MILLING

Milling tools that provide the best quality and improve productivity for every customer needs.

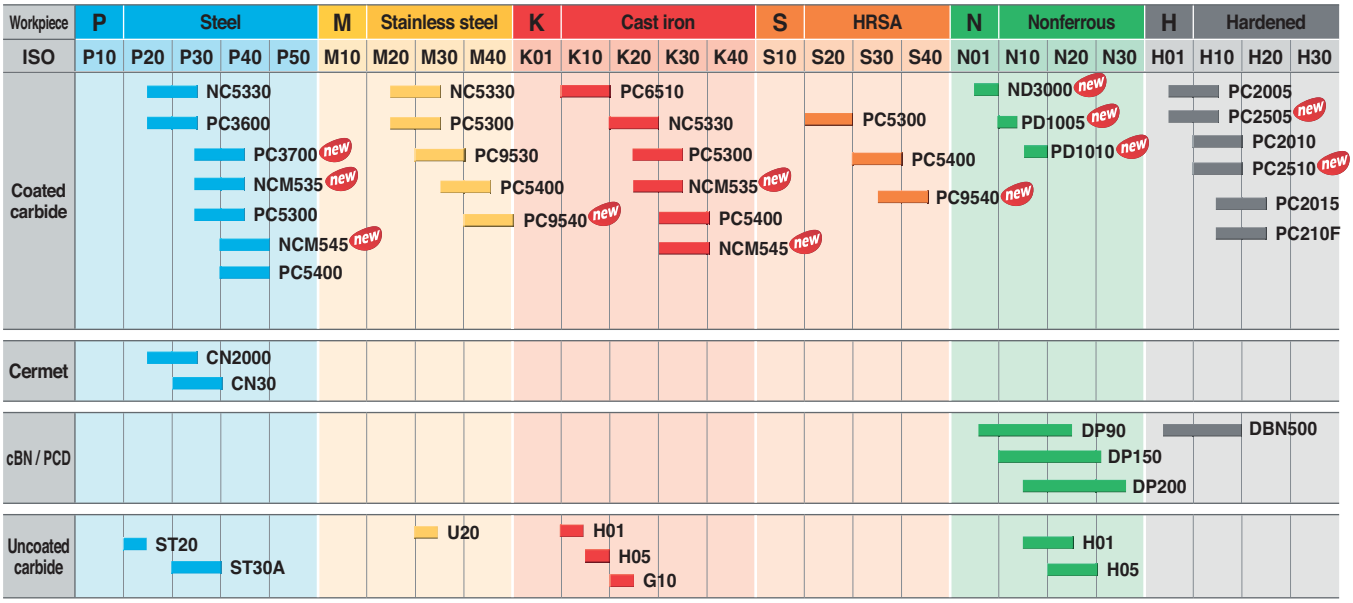
A

GRADES & CHIP BREAKERS

KORLOY's new grades are designed with optimal substrates for each application and are PVD coated for high temperature, high hardness and oxidation resistance, or CVD coated for high tempeure and wear resistance. Additionally, the improved post-coating treatment provides superior surface finishes to ensure the highest levels of quality and productivity.

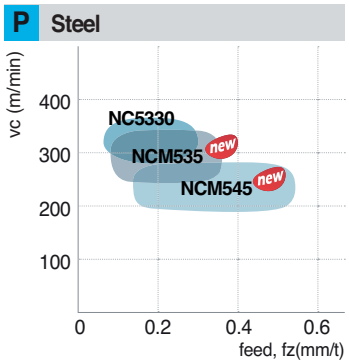
Milling grade selections

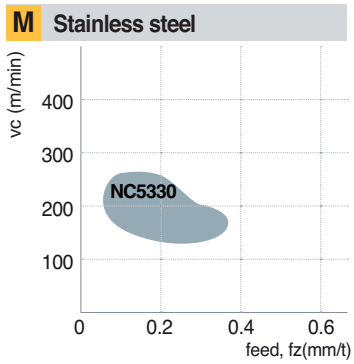
Selection system

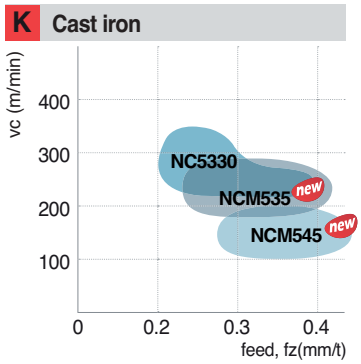


Application range of milling grades

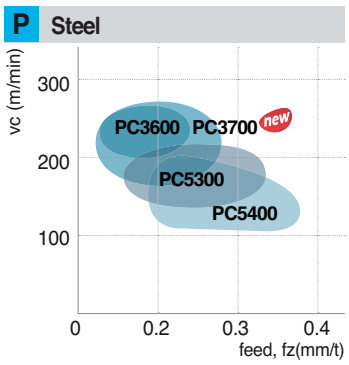
CVD

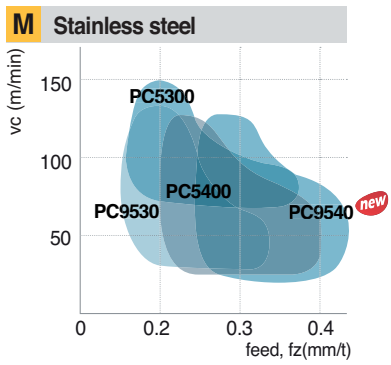


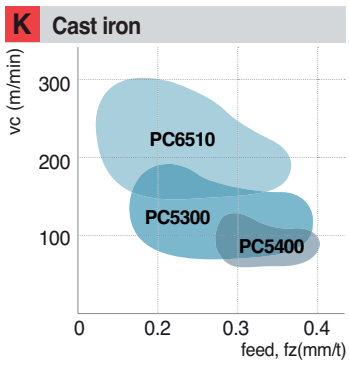


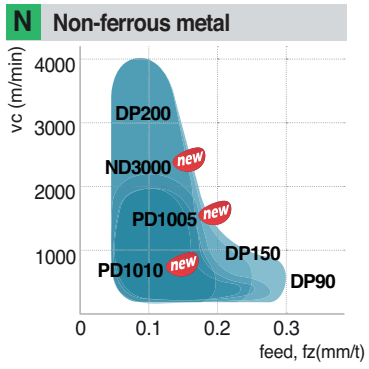


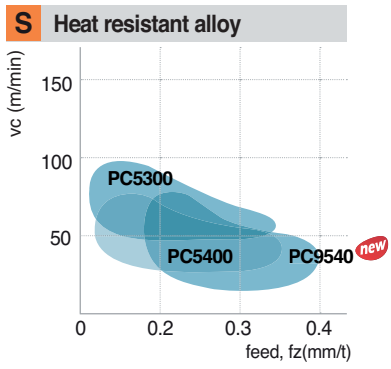
PVD

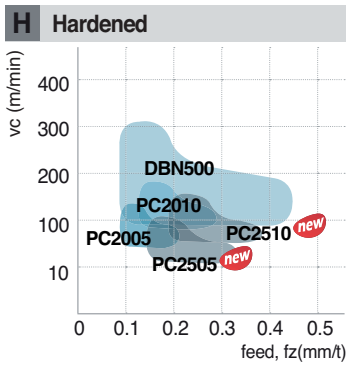












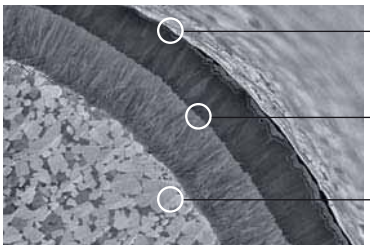
CVD coated grades

Milling Solutions for Steel and Cast Iron

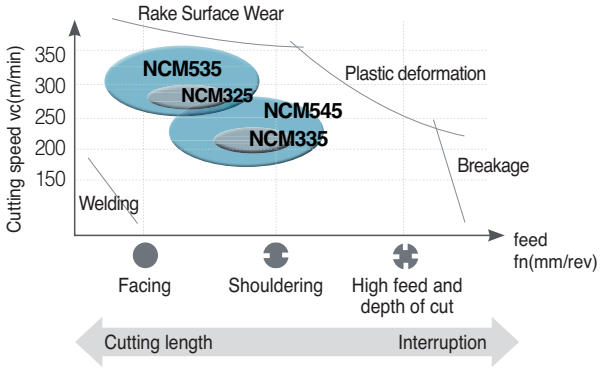
NCM535 new / NCM545 new

- Improved chipping resistance / heat and crack resistance: Applied after treatment with good chipping resistance and heat and crack resistance
- Improved wear and heat resistance: Applied high toughness substrate and high functional CVD alumina

Features



Guideline for grade application



Selection system of CVD coated grades

Workpiece		Machining types	Recommended grade	Recommended cutting speed (m/min)	ISO	Application range
P	Steel	Continuous cutting	NC5330	200 (150 ~ 250)	P20	NC5330
					P25	
		Continuous cutting	NCM535 new	300 (200 ~ 400)	P30	NCM535 new
					P35	
		Interrupted cutting	NCM545 new	200 (150 ~ 250)	P40	NCM545 new
					P45	
M	Stainless steel	Continuous cutting	NC5330	150 (120 ~ 180)	M10	
					M20	
		Continuous cutting	NCM535 new	130 (100 ~ 150)	M25	NC5330
					M30	
		Interrupted cutting	NCM545 new	110 (90 ~ 130)	M35	
					M40	
K	Cast iron	Continuous cutting	NC5330	200 (150 ~ 250)	K10	
					K20	NC5330
			NCM535 new	250 (200 ~ 300)	K30	NCM535 new / NCM545 new

The features of CVD milling grades

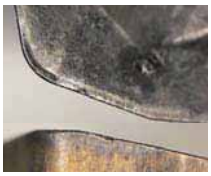
CVD Coated grades	ISO	Features
NC5330	P20 ~ P30 M20 ~ M30 K15 ~ K25	• For high speed milling of steel and stainless steel • Superior wear resistance and chipping resistance grade for steel and stainless steel • MT-TiCN + Al_2O_3 + TiN
NCM535 new	P30 ~ P40 K20 ~ K30	• Rising CVD milling grade for high productivity in large steel and cast iron machining at high speed • High toughness and thermal conductivity substrate and high functional CVD coating layer with heat resistance • High chipping resistance and heat and crack resistance from excellent after treatment • MT-TiCN + Al_2O_3
NCM545 new	P40 ~ P50 K30 ~ K40	• For steel and cast iron milling with high toughness • High toughness substrate and high functional CVD coating layer • High chipping resistance and heat and crack resistance from excellent after treatment • MT-TiCN + Al_2O_3

Application examples (NCM535/NCM545)

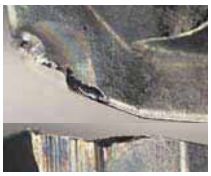
P SS41(SS400)

- **Workpiece** Excavator
- **Cutting condition** vc(m/min) = 350, fz(mm/t) = 0.12, ap(mm) = 2.0, Cutter: Ø250
- **Designation** **Insert** : SNMX1507ENN-MM

Test result



NCM535

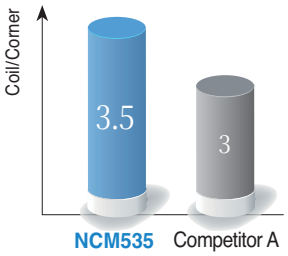


PC5300

P API X83

- **Workpiece** Steel pipe, pipe t:12.5
- **Cutting condition** f(m/min) = 3, ap(mm) = 6~12 (Ø850, 65t)
- **Designation** **Insert** : TPEW3106ZS-IN

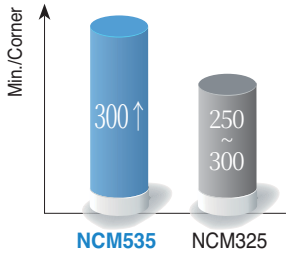
Test result



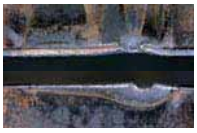
P API X55

- **Workpiece** Steel pipe, Ø60.3, 4.7t
- **Cutting condition** n(rpm) = 350~450, fn(mm/rev) = 0.6, ap(mm) = 2~4
- **Designation** **Insert** : TPKR2204PDR-MX

Test result



NCM535

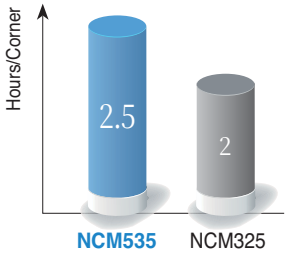


NCM325

P SCM440

- **Workpiece** Large vessel parts
- **Cutting condition** vc(m/min) = 73.4, fn(mm/rev) = 1.5, ap(mm) = 1~40
- **Designation** **Insert** : SDMT090308-MM

Test result



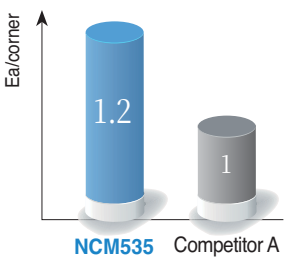
NCM535

NCM325

P Steel

- **Workpiece** Pipe
- **Cutting condition** vc (m/min) = 150, Private plane
- **Designation** **Insert** : WNMX251220-X373

Test result



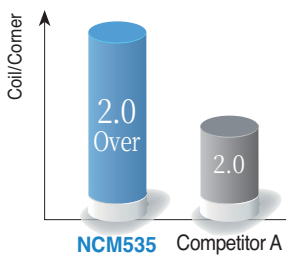
NCM535

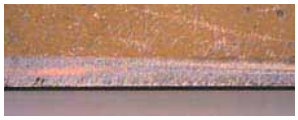
Competitor A

P PL-52-LHRE 145660

- **Workpiece** Oil pipeline, Pipe t: 9.15
- **Cutting condition** n(rpm) = 280, f(m/min) = 24, ap(mm) = 3.2~5.9
- **Designation** **Insert** : LNMN500604

Test result





NCM535

Competitor A

PVD coated grades

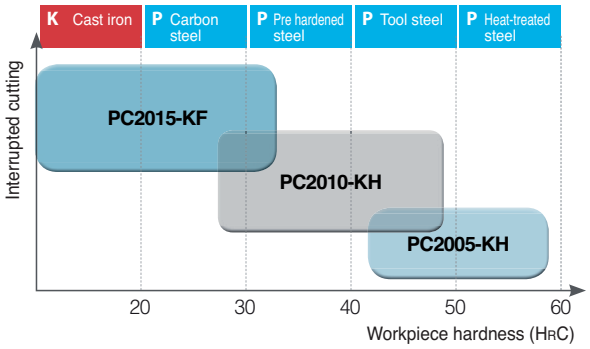
PVD coated grades for finishing high hardened steel

PC2005 / PC2010 / PC2015

- Finishing grade lineup for tool steel and plastic die steel
- PC2005 with extremely hard substrate and coatings
- PC2010 with high hardened cutting edges, ideally suited for pre-hardened steel and interrupted cutting
- PC2015 for carbon steel and casting machining, demonstrating excellent performance in hard-to-cut materials

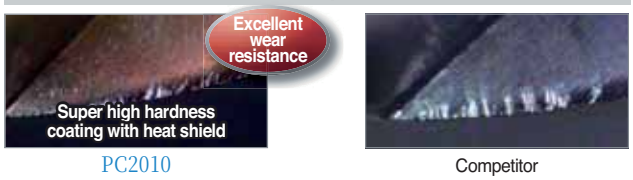
Application guideline per workpiece

Recommended grade and chip breaker

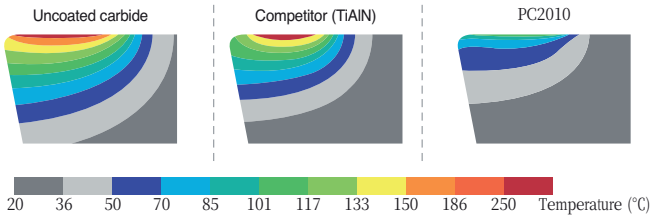


Features

Wear comparison



Result of heat conductivity



- Heat shield coating was applied to prevent thermal crack.
- Ultra fine WC was combined with high contents cobalt to be optimized for machining pre hardened steel.

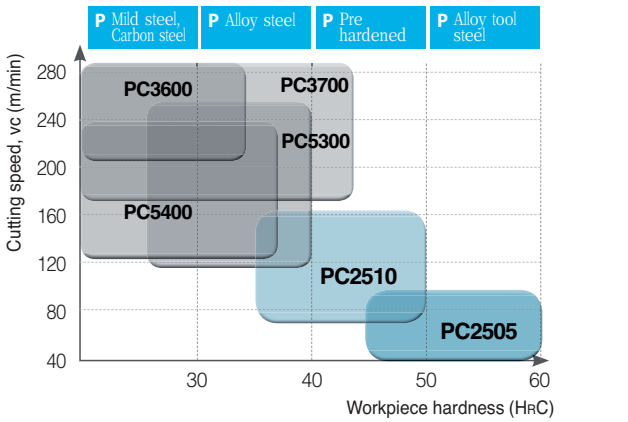
PVD coated grades for roughing high hardened steel

PC2505 new / PC2510 new

- Roughing grade series for high hardened steel
- PC2505 with excellent wear resistance, ideal for machining die steel and high hardened steels over HRC50
- PC2510 with stabilized toughness, ideal for interrupted cutting of high hardened steel and wet cutting accompanied by massive thermal shock

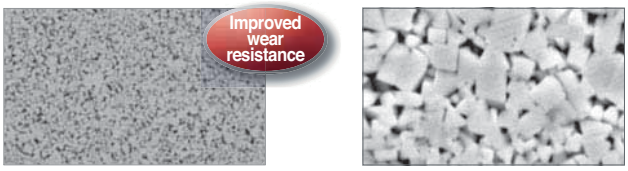
Application guideline per workpiece

Recommended grade and chip breaker

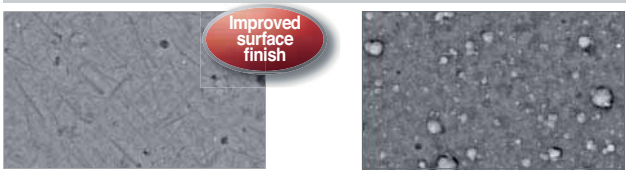


Features

Ultra fine substrate with high toughness



Surface Treatment



Application examples (PC2005/PC2010/PC2015)

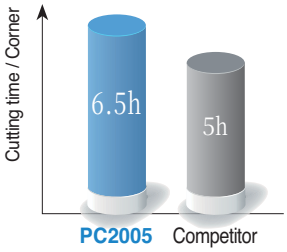
H Alloy tool steel (SKD11, heat treated)

■ **Workpiece** Automobile press mold

■ **Cutting condition** vc (m/min) = 377, fz (mm/t) = 0.5
ap (mm) = 0.5, ae (mm) = 0.2, dry

■ **Designation** **Insert** : LBH250-KH (PC2005)
Holder: LBE250140S-S25C

■ **Test result**



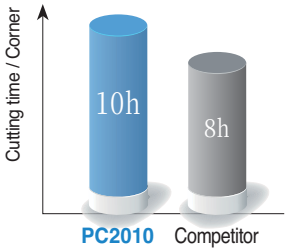
P Mold steel (KP4M)

■ **Workpiece** Automobile press mold

■ **Cutting condition** vc (m/min) = 200, fz (mm/t) = 0.1
ap (mm) = 0.1~0.5, ae (mm) = 0.1~0.5, wet

■ **Designation** **Insert** : LBH160-KH (PC2010)
Holder : LBE160100S-S16C

■ **Test result**



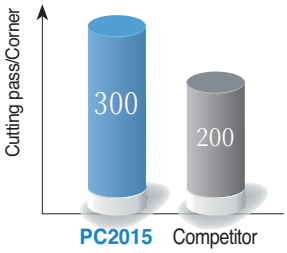
P Carbon steel (SM53C)

■ **Workpiece** CV Joint

■ **Cutting condition** vc (m/min) = 200, fz (mm/t) = 0.25
ap (mm) = 0.5~2.0, ae (mm) = 0.5~1.0, dry

■ **Designation** **Insert** : LBH230-KF (PC2015)
Holder: LBE230-HSKC63

■ **Test result**



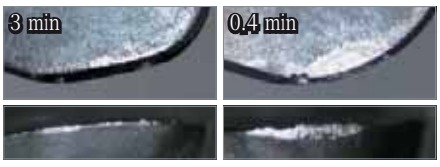
Application examples (PC2505/PC2510)

H Alloy tool steel (SKD11, heat treated)

■ **Cutting condition** vc (m/min) = 80, fz (mm/t) = 0.5
ap (mm) = 0.3, ae (mm) = 10, dry

■ **Designation** **Insert** : LPEW040210R-C (PC2505)
Holder : HFMS1010HR-2S10

■ **Test result**



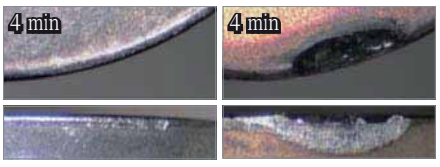
PC2505 Competitor H05

H Alloy tool steel (SKD11, heat treated)

■ **Cutting condition** vc (m/min) = 30, fz (mm/t) = 0.4
ap (mm) = 0.7, ae (mm) = 40, dry

■ **Designation** **Insert** : RPMW1204M0S1 (PC2510)
Holder: FMRPS4050HRP-4M40

■ **Test result**



PC2510 Competitor H10

PVD coated grades

Milling grade specialized for steel.

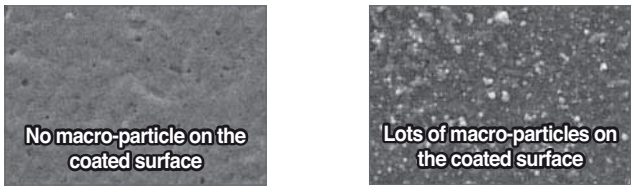
PC3700 new

- Excellent chip removal rate due to a tough substrate specialized for steel, and lubricative PVD coating of high-hardness
- A highly chipping-resistant grade for minimized deviation and extended tool life under various cutting conditions

Features

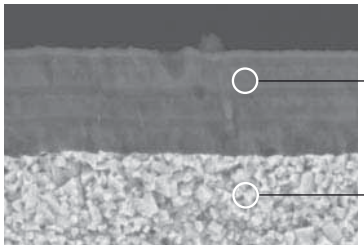
• Smooth surface due to special surface treatment
→ Smooth chip evacuation, improved chipping resistance and surface finish of the workpiece

Special coating surface treatment



PC3700 | Existing products

• Substrate for general milling applications of steel and PVC coating treatment

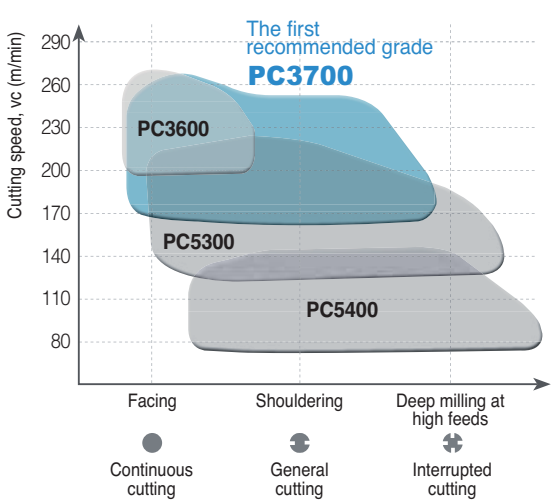


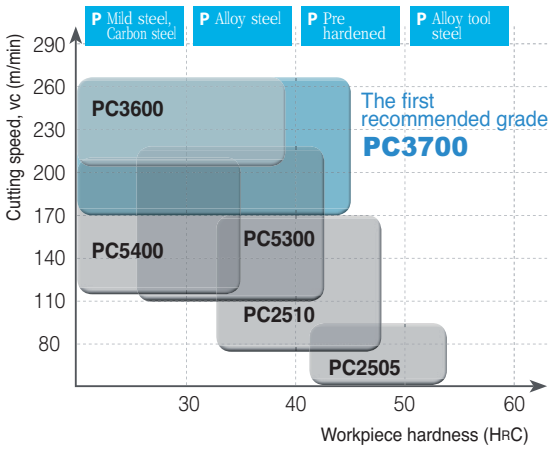
Stronger resistance to welding and chipping due to the multi-layer coating technology with high hardness and lubricating treatment

Ensuring general machinability due to wear and breakage resistant materials optimized for milling applications of steel

Application range

Recommended grades and cutting conditions for p-type milling application





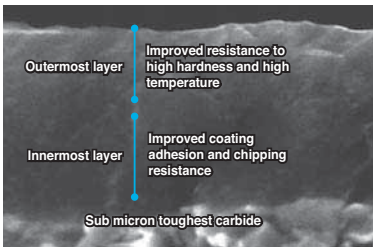
PVD coated grades

Universal PVD grade

PC5300

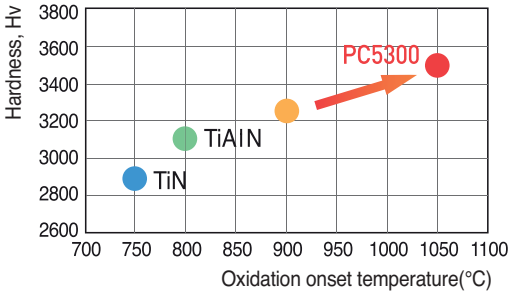
- Advanced PVD coating with high hardness and high temp stability
- High tough substrate and coating films produce excellent surface finish
- Universal tooling capability covering P, M, K, S with this single grade, PC5300
- Stable machining resulting from excellent edge hardness and chipping resistance

Features



- Latest PVD coating technology developed by KORLOY
- New concept of coating equipped with high temperature oxidation resistance and high hardness

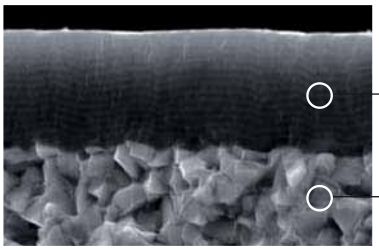
High temp properties



PC5400

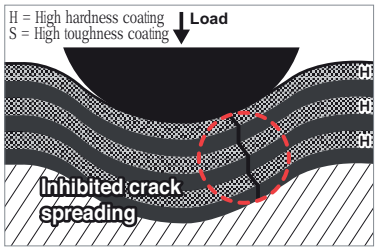
- New PVD coating layer with high toughness and lubrication
- High adhesive strength and toughness between the substrate and coating layer
- Excellent cutting edge strength and chipping resistance ensure stable machinability for P, M, K, S.

Features

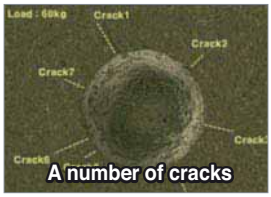


Improved lubrication
High toughness and strong adhesion

Ultrafine substrate of high toughness



Crack creation on the coating surface after leaving an indentation by 60kg



Normal coating

High toughness coating

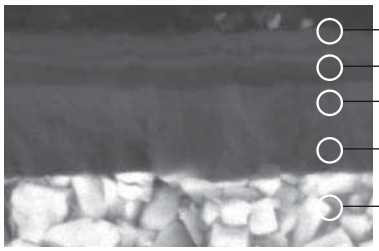
PVD coated grades

Optimal PVD grade for medium to rough cutting and highly interrupted milling in stainless steel

PC9540 new

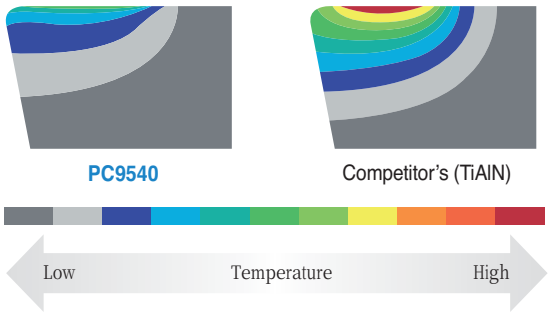
- Longer tool life due to higher breakage resistance applying high toughness substrate controlling crack growth
- Excellent and new PVD dioxide film with oxidation and heat resistance overcoming the limit of hard-to-cut materials machining
- Stable machinability by preventing welding and chipping due to applying special coating surface treatmen

Features

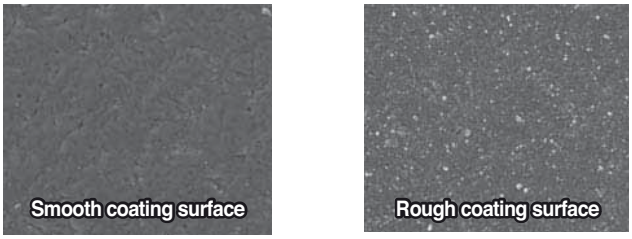


- Improved surface finish → Good welding resistance
- PVD multilayer → Controlling crack growth
- PVD dioxide film → Good oxidation and heat resistance
- PVD nitride film → Good wear resistance
- High toughness substrate → Good breakage resistance

New PVD dioxide film (comparison of thermal conductivity)

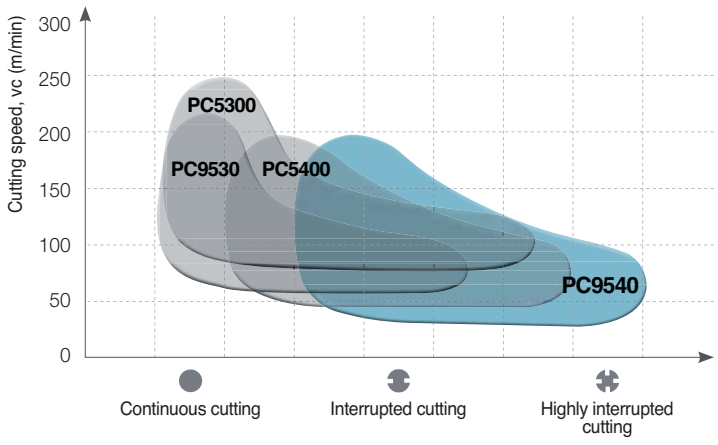


Special coating surface treatment technology



PC9540 — Existing grade

Application range



Selection system of CVD coated grades

Workpiece		Machining types	Recommended grade	Recommended cutting speed (m/min)	ISO	Application range
P	Steel	Continuous cutting	PC3600	235 (180 ~ 290)	P20	PC3600
			PC3700	235 (180 ~ 290)	P30	PC3700 new
		Interrupted cutting	PC5300	195 (150 ~ 240)	P40	PC5300
			PC5400	145 (80 ~ 210)		PC5400
M	Stainless steel	Continuous cutting	PC5300	130 (100 ~ 160)	M20	PC5300
			PC9530	130 (100 ~ 160)	M30	PC9530
		Interrupted cutting	PC5400	120 (95 ~ 155)	M40	PC5400
			PC9540	110 (80 ~ 140)	M50	PC9540 new
K	Cast iron	Continuous cutting	PC6510	180 (140 ~ 230)	K05	
					K10	PC6510
		Interrupted cutting	PC5300	145 (110 ~ 180)	K20	PC5300
			PC5400	125 (85 ~ 160)	K30	PC5400
S	HRSA	Continuous cutting	PC5300	55 (40 ~ 70)	S10	
					S20	PC5300
		Interrupted cutting	PC5400	40 (30 ~ 50)	S30	PC5400
			PC9540	40 (30 ~ 50)	S40	PC9540 new
H	High hardness steel	Continuous cutting	PC2005	60 (40 ~ 80)	H01	PC2005
			PC2010	55 (40 ~ 70)	H10	PC2505 new
			PC2015	50 (35 ~ 65)	H20	PC2010
			PC210F	50 (35 ~ 65)	H30	PC2510 new
						PC2015
						PC210F

The features of PVD coated grades

PVD Coated grades	ISO	Features
PC3600	P25 ~ P35	• Milling grade for medium and roughing of steel • New coating layer with superior wear resistance and oxidation resistance with high toughness substrate
PC3700 new	P25 ~ P35	• Exclusive grade for milling grade • Lubricated and high hardness multi-layered coating
PC5300	P30 ~ P40 K20 ~ K30 M20 ~ M30 S15 ~ S25	• Superior universal grade for steel, cast iron, hard to cut material, stainless steel • New coating and ultra fine grain provide wear resistance and oxidation resistance • TiAlN Series new coating
PC5400	P35 ~ P45 K25 ~ K35 M30 ~ M40 S25 ~ S35	• Universal grade for interrupted machining of steel, cast iron, hard-to-cut materials and stainless steel with stable machinability • New coating layer with high toughness and lubrication on ultra fine grain substrate with high toughness • AlCiN series new coating
PC6510	K05 ~ K15	• High speed milling grade for cast iron and aluminum • K-Gold coating
PC9530	M25 ~ M35 S20 ~ S30	• Medium to rough cutting of hard to cut materials such as stainless steel, Cr-Ni steel, etc. • The toughest sub-micron substrate provides excellent cutting performance at high feed • TiAlN coating
PC9540 new	M35 ~ M45 S30 ~ S40	• Exclusive high toughness grade for stainless steel milling • PVD dioxide film with good heat resistance
PC2005	P01 ~ P10 K01 ~ K10 H01 ~ H10	• Exclusive for Laser Mill in milling of high hardness workpieces and press mold steel • Utmost wear resistance due to high hardness substrate and coating • Ultra high hardness K-Brown coating
PC2010	H05 ~ H15	• Exclusive for Laser Mill in milling of pre hardened steel and plastic mold steel • High hardness enhanced cutting edges due to ultra fine WC and high contents binder for expanding application range to high hardness steel and pre hardened steel • Ultra high hardness K-Brown coating
PC2015	H10 ~ H20	• Exclusive for Laser Mill in milling of carbon steel and cast • Highly lubricative K-SILVER coating • Lubricative coating layer and high contents substrate for machining mild steel and hard-to-cut cast materials
PC210F	H10 ~ H20 P25 ~ P35 K15 ~ K25 M15 ~ M25 S10 ~ S20	• High speed milling grade for hardened steel, cast iron, and stainless steel(Laser Mill) • New coating and ultra fine grain provide wear resistance and oxidation resistance • TiAlN Series new coating
PC2505 new	H01 ~ H10	• Roughing grade for high hardened steel and pressed die steel • Excellent wear resistance ideal for machining die steel and high hardened steel over HRC50
PC2510 new	H05 ~ H15	• Roughing grade for pre-hardened steel and plastic die steel • Stabilized toughness ideal for interrupted cutting of high hardened steel and wet cutting accompanied by massive thermal shock

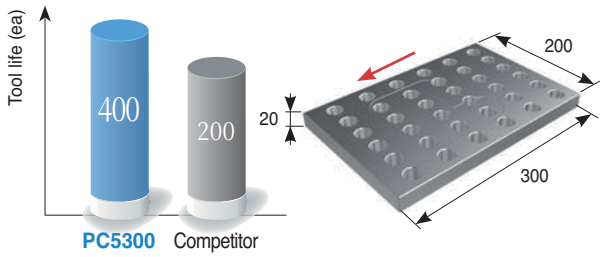
Application examples (PC5300)

P Mold steel (KP4M)

■ **Cutting condition** vc (m/min) = 250, fz (mm/t) = 1.0
ap (mm) = 1.0, dry

■ **Designation** **Insert** : WNMX130520ZNN-MM (PC5300)
Cutter : HRMDCM13050HR-3

■ **Test result**

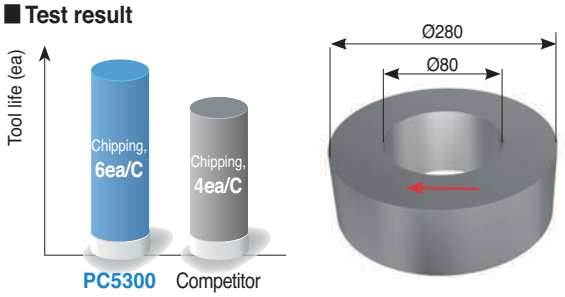


M Stainless steel (STS316)

■ **Cutting condition** vc (m/min) = 65, fz (mm/t) = 0.14
ap (mm) = 3.0, wet

■ **Designation** **Insert** : SEET14M4AGSN-MM (PC5300)
Cutter : FMACM4100HR

■ **Test result**



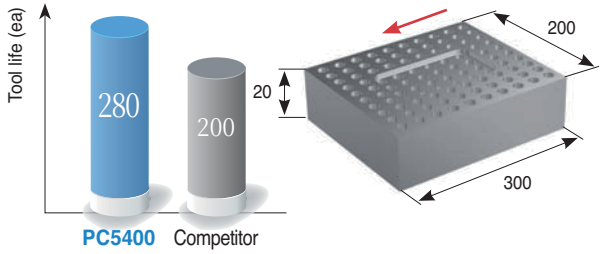
Application examples (PC5400)

P Carbon steel (SM45C)

■ **Cutting condition** vc (m/min) = 250, fz(mm/t) = 1.2
ap (mm) = 1.0, dry

■ **Designation** **Insert** : WNMX130520ZNN-MM (PC5400)
Cutter : HRMDCM13050HR-4

■ **Test result**

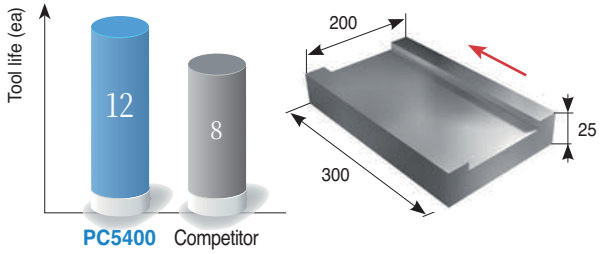


P Alloy steel (SCR440)

■ **Cutting condition** vc (m/min) = 180, fz (mm/t) = 0.2
ap (mm) = 2.0, dry

■ **Designation** **Insert** : PDKT1605M0-MM (PC5400)
Cutter : FMRC5063HRD-H

■ **Test result**

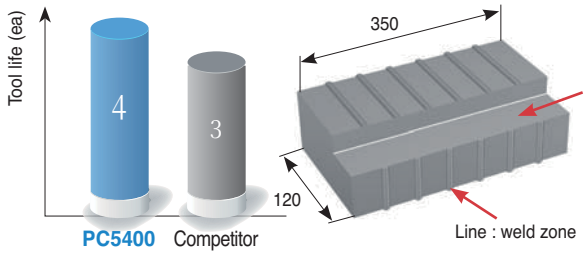


M Stainless steel (STS316)

■ **Cutting condition** vc (m/min) = 50, fz (mm/t) = 0.1
ap (mm) = 4.0, ae (mm) = 15.0, dry

■ **Designation** **Insert** : APMT1604PDSR-MM (PC5400)
Cutter : AMC3063HS

■ **Test result**

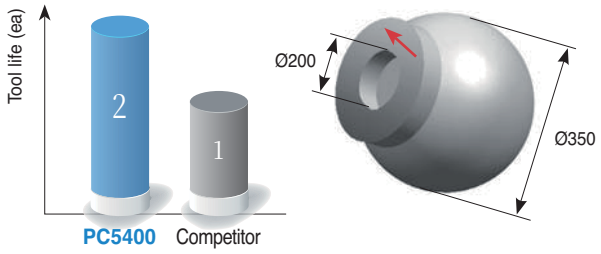


S Heat-resistant alloy (Inconel 718)

■ **Cutting condition** vc (m/min) = 60, fz (mm/t) = 0.1
ap (mm) = 2.5, wet

■ **Designation** **Insert** : SNMX1206ANN-MM (PC5400)
Cutter : RM8AC4080HR

■ **Test result**

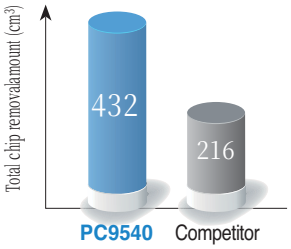


Application examples (PC9540)

M Austenitic stainless steel (STS304, HB200)

- **Workpiece** Square bar (300×200×100)
- **Cutting condition** vc (m/min) = 120, fz (mm/t) = 0.1
  ap (mm) = 1.5, ae (mm) = 20, wet
- **Designation** **Insert** : XNKT080508PNER-ML
  Holder: RM3PCM4063HR

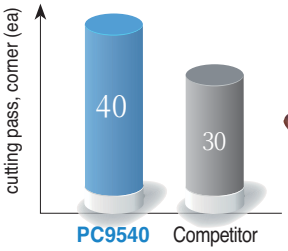
Test result



M Heat resistance stainless steel (DIN 1.4837)

- **Workpiece** Turbo charger turbine housing
- **Cutting condition** vc (m/min) = 100, fz (mm/t) = 0.16
  ap (mm) = 2.2, dry
- **Designation** **Insert** : SNMX1206ANN-MF
  Holder: RM8AC4100HR

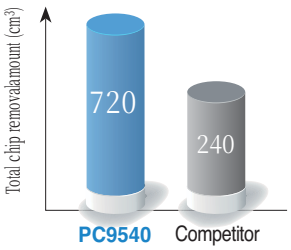
Test result

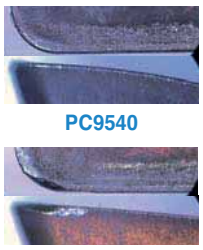


M Austenitic stainless steel (STS316, HB200)

- **Workpiece** Square bar (300×200×100)
- **Cutting condition** vc (m/min) = 120, fz (mm/t) = 0.15
  ap (mm) = 5.0, ae (mm) = 10, dry
- **Designation** **Insert** : ADKT170608PESR-ML
  Holder: KMS3032HR

Test result

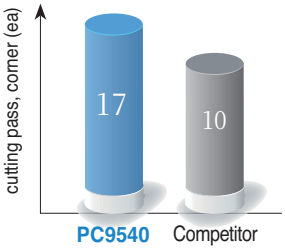




M Heat resistance stainless steel (DIN 1.4848)

- **Workpiece** Turbo charger turbine housing
- **Cutting condition** vc (m/min) = 80, fz (mm/t) = 0.2
  ap (mm) = 1.2, dry
- **Designation** **Insert** : ONMX060608-MM
  Holder: RM16AC6100HR-M

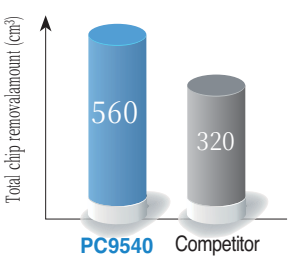
Test result

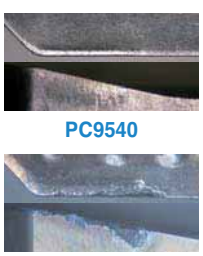


M Heat resistance stainless steel (DIN 1.4848, HB160)

- **Workpiece** Square bar (300×200×100)
- **Cutting condition** vc (m/min) = 90, fz (mm/t) = 0.2
  ap (mm) = 2.0, ae (mm) = 25, wet
- **Designation** **Insert** : SNMX1206ANN-MF
  Holder: RM8ACM4063HR-H

Test result

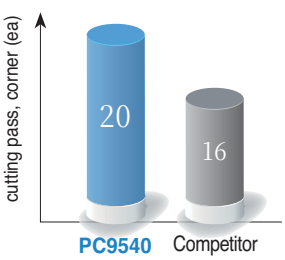




M Heat resistance stainless steel (DIN 1.4848)

- **Workpiece** Turbo charger turbine housing
- **Cutting condition** vc (m/min) = 100, fz (mm/t) = 0.15
  ap (mm) = 1.5, wet
- **Designation** **Insert** : XNKT060405PNSR-MM
  Holder: RM3PS3025HR-3L20

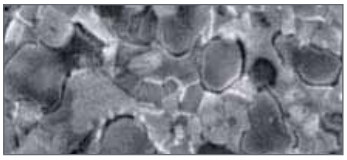
Test result

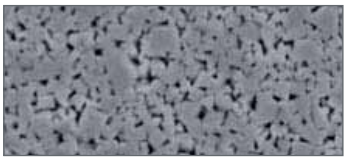


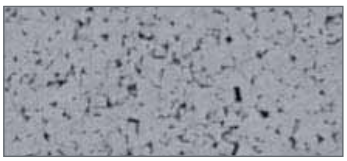
Uncoated carbide grades

Features

- Due to KORLOY's advanced sintering technology, our uncoated carbide grades have a fine alloy structure which is necessary to get superior quality from a uncoated cutting tool


P type


M type


K type

Advantages

- Consist of P,M,K carbide grades and can be used in all kinds of workpiece
- Excellent quality at machining with coolant, due to the superior thermal crack resistance of the carbide
- Due to the special design of carbides, it has fine micro structure and low affinity with workpiece
- It has excellent toughness and produces lower cutting loads

Selection system of uncoated carbide grade

Workpiece		Grade	Recommended cutting speed (m/min)	ISO	Application range
P	Steel	ST20	90 (70 ~ 110)	P20	ST20
		ST30A	80 (60 ~ 100)	P30	ST30A
M	Stainless steel	U20	90 (70 ~ 110)	M20	U20
				M30	
K	Cast iron	H01, H05	150 (110 ~ 190)	K10	H01, H05
		G10	120 (90 ~ 150)	K20	G10
N	Aluminum alloy	H01	600 (450 ~ 750)	N10	H01
	Copper alloys	H05	425 (320 ~ 530)	N20	H05

Main composition and application range

Workpiece	Composition	Features	Workpiece
P	WC-TiC-TaC-Co	Excellent thermal shock resistance and plastic deformation resistance	Carbon steel, Alloy steel, Stainless steel
M	WC-TiC-TaC-Co	General grades with thermal shock resistance and hardness	Carbon steel, Alloy steel, Stainless steel, Cast steel
K	WC-Co	High hardness and superior wear resistance	Cast iron, Non-ferrous metal, Non metal

The physical properties of uncoated carbide grades

Workpiece	Grade	Hardness (HRA)	TRS (kgf/mm^2)	Young's modulus (10^{3}kgf/mm^2)	Thermal expansion coefficient(10^{-6}/°C)	Thermal conductivity (cal/cm·sec·°C)
P	ST10	92.1	175	48	6.2	25
	ST20	91.9	200	56	5.2	45
	ST30A	91.3	230	53	5.2	-
M	U20	91.1	210	-	-	88
K	H01	92.9	210	66	4.7	109
	G10E	90.9	250	63	-	105

1KPa = 102kgf/m^2, 1w/mk = 2.39×10^{-3}cal/cm·sec·°C

Cermet grades

Features

- High hardness substrate ensures long tool life in high speed milling
- High toughness cutting edge ensures long tool life even in high impact machining
- Chemically stable substrate provides excellent surface finish of the workpiece

Selection system of cermet grades

Workpiece		Machining types	Grade	Recommended cutting speed (m/min)	ISO	Application range
P	Steel	Continuous cutting	CN2000	250 (200 ~ 300)	P20	CN2000
		Interrupted cutting	CN30	150 (100 ~ 200)	P30	CN30

The features of cermet grades

Cermet Grade	ISO	Features
CN2000	P20 ~ P30	• Universal grade from finishing to roughing of steel • Functionally Gradient Material
CN30	P25 ~ P35	• For milling of steel • Cermet with high toughness

The physical properties of cermet grades

Workpiece	Grade	Hardness(Hv)	TRS(kgf/mm^2)	SG(g·cm^{-3})
P	CN2000	< 1800	210 <	6.8~7.0
	CN30	< 1500	240 <	7.0~7.3

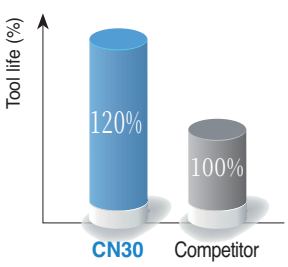
Application examples (CN30)

P Carbon steel (SM45C)

■ **Cutting condition** vc (m/min) = 120~150, fz (mm/t) = 0.07~0.13
ap (mm) = 2.0, dry

■ **Designation** **Insert** : SDCN42MT (CN30)
Cutter : ADN4315R

■ **Test result**

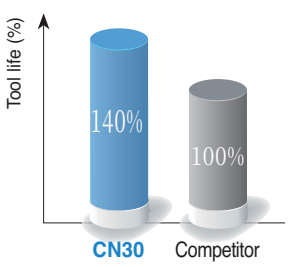


P Mold steel (KP4M)

■ **Cutting condition** vc (m/min) = 230, fz (mm/t) = 0.1~0.15
ap (mm) = 1.0, dry

■ **Designation** **Insert** : SDCN42MT (CN30)
Cutter : ADN4315R

■ **Test result**



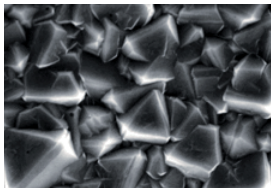
Diamond coated grades

Grade for graphite and ceramic

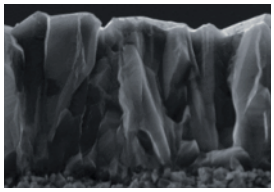
ND3000 new

- SP3-crystalline diamond coatings of high purity and high hardness
- Improved adhesion between coated layers and the substrate that is specialized for diamond coatings
- Excellent tool life when machining graphite and ceramic

Surface of ND3000



Cross section of ND3000's coated layers

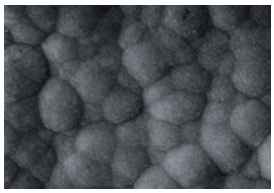


Grade for composite materials

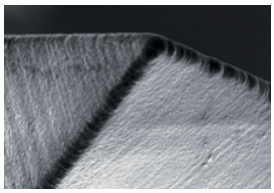
ND2100 new

- Improved surface finish and wear resistance due to the control technology of nano-crystalline diamond particles
- Improved flaking resistance due to the substrate that is specialized for diamond coatings
- High quality and high precision machining availability thanks to sharp edges
- Excellent tool life when machining composite materials

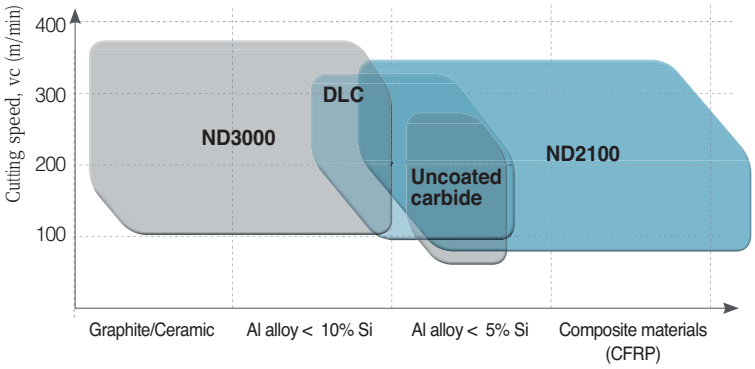
Surface of ND2100



Sharp edges of ND2100



Application range



Selection system

Workpiece			Grade	ISO	Application range
N	Nonferrous	Graphite/ Ceramic	ND3000 new	N01	ND3000 new
		Al alloy	ND3000 new ND2100 new	N05	ND2100 new
		Composite materials	ND2100 new	N10	

The features of diamond coated grades

Grade	ISO	Features
ND3000 new	N01 ~N05	• For continuous roughing of graphite, ceramic, and Al alloy at high speeds • Exceptional cutting performance due to high resistance to wear and flaking • High hardness diamond coatings of high purity SP3-crystalline structure
ND2100 new	N03~N08	• For continuous finishing of composite materials and Al alloy at high speeds • Stable machinability due to durable sharp edges • Nano-crystalline diamond coatings under particle control

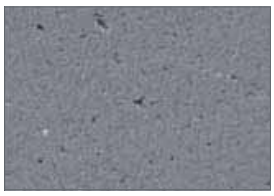
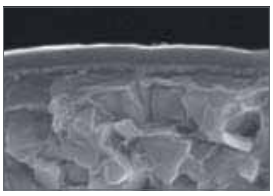
DLC coated grades

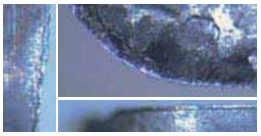
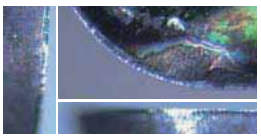
DLC-Coated Inserts for Non-Ferrous Metals

PD1005 new / PD1010 new

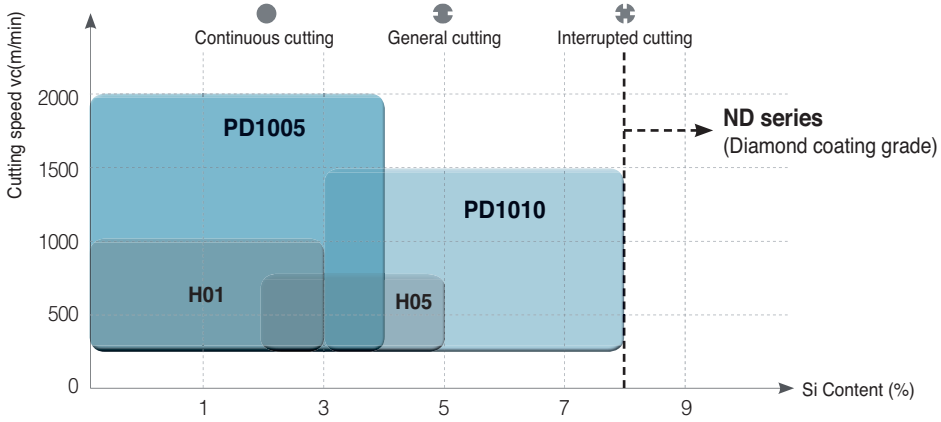
- High hardness and low friction DLC coating technology
- Lubrication and maximized wear resistance increases machinability and machining quality.
- Optimal substrate for each workpiece ensures stable and long tool life
- For non-ferrous metals such as aluminum, Al-Si alloy, copper and etc. machining

Features

Smooth coating surface	Hard DLC coating
	

Grade	Wear resistance and Welding resistance	Surface finish	Chip curl
Carbide non coated			
DLC PD1010			

Application range



Selection criteria

Workpiece			Grade	ISO	Application range
N	Non-ferrous metals	Aluminum and copper (Soft non-ferrous metals)	PD1005	N05	PD1005 new
		Aluminum alloy	PD1005 PD1010	N10	PD1010 new
		Al-Si alloy (Hardened non-ferrous metals)	PD1010	N15	

The features of DLC coating grades

Grade	ISO	Features
PD1005	N05	• For high speed and continuous machining of Aluminum and copper • High wear and welding resistance realize good machinability • High performance of DLC coating with high hardness and low friction
PD1010	N10	• For medium to high and interrupted machining of aluminum alloy and Al-Si alloy • Stable tool life due to substrate with chipping resistance • High performance DLC coating with high hardness and low friction

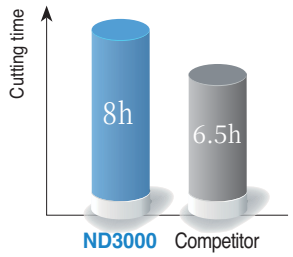
Application examples (ND3000/ND2100)

N Graphite mold

■ **Cutting condition** vc (m/min) = 100, fz (mm/t) = 0.11, ap (mm) = 0.26, dry

■ **Designation** **Endmill** : DBE4060-110-N250S06 (ND3000)

■ **Test result**

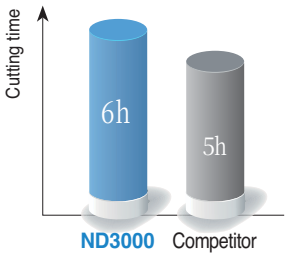


N Graphite mold

■ **Cutting condition** vc (m/min) = 300, fz (mm/t) = 0.1 ap (mm) = 0.15, dry

■ **Designation** **Endmill** : DBE2060-080-N250S06 (ND3000)

■ **Test result**

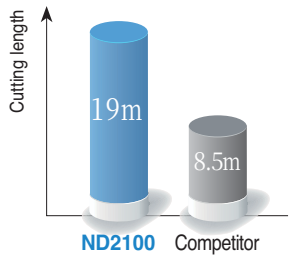


N CFRP

■ **Cutting condition** vc (m/min) = 200, fn (mm/rev) = 0.21, ap (mm) = 10, ae (mm) = 2.8

■ **Designation** **Endmill** : CCR2080-075 (ND2100)

■ **Test result**

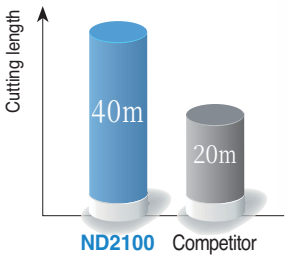


N CFRP

■ **Cutting condition** vc (m/min) = 200, fz (mm/t) = 0.17 ap (mm) = 10, ae (mm) = 1.2

■ **Designation** **Endmill** : CCLR4080-075 (ND2100)

■ **Test result**



Application examples (PD1005/PD1010)

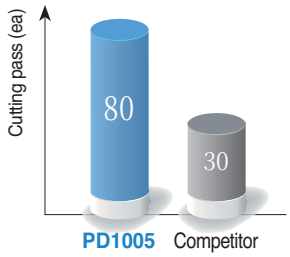
N Al-Si alloy

■ **Workpiece** Aluminum die casting materials, ALDC7 (Si 8%)

■ **Cutting condition** vc (m/min) = 400, fn (mm/rev) = 0.25-0.3, ap (mm) = 1.0-1.5, wet

■ **Designation** **Insert** : CNMG120408-HA (PD1005)
Holder: PCLNR2525-M12

■ **Test result**



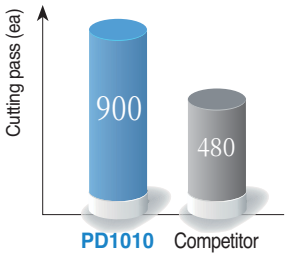
N Al-Si alloy

■ **Workpiece** Aluminum forging materials, AC4C (Si 7%)

■ **Cutting condition** vc (m/min) = 740, fn (mm/rev) = 0.15, ap (mm) = 1.0-1.5, wet

■ **Designation** **Insert** : XEKT19M504FR-MA (PD1010)
Holder: PAXS5032HR-A

■ **Test result**



PCD inserts grades

Features

KORLOY PCD products are manufactured by using high quality PCD tips under ultra high temperatures and pressure. The PCD tip is welded on the qualified KORLOY carbide insert KORLOY high quality PCD products meet a wide range of application needs in turning, milling, and endmills.

- Excellent tool life for aluminum alloy and copper alloy
- Excellent tool life for Ceramic, high-silicon aluminum and rock or stone
- Excellent tool life for rubber, carbon, graphite and wood

PCD grade

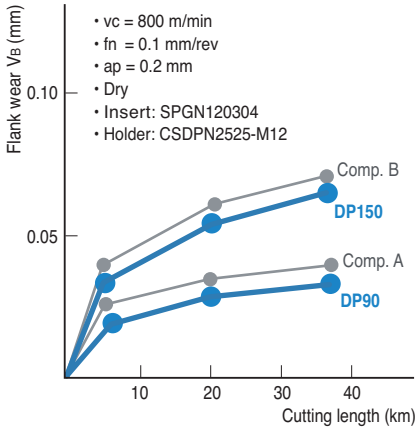
Grade	Features	Application	Grain size (㎛)	Hardness (Hv)	TRS (kgf/mm²)
DP90	Coarse diamond grain has been used to get excellent wear resistance enough to machine cemented-carbide, high Si aluminum alloy	Cemented carbide Ceramic roughing High Si aluminum alloy Rock, Stone	50	10,000 ~ 12,000	110
DP150	By use of fine diamond grain having good bonding property, it is suitable for machining of Non-ferrous metal, graphite	High Si aluminum alloy Copper, Bronze alloy Rubber, Wood, Carbon	5	10,000 ~ 12,000	200
DP200	By use of ultra fine diamond grain, it is possible to make sharp cutting edge. Thus it is appropriate grade to machine Non-ferrous material	Plastic Wood Precise finishing of aluminum	0.5	8,000 ~ 10,000	220

Recommended cutting condition

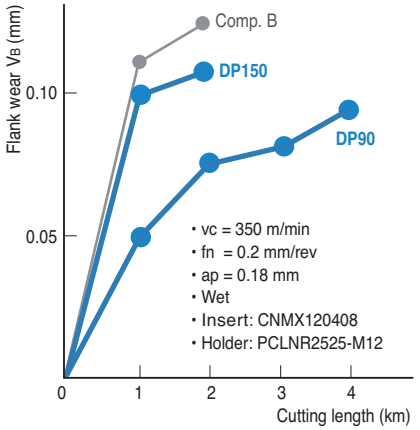
Workpiece	Cutting speed (m/min)	Feed (mm/rev)	Depth of cut (mm)	Recommended grade	
				1st	2nd
Aluminum alloy (4%~8% Si)	1000 ~ 3000	0.1 ~ 0.6	~ 3	DP150	DP200
Aluminum alloy (9%~14% Si)	600 ~ 2500	0.1 ~ 0.5	~ 3	DP150	DP200
Aluminum alloy (15%~18% Si)	300 ~ 700	0.1 ~ 0.4	~ 3	DP150	DP200
Copper, Bronze alloy	~ 1000	0.05 ~ 0.2	~ 3	DP150	DP200
Reinforced plastic	~ 1000	0.1 ~ 0.3	~ 2	DP150	DP200
Wood	~ 4000	0.1 ~ 0.4	-	DP150	DP200
Cemented carbide	10 ~ 30	~ 0.2	~ 0.5	DP90	DP150

Cutting performance

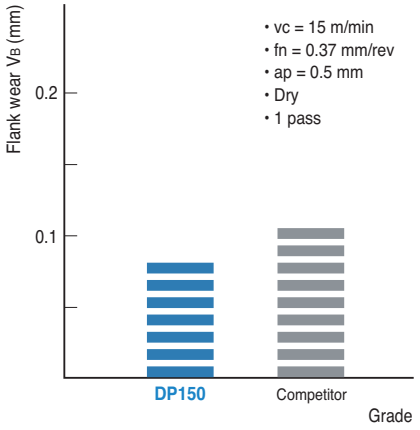
Continuous cutting test (Workpiece: Al-25%Si)



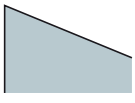
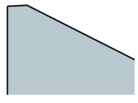
Interrupted cutting test (Workpiece: Al-20%Si)



Cutting test of cemented carbide

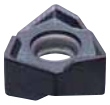
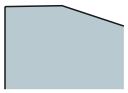
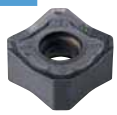
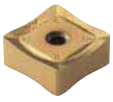
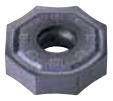


Chip breaker for milling

Geometry		Cutting edge	Application range (feed rate fn (mm/rev) 0.04 0.063 0.10 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3 / depth of cut ap (mm) 0.1 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3 10.0 11.6 14)	Features
MX series	MX		0.10~0.30 1.0~5.0	**For Roughing** • Possible to increase productivity through increase feed and depth • Excellent heat resistance due to the special chip breaker design of top face of insert
Mill-max Heavy	MM		0.20~0.40 2.0~14.0	**For Roughing** • Specialized tool for high depth of cut roughing with high rigidity cutting edge ensures stable machining.
Rich Mill series-RM3	MA		0.05~0.40 1.0~8.0	**For Aluminum machining** • Sharp cutting edge for low cutting load, which is ideal for machining steel, hard-to-cut materials and aluminum
	ML		0.05~0.30 1.0~8.0	**For machining hard-to-cut materials** • Low cutting resistance for light cutting and machining hard-to-cut materials with excellent tool life and surface roughness
	MM		0.05~0.35 1.0~8.0	**For General cutting** • Available for most of applications with universal design for general milling
Rich Mill series-RM4	MA		0.05~0.25 0.3~14.0	**For Aluminum machining** • Sharp cutting edge design ensures low cutting resistance and excellent machining in difficult- tocut materials, aluminum and light machining
	MF		0.05~0.30 0.5~14.0	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining
	MM		0.05~0.30 1.0~14.0	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
Rich Mill series-RM6	MA		0.05~0.2 1.0~8.2	**For Aluminum machining** • Specialized sharp cutting edge for aluminum machining ensures machinability. • Buffing treatment on the surface realizes good chip flow and welding resistance.
	ML		0.05~0.25 1.0~8.2	**For Machining hard-to-cut materials** • Low cutting load chip breaker for light cutting • Long tool life and high quality of machining in hard-to-cut material cutting

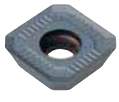
Notice: Application ranges are based on main cutting material

Chip breaker for milling

Geometry		Cutting edge	Application range (feed rate fn (mm/rev): 0.04 0.063 0.10 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3 / depth of cut ap (mm): 0.1 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3 10.0 11.6 14)	Features
Rich Mill series-RM6	MM		 0.05~0.25; 1.0~8.2	**For General cutting** • Optimally designed shape for general shoulder milling in various cutting ranges
Rich Mill series-RM8	MA		 0.05~0.35; 0.3~6.0	**For Aluminum machining** • Sharp cutting edge and lubricated top face show excellent chip flow and welding resistance in aluminum machining
	MF		 0.05~0.35; 0.3~6.0	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining
	ML		 0.05~0.30; 0.3~6.0	**For Machining hard-to-cut materials** • Chip breaker with low cutting load resistance ensures long tool life and high quality in light and hard-to-cut material cutting.
	MM		 0.10~0.40; 0.5~6.0	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
Rich Mill series-RMT	MF		 0.05~0.20; 0.5~5.0	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining
	MM		 0.05~0.30; 0.5~8.0	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
Rich Mill series-RM16	MA		 0.05~0.30; 0.3~5.5	**For Aluminum machining** • Sharp cutting edge design ensures low cutting resistance and excellent machining in difficult- tocut materials, aluminum and light machining
	MF		 0.05~0.40; 0.3~5.5	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining
	ML		 0.05~0.35; 0.3~5.5	**For Machining hard-to-cut materials** • Low cutting resistance for excellent tool life and surface roughness in machining hard-to-cut materials

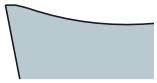
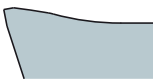
Notice: Application ranges are based on main cutting material

Chip breaker for milling

Geometry		Cutting edge	Application range (feed rate fn (mm/rev): 0.04 0.063 0.10 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3; depth of cut ap (mm): 0.1 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3 10.0 11.6 17)	Features
Rich Mill series-RM16	MM			0.10~0.45 0.5~5.5	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
	W			0.05~0.30 0.3~2.0	**For Finishing of milling (Wiper)** • Wiper insert provides improved surface roughness due to special cutting edge
Alpha Mill series	MA			0.10~0.40 0.5~16	**For Aluminum machining** • Sharp cutting edge and lubricated top face show excellent chip flow and welding resistance in aluminum machining
	MF			0.05~0.15 0.5~16	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining
	MM			0.10~0.25 0.5~16	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
	ML			0.05~0.15 0.5~16	**For Hard-to-cut material machining** • The chip breaker with low cutting resistance ensures superior machinability in hard-to-cut materials
	MN			0.10~0.25 0.5~16	**For Roughing (nick)** • Design for easy chip cutting ensures high machinability in toughing.
Alpha Mill-X series	MM			0.05~0.35 1.0~16.5	**For General cutting** • Shape for general milling with most cutting range
	ML			0.05~0.30 1.0~16.5	**For Hard-to-cut material machining** • Chip breaker for cutting with low cutting load guarantees long tool life and qualified machining in light cutting and HRSA machining.
Future Mill series	MF			0.05~0.20 0.5~5.0	**For Light cutting** • Special design for light cutting of gummy materials like stainless steel and hard to machine material provide fine surface finish and longer tool life

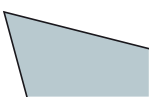
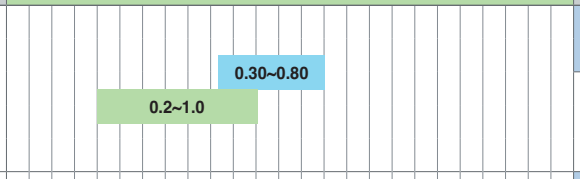
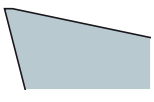
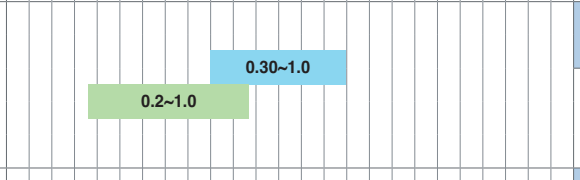
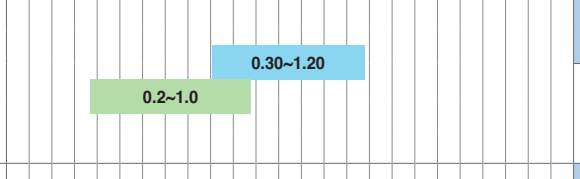
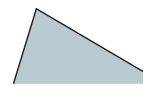
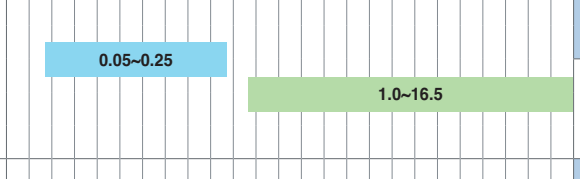
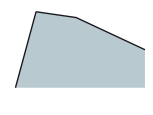
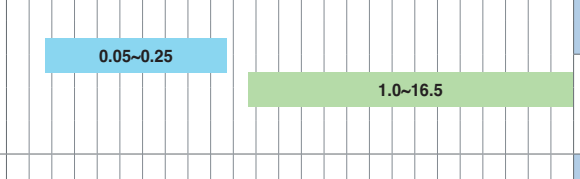
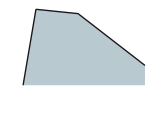
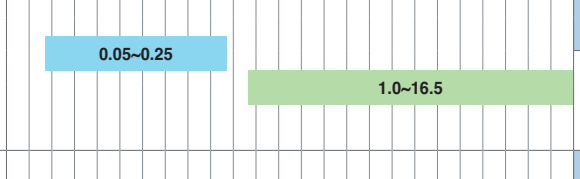
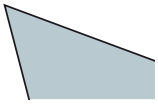
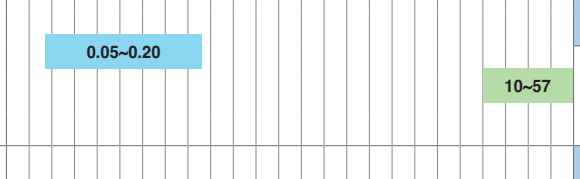
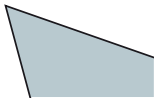
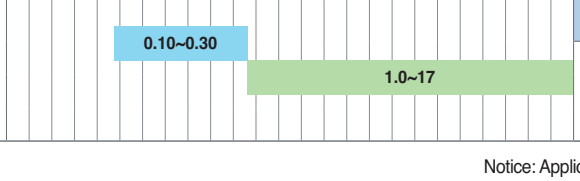
Notice: Application ranges are based on main cutting material

Chip breaker for milling

	Geometry	Cutting edge	Application range	Features
Future Mill series	MM		feed rate fn (mm/rev): 0.04 0.063 0.10 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3 depth of cut ap (mm): 0.1 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3 10.0 11.6 14 0.05~0.30 1.0~5.0	**For General cutting** • Chip breaker design to cover general cutting condition provides wide available application range • Ground type and as sintered type is available
Future Mill series	MR		0.05~0.35 1.5~5.0	**For Roughing** • Strongest cutting edge strength provide stable tool life even in case of severe cutting with heavy intermittent and heavy roughing
Future Mill series	MA		0.10~0.35 0.5~5.0	**For Aluminum machining** • Sharp cutting edge and lubricated top face show excellent chip flow and welding resistance in aluminum machining
Future Mill series P-posi	MA		0.30~0.60 0.3~6.0	**For Aluminum machining** • Excellent surface roughness due to buffed surface in machining aluminum
Future Mill series P-posi	ML		0.30~0.50 0.3~3.0	**For Hard-to-cut material machining** • Low cutting resistance and high hardness cutting edges for excellent surface roughness in machining titanium and Inconel
Future Mill series P-posi	MF		0.12~0.50 0.3~6.0	**For Light cutting** • Low cutting resistance for light cutting
Future Mill series P-posi	MM		0.20~0.70 0.3~6.0	**For General cutting** • Universal purpose for most of milling applications
Future Mill series P-posi	None C/B		0.30~0.50 0.3~0.5	**For Machining high hardness steel** • Ideal for machining high hardness mold steel and heat resistant alloy
HFM	MF		0.30~1.0 0.1~0.4	**For Light cutting** • Chip breaker for cutting with low cutting load is optimal for light cutting.
HFM	None C/B		0.30~0.80 0.1~0.4	**For Machining high hardness steel** • Shape with hard cutting edge is optimal for high hardness alloy steel machining.

Notice: Application ranges are based on main cutting material

Chip breaker for milling

Geometry		Cutting edge	Application range	Features
HFMD	ML			**For Hard-to-cut material machining** • Chip breaker for cutting with low cutting load and and hard cutting edge ensure high qualified machining.
	MF			**For Light cutting** • Chip breaker for cutting with low cutting load is for light cutting.
	MM			**For General cutting** • Shape for general machining with high feed is available for most machining range.
TP2P	MA			**For Aluminum machining** • Sharp cutting edge for aluminum machining ensures good machinability. • Buffed surface realizes chip flow and welding resistance.
	ML			**For Hard-to-cut material machining** • Chip breaker for cutting with low cutting load guarantees long tool life and qualified machining in light cutting and HRSA machining.
	MM			**For General cutting** • Specialized shape for general slotting is applicable in most cutting ranges.
Pro-XL Mill	MA			**For Aluminum machining** • Sharp cutting edge with buffing on the surface for aluminum machining ensures chip flow and welding resistance.
Pro-V Mill	MA			**For Aluminum machining** • Shape for general slotting is applicable in most cutting ranges.

Notice: Application ranges are based on main cutting material

Milling Insert

E02 Milling Insert Code System (ISO)
E04 Milling Inserts
E32 KORLOY Cutters
E38 KORLOY Shanks
E42 KORLOY Modular Adaptors

Face Milling Cutters

E44 Mill-max/Mill-max Plus (E45, E51)
E54 Technical Information for Mill-max Heavy
E55 Mill-max Heavy
E56 Turbo Mill
E59 Double Mill
E61 Technical Information for Power Buster
E65 Power Buster
E68 Technical Information for Rich Mill
E89 Rich Mill
E132 Technical Information for Aero Mill/ Aero Mill-Plus/Aero Mill-Mini
E136 Aero Mill
E137 Aero Mill-Plus
E139 Aero Mill-Mini
E141 PCD Face Cutter

Cutters for Molds

E142 Technical Information for Alpha Mill-X
E145 Alpha Mill-X
E147 Technical Information for Alpha Mill/Alpha Mill Nick
E154 Alpha Mill
E183 Technical Information for BT/HSK Tooling System
E184 BT Tooling System (Single-edge)
E189 HSK Tooling System (Single-edge)
E194 BT Tooling System (Multi-edge)
E200 HSK Tooling System (Multi-edge)
E205 BT Tooling System (Modular)
E206 HSK Tooling System (Modular)
E207 Technical Information for Future Mill/FMR P-Positive
E222 Future Mill
E248 FMR P-Positive
E260 Technical Information for HFMD
E264 HFMD
E268 Technical Information for HFM
E273 HFM
E276 Technical Information for HRMDouble
E281 HRMDouble
E292 HRM
E299 Tank Mill
E300 Technical Information for TP2P
E303 TP2P

Cutters for Molds

E309 Technical Information for Laser Mill/GBE/BRE
E318 Laser Mill
E323 BFE
E324 GBE
E327 BRE
E329 Technical Information for HAVE
E331 HAVE (Single-edge/Multi-edge)
E333 O-ring Cutter
E335 Chamfer Tool (Multi-functional, Solid)
E343 T-Cutter (TFE)

Milling Cutters for Aluminum

E344 Technical Information for Pro-A Mill/Pro-X Mill/Pro-L Mill/Pro-XL Mill/Pro-V Mil
E354 Pro-A Mill
E357 Pro-X Mill
E363 Pro-L Mill
E367 Pro-XL Mill
E368 Pro-V Mill
E371 Modular Adaptor (MAT)

Side Milling Cutters

E373 Technical Information for Side Milling Cutters
E375 Side Milling Cutter
E379 Side Cutter
E382 Wind Mill

Milling Cutter for Cast iron at high feed

E386 Technical Information for High feed Cutter
E388 Technical Information for Cube Mill
E389 Technical Information for Couple Mill
E391 Technical Information for Storm Mill
E392 Technical Information for Shave Mill
E394 Technical Information for Shave Mill-Ultra
E395 High feed Cutter
E397 Shave Mill
E398 Shave Mill-Ultra

Detail Information of Milling Cutter and Arbor

E400 Actual Designations of Milling Cutter and Arbor

Gear Tools

E403 Technical Information for Gear Cutter Tools
E404 Gear Cutter Table
E405 Gear Cutter
E413 Gear Cutter Order Form
E414 Indexable HOB
E415 Indexable HOB Order Form
E416 Special Boring Tool Order Form

MILLING

Milling tools that provide the best quality and improve productivity for every customer needs.

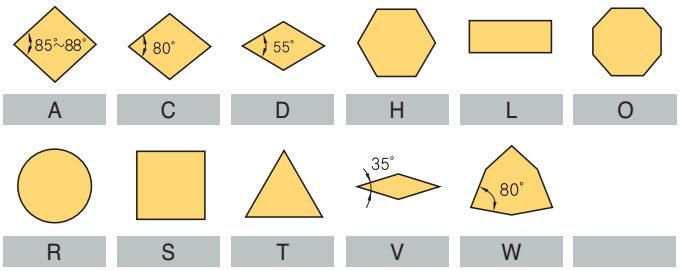
E

S P K R 12

1 Insert shape | 2 Relief angle | 3 Tolerance | 4 Cross section type | 5 Cutting-edge length, diameter of inscribed circle

1 Insert shape

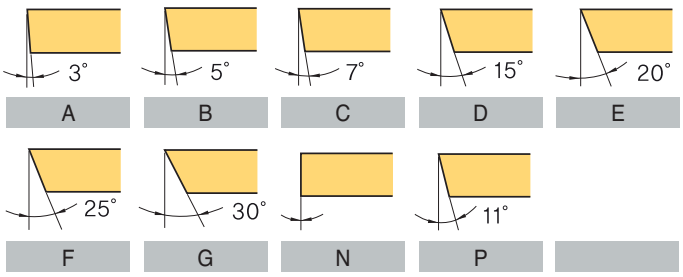
S P K R 12 03 ED 08 S R - MX



A	C	D	H	L	O
R	S	T	V	W	

2 Relief angle

S P K R 12 03 ED 08 S R - MX

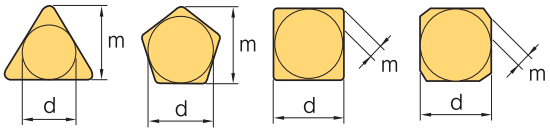


A	B	C	D	E
F	G	N	P	

3 Tolerance

S P K R 12 03 ED 08 S R - MX

d: Inscribed circle
t: Thickness
m: Refer to figure



(mm)

Class	d	m	t
A	±0.025	±0.005	±0.025
C	±0.025	±0.013	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J	±0.05~±0.15	±0.005	±0.025
K	±0.05~±0.15	±0.013	±0.025
L	±0.05~±0.15	±0.025	±0.025
M	±0.05~±0.15	±0.08~±0.20	±0.13
U	±0.08~±0.25	±0.13~±0.38	±0.13

■ Tolerance on C,E,H,M,O,P,R,S,T,W Insert Shape (exceptional case)

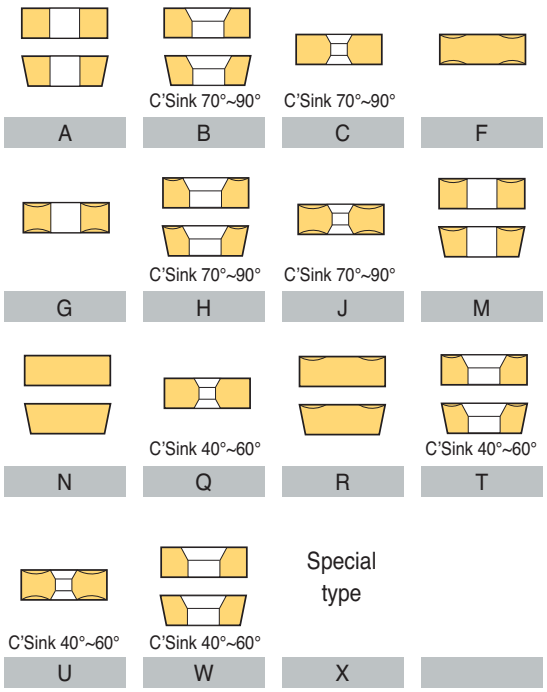
d	Tolerance on d		Tolerance on m	
	J,K,L,M,N	U	M,N	U
6.35	±0.05	±0.08	±0.08	±0.13
9.525	±0.05	±0.08	±0.08	±0.13
12.7	±0.08	±0.13	±0.13	±0.20
15.875	±0.10	±0.18	±0.15	±0.27
19.05	±0.10	±0.18	±0.15	±0.27
25.4	±0.13	±0.25	±0.18	±0.38

Tolerance on D Insert Shape (exceptional case)

d	Tolerance on d	Tolerance on m
6.35	±0.05	±0.11
9.525	±0.05	±0.11
12.7	±0.08	±0.15
15.875	±0.10	±0.18
19.05	±0.10	±0.18

4 Cross section type

S P K R 12 03 ED 08 S R - MX

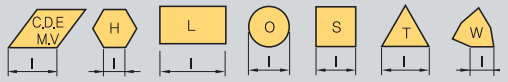


A	B	C	F
G	H	J	M
N	Q	R	T
U	W	X	

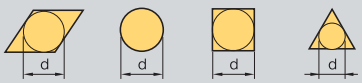
5 Cutting-edge length, diameter of inscribed circle

S P K R 12 03 ED 08 S R - MX

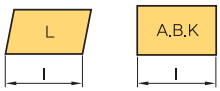
■ Metric system ※Decimal integer constant



■ Inch system



· Use 1/32″ unit for a insert having smaller I.C under 1/4″
· Use 1/8″ unit for a insert having larger I.C over 1/4″



※ In case of rectangular and rhombic insert indicate cutting-edge length instead of inscribed circle.

■ Cross over chart for "Metric" and "Inch" system

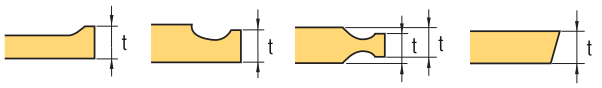
△	06	09	11	16	22	27	33	44
○ □	03	05	06	09	12	15	19	25
55°	04	06	07	11	15	19	23	31
80°	03	05	06	09	12	16	19	25
Inscribed circle	5/32″	7/32″	1/4″	3/8″	1/2″	5/8″	3/4″	1″
Inch system	5	7	2 (8)	3	4	5	6	8

03 ED 08 S R - MX

6	7	8	9	10
Height of cutting-edge	Nose radius (Nose R)	Edge preparation	Hand	Chip breaker for milling

6 Height of cutting-edge

S P K R 12 **03** ED 08 S R - MX

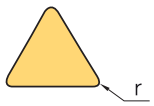


Symbol		Height of cutting-edge (t)	
Metric	Inch	mm	Inch
01	1 (2)	1.59	1/16
T0	1.125	1.79	9/128
T1	1.2	1.98	5/64
02	1.5 (3)	2.38	3/32
T2	1.75	2.78	7/64
03	2	3.18	1/8
T3	2.5	3.97	5/32
04	3	4.76	3/16
05	3.5	5.56	7/32
06	4	6.35	1/4
07	5	7.94	5/16
09	6	9.52	3/8
11	7	11.11	7/16
12	8 (16)	12.70	1/2

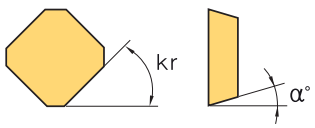
( ) Symbol for small size insert

7 Nose radius (Nose R)

S P K R 12 03 **ED 08** S R - MX



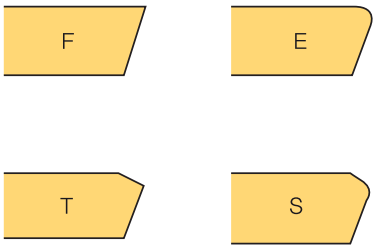
r		Symbol		r		Symbol	
mm	Inch	mm	Inch	mm	Inch	mm	Inch
00	0	0.0		12	3	1.2	3/64
02		0.2		15		1.5	
04	1	0.4	1/64	16	4	1.6	4/64
05		0.5		24	6	2.4	6/64
08	2	0.8	2/64	32	8	3.2	8/64
10		1.0		40		4.0	



Parallel land	Relief angle	
kr	α°	
A - 45°	A - 3°	F - 25°
D - 60°	B - 5°	G - 30°
E - 75°	C - 7°	N - 0°
F - 85°	D - 15°	P - 11°
P - 90°	E - 20°	
Z - Special		

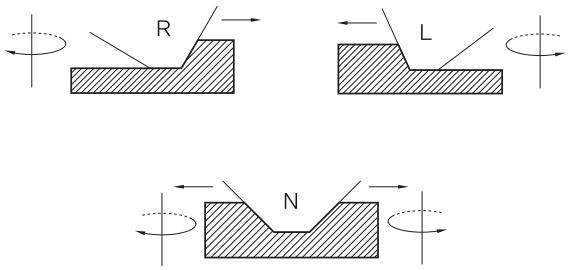
8 Edge preparation

S P K R 12 03 ED 08 **S** R - MX



9 Hand

S P K R 12 03 ED 08 S **R** - MX

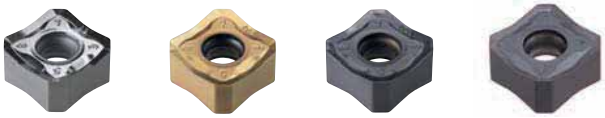


10 Chip breaker for milling

S P K R 12 03 ED 08 S R - **MX**

MA MF MM MX

MF MM MR MA

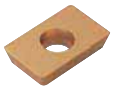
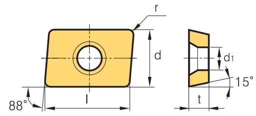
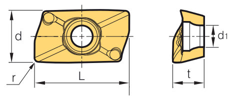
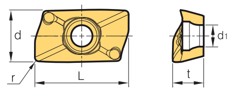
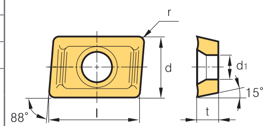
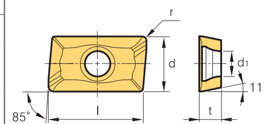
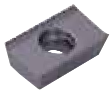
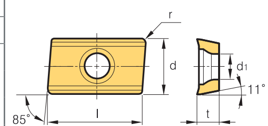
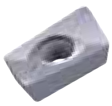
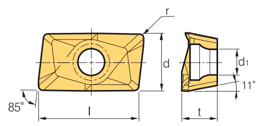
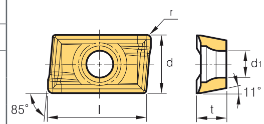
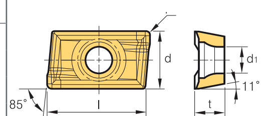
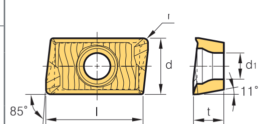


MA MF MM ML

Workpiece		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	H01	H05
Steel	P	●	◐	◐	✤	●	●	●	◐	◐	◐				◐	✤		
Stainless steel	M			◐	✤				●				◐	✤	◐	✤		
Cast iron	K					◐	●	●	◐			●			◐	✤	●	●
Non-ferrous metal	N																●	◐
Heat resistant alloy, Titanium alloy	S														◐	✤		
Hardened steel	H								◐						◐	✤		

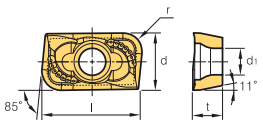
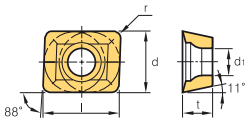
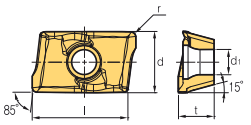
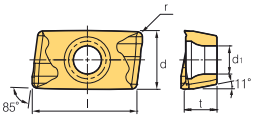
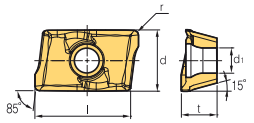
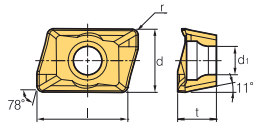
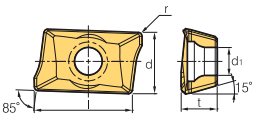
Machining types

- ● Continuous cutting
- ◐ General cutting
- ✤ Interrupted cutting

Inserts	Designation	Cermet		Coated													Uncoated		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	H01	H05	l	d	t	r	d1		
ADKA 	150308R																		15.0	9.525	3.18	0.8	4.5		-
	150308SR																		15.0	9.525	3.18	0.8	4.5		
	150308TR		●																15.0	9.525	3.18	0.8	4.5		
ADKT-ML new 	170608PESR-ML						●				●	●		●	●	●			19.650	10.843	6.529	0.8	4.5		E145~ E146
ADKT-MM new 	170604PESR-MM																		19.650	10.843	6.529	0.4	4.5		E145~ E146
	170608PESR-MM						●				●	●		●	●	●			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		
ADLT 	150308R			●											●				15.0	9.525	3.18	0.8	4.5		E299
	150308SR										●								15.0	9.525	3.18	0.8	4.5		
	150308TR																		15.0	9.525	3.18	0.8	4.5		
APKT 	1604PDSR			●							●	●							16.4	9.525	4.76	0.8	4.4		E158 E170
APKT-MA 	1604PDFR-MA																●	●	16.4	9.525	4.76	0.2	4.4		E158 E170
	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		E158 E170
	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		E158 E170
	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		E158 E170 E179
APKT-MM 	1604PDSR-MM			●	●						●	●	●		●				16.4	9.525	5.2	0.8	4.4		E158 E170 E179

●: Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⧓ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Inserts	Designation	Cermet		Coated												Uncoated		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	l	d	t	r	d_1		
APKT-MM1 	160432R-MM1																		16.4	9.525	4.76	3.2	4.4		E158 E170
APLT 	070304R														●				7.5	6.35	3.18	0.4	2.8		E299
APMT-MA new 	0602PDFR-MA																●		6	4.24	2.6	0.4	2.0		E154~157
	060208PDFR-MA																		6	4.24	2.6	0.8	2.0		E159
	0903PDFR-MA																●		9.4	6.21	3.6	0.4	2.8		E162~169
	090308PDFR-MA																		9.4	6.21	3.6	0.8	2.8		E171~172
	11T3PDFR-MA																●		11.2	6.467	3.6	0.5	2.9		E175~182
	11T308PDFR-MA																		11.2	6.467	3.6	0.8	2.9		E184~198
	160404PDFR-MA																		16.4	9.41	5.76	0.4	4.5		E200~204
	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		
APMT-MF 	11T3PDSR-MF			●						●	●	●			●	●			11.2	6.467	3.6	0.5	2.9		E156~157
	1604PDSR-MF			●						●	●	●			●	●			16.4	9.41	5.76	0.8	4.5		E159~164
	1806PDSR-MF			●						●		●			●	●			17.4	10.98	6.35	0.8	4.5		E168~169
	180612PDSR-MF																		17.4	10.98	6.35	1.2	4.5		E171~174
																									E176~177 E179, 182 E186~188 E191~193 E196, 198 E202~204
APMT-ML new 	0903PDER-ML														●	●			9.4	6.21	3.6	0.4	2.8		E155~157
	090308PDER-ML														●	●			9.4	6.21	3.6	0.8	2.8		E159
	11T3PDER-ML														●	●			11.2	6.467	3.6	0.5	2.9		E162~164
	11T308PDER-ML														●	●			11.2	6.467	3.6	0.8	2.9		E166~169
	160404PDER-ML														●	●			16.4	9.41	5.76	0.4	4.5		E171~172
	1604PDER-ML														●	●			16.4	9.41	5.76	0.8	4.5		E175~179
	180604PDER-ML														●	●			17.4	10.98	6.35	0.4	4.5		E181~182
	1806PDER-ML														●	●			17.4	10.98	6.35	0.8	4.5		E185~188
	180612PDER-ML														●	●			17.4	10.98	6.35	1.2	4.5		E190~193
	180616PDER-ML														●	●			17.4	10.98	6.35	1.6	4.5		E195~198
	180620PDER-ML														●	●			17.4	10.98	6.35	2.0	4.5		E201~204
	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		E154~157
	0602PDSR-MM			●			●	●		●	●	●	●		●	●			6	4.24	2.6	0.4	2.0		E159~169
	060208PDSR-MM			●						●	●				●	●			6	4.24	2.6	0.8	2.0		E171~182
	060212R-MM			●						●					●	●			6	4.24	2.6	1.2	2.0		E184~199
	060216R-MM *									●					●	●			6	4.24	2.6	1.6	2.0		E200~204
	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		

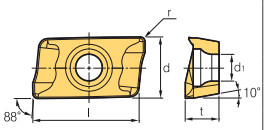
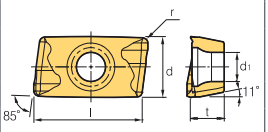
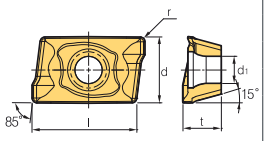
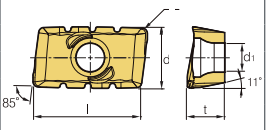
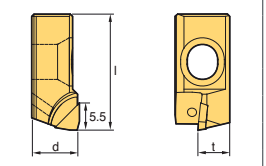
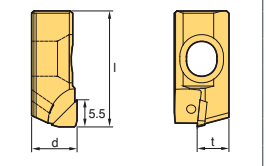
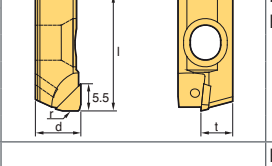
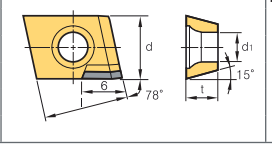
● : Stock item

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

Workpiece			CN2000	CN30	NCM325	NC5330	NCM535	PC2505	PC2510	PC2011	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	DP150	DP200
	Steel	P	●	⬌	⬌	⬌	●	●	⬌	⬌	⬌	⬌				⬌	✱		
	Stainless steel	M			⬌					●				⬌	✱	⬌	✱		
	Cast iron	K				⬌	●	⬌	⬌	⬌			●			⬌	✱		
	Non-ferrous metal	N																●	●
	Heat resistant alloy, Titanium alloy	S														⬌	✱		
	Hardened steel	H						●	⬌	⬌						⬌	✱		

Machining types

● Continuous cutting
⬌ General cutting
✱ Interrupted cutting

Inserts	Designation	Cermet		Coated														PCD		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NCM325	NC5330	NCM535	PC2505	PC2510	PC2011	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400		DP150	DP200	l	d	t	r	d_1		
APMT-MM	11T3PDSR-MM			●	●	●	●	●		●	●	●	●		●	●				11.2	6.467	3.6	0.5	2.85		E154~ E182 E184~ E204
	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		
APMT-MN new	11T3PDSR-MN2														●					11.2	6.467	3.6	0.5	2.85		E156~ E182 E186~ E204
	11T3PDSR-MN3														●					11.2	6.467	3.6	0.5	2.85		
	1604PDSR-MN3														●					16.4	9.41	5.76	0.8	4.5		
	1604PDSR-MN4														●					16.4	9.41	5.76	0.8	4.5		
	1806PDSR-MN3														●					17.4	10.98	6.35	0.8	4.5		
	1806PDSR-MN4														●					17.4	10.98	6.35	0.8	4.5		
BAMPR-XAF	BAMPR-XAF																	●		25.5	10.5	7	-	-		E137~ E138
BAMPR-XAW	BAMPR-XAW																	●		25.5	10	7	-	-		E137~ E138
BAMPR-XAWR	BAMPR-XAWR																			25.5	10	7	-	-		E137~ E138
CDEW-NAF	1204R-NAF																		●	12.7	9.525	4.76	-	4.4		E136
strengthened Edge	1204L-NAF																			12.7	9.525	4.76	-	4.4		

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

● : Stock item

Workpiece			NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	H01	DP150	DP200
	Steel	P	●	●	●	●	●	●	●				●	●			
	Stainless steel	M					●				●	●	●	●			
	Cast iron	K	●	●	●	●	●			●			●	●	●		
	Non-ferrous metal	N													●	●	●
	Heat resistant alloy, Titanium alloy	S											●	●			
	Hardened steel	H				●	●						●	●			

Machining types

● Continuous cutting
● General cutting
● Interrupted cutting

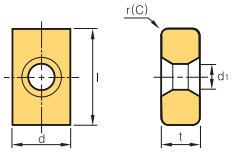
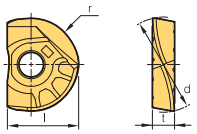
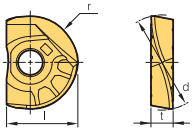
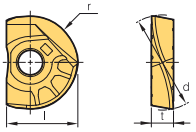
Inserts	Designation	Cermet		Coated												Uncoated	PCD		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	H01	DP150	DP200	l	d	t	r	d_1		
CDEW-NAW	1204R-NAW																	●	12.7	9.525	4.76	-	4.4		E136
	1204L-NAW																		12.7	9.525	4.76	-	4.4		
Strengthened Edge Wiper Insert																									
CDEW-XAW	1204R-XAW																	●	12.7	9.525	4.76	-	4.4		E136
	1204L-XAW																		12.7	9.525	4.76	-	4.4		
Sharp Edge Wiper Insert																									
CDEW-XAF	1204R-XAF																	●	12.7	9.525	4.76	-	4.4		E136
	1204L-XAF																		12.7	9.525	4.76	-	4.4		
Sharp Edge																									
CDEW-XCF	1204R-XCF															●			12.7	9.525	4.76	-	4.4		E136
	1204L-XCF																		12.7	9.525	4.76	-	4.4		
Sharp Edge																									
CNHQ	1005-C0.5																		10	10	5.4	-	4.7		E375
	1305-C0.5																		12.7	10	5.4	-	4.7		E376
	1606-C0.5																		16	12	6.4	-	5.9		
CPMH	120408-MM									●									12.9	12.7	4.76	0.8	5.5		E343
CPMT	060204-MM									●									6.4	6.35	2.38	0.4	2.75		E343
	080308-MM									●									8.1	7.938	3.40	0.8	3.18		
	09T308-MM									●									9.7	9.525	3.97	0.8	4.4		
HECN	090408FN																		9.0	15.875	4.76	0.8	-		E387
	090408SN																		9.0	15.875	4.76	0.8	-		
	090408TN																		9.0	15.875	4.76	0.8	-		
	110412FN																		11.0	19.05	4.76	1.2	-		
	110412TN																		11.0	19.05	4.76	1.2	-		
HPEN	090408FN																		9.0	15.875	4.76	0.8	-		E387
	090408SN																		9.0	15.875	4.76	0.8	-		
	090408EN																		9.0	15.875	4.76	0.8	-		
	110412FN																		11.0	19.05	4.76	1.2	-		
HPEN-WC	090408-WC																		9.0	15.875	4.76	0.8	-		E387
	110412-WC																		11.0	19.05	4.76	1.2	-		

● : Stock item

Workpiece			P	M	K	N	S	H
	Steel	P	●	⧓				
	Stainless steel	M			●	⧓	✱	
	Cast iron	K	⧓	●	✱			
	Non-ferrous metal	N				●	⧓	✱
	Heat resistant alloy, Titanium alloy	S			⧓	●	✱	
	Hardened steel	H			✱			●

