70	317			
	43040-15	43.0	40	58	220	70	325	SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	43540-15	43.5	40	58	221	70	326			
	44040-15	44.0	40	58	225	70	330			
	44540-15	44.5	40	58	225	70	330			
	45040-15	45.0	40	58	230	70	336			
	45540-15	45.5	40	58	230	70	336			
	46040-15	46.0	40	58	235	70	341			
	46540-15	46.5	40	58	235	70	341			
	47040-15	47.0	40	58	240	70	347			
	47540-15	47.5	40	58	240	70	347			
	48040-15	48.0	40	58	245	70	352			
	48540-15	48.5	40	58	245	70	352			
	49040-15	49.0	40	58	250	70	357			
	49540-15	49.5	40	58	250	70	357			
	50040-15	50.0	40	58	255	70	362			
	50540-15	50.5	40	58	255	70	362			
	51040-18	51.0	40	68	261	70	371	SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	51540-18	51.5	40	68	261	70	371			
	52040-18	52.0	40	68	266	70	376			
	52540-18	52.5	40	68	266	70	376			
	53040-18	53.0	40	68	271	70	381			
	53540-18	53.5	40	68	271	70	381			
	54040-18	54.0	40	68	276	70	386			
	54540-18	54.5	40	68	276	70	386			
	55040-18	55.0	40	68	281	70	391			
	55540-18	55.5	40	68	281	70	391			
	56040-18	56.0	40	68	286	70	398			
	56540-18	56.5	40	68	286	70	398			
	57040-18	57.0	40	68	292	70	404			
	57540-18	57.5	40	68	292	70	404			
	58040-18	58.0	40	68	298	70	410			
	58540-18	58.5	40	68	298	70	410			
	59040-18	59.0	40	68	304	70	416			
	59540-18	59.5	40	68	304	70	416			
	60040-18	60.0	40	68	310	70	422			
	60540-18	60.5	40	68	310	70	422			

※ Available inserts: 274-275page

King Drill - 2D

For through coolant system with a lathe



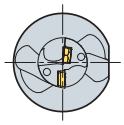
(mm)

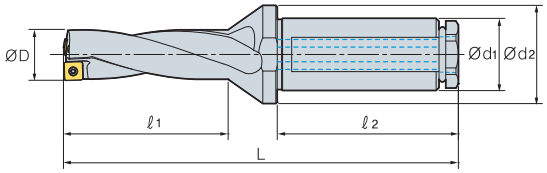
Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K2D	13020HP-04	13.0	20	25	29	50	93	SP□T040204-□□	FTNA0204	TW06P
	13520HP-04	13.5	20	25	29	50	93	XO□T040204-□□		
	14020HP-05	14.0	20	25	31	50	96	SP□T050204-□□	FTNA0204	TW06P
	15020HP-05	15.0	20	25	33	50	99	XO□T050204-□□		
	16020HP-05	16.0	20	25	35	50	101			
	17025HP-06	17.0	25	34	37	56	109	SP□T060205-□□	FTKA02206S	TW07P
	18025HP-06	18.0	25	34	39	56	112	XO□T060204-□□		
	19025HP-06	19.0	25	34	41	56	114			
	20025HP-07	20.0	25	34	43	56	118	SP□T07T208-□□	FTKA02565	TW07S
	21025HP-07	21.0	25	34	45	56	120	XO□T07T205-□□		
	22025HP-07	22.0	25	34	47	56	122			
	23025HP-07	23.0	25	34	49	56	126			
	24032HP-09	24.0	32	44	51	60	133	SP□T090308-□□	FTKA0307	TW09S
	25032HP-09	25.0	32	44	53	60	135	XO□T090305-□□		
	26032HP-09	26.0	32	44	55	60	137			
	27032HP-09	27.0	32	44	57	60	140			
	28032HP-09	28.0	32	44	59	60	143			
	29032HP-09	29.0	32	44	61	60	145			

※Available inserts: 274-275page

King Drill - 3D

For through coolant system with a lathe





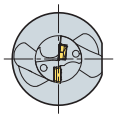
(mm)