Machining types

● Continuous cutting
⧓ General cutting
✱ Interrupted cutting

Inserts	Designation	Cermet		Coated											Uncoated		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2005	PC2010	PC2015	PC210F	PC3700	PC6510	PC9530	PC9540	PC5400	ST30A	H01	l	d	t	r	d_1		
KEL-MF	150608-MF																		15.88	15.23	6.35	0.8	-		E408
	150608-ML																		15.88	15.23	6.35	0.8	-		
KEL-QNN	1506QNN-MF																		15.88	15.23	6.35	0.8	-		E391
	1506QNN-ML																		15.88	15.23	6.35	0.8	-		
KEL-ANN	1506ANN-MF																		15.88	15.23	6.35	0.8	-		E391
	1506ANN-ML																		15.88	15.23	6.35	0.8	-		
LBH	080									●									7.0	8	2.4	4.0	-		E319~ E322
	100									●									8.5	10	2.6	5.0	-		
	120									●									10.0	12	3.0	6.0	-		
	160									●									12.0	16	4.0	8.0	-		
	200									●									15.0	20	5.0	10.0	-		
	250									●									18.5	25	6.0	12.5	-		
	300									●									22.5	30	7.0	15.0	-		
	320									●									23.5	32	7.0	16.0	-		
	330																		24.0	33	7.0	16.5	-		
LBH-KF	080-KF									●									7.0	8	2.4	4.0	-		E318 E319
	100-KF									●									8.5	10	2.6	5.0	-		
	120-KF									●									10.0	12	3.0	6.0	-		
	130-KF									●									20.5	13	3.0	6.5	-		
	160-KF									●									12.0	16	4.0	8.0	-		
	170-KF									●									12.5	17	4.0	8.5	-		
	200-KF									●									15.0	20	5.0	10.0	-		
	210-KF									●									15.5	21	5.0	10.5	-		
	250-KF									●									18.5	25	6.0	12.5	-		
	300-KF									●									22.5	30	7.0	15.0	-		
	320-KF																		23.5	32	7.0	16.0	-		
	330-KF																		24.0	33	7.0	16.5	-		
LBH-KH	080-KH								●										7.0	8	2.4	4.0	-		E318 E319
	100-KH							●	●										8.5	10	2.6	5.0	-		
	120-KH							●	●										10.0	12	3.0	6.0	-		
	130-KH							●	●										20.5	13	3.0	6.5	-		
	160-KH							●	●										12.0	16	4.0	8.0	-		
	170-KH							●	●										12.5	17	4.0	8.5	-		
	200-KH							●	●										15.0	20	5.0	10.0	-		
	210-KH							●	●										15.5	21	5.0	10.5	-		
	250-KH							●	●										18.5	25	6.0	12.5	-		
	260-KH							●	●										19.0	26	6.0	13.0	-		
	300-KH							●	●										22.5	30	7.0	15.0	-		
	320-KH								●										23.5	32	7.0	16.0	-		
	330-KH																		24.0	33	7.0	16.5	-		

● : Stock item

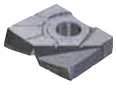
Workpiece			CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2010	PC210F	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01
	Steel	P	●	◐	●	●	●	●	◐	✱	◐	◐				◐	✱	◐	
	Stainless steel	M							●	◐				◐	✱	◐	✱		
	Cast iron	K			◐	●	●	◐	◐	✱			●			◐	✱		●
	Non-ferrous metal	N								●									●
	Heat resistant alloy, Titanium alloy	S								●						◐	✱		
	Hardened steel	H						●	◐	✱						◐	✱		

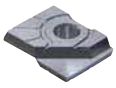
Machining types

● Continuous cutting
◐ General cutting
✱ Interrupted cutting

Inserts	Designation	Cermet		Coated														Uncoated		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2010	PC210F	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	l	d	t	r	d_1		
LBS	080																		18.5	25	6.0	12.5	-		E319~ E322
	090																		19.0	26	6.0	13.0	-		
	100																		22.5	30	7.0	15.0	-		
	110																		23.0	31	7.0	15.5	-		
	120																		23.5	32	7.0	16.0	-		
	130																		7.0	8	2.4	4.0	-		
	160																		7.5	9	2.4	4.5	-		
	170																		8.5	10	2.6	5.0	-		
	200																		9.0	11	2.6	5.5	-		
	210																		10.0	12	3.0	6.0	-		
	250																		10.5	13	3.0	6.5	-		
	260																		12.0	16	4.0	8.0	-		
	300																		12.5	17	4.0	8.5	-		
	310																		15.0	20	5.0	10.0	-		
	320																		15.5	21	5.0	10.5	-		
LCF	160-D90								●										13.7	16	4.0	-	-		E319~ E322
	200-D90								●										17.0	20	5.0	-	-		
	250-D90																		21.5	25	6.0	-	-		
LFH	100																		8.5	10	2.6	1.0	-		E319~ E322
	120								●										10.0	12	3.0	1.0	-		
	160								●										12.0	16	4.0	1.5	-		
	200																		15.0	20	5.0	1.5	-		
	250																		18.5	25	6.0	2.0	-		
	300																		22.5	30	7.0	2.0	-		
	320																		23.5	32	7.0	2.0	-		
LRH	100-R05								●										8.5	10	2.6	0.5	-		E319~ E322
	100-R10								●										8.5	10	2.6	1.0	-		
	100-R20																		8.5	10	2.6	2.0	-		
	110-R05																		9.0	11	2.6	0.5	-		
	120-R05								●										10.0	12	3.0	0.5	-		
	120-R10								●										10.0	12	3.0	1.0	-		
	120-R20																		10.0	12	3.0	2.0	-		
	130-R05							●											10.5	13	3.0	0.5	-		
	130-R10							●											10.5	13	3.0	1.0	-		
	160-R05								●										12.0	16	4.0	0.5	-		
	160-R10								●										12.0	16	4.0	1.0	-		
	160-R20																		12.0	16	4.0	2.0	-		
	160-R30								●										12.0	16	4.0	3.0	-		
	170-R05							●											12.5	17	4.0	0.5	-		
	170-R10							●											12.5	17	4.0	1.0	-		
	200-R05								●										15.0	20	5.0	0.5	-		
	200-R10								●										15.0	20	5.0	1.0	-		
	200-R20								●										15.0	20	5.0	2.0	-		
	200-R30								●										15.0	20	5.0	3.0	-		
LR (Special type)	210-R05							●											15.5	21	5.0	0.5	-		
	210-R10							●											15.5	21	5.0	1.0	-		
	250-R05																		18.5	25	6.0	0.5	-		
	250-R10								●										18.5	25	6.0	1.0	-		
	250-R20																		18.5	25	6.0	2.0	-		
	250-R30																		18.5	25	6.0	3.0	-		
	260-R05							●											19.0	26	6.0	0.5	-		
	260-R10							●											19.0	26	6.0	1.0	-		
	300-R10																		22.5	30	7.0	1.0	-		
	300-R20																		22.5	30	7.0	2.0	-		
	300-R30																		22.5	30	7.0	3.0	-		
	310-R05																		23.0	31	7.0	0.5	-		
	320-R10								●										23.5	32	7.0	1.0	-		
	320-R20								●										23.5	32	7.0	2.0	-		







LRH type

LR type

● : Stock item

Workpiece			CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2010	PC210F	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01
	Steel	P	●	⬌	●	●	●	●	⬌	✱	⬌	⬌				⬌	✱	⬌	
	Stainless steel	M							●	⬌				⬌	✱	⬌	✱		
	Cast iron	K			⬌	●	●	⬌	⬌	✱			●			⬌	✱		●
	Non-ferrous metal	N							●										●
	Heat resistant alloy, Titanium alloy	S							●							⬌	✱		
	Hardened steel	H						●	⬌	✱						⬌	✱		

Machining types

● Continuous cutting
⬌ General cutting
✱ Interrupted cutting

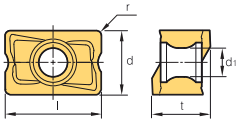
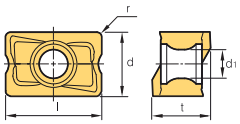
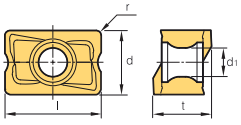
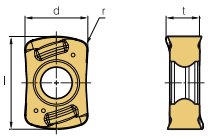
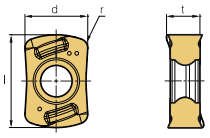
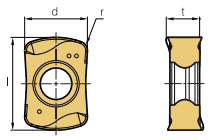
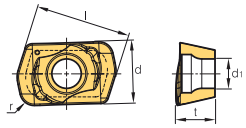
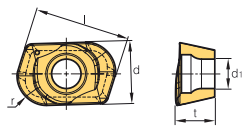
Inserts	Designation	Cermet		Coated													Uncoated		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2010	PC210F	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	l	d	t	r	d1		
LRH	320-R30								●										23.5	32	7.0	3.0	-	LRH type	
	330-R05																		24.0	33	7.0	0.5	-		
	330-R10																		24.0	33	7.0	1.0	-		
	330-R20																		24.0	33	7.0	2.0	-		
	330-R30																		24.0	33	7.0	3.0	-		
LR (Special type)																								LR type	
LDET new	650540PPFR-MA																		65	15	5.625	4.0	5.56		E367
	650550PPFR-MA																		65	15	5.625	5.0	5.56		
LNCS	1907-C1.5-WC																		19.05	14.3	7	-	5.8		E398 E399
LNCS	1907-R3.0-WC																		19.05	14.3	7	-	5.8		E398 E399
LNE	324-R0.8																		15.9	9.525	6.35	0.8	4.4		E405~ E409
	324-C1.0																		15.9	9.525	6.35	1.0	4.4		
LNKT-MA new	080404PNR-MA																		8.0	4.2	6.6	0.4	2.8		E303~ E308
	080408PNR-MA																		8.0	4.2	6.6	0.8	2.8		
	140608PNR-MA																		12.7	6.65	10.0	0.8	4.0		
	170704PNR-MA																		16.5	7.0	11.0	0.4	4.5		
	170708PNR-MA																		16.5	7.0	11.0	0.8	4.5		
	170712PNR-MA																		16.5	7.0	11.0	1.2	4.5		
	170716PNR-MA																		16.5	7.0	11.0	1.6	4.5		
	170720PNR-MA																		16.5	7.0	11.0	2.0	4.5		
LNKT-ML new	080404PNR-ML																		8.0	4.2	6.6	0.4	2.8		
	080408PNR-ML																		8.0	4.2	6.6	0.8	2.8		
	140608PNR-ML																		12.7	6.65	10.0	0.8	4.0		
	170704PNR-ML																		16.5	7.0	11.0	0.4	4.5		
	170708PNR-ML											●			●	●			16.5	7.0	11.0	0.8	4.5		
	170712PNR-ML																		16.5	7.0	11.0	1.2	4.5		
	170716PNR-ML																		16.5	7.0	11.0	1.6	4.5		
	170720PNR-ML																		16.5	7.0	11.0	2.0	4.5		
LNKT-MM new	080404PNR-MM																		8.0	4.2	6.6	0.4	2.8		
	080408PNR-MM																		8.0	4.2	6.6	0.8	2.8		
	140608PNR-MM																		12.7	6.65	10.0	0.8	4.0		
	170704PNR-MM																		16.5	7.0	11.0	0.4	4.5		
	170708PNR-MM																		16.5	7.0	11.0	0.8	4.5		
	170712PNR-MM																		16.5	7.0	11.0	1.2	4.5		
	170716PNR-MM																		16.5	7.0	11.0	1.6	4.5		
	170720PNR-MM																		16.5	7.0	11.0	2.0	4.5		

● : Stock item

Workpiece			P	M	K	N	S	H
	Steel	P	● ⬬	● ● ● ● ⬬ ⬬ ⬬ ⬬			⬬ ✱	
	Stainless steel	M		⬬	⬬ ✱		⬬ ✱	
	Cast iron	K	⬬	● ● ● ⬬ ⬬ ⬬ ●	⬬ ✱	●	⬬ ✱	
	Non-ferrous metal	N				●		
	Heat resistant alloy, Titanium alloy	S			⬬ ✱		⬬ ✱	
	Hardened steel	H		● ⬬ ⬬	⬬ ✱		⬬ ✱	

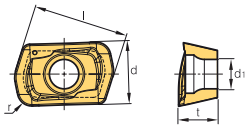
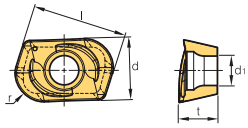
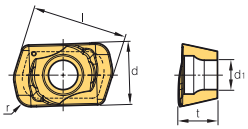
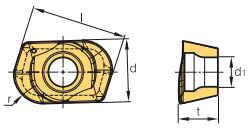
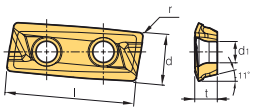
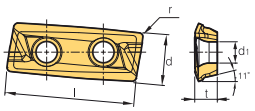
Machining types

● Continuous cutting
⬬ General cutting
✱ Interrupted cutting

Inserts	Designation	Cermet		Coated											Uncoated		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	l	d	t	r	d_1		
LNEX-MA 	100605PNR-MA																	●	10.0	6.5	6.5	0.5	3.5		E95~96
	151004PNR-MA																	●	15.0	10.0	10.0	0.4	4.5		E99~100
	151008PNR-MA																	●	15.0	10.0	10.0	0.8	4.5		E103~ E107
LNM(E)X-MF 	LNMX 100605PNR-MF									●		●			●	●			10.0	6.5	6.5	0.5	3.5		E95
	100608PNR-MF									●		●			●	●			10.0	6.5	6.5	0.8	3.5		E96
	151004PNR-MF									●	●	●			●	●			15.0	10.0	10.0	0.4	4.5		E99
	151008PNR-MF			●						●	●	●			●	●			15.0	10.0	10.0	0.8	4.5		E100
	151016PNR-MF									●		●			●	●			15.0	10.0	10.0	1.6	4.5		E103~ E107
	LNEX 100605PNR-MF											●			●	●			10.0	6.5	6.5	0.5	3.5		E95
	100608PNR-MF										●	●			●	●			10.0	6.5	6.5	0.8	3.5		E96
	151004PNR-MF											●			●	●			15.0	10.0	10.0	0.4	4.5		E99
	151008PNR-MF											●			●	●			15.0	10.0	10.0	0.8	4.5		E100
	151016PNR-MF											●			●	●			15.0	10.0	10.0	1.6	4.5		E103~ E107
LNM(E)X-MM 	LNMX 100605PNR-MM									●	●	●	●		●	●			10.0	6.5	6.5	0.5	3.5		E95~ E109
	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		E95~ E109
	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		
LNMX-MF new 	060310R-MF							●			●				●	●			10.0	6.8	3.6	1	-		E264~ E267
LNMX-ML new 	060310R-ML														●	●			10.0	6.8	3.6	1	-		E264~ E267
LNMX-MM new 	060310R-MM							●			●				●	●			10.0	6.8	3.6	1	-		E264~ E267
LPEW new 	040210R						●	●							●				6.4	4.2	2.6	1.0	2.0		E273~ E275
	040220R						●	●							●				6.4	4.2	2.6	2.0	2.0		E273~ E275

●: Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬣ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

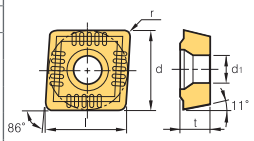
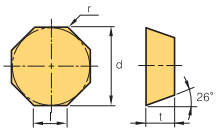
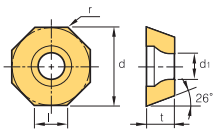
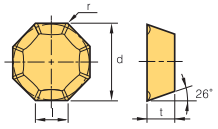
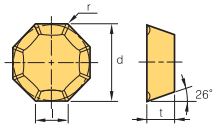
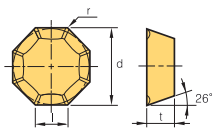
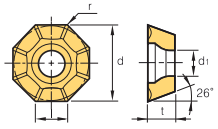
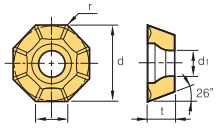
Inserts	Designation	Cermet		Coated												Uncoated		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	l	d	t	r	d_1		
LPMT-MF new	LPMT 040210R-MF							●			●				●	●			6.4	4.2	2.6	1.0	2.0		E273~ E275
	LPMT 040220R-MF							●			●				●	●			6.4	4.2	2.6	2.0	2.0		E273~ E275
LPMW new	LPMW 040210R						●	●							●				6.4	4.2	2.6	1.0	2.0		E273~ E275
	LPMW 040220R						●	●							●				6.4	4.2	2.6	2.0	2.0		E273~ E275
LXET-MA new	250404PEFR-32-MA																		25	10.775	4.76	0.4	4.5		E363~ E366
	2504PEFR-32-MA																	●	25	10.775	4.76	0.8	4.5		
	250412PEFR-32-MA																		25	10.775	4.76	1.2	4.5		
	250416PEFR-32-MA																		25	10.775	4.76	1.6	4.5		
	250404PEFR-40-MA																		25	10.618	4.76	0.4	4.5		
	2504PEFR-40-MA																		25	10.618	4.76	0.8	4.5		
	250412PEFR-40-MA																		25	10.618	4.76	1.2	4.5		
	250416PEFR-40-MA																		25	10.618	4.76	1.6	4.5		
	340504PEFR-50-MA																	●	34	13.765	5.56	0.4	5.56		
	3405PEFR-50-MA																	●	34	13.765	5.56	0.8	5.56		
	340512PEFR-50-MA																		34	13.765	5.56	1.2	5.56		
	340516PEFR-50-MA																		34	13.765	5.56	1.6	5.56		
	340504PEFR-63-MA																		34	13.803	5.56	0.4	5.56		
	3405PEFR-63-MA																	●	34	13.803	5.56	0.8	5.56		
	340512PEFR-63-MA																		34	13.803	5.56	1.2	5.56		
	340516PEFR-63-MA																		34	13.803	5.56	1.6	5.56		
LXET-ML new	250404PEER-32-ML																		25	10.775	4.76	0.4	4.5		E363~ E366
	2504PEER-32-ML																		25	10.775	4.76	0.8	4.5		
	250412PEER-32-ML																		25	10.775	4.76	1.2	4.5		
	250416PEER-32-ML																		25	10.775	4.76	1.6	4.5		
	250404PEER-40-ML																		25	10.618	4.76	0.4	4.5		
	2504PEER-40-ML																		25	10.618	4.76	0.8	4.5		
	250412PEER-40-ML																		25	10.618	4.76	1.2	4.5		
	250416PEER-40-ML																		25	10.618	4.76	1.6	4.5		
	340504PEER-50-ML																		34	13.765	5.56	0.4	5.56		
	3405PEER-50-ML														●				34	13.765	5.56	0.8	5.56		
	340512PEER-50-ML																		34	13.765	5.56	1.2	5.56		
	340516PEER-50-ML																		34	13.765	5.56	1.6	5.56		
	340504PEER-63-ML																		34	13.803	5.56	0.4	5.56		
	3405PEER-63-ML																		34	13.803	5.56	0.8	5.56		
	340512PEER-63-ML																		34	13.803	5.56	1.2	5.56		
	340516PEER-63-ML																		34	13.803	5.56	1.6	5.56		

● : Stock item

Workpiece			CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC2505	PC2010	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01
	Steel	P	●	⬌	⬌	⧓	●	●	●	●	⬌	⬌				⬌	⧓	⬌	
	Stainless steel	M			⬌	⧓					●			⬌	⧓	⬌	⧓		
	Cast iron	K					⬌	●	●	⬌	⬌		●			⬌	⧓		●
	Non-ferrous metal	N																	●
	Heat resistant alloy, Titanium alloy	S														⬌	⧓		
	Hardened steel	H								●	⬌					⬌	⧓		

Machining types

● Continuous cutting
⬌ General cutting
⧓ Interrupted cutting

Inserts	Designation	Cermet		Coated													Uncoated		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC2505	PC2010	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	l	d	t	r	d_1		
MPMT	090308																		9.5	9.525	3.18	0.8	4.5		-
	120408										●								12.7	12.7	4.76	0.8	5.5		
OFCN	0704SN											●							7.4	18	4.86	0.5	-		E60
	0704FN																		7.4	18	4.86	0.5	-		
	070408SN																		7.4	18	4.86	0.8	-		
	070408FN																		7.4	18	4.86	0.8	-		
	070408TN																		7.4	18	4.86	0.8	-		
OFCW	05T3SN																		5.2	12.7	3.85	0.5	4.4		E59
	05T3FN																		5.2	12.7	3.85	0.5	4.4		
	05T308FN																		5.2	12.7	3.85	0.8	4.4		
OFKR-MA	0704FN-MA																	●	7.4	18	4.76	0.5	-		E60
	0704EN-MA																		7.4	18	4.76	0.5	-		
OFKR-MF	0704SN-MF			●	●														7.4	18	4.76	0.5	-		E60
	070408SN-MF																		7.4	18	4.76	0.8	-		
OFKR-MM	0704SN-MM			●	●						●	●	●			●			7.4	18	4.76	0.5	-		E60
	070408SN-MM			●															7.4	18	4.76	0.8	-		
OFKT-MA	05T3FN-MA																	●	5.2	12.7	3.97	0.5	4.4		E59 E60
	05T3EN-MA																		5.2	12.7	3.97	0.5	4.4		
	0704FN-MA																	●	7.4	18	4.76	0.5	5.8		
	0704EN-MA																		7.4	18	4.76	0.5	5.8		
OFKT-MF	05T3SN-MF										●	●							5.2	12.7	3.97	0.5	4.4		E59
	05T308SN-MF																		5.2	12.7	3.97	0.8	5.8		

● : Stock item

Workpiece			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01
	Steel	P	●	◐	◐	●	●	●	●	◐	◐	◐				◐	✱	◐	
	Stainless steel	M			◐					●				◐	✱	◐	✱		
	Cast iron	K				◐	●	●	◐	◐			●			◐	✱		●
	Non-ferrous metal	N																	●
	Heat resistant alloy, Titanium alloy	S														◐	✱		
	Hardened steel	H							●	◐						◐	✱		

Machining types

● Continuous cutting
◐ General cutting
✱ Interrupted cutting

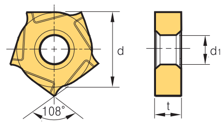
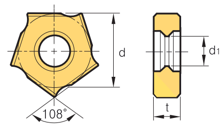
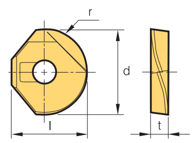
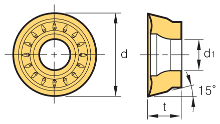
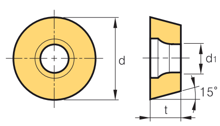
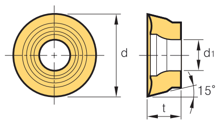
Inserts	Designation	Cermet		Coated														Uncoated		Dimensions (mm)								Geometries	Available tools
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400		ST30A	H01	l	d	t	r	d_1	a	W	g		
OFKT-MM	05T3SN-MM			●									●							5.2	12.7	3.97	0.5	4.4	-	-	-		E59
	05T308SN-MM																			5.2	12.7	3.97	0.8	4.4	-	-	-		E60
	0704SN-MM																			7.4	18	4.76	0.5	5.5	-	-	-		
ONHX-MF	060608-MF											●			●	●				6.6	16.0	6.0	0.8	5.6	-	-	-		E130
	080608-MF											●			●	●				8.4	20.2	6.0	0.8	5.6	-	-	-		E131
	0606ANN-MF											●			●	●				6.6	16.0	6.0	0.8	5.6	1.03	-	-		
	0806ANN-MF											●			●	●				8.4	20.2	6.0	0.8	5.6	1.53	-	-		
ONHX-ML new	060608-ML														●	●				6.6	16.0	6.0	0.8	5.6	-	-	-		E130
	080608-ML														●	●				8.4	20.2	6.0	0.8	5.6	-	-	-		E131
ONHX-MM	060608-MM											●			●	●				6.6	16.0	6.0	0.8	5.6	-	-	-		E130
	080608-MM											●			●	●				8.4	20.2	6.0	0.8	5.6	-	-	-		E131
	0606ANN-MM											●			●	●				6.6	16.0	6.0	0.8	5.6	1.03	-	-		
	0806ANN-MM											●			●	●				8.4	20.2	6.0	0.8	5.6	1.53	-	-		
ONHX-MA	060608-MA																		●	6.6	16.0	6.0	0.8	5.6	-	-	-		E130
	080608-MA																		●	8.4	20.2	6.0	0.8	5.6	-	-	-		E131
ONHX-W	060608-W											●	●		●					6.5	16.0	6.0	0.8	5.6	-	-	-		E130
	080608-W											●			●					8.2	20.2	6.0	0.8	5.6	-	-	-		E131
ONMX-MF	060608-MF					●				●		●			●	●				6.6	16.0	6.0	0.8	5.6	-	-	-		E130
	080608-MF					●				●		●			●	●				8.4	20.2	6.0	0.8	5.6	-	-	-		E131
	0606ANN-MF					●				●		●	●		●	●				6.6	16.0	6.0	0.8	5.6	1.03	-	-		
	0806ANN-MF					●				●	●	●			●	●				8.4	20.2	6.0	0.8	5.6	1.53	-	-		
ONMX-MM	060608-MM					●				●	●	●		●	●	●				6.6	16.0	6.0	0.8	5.6	-	-	-		E130
	080608-MM					●				●	●	●	●		●	●				8.4	20.2	6.0	0.8	5.6	-	-	-		E131
	0606ANN-MM					●				●	●	●			●	●				6.6	16.0	6.0	0.8	5.6	1.03	-	-		
	0806ANN-MM					●				●		●	●		●	●				8.4	20.2	6.0	0.8	5.6	1.53	-	-		
ORG	265																			10	7	3.0	0.3	3.5	-	2.65	2.8		E334
	325										●									10	7	3.0	0.3	3.5	-	3.25	2.8		
	405																			15	12	4.5	0.5	4.5	-	4.05	4.5		
	470										●									15	12	4.5	0.5	4.5	-	4.70	4.5		

● : Stock item

Workpiece		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2010	PC210F	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01
Steel	P	●	◑	●	●	●	●	◑	✲	◑	◑				◑	✲	◑	
Stainless steel	M							●	◑				◑	✲	◑	✲		
Cast iron	K			◑	●	●	◑	◑	✲			●			◑	✲		●
Non-ferrous metal	N								●									●
Heat resistant alloy, Titanium alloy	S								●						◑	✲		
Hardened steel	H						●	◑	✲						◑	✲		

Machining types

- ● Continuous cutting
- ◑ General cutting
- ✲ Interrupted cutting

Inserts	Designation	CN2000 (Cermet)	CN30 (Cermet)	NC5330 (Coated)	NCM535 (Coated)	NCM545 (Coated)	PC2505 (Coated)	PC2010 (Coated)	PC210F (Coated)	PC3600 (Coated)	PC3700 (Coated)	PC6510 (Coated)	PC9530 (Coated)	PC9540 (Coated)	PC5300 (Coated)	PC5400 (Coated)	ST30A (Uncoated)	H01 (Uncoated)	l	d	t	r	d1	Cutter width	Geometries	Available tools
PNEJ 	1223N										●								-	12.7	2.3	-	5.0	4.0		E379, E380
	1225N																		-	12.7	2.5	-	5.0	4.5		
	1230N																		-	12.7	3.0	-	5.0	5.0		
	1235N										●				●				-	12.7	3.5	-	5.0	6.0		
	1240N										●				●				-	12.7	4.0	-	5.0	7.0		
	1245N										●				●				-	12.7	4.5	-	5.0	8.0		
	1250N																		-	12.7	5.0	-	5.0	9.0		
	1255N										●								-	12.7	5.5	-	5.0	10.0		
	1260N																		-	12.7	6.0	-	5.0	11.0		
	1265N														●				-	12.7	6.5	-	5.0	12.0		
	1270N																		-	12.7	7.0	-	5.0	13.0		
	1275N														●				-	12.7	7.5	-	5.0	14.0		
	1285N																		-	12.7	8.5	-	5.0	16.0		
PNEJ-C 	1223N-C03																		-	12.7	2.3	-	5.0	4.0	 ※ C03: Chamfer 0.3 mm C05: Chamfer 0.5 mm	E379, E380
	1230N-C03																		-	12.7	3.0	-	5.0	5.0		
	1235N-C03																		-	12.7	3.5	-	5.0	6.0		
	1240N-C05																		-	12.7	4.0	-	5.0	7.0		
	1245N-C05																		-	12.7	4.5	-	5.0	8.0		
	1250N-C05																		-	12.7	5.0	-	5.0	9.0		
	1255N-C05																		-	12.7	5.5	-	5.0	10.0		
	1260N-C05																		-	12.7	6.0	-	5.0	11.0		
	1265N-C05																		-	12.7	6.5	-	5.0	12.0		
	1270N-C05																		-	12.7	7.0	-	5.0	13.0		
	1275N-C05																		-	12.7	7.5	-	5.0	14.0		
RC 	16								●										15.8	16	3.5	8	-	-		E323
	20								●										17.8	20	4	10	-	-		
	25								●										22.0	25	5	12.5	-	-		
	30								●										26.8	30	6	15	-	-		
	32								●										27.8	32	6	16	-	-		
RDCT-MA 	10T3M0-MA																	●	-	10	3.97	-	3.85	-		E234, E235, E240, E241, E246
	1204M0-MA																	●	-	12	4.76	-	4.5	-		
RDHW 	0501M0F																		-	5	1.59	-	2.3	-		E238, E239, E244, E245
	0501M0E												●						-	5	1.59	-	2.3	-		
	0501M0S																		-	5	1.59	-	2.3	-		
	06T1M0F																		-	6	1.98	-	2.5	-		
	06T1M0E												●						-	6	1.98	-	2.5	-		
	06T1M0S																		-	6	1.98	-	2.5	-		
	0702M0F																		-	7	2.38	-	2.8	-		
	0702M0E												●						-	7	2.38	-	2.8	-		
	0702M0S																		-	7	2.38	-	2.8	-		
	0803M0F																		-	8	3.18	-	3.4	-		
	0803M0E												●						-	8	3.18	-	3.4	-		
	0803M0S																		-	8	3.18	-	3.4	-		
	1605M0F																		-	16	5.56	-	5.5	-		E236, E237, E242, E243, E246
	1605M0E																		-	16	5.56	-	5.5	-		
	1605M0S																		-	16	5.56	-	5.5	-		
	2006M0F																		-	20	6.35	-	5.5	-		
	2006M0E																		-	20	6.35	-	5.5	-		
	2006M0S																		-	20	6.35	-	5.5	-		
RDKT-MF 	10T3M0-MF												●		●				-	10	3.97	-	3.85	-		E234, E235, E240, E241, E246
	1204M0-MF										●		●		●				-	12	4.76	-	4.5	-		
	1605M0-MF																		-	16	5.56	-	5.5	-		

●: Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⧓ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

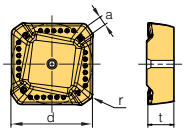
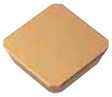
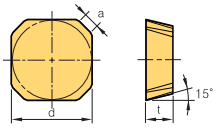
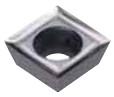
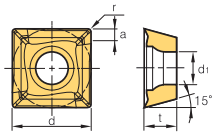
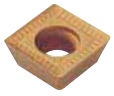
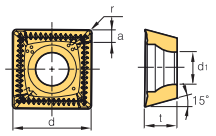
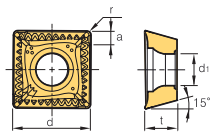
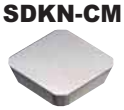
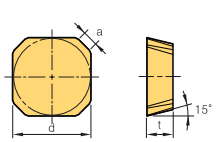
Inserts	Designation	Cermet		Coated												Uncoated		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	l	d	t	r	d_1		
RDKT-ML	1605M0-ML																		-	16	5.56	-	5.5		E236 E242 E246
RDKT-MM	10T3M0-MM			●							●	●	●		●				-	10	3.97	-	3.85		E234~ E237 E239~ E246
	1204M0-MM			●							●	●	●		●				-	12	4.76	-	4.5		
	1605M0-MM										●								-	16	5.56	-	5.5		
	2006M0-MM										●								-	20	6.35	-	5.5		
RDKW	0501M0E										●								-	5	1.59	-	2.3		E238 E239 E244 E245
	06T1M0E										●								-	6	1.98	-	2.5		
	0702M0E										●								-	7	2.38	-	2.8		
	0803M0E										●								-	8	3.18	-	3.4		
REKR-MM	170400-MM																		-	17.8	4.76	-	-		E60
RPCT-MA new	10T3M0-MA																●		-	10	3.97	-	4.0		E248~ E259
	1204M0-MA																●		-	12	4.76	-	4.5		
	1606M0-MA																●		-	16	6.35	-	5.5		
	2007M0-MA																●		-	20	7.00	-	7.0		
RPMT-MF new	0803M0E-MF									●					●	●			-	8	3.18	-	3.4		E248~ E259
	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		
RPET-ML new	0803M0E-ML														●	●			-	8	3.18	-	3.4		E248~ E259
	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-MM new	0803M0S-MM							●	●	●					●	●			-	8	3.18	-	3.4		E248~ E259
	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 new	0803M0E1							●	●	●					●	●			-	8	3.18	-	3.4		E248~ E259
	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		

● : Stock item

Workpiece			CN2000	CN30	NCM325	NCM335	NCM535	NCM545	PC3700	PC6510	PC9530	PC9540	PC5300	PD2000	PD1010	ST30A	G10	H01	H05
	Steel	P	●	⬬	⬬	✱	●	●	⬬				⬬			⬬			
	Stainless steel	M			⬬	✱					⬬	✱	⬬						
	Cast iron	K					●	●		●			⬬				⬬	●	●
	Non-ferrous metal	N												●	✱			●	⬬
	Heat resistant alloy, Titanium alloy	S											⬬						
	Hardened steel	H											⬬						

Machining types

● Continuous cutting
⬬ General cutting
✱ Interrupted cutting

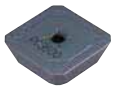
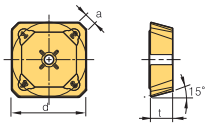
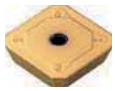
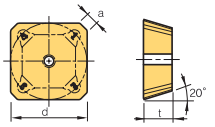
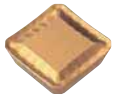
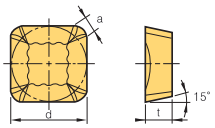
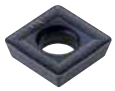
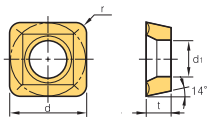
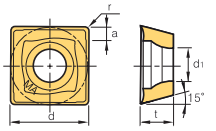
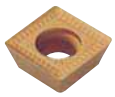
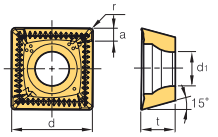
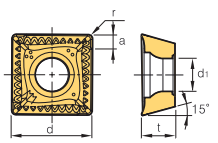
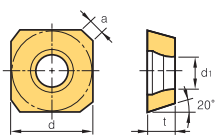
Inserts	Designation	Cermet		Coated										Uncoated				Dimensions (mm)						Geometries	Available tools
		CN2000	CN30	NCM325	NCM335	NCM535	NCM545	PC3700	PC6510	PC9530	PC9540	PC5300	PD2000	PD1010	ST30A	G10	H01	H05	l	d	t	r	d_1	a		
SCKN 	220715DDSR-MM				●			●				●							-	22.0	7.0	1.5	-	2.5		E55
	280920DDSR-MM																		-	28.0	9.0	2.0	-	3.0		
SDCN 	42M															●			-	12.7	3.18	-	-	1.5	 ● **Cutting-edge geometry** - G: Light Side, Sharpe Edge - S20: STS - RH: Strengthened edge ● **Sub-cutting-edge geometry** - M: AEFN - MT: AETN	E44
	42M-G																●		-	12.7	3.18	-	-	1.5		E45
	42MT	●	●		●										●				-	12.7	3.18	-	-	1.5		E56
	42MT-RH																		-	12.7	3.18	-	-	1.5		E57
	42MT-S20									●									-	12.7	3.18	-	-	1.5		
	53M															●			-	15.875	4.76	-	-	1.5		
	53M-G																●		-	15.875	4.76	-	-	1.5		
	53MT		●	●											●				-	15.875	4.76	-	-	1.5		
	53MT-RH																		-	15.875	4.76	-	-	1.5		
	53MT-S20									●									-	15.875	4.76	-	-	1.5		
	1203AEEN																		-	12.7	3.18	-	-	1.5		
	1203AEEN-RH																		-	12.7	3.18	-	-	1.43		
	1203AESN																		-	12.7	3.18	-	-	1.5		
	1203AESN-RH																		-	12.7	3.18	-	-	1.43		
	1504AEEN																		-	15.875	4.76	-	-	1.5		
	1504AEEN-RH								●			●							-	15.875	4.76	-	-	1.43		
	1504AESN																		-	15.875	4.76	-	-	1.5		
	1504AESN-RH								●										-	15.875	4.76	-	-	1.43		
SDET-MA 	09M402R-MA												●				●	●	-	9.525	3.923	0.2	4.0	1.2		E228~ E233
	09M404R-MA																		-	9.525	3.923	0.4	4.0	1.2		
	09M405R-MA																		-	9.525	3.923	0.5	4.0	1.2		
	130504R-MA													●			●	●	-	13.5	5.56	0.4	5.56	2.2		
SDET-MF 	09M405R-MF																		-	9.525	4	0.5	4	1.2		E228~ E233
	130508R-MF																		-	13.5	5.56	0.8	5.56	2.2		
SDET-MM 	09M405R-MM																		-	9.525	4	0.5	4	1.2		E228~ E233
	130508R-MM																		-	13.5	5.56	0.8	5.56	2.2		
SDKN-CM 	42MT-CM		●																-	12.7	3.18	-	-	1.5		-

● : Stock item

Workpiece			P	M	K	N	S	H
	Steel	P	● ⬌	⬌ ✱	● ● ●	⬌ ⬌	⬌ ✱	⬌
	Stainless steel	M		⬌ ✱			⬌ ✱	⬌ ✱
	Cast iron	K			⬌ ● ●	●	⬌ ✱	● ●
	Non-ferrous metal	N						● ⬌
	Heat resistant alloy, Titanium alloy	S					⬌ ✱	
	Hardened steel	H					⬌ ✱	

Machining types

● Continuous cutting
⬌ General cutting
✱ Interrupted cutting

Inserts	Designation	Cermet		Coated										Uncoated			Dimensions (mm)						Geometries	Available tools
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	H05	l	d	t	r	d_1	a		
SDKN-MU 	1203AESN-MU									●									-	12.7	3.18	-	-	2.08		E44 E45 E50 E51
	1504AESN-MU									●									-	15.875	4.76	-	-	2.10		
SDKN-SU 	1203AESN-SU								●	●				●	●				-	12.7	3.18	-	-	2.08		E44 E45 E50 E51
	1504AESN-SU								●	●				●	●				-	15.875	4.76	-	-	2.10		
SDKR-MX 	1203AESN-MX																		-	12.7	3.18	-	-	1.46		E44 E45 E50 E51
	1203AETN-MX																		-	12.7	3.18	-	-	1.46		
	1203AEN-MX			●															-	12.7	3.18	-	-	1.46		
	1504AESN-MX				●														-	15.875	4.76	-	-	1.45		
	1504AETN-MX																		-	15.875	4.76	-	-	1.45		
	1504AEN-MX			●															-	15.875	4.76	-	-	1.45		
SDMT-MM 	090308-MM									●				●					-	9.525	3.18	0.8	4.4	-		E299 E327
SDXT-MA 	09M405R-MA																●	●	-	9.525	4.0	0.5	4.0	1.2		E228~ E233
	130508R-MA																●	●	-	13.5	5.56	0.8	5.56	2.2		
SDXT-MF 	09M403R-MF																		-	9.525	4.0	0.3	4.0	1.2		E228~ E233
	09M403L-MF																		-	9.525	4.0	0.3	4.0	1.2		
	09M404R-MF																		-	9.525	4.0	0.4	4.0	1.2		
	09M404L-MF																		-	9.525	4.0	0.4	4.0	1.2		
	09M405R-MF			●					●	●	●	●		●	●				-	9.525	4.0	0.5	4.0	1.2		
	09M405L-MF																		-	9.525	4.0	0.5	4.0	1.2		
	130508R-MF			●					●		●	●		●	●				-	13.5	5.56	0.8	5.56	2.2		
SDXT-MM 	09M405R-MM			●	●				●	●	●	●		●	●				-	9.525	4.0	0.5	4.0	1.2		E228~ E233
	09M405L-MM								●		●								-	9.525	4.0	0.5	4.0	1.2		
	130508R-MM			●	●				●	●	●	●		●	●				-	13.5	5.56	0.8	5.56	2.2		
	130508L-MM																		-	13.5	5.56	0.8	5.56	2.2		
	130538-MM																		-	13.5	5.56	3.8	5.56	2.2		
SECA 	1204AFSN			●															-	12.7	4.76	-	5.56	2.66		-
	1204AFTN		●							●		●							-	12.7	4.76	-	5.56	2.66		
	1204AFFN																		-	12.7	4.76	-	5.56	2.66		
	1204AFEN																		-	12.7	4.76	-	5.56	2.66		
	1504AFSN																		-	15.875	4.76	-	5.5	2.8		
	1504AFTN																		-	15.875	4.76	-	5.5	2.8		
	1504AFFN																		-	15.875	4.76	-	5.5	2.8		

●: Stock item

Workpiece			P	M	K	N	S	H
	Steel	P	●	⇔				
	Stainless steel	M	⇔	✱				
	Cast iron	K			●			
	Non-ferrous metal	N				●	✱	
	Heat resistant alloy, Titanium alloy	S					⇔	✱
	Hardened steel	H					⇔	✱

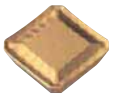
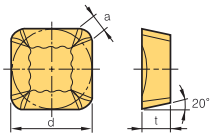
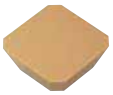
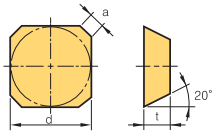
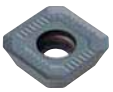
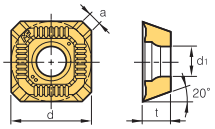
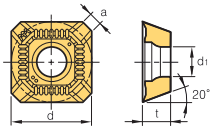
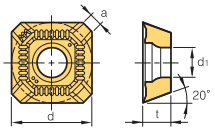
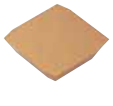
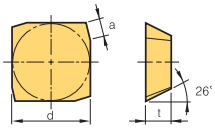
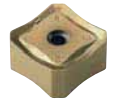
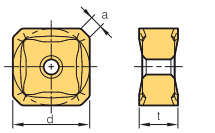
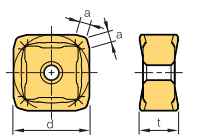
Machining types

● Continuous cutting
⇔ General cutting
✱ Interrupted cutting

Inserts	Designation	Cermet		Coated									Uncoated				Dimensions (mm)						Geometries	Available tools
		CN2000	CN30	NCM325	NCM335	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	l	d	t	r	d_1	a		
SECN	1203AFFN															●	●		-	12.7	3.18	-	-	2.36	• Shape of Edge - S20: STS - RH: Strengthened edge, STS	E46 E47
	1203AFTN	●	●												●				-	12.7	3.18	-	-	2.36		
	1203AFEN																		-	12.7	3.18	-	-	2.36		
	1203AFSN			●	●														-	12.7	3.18	-	-	2.36		
	1203AFEN-RH							●			●								-	12.7	3.18	-	-	2.36		
	1203AFSN-RH																		-	12.7	3.18	-	-	2.36		
	1203AFTN-S20								●										-	12.7	3.18	-	-	2.36		
	1504AFFN															●			-	15.875	4.76	-	-	2.4		
	1504AFTN		●																-	15.875	4.76	-	-	2.4		
	1504AFEN																		-	15.875	4.76	-	-	2.4		
	1504AFSN																		-	15.875	4.76	-	-	2.4		
	1504AFEN-RH																		-	15.875	4.76	-	-	2.4		
	1504AFSN-RH							●											-	15.875	4.76	-	-	2.4		
	1504AFTN-S20																		-	15.875	4.76	-	-	2.4		
SEET-MA	0903AGFN-MA																●	●	-	9.525	3.18	-	3.4	2.11		E222~ E227
	14M4AGFN-MA												●	●			●	●	-	14.0	4.0	-	4.4	2.64		
SEET-MF	0903AGSN-MF							●	●		●	●							-	9.525	3.18	-	3.4	2.11		E222~ E227
	14M4AGSN-MF							●	●		●	●							-	14.0	4.0	-	4.4	2.64		
SEET-MM	0903AGSN-MM			●				●			●	●							-	9.525	3.18	-	3.4	2.11		E222~ E227
	14M4AGSN-MM				●		●	●	●		●	●							-	14.0	4.0	-	4.4	2.64		
SEEW	0903AGTN																		-	9.525	3.18	-	3.4	2.11		E222~ E227
	14M4AGTN																		-	14.0	4.0	-	4.4	2.64		
SEEW-W	14M4AGFN-W																		-	14.0	4.0	-	4.4	8.5		E223 E225 E227
	14M4AGSN-W										●								-	14.0	4.0	-	4.4	8.5		
	14M4AGTN-W					●		●											-	14.0	4.0	-	4.4	8.5		
SEKN-SU	1203AFSN-SU					●	●												-	12.7	3.18	-	1.98	-		E46 E47
	1504AFSN-SU					●	●					●							-	15.875	4.76	-	2.04	-		

● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⧓ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

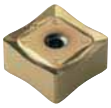
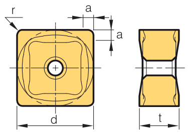
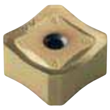
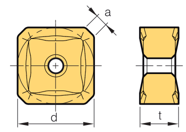
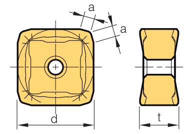
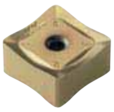
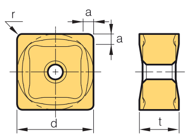
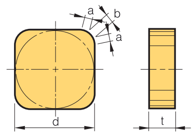
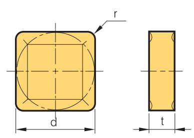
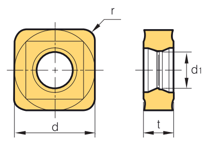
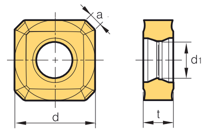
Inserts	Designation	Cermet		Coated											Uncoated		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	l	d	t	d_1	a		
SEKR-MX 	1203AFSN-MX			●	●								●						-	12.7	3.18	-	2.3		E46
	1504AFSN-MX			●									●						-	15.875	4.76	-	2.4		E47
SEMN 	1204AZ																		-	12.7	4.76	-	2.0		-
SEXT-MF 	0903AGSN-MF									●		●			●	●			-	9.525	3.18	3.4	2.11		E222~
	14M4AGSN-MF									●		●			●	●			-	14.0	4.0	4.4	2.64		E227
SEXT-MM 	0903AGSN-MM									●	●	●			●	●			-	9.525	3.18	3.4	2.11		E222~
	14M4AGSN-MM			●						●	●	●	●		●	●			-	14.0	4.0	4.4	2.64		E227
SEXT-MR 	0903AGSN-MR												●		●				-	9.525	3.18	3.4	2.11		E222~
	14M4AGSN-MR												●		●				-	14.0	4.0	4.4	2.64		E227
SFCN 	1203EFR																●		-	12.7	3.18	-	2.5		E48
SNC(M)F-MF 	SNCF 1206ANN-MF																		-	12.7	6.6	-	2		E125
	1507ANN-MF											●							-	15.875	7.35	-	2.1		E126
	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		E127
	1507ENN-MF											●							-	15.875	7.35	-	1.8		E128
	SNMF 1206ENN-MF										●								-	12.7	6.6	-	1.8		
	1507ENN-MF																		-	15.875	7.35	-	1.8		

● : Stock item

Workpiece		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01
Steel	P	●	◐	◐	●	●	●	●	◐	◐	◐				◐	✱	◐	
Stainless steel	M			◐					●				◐	✱	◐	✱		
Cast iron	K				◐	●	●	◐	◐			●			◐	✱		●
Non-ferrous metal	N																	●
Heat resistant alloy, Titanium alloy	S														◐	✱		
Hardened steel	H							●	◐						◐	✱		

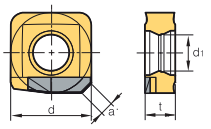
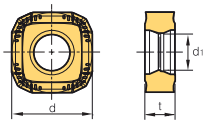
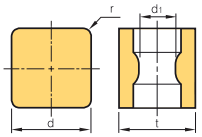
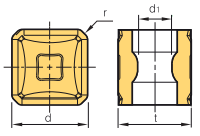
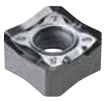
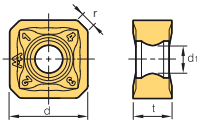
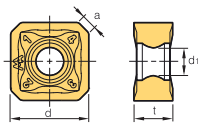
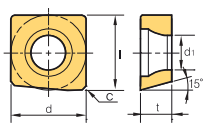
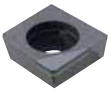
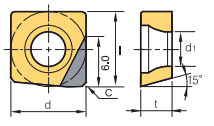
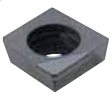
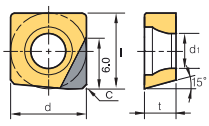
Machining types

- ● Continuous cutting
- ◐ General cutting
- ✱ Interrupted cutting

Inserts	Designation	Cermet		Coated													Uncoated		Dimensions (mm)							Geometries	Available tools
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	l	d	t	r	d1	a	b		
SNC(M)F-MF 	SNCF 1206QNN-MF											●							-	12.7	6.6	0.8	-	1	-		E127
	SNMF 1206QNN-MF										●								-	12.7	6.6	0.8	-	1	-		
SNC(M)F-MM 	SNCF 1206ANN-MM																		-	12.7	6.6	-	-	2	-		E125
	1507ANN-MM																		-	15.875	7.35	-	-	2.1	-		E126
	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	-		E127
	1507ENN-MM																		-	15.875	7.35	-	-	1.8	-		E128
	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	-		E129
	SNMF 1206QNN-MM																		-	12.7	6.6	0.8	-	1	-		
SNCN 	1204ENN			●													●		-	12.7	4.76	-	-	1.4	1.0		E49
	1504ENN																		-	15.875	4.76	-	-	1.4	1.0		
SNEF 	435											●							-	12.7	4.76	2.0	-	-	-		E395
	535																		-	15.875	4.76	2.0	-	-	-		
SNEU-MF 	120420-MF											●							-	12.7	4.76	2.0	5.7	(2.3)	-		E397
SNEU-MF 	1204ANN-MF																		-	12.7	4.76	-	5.7	(2.0)	-		E397

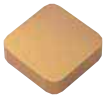
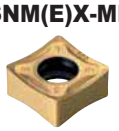
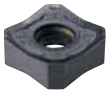
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⧓ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Inserts	Designation	Cermet		Coated											Uncoated	PCD		Dimensions (mm)						Geometries	Available tools
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	H01	DP150	DP200	l	d	t	r	d_1	a		
SNEU-TBW 	1204-TBW																	●	-	12.7	4.76	-	5.7	(2.1)		E397
SNEU-WMF 	1204R-WMF																	●	-	12.7	4.76	-	5.7	-		E397
SNEX 	101010										●							●	-	10	10	1.0	4.6	-		-
	1010ZNN																	●	-	10	10	(1.0)	4.6	-		
SNEX-CU1 	101010-CU1										●							●	-	10	10	1.0	4.6	-		-
	1010ZNN-CU1										●							●	-	10	10	(1.0)	4.6	-		
	121212-CU1																	●	-	12.7	12.7	1.2	5.6	-		
	1212ZNN-CU1																	●	-	12.7	12.7	(1.2)	5.6	-		
SNEX-MA 	1206ANN-MA															●		●	-	12.7	6.35	-	4.5	2.36		E115~ E124
	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		E115~ E124
	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		
SNEW 	09T3ADFR															●		●	9.525	9.525	3.97	-	4.4	-		E139 E140
SNEW-NAF 	09T3ADTR-NAF																●		9.525	9.525	3.97	-	4.4	-		E139 E140
	09T3ADTR-NAW																●		9.525	9.525	3.97	-	4.4	-		
	NAW: Wiper insert																									
SNEW-XAF 	09T3ADTR-XAF																●		9.525	9.525	3.97	-	4.4	-		E139 E140
	09T3ADTR-XAW																●		9.525	9.525	3.97	-	4.4	-		
	XAW: Wiper insert																									

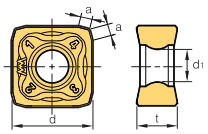
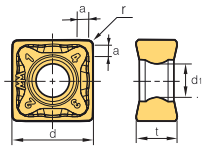
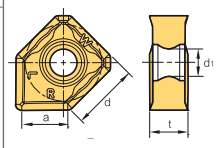
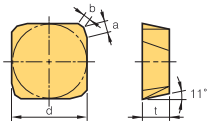
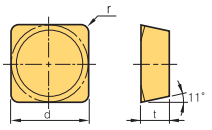
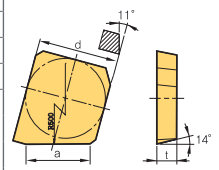
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⧓ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Inserts	Designation	Cermet		Coated										PCD		Dimensions (mm)							Geometries	Available tools
		CN2000	CN30	NC5330	NCM535	NCM545	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	DP150	DP200	l	d	t	r	d_1	a	b		
SNHT-WX	1102308R-WX												●				-	11	2.30	-	4	-	-		E384
	110308R-WX												●				-	11	3.00	-	4	-	-		E385
	120308R-WX																-	12.7	3.25	-	5	-	-		
	1203508R-WX												●				-	12.7	3.50	-	5	-	-		
	120408R-WX																-	12.7	4.00	-	5	-	-		
	1204508R-WX												●				-	12.7	4.54	-	5	-	-		
	120508R-WX												●				-	12.7	5.00	-	5	-	-		
	1205408R-WX												●				-	12.7	5.47	-	5	-	-		
	120608R-WX																-	12.7	6.00	-	5	-	-		
	1206508R-WX																-	12.7	6.50	-	5	-	-		
	120708R-WX																-	12.7	7.00	-	5	-	-		
	1207508R-WX																-	12.7	7.5	-	5	-	-		
	1102308L-WX												●				-	11	2.30	-	4	-	-		
	110308L-WX												●				-	11	3.00	-	4	-	-		
	120308L-WX																-	12.7	3.25	-	5	-	-		
	1203508L-WX												●				-	12.7	3.50	-	5	-	-		
	120408L-WX																-	12.7	4.00	-	5	-	-		
	1204508L-WX												●				-	12.7	4.54	-	5	-	-		
	120508L-WX												●				-	12.7	5.00	-	5	-	-		
	1205408L-WX												●				-	12.7	5.47	-	5	-	-		
	120608L-WX																-	12.7	6.00	-	5	-	-		
	1206508L-WX																-	12.7	6.50	-	5	-	-		
	120708L-WX																-	12.7	7.00	-	5	-	-		
	1207508L-WX																-	12.7	7.5	-	5	-	-		
SNKN	1204ENN									●							-	12.7	4.76	-	-	1.4	1.0		E49
	1504ENN																-	15.875	4.76	-	-	1.4	1.0		
SNM(E)X-MF	SNMX 1206ANN-MF				●			●	●	●		●	●	●			-	12.7	6.35	-	4.5	2.36	-		E117
	1507ANN-MF				●			●	●	●			●	●			-	15.875	7.94	-	5.6	3.15	-		E118
	SNEX 1206ANN-MF							●	●	●			●	●			-	12.7	6.35	-	4.5	2.36	-		E125
	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	-		E115~
	1507ENN-MF				●			●	●	●			●	●			-	15.875	7.94	-	5.6	2.66	-		E118
	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	-		E123
	120612-MF							●		●			●	●			-	12.7	6.35	1.2	5.2	-	-		E124
	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	-		E115~
	1507ANN-MM				●			●	●	●			●	●			-	15.875	7.94	-	5.6	3.15	-		E118
	SNEX 1206ANN-MM							●	●	●	●		●	●			-	12.7	6.35	-	4.5	2.36	-		
	1507ANN-MM									●			●	●			-	15.875	7.94	-	5.6	3.15	-		

●: Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⧓ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Inserts	Designation	Cermet		Coated										Uncoated			Dimensions (mm)							Geometries	Available tools
		CN2000	CN30	NCM325	NCM335	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	l	d	t	r	d_1	a	b		
SNM(E)X-MM	SNMX 1206ENN-MM					●		●	●	●		●	●	●				-	12.7	6.35	-	5.2	1.82	-		E119~ E122
	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	-		E123 E124
	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	-		E115 E116
SPCN	1203EDR		●	●	●										●	●	●	-	12.7	3.18	-	-	1.4	1.0		E50 E51
	1203EDR-RH																	-	12.7	3.18	-	-	1.4	1.0		
	1203EDL														●			-	12.7	3.18	-	-	1.4	1.0		
	1203EDR-G																●	-	12.7	3.18	-	-	1.4	1.0		
	1203EDR-RN																	-	12.7	3.18			1.4	1.0		
	1203EDER-RH									●			●					-	12.7	3.18	-	-	1.63	0.8		
	1203EDSR-RH									●								-	12.7	3.18	-	-	1.63	0.8		
	1203EDTR-RH																	-	12.7	3.18	-	-	1.63	0.8		
	1203EDR-S20										●							-	12.7	3.18	-	-	1.4	1.0		
	150412T																	-	15.875	4.76	1.2	-	-	-		
	1504EDR		●	●											●	●		-	15.875	4.76	-	-	1.4	1.0		
	1504EDR-RH																		15.875	4.76	-	-	1.4	1.0		
	1504EDSR																	-	15.875	4.76	-	-	1.4	1.0		
	1504EDL									●								-	15.875	4.76	-	-	1.4	1.0		
	1504EDR-G																●	-	15.875	4.76	-	-	1.4	1.0		
	1504EDR-RN	●																-	15.875	4.76	-	-	1.4	1.0		
	1504EDER-RH									●			●					-	15.875	4.76	-	-	1.64	0.8		
	1504EDSR-RH									●								-	15.875	4.76	-	-	1.64	0.8		
	1504EDTR-RH																	-	15.875	4.76	-	-	1.64	0.8		
	1504EDR-S20										●							-	15.875	4.76	-	-	1.4	1.0		
SPEN-WC	120416-WC																	-	12.7	4.76	1.6	-	-	-		E396
	150412-WC																	-	15.875	4.76	1.2	-	-	-		
	150416-WC																	-	15.875	4.76	1.6	-	-	-		
	150420-WC																	-	15.875	4.76	2.0	-	-	-		
	190424-WC																	-	19.05	4.76	2.4	-	-	-		
SPEX	1203EDR-1																	-	12.7	3.18	-	-	10.2	-		E50 E51
	1203EDL-1																	-	12.7	3.18	-	-	10.2	-		
	1504EDR-1																	-	15.875	4.76	-	-	10.2	-		
	1504EDL-1																	-	15.875	4.76	-	-	10.2	-		

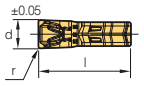
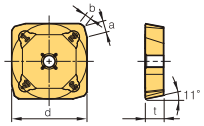
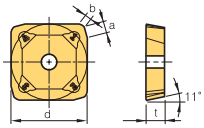
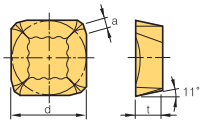
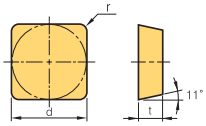
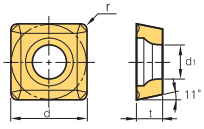
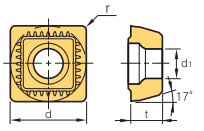
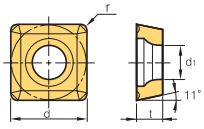
SPCN150412T

●: Stock item

Workpiece			P		M		K		N		S		H	
	Steel	P	●	◖	◖	✱	●	●	●	◖	◖			
	Stainless steel	M			◖	✱					◖	✱	◖	✱
	Cast iron	K					◖	●	●		●		◖	✱
	Non-ferrous metal	N												
	Heat resistant alloy, Titanium alloy	S											◖	✱
	Hardened steel	H											◖	✱

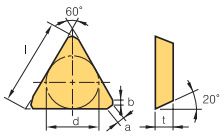
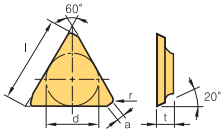
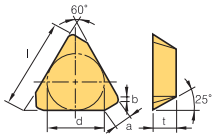
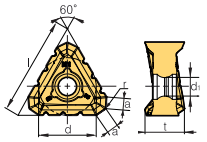
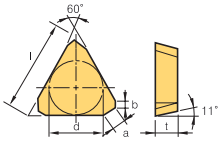
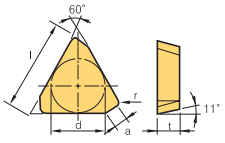
Machining types

● Continuous cutting
◖ General cutting
✱ Interrupted cutting

Inserts	Designation	Cermet		Coated											Uncoated		Dimensions (mm)							Geometries	Available tools
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	l	d	t	r	d_1	a	b		
SPFN	200-N																	8.8	2.2	-	0.2	-	-	-		E381
	300-N																	9.8	3.0	-	0.2	-	-	-		
	400-N																	9.8	4.0	-	0.25	-	-	-		
SPKN-MU	1203EDSR-MU								●									-	12.7	3.18	-	-	0.86	1.87		E50 E51
	1504EDSR-MU								●									-	15.875	4.76	-	-	0.84	1.92		
SPKN-SU	1203EDSR-SU								●	●				●	●			-	12.7	3.18	-	-	1.66	0.92		E50 E51
	1203EDSL-SU								●									-	12.7	3.18	-	-	1.66	0.92		
	1504EDSR-SU								●	●				●	●			-	15.875	4.76	-	-	1.62	0.93		
	1504EDSL-SU								●									-	15.875	4.76	-	-	1.62	0.93		
SPKR-MX	1203EDSR-MX			●	●													-	12.7	3.18	-	-	1.4	-		E50 E51
	1203EDSL-MX																	-	12.7	3.18	-	-	1.4	-		
	1504EDR-MX			●														-	15.875	4.76	-	-	1.45	-		
	1504EDSR-MX																	-	15.875	4.76	-	-	1.45	-		
SPMN	120308															●		-	12.7	3.18	0.8	-	-	-		E338
SPMT	060304			●														-	6.35	3.18	0.4	2.8	-	-		E299 E326 E327
SPMT-KC	110408-KC								●							●	●	-	11.5	4.8	0.8	4.5	-	-		E338
SPMT-MM	120408-MM								●					●				-	12.7	4.76	0.8	5.6	-	-		E199 E299 E326 E328
	120508-MMN																	-	12.7	5.56	0.8	5.6	-	-		

● : Stock item

Workpiece			Machining types
Steel	P	● ⬬ ⬬ ✱ ● ● ● ⬬	● Continuous cutting
Stainless steel	M	⬬ ✱ ⬬ ✱ ⬬ ⬬ ⬬	⬬ General cutting
Cast iron	K	⬬ ✱ ● ● ● ⬬ ✱	✱ Interrupted cutting
Non-ferrous metal	N	●
Heat resistant alloy, Titanium alloy	S	⬬ ✱
Hardened steel	H	⬬ ✱

Inserts	Designation	Cermet		Coated										Uncoated			Dimensions (mm)							Geometries	Available tools
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	l	d	t	r	d_1	a	b		
TEC(E)N	TECN 22R																	11.0	6.35	3.18	-	-	1.0	0.5		E58
	22TR		●												●			11.0	6.35	3.18	0.8	-	0.5	-	
	32R															●		16.5	9.525	3.18	-	-	1.0	0.5	
	32R-G																	16.5	9.525	3.18	-	-	1.0	0.5	
	32TR		●		●						●				●			16.5	9.525	3.18	0.8	-	0.5	-	
	32TR-S20										●							16.5	9.525	3.18	0.8	-	0.5	-	
	43R-G																	22.0	12.7	4.76	-	-	2.0	0.5	
	43TR-Z																	22.0	12.7	4.76	0.8	-	1.5	-	
	43TR																	22.0	12.7	4.76	0.8	-	1.5	-	
	TEEN 32TR																	16.5	9.525	3.18	0.8	-	0.5	-	
TEEN	43R-Z																	22.0	12.7	4.76	-	-	2.0	0.5	
	43TR-Z														●			22.0	12.7	4.76	0.8	-	1.5	-	
	43TR-ZH										●							22.0	12.7	4.76	0.8	-	1.5	-	
	43R															●		22.0	12.7	4.76	-	-	2.0	0.5	
	43R-G																●	22.0	12.7	4.76	-	-	2.0	0.5	
	43TR	●	●	●	●					●					●			22.0	12.7	4.76	0.8	-	1.5	-	● Shape of Edge - G: Light side, Sharp edge - S20: STS - ZH: Hole added
	43TR-S20										●							22.0	12.7	4.76	0.8	-	1.5	-	
TFCN	2203PFR																●	22.0	12.7	3.18	-	-	2.42	0.71		E52
	2203PFL																	22.0	12.7	3.18	-	-	2.42	0.71	
TNMX new	2710AZNR-NM					●	●		●		●		●					27	15.875	10	0.8	5.6	2.63	-		E65~ E67
	2710AZNL-NM																	27	15.875	10	0.8	5.6	2.63	-	
	3012PNR-NM																	30	17.462	11.970	0.8	5.6	3.5	-	
TPCN	1103PPN		●												●	●		11.0	6.35	3.18	-	-	0.7	0.7		E53
	1103PPTN																	11.0	6.35	3.18	-	-	0.7	0.7	
	1603PDR			●														16.5	9.525	3.18	-	-	1.2	0.7	
	1603PPN		●	●						●						●		16.5	9.525	3.18	-	-	1.2	1.2	
	1603PPR		●	●											●	●		16.5	9.525	3.18	-	-	1.2	1.0	
	1603PPR-RH																	16.5	9.525	3.18	-	-	1.2	1.0	
	1603PPR-G																●	16.5	9.525	3.18	-	-	1.2	1.0	
	1603PPSR																	16.5	9.525	3.18	-	-	1.2	1.0	
	1603PPTN																	16.5	9.525	3.18	-	-	1.2	1.2	
	1603PPTR																	16.5	9.525	3.18	-	-	1.2	1.0	
	1603PPTR-RH																	16.5	9.525	3.18	-	-	1.2	1.0	
	1603PDER-RH									●			●					16.5	9.525	3.18	0.8	-	1.5	-	
	1603PDSR-RH									●								16.5	9.525	3.18	0.8	-	1.5	-	
	1603PDR-S20										●							16.5	9.525	3.18	-	-	1.2	0.7	
	1603PDR-RN																	16.5	9.525	3.18	-	-	1.5	1.1	
	2204PDR		●	●											●	●		22.0	12.7	4.76	-	-	1.4	0.7		
	2204PDR-RH																	22.0	12.7	4.76	-	-	1.4	0.7	
	2204PDR-RN																	22.0	12.7	4.76	-	-	1.42	0.52	
	2204PDR-G																●	22.0	12.7	4.76	-	-	1.4	0.7	
	2204PDL														●			22.0	12.7	4.76	-	-	1.4	0.7	
	2204PDSR				●													22.0	12.7	4.76	-	-	1.4	0.7	
	2204PDTR																	22.0	12.7	4.76	-	-	1.4	0.7	
	2204PPN																	22.0	12.7	4.76	-	-	1.2	1.2	
	2204PPTN																	22.0	12.7	4.76	-	-	1.2	1.2	
	2204PDR-RH																	22.0	12.7	4.76	0.8	-	1.8	-	
	2204PDER-RH									●			●					22.0	12.7	4.76	0.8	-	1.8	-	
	2204PDSR-RH									●								22.0	12.7	4.76	0.8	-	1.8	-	
	2204PDR-S20										●							22.0	12.7	4.76	-	-	1.4	0.7	

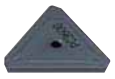
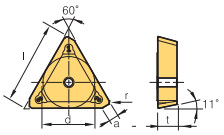
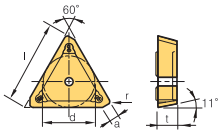
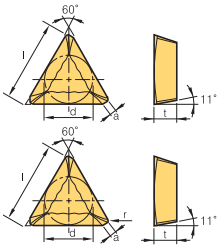
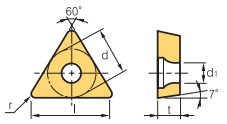
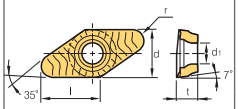
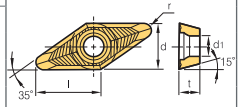
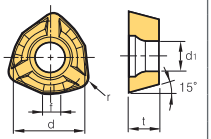
※ In this page, TPC(K)N □□□□P~N is for FC·HC and □□□□P~R is for Cutter (face).

●: Stock item

Workpiece			CN2000	CN30	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	H01
	Steel	P	●	⬬	⬬	✱	●	●	●	⬬	⬬	⬬				⬬	✱	
	Stainless steel	M			⬬	✱								⬬	✱	⬬	✱	
	Cast iron	K					●	●	⬬	⬬			●			⬬	✱	●
	Non-ferrous metal	N																●
	Heat resistant alloy, Titanium alloy	S														⬬	✱	
	Hardened steel	H							●	⬬						⬬	✱	

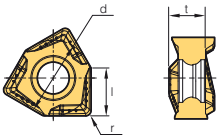
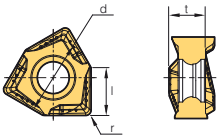
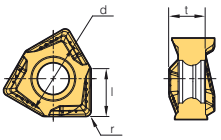
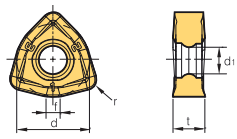
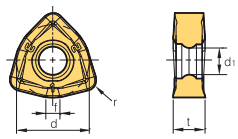
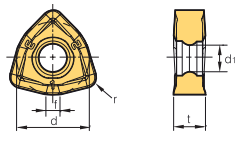
Machining types

● Continuous cutting
⬬ General cutting
✱ Interrupted cutting

Inserts	Designation	Cermet		Coated														Uncoated	Dimensions (mm)								Geometries	Available tools
		CN2000	CN30	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	H01	l	d	t	r	d_1	a	b	f		
TPKN-MU 	2204PDSR-MU									●								22.0	12.7	4.76	0.8	-	1.96	-			E53
TPKN-SU 	1603PDSL-SU									●	●							16.5	9.525	3.18	1.0	-	1.70	-			E53
	1603PDSR-SU									●	●							16.5	9.525	3.18	1.0	-	1.70	-			
	2204PDSL-SU									●								22.0	12.7	4.76	1.0	-	1.91	-			
	2204PDSR-SU									●	●				●	●		22.0	12.7	4.76	1.0	-	1.91	-			
TPKR-MX 	1603PDSN-MX																	16.5	9.525	3.18	-	-	1.2	1.2			E53
	1603PDSR-MX												●					16.5	9.525	3.18	-	-	1.2	0.7			
	1603PPR-MX			●														16.5	9.525	3.18	-	-	1.2	1.0			
	1603PPSN-MX																	16.5	9.525	3.18	-	-	1.2	1.2			
	1603PPSR-MX				●													16.5	9.525	3.18	-	-	1.2	1.0			
	2204PDR-MX			●														22.0	12.7	4.76	1.0	-	1.4	-			
	2204PDSR-MX			●	●													22.0	12.7	4.76	1.0	-	1.4	-			
	2204PPR-MX																	22.0	12.7	4.76	1.0	-	1.4	-			
TWX-KC 	16R-KC										●				●			16.5	9.52	3.97	0.8	4.45	-	-	-		E340
	22R-KC										●							22.0	12.7	4.76	0.8	4.45	-	-	-		
VCKT-MA 	220530N-MA																●	15.6	12.7	5.56	3.0	5.6	-	-	-		E354 E355
VDKT-MA 	11T210N-MA																●	8.8	6.35	2.87	1.0	2.8	-	-	-		E356
	11T220N-MA																	6.7	6.35	2.87	2.0	2.8	-	-	-		
WDKT-MH 	080316ZDSR-MH							●	●	●	●	●	●		●	●		-	8.0	3.18	1.6	3.3	-	-	1.8		E292~ E298
	10T320ZDSR-MH							●	●	●	●	●	●		●	●		-	10.0	3.97	2.0	4.3	-	-	2.3		
	130520ZDSR-MH							●	●	●	●	●	●		●	●		-	13.5	5.56	2.0	5.56	-	-	3.1		
	150625ZDSR-MH									●	●	●	●		●	●		-	15.0	6.35	2.5	5.56	-	-	3.4		

● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬬ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Inserts	Designation	Cermet		Coated										Uncoated		Dimensions (mm)						Geometries	Available tools
		CN2000	CN30	NCM535	NCM545	PC2505	PC2510	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	l	d	t	r	d_1	f		
WNGX-MA	040304PNFR-MA																●	4.3	7.0	3.46	0.4	-	-		E110~ E114
	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	-	-		E110~ E114
	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	-	-		E110~ E114
	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	-	-		
WNMX-MF	060312ZNN-MF								●					●	●			-	6.35	3.18	1.2	2.86	1.2		E281~ E291
	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		E281~ E291
	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		E281~ E291
	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		

● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⧓ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Inserts	Designation	Cermet		Coated										Uncoated				Dimensions (mm)								Geometries	Available tools
		CN2000	CN30	NC5330	NCM535	NCM545	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	l	l2	l1	d	t	r	d1	a		
XCET-KC	310404ER-KC						●								●	●			30.9	-	-	9.525	4.5	0.4	4.4	-		E339
XDET-MA new	190504PEFR-MA																	●	22	-	-	11.3	5.04	0.4	4.5	-		E368~ E370
	190508PEFR-MA																●	●	22	-	-	11.3	5.00	0.8	4.5	-		
	190512PEFR-MA																	●	22	-	-	11.3	5.00	1.2	4.5	-		
	190516PEFR-MA																●	●	22	-	-	11.3	4.99	1.6	4.5	-		
	190520PEFR-MA																	●	22	-	-	11.3	4.97	2.0	4.5	-		
	190524PEFR-MA																	●	22	-	-	11.3	4.95	2.4	4.5	-		
	190530PEFR-MA																●	●	22	-	-	11.3	4.93	3.0	4.5	-		
	190532PEFR-MA																	●	22	-	-	11.3	4.92	3.2	4.5	-		
	190540PEFR-MA																	●	21	-	-	11.3	4.85	4.0	4.5	-		
	190550PEFR-MA																	●	21	-	-	11.3	4.81	5.0	4.5	-		
XEKT-MA	19M504FR-MA												●	●			●	●	18	16.4	1.4	-	5	0.4	4.4	-		E357~ E362
	19M508FR-MA												●	●			●	●	18	16.4	1.0	-	5	0.8	4.4	-		
	19M512FR-MA												●	●			●	●	18	16.4	0.6	-	5	1.2	4.4	-		
	19M516FR-MA													●			●	●	17.5	16.4	0.5	-	5	1.6	4.4	-		
	19M518FR-MA																		17.5	16.4	0.5	-	5	1.8	4.4	-		
	19M520FR-MA												●	●			●	●	17.5	16.4	0.5	-	5	2.0	4.4	-		
	19M530FR-MA													●			●	●	17	16.4	0.7	-	5	3.0	4.4	-		
	19M532FR-MA												●	●			●	●	17	16.4	0.5	-	5	3.2	4.4	-		
	19M540FR-MA												●	●			●	●	16.5	16.4	0.5	-	5	4.0	4.4	-		
	19M550FR-MA												●	●			●	●	16	16.4	0.4	-	5	5.0	4.4	-		
	250604FR-MA																●	●	24.5	21.9	1.5	-	6.35	0.4	6.0	-		
	250608FR-MA																●	●	24.5	21.9	1.2	-	6.35	0.8	6.0	-		
	250612FR-MA																●	●	24.5	21.9	0.8	-	6.35	1.2	6.0	-		
	250616FR-MA																		24.5	21.9	0.4	-	6.35	1.6	6.0	-		
	250620FR-MA																●	●	24	21.9	0.5	-	6.35	2.0	6.0	-		
	250630FR-MA																		23.7	21.9	0.6	-	6.35	3.0	6.0	-		
	250632FR-MA																●	●	23.7	21.9	0.4	-	6.35	3.2	6.0	-		
	250640FR-MA																		22.8	21.9	1.2	-	6.35	4.0	6.0	-		
	250650FR-MA																●	●	22.7	21.9	0.4	-	6.35	5.0	6.0	-		
XEKT-ML new	19M504ER-ML																		18	16.4	1.4	-	5	0.4	4.4	-		E357~ E362
	19M508ER-ML																		18	16.4	1.0	-	5	0.8	4.4	-		
	19M512ER-ML																		18	16.4	0.6	-	5	1.2	4.4	-		
	19M516ER-ML																		17.5	16.4	0.5	-	5	1.6	4.4	-		
	19M518ER-ML																		17.5	16.4	0.5	-	5	1.8	4.4	-		
	19M520ER-ML																		17.5	16.4	0.5	-	5	2.0	4.4	-		
	19M530ER-ML																		17	16.4	0.7	-	5	3.0	4.4	-		
	19M532ER-ML																		17	16.4	0.5	-	5	3.2	4.4	-		
	19M540ER-ML																		16.5	16.4	0.5	-	5	4.0	4.4	-		
	19M550ER-ML																		16	16.4	0.4	-	5	5.0	4.4	-		
	250604ER-ML																		24.5	21.9	1.5	-	6.35	0.4	6.0	-		
	250608ER-ML																		24.5	21.9	1.2	-	6.35	0.8	6.0	-		
	250612ER-ML																		24.5	21.9	0.8	-	6.35	1.2	6.0	-		
	250616ER-ML																		24.5	21.9	0.4	-	6.35	1.6	6.0	-		
	250620ER-ML																		24	21.9	0.5	-	6.35	2.0	6.0	-		
	250630ER-ML																		23.7	21.9	0.6	-	6.35	3.0	6.0	-		
	250632ER-ML																		23.7	21.9	0.4	-	6.35	3.2	6.0	-		
	250640ER-ML																		22.8	21.9	1.2	-	6.35	4.0	6.0	-		
	250650ER-ML																		22.7	21.9	0.4	-	6.35	5.0	6.0	-		
XNCT-MA new	080504PNFR-MA																●		8.2	-	-	10.0	5.5	0.4	4.5	2.9		E90~ E94
	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		

●: Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⧓ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

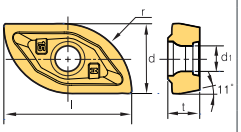
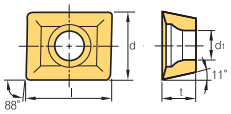
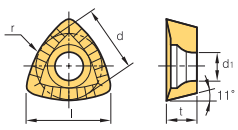
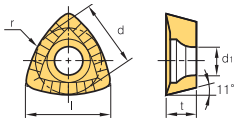
Inserts	Designation	Cermet		Coated											Uncoated		Dimensions (mm)						Geometries	Available tools
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	l	d	t	r	d_1	a		
XNKT-ML	060405PNER-ML							●	●	●	●		●	●	●			5.7	6.5	4.0	0.5	3.4	1.8		E89~ E94
	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		E89~ E94
	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		
XPMT-MM	0802ER-MM													●				8.5	5.9	2.38	0.8	-	-		E331 E332
	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	-	-		
ZDMT-R-MM	080310R-MM									●				●				8.4	6.73	3.2	10	2.8	-		E327
	110312.5R-MM													●				10.6	8.5	3.65	12.5	2.8	-		
	130416R-MM									●				●				13.2	10.5	4.76	16	4.4	-		

● : Stock item

Workpiece			CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01
	Steel	P	●	⬬	●	●	●	●	⬬	⬬	⬬				⬬	✱	⬬	
	Stainless steel	M											⬬	✱	⬬	✱		
	Cast iron	K			⬬	●	●	⬬	⬬			●			⬬	✱		●
	Non-ferrous metal	N																●
	Heat resistant alloy, Titanium alloy	S													⬬	✱		
	Hardened steel	H						●	⬬						⬬	✱		

Machining types

● Continuous cutting
⬬ General cutting
✱ Interrupted cutting

Inserts	Designation	Cermet		Coated												Uncoated		Dimensions (mm)					Geometries	Available tools
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	l	d	t	r	d_1		
ZPET-MM Internal	080M-MM																	16	8.0	3.5	8	2.9		E326
	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		
ZPMT-MM	1504PPSR-MM									●				●				15.9	12.7	4.76	-	5.6		E199
	1505PPSR-MMN																	15.9	12.7	5.76	-	5.6		E299
ZPMT-R-MM	160520R-MM									●				●				16.1	12.7	5.56	20	5.6		E328
	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		E327

● : Stock item

Type	Cutter	Designation	Shape	A.A	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for face milling	Mill-max	**ADN(M) 4000/5000+**		45°	Ø80~Ø315	Excellent cutting-edge strength and chip flow	●					E44 E45
		AE(M) 4000/5000		45°	Ø80~Ø315	Low cutting load and good machinability	●					E46 E47
		EF(M) 4000	Al 	75°	Ø80~Ø315	High rake angle to prevents welding	●					E48
		EN(M) 4000		75°	Ø80~Ø315	Economical because double sided inserts applied	●					E49
		EPN(M) 4000/5000+		75°	Ø80~Ø315	Double posi rake angle and low cutting force	●					E50 E51
		PF(M) 4000	Al 	90°	Ø80~Ø315	High rake angle and good machinability	●	●	●			E52
		PPN(M) 4000		90°	Ø80~Ø315	Double posi rake angle and low cutting force	●	●	●			E53
	Mill-max Heavy	**HDDCM 7000/9000** new		55°	Ø125~Ø315	Deep roughing availability thanks to highly rigid inserts	●					E55
	Turbo Mill	**ADS 4000/5000**		45°	Ø50~Ø63	Anti-vibration	●					E56 E57
		PES 2000/3000/ 4000		90°	Ø20~Ø63	High rake angle, Cutting efficiency	●	●	●			E58
	Double Mill	**AFO(M)4000**		45°	Ø80~Ø125	High rake angle low cutting force Economical (8 corners available)	●					E59
		AFO(M)5000			Ø80~Ø315							E60
	Power Buster	**PBAC(M)5000**		45°	Ø80~Ø315	Double-sided Insert High depth High feed roughing	●					E65
		PBZC(M)5000		90°	Ø80~Ø315		●					E66
		PBPCM6000 new			Ø80~Ø315		●	●				E67

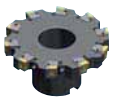
Al Cutter for aluminum

Type	Cutter	Designation	Shape	A.A	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for face milling	Aero Mill	**APD(M) A type**	Al 	90°	Ø80~Ø315	Aluminum cutter body suitable for high speed machining, Both cemented carbides and PCD inserts are available, G2.5 balance possible	●					E136
	Aero Mill - Plus	**APD(M)-PB**	Al 	90°	Ø80~Ø315	Prevent overload to the spindle bearings through weight reduction of the Al alloy body and enable high-speed processing	●					E137 E138
	Aero Mill-Mini	**MAPDS**	Al 	90°	Ø40~Ø63	Available with small Machining center-Carbide, PCD insert Application-Balancing class G2.5	●					E139
		MAPD	Al 	90°	Ø32~Ø40		●					E140
	Rich Mill	**RM8AC(M)4000 RMH8AC(M)4000**		45°	Ø50~Ø400	8 corners available Double-sided insert for steel, cast iron, stainless steel, aluminum	●					E115 E116
		RM8AC(M)5000 RMH8AC(M)5000			Ø80~Ø400		●					E117 E118
		RM8EC(M)4000 RMH8EC(M)4000		75°	Ø50~Ø400	8 corners available Double-sided insert for steel, cast iron	●					E119 E120
		RM8EC(M)5000 RM8HEC(M)5000			Ø80~Ø400		●					E121 E122
		RM8QC(M)4000 RMH8QC(M)4000		88°	Ø63~Ø200	8 corners available Reduced cutting interruption at cast Iron	●					E123 E124
		RMT8A(M) 4000/5000		45°	Ø80~Ø315	Easy insert change and good machinability due to latch clamping system 8 corners available Excellent surface finish	●					E125 E126
		RMT8E(M) 4000/5000		75°	Ø80~Ø315		●					E127 E128
		RMT8Q(M) 4000		88°	Ø80~Ø315		●					E129
		RM16AC(M) 6000/8000		45°	Ø63~Ø400	16 corners available Wiper inserts can be applied for good surface finish Strong insert and powerful clamping	●					E130 E131
Cutters for molds	Rich Mill	**RM3PC(M)3000** new		90°	Ø40~Ø80	Perfect perpendicularity Strong clamping	●	●	●		●	E89
		RM3PC(M)4000 new			Ø40~Ø125							E90
		RM3PC(M)5000 new			Ø80~Ø125							E91

Al Cutter for aluminum

Type	Cutter	Designation	Shape	A.A	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for molds	Rich Mill	RM4PC(M)3000		90°	Ø40~Ø100	4 corners available High rake angle insert reduces cutting force. Excellent insert rigidity	●	●	●		●	E95
		RM4PC(M)4000			Ø50~Ø160							E96
		RM4ZCM3000		90°	Ø40~Ø52	4 corners available In vertical machining, the maximum cutting depth for RM4Z3000: 9.00 mm, RM4Z4000: 14.0 mm	●	●	●		●	E108
		RM4ZC(M)4000			Ø63~Ø100							
		RM6PC(M)-WN04 new		90°	Ø40~Ø63	Improved productivity and high-quality shouldering through high speed and high feed machining	●	●	●		●	E110
		RM6PC(M)-WN08 new			Ø50~Ø125							E111
	Alpha Mill-X	AMXCM new		90°	Ø40~Ø80	High rake angle cutting edge and chip breaker reduce cutting load and improve chip evacuation. High rigidity due to special design	●	●	●	●	●	E145
	Alpha Mill	AMC(M) 1000S/1500S/ 2000S		90°	Ø32~Ø100	3-dimensional shape and high rake angle lowers cutting load and ensures better chip evacuation Inner coolant system for better chip control increases tool life Wide size range of inserts enlarges application range. Various types of Alpha Mills available for high depth of cut and high feed machining	●	●	●	●	●	E154 ~E156
		AMC(M) 3000S/3000S-K /4000S		90°	Ø40~Ø200		●	●	●	●	●	E157 ~E159
		AMC(M) 1000SE 2000SE 3000SE		75°	Ø40~Ø100		●					E160 E161
		AMC(M) 2000M 3000M 4000M		90°	Ø50~Ø125		●	●	●	●	●	E162 E163 E164
	Future Mill	FMAC(M)3000		45°	Ø50~Ø125	Accurate inserts and cutter, Excellent chip flow	●					E222
		FMAC(M)4000			Ø50~Ø200							E223
		FMAC(M)3000A		45°	Ø63~Ø125	Excellent in high speed cutting and tapping center, low power machine due to light aluminum body	●					E224
		FMAC(M)4000A			Ø63~Ø315							E225
		FMPC(M)3000		90°	Ø50~Ø100	4 corners available various inserts can be applied to machine for different types of workpiece	●	●	●			E228
		FMPC(M)4000			Ø63~Ø125							E229
		FMPC(M)3000A		90°	Ø63~Ø100	Excellent in high speed cutting and tapping center, low power machine due to light aluminum body	●	●	●			E230
		FMPC(M)4000A			Ø63~Ø315							E231

Type	Cutter	Designation	Shape	A.A	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for molds	Future Mill	**FMRC(M)3000**		-	Ø40~Ø100	4~8 corners available Double contact faces between insert & seat part of cutter for stable clamping Excellent rotating-free machining	●	●	●	●	●	E234
		FMRC(M)4000			Ø50~Ø125							E235
		FMRC(M)5000		-	Ø50~Ø125		●	●	●	●	●	E236
		FMRC(M)6000			Ø63~Ø160							E237
	Future Mill P-positive	**FMRC(M) 3000 4000 5000 6000** new		-	Ø40~Ø250	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.	●	●	●	●	●	E248 ~E251
	HFMD	**HFMDCM-LN06** new		-	Ø32~Ø66	Double sided with 4 corners insert for small diameter machining For high feed and multi-functional machining Strong clamping realizes stable machining.	●	●	●		●	E266
	HRM	**HRMC(M)13**		15°	Ø50~Ø80	Powerful clamping by double clamping system 3 corners available high feed cutting with low cutting load	●	●	●		●	E292
		HRMC(M)15			Ø63~Ø160							E293
	HRMD	**HRMDC(M)09**		14°	Ø40~Ø100	Double side insert with 6 corner High feed cutting with strong simple screw-on clamp	●	●	●		●	E281
		HRMDC(M)13			Ø50~Ø125							E282
		HRMDC(M)16 new			Ø80~Ø315							E283
	Tangen-Pro	**TP2PC(M)-LN08** new		90°	Ø40~Ø63	High-quality results available even under harsh cutting conditions, thanks to the stable clamping force	●	●	●			E303
		TP2PC(M)-LN14 new			Ø40~Ø125							E304
		TP2PC(M)-LN17 new			Ø40~Ø125							E305
	BT/HSK Tooling System	**BT30/40/50**		90°	Ø10~Ø50	BT/HSK one solid type has been accepted to increase the precision Inner coolant system can also make it possible to evacuate the chip effectively High feed and high depth	●	●	●		●	E184 ~E188
		HSK63										E189 ~E193
		BT30/40/50		90°	Ø16~Ø100		●	●	●			E194 ~E199
		HSK63/100										E200 ~E204
		BT30/40/50-MAT		90°	Ø12~Ø40	Alpha Mill, Rich Mill, FMR, Laser Mill, HRM(D), Pro-A, Pro-X Modular head M06~M16 applicable	●	●	●	●	●	E205
		HSK63/100-MAT										E206
		BT50 HAT4000		90°	Ø50~Ø80	Head only replacement possible and higher efficiency by self assembly head	●	●	●			E199

Type	Cutter	Designation	Shape	A.A	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for aluminum	Pro-A Mill	**PAC(M) 2000/4000**	Al 	90°	Ø40~Ø100	Buffed insert controls chip flow without built-up edge	●	●	●	●	●	E354
	Pro-X Mill	**PAXC(M)5000**	Al 	90°	Ø40~Ø125	Powerful clamping Excellent body rigidity for rectangular and curve machining	●	●	●	●	●	E357
		PAXC(M)6000			Ø50~Ø125							E358
	Pro-L Mill	**PALC(M)**	Al 	90°	Ø63	High helix and high depth of cut High perpendicularity Low cutting load	●	●	●	●	●	E363
	Pro-V Mill	**PAVCM-XD19** new		90°	Ø40~Ø125	Exclusive milling tool for high speed aluminum machining with key to key way structure ensures stable clamping.	●	●	●	●	●	E368
High feed cutter for cast iron	High feed cutter	**PNH 4000/5000**		90°	Ø125~Ø450	Wiper insert available Double negative rake angle Excellent surface finish	●					E395
		PPH 4000		90°	Ø125~Ø450	Square insert and wiper insert available Excellent surface finish	●					E396
	Shave Mill	**SVM(M)4000**		90°	Ø80~Ø315	Exclusive adjusting device of cutting-edge adjusts run-out easily.	●					E397
	Shave Mill-Ultra	**SVUM6000**		90°	Ø80~Ø315	Good rigidity and economical due to screw on simple type	●					E398
		SVUM6000-B		90°	Ø80~Ø315	Easy to handle the run-out due to Korloy exclusive high toughness cutting-edge special parts	●					E399
Indexable side cutter	Tangential type / Full-side cutter	**TAFCP**		-	Ø100~Ø315	Various cutting depth can be possible because of adjustable length control. Medium to Roughing based on strengthened edge		●	●			E375
		TAFCB		-	Ø100~Ø315		●	●	●			E375
	Tangential type / Half-side cutter	**TAHCP**		-	Ø100~Ø315			●	●			E376
		TAHCB		-	Ø100~Ø315		●	●	●			E376

Al Cutter for aluminum

Type	Cutter		Designation	Shape	A.A	Diameter range	Features	Application					Page
								Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Indexable side cutter	Radial type	Full-side cutter	**RAFCP**		-	Ø100~Ø315	Wide range of machining width with only one side cutter due to adjustable cutting-edge height Suitable for medium and finishing in narrow width side cutting due to good chip evacuation by 3-dimensional chip breaker		●	●			E377
			RAFCB		-	Ø100~Ø315		●	●	●			E377
		Half-side cutter	**RAHCP**		-	Ø100~Ø315			●	●			E378
			RAHCB		-	Ø100~Ø315		●	●	●			E378
Side cutterz	-		**SPP(M)**		-	Ø80~Ø200	Economical by using pentagonal insert Suitable for narrow & deep grooving			●			E379
			SPB(M)		-	Ø80~Ø200	Economical by using pentagonal insert Suitable for narrow & deep grooving			●			E380
			SPS		-	Ø50~Ø200	For narrow and deep width grooving			●			E381
	Full-side cutter		**RM4PFCB**		-	Ø80~Ø160	4 corner usage with double-sided insert can be economical			●			E97 E98
			RM4PFCP		-	Ø80~Ø160				●			E101 E102
	Half-side cutter		**RM4PHCB**		-	Ø80~Ø160	4 corner usage with double-sided insert can be economical			●			E99 E100
			RM4PHCP		-	Ø80~Ø160				●			E103 E104
	Wind Mill		**WFSB(M)**		-	Ø100~Ø250	The nose R shape of insert ensures long tool life. Wide applications with various widths and corner R sizes.	●	●	●			E384
			WFSP(M)		-	Ø100~Ø250			●	●			E385

Type	Cutter	Designation	Shape	A.A	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for face milling	Turbo Mill	**ADS 4000/5000**		45°	Ø50~Ø63	Uneven insert spacing prevents chattering	●					E56 E57
		PES 2000/3000/4000		90°	Ø20~Ø63	Good machinability due to the high rake angle	●	●	●			E58
Cutters for molds	Rich Mill	**RM3PS3000** new		90°	Ø20~Ø40	Perfect perpendicularity Strong clamping	●	●	●		●	E92
		RM3PS4000 new			Ø32~Ø63							E93
		RM4PS3000		90°	Ø14~Ø50	4 corners available High rake angle insert reduces cutting force Excellent insert rigidity	●	●	●		●	E105
		RM4PS4000			Ø32~Ø63		●	●	●		●	E106
		RM4ZS3000		90°	Ø25~Ø40	In vertical machining, the maximum cutting width: 9.0 mm	●	●	●		●	E109
		RM6PS-WN04 new		90°	Ø20~Ø32	Improved productivity and high-quality shouldering through high speed and high feed machining	●	●	●		●	E112
		RM6PS-WN08 new			Ø32~Ø50							E113
	Alpha Mill-X	**AMXS** new		90°	Ø32~Ø40	High rake angle cutting edge and chip breaker reduce cutting resistance and improve chip evacuation. High rigidity due to special design	●	●	●	●	●	E146
	Alpha Mill	**AMS 1000S/1500S 2000S/3000S 3000S-K/4000S**		90°	Ø10~Ø63	The combination of a 3-dimensional curve design & high rake angle helps chip-evacuation effectively with a low cutting force Inner coolant system The various range of inserts can provide the widened choice High depth and high feed can be available during operation	●	●	●	●	●	E165 ~E172
		AMS 1000SE/2000SE 3000SE		75°	Ø25~Ø63		●					E173 E174
		AMS 1000M/1500M 2000M/4000M		90°	Ø16~Ø50		●	●	●	●	●	E175 ~E177
		AMS 1000MH/1500MH 2000MH/3000MH(-K)		90°	Ø14~Ø40		●	●	●	●	●	E178 E179

Type	Cutter	Designation	Shape	A.A	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for molds	Future Mill	**FMAS3000**		45°	Ø25~Ø63	For precision machining Excellent chip evacuation	●					E226
		FMAS4000			Ø50~Ø63							E227
		FMPS3000		90°	Ø25~Ø63	4 corners available Strong cutting-edge with low cutting load	●					E232
		FMPS4000			Ø40~Ø63							E233
		FMRS 1000/1500/2000 2500/3000/4000 5000/6000		-	Ø8~Ø63	2 touch clamping system, convenient insert change	●	●	●	●	●	E238 ~243
	Future Mill P-positive	**FMRS new 2500/3000 4000/5000 6000**		-	Ø17~Ø50	P-positive relief angle 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	●	●	●	●	●	E252 ~E255
	HFMD	**HFMDS-LN06 new**		-	Ø16~Ø40	Double sided insert with 4 corners for small diameter machining For high feed and multi-functional machining Strong clamping system for stable machining	●	●	●	●	●	E264 E265
	HFM	**HFMS new 1000**		-	Ø8~Ø21	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	●	●	●	●	●	E273 E274
	HRM	**HRMS 08/10/13/15**		15°	Ø20~Ø63	Powerful clamping by double clamping system 3 corners available High feed cutting with low cutting load	●	●	●	●	●	E294 ~E296
	HRMD	**HRMDS 06 new 09/13**		14°	Ø16~Ø63	6 corners available, High feed, multi-function, only one screw application	●	●	●	●	●	E284 ~E287
	Tangen-Pro	**TP2PS-LN08 new**		90°	Ø16~Ø25	High-quality results available even under harsh cutting conditions, thanks to the stable clamping force	●	●	●			E306
		TP2PS-LN14 new			Ø25~Ø50							E307
		TP2PS-LN17 new			Ø32~Ø50							E308
	Tank Mill	**THE**		90°	Ø25~Ø50	Right-hand helix angle employed for good chip evacuation. Special surface treatment prevents body breaking and improves rigidity. Strong cutting-edge	●	●				E299
	Laser Mill	**LBE□□ LRE□□**		-	Ø8~Ø32	Indexable ball endmill for precise mold. Rigid holder with simple design finishing MQL is available	●	●	●	●		E318 ~E322
		LBE□□-C LRE□□-C		-	Ø8~Ø32	Indexable ball endmill for precise mold. Rigid holder with simple design finishing MQL is available Carbide shank	●	●	●			E318 ~E322

Type	Cutter	Designation	Shape	A.A	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for molds	Mach Mill	**BFE**		-	Ø16~Ø32	Upgraded cutting performance with S type curve design V clamping application	●	●	●	●		E323
		GBE		-	Ø16~Ø50	Helical design of edge can reduce the force during operation. Safe application to prevent rotation guarantee the increased tool life	●	●	●	●		E324
		BRE		-	Ø20~Ø63	Flute type chip-pocket can make chip-evacuation Customized edge design can prevent the breakage of holder's body	●	●	●	●		E327
	HAVE	**Multi-edge**		90°	Ø16~Ø50	Tools for Z-axis feed plunge machining to cut faster and more effectively in vertical machining Machining with whole diameter	●	●	●		●	E331
		Single-edge										E332
	O-ring Cutter	**ORC**		90°	Ø11~Ø46	For grooving the seat of an O-Ring in a plastic mold Superior surface roughness and cutting performance compared to HSS and brazed tool	-	-	-	-	-	E334
	Chamfer Tool	**CE**		75°	Ø25~Ø30	For Back & Front high quality chamfering and various Chamfering angle machining	●					E338
				60°	Ø25~Ø35							
				45°	Ø7~Ø39							
				30°	Ø25~Ø42							
				30°	Ø5~Ø35	Various chamfer degrees available Effective long chamfer cutting available	●	●	●			E339
				45°	Ø5~Ø48							
				60°	Ø5~Ø57							
				45°	~Ø28	Centering, Grooving, Chamfering	●	●	●		●	E340
		CCT		30°	Ø3~Ø16	Centering, Countersinking, Chamfering						E342
				45°								
				60°								
		CET		30°	Ø4~Ø16	Countersinking, Chamfering, Shouldering	●	●	●		●	E341
				45°								
				60°								
	T-Cutter	**TFE**		90°	Ø21~Ø50	For slotting	●	●	●	●	●	E343

Type	Cutter	Designation	Shape	A.A	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for aluminum	Pro-A Mill	**PAS 2000/4000**		90°	Ø12~Ø42 Ø32~Ø40	Polished face increases chip flow and reduces built-up edge	●	●	●	●	●	E355
	Pro-X Mill	**PAXS 5000/6000**		90°	Ø20~Ø40 Ø25~Ø40	Square shoulder and corner machining	●	●	●	●	●	E359 E360
	Pro-L Mill	**PALS-HR** (Single-edge)		90°	Ø32~Ø63	High helix and high depth of cut High perpendicularity Low cutting load	●	●	●	●	●	E364 E365
		PALS-HM (Multi-edge)			Ø63		●	●	●	●	●	E366
	Pro-XL Mill	**PXLS** new		90°	Ø40~Ø80	Improved surface finish and perpendicularity achieved by a single pass with the deep cutting-edges	●	●				E367
	Pro-V Mill	**PAVS-XD19** new		90°	Ø25~Ø40	Exclusive milling tool for high speed aluminum machining with key to key way structure ensures stable machining.	●	●	●	●	●	E369
		HSK-XD19 new			Ø32~Ø50		●	●	●	●	●	E370
Thread milling	-	**TM**		-	Ø32~Ø50	For internal and external threading	●					D49

FMRM type
E244~247
E256~259

LBE-MHD type
E322

PAM type
E356

PAXM type
E361

AMM type
E180~182

RM3PM type
E94

RM4PM type
E107

Steel Shank type
E371

Carbide Shank type
E372

BT Arbors type
E205

HSK Arbors type
E206

RM4ZM type
E109

RM6PM type
E114

HFMDM type
E267

HFMM type
E275

HRMM type
E297, 298

HRMDM type
E289~291

GBEM type
E326

Steel Shank type
E371

Carbide Shank type
E372

BT Arbors type
E205

HSK Arbors type
E206

ADN(M)4000

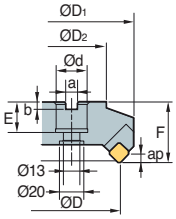


Fig. 1

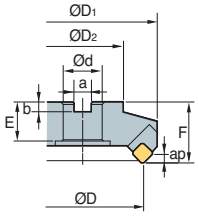


Fig. 2

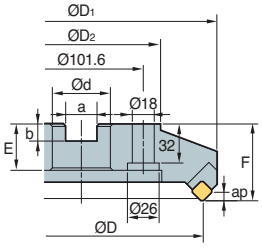


Fig. 3

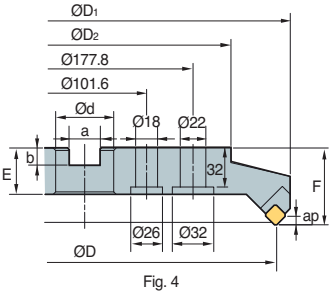


Fig. 4

AA
45°

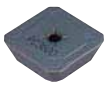
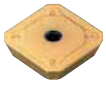
- AR: 15°
- RR: -4°

(mm)

Designation		⚙	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
ADN (ADNM)	4080R/L	4	80	57	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	6	1.9	1
	4100R/L	5	100	67	67	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	50	6	2.5	2
	4125R/L	6	125	87	87	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	6	4.3	2
	4160R/L	8	160	107	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (30)	63	6	6.4	2
	4200R/L	10	200	130	130	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	6	8.7	3
	4250R/L	12	250	180	180	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	6	14.0	3
	4315R/L	14	315	240	240	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	6	21.0	4

( )Metric size

Available inserts

SDCN	SDKN-MU	SDKN-SU	SDKR-MX
			

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SDCN	42M															●			E17
	42M-G																	●	
	42MT	●●		●												●			
	42MT-RH																		
	42MT-S20											●							
	1203AEEN																		
	1203AEEN-RH																		
	1203AESN																		
	1203AESN-RH																		
SDKN	1203AESN-MU								●										E18
	1203AESN-SU								●●					●●					
SDKR	1203AESN-MX																		E18
	1203AETN-MX																		
	1203AEN-MX			●															

Available arbors

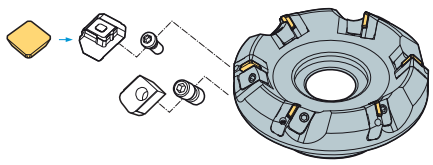
Designation		General arbor	NC arbors	
			ADN	ADNM
ADN (ADNM)	4080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8*** (Center ring plug)		

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3600
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
K	140~230	0.05~0.30	PC6510
	50~90	0.05~0.30	G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LADN4R/L	WEPN4R/L	DHA0821F	LTX0514	HW40

Available inserts E17, E18 Available arbors and bolt E400~E402

ADN(M)5000+

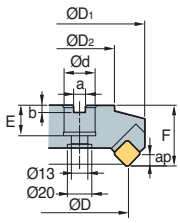


Fig. 1

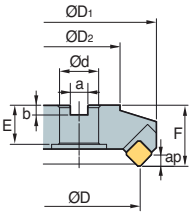


Fig. 2

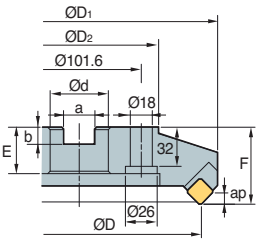


Fig. 3

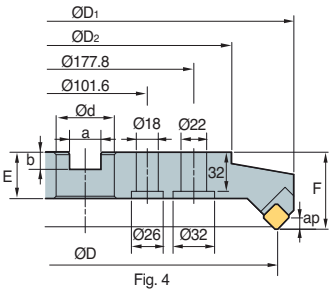


Fig. 4

AA
45°

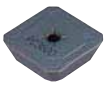
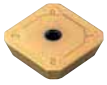
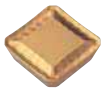
- AR: 15°
- RR: -4°

(mm)

Designation		⊚	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
ADN (ADNM)	5080R/L+	4	80	107	65	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	63	8	2.4	1
	5100R/L+	5	100	126	75	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	63	8	3.0	2
	5125R/L+	6	125	150	100	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	8	4.7	2
	5160R/L+	8	160	185	120	50.8 (40)	19.0 (16.4)	11 (9)	38 (30)	63	8	6.5	2
	5200R/L+	10	200	225	140	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	8	8.7	3
	5250R/L+	12	250	275	220	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	8	15.5	3
	5315R/L+	14	315	340	280	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	8	23.7	4

( )Metric size

Available inserts

SDCN	SDKN-MU	SDKN-SU	SDKR-MX
			

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SDCN	53M															●			
	53M-G																	●	
	53MT		●	●												●			
	53MT-RH																		
	53MT-S20											●							E17
	1504AEEN																		
	1504AEEN-RH										●			●					
	1504AESN																		
	1504AESN-RH										●								
SDKN	1504AESN-MU								●										E18
	1504AESN-SU								●	●				●	●				
SDKR	1504AESN-MX				●														E18
	1504AETN-MX																		
	1504AEN-MX			●															

Available arbors

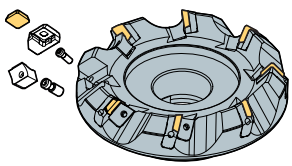
Designation		General arbor	NC arbors	
			ADN	ADNM
ADN (ADNM)	5080R/L+	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	5100R/L+	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	5125R/L+	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	5160R/L+	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	5200R/L+	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5250R/L+	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5315R/L+	KCP-8*** (Center ring plug)		

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3600 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6510 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LADN5R/L	WHPS5R/L	WHX0817 WHX0813*	LTX0514	HW40

Available inserts E17, E18 Available arbors and bolt E400~E402

*: Ø80

AE(M)4000

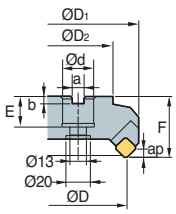


Fig. 1

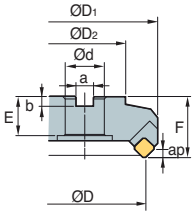


Fig. 2

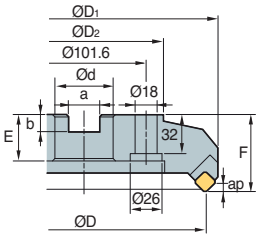


Fig. 3

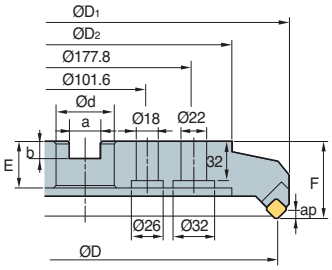


Fig. 4

AA
45°

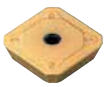
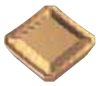
- AR: 20°
- RR: -3°

(mm)

Designation		⚙	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
AE (AEM)	4080R/L	4	80	103	60	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	5.5	1.7	1
	4100R/L	5	100	122	80	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	50	5.5	2.9	2
	4125R/L	6	125	146	100	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	5.5	4.4	2
	4160R/L	8	160	181	120	50.8 (40)	19.0 (16.4)	11 (9)	38 (30)	63	5.5	6.1	2
	4200R/L	10	200	220	130	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	5.5	8.9	3
	4250R/L	12	250	270	180	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	5.5	15.7	3
	4315R/L	15	315	335	240	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	5.5	25.1	4

( )Metric size

Available inserts

SECN	SEKN-SU	SEKR-MF1	SEKR-MX
			

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SECN	1203AFFN																●	●	
	1203AFTN	●	●													●			
	1203AFEN																		
	1203AFSN			●	●														E19
	1203AFEN-RH										●			●					
	1203AFSN-RH																		
	1203AFTN-S20											●							
SEKN	1203AFSN-SU								●	●									E19
SEKR	1203AFSN-MX			●	●							●							E20

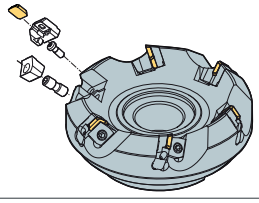
Available arbors

Designation		General arbor	NC arbors	
			ADN	ADNM
AE (AEM)	4080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8*** (Center ring plug)		

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3600
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
K	140~230	0.05~0.30	PC6510
	50~90	0.05~0.30	G10

Assembling	

Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LAE4R/L	WAE4R/L	DHA0821F	LTX0512	HW40

Available inserts E19, E20 Available arbors and bolt E400~E402

AE(M)5000

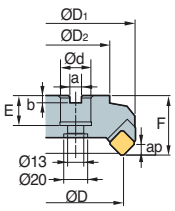


Fig. 1

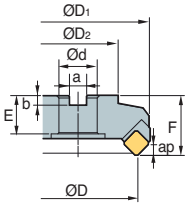


Fig. 2

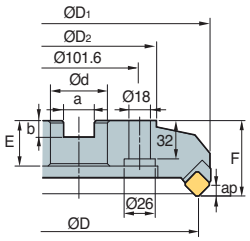


Fig. 3

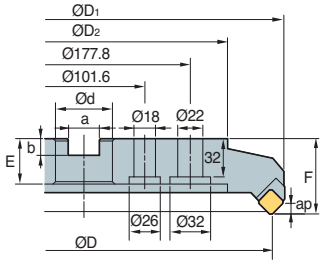


Fig. 4

AA
45°

- AR: 20°
- RR: -3°

(mm)

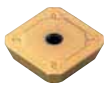
Designation		⌀	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
AE (AEM)	5080R/L	4	80	103	60	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	7.5	1.7	1
	5100R/L	5	100	122	80	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	50	7.5	2.9	2
	5125R/L	6	125	146	100	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	7.5	4.4	2
	5160R/L	8	160	181	120	50.8 (40)	19.0 (16.4)	11 (9)	38 (30)	63	7.5	6.1	2
	5200R/L	10	200	220	130	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	7.5	8.9	3
	5250R/L	12	250	270	180	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	7.5	15.7	3
	5315R/L	15	315	335	240	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	7.5	25.1	4

( )Metric size

Available inserts

SECN SEKR-MX SEKN-SU





Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SECN	1504AFFN															●			E19
	1504AFTN		●																
	1504AFEN																		
	1504AFSN																		
	1504AFEN-RH																		
	1504AFSN-RH										●								
	1504AFTN-S20																		
SEKN	1504AFSN-SU								●	●					●				E19
	1504AFSN-MX			●								●							

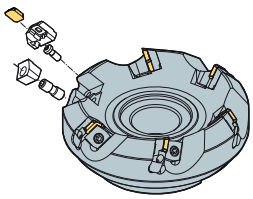
Available arbors

Designation		General arbor	NC arbors	
			AE	AEM
AE (AEM)	5080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	5100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	5125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	5160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	5200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5315R/L	KCP-8*** (Center ring plug)		

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3600
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
K	140~230	0.05~0.30	PC6510
	50~90	0.05~0.30	G10

Assembling	

Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LAE5R/L	WAE5R/L	DHA0821F	LTX0512	HW40

Available inserts E19 Available arbors and bolt E400~E402

EF(M)4000

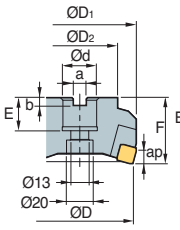


Fig. 1

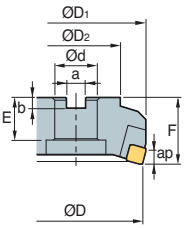


Fig. 2

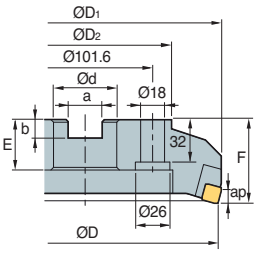


Fig. 3

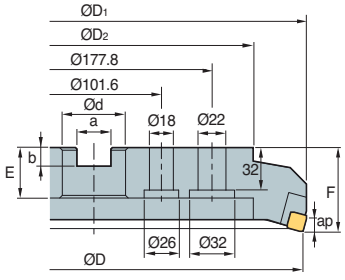


Fig. 4

AA
75°

- AR: 18°
- RR: 11°

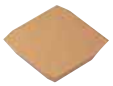
(mm)

Designation		⚙	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
EF (EFM)	4080R/L	4	80	89	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	8.0	1.5	1
	4100R/L	5	100	108	70	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	50	8.0	2.1	2
	4125R/L	6	125	133	87	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	8.0	3.8	2
	4160R/L	8	160	168	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (30)	63	8.0	5.5	2
	4200R/L	10	200	208	130	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	8.0	8.2	3
	4250R/L	12	250	257	180	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	8.0	13.4	3
	4315R/L	16	315	322	240	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	8.0	21.2	4

( )Metric size

Available inserts

SFCN



Designation		Cermet		Coated									Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SFCN	1203EFR																	●	E20

Available arbors

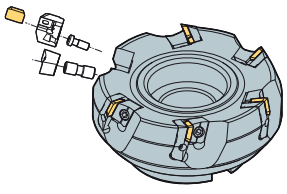
Designation		General arbor	NC arbors	
			EF	EFM
EF (EFM)	4080R/L	NT*□□ (M/U)-FMA25.4-25-□□	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8*** (Center ring plug)		

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
K	75~125	0.05~0.30	H01

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LEF4R/L LEF4R1*/L1*	WEFR/L	DHA0821F	LTX0512	HW40

*: Ø80~Ø100

Available inserts E20 Available arbors and bolt E400~E402

EN(M)4000

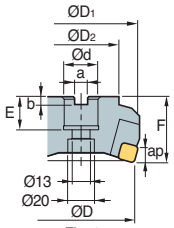


Fig. 1

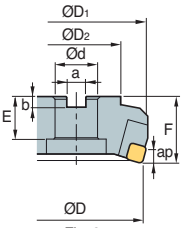


Fig. 2

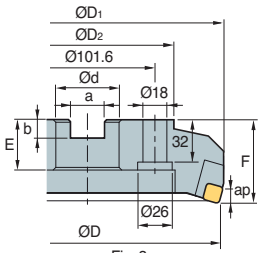


Fig. 3

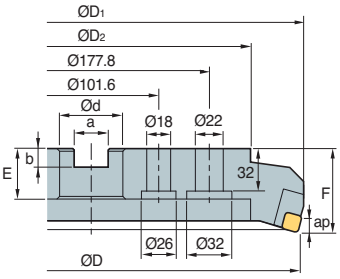


Fig. 4

AA
75°

- AR: -6°
- RR: -5°

(mm)

Designation		⚙	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
EN (ENM)	4080R/L	5	80	87	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	8.5	1.4	1
	4100R/L	6	100	107	67	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	50	8.5	2.1	2
	4125R/L	8	125	132	87	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	8.5	3.8	2
	4160R/L	10	160	167	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (30)	63	8.5	5.7	2
	4200R/L	12	200	207	130	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	8.5	8.4	3
	4250R/L	16	250	257	180	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	8.5	13.8	3
	4315R/L	20	315	322	240	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	8.5	21.6	4

( )Metric size

Available inserts

SNCN

SNKN

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCN	1204ENN			●												●			E21
SNKN	1204ENN										●								E23

Available arbors

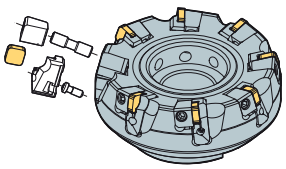
Designation		General arbor	NC arbors	
			EN	ENM
EF (EFM)	4080R/L	NT*□□ (M/U)-FMA25.4-25-□□	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8*** (Center ring plug)		

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3600
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
K	140~230	0.05~0.30	PC6510
	50~90	0.05~0.30	G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LEN4R/L	WENR/L WENR1*/L1*	DHA0830 DHA0825*	LTX0512	HW40

Available inserts E21, E23 Available arbors and bolt E400~E402

*: Ø80~Ø100

EPN(M)4000

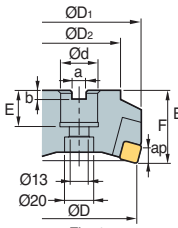


Fig. 1

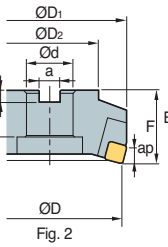


Fig. 2

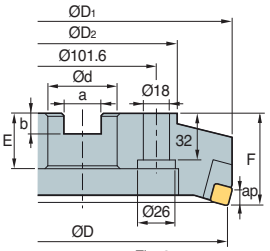


Fig. 3

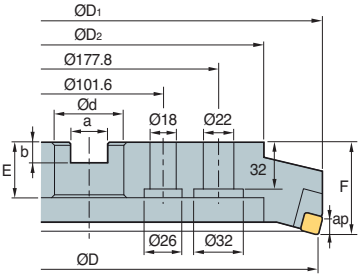


Fig. 4

AA
75°

- AR: 7°
- RR: 0°

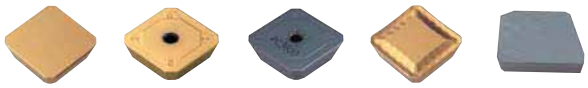
(mm)

Designation		⚙	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
EPN (EPNM)	4080R/L	5	80	86	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	9	1.4	1
	4100R/L	6	100	107	67	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	50	9	2.1	2
	4125R/L	8	125	132	87	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	9	3.8	2
	4160R/L	10	160	166	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (30)	63	9	5.7	2
	4200R/L	12	200	206	130	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	9	8.2	3
	4250R/L	16	250	256	180	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	9	13.5	3
	4315R/L	20	315	321	240	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	9	21.1	4

( )Metric size

Available inserts

SPCN SPKN-SU SPKN-MU SPKR-MX SPEX



Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SPCN	1203EDR		●	●	●											●	●	●	
	1203EDL															●			
	1203EDR-G																	●	
	1203EDER-RH										●			●					E24
	1203EDSR-RH										●								
	1203EDTR-RH																		
	1203EDR-S20											●							
SPKN	1203EDSR-MU								●										
	1203EDSR-SU								●	●				●	●				E25
	1203EDSL-SU								●										
SPKR	1203EDSR-MX			●	●														E25
	1203EDSL-MX																		
SPEX	1203EDR/L-1																		E24

Available arbors

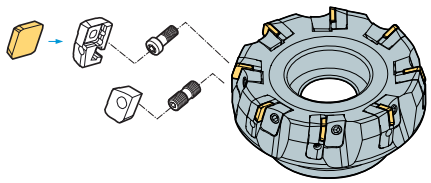
Designation		General arbor	NC arbors	
			EPN	EPNM
EPN (EPNM)	4080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8*** (Center ring plug)		

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3600
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
K	140~230	0.05~0.30	PC6510
	50~90	0.05~0.30	G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LEPN4R/L LEPN4R1*/L1*	WEPN4R/L	DHA0821F DHA0817F*	LTX0514	HW40

*: Ø80~Ø100

Available inserts E24, E25 Available arbors and bolt E400~E402

EPN(M)5000+

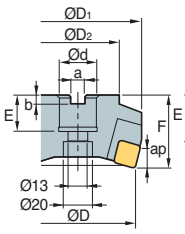


Fig. 1

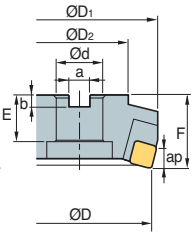


Fig. 2

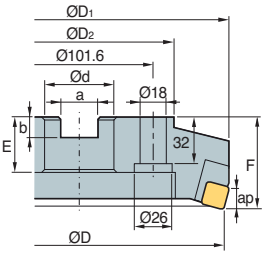


Fig. 3

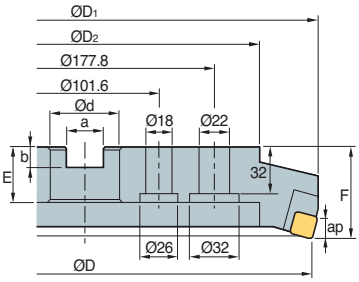


Fig. 4

AA
75°

- AR: 7°
- RR: 0°

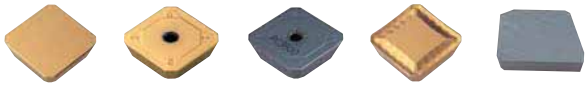
(mm)

Designation		⌀	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
EPN (EPNM)	5080R/L+	5	80	91	60	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	63	12	1.7	1
	5100R/L+	6	100	110	70	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	63	12	2.5	1
	5125R/L+	8	125	134	90	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	12	3.8	2
	5160R/L+	10	160	169	110	50.8 (40)	19.0 (16.4)	11 (9)	38 (30)	63	12	5.5	2
	5200R/L+	12	200	209	150	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	12	8.0	3
	5250R/L+	16	250	259	230	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	12	14.8	3
	5315R/L+	20	315	324	270	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	12	22.4	4

( )Metric size

Available inserts

SPCN SPKN-SU SPKN-MU SPKR-MX SPEX



Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SPCN	150412T																		
	1504EDR		●	●												●	●		
	1504EDSR																		
	1504EDL										●								
	1504EDR-G																	●	E24
	1504EDER-RH										●			●					
	1504EDSR-RH										●								
	1504EDTR-RH																		
	1504EDR-S20											●							
SPKN	1504EDSR-MU								●										
	1504EDSR-SU								●	●				●	●				E25
	1504EDSL-SU								●										
SPKR	1504EDR-MX			●															E25
	1504EDSR-MX																		
SPEX	1504EDR/L-1																		E24

Available arbors

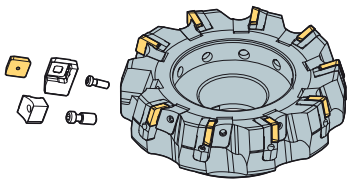
Designation		General arbor	NC arbors	
			EPN	EPNM
EPN (EPNM)	5080R/L+	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	5100R/L+	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	5125R/L+	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	5160R/L+	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	5200R/L+	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5250R/L+	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5315R/L+	KCP-8*** (Center ring plug)		

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3600
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
K	140~230	0.05~0.30	PC6510
	50~90	0.05~0.30	G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LEPN5R/L LEPN5R1*/L1*	WHPS5R/L	WHX0817 WHX0813*	LTX0514	HW40

Available inserts E24, E25 Available arbors and bolt E400~E402

*: Ø80

PF(M)4000

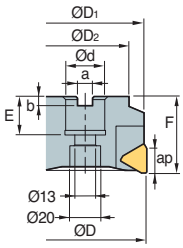


Fig. 1

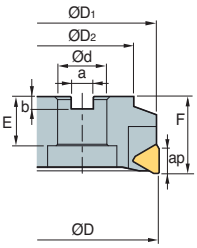


Fig. 2

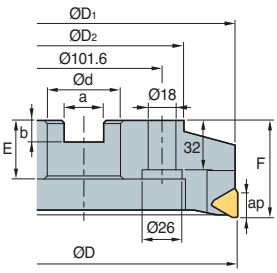


Fig. 3

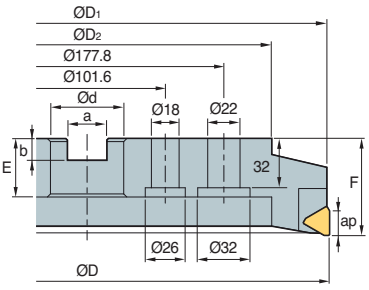


Fig. 4


AA
90°

- AR: 15°
- RR: 14°

(mm)

Designation		⚙	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
PF (PFM)	4080R/L	4	80	79	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	16	1.2	1
	4100R/L	4	100	97	67	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	50	16	1.8	2
	4125R/L	7	125	122	87	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	16	3.1	2
	4160R/L	9	160	158	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (30)	63	16	5.6	2
	4200R/L	11	200	197	130	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	16	8.8	3
	4250R/L	15	250	247	180	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	16	16	3
	4315R/L	19	315	311	240	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	16	22	4

( )Metric size

Available inserts

TFCN

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TFCN	2203PFR																	●	E26
	2203PFL																		

Available arbors

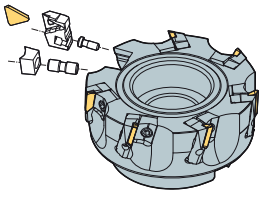
Designation		General arbor	NC arbors	
			PF	PFM
PF (PFM)	4080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8*** (Center ring plug)		

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3600
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
	140~230	0.05~0.30	PC6510
K	50~90	0.05~0.30	G10

Assembling



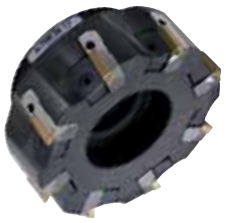
Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LPF4R/L LPF4R1**/L1**	WPFR/L	DHA0821F DHA0817F*	LTX0512	HW40

*: Ø80~Ø100/ **: Ø80~Ø125

Available inserts E26 Available arbors and bolt E400~E402

PPN(M)4000



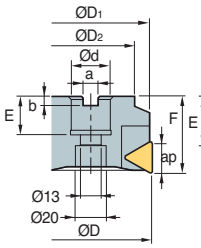


Fig. 1

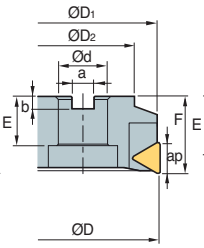


Fig. 2

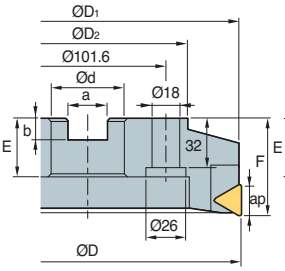


Fig. 3

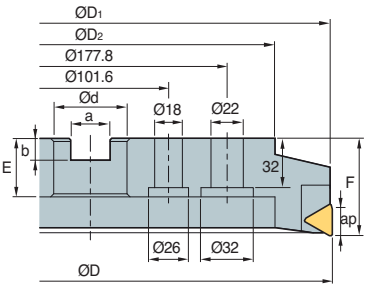


Fig. 4


AA
90°

- AR: 7°
- RR: 0°

(mm)

Designation		⌀	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
PPN (PPNM)	4080R/L	5	80	79	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	18	1.3	1
	4100R/L	6	100	99	67	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	50	18	1.9	2
	4125R/L	8	125	124	87	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	18	3.5	2
	4160R/L	10	160	158	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (30)	63	18	5.6	2
	4200R/L	12	200	198	130	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	18	8.1	3
	4250R/L	16	250	248	180	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	18	13.3	3
	4315R/L	20	315	313	240	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	18	21.4	4

( )Metric size

Available inserts

TPCN	TPKN-SU	TPKN-MU	TPKR-MX
			

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TPCN	2204PDR		●	●												●	●		E26
	2204PDR-G																	●	
	2204PDL															●			
	2204PDSR				●														
	2204PDTR																		
	2204PDR-RH																		
	2204PDER-RH										●			●					
	2204PDSR-RH										●								
	2204PDR-S20											●							
TPKN	2204PDSR-MU								●										E27
	2204PDSR-SU								●	●				●	●				
	2204PDSL-SU								●										
TPKR	2204PDR-MX			●															E27
	2204PDSR-MX			●	●														
	2204PPR-MX																		

Available arbors

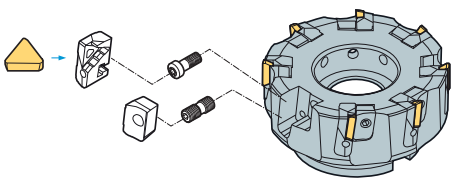
Designation		General arbor	NC arbors	
			PPN	PPNM
PPN (PPNM)	4080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8*** (Center ring plug)		

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3600
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
K	140~230	0.05~0.30	PC6510
	50~90	0.05~0.30	G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LPPN4R/L LPPN4R1*/L1*	WPPN4R/L	DHA0821F DHA0817F*	LTX0514	HW40

Available inserts E26, E27 Available arbors and bolt E400~E402

*: Ø80~Ø100

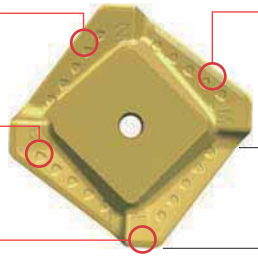
Highly rigid inserts for roughing

Mill-max Heavy new

- Productivity - Cutting time is reduced by the cutting-edge design specialized for rough facing at high depth of cuts
- High rigidity - The highly rigid inserts and cutter seams prevent tool breakage in rough facing
- Clamping stability- The wedge-type clamping system, which is easy-to-use and strong, reduces time for replacing inserts, and improves clamping stability

Features of insert

- **Highly rigid inserts**
  - Ideally suited for roughing at high depth of cuts
- **Wide chip pocket area**
  - Improved chip evacuation
  - Reduced cutting loads
- **Minor cutting-edge**
  - Improved surface finish thanks to the wiper function



MAX. ap
SCKN22: 10.5 mm
SCKN28: 14.5 mm

- **Major cutting-edge**
  - High rake angle

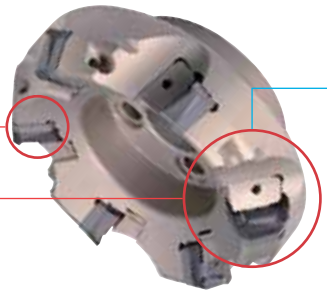
- **2-level flank relief surface**
  - Relief angle availability even at high feed rates

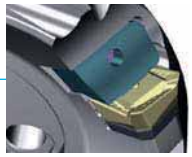
Features of chip breakers

Insert		Cutting-edge	Uses	Features
MM			For roughing	Highly rigid chip breaker ideally suited for roughing at high depth of cuts

Features of cutter

- **Cutter seams**
  - Prevent cutter breakage even under harsh cutting conditions
- **Wide chip pockets**
  - Improve chip evacuation





- **Wedge-type clamping system**
  - Provides clamping stability
  - Reduces time for replacing inserts

Recommended cutting condition

Workpiece		Grades	Cutting conditions		
			vc (m/min)	fz (mm/t)	ap (mm)
P	Low carbon steel/Mild steel	PC5300, NC5340	140~270	0.2~0.4	2.0~10.0 [SCKN22], 3.0~14.0 [SCKN28]
P	High carbon steel	PC5300, NC5340	100~220	0.2~0.4	2.0~10.0 [SCKN22], 3.0~14.0 [SCKN28]
P	Alloy steel	PC5300, NC5340	100~180	0.2~0.4	2.0~10.0 [SCKN22], 3.0~14.0 [SCKN28]
M	Stainless steel	PC5300, NC5340	90~180	0.2~0.4	2.0~10.0 [SCKN22], 3.0~14.0 [SCKN28]
K	Cast iron	PC5300, NC5340	100~180	0.2~0.4	2.0~10.0 [SCKN22], 3.0~14.0 [SCKN28]

HDDCM 7000/9000 new

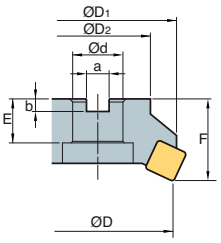


Fig. 1

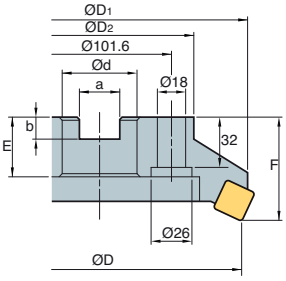


Fig. 2

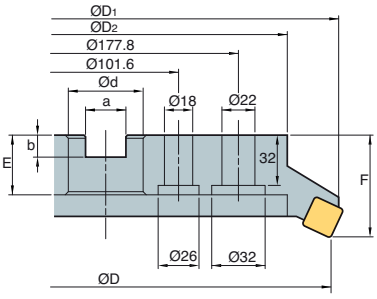


Fig. 3

AA
55°

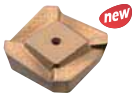
- AR: 15°
- RR: 5°

(mm)

Designation		⌀	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
HDDCM	7125R/L-5	5	125	135.6	90	40	16.4	9	32	63	10.5	3.43	1
	7160R/L-6	6	160	169.8	110	40	16.4	9	32	63	10.5	4.89	2
	7160R/L-8	8	160	169.8	110	40	16.4	9	32	63	10.5	4.62	2
	7200R/L-8	8	200	209.2	130	60	25.7	14	38	80	10.5	8.49	2
	7200R/L-10	10	200	209.2	130	60	25.7	14	38	80	10.5	8.74	2
	7250R/L-10	12	250	258.6	180	60	25.7	14	38	80	10.5	13.44	2
	7250R/L-12	10	250	258.6	180	60	25.7	14	38	80	10.5	13.41	2
	7315R/L-12	12	315	323.2	240	60	25.7	14	38	80	10.5	21.69	3
	7315R/L-14	14	315	323.2	240	60	25.7	14	38	80	10.5	21.41	3
HDDCM	9125R/L-5	5	125	140.4	90	40	16.4	9	32	63	14.5	3.4	1
	9160R/L-6	6	160	177.6	110	40	16.4	9	32	80	14.5	6.39	2
	9200R/L-8	8	200	213.6	130	60	25.7	14	38	80	14.5	8.76	2
	9250R/L-10	10	250	265	180	60	25.7	14	38	80	14.5	13.84	2
	9250R/L-12	12	250	265	180	60	25.7	14	38	80	14.5	13.41	2
	9315R/L-12	12	315	327.4	240	60	25.7	14	38	80	14.5	21.02	3

Available inserts

SCKN-MM



Type	Designation	Cermet		Coated										Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
7000 type	SCKN 220715DDSR-MM				●				●					●					E17
9000 type	SCKN 280920DDSR-MM																		

Available arbors

Designation		General arbor
HDDCM	7125R-5	NT*□□(M/U)-FMC40
	7160R-6	
	7160R-8	
	7200R-8	NT*□□(M/U)-FMC60
	7200R-10	
	7250R-10	
	7250R-12	
	7315R-12	
	7315R-14	
	9125R-5	NT*□□(M/U)-FMC40
	9160R-6	
	9200R-8	NT*□□(M/U)-FMC60
	9250R-10	
	9250R-12	
	9315R-12	

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

Recommended cutting condition

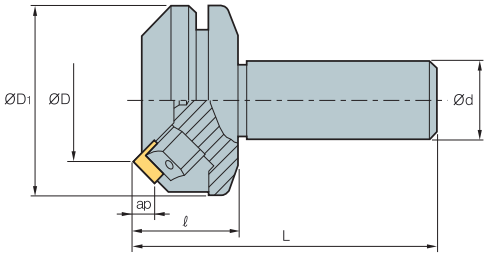
Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	140~270 100~220 100~180	0.2~0.4	PC5300 NC5340
M	90~180		
K	100~180		

Parts

Specification	Wedge	Wedge screw	Shim	Shim screw	Wrench
Ø125~Ø315 (7000 type)	WHD7R/L	WHX0817	SS64DPR	FTGA0614	HW40
Ø125~Ø315 (9000 type)	WHD9R/L	WHX0817	SS84DPR	FTGA0818	HW40

Available inserts E17 Available arbors and bolt E400~E402

ADS4000



AA 45°

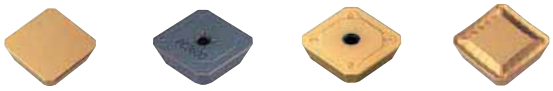
- AR: 15°
- RR: -3°

(mm)

Designation			ØD	ØD1	Ød	ℓ	L	ap	kg
ADS	4050R/L	3	50	75	32	40	120	6.5	1.8
	4050R/L-S42	3	50	75	42	40	120	6.5	2.2
	4063R/L	4	63	87	32	40	120	6.5	2.3
	4063R/L-S42	4	63	87	42	40	120	6.5	2.7

Available inserts

SDCN SDKN-MU SDKN-SU SDKR-MX

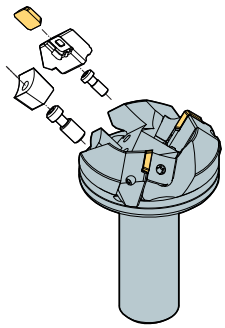


Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SDCN	42M																●		E17
	42M-G																	●	
	42MT	●	●		●											●			
	42MT-RH																		
	42MT-S20											●							
	1203AEEN																		
	1203AEEN-RH																		
	1203AESN																		
	1203AESN-RH																		
SDKN	1203AESN-MU								●										E18
	1203AESN-SU								●	●				●	●				
SDKR	1203AESN-MX																		E18
	1203AETN-MX																		
	1203AEN-MX			●															

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3600
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
K	140~230	0.05~0.30	PC6510
	50~90	0.05~0.30	G10

Assembling

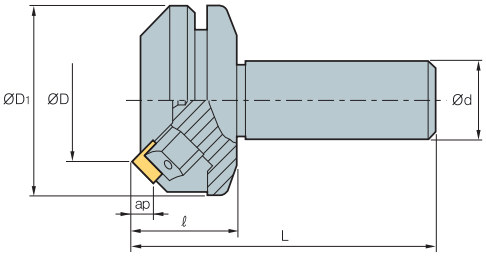


Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø50~Ø63	LASS4R/L	WASR/L	WTX0817	LTX0512	TW25

Available inserts E17, E18

ADS5000



AA
45°

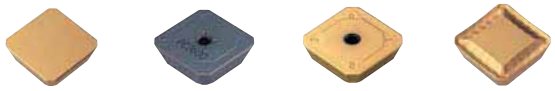
- AR: 15°
- RR: -3°

(mm)

Designation			ØD	ØD1	Ød	ℓ	L	ap	kg
ADS	5050R/L	3	50	75	32	40	120	8.5	1.9
	5050R/L-S42	3	50	75	42	40	120	8.5	2.3
	5063R/L	4	63	87	32	40	120	8.5	2.4
	5063R/L-S42	4	63	87	42	40	120	8.5	2.8

Available inserts

SDCN | SDKN-MU | SDKN-SU | SDKR-MX

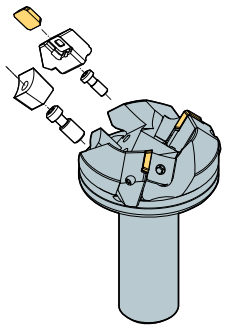


Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SDCN	53M															●			E17
	53M-G																	●	
	53MT		●	●												●			
	53MT-RH																		
	53MT-S20											●							
	1504AEEN																		
	1504AEEN-RH										●			●					
	1504AESN																		
	1504AESN-RH										●								
SDKN	1504AESN-MU								●										E18
	1504AESN-SU								●	●				●	●				
SDKR	1504AESN-MX				●														E18
	1504AETN-MX																		
	1504AEN-MX			●															

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3600 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6510 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø50~Ø63	LASS5R/L	WASR/L	WTX0817	LTX0512	TW25

Available inserts **E17, E18**

PES2000/3000/4000

2000/3000 type 4000 type

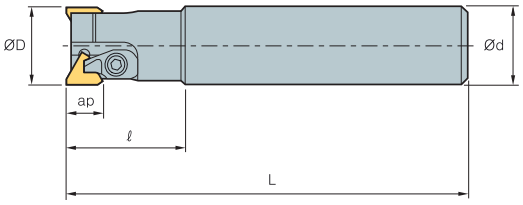


Fig. 1

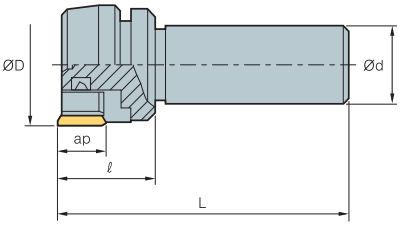


Fig. 2



AA 90°

- AR: 10°~15°
- RR: 2°~ -3°

(mm)

Designation			ØD	Ød	ℓ	L	ap	kg	Fig.
PES	2020R/L	2	20	20	30	110	8	0.3	1
	2025R/L	2	25	25	35	120	8	0.5	1
	3030R/L	2	30	32	45	160	13	0.9	1
	3032R/L	2	32	32	45	160	13	1.0	1
	3033R/L	2	33	32	45	160	13	1.1	1
	3035R/L	2	35	32	45	160	13	1.2	1
	3036R/L	2	36	32	45	160	13	1.3	1
	3040R/L	2	40	32	45	160	13	1.4	1
	4050R/L	3	50	32	40	120	16.5	1.2	2
	4050R/L-S42	3	50	42	40	120	16.5	1.5	2
	4063R/L	4	63	32	40	120	16.5	1.5	2
	4063R/L-S42	4	63	42	40	120	16.5	1.8	2

Available inserts

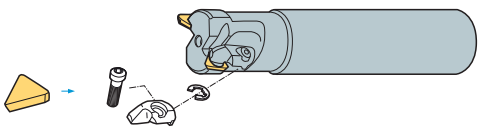
TECN TEEN


Designation			Cermet		Coated										Uncoated			page
			CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
2000 type	TECN	22R																		E26
		22TR		●													●			
3000 type	TECN	32R																●		E26
		32TR		●		●											●			
		32TR-S20											●							
4000 type	TEEN	43R																●		E26
		43R-G																	●	
		43TR	●	●	●	●						●					●			
		43TR-S20											●							
		43TR-Z															●			
		43TR-ZH											●							

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3500 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6510 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench	Wrench	Clamp	Ring
Ø20~Ø25 (2000 type)	-	-	-	CHX0407	HW25L	-	CH4R1	ER03
Ø30~Ø40 (3000 type)	-	-	-	CHX0510	HW30L	-	CH5R1	ER04
Ø50~Ø63 (4000 type)	LPTS4R/L	WPTSR	DHA0815	LTX0512	-	HW40	-	-

Available inserts E26

AFO(M)4000

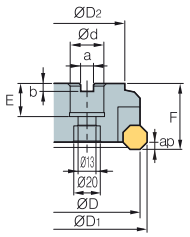


Fig. 1

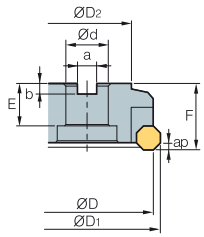


Fig. 2

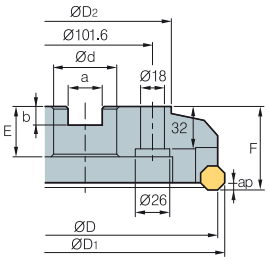


Fig. 3

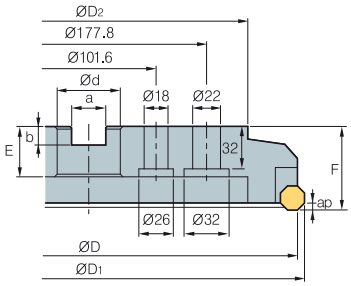


Fig. 4

AA
45°

- AR: 15°
- RR: 5°

(mm)

Designation		⚙	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
AFO (AFOM)	4080R/L	5	80	88	60	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	3.3	1.4	1
	4100R/L	6	100	108	80	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	50	3.3	2.0	1
	4125R/L	8	125	133	100	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	3.3	3.1	1

( )Metric size

Available inserts

OFCW OFKT-MF OFKT-MM OFKT-MA

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
OFCW	05T3SN																		
	05T3FN																		E13
	05T308FN																		
OFKT	05T3SN-MF										●								
	05T308SN-MF																		
	05T3SN-MM			●								●							E13
	05T308SN-MM																		E14
	05T3FN-MA																	●	
	05T3EN-MA																		

Available arbors

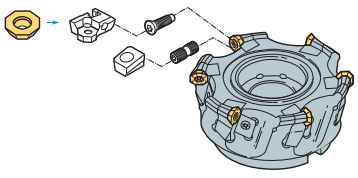
Designation		General arbor	NC arbors	
			AFO	AFOM
AFO (AFOM)	4080R/L	NT*□□ (M/U)-FMA25.4-25	BT** □□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3500
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
K	140~230	0.05~0.30	PC6510
	50~90	0.05~0.30	G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Screw	Wrench
Ø80~Ø125	LAF04R/L	WAFO4R/L	DHA0815	FTKA0408	TW15S

Available inserts **E13, E14** Available arbors and bolt **E400~E402**

AFO(M)5000

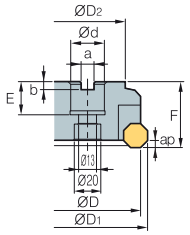


Fig. 1

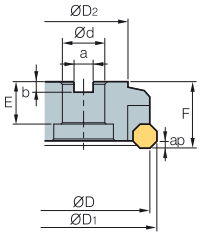


Fig. 2

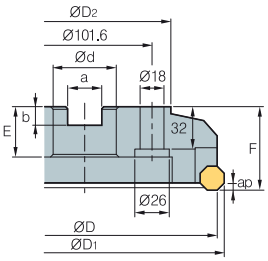


Fig. 3

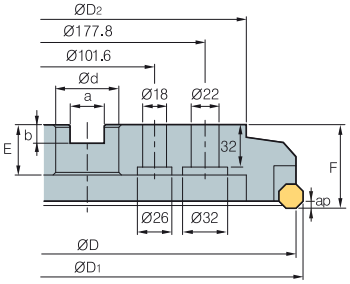


Fig. 4

AA
45°

- AR: 15°
- RR: 5°

(mm)

Designation		○	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
AFO (AFOM)	5080R/L	5	80	91	60	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	4.8	1.4	1
	5100R/L	6	100	111	80	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	50	4.8	2.0	2
	5125R/L	8	125	136	100	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	4.8	3.1	2
	5160R/L	10	160	171	120	50.8 (40)	19.0 (16.4)	11 (9)	38 (30)	63	4.8	5.2	2
	5200R/L	12	200	211	130	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	4.8	7.5	3
	5250R/L	16	250	261	180	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	4.8	16.1	3
	5315R/L	20	315	326	240	47.625 (60)	25.4 (25.7)	13.5 (14)	38 (38)	63	4.8	22.8	4

( )Metric size

Available inserts

OFKT-MM

OFKT-MA

OFCN

OFKR-MF

OFKR-MM

OFKR-MA

REKR-MM

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
OFCN	0704SN										●								E13
	0704FN																		
	070408SN																		
	070408FN																		
OFKR	0704SN-MF			●●															E13
	070408SN-MF																		
	0704SN-MM			●●							●●				●				
	070408SN-MM			●															
	0704FN-MA																	●	
	0704EN-MA																		
OFKT	0704SN-MM																		E13
	0704FN-MA																	●	
	0704EN-MA																		
REKR	170400-MM																		E16

Available arbors

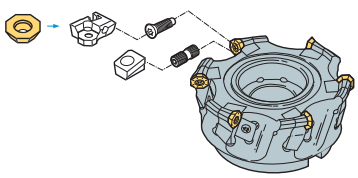
Designation		General arbor	NC arbors	
			AFO	AFOM
AFO (AFOM)	5080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	5100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	5125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	5160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	5200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5315R/L	KCP-8*** (Center ring plug)		

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3500
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
K	140~230	0.05~0.30	PC6510
	50~90	0.05~0.30	G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LAF05R/L LAF05R*/L-1*	WEFR/L	DHA0821F	LTX0512	HW40

*: Ø80~Ø100

Available inserts E13, E16 Available arbors and bolt E400~E402

New serrated edge design increases productivity by reducing insert cutting load

Power Buster

- New tooling utilizing a specially designed serrated edge to increase productivity by reducing the cutting load.
- Double-sided 6 corner insert geometry ensures high rigidity, long tool life and cost efficiency
- The serrated edge divides the chips into smaller pieces. This feature provides excellent chip control, reduces interference of the cutter and ensures good durability of the cutter body.
- Two types of inserts are available-TNMX27 for PBA (Approach angle: 45°) and PBZ (AA: 80°), and TNMX30 for PBP (AA: 90°)
- Application: High depth of cut and feed rate (Steel, Cast iron)

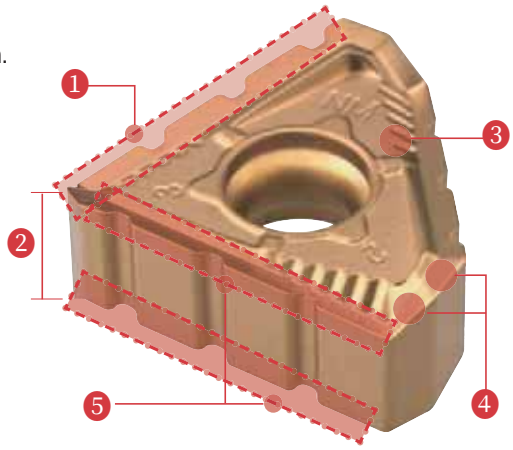
Code system

PB	A	C	M	5	250	R/L	–	M
Power Buster	AA	Cutter type	Arbor type	Inscribed circle of insert	Tool Dia.	Hand		No of tooth
Power buster	A: 45° Z: 80° P: 90°	C: Cutter	M: Metric No code: Inch	5: 15.875 6: 17.462	ØD: 250	R: Right L: Left		No code: Coarse pitch M: Close pitch 8: 8 teeth

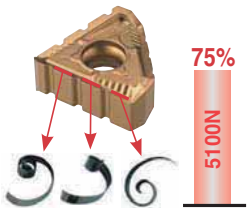
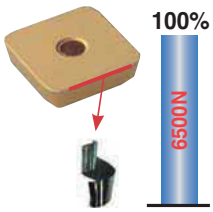
Features of insert

❶ Major cutting-edge (Serrated edge)

- Low cutting force
- Ideal for chip control, divides chips into small pieces for proper chip evacuation.
- Ideal edge design for Steel and Cast iron rough milling



• Comparison of chip control and cutting force

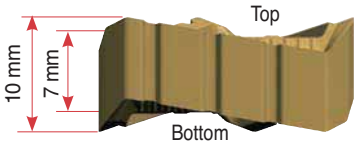
Power Buster	ISO milling insert
	

■**Workpiece** SCM440

■**Cutting condition** vc = 200 m/min, ap = 8 mm, ae = 90 mm, fz = 0.3 mm/t

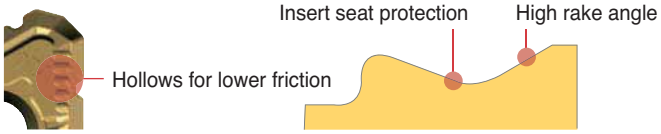
❷ Thicker insert

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



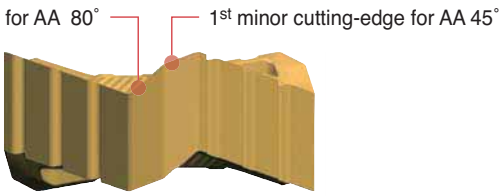
❸ NM Chip breaker

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



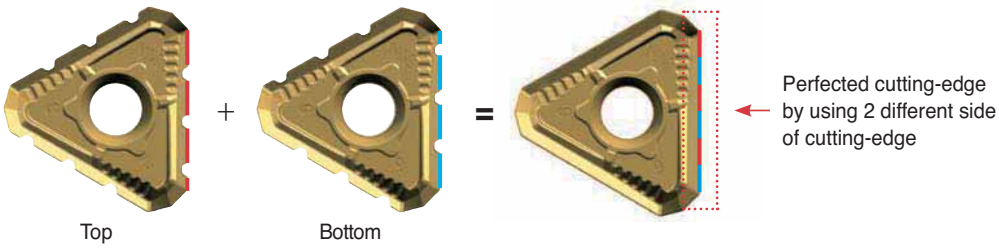
4 Insert shape applied to PBA/Z cutters (AA: 45°/80°)

- High rake angle to avoid interference with chip
- Calculated minor cutting-edge angel for both AA 45° & 80° cutter



5 Mirror system

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



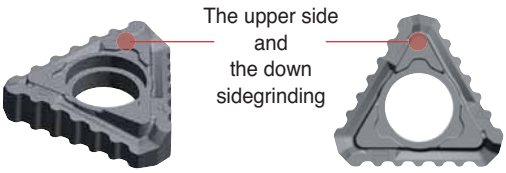
Features of cutter

1 Screw-on clamping system

- Simple and strong screw on clamping system

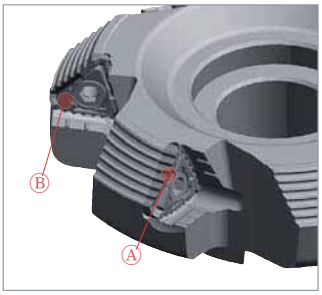
2 Better rigidity & Stable Assembly system

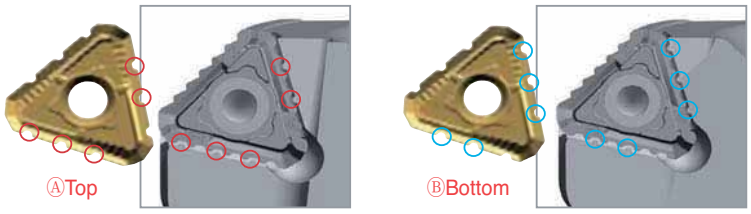
- The shim protects the cutter from insert damage
- High accuracy shim ensures tighter clamping



3 Foolproof System

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

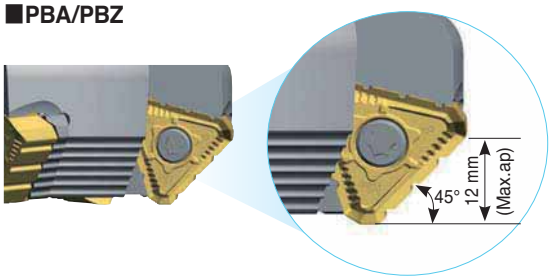


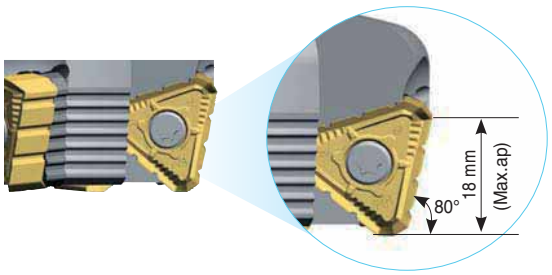


❹ Multi-application system

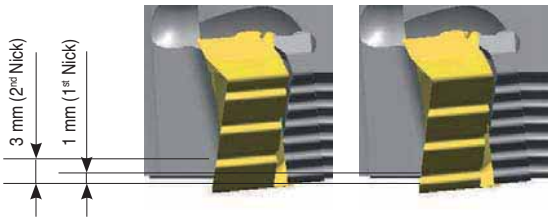
• Same insert for multi-use (45˚and 80˚)

■PBA/PBZ

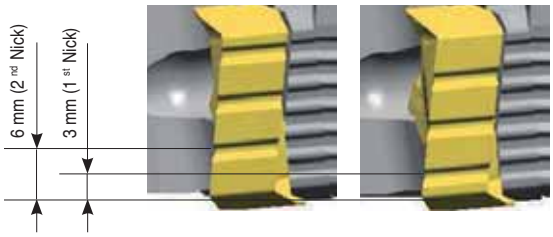




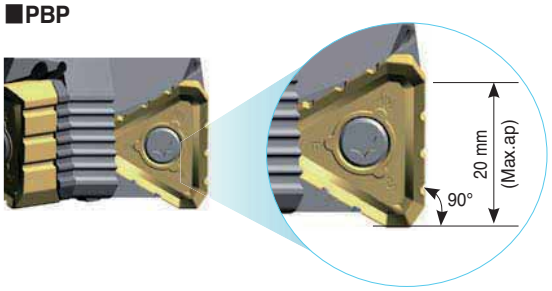
The serrations are effective with a depth of cut larger than 1 mm



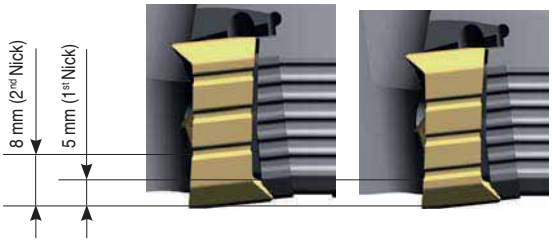
The serrations are effective with a depth of cut larger than 3 mm



■PBP

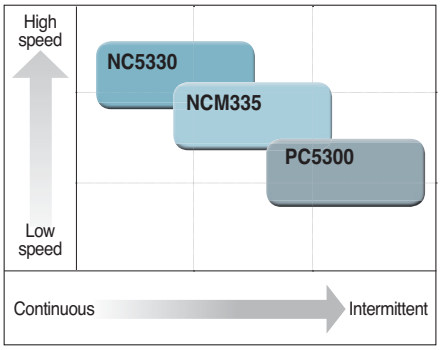


For the AA 90° cutter, nicks function properly at depth of cuts over 5 mm



Recommended cutting condition

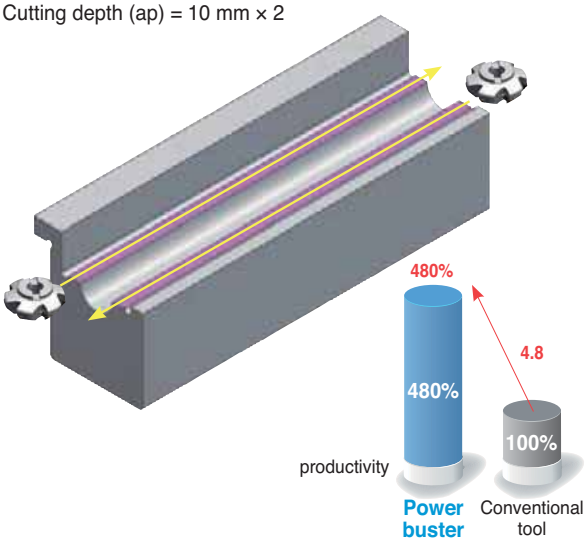
ISO	Workpiece		Material	NC5330	NCM335	PC5300
				fz (mm/t)		
				0.1-0.2-0.3	0.1-0.2-0.3	0.1-0.2-0.3
				vc (m/min)		
P	Carbon steel	-	SUM22, C = 0.1~25	400	335	280
		-	C = 0.30~55	365	305	255
		-	C = 0.55~80	340	285	240
	Low alloy steel (Alloy constituent < 5%)	-	SCM415(H), SCM420, SCM440	280	235	195
		Hardened		165	140	115
	High alloy steel (Alloy constituent > 5%)	Annealed	SKD61	210	180	150
		Hardened	SKH51, SKH55	175	145	120
K	Gray cast iron	Low tensile	FC200, FC250	125	-	145
		Hight tensile	FC300, FC350	105	-	120
		Ferric	FCD400, FCD500	80	-	95
		Pearlitic	FCD600, FCD700	75	-	85



Power Buster test

■Cylinder block for ship engine (Cast iron)

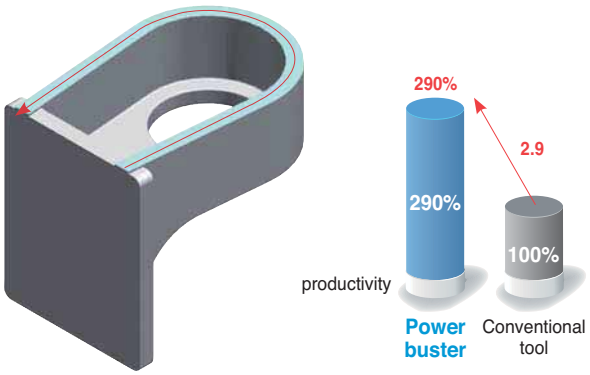
Cutting width (ae) = 160 mm x 2
Cutting depth (ap) = 10 mm x 2



Item	Power buster	Conventional tool
Diameter (ØD)	200 mm	200 mm
⚙	12 tooth	12 tooth
Grades	NC5330	PVD coating for Cast iron
vc	170 m/min	130 m/min
fz	0.24 mm/t	0.16 mm/t
ap	10 mm x 2 passes	4 mm x 5 passes
min	28.2 min/ea	137.5 min/ea
4.8 times productivity increased		• One-sided 4 corner insert (Without nick) • AA 45° cutter

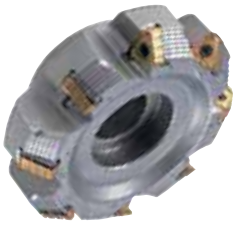
■Heavy machinery part (Alloy steel)

Cutting width (ae) = 160 mm x 2
Cutting depth (ap) = 10 mm x 2



Item	Power Buster	Conventional tool
Diameter (ØD)	125 mm	100 mm
⚙	8 tooth	8 tooth
Grades	NCM335	PVD coating for Cast iron
vc	180 m/min	150 m/min
fz	0.15 mm/t	0.10 mm/t
ap	5 mm x 2 passes	2.5 mm x 4 passes
min	5 min/ea	14.7 min/ea
2.9 times productivity increased		• Double-sided 8 corner insert (Without nick) • AA 45° cutter

PBAC(M)5000



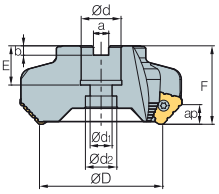


Fig. 1

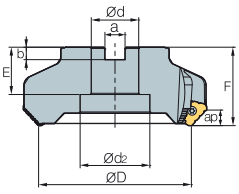


Fig. 2

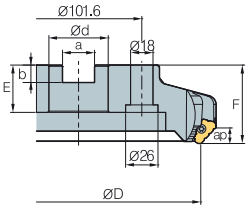


Fig. 3

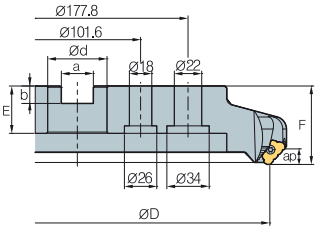


Fig. 4

AA
45°

- AR: -5°
- RR: -11°

(mm)

	Designation		⌀	ØD	Ød	Ød1	Ød2	a	b	E	F	ap	Fig.
Coarse pitch	PBAC (PBACM)	5080R/L	4	80	25.4 (27)	14	20	9.5 (12.4)	6 (7)	25 (22)	50	12	1
		5100R/L	4	100	31.75 (32)	-	45	12.7 (14.4)	8 (8)	32 (28)	50	12	2
		5125R/L	6	125	38.1 (40)	-	56	15.9 (16.4)	10 (9)	38 (32)	63	12	2
		5160R/L	8	160	50.8 (40)	-	100	19 (16.4)	11 (9)	38 (32)	63	12	2
		5200R/L	10	200	47.625 (60)	-	-	25.4 (25.7)	14 (14)	38 (38)	63	12	3
		5250R/L	12	250	47.625 (60)	-	-	25.4 (25.7)	14 (14)	38 (38)	63	12	3
		5315R/L	14	315	47.625 (60)	-	-	25.4 (25.7)	14 (14)	38 (38)	63	12	4
Close pitch	PBAC (PBACM)	5080R/L-M	6	80	25.4 (27)	14	20	9.5 (12.4)	6 (7)	25 (22)	50	12	1
		5100R/L-M	6	100	31.75 (32)	-	45	12.7 (14.4)	8 (8)	32 (28)	50	12	2
		5125R/L-M	8	125	38.1 (40)	-	56	15.9 (16.4)	10 (9)	38 (32)	63	12	2
		5160R/L-M	10	160	50.8 (40)	-	100	19 (16.4)	11 (9)	38 (32)	63	12	2
		5200R/L-M	12	200	47.625 (60)	-	-	25.4 (25.7)	14 (14)	38 (38)	63	12	3
		5250R/L-M	14	250	47.625 (60)	-	-	25.4 (25.7)	14 (14)	38 (38)	63	12	3
		5315R/L-M	16	315	47.625 (60)	-	-	25.4 (25.7)	14 (14)	38 (38)	63	12	4

( )Metric size

Available inserts

TNMX-NM

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TNMX	2710AZNR-NM				●	●					●		●		●					E26
	2710AZNL-NM																			

Available arbors

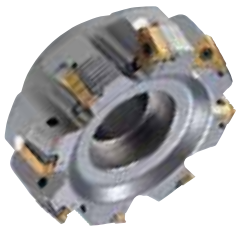
Designation		Available arbors	
		PBAC	PBACM
PBAC (PBACM)	5080R/L-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100R/L-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125R/L-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□ BT□□-FMC40-□□
	5160R/L-□	BT□□-FMA50.8-□□	
	5200R/L-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	5250R/L-□		
	5315R/L-□		

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø80~Ø315	FTGA0518	ST53AZR	SHXN0712F	TW20-100

Available inserts E26 Available arbors and bolt E400~E402

PBZC(M)5000



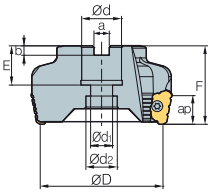


Fig. 1

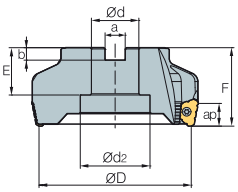


Fig. 2

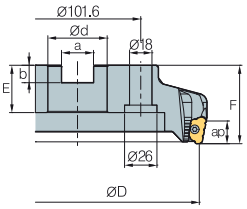


Fig. 3

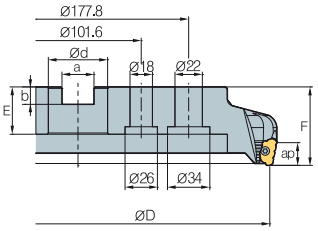


Fig. 4

AA
80°

- AR: -5°
- RR: -12°

(mm)

	Designation		◎	ØD	Ød	Ød1	Ød2	a	b	E	F	ap	Fig.
Coarse pitch	PBZC (PBZCM)	5080R/L	4	80	25.4 (27)	14	20	9.5 (12.4)	6 (7)	25 (22)	50	18	1
		5100R/L	4	100	31.75 (32)	-	45	12.7 (14.4)	8 (8)	32 (28)	50	18	2
		5125R/L	6	125	38.1 (40)	-	56	15.9 (16.4)	10 (9)	38 (32)	63	18	2
		5160R/L	8	160	50.8 (40)	-	100	19 (16.4)	11 (9)	38 (32)	63	18	2
		5200R/L	10	200	47.625 (60)	-	-	25.4 (25.7)	14 (14)	38 (38)	63	18	3
		5250R/L	12	250	47.625 (60)	-	-	25.4 (25.7)	14 (14)	38 (38)	63	18	3
		5315R/L	14	315	47.625 (60)	-	-	25.4 (25.7)	14 (14)	38 (38)	63	18	4
Close pitch	PBZC (PBZCM)	5080R/L-M	6	80	25.4 (27)	14	20	9.5 (12.4)	6 (7)	25 (22)	50	18	1
		5100R/L-M	6	100	31.75 (32)	-	45	12.7 (14.4)	8 (8)	32 (28)	50	18	2
		5125R/L-M	8	125	38.1 (40)	-	56	15.9 (16.4)	10 (9)	38 (32)	63	18	2
		5160R/L-M	10	160	50.8 (40)	-	100	19 (16.4)	11 (9)	38 (32)	63	18	2
		5200R/L-M	12	200	47.625 (60)	-	-	25.4 (25.7)	14 (14)	38 (38)	63	18	3
		5250R/L-M	14	250	47.625 (60)	-	-	25.4 (25.7)	14 (14)	38 (38)	63	18	3
		5315R/L-M	16	315	47.625 (60)	-	-	25.4 (25.7)	14 (14)	38 (38)	63	18	4

( )Metric size

Available inserts

TNMX-NM

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TNMX	2710AZNR-NM				●	●					●		●		●					E26
	2710AZNL-NM																			

Available arbors

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

Parts

Specification	Screw	Shim	Shim Screw	Wrench
Ø80~Ø315	FTGA0518	ST53AZR	SHXN0712F	TW20-100

Available inserts E26 Available arbors and bolt E400~E402

PBPCM6000 new

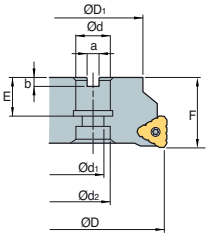


Fig. 1

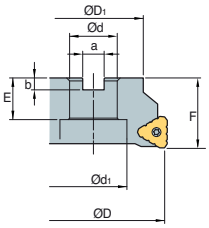


Fig. 2

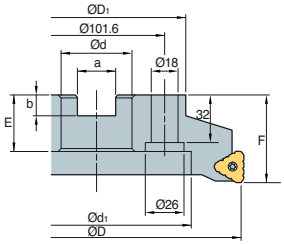


Fig. 3

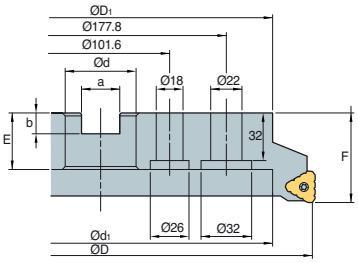


Fig. 4

AA
90°

- AR: -5°
- RR: -12°

(mm)

Designation		⌀	ØD	ØD1	Ød	Ød2	Ød2	a	b	E	F	ap	kg	Fig.
PBPCM	6080R-4	4	80	60	27	14	20	12.4	7	24	50	20	0.85	1
	6100R-6	6	100	70	32	-	54	14.4	8	30	50	20	1.16	2
	6125R-6	6	125	90	40	-	56	16.4	9	32	63	20	2.84	2
	6160R-8	8	160	107	40	-	90	16.4	9	32	63	20	3.58	3
	6200R-10	10	200	130	60	-	132	25.7	14	38	63	20	5.13	3
	6250R-12	12	250	180	60	-	180	25.7	14	38	63	20	9.6	3
	6315R-14	14	315	240	60	-	238	25.7	14	38	63	20	16.85	4

Available inserts

TNMX-NM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TNMX	3012PNR-NM																			E26

Available arbors

Designation		General arbor
PBPCM	6080R-4	BT□□-FMC27-□□
	6100R-6	BT□□-FMC32-□□
	6125R-6	BT□□-FMC40-□□
	6160R-8	
	6200R-10	BT□□-FMC60-□□
	6250R-12	
	6315R-14	

Parts

Specification	Screw	Shim	Shim Screw	Wrench
Ø80~Ø315	FTGA0518	ST53PNR	SHXN0712F	TW20-100

Available inserts E26 Available arbors and bolt E400~E402

Rich Mill series is one of innovations that provides more available cutting-edges by double-sided insert and longer tool life for our customers

Rich Mill Series

- 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

Code system

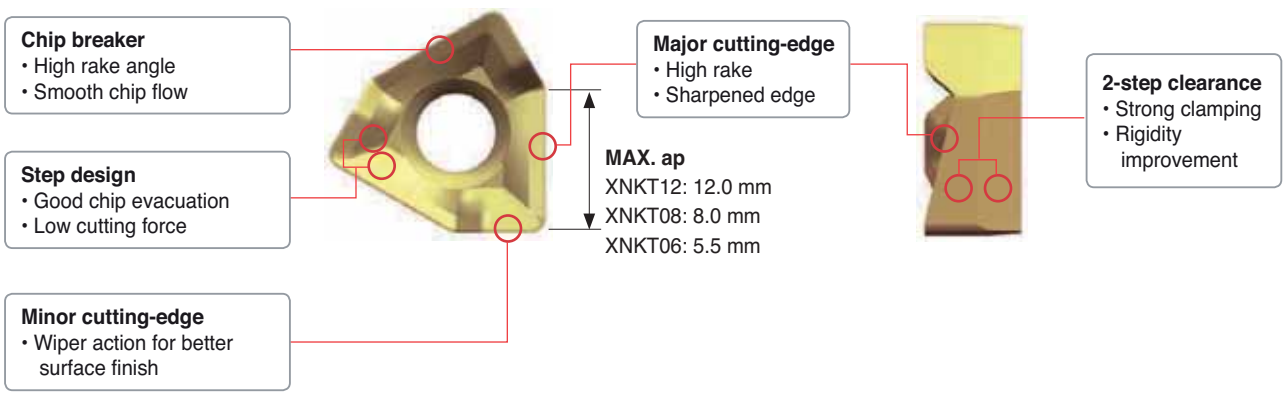
RM16	A	C	M	4	100	H	R – M
Number of edges	Approach angle	Tool type	Arbors type	Inscribed circle of insert	Tool Dia.	Coolant type	Hand	Pitch type
RM3: Number of edges-3 RM4: Number of edges-4 RM6: Number of edges-6 RM8: Number of edges-8 RMH8: Number of edges-8 (Shim) RMT8: Number of edges-8 (Latch Clamp) RM16: Number of edges-16	A: 45° D: 30° E: 15° F: 5° P: 0° Q: 2° Z: Plunging	C: Cutter S: Shank	M: Metric A: Inch	3: 9.525 4: 12.7 5: 15.875	Ø100	H: Thru-Hole No code: None	R: Right L: Left	M: Close H: Extra Close

Rich Mill RM3

Features

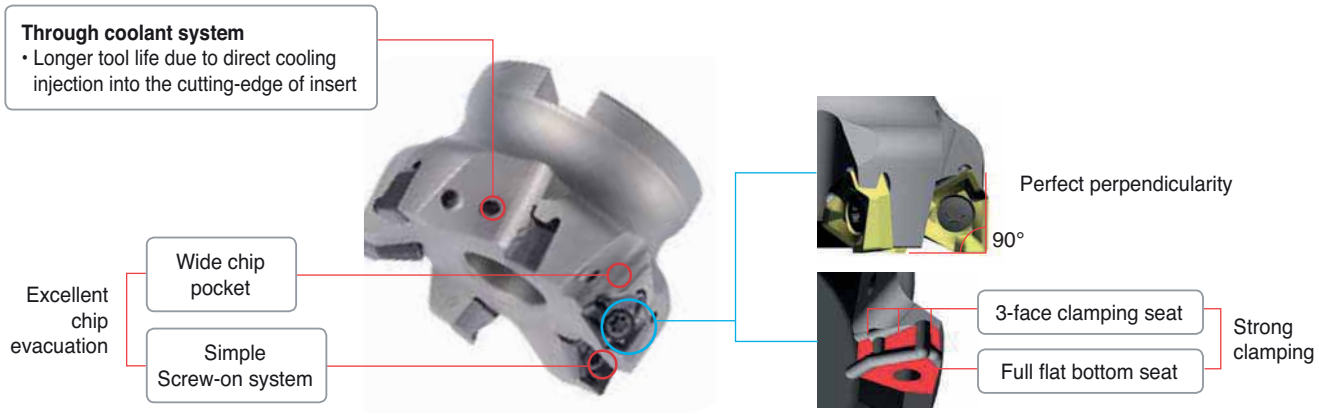
- High Quality - True 90° shouldering operation
- High Productivity - Strong thick insert and 3-face clamping ensure stable operation even tough condition.
- High Economics - Long tool life due to optimized manufacturing process

Features of insert



Rich Mill RM3

Features of cutter



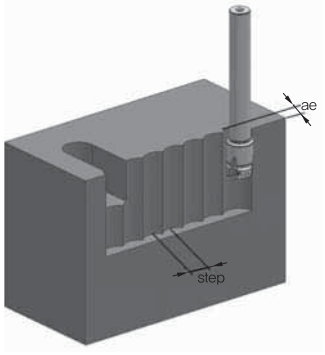
Through coolant system

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

Features of chip breakers

Insert		Cutting-edge	Uses	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

Max Step in plunging



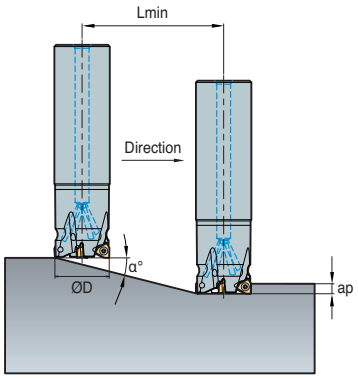
Type	max. ae
3000 type	2.5
4000 type	3.0
5000 type	3.5

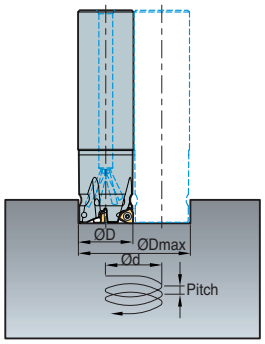
ae	Cutter Diameter (mm)											
	Ø20	Ø21	Ø25	Ø26	Ø32	Ø33	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
	max step (mm)											
1	8.5	8.9	9.7	10	11.1	11.3	12.4	14	15.7	17.7	19.9	22.2
2	12	12.3	13.5	13.8	15.4	15.7	17.4	19.5	22	24.9	28	31.3
3	-	-	-	-	-	-	21	23.7	26.8	30.3	34.1	38.2

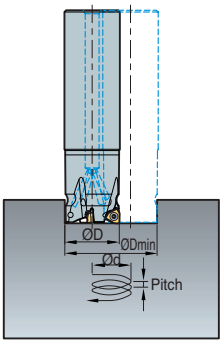
Rich Mill RM3

Ramping and helical cutting

1. Ramping | **2. Helical cutting for blind hole** | **3. Helical cutting for through hole**







(mm)

Type	Tool Dia. ØD	ap	1. Ramping		2. Helical cutting for blind hole				3.Helical cutting for through hole	
			α°	Lmin	Minimum Hole Diameter Ød	Maximum Pitch	Maximum Hole Diameter Ød	Maximum Pitch	Minimum Hole Diameter Ød	Maximum Pitch
3000 type	20	5.5	15.5	19.8	36.5	5.5	38.5	5.5	33.0	5.5
	21	5.5	14.0	22.1	38.5	5.5	40.5	5.5	35.0	5.5
	25	5.5	10.0	31.2	46.5	5.5	48.5	5.5	43.0	5.5
	26	5.5	9.5	32.9	48.34	5.5	51.0	5.5	45.0	5.5
	32	5.5	6.5	48.3	60.5	5.5	62.5	5.5	59.0	5.5
	33	5.5	6.0	52.3	62.5	5.5	64.5	5.5	59.0	5.5
	40	5.5	4.5	69.9	46.5	5.5	78.5	5.5	73.0	5.5
	50	5.5	3.5	89.9	96.5	5.5	98.5	5.5	93.0	5.5
	63	5.5	2.5	126.0	122.5	5.5	124.5	5.5	119.0	5.5
	80	8	2.0	157.5	156.5	5.5	158.5	5.5	153.0	5.5
	100	8	1.5	210.0	194.5	5.5	198.5	5.5	193.0	5.5
	125	8	1.0	315.1	246.5	5.5	248.5	5.5	243.0	5.5
4000 type	25	8	24.0	18.0	44.5	8.0	48.0	8.0	38.5	8.0
	32	8	13.0	34.7	58.5	8.0	62.0	8.0	52.5	8.0
	33	8	12.0	37.6	60.02	8.0	64.4	8.0	54.5	8.0
	40	8	8.5	53.5	74.5	8.0	78.0	8.0	68.5	8.0
	50	8	6.0	76.1	94.5	8.0	98.0	8.0	88.5	8.0
	63	8	4.0	114.4	12.5	8.0	124.0	8.0	114.5	8.0
	80	8	3.0	152.6	154.5	8.0	158.0	8.0	148.5	8.0
	100	8	2.0	229.1	194.5	8.0	198.0	8.0	188.5	8.0
	125	8	1.5	305.5	244.5	7.7	248.0	7.8	238.5	7.7
5000 type	80	12	5.5	124.6	153.5	12.0	158.0	12.0	146.5	12.0
	100	12	4.5	152.5	193.5	12.0	198.0	12.0	159.5	12.0
	125	12	3.5	196.2	242.5	12.0	248.0	12.0	236.5	12.0

* Please be sure to use cutting oil or air for ramping and helical machining
Lmin = ap/tan (α°)

Rich Mill RM3

Application guideline for grade

Workpiece		P		M	K	N
		Carbon steel	Alloy steel	Stainless steel	Cast iron	Aluminum
Chip breaker	First choice	MM	MM	ML	ML	MA
	Second choice	ML	ML	-	MM	-
Grades	High speed machining	PC3600	PC3600	PC5300	PC6510	H01
	General machining	PC5400	PC5300	PC5400	PC5300	
	Interrupted machining	PC5400	PC5400	PC5400	PC5400	

Recommended cutting condition

• RM3 3000 type

Workpiece		Grades	Cutting conditions				Cutting conditions			
			vc (m/min)	fz (mm/t)	max ap (mm)	Available inserts	vc (m/min)	fz (mm/t)	max ap (mm)	Available inserts
P	steel	PC3600	160~270	0.25~0.05	5.5	XNKT0604□□ PNSR-MM	160~270	0.2~0.05	5.5	XNKT0604□□ PNER-ML
		PC5300	150~240	0.25~0.05			150~240	0.25~0.05		
		PC5400	130~210	0.25~0.05			130~210	0.25~0.05		
M	Stainless steel	PC5300	90~150	0.2~0.05			90~150	0.1~0.05		
		PC5400	70~120	0.2~0.05			70~120	0.1~0.05		
K	Cast iron	PC6510	140~230	0.3~0.08			140~230	0.25~0.08		
		PC5300	120~200	0.3~0.08			120~200	0.25~0.08		

※ Maximum cutting condition: vc = 350 m/min, fz = 0.5 mm/t according to cutting environment

• RM3 4000 type

Workpiece		Grades	Cutting conditions				Cutting conditions			
			vc (m/min)	fz (mm/t)	max ap (mm)	Available inserts	vc (m/min)	fz (mm/t)	max ap (mm)	Available inserts
P	steel	PC3600	160~270	0.3~0.05	8.0	XNKT0805□□ PNSR-MM	160~270	0.25~0.05	8.0	XNKT0805□□ PNER-ML
		PC5300	150~240	0.3~0.05			150~240	0.25~0.05		
		PC5400	130~210	0.3~0.05			130~210	0.25~0.05		
M	Stainless steel	PC5300	90~150	0.25~0.05			90~150	0.2~0.05		
		PC5400	70~120	0.25~0.05			70~120	0.2~0.05		
K	Cast iron	PC6510	140~230	0.35~0.08			140~230	0.3~0.08		
		PC5300	120~200	0.35~0.08			120~200	0.3~0.08		
N	Aluminum	H01	400~1200	0.4~0.1		XNCT0805□□PNFR-MA	-	-	-	-

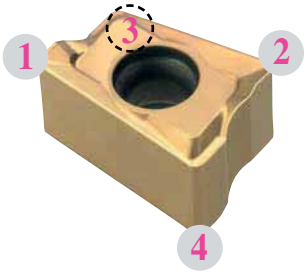
※ Maximum cutting condition: vc = 350 m/min, fz = 0.5 mm/t according to cutting environment

• RM3 5000 type

Workpiece		Grades	Cutting conditions				Cutting conditions			
			vc (m/min)	fz (mm/t)	max ap (mm)	Available inserts	vc (m/min)	fz (mm/t)	max ap (mm)	Available inserts
P	steel	PC3600	160~270	0.3~0.05	12.0	XNKT1206□□ PNSR-MM	160~270	0.25~0.05	12.0	XNKT1206□□ PNER-ML
		PC5300	150~240	0.3~0.05			150~240	0.25~0.05		
		PC5400	130~210	0.3~0.05			130~210	0.25~0.05		
M	Stainless steel	PC5300	90~150	0.25~0.05			90~150	0.2~0.05		
		PC5400	70~120	0.25~0.05			70~120	0.2~0.05		
K	Cast iron	PC6510	140~230	0.35~0.08			140~230	0.3~0.08		
		PC5300	120~200	0.35~0.08			120~200	0.3~0.08		
N	Aluminum	H01	400~1200	0.4~0.1		XNCT1206□□PNFR-MA	-	-	-	-

※ Maximum cutting condition: vc = 350 m/min, fz = 0.5 mm/t according to cutting environment

Rich Mill RM4



Features

- Economical 4 cutting-edges by using double-sided insert
- 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 of cutter

- 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

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

Wide chip pocket for better chip evacuation

Simple screw on system

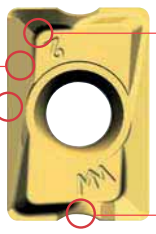
Improving chip control

Features of insert

- Double-sided insert using 4 cutting-edges
- High rake angle chip breaker, cutting-edge
- Flexibility of product
- High efficiency, economical, multi-functional tool
- Negative insert has strong cutting-edge

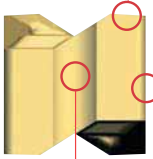
Chip breaker
- High rake angle chip breaker
- Improving chip control

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



Step design
- Improving chip control
- Reducing cutting load

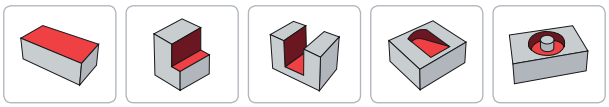
Concave design
- 4 cutting-edges
- Minimize interference



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

Clearance face
- Strong negative face
- Strong cutting-edge

Uses



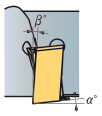
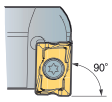
Facing | Shouldering | Slotting | Ramping | Helical cutting

Rich Mill RM4

Features of chip breakers

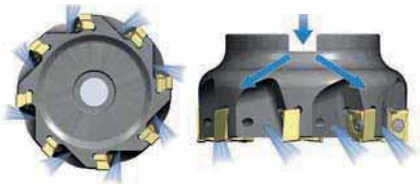
Insert		Cutting-edge	Uses	Features
MA			Aluminum, Light machining	With sharp edge application the better productivity has been accomplished, especially for Aluminum or low force cut
MF			Light cutting	Due to low cutting load, it is good for light cutting and difficult-to-cut material
MM			General cutting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

Setting configuration

Shape	Setting angle of insert	Features
		High rake chip breaker & positive setting angle for low cutting load → Improving machinability
		Multi applications for facing, shouldering, slotting, ramping, helical cutting, etc

Through coolant system

- By using 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)

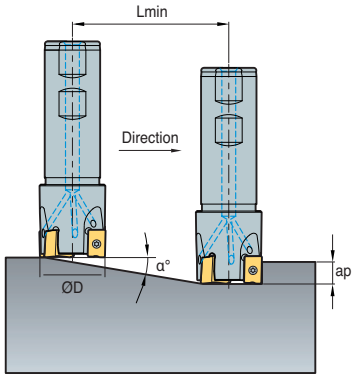


Through coolant system for decreasing cutting heat and good chip evacuation

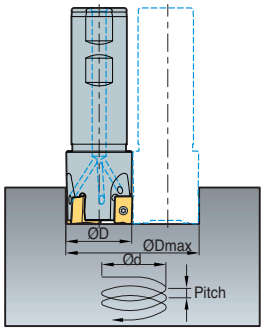
Rich Mill RM4

Ramping and helical cutting

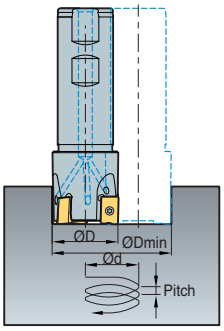
1. Ramping



2. Helical cutting for blind hole



3. Helical cutting for through hole



(mm)

Type	Tool Dia. ØD	ap	1. Ramping		2. Helical cutting for blind hole				3.Helical cutting for through hole	
			α°	Lmin	Minimum Hole Diameter Ød	Maximum Pitch	Maximum Hole Diameter Ød	Maximum Pitch	Minimum Hole Diameter Ød	Maximum Pitch
RM4PS3014HR	14	9	4.5	125	25	2.7	27	3.1	19	1.3
RM4PS3016HR	16	9	3.5	160	29	2.5	31	2.7	23	1.4
RM4PS3018HR	18	9	3.0	185	33	2.4	35	2.7	27	1.5
RM4PS3020HR	20	9	2.7	204	37	2.5	39	2.7	31	1.6
RM4PS3025HR	25	9	1.8	301	47	2.1	49	2.3	41	1.6
RM4PS3032HR	32	9	1.2	451	61	1.9	63	2.0	55	1.5
RM4PS3040HR	40	9	0.9	616	77	1.8	79	1.8	71	1.5
RM4PS3050HR	50	9	0.6	843	97	1.5	99	1.5	91	1.3
RM4PC(M)3040HR	40	9	0.9	616	77	1.8	79	1.8	71	1.5
RM4PC(M)3050HR	50	9	0.6	843	97	1.5	99	1.5	91	1.3
RM4PC(M)3063HR	63	9	0.5	1123	123	1.6	125	1.6	117	1.4
RM4PC(M)3080HR	80	9	0.3	1508	157	1.2	159	1.2	151	1.1
RM4PC(M)3100HR	100	9	0.2	1910	197	1.0	199	1.0	191	0.9
RM4PS4032HR	32	14	2.5	229	59.5	3.0	62	4	49	2.0
RM4PS4040HR	40	14	2.0	286	75.5	3.0	78	4	65	2.0
RM4PS4050HR	50	14	2.0	286	95.5	4.0	98	5	85	3.5
RM4PS4063HR	63	14	2.0	286	121.5	5.0	124	5	111	5.0
RM4PC(M)4050HR	50	14	2.0	286	95.5	4.0	98	5	85	3.5
RM4PC(M)4063HR	63	14	2.0	286	121.5	5.0	124	5	111	5.0
RM4PC(M)4080HR	80	14	1.5	382	155.5	5.0	158	5	145	5.0
RM4PC(M)4100HR	100	14	1.0	573	195.5	4.5	198	5	185	4.0
RM4PC(M)4125HR	125	14	1.0	573	245.5	5.0	248	5	235	5.0
RM4PC(M)4160R	160	14	0.5	1146	315.5	3.5	318	4	305	3.5

* Please be sure to use cutting oil or air for ramping and helical machining
  Lmin = ap/tan (α°)

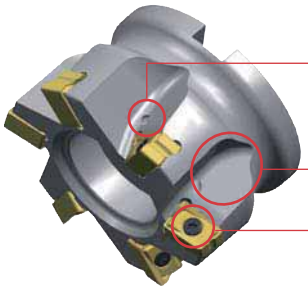
Recommended cutting condition

ISO	Grades	LNM(E)X100605PNR-MF		LNM(E)X100605PNR-MM		LNEX100605PNR-MA		Max-ap (mm)	LNM(E)X151008PNR-MF		LNM(E)X151008PNR-MM		LNEX151008PNR-MA		Max-ap (mm)
		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	
P	NCM325	-	-	-	-	-	-	9.0	150~300	0.05~0.30	120~300	0.05~0.35	150~300	0.03~0.20	14.0
P	PC3500	150~300	0.05~0.25	120~300	0.05~0.30	150~300	0.03~0.20		150~300	0.05~0.30	120~300	0.05~0.35	150~300	0.03~0.20	
M	PC5300	120~180	0.05~0.25	100~180	0.05~0.30	120~200	0.03~0.20		120~180	0.05~0.30	100~180	0.05~0.3	120~200	0.03~0.20	
K	PC6510	150~300	0.08~0.30	120~300	0.08~0.35	-	-		150~300	0.08~0.35	120~300	0.08~0.35	-	-	

Rich Mill RM4Z

Features

- 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

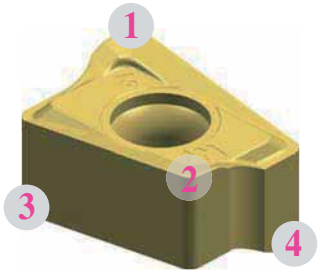


Through coolant system
- Improving chip control
  Cooling inserts increases tool life

Wide chip pocket

Screw on system

Improving chip evacuation



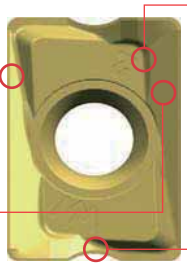
- Double-sided insert ···› 4 corner available
- High rake angle chip breaker and cutting-edge
- Various available machining types
- High efficiency and economical insert
- Negative type insert - Strong cutting-edge

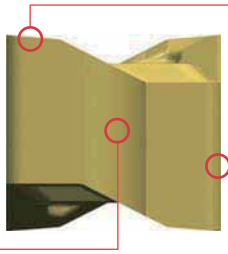
Features of insert

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

Step design
- Improving chip control
- Reducing cutting load

Minor cutting-edge
- Special design for plunge machining



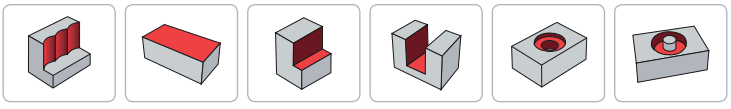


Chip breaker
- High rake angle
- Control chip flow

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

Sides
- Negative type
- Strong cutting-edge

Uses

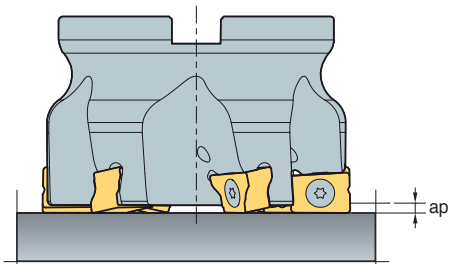


Plunging | Facing | Shouldering | Slotting | Counter Boring | Helical cutting

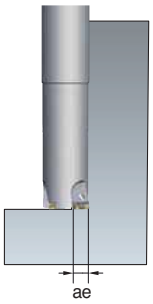
Rich Mill RM4Z

The depth of cut by machining type

• In horizontal machining, Depth of cut = ap (mm)

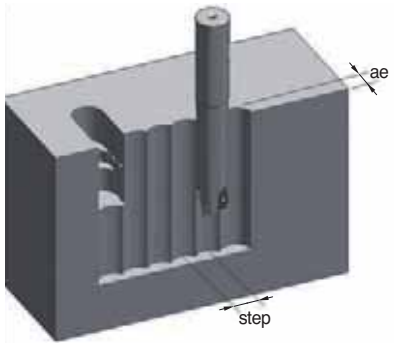


• In plunging, Depth of cut = ae (mm)



RM4Z	Horizontality	Verticality	
	max ap (mm)	max ae (mm)	step
RM4Z 3000	1.5	9	< 0.7D
RM4Z 4000	2.5	14	< 0.7D

Max step in plunging

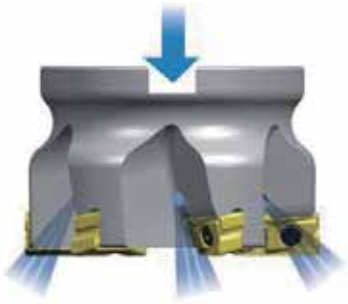


ae	Cutter Diameter (mm)								
	25	32	40	50	52	63	66	80	100
	Max step (mm)								
1	9.7	11.1	12.4	14	14.2	15.7	16.1	17.7	19.9
2	13.5	15.4	17.4	19.5	20	22	22.6	24.9	28
3	16.2	18.6	21	23.7	24.2	26.8	27.4	30.3	34.1
4	18.3	21.1	24	27.1	27.7	30.7	31.4	34.8	39.1
5	20	23.2	26.4	30	30.6	34	34.9	38.7	43.5
6	21.3	24.9	28.5	32.4	33.2	36.9	37.9	42.1	47.4
7	22.4	26.4	30.3	34.6	35.4	39.5	40.6	45.2	51
8	23.3	27.7	32	36.6	37.5	41.9	43	48	54.2
9	24	28.7	33.4	38.4	39.3	44	45.2	50.5	57.2
10	-	-	-	-	-	46	47.3	52.9	60
11	-	-	-	-	-	47.8	49.1	55.1	62.5
12	-	-	-	-	-	49.4	50.9	57.1	64.9
13	-	-	-	-	-	50.9	52.4	59	67.2
14	-	-	-	-	-	52.3	53.9	60.7	69.3

Through coolant system

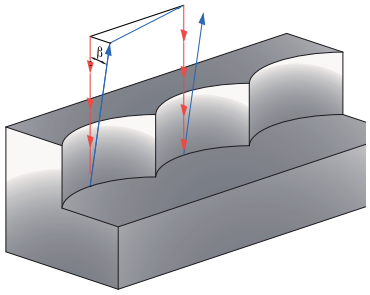
- Exclusive hexagonal coolant socket bolt provides excellent cooling and chip evacuation
- Direct coolant injection to cutting-edge improves cooling effectiveness
- Coolant type arbor should be used

* Coolant bolt is not included, it is for sale



Rich Mill RM4Z

Programming tip



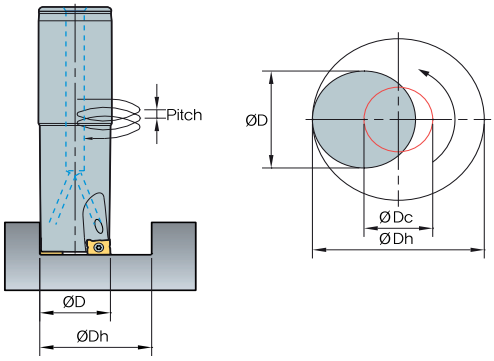
------ Plunging feed direction

——— Tool escape

β Escape angle (β ≥ 1°)

• When your tool steps back after plunging, please get over 1° more escape angle

Helical machining



ØDc = ØDh-ØD

ØDc = Tool center path
ØDh = Desired hole diameter
ØD = Tool Dia.

(mm)

Designation		Diameter ØD (mm)	Helical data			
			ØDh max (mm)	Max. Pitch (mm)	ØDh min (mm)	Max. Pitch (mm)
RM4ZS	3025HR-L25	25	30	0.4	48	1.8
	3032HR-L32	32	43	0.3	62	0.9
	3040HR-L32	40	59	0.3	78	0.6
RM4ZC	M3040HR	40	59	0.3	78	0.6
	M3050HR	50	79	0.3	98	0.5
	M3052HR	52	83	0.3	102	0.5
RM4ZM	3025HR-M12	25	30	0.4	48	1.8
	3032HR-M16	32	43	0.3	62	0.9
	3040HR-M16	40	59	0.3	78	0.6
RM4ZC	M4063HR	63	95	0.5	124	1.0
	M4066HR	66	101	0.5	130	1.0
	M4080HR	80	129	0.5	158	0.8
	M4100HR	100	169	0.3	198	0.5

Recommended cutting condition

ISO	Grades	LNM(E)X100605PNL-MM				LNM(E)X151008PNL-MM			
		vc (m/min)	fz (mm/t)	* max ae (mm)	** max ap (mm)	vc (m/min)	fz (mm/t)	* max ae (mm)	** max ap (mm)
P	PC3500	100~250	0.05~0.25	9	1.5	120~250	0.05~0.25	14	2.5
M	PC5300	100~250	0.08~0.30			120~250	0.08~0.30		
K	PC6510	80~180	0.05~0.20			100~180	0.05~0.20		

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

Rich Mill RM6

Features

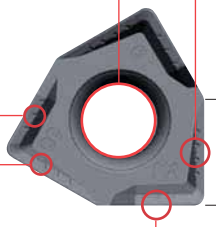
- Stable clamping - 3 clamping surfaces on the side and strong clamping screws
  → Improves cutting stability
- High quality results - High precision, excellent perpendicularity, outstanding surface finish on the flank, accurate tolerance
- High productivity - High rake angle and sharp cutting-edges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

Features of insert

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

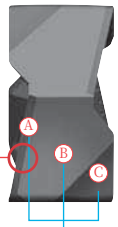
High rake angle chip breaker
- Maintains stable clamping
- Induces smooth chip flow
  → Increases insert life

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



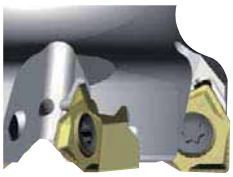
MAX. ap
WNGX08: 8.2 mm
WNGX04: 4.3 mm

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



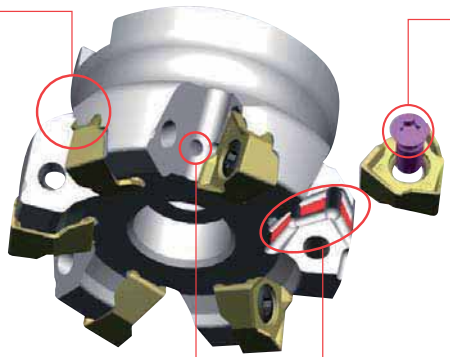
3-level flank relief surface
- Enhances rigidity and enables stable clamping
  → Improves cutting stability

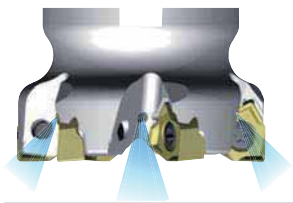
Features of cutter



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

Rich Mill RM6

Features of chip breakers

Insert		Cutting-edge	Uses	Features
MA			For aluminum	Sharp cutting-edges for excellent cutting performance in aluminum machining Buffed surface for excellent chip flow and welding resistance
ML			For light cutting	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	Chip breaker design ideal for general shoulder milling and most applications

Application guideline for grade

Workpiece		P		M	K	N
		Carbon steel	Alloy steel	Stainless steel	Cast iron	Non-ferrous metal
Shape	1st recommended	MM	MM	ML	ML	MA
	2nd recommended	ML	ML	-	MM	MA
Grades	High speed milling	PC3600	PC3600	PC5300	PC6510	H01
	General milling	PC5400	PC5300	PC5400	PC5300	H01
	Interrupted milling	PC5400	PC5400	PC5400	PC5400	H01

Recommended cutting condition

• WNGX04

Workpiece		Grades	WNGX040304PNSR-MM			WNGX040304PNER-ML			WNGX040304PNFR-MA		
			vc (m/min)	fz (mm/t)	max. ap(mm)	vc (m/min)	fz (mm/t)	max. ap (mm)	vc (m/min)	fz (mm/t)	max. ap (mm)
P	Steel	PC3600	160~270	0.25~0.05	4.3	160~270	0.20~0.05	4.3	-	-	4.3
		PC5300	150~240	0.25~0.05	4.3	150~240	0.25~0.05	4.3	-	-	4.3
		PC5400	130~210	0.25~0.05	4.3	130~210	0.25~0.05	4.3	-	-	4.3
M	Stainless steel	PC5300	90~150	0.20~0.05	4.3	90~150	0.10~0.05	4.3	-	-	4.3
		PC5400	70~120	0.20~0.05	4.3	70~120	0.10~0.05	4.3	-	-	4.3
K	Cast iron	PC6510	140~230	0.30~0.08	4.3	140~230	0.25~0.08	4.3	-	-	4.3
		PC5300	120~200	0.30~0.08	4.3	120~200	0.25~0.08	4.3	-	-	4.3
N	Non-ferrous metal	H01	-	-	4.3	-	-	4.3	500~1000	0.2~0.05	4.3

※ The above data refer to general cutting conditions and can be adjustable up to 300 m/min and 0.4 mm/t depending on user environment.