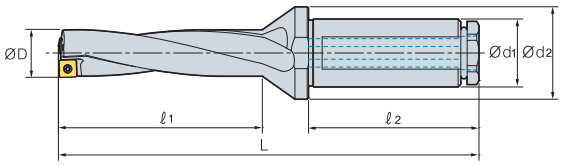
Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K3D	13020HP-04	13.0	20	25	42	50	106	SP□T040204-□□	FTNA0204	TW06P
	13520HP-04	13.5	20	25	42	50	106	XO□T040204-□□		
	14020HP-05	14.0	20	25	45	50	110	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	14520HP-05	14.5	20	25	45	50	110			
	15020HP-05	15.0	20	25	48	50	114			
	15520HP-05	15.5	20	25	48	50	114			
	16020HP-05	16.0	20	25	51	50	117			
	16525HP-06	16.5	25	34	51	56	123	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025HP-06	17.0	25	34	54	56	126			
	17525HP-06	17.5	25	34	54	56	126			
	18025HP-06	18.0	25	34	57	56	130			
	18525HP-06	18.5	25	34	57	56	130			
	19025HP-06	19.0	25	34	60	56	133			
	19525HP-06	19.5	25	34	60	56	133			
	20025HP-07	20.0	25	34	63	56	138	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525HP-07	20.5	25	34	63	56	138			
	21025HP-07	21.0	25	34	66	56	141			
	21525HP-07	21.5	25	34	66	56	141			
	22025HP-07	22.0	25	34	69	56	144			
	22525HP-07	22.5	25	34	69	56	144			
	23025HP-07	23.0	25	34	72	56	149			
	23525HP-07	23.5	25	34	72	56	149			
	24032HP-09	24.0	32	44	75	60	157	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532HP-09	24.5	32	44	75	60	157			
	25032HP-09	25.0	32	44	78	60	160			
	25532HP-09	25.5	32	44	78	60	160			
	26032HP-09	26.0	32	44	81	60	163			
	26532HP-09	26.5	32	44	81	60	163			
	27032HP-09	27.0	32	44	84	60	167			
	27532HP-09	27.5	32	44	84	60	167			
	28032HP-09	28.0	32	44	87	60	171			
	28532HP-09	28.5	32	44	87	60	171			
	29032HP-09	29.0	32	44	90	60	174			
	29532HP-09	29.5	32	44	90	60	174			

※Available inserts: 274-275page

King Drill - 4D

For through coolant system with a lathe





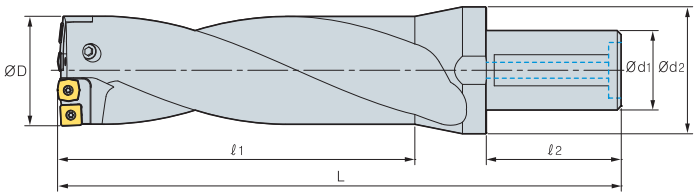
(mm)

Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K4D	13020HP-04	13.0	20	25	29	50	93	SP□T040204-□□	FTNA0204	TW06P
	13520HP-04	13.5	20	25	29	50	93	XO□T040204-□□		
	14020HP-05	14.0	20	25	59	50	124	SP□T050204-□□	FTNA0204	TW06P
	15020HP-05	15.0	20	25	63	50	129	XO□T050204-□□		
	16020HP-05	16.0	20	25	67	50	133			
	17025HP-06	17.0	25	34	71	56	143	SP□T060205-□□	FTKA02206S	TW07P
	18025HP-06	18.0	25	34	75	56	148	XO□T060204-□□		
	19025HP-06	19.0	25	34	79	56	152			
	20025HP-07	20.0	25	34	83	56	158	SP□T07T208-□□	FTKA02565	TW07S
	21025HP-07	21.0	25	34	87	56	162	XO□T07T205-□□		
	22025HP-07	22.0	25	34	91	56	166			
	23025HP-07	23.0	25	34	95	56	172			
	24032HP-09	24.0	32	44	99	60	181	SP□T090308-□□	FTKA0307	TW09S
	25032HP-09	25.0	32	44	103	60	185	XO□T090305-□□		
	26032HP-09	26.0	32	44	107	60	189			
	27032HP-09	27.0	32	44	111	60	194			
	28032HP-09	28.0	32	44	115	60	199			
	29032HP-09	29.0	32	44	119	60	203			