• WNGX08

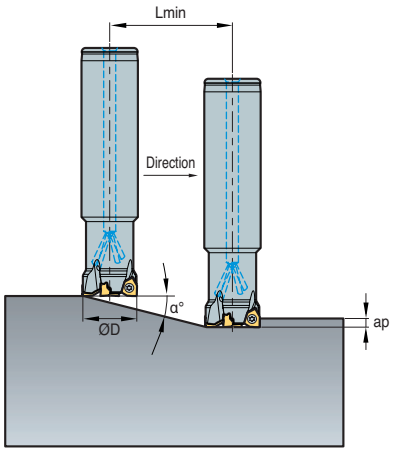
Workpiece		Grades	WNGX080608PNSR-MM			WNGX080608PNER-ML			WNGX080608PNFR-MA		
			vc (m/min)	fz (mm/t)	max. ap (mm)	vc (m/min)	fz (mm/t)	max. ap (mm)	vc (m/min)	fz (mm/t)	max. ap (mm)
P	Steel	PC3600	160~270	0.25~0.05	8.2	160~270	0.20~0.05	8.2	-	-	8.2
		PC5300	150~240	0.25~0.05	8.2	150~240	0.25~0.05	8.2	-	-	8.2
		PC5400	130~210	0.25~0.05	8.2	130~210	0.25~0.05	8.2	-	-	8.2
M	Stainless steel	PC5300	90~150	0.20~0.05	8.2	90~150	0.10~0.05	8.2	-	-	8.2
		PC5400	70~120	0.20~0.05	8.2	70~120	0.10~0.05	8.2	-	-	8.2
K	Cast iron	PC6510	140~230	0.30~0.08	8.2	140~230	0.25~0.08	8.2	-	-	8.2
		PC5300	120~200	0.30~0.08	8.2	120~200	0.25~0.08	8.2	-	-	8.2
N	Non-ferrous metal	H01	-	-	8.2	-	-	8.2	500~1000	0.2~0.05	8.2

※ The above data refer to general cutting conditions and can be adjustable up to 300 m/min and 0.4 mm/t depending on user environment.

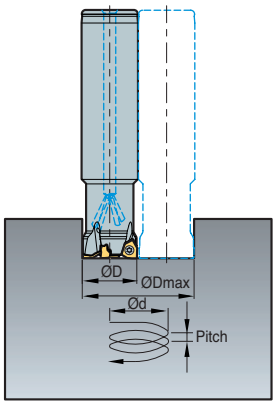
Rich Mill RM6

Ramping

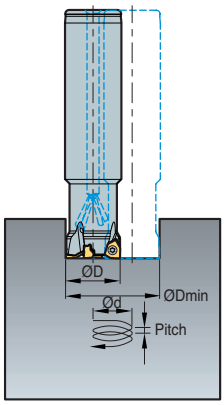
1. Ramping



2. Helical cutting for blind holes



3. Helical cutting for through holes



(mm)

Designation		Tool Dia. ØD	Depth of cut ap	1. Ramping		2. Helical cutting for blind holes				3. Helical cutting for through holes	
				Max. rake angle α°	Lmin	Min. machining Dia. Ø DHmin	Max. pitch dmax	Max. machining Dia. Ø DHmax	Max. pitch dmax	Min. machining Dia. Ø DHmin	Max. pitch dmax
RM6PS	032R-2W32-120-WN08	32	8	0.8	572.9	54	0.96	62	1.3	38 .5	0.5
	040R-3W32-120-WN08	40	8	0.5	916.7	70	0.82	78	1.0	54 .5	0.4
	050R-4W32-120-WN08	50	8	0.3	1527.9	90	0.66	98	0.8	74.5	0.3
RM6PCM	063R-22-6-WN08	63	8	0.2	2291.3	116	0.58	124	0.6	100.5	0.3
	080R-27-7-WN08	80	8	0.1	4583.7	150	0.38	158	0.4	134.5	0.2
	100R-32-8-WN08	100	8	0.1	4583.7	190	0.49	198	0.5	174.5	0.3
	125R-40-11-WN08	125	8	0.1	4583.7	240	0.63	248	0.6	224.5	0.3

Lmin = ap/tan (α°)

Lmin: Cutting length at min. rake angle
ap: Axial depth of cut
α°: Available rake angle for ramping

Rich Mill 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 offers 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

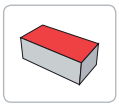
- Exclusive coolant bolt is adapted to get better chip evacuation and more powerful cooling. To get optimal chip evacuation, the direction of coolant injection has been designed to reach to each cutting-edge directly. Through coolant arbor is required

Through coolant system for decreasing cutting heat and good chip evacuation

Features of chip breaker

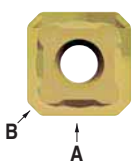
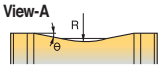
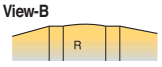
Insert		Cutting-edge	Uses	Features
MA			For aluminum	Due to sharp cutting-edge and buffed surface, it has good chip flow and welding resistance
ML			For hard-to-cut material	Chip breaker with low cutting load is optimal for machining hard-to-cut materials
MF			For light cutting	Due to low cutting load, 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

Uses



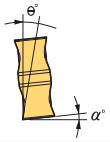
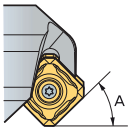
Facing

Features of insert

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

Rich Mill RM8

Features of cutter

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°

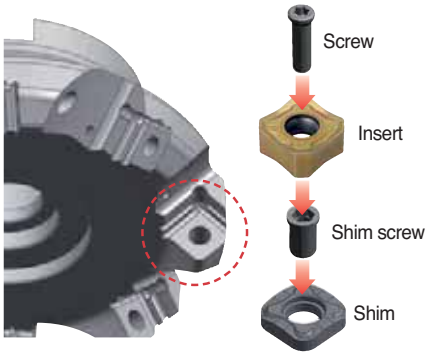
Recommended cutting condition

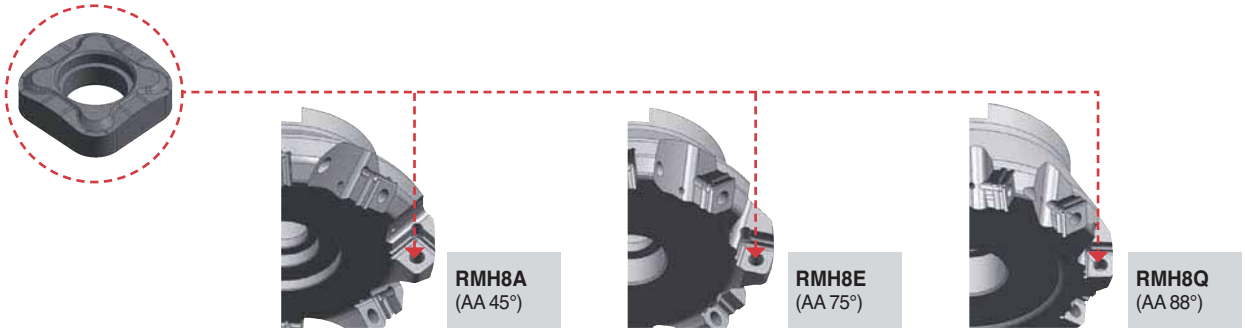
ISO	Grades	SNM(E)X1206A(E)NN-MF		SNM(E)X1206A(E)NN-MM		SNEX1206A(E)NN-MA		Max-ap (mm)	SNM(E)X1507A(E)NN-MF		SNM(E)X1507A(E)NN-MM		Max-ap (mm)
		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	
P	NC5330	-	-	150~300	0.10~0.35	150~300	0.10~0.35	RM8A 6.0mm RM8E 9.0mm RM8Q 11.5mm	-	-	150~300	0.10~0.35	RM8A 7.5 mm RM8E 11 mm
P	NCM325	200~300	0.05~0.30	150~300	0.10~0.35	150~300	0.10~0.35		200~300	0.05~0.30	150~300	0.10~0.35	
P	PC3500	200~300	0.05~0.30	150~300	0.10~0.35	150~300	0.10~0.35		200~300	0.05~0.30	150~300	0.10~0.35	
M	PC9530	90~150	0.05~0.25	90~150	0.10~0.35	-	-		90~150	0.10~0.30	90~150	0.10~0.35	
M	PC5300	90~150	0.05~0.25	90~150	0.10~0.35	-	-		90~150	0.10~0.30	90~150	0.10~0.35	
K	PC6510	150~300	0.08~0.35	150~300	0.10~0.40	150~300	0.10~0.40		150~300	0.08~0.35	150~300	0.10~0.40	
K	PC5300	150~300	0.08~0.35	150~300	0.10~0.40	150~300	0.10~0.40		150~300	0.08~0.35	150~300	0.10~0.40	

Rich Mill 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



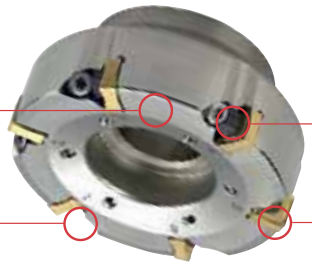


Rich Mill RMT8

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

Features of cutter



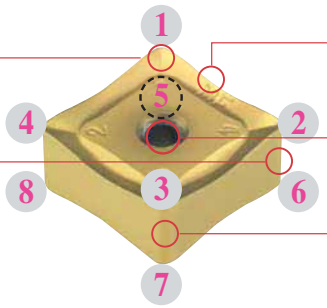
High rigid cutter body to improve durability

The 3-dimensional chip pocket design for smooth chip control

New latch clamping system ensures the powerful cutting force and easy to insert change

Economical 8 corners with a double-sided insert

Features of insert (Using R/L)



Economical 8 corners

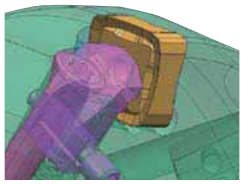
Coated grades with improved chipping resistance

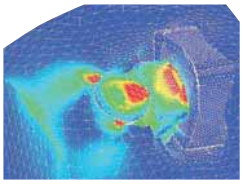
Low cutting load due to high rake angle chip breaker

The chamber shape for stable clamping

Optimal design of minor cutting-edge to use in R/L cutting type good surface roughness

Clamping force analysis





Features of chip breakers

Insert		Cutting-edge	Uses	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

Recommended grades and chip breakers

ISO	Grades	MM	MF
P	NCM325	◎	○
	PC5300	◎	○
M	PC9530	○	◎
K	PC6510	○	◎

◎: Optimum ○: Proper

Recommended cutting condition

ISO	Grades	MM		MF	
		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)
P	NC5330	190~310	0.10~0.35	190~310	0.05~0.30
	NCM325	160~270	0.10~0.35	160~270	0.05~0.30
	PC3500	130~210	0.10~0.35	130~210	0.05~0.30
M	PC9530	90~150	0.05~0.30	90~150	0.05~0.30
K	PC6510	140~230	0.10~0.40	140~230	0.08~0.35

Rich Mill RM16

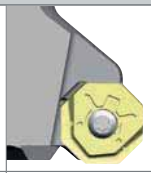
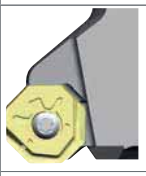
Features

- Economical 16 cutting-edges
- Reduces cost in medium cutting
- Wiper insert can be used for good surface roughness
- Optimal matching of the special cutting-edge geometry with variety of new grades provides consistence & long tool
- When it is used 16 corners, maximum cutting depth is 5.5 mm, but it is used 8 corners, maximum cutting depth is 13 mm
- Wiper insert is placed 0.05 mm lower than facing insert in cutter
- When feed is bigger than wiper cutting-edge length (7 mm), 2 wiper inserts are placed in symmetrical position

Features of chip breakers

Insert		Cutting-edge	Uses	Features
MA			For aluminum cutting light	With sharp edge application, the better productivity has been accomplished, especially for aluminum cutting
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	It has better surface roughness than MM and MF chip breakers

Instruction for wiper insert

Hand	Correct setting	Incorrect setting			
Right hand					
Decision	○	×	×	×	×
Left hand					
Decision	○	×	×	×	×

Through coolant system

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

Recommended cutting condition

(mm)

ISO	Grades	ONM(H)X060608-MM		ONM(H)X060608-MF		ONHX060608-W		ONM(H)X080608-MM		ONM(H)X080608-MF		ONHX080608-W	
		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)
P	NCM325	150~300	0.10~0.35	200~300	0.05~0.30	200~300	0.05~0.20	150~300	0.10~0.40	200~300	0.05~0.35	200~300	0.05~0.25
P	PC3500	150~300	0.10~0.35	200~300	0.05~0.30	200~300	0.05~0.20	150~300	0.10~0.40	200~300	0.05~0.35	200~300	0.05~0.25
M	PC6510	120~180	0.10~0.35	100~180	0.05~0.30	100~180	0.05~0.20	120~180	0.10~0.40	100~180	0.05~0.35	100~180	0.05~0.25
K	PC9530	150~300	0.10~0.40	150~300	0.08~0.35	150~300	0.05~0.25	150~300	0.10~0.45	150~300	0.08~0.40	150~300	0.05~0.30

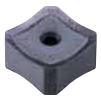
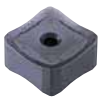
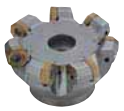
Cutters

Type	A.A	Designation	Shape	Cutter Diameter	Application		Features	Page
RM3	90°	RM3PC(M)3000 new		Ø40~Ø80	XNKT060405PNER-ML	XNKT060405PNSR-MM	• Economical 3 corners. • Perfect perpendicularity • Longer tool life due to direct injection into the cutting-edge of insert	E89
		RM3PC(M)4000 new		Ø40~Ø125	XNCT080508PNFR-MA XNKT080508PNER-ML XNKT080508PNSR-MM	XNKT080512PNSR-MM XNKT080516PNSR-MM XNKT080520PNSR-MM		E90
		RM3PC(M)5000 new		Ø80~Ø125	XNCT120608PNER-MA XNKT120608PNER-ML XNKT120612PNER-ML XNKT120616PNER-ML XNKT120620PNER-ML	XNKT120608PNSR-MM XNKT120612PNSR-MM XNKT120616PNSR-MM XNKT120620PNSR-MM		E91
RM4	90°	RM4PC(M)3000		Ø40~Ø100	LNEX100605PNR-MF LNMX100605aPNR-MF LNEX100605PNR-MM LNMX100605PNR-MM LNEX100608PNR-MF LNMX100608PNR-MF	LNEX100608PNR-MM LNMX100608PNR-MM LNEX100605PNR-MA LNEX100605PNL-MM LNMX100605PNL-MM	• Economical 4 corners. • Screw on type for slotting, facing.	E95
		RM4PC(M)4000		Ø50~Ø160	LNEX151004PNR-MF LNMX151004PNR-MF LNEX151004PNR-MM LNMX151004PNR-MM LNEX151008PNR-MF LNMX151008PNR-MF LNEX151008PNR-MM LNMX151008PNR-MM	LNEX151016PNR-MF LNMX151016PNR-MF LNEX151016PNR-MM LNMX151016PNR-MM LNEX151004PNR-MA LNEX151008PNR-MA LNEX151008PNL-MM LNMX151008PNL-MM		E96
		RM4ZCM3000		Ø40~Ø52	LNEX100605PNL-MM	LNMX100605PNL-MM	• Economical 4 corners. • Optimal insert application for vertical machining	E108
		RM4ZC(M)4000		Ø63~Ø100	LNEX151008PNL-MM	LNMX151008PNL-MM		
RM6	90°	RM6PCM-WN04 new		Ø40~Ø63	WNGX040304PNFR-MA WNGX040308PNFR-MA WNGX040312PNFR-MA WNGX040316PNFR-MA WNGX040304PNER-ML WNGX040308PNER-ML	WNGX040312PNER-ML WNGX040316PNER-ML WNGX040304PNSR-MM WNGX040308PNSR-MM WNGX040312PNSR-MM WNGX040316PNSR-MM	• Improved productivity and high-quality shouldering through high speed and high feed machining	E110
		RM6PC(M)-WN08 new		Ø50~Ø125	WNGX080604PNFR-MA WNGX080608PNFR-MA WNGX080612PNFR-MA WNGX080616PNFR-MA WNGX080620PNFR-MA WNGX080604PNER-ML WNGX080608PNER-ML WNGX080612PNER-ML	WNGX080616PNER-ML WNGX080620PNER-ML WNGX080604PNSR-MM WNGX080608PNSR-MM WNGX080612PNSR-MM WNGX080616PNSR-MM WNGX080620PNSR-MM		E111

Cutters

Type	A.A	Designation	Shape	Cutter Diameter	Application			Features	Page
RM8	45°	**RM8AC(M)4000**		Ø50~Ø400	SNEX1206ANN-MA SNEX1206ANN-MF SNMX1206ANN-MF SNEX1206ANN-ML	SNEX1206ANN-MM SNMX1206ANN-MM SNEX1206ANN-W		• Economical 8 corners. • Low cutting load and excellent smooth cutting.	E115
		RM8AC(M)5000		Ø80~Ø400	SNEX1507ANN-MF SNMX1507ANN-MF SNEX1507ANN-ML	SNEX1507ANN-MM SNMX1507ANN-MM			E117
	75°	**RM8EC(M)4000**		Ø50~Ø400	SNEX1206ENN-MA SNEX1206ENN-MF SNMX1206ENN-MF	SNEX1206ENN-ML SNEX1206ENN-MM SNMX1206ENN-MM			E119
		RM8EC(M)5000		Ø80~Ø400	SNEX1507ENN-MF SNMX1507ENN-MF SNEX1507ENN-ML	SNEX1507ENN-MM SNMX1507ENN-MM			E121
	88°	**RM8QC(M)4000**		Ø63~Ø200	SNEX1206QNN-MA SNEX1206QNN-MF SNMX1206QNN-MF SNEX1206QNN-ML SNEX1206QNN-MM SNMX1206QNN-MM	SNEX120612-MA SNEX120612-MF SNMX120612-MF SNEX120612-ML SNEX120612-MM SNMX120612-MM			E123
	45°	**RMH8AC(M)4000**		Ø50~Ø400	SNEX1206ANN-MA SNEX1206ANN-MF SNMX1206ANN-MF	SNEX1206ANN-ML SNEX1206ANN-MM SNMX1206ANN-MM SNEX1206ANN-W			E116
		RMH8AC(M)5000		Ø80~Ø400	SNEX1507ANN-MF SNMX1507ANN-MF SNEX1507ANN-ML	SNEX1507ANN-MM SNMX1507ANN-MM			E118
	75°	**RMH8EC(M)4000**		Ø50~Ø400	SNEX1206ENN-MA SNEX1206ENN-MF SNMX1206ENN-MF	SNEX1206ENN-ML SNEX1206ENN-MM SNMX1206ENN-MM			E120
		RMH8EC(M)5000		Ø80~Ø400	SNEX1507ENN-MF SNMX1507ENN-MF SNEX1507ENN-ML	SNEX1507ENN-MM SNMX1507ENN-MM			E122
	88°	**RMH8QC(M)4000**		Ø63~Ø200	SNEX1206QNN-MA SNEX1206QNN-MF SNMX1206QNN-MF SNEX1206QNN-ML SNEX1206QNN-MM SNMX1206QNN-MM	SNEX120612-MA SNEX120612-MF SNMX120612-MF SNEX120612-ML SNEX120612-MM SNMX120612-MM			E124

Cutters

Type	A.A	Designation	Shape	Cutter Diameter	Application			Features	Page
RMT8	45°	**RMT8A(M) 4000/5000**		Ø80~Ø315	SNCF1206ANN-MF SNCF1507ANN-MF SNMF1206ANN-MF SNMF1507ANN-MF	SNCF1206ANN-MM SNCF1507ANN-MM SNMF1206ANN-MM SNMF1507ANN-MM		• Economical 8 corners. • Excellent tool life and surface toughness due to low cutting resistance and high rake edge geometry. • Good performance with increased chipping resistance and grade	E125 E126
	75°	**RMT8E(M) 4000/5000**		Ø80~Ø315	SNCF1206ENN-MF SNCF1507ENN-MF SNMF1206ENN-MF SNMF1507ENN-MF	SNCF1206ENN-MM SNCF1507ENN-MM SNMF1206ENN-MM SNMF1507ENN-MM			E127 E128
	88°	**RMT8Q(M)4000**		Ø80~Ø315	SNCF1206QNN-MF	SNNMF1206QNN-MF			E129
RM16	45°	**RM16AC(M) 6000/8000**		Ø63~Ø400	ONHX060608-MF ONMX060608-MF ONHX0606ANN-MF ONMX0606ANN-MF ONHX080608-MF ONMX080608-MF ONHX0806ANN-MF ONMX0806ANN-MF ONHX060608-ML ONHX080608-ML ONHX060608-MM	ONMX060608-MM ONHX0606ANN-MM ONMX0606ANN-MM ONHX080608-MM ONMX080608-MM ONHX0806ANN-MM ONMX0806ANN-MM ONHX060608-MA ONHX060608-W ONHX080608-MA ONHX080608-W		• Economical 16 corners. • Wiper insert for surface roughness.	E130 E131

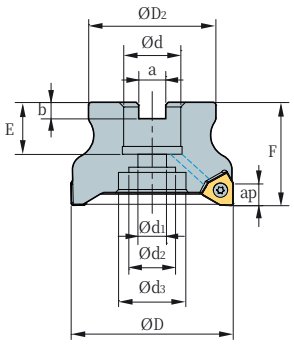
Shanks/Modulars

Type	A.A	Designation	Shape	Cutter Diameter	Application			Features	Page
RM3	90°	**RM3PS3000** new		Ø20~Ø40	XNKT060405PNER-ML	XNKT060405PNSR-MM		• Economical 3 corners. • Perfect perpendicular shouldering operation multi milling tool	E92
		RM3PS4000 new		Ø32~Ø63	XNKT080508PNER-ML XNKT080508PNSR-MM XNKT080512PNSR-MM	XNKT080516PNSR-MM XNKT080520PNSR-MM			E93
		RM3PM new **3000/4000**		Ø20~Ø50	XNKT060405PNER-ML XNKT060405PNSR-MM XNKT060408PNER-ML XNKT060408PNSR-MM XNCT080504PNFR-MA XNCT080508PNFR-MA XNCT080512PNFR-MA XNCT080520PNFR-MA	XNKT080508PNER-ML XNKT080508PNSR-MM XNKT080512PNER-ML XNKT080512PNSR-MM XNKT080516PNER-ML XNKT080516PNSR-MM XNKT080520PNER-ML XNKT080520PNSR-MM			E94
RM4	90°	**RM4PS3000**		Ø14~Ø50	LNEX100605PNR-MF LNMX100605PNR-MF LNEX100605PNR-MM LNMX100605PNR-MM LNEX100608PNR-MF LNMX100608PNR-MF	LNEX100608PNR-MM LNMX100608PNR-MM LNEX100605PNR-MA LNEX100605PNL-MM LNMX100605PNL-MM		• Economical 4 corners. • Screw on type for slotting, facing.	E105
		RM4PS4000		Ø32~Ø63	LNEX151004PNR-MF LNMX151004PNR-MF LNEX151004PNR-MM LNMX151004PNR-MM LNEX151008PNR-MF LNMX151008PNR-MF LNEX151008PNR-MM LNMX151008PNR-MM	LNEX151016PNR-MF LNMX151016PNR-MF LNEX151016PNR-MM LNMX151016PNR-MM LNEX151004PNR-MA LNEX151008PNR-MA LNEX151008PNL-MM LNMX151008PNL-MM			E106

Shanks/Modulars

Type	A.A	Designation	Shape	Cutter Diameter	Application		Features	Page
RM4	90°	**RM4ZS3000**		Ø25~Ø40	LNEX100605PNL-MM	LNMX100605PNL-MM	• Economical 4 corners. • Optimal insert application for vertical machining	E109
		RM4PM3000		Ø14~Ø50	LNEX100605PNR-MF LNMX100605PNR-MF LNEX100605PNR-MM LNMX100605PNR-MM LNEX100608PNR-MF LNMX100608PNR-MF	LNEX100608PNR-MM LNMX100608PNR-MM LNEX100605PNR-MA LNEX100605PNL-MM LNMX100605PNL-MM	• Economical 4 corners. • Screw on type for slotting, facing.	E107
		RM4ZM3000		Ø25~Ø40	LNEX100605PNL-MM	LNMX100605PNL-MM	• Economical 4 corners. • Optimal insert application for vertical machining	E109
RM6	90°	**RM6PS-WN04** new		Ø20~Ø32	WNGX040304PNFR-MA WNGX040308PNFR-MA WNGX040312PNFR-MA WNGX040316PNFR-MA WNGX040304PNER-ML WNGX040308PNER-ML	WNGX040312PNER-ML WNGX040316PNER-ML WNGX040304PNSR-MM WNGX040308PNSR-MM WNGX040312PNSR-MM WNGX040316PNSR-MM	• Improved productivity and high-quality shouldering through high speed and high feed machining	E112
		RM6PS-WN08 new		Ø32~Ø50	WNGX080604PNFR-MA WNGX080608PNFR-MA WNGX080612PNFR-MA WNGX080616PNFR-MA WNGX080620PNFR-MA WNGX080604PNER-ML WNGX080608PNER-ML WNGX080612PNER-ML	WNGX080616PNER-ML WNGX080620PNER-ML WNGX080604PNSR-MM WNGX080608PNSR-MM WNGX080612PNSR-MM WNGX080616PNSR-MM WNGX080620PNSR-MM		E113
		RM6PM-WN04 new		Ø20~Ø32	WNGX040304PNFR-MA WNGX040308PNFR-MA WNGX040312PNFR-MA WNGX040316PNFR-MA WNGX040304PNER-ML WNGX040308PNER-ML	WNGX040312PNER-ML WNGX040316PNER-ML WNGX040304PNSR-MM WNGX040308PNSR-MM WNGX040312PNSR-MM WNGX040316PNSR-MM		E114
		RM6PM-WN08 new		Ø32~Ø40	WNGX080604PNFR-MA WNGX080608PNFR-MA WNGX080612PNFR-MA WNGX080616PNFR-MA WNGX080620PNFR-MA WNGX080604PNER-ML WNGX080608PNER-ML WNGX080612PNER-ML	WNGX080616PNER-ML WNGX080620PNER-ML WNGX080604PNSR-MM WNGX080608PNSR-MM WNGX080612PNSR-MM WNGX080616PNSR-MM WNGX080620PNSR-MM		

RM3PC(M)3000 new



AA 90°

- AR: -5°
- RR: -9°~ -6°

(mm)

Designation			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	42	22	11	18	-	10.4	6.3	20	40	5.5	0.3
	3050HR-M	7	50	42	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

Available inserts

XNKT-ML

XNKT-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNKT	060405PNER-ML								●	●	●	●		●	●	●				E30
	060405PNSR-MM							●	●	●	●	●		●	●	●				
	060408PNER-ML									●		●			●	●				
	060408PNSR-MM							●	●	●	●	●			●	●				

Available arbors

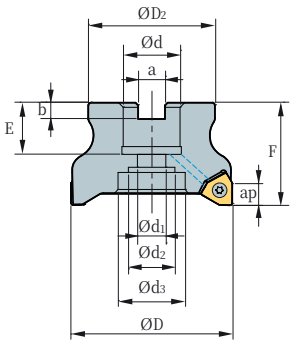
Designation		Available arbors	
		RM3PC	RM3PCM
RM3PC(M)	3040HR	-	BT□□-FMC16-□□
	3040HR-M		
	3050HR	-	BT□□-FMC22-□□
	3050HR-M		
	3063HR		
	3063HR-M		
	3080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	3080HR-M		

Parts

Specification	Screw	Wrench
Ø40~Ø80	FTNA0306	TW09S

Available inserts E30 Available arbors and bolt E400~E402

RM3PC(M)4000 new



AA 90°

- AR: -5°
- RR: -8°~ -6°

(mm)

Designation			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

Available inserts

( )Metric size

XNCT-MA new | XNKT-ML new | XNKT-MM new

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNCT	080504PNFR-MA																		●	
	080508PNFR-MA																		●	
	080512PNFR-MA																		●	
	080520PNFR-MA																		●	
XNKT	080504PNER-ML									●					●	●				
	080504PNSR-MM									●	●				●	●				
	080508PNER-ML					●			●	●	●	●		●	●	●				E29
	080508PNSR-MM					●		●	●	●	●	●		●	●	●				E30
	080512PNER-ML														●	●				
	080512PNSR-MM							●	●	●					●	●				
	080516PNER-ML														●	●				
	080516PNSR-MM							●	●	●					●	●				
	080520PNER-ML														●	●				
	080520PNSR-MM							●	●	●					●	●				

Available arbors

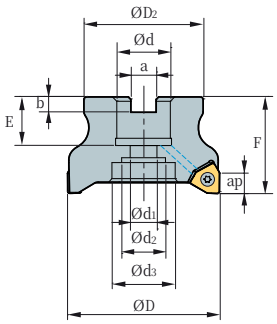
Designation		Available arbors	
		RM3PC	RM3PCM
RM3PC(M)	4040HR	-	BT□□-FMC16-□□
	4050HR	-	BT□□-FMC22-□□
	4063HR		
	4080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR	BT□□-FMA38.1-□□	BT□□-FMC40-□□

Parts

Specification	Screw	Wrench
Ø40~Ø125	FTNA0408	TW15S

Available inserts E29, E30 Available arbors and bolt E400~E402

RM3PC(M)5000 new



AA 90°
• AR: -5°
• RR: -7°

(mm)

Designation			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

Available inserts

XNCT-MA new | XNKT-ML new | XNKT-MM new



Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNCT	120608PNFR-MA																		●	
XNKT	120604PNSR-MM														●	●				
	120608PNER-ML									●		●		●	●	●				
	120608PNSR-MM							●	●	●		●		●	●	●				
	120612PNER-ML														●	●				E29
	120612PNSR-MM							●	●						●	●				E30
	120616PNER-ML														●	●				
	120616PNSR-MM							●	●						●	●				
	120620PNER-ML														●	●				
	120620PNSR-MM							●	●						●	●				

Available arbors

Designation		Available arbors	
		RM3PC	RM3PCM
RM3PC(M)	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

Available inserts **E29, E30** Available arbors and bolt **E400~E402**

RM3PS3000 new

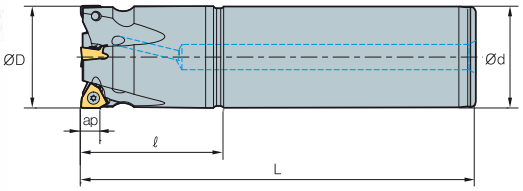


Fig. 1

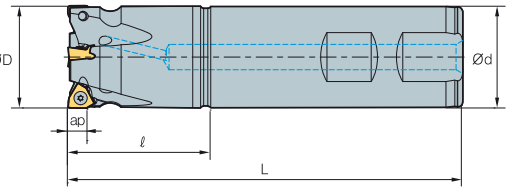
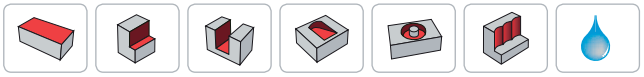


Fig. 2



AA 90°

- AR: -5°
- RR: -16°~ -9°

(mm)

Designation			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

( )Metric size

Available inserts

XNKT-ML

XNKT-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNKT	060405PNER-ML								●	●	●	●		●	●	●				E30
	060405PNSR-MM							●	●	●	●	●		●	●	●				
	060408PNER-ML									●		●			●	●				
	060408PNSR-MM							●	●	●	●	●			●	●				

Parts

Specification	Screw	Wrench
Ø20~Ø40	FTNA0306	TW09S

Available inserts E30

RM3PS4000 new

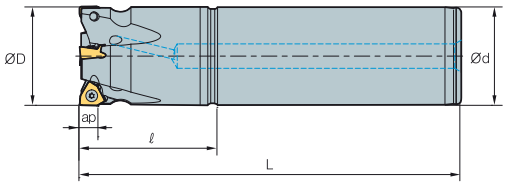


Fig. 1

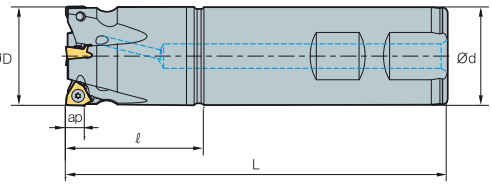
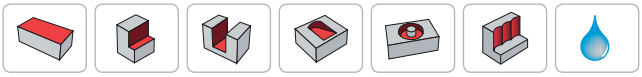


Fig. 2



AA 90°

- AR: -5°
- RR: -11°~ -7°

(mm)

Designation			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

Available inserts

XNCT-MA

XNKT-ML

XNKT-MM

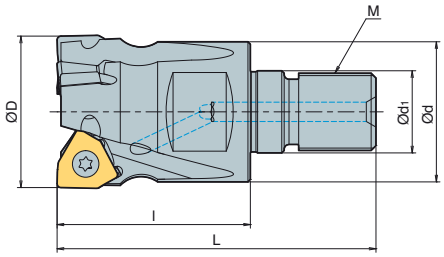
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNCT	080504PNFR-MA																		●	
	080508PNFR-MA																		●	
	080512PNFR-MA																		●	
	080520PNFR-MA																		●	
XNKT	080504PNER-ML									●					●	●				
	080504PNSR-MM									●	●				●	●				
	080508PNER-ML					●			●	●	●	●		●	●	●				E29
	080508PNSR-MM					●		●	●	●	●	●		●	●	●				E30
	080512PNER-ML														●	●				
	080512PNSR-MM							●	●	●					●	●				
	080516PNER-ML														●	●				
	080516PNSR-MM							●	●	●					●	●				
	080520PNER-ML														●	●				
	080520PNSR-MM							●	●	●					●	●				

Parts

Specification	Screw	Wrench
Ø32~Ø63	FTNA0408	TW15S

Available inserts E29, E30

RM3PM3000/4000 new



AA 90°

- AR: -5°
- RR: -16°~ -7°

(mm)

Designation			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

Available inserts

XNCT-MA XNKT-ML XNKT-MM

Designation			Cermet		Coated												Uncoated			page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
3000 type	XNKT	060405PNER-ML								●	●	●	●		●	●	●				E30
		060405PNSR-MM							●	●	●	●	●		●	●	●				
		060408PNER-ML									●		●			●	●				
		060408PNSR-MM							●	●	●	●	●			●	●				
4000 type	XNCT	080504PNFR-MA																		●	E29 E30
		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)

=

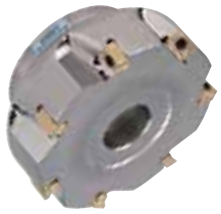
Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

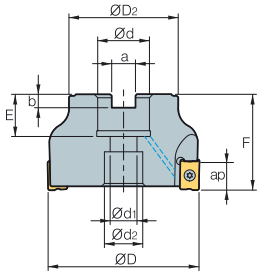
Parts

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

Available inserts E29, E30 Available adaptor E371~E372

RM4PC(M)3000





AA 90°

- AR: -6°
- RR: -19°~ -13°

(mm)

Designation			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

Available inserts

LNEX-MA

LNM(E)X-MF

LNM(E)X-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF											●			●	●				E11
	100605PNR-MM										●	●			●	●				
	100605PNR-MA																		●	
	100608PNR-MF										●	●			●	●				
	100608PNR-MM											●			●	●				
LNMX	100605PNR-MF									●		●			●	●				
	100605PNR-MM									●	●	●	●		●	●				
	100608PNR-MF									●		●			●	●				
	100608PNR-MM									●	●				●	●				

Available arbors

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

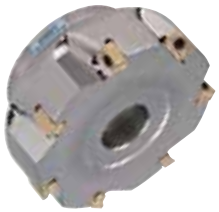
Designation		Available arbors	
		RM4PC	RM4PCM
RM4PC(M)	3080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	3080HR-M		
	3100HR	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	3100HR-M		

Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0307	TW09S

Available inserts E11 Available arbors and bolt E400~E402

RM4PC(M)4000



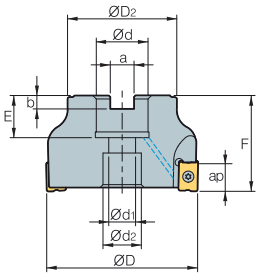


Fig. 1

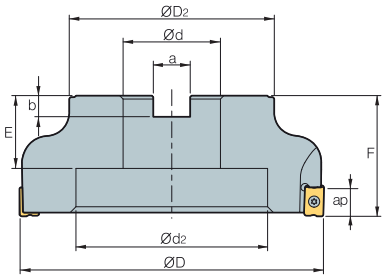
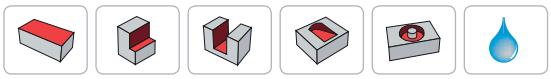


Fig. 2



AA 90°

- AR: -6°
- RR: -19°~ -13°

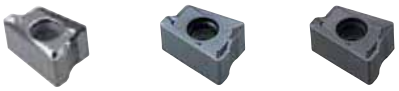
(mm)

Designation		⌀	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

Available inserts

LNEX-MA　LNM(E)X-MF　LNM(E)X-MM



Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNEX	151004PNR-MF											●			●	●			E11
	151004PNR-MM											●			●	●			
	151004PNR-MA																	●	
	151008PNR-MF											●			●	●			
	151008PNR-MM										●	●			●	●			
	151008PNR-MA																	●	
	151016PNR-MF											●			●	●			
	151016PNR-MM											●			●	●			

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC5300	PC5400	ST30A	H01	
LNMX	151004PNR-MF									●	●	●		●	●			E11
	151004PNR-MM									●		●			●			
	151008PNR-MF					●				●	●	●		●	●			
	151008PNR-MM					●				●	●	●	●	●	●			
	151016PNR-MF									●		●		●	●			
	151016PNR-MM									●		●			●			

Available arbors

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

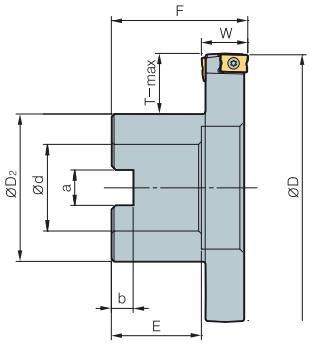
Designation		Available arbors	
		RM4PC	RM4PCM
RM4PC(M)	4100HR	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4100HR-M		
	4125HR	BT□□-FMA38.1-□□	BT□□-FMB40-□□ BT□□-FMC40-□□
	4125HR-M		
	4160R	BT□□-FMA50.8-□□	
	4160R-M		

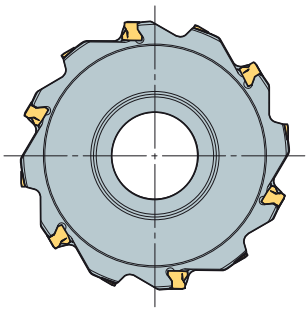
Parts

Specification	Screw	Wrench
Ø50~Ø160	FTKA0412B	TW15S

Available inserts E11　Available arbors and bolt E400~E402

RM4PFCB3000





(mm)

Designation			ØD	ØD2	Ød	a	b	E	F	W	T-max
RM4PFCB	308015R	10	80	40	25.4	9.5	6	25	50	15	19
	308017R	10	80	40	25.4	9.5	6	25	50	17	19
	310015R	12	100	54	31.75	12.7	8	32	50	15	22
	310017R	12	100	54	31.75	12.7	8	32	50	17	22
	312515R	14	125	70	38.1	15.9	10	38	60	15	26
	312517R	14	125	70	38.1	15.9	10	38	60	17	26
	316015R	16	160	70	38.1	15.9	10	38	60	15	44
	316017R	16	160	70	38.1	15.9	10	38	60	17	44

Available inserts

LNM(E)X-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MM										●	●			●	●				E11
	100605PNL-MM											●			●	●				
LNMX	100605PNR-MM									●	●	●	●		●	●				
	100605PNL-MM									●	●	●			●	●				

Available arbors

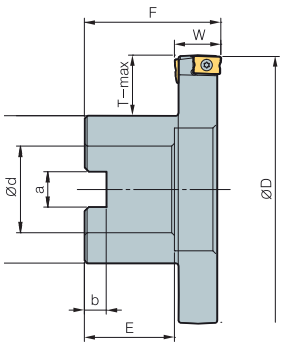
Designation		Available arbors
RM4PFCB	308015R	BT□□-FMA25.4-□□
	308017R	
	310015R	BT□□-FMA31.75-□□
	310017R	
	312515R	BT□□-FMA38.1-□□
	312517R	
	316015R	
	316017R	

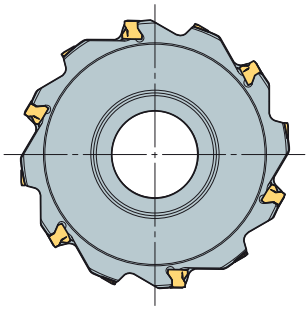
Parts

Specification	Screw	Wrench
Ø80~Ø160	FTKA0307	TW09S

Available inserts E11 Available arbors and bolt E400~E402

RM4PFCB4000





(mm)

Designation			ØD	ØD2	Ød	a	b	E	F	W	T-max
RM4PFCB	408022R	6	80	40	25.4	9.5	6	25	50	22	19
	408024R	6	80	40	25.4	9.5	6	25	50	24	19
	408026R	6	80	40	25.4	9.5	6	25	50	26	19
	408028R	6	80	40	25.4	9.5	6	25	50	28	19
	410022R	8	100	54	31.75	12.7	8	32	50	22	22
	410024R	8	100	54	31.75	12.7	8	32	50	24	22
	410026R	8	100	54	31.75	12.7	8	32	50	26	22
	410028R	8	100	54	31.75	12.7	8	32	50	28	22
	412522R	10	125	70	38.1	15.9	10	38	60	22	26
	412524R	10	125	70	38.1	15.9	10	38	60	24	26
	412526R	10	125	70	38.1	15.9	10	38	60	26	26
	412528R	10	125	70	38.1	15.9	10	38	60	28	26
	416022R	12	160	70	38.1	15.9	10	38	60	22	44
	416024R	12	160	70	38.1	15.9	10	38	60	24	44
	416026R	12	160	70	38.1	15.9	10	38	60	26	44
	416028R	12	160	70	38.1	15.9	10	38	60	28	44

Available inserts

LNM(E)X-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151008PNR-MM										●	●			●	●				E11
	151008PNL-MM											●			●	●				
LNMX	151008PNR-MM					●				●	●	●	●		●	●				
	151008PNL-MM									●					●	●				

Available arbors

Designation		Available arbors
RM4PFCB	408022R	BT□□-FMA25.4-□□
	408024R	
	408026R	
	408028R	
	410022R	BT□□-FMA31.75-□□
	410024R	
	410026R	
	410028R	

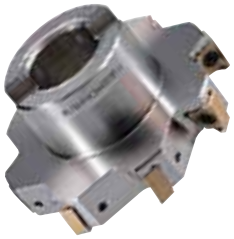
Designation		Available arbors
RM4PFCB	412522R	BT□□-FMA38.1-□□
	412524R	
	412526R	
	412528R	
	416022R	
	416024R	
	416026R	
	416028R	

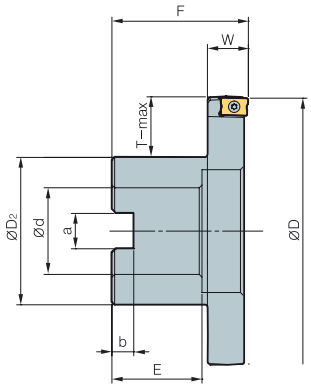
Parts

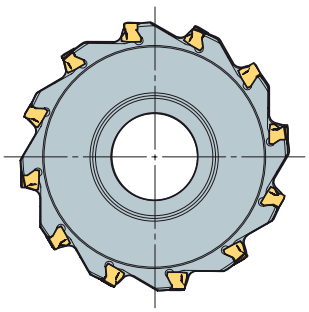
Specification	Screw	Wrench
Ø80~Ø160	FTKA0412B	TW15S

Available inserts E11 Available arbors and bolt E400~E402

RM4PHCB3000







(mm)

Designation			ØD	ØD2	Ød	a	b	E	F	W	T-max
RM4PHCB	308015R	10	80	40	25.4	9.5	6	25	50	15	19
	310015R	12	100	54	31.75	12.7	8	32	50	15	22
	312515R	14	125	70	38.1	15.9	10	38	60	15	26
	316015R	16	160	70	38.1	15.9	10	38	60	15	44

Available inserts

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



Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF											●			●	●				E11
	100605PNR-MM										●	●			●	●				
	100605PNR-MA																		●	
	100608PNR-MF										●	●			●	●				
	100608PNR-MM											●			●	●				
LNMX	100605PNR-MF									●		●			●	●				
	100605PNR-MM									●	●	●	●		●	●				
	100608PNR-MF									●		●			●	●				
	100608PNR-MM									●	●				●	●				

Available arbors

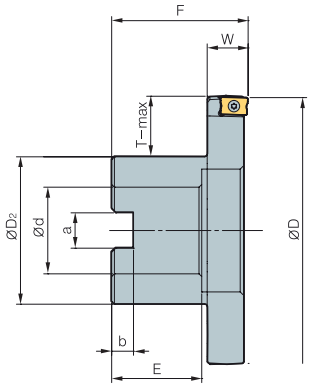
Designation		Available arbors
RM4PHCB	308015R	BT□□-FMA25.4-□□
	310015R	BT□□-FMA31.75-□□
	312515R	BT□□-FMA38.1-□□
	316015R	

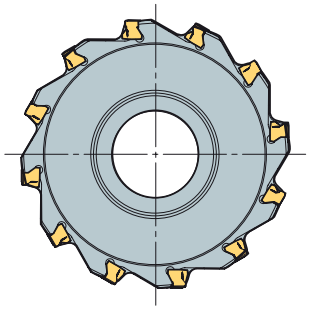
Parts

Specification	Screw	Wrench
Ø80~Ø160	FTKA0307	TW09S

Available inserts E11 Available arbors and bolt E400~E402

RM4PHCB4000





(mm)

Designation			ØD	ØD2	Ød	a	b	E	F	W	T-max
RM4PHCB	408020R	6	80	40	25.4	9.5	6	25	50	20	19
	410020R	8	100	54	31.75	12.7	8	32	50	20	22
	412520R	10	125	70	38.1	15.9	10	38	60	20	26
	416020R	12	160	70	38.1	15.9	10	38	60	20	44

Available inserts

LNEX-MA

LNM(E)X-MF

LNM(E)X-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151004PNR-MF											●			●	●				E11
	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									●		●				●				

Available arbors

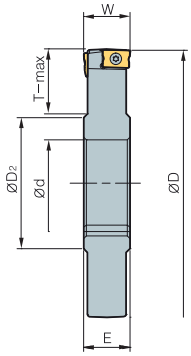
Designation		Available arbors
RM4PHCB	408020R	BT□□-FMA25.4-□□
	410020R	BT□□-FMA31.75-□□
	412520R	BT□□-FMA38.1-□□
	416020R	

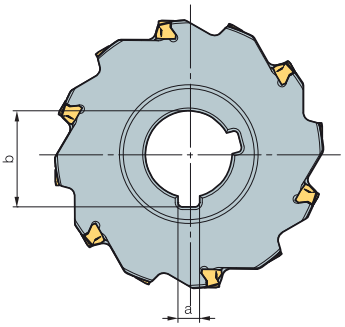
Parts

Specification	Screw	Wrench
Ø80~Ø160	FTKA0412B	TW15S

Available inserts E11 Available arbors and bolt E400~E402

RM4PFCP3000





(mm)

Designation			ØD	ØD2	Ød	a	b	E	W	T-max
RM4PFCP	308015R	10	80	41.5	25.4	6.35	28	15	15	17
	308017R	10	80	41.5	25.4	6.35	28	17	17	17
	310015R	12	100	48	31.75	7.94	35.2	15	15	24
	310017R	12	100	48	31.75	7.94	35.2	17	17	24
	312515R	14	125	58	38.1	9.53	42.3	15	15	32
	312517R	14	125	58	38.1	9.53	42.3	17	17	32
	316015R	16	160	58	38.1	9.53	42.3	15	15	49
	316017R	16	160	58	38.1	9.53	42.3	17	17	49

Available inserts

LNM(E)X-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MM										●	●			●	●				E11
	100605PNL-MM											●			●	●				
LNMX	100605PNR-MM									●	●	●	●		●	●				
	100605PNL-MM									●	●	●			●	●				

Available arbors

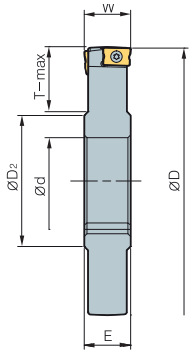
Designation		Available arbors
RM4PFCP	308015R	BT□□-SCA25.4-□□
	308017R	
	310015R	BT□□-SCA31.75-□□
	310017R	
	312515R	BT□□-SCA38.1-□□
	312517R	
	316015R	
	316017R	

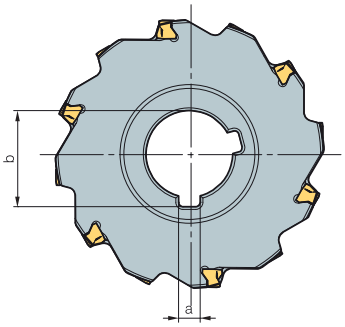
Parts

Specification	Screw	Wrench
Ø80~Ø160	FTKA0307	TW09S

Available inserts E11 Available arbors and bolt E400~E402

RM4PFCP4000





(mm)

Designation			ØD	ØD2	Ød	a	b	E	W	T-max
RM4PFCP	408022R	6	80	41.5	25.4	6.35	28	22	22	17
	408024R	6	80	41.5	25.4	6.35	28	24	24	17
	408026R	6	80	41.5	25.4	6.35	28	26	26	17
	408028R	6	80	41.5	25.4	6.35	28	28	28	17
	410022R	8	100	48	31.75	7.94	35.2	22	22	24
	410024R	8	100	48	31.75	7.94	35.2	24	24	24
	410026R	8	100	48	31.75	7.94	35.2	26	26	24
	410028R	8	100	48	31.75	7.94	35.2	28	28	24
	412522R	10	125	58	38.1	9.53	42.3	22	22	32
	412524R	10	125	58	38.1	9.53	42.3	24	24	32
	412526R	10	125	58	38.1	9.53	42.3	26	26	32
	412528R	10	125	58	38.1	9.53	42.3	28	28	32
	416022R	12	160	58	38.1	9.53	42.3	22	22	49
	416024R	12	160	58	38.1	9.53	42.3	24	24	49
	416026R	12	160	58	38.1	9.53	42.3	26	26	49
	416028R	12	160	58	38.1	9.53	42.3	28	28	49

Available inserts

LNM(E)X-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151008PNR-MM										●	●			●	●				E11
	151008PNL-MM											●			●	●				
LNMX	151008PNR-MM					●				●	●	●	●		●	●				
	151008PNL-MM									●					●	●				

Available arbors

Designation		Available arbors
RM4PFCP	408022R	BT□□-SCA25.4-□□
	408024R	
	408026R	
	408028R	
	410022R	BT□□-SCA31.75-□□
	410024R	
	410026R	
	410028R	

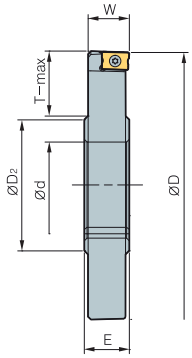
Designation		Available arbors
RM4PFCP	412522R	BT□□-SCA38.1-□□
	412524R	
	412526R	
	412528R	
	416022R	
	416024R	
	416026R	
	416028R	

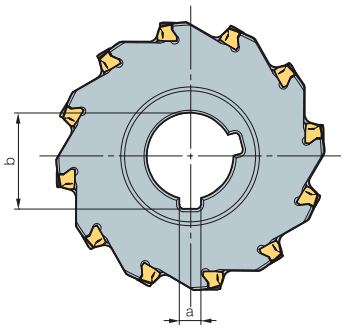
Parts

Specification	Screw	Wrench
Ø80~Ø160	FTKA0412B	TW15S

Available inserts E11 Available arbors and bolt E400~E402

RM4PHCP3000





(mm)

Designation			ØD	ØD2	Ød	a	b	E	W	T-max
RM4PHCP	308015R	10	80	41.5	25.4	6.35	28	16.5	15.1	17
	310015R	12	100	48	31.75	7.94	35.2	16.5	15.1	24
	312515R	14	125	58	38.1	9.52	42.3	16.5	15.1	32
	316015R	16	160	58	38.1	9.52	42.3	16.5	15.1	49

Available inserts

LNEX-MA

LNM(E)X-MF

LNM(E)X-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF											●			●	●				E11
	100605PNR-MM										●	●			●	●				
	100605PNR-MA																		●	
	100608PNR-MF										●	●			●	●				
	100608PNR-MM											●			●	●				
LNMX	100605PNR-MF									●		●			●	●				
	100605PNR-MM									●	●	●	●		●	●				
	100608PNR-MF									●		●			●	●				
	100608PNR-MM									●	●					●				

Available arbors

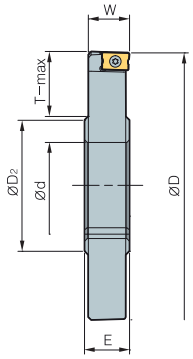
Designation		Available arbors
RM4PHCP	308015R	BT□□-SCA25.4-□□
	310015R	BT□□-SCA31.75-□□
	312515R	BT□□-SCA38.1-□□
	316015R	

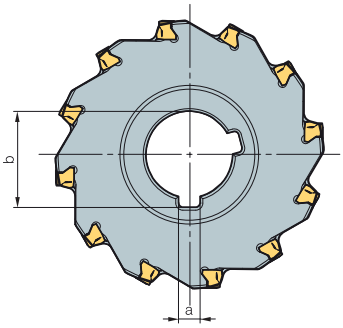
Parts

Specification	Screw	Wrench
Ø80~Ø160	FTKA0307	TW09S

Available inserts E11 Available arbors and bolt E400~E402

RM4PHCP4000





(mm)

Designation			ØD	ØD2	Ød	a	b	E	W	T-max
RM4PHCP	408020R	6	80	41.5	25.4	6.35	28	22	19.8	17
	410020R	8	100	48	31.75	7.94	35.2	22	19.8	24
	412520R	10	125	58	38.1	9.53	42.3	22	19.8	32
	416020R	12	160	58	38.1	9.53	42.3	22	19.8	49

Available inserts

LNEX-MA

LNM(E)X-MF

LNM(E)X-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151004PNR-MF											●			●	●				E11
	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									●		●				●				

Available arbors

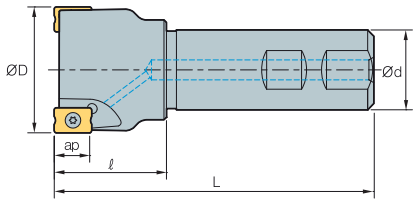
Designation		Available arbors
RM4PHCP	408020R	BT□□-SCA25.4-□□
	410020R	BT□□-SCA31.75-□□
	412520R	BT□□-SCA38.1-□□
	416020R	

Parts

Specification	Screw	Wrench
Ø80~Ø160	FTKA0412B	TW15S

Available inserts E11 Available arbors and bolt E400~E402

RM4PS3000



AA 90°

- AR: -6°
- RR: -39°~ -16°

(mm)

Designation			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

Available inserts

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



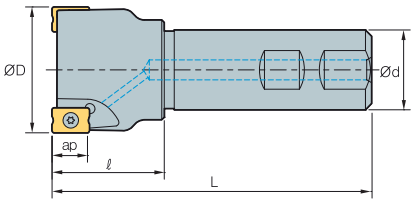
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF											●			●	●				E11
	100605PNR-MM										●	●			●	●				
	100605PNR-MA																		●	
	100605PNL-MM											●			●	●				
	100608PNR-MF										●	●			●	●				
	100608PNR-MM											●			●	●				
LNMX	100605PNR-MF									●		●			●	●				
	100605PNR-MM									●	●	●	●		●	●				
	100608PNR-MF									●		●			●	●				
	100608PNR-MM									●	●				●	●				

Parts

Specification	Screw	Wrench
Ø14~Ø50	FTKA0307	TW09S

Available inserts E11

RM4PS4000



AA 90°

- AR: -6°
- RR: -24°~ -14°

(mm)

Designation			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

Available inserts

LNEX-MA

LNM(E)X-MF

LNM(E)X-MM

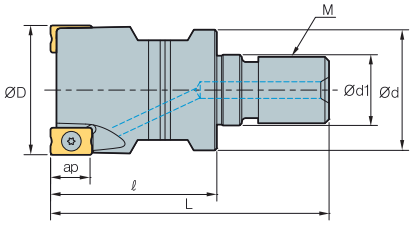
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151004PNR-MF											●			●	●				E11
	151004PNR-MM											●			●	●				
	151004PNR-MA																		●	
	151008PNR-MF											●			●	●				
	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

Available inserts E11

RM4PM3000



AA 90°

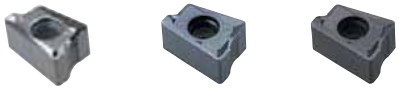
- AR: -6°
- RR: -39°~ -16°

(mm)

Designation			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

Available inserts

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



Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF											●			●	●				E11
	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)

=

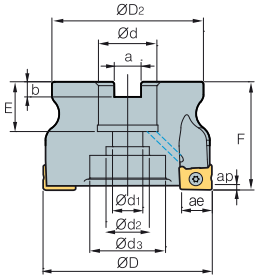
Adaptor spec.: MAT-M16-035-S32S
Adaptor Threading Measure (M16)

Parts

Specification	Screw	Wrench
Ø14~Ø50	FTKA0307	TW09S

Available inserts E11 Available adaptor E371~E372

RM4ZC(M)3000/4000



AA 90°

- AR: -11°
- RR: -12°~ -10°

(mm)

Designation			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

Available inserts

LNM(E)X-MM

Designation			Cermet		Coated												Uncoated			page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
3000 type	LNEX	100605PNL-MM											●			●	●				E11
	LNMX	100605PNL-MM									●	●	●			●	●				
4000 type	LNEX	151008PNL-MM											●			●	●				
	LNMX	151008PNL-MM									●					●	●				

Available arbors

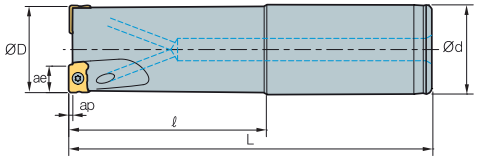
Designation		Available arbors	
		RM4ZC	RM4ZCM
RM4ZCM	3040HR	BT□□-FMC16-□□ BT□□-SCA16-□□	
	3050HR	BT□□-FMC22-□□	
	3052HR		
RM4ZCM RM4ZC(M)	4063HR	BT□□-FMC22-□□	
	4066HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4080HR		
	4100HR	BT□□-FMA31.75-□□ BT□□-SCA31.75-□□	BT□□-FMC32-□□

Parts

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

Available inserts E11 Available arbors and bolt E400~E402

RM4ZS3000



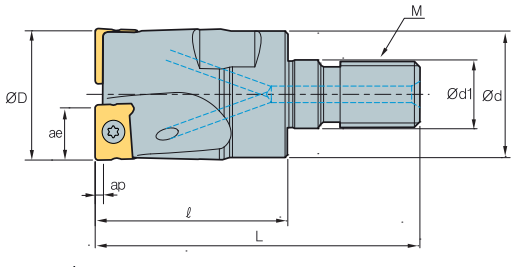
AA 90°

- AR: -11°
- RR: -17°~ -14°

(mm)

Designation			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

RM4ZM3000



AA 90°

- AR: -11°
- RR: -17°~ -14°

(mm)

Designation			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

Available inserts

LNM(E)X-MM

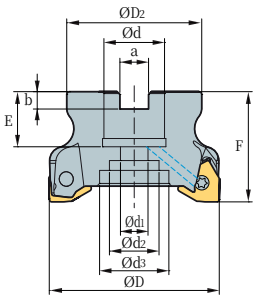
Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNL-MM											●			●	●				E11
LNMX	100605PNL-MM									●	●	●			●	●				

Parts

Specification	Screw	Wrench
Ø25~Ø40	FTKA0307	TW09S

Available inserts E11

RM6PCM-WN04 new



AA 90°

- AR: -6°
- RR: -14°~ -11°

(mm)

Designation			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

Available inserts

WNGX-MA new | WNGX-ML new | WNGX-MM new

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNGX	040304PNFR-MA																		●	E28
	040308PNFR-MA																			
	040312PNFR-MA																		●	
	040316PNFR-MA																		●	
	040304PNER-ML									●		●			●	●				
	040308PNER-ML									●					●	●				
	040312PNER-ML														●					
	040316PNER-ML														●					
	040304PNSR-MM									●		●			●	●				
	040308PNSR-MM									●					●	●				
	040312PNSR-MM														●					
	040316PNSR-MM														●					

Available arbors

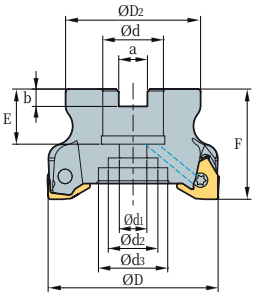
Designation		NC arbors
RM6PCM	040R-16-6-WN04	BT□□-FMC16-□□
	040R-16-7-WN04	
	050R-22-8-WN04	BT□□-FMC22-□□
	050R-22-9-WN04	
	063R-22-10-WN04	
	063R-22-11-WN04	

Parts

Specification	Screw	Wrench
Ø40~Ø63	ETNA02506	TW07S

Available inserts E28 Available arbors and bolt E400~E402

RM6PC(M)-WN08 new



AA 90°

- AR: -6°
- RR: -14°~ -11°

(mm)

	Designation		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

Available inserts

WNGX-MA new | WNGX-ML new | WNGX-MM new

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX	080604PNFR-MA																	●	E28
	080608PNFR-MA																	●	
	080612PNFR-MA																		
	080616PNFR-MA																	●	
	080620PNFR-MA																	●	
	080604PNER-ML									●	●				●	●			
	080608PNER-ML					●				●	●	●			●	●			
	080612PNER-ML														●				

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX	080616PNER-ML														●				E28
	080620PNER-ML														●				
	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	

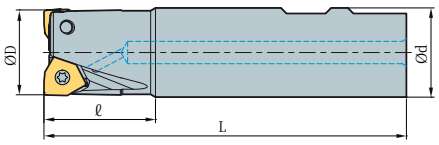
Designation		NC arbors
RM6PCM	063R-22-5-WN08	BT□□-FMC22-□□
	063R-22-6-WN08	
	080R-27-7-WN08	BT□□-FMC27-□□
	080R-27-9-WN08	
	100R-32-8-WN08	BT□□-FMC32-□□
	100R-32-11-WN08	
	125R-40-11-WN08	BT□□-FMC40-□□
	125R-40-14-WN08	

Parts

Specification	Screw	Wrench
Ø50~Ø125	FTNA0512	TW20-100

Available inserts E28 Available arbors and bolt E400~E402

RM6PS-WN04 new









AA
90°

- AR: -6°
- RR: -20°~ -14°

(mm)

Designation			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
	025R-6W32-110-WN04	6	32	32	35	110	4.3	0.60

Available inserts

WNGX-MA new

WNGX-ML new

WNGX-MM new

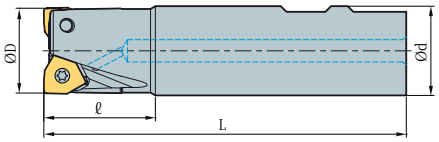
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNGX	040304PNFR-MA																		●	E28
	040308PNFR-MA																			
	040312PNFR-MA																		●	
	040316PNFR-MA																		●	
	040304PNER-ML									●		●			●	●				
	040308PNER-ML									●					●					
	040312PNER-ML														●					
	040316PNER-ML														●					
	040304PNSR-MM									●		●			●	●				
	040308PNSR-MM									●					●	●				
	040312PNSR-MM														●					
	040316PNSR-MM														●					

Parts

Specification	Screw	Wrench
Ø20~Ø32	ETNA02506	TW07S

Available inserts E28

RM6PS-WN08 new



AA 90°

- AR: -6°
- RR: -20°~ -14°

(mm)

Designation			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

Available inserts

WNGX-MA WNGX-ML WNGX-MM

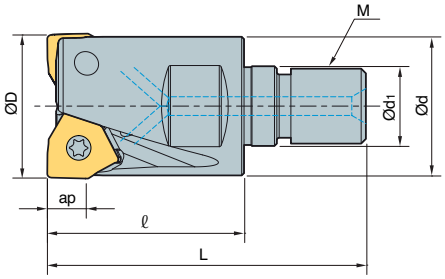
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNGX	080604PNFR-MA																		●	E28
	080608PNFR-MA																		●	
	080612PNFR-MA																			
	080616PNFR-MA																		●	
	080620PNFR-MA																		●	
	080604PNER-ML									●	●				●	●				
	080608PNER-ML					●				●	●	●			●	●				
	080612PNER-ML														●					
	080616PNER-ML														●					
	080620PNER-ML														●					
	080604PNSR-MM									●	●				●	●				
	080608PNSR-MM					●				●	●	●			●	●				
	080612PNSR-MM														●					
	080616PNSR-MM														●					
	080620PNSR-MM														●					

Parts

Specification	Screw	Wrench
Ø32~Ø50	FTNA0512	TW20-100

Available inserts E28

RM6PM new



AA 90°

- AR: -6°
- RR: -9°~ -6°

(mm)

Designation			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
	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

Available inserts

WNGX-MA new　WNGX-ML new　WNGX-MM new

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX	040304PNFR-MA																	●	E28
	040308PNFR-MA																	●	
	040312PNFR-MA																	●	
	040316PNFR-MA																	●	
	040304PNER-ML									●		●			●	●			
	040308PNER-ML									●					●	●			
	040312PNER-ML														●				
	040316PNER-ML														●				
	040304PNSR-MM									●		●			●	●			
	040308PNSR-MM									●					●	●			
	040312PNSR-MM														●				
	040316PNSR-MM														●				

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX	080604PNFR-MA																	●	E28
	080608PNFR-MA																	●	
	080612PNFR-MA																		
	080616PNFR-MA																	●	
	080620PNFR-MA																	●	
	080604PNER-ML									●	●				●	●			
	080608PNER-ML					●				●	●	●			●	●			
	080612PNER-ML														●				
	080616PNER-ML														●				
	080620PNER-ML														●				
	080604PNSR-MM									●	●				●	●			
	080608PNSR-MM					●				●	●	●			●	●			
	080612PNSR-MM														●				
	080616PNSR-MM														●				
	080620PNSR-MM														●				

Available adaptor

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)

II

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

Parts

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

Available inserts E28　Available adaptor E371~E372

RM8AC(M)4000

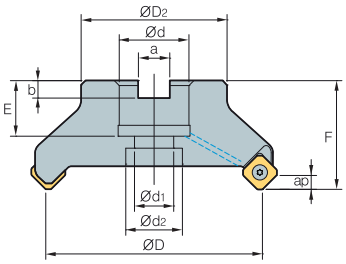


Fig. 1

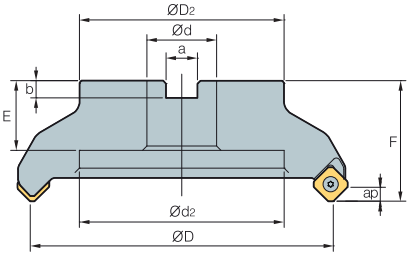


Fig. 2

AA 45°

- AR: -6°
- RR: -9°~ -6°

(mm)

Designation			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

Available inserts

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

Designation		Cermet		Coated										Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
SNEX	1206ANN-MF									●	●	●			●	●			
	1206ANN-ML														●	●			
	1206ANN-MM									●	●	●	●		●	●			E22
	1206ANN-MA																	●	E23
	1206ANN-W										●	●			●				E24
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

Available inserts E22~E24 Available arbors and bolt E400~E402

RMH8AC(M)4000

Shim type

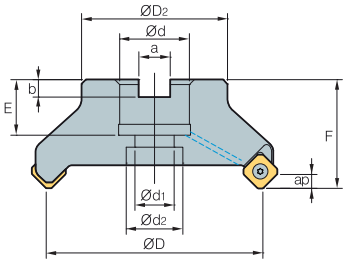


Fig. 1

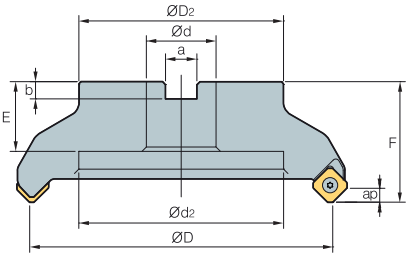


Fig. 2

AA 45°

- AR: -6°
- RR: -9°~ -6°

(mm)

Designation		⊚	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

Available inserts

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

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206ANN-MF									●	●	●			●	●				
	1206ANN-ML														●	●				
	1206ANN-MM									●	●	●	●		●	●				E22
	1206ANN-MA																		●	E23
	1206ANN-W										●	●			●					E24
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

Available inserts E22~E24 Available arbors and bolt E400~E402

RM8AC(M)5000

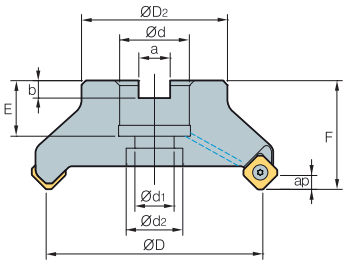


Fig. 1

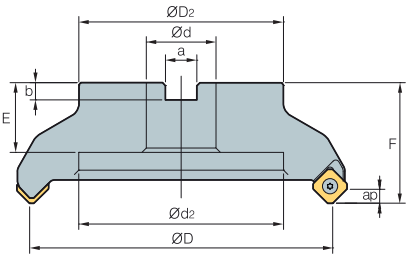


Fig. 2

AA 45°

- AR: -6°
- RR: -9°~ -6°

(mm)

Designation			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

Available inserts

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


Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1507ANN-MF											●			●	●				E22
	1507ANN-ML														●	●				E23
	1507ANN-MM											●			●	●				E24
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

Available inserts E22~E24 Available arbors and bolt E400~E402

RMH8AC(M)5000

Shim type

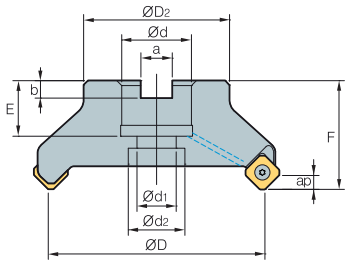


Fig. 1

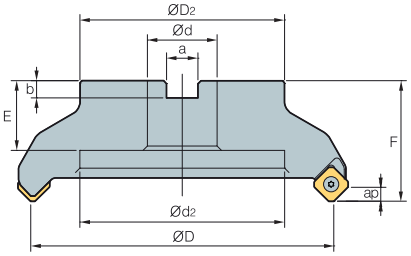


Fig. 2

AA 45°

- AR: -6°
- RR: -9°~ -6°

(mm)

Designation		⊚	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

Available inserts

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

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1507ANN-MF											●			●	●				
	1507ANN-ML														●	●				E22
	1507ANN-MM											●			●	●				E23
SNMX	1507ANN-MF					●				●	●	●			●	●				E24
	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

Available inserts E22~E24 Available arbors and bolt E400~E402

RM8EC(M)4000

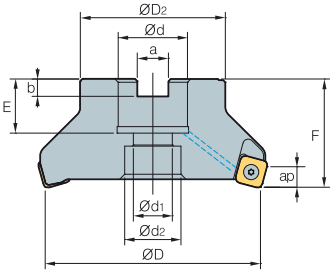


Fig. 1

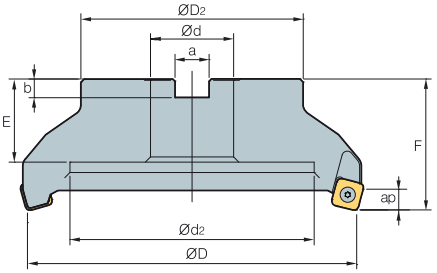


Fig. 2


AA 75°

- AR: -6°
- RR: -8°~ -6°

(mm)

Designation			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

Available inserts

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



Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206ENN-MF											●			●	●				E22 E23 E24
	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

Available inserts E22~E24 Available arbors and bolt E400~E402

RMH8EC(M)4000

Shim type

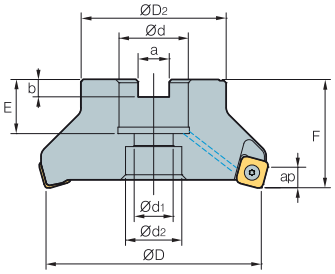


Fig. 1

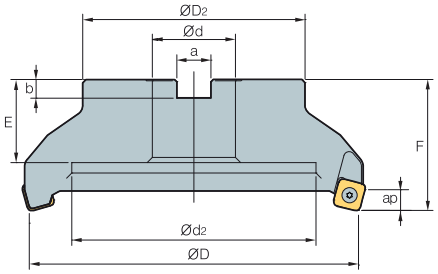


Fig. 2

AA 75°

- AR: -6°
- RR: -8°~ -6°

(mm)

Designation			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

Available inserts

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

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206ENN-MF											●			●	●				E22 E23 E24
	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

Available inserts E22~E24 Available arbors and bolt E400~E402

RM8EC(M)5000

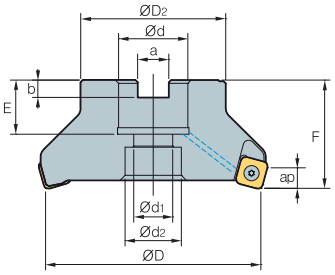


Fig. 1

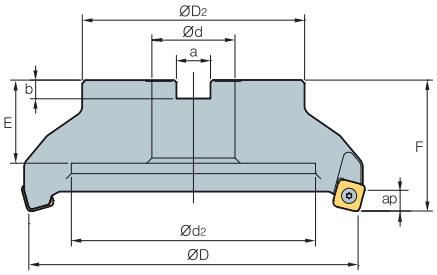


Fig. 2

AA 75°

- AR: -6°
- RR: -8°~ -6°

(mm)

Designation		⊚	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

Available inserts

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

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1507ENN-MF											●			●	●				
	1507ENN-ML														●	●				E22
	1507ENN-MM											●			●	●				E23
SNMX	1507ENN-MF					●				●	●	●			●	●				E24
	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

Available inserts E22~E24 Available arbors and bolt E400~E402

RMH8EC(M)5000

Shim type

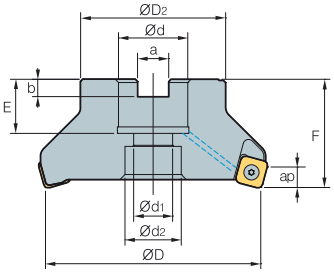


Fig. 1

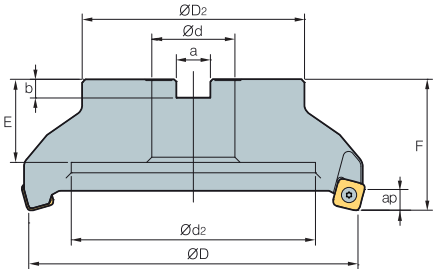


Fig. 2

AA 75°

- AR: -6°
- RR: -8°~ -6°

(mm)

Designation		⊚	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

Available inserts

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

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1507ENN-MF					●						●			●	●				
	1507ENN-ML														●	●				E22
	1507ENN-MM											●			●	●				E23
SNMX	1507ENN-MF					●				●	●	●			●	●				E24
	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-□□
	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

Available inserts E22~E24 Available arbors and bolt E400~E402

RM8QC(M)4000

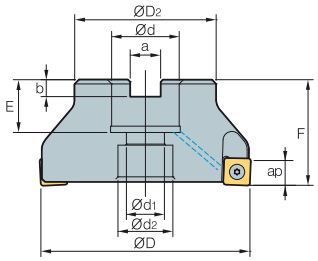


Fig. 1

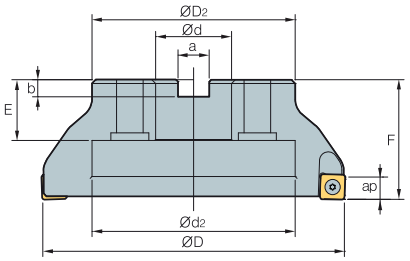


Fig. 2

AA 88°
- AR: -6°
- RR: -8°~ -6°

(mm)

Designation		⌀	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

Available inserts

( )Metric size

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

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206QNN-MF										●	●			●	●				E22 E23 E24
	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-□□

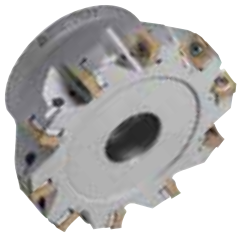
Parts

Specification	Screw	Wrench
Ø63~Ø200	PTKA0411-R3	TW15S

Available inserts E22~E24 Available arbors and bolt E400~E402

RMH8QC(M)4000

Shim type



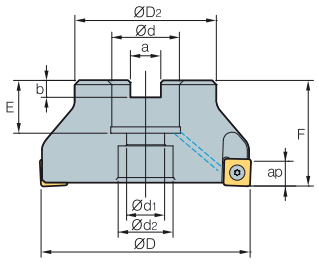


Fig. 1

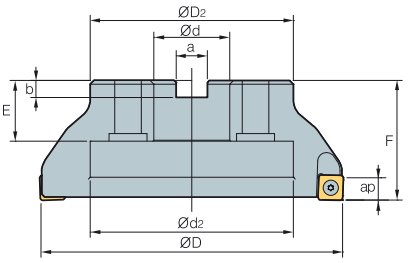


Fig. 2

AA 88°

- AR: -6°
- RR: -8°~ -6°

(mm)

Designation		⚙	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

Available inserts

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

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206QNN-MF										●	●			●	●				E22 E23 E24
	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

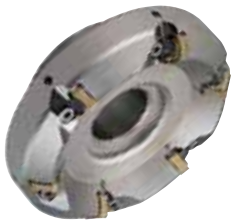
Designation		Available arbors	
		RMH8QC	RMH8QCM
RMH8QC (RMH8QCM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□ BT□□-FMC40-□□
	4160R-□	BT□□-FMA50.8-□□	
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□

Parts

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

Available inserts E22~E24 Available arbors and bolt E400~E402

RMT8A(M)4000



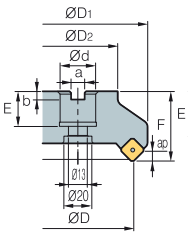


Fig. 1

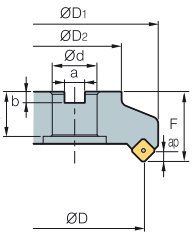


Fig. 2

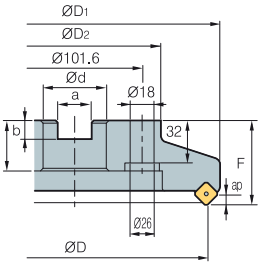


Fig. 3

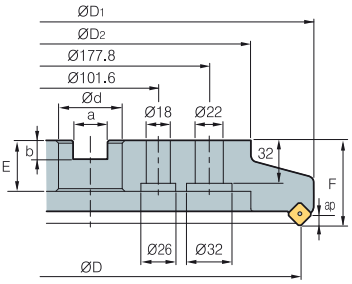


Fig. 4

AA
45°

- AR: -6°
- RR: -6°

(mm)

Designation		○	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

Available inserts

SNC(M)F-MF

SNC(M)F-MM

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1206ANN-MF																			E20 E21
	1206ANN-MM																			
SNMF	1206ANN-MF																			
	1206ANN-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-□□	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)	-	-

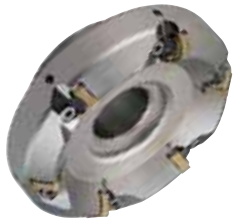
*□□-NT number **□□-BT number ***Over milling 5

Parts

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

Available inserts **E20, E21** Available arbors and bolt **E400~E402**

RMT8A(M)5000



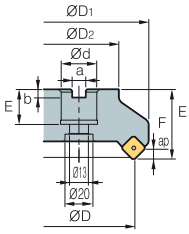


Fig. 1

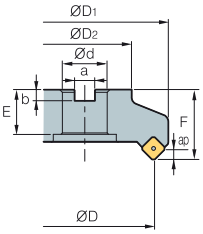


Fig. 2

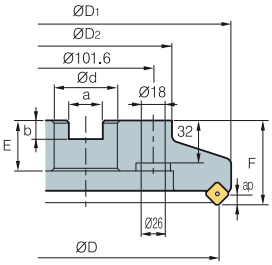


Fig. 3

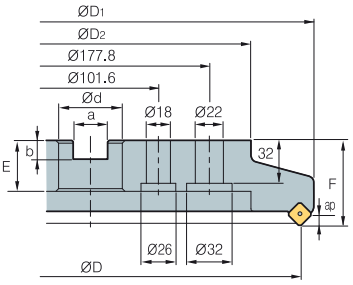


Fig. 4

AA 45°

- AR: -6°
- RR: -6°

(mm)

Designation		⌀	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

Available inserts

( )Metric size

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


Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1507ANN-MF											●								E20 E21
	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

Available inserts E20, E21 Available arbors and bolt E400~E402

RMT8E(M)4000

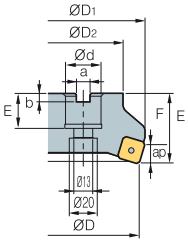


Fig. 1

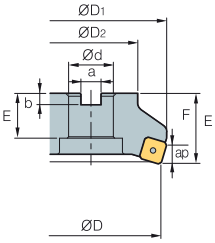


Fig. 2

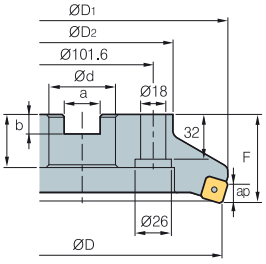


Fig. 3

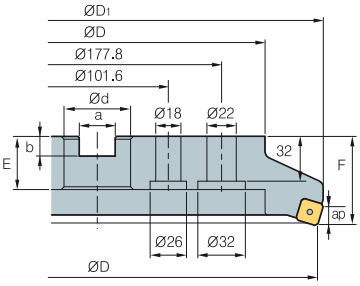


Fig. 4

AA 75°

- AR: -6°
- RR: -8°~ -6°

(mm)

Designation		⚙	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

Available inserts

( )Metric size

SNC(M)F-MF

SNC(M)F-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1206ENN-MF											●								E20 E21
	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)	-	-

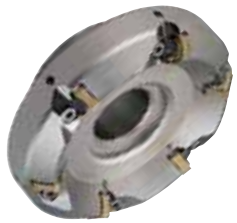
Parts

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

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

Available inserts E20, E21 Available arbors and bolt E400~E402

RMT8E(M)5000



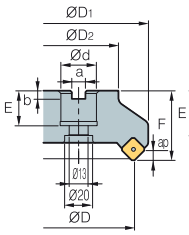


Fig. 1

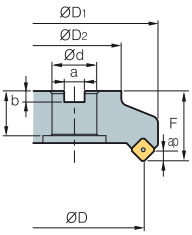


Fig. 2

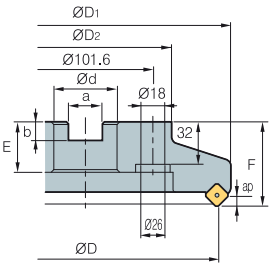


Fig. 3

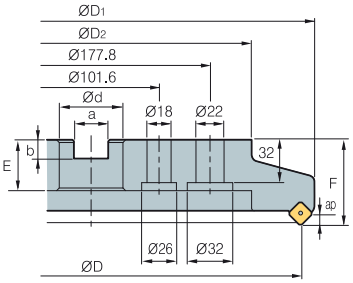


Fig. 4

AA 75°

- AR: -6°
- RR: -8°~ -6°

(mm)

Designation		⌀	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

Available inserts

SNC(M)F-MF

SNC(M)F-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1507ENN-MF											●								E20 E21
	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-□□ BT**□□-FMA50.8-□□	FMB40
	□160R	NT*□□(M/U)-FMA50.8-□□		
	□200R	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	□250R			
	□315R	KCP-8*** (Center ring plug)	-	-

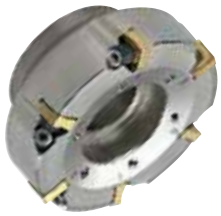
*□□-NT number **□□-BT number ***Over milling 5

Parts

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

Available inserts E20, E21 Available arbors and bolt E400~E402

RMT8Q(M)4000



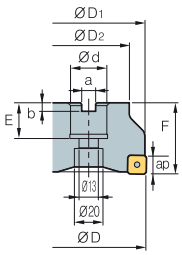


Fig. 1

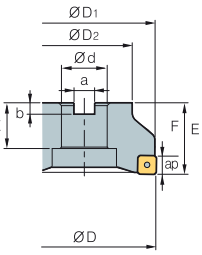


Fig. 2

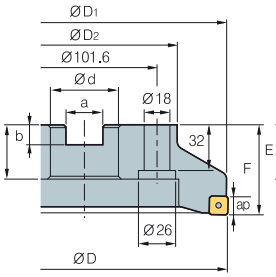


Fig. 3

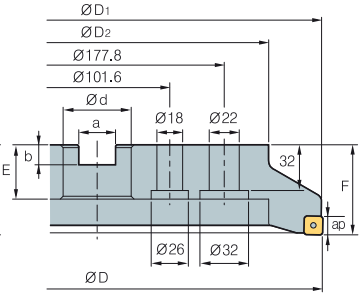


Fig. 4

AA
88°

- AR: -6°
- RR: -11°~ -6°

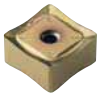
(mm)

Designation			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

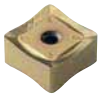
( )Metric size

Available inserts

SNC(M)F-MF



SNC(M)F-MM



Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1206QNN-MF											●								E20
	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

Available inserts E20 Available arbors and bolt E400~E402

RM16AC(M)6000

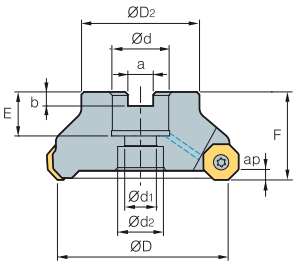


Fig. 1

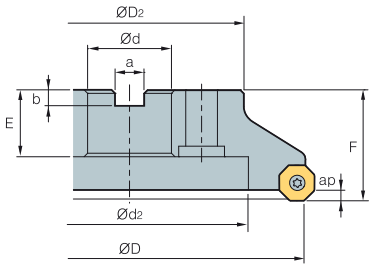


Fig. 2

AA
45°

- AR: -6°
- RR: -6°

(mm)

Designation			ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Fig.
RM16ACM	6063HR-M	5	63	49	22	11	18	10.4	6.3	20	40	4.0	0.7	1
RM16AC (RM16ACM)	6080HR-M	6	80	57	25.4 (27)	14	20	9.5 (12.4)	6 (7)	25 (23)	50	4.0	1.2	1
	6100HR-M	7	100	67	31.75 (32)	18	26	12.7 (14.4)	8	33 (25)	63 (50)	4.0	1.9	1
	6125HR-M	8	125	87	38.1 (40)	22	32	15.9 (16.4)	10 (9)	35 (29)	63	4.0	3.5	1
	6160R-M	10	160	107	50.8 (40)	-	107	19 (16.4)	11 (9)	38 (32)	63	4.0	4.1	2
	6200R-M	12	200	130	47.625 (60)	-	135	25.4 (25.7)	14	38 (32)	63	4.0	6.1	2
	6250R-M	15	250	180	47.625 (60)	-	180	25.4 (25.7)	14	38	63	4.0	11.5	2
	6315R-M	20	315	240	47.625 (60)	-	238	25.4 (25.7)	14	38	63	4.0	18.9	2
	6400R-M	26	400	260	47.625 (60)	-	238	25.4 (25.7)	14	38	80	4.0	32.7	2

( )Metric size

Available inserts

ONHX-MF | ONHX-ML | ONHX-MM | ONHX-W | ONHX-MA | ONMX-MF | ONMX-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
ONHX	060608-MM											●			●	●				E14
	060608-MF											●			●	●				
	060608-ML														●	●				
	060608-MA																		●	
	060608-W											●	●		●					
	0606ANN-MM											●			●	●				
	0606ANN-MF											●			●	●				
ONMX	060608-MM					●				●	●	●		●	●	●				
	060608-MF					●				●		●			●	●				
	0606ANN-MM					●				●	●	●			●	●				
	0606ANN-MF					●				●		●	●		●	●				

Available arbors

Designation		Available arbors	
		RM16AC	RM16ACM
RM16AC (RM16ACM)	6063HR-M		BT□□-FMC22-□□
	6080HR-M	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	6100HR-M	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	6125HR-M	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	6160R-M	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	6200R-M	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	6250R-M		
	6315R-M		
	6400R-M		

Parts

Specification	Screw	Wrench
Ø63~Ø400	FTGA0513	TW20-100

Available inserts E14 Available arbors and bolt E400~E402

RM16AC(M)8000

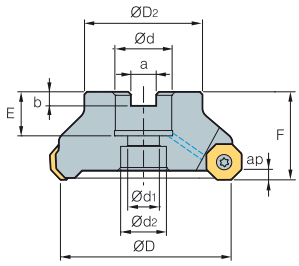


Fig. 1

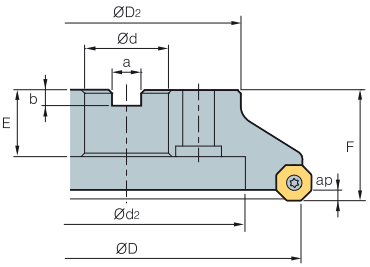


Fig. 2

AA
45°
• AR: -6°
• RR: -6°

(mm)

Designation			ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Fig.
RM16ACM	8063HR-M	5	63	49	22	11	18	10.4	6.3	20	40	5.5	0.7	1
RM16AC (RM16ACM)	8080HR-M	6	80	57	25.4 (27)	14	20	9.5 (12.4)	6 (7)	25 (23)	50	5.5	1.2	1
	8100HR-M	7	100	67	31.75 (32)	18	26	12.7 (14.4)	8	33 (25)	63 (50)	5.5	1.8	1
	8125HR-M	8	125	87	38.1 (40)	22	32	15.9 (16.4)	10 (9)	35 (29)	63	5.5	3.5	1
	8160R-M	10	160	107	50.8 (40)	-	107	19 (16.4)	11 (9)	38 (32)	63	5.5	4.5	2
	8200R-M	12	200	130	47.625 (60)	-	135	25.4 (25.7)	14 (14)	38 (32)	63	5.5	5.8	2
	8250R-M	14	250	180	47.625 (60)	-	180	25.4 (25.7)	14	38	63	5.5	11.4	2
	8315R-M	18	315	240	47.625 (60)	-	238	25.4 (25.7)	14	38	63	5.5	18.8	2
	8400R-M	24	400	260	47.625 (60)	-	238	25.4 (25.7)	14	38	80	5.5	32.7	2

( )Metric size

Available inserts

ONHX-MF | ONHX-ML | ONHX-MM | ONHX-W | ONHX-MA | ONMX-MF | ONMX-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
ONHX	080608-MM											●			●	●				E14
	080608-MF											●			●	●				
	080608-ML														●	●				
	080608-MA																		●	
	080608-W											●			●					
	0806ANN-MM											●			●	●				
	0806ANN-MF											●			●	●				
ONMX	080608-MM					●				●	●	●	●		●	●				
	080608-MF					●				●		●			●	●				
	0806ANN-MM					●				●		●	●		●	●				
	0806ANN-MF					●				●		●			●	●				

Available arbors

Designation		Available arbors	
		RM16AC	RM16ACM
RM16AC (RM16ACM)	8063HR-M	-	BT□□-FMC22-□□
	8080HR-M	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	8100HR-M	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	8125HR-M	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	8160R-M	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	8200R-M	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	8250R-M		
	8315R-M		
	8400R-M		

Parts

Specification	Screw	Wrench
Ø63~Ø400	FTGA0513	TW20-100

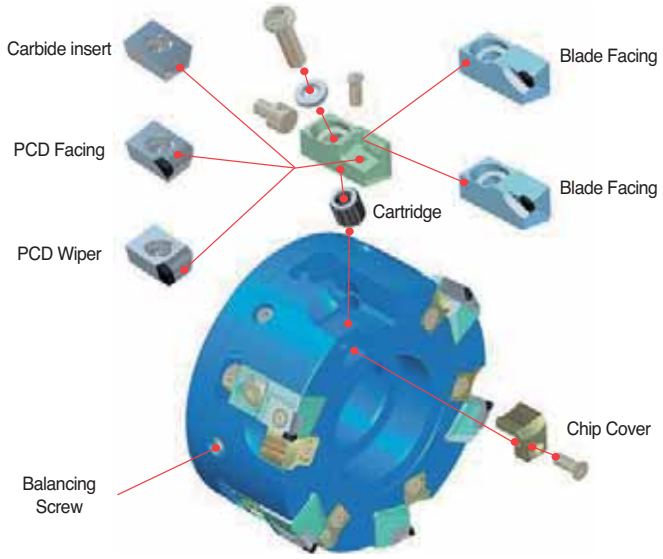
Available inserts E14 Available arbors and bolt E400~E402

Lighter tool ensures excellent performance in high speed machining

Aero Mill

- Excellent machining performance can be acquired especially at the high speeds due to the light aluminum cutter body that is 50% of the weight of a conventional steel cutter body
- High speed milling cutter for precise machining
- Special aluminum material and high rake angle of insert provide rigid & stable machining
- High tolerance surface finishes can be acquired due to the low cutting load provided from the high rake angle
- Balanceable up to G2.5 level

Assembly structure of cutter



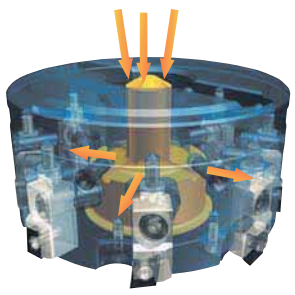
Features of cutter

- Increased stability based on cartridge type application
- Both insert and blade can be available in the same cutter
- Finishing to roughing can be possible because of wide chip pocket space
- Roughing and finishing available with carbide, PCD insert application
- Cutter breakage can be solved by making use of the chip cover

Coolant through system

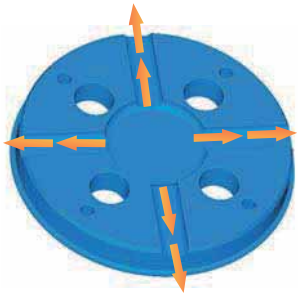
- Specially designed coolant through system provides coolant from the center of the cutter to the insert enhances the cooling rate and chip evacuation.
- Direction of coolant has designed to focus directly to the insert cutting-edge to maximize chip evacuation and improve tool life
- Coolant bolt is applicable up to Ø160, coolant cover is applicable from Ø200 and over. Coolant devices are sold separately for through coolant system, through coolant arbor has to be used

Coolant Bolt



For Ø80~Ø160

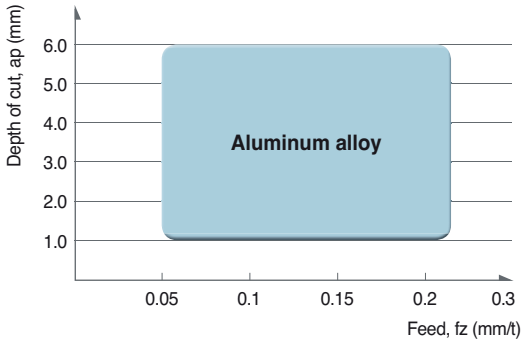
Coolant Cover



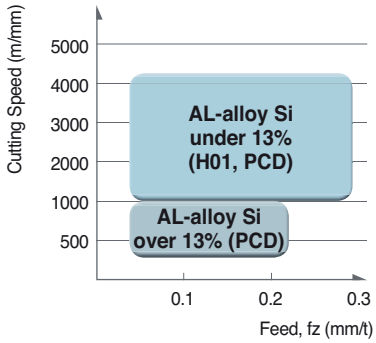
For Ø200 and over

Aero Mill

Application range



Recommended cutting condition

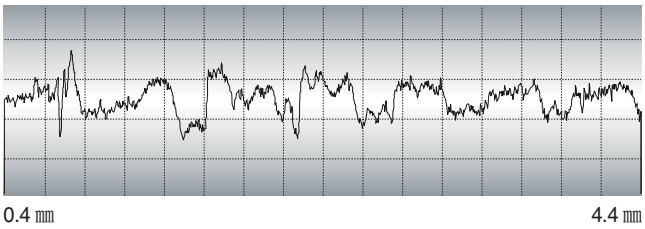


Surface finish

■**Workpiece** A6061

■**Cutting condition** vc = 1570 m/min vf = 3000 mm/min
S = 5000 rpm fz = 0.1 mm/t
ap = 0.5 mm Machine = PCV620

■**Designation** **Cutter** APD100R-A6Z (6 Flutes)
Insert CDEW1204R-XCF (H01)

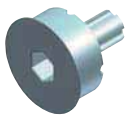
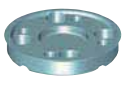


- Rmax: 2.1 ㎛
- Rz: 1.6 ㎛
- Ra: 0.3 ㎛

Max. revolution

Diameter (mm)	Max. revolution (rpm)
Ø80	16,000
Ø100	15,000
Ø125	12,500
Ø160	10,000
Ø200	8,000
Ø250	6,500
Ø315	5,000

Coolant parts

Diameter (mm)	Type	Designation		Shape	Note
Ø80	Coolant Bolt	CBP080-IN/MM			Extra charge
Ø100	Coolant Bolt	CBP100-IN	CBP100-MM-1		
Ø125	Coolant Bolt	CBP125-IN	CBP125-MM-1		
Ø160	Coolant Bolt	CBP160-IN	CBP160-MM		
Ø200	Coolant Cover	CCP200			
Ø250	Coolant Cover	CCP250			
Ø315	Coolant Cover	CCP315			

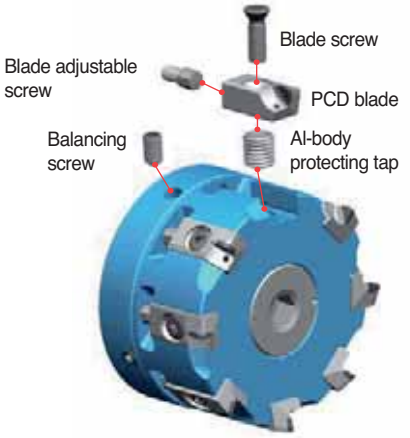
• Choice: CBP100-IN:APD type, General for unmarked item

High speed milling tool with PCD blade

Aero Mill-Plus

- Improve tool life up to 20% with a coolant system that enables direct spray cooling to cutting blades
- Enable high feed milling by increasing the number of cutting blades by 20% through a simply structured coupling method for clamps
- Reduces set up time up to 40% by applying a spanner adjustment method
- Introduce an aluminum cutter body to provide a superior cutting performance during high speed milling

Assembly structure of cutter



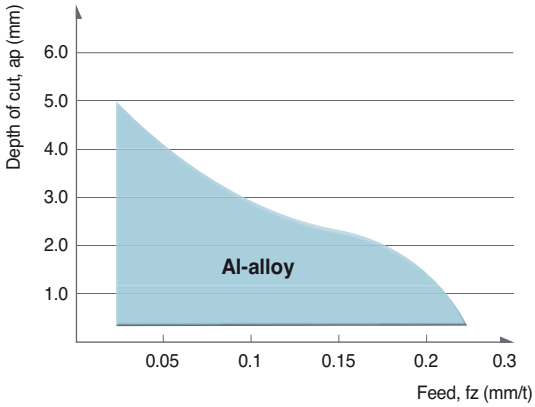
Features of cutter

- Prevent overload to the spindle bearings through weight reduction of the Al alloy body and enable high-speed processing
- Provide PCD Blade-dedicated cutter design to offer stable tool life and increase of applied blades
- Improve the blade life by applying a coolant system that enables direct spray cooling to cutting blades
- Adopt a clamping method with simple structure without set screw
- Reduce weight and apply a coolant bolt that is exclusively used for Aero-Mill Plus that applies coolant to remove internal chip