※ Available inserts: 274-275page

King Drill

For large diameter drilling



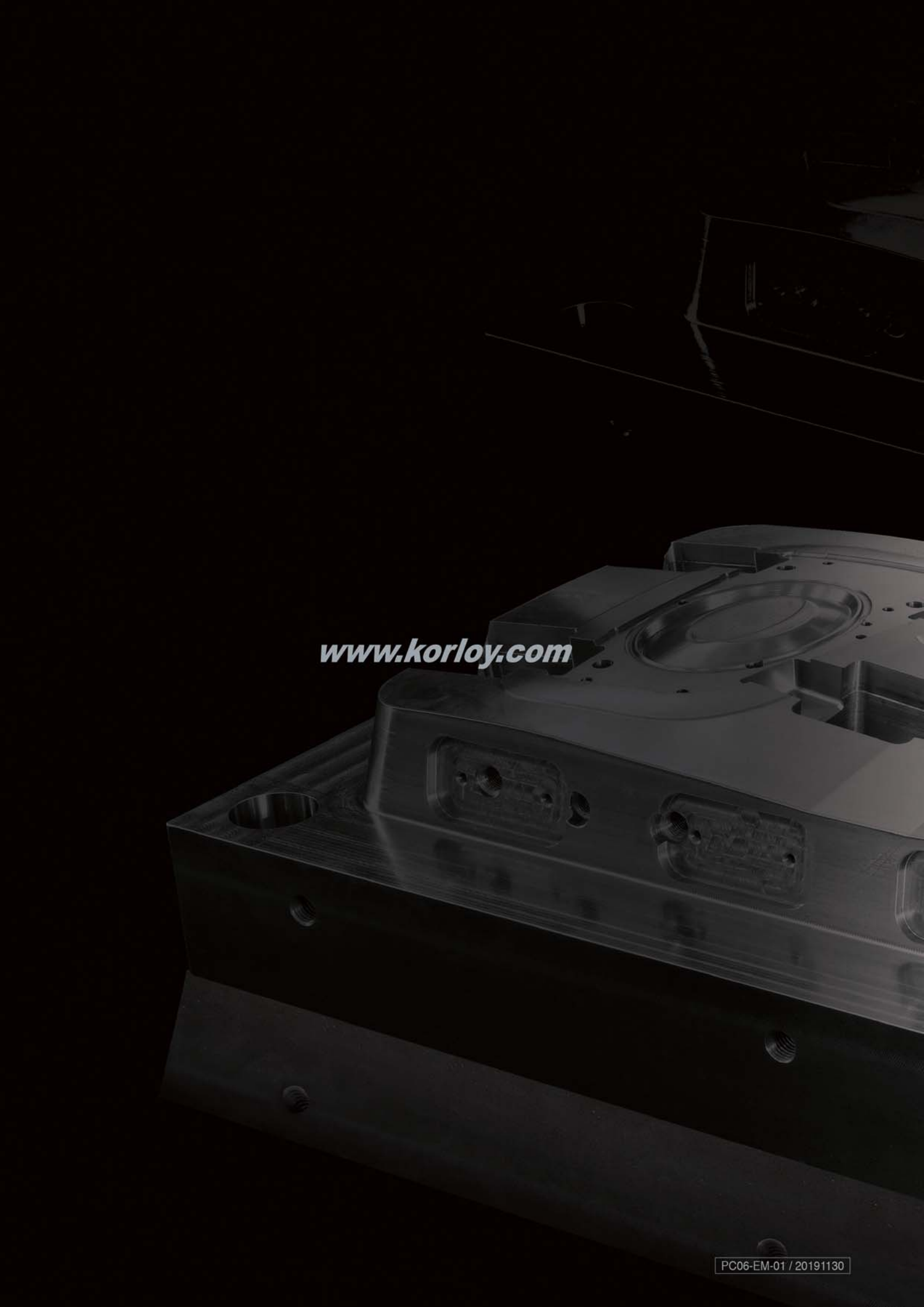
(mm)