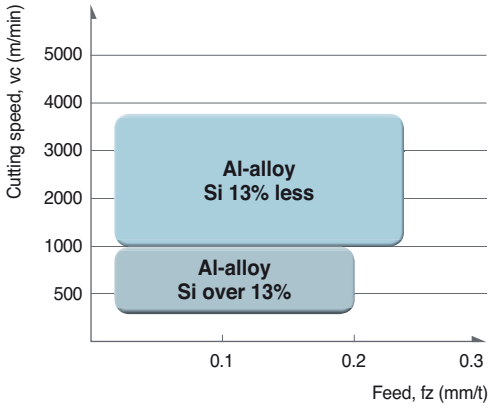
Code system

A	P	D	(M)	300	R	– PB	12Z
Aero-Mill	A.A 90°	Relief Angle	Inch type: None Metric type: M	Diameter (Ø)	Hand (R/L)	Aero-Mill Plus blade type	Number of tooth

Application range



Recommended cutting speed



Max. RPM

Diameter (mm)	Max. revolution (rpm)
Ø80	20,000
Ø100	18,000
Ø125	16,000
Ø160	13,000
Ø200	10,000
Ø250	8,000
Ø315	7,000

Coolant parts

Diameter (mm)	Type	inch/mm	Designation	Shape	Material	Note
Ø80	Coolant bolt	inch, mm	CB12-AMaP80		Steel	Included
Ø100		inch	CB16-AMP100			
		mm	CB16-AMP100M			
Ø125		inch	CB20-AMP125			
		mm	CB20-AMP125M			
Ø160		inch	CB24-AMP160			
		mm	CB20-AMP125M			
Ø200	Coolant cover	inch, mm	CCV-AMP200		Aluminum	Extra charge
Ø250			CCV-AMP250			
Ø315			CCV-AMP315			

Good performance in small-medium size of operations

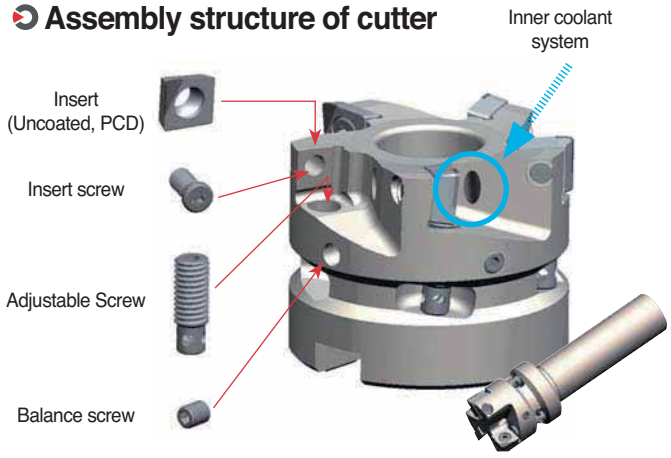
Aero Mill-Mini

- Good performance in small-medium size of operations
- Good duration of the steel body
- Choice of Uncoated carbide/PCD grades can be applied to various kind of work material
- Balance level: G25

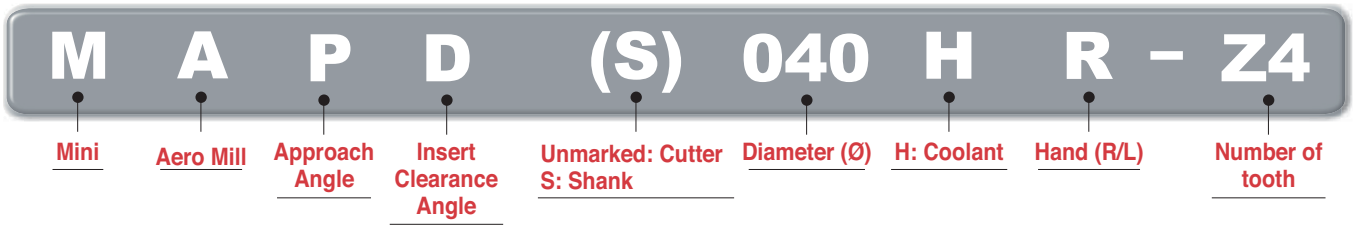
Features of cutter

- Simple and strong design of Screw-on clamping.
- Adjustable range: ± 0.1 mm Max
- Adjustable step: Min. 2 micro meter
- Wide chip pocket area for Roughing and Aluminum machining.
- Inner coolant system

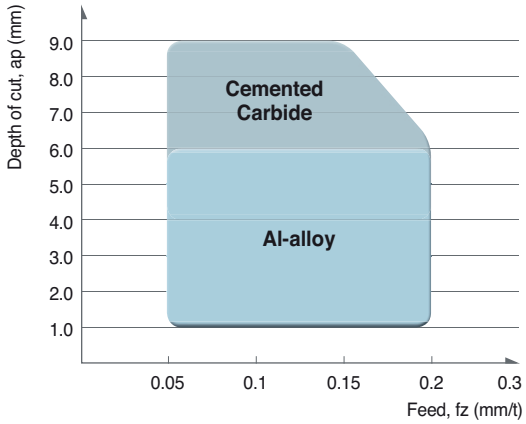
Assembly structure of cutter



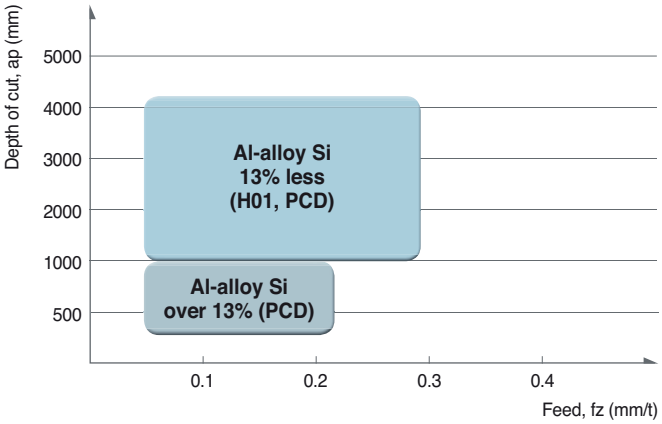
Code system



Application range



Recommended cutting condition

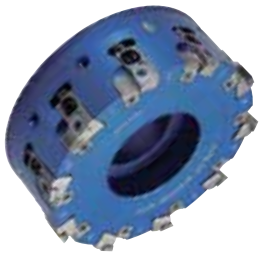


Max. RPM

Diameter	Max. RPM (min^{-1})
Ø32	26,000
Ø40	24,500
Ø50	22,000
Ø63	20,000

APD(M)-A

Cartridge + insert



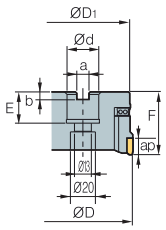


Fig. 1

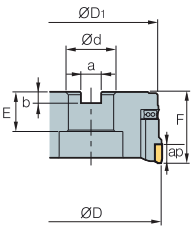


Fig. 2

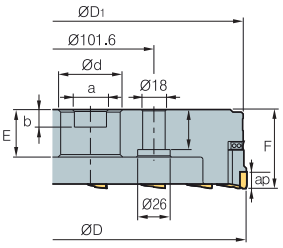


Fig. 3

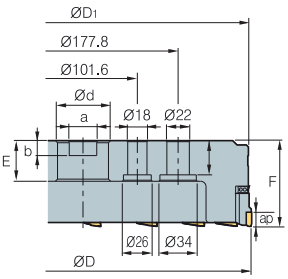


Fig. 4

AA
90°

- AR: 6°
- RR: 5°~9°

(mm)

Designation			ØD	ØD1	Ød	a	b	E	F	ap	Max rpm	kg	Fig.
APD (APDM)	080R/L-A6Z	6	80	76	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	10	16000	0.75	1
	100R/L-A6Z	6	100	95	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	50	10	15000	0.95	2
	125R/L-A8Z	8	125	120	38.1 (40)	15.9 (16.4)	10 (9)	38 (30)	63	10	12500	1.8	2
	160R/L-A10Z	10	160	155	50.8 (40)	19.0 (16.4)	11 (9)	38 (30)	63	10	10000	2.9	2
	200R/L-A12Z	12	200	195	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	10	8000	4.0	3
	250R/L-A16Z	16	250	245	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	63	10	6500	6.3	3
	315R/L-A18Z	18	315	310	47.625 (60)	25.4 (25.7)	14 (14)	38 (38)	80	10	5000	11.3	4

( )Metric size

Available inserts

CDEW-XCF CDEW-XAF, NAF CDEW-XAW, NAW

Designation		Uncoated			PCD	page
		H01	G10	ST30A	DP200	
CDEW	1204R-XCF	●				E06 E07
	1204L-XCF					
	1204R-XAF				●	
	1204L-XAF					
	1204R-NAF				●	
	1204L-NAF					
	1204R-XAW				●	
	1204L-XAW					
	1204R-NAW				●	
	1204L-NAW					

Available arbors

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

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

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
Aluminum	1,000~4,000 500~2,500	0.05~0.30 0.05~0.20	DP200 H01

Parts

Specification	Cartridge	Chip cover	Chip cover Screw	Insert screw	Adjust screw	Cartridge Screw	Wrench for insert	Wrench for cartridge
Ø80~Ø315	LAPDR/L-AJ	CAPDR/L-AJ	PTMA0411	FTNA0411	AZ0514	BHA0619-NYLOK	TW15S	HW50

Available inserts E06, E07 Available arbors and bolt E400~E402

APD(M)-PB

Blade

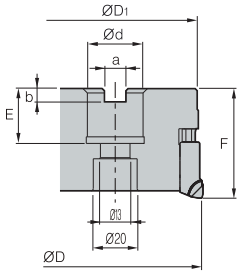


Fig. 1

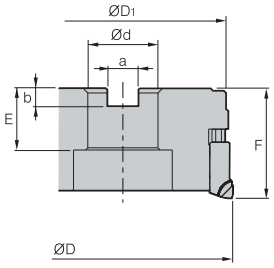


Fig. 2

AA 90°
- AR: 6°
- RR: -4°~1°

(mm)

Designation			Max	ØD	ØD1	Ød	a	b	E	F	ap	kg	Fig.
APD (APDM)	080R/L-PB6Z	6	10	80	77	25.4 (27)	9.5 (12.4)	6 (7)	23.5	50	5	0.55	1
	080R/L-PB8Z	8	10	80	77	25.4 (27)	9.5 (12.4)	6 (7)	23.5	50	5	0.55	1
	100R/L-PB6Z	6	12	100	97	31.75 (32)	12.7 (14.4)	8	34 (32)	50	5	0.92	2
	100R/L-PB8Z	8	12	100	97	31.75 (32)	12.7 (14.4)	8	34 (32)	50	5	0.92	2
	125R/L-PB8Z	8	14	125	122	38.1 (40)	15.9 (16.4)	10 (9)	40 (35)	63	5	1.9	2
	125R/L-PB10Z	10	14	125	122	38.1 (40)	15.9 (16.4)	10 (9)	40 (35)	63	5	1.9	2
	160R/L-PB10Z	10	20	160	157	50.8 (40)	19.0 (16.4)	11 (9)	41 (35)	63	5	3.3	2
	160R/L-PB12Z	12	20	160	157	50.8 (40)	19.0 (16.4)	11 (9)	41 (35)	63	5	3.3	2

( )Metric size

Available blades

	BAMPR-XAF	BAMPR-XAW	BAMPR-XAWR
			

Designation	PCD	page
	DP150	
BAMPR-XAF	●	E06
BAMPR-XAW	●	
BAMPR-XAWR		

Available arbors

Designation		NC arbors
APD-PB (APDM-PB)	080R/L-PB□□Z	BT□□-FMA25.4(FMC27)-□□
	100R/L-PB□□Z	BT□□-FMA31.75(FMC32)-□□
	125R/L-PB□□Z	BT□□-FMA38.1(FMB40)-□□
	160R/L-PB□□Z	BT□□-FMA50.8(FMB/FMC40)-□□

Parts

Specification	Blade screw	Blade adjustable screw	Al-body protecting tap	Balancing screw	Wrench for insert	Wrench for cartridge
Ø80~Ø160	ETKA0620	AZ0514-SPN6	UZD1010	KHE0610	SPN-6	TW25-100

Available inserts **E06** Available arbors and bolt **E400~E402**

APD(M)-PB

Blade

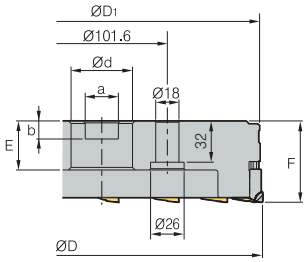


Fig. 1

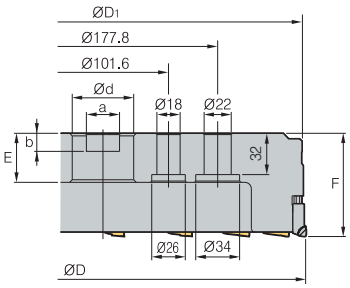


Fig. 2

AA 90°

- AR: -6°
- RR: -39°~ -16°

(mm)

Designation			Max	ØD	ØD1	Ød	a	b	E	F	ap	kg	Fig.
APD (APDM)	200R/L-PB12Z	12	26	200	197	47.625 (60)	25.4 (25.7)	14	40	63	5	4.0	1
	250R/L-PB16Z	16	32	250	247	47.625 (60)	25.4 (25.7)	14	40	63	5	6.5	1
	315R/L-PB18Z	18	42	315	312	47.625 (60)	25.4 (25.7)	14	40	63	5	11.3	2

( )Metric size

Available blades

BAMPR-XAF

BAMPR-XAW

BAMPR-XAWR

Designation	PCD	page
	DP150	
BAMPR-XAF	●	E06
BAMPR-XAW	●	
BAMPR-XAWR		

Available arbors

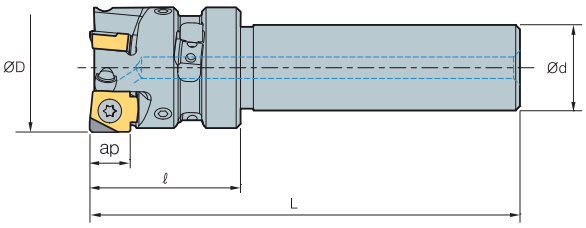
Designation		NC arbors
APD-PB (APDM-PB)	200R/L-PB□□Z	BT□□-FMA47.625(FMB60)-□□
	250R/L-PB□□Z	
	315R/L-PB□□Z	

Parts

Specification	Blade screw	Blade adjustable screw	Al-body protecting tap	Balancing screw	Wrench for insert	Wrench for cartridge
Ø200~Ø315	ETKA0620	AZ0514-SPN6	UZD1010	KHE0610	SPN-6	TW25-100

Available inserts E06 Available arbors and bolt E400~E402

MAPDS000HR/L-Z0



※ PCD ap: 5mm

AA
90°

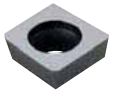
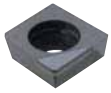
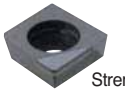
- AR: 6°
- RR: -4°~1°

(mm)

Designation			ØD	Ød	ℓ	L	ap	Max rpm	kg
MAPDS	032HR/L-Z3	3	32	20	35	100	9.5	26,000	0.35
	040HR/L-Z4	4	40	20	35	100	9.5	24,500	0.42

Available inserts

SNEW SNEW-XAF SNEW-NAF

Strengthened edge

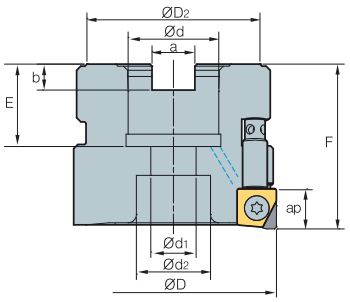
Designation		Uncoated			PCD	page
		H01	G10	ST30A	DP200	
SNEW	09T3ADFR	●				E22 E23
	09T3ADTR-XAF				●	
	09T3ADTR-XAW				●	
	09T3ADTR-NAF				●	
	09T3ADTR-NAW				●	

Parts

Specification	Insert screw	Adjust screw	Balance screw	Wrench for insert	Adjust wrench
Ø32~Ø63	FTKA0408	AHX0617F-NYLOK	KHD0405	TW15S	HW20L

Available inserts **E22, E23**

MAPD000HR/L-Z0



※ PCD ap: 5 mm

AA
90°

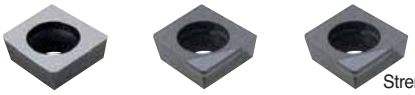
- AR: 6°
- RR: -1°~12°

(mm)

Designation			ØD	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	Max rpm	kg
MAPD	040HR/L-Z4	4	40	34	16	8.4	5.6	18	40	9	14	9.5	24,000	0.24
	050HR/L-Z5	5	50	42	22	10.4	6.3	20	40	11	18	9.5	22,000	0.35
	063HR/L-Z6	6	63	42	22	10.4	6.3	20	40	11	18	9.5	20,000	0.65

Available inserts

SNEW SNEW-XAF SNEW-NAF



Strengthened edge

Designation		Uncoated				PCD	page
		H01	G10	ST30A	ST20	DP200	
SNEW	09T3ADFR	●					E22 E23
	09T3ADTR-XAF					●	
	09T3ADTR-XAW					●	
	09T3ADTR-NAF					●	
	09T3ADTR-NAW					●	

Available arbors

Designation		NC arbors
MAPD	040HR/L-Z4	BT**□□-FMC16-□□ BT**□□-FMC22-□□ BT**□□-FMC22-□□
	050HR/L-Z5	
	063HR/L-Z6	

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
Aluminum	1,000~4,000 500~2,500	0.05~0.30 0.05~0.20	DP200 H01

Coolant bolt (Not included)

Designation	Applicable cutter	Available cutters
CB0525	MAPD040HR/L-Z4	Ø40
CB1025	MAPD050HR/L-Z5 MAPD063HR/L-Z6	Ø50 Ø63

Parts

Specification	Insert screw	Adjust screw	Balance screw	Wrench for insert	Adjust wrench
Ø32~Ø63	FTKA0408	AHX0617F-NYLOK	KHD0405	TW15S	HW20L

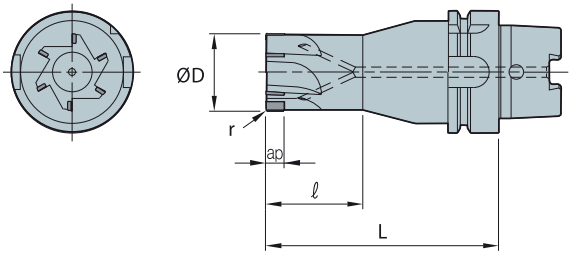
Available inserts E22, E23 Available arbors and bolt E400~E402

Code system

PDF 6 032 – HSK63A

- PDF: PCD Face cutter
- 6: Tooth
- 032: Diameter
- HSK63A: Shank

PCD Face cutter



AA
90°

- AR: 6°
- RR: 5°~9°

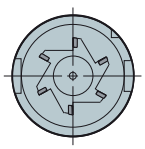
(mm)

Designation		⊙	ØD	r	ap	ℓ	L
PDF	4032-HSK50A	4	32	0.5	8	50	120
	4040-HSK50A	4	40	0.5	8	50	120
	4032-HSK63A	4	32	0.5	8	50	120
	4040-HSK63A	4	40	0.5	8	50	120
	4050-HSK63A	4	50	0.5	8	50	120
	6063-HSK63A	6	63	0.5	12	-	100
	6063-HSK100A	6	63	0.5	12	-	100

Recommended cutting condition

Workpiece	vc (m/min)	fz (mm/t)	ap (mm)
Al, Brass, Alloy	200~2,000	0.02~0.1	0.05~4.0

Special PCD order sheet



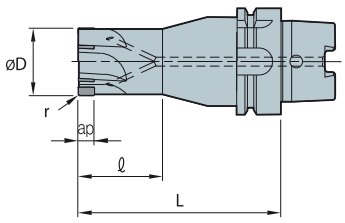


Fig. 1

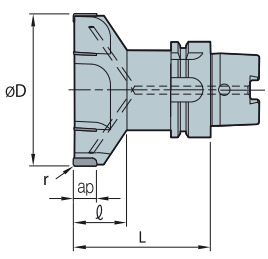


Fig. 2

Designation	Fig.	tooth	Dimensions (mm)					
			ØD	r	ap	ℓ	L	Shank spec.
PDF								

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

Alpha Mill-X new

- 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%)

Code system

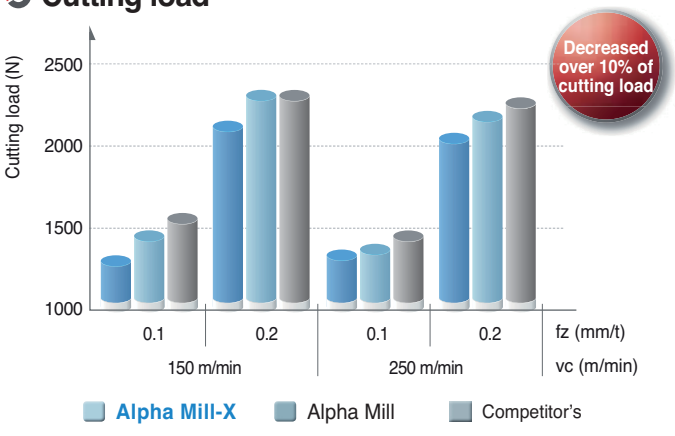
• Shank type

	AMX	S	032	R-2	C	32-150-AD17
	Alpha Mill-X	Type: S: Shank	Diameter: 032: Ø32	Oil hole & Hand: R: With Oil hole, right-handed; NR: Without oil hole, right-handed	Shank type: C: Cylinder; W: Weldon	Overall length: 150: 150 mm
				No. of tooth: 2: 2 teeth	Shank Dia.: 32: Ø32	Insert: AD17: ADKT17

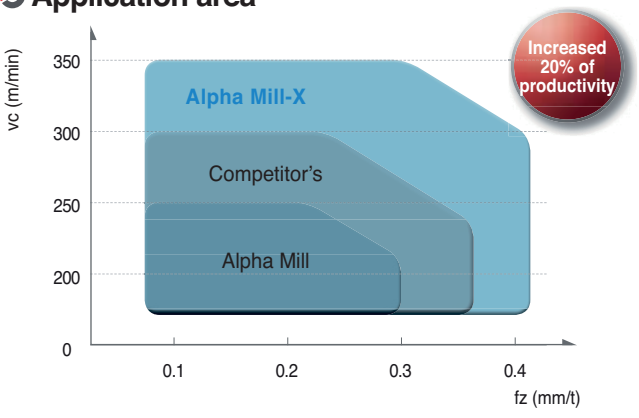
• Cutter type

	AMX	C	M	050	R	- 22 - 4 - AD17
	Alpha Mill-X	Type: C: Cutter	Arbor type: M: Metric; A: Inch; None: Asia	Diameter: 050: Ø50	Oil hole & Hand: R: Oil hole, right handed; NR: No oil hole, right handed	Internal diameter: 22: 22 mm; No. of tooth: 4: 4	Insert: AD17: ADKT17

Cutting load



Application area



Features

High rake angle chip breaker

- Applied high rake angle
- Improved chip control

Applied minor cutting edge with a wiper function

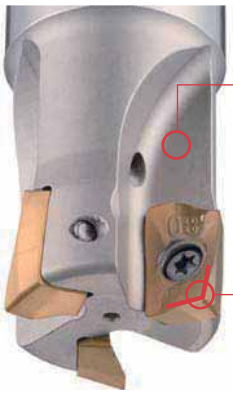
- Minor cutting edge design optimized to excellent surface in machined surfaces

Flat clamping area

- Stable clamping in high speed and high feed machining

High rake cutting edge

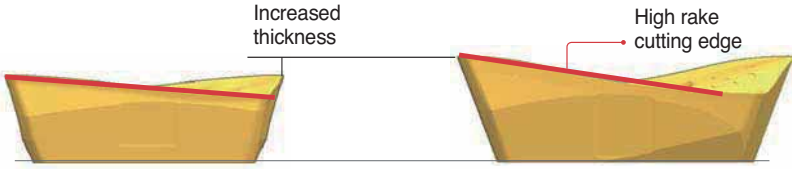
- Better surface roughness
- Lower cutting load



Wider chip pocket

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

Perfect perpendicularity



Existing Alpha Mill
APMT1604PDSR-MM

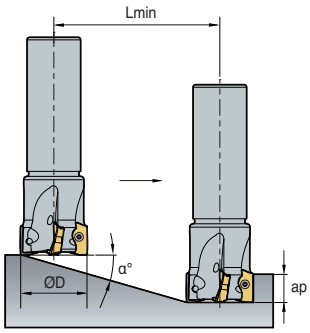
- Applying cutting edge with high rake angle: decreased cutting load
- Thicker insert: high rigidity of insert

Alpha Mill-X
ADKT170608PESR-MM

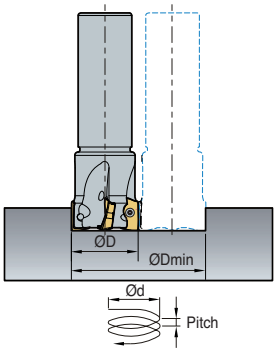
- Optimal for high speed and high feed machining

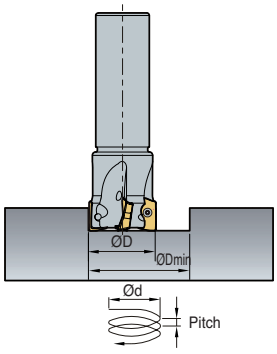
Cutting condition for ramping and helical operation

1. Ramping



2. Helical cutting





Designation	Tool dia. ØD (min)	ap	1. Ramping		2. Helical cutting					
					Blind hole				Through hole	
			Maximum angle α(°)	Lmin (mm)	Max. desirable hole dia. ØDH Max (mm)	Max. pitch dmax (mm)	Min. desirable hole dia. ØDH Min (mm)	Max. pitch dmax (mm)	Min. desirable hole dia. ØDH Min (mm)	Max. pitch dmax (mm)
ADKT17	20	16.5	13.0	71.5	30.4	7.0	38.4	8.9	20.8	4.8
	25	16.5	8.0	117.4	40.4	5.7	48.4	6.8	30.8	4.3
	32	16.5	3.7	255.2	54.4	3.5	62.4	4.0	44.8	2.9
	33	16.5	3.6	262.3	56.4	3.5	64.4	4.1	46.8	2.9
	40	16.5	2.6	363.4	70.4	3.2	78.4	3.6	60.8	2.8
	50	16.5	1.9	497.4	90.4	3.0	98.4	3.3	80.8	2.7
	63	16.5	1.3	727.1	116.4	2.6	124.4	2.8	106.8	2.4
	80	16.5	1.1	859.3	150.4	2.9	158.4	3.0	140.8	2.7

※ In ramping and helical machining, use coolant and air. Lmin - ap/tan (α°)

Recommended cutting conditions

• ADKT17 (Surface machining and shouldering)

ISO	Recommended grade	ADKT1706□□PESR-MM / ML		
		vc	fz	max ap
P	PC5300	150~240 m/min (492~787 sfm)	0.3~0.05 mm/t (0.012~0.002 ipt)	16.5 mm (0.65 in)
P	PC5400	130~210 m/min (426~688 sfm)	0.3~0.05 mm/t (0.002~0.012 ipt)	
P	PC3700	160~270 m/min (426~688 sfm)	0.3~0.05 mm/t (0.002~0.012 ipt)	
M	PC5300	90~150 m/min (295~492 sfm)	0.25~0.05 mm/t (0.01~0.002 ipt)	
M	PC5400	70~120 m/min (229~393 sfm)	0.25~0.05 mm/t (0.01~0.002 ipt)	
K	PC5300	120~200 m/min (393~656 sfm)	0.35~0.08 mm/t (0.014~0.003 ipt)	
S	PC5300	40~70m/min (131~229 sfm)	0.2~0.05 mm/t (0.014~0.002 ipt)	
S	PC5400	30~50m/min (98~164 sfm)	0.2~0.05 mm/t (0.014~0.002 ipt)	

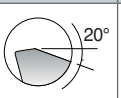
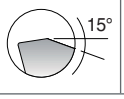
※ Maximum cutting condition: vc = 350 m/min, fz = 0.4 mm/t according to cutting environment

• ADKT17 (Grooving, ramping and helical machining)

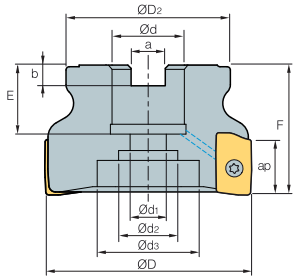
ISO	Recommended grade	ADKT1706□□PESR-MM / ML		
		vc	fz	max ap
P	PC5300	150~240 m/min (492~787 sfm)	0.15~0.05 mm/t (0.012~0.002 ipt)	16.5 mm (0.65 in)
P	PC5400	130~210 m/min (426~688 sfm)	0.15~0.05 mm/t (0.002~0.012 ipt)	
P	PC3700	160~270 m/min (426~688 sfm)	0.3~0.05 mm/t (0.002~0.012 ipt)	
M	PC5300	90~150 m/min (295~492 sfm)	0.15~0.05 mm/t (0.01~0.002 ipt)	
M	PC5400	70~120 m/min (229~393 sfm)	0.15~0.05 mm/t (0.01~0.002 ipt)	
K	PC5300	120~200 m/min (393~656 sfm)	0.2~0.08 mm/t (0.014~0.003 ipt)	
S	PC5300	40~70m/min (131~229 sfm)	0.15~0.05 mm/t (0.006~0.002 ipt)	
S	PC5400	30~50m/min (98~164 sfm)	0.15~0.05 mm/t (0.006~0.002 ipt)	

※ In deep grooving, set ap under 5 mm and use coolant and air.

Recommended Chip Breakers for workpiece

Chip breaker	Cutting edge shape	Recommended C/B and grade as per workpiece (●: 1st recommendation)											
		P				M		K		N		S	
		Low carbon steel / Mild steel		High carbon steel/ Alloy steel		Stainless steel		Cast iron		Aluminum alloy steel		Ti/Inconel	
		C/B	Grades	C/B	Grades	C/B	Grades	C/B	Grades	C/B	Grades	C/B	Grades
ML		-	●PC3700 ○PC5300 ○PC5400	-	●PC3700 ○PC5300 ○PC5400	●	●PC5300 ○PC5400	-	●PC6510 ○PC5300 ○PC5400	-	-	●	●PC5300 ○PC5400
MM		-	●PC3700 ○PC5300 ○PC5400	●	●PC3700 ○PC5300 ○PC5400	-	●PC5300 ○PC5400	●	●PC6510 ○PC5300 ○PC5400	-	-	-	●PC5300 ○PC5400

AMXCM new



AA 90°

- AR: 8°
- RR: -10°~3°

(mm)

Designation			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

Available inserts

ADKT-ML

ADKT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
ADKT	170604PESR-MM																		E04
	170608PESR-MM					●					●	●		●	●	●			
	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

Available inserts E04 Available arbors and bolt E400~E402

AMXS new

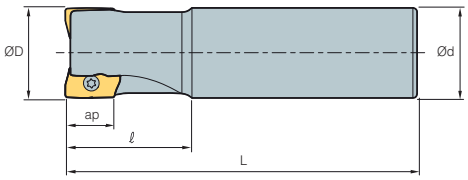


Fig. 1

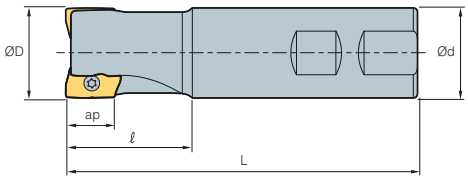


Fig. 2

AA 90°

- AR: 8°
- RR: -10°~-3°

(mm)

	Designation		ØD	Ød	ℓ	L	ap	kg	Fig.
AMXS	020R-1C20-180-AD17	1	20	20	35	180	16.5	0.36	1
	020R-1W20-090-AD17	1	20	20	35	90	16.5	0.16	2
	025R-2C25-200-AD17	2	25	25	35	200	16.5	0.66	1
	025R-2W25-115-AD17	2	25	25	35	115	16.5	0.34	2
	032R-3C32-200-AD17	3	32	32	45	200	16.5	1.05	1
	032R-3W32-125-AD17	3	32	32	45	125	16.5	0.62	2
	033R-3C32-200-AD17	3	33	32	45	200	16.5	1.05	1
	033R-3W32-125-AD17	3	33	32	45	125	16.5	0.62	2
	040R-3C32-200-AD17	3	40	32	50	200	16.5	1.17	1
	040R-3W32-130-AD17	3	40	32	50	130	16.5	0.75	2
	040R-4C32-200-AD17	4	40	32	50	200	16.5	1.20	1
	040R-4W32-130-AD17	4	40	32	50	130	16.5	0.74	2

Available inserts

ADKT-ML

ADKT-MM

	Designation	Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
ADKT	170604PESR-MM																		
	170608PESR-MM					●					●	●		●	●	●			E04
	170608PESR-ML					●					●	●		●	●	●			
	170616PESR-MM														●	●			
	170620PESR-MM														●	●			

Parts

Specification	Screw	Wrench
Ø40~Ø80	FTKA0410	TW15S

Available inserts E04 Available arbors and bolt E400~E402

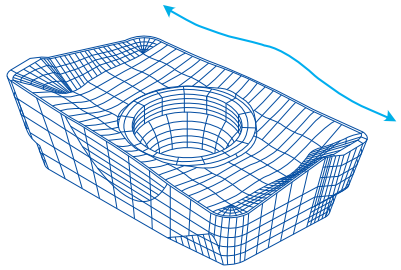
Various applications are available with multi-functional cutters

Alpha Mill

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

Features of insert

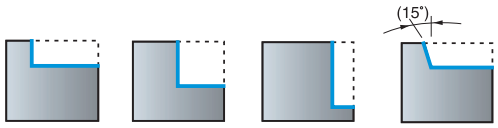
- Long tool life at high speed, high feed and deeper cutting by low cutting resistance and strong cutting-edge
- Distinguished features of Alpha-Curve reduce cutting resistance and improve cutting-edge strength and wear resistance



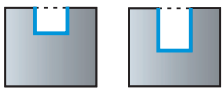
- Low cutting resistance is realized by KORLOY unique design-the alpha curve cutting-edge and optimal convex and concave design
- Highly efficient machining is available by the ideal application of the grade to material

Application example

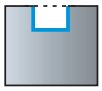
Shouldering



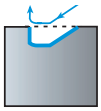
Slotting



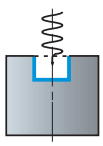
Drilling



Ramping



Helical cutting

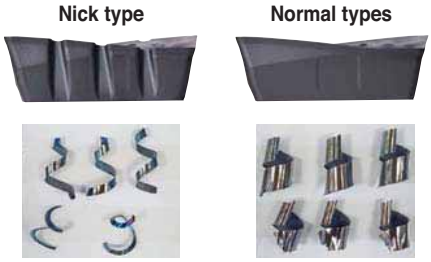


Alpha Mill Nick new

- New nick cutting edge reduces cutting load
- High productivity
- APMT standard holders are compatible with Alpha Mill nick that is reducing stock management cost.

Features

• Lower cutting load due to the overlapping system



※ Nick types require both chip breaker types for application.

※ Can be used with the existing Alpha Mill holders. Use multi-edges for maximum results. (cutters with even-numbered teeth)

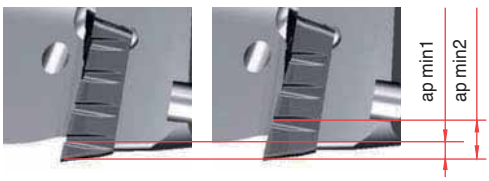
Type	Nick type		General type
Required No. of teeth	20		20
For AMCM3080M (4 Flute x 5 teeth)	 x 10 APMT16-**MN3**	 x 10 APMT16-**MN4**	 x 20 APMT16-**MM, MF, ML, MA**

How to clamp

• Alternate the two types of chip breakers when clamping an insert.

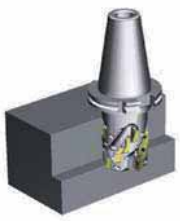
Min. depth of cut

• The depth of cut must be greater than ap min1 for chip breaking.

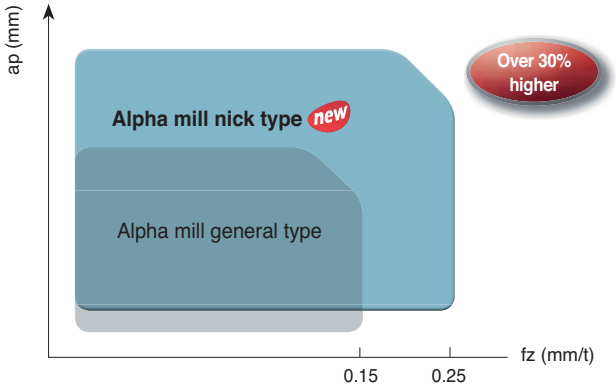


Type	ap min1	ap min2
APMT11 (2000 type)	1.6 mm	4.1 mm
APMT16 (3000 type)	2.2 mm	5 mm
APMT18 (4000 type)	2.3 mm	5.5 mm

Application examples

Deep cutting	Long overhang	Unstable clamping
		

Application area



• 30% or higher cutting conditions available compared to normal types

Recommended cutting condition

ISO	Grades	APMT 2000 type			APMT 3000 type			APMT 4000 type		
		vc (m/min)	fz (mm/t)	ap (mm)	vc (m/min)	fz (mm/t)	ap (mm)	vc (m/min)	fz (mm/t)	ap (mm)
P	PC3700	180~280	0.05~0.15	11	160~270	0.05~0.18	16	160~270	0.05~0.18	17
P	PC5300	150~250	0.05~0.15		150~240	0.05~0.18		150~240	0.05~0.18	
M	PC5300	90~170	0.05~0.15		90~150	0.05~0.18		90~150	0.05~0.18	
K	PC5300	120~240	0.1~0.2		120~200	0.1~0.23		120~200	0.1~0.23	

※ Above cutting conditions can be applied up to cutting speed of 300 m/min and feed per tooth of 0.4 mm/t.

Features of chip breakers

Insert		Cutting-edge	Uses	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
MN			Roughing (nick)	Design for easy chip cutting ensures high machinability in toughing

Product constitution

Item description	Type	Nose R	MA	ML
APMT	1000Type	0.4	APMT0602PDFR-MA	-
		0.8	APMT060208PDFR-MA	-
	1500Type	0.4	APMT0903PDFR-MA	APMT0903PDER-ML
		0.8	APMT090308PDFR-MA	APMT090308PDER-ML
	2000Type	0.5	APMT11T3PDFR-MA	APMT11T3PDER-ML
		0.8	APMT11T308PDFR-MA	APMT11T308PDER-ML
	3000Type	0.4	APMT160404PDFR-MA	APMT160404PDER-ML
		0.8	APMT1604PDFR-MA	APMT1604PDER-ML
	4000Type	0.4	APMT180604PDFR-MA	APMT180604PDER-ML
		0.8	APMT1806PDFR-MA	APMT1806PDER-ML
		1.2	APMT180612PDFR-MA	APMT180612PDER-ML
		1.6	APMT180616PDFR-MA	APMT180616PDER-ML
		2.0	APMT180620PDFR-MA	APMT180620PDER-ML
		2.4	APMT180624PDFR-MA	APMT180624PDER-ML
		3.0	APMT180630R-MA	APMT180630R-ML

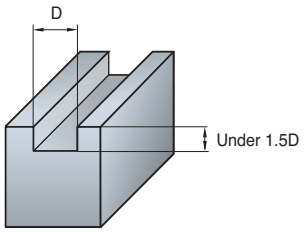
- The inserts can switch to the APMT type holders.

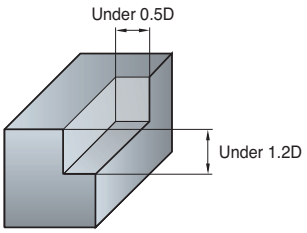
Recommended grades and chip breakers by workpiece

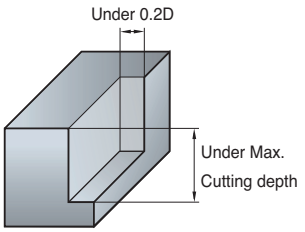
Chip breaker	Cutter edge	Recommended C/B and grade as per workpiece (●: 1st)											
		P				M		K		N		S	
		Low carbon steel/Mild steel		High carbon steel/Mild steel		Stainless steel		Cast iron		Aluminum alloy		Ti/Inconel	
		C/B	Grades	C/B	Grades	C/B	Grades	C/B	Grades	C/B	Grades	C/B	Grades
MA		-	-	-	-	-	-	-	-	●	●H01	-	-
ML		-	-	-	-	●	●PC5300 ○PC5400 ○PC3545 ○PC9530	-	-	-	-	●	●PC5300 ○PC5400 ○PC3545
MF		●	●PC3700 ○PC5300 ○PC5400 ○NCM325 ○NCM335	-	○PC3700 ○PC3545 ○NCM325 ○NCM335	-	●PC5300 ○PC5400 ○PC3545 ○PC9530	-	●PC6510 ○PC5300 ○PC5400	-	-	-	●PC5300 ○PC5400 ○PC3545
MM		-	●PC3700 ○PC5300 ○PC5400 ○NCM325 ○NCM335	●	●PC3700 ○PC5300 ○PC5400 ○NCM325 ○NCM335	-	●PC5300 ○PC5400 ○PC3545 ○PC9530	●	●PC6510 ○PC5300 ○PC5400	-	-	-	●PC5300 ○PC5400 ○PC3545
MN		-	●PC3500 ○PC5300 ○PC5400	-	-	-	●PC5300 ○PC5400 ○PC9530	-	●PC6510 ○PC5300 ○PC5400	-	-	-	●PC5300 ○PC5400 ○PC3545

Recommended depth of cut

1. Slotting	2. Shouldering	3. Shouldering







Recommended cutting condition (for Multi-edge type)

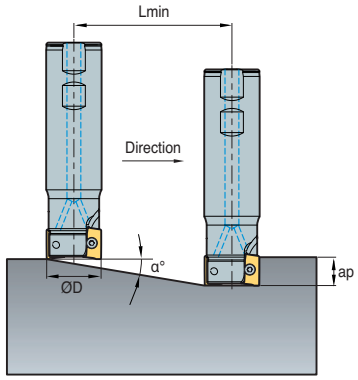
Workpiece	Grades	Fig.	Tool dia. Ø10, 16 vc (m/min)	Ø10, 16 fz (mm/t)	Ø20, 25 vc (m/min)	Ø20, 25 fz (mm/t)	Ø32, 40 vc (m/min)	Ø32, 40 fz (mm/t)	Ø50, 63 vc (m/min)	Ø50, 63 fz (mm/t)	Ø80, 100 vc (m/min)	Ø80, 100 fz (mm/t)
Mild steel, Low carbon steel)	NC5340 NCM325 PC5400 PC5300 PC3500 PC3600	①	50~80	0.05~0.08	80~100	0.05~0.08	100~120	0.05~0.08	100~120	0.05~0.08	100~120	0.05~0.08
		②	65~90	0.08~0.1	100~120	0.08~0.1	120~140	0.08~0.1	120~140	0.08~0.1	120~140	0.08~0.1
		③	65~95	0.1~0.15	100~120	0.1~0.15	120~140	0.1~0.15	120~140	0.1~0.15	130~150	0.1~0.15
High carbon steel, Alloy steel	NC5340 NCM325 PC5300 PC3500 PC3600	①	45~60	0.05	60~80	0.05	80~100	0.05	80~100	0.05	80~100	0.05
		②	50~80	0.05~0.08	80~100	0.05~0.08	100~120	0.08~0.1	100~120	0.08~0.1	100~120	0.08~0.1
		③	50~80	0.1~0.15	80~100	0.1~0.15	110~130	0.1~0.15	100~120	0.1~0.15	110~130	0.1~0.15
Alloy tool steel	PC5300 PC3500 PC3600 PC2510 PC2505	①	40~55	0.05	50~70	0.05	70~90	0.05	70~90	0.05	70~90	0.05
		②	45~60	0.05~0.08	60~80	0.05~0.08	90~120	0.05~0.08	100~120	0.05~0.08	100~120	0.05~0.08
		③	50~75	0.12~0.18	90~110	0.12~0.18	100~130	0.1~0.15	100~120	0.1~0.15	110~130	0.1~0.15
Stainless steel	PC5300 PC9530	①	35~50	0.054	50~70	0.054	70~90	0.05	70~90	0.05	70~90	0.05
		②	45~60	0.05~0.08	60~80	0.05~0.08	90~120	0.05~0.08	100~120	0.05~0.08	100~120	0.05~0.08
		③	50~75	0.1~0.15	90~110	0.1~0.15	100~130	0.1~0.15	110~130	0.1~0.15	110~130	0.1~0.15
Cast iron	PC6510 PC5300	①	50~70	0.1~0.12	70~90	0.1~0.12	70~90	0.1~0.12	90~120	0.1~0.12	90~120	0.1~0.12
		②	50~80	0.12	80~100	0.12	90~120	0.12	100~140	0.12	100~140	0.12
		③	50~80	0.15~0.2	80~100	0.15~0.2	100~130	0.15~0.2	120~150	0.15~0.2	120~150	0.15~0.2
Aluminum alloy	H01	①	160~600	0.1~0.2	200~800	0.1~0.2	300~900	0.1~0.2	400~1,000	0.1~0.2	400~1,000	0.1~0.2
		②	200~650	0.15~0.3	250~900	0.15~0.3	300~950	0.15~0.3	400~1,000	0.1~0.4	400~1,000	0.1~0.4
		③	200~650	0.15~0.3	250~900	0.15~0.3	300~950	0.15~0.3	400~1,000	0.1~0.4	400~1,000	0.1~0.4
Hardened steel	PC5300 PC2510 PC2505	①	35~50	0.03	50~70	0.03	60~90	0.03	60~90	0.03	60~90	0.03
		②	45~60	0.05~0.08	60~80	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08
		③	50~80	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08

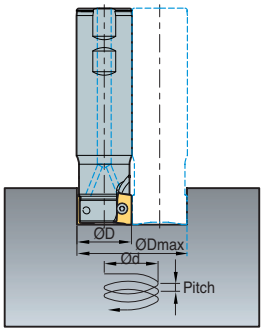
Recommended cutting condition (for Single-edge type)

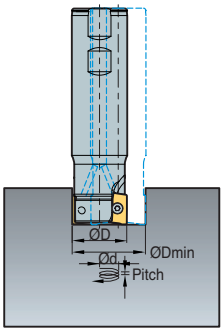
Workpiece	Grades	Fig.	Tool dia. Ø10, 16 vc (m/min)	Ø10, 16 fz (mm/t)	Ø20, 25 vc (m/min)	Ø20, 25 fz (mm/t)	Ø32, 40 vc (m/min)	Ø32, 40 fz (mm/t)	Ø50, 63 vc (m/min)	Ø50, 63 fz (mm/t)	Ø80, 100 vc (m/min)	Ø80, 100 fz (mm/t)
Mild steel, low carbon steel	NC5340 NCM325 PC5400 PC5300 PC3500 PC3600	①	45~60	0.05~0.08	60~80	0.05~0.08	80~120	0.05~0.08	120~200	0.05~0.08	150~200	0.05~0.08
		②	60~90	0.08~0.1	80~120	0.08~0.1	120~180	0.08~0.1	180~250	0.08~0.1	200~250	0.08~0.1
		③	60~90	0.1~0.15	80~120	0.1~0.15	120~180	0.1~0.15	180~250	0.1~0.15	200~250	0.1~0.15
High carbon steel, alloy steel	NC5340 NCM325 PC5300 PC3500 PC3600	①	40~60	0.05	50~80	0.05	80~110	0.05	100~150	0.05	100~150	0.05
		②	50~80	0.05~0.08	80~100	0.05~0.08	110~150	0.05~0.1	150~200	0.05~0.1	150~200	0.05~0.1
		③	50~80	0.1~0.15	80~100	0.1~0.15	120~150	0.1~0.15	180~200	0.1~0.15	180~200	0.1~0.15
Alloy tool steel	PC5300 PC3500 PC3600 PC2510 PC2505	①	35~50	0.05	50~70	0.05	80~100	0.05	100~130	0.05	100~130	0.05
		②	45~70	0.05~0.08	70~100	0.05~0.08	100~130	0.05~0.1	130~180	0.05~0.1	130~180	0.05~0.1
		③	45~70	0.1~0.15	70~100	0.1~0.15	100~150	0.1~0.15	130~180	0.1~0.15	130~180	0.1~0.15
Stainless steel	PC5300 PC9530	①	35~50	0.05	50~70	0.05	80~100	0.05	100~130	0.05	100~130	0.05
		②	45~70	0.05~0.08	70~100	0.05~0.08	100~130	0.05~0.1	130~180	0.05~0.1	130~180	0.05~0.1
		③	45~70	0.1~0.15	70~100	0.1~0.15	100~150	0.1~0.15	130~180	0.1~0.15	130~180	0.1~0.15
Cast iron	PC6510 PC5300	①	50~80	0.08~0.12	80~100	0.08~0.12	80~100	0.15	120~150	0.15	120~150	0.15
		②	65~90	0.12~0.15	100~120	0.12~0.15	100~130	0.15~0.18	150~200	0.15~0.18	150~200	0.15~0.18
		③	65~90	0.15~0.2	100~120	0.15~0.2	100~130	0.15~0.2	150~200	0.15~0.2	150~200	0.15~0.2
Aluminum alloy	H01	①	200~600	0.15~0.2	250~800	0.15~0.2	300~900	0.15~0.2	400~1,000	0.1~0.2	400~1,000	0.1~0.2
		②	200~650	0.2~0.25	250~900	0.2~0.25	350~950	0.2~0.25	400~1,000	0.2~0.3	400~1,000	0.2~0.3
		③	200~650	0.25~0.3	250~900	0.25~0.3	350~950	0.25~0.3	400~1,000	0.3~0.4	400~1,000	0.3~0.4
Hardened steel	PC5300 PC2510 PC2505	①	35~50	0.03	50~70	0.03	60~90	0.03	60~90	0.03	60~90	0.03
		②	45~65	0.05~0.08	60~80	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08
		③	50~80	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08

Cutting condition for ramping and helical operation

1. Ramping	2. Helical cutting for blind hole	3. Helical cutting for through hole







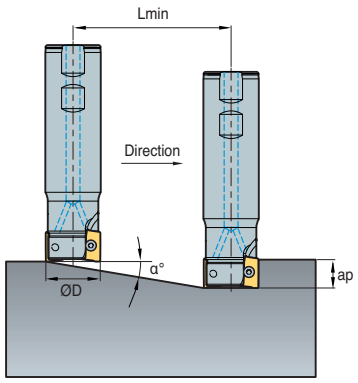
(mm)

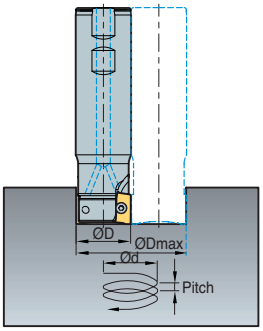
Designation	Tool dia. ØD (min)	ap	1. Ramping		2. Helical cutting for blind hole				3. Helical cutting for through hole	
			Maximum angle α(°)	Lmin (mm)	Max. desirable hole dia. ØDH Max (mm)	Max. pitch dmax (mm)	Min. desirable hole dia. ØDH Min (mm)	Max. pitch dmax (mm)	Min. desirable hole dia. ØDH Min (mm)	Max. pitch dmax (mm)
AMS1010HS	10	5	6.5	44	17.6	2.0	18.8	2.1	13	1.5
AMS1011HS	11		5.6	51	19.6	1.9	20.8	2.0	15	1.5
AMS1012HS	12		4.9	58	21.6	1.9	22.8	2.0	17	1.5
AMS1014HS	14		3.9	73	25.6	1.8	26.8	1.8	21	1.4
AMS1015HS	15		3.6	80	27.6	1.7	28.8	1.8	23	1.4
AMS1016HS	16		3.3	87	29.6	1.7	30.8	1.8	25	1.4
AMS1017HS	17		3.0	94	31.6	1.7	32.8	1.7	27	1.4
AMS1018HS	18		2.8	101	33.6	1.7	34.8	1.7	29	1.4
AMS1020HS	20		2.5	115	37.6	1.6	38.8	1.7	33	1.4
AMS1021HS	21		2.3	123	39.6	1.6	40.8	1.7	35	1.4
AMS1022HS	22		2.2	130	41.6	1.6	42.8	1.6	37	1.4
AMS1025HS	25		1.9	151	47.6	1.6	48.8	1.6	43	1.4
AMS1026HS	26		1.8	158	49.6	1.6	50.8	1.6	45	1.4
AMS1032HS	32		1.4	201	61.6	1.5	62.8	1.6	57	1.4
AMS1033HS	33		1.4	208	63.6	1.5	64.8	1.6	59	1.4
AMCM1032HS	32		1.4	201	61.6	1.5	62.8	1.6	57	1.4
AMCM1040HS	40		1.1	258	77.6	1.5	78.8	1.5	73	1.4
AMCM1050HS	50		0.9	330	97.6	1.5	98.8	1.5	93	1.4
AMCM1063HS	63		0.7	423	123.6	1.5	124.8	1.5	119	1.4
AMS1510HS	10	9	7.5	68	17.4	2.3	18.8	2.5	11	1.5
AMS1512HS	12		6.5	79	21.4	2.4	22.8	2.6	15	1.7
AMS1513HS	13		5.7	90	23.4	2.3	24.8	2.5	17	1.7
AMS1514HS	14		6.3	82	25.4	2.8	26.8	2.9	19	2.1
AMS1516HS	16		5.0	102	29.4	2.6	30.8	2.7	23	2.0
AMS1517HS	17		4.6	112	31.4	2.5	32.8	2.6	25	2.0
AMS1518HS	18		4.2	122	33.4	2.5	34.8	2.6	27	2.0
AMS1519HS	19		3.9	132	35.4	2.4	36.8	2.5	29	2.0
AMS1520HS	20		3.6	142	37.4	2.4	38.8	2.5	31	2.0
AMS1521HS	21		3.4	152	39.4	2.3	40.8	2.4	33	2.0
AMS1522HS	22		3.2	162	41.4	2.3	42.8	2.4	35	1.9
AMS1524HS	24		2.8	182	45.4	2.2	46.8	2.3	39	1.9
AMS1525HS	25		2.7	192	47.4	2.2	48.8	2.3	41	1.9
AMS1528HS	28		2.3	222	53.4	2.2	54.8	2.2	47	1.9
AMS1530HS	30		2.1	242	57.4	2.1	58.8	2.2	51	1.9
AMS1532HS	32		2.0	262	61.4	2.1	62.8	2.2	55	1.9
AMS1535HS	35		1.8	292	67.4	2.1	68.8	2.1	61	1.9
AMS1540HS	40		1.5	342	77.4	2.0	78.8	2.1	71	1.9
AMCM15040HS	40		1.5	342	77.4	2.0	78.8	2.1	71	1.9
AMCM15050HS	50		1.2	442	97.4	2.0	98.8	2.0	91	1.9
AMCM15063HS	63		0.9	572	123.4	1.9	124.8	2.0	117	1.8
AMCM15080HS	80		0.7	742	157.4	1.9	158.8	1.9	151	1.8
AMCM15100HS	100		0.5	942	197.4	1.9	198.8	1.9	191	1.8

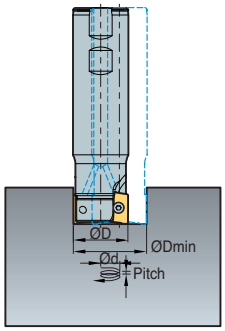
$$Lmin = \frac{ap}{\tan \alpha^\circ} \text{ (mm)}$$

Cutting condition for ramping and helical operation

1. Ramping	2. Helical cutting for blind hole	3. Helical cutting for through hole





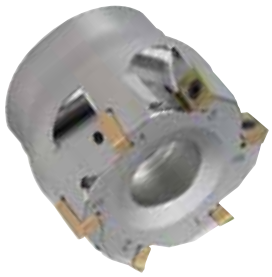


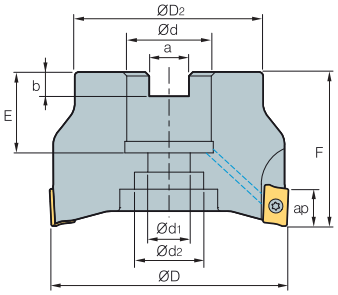
(mm)

Designation	Tool dia. ØD (min)	ap	1. Ramping		2. Helical cutting for blind hole				3. Helical cutting for through hole	
			Maximum angle α(°)	Lmin (mm)	Max. desirable hole dia. ØDH Max (mm)	Max. pitch dmax (mm)	Min. desirable hole dia. ØDH Min (mm)	Max. pitch dmax (mm)	Min. desirable hole dia. ØDH Min (mm)	Max. pitch dmax (mm)
AMS2010HS	10	10	16.82	33	16.4	5.0	18	5.4	11	3.3
AMS2012HS	12		11.69	48	20.4	4.2	22	4.6	15	3.1
AMS2014HS	14		7.55	75	24.4	3.2	26	3.4	19	2.5
AMS2016HS	16		10.30	55	28	5.1	30	5.5	23	4.2
AMS2018HS	18		8.23	69	32	4.6	34	4.9	27	3.9
AMS2020HS	20		5.60	102	36	3.5	38	3.7	31	3.0
AMS2022HS	22		5.15	111	40	3.6	42	3.8	35	3.2
AMS2025HS	25		3.92	146	46	3.2	48	3.3	41	2.8
AMS2032HS	32		2.70	212	60	2.8	62	2.9	55	2.6
AMS2040HS	40		1.98	289	76	2.6	78	2.7	71	2.5
AMS2050HS	50		1.48	386	96	2.5	98	2.5	91	2.4
AMS2063HS	63		1.11	514	122	2.4	124	2.4	117	2.3
AMCM2040HS	40		1.29	445	76	2.5	78	2.6	71	2.1
AMCM2050HS	50		0.36	1576	96	0.6	98	0.6	91	0.6
AMCM2063HS	63		0.27	2104	122	0.6	124	0.6	117	0.6
AMCM2080HS	80		0.21	2784	156	0.6	158	0.6	151	0.5
AMCM2100HS	100		0.16	3584	196	0.5	198	0.6	191	0.5
AMS3025HS	25	10	4.72	121	46	3.8	48	4.0	36	3.0
AMS3032HS	32		3.00	191	60	3.1	62	3.2	50	2.6
AMS3040HS	40		2.29	250	76	3.0	78	3.1	66	2.6
AMS3050HS	50		1.64	350	96	2.7	98	2.8	86	2.5
AMS3063HS	63		1.22	470	122	2.6	124	2.6	112	2.4
AMCM3040HS	40		1.99	288	76	2.6	78	2.7	66	2.3
AMCM3050HS	50		1.67	343	96	2.8	98	2.9	86	2.5
AMCM3063HS	63		1.22	470	122	2.6	124	2.6	112	2.4
AMCM3080HS	80		0.90	636	156	2.5	158	2.5	146	2.3
AMCM3100HS	100		0.69	830	196	2.4	198	2.4	186	2.2
AMS2025MH	25	10	1.50	764	46	1.2	48	1.3	-	-
AMS2032MH	32		1.50	1146	60	1.6	62	1.6	-	-
AMS3040MH	40	16	1.50	1528	76	2.0	78	2.0	-	-
AMS4020HS	20	16	9.5	98	37.4	6.2	38.8	6.5	31	5.2
AMS4021HS	21		5.2	179	39.4	3.6	40.8	3.7	33	3.0
AMS4025HS	25		7.6	122	47.4	6.3	48.8	6.5	41	5.5
AMS4026HS	26		7.1	130	49.4	6.2	50.8	6.4	43	5.4
AMS4032HS	32		3.4	276	61.4	3.6	62.8	3.7	55	3.3
AMS4033HS	33		3.2	288	63.4	3.6	64.8	3.7	57	3.2
AMS4040HS	40		2.5	376	77.4	3.4	78.8	3.4	71	3.1
AMS4050HS	50		1.9	502	97.4	3.2	98.8	3.2	91	3.0
AMS4063HS	63		1.4	665	123.4	3.0	124.8	3.1	117	2.9
AMCM4050HS	50		1.9	502	97.4	3.2	98.8	3.2	91	3.0
AMCM4063HS	63		1.4	665	123.4	3.0	124.8	3.1	117	2.9
AMCM4080HS	80		1.1	878	157.4	2.9	158.8	2.9	151	2.8
AMCM4100HS	100		0.8	1128	197.4	2.9	198.8	2.9	191	2.8
AMCM4125HS	125		0.6	1442	247.4	2.8	248.8	2.8	241	2.7

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

AMC(M)1000S





AA 90°

- AR: 9°~13°
- RR: -14°~5°

(mm)

Designation			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

Available inserts

APMT-MA

APMT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																	●	E05
	060208PDFR-MA																		
	060202PDSR-MM				●						●				●	●			
	0602PDSR-MM				●			●	●	●	●	●	●		●	●			
	060208PDSR-MM				●					●	●				●	●			
	060212R-MM				●					●					●	●			

Available arbors

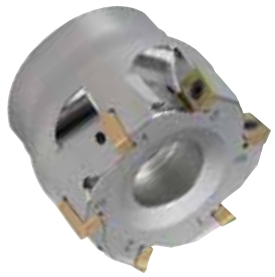
Designation		Ød	NC arbors
AMCM	1032HS	16	BT□□-FMC16-□□
	1040HS-16		
	1040HS-22	22	BT□□-FMC22-□□
	1050HS		
	1063HS		

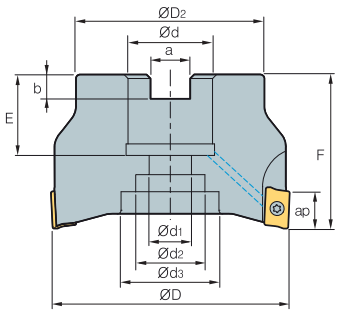
Parts

Specification	Screw	Wrench
Ø32~Ø63	FTKA01842	TW06S-A

Available inserts E05 Available arbors and bolt E400~E402

AMC(M)1500S





AA 90°

- AR: 9°~13°
- RR: -14°~5°

(mm)

Designation			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	10	80	57	25.4 (27)	14	25	35	9.5 (12.4)	6 (7)	24 (23)	50	9	1.10
	15100HS	12	100	67	31.75 (32)	18	26	42	12.7 (14.4)	8 (8)	32 (26)	63	9	2.10

( )Metric size

Available inserts

APMT-MA

APMT-ML

APMT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																	●	E05
	090308PDFR-MA																		
	0903PDER-ML														●	●			
	090308PDER-ML														●	●			
	0903PDSR-MM				●			●	●	●	●	●			●	●			
	090308PDSR-MM				●					●	●				●	●			
	090312R-MM									●	●				●	●			
	090316R-MM				●					●	●				●	●			
	090320R-MM									●	●				●	●			

Available arbors

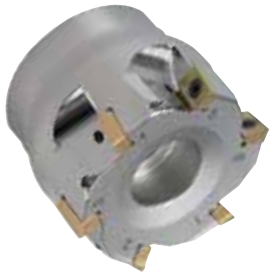
Designation		Ød	NC arbors
AMCM	15040HS	16	BT□□-FMC16-□□
	15050HS 15063HS	22	BT□□-FMC22-□□
AMC (AMCM)	15080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	15100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

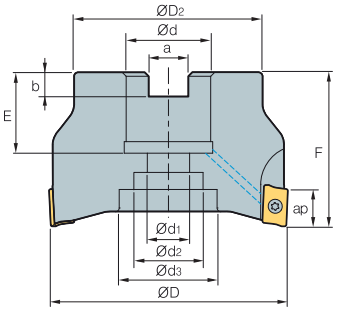
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA02565S	TW08S

Available inserts E05 Available arbors and bolt E400~E402

AMC(M)2000S





AA 90°

- AR: 9°~13°
- RR: -14°~5°

(mm)

Designation			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

Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																	●	E05
	11T308PDFR-MA																		
	11T3PDER-ML														●	●			
	11T308PDER-ML														●	●			
	11T3PDSR-MM			●	●	●		●	●	●	●	●	●		●	●			
	11T3PDSR-MF				●					●	●	●			●	●			
	11T308PDSR-MM				●					●	●		●	●	●	●			
	11T312PDSR-MM				●					●	●		●		●	●			
	11T316R-MM				●					●	●				●	●			
	11T318R-MM																		
	11T324R-MM				●					●	●				●	●			
	11T3PDSR-MN2														●				
	11T3PDSR-MN3														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Available arbors

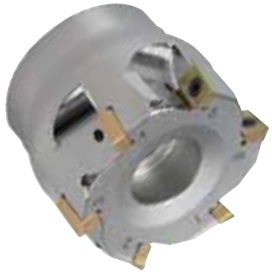
Designation		Ød	NC arbors
AMCM	2040HS	16	BT□□-FMC16-□□
	2050HS 2063HS	22	BT□□-FMC22-□□
AMC (AMCM)	2080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	2100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

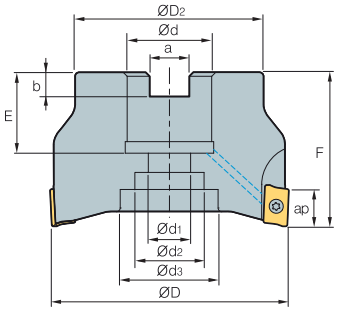
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA02565S	TW08S

Available inserts E05 Available arbors and bolt E400~E402

AMC(M)3000S





AA 90°

- AR: 14°
- RR: -12°~8°

(mm)

Designation			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

Available inserts

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																	●	E05
	160404PDFR-MA																		
	1604PDER-ML														●	●			
	160404PDER-ML														●	●			
	1604PDSR-MM			●	●	●		●	●	●	●	●	●	●	●	●			
	1604PDSR-MF				●					●	●	●			●	●			
	160410PDSR-MM									●					●	●			
	160416PDSR-MM				●					●	●				●	●			
	160424R-MM				●					●	●				●	●			
	160430R-MM									●	●				●	●			
	160432R-MM				●					●	●				●	●			
	1604PDSR-MN3														●				
	1604PDSR-MN4														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Available arbors

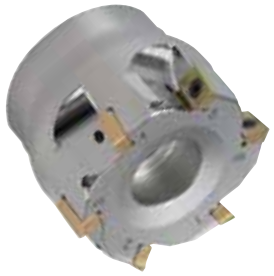
Designation		Ød	NC arbors
AMCM	3040HS	16	BT□□-FMC16-□□
	3050HS 3063HS	22	BT□□-FMC22-□□
AMC (AMCM)	3080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

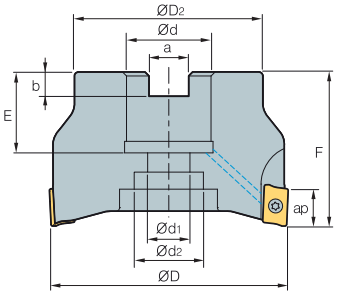
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0410	TW15S

Available inserts E05 Available arbors and bolt E400~E402

AMC(M)3000S-K





AA 90°

- AR: 14°
- RR: -12°~8°

(mm)

Designation			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

Available inserts

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	G10	H01	H05	
APKT	1604PDSR			●						●	●									E05
	1604PDSR-MF			●										●						
	1604PDSR-MM			●	●					●	●	●		●						
	160432R-MM1																			
	1604PDFR-MA															●		●	●	
	1604PDFR-MA2																	●		
	160416FR-MA2																			
	160432FR-MA2																			
	1604PDFR-MA3																	●	●	
	160420FR-MA3																			

Available arbors

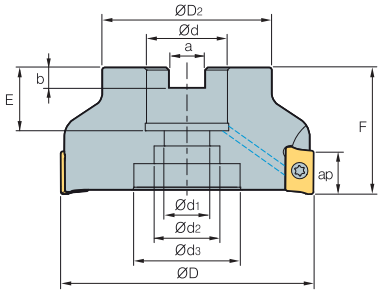
Designation		Ød	NC arbors
AMCM	3040HS-K	16	BT□□-FMC16-□□
	3050HS-K 3063HS-K	22	BT□□-FMC22-□□
AMC (AMCM)	3080HS-K	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HS-K	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0410	TW15S

Available inserts E05 Available arbors and bolt E400~E402

AMC(M)4000S



AA 90°

- AR: 13°~15°
- RR: -12°~7°

(mm)

Designation			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

Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																	●	E05
	180604PDFR-MA																	●	
	180612PDFR-MA																	●	
	180616PDFR-MA																	●	
	180620PDFR-MA																	●	
	180624PDFR-MA																	●	
	180630R-MA																	●	
	1806PDER-ML														●	●			
	180604PDER-ML														●	●			
	180612PDER-ML														●	●			
	180616PDER-ML														●	●			
	180620PDER-ML														●	●			

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	180624PDER-ML														●	●			E05
	180630R-ML														●	●			
	1806PDSR-MM				●			●	●	●	●	●	●	●	●	●			
	1806PDSR-MF				●					●		●			●	●			
	180612PDSR-MM				●					●	●				●	●			
	180616PDSR-MM				●					●					●	●			
	180620PDSR-MM																		
	180624PDSR-MM				●					●					●	●			
	180630R-MM									●					●	●			
	180632R-MM				●					●					●	●			
	1806PDSR-MN3														●				
	1806PDSR-MN4														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

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-□□

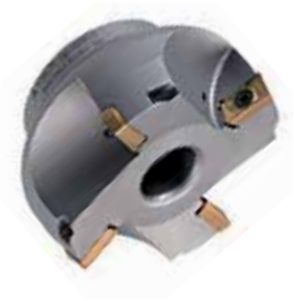
Designation		Ød	NC arbors
AMC (AMCM)	4125HS	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□
	4160S	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMC40-□□
	4200S	47.625	BT□□-FMA47.625-□□
		60	BT□□-FMB60-□□

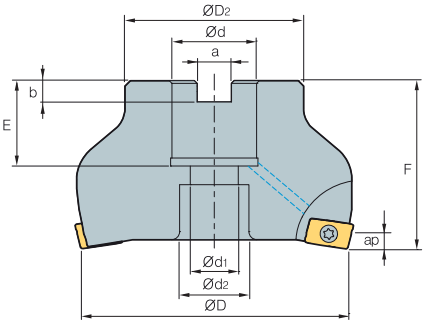
Parts

Specification	Screw	Wrench
Ø50~Ø200	FTKA0410	TW15S

Available inserts E05 Available arbors and bolt E400~E402

AMC(M)1000SE/2000SE





AA 75°
- AR: 45°
- RR: 0°

(mm)

Designation		⌀	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

Available inserts


APMT-MM


APMT-MF

Type	Designation		Cermet		Coated												Uncoated		page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
1000 type	APMT	060202PDSR-MM				●					●	●				●	●			E05
		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

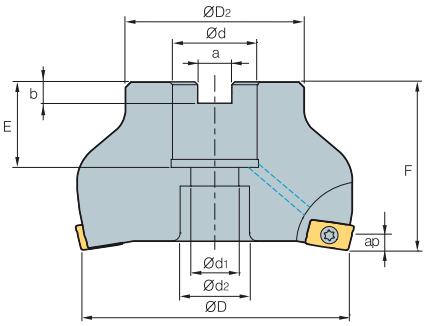
Type	Designation		Ød	NC arbors
1000 type	AMC (AMCM)	1040HSE	16	BT□□-FMC16-□□
		1050HSE	22	BT□□-FMC22-□□
2000 type	AMC (AMCM)	2080HSE	25.4	BT□□-FMA25.4-□□
			27	BT□□-FMC27-□□
		2100HSE	31.75	BT□□-FMA31.75-□□
			32	BT□□-FMC32-□□

Parts

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

Available inserts E05 Available arbors and bolt E400~E402

AMC(M)3000SE



AA 75°

- AR: 45°
- RR: 0°

(mm)

Designation			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

Available inserts


APMT-MM


APMT-MF

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDSR-MM			●	●	●		●	●	●	●	●	●	●	●	●			E05
	1604PDSR-MF				●					●	●	●			●	●			
	160410PDSR-MM									●					●	●			
	160416PDSR-MM				●					●	●				●	●			
	160424R-MM				●					●	●				●	●			
	160430R-MM									●	●				●	●			
	160432R-MM				●					●	●				●	●			

Available arbors

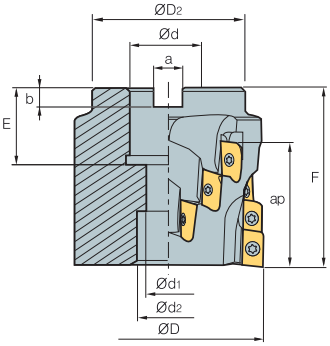
Designation		Ød	NC arbors
AMC (AMCM)	3080HSE	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HSE	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

Parts

Specification	Screw	Wrench
Ø80~Ø100	FTKA0410	TW08S

Available inserts E05 Available arbors and bolt E400~E402

AMC(M)2000M



AA 90°

- AR: 9°
- RR: -9°~ -5°

(mm)

Designation			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

Available inserts

APMT-MA

APMT-ML


APMT-MM


APMT-MF

APMT-MN

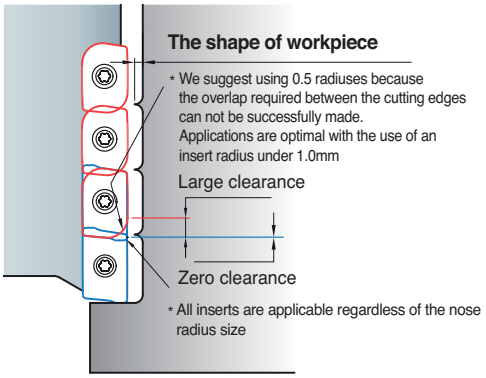
Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																	●	E05
	11T308PDFR-MA																		
	11T3PDER-ML														●	●			
	11T308PDER-ML														●	●			
	11T3PDSR-MM			●	●	●		●	●	●	●	●	●		●	●			
	11T3PDSR-MF				●					●	●	●			●	●			
	11T308PDSR-MM				●					●	●		●	●	●	●			
	11T312PDSR-MM				●					●	●		●		●	●			
	11T316R-MM				●					●	●				●	●			
	11T318R-MM																		
	11T324R-MM				●					●	●				●	●			
	11T3PDSR-MN2														●				
	11T3PDSR-MN3														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Available arbors

Designation		Ød	NC arbors	
AMC (AMCM)	2050M	22.225	BT□□-FMA22.225-□□	BT□□-SMA22.225-□□
		22	BT□□-FMC22-□□	BT□□-SMC22-□□
	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

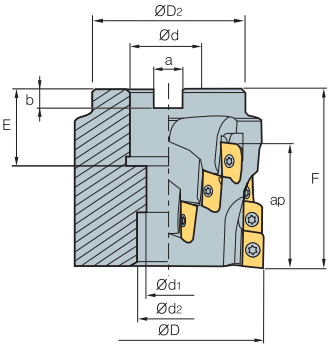


Parts

Specification	Screw	Wrench
Ø50~Ø100	FTKA02565S	TW08S

Available inserts E05 Available arbors and bolt E400~E402

AMC(M)3000M



• AR: 9°
• RR: -9°~ -5°

(mm)

Designation		⌀	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

Available inserts

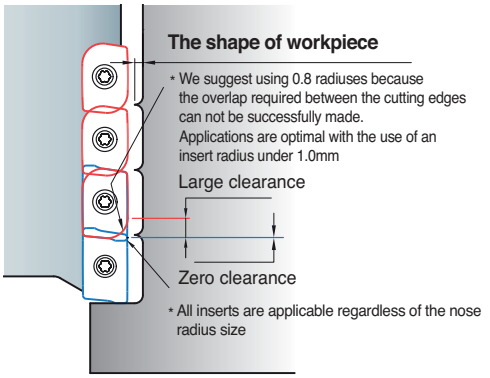
Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																	●	E05
	160404PDFR-MA																		
	1604PDER-ML														●	●			
	160404PDER-ML														●	●			
	1604PDSR-MM			●	●	●		●	●	●	●	●	●	●	●	●			
	1604PDSR-MF				●					●	●	●			●	●			
	160410PDSR-MM									●					●	●			
	160416PDSR-MM				●					●	●				●	●			
	160424R-MM				●					●	●				●	●			
	160430R-MM									●	●				●	●			
	160432R-MM				●					●	●				●	●			
	1604PDSR-MN3														●				
	1604PDSR-MN4														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

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

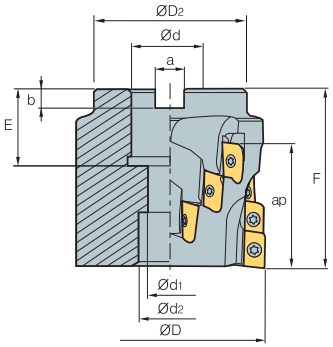


Parts

Specification	Screw	Wrench
Ø63~Ø100	FTKA0410	TW15S

Available inserts E05 Available arbors and bolt E400~E402

AMC(M)4000M



AA 90°

- AR: 9°
- RR: -9°~ -5°

(mm)

Designation		⌀	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

Available inserts

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



Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																●		E05
	180604PDFR-MA																●		
	180612PDFR-MA																●		
	180616PDFR-MA																●		
	180620PDFR-MA																●		
	180624PDFR-MA																●		
	180630R-MA																●		
	1806PDER-ML													●	●				
	180604PDER-ML													●	●				
	180612PDER-ML													●	●				
	180616PDER-ML													●	●				
	180620PDER-ML													●	●				

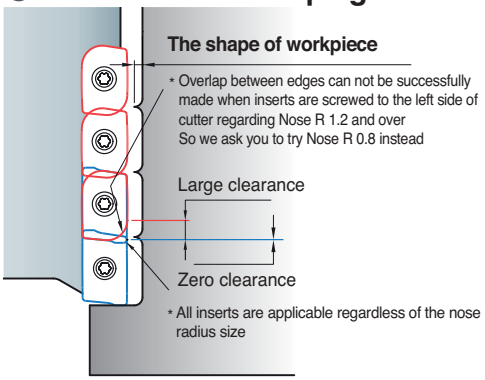
Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	180624PDER-ML														●	●			E05
	180630R-ML														●	●			
	1806PDSR-MM				●			●	●	●	●	●	●		●	●			
	1806PDSR-MF				●					●		●			●	●			
	180612PDSR-MM				●					●	●				●	●			
	180616PDSR-MM				●					●					●	●			
	180620PDSR-MM																		
	180624PDSR-MM				●					●					●	●			
	180630R-MM									●					●	●			
	180632R-MM				●					●					●	●			
	1806PDSR-MN3														●				
	1806PDSR-MN4														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

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

Available inserts E05 Available arbors and bolt E400~E402

AMS1000S

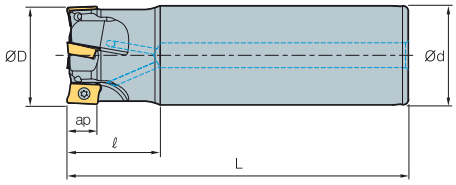


Fig. 1

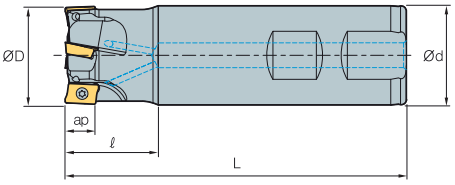
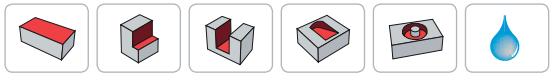


Fig. 2



AA
90°

- AR: 7.5°~13°
- RR: -17°~ -6°

(mm)

Designation			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

Available inserts

APMT-MA

APMT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																	●	E05
	060208PDFR-MA																		
	060202PDSR-MM				●						●				●	●			
	0602PDSR-MM				●			●	●	●	●	●	●		●	●			
	060208PDSR-MM				●					●	●				●	●			
	060212R-MM				●					●					●	●			
	060216R-MM									●					●	●			

Parts

Specification	Screw	Wrench
Ø10~Ø33	FTKA01842	TW06S-A

Available inserts **E05**

AMS1500S

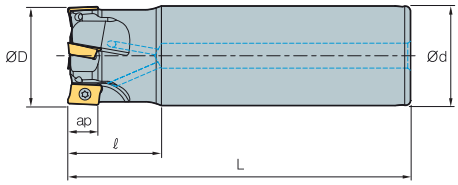


Fig. 1

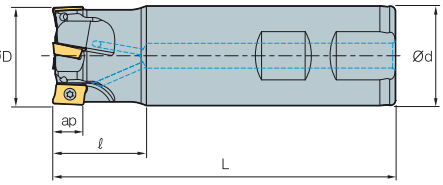


Fig. 2






AA
90°

- AR: 7.5°~12.5°
- RR: -28°~ -14°

(mm)

Designation			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

Available inserts

APMT-MA

APMT-ML

APMT-MM

Designation		Cermet		Coated													Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																	●	E05
	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

Available inserts E05

AMS1500S

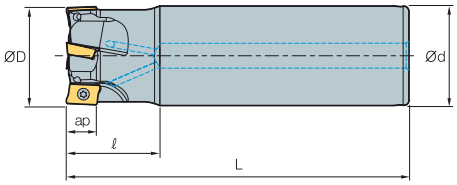


Fig. 1

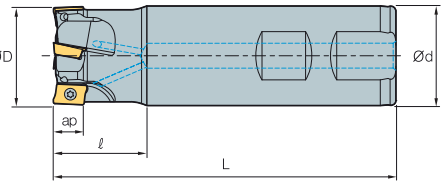


Fig. 2






AA
90°

- AR: 7.5°~12.5°
- RR: -28°~ -14°

(mm)

Designation			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

Available inserts

APMT-MA

APMT-ML

APMT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																	●	E05
	090308PDFR-MA																		
	0903PDER-ML														●	●			
	090308PDER-ML														●	●			
	0903PDSR-MM				●			●	●	●	●	●			●	●			
	090308PDSR-MM				●					●	●				●	●			
	090312R-MM									●	●				●	●			
	090316R-MM				●					●	●				●	●			
	090320R-MM									●	●				●	●			

Parts

Specification	Screw	Wrench
Ø25~Ø40	FTKA02565S	TW08S

Available inserts E05

AMS2000S

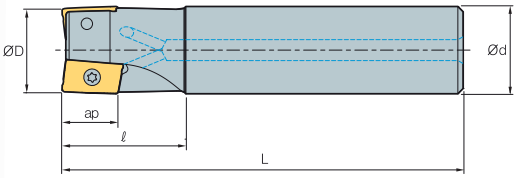


Fig. 1

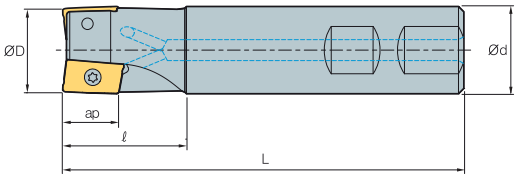


Fig. 2

AA
90°

- AR: 3°~14°
- RR: -25°~ -18°

(mm)

Designation			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

Available inserts

APMT-MA

APMT-ML

APMT-MM

APMT-MF

APMT-MN

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																	●	E05
	11T308PDFR-MA																		
	11T3PDER-ML														●	●			
	11T308PDER-ML														●	●			
	11T3PDSR-MM			●	●	●		●	●	●	●	●	●		●	●			
	11T3PDSR-MF				●					●	●	●			●	●			
	11T308PDSR-MM				●					●	●		●	●	●	●			
	11T312PDSR-MM				●					●	●		●		●	●			
	11T316R-MM				●					●	●				●	●			
	11T318R-MM																		
	11T324R-MM				●					●	●				●	●			
	11T3PDSR-MN2														●				
	11T3PDSR-MN3														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Parts

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

Available inserts E05

AMS3000S

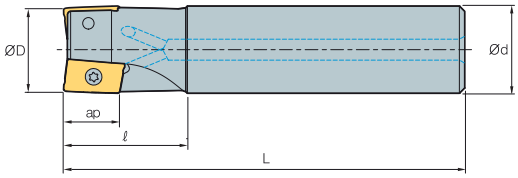


Fig. 1

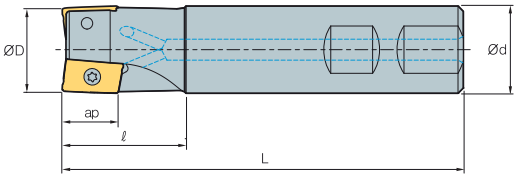


Fig. 2

AA 90°

- AR: 3°~14°
- RR: -18°~ -10°

(mm)

Designation			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

Available inserts

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

Designation		Cermet		Coated													Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																	●	E05
	160404PDFR-MA																		
	1604PDER-ML														●	●			
	160404PDER-ML														●	●			
	1604PDSR-MM			●	●	●		●	●	●	●	●	●	●	●	●			
	1604PDSR-MF				●					●	●	●			●	●			
	160410PDSR-MM									●					●	●			
	160416PDSR-MM				●					●	●				●	●			
	160424R-MM				●					●	●				●	●			
	160430R-MM									●	●				●	●			
	160432R-MM				●					●	●				●	●			
	1604PDSR-MN3														●				
	1604PDSR-MN4														●				

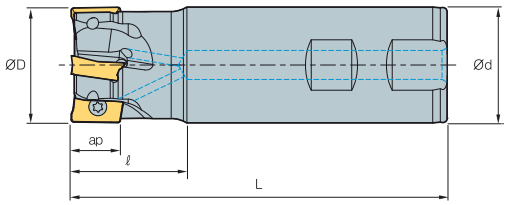
※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Parts

Specification	Screw	Wrench
Ø25 Ø32~Ø63	FTKA0408 FTKA0410	TW15S

Available inserts E05

AMS3000S-K







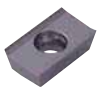

AA 90°

- AR: 14°
- RR: -18°~ -10°

(mm)

Designation			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

Available inserts

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

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	G10	H01	H05	
APKT	1604PDSR			●						●	●									E05
	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

Available inserts E05

AMS4000S

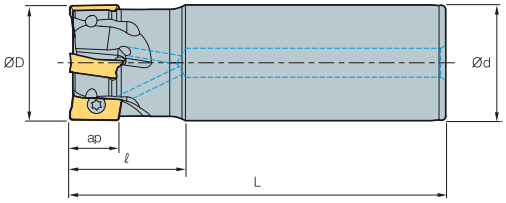


Fig. 1

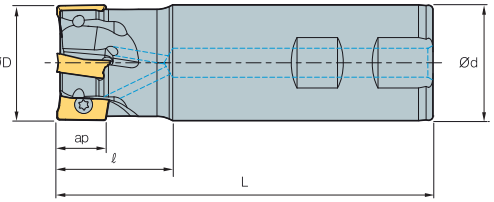


Fig. 2

AA
90°

- AR: 7°~13°
- RR: -20°~ -6°

(mm)

Designation			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

Available inserts

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

Designation		Cermet		Coated														Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400		G10	H01	
APMT	1806PDFR-MA																		●	E05
	180604PDFR-MA																		●	
	180612PDFR-MA																		●	
	180616PDFR-MA																		●	
	180620PDFR-MA																		●	
	180624PDFR-MA																		●	
	180630R-MA																		●	
	1806PDER-ML														●	●				
	180604PDER-ML														●	●				
	180612PDER-ML														●	●				
	180616PDER-ML														●	●				
	180620PDER-ML														●	●				

Designation		Cermet		Coated														Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400		G10	H01	
APMT	180624PDER-ML														●	●				E05
	180630R-ML														●	●				
	1806PDSR-MM				●			●	●	●	●	●	●	●	●	●				
	1806PDSR-MF				●					●		●			●	●				
	180612PDSR-MM				●					●	●				●	●				
	180616PDSR-MM				●					●					●	●				
	180620PDSR-MM																			
	180624PDSR-MM				●					●					●	●				
	180630R-MM									●					●	●				
	180632R-MM				●					●					●	●				
	1806PDSR-MN3														●					
	1806PDSR-MN4														●					

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Parts

Specification	Screw	Wrench
Ø20~Ø21 Ø25~Ø33	FTKA0408 FTKA0410	TW15S

Available inserts E05

AMS4000S

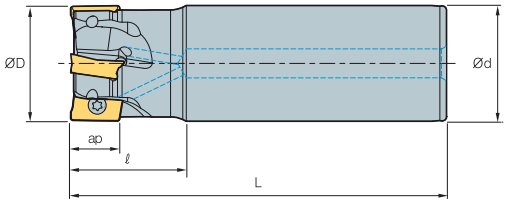


Fig. 1

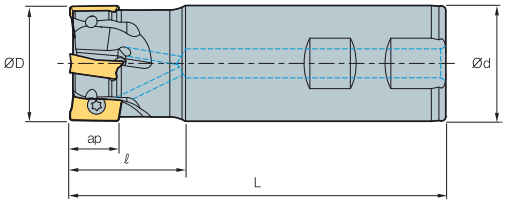
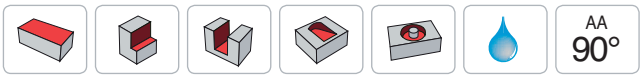


Fig. 2



- AR: 7°~13°
- RR: -20°~ -6°

(mm)

Designation			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

Available inserts

APMT-MA

APMT-ML

APMT-MM

APMT-MF

APMT-MN

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																●		E05
	180604PDFR-MA																●		
	180612PDFR-MA																●		
	180616PDFR-MA																●		
	180620PDFR-MA																●		
	180624PDFR-MA																●		
	180630R-MA																●		
	1806PDER-ML													●	●				
	180604PDER-ML													●	●				
	180612PDER-ML													●	●				
	180616PDER-ML													●	●				
	180620PDER-ML													●	●				

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	180624PDER-ML														●	●			E05
	180630R-ML														●	●			
	1806PDSR-MM				●			●	●	●	●	●	●	●	●	●			
	1806PDSR-MF				●					●		●			●	●			
	180612PDSR-MM				●					●	●				●	●			
	180616PDSR-MM				●					●					●	●			
	180620PDSR-MM																		
	180624PDSR-MM				●					●					●	●			
	180630R-MM									●					●	●			
	180632R-MM				●					●					●	●			
	1806PDSR-MN3														●				
	1806PDSR-MN4														●				

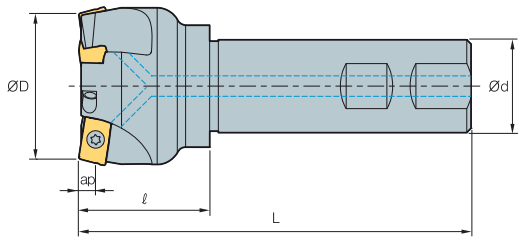
※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Parts

Specification	Screw	Wrench
Ø40~Ø63	FTKA0410	TW15S

Available inserts E05

AMS1000SE/2000SE



AA 75°

- AR: -4.5°~ -1°
- RR: -3°~0°

(mm)

Designation			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

Available inserts

APMT-MF

APMT-MM

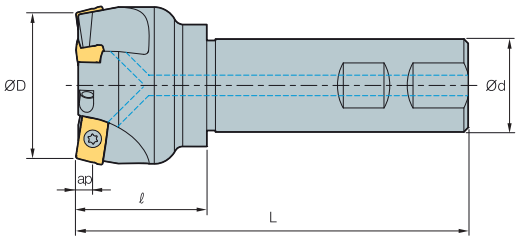
Type	Designation		Cermet		Coated												Uncoated		page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
1000 type	APMT	060202PDSR-MM				●						●				●	●			E05
		0602PDSR-MM				●			●	●	●	●	●	●		●	●			
		060208PDSR-MM				●					●	●				●	●			
		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	-

Available inserts E05

AMS3000SE



AA 75°

- AR: -4.5°~ -1°
- RR: -3°~0°

(mm)

Designation			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

Available inserts

APMT-MF

APMT-MM

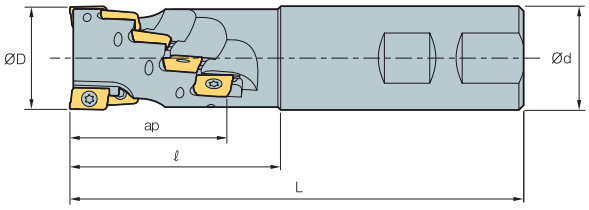
Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDSR-MM			●	●	●		●	●	●	●	●	●	●	●	●			E05
	1604PDSR-MF				●					●	●	●			●	●			
	160410PDSR-MM									●					●	●			
	160416PDSR-MM				●					●	●				●	●			
	160424R-MM				●					●	●				●	●			
	160430R-MM									●	●				●	●			
	160432R-MM				●					●	●				●	●			

Parts

Specification	Screw	Wrench
Ø50~Ø63	FTKA0410	TW15S

Available inserts E05

AMS1000M/1500M





AA 90°

- AR: 7°~9°
- RR: -13°~ -10°

(mm)

Designation			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

Available inserts

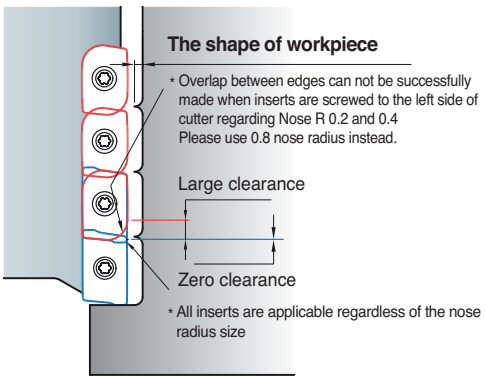
APMT-MA

APMT-ML

APMT-MM

Type	Designation		Cermet		Coated												Uncoated		page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
1000 type	APMT	0602PDFR-MA																	●	E05
		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

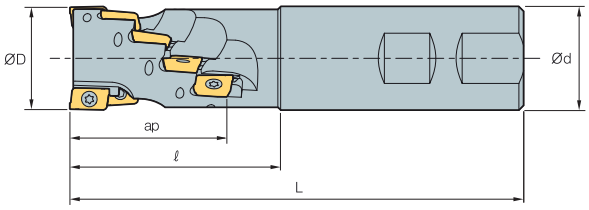


Parts

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

Available inserts E05

AMS2000M



AA 90°

- AR: 7°~9°
- RR: -13°~ -10°

(mm)

Designation			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

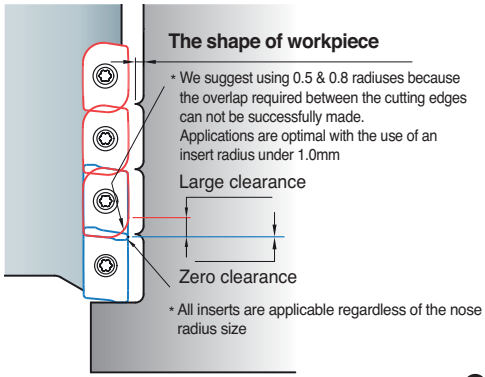
Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																	●	
	11T308PDFR-MA																		
	11T3PDER-ML														●	●			
	11T308PDER-ML														●	●			
	11T3PDSR-MM			●	●	●		●	●	●	●	●	●		●	●			
	11T3PDSR-MF				●					●	●	●			●	●			
	11T308PDSR-MM				●					●	●		●	●	●	●			E05
	11T312PDSR-MM				●					●	●		●		●	●			
	11T316R-MM				●					●	●				●	●			
	11T318R-MM																		
	11T324R-MM				●					●	●				●	●			
	11T3PDSR-MN2														●				
	11T3PDSR-MN3														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Caution when clamping the inserts

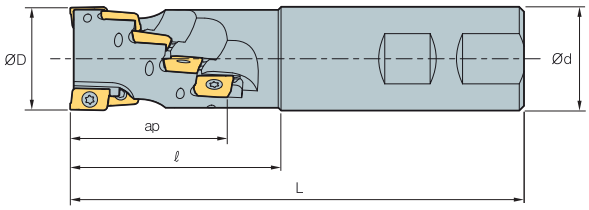


Parts

Specification	Screw	Wrench
Ø20~Ø40	FTKA02565S	TW08S

Available inserts E05

AMS4000M







AA 90°

- AR: 7°~9°
- RR: -13°~ -10°

(mm)

Designation			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

Available inserts

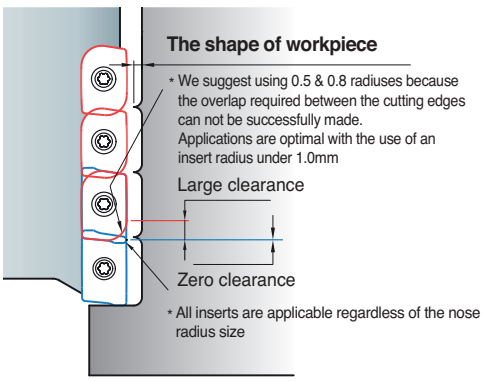
APMT-MA APMT-ML APMT-MM APMT-MF APMT-MN



Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																	●	E05
	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				●					●					●	●			
	1806PDSR-MN3														●				
	1806PDSR-MN4														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts

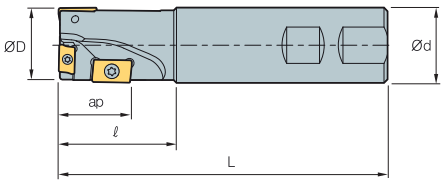


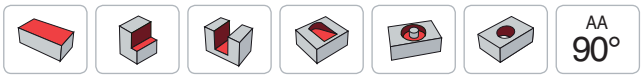
Parts

Specification	Screw	Wrench
Ø32~Ø50	FTKA0410	TW15S

Available inserts E05

AMS1000MH/1500MH





- AR: 9°~12°
- RR: -12°~ -10°

(mm)

Designation			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	-	-	-

Available inserts

APMT-MA APMT-ML APMT-MM

Type	Designation		Cermet		Coated												Uncoated		page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
1000 type	APMT	0602PDFR-MA																	●	E05
		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

Available inserts E05

AMS2000MH/3000MH(-K)

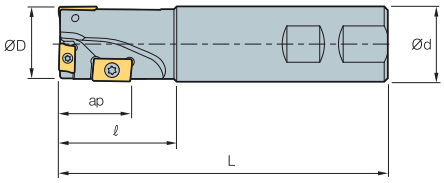


Fig. 1

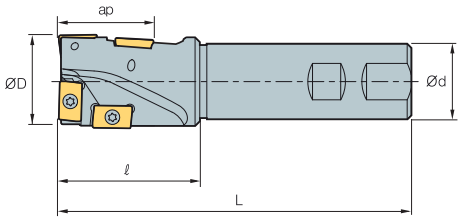
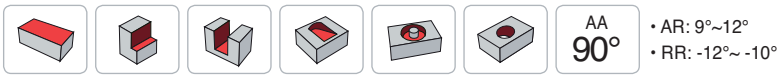


Fig. 2



AA 90°

- AR: 9°~12°
- RR: -12°~ -10°

(mm)

Designation			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

Available inserts

Type	Designation		Cermet CN2000	Cermet CN30	Coated NCM325	NCM335	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	Uncoated H01	page
2000 type	APMT	11T3PDFR-MA																	●	E04 E05
		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	Wrench
Ø25 (2000 type)	FTKA02565S	TW08S	-
Ø32 (2000 type)	FTKA02565S+FTKA0410	TW08S+TW15S	
Ø40 (3000 type)	FTKA0410	TW15S	-

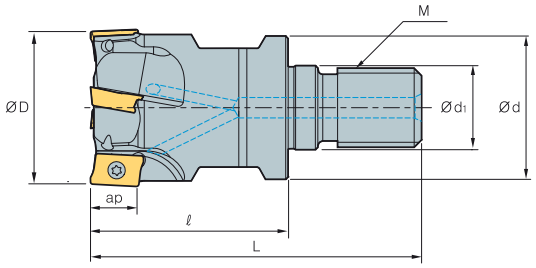
Available inserts **E04, E05**

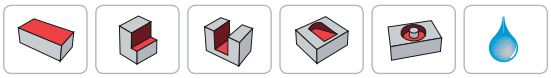
Recommended cutting condition

	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			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

Available inserts

APMT-MA

APMT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																	●	E05
	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)

||

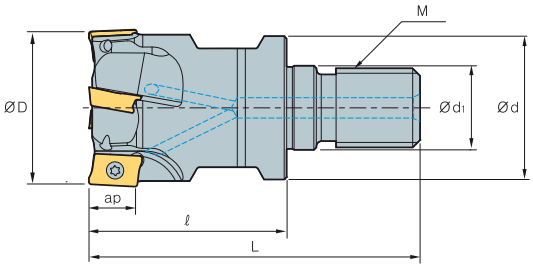
Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

Parts

Specification	Screw	Wrench
Ø12~Ø32	FTKA01842	TW06S-A

Available inserts E05 Available adaptor E371~E372

AMM1500



AA 90°

- AR: 7.5°~12.5°
- RR: -28°~ -6°

(mm)

Designation			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

Available inserts

APMT-MA APMT-ML APMT-MM

Designation		Cermet		Coated													Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																	●	E05
	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)

II

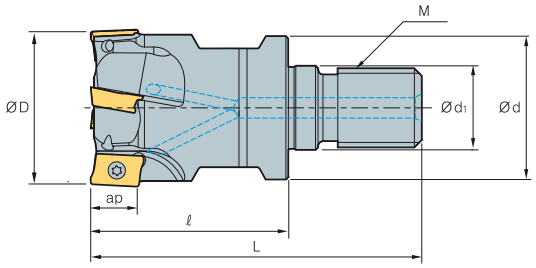
Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

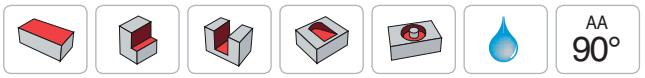
Parts

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

Available inserts E05 Available adaptor E371~E372

AMM2000





AA 90°

- AR: 7.5°~12.5°
- RR: -28°~ -6°

(mm)

Designation			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

Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																	●	E05
	11T308PDFR-MA																		
	11T3PDER-ML														●	●			
	11T308PDER-ML														●	●			
	11T3PDSR-MM			●	●	●		●	●	●	●	●	●		●	●			
	11T3PDSR-MF				●					●	●	●			●	●			
	11T308PDSR-MM				●					●	●		●	●	●	●			
	11T312PDSR-MM				●					●	●		●		●	●			
	11T316R-MM				●					●	●				●	●			
	11T318R-MM																		
	11T324R-MM				●					●	●				●	●			
	11T3PDSR-MN2														●				
	11T3PDSR-MN3														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

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)

II

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

Parts

Specification	Screw	Wrench
Ø16~Ø40	FTKA02565S	TW08S

Available inserts E05 Available adaptor E371~E372

Guarantee strong constrain force by 2-side constraint

BT/HSK Tooling System

Code system (Single, Multi-edge type)

BT50 HAT 4 063 114 – 4 F

Arbor type	Item Name	Type	Diameter	Length (ap)	No. of flute	Front piece or total length
BT30/40/50 HSK40/50/63/100	AM HAT RM	1000 type 1500 type 2000 type 3000 type 4000 type	063: Ø63	Length: 114 HS: Coolant + Single	No. of flute: 4 No. of tooth: 4	Front Piece (Y/N) Y: F No code: No L: Long type

Code system (Modular type)

BT50 MAT M16 092

Arbor type	Item category	M Dimensions	Total length (L)
BT30/40/50 HSK40/50/63/100	MAT	M16	092: 92

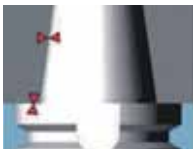
DBT system

Feature of (D)BT arbor

- Guaranteed strong force by 2-side constraint
- Guarantee strengthen cutting at high speed
- Guaranteed superior surface roughness

DBT (Constrain, increased surface roughness)

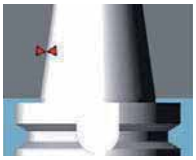
2-side constraint
(Taper, 1-side)



DBT Workpiece
Ra = 0.3㎛

BT

1-side constraint
(Taper)



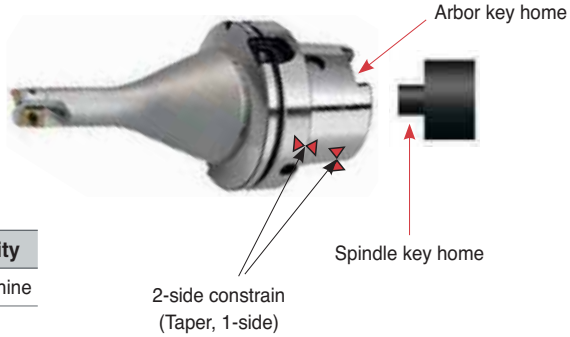
BT Workpiece
Ra = 0.5㎛

HSK system

Feature of HSK arbor

- Guaranteed strong constrain force by 2-side constraint
- Guaranteed strengthened cutting at high speeds
- Guaranteed superior surface roughness
- Guaranteed repeatability at axle direction and repeated direction

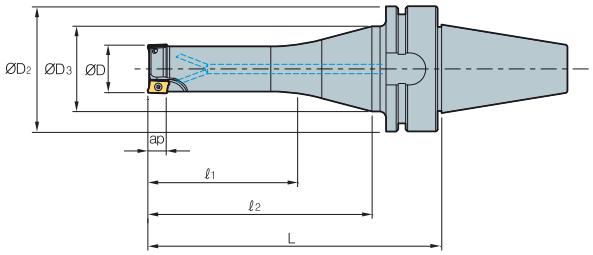
HSK A: HSK T key tolerance comparison



HSK tolerance comparison

Arbor type	Max. tolerance	Min. tolerance	Available facility
HSK-T	0.075	0.035	Multi-tasking machine
HSK-A	0.33	0.08 (General)	MCT

BT30 AM1000HS



AA 90°

- AR: 7.5°~13°
- RR: -28°~ -7°

(mm)

Designation			ØD	ØD2	ØD3	ℓ1	ℓ2	L	ap
BT30	AM1010HS-2	2	10	46	41	35	83	112	5.6
	AM1012HS-2	2	12	46	41	35	83	112	5.6
	AM1012HS-3	3	12	46	41	35	83	112	5.6
	AM1016HS-3	3	16	46	41	35	83	112	5.6
	AM1016HS-4	4	16	46	41	35	83	112	5.6
	AM1020HS-4	4	20	46	41	45	98	127	5.6
	AM1020HS-5	5	20	46	41	45	98	127	5.6

Available inserts

APMT-MA

APMT-MM

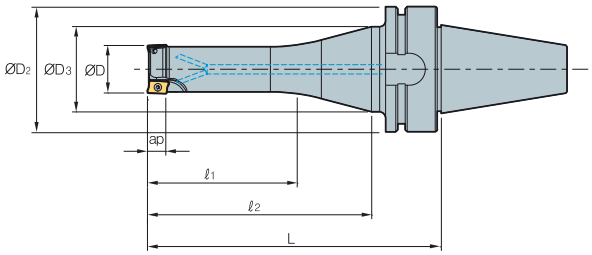
Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																	●	E05
	060208PDFR-MA																		
	060202PDSR-MM				●						●				●	●			
	0602PDSR-MM				●			●	●	●	●	●	●		●	●			
	060208PDSR-MM				●					●	●				●	●			
	060212R-MM				●					●					●	●			
	060216R-MM									●					●	●			

Parts

Specification	Screw	Wrench	Wrench
Ø10~Ø20	FTKA01842	-	TW06S-A

Available inserts E05

BT40 AM1500HS



AA 90°

- AR: 7.5°~13°
- RR: -28°~ -7°

(mm)

Designation			ØD	ØD2	ØD3	ℓ1	ℓ2	L	ap
BT40	AM15016HS-2	2	16	63	50	45	83	117	9
	AM15016HS-2L	2	16	63	50	35	118	152	9
	AM15020HS-2	2	20	63	50	60	98	132	9
	AM15020HS-3	3	20	63	50	60	98	132	9
	AM15020HS-2L	2	20	63	50	50	118	152	9
	AM15025HS-3	3	25	63	50	75	113	147	9
	AM15025HS-4	4	25	63	50	75	113	147	9
	AM15025HS-3L	3	25	63	50	65	133	167	9
	AM15032HS-4	4	32	63	50	80	113	147	9
	AM15032HS-5	5	32	63	50	80	113	147	9
	AM15032HS-4L	4	32	63	50	70	133	167	9
	AM15040HS-5	5	40	63	50	60	98	132	9
	AM15040HS-6	6	40	63	50	60	98	132	9
	AM15040HS-5L	5	40	63	50	50	118	152	9

Available inserts

APMT-MA APMT-ML APMT-MM

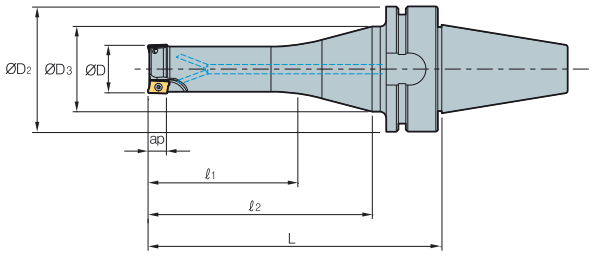
Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																	●	
	090308PDFR-MA																		
	0903PDER-ML														●	●			
	090308PDER-ML														●	●			
	0903PDSR-MM				●			●	●	●	●	●			●	●			E05
	090308PDSR-MM				●					●	●				●	●			
	090312R-MM									●	●				●	●			
	090316R-MM				●					●	●				●	●			
	090320R-MM									●	●				●	●			

Parts

Specification	Screw	Wrench	Wrench
Ø16~Ø40	FTKA02565S	TW08S	-

Available inserts E05

BT40 AM2000HS



AA 90°

- AR: 7°~10°
- RR: -20°~ -7°

(mm)

Designation			ØD	ØD2	ØD3	ℓ1	ℓ2	L	ap
BT40	AM2016HS-2	2	16	63	50	45	83	117	11
	AM2016HS-2L	2	16	63	50	35	118	152	11
	AM2020HS-2	2	20	63	50	60	98	132	11
	AM2020HS-2L	2	20	63	50	50	118	152	11
	AM2025HS-3	3	25	63	50	75	113	147	11
	AM2025HS-3L	3	25	63	50	65	133	167	11
	AM2032HS-4	4	32	63	50	80	113	147	11
	AM2032HS-4L	4	32	63	50	70	133	167	11
	AM2040HS-5	5	40	63	50	60	98	132	11
	AM2040HS-5L	5	40	63	50	50	118	152	11
	AM2050HS-6	6	50	63	50	60	98	132	11
	AM2050HS-6L	6	50	63	50	50	118	152	11

Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																	●	E05
	11T308PDFR-MA																		
	11T3PDER-ML														●	●			
	11T308PDER-ML														●	●			
	11T3PDSR-MM			●	●	●		●	●	●	●	●	●		●	●			
	11T3PDSR-MF				●					●	●	●			●	●			
	11T308PDSR-MM				●					●	●		●	●	●	●			
	11T312PDSR-MM				●					●	●		●		●	●			
	11T316R-MM				●					●	●				●	●			
	11T318R-MM																		
	11T324R-MM				●					●	●				●	●			
	11T3PDSR-MN2														●				
	11T3PDSR-MN3														●				

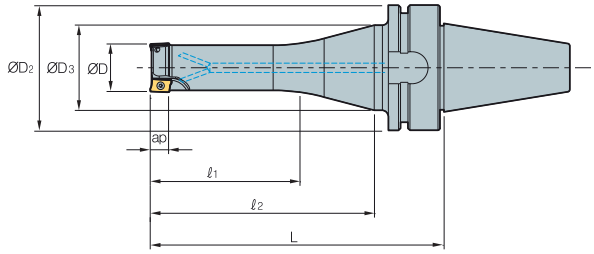
※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Parts

Specification	Screw	Wrench
Ø16~Ø50	FTKA02565S	TW08S

Available inserts E05

BT50 AM3000HS



AA 90°

- AR: 7°~10°
- RR: -20°~ -7°

(mm)

Designation			ØD	ØD2	ØD3	ℓ1	ℓ2	L	ap
BT50	AM3025HS-2	2	25	100	80	65	113	158	16
	AM3025HS-2L	2	25	100	80	55	123	168	16
	AM3032HS-3	3	32	100	80	70	113	158	16
	AM3032HS-3L	3	32	100	80	60	123	168	16
	AM3040HS-4	4	40	100	80	50	98	143	16
	AM3040HS-4L	4	40	100	80	40	108	153	16
	AM3050HS-5	5	50	100	80	50	98	143	16
	AM3050HS-5L	5	50	100	80	40	108	153	16

Available inserts

APMT-MA

APMT-ML


APMT-MM


APMT-MF

APMT-MN

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																	●	E05
	160404PDFR-MA																		
	1604PDER-ML														●	●			
	160404PDER-ML														●	●			
	1604PDSR-MM			●	●	●		●	●	●	●	●	●	●	●	●			
	1604PDSR-MF				●					●	●	●			●	●			
	160410PDSR-MM									●					●	●			
	160416PDSR-MM				●					●	●				●	●			
	160424R-MM				●					●	●				●	●			
	160430R-MM									●	●				●	●			
	160432R-MM				●					●	●				●	●			
	1604PDSR-MN3														●				
	1604PDSR-MN4														●				

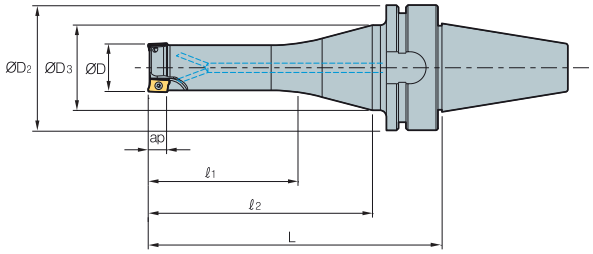
※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Parts

Specification	Screw	Wrench
Ø25 Ø32~Ø50	FTKA0408 FTKA0410	TW15S

Available inserts E05

BT50 AM4000HS



AA 90°

- AR: 7°~10°
- RR: -20°~ -7°

(mm)

Designation			ØD	ØD2	ØD3	ℓ1	ℓ2	L	ap
BT50	AM4020HS-1	1	20	100	80	50	98	143	17
	AM4025HS-2	2	25	100	80	65	113	158	17
	AM4032HS-3	3	32	100	80	70	113	158	17
	AM4032HS-3L	3	32	100	80	60	123	168	17
	AM4040HS-4	4	40	100	80	50	98	143	17
	AM4040HS-4L	4	40	100	80	40	108	153	17
	AM4050HS-5	5	50	100	80	50	98	143	17
	AM4050HS-5L	5	50	100	80	40	108	153	17

Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																	●	E05
	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				●					●					●	●			
	1806PDSR-MN3														●				
	1806PDSR-MN4														●				

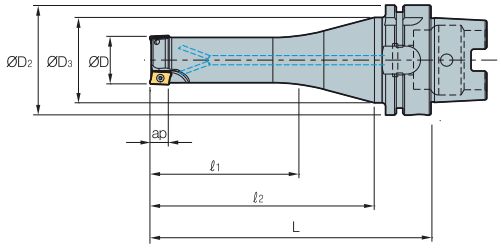
※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Parts

Specification	Screw	Wrench
Ø20~Ø25 Ø32~Ø50	FTKA0408 FTKA0410	TW15S

Available inserts E05

HSK63A AM1000HS



AA 90°

- AR: 7.5°~13°
- RR: -28°~ -7°

(mm)

Designation			ØD	ØD2	ØD3	ℓ1	ℓ2	L	ap
HSK63A	AM1010HS-2	2	10	63	53	35	83	116	5.6
	AM1012HS-2	2	12	63	53	35	83	116	5.6
	AM1012HS-3	3	12	63	53	35	83	116	5.6
	AM1016HS-3	3	16	63	53	35	83	116	5.6
	AM1016HS-4	4	16	63	53	35	83	116	5.6
	AM1020HS-4	4	20	63	53	45	98	131	5.6
	AM1020HS-5	5	20	63	53	45	98	131	5.6

Available inserts

APMT-MA

APMT-MM

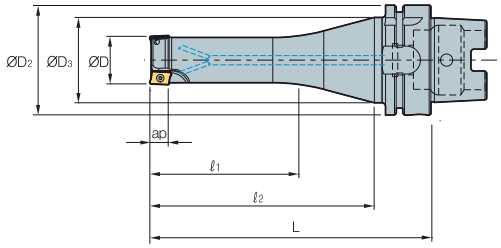
Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																	●	E05
	060208PDFR-MA																		
	060202PDSR-MM				●						●				●	●			
	0602PDSR-MM				●			●	●	●	●	●	●		●	●			
	060208PDSR-MM				●					●	●				●	●			
	060212R-MM				●					●					●	●			
	060216R-MM									●					●	●			

Parts

Specification	Screw	Wrench	Wrench
Ø10~Ø20	FTKA01842	-	TW06S-A

Available inserts E05

HSK63A AM1500HS



AA 90°

- AR: 7.5°~13°
- RR: -28°~ -7°

(mm)

Designation			ØD	ØD2	ØD3	ℓ1	ℓ2	L	ap
HSK63A	AM15016HS-2	2	16	63	53	45	83	116	9
	AM15016HS-2L	2	16	63	53	35	118	151	9
	AM15020HS-2	2	20	63	53	60	98	131	9
	AM15020HS-3	3	20	63	53	60	98	131	9
	AM15020HS-2L	2	20	63	53	50	118	151	9
	AM15025HS-3	3	25	63	53	75	113	146	9
	AM15025HS-4	4	25	63	53	75	113	146	9
	AM15025HS-3L	3	25	63	53	65	133	166	9
	AM15032HS-4	4	32	63	53	80	113	146	9
	AM15032HS-5	5	32	63	53	80	113	146	9
	AM15032HS-4L	4	32	63	53	70	133	166	9
	AM15040HS-5	5	40	63	53	60	98	131	9
	AM15040HS-6	6	40	63	53	60	98	131	9
	AM15040HS-5L	5	40	63	53	50	118	151	9

Available inserts

APMT-MA

APMT-ML

APMT-MM

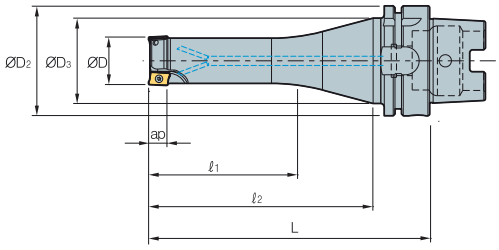
Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																	●	E05
	090308PDFR-MA																		
	0903PDER-ML														●	●			
	090308PDER-ML														●	●			
	0903PDSR-MM				●			●	●	●	●	●			●	●			
	090308PDSR-MM				●					●	●				●	●			
	090312R-MM									●	●				●	●			
	090316R-MM				●					●	●				●	●			
	090320R-MM									●	●				●	●			

Parts

Specification	Screw	Wrench	Wrench
Ø16~Ø40	FTKA02565S	TW08S	-

Available inserts E05

HSK63A AM2000HS



AA 90°

- AR: 7°~10°
- RR: -20°~ -7°

(mm)

Designation			ØD	ØD2	ØD3	ℓ1	ℓ2	L	ap
HSK63A	AM2016HS-2	2	16	63	53	45	83	116	11
	AM2016HS-2L	2	16	63	53	35	118	151	11
	AM2020HS-2	2	20	63	53	60	98	131	11
	AM2020HS-2L	2	20	63	53	50	118	151	11
	AM2025HS-3	3	25	63	53	75	113	146	11
	AM2025HS-3L	3	25	63	53	65	133	166	11
	AM2032HS-4	4	32	63	53	80	113	146	11
	AM2032HS-4L	4	32	63	53	70	133	166	11
	AM2040HS-5	5	40	63	53	60	98	131	11
	AM2040HS-5L	5	40	63	53	50	118	151	11
	AM2050HS-6	6	50	63	53	60	98	131	11
	AM2050HS-6L	6	50	63	53	50	118	151	11

Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																	●	E05
	11T308PDFR-MA																		
	11T3PDER-ML														●	●			
	11T308PDER-ML														●	●			
	11T3PDSR-MM			●	●	●		●	●	●	●	●	●		●	●			
	11T3PDSR-MF				●					●	●	●			●	●			
	11T308PDSR-MM				●					●	●		●	●	●	●			
	11T312PDSR-MM				●					●	●		●		●	●			
	11T316R-MM				●					●	●				●	●			
	11T318R-MM																		
	11T324R-MM				●					●	●				●	●			
	11T3PDSR-MN2														●				
	11T3PDSR-MN3														●				

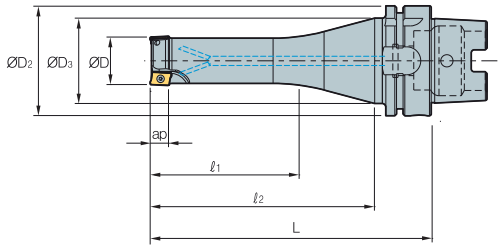
※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Parts

Specification	Screw	Wrench
Ø16~Ø50	FTKA02565S	TW08S

Available inserts E05

HSK63A AM3000HS



AA 90°

- AR: 7°~10°
- RR: -20°~ -7°

(mm)

Designation			ØD	ØD2	ØD3	ℓ1	ℓ2	L	ap
HSK63A	AM3025HS-2	2	25	63	53	65	113	146	16
	AM3025HS-2L	2	25	63	53	55	123	156	16
	AM3032HS-3	3	32	63	53	70	113	146	16
	AM3032HS-3L	3	32	63	53	60	123	156	16
	AM3040HS-4	4	40	63	53	50	98	131	16
	AM3040HS-4L	4	40	63	53	40	108	141	16
	AM3050HS-5	5	50	63	53	50	98	131	16
	AM3050HS-5L	5	50	63	53	40	108	141	16

Available inserts



Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																	●	E05
	160404PDFR-MA																		
	1604PDER-ML														●	●			
	160404PDER-ML														●	●			
	1604PDSR-MM			●	●	●		●	●	●	●	●	●	●	●	●			
	1604PDSR-MF				●					●	●	●			●	●			
	160410PDSR-MM									●					●	●			
	160416PDSR-MM				●					●	●				●	●			
	160424R-MM				●					●	●				●	●			
	160430R-MM									●	●				●	●			
	160432R-MM				●					●	●				●	●			
	1604PDSR-MN3														●				
	1604PDSR-MN4														●				

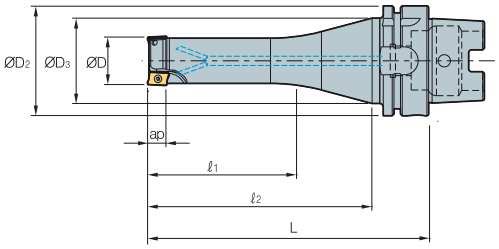
※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

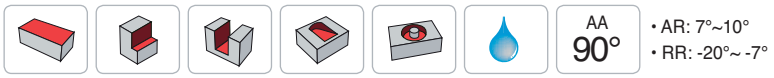
Parts

Specification	Screw	Wrench
Ø25 Ø32~Ø50	FTKA0408 FTKA0410	TW15S

Available inserts E05

HSK63A AM4000HS





AA 90°

- AR: 7°~10°
- RR: -20°~ -7°

(mm)

Designation			ØD	ØD2	ØD3	ℓ1	ℓ2	L	ap
HSK63A	AM4020HS-1	1	20	63	53	50	98	131	17
	AM4025HS-2	2	25	63	53	65	113	146	17
	AM4032HS-3	3	32	63	53	70	113	146	17
	AM4032HS-3L	3	32	63	53	60	123	156	17
	AM4040HS-4	4	40	63	53	50	98	131	17
	AM4040HS-4L	4	40	63	53	40	108	141	17
	AM4050HS-5	5	50	63	53	50	98	131	17
	AM4050HS-5L	5	50	63	53	40	108	141	17

Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																	●	E05
	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				●					●					●	●			
	1806PDSR-MN3														●				
	1806PDSR-MN4														●				

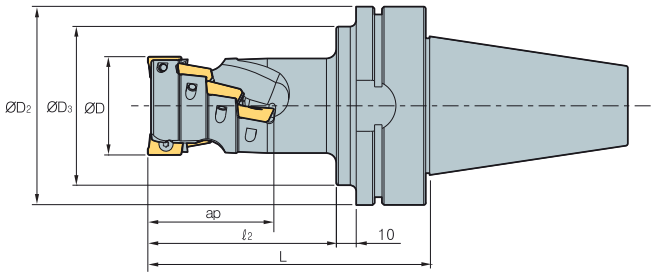
※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Parts

Specification	Screw	Wrench
Ø20~Ø25 Ø32~Ø50	FTKA0408 FTKA0410	TW15S

Available inserts E05

BT30/40 AM1000





AA 90°

- AR: -12.5°~13°
- RR: -17°~ -6°

(mm)

Designation		⊚	ØD	ØD2	ØD3	ℓ2	L	No. of flute	ap
BT30	AM1016015-2	6	16	46	41	30	62	2	15.5
	AM1020020-3	12	20	46	41	32	64	3	20.5
	AM1025025-4	20	25	46	41	39	71	4	25.5
BT40	AM1016015-2	6	16	63	50	30	67	2	15.5
	AM1020020-3	12	20	63	50	32	69	3	20.5
	AM1025025-4	20	25	63	50	39	76	4	25.5

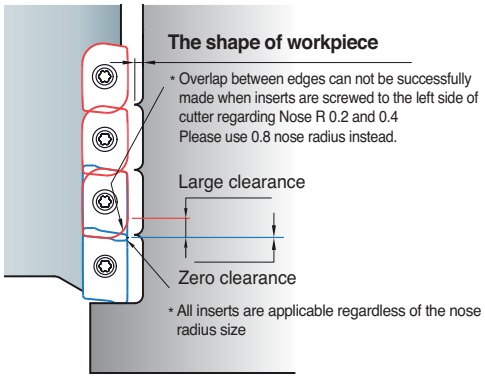
Available inserts

APMT-MA

APMT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																	●	E05
	060208PDFR-MA																		
	060202PDSR-MM				●						●				●	●			
	0602PDSR-MM				●			●	●	●	●	●	●		●	●			
	060208PDSR-MM				●					●	●				●	●			
	060212R-MM				●					●					●	●			
	060216R-MM									●					●	●			

Caution when clamping the inserts

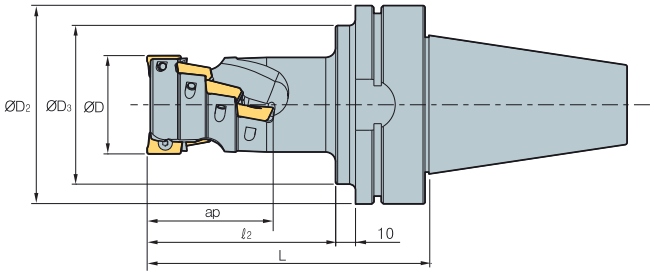


Parts

Specification	Screw	Wrench	Wrench
Ø16~Ø25	FTKA01842	-	TW06S-A

Available inserts E05

BT30/40 AM1500



• AR: -12.5°~13°
• RR: -17°~ -6°

(mm)

Designation			ØD	ØD2	ØD3	ℓ2	L	No. of flute	ap
BT30	AM15020026-1	3	20	46	41	42	74	1	26.5
	AM15025035-2	8	25	46	41	50	62	2	35
	AM15032044-2	10	32	46	41	60	92	2	44
BT40	AM15020026-1	3	20	63	50	42	79	1	26.5
	AM15025035-2	8	25	63	50	50	87	2	35
	AM15032044-2	10	32	63	50	60	97	2	44

Available inserts

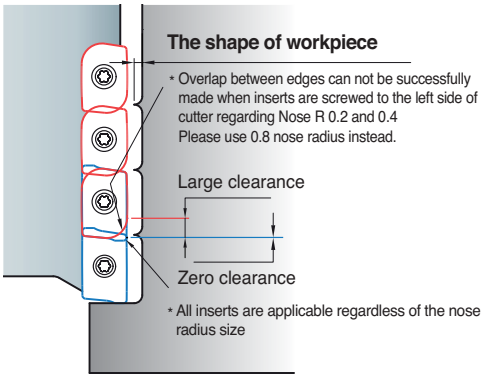
APMT-MA

APMT-ML

APMT-MM

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																	●	E05
	090308PDFR-MA																		
	0903PDER-ML														●	●			
	090308PDER-ML														●	●			
	0903PDSR-MM				●			●	●	●	●	●			●	●			
	090308PDSR-MM				●					●	●				●	●			
	090312R-MM									●	●				●	●			
	090316R-MM				●					●	●				●	●			
	090320R-MM									●	●				●	●			

Caution when clamping the inserts

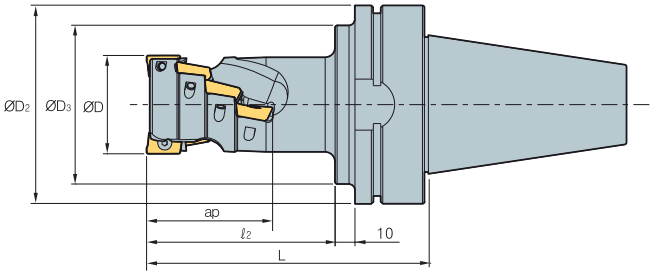


Parts

Specification	Screw	Wrench	Wrench
Ø20~Ø32	FTKA02565S	TW08S	-

Available inserts **E05**

BT30/40 AM2000





AA 90°

- AR: -9°
- RR: -13°~ -8°

(mm)

Designation			ØD	ØD2	ØD3	ℓ2	L	No. of flute	ap
BT30	AM2020029-1	3	20	46	41	45	77	1	29.4
	AM2025038-2	8	25	46	45	55	87	2	38.9
	AM2032048-2	10	32	46	45	65	97	2	48.5
	AM2040058-2	14	40	46	45	75	107	2	58
	AM2050039-4	16	50	46	45	58	90	4	39
	AM2063039-4	16	63	46	45	58	90	4	39
	AM2080039-5	20	80	46	45	63	95	5	39
	AM2100039-6	24	100	46	45	63	95	6	39
BT40	AM2020029-1	3	20	63	50	45	82	1	29.4
	AM2025038-2	8	25	63	50	55	92	2	38.9
	AM2032048-2	10	32	63	50	65	102	2	48.5
	AM2040058-2	14	40	63	50	75	112	2	58
	AM2050039-4	16	50	63	50	58	95	4	39
	AM2063039-4	16	63	63	50	58	95	4	39
	AM2080039-5	20	80	63	50	63	100	5	39
	AM2100039-6	24	100	63	50	63	100	6	39

Available inserts

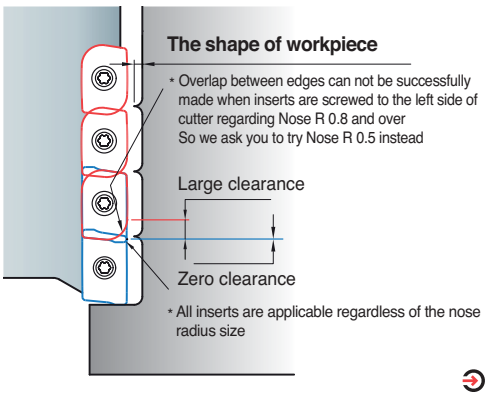
APMT-MA APMT-ML APMT-MM APMT-MF APMT-MN



Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																	●	E05
	11T308PDFR-MA																		
	11T3PDER-ML														●	●			
	11T308PDER-ML														●	●			
	11T3PDSR-MM			●	●	●		●	●	●	●	●	●		●	●			
	11T3PDSR-MF				●					●	●	●			●	●			
	11T308PDSR-MM				●					●	●		●	●	●	●			
	11T312PDSR-MM				●					●	●		●		●	●			
	11T316R-MM				●					●	●				●	●			
	11T318R-MM																		
	11T324R-MM				●					●	●				●	●			
	11T3PDSR-MN3														●				
	11T3PDSR-MN4														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts

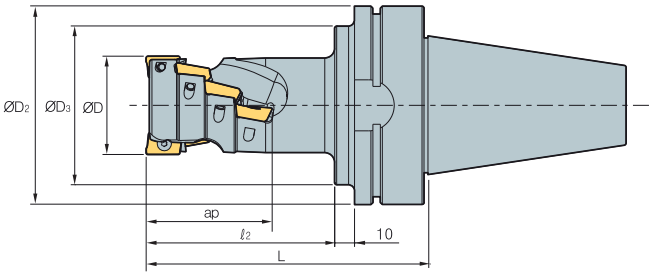


Parts

Specification	Screw	Wrench
Ø20~Ø100	FTKA02565S	TW08S

Available inserts E05

BT50 AM3000





AA 90°

- AR: 13°~15°
- RR: -11°~ -4°

(mm)

Designation			ØD	ØD2	ØD3	ℓ2	L	No. of flute	ap
BT50	AM3050043-2	6	50	100	80	72	120	2	43
	AM3063057-4	16	63	100	80	86	134	4	57
	AM3080071-4	20	80	100	80	100	148	4	71
	AM3100071-6	30	100	100	80	100	148	6	71

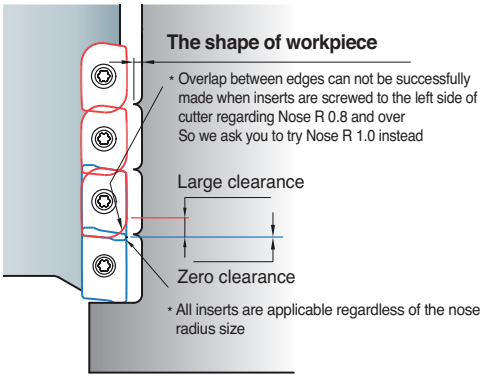
Available inserts

APMT-MA APMT-ML APMT-MM APMT-MN


Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																	●	E05
	160404PDFR-MA																		
	1604PDER-ML														●	●			
	160404PDER-ML														●	●			
	1604PDSR-MM			●	●	●		●	●	●	●	●	●	●	●	●			
	1604PDSR-MF				●					●	●	●			●	●			
	160410PDSR-MM									●					●	●			
	160416PDSR-MM				●					●	●				●	●			
	160424R-MM				●					●	●				●	●			
	160430R-MM									●	●				●	●			
	160432R-MM				●					●	●				●	●			
	1604PDSR-MN3														●				
	1604PDSR-MN4														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts

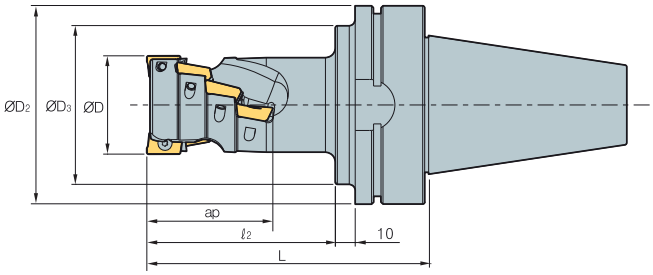


Parts

Specification	Screw	Wrench
Ø50~Ø100	FTKA0410	TW15S

Available inserts E05

BT50 AM4000



AA
90°

- AR: 13°~15°
- RR: -11°~ -4°

(mm)

Designation			ØD	ØD2	ØD3	ℓ2	L	No. of flute	ap
BT50	AM4040046-2	6	40	100	80	75	123	2	46
	AM4050061-2	8	50	100	80	95	143	2	61
	AM4063061-4	16	63	100	80	90	138	4	61
	AM4080076-4	20	80	100	80	105	153	4	76
	AM4100076-6	30	100	100	80	105	153	6	76

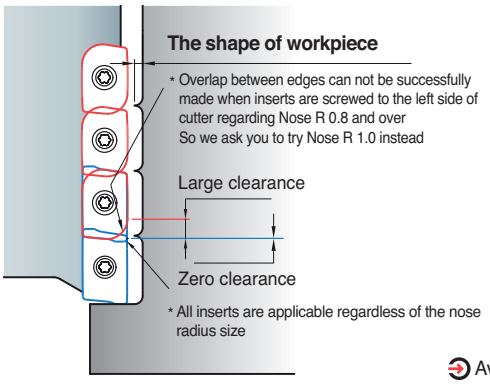
Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																	●	E05
	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				●					●					●	●			
	1806PDSR-MN3																		
	1806PDSR-MN4														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts

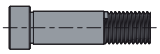


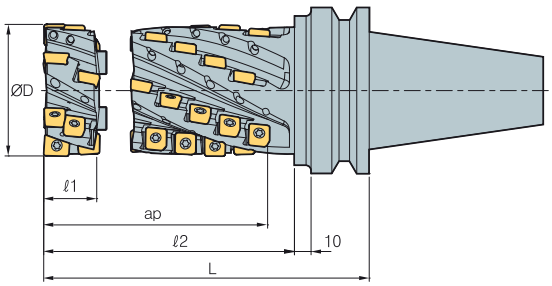
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0410	TW15S

Available inserts E05

BT50 HAT4000



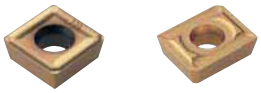


(mm)

Designation		SPMT	ZPMT	ØD	ℓ1	ℓ2	L	No. of flute	ap	Application
BT50-(Set)	HAT4050094-2F	10	1	50	32	119	160	2	94	HAT4050032-2F
	HAT4050104-2F	11	1	50	32	129	170	2	104	
	HAT4050114-2F	12	1	50	32	139	180	2	114	
	HAT4063094-4F	20	2	63	32	119	160	4	94	HAT4063032-4F
	HAT4063104-4F	22	2	63	32	129	170	4	104	
	HAT4063114-4F	24	2	63	32	139	180	4	114	
	HAT4080094-4F	20	2	80	33	119	160	4	94	HAT4080033-4F
	HAT4080104-4F	22	2	80	33	129	170	4	104	
	HAT4080114-4F	24	2	80	33	139	180	4	114	
(Front Piece)	HAT4050032-2F	3	1	50	32	-	-	2	-	-
	HAT4063032-4F	6	2	63	32	-	-	4	-	
	HAT4080033-4F	6	2	80	33	-	-	4	-	

Available inserts

SPMT-MM ZPMT-MM



Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
SPMT	120508-MMN																		E25
ZPMT	1505PPSR-MMN																		E31

Set specification

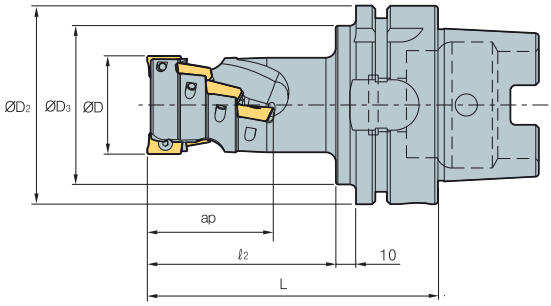
Set Designation	Designation	Front Piece	Clamping Bolt
HAT4050094-2F	HAT4050062-2F	HAT4050032-2F	HSB1255
HAT4050104-2F	HAT4050072-2F		
HAT4050114-2F	HAT4050082-2F		
HAT4063094-4F	HAT4063062-4F	HAT4063032-4F	HSB1670
HAT4063104-4F	HAT4063072-4F		
HAT4063114-4F	HAT4063082-4F		
HAT4080094-4F	HAT4080061-4F	HAT4080033-4F	HSB1682
HAT4080104-4F	HAT4080071-4F		
HAT4080114-4F	HAT4080081-4F		

Parts

Specification	Screw	Wrench
Ø50~Ø80	ETNA0511	TW20

Available inserts **E25, E31**

HSK63A AM1000





AA
90°

- AR: -12.5°~13°
- RR: -17°~ -6°

(mm)

Designation		⊚	ØD	ØD2	ØD3	ℓ2	L	No. of flute	ap
HSK63A	AM1016015-2	6	16	63	53	30	66	2	15.5
	AM1020020-3	12	20	63	53	32	68	3	20.5
	AM1025025-4	20	25	63	53	39	75	4	25.5

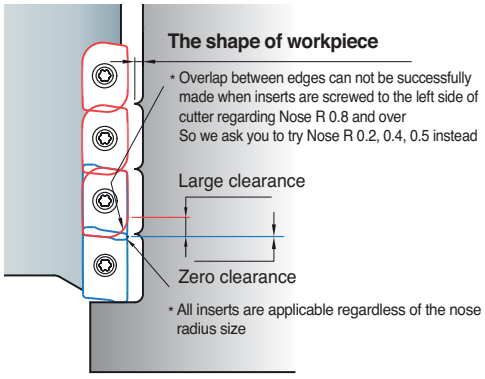
Available inserts

APMT-MA

APMT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																	●	E05
	060208PDFR-MA																		
	060202PDSR-MM				●						●				●	●			
	0602PDSR-MM				●			●	●	●	●	●	●		●	●			
	060208PDSR-MM				●					●	●				●	●			
	060212R-MM				●					●					●	●			
	060216R-MM									●					●	●			

Caution when clamping the inserts

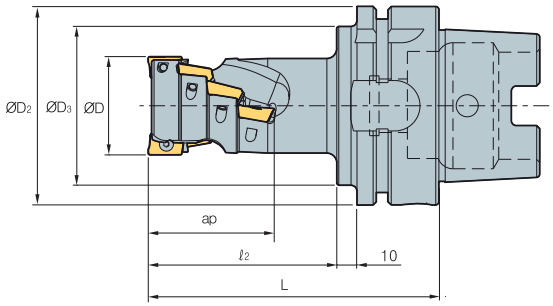


Parts

Specification	Screw	Wrench	Wrench
Ø16~Ø25	FTKA01842	-	TW06S-A

Available inserts E05

HSK63A AM1500



AA 90°

- AR: -12.5°~13°
- RR: -17°~ -6°

(mm)

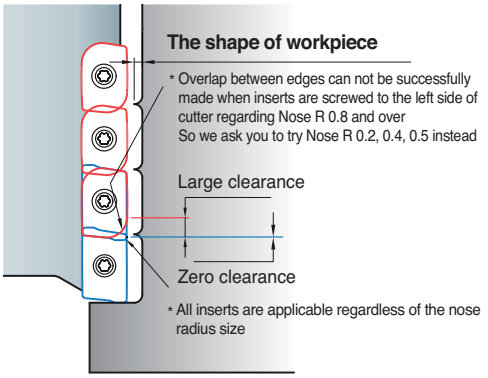
Designation		⌀	ØD	ØD2	ØD3	ℓ2	L	No. of flute	ap
HSK63A	AM15020026-1	3	20	63	53	42	78	1	26.5
	AM15025035-2	8	25	63	53	50	86	2	35
	AM15032044-2	10	32	63	53	60	96	2	44

Available inserts

APMT-MA APMT-ML APMT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																	●	E05
	090308PDFR-MA																		
	0903PDER-ML														●	●			
	090308PDER-ML														●	●			
	0903PDSR-MM				●			●	●	●	●	●			●	●			
	090308PDSR-MM				●					●	●				●	●			
	090312R-MM									●	●				●	●			
	090316R-MM				●					●	●				●	●			
	090320R-MM									●	●				●	●			

Caution when clamping the inserts

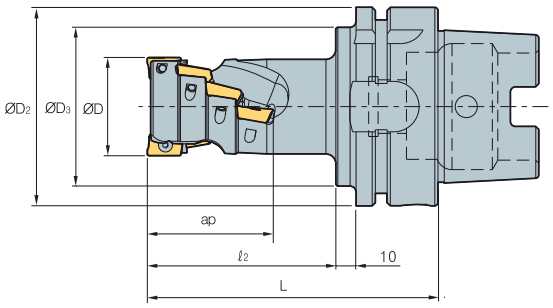


Parts

Specification	Screw	Wrench	Wrench
Ø20~Ø32	FTKA02565S	TW08S	-

Available inserts **E05**

HSK63A AM2000



AA 90°

- AR: -12.5°~13°
- RR: -17°~ -6°

(mm)

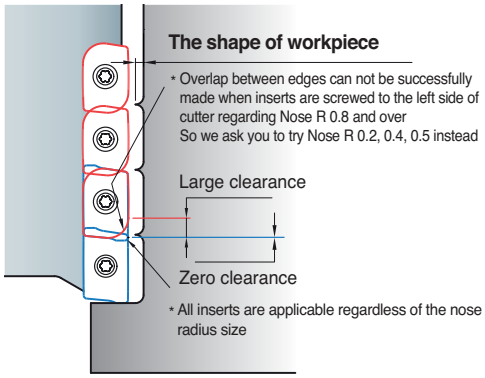
Designation			ØD	ØD2	ØD3	ℓ2	L	No. of flute	ap
HSK63A	AM2020029-1	3	20	63	53	45	81	1	29.4
	AM2025038-2	8	25	63	53	55	91	2	38.9
	AM2032048-2	10	32	63	53	65	101	2	48.5
	AM2040058-2	14	40	63	53	75	111	2	58
	AM2050039-4	16	50	63	53	58	94	4	39
	AM2063039-4	16	63	63	53	58	94	4	39
	AM2080039-5	20	80	63	53	63	99	5	39
	AM2100039-6	24	100	63	53	63	99	6	39

Available inserts

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																	●	E05
	11T308PDFR-MA																		
	11T3PDER-ML														●	●			
	11T308PDER-ML														●	●			
	11T3PDSR-MM			●	●	●		●	●	●	●	●	●		●	●			
	11T3PDSR-MF				●					●	●	●			●	●			
	11T308PDSR-MM				●					●	●		●	●	●	●			
	11T312PDSR-MM				●					●	●		●		●	●			
	11T316R-MM				●					●	●				●	●			
	11T318R-MM																		
	11T324R-MM				●					●	●				●	●			
	11T3PDSR-MN3														●				
	11T3PDSR-MN4														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts

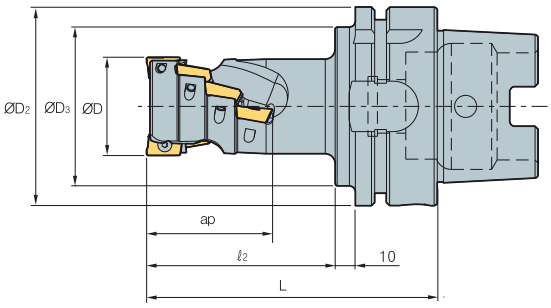


Parts

Specification	Screw	Wrench
Ø20~Ø100	FTKA02565S	TW08S

Available inserts E05

HSK100A AM3000



AA 90°

- AR: -13°~15°
- RR: -11°~ -4°

(mm)

Designation		⌀	ØD	ØD2	ØD3	ℓ2	L	No. of flute	ap
HSK100A	AM3050043-2	6	50	100	88	72	111	2	43
	AM3063057-4	16	63	100	88	86	125	4	57
	AM3080071-4	20	80	100	88	100	139	4	71
	AM3100071-6	30	100	100	88	100	139	6	71

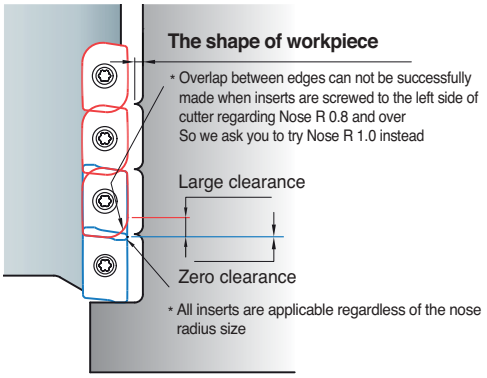
Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																	●	E05
	160404PDFR-MA														●	●			
	1604PDER-ML														●	●			
	160404PDER-ML														●	●			
	1604PDSR-MM			●	●	●		●	●	●	●	●	●	●	●	●			
	1604PDSR-MF				●					●	●	●			●	●			
	160410PDSR-MM									●					●	●			
	160416PDSR-MM				●					●	●				●	●			
	160424R-MM				●					●	●				●	●			
	160430R-MM									●	●				●	●			
	160432R-MM				●					●	●				●	●			
	1604PDSR-MN3														●				
	1604PDSR-MN4														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts

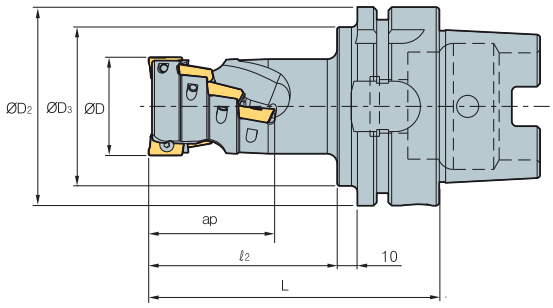


Parts

Specification	Screw	Wrench
Ø50~Ø100	FTKA0410	TW15S

Available inserts E05

HSK100A AM4000



AA 90°

- AR: -13°~15°
- RR: -11°~ -4°

(mm)

Designation		⊚	ØD	ØD2	ØD3	ℓ2	L	No. of flute	ap
HSK100A	AM4040046-2	6	40	100	88	75	114	2	46
	AM4050061-2	8	50	100	88	95	134	2	61
	AM4063061-4	16	63	100	88	90	129	4	61
	AM4080076-4	20	80	100	88	105	144	4	76
	AM4100076-6	30	100	100	88	105	144	6	76

Available inserts

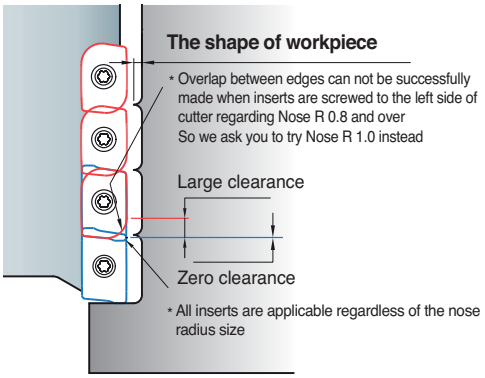
APMT-MA | APMT-ML | APMT-MM | APMT-MF | APMT-MN

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																●		E05
	180604PDFR-MA																●		
	180612PDFR-MA																●		
	180616PDFR-MA																●		
	180620PDFR-MA																●		
	180624PDFR-MA																●		
	180630R-MA																●		
	1806PDER-ML													●	●				
	180604PDER-ML													●	●				
	180612PDER-ML													●	●				
	180616PDER-ML													●	●				
	180620PDER-ML													●	●				

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	180624PDER-ML														●	●			E05
	180630R-ML														●	●			
	1806PDSR-MM				●			●	●	●	●	●	●	●	●	●			
	1806PDSR-MF				●					●		●			●	●			
	180612PDSR-MM				●					●	●				●	●			
	180616PDSR-MM				●					●					●	●			
	180620PDSR-MM																		
	180624PDSR-MM				●					●					●	●			
	180630R-MM									●					●	●			
	180632R-MM				●					●					●	●			
	1806PDSR-MN3														●				
	1806PDSR-MN4														●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts

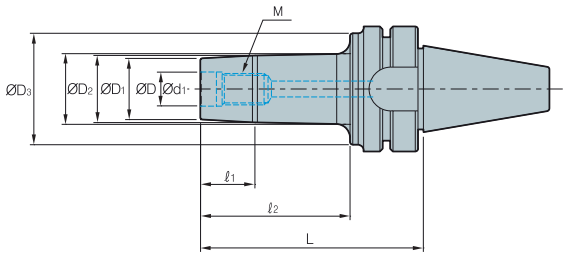


Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0410	TW15S

Available inserts E05

BT30/BT40/BT50

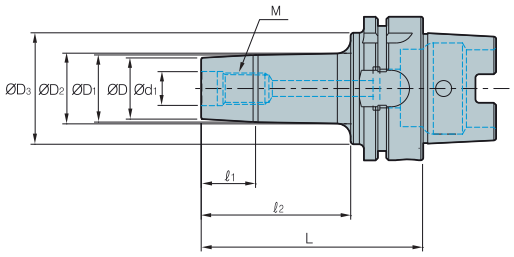


(mm)

Designation		ØD	ØD1	ØD2	ØD3	Ød1	ℓ1	ℓ2	L	M
BT30-	MAT-M06-053	11	11.7	13	30	6.5	5	21	53	M06*1.0
	MAT-M08-057	14.5	15.7	17.5	35	8.5	7	25	57	M08*1.25
	MAT-M10-062	18	19.7	24	38	10.5	7	30	62	M10*1.5
	MAT-M12-067	23	24.7	27.5	41	12.5	10	35	67	M12*1.75
	MAT-M16-067	29	31.7	33.5	41	17	10	35	67	M16*2.0
BT40-	MAT-M06-062	11	11.7	14	40	6.5	5	25	62	M06*1.0
	MAT-M06-077	11	11.7	14	40	6.5	5	40	77	M06*1.0
	MAT-M06-092	11	11.7	14	40	6.5	5	55	92	M06*1.0
	MAT-M08-067	14.5	15.7	19	44	8.5	7	30	67	M08*1.25
	MAT-M08-082	14.5	15.7	19	44	8.5	7	45	82	M08*1.25
	MAT-M08-097	14.5	15.7	19	44	8.5	7	60	97	M08*1.25
	MAT-M10-072	18	19.7	23	50	10.5	10	35	72	M10*1.5
	MAT-M10-087	18	19.7	23	50	10.5	10	50	87	M10*1.5
	MAT-M10-102	18	19.7	23	50	10.5	10	65	102	M10*1.5
	MAT-M12-077	23	24.7	30	55	12.5	10	40	77	M12*1.75
	MAT-M12-092	23	24.7	30	55	12.5	13	55	92	M12*1.75
	MAT-M12-107	23	24.7	30	55	12.5	13	70	107	M12*1.75
	MAT-M16-077	29	31.7	37	55	17	13	40	77	M16*2.0
	MAT-M16-092	29	31.7	37	55	17	13	55	92	M16*2.0
	MAT-M16-107	29	31.7	37	55	17	13	70	107	M16*2.0
BT50-	MAT-M06-083	11	11.7	15	40	6.5	5	35	83	M06*1.0
	MAT-M06-098	11	11.7	15	40	6.5	5	50	98	M06*1.0
	MAT-M06-113	11	11.7	15	40	6.5	5	65	113	M06*1.0
	MAT-M08-088	14.5	15.7	20	45	8.5	7	40	88	M08*1.25
	MAT-M08-103	14.5	15.7	20	45	8.5	7	55	103	M08*1.25
	MAT-M08-118	14.5	15.7	20	45	8.5	7	70	118	M08*1.25
	MAT-M10-093	18	19.7	25	55	10.5	10	45	93	M10*1.5
	MAT-M10-113	18	19.7	25	55	10.5	10	65	113	M10*1.5
	MAT-M10-128	18	19.7	25	55	10.5	10	80	128	M10*1.5
	MAT-M12-103	23	24.7	33	65	12.5	10	55	103	M12*1.75
	MAT-M12-118	23	24.7	33	65	12.5	13	70	118	M12*1.75
	MAT-M12-133	23	24.7	33	65	12.5	13	85	133	M12*1.75
	MAT-M16-103	29	31.7	41	85	17	13	55	103	M16*2.0
	MAT-M16-118	29	31.7	41	85	17	13	70	118	M16*2.0
	MAT-M16-133	29	31.7	41	85	17	13	85	133	M16*2.0

Available modular **E42, E43**

HSK63A/HSK100A



(mm)

Designation		ØD	ØD1	ØD2	ØD3	Ød1	ℓ1	ℓ2	L	M
HSK63A-	MAT-M06-061	11	11.7	27	40	6.5	5	25	61	M06*1.0
	MAT-M06-076	11	11.7	27	40	6.5	5	40	76	M06*1.0
	MAT-M06-091	11	11.7	27	40	6.5	5	55	91	M06*1.0
	MAT-M08-066	14.5	15.7	30.5	44	8.5	7	30	66	M08*1.25
	MAT-M08-081	14.5	15.7	30.5	44	8.5	7	45	81	M08*1.25
	MAT-M08-096	14.5	15.7	30.5	44	8.5	7	60	96	M08*1.25
	MAT-M10-071	18	19.7	34	50	10.5	10	35	71	M10*1.5
	MAT-M10-086	18	19.7	34	50	10.5	10	50	86	M10*1.5
	MAT-M10-101	18	19.7	34	50	10.5	10	65	101	M10*1.5
	MAT-M12-076	23	24.7	36.5	55	12.5	10	40	76	M12*1.75
	MAT-M12-091	23	24.7	36.5	55	12.5	13	55	91	M12*1.75
	MAT-M12-106	23	24.7	36.5	55	12.5	13	70	106	M12*1.75
	MAT-M16-076	29	31.7	38.5	55	17	13	40	76	M16*2.0
	MAT-M16-091	29	31.7	38.5	55	17	13	55	91	M16*2.0
	MAT-M16-106	29	31.7	38.5	55	17	13	70	106	M16*2.0
HSK100A-	MAT-M06-074	11	11.7	15	40	6.5	5	35	74	M06*1.0
	MAT-M06-089	11	11.7	15	40	6.5	5	50	89	M06*1.0
	MAT-M06-104	11	11.7	15	40	6.5	5	65	104	M06*1.0
	MAT-M08-079	14.5	15.7	20	45	8.5	7	40	79	M08*1.25
	MAT-M08-094	14.5	15.7	20	45	8.5	7	55	94	M08*1.25
	MAT-M08-109	14.5	15.7	20	45	8.5	7	70	109	M08*1.25
	MAT-M10-084	18	19.7	25	55	10.5	10	45	84	M10*1.5
	MAT-M10-104	18	19.7	25	55	10.5	10	65	104	M10*1.5
	MAT-M10-119	18	19.7	25	55	10.5	10	80	119	M10*1.5
	MAT-M12-094	23	24.7	33	65	12.5	10	55	94	M12*1.75
	MAT-M12-109	23	24.7	33	65	12.5	13	70	109	M12*1.75
	MAT-M12-124	23	24.7	33	65	12.5	13	85	124	M12*1.75
	MAT-M16-094	29	31.7	41	85	17	13	55	94	M16*2.0
	MAT-M16-109	29	31.7	41	85	17	13	70	109	M16*2.0
	MAT-M16-124	29	31.7	41	85	17	13	85	124	M16*2.0

Available modular **E42, E43**

Rigid body employs high tensile aluminum

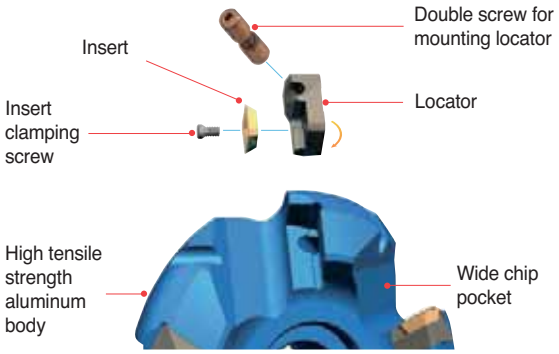
Future Mill

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

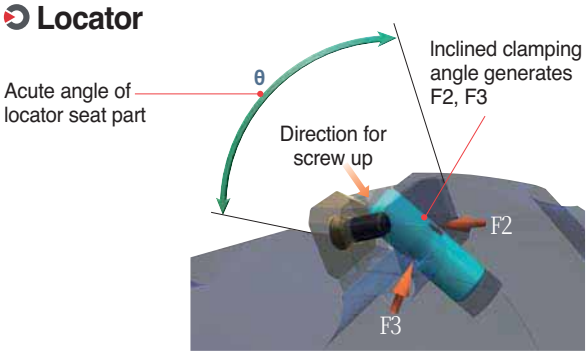
Features of cutter

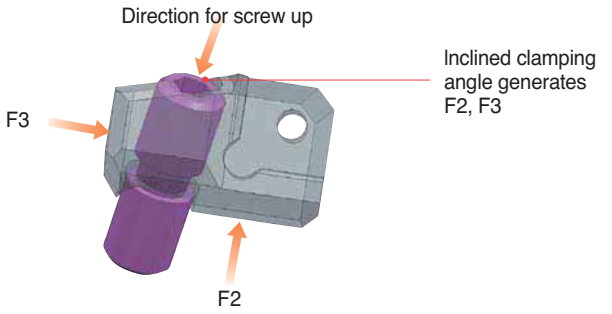
- Strong clamping between aluminum body and locator with double screw provides high efficiency
- Acute angle of locator seat provides strong clamping
- Wide chip pocket area provides good chip evacuation
- High tensile strength aluminum body

Assembly structure of cutter



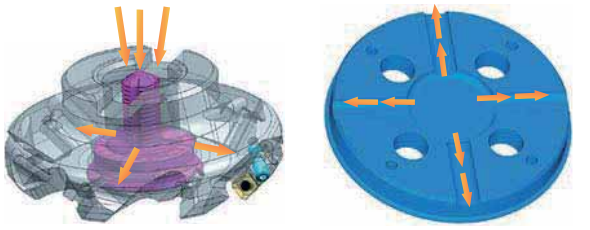
Locator





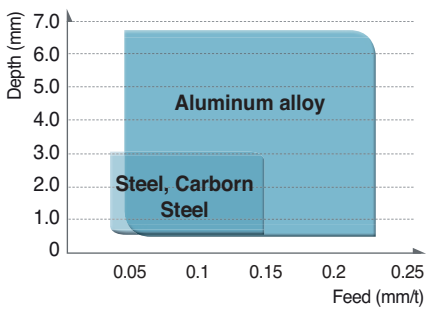
Through coolant system

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

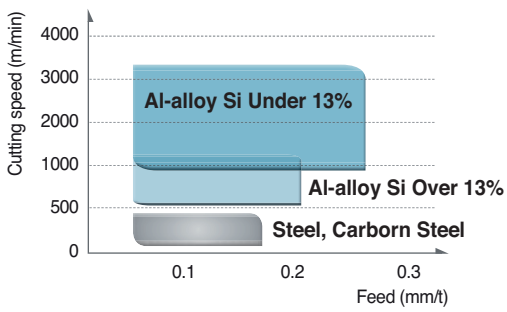


Bolt: Ø63~Ø160 | Cover: Over Ø200

Application range as per workpiece



Cutting speed



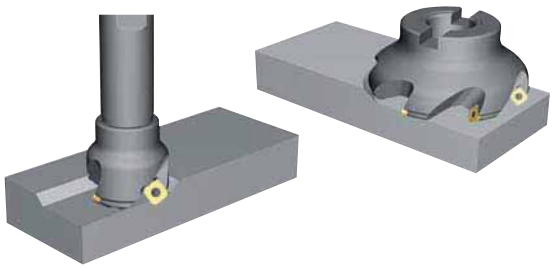
Max. available revolution

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

Future Mill (FMA)

Features

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



Features of chip breaker

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

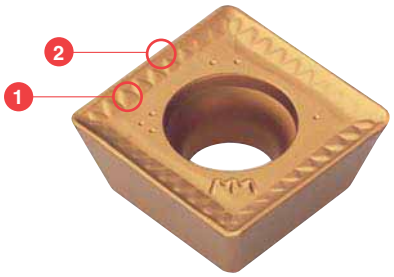
Recommended cutting condition

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

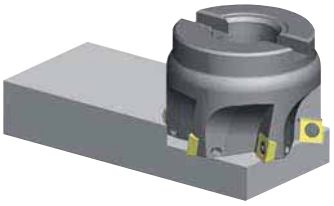
Future Mill (FMP)

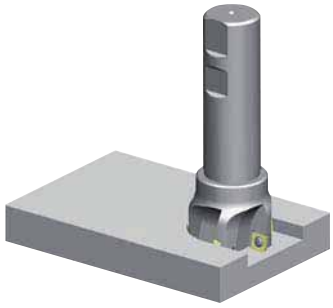
Features

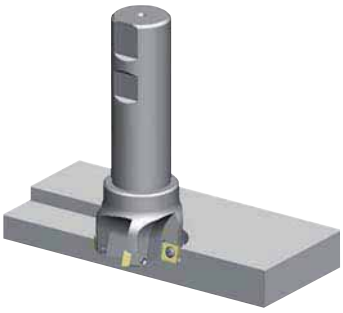
- The strong cutting-edge ensures excellent tool life in high feed and high speed, deep depth of cut, with low cutting loads
- Optimal grades for most workpieces make high efficiency cutting possible
- Unique chip breaker makes good chip evacuation and lower cutting loads (1)
- Innovative curve cutting-edge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



Machining examples







Features of chip breaker

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

Recommended C/B and grade as per workpiece

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

Recommended cutting condition

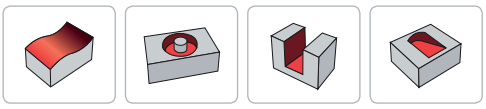
ISO	Cutting Speed vc (m/min)								
	CVD Coated		PVD Coated						Carbide
	NCM325	NCM335	PC3500	PC3600	PC6510	PC5300	PC9530	PC5400	H01
P	190~310	180~290	160-270	160-270	-	150-240	-	130-210	-
M	110~180	100~160	-	-	-	90-150	90-150	70-120	-
K	-	-	-	-	140-230	120-200	-	100-160	-
N	-	-	-	-	-	-	-	-	260-440

Future Mill (FMR)

Features

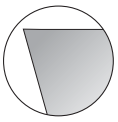
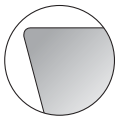
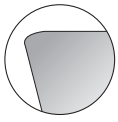
- Wide coverage for medium to roughing, general steel to high hardness mold materials
- 2 step shape of insert provides strong clamping and can minimize components to replace the shim
- 4-8 cutting-edge available per insert (Inscribed circle 05, 06, 07, 08, 10, 12, 16, 20)
- Uneven flute spacing prevents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

Machining examples



Copying | Helical | Slotting & Side cutting | Ramping

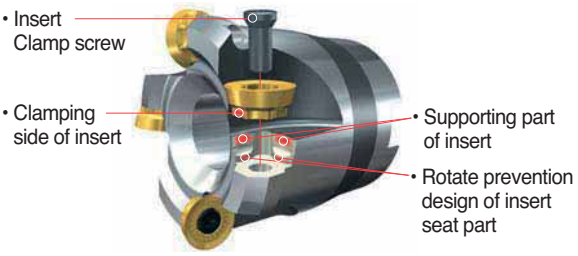
FMR Insert cutting-edge shape

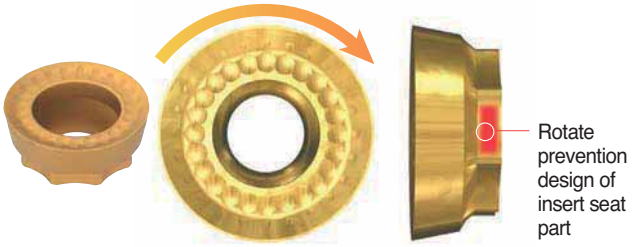
Designation	RDHW□□□□M0F	RDHW□□□□M0E	RDHW□□□□M0S
Cutting edge shape (G calss)			

Features of chip breaker

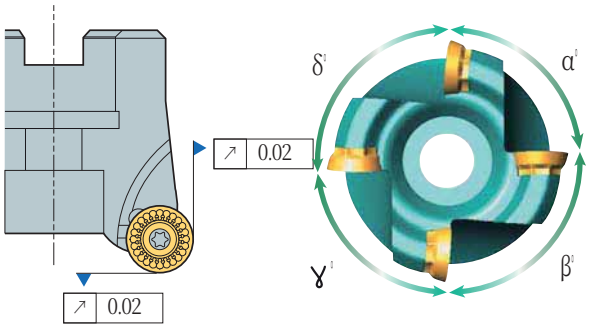
Insert		Cutting-edge	Uses	Features
MF			Finishing	Low cutting resistance chip breaker design guarantees long tool life good performance at finishing and difficult-to-cut material machining
MM			Medium	Suitable for general milling at wide application range
MA			Aluminum	Sharp cutting-edge and buffed top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

Clamping system



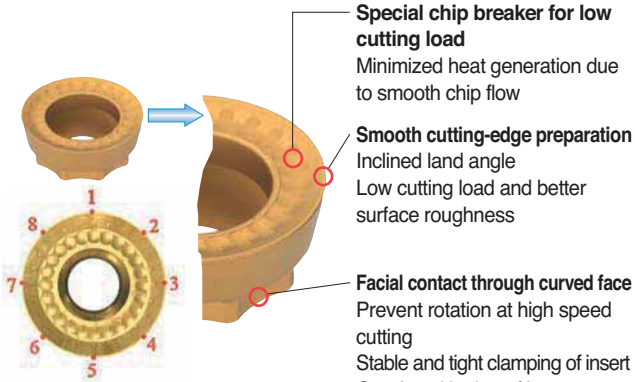


FMR鞿3000 type FMR鞿4000 type	FMR鞿5000 type FMR鞿6000 type
RDKT10T3M0-鞿鞿 RDKT1204M0-鞿鞿	RDKT1605M0-MM RDKT2006M0-MM



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

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



4-8 cutting-edge available per insert

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

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

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

Future Mill (FMR)

Chip removal rate (cm^3/min)

Workpiece		Grades	Ø8	Ø10	Ø12	Ø15	Ø16	Ø20	Ø21	Ø25	Ø26	Ø32	Ø33	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø160
P	General structure steel (under 200HB)	PC3500 PC5300	4.97	9.94	9.94	14.92	31.83	31.83	47.74	47.74	47.74	71.61	38.19	95.49	119.36	143.23	167.11	190.98	133.69	509.29
			vc = 250, fz = 0.25, ap = 0.5, ae = 0.5D				vc = 300, fz = 0.4 ap = 1.0, ae = 0.5D		vc = 250, fz = 0.4, ap = 1.5, ae = 0.5D											vc = 200, fz = 0.5 ap = 4.0, ae = 0.5D
	General carbon steel (under 30 HRC)		3.97	7.95	7.95	11.93	25.46	25.46	38.19	38.19	38.19	57.29	38.19	76.39	95.49	114.59	133.69	152.78	133.69	458.36
			vc = 200, fz = 0.25, ap = 0.5, ae = 0.5D				vc = 250, fz = 0.4 ap = 1.0, ae = 0.5D		vc = 200, fz = 0.4, ap = 1.5, ae = 0.5D											vc = 180, fz = 0.5 ap = 4.0, ae = 0.5D
	High carbon steel, Alloy steel (30~40 HRC)		2.86	5.72	5.72	8.59	22.91	22.91	34.37	34.37	34.37	51.56	34.37	68.75	85.94	103.13	120.32	137.5	120.32	407.43
			vc = 180, fz = 0.20, ap = 0.5, ae = 0.5D				vc = 200, fz = 0.4 ap = 1.0, ae = 0.5D		vc = 180, fz = 0.4, ap = 1.5, ae = 0.5D											vc = 160, fz = 0.5 ap = 4.0, ae = 0.5D
	High carbon steel, Alloy steel (40~50 HRC)		1.24	2.48	2.48	3.72	11.45	11.45	14.32	17.18	14.32	21.48	14.32	28.64	35.8	42.97	50.13	57.29	50.13	249.55
			vc = 130, fz = 0.15, ap = 0.4, ae = 0.5D				vc = 170, fz = 0.3 ap = 0.9, ae = 0.5D		vc = 150, fz = 0.3, ap = 1.0, ae = 0.5D											vc = 140, fz = 0.4 ap = 3.5, ae = 0.5D
	Alloy steel (over 50 HRC)		0.95	1.9	1.9	2.86	7.63	7.63	9.54	11.45	9.54	14.32	9.54	19.09	23.87	28.64	33.42	38.19	33.42	152.78
			vc = 100, fz = 0.15, ap = 0.4, ae = 0.5D				vc = 130, fz = 0.3 ap = 0.9, ae = 0.5D		vc = 100, fz = 0.3, ap = 1.0, ae = 0.5D											vc = 100, fz = 0.4 ap = 3.0, ae = 0.5D
M	Stainless steel	PC5300	2.06	4.13	4.13	6.2	16.55	16.55	12.41	24.82	12.41	18.62	12.41	24.82	31.03	37.24	43.44	49.65	43.44	331.04
			vc = 130, fz = 0.20, ap = 0.5, ae = 0.5D				vc = 200, fz = 0.2 ap = 1.0, ae = 0.5D		vc = 100, fz = 0.3, ap = 1.0, ae = 0.5D											vc = 130, fz = 0.5 ap = 4.0, ae = 0.5D
K	Cast iron	PC5300	2.86	5.72	5.72	8.59	14.32	14.32	21.48	21.48	21.48	32.22	21.48	42.97	53.71	64.45	75.2	85.94	75.2	366.69
			vc = 180, fz = 0.20, ap = 0.5, ae = 0.5D				vc = 180, fz = 0.2 ap = 1.0, ae = 0.5D		vc = 180, fz = 0.2, ap = 1.5, ae = 0.5D											vc = 180, fz = 0.4 ap = 4.0, ae = 0.5D

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

•RDKT10□□

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

• The figures in the above chart means Php value.

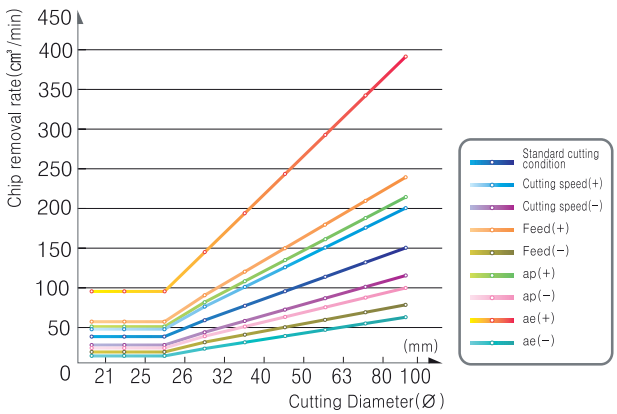
•RDKT12□□

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

• The figures in the above chart means Php value.

Chip removal rate by cutting condition

• Used insert: RDKT10□□



• Variation of cutting condition

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

Recommended cutting condition

• Side milling, slotting, ramping, copying

Workpiece		Hardness	Grades	Cutting speed (m/min)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)
P	Cabon steel	200HB ≤	PC5300	280	≤ 1.0	≤ 0.4	≤ 1.2	≤ 0.4	≤ 1.5	≤ 0.4	≤ 1.7	≤ 0.4	≤ 2.0	≤ 0.5	≤ 2.4	≤ 0.6	≤ 3.0	≤ 0.7	≤ 4.0	≤ 0.8
			PC5400	245																
		30HRC ≤	PC5300	250	≤ 0.7	≤ 0.4	≤ 1.2	≤ 0.4	≤ 1.5	≤ 0.4	≤ 1.7	≤ 0.4	≤ 2.0	≤ 0.5	≤ 2.4	≤ 0.6	≤ 3.0	≤ 0.7	≤ 4.0	≤ 0.8
			PC5400	210																
	Alloy steel	30~40HRC	PC5300	195	≤ 0.7	≤ 0.2	≤ 0.9	≤ 0.2	≤ 1.2	≤ 0.2	≤ 1.5	≤ 0.2	≤ 1.7	≤ 0.3	≤ 2.0	≤ 0.4	≤ 2.7	≤ 0.5	≤ 3.7	≤ 0.6
			PC5400	170																
	High alloy steel (alloy constituent > 5%)	40~50HRC	PC5300	150	≤ 0.7	≤ 0.2	≤ 0.9	≤ 0.2	≤ 1.2	≤ 0.2	≤ 1.5	≤ 0.2	≤ 1.7	≤ 0.3	≤ 2.0	≤ 0.4	≤ 2.7	≤ 0.5	≤ 3.7	≤ 0.6
			PC5400	130																
		Tensile strength 350MPa ≤	PC5300	120	≤ 0.7	≤ 0.2	≤ 0.9	≤ 0.2	≤ 1.2	≤ 0.2	≤ 1.5	≤ 0.2	≤ 1.7	≤ 0.3	≤ 2.0	≤ 0.4	≤ 2.7	≤ 0.5	≤ 3.7	≤ 0.6
			PC5400	105																
M	Stainless steel	270HB≤	PC5300	130	≤ 0.7	≤ 0.2	≤ 0.9	≤ 0.2	≤ 1.2	≤ 0.2	≤ 1.5	≤ 0.2	≤ 1.7	≤ 0.3	≤ 2.0	≤ 0.4	≤ 2.7	≤ 0.5	≤ 3.7	≤ 0.6
			PC5400	110																
K	Cast iron, Ductile cast iron	Low tensile	PC5300	145	≤ 0.7	≤ 0.4	≤ 1.2	≤ 0.4	≤ 1.5	≤ 0.4	≤ 1.7	≤ 0.4	≤ 2.0	≤ 0.5	≤ 2.4	≤ 0.6	≤ 3.0	≤ 0.7	≤ 4.0	≤ 0.8
			PC5400	110																

• Plunging

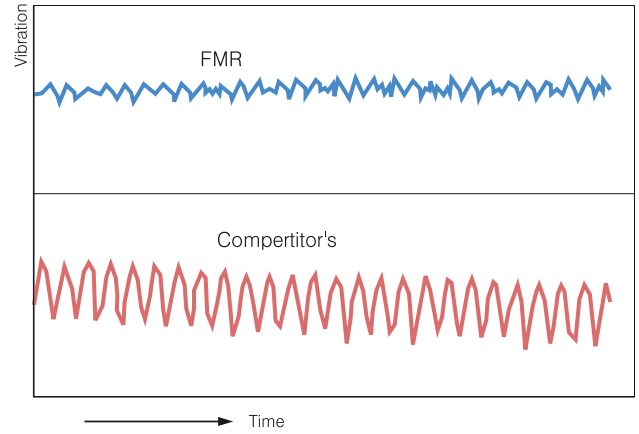
Workpiece		Hardness	Grades	Cutting speed (m/min)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)
P	Cabon steel	200HB ≤	PC5300	280	≤ 2.5	≤ 0.2	≤ 3.0	≤ 0.2	≤ 3.5	≤ 0.2	≤ 4.0	≤ 0.2	≤ 5.0	≤ 0.3	≤ 6.0	≤ 0.4	≤ 8.0	≤ 0.5	≤ 10.0	≤ 0.6
			PC5400	245																
		30HRC ≤	PC5300	250	≤ 2.5	≤ 0.2	≤ 3.0	≤ 0.2	≤ 3.5	≤ 0.2	≤ 4.0	≤ 0.2	≤ 5.0	≤ 0.3	≤ 6.0	≤ 0.4	≤ 8.0	≤ 0.5	≤ 10.0	≤ 0.6
			PC5400	210																
	Alloy steel	30~40HRC	PC5300	195	≤ 2.5	≤ 0.1	≤ 3.0	≤ 0.1	≤ 3.5	≤ 0.1	≤ 4.0	≤ 0.1	≤ 5.0	≤ 0.2	≤ 6.0	≤ 0.3	≤ 8.0	≤ 0.4	≤ 10.0	≤ 0.5
			PC5400	170																
	High alloy steel (alloy constituent > 5%)	40~50HRC	PC5300	150	≤ 2.5	≤ 0.1	≤ 3.0	≤ 0.1	≤ 3.5	≤ 0.1	≤ 4.0	≤ 0.1	≤ 5.0	≤ 0.2	≤ 6.0	≤ 0.3	≤ 8.0	≤ 0.4	≤ 10.0	≤ 0.5
			PC5400	130																
		Tensile strength 350MPa ≤	PC5300	120	≤ 2.5	≤ 0.1	≤ 3.0	≤ 0.1	≤ 3.5	≤ 0.1	≤ 4.0	≤ 0.1	≤ 5.0	≤ 0.2	≤ 6.0	≤ 0.3	≤ 8.0	≤ 0.4	≤ 10.0	≤ 0.5
			PC5400	105																
M	Stainless steel	270HB≤	PC5300	130	≤ 2.5	≤ 0.1	≤ 3.0	≤ 0.1	≤ 3.5	≤ 0.1	≤ 4.0	≤ 0.1	≤ 5.0	≤ 0.2	≤ 6.0	≤ 0.3	≤ 8.0	≤ 0.4	≤ 10.0	≤ 0.5
			PC5400	110																
K	Cast iron, Ductile cast iron	Low tensile	PC5300	145	≤ 2.5	≤ 0.2	≤ 3.0	≤ 0.2	≤ 3.5	≤ 0.2	≤ 4.0	≤ 0.2	≤ 5.0	≤ 0.3	≤ 6.0	≤ 0.4	≤ 8.0	≤ 0.5	≤ 10.0	≤ 0.6
			PC5400	110																

• Helical cutting

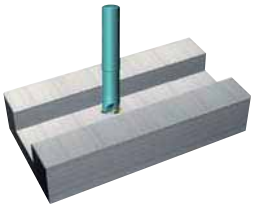
Workpiece		Hardness	Grades	Cutting speed (m/min)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)
P	Cabon steel	200HB ≤	PC5300	280	≤ 1.0	≤ 0.2	≤ 1.0	≤ 0.2	≤ 1.0	≤ 0.2	≤ 1.0	≤ 0.2	≤ 2.0	≤ 0.3	≤ 2.0	≤ 0.4	≤ 4.0	≤ 0.5	≤ 4.0	≤ 0.6
			PC5400	245																
		30HRC ≤	PC5300	250	≤ 0.7	≤ 0.2	≤ 0.7	≤ 0.2	≤ 0.7	≤ 0.2	≤ 0.7	≤ 0.2	≤ 2.0	≤ 0.3	≤ 2.0	≤ 0.4	≤ 4.0	≤ 0.5	≤ 4.0	≤ 0.6
			PC5400	210																
	Alloy steel	30~40HRC	PC5300	195	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 1.7	≤ 0.2	≤ 1.7	≤ 0.3	≤ 3.7	≤ 0.4	≤ 3.7	≤ 0.5
			PC5400	170																
	High alloy steel (alloy constituent > 5%)	40~50HRC	PC5300	150	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 1.7	≤ 0.2	≤ 1.7	≤ 0.3	≤ 3.7	≤ 0.4	≤ 3.7	≤ 0.5
			PC5400	130																
		Tensile strength 350MPa ≤	PC5300	120	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 1.7	≤ 0.2	≤ 1.7	≤ 0.3	≤ 3.7	≤ 0.4	≤ 3.7	≤ 0.5
			PC5400	105																
M	Stainless steel	270HB≤	PC5300	130	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 1.7	≤ 0.2	≤ 1.7	≤ 0.3	≤ 3.7	≤ 0.4	≤ 3.7	≤ 0.5
			PC5400	110																
K	Cast iron, Ductile cast iron	Low tensile	PC5300	145	≤ 1.0	≤ 0.2	≤ 1.0	≤ 0.2	≤ 1.0	≤ 0.2	≤ 1.0	≤ 0.2	≤ 2.0	≤ 0.3	≤ 2.0	≤ 0.4	≤ 4.0	≤ 0.5	≤ 4.0	≤ 0.6
			PC5400	110																

Future Mill (FMR)

FMR Vibration test



Machining example



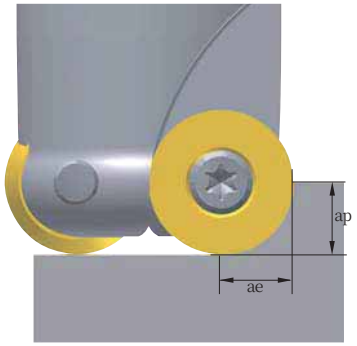
- **Workpiece** STD11
- **Cutting condition** vc (m/min) = 200
  fz (mm/t) = 0.40
  ap (mm) = 2.0
  ae (mm) = 4.0
- **Tools**
  Insert RDKT10T3M0-MM (PC3500)
  Holder FMRS3032RD-S

Cutting condition formulas for milling

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

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

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



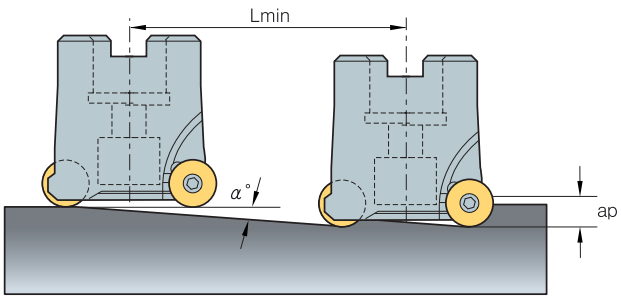
vc = Cutting speed (m/min)	**Pkw** = Required machine power (kW)
n = Revolution per a minute (min^{-1})	**Php** = Horsepower requirement (hp)
D = Cutting diameter (mm)	**Q** = Chip removal amount (cm^3/min)
De = Efficient cutting diameter (mm)	**ap** = Depth of cut (mm)
vf = Feed per a minute (mm/min)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

Feed as per cutting depth

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

Future Mill (FMR)

Ramping technical data



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

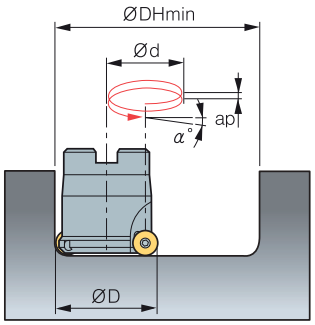
※ Lmin: Min. inclination cutting length
α°: Max. ramping angle
ap: Depth of cut

(mm)

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

Future Mill (FMR)

Helical cutting technical data - ØDH Min



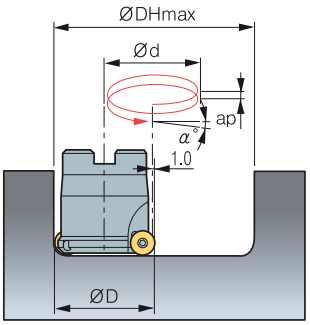
- ØD = Tool dia. (mm), ØDH Min, Max = Min, Max diameter (mm)
- Ød = Tool path (mm)
- ØDH Min (Min diameter) = ØD × 2 - Insert size, ØDH Max (Max diameter) = ØD × 2 - 2
- Ød (Tool path) = ØDH Min, Max - ØD

(mm)

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

Future Mill (FMR)

Helical cutting technical data - ØDH Max



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

(mm)

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

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 breaker

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

Recommended cutting condition

* Recommended chip breaker: ● First ◦ Second

Workpiece			Hardness	Grades	Cutting conditions				Chip breaker					
					vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)	MA	ML	MF	MM	None C/B 1	None C/B 2
P	Low carbon steel		HB80~180	PC5400	100~250	0.12~0.70	0.3~6.0	0.7D~0.1D	-	-	●	○	-	-
	High carbon steel		HB180~280	PC5400	100~220	0.12~0.70	0.3~6.0	0.7D~0.1D	-	-	●	○	-	-
	Low alloy steel		Under HRC27	PC3600	180~290	0.20~0.60	0.3~6.0	0.7D~0.1D	-	-	-	●	○	-
				PC5400/PC5300	100~200	0.20~0.60	0.3~6.0	0.7D~0.1D	-	-	-	●	○	-
	Low pre-hardened steel		HRC20~50	PC3600	130~250	0.30~0.50	~0.5	0.7D~0.1D	-	-	-	-	●	○
				PC2510/PC5300	50~150	0.30~0.50	~0.5	0.7D~0.1D	-	-	-	-	●	○
	High alloy steel		Under HRC27	PC3600	130~250	0.30~0.50	~0.5	0.7D~0.1D	-	-	-	●	○	-
				PC5300	100~220	0.30~0.50	~0.5	0.7D~0.1D	-	-	-	●	○	-
	High pre-hardened steel		HRC20~48	PC2510/PC5300	50~150	0.30~0.50	~0.5	0.7D~0.1D	-	-	-	-	●	○
M	Stainless steel		Under HB270	PC5300/PC5400	100~150	0.20~0.60	0.3~6.0	0.7D~0.1D	-	-	○	●	-	-
K	Gray cast iron, Ductile cast iron		Under 350MPa	PC5300	120~210	0.20~0.60	0.3~6.0	0.7D~0.1D	-	-	○	●	-	-
N	Aluminum		-	H01	300~800	0.30~0.60	0.3~6.0	0.7D~0.1D	●	-	-	-	-	-
S	Heat resistant alloy	Fe	HRC20~30	PC5300/PC5400	35~60	0.30~0.50	~0.5	0.7D~0.1D	-	●	○	-	-	-
		Ni or Co	HRC40~45	PC5300/PC5400	30~50	0.30~0.50	~0.5	0.7D~0.1D	-	●	○	-	-	-
	Titanium		HRC35~45	PC5300/PC5400	40~70	0.30~0.50	~1.5	0.7D~0.1D	-	●	○	-	-	-
H	High hardened materials		Over HRC50	PC2505/PC2510	30~50	0.30~0.50	~0.5	0.7D~0.1D	-	-	-	-	●	○

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

(mm)

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

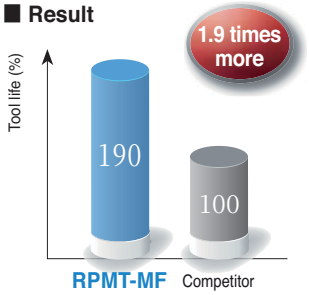
Performance evaluation

Alloy steel (SM490A 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

■ Result

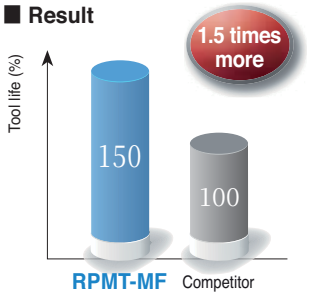


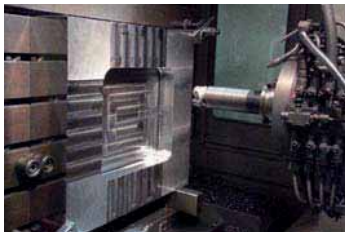
Low pre-hardened steel (KP4M Heat treatment, HRC 30~45)

■ **Cutting conditions**
vc (m/min) = 178
fz (mm/tooth) = 0.72
ap (mm) = 1.5
dry

■ **Tools**
Insert RPMT1606M0S-MM (PC5300)
Holder FMRCM5063HRP-4

■ Result



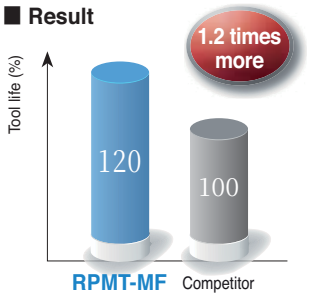


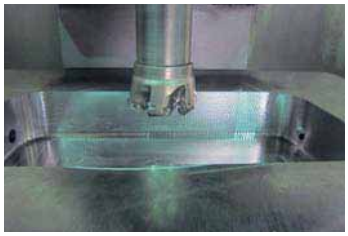
Low pre-hardened steel (KP1, HRC 28~33)

■ **Cutting conditions**
vc (m/min) = 178
fz (mm/tooth) = 0.74
ap (mm) = 0.8
dry

■ **Tools**
Insert RPMT1204M0E-MF (PC5300)
Holder FMRCM4063HRP-6

■ Result



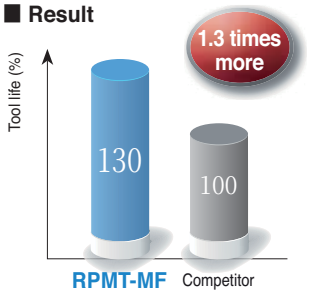


High pre-hardened steel (STD61, HRC 50~52)

■ **Cutting conditions**
vc (m/min) = 50
fz (mm/tooth) = 0.15
ap (mm) = 4.0
dry

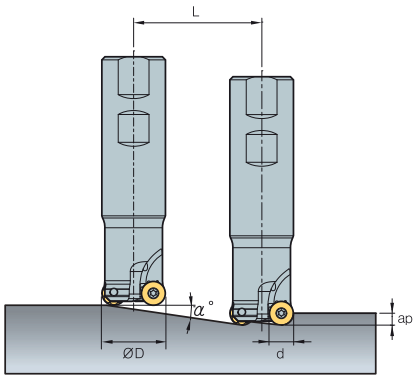
■ **Tools**
Insert RPMW1204M0S1 (PC5300)
Holder FMRS4032HRP-3L25

■ Result



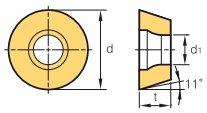
FMR P-positive

Maximum angle table for ramping machining



$$Lmin = \frac{ap}{\tan \alpha°} (mm)$$

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



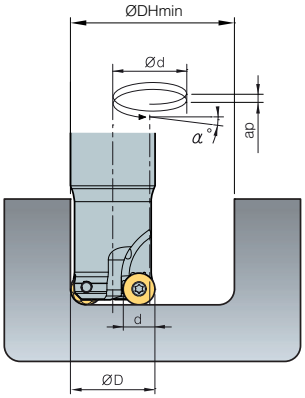
(mm)

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

* Insert size (d): Please refer page E19, E20 applicable insert drawing.

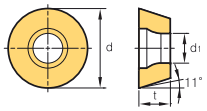
FMR P-positive

Minimum hole diameter table for helical machining (ØDH Min)



- ØD = Tool dia. (mm)
- Ød (Tool path, mm) = ØDH Min, Max - ØD
- ØDH Min (Minimum hole diameter) = ØD × 2 - Insert size (d)
- ØDH Max (Maximum hole diameter) = ØD × 2 - 2
- Ramping angle by ap (α°) = $\tan^{-1}\left(\frac{ap}{\pi \times Ød}\right)$

  Helical angle adjusted by ap cannot exceed maximum angle
- ap = Depth of cut



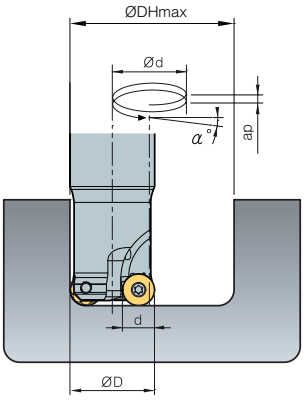
(mm)

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

* Insert size (d): Please refer page E19, E20 applicable insert drawing.

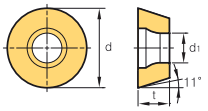
FMR P-positive

Maximum hole diameter table for helical machining (ØDH Max)



- ØD = Tool dia. (mm)
- Ød (Tool path, mm) = ØDH Min, Max - ØD
- ØDH Min (Minimum hole diameter) = ØD × 2 - Insert size (d)
- ØDH Max (Maximum hole diameter) = ØD × 2 - 2
- Ramping angle by ap (α°) = $\tan^{-1}\left(\frac{ap}{\pi \times Ød}\right)$

  Helical angle adjusted by ap cannot exceed maximum angle
- ap = Depth of cut



(mm)

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

* Insert size (d): Please refer page E19, E20 applicable insert drawing.