Designation		ØD	Ød1	Ød2	ℓ1	ℓ2	L	Insert		Screw	Wrench
								Internal	External		
K2D	616550-11	61~65	50	80	130	80	255	KDC6165C	KDC6165P	FTKA03508	TW15S
	657050-13	65~70	50	88	140	80	265	KDC6570C	KDC6570P	FTKA0410	TW15S
	707550-13	70~75	50	88	150	80	275	KDC7075C	KDC7075P	FTKA0410	TW15S
	758050-13	75~80	50	88	160	80	285	KDC7580C	KDC7580P	FTKA0410	TW15S
	808550-15	80~85	50	88	170	80	295	KDC8085C	KDC8085P	FTNC04511	TW20S
	859050-15	85~90	50	95	180	80	305	KDC8590C	KDC8590P	FTNC04511	TW20S
	909550-15	90~95	50	95	190	80	315	KDC9095C	KDC9095P	FTNC04511	TW20S
	9510050-18	95~100	50	95	200	80	325	KDC95100C	KDC95100P	FTNA0511	TW20-100
K3D	616550-11	61~65	50	80	195	80	320	KDC6165C	KDC6165P	FTKA03508	TW15S
	657050-13	65~70	50	88	210	80	335	KDC6570C	KDC6570P	FTKA0410	TW15S
	707550-13	70~75	50	88	225	80	350	KDC7075C	KDC7075P	FTKA0410	TW15S
	758050-13	75~80	50	88	240	80	365	KDC7580C	KDC7580P	FTKA0410	TW15S
	808550-15	80~85	50	88	255	80	380	KDC8085C	KDC8085P	FTNC04511	TW20S
	859050-15	85~90	50	95	270	80	395	KDC8590C	KDC8590P	FTNC04511	TW20S
	909550-15	90~95	50	95	285	80	410	KDC9095C	KDC9095P	FTNC04511	TW20S
	9510050-18	95~100	50	95	300	80	425	KDC95100C	KDC95100P	FTNA0511	TW20-100
K4D	616550-11	61~65	50	80	260	80	385	KDC6165C	KDC6165P	FTKA03508	TW15S
	657050-13	65~70	50	88	280	80	405	KDC6570C	KDC6570P	FTKA0410	TW15S
	707550-13	70~75	50	88	300	80	425	KDC7075C	KDC7075P	FTKA0410	TW15S
	758050-13	75~80	50	88	320	80	445	KDC7580C	KDC7580P	FTKA0410	TW15S
	808550-15	80~85	50	88	340	80	465	KDC8085C	KDC8085P	FTNC04511	TW20S
	859050-15	85~90	50	95	360	80	485	KDC8590C	KDC8590P	FTNC04511	TW20S
	909550-15	90~95	50	95	380	80	505	KDC9095C	KDC9095P	FTNC04511	TW20S
	9510050-18	95~100	50	95	400	80	525	KDC95100C	KDC95100P	FTNA0511	TW20-100

※ Available inserts: 274-275page

▶ Parts

Cartridge		Range (Ø)	Insert				Screw	Wrench
Internal	External		Designation	Quantity	Designation	Quantity		
KDC6165C	KDC6165P	61 ~ 65	XO□T11T306-□□	2	SP□T11T308-□□	2	FTKA03508	TW15S
KDC6570C	KDC6570P	65 ~ 70	XO□T130406-□□	2	SP□T130410-□□	2	FTKA0410	TW15S
KDC7075C	KDC7075P	70 ~ 75	XO□T130406-□□	2	SP□T130410-□□	2	FTKA0410	TW15S
KDC7580C	KDC7580P	75 ~ 80	XO□T130406-□□	2	SP□T130410-□□	2	FTKA0410	TW15S
KDC8085C	KDC8085P	80 ~ 85	XO□T15M508-□□	2	SP□T15M510-□□	2	FTNC04511	TW20S
KDC8590C	KDC8590P	85 ~ 90	XO□T15M508-□□	2	SP□T15M510-□□	2	FTNC04511	TW20S
KDC9095C	KDC9095P	90 ~ 95	XO□T15M508-□□	2	SP□T15M510-□□	2	FTNC04511	TW20S
KDC95100C	KDC95100P	95 ~ 100	XO□T180508-□□	2	SP□T180510-□□	2	FTNA0511	TW20-100



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