FMAC(M)3000

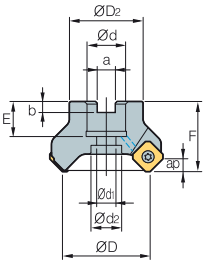


Fig. 1

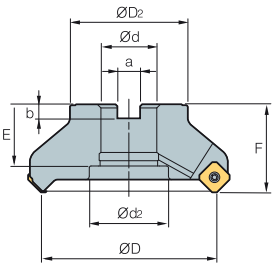


Fig. 2

AA 45°

- AR: 21°
- RR: -17°~ -12°

(mm)

Designation			ØD	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	kg	Fig.
FMACM	3050HR	4	50	42	22	10.4	6.3	20	40	11	17.5	4.0	0.4	1
	3050HR-H	6	50	42	22	10.4	6.3	20	40	11	17.5	4.0	0.4	1
	3063HR	5	63	49	22	10.4	6.3	20	40	11	17.5	4.0	0.5	1
	3063HR-H	8	63	49	22	10.4	6.3	20	40	11	17.5	4.0	0.6	1
FMAC (FMACM)	3080HR	6	80	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (23)	50	14	20	4.0	1.1	1
	3080HR-H	10	80	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (23)	50	14	20	4.0	1.2	1
	3100HR	7	100	67	31.75 (32)	12.7 (14.4)	8 (8)	35 (25.5)	50	(18)	45 (26)	4.0	1.7	2 (1)
	3100HR-H	12	100	67	31.75 (32)	12.7 (14.4)	8 (8)	35 (25.5)	50	(18)	45 (26)	4.0	1.7	2 (1)
	3125HR	8	125	87	38.1 (40)	15.9 (16.4)	10 (9)	42 (29)	63	(22)	55 (32)	4.0	3.3 (3.5)	2 (1)
	3125HR-H	14	125	87	38.1 (40)	15.9 (16.4)	10 (9)	42 (29)	63	(22)	55 (32)	4.0	3.3 (3.5)	2 (1)

( )Metric size

Available inserts

SEET-MF | SEET-MM | SEET-MA | SEXT-MF | SEXT-MM | SEXT-MR | SEEW

Designation		Cermet		Coated												Uncoated				page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
SEET	0903AGFN-MA																		●	●	E19 E20
	0903AGSN-MF											●	●		●	●					
	0903AGSN-MM			●								●			●	●					
SEXT	0903AGSN-MF									●		●			●	●					
	0903AGSN-MM									●	●	●			●	●					
	0903AGSN-MR																				
SEEW	0903AGTN																				

Available arbors

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

Parts

Specification	Screw	Insert wrench
Ø50~Ø125	FTKA0307	TW09S

Available inserts E19, E20 Available arbors and bolt E400~E402

FMAC(M)4000

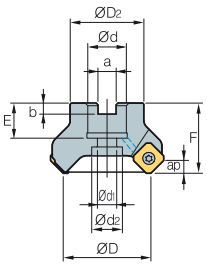


Fig. 1

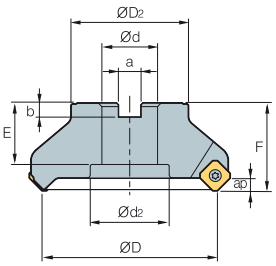


Fig. 2

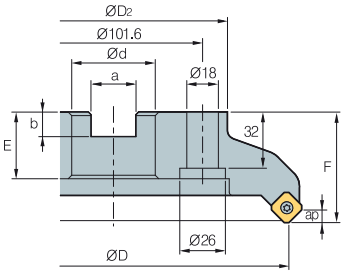


Fig. 3

AA 45°

- AR: 21°
- RR: -17°~ -12°

(mm)

Designation		⌀	ØD	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	kg	Fig.
FMACM	4050HR	3	50	42	22	10.4	6.3	20	40	11	18	6.5	0.4	1
	4063HR	4	63	49	22	10.4	6.3	20	40	11	18	6.5	0.6	1
	4063HR-M	5	63	49	22	10.4	6.3	20	40	11	18	6.5	0.6	1
	4063HR-H	6	63	49	22	10.4	6.3	20	40	11	18	6.5	0.6	1
FMAC (FMACM)	4080HR	5	80	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (23)	50	14	20	6.5	1.1	1
	4080HR-M	6	80	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (23)	50	14	20	6.5	1.1	1
	4080HR-H	8	80	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (23)	50	14	20	6.5	1.1	1
	4100HR	5	100	67	31.75 (32)	12.7 (14.4)	8 (8)	33 (25)	63 (50)	18	26	6.5	2 (1.6)	1
	4100HR-M	7	100	67	31.75 (32)	12.7 (14.4)	8 (8)	33 (25)	63 (50)	18	26	6.5	2 (1.6)	1
	4100HR-H	10	100	67	31.75 (32)	12.7 (14.4)	8 (8)	33 (25)	63 (50)	18	26	6.5	2 (1.6)	1
	4125HR	6	125	87	38.1 (40)	15.9 (16.4)	10 (9)	35 (29)	63	22	32	6.5	3.1	1
	4125HR-M	8	125	87	38.1 (40)	15.9 (16.4)	10 (9)	35 (29)	63	22	32	6.5	3.1	1
	4125HR-H	12	125	87	38.1 (40)	15.9 (16.4)	10 (9)	35 (29)	63	22	32	6.5	3.1	1
	4160R	7	160	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (35)	63	-	-	6.5	4.8	2
	4160R-M	10	160	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (35)	63	-	-	6.5	4.8	2
	4160R-H	16	160	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (35)	63	-	-	6.5	4.8	2
	4200R	8	200	130	47.625 (60)	25.4 (25.7)	14	38 (32)	63	-	-	6.5	6.1	3
	4200R-M	12	200	130	47.625 (60)	25.4 (25.7)	14	38 (32)	63	-	-	6.5	6.1	3
	4200R-H	18	200	130	47.625 (60)	25.4 (25.7)	14	38 (32)	63	-	-	6.5	6.1	3

Available inserts

( )Metric size

SEET-MF SEET-MM SEET-MA SEXT-MF SEXT-MM SEXT-MR SEEW SEEW-W

Designation		Cermet		Coated														Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	H01	H05	
SEET	14M4AGFN-MA														●	●	●	●	E19 E20
	14M4AGSN-MF									●	●		●	●					
	14M4AGSN-MM									●	●		●	●					
SEXT	14M4AGSN-MF							●		●			●	●					
	14M4AGSN-MM			●				●	●	●	●		●	●					

Designation		Cermet		Coated													Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	H01	H05	
SEXT	14M4AGSN-MR												●	●					E19 E20
SEEW	14M4AGTN		●																
	14M4AGFN-W																		
	14M4AGSN-W														●				
	14M4AGTN-W									●		●							

Available arbors

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

Designation		Ød	NC arbors
FMAC (FMACM)	4125HR-□	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMB40-□□
	4160R-□	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMB/FMC40-□□
	4200R-□	47.625	BT□□-FMA47.625-□□
		60	BT□□-FMB60-□□

Parts

Specification	Screw	Shim	Shim screw	Insert wrench	Shim wrench
Ø50~Ø200	FTGA03512	SS42SAF	SHXN0509F	TW15S	HW35L

Available inserts E19, E20 Available arbors and bolt E400~E402

FMAC(M)3000-A

Aluminum body

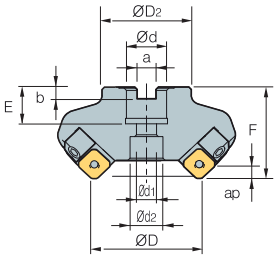


Fig. 1

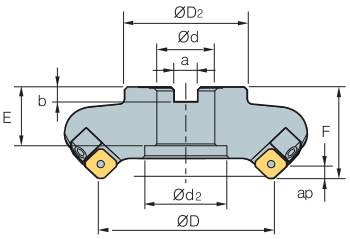


Fig. 2

AA
45°

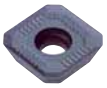
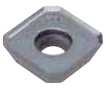
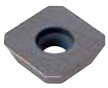
- AR: 21°
- RR: -16°~ -12°

(mm)

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

( )Metric size

Available inserts

SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW
						

Designation		Cermet		Coated												Uncoated				page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
SEET	0903AGFN-MA																		●	●	E19 E20
	0903AGSN-MF											●	●		●	●					
	0903AGSN-MM			●								●			●	●					
SEXT	0903AGSN-MF									●		●			●	●					
	0903AGSN-MM									●	●	●			●	●					
	0903AGSN-MR																				
SEEW	0903AGTN																				

Available arbors

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

Parts

Specification	Screw	Insert wrench	Locator wrench	Locator	Locator screw
Ø63~Ø125	FTKA0307	TW09S	HW30L	LFMA3R-A	DHA620

Available inserts **E19, E20** Available arbors and bolt **E400~E402**

FMAC(M)4000-A

Aluminum body

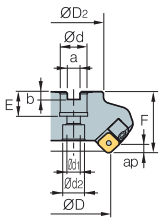


Fig. 1

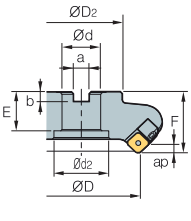


Fig. 2

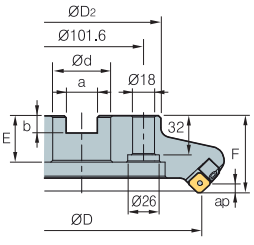


Fig. 3

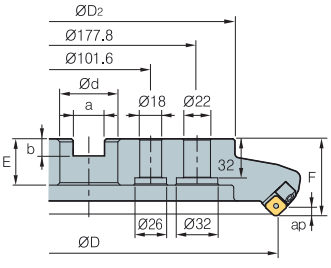


Fig. 4

AA
45°

- AR: 21°
- RR: -16°~ -12°

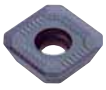
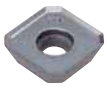
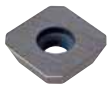
(mm)

Designation		⌀	ØD	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	kg	Fig.
FMACM	4063R-A	3	63	49	22	10.4	6.3	20	50	11	18	6.5	0.6	1
FMAC (FMACM)	4080R-A	4	80	67	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	13.5	20	6.5	0.8	1
	4100R-A	5	100	67	31.75 (32)	12.7 (14.4)	8(8)	32	50	-	45	6.5	1.1	2
	4100R-25.4-A	5	100	67	25.4	9.5	6	25	50	-	38	6.5	1.2	2
	4125R-A	6	125	87	38.1 (40)	15.9 (16.4)	10 (9)	38 (35)	63	-	56	6.5	1.7	2
	4125R-25.4-A	6	125	70	25.4	9.5	6	25	63	-	38	6.5	1.8	2
	4160R-A	7	160	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (35)	63	-	75	6.5	2.5	2
	4200R-A	8	200	130	47.625 (60)	25.4 (25.7)	14 (14)	38 (32)	63	-	-	6.5	3.2	3
	4250R-A	10	250	180	47.625 (60)	25.4 (25.7)	14 (14)	38	63	-	-	6.5	4.1	3
	4315R-A	12	315	240	47.625 (60)	25.4 (25.7)	14 (14)	38	63	-	-	6.5	6.7	4

Note) Through coolant type between Ø50~Ø125

( )Metric size

Available inserts

SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW	SEEW-W
							

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	H01	H05	
SEET	14M4AGFN-MA														●	●	●	●	E19 E20
	14M4AGSN-MF									●	●		●	●					
	14M4AGSN-MM				●					●	●		●	●					
SEXT	14M4AGSN-MF							●		●			●	●					
	14M4AGSN-MM			●				●	●	●	●		●	●					

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	H01	H05	
SEXT	14M4AGSN-MR												●		●				E19 E20
SEEW	14M4AGTN		●																
	14M4AGFN-W																		
	14M4AGSN-W														●				
	14M4AGTN-W									●		●							

Available arbors

Designation		Ød	NC arbors
FMACM	4063R-□	22	BT□□-FMC22-□□
FMAC (FMACM)	4080R-□	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	4100HR-□	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	4125R-□	38.1	BT□□-FMA38.1-□□

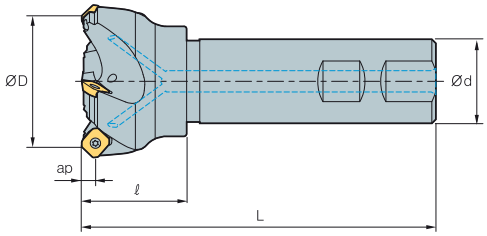
Designation		Ød	NC arbors
FMAC (FMACM)	4125R-□	40	BT□□-FMB40-□□
	4160R-□	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMB/FMC40-□□
	4200R-□	47.625	BT□□-FMA47.625-□□
	4250R-□	60	BT□□-FMB60-□□
	4315R-□	60	BT□□-FMB60-□□

Parts

Specification	Screw	Insert wrench	Locator wrench	Locator	Locator screw
Ø63~Ø315	FTGA03512	TW15S	HW40L	LFMA4R-A	DHA0830

Available inserts **E19, E20** Available arbors and bolt **E400~E402**

FMAS3000



AA
45°

- AR: 23°
- RR: -17°~ -13°

(mm)

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

Available inserts

SEET-MF | SEET-MM | SEET-MA | SEXT-MF | SEXT-MM | SEXT-MR | SEEW

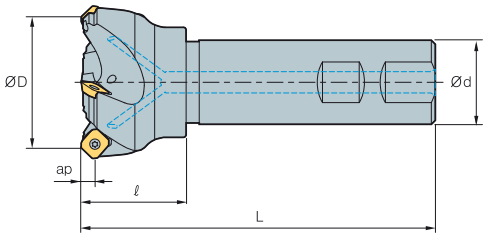
Designation		Cermet		Coated												Uncoated				page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
SEET	0903AGFN-MA																		●	●	
	0903AGSN-MF											●	●		●	●					
	0903AGSN-MM			●								●			●	●					
SEXT	0903AGSN-MF									●		●			●	●					E19
	0903AGSN-MM									●	●	●			●	●					E20
	0903AGSN-MR																				
SEEW	0903AGTN																				

Parts

Specification	Screw	Insert wrench
Ø25~Ø63	FTKA0307	TW09S

Available inserts E19, E20

FMAS4000



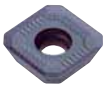
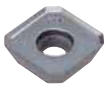
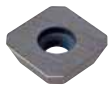
AA 45°

- AR: 23°
- RR: -17°~ -13°

(mm)

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

Available inserts

SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW	SEEW-W
							

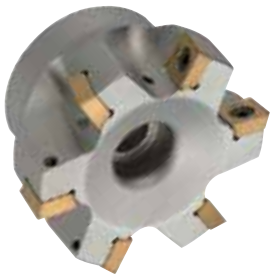
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	H01	H05	
SEET	14M4AGFN-MA															●	●		●	●	
	14M4AGSN-MF										●	●		●	●						
	14M4AGSN-MM				●						●	●		●	●						
SEXT	14M4AGSN-MF								●		●			●	●						
	14M4AGSN-MM			●					●	●	●	●		●	●						E19
	14M4AGSN-MR											●		●							E20
SEEW	14M4AGTN		●																		
	14M4AGFN-W																				
	14M4AGSN-W													●							
	14M4AGTN-W								●		●										

Parts

Specification	Screw	Shim	Shim screw	Insert wrench	Shim wrench
Ø50~Ø63	FTGA03512	SS42SAF	SHXN0509F	TW15S	HW35L

Available inserts **E19, E20**

FMPC(M)3000



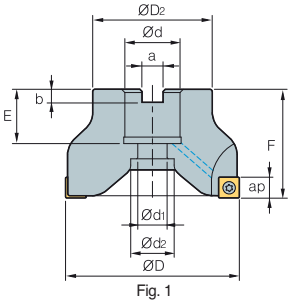


Fig. 1

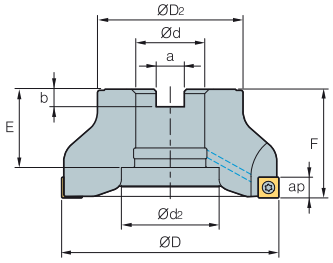


Fig. 2

AA 90°

- AR: 10°
- RR: -9°~ -8°

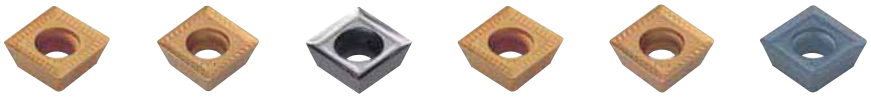
(mm)

Designation		⌀	ØD	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	kg	Fig.
FMPCM	3050HS	5	50	40	22	10.4	6.3	20	40	11	18	7	0.3	1
	3063HS	6	63	40	22	10.4	6.3	20	40	11	18	7	0.5	1
FMPC (FMPCM)	3080HS	7	80	55	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	14	20	7	1.0	1
	3100HS	8	100	67	31.75 (32)	12.7 (14.4)	8 (8)	36 (26)	50	18	45 (26)	7	1.5	2 (1)

( )Metric size

Available inserts

SDET-MF | SDET-MM | SDET-MA | SDXT-MF | SDXT-MM | SDXT-MA



Designation		Cermet		Coated												Uncoated				page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	ST30A	G10	H01	H05	
SDET	09M402R-MA															●			●	●	
	09M405R-MF																				
	09M405R-MM																				
SDXT	09M405R-MF			●					●	●	●	●		●	●						E17
	09M405L-MF																				E18
	09M405R-MM			●	●				●	●	●	●		●	●						
	09M405L-MM								●		●										
	09M405R-MA																		●	●	

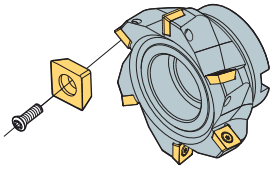
Available arbors

Designation		Ød	NC arbors
FMPCM	3050HS 3063HS	22	BT□□-FMC22-□□
FMPC (FMPCM)	3080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

Parts

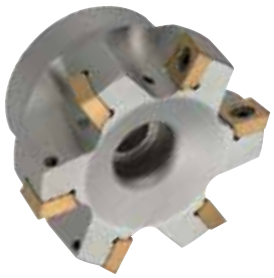
Specification	Screw	Wrench
Ø50~Ø100	FTGA03508	TW15S

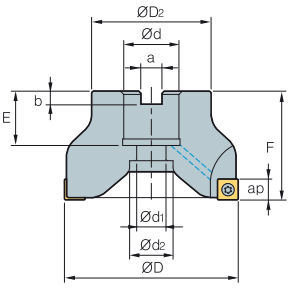
Assembling



Available inserts **E17, E18** Available arbors and bolt **E400~E402**

FMPC(M)4000





AA 90°

- AR: 10°
- RR: -9°~ -8°

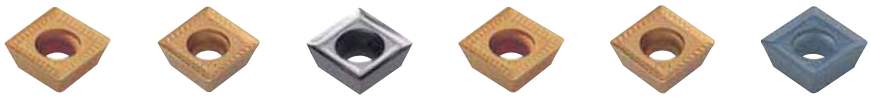
(mm)

Designation			ØD	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	kg
FMPCM	4063HS	5	63	49	22	10.4	6.3	20 (20)	50 (50)	11	18	11	0.4
FMPC (FMPCM)	4080HS	6	80	57	25.4 (27)	9.5 (12.4)	6 (7)	25 (23)	50 (50)	14	20	11	0.9
	4100HS	7	100	67	31.75 (32)	12.7 (14.4)	8 (8)	33 (25)	63 (50)	18	26	11	1.9 (1.5)
	4125HS	8	125	87	38.1 (40)	15.9 (16.4)	10 (9)	35 (29)	63	22	32	11	3.1

( )Metric size

Available inserts

SDET-MF SDET-MM SDET-MA SDXT-MF SDXT-MM SDXT-MA



Designation		Cermet		Coated												Uncoated				page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD1010	ST30A	G10	H01	H05	
SDET	130504R-MA															●			●	●	
	130508R-MF																				
	130508R-MM																				E17
SDXT	130508R-MF			●					●		●	●		●	●						E18
	130508R-MM			●	●				●	●	●	●		●	●						
	130508R-MA																		●	●	

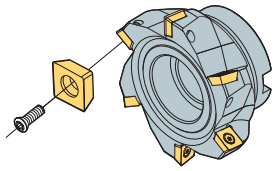
Available arbors

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

Parts

Specification	Screw	Wrench
Ø63~Ø125	FTNC04511	TW20S

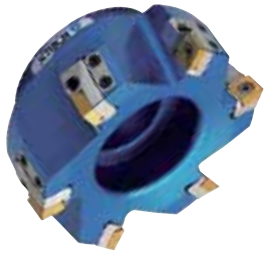
Assembling



Available inserts E17,E18 Available arbors and bolt E400~E402

FMPC(M)3000-A

Aluminum body



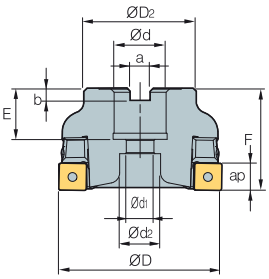


Fig. 1

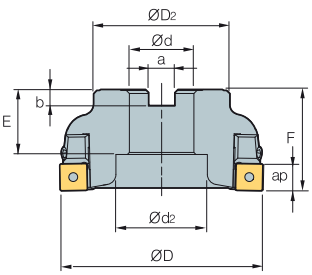


Fig. 2


AA 90°

- AR: 10°
- RR: -9°~ -7.3°

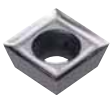
(mm)

Designation			ØD	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	kg	Fig.
FMPCM	3063S-A	3	63	40	22	10.4	6.3	20	40	11.0	18	7	0.2	1
FMPC (FMPCM)	3080S-A	4	80	55	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	13.5	20	7	0.4	1
	3100S-A	5	100	67	31.75 (32)	12.7 (14.4)	8 (8)	32	50	-	45	7	0.6	2
	3100S-25.4-A	5	100	67	25.4	9.5	6	25	50	-	38	7	0.7	2

( )Metric size

Available inserts


SDET-MF

SDET-MM

SDET-MA

SDXT-MF

SDXT-MM

SDXT-MA

Designation		Cermet		Coated											Uncoated				page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	ST30A	G10	H01	H05	
SDET	09M402R-MA															●			●	●	
	09M405R-MF																				
	09M405R-MM																				
SDXT	09M405R-MF			●					●	●	●	●		●	●						E17
	09M405L-MF																				E18
	09M405R-MM			●	●				●	●	●	●		●	●						
	09M405L-MM								●		●										
	09M405R-MA																		●	●	

Available arbors

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

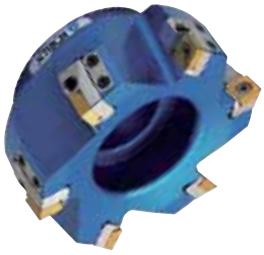
Parts

Specification	Screw	Insert wrench	Locator wrench	Locator	Locator screw	Chip cover	Chip cover screw
Ø63	FTGA03508	TW15S	HW30L	LFMP3R-A	DHA0624	CFMP3R14R1-A	PXMA0306
Ø80~Ø100	FTGA03508	TW15S	HW30L	LFMP3R-A	DHA0624	CFMP3R-A	PXMA0306

Available inserts **E17, E18** Available arbors and bolt **E400~E402**

FMPC(M)4000-A

Aluminum body



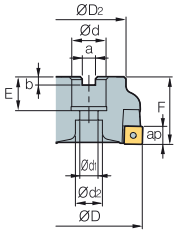


Fig. 1

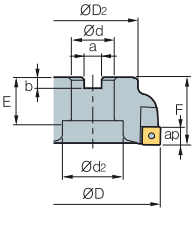


Fig. 2

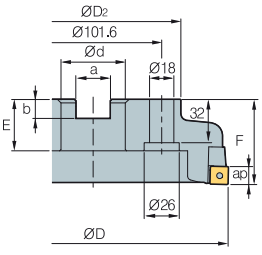


Fig. 3

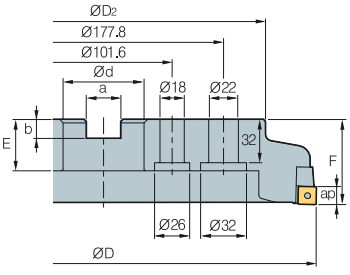


Fig. 4


AA
90°

- AR: 10°
- RR: -9°~ -7.3°

(mm)

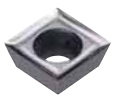
Designation		⊙	ØD	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	kg	Fig.
FMPCM	4063S-A	3	63	49	22	10.4	6.3	20	50	11	18	11	0.6	1
FMPC (FMPCM)	4080S-A	4	80	67	25.4 (27)	9.5 (12.4)	6 (7)	25 (22)	50	13.5	20	11	0.8	1
	4100S-A	5	100	67	31.75 (32)	12.7 (14.4)	8 (8)	32	50	-	45	11	1.1	2
	4100S-25.4-A	5	100	67	25.4	9.5	6	25	50	-	38	11	1.2	2
	4125S-A	6	125	87	38.1 (40)	15.9 (16.4)	10 (9)	38 (35)	63	-	56	11	1.7	2
	4125S-25.4-A	6	125	70	25.4	9.5	6	25	63	-	38	11	1.8	2
	4160S-A	8	160	107	50.8 (40)	19.0 (16.4)	11 (9)	38 (35)	63	-	75	11	2.5	2
	4200S-A	10	200	130	47.625 (60)	25.4 (25.7)	14 (14)	38 (32)	63	-	-	11	3.2	3
	4250S-A	12	250	180	47.625 (60)	25.4 (25.7)	14 (14)	38	63	-	-	11	4.1	3
	4315S-A	15	315	240	47.625 (60)	25.4 (25.7)	14 (14)	38	63	-	-	11	6.7	4

( )Metric size

Available inserts


SDET-MF


SDET-MM


SDET-MA


SDXT-MF


SDXT-MM


SDXT-MA

Designation		Cermet		Coated												Uncoated				page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD1010	ST30A	G10	H01	H05	
SDET	130504R-MA															●			●	●	
	130508R-MF																				
	130508R-MM																				E17
SDXT	130508R-MF			●					●		●	●		●	●						E18
	130508R-MM			●	●				●	●	●	●		●	●						
	130508R-MA																		●	●	

Available arbors

Designation		Ød	NC arbors
FMPCM	4063R-□	22	BT□□-FMC22-□□
FMPC (FMPCM)	4080R-□	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	4100HR-□	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	4125R-□	38.1	BT□□-FMA38.1-□□

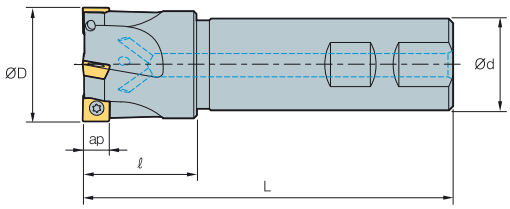
Designation		Ød	NC arbors
FMPC (FMPCM)	4125R-□	40	BT□□-FMB40-□□
	4160R-□	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMB/FMC40-□□
	4200R-□	47.625	BT□□-FMA47.625-□□
	4250R-□	60	BT□□-FMB60-□□
	4315R-□	60	BT□□-FMB60-□□

Parts

Specification	Screw	Insert wrench	Locator wrench	Locator	Locator screw	Chip cover	Chip cover screw
Ø63~Ø80	FTNC04509	TW20S	HW40L	LFMP4R1-A	DHA0825	CFMP3R14R1-A	PXMA0306
Ø100~Ø315	FTNC04509	TW20S	HW40L	LFMP4R-A	DHA0830	CFMP4R-A	PXMA0306

Available inserts **E17, E18** Available arbors and bolt **E400~E402**

FMPS3000



AA 90°

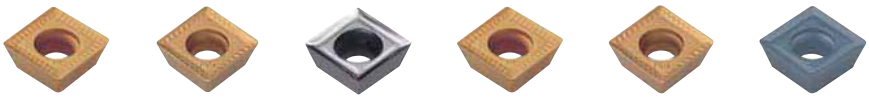
- AR: 10°
- RR: -9°~ -8°

(mm)

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

Available inserts

SDET-MF SDET-MM SDET-MA SDXT-MF SDXT-MM SDXT-MA

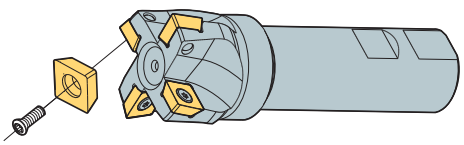


Designation		Cermet		Coated												Uncoated				page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	ST30A	G10	H01	H05	
SDET	09M402R-MA															●			●	●	
	09M405R-MF																				
	09M405R-MM																				
SDXT	09M405R-MF			●					●	●	●	●		●	●						E17
	09M405L-MF																				E18
	09M405R-MM			●	●				●	●	●	●		●	●						
	09M405L-MM								●		●										
	09M405R-MA																		●	●	

Parts

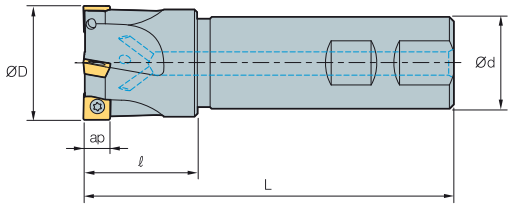
Specification	Screw	Wrench
Ø25~Ø63	FTGA03508	TW15S

Assembling



Available inserts E17, E18

FMPS4000



AA 90°

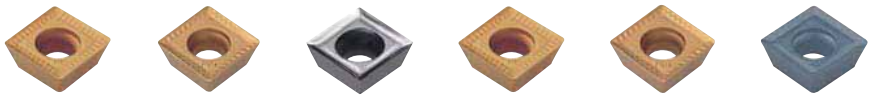
- AR: 10°
- RR: -9°~ -8°

(mm)

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

Available inserts

SDET-MF | SDET-MM | SDET-MA | SDXT-MF | SDXT-MM | SDXT-MA

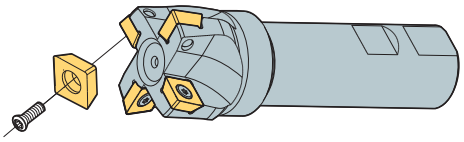


Designation		Cermet		Coated												Uncoated				page
		CN2000	CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD1010	ST30A	G10	H01	H05	
SDET	130504R-MA															●			●	●	
	130508R-MF																				
	130508R-MM																				E17
SDXT	130508R-MF			●					●		●	●		●	●						E18
	130508R-MM			●	●				●	●	●	●		●	●						
	130508R-MA																		●	●	

Parts

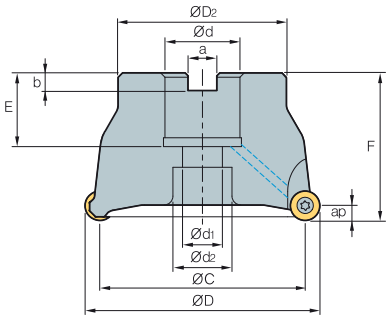
Specification	Screw	Wrench
Ø40~Ø63	FTNC04511	TW20S

Assembling



Available inserts E17, E18

FMRC(M)3000



• AR: 5°
• RR: -5°

(mm)

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

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

( )Metric size

Available inserts

RDKT-MF RDKT-MM RDCT-MA

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	10T3M0-MA																	●	E15 E16
RDKT	10T3M0-MF												●		●				
	10T3M0-MM			●							●	●	●		●				

Available arbors

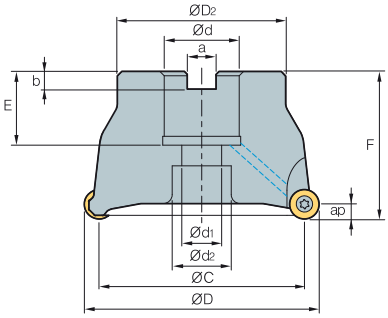
Designation		Ød	NC arbors
FMRCM	3040HRD 3040HRD-H	16	BT□□-FMC16-□□
	3050HRD 3050HRD-H 3063HRD 3063HRD-H	22	BT□□-FMC22-□□
FMRC (FMRCM)	3080HRD	25.4	BT□□-FMA/FMB25.4-□□
	3080HRD-H	27	BT□□-FMB/FMC27-□□
	3100HRD	31.75	BT□□-FMA31.75-□□
	3100HRD-H	32	BT□□-FMC32-□□

Parts

Specification	Screw	Wrench
Ø40~Ø100	FTGA03508	TW15S

Available inserts E15, E16 Available arbors and bolt E400~E402

FMRC(M)4000



• AR: 5°
• RR: -5°

(mm)

Designation			ØD	ØC	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	kg
FMRCM	4050HRD	4	50	38	42	22	10.4	6.3	20	50	11	18	6.0	0.4
	4063HRD	4	63	51	49	22	10.4	6.3	20	50	11	18	6.0	0.6
	4063HRD-M	5	63	51	49	22	10.4	6.3	20	50	11	18	6.0	0.6
FMRC (FMRCM)	4080HRD	5	80	68	57	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (23)	50 (50)	14	20	6.0	1.0
	4080HRD-M	6	80	68	57	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (23)	50 (50)	14	20	6.0	1.0
	4100HRD	6	100	88	67	31.75 (32)	12.7 (14.4)	8 (8.0)	33 (25)	63 (50)	18	26	6.0	1.9 (1.5)
	4100HRD-M	7	100	88	67	31.75 (32)	12.7 (14.4)	8 (8.0)	33 (25)	63 (50)	18	26	6.0	1.9 (1.5)
	4125HRD	7	125	113	87	38.1 (40)	15.9 (16.4)	10 (9.0)	35 (29)	63 (63)	22	32	6.0	3.0
	4125HRD-M	8	125	113	87	38.1 (40)	15.9 (16.4)	10 (9.0)	35 (29)	63 (63)	22	32	6.0	3.0

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

( )Metric size

Available inserts

RDKT-MF RDKT-MM RDCT-MA

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	1204M0-MA																	●	E15 E16
RDKT	1204M0-MF										●		●		●				
	1204M0-MM			●							●	●	●		●				

Available arbors

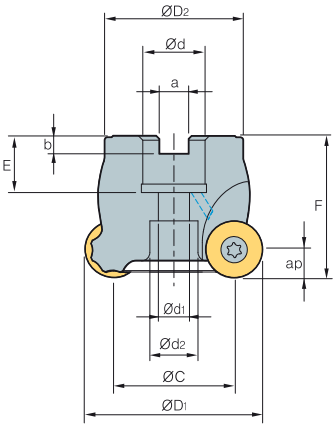
Designation		Ød	NC arbors
FMRCM	4063HRD	22	BT□□-FMC22-□□
	4063HRD-M		
FMRC (FMRCM)	4080HRD		
	4080HRD	25.4	BT□□-FMA/FMB25.4-□□
	4080HRD-M	27	BT□□-FMB/FMC27-□□
	4100HRD	31.75	BT□□-FMA31.75-□□
	4100HRD-M	32	BT□□-FMC32-□□
	4125HRD	38.1	BT□□-FMA/FMB38.1-□□
	4125HRD-M	40	BT□□-FMB/FMC40-□□

Parts

Specification	Screw	Wrench
Ø50~Ø125	FTKA0410	TW15S

Available inserts E15, E16 Available arbors and bolt E400~E402

FMRC(M)5000



• AR: 5°
• RR: -5°

(mm)

Designation			ØD	ØC	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	kg
FMRCM	5050HRD	3	50	34	42	22	10.4	6.3	20	50	11	16.5	8.0	0.4
	5063HRD	4	63	47	49	22	10.4	6.3	20	50	11	18	8.0	0.6
	5063HRD-H	5	63	47	49	22	10.4	6.3)	20	50	11	18	8.0	0.6
FMRC (FMRCM)	5080HRD	5	80	64	57	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (23)	50 (50)	14	20	8.0	0.9
	5080HRD-H	6	80	64	57	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (23)	50 (50)	14	20	8.0	0.9
	5100HRD	6	100	84	67	31.75 (32)	12.7 (14.4)	8 (8)	33 (25)	63 (50)	18	26	8.0	1.9 (1.4)
	5100HRD-H	7	100	84	67	31.75 (32)	12.7 (14.4)	8 (8)	33 (25)	63 (50)	18	26	8.0	1.9 (1.4)
	5125HRD	7	125	109	87	38.1 (40)	15.9 (16.4)	10 (9)	35 (29)	63 (63)	22	32	8.0	3
	5125HRD-H	8	125	109	87	38.1 (40)	15.9 (16.4)	10 (9)	35 (29)	63 (63)	22	32	8.0	3

Note) It's general that you measure of inner diameter when the diameter of FMRC/FMRCM is Ø50~Ø63

( )Metric size

Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDHW	1605M0E																		
	1605M0F																		
	1605M0S																		E15
RDKT	1605M0-MM										●								E16
	1605M0-MF																		
	1605M0-ML																		

Available arbors

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

Parts

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

Available inserts E15, E16 Available arbors and bolt E400~E402

FMRC(M)6000

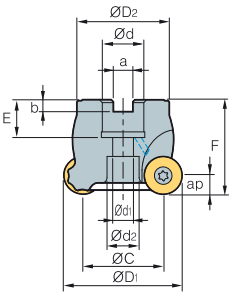


Fig. 1

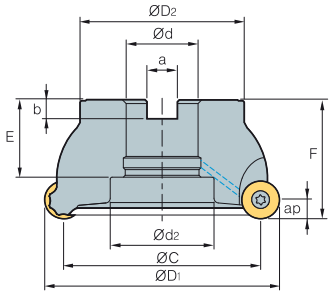


Fig. 2

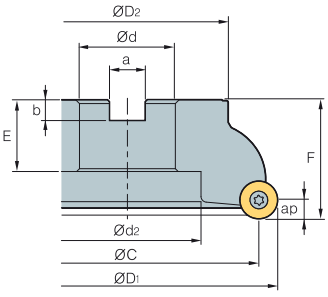
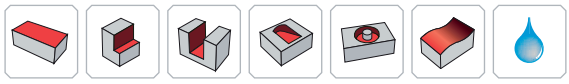


Fig. 3



• AR: 5°
• RR: -5°

(mm)

Designation			ØD	ØC	ØD2	Ød	a	b	E	F	Ød1	Ød2	ap	kg	Fig.
FMRCM	6063HRD	3	63	43	49	22	10.4	6.3	20	50	11	17	10.0	0.5	1
	6063HRD-M	4	63	43	49	22	10.4	6.3	20	50	11	17	10.0	0.5	1
FMRC (FMRCM)	6080HRD	4	80	60	57	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (22)	50	14	20	10.0	0.8	1
	6080HRD-M	5	80	60	57	25.4 (27)	9.5 (12.4)	6 (7.0)	25 (22)	50	14	20	10.0	0.8	1
	6100HRD	5	100	80	67	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	63	18	26	10.0	1.6	1
	6100HRD-M	6	100	80	67	31.75 (32)	12.7 (14.4)	8 (8)	32 (28)	63	18	26	10.0	1.6	1
	6125HRD	6	125	105	87	38.1 (40)	15.9 (16.4)	10 (9)	41 (29)	63	- (22)	55 (32)	10.0	2.7 (2.9)	2 (1)
	6125HRD-M	7	125	105	87	38.1 (40)	15.9 (16.4)	10 (9)	41 (29)	63	- (22)	55 (32)	10.0	2.7 (2.9)	2 (1)
	6160RD	7	160	140	107	50.8 (40)	19 (16.4)	11 (9)	38 (35)	63	-	78	10.0	4.4	3
	6160RD-M	8	160	140	107	50.8 (40)	19 (16.4)	11 (9)	38 (35)	63	-	78	10.0	4.4	3

( )Metric size

Available inserts

RDHW-E,F,S

RDKT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDHW	2006M0E																		E15
	2006M0F																		E16
	2006M0S																		
RDKT	2006M0-MM										●								

Available arbors

Designation		Ød	NC arbors
FMRCM	6063HRD	22	BT□□-FMC22-□□
	6063HRD-M		
FMRC (FMRCM)	6080HRD	25.4	BT□□-FMA/FMB25.4-□□
	6080HRD-M	27	BT□□-FMB/FMC27-□□
	6100HRD	31.75	BT□□-FMA31.75-□□
	6100HRD-M	32	BT□□-FMC32-□□
	6125HRD	38.1	BT□□-FMA/FMB38.1-□□
	6125HRD-M	40	BT□□-FMB/FMC40-□□
	6160RD	50.8	BT□□-FMA50.8-□□
	6160RD-M	40	BT□□-FMB/FMC40-□□

Parts

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

Available inserts **E15, E16** Available arbors and bolt **E400~E402**

FMRS1000/1500

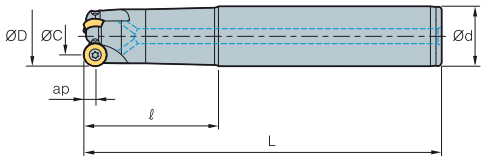


Fig. 1

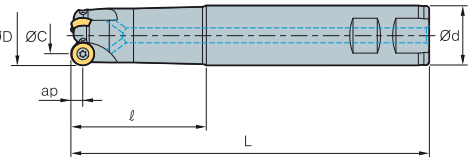


Fig. 2

• AR: 5°
• RR: -5°~ -1°

(mm)

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

Available inserts

RDHW-E,F,S

RDKW

Type	Designation		Cermet		Coated												Uncoated		page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
1000 type	RDHW	0501M0E												●						
		0501M0F																		
		0501M0S																		
	RDKW	0501M0E										●								E15
1500 type	RDHW	06T1M0E												●						E16
		06T1M0F																		
		06T1M0S																		
	RDKW	06T1M0E										●								

Parts

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

Available inserts E15, E16

FMRS2000/2500

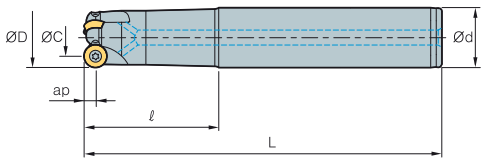


Fig. 1

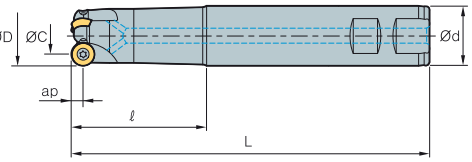


Fig. 2

• AR: 5°
• RR: -5°~ -1°

(mm)

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

Available inserts

RDHW-E,F,S

RDKW

Type	Designation		Cermet		Coated												Uncoated		page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
2000 type	RDHW	0702M0E												●						
		0702M0F																		
		0702M0S																		
	RDKW	0702M0E										●								E15
2500 type	RDHW	0803M0E												●						E16
		0803M0F																		
		0803M0S																		
	RDKW	0803M0E										●								

Parts

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

Available inserts **E15, E16**

FMRS3000

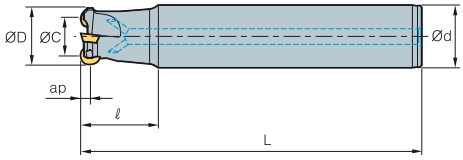


Fig. 1

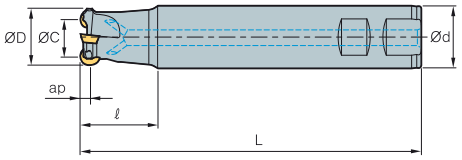


Fig. 2

- AR: 5°
- RR: -8°~ -5°

(mm)

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

Available inserts

RDKT-MF

RDKT-MM

RDCT-MA

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	10T3M0-MA																	●	E15 E16
RDKT	10T3M0-MF												●		●				
	10T3M0-MM			●							●	●	●		●				

Parts

Specification	Screw	Wrench
Ø21	FTGA03507	TW15S
Ø25~Ø40	FTGA03508	

Available inserts E15, E16

FMRS4000

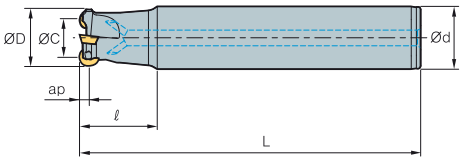


Fig. 1

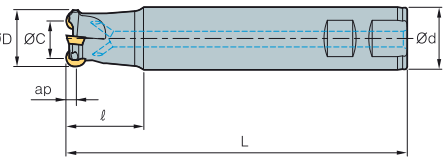


Fig. 2

• AR: 5°
• RR: -8°~ -5°

(mm)

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

Available inserts

RDKT-MF

RDKT-MM

RDCT-MA

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	1204M0-MA																	●	E15 E16
RDKT	1204M0-MF										●		●		●				
	1204M0-MM			●							●	●	●		●				

Parts

Specification	Screw	Wrench
Ø32~Ø50	FTKA0410	TW15S

Available inserts **E15, E16**

FMRS5000

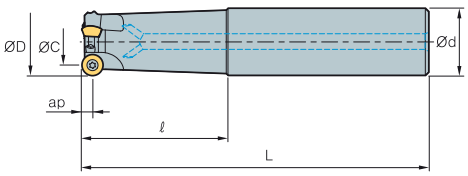


Fig. 1

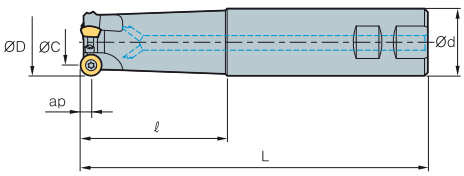


Fig. 2

• AR: 5°
• RR: -8°~ -5°

(mm)

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

Available inserts

RDHW-E,F,S

RDKT-MF

RDKT-ML

RDKT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDHW	1605M0E																		
	1605M0F																		
	1605M0S																		E15
RDKT	1605M0-MF										●								E16
	1605M0-MM																		
	1605M0-ML																		

Parts

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

Available inserts E15, E16

FMRS6000

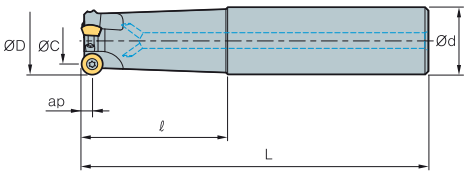


Fig. 1

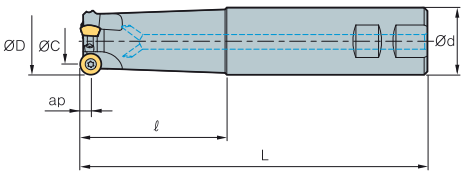


Fig. 2

• AR: 5°
• RR: -8°~ -5°

(mm)

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

Available inserts

RDHW-E,F,S

RDKT-MM

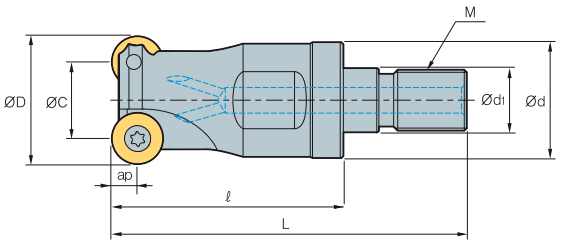
Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDHW	2006M0E																		E15
	2006M0F																		E15
	2006M0S																		E16
RDKT	2006M0-MM										●								

Parts

Specification	Screw	Wrench
Ø50~Ø63	FTGA0515-P	TW20-100

Available inserts **E15, E16**

FMRM1000/1500



• AR: 0°~5°
• RR: -5°~ -1°

(mm)

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

Available inserts

RDHW-E,F,S

RDKW

Type	Designation		Cermet		Coated												Uncoated		page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
1000 type	RDHW	0501M0E												●						
		0501M0F																		
		0501M0S																		
	RDKW	0501M0E										●								E15
1500 type	RDHW	06T1M0E												●						E16
		06T1M0F																		
		06T1M0S																		
	RDKW	06T1M0E										●								

Available adaptor

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

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

II

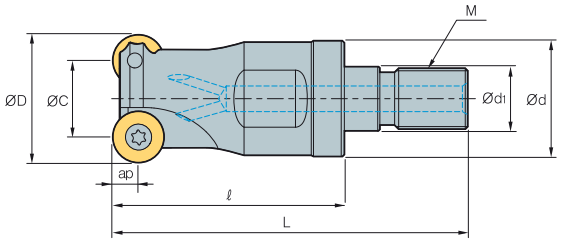
Adaptor spec.: MAT-M06-020-S10S
Adaptor threading measure (M06)

Parts

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

Available inserts E15, E16 Available adaptor E371~E372

FMRM2000/2500



• AR: 0°~5°
• RR: -5°~ -1°

(mm)

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

Available inserts

RDHW-E,F,S

RDKW

Type	Designation		Cermet		Coated												Uncoated		page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
2000 type	RDHW	0702M0E												●						
		0702M0F																		
		0702M0S																		
	RDKW	0702M0E										●								E15
2500 type	RDHW	0803M0E												●						E16
		0803M0F																		
		0803M0S																		
	RDKW	0803M0E										●								

Available adaptor

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

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

II

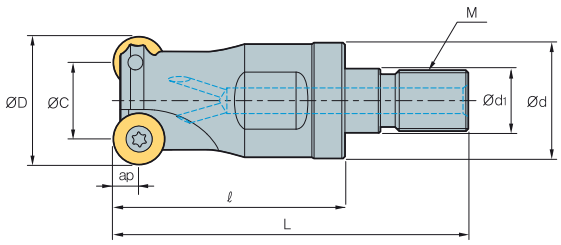
Adaptor spec.: MAT-M06-020-S10S
Adaptor Threading Measure (M06)

Parts

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

Available inserts E15, E16 Available adaptor E371~E372

FMRM3000



• AR: 5°
•RR:-8°~ -5°

(mm)

Designation			ØD	ØC	Ød	Ød1	ℓ	L	M	ap	kg
FMRM	3021HRD-M10	2	21	11	18	10.5	35	56	M10	5.0	0.1
	3025HRD-M12	2	25	15	22.5	12.5	45	69	M12	5.0	0.15
	3032HRD-M16	3	32	22	29	17	50	77	M16	5.0	0.2
	3042HRD-M16	4	42	32	29	17	50	77	M16	5.0	0.24

Available inserts

RDHW-E,F,S | RDCT-MA | RDKT-MF | RDKT-ML | RDKT-MM

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	10T3M0-MA																	●	E15 E16
RDKT	10T3M0-MF												●		●				
	10T3M0-MM			●							●	●	●		●				

Available adaptor

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

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

II

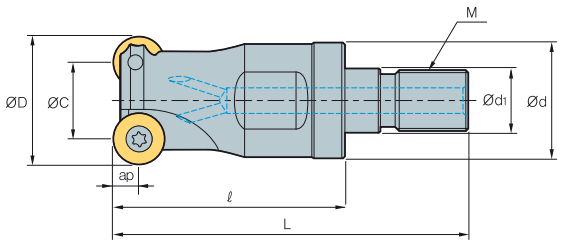
Adaptor spec.: MAT-M06-020-S10S
Adaptor Threading Measure (M06)

Parts

Specification	Screw	Wrench
Ø21	FTGA03507	TW15S
Ø25~Ø42	FTGA03508	

Available inserts E15, E16 Available adaptor E371~E372

FMRM4000/5000



• AR: 5°
•RR:-8°~ -5°

(mm)

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

Available inserts

RDHW-E RDCT-MA RDKT-MF RDKT-ML RDKT-MM

Type	Designation		Cermet		Coated												Uncoated		page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
4000 type	RDCT	1204M0-MA																	●	E15 E16
	RDKT	1204M0-MF										●		●		●				
		1204M0-MM			●							●	●	●		●				
5000 type	RDHW	1605M0-E																		
	RDKT	1605M0-MF																		
		1605M0-ML																		
		1605M0-MM										●								

Available adaptor

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

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

II

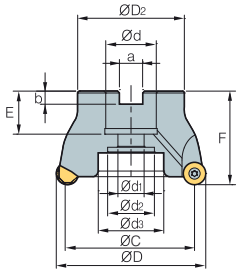
Adaptor spec.: MAT-M06-020-S10S
Adaptor threading measure (M06)

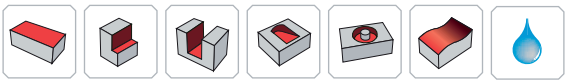
Parts

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

Available inserts E15, E16 Available adaptor E371~E372

FMRCM3000 new





• AR: 5°
• RR: -4°~ 0°

(mm)

Designation			ØD	ØC	ØD2	Ød	Ød1	Ød2	d3	a	b	E	F	ap	kg	Insert size
FMRCM	3040HRP-5	5	40	30	38	16	9	14	-	8.4	5.6	19	40	5	0.22	10
	3050HRP-6	6	50	40	45	22	11	18	-	10.4	6.3	20	40	5	0.35	10
	3052HRP-6	6	52	42	45	22	11	18	-	10.4	6.3	20	40	5	0.37	10
	3063HRP-6	6	63	53	50	22	11	18	-	10.4	6.3	20	40	5	0.55	10
	3063HRP-7	7	63	53	50	22	11	18	-	10.4	6.3	20	40	5	0.56	10
	3066HRP-7	7	66	56	50	22	11	18	-	10.4	6.3	20	40	5	0.60	10

Available inserts

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	10T3M0-MA																	●	E16
RPET	10T3M0E-ML														●	●			
RPMT	10T3M0E-MF									●					●	●			
	10T3M0S-MM							●	●	●	●				●	●			
RPMW	10T3M0E1							●	●	●					●	●			

Available arbors

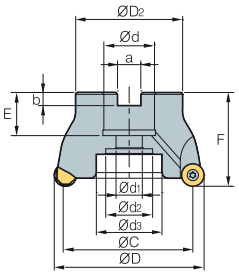
Designation		Ød	NC arbors
FMRCM	3040HRP-5	16	BT□□-FMC16-□□
	3050HRP-6	22	BT□□-FMC22-□□
	3052HRP-6	22	BT□□-FMC22-□□
	3063HRP-6	22	BT□□-FMC22-□□
	3063HRP-7	22	BT□□-FMC22-□□
	3066HRP-7	22	BT□□-FMC22-□□

Parts

Specification	Screw	Wrench
Ø40~Ø66	FTGA03508	TW15S

Available inserts E16 Available arbors and bolt E400~E402

FMRC(M)4000 new



• AR: 5°
• RR: -2°~ 0°

(mm)

Designation			ØD	ØC	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg	Insert size
FMRCM	4050HRP-4	4	50	38	45	22	11	18	-	10.4	6.3	20	40	6	0.26	12
	4050HRP-5	5	50	38	45	22	11	18	-	10.4	6.3	20	40	6	0.28	12
	4052HRP-5	5	52	40	45	22	11	18	-	10.4	6.3	20	40	6	0.30	12
	4063HRP-5	5	63	51	50	22	11	18	-	10.4	6.3	20	40	6	0.44	12
	4063HRP-6	6	63	51	50	22	11	18	-	10.4	6.3	20	40	6	0.48	12
	4066HRP-6	6	66	54	50	22	11	18	-	10.4	6.3	20	40	6	0.50	12
FMRC (FMRCM)	4080HRP-6	6	80	68	57	25.4 (27)	14	25	35	9.5 (12.4)	6 (7)	24 (23)	50	6	0.92	12
	4080HRP-7	7	80	68	57	25.4 (27)	14	25	35	9.5 (12.4)	6 (7)	24 (23)	50	6	0.90	12
	4100HRP-7	7	100	88	67	31.75 (32)	18	26	42	12.7 (14.4)	8 (8)	32 (25)	63 (53)	6	1.46	12

( )Metric size

Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1204M0-MA																	●	E16
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□□-FMA31.75-□□
		32	BT□□-FMC32-□□

Parts

Specification	Screw	Wrench
Ø50~Ø100	FTKA0410	TW15S

Available inserts E16 Available arbors and bolt E400~E402

FMRC(M)5000 new

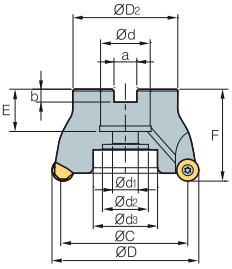


Fig. 1

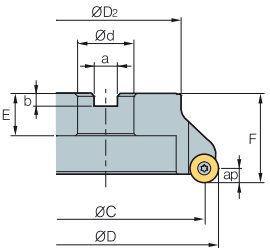


Fig. 2

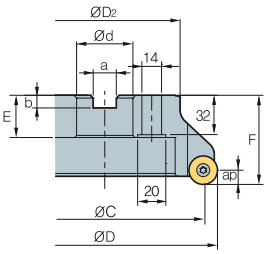


Fig. 3

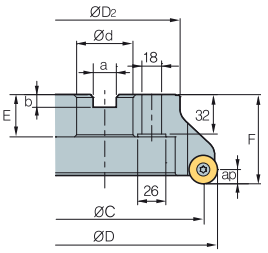


Fig. 4

• AR: 5°
• RR: -1°~ 0°

(mm)

Designation		⊙	ØD	ØC	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg	Fig.	Insert size
FMRCM	5063HRP-4	4	63	47	50	22	11	18	-	10.4	6.3	20	40	8	0.43	1	16
	5063HRP-5	5	63	47	50	22	11	18	-	10.4	6.3	20	40	8	0.44	1	16
	5066HRP-5	5	66	50	50	22	11	18	-	10.4	6.3	20	40	8	0.48	1	16
FMRC (FMRCM)	5080HRP-5	5	80	64	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	64	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	84	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	109	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	109	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	144	107	50.8 (40)	-	-	100	19 (16.4)	11 (9)	38 (32)	63	8	4.01	2 (3)	16

( )Metric size

Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1606M0-MA																	●	E16
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

Available inserts E16 Available arbors and bolt E400~E402

FMRC(M)6000 new

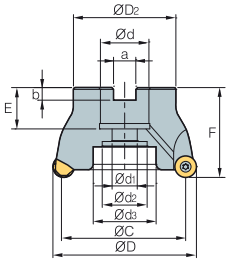


Fig. 1

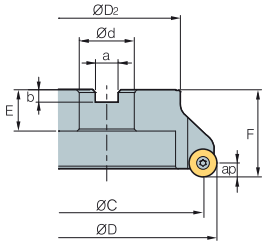


Fig. 2

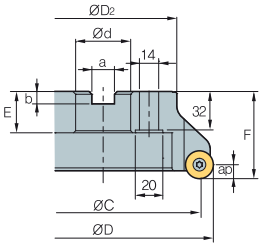


Fig. 3

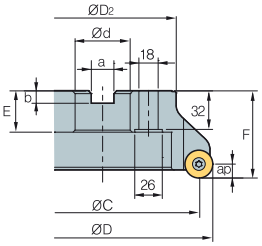


Fig. 4

• AR: 5°
• RR: 0°

(mm)

Designation		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

Available inserts

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

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	2007M0-MA																	●	E16
RPET	2007M0E-ML														●	●			
RPMT	2007M0E-MF									●					●	●			
	2007M0S-MM							●	●	●	●				●	●			
RPMW	2007M0S1							●	●	●					●	●			

Available arbors

Designation		Ød	Available 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-□□

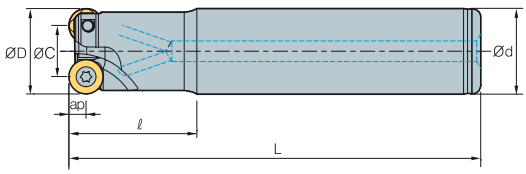
Designation		Ød	Available arbors
FMRC (FMRCM)	6125HRP-7	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□
	6160RP-6	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMC40-□□
	6160RP-8	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMC40-□□
	6200RP-8	47.625	BT□□-FMA47.625-□□
		60	BT□□-FMC60-□□
	6250RP-9	47.625	BT□□-FMA47.625-□□
		60	BT□□-FMC60-□□

Parts

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

Available inserts E16 Available arbors and bolt E400~E402

FMRS2500 new



• AR: -4°
• RR: -4°~ -1°

(mm)

Designation			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

Available inserts

RPET-ML RPMT-MF RPMT-MM RPMW

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPET	0803M0E-ML														●	●			E16
RPMT	0803M0E-MF									●					●	●			
	0803M0S-MM							●	●	●					●	●			
RPMW	0803M0E1							●	●	●					●	●			

Parts

Specification	Screw	Wrench
Ø17	FTNA0305	TW09S
Ø18~Ø26	FTNA0306	

Available inserts E16

FMRS3000 new

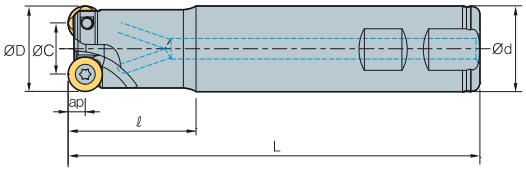


Fig. 1

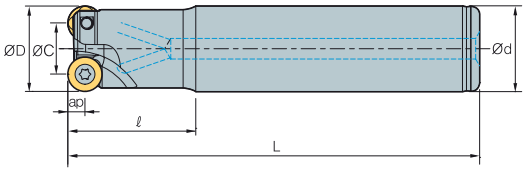


Fig. 2

• AR: -4°
• RR: -1°

(mm)

Designation			ØD	ØC	Ød	ℓ	L	ap	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

Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	10T3M0-MA																	●	E16
RPET	10T3M0E-ML														●	●			
RPMT	10T3M0E-MF									●					●	●			
	10T3M0S-MM							●	●	●	●				●	●			
RPMW	10T3M0E1							●	●	●					●	●			

Parts

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

Available inserts E16

FMRS4000 new

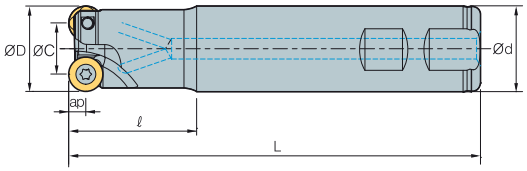


Fig. 1

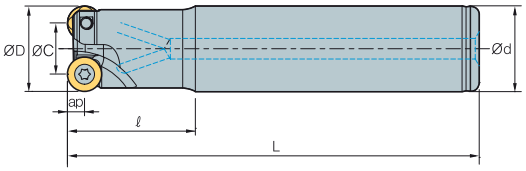


Fig. 2

• AR: -4°
• RR: -2°~ 0°

(mm)

Designation			ØD	ØC	Ød	ℓ	L	ap	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

Available inserts

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

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1204M0-MA																	●	E16
RPET	1204M0E-ML														●	●			
RPMT	1204M0E-MF									●				●	●	●			
	1204M0S-MM							●	●	●	●			●	●	●			
RPMW	1204M0S1							●	●	●	●				●	●			
	1204M0S2														●	●			

Parts

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

Available inserts E16

FMRS5000/6000 new

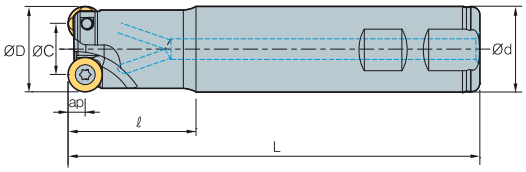


Fig. 1

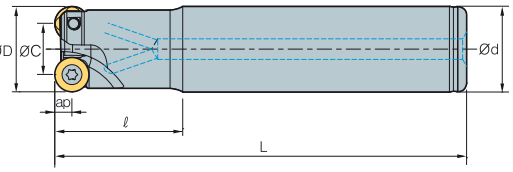


Fig. 2

• AR: -4°
• RR: 0°

(mm)

Designation			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
	6050HRP-3S32	3	50	30	32	50	160	10	1.06	20	1
	6050HRP-3M32	3	50	30	32	50	200	10	1.30	20	2
	6050HRP-3S40	3	50	30	40	50	125	10	1.45	20	1
	6050HRP-3M40	3	50	30	40	50	200	10	1.85	20	2

Available inserts

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

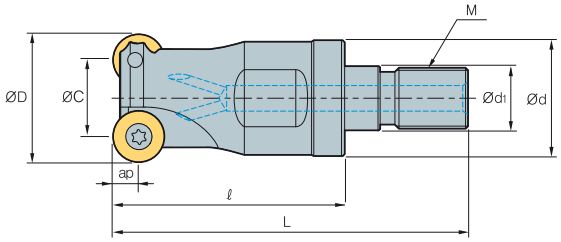
Type	Designation		Cermet		Coated												Uncoated		page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
5000 type	RPCT	1606M0-MA																	●	E16
	RPET	1606M0E-ML														●	●			
	RPMT	1606M0E-MF									●					●	●			
		1606M0S-MM							●	●	●	●				●	●			
	RPMW	1606M0S1							●	●	●					●	●			
5000 type	RPCT	2007M0-MA																	●	E16
	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

Available inserts E16

FMRM2500 new



• AR: -4°
• RR: -4°~ 0°

(mm)

Designation			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

Available inserts

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

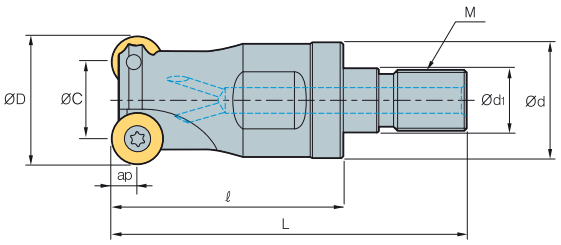
Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPET	0803M0E-ML														●	●			E16
RPMT	0803M0E-MF									●					●	●			
	0803M0S-MM							●	●	●					●	●			
RPMW	0803M0E1							●	●	●					●	●			

Parts

Specification	Screw	Wrench
Ø17 Ø21~Ø40	FTNA0305 FTNA0306	TW09S

Available inserts E16 Available adaptor E371~E372

FMRM3000 new



• AR: -4°
• RR: -1°~ 0°

(mm)

Designation			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

Available inserts

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

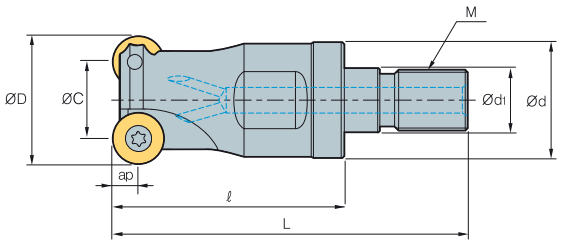
Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	10T3M0-MA																	●	E16
RPET	10T3M0E-ML														●	●			
RPMT	10T3M0E-MF									●					●	●			
	10T3M0S-MM							●	●	●	●				●	●			
RPMW	10T3M0E1							●	●	●					●	●			

Parts

Specification	Screw	Wrench
Ø26	FTGA03507	TW15S
Ø33~Ø42	FTGA03508	

Available inserts E16 Available adaptor E371~E372

FMRM4000 new



• AR: -4°
• RR: 0°

(mm)

Designation			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

Available inserts

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

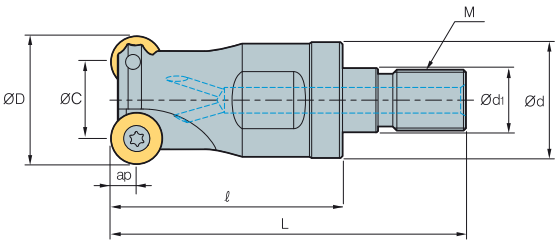
Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1204M0-MA																	●	E16
RPET	1204M0E-ML														●	●			
RPMT	1204M0E-MF									●				●	●	●			
	1204M0S-MM							●	●	●	●			●	●	●			
RPMW	1204M0S1							●	●	●	●				●	●			
	1204M0S2														●	●			

Parts

Specification	Screw	Wrench
Ø26 Ø33~Ø42	FTKA0408 FTKA0410	TW15S

Available inserts E16 Available adaptor E371~E372

FMRM5000 new



• AR: -4°
• RR: 0°

(mm)

Designation			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

Available inserts

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1606M0-MA																	●	E16
RPET	1606M0E-ML														●	●			
RPMT	1606M0E-MF									●					●	●			
	1606M0S-MM							●	●	●	●				●	●			
RPMW	1606M0S1							●	●	●					●	●			

Parts

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

Available inserts E16 Available adaptor E371~E372

High Feed Milling Tool with 4 Corners for Small Diameter

HFMD new

- 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

Code system

• Shank type

HFMD S 025 R - 4 C 25 - 180 - LN06

- **HFMD**
- **Type**: S: Shank
- **Machining diameter**: 025: Ø25 mm
- **Oil hole & Hand**: R: With oil hole, Right-handed; NR: Without oil hole, Right-handed
- **No. of tooth**: 4: 4 teeth
- **Shank type**: W: Weldon; C: Cylinder
- **Shank diameter**: 25: Ø25 mm
- **Overall length**: 180: 180 mm
- **Available inserts**: LN06: LNMX06

• Cutter type

HFMD C M 040 R - 22 - 7 - LN06

- **HFMD**
- **Type**: C: Cutter
- **Arbor type**: M: Metric; A: Inch; None: Asia
- **Machining diameter**: 040: Ø40 mm
- **Oil hole & Hand**: R: With oil hole, Right-handed; NR: Without oil hole, Right-handed
- **Internal diameter**: 22: Ø22 mm
- **No. of tooth**: 7: 7 teeth
- **Available inserts**: LN06: LNMX06

• Modular type

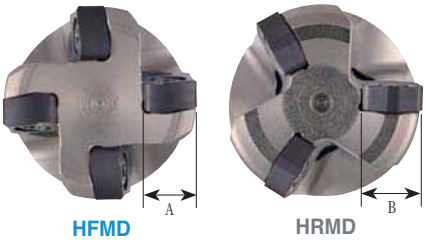
HFMD M 025 R - 4 - M12 - LN06

- **HFMD**
- **Type**: M: Modular
- **Machining diameter**: 025: Ø25 mm
- **Oil hole & Hand**: R: With oil hole, Right-handed; NR: Without oil hole, Right-handed
- **No. of tooth**: 4: 4 teeth
- **M Dimensions**
- **Available inserts**: LN06: LNMX06

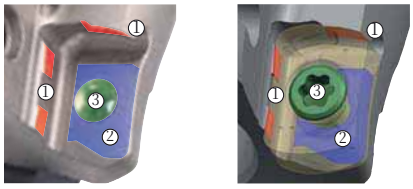
Features

- **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)

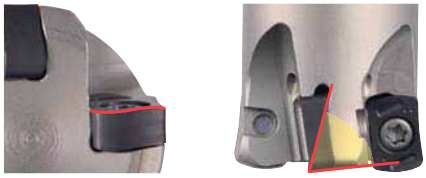
※ Tool diameter: Ø25 mm



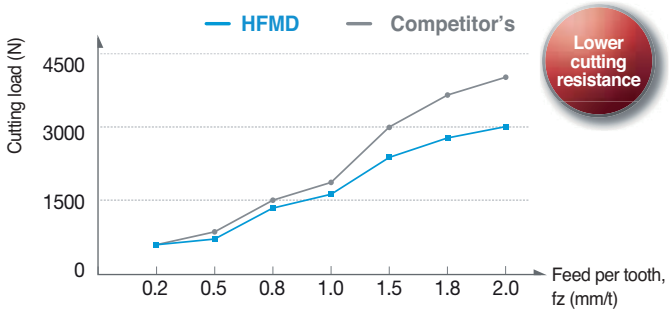
- **Insert with strong clamping force**
  - ① Concave clamping system ② Wider bottom face clamping area ③ Applied a bigger size of screw



- **Insert designed for low cutting resistance**
  - High rake angle and helix angle minimize cutting resistance compared to competitors' products and positive type of inserts



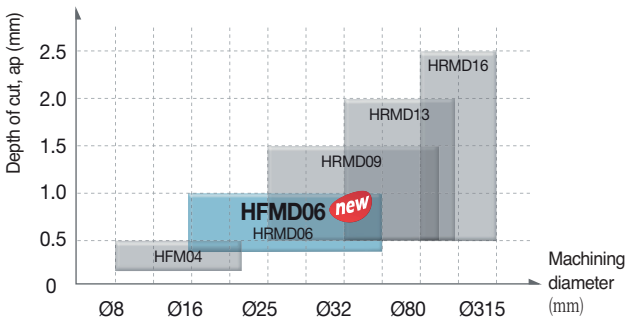
- **Economical 4-corner insert**
  - Can use 4 corners with 1 insert by utilizing front/back face; High feed due to finer pitch

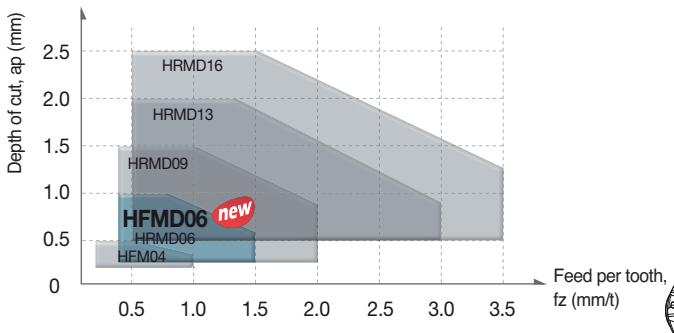


Features of chip breaker

Insert		Cutting-edge	Uses	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

Application area





Recommended cutting condition

※ Recommended chip breaker: ●1st ○2nd

Workpiece					HB (HRC)	Grade	Cutting conditions				Available chip breaker		
ISO	Workpiece materials	KS	AISI	ISO (DIN)*			vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)	ML	MF	MM
P	Mild steel	SM20C	1020	C25 (CK22)*	120~180	PC5400 (PC5300)	100~220	0.3~1.2	0.2~1.0	0.7D~0.1D	○	●	-
	Carbon steel	SM45C	1042 1045	C45/C45E4 (C45/CK45)*	200	PC5400 (PC5300)	100~200	0.3~1.2	0.2~1.0	0.7D~0.1D	○	●	-
	Alloy steel	SCM440	4140	41CrMo4	270(28)	PC3700 (PC5300)	100~200	0.3~1.2	0.2~1.0	0.7D~0.1D	○	●	-
	Pre-hardened steel	KP4M	P20 (Improved)	- (1,2738)*	300(32)	PC3700 (PC5300)	100~180	0.3~1.0	0.2~0.8	0.7D~0.1D	-	●	○
		NIMAX	P21 (Improved)	-	370(40)	PC3700 (PC5300)	100~180	0.3~1.0	0.2~0.8	0.7D~0.1D	-	●	○
		CENA1	P21 (Improved)	-	370(40)	PC3700 (PC5300)	100~180	0.3~1.0	0.2~0.8	0.7D~0.1D	-	●	○
		NAK80	P21 (Improved)	-	400(43)	PC3700 (PC5300)	100~180	0.3~1.0	0.2~0.8	0.7D~0.1D	-	●	○
		STAVAX	420	- (X30Cr13)*	510(52)	PC3700 (PC2510)	80~150	0.3~0.7	0.2~0.8	0.7D~0.1D	-	●	○
	Alloy tool steel	STD11 STD61	D2 H13	- (X165CrVMo12-1 X40CrMoV5-1)*	- (40~50)	PC2510 (PC3700)	80~130	0.3~0.65	0.2~0.6	0.7D~0.1D	-	○	●
M	Stainless steel	STS316	316	- (X5CrNiMo17-12-2)*	Under 270	PC5400	90~180	0.3~0.8	0.2~0.8	0.7D~0.1D	●	○	-
K	Grey cast iron, Ductile cast iron	GCD450	65-45-12	450-10 (GGG40.3)*	Tensile Strength Over 450Mpa	PC5300 (PC5400)	130~220	0.3~0.9	0.2~1.0	0.7D~0.1D	-	●	○
S	HRSA Fe series	Incoloy901	N09901	- (WS 2.4662)*	- (25~35)	PC5300	30~100	0.3~0.6	0.2~0.6	0.4D~0.7D	●	○	-
	HRSA Ni or Co series	Inconel718	N07718	- (WS 2.4668)*	- (35~45)	PC5300	30~45	0.3~0.7	0.2~0.6	0.4D~0.7D	○	●	-
	Titanium	Ti-6Al-4V	R56400	- (TiAl6V4)*	- (40~45)	PC5300	30~50	0.3~1.0	0.2~0.6	0.7D~0.1D	●	○	-

Performance evaluation

Alloy steel (SCM440, HB250)

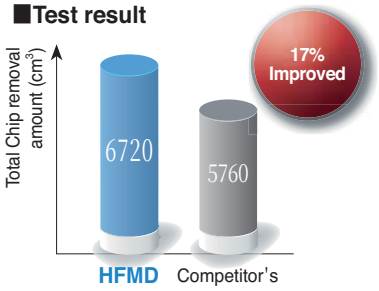
■**Workpiece** Steel rectangular tube (300×200×100)

■**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)

■**Test result**



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

Pre-hardened steel (KP4M, HRC30)

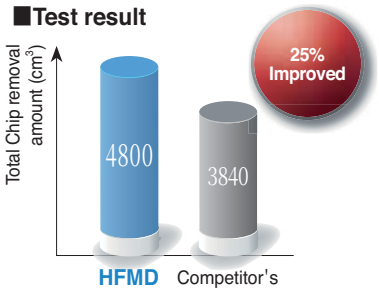
■**Workpiece** Steel rectangular tube (300×200×100)

■**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)

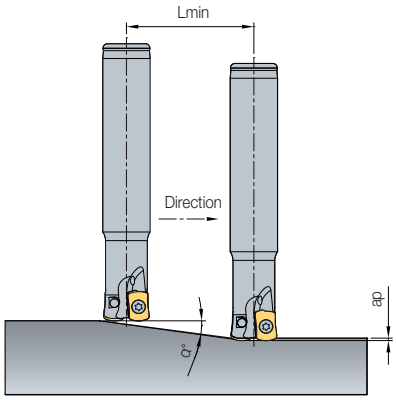
■**Test result**



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

Ramping and helical cutting

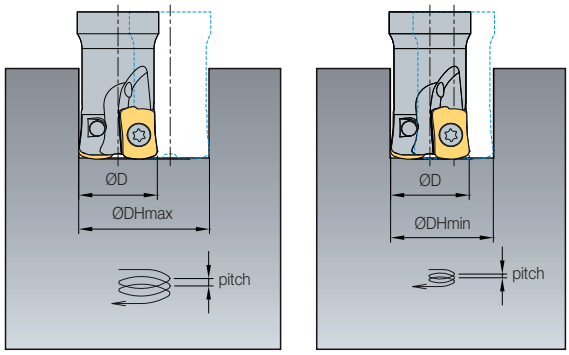
Ramping



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

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

Helical cutting



• ØD = Tool dia. (mm)
• Ød = Tool path (mm) = ØDH Min, Max - ØD

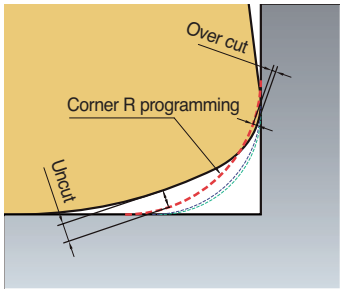
(mm)

Designation	Tool dia. ØD	Depth of cut ap	Ramping		Blind hole helical cutting				Thru hole helical cutting	
			Max ramping angle α (°)	Lmin	Min diameter ØDH Min	Max pitch dmax	Max diameter ØDH Max	Max pitch dmax	Min diameter ØDH Min	Max pitch dmax
HFMDS016	16	0.7	3.0	13	30	0.7	22	0.7	21	0.7
HFMDS017	17	1.0	2.3	25	32	1.0	24	1.0	22	1.0
HFMDS018	18	1.0	2.1	27	34	1.0	26	1.0	24	1.0
HFMDS019	19	1.0	1.9	30	36	1.0	28	1.0	26	1.0
HFMDS020	20	1.0	1.5	37	38	1.0	30	1.0	28	1.0
HFMDS021	21	1.0	1.5	39	40	1.0	32	1.0	30	1.0
HFMDS025	25	1.0	1.4	40	48	1.0	40	1.0	38	1.0
HFMDS026	26	1.0	1.4	42	50	1.0	42	1.0	40	1.0
HFMDS030	30	1.0	1.1	51	58	1.0	50	1.0	48	1.0
HFMDS032	32	1.0	1.0	55	62	1.0	54	1.0	52	1.0
HFMDS033	33	1.0	1.0	57	64	1.0	56	1.0	54	1.0
HFMDS035	35	1.0	0.9	61	68	1.0	60	1.0	58	1.0
HFMDS040	40	1.0	0.8	71	78	1.0	70	1.0	68	1.0
HFMDC042	42	1.0	0.8	76	82	1.0	74	1.0	72	1.0
HFMDC050	50	1.0	0.6	92	98	1.0	90	1.0	88	1.0
HFMDC052	52	1.0	0.6	96	102	1.0	94	1.0	92	1.0
HFMDC063	63	1.0	0.5	119	124	1.0	116	1.0	114	1.0
HFMDC066	66	1.0	0.5	126	130	1.0	122	1.0	120	1.0

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

Corner R programming

(mm)

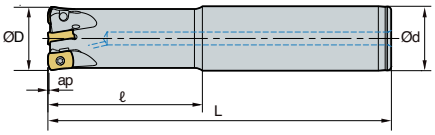


----- R2.0 ----- R1.6 ----- R1.5

Insert	Corner R programming	Cutting conditions		Over Cut	Uncut
		Nose R	Max. ap		
LNMX060310R-ML **LNMX060310R-MF** **LNMX060310R-MM**	R1.5	1.0	1.0	0	0.41
	R1.6 (Standard)			0	0.38
	R2.0			0.057	0.27

• During usage of CNC program, over cut & uncut would be occurred on the corner processing site if entering the correct program corner R value for each insert
• To prevent overcut, you will need to complete a CNC program considering the above overcut

HFMDS-LN06 new



• AR: -9°
• RR: 10°~ 15°

(mm)

Designation			ØD	Ød	ℓ	L	ap	kg
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

Available inserts

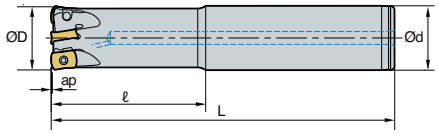
		LNMX-ML	LNMX-MF	LNMX-MM			
							
Designation		Coated				page	
		PC2510	PC3700	PC5300	PC5400		
LNMX	060310R-ML			●	●	E11	
	060310R-MF	●	●	●	●		
	060310R-MM	●	●	●	●		

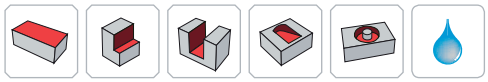
Parts

Specification	Screw	Wrench
Ø16~Ø40	FTNA0306	TW09S

Available inserts E11

HFMDS-LN06 new





• AR: -9°
• RR: 10°~ 15°

(mm)

Designation			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

Available inserts

LNMX-ML

LNMX-MF

LNMX-MM

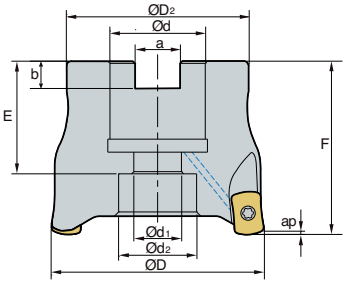
Designation		Coated				page
		PC2510	PC3700	PC5300	PC5400	
LNMX	060310R-ML			●	●	E11
	060310R-MF	●	●	●	●	
	060310R-MM	●	●	●	●	

Parts

Specification	Screw	Wrench
Ø16~Ø40	FTNA0306	TW09S

Available inserts E11

HFMDCM-LN06 new



• AR: -9°
• RR: 10°~ 12°

(mm)

Designation			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	42	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	42	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	49	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	66	49	22	11	18	10.4	6.3	21	40	1.0	0.57
	066R-22-9-LN06	9	66	49	22	11	18	10.4	6.3	21	40	1.0	0.57

Available inserts

Designation		Coated				page
		PC2510	PC3700	PC5300	PC5400	
LNMX	060310R-ML			●	●	E11
	060310R-MF	●	●	●	●	
	060310R-MM	●	●	●	●	

Available arbors

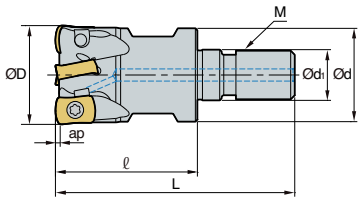
Designation		Available arbors
HFMDCM	032R-16-□-LN06	BT□□-FMC16-□□
	040R-16-□-LN06	
	050R-22-□-LN06	BT□□-FMC22-□□
	052R-22-□-LN06	
	063R-22-□-LN06	
	066R-22-□-LN06	

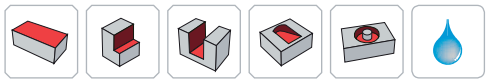
Parts

Specification	Screw	Wrench
Ø32~Ø66	FTNA0306	TW09S

Available inserts E11 Available arbors and bolt E400~E402

HFMDM-LN06 new





• AR: -9°
• RR: 10°~ 15°

(mm)

Designation			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

Available inserts

	LNMX-ML	LNMX-MF	LNMX-MM
			

Designation		Coated				page
		PC2510	PC3700	PC5300	PC5400	
LNMX	060310R-ML			●	●	E11
	060310R-MF	●	●	●	●	
	060310R-MM	●	●	●	●	

Parts

Specification	Screw	Wrench
Ø16~Ø42	FTNA0306	TW09S

Available inserts E11 Available adaptor E371~E372

Stable machining, high efficiency milling tools for small diameter machining

HFM new

- 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

Code system

• Shank type

HFM	S	1	010	H	R	-	2		L	10
High Feed Mill	Tool type S: Shank	Inscribed circle of insert 1: 04 type insert	Tool dia. 010: Ø10	Coolant type No code: None H: Thru-hole	Hand R: Right L: Left		No. of tooth 2: 2 teeth		Shank length S: Standard type M: Middle type L: Long type	Shank Dia. 10: Ø10

• Modular type

HFM	M	1	010	H	R	-	M06
High Feed Mill	Tool type M: Modular	Inscribed circle of insert 1: 04 type insert	Tool dia. 010: Ø10	Coolant type No code: None H: Thru-hole	Hand R: Right L: Left		M Dimensions

• Modular adapter

MAT	-	M10	-	010	-	S20	S	-	C	-	170
Modular Adaptor		M Dimensions M10		Neck length 010: 10 mm		Shank Dia. S20: Ø20	Neck type T: Taper S: Straight		Adaptor material Unmarked: Steel C: Carbide		Adaptor length 170: 170 mm

Features

- 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

• 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) 鰯 HFM Ø20 (5 flutes)

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

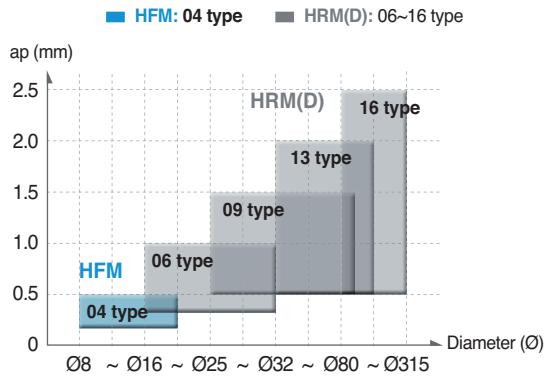
• Major cutting-edge
- Improved sharpness of principle edge
- Improved toughness of corner edge

Features of chip breaker

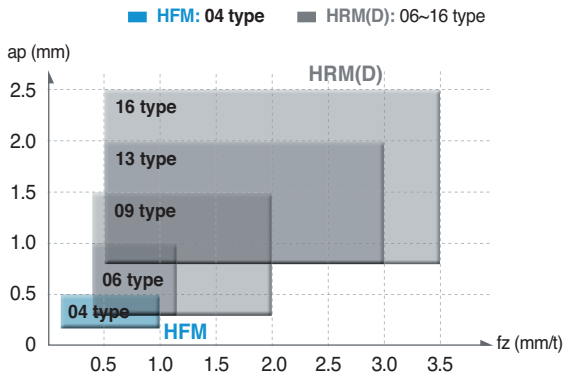
Insert		Cutting-edge	Uses	Features
MF			Fine finishing Titanium & Inconel machining	Low cutting resistance C/B, suitable for light cutting
None C/B			Super hard material machining	High toughness shape, suitable for hard die steel cutting

Application area

Application area (ap & Diameter)



Application area (ap & fz)



Recommended cutting condition

(●: 1st, ○: 2nd)

Workpiece			KOR (KS)	USA (AISI)	GER (DIN)	HB (HRC)	Grades	Cutting conditions vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)	Chip breaker MF	Chip breaker None C/B
P	Mild steel		SM20C	1020	C22	120~180	PC5400 (PC5300)	100~220	0.5~1.0	~0.5	0.7D~0.1D	●	-
	Carbon steel		SM45C	1045	C45	200	PC5400 (PC5300)	100~200	0.5~1.0	~0.5	0.7D~0.1D	●	-
	Alloy steel		SCM440	4140	41CrMo4	270(28)	PC5300	100~200	0.5~1.0	~0.5	0.7D~0.1D	●	-
	Pre-hardened steel		KP4M	P20 (Improved)	1.2738 (Improved)	300(32)	PC5300 (PC2510) new	100~180	0.5~0.9	~0.4	0.7D~0.1D	●	○
			NIMAX	P21 (Improved)	-	370(40)	PC5300 (PC2510) new	100~180	0.5~0.9	~0.4	0.7D~0.1D	●	○
			CENA1	P21 (Improved)	-	370(40)	PC5300 (PC2510) new	100~180	0.5~0.9	~0.4	0.7D~0.1D	●	○
			NAK80	P21 (Improved)	-	400(43)	PC5300	100~160	0.5~0.7	~0.4	0.7D~0.1D	○	-
								100~180	0.5~0.9	~0.4	0.7D~0.1D	-	●
			STAVAX	420	X30Cr13	510(52)	PC2510 (PC5300) new	80~150	0.3~0.6	~0.4	0.7D~0.1D	●	-
	Alloy tool steel		STD11 STD61	D2 H13	X155CrVMo12-1 X40CrMoV5-1	- (40~50)	PC2510 (PC2505) new new	80~130	0.3~0.55	~0.3	0.7D~0.1D	-	●
			STD11 (Cold forging)	D2	X155CrVMo12-1	630(60)	PC2505 new	30~75	0.3~0.5	~0.2	0.7D~0.1D	-	●
M	Stainless steel		STS316	316	X5CrNiMo17-12-2	Under 270	PC5400 (PC5300)	70~150	0.5~0.7	~0.5	0.7D~0.1D	●	-
K	Gray cast iron, Ductile cast iron		GCD450	65-45-12	GGG40.3	Tensile Strength Over 450Mpa	PC5300	130~220	0.6~0.8	~0.5	0.7D~0.1D	●	-
S	HRSA	Fe series	Incoloy901	N09901	- (WS 2.4662)	- (25~35)	PC5300 (PC5400)	30~100	0.3~0.5	~0.3	0.4D~0.7D	●	○
		Ni or Co series	Inconel718	N07718	NiCr19FeNbMo (WS 2.4668)	- (35~45)	PC5300 (PC5400)	20~50	0.3~0.6	~0.3	0.4D~0.7D	●	○
	Titanium		Ti-6Al-4V	R56400	TiAl6V4	- (40~45)	PC5300	30~50	0.4~1.0	~0.3	0.7D~0.1D	●	-

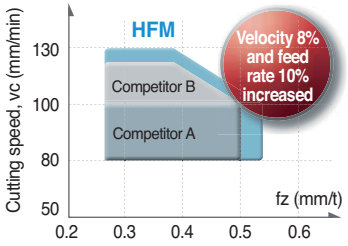
Performance evaluation

High speed machining

■**Workpiece**
STD11 (HRC40~45)

■**Insert**
LPM(E)W0402□□R

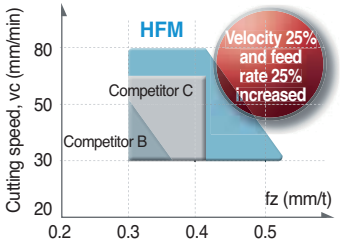
■**Recommended grade**
PC2505 (1st), PC2510 (2nd)



■**Workpiece**
STD11(Over HRC60)

■**Insert**
LPM(E)W0402□□R

■**Recommended grade**
PC2505 (1st), PC2510 (2nd)

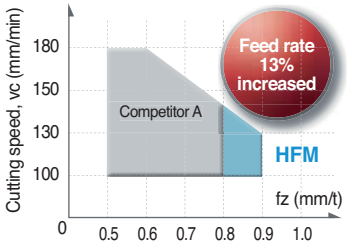


High feed machining

■**Workpiece**
KP4M (HRC32),
NAK80 (HRC43)

■**Insert**
LPMT0402□□R-MF

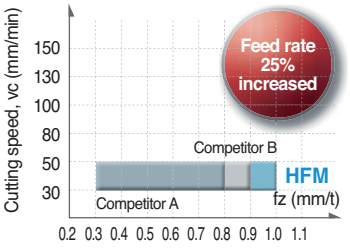
■**Recommended grade**
PC5300 (1st), PC2510 (2nd)



■**Workpiece**
Ti-6AL-4V (HRC40~45)

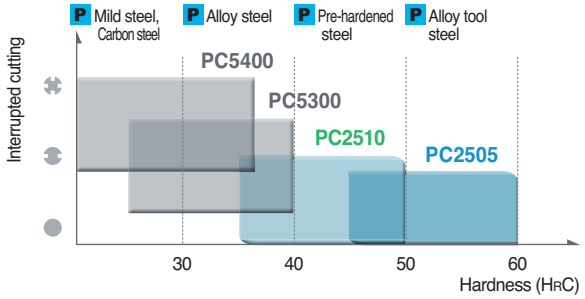
■**Insert**
LPMT0402□□R-MF

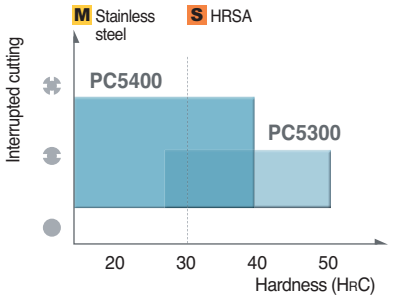
■**Recommended grade**
PC5300 (1st), PC5400 (2nd)



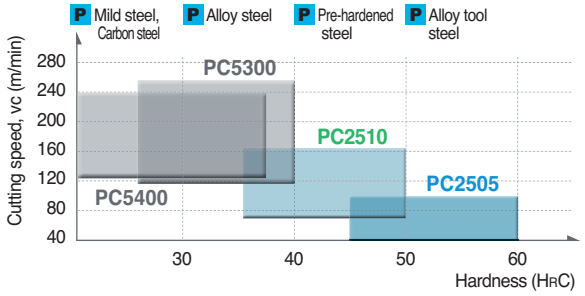
High hardness machining

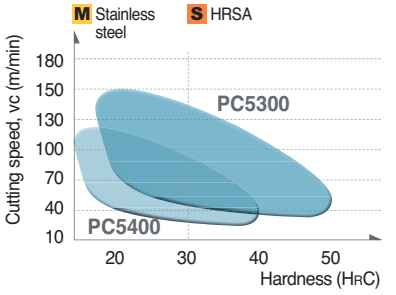
• Recommended grades according to interruption





• Recommended grades according to velocity

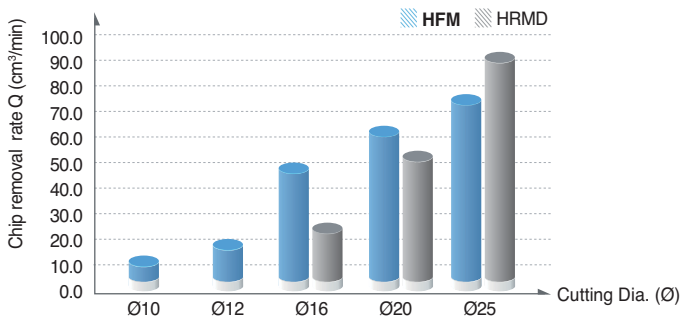




Effective machining

• **Machining center**
- BT40 and under, HFM recommended
- BT50 and above, HRM(D) recommended

• **Chip removal rate Q (cm³/min)**
- Ø8~Ø20, HFM recommended
- Ø20 and above, HRM(D) recommended

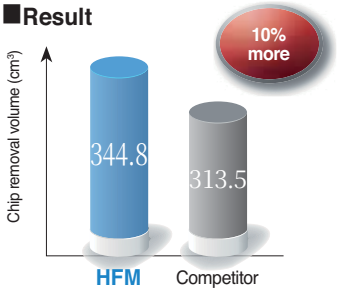


Performance evaluation

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

■**Workpiece** 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

■**Result**

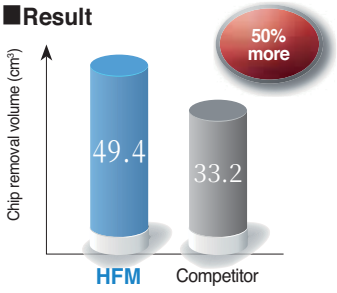


• Chip removal rate Q (cm^3/min): 11.5
• Cutting time (min): 30

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

■**Workpiece** 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

■**Result**

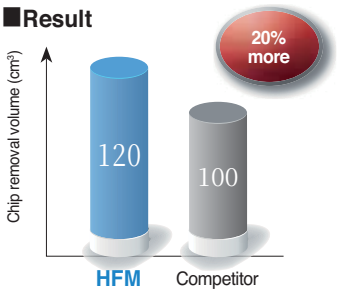


• Chip removal rate Q (cm^3/min): 15
• Cutting time (min): 3.29

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

■**Workpiece** 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

■**Result**

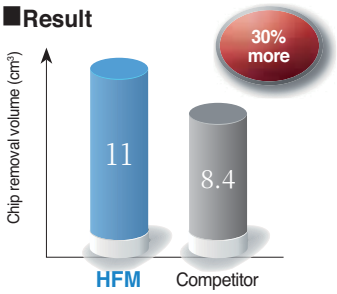


• Chip removal rate Q (cm^3/min): 4.8
• Cutting time (min): 25

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

■**Workpiece** 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

■**Result**

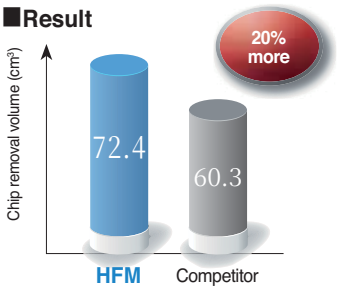


• Chip removal rate Q (cm^3/min): 1.4
• Cutting time (min): 7.85

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

■**Workpiece** 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

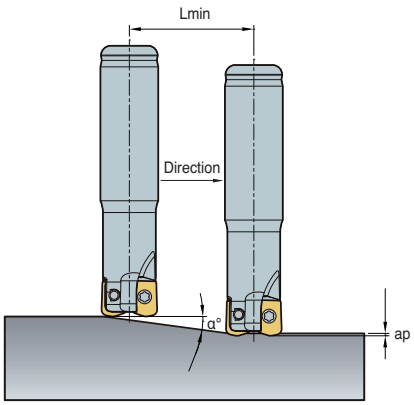
■**Result**



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

Ramping and helical cutting

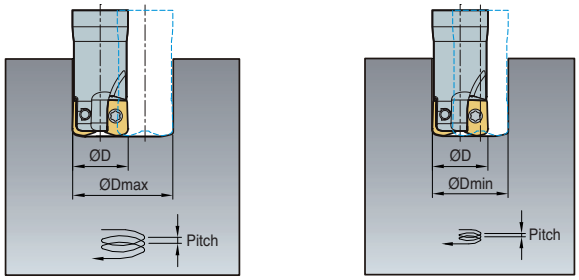
Ramping



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

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

Helical cutting



- ØD = Tool dia. (mm)
- Ød = Tool path (mm) = ØDH Min, Max - ØD
- ØDH Min (Min diameter, mm) = ØD × 2 - 5.4
- ØDH Max (Max diameter, mm) = ØD×2 - 2

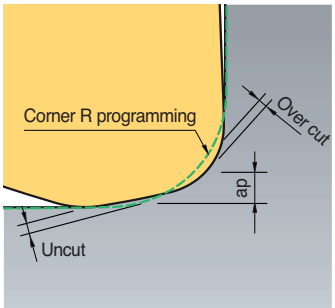
(mm)

Designation	Tool dia. ØD	Depth of cut ap	Ramping		Helical cutting		
			Max ramping angle α (°)	Lmin	Max diameter ØDH Max	Min diameter ØDH Min	Max pitch dmax
HFMS1010HR	10	0.4~0.5	3.5	7	18	15	0.4
HFMS1011HR	11	0.4~0.5	3.1	8	20	17	0.4
HFMS1012HR	12	0.4~0.5	2.7	9	22	19	0.4
HFMS1013HR	13	0.4~0.5	2.4	10	24	21	0.4
HFMS1014HR	14	0.4~0.5	2.2	11	26	23	0.4
HFMS1015HR	15	0.4~0.5	2.0	12	28	25	0.4
HFMS1016HR	16	0.4~0.5	1.8	13	30	27	0.4
HFMS1017HR	17	0.4~0.5	1.7	14	32	29	0.4
HFMS1018HR	18	0.4~0.5	1.6	15	34	31	0.4
HFMS1019HR	19	0.4~0.5	1.5	16	36	33	0.4
HFMS1020HR	20	0.4~0.5	1.4	17	38	35	0.4
HFMS1021HR	21	0.4~0.5	1.3	18	40	37	0.4
HFMM1025HR	25	0.4~0.5	1.1	22	48	45	0.4
HFMM1026HR	26	0.4~0.5	1.0	23	50	47	0.4
HFMM1030HR	30	0.4~0.5	0.9	27	58	55	0.4
HFMM1032HR	32	0.4~0.5	0.8	29	62	59	0.4
HFMM1033HR	33	0.4~0.5	0.8	30	64	61	0.4

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

Corner R programming

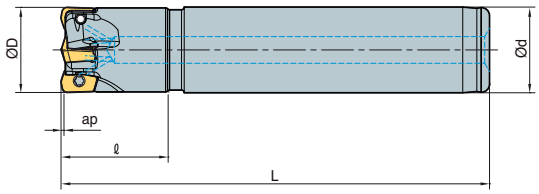
(mm)



Insert	Corner R programming	Cutting conditions		Over Cut	Uncut
		Nose R	Max. ap		
LPMT040210R-MF LPMW040210R LPEW040210R	R1.0 (Standard)	1.0	0.4	0	0.17
	R1.5			0.10	0.08
	R2.0			0.31	0
LPMT040220R-MF LPMW040220R LPEW040220R	R1.0	2.0	0.5	0	0.41
	R1.5			0	0.2
	R2.0 (Standard)			0	0

- When using CNC program, overcut & uncut occurs on the corner processing site if entering the correct program corner R value for each insert
- To prevent overcut, you will need to complete a CNC program considering the above overcut

HFMS1000 new



AA 13°

- AR: -4°
- RR: -14°~ -7°

(mm)

Designation			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

Available inserts

LPMT-MF new | LPMW new | LPEW new

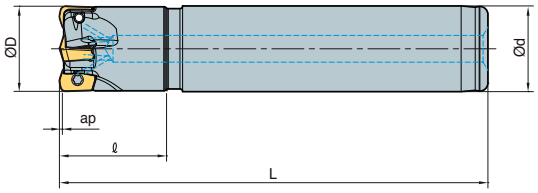
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LPMT	040210R-MF								●		●				●	●				E11 E12
	040220R-MF								●		●				●	●				
LPMW	040210R							●	●						●					
	040220R							●	●						●					
LPEW	040210R							●	●						●					
	040220R							●	●						●					

Parts

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

Available inserts E11, E12

HFMS1000 new



AA 13°

- AR: -4°
- RR: -6°~ -3°

(mm)

Designation			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

Available inserts

LPMT-MF new | LPMW new | LPEW new

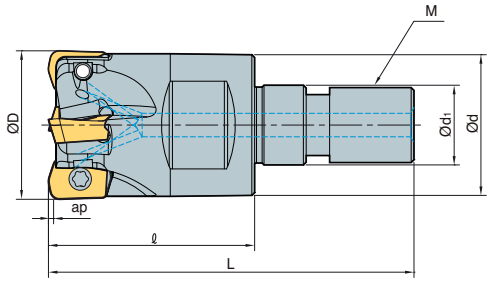
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LPMT	040210R-MF								●		●				●	●				
	040220R-MF								●		●				●	●				
LPMW	040210R							●	●						●					E11
	040220R							●	●						●					E12
LPEW	040210R							●	●						●					
	040220R							●	●						●					

Parts

Specification	Screw	Wrench
Ø15~Ø21	FTKA01842	TW06S-A

Available inserts E11, E12

HFMM new








AA 13°

- AR: -4°
- RR: -14°~ -3°

(mm)

Designation			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

Available inserts

LPMT-MF new | LPMW new | LPEW new



Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LPMT	040210R-MF								●		●				●	●				E11 E12
	040220R-MF								●		●				●	●				
LPMW	040210R							●	●						●					
	040220R							●	●						●					
LPEW	040210R							●	●						●					
	040220R							●	●						●					

Parts

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

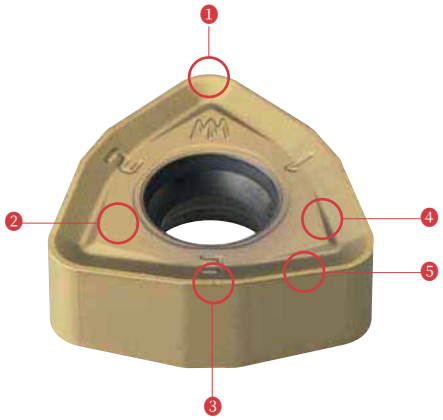
Available inserts E11, E12 Available adaptor E371~E372

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 of insert



1 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

2 Clamping surface

- Design for stable clamping
- Prevention of friction by chip

3 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

4 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

5 Major cutting-edge

- Symmetrical design insert for R/L type tool
- Superior cutting performance due to high rake angle cutting-edge
- Low cutting resistance in high feed
- Special design for decreasing thrust force

Features of cutter

Inner coolant system

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

3-surface constrained system

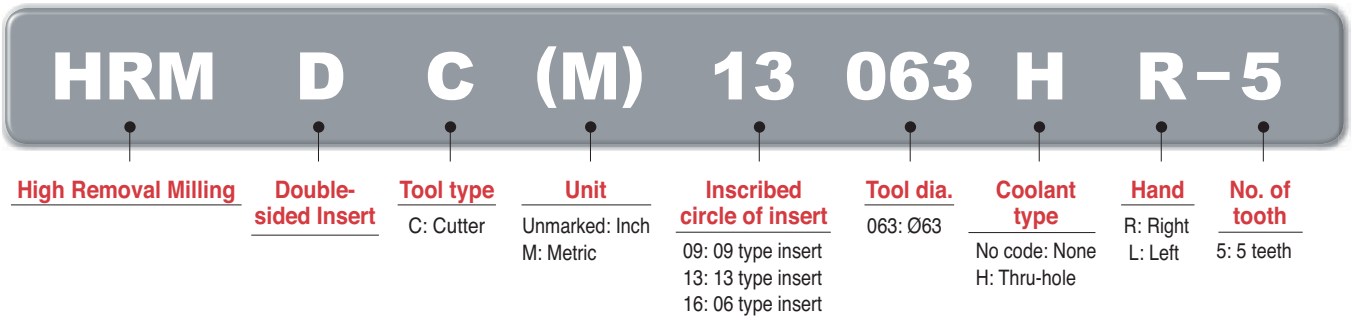
- Strong clamping system
- Stable clamping system against different cutting resistances in various machining applications

Simple screw on system

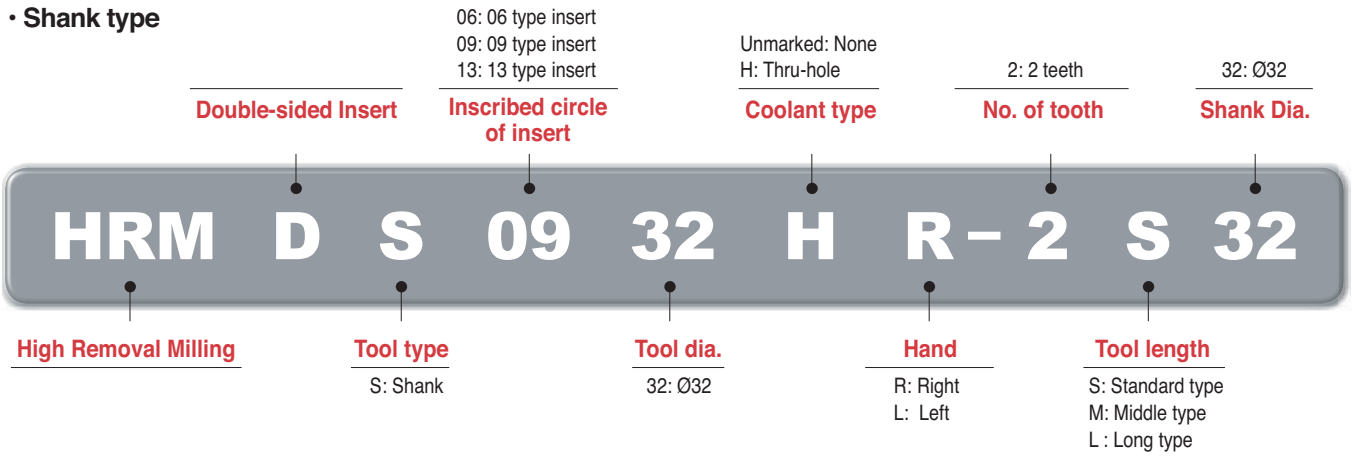
- Strong clamping of screw on system
- Convenient clamping system
- Wide chip pocket for better chip evacuation

Code system

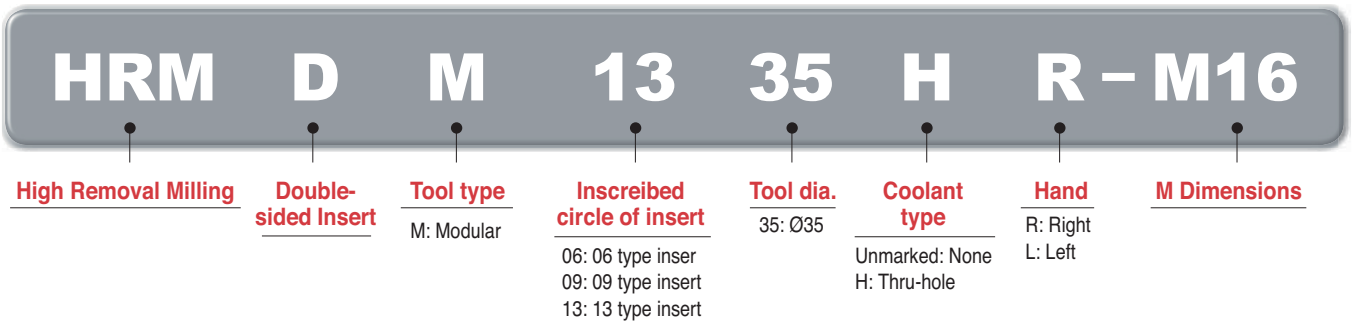
• Cutter type



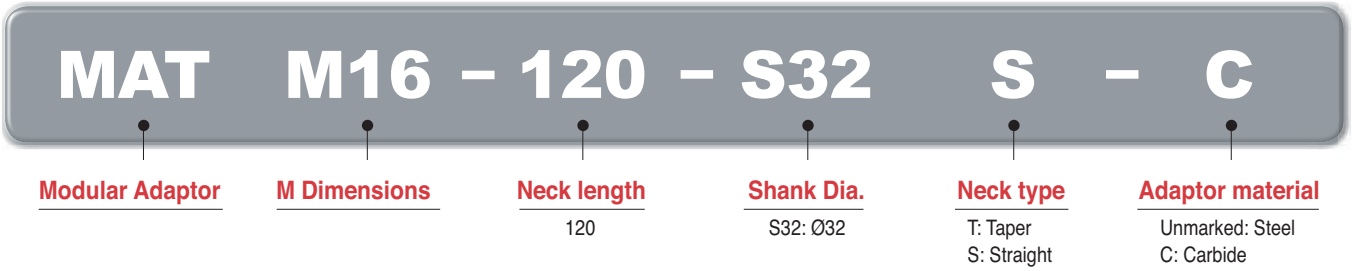
• Shank type



• Modular head



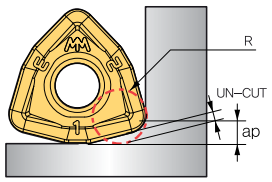
• Modular adaptor



Corner R programming

Designation	Cutting condition		Approx. R (mm)	
	Max.ap (mm)	Max.fz (mm/t)	Input. R	Uncut
WNMX060312ZNN-□□	1.0	1.2	1.8	0.4
WNMX09T316ZNN-□□	1.5	2.0	2.5	0.6
WNMX130520ZNN-□□	2.0	3.0	3.0	0.8
WNMX160720ZNN-□□	2.5	3.5	3.5	1.2

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

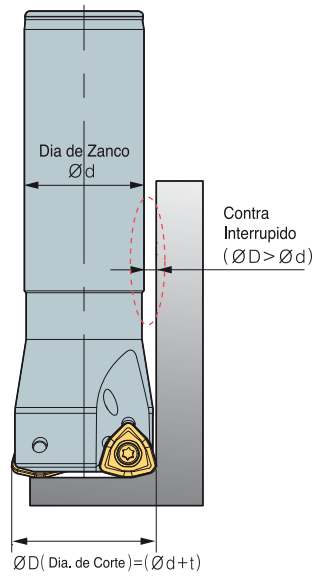


· Uncut part can be changed by poor machine condition or weak clamp of workpiece, etc

Interference prevent system

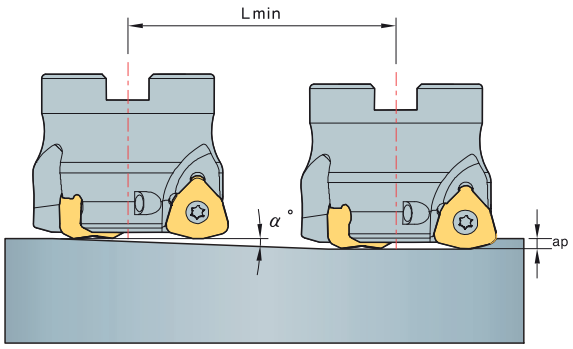
Designation	ØD (mm)	Ød (mm)	t (mm)
HRMDS0617HR-2□16	17	16	1
HRMDS0618HR-2□16	18	16	2
HRMDS0621HR-2□20	21	20	1
HRMDS0626HR-3□25	26	25	1
HRMDS0633HR-4□32	33	32	1
HRMDS0926HR-2□25	26	25	1
HRMDS0933HR-3□32	33	32	1
HRMDS0935HR-4□32	35	32	3
HRMDS0940HR-4□32	40	32	8
HRMDS0950HR-5□32	50	32	18
HRMDS0950HR-5□40	50	40	10
HRMDS0950HR-5□42	50	42	8
HRMDS1333HR-3□32	33	32	1
HRMDS1335HR-4□32	35	32	3
HRMDS1340HR-4□30	40	30	8
HRMDS1350HR-4□32	50	32	18
HRMDS1350HR-4□40	50	40	10
HRMDS1350HR-4□42	50	42	8
HRMDS1363HR-5□32	63	32	31
HRMDS1363HR-5□40	63	40	23
HRMDS1363HR-5□42	63	42	21

• The side clearance prevents to interference between tool and workpiece even in deep hole machining

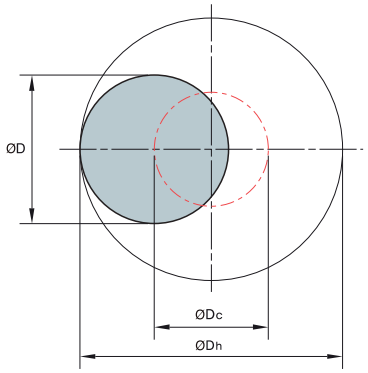


Ramping & helical cutting technical data

Ramping



Helical cutting



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

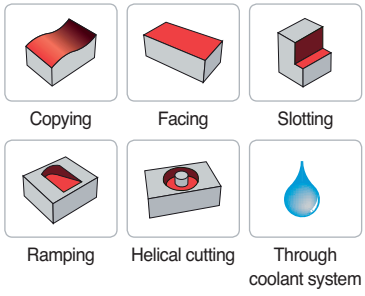
$ØDc = ØDh - ØD$

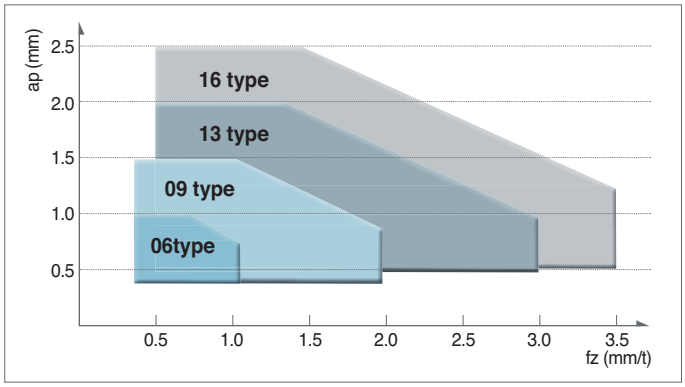
ØDc = Tool pass of tool center
ØDh = Desirable hole diameter on workpiece
ØD = Tool dia.

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

Designation	Tool dia. ØD (mm)	Efficient cutting diameter ØDe (mm)	Ramping			Helical ramping	
			Max. ap (mm)	Max. angle α°	Cutting Length Lmin (mm)	Dh Min. Cutting diameter (mm)	Dh Max. Cutting diameter (mm)
HRMDS0616HR	16	9.5	1	4.8	11	23.8	29.6
HRMDS0617HR	17	10.5	1	4.1	13	25.8	31.6
HRMDS0618HR	18	11.5	1	3.5	16	27.8	33.6
HRMDS0620HR	20	13.5	1	2.5	22	31.8	37.6
HRMDS0621HR	21	14.5	1	2.2	26	33.8	39.6
HRMDS0625HR	25	18.5	1	1.3	44	41.8	47.6
HRMDS0626HR	26	19.5	1	1.2	47	43.8	49.6
HRMDS0632HR	32	25.5	1	0.6	95	55.8	61.6
HRMDS0633HR	33	26.5	1	0.5	114	57.8	63.6
HRMDS0925HR	25	15.4	1.5	5.4	15.8	37.6	46.8
HRMDS0926HR	26	16.4	1.5	5.0	17.0	39.6	48.8
HRMDS0930HR	30	20.4	1.5	3.9	22.0	47.6	56.8
HRMDS0932HR	32	22.3	1.5	3.5	24.5	51.6	60.8
HRMDS0933HR	33	23.3	1.5	3.3	25.8	53.6	62.8
HRMDS0935HR	35	25.4	1.5	3.0	28.3	57.6	66.8
HRMDS0940HR	40	30.2	1.5	2.5	34.5	67.6	76.8
HRMDS0950HR	50	40.2	1.5	1.8	47.0	87.6	96.8
HRMDS1332HR	32	19.3	2	5.7	20.0	47	60
HRMDS1333HR	33	20.3	2	5.4	21.3	49	62
HRMDS1335HR	35	22.3	2	4.8	24.0	53	66
HRMDS1340HR	40	27.2	2	3.7	30.7	63	76
HRMDS1350HR	50	37	2	2.6	44.0	83	96
HRMDS1363HR	63	50	2	1.9	61.3	109	122
HRMDCM09040HR	40	30.2	1.5	2.5	34.5	67.6	76.8
HRMDCM09050HR	50	40.2	1.5	1.8	47.0	87.6	96.8
HRMDCM09063HR	63	53.1	1.5	1.4	63.3	113.6	122.8
HRMDC(M)09080HR	80	70.1	1.5	1.0	84.5	147.6	156.8
HRMDC(M)09100HR	100	90	1.5	0.8	109.5	187.6	196.8
HRMDCM13050HR	50	37	2	2.6	44.0	83	96
HRMDCM13063HR	63	50	2	1.9	61.3	109	122
HRMDC(M)13080HR	80	66.9	2	1.4	84.0	143	156
HRMDC(M)13100HR	100	86.9	2	1.0	110.7	183	196
HRMDC(M)13125HR	125	111.9	2	0.8	144.0	233	246
HRMDC(M)16080HR	80	63.3	2.5	1.4	102	138	156
HRMDC(M)16100HR	100	83.3	2.5	1	143	178	196
HRMDC(M)16125HR	125	108.3	2.5	0.7	204	228	246
HRMDC(M)16160R	160	143.3	2.5	0.5	286	298	316
HRMDC(M)16200R	200	183.3	2.5	0.3	477	378	396
HRMDC(M)16250R	250	233.3	2.5	0.2	716	478	496
HRMDC(M)16315R	315	298.3	2.5	0.1	1432	608	626

Application area





Recommended cutting condition

ISO	Workpiece		Material	Grades	Cutting speed, vc (m/min)
P	Carbon steel	Low carbon steel	SUM22, C = 0.1~25	PC5300	280
				PC5400	245
		General carbon steel	C = 0.30~55	PC5300	255
				PC5400	220
		High carbon steel	C = 0.55~80	PC5300	240
				PC5400	205
	Low alloy steel (Alloy constituent < 5%)	-	SCM415(H), SCM420, SCM440	PC5300	195
				PC5400	170
		Hardened		PC5300	115
				PC5400	100
	High alloy steel (Alloy constituent > 5%)	Annealed	SKD61	PC5300	150
				PC5400	130
		Hardened	SKH51, SKH55	PC5300	120
				PC5400	105
M	Stainless steel	Ferritic/Martensitic	SUS410, SUS420, SUS430	PC5300	160
				PC5400	135
		Austenitic	SUS303, SUS304, SUS316	PC5300	130
				PC5400	110
		Duplex (Austenitic/Ferritic)	F51	PC5300	100
				PC5400	85
K	Gray cast iron	Low tensile	GC200, GC250	PC5300	170
				PC5400	150
		Hight tensile	GC300, GC350	PC5300	150
				PC5400	130
	Ductile cast iron	Ferric	GCD400, GCD500	PC5300	170
				PC5400	150
		Pearlitic	GCD600, GCD700	PC5300	150
				PC5400	130
S	Fe Base	-	Incoloy	PC5300	60
				PC5400	50
	Ni Base	-	Inconel, Nimonic, Hastelloy	PC5300	55
				PC5400	45
	Co Base	-	stelite	PC5300	25
				PC5400	20
	Titanium alloys	-	pure Ti	PC5300	130
				PC5400	105
			alloy (TiAl6V4)	PC5300	65
				PC5400	55

Machining example

Working condition

■**Workpiece** SM45C (H_RC22)
■**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
Coolant: Dry, Machining: Copying
Machine: Horizontal MCT
Overhang of tool: 250 mm

■**Tools** **Insert** WNMX130520ZNN-MM (PC3500)
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

Working condition

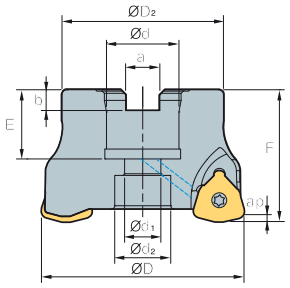
■**Workpiece** STS304
■**Cutting conditions** vc = 130 m/min (414^{-1})
fz = 1.2 mm/tooth
vf = 2,981 mm/min
ap = 1.0 mm
ae = 80 mm
Coolant: Wet, Machining: Facing and Slotting
Machine: Vertical MCT
Overhang of tool: 250 mm

■**Tools** **Insert** WNMX130520ZNN-MM (PC3545)
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

HRMDC(M)09



AA
14°

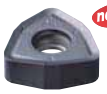
- AR: -7°
- RR: -12°~ -18°

(mm)

Designation			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	

Available inserts

WNMX-MF | WNMX-ML | WNMX-MM

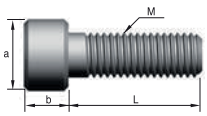


Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	09T316ZNN-MF									●	●				●	●				E28
	09T316ZNN-ML														●	●				
	09T316ZNN-MM							●		●	●		●		●	●				

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



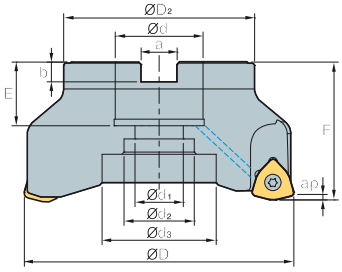
Designation	Dimensions (mm)				
	M	a	b	L	pitch
SB0825	M08	13	8	25	1.25
SB1025	M10	16	10	25	1.5
SB1230	M12	18	12	30	1.75
SB1630	M16	24	16	30	2.0

Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0307	TW09S

Available inserts E28 Available arbors and bolt E400~E402

HRMDC(M)13



AA 14°

- AR: -7°
- RR: -12°~ -4°

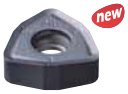
(mm)

Designation			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

Available inserts

WNMX-MF

WNMX-ML



WNMX-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	130520ZNN-MF									●					●	●				E28
	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

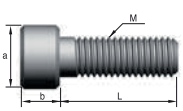
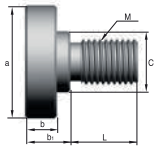


Fig. 2



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

Available inserts E28 Available arbors and bolt E400~E402

HRMDC(M)16 new

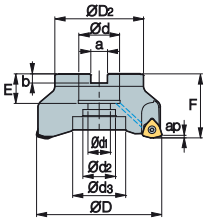


Fig. 1

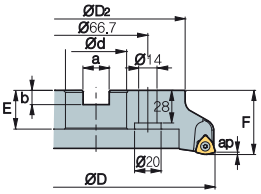


Fig. 2

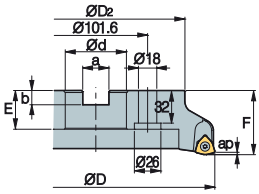


Fig. 3

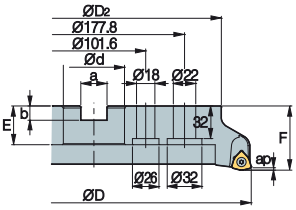


Fig. 4





AA 14°

- AR: -7°
- RR: -12°~ -4°

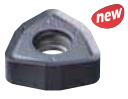
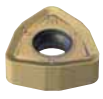
(mm)

Designation			ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg	Bolt	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

Available inserts

WNMX-MF new | WNMX-ML new | WNMX-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	160720ZNN-MF									●					●	●				E28
	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

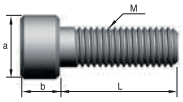
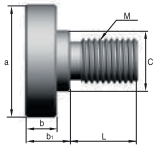


Fig. 2



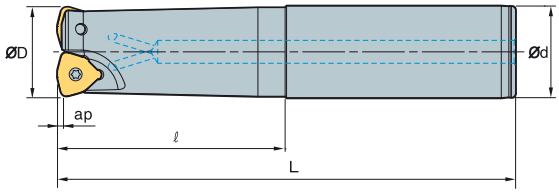
Designation	Dimensions (mm)							Fig.
	M	a	b	b1	C	L	pitch	
SB1025	M10	16	10	-	-	25	1.5	1
SB1230	M12	18	12	-	-	30	1.75	1
SB1630	M16	24	16	-	-	30	2.0	1
SB2040	M20	30	20	-	-	40	2.5	1
MBA-M20	M20	50	14	20	27	30	2.5	2
MBA-M24	M24	65	14	24	37	36	3.0	2

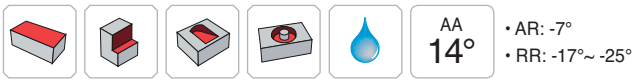
Parts

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

Available inserts E28 Available arbors and bolt E400~E402

HRMDS06 new





AA 14°

- AR: -7°
- RR: -17°~ -25°

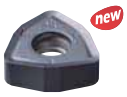
(mm)

Designation			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

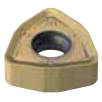
Available inserts

WNMX-MF

WNMX-ML



WNMX-MM



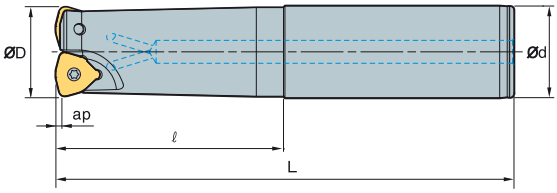
Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	060312ZNN-MF									●					●	●				E28
	060312ZNN-ML														●	●				
	060312ZNN-MM							●	●	●	●				●	●				

Parts

Specification	Screw	Wrench
Ø16~Ø33	ETNA02506	TW07S

Available inserts E28

HRMDS09







AA 14°

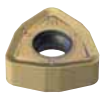
- AR: -7°
- RR: -17°~ -25°

(mm)

Designation			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

Available inserts

WNMX-MF WNMX-ML WNMX-MM



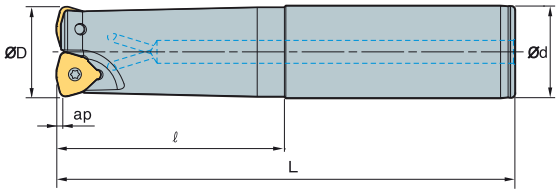
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	09T316ZNN-MF									●	●				●	●				E28
	09T316ZNN-ML									●	●				●	●				
	09T316ZNN-MM							●		●	●		●		●	●				

Parts

Specification	Screw	Wrench
Ø25~Ø40	FTKA0307	TW09S

Available inserts E28

HRMDS09



AA 14°

- AR: -7°
- RR: -17°~ -25°

(mm)

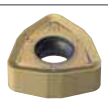
Designation		⊙	ØD	Ød	ℓ	L	ap	kg
HRMDS	0940HR-4M40	4	40	40	130	250	1.5	2.2
	0940HR-4L40	4	40	40	180	300	1.5	2.7
	0940HR-4S42	4	40	42	60	150	1.5	1.4
	0940HR-4M42	4	40	42	130	250	1.5	2.3
	0940HR-4L42	4	40	42	180	300	1.5	2.8
	0950HR-4S32	4	50	32	40	150	1.5	1.1
	0950HR-4M32	4	50	32	40	250	1.5	1.6
	0950HR-4L32	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

Available inserts

WNMX-MF

WNMX-ML

WNMX-MM



Designation		Cermet		Coated											Uncoated			page
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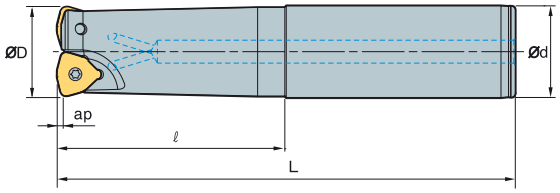
WNMX	09T316ZNN-MF									●	●				●	●				E28
	09T316ZNN-ML														●	●				
	09T316ZNN-MM							●		●	●		●		●	●				

Parts

Specification	Screw	Wrench
Ø40~Ø50	FTKA0307	TW09S

Available inserts E28

HRMDS13



AA 14°

- AR: -7°
- RR: -14°~ -16°

(mm)

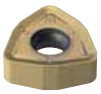
Designation			ØD	Ød	ℓ	L	ap	kg
HRMDS	1332HR-2S32	2	32	32	70	150	2	0.8
	1332HR-2M32	2	32	32	120	200	2	1
	1332HR-2L32	2	32	32	180	300	2	1.6
	1333HR-2S32	2	33	32	70	150	2	0.8
	1333HR-2M32	2	33	32	70	200	2	1.1
	1333HR-2L32	2	33	32	70	300	2	1.7
	1335HR-2S32	2	35	32	50	150	2	0.8
	1335HR-2M32	2	35	32	50	200	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

Available inserts

WNMX-MF

WNMX-ML

WNMX-MM



Designation		Cermet		Coated											Uncoated			page
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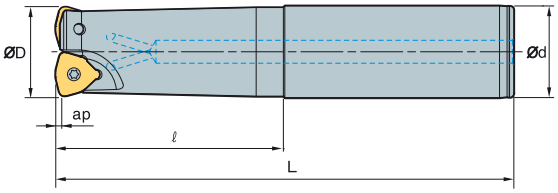
WNMX	130520ZNN-MF									●					●	●				E28
	130520ZNN-ML														●	●				
	130520ZNN-MM							●	●	●	●		●	●	●	●				

Parts

Specification	Screw	Wrench
Ø32~Ø50	FTKA0412B	TW15S

Available inserts E28

HRMDS13



AA 14°

- AR: -7°
- RR: -14°~ -16°

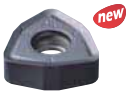
(mm)

Designation			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

Available inserts

WNMX-MF

WNMX-ML



WNMX-MM

Designation		Cermet		Coated												Uncoated			page
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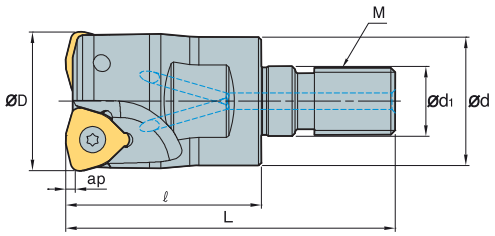
WNMX	130520ZNN-MF									●					●	●				E28
	130520ZNN-ML														●	●				
	130520ZNN-MM							●	●	●	●		●	●	●	●				

Parts

Specification	Screw	Wrench
Ø50~Ø63	FTKA0412B	TW15S

Available inserts E28

HRMDM06 new



AA 14°

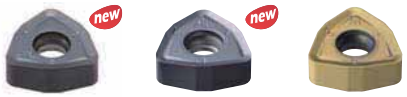
- AR: -7°
- RR: -18°~ -25°

(mm)

Designation			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

Available inserts

WNMX-MF | WNMX-ML | WNMX-MM



Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	060312ZNN-MF									●					●	●				E28
	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)

=

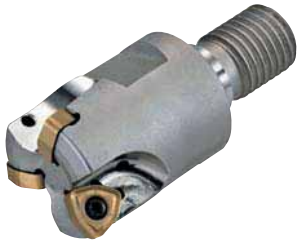
Adaptor spec.: MAT-M12-030-S20S
Adaptor threading measure (M12)

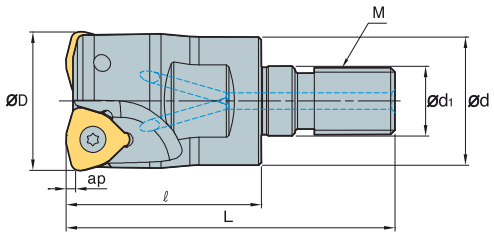
Parts

Specification	Screw	Wrench
Ø16~Ø33	ETNA02506	TW07S

Available inserts E28 Available adaptor E371~E372

HRMDM09





AA 14°

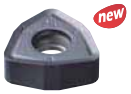
- AR: -7°
- RR: -18°~ -25°

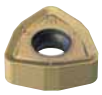
(mm)

Designation			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

Available inserts

WNMX-MF WNMX-ML WNMX-MM





Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	09T316ZNN-MF									●	●				●	●				E28
	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)

=

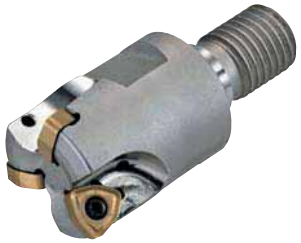
Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

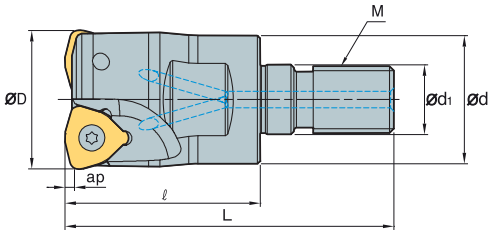
Parts

Specification	Screw	Wrench
Ø25~Ø40	FTKA0307	TW09S

Available inserts E28 Available adaptor E371~E372

HRMDM13





AA 14°

- AR: -7°
- RR: -18°~ -25°

(mm)

Designation			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

Available inserts

WNMX-MF WNMX-ML WNMX-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	130520ZNN-MF									●					●	●				E28
	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)

=

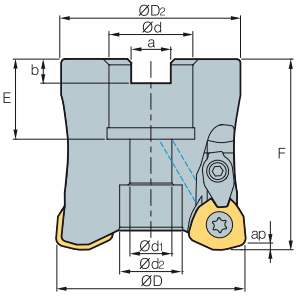
Adaptor spec.: MAT-M16-120-S32T
Adaptor threading measure (M16)

Parts

Specification	Screw	Wrench
Ø32~Ø40	FTKA0412B	TW15S

Available inserts E28 Available adaptor E371~E372

HRMC(M)13



AA 15°

- AR: 7°
- RR: -15°~ -5°

(mm)

Designation			ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Bolt
HRMC (HRMCM)	13050HR-3	3	50	47	22.225 (22)	11	16.4	8.0 (10.4)	5 (6.3)	20 (21)	50	2.0	0.4	SB1035
	13050HR-4	4	50	47	22.225 (22)	11	16.4	8.0 (10.4)	5 (6.3)	20 (21)	50	2.0	0.4	SB1035
	13063HR-4	4	63	60	22.225 (22)	11	17	8.0 (10.4)	5 (6.3)	20 (21)	50	2.0	0.7	SB1035
	13080HR-5	5	80	76	31.75 (27)	18 (13)	26 (20)	12.7 (12.4)	8 (7)	32 (23)	70	2.0	1.6	SB16 (12)45

( )Metric size

Available inserts

WDKT-MH

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	130520ZDSR-MH							●	●	●		●	●		●	●				E27

Available arbors

Designation		HRMDC	HRMDCM
HRMC (HRMCM)	13050HR-3	BT□□-FMA22.225-□□	BT□□-FMC22-□□ SK□□-FMC22-□□
	13050HR-4		
	13063HR-4		
	13080HR-5	BT□□-FMA31.75-□□ SK□□-FMA31.75-□□	BT□□-FMC27-□□ SK□□-FMC27-□□

Bolt

Fig. 1

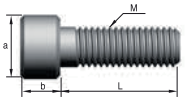
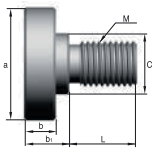


Fig. 2



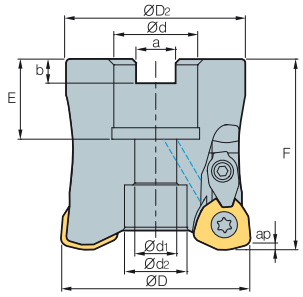
Designation	Dimensions (mm)							Fig.
	M	a	b	b1	C	L	pitch	
SB1035	M10	16	10	-	-	35	1.5	1
SB1245	M12	18	12	-	-	45	1.75	1
SB1645	M16	24	16	-	-	45	2.0	1
SB2040	M20	30	20	-	-	40	2.5	1
MBA-M20	M20	50	14	20	27	30	2.5	2
MBA-M24	M24	65	14	24	37	36	3.0	2

Parts

Specification	Screw	Clamp	Clamp screw	C-ring	Wrench
Ø50~Ø80	FTGA0513-P	CHH4.5R1	CTX04513H	CR03	TW20-100

Available inserts E27 Available arbors and bolt E400~E402

HRMC(M)15



AA 15°

- AR: 7°
- RR: -15°~ -5°

(mm)

Designation			ØD	ØD	Ød	Ød1	Ød2	a	b	E	F	ap	kg	Bolt
HRMC (HRMCM)	15063HR-3	3	63	60	22.225 (22)	11	17	8.0 (10.4)	5 (6.3)	20 (21)	50	2.5	0.7	SB1035
	15080HR-4	4	80	76	31.75 (27)	18 (13)	26 (20)	12.7 (12.4)	8 (7)	32 (23)	70	2.5	1.7	SB16 (12)45
	15100HR-5	5	100	96	31.75 (32)	18	26	12.7 (14.4)	8 (8)	32 (26)	70	2.5	2.8	SB1645
	15100HR-6	6	100	96	31.75 (32)	18	26	12.7 (14.4)	8 (8)	32 (26)	70	2.5	3.2	SB1645
	15125HR-6	6	125	98	38.1 (40)	22	32	15.9 (16.4)	10 (9)	35 (29)	63	2.5	3.3	SB2040
	15160R-7	7	160	100	50.8 (40)	-	72	19.0 (16.4)	11 (9)	38 (35)	63	2.5	4.3	MBA-M24 (M20)

( )Metric size

Available inserts

WDKT-MH

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	150625ZDSR-MH									●	●	●	●		●	●				E27

Available arbors

Designation		HRMDC	HRMDCM
HRMC (HRMCM)	15063HR-3	BT□□-FMA22.225-□□	BT□□-FMC22-□□ SK□□-FMC22-□□
	15080HR-4	BT□□-FMA31.75-□□ SK□□-FMA31.75-□□	BT□□-FMC27-□□ SK□□-FMC27-□□
	15100HR-5 15100HR-6		BT□□-FMC32-□□ SK□□-FMC32-□□
	15125HR-6	BT□□-FMA38.1-□□ SK□□-FMA38.1-□□	BT□□-FMB40-□□ BT□□-FMC40-□□ SK□□-FMC40-□□
	15160R-7	BT□□-FMA50.8-□□	

Bolt

Fig. 1

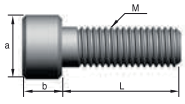
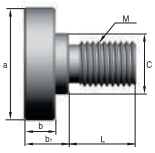


Fig. 2



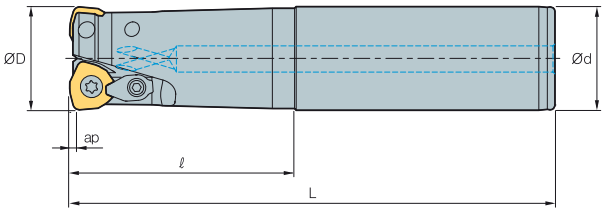
Designation	Dimensions (mm)							Fig.
	M	a	b	b1	C	L	pitch	
SB1035	M10	16	10	-	-	35	1.5	1
SB1245	M12	18	12	-	-	45	1.75	1
SB1645	M16	24	16	-	-	45	2.0	1
SB2040	M20	30	20	-	-	40	2.5	1
MBA-M20	M20	50	14	20	27	30	2.5	2
MBA-M24	M24	65	14	24	37	36	3.0	2

Parts

Specification	Screw	Clamp	Clamp screw	C-ring	Wrench
Ø63~Ø160	FTGA0513-P	CHH5.5R1	CTX0515	CR04	TW20-100

Available inserts E27 Available arbors and bolt E400~E402

HRMS08/10



AA 15°

- AR: 7°
- RR: -11°~ -5°

(mm)

Designation			ØD	Ød	ℓ	L	ap	kg
HRMS	0820HR-2S20	2	20	20	50	130	1.0	0.3
	0820HR-2M20	2	20	20	100	180	1.0	0.4
	0820HR-2L20	2	20	20	130	250	1.0	0.5
	0821HR-2S20	2	21	20	50	130	1.0	0.3
	0821HR-2M20	2	21	20	50	180	1.0	0.4
	0821HR-2L20	2	21	20	50	250	1.0	0.5
	1025HR-2S25	2	25	25	60	140	1.5	0.4
	1025HR-2M25	2	25	25	120	200	1.5	0.6
	1025HR-2L25	2	25	25	180	300	1.5	0.9
	1026HR-2S25	2	26	25	60	140	1.5	0.4
	1026HR-2M25	2	26	25	60	200	1.5	0.6
	1026HR-2L25	2	26	25	60	300	1.5	1.0
	1030HR-2S32	2	30	32	70	150	1.5	0.8
	1030HR-2M32	2	30	32	120	200	1.5	1.0
	1030HR-2L32	2	30	32	180	300	1.5	1.5

Available inserts

WDKT-MH

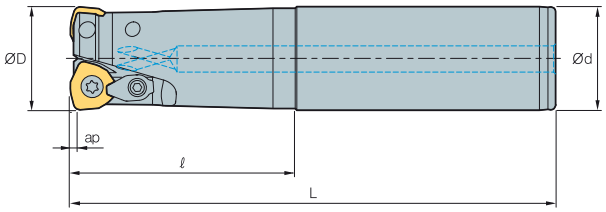
Type	Designation	Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
08 type	WDKT 080316ZDSR-MH							●	●	●	●	●	●		●	●				E27
10 type	WDKT 10T320ZDSR-MH							●	●	●	●	●	●		●	●				

Parts

Specification	Screw	Clamp	Clamp screw	C-ring	Wrench
Ø20~Ø21 (08 type)	FTNA0306	-	-	-	TW09P
Ø25~Ø30 (10 type)	FTKA0408	CHH3.5R1	CTX03510	CR03	TW15S

Available inserts E27

HRMS13



AA 15°

- AR: 7°
- RR: -11°~ -5°

(mm)

Designation			ØD	Ød	ℓ	L	ap	kg
HRMS	1332HR-2S32	2	32	32	70	150	2.0	0.8
	1332HR-2M32	2	32	32	120	200	2.0	1.0
	1332HR-2L32	2	32	32	180	300	2.0	1.6
	1333HR-2S32	2	33	32	70	150	2.0	0.8
	1333HR-2M32	2	33	32	70	200	2.0	1.1
	1333HR-2L32	2	33	32	70	300	2.0	1.7
	1335HR-2S32	2	35	32	50	150	2.0	0.8
	1335HR-2M32	2	35	32	50	200	2.0	1.1
	1335HR-2L32	2	35	32	50	300	2.0	1.7
	1340HR-3S32	3	40	32	50	150	2.0	0.8
	1340HR-3M32	3	40	32	50	250	2.0	1.4
	1340HR-3L32	3	40	32	50	300	2.0	1.7
	1340HR-3S40	3	40	40	60	150	2.0	1.2
	1340HR-3M40	3	40	40	130	250	2.0	2.1
	1340HR-3L40	3	40	40	180	300	2.0	2.6
	1340HR-3S42	3	40	42	60	150	2.0	1.4
	1340HR-3M42	3	40	42	130	250	2.0	2.3
	1340HR-3L42	3	40	42	180	300	2.0	2.7

Available inserts

WDKT-MH

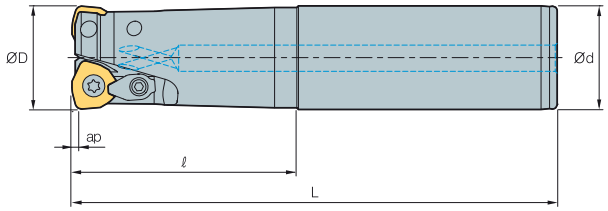
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	130520ZDSR-MH							●	●	●		●	●		●	●				E27

Parts

Specification	Screw	Clamp	Clamp screw	C-ring	Wrench
Ø32,33,35	FTGA0510-P	CHH4.5R1	CTX04513H	CR03	TW20
Ø40	FTGA0512-P	CHH5.5R1	CTX04513H	CR03	TW20

Available inserts E27

HRMS15



AA 15°

- AR: 7°
- RR: -8°~ -6°

(mm)

Designation			ØD	Ød	ℓ	L	ap	kg
HRMS	1550HR-3S32	3	50	32	50	150	2.5	1.0
	1550HR-3M32	3	50	32	50	250	2.5	1.6
	1550HR-3L32	3	50	32	50	300	2.5	1.9
	1550HR-3S40	3	50	40	50	150	2.5	1.4
	1550HR-3M40	3	50	40	50	250	2.5	2.3
	1550HR-3L40	3	50	40	50	300	2.5	2.8
	1550HR-3S42	3	50	42	50	150	2.5	1.5
	1550HR-3M42	3	50	42	50	250	2.5	2.5
	1550HR-3L42	3	50	42	50	300	2.5	3.0
	1563HR-4S32	4	63	32	50	150	2.5	1.3
	1563HR-4M32	4	63	32	50	250	2.5	1.9
	1563HR-4L32	4	63	32	50	300	2.5	2.2
	1563HR-4S40	4	63	40	50	150	2.5	1.7
	1563HR-4M40	4	63	40	50	250	2.5	2.6
	1563HR-4L40	4	63	40	50	300	2.5	3.1
	1563HR-4S42	4	63	42	50	150	2.5	1.8
	1563HR-4M42	4	63	42	50	250	2.5	2.8
	1563HR-4L42	4	63	42	50	300	2.5	3.3

Available inserts

WDKT-MH

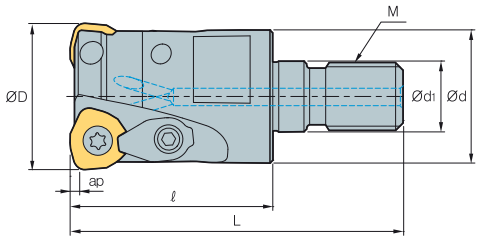
Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	150625ZDSR-MH									●	●	●	●		●	●				E27

Parts

Specification	Screw	Clamp	Clamp screw	C-ring	Wrench
Ø50~Ø63	FTGA0513-P	CHH5.5R1	CTX0515	CR04	TW20

Available inserts E27

HRMM08



AA 15°

- AR: 7°
- RR: -11°~ -5°

(mm)

Designation			ØD	Ød	ød1	ℓ	L	M	ap	kg
HRMM	0820HR-M10	2	20	18	10.5	30	51	M10	1	0.06
	0821HR-M10	2	21	18	10.5	30	51	M10	1	0.06
	0825HR-M12	3	25	23	12.5	35	59	M12	1	0.11
	0826HR-M12	3	26	23	12.5	35	59	M12	1	0.11
	0828HR-M12	3	28	23	12.5	35	59	M12	1	0.12
	0832HR-M16	4	32	29	17	40	67	M16	1	0.21
	0833HR-M16	4	33	29	17	40	67	M16	1	0.21
	0835HR-M16	4	35	29	17	40	67	M16	1	0.23
	0840HR-M16	5	40	29	17	40	67	M16	1	0.25

Available inserts

WDKT-MH

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	080316ZDSR-MH							●	●	●	●	●	●		●	●				E27

Available adaptor

Designation		Available adaptor
HRMM	0820HR-M10	MAT-M10
	0821HR-M10	
	0825HR-M12	MAT-M12
	0826HR-M12	
	0828HR-M12	
	0832HR-M16	MAT-M16
	0833HR-M16	
	0835HR-M16	
	0840HR-M16	

Designation: HRMM0820HR-M10
Modular head threading measure size (M10)

II

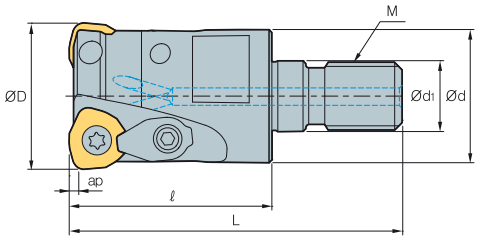
Adaptor spec.: MAT-M10-030-S20S
Adaptor threading measure (M10)

Parts

Specification	Screw	Clamp	Clamp screw	C-ring	Wrench	Wrench
Ø20~Ø40	FTNA0306	-	-	-	-	-

Available inserts E27 Available adaptor E371~E372

HRMM10/13



AA 15°

- AR: 7°
- RR: -11°~ -5°

(mm)

Designation			ØD	Ød	ød1	ℓ	L	M	ap	kg
HRMM	1025HR-M12	2	25	23	12.5	35	59	M12	1.5	0.1
	1026HR-M12	2	26	23	12.5	35	59	M12	1.5	0.1
	1030HR-M16	2	30	29	17	40	67	M16	1.5	0.2
	1032HR-M16	3	32	29	17	45	72	M16	1.5	0.26
	1035HR-M16	3	35	29	17	45	72	M16	1.5	0.23
	1040HR-M16	4	40	29	17	45	72	M16	1.5	0.27
HRMM	1332HR-M16	2	32	29	17	40	67	M16	2	0.17
	1333HR-M16	2	33	29	17	40	67	M16	2	0.17
	1335HR-M16	2	35	29	17	40	67	M16	2	0.19
	1340HR-M16	3	40	29	17	45	72	M16	2	0.24

Available inserts

WDKT-MH

Type	Designation		Cermet		Coated												Uncoated			page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
10 type	WDKT	10T320ZDSR-MH							●	●	●	●	●	●		●	●				E27
13 type	WDKT	130520ZDSR-MH							●	●	●		●	●		●	●				

Available adaptor

Designation		Available adaptor
HRMM	1025HR-M12	MAT-M12
	1026HR-M12	
	1030HR-M16	MAT-M16
	1032HR-M16	
	1035HR-M16	
	1040HR-M16	
	1332HR-M16	MAT-M16
	1333HR-M16	
	1335HR-M16	
	1340HR-M16	

Designation: HRMM0820HR-M10
Modular head threading measure size (M10)

=

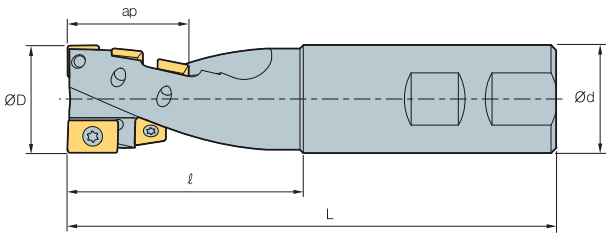
Adaptor spec.: MAT-M10-030-S20S
Adaptor threading measure (M10)

Parts

Specification	Screw	Clamp	Clamp screw	C-ring	Wrench	Wrench
Ø25~Ø40 (10 type)	FTKA0408	CHH3.5R1	CTX03510	CR03	TW15S	-
Ø32, 33, 35 (13 type)	FTGA0510-P	CHH4.5R1	CTX04513H	CR03	-	TW20
Ø40 (13 type)	FTGA0512-P	CHH5.5R1	CTX04513H	CR03	-	TW20

Available inserts E27 Available adaptor E371~E372

THE



AA 90°

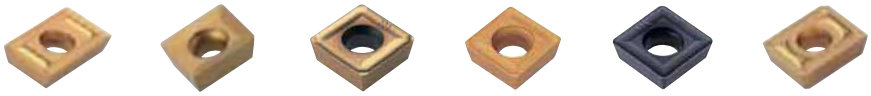
- AR: 5°, 10°
- RR: -5°

(mm)

Designation		ØD	Ød	ℓ	L	ap	No. of flute	kg	Available inserts	
									Lower cutting-edge	External cutting-edge
THE	25R	25	25	55	120	25	2	0.4	APLT070304R 1z	SPMT060304 4z
	32R	32	32	70	145	40	2	0.5	ADLT150308R 1z	SDMT090308-MM 5z
	40R	40	42	88	175	54	2	1.3	ZPMT1504PPSR-MM 1z	SPMT120408-MM 5z
	50R	50	42	85	175	54	4	1.4	ZPMT1504PPSR-MM 2z	SPMT120408-MM 10z

Available inserts

ADLT APLT SPMT-MM SPMT SDMT-MM ZPMT-MM



Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SPMT	060304			●																E04 E05 E18 E25 E31
SDMT	090308-MM										●				●					
SPMT	120408-MM										●				●					
APLT	070304R														●					
ADLT	150308R			●											●					
ZPMT	1504PPSR-MM										●				●					

Recommended cutting condition

- Grooving

Workpiece	Cutting Condition		Grades
	vc (m/min)	fz (mm/t)	
P	90~140	0.05~0.2	PC5300
M	50~90	0.05~0.2	PC5300
K	70~120	0.05~0.25	PC5300

- Side cutting

Workpiece	Cutting Condition		Grades
	vc (m/min)	fz (mm/t)	
P	150 ~240	0.05~0.2	PC5300
M	90~150	0.05~0.2	PC5300
K	120~200	0.10~0.25	PC5300

Parts

Specification	Screw	Wrench	Wrench
Ø25	ETNA02506	TW07P	-
Ø32	ETNA0408	-	TW15S
Ø40	ETNA0511	-	TW20S
Ø50	ETNA0511	-	TW20S

Available inserts **E04, E05, E18, E25, E31**

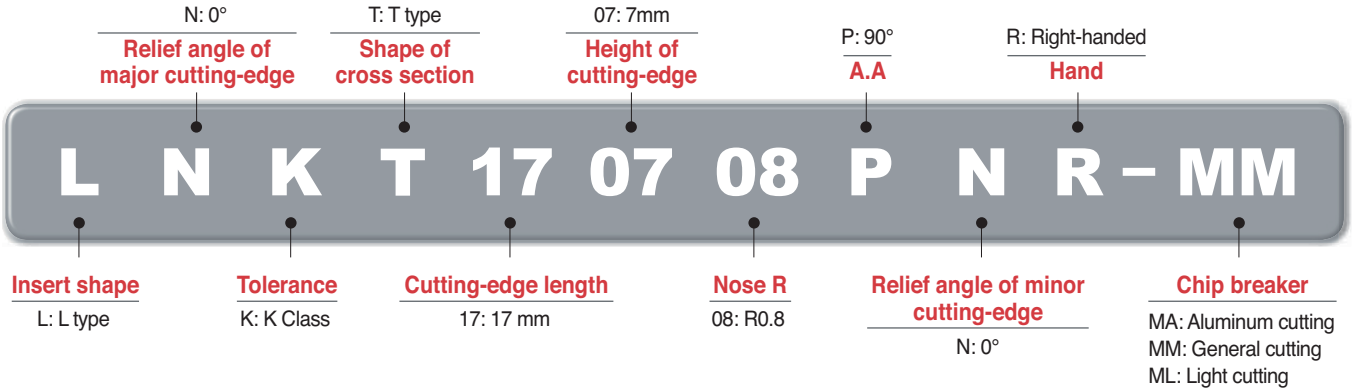
This milling tool series with its tangential clamping system increases stable machining and productivity, while improving perpendicularity

Tangen-Pro TP2P new

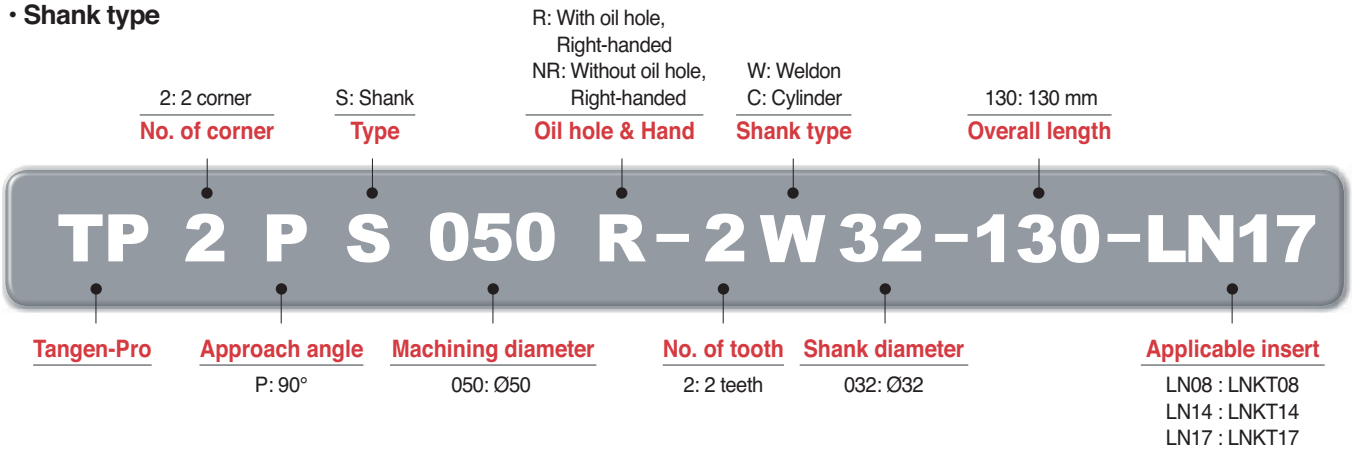
- Clamping stability gained through tangential clamping system and wedge-shaped inserts
- Excellent surface finish nearly perfect perpendicularity, and highly even flank surface compared to competitors' designs
- Improved productivity due to High-rake angles and sharp cutting-edges which lead to lower cutting resistance
  → Ideally suited for high speed and high feed machining

Code system

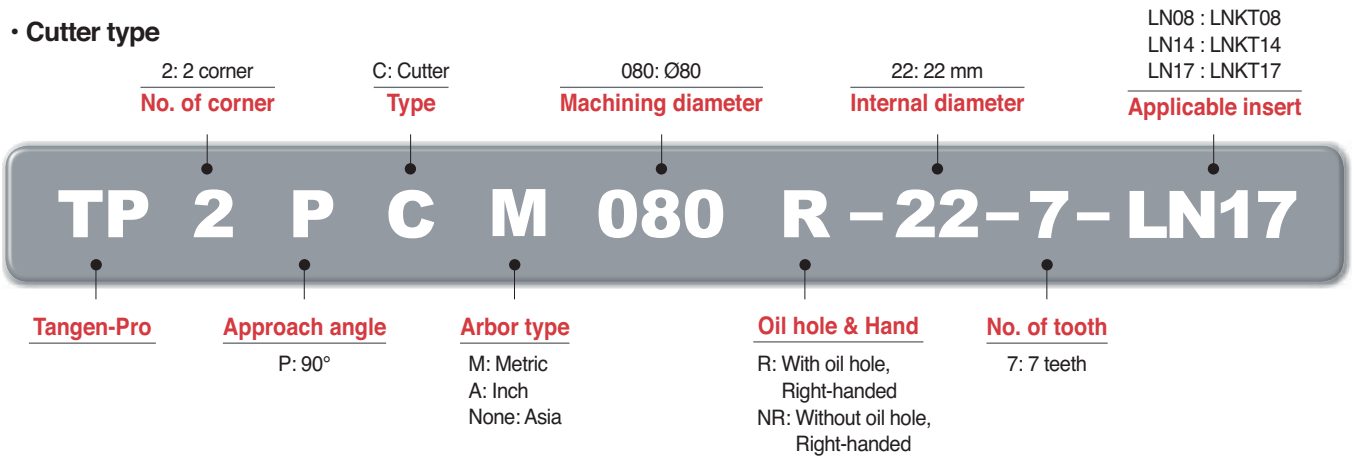
• Insert



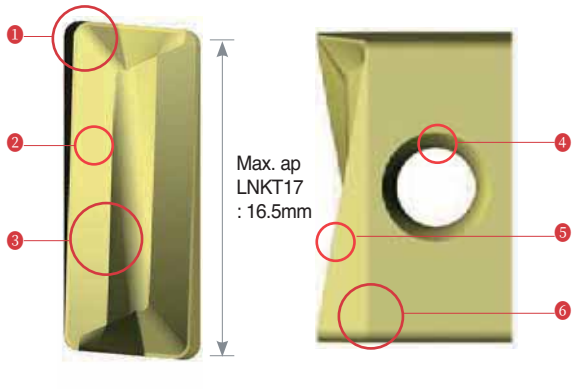
• Shank type



• Cutter type



Features of insert



1 Wedge type clamping area
- Clamping in wedge form on seats
  → Creates strong clamping force

2 High-rake angle chip breaker
- High-rake angle applied
- Produces smooth chip flow
  → Extended insert life

3 Convex projection
- Improved chip evacuation
- Enhances rigidity

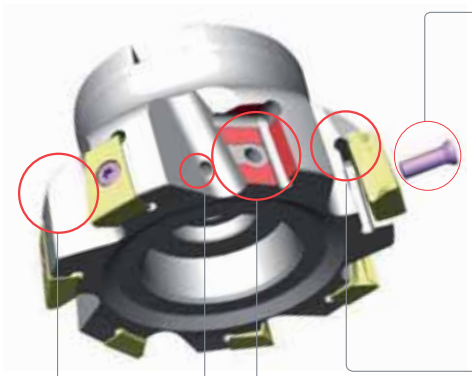
4 Side hole (tangential type)
- Higher clamping stability

5 High-rake angle cutting-edges
- Improves cutting performance while reducing cutting load

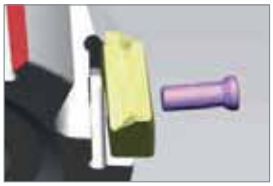
6 2-level flank relief surface
- 1st reverse positive relief surface enhances rigidity
- 2nd negative relief surface enables stable clamping
  → Improved chipping resistance and surface finish

Features of cutter

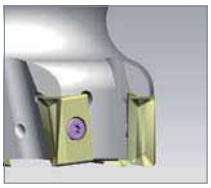
- Tangential clamping system, wedge-shaped inserts and wide seat area
  → Higher clamping stability
  → Lower vibrations and cutting resistance during machining
- Optimized H/D design with curved surface for smooth chip flow
  → Excellent chip evacuation in ramping or deep shouldering



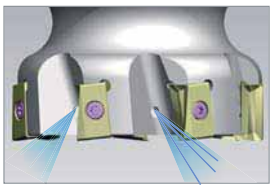
Tangential clamping
- Multi-corner use
  → High feed machining availability



Efficient holder design
- Smoother chip evacuation in slotting or deep shouldering

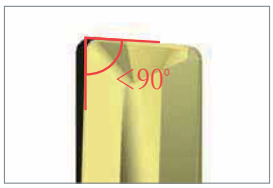


Through coolant system
- Improved chip evacuation
- Longer tool life due to insert cooling



Wide seat area
- Strong clamping force

Wedge type clamping
- Stable insert life



Application guideline for grade

Workpiece		P		K	N
		Carbon steel	Alloy steel	Cast iron	Aluminum
Grades	High speed cutting	PC5300	PC5300	PC6510	H01
	General cutting	PC5400	PC5300	PC6510	H01
	Interrupted cutting	PC5400	PC5400	PC5300	H01

Features of chip breaker

Insert		Cutting-edge	Uses	Features
MA			Aluminu	Exclusive sharp cutting edge for aluminum machining ensures good chip flow due to surface buffing treatment and high welding resistance.
ML			Light cutting	Chip breaker design for low cutting resistance that provides excellent tool life and quality surface finishes in light cutting and hard-to-cut materials
MM			General cutting	Universal design for general shoulder milling operations, highly suitable in most applications

Recommended cutting condition

• LNKT08

Workpiece		Grades	vc (m/min)	fz (mm/t)	Max. ap (mm)	Applicable insert
P	Steel	PC5300	150~240	0.25~0.05	8.0	LNKT0804□□PNR-MM
		PC5400	130~210	0.25~0.05	8.0	
K	Cast iron	PC6510	100~250	0.25~0.05	8.0	LNKT0804□□PNR-ML
		PC5300	100~200	0.25~0.05	8.0	
N	Aluminum	H01	500~1000	0.25~0.05	8.0	LNKT0804□□PNR-MA

※ The above data refer to general cutting conditions and can be adjustable to the speed of 300m/min and the feed per tooth of 0.5 mm/t depending on user environment.

• LNKT14

Workpiece		Grades	vc (m/min)	fz (mm/t)	Max. ap (mm)	Applicable insert
P	Steel	PC5300	150~240	0.25~0.05	12.7	LNKT1406□□PNR-MM
		PC5400	130~210	0.25~0.05	12.7	
K	Cast iron	PC6510	100~250	0.25~0.05	12.7	LNKT1406□□PNR-ML
		PC5300	100~200	0.25~0.05	12.7	
N	Aluminum	H01	500~1000	0.25~0.05	12.7	LNKT1406□□PNR-MA

※ The above data refer to general cutting conditions and can be adjustable to the speed of 300m/min and the feed per tooth of 0.5 mm/t depending on user environment.

• LNKT17

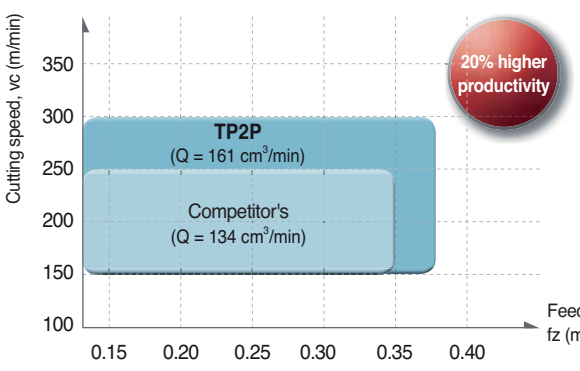
Workpiece		Grades	vc (m/min)	fz (mm/t)	Max. ap (mm)	Applicable insert
P	Steel	PC5300	150~240	0.25~0.05	16.5	LNKT1707□□PNR-MM
		PC5400	130~210	0.25~0.05	16.5	
K	Cast iron	PC6510	100~250	0.25~0.05	16.5	LNKT1707□□PNR-ML
		PC5300	100~200	0.25~0.05	8.0	
N	Aluminum	H01	500~1000	0.25~0.05	16.5	LNKT1707□□PNR-MA

※ The above data refer to general cutting conditions and can be adjustable to the speed of 300m/min and the feed per tooth of 0.5 mm/t depending on user environment.

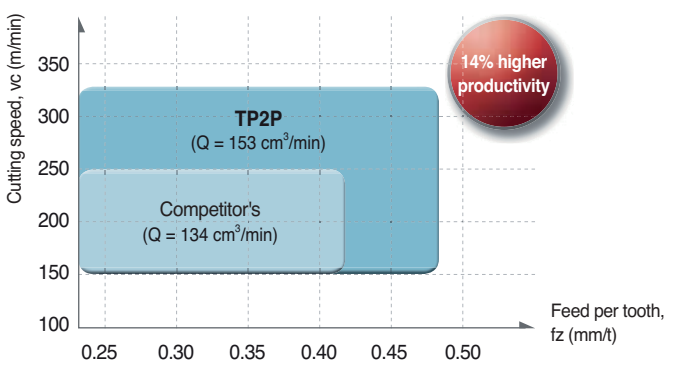
Application area

▶ **Higher speed and feed machining than competitor's increases machinability.**

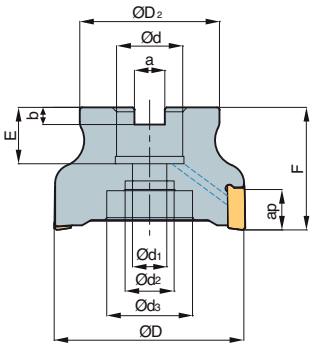
Application area: ap (mm) = 14, ae (mm) = 10



Application area: ap (mm) = 8, ae (mm) = 10



TP2PCM-LN08 new



AA 90°

- AR: -6°
- RR: -26°~ -22°

(mm)

	Designation		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
TP2PCM	040R-16-6-LN08	6	40	35	16	9	14	-	8.4	5.6	16	40	8.0	0.19
	040R-16-7-LN08	7	40	35	16	9	14	-	8.4	5.6	16	40	8.0	0.19
	050R-22-7-LN08	7	50	41	22	11	18	-	10.4	6.3	20	40	8.0	0.31
	050R-22-10-LN08	10	50	41	22	11	18	-	10.4	6.3	20	40	8.0	0.31
	063R-22-10-LN08	10	63	49	22	11	18	-	10.4	6.3	20	40	8.0	0.49
	063R-22-11-LN08	11	63	49	22	11	18	-	10.4	6.3	20	40	8.0	0.49

Available inserts

LNKT-MA new | LNKT-ML new | LNKT-MM new



	Designation	Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	080404PNR-MA																			E10
	080408PNR-MA																			
	080404PNR-ML																			
	080408PNR-ML																			
	080404PNR-MM																			
	080408PNR-MM																			

Available arbors

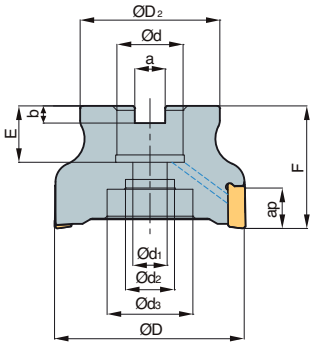
Designation		NC arbors
TP2PCM	040R-16-6-LN08	BT□□-FMC16-□□
	040R-16-7-LN08	
	050R-22-7-LN08	BT□□-FMC22-□□
	050R-22-10-LN08	
	063R-22-10-LN08	
	063R-22-11-LN08	

Parts

Specification	Screw	Wrench
Ø40~Ø63	FTKA02565S	TW07S

Available inserts E10 Available arbors and bolt E400~E402

TP2PC(M)-LN14 new



AA 90°

- AR: -6°
- RR: -22°~ -12°

(mm)

	Designation		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
TP2PCM	040R-16-4-LN14	4	40	35	16	9	14	-	8.4	5.6	19	40	12.7	0.19
	040R-16-5-LN14	5	40	35	16	9	14	-	8.4	5.6	19	40	12.7	0.19
	050R-22-5-LN14	5	50	42	22	11	18	-	10.4	6.3	20	40	12.7	0.29
	050R-22-6-LN14	6	50	42	22	11	18	-	10.4	6.3	20	40	12.7	0.29
	063R-22-6-LN14	6	63	49	22	11	18	-	10.4	6.3	20	40	12.7	0.49
	063R-22-8-LN14	8	63	49	22	11	18	-	10.4	6.3	20	40	12.7	0.49
	080R-27-7-LN14	7	80	57	27	14	20	35	12.4	7	23	50	12.7	0.94
	080R-27-10-LN14	10	80	57	27	14	20	35	12.4	7	23	50	12.7	0.94
	100R-32-8-LN14	8	100	70	32	18	28	45	14.4	8	28	63	12.7	1.73
	100R-32-13-LN14	13	100	70	32	18	28	45	14.4	8	28	63	12.7	1.73
	125R-40-9-LN14	9	125	90	40	22	32	54	16.4	9	30	63	12.7	2.98
	125R-40-17-LN14	17	125	90	40	22	32	54	16.4	9	30	63	12.7	3.04
TP2PC	080R-25.4-7-LN14	7	80	57	25.4	14	25	38	9.5	6	25	50	12.7	0.95
	080R-25.4-10-LN14	10	80	57	25.4	14	25	38	9.5	6	25	50	12.7	0.96
	100R-31.75-8-LN14	8	100	70	31.75	18	28	45	12.7	8	32	63	12.7	1.76
	100R-31.75-13-LN14	13	100	70	31.75	18	28	45	12.7	8	32	63	12.7	1.81
	125R-38.1-9-LN14	9	125	90	38.1	22	32	54	15.9	10	35	63	12.7	2.99
	125R-38.1-17-LN14	17	125	90	38.1	22	32	54	15.9	10	35	63	12.7	3.07

Available inserts

LNKT-MA new　LNKT-ML new　LNKT-MM new



	Designation	Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	140608PNR-MA																			E10
	140608PNR-ML																			
	140608PNR-MM																			

Available arbors

Designation		NC arbors
TP2PCM	040R-16-4-LN14	BT□□-FMC16-□□
	040R-16-5-LN14	
	050R-22-5-LN14	BT□□-FMC22-□□
	050R-22-6-LN14	
	063R-22-6-LN14	
	063R-22-8-LN14	
	080R-27-7-LN14	BT□□-FMC27-□□
	080R-27-10-LN14	
	100R-32-8-LN14	BT□□-FMC32-□□

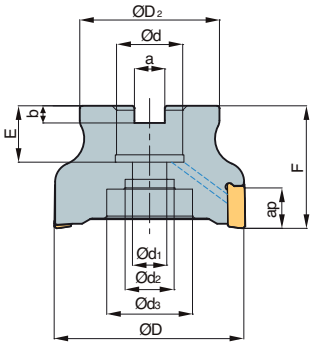
Designation		NC arbors
TP2PCM	100R-32-13-LN14	BT□□-FMC32-□□
	125R-40-9-LN14	BT□□-FMC40-□□
	125R-40-17-LN14	
TP2PC	080R-25.4-7-LN14	BT□□-FMA25.4-□□
	080R-25.4-10-LN14	
	100R-31.75-8-LN14	BT□□-FMA31.75-□□
	100R-31.75-13-LN14	
	125R-38.1-9-LN14	BT□□-FMA38.1-□□
	125R-38.1-17-LN14	

Parts

Specification	Screw	Wrench
Ø40 ~ Ø125	FTKA03510	TW15S

Available inserts E10　Available arbors and bolt E400~E402

TP2PC(M)-LN17 new



AA 90°

- AR: -6°
- RR: -21°~ -15°

(mm)

	Designation		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
TP2PCM	040R-16-3-LN17	3	40	35	16	9	14	-	8.4	5.6	16	40	16.5	0.17
	040R-16-4-LN17	4	40	35	16	9	14	-	8.4	5.6	16	40	16.5	0.17
	050R-22-4-LN17	4	50	41	22	11	18	-	10.4	6.3	20	40	16.5	0.27
	050R-22-5-LN17	5	50	41	22	11	18	-	10.4	6.3	20	40	16.5	0.26
	063R-22-6-LN17	6	63	49	22	11	18	-	10.4	6.3	20	40	16.5	0.46
	063R-22-7-LN17	7	63	49	22	11	18	-	10.4	6.3	20	40	16.5	0.47
	080R-27-7-LN17	7	80	57	27	14	20	35	12.4	7	23	50	16.5	0.89
	080R-27-8-LN17	8	80	57	27	14	20	35	12.4	7	23	50	16.5	0.91
	100R-32-8-LN17	8	100	67	32	18	28	45	14.4	8	25	63	16.5	1.68
	100R-32-9-LN17	9	100	67	32	18	28	45	14.4	8	25	63	16.5	1.75
	125R-40-10-LN17	10	125	90	40	22	32	52	16.4	10	30	63	16.5	2.88
	125R-40-11-LN17	11	125	90	40	22	32	52	16.4	10	30	63	16.5	2.88
TP2PC	080R-25.4-7-LN17	7	80	57	25.4	14	20	35	9.5	6	25	50	16.5	0.92
	080R-25.4-8-LN17	8	80	57	25.4	14	20	35	9.5	6	25	50	16.5	0.93
	100R-31.75-8-LN17	8	100	67	31.75	18	28	45	12.7	8	32	63	16.5	1.73
	100R-31.75-9-LN17	9	100	67	31.75	18	28	45	12.7	8	32	63	16.5	1.73
	125R-38.1-10-LN17	10	125	90	38.1	22	32	52	15.9	9	35	63	16.5	3.06
	125R-38.1-11-LN17	11	125	90	38.1	22	32	52	15.9	9	35	63	16.5	2.91

Available inserts

LNKT-MA new | LNKT-ML new | LNKT-MM new



Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNKT	170704PNR-MA																		E10
	170708PNR-MA																		
	170712PNR-MA																		
	170716PNR-MA																		
	170720PNR-MA																		
	170704PNR-ML																		
	170708PNR-ML											●			●●				
	170712PNR-ML																		

Designation		Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNKT	170716PNR-ML																		E10
	170720PNR-ML																		
	170704PNR-MM																		
	170708PNR-MM														●●				
	170712PNR-MM																		
	170716PNR-MM																		
	170720PNR-MM																		

Available arbors

Designation		NC arbors
TP2PCM	040R-16-3-LN17	BT□□-FMC16-□□
	040R-16-4-LN17	
	050R-22-4-LN17	BT□□-FMC22-□□
	050R-22-5-LN17	
	063R-22-6-LN17	
	063R-22-7-LN17	
	080R-27-7-LN17	BT□□-FMC27-□□
	080R-27-8-LN17	
	100R-32-8-LN17	BT□□-FMC32-□□

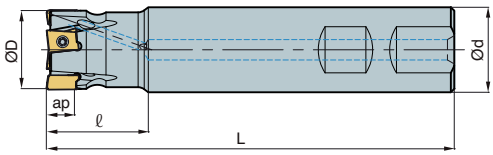
Designation		NC arbors
TP2PCM	100R-32-9-LN17	BT□□-FMC32-□□
	125R-40-10-LN17	BT□□-FMC40-□□
	125R-40-11-LN17	
TP2PC	080R-25.4-7-LN17	BT□□-FMA25.4-□□
	080R-25.4-8-LN17	
	100R-31.75-8-LN17	BT□□-FMA31.75-□□
	100R-31.75-9-LN17	
	125R-38.1-10-LN17	BT□□-FMA38.1-□□
	125R-38.1-11-LN17	

Parts

Specification	Screw	Wrench
Ø40~Ø125	FTKA0412B	TW15S

Available inserts E10 Available arbors and bolt E400~E402

TP2PS-LN08 new



AA 90°

- AR: -6°
- RR: -35°~ -26°

(mm)

Designation			ØD	Ød	ℓ	L	ap	kg
TP2PS	020R-2W20-120-LN08	2	20	20	30	120	8.0	0.25
	020R-3W20-120-LN08	3	20	20	30	120	8.0	0.25
	025R-3W25-120-LN08	3	25	25	30	120	8.0	0.39
	025R-4W25-120-LN08	4	25	25	30	120	8.0	0.39

Available inserts

LNKT-MA LNKT-ML LNKT-MM



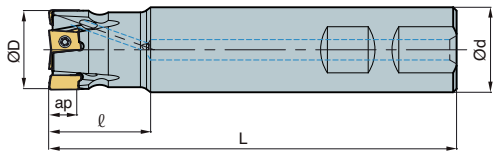
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	080404PNR-MA																			E10
	080408PNR-MA																			
	080404PNR-ML																			
	080408PNR-ML																			
	080404PNR-MM																			
	080408PNR-MM																			

Parts

Specification	Screw	Wrench
Ø16~Ø25	FTKA02565S	TW07S

Available inserts E10

TP2PS-LN14 new



AA 90°

- AR: -6°
- RR: -21°~ -18°

(mm)

Designation			ØD	Ød	ℓ	L	ap	kg
TP2PS	025R-2W25-130-LN14	2	25	25	40	130	12.7	0.41
	032R-3W32-130-LN14	3	32	32	40	130	12.7	0.69
	040R-3W32-130-LN14	3	40	32	40	130	12.7	0.75
	040R-4W32-130-LN14	4	40	32	40	130	12.7	0.76
	050R-4W32-130-LN14	4	50	32	40	130	12.7	0.85
	050R-5W32-130-LN14	5	50	32	40	130	12.7	0.84

Available inserts

LNKT-MA LNKT-ML LNKT-MM



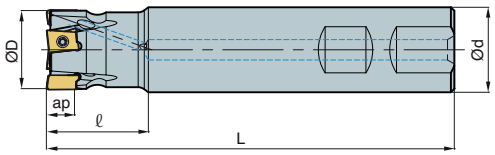
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	140608PNR-MA																			E10
	140608PNR-ML																			
	140608PNR-MM																			

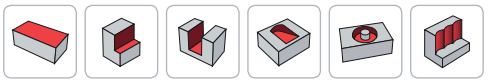
Parts

Specification	Screw	Wrench
Ø25 ~ Ø50	FTKA03510	TW15S

Available inserts E10

TP2PS-LN17 new





AA 90°

- AR: -6°
- RR: -26°~ -18°

(mm)

Designation			ØD	Ød	ℓ	L	ap	kg
TP2PS	032R-2W32-130-LN17	2	32	32	40	130	16.5	0.68
	032R-3W32-130-LN17	3	32	32	40	130	16.5	0.67
	040R-3W32-130-LN17	3	40	32	40	130	16.5	0.73
	040R-4W32-130-LN17	4	40	32	40	130	16.5	0.73
	050R-4W32-130-LN17	4	50	32	40	130	16.5	0.83
	050R-5W32-130-LN17	5	50	32	40	130	16.5	0.83

Available inserts

LNKT-MA new | LNKT-ML new | LNKT-MM new

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	170704PNR-MA																			E10
	170708PNR-MA																			
	170712PNR-MA																			
	170716PNR-MA																			
	170720PNR-MA																			
	170704PNR-ML																			
	170708PNR-ML											●			●	●				
	170712PNR-ML																			
	170716PNR-ML																			
	170720PNR-ML																			
	170704PNR-MM																			
	170708PNR-MM														●	●				
	170712PNR-MM																			
	170716PNR-MM																			
	170720PNR-MM																			

Parts

Specification	Screw	Wrench
Ø32~Ø50	FTKA0412B	TW15S

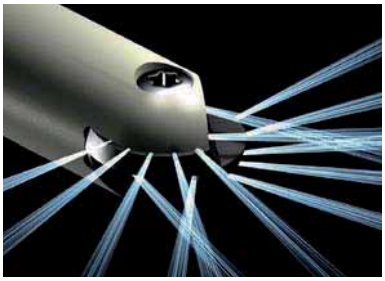
Available inserts E10

Longer tool life guaranteed thanks to the excellent cutting performance of our grades

Laser Mill

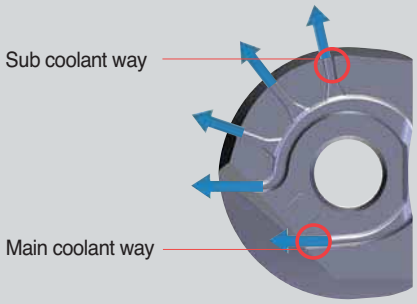
- Long tool life has been achieved due to the excellent cutting performance of the insert grade
- Optimum machining of molds has been achieved with the MQL available system
- Easy clamping with simple screw on system
- Various holder line up: steel shank, carbide shank, modular type
- High accuracy indexable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

MQL System

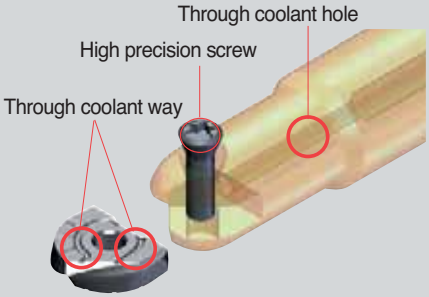


- Environmental friendly system
- Decreased coolant cost
- Lubrication of cutting-edge
- Improved chip control property
- Increased tool life & improved surface quality

Clamping system



- High precision
  (ground internal diameter)
  Run-out: 0.02 mm
  Accuracy of 'R part: below 0.01
- Through coolant system



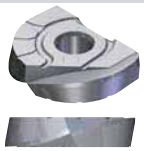
Features

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.

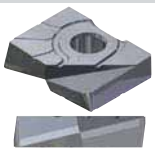
LBS, LR Order-made items

LBH-Ball



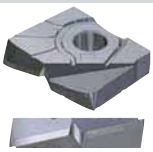
- Helical cutting-edge
- Suitable for harder material with high feed

LRH-Corner radius



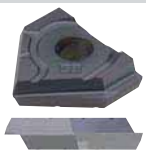
- Helical cutting-edge
- Variety of nose-R

LFH-High feed



- Helical cutting-edge
- Suitable for high feed

LCF-Chamfer

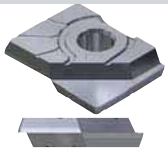


- Straight cutting-edge
- Center drilling and chamfering

LBS-Ball type

- Straight cutting-edge
- Suitable for precise

LR-Corner R type

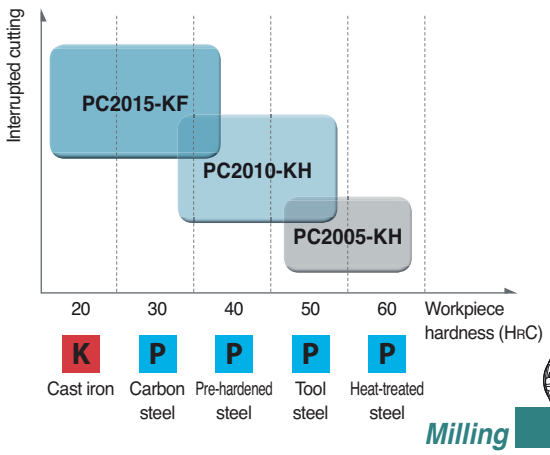


- Straight cutting-edge
- Variety of nose-R

Features of Laser Mill grades

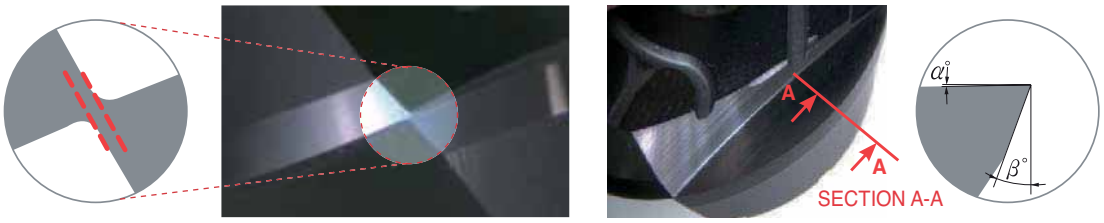
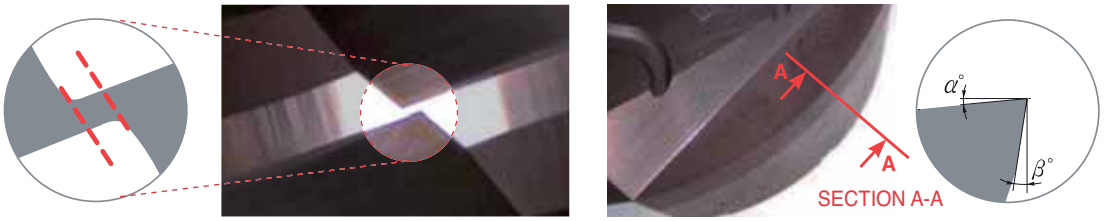
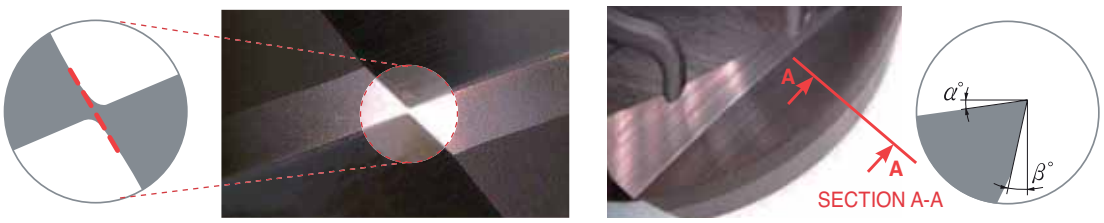
PC2005	• Extremely high hardness grade • The harmony between improved blade design and strong chip breaker • Optimized for machining heat-treated steel and high hardness steel
PC2010	• High wear resistance and excellent toughness • The harmony between excellent thermal shock resistance and strong cutting-edges.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



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 (β°) 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

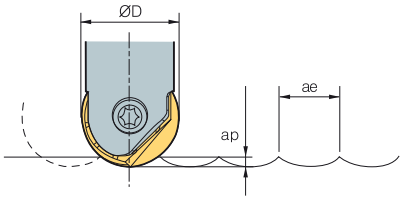
Recommended cutting condition

Workpiece				Grades	Chip breaker	Recommended cutting conditions			
ISO		Material	HB (HRC)			vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)
K	Gray cast iron	GC250	180 (8)	PC2015 PC2010 PC2005	KF	130~210	0.2~0.5	0.07D	0.07D
	Ductile cast iron	GCD600	250 (24)						
P	Carbon steel	S20C~S50C	150			170~250	0.2~0.5	0.07D	0.07D
	Alloy steel	SCM21~SCM5H	270 (28)	PC2010 PC2015 PC210F	KH	130~210	0.1~0.3	0.7D	0.7D
	Pre-hardened steel	KP4M	300 (32)			100~160	0.1~0.3	0.5D	0.5D
		NIMAX	370 (40)						
		CENA1	370 (40)						
		NAK80	400 (43)						
		STAVAX	510 (52)						
	High speed tool steel	SKH51~SKH59	550 (55)	PC2005 PC2010	KH	80~130	0.1~0.2	0.3D	0.3D
	Alloy tool steel	STD61 (Hot forging)	630 (60)			70~120	0.1~0.2	0.3D	0.3D
		STD11 (Cold forging)							

Overhang	vc (m/min)	fz (mm/t)
Under 3D	100%	100%
3D~5D	70%	70%
5D~8D	60%	60%
8D~10D	50%	50%

Cutting condition formula for milling

Practical cutting speed	RPM
$vc_e = \frac{\pi \times D_e \times n}{1000}$ (m/min)	$n = \frac{vc_e \times 1000}{\pi \times D_e}$ (min^{-1})
Feed per tooth	**Feed per minute**
$fz = \frac{vf}{z \times n}$ (mm/t)	$vf = fz \times z \times n$ (mm/min)
Chip removal amount	**Power requirement**
$Q = \frac{ap \times ae \times vf}{1000}$ (cm^3/min)	$Pkw = \frac{Q \times kc}{60 \times 102 \times \eta}$ (kW) $Php = \frac{Pc}{0.75}$ (hp)



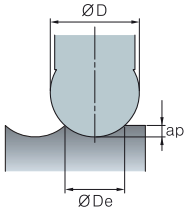
vc = Cutting speed (m/min)	**Pkw** = Power requirement (kW)
vce = Practical cutting speed (m/min)	**Php** = Horsepower requirement (hp)
n = Revolution per minute (min^{-1})	**Q** = Chip removal amount (cm^3/min)
D = Cutting diameter (mm)	**ap** = Depth of cut (mm)
De = Actual diameter (mm)	**ae** = Width of cut (mm)
vf = Feed per minute (mm/min)	**kc** = Specific cutting resistance (kg/mm^2)
fz = Feed per tooth (mm/t)	**η** = Mechanical efficiency (%)
z = Number of tooth	

Practical cutting speed calculation formulas

1. Formula of actual diameter

• **Formula**
: Actual diameter

$De = 2\sqrt{ap\,(D - ap)}$



2. θ°Using: Calculating cutting speed at P point
(Cutting speed according to depth of cut when ramping)

• **Formula**
: Practical cutting speed

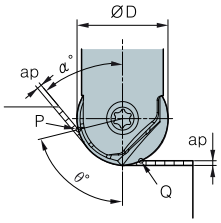
$vce = \frac{\pi\, D \sin\theta \times n}{1000}$ (m/min)

$\theta = \cos^{-1}\left(\frac{D - 2ap}{D}\right) + (90 - \alpha°)$

3. In case of using ap: Calculating cutting speed at Q point

• **Formula**
: Pratical cutting speed

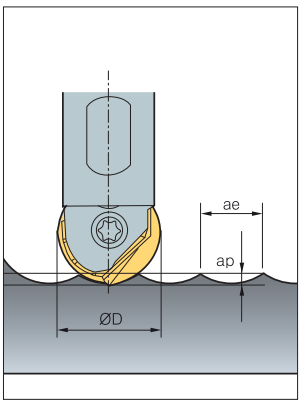
$vce = \frac{2\pi n\sqrt{ap\,(D - ap)}}{1000}$



Practical cutting speed calculation formulas

ae (mm) / R (mm)	h (surface roughness) (μm)									
	0.1	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1.0**
5	0.3	1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3	25.0
6	0.2	0.8	1.9	3.3	5.2	7.5	10.2	13.3	16.9	20.8
8	0.2	0.6	1.4	2.5	3.9	5.6	7.7	10.0	12.7	15.6
10	0.1	0.5	1.1	2.0	3.1	4.5	6.1	8.0	10.1	12.5
12.5	0.1	0.4	0.9	1.6	2.5	3.6	4.9	6.4	8.1	10.0
15	0.1	0.3	0.8	1.3	2.1	3.0	4.1	5.3	6.8	8.3
16	0.1	0.3	0.7	1.3	2.0	2.8	3.8	5.0	6.3	7.8

Formula of surface roughness: h (surface finish) = $\frac{(ae)^2}{8R} \times 1000$ (μm)

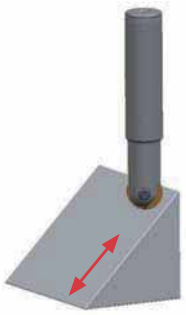


Actual diameter data

ap \ ØD	**Ø08**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø30**	**Ø32**
0.1	1.8	2.0	2.2	2.5	2.8	3.2	3.5	3.6
0.2	2.5	2.8	3.1	3.6	4.0	4.5	4.9	5.0
0.3	3.0	3.4	3.7	4.3	4.9	5.4	6.0	6.2
0.5	3.9	4.4	4.8	5.6	6.2	7.0	7.7	7.9
1.0	5.3	6.0	6.6	7.7	8.7	9.8	10.8	11.1
1.5	6.2	7.1	7.9	9.3	10.5	11.9	13.1	13.5
2.0	6.9	8.0	8.9	10.6	12.0	13.6	15.0	15.5
2.5	7.4	8.7	9.7	11.6	13.2	15.0	16.6	17.2
3.0	7.7	9.2	10.4	12.5	14.3	16.2	18.0	18.7
3.5	7.9	9.5	10.9	13.2	15.2	17.3	19.3	20.0
4.0	8.0	9.8	11.3	13.9	16.0	18.3	20.4	21.2
5.0			11.8	14.8	17.3	20.0	22.4	23.2
6.0			12.0	15.5	18.3	21.4	24.0	25.0
7.0				15.9	19.1	22.4	25.4	26.5
8.0				16.0	19.6	23.3	26.5	27.7
10.0					20.0	24.5	28.3	29.7

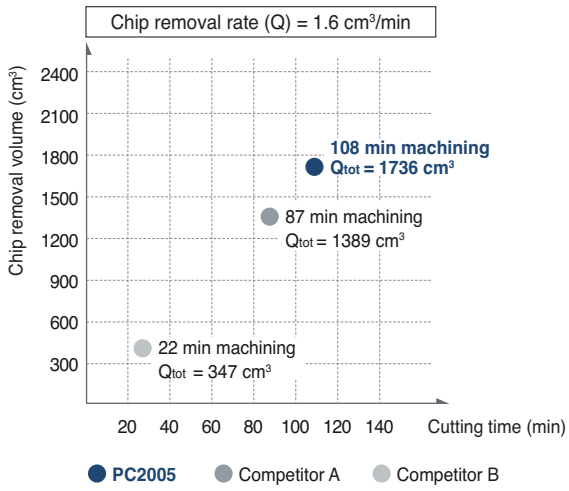
Performance evaluation

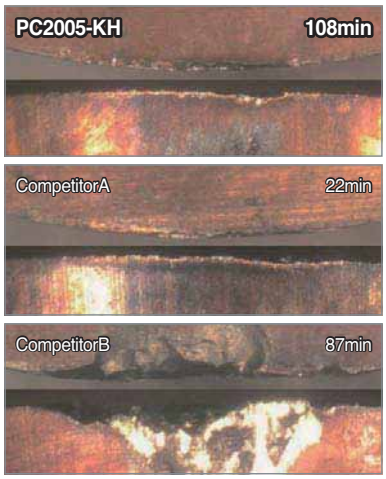
PC2005 tool life test — High hardness heat-treated steel (X100CrMoV5 1, heat-treated HRC60)



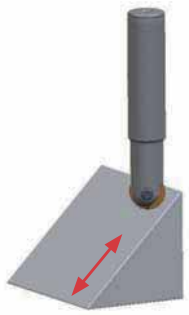
■Cutting conditions
vc (m/min) = 140
fz (mm/t) = 0.15
ap (mm) = 1.2
ae (mm) = 1.2
Coolant (Air)

■Tools
Insert LBH120-KH (PC2005)



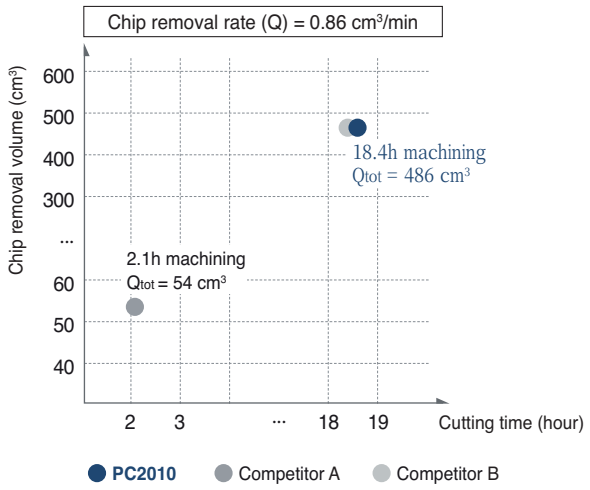


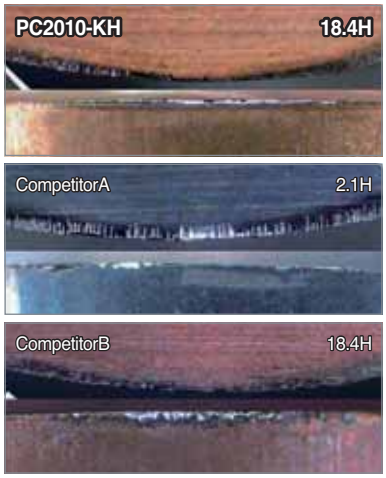
PC2010 tool life test — Pre-hardened steel (X40CrMnNiMo8-6-4)



■Cutting conditions
vc (m/min) = 276
fz (mm/t) = 0.15
ap (mm) = 0.3
ae (mm) = 1.2
Wet

■Tools
Insert LBH120-KH (PC2010)

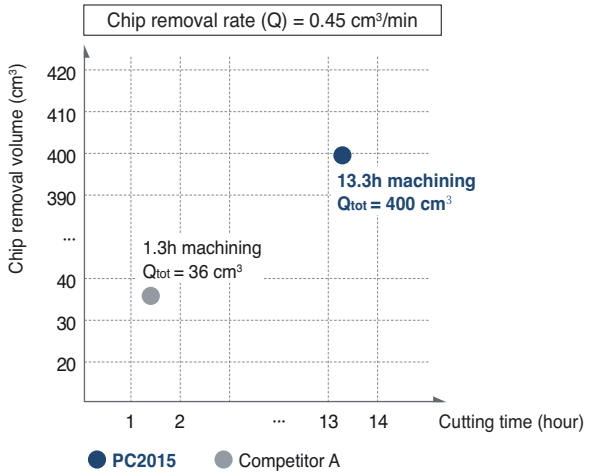


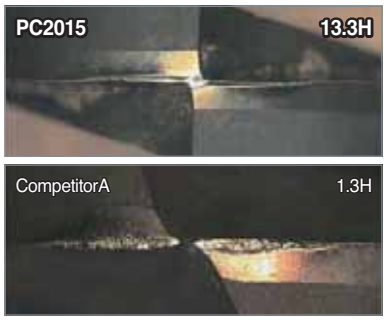


PC2015 tool life test — Carbon steel (C45)

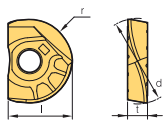
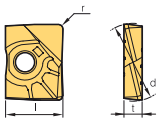
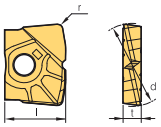
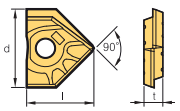
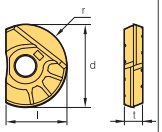
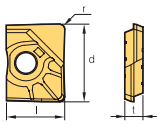
■Cutting conditions
vc (m/min) = 250
fz (mm/t) = 0.35
ap (mm) = 0.3
ae (mm) = 0.3
Coolant (MQL)

■Tools
Insert LBH120 (PC2015)





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 ±0.015			 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-R10 LRH320-R20 LRH330-R20 LRH320-R30 LRH330-R30	LFH320		LBS320	LR320-R10 LR320-R30 LR320-R20

Available inserts **E08, E09**

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

Long tool life due to high hardness grade

GBE

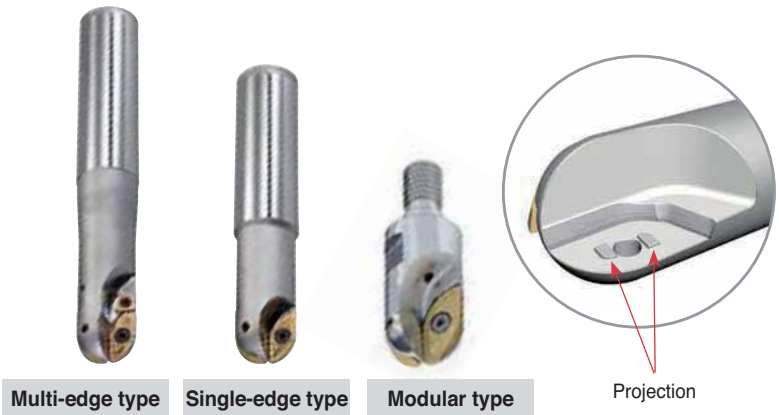
- Indexable ball nose endmill for molds in medium & roughing applications
- Long tool life with high hardness grade
- Helical high accuracy cutting-edge
- Optimized mold machining process with our internal coolant system
- Able to adjust to medium processing in middle & big roughing mold process
- Wide variety of holders in normal & long style holders

Holder code system

GBE	300	–	S	32
Product Name	**Machining Dia.**		**Type**	**Shank Dia.**
General Indexable Ball Endmill	Ø16, Ø18, Ø20, Ø22, Ø25, Ø26, Ø28, Ø30, Ø32, Ø40, Ø50		S: Standard shank L: Long shank	32: Ø32

Internal | **External**

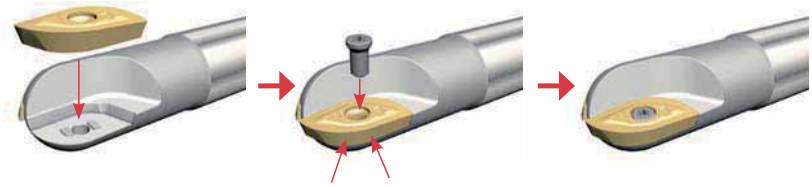
- High accuracy machining & large depth of cut applications
  - Run-out: within 0.05 mm
  - R accuracy: within 0.05 mm
- Various diameters (Ø16, Ø18, Ø20, Ø22, Ø25, Ø26, Ø28, Ø30, Ø32, Ø40, Ø50)
- Minimal cutting resistance due to Helical cutting-edge
- Anti-rotation of insert due to concave bottom & 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**

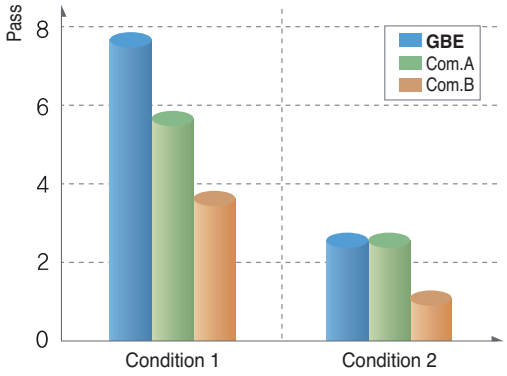
- Various diameters (Ø16, Ø18, Ø20, Ø22, Ø25, Ø26, Ø28, Ø30, Ø32, Ø40, Ø50)
- Improved chip treatment with internal coolant (cutting-edge portion)
- Long tool life & better processing
- Easy insert setting with projection part to prevent vibration during processing

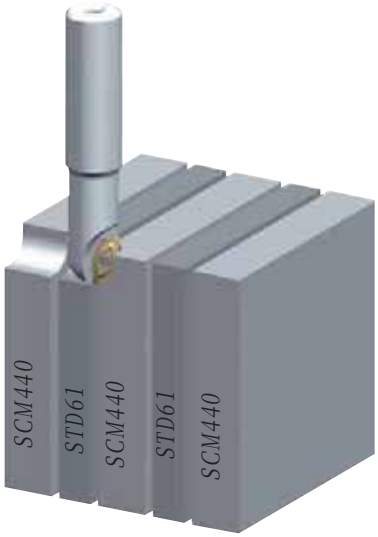
How to set insert



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

Performance evaluation





Cutting condition

Class.	Cutting speed (vc)	Feed (fz)	Depth of cut (ap)	Depth of cut (ae)	Workpiece	Etc.
Condition 1	150 m/min	0.15 mm/t	5 mm	8 mm	STD61 (HRC50) + SCM440 (HRC20)	Dry
Condition 2	100 m/min	0.1 mm/t	8 mm	8 mm		

Inserts/parts

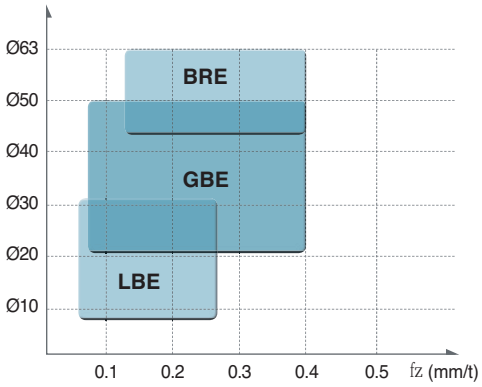
Type	Insert			Parts	
					

Dia.	Internal I/S	External I/S	External main I/S	Screw		Wrench	
				Int./Ext. type	Ext. main type	Int./Ext. type	Ext. main type
Ø16	ZPET080M-MM	ZPET080S-MM	-	FTKA02555S	-	TW08S	-
Ø18	ZPET090M-MM	ZPET090S-MM	-	FTKA0307	-	TW09S	-
Ø20	ZPET100M-MM	ZPET100S-MM	SPMT060304	FTKA0307	ETNA02506	TW09S	TW07P
Ø22	ZPET110M-MM	ZPET110S-MM	SPMT060304	FTKA0408	ETNA02506	TW15S	TW07P
Ø25	ZPET125M-MM	ZPET125S-MM	SPMT060304	FTKA0409	ETNA02506	TW15S	TW07P
Ø26	ZPET130M-MM	ZPET130S-MM	SDMT090308-MM	FTKA0409	ETNA0408	TW15S	TW15S
Ø28	ZPET140M-MM	ZPET140S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20	TW15S
Ø30	ZPET150M-MM	ZPET150S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S
Ø32	ZPET160M-MM	ZPET160S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S
Ø40	ZPET200M-MM	ZPET200S-MM	SPMT120408-MM	FTGA0614	ETNA0511	TW20-100	TW20S
Ø50	ZPET250M-MM	ZPET250S-MM	SPMT120408-MM	FTGA0818	ETNA0511	TW25S	TW20S

Recommended cutting condition

Workpiece	Machining type	Hardness (HRC)	vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)
Carbon, Alloy steel	Flank Groove Deep flank	Under 25	160~250 120~200 160~250	0.1~0.5 0.1~0.5 0.1~0.5	0.3~0.5D 0.3~0.5D 1.0~1.5D	0.2~0.3D - 0.1~0.2D
Carbon, Alloy steel	Flank Groove Deep flank	Under 45	120~200 120~160 120~200	0.1~0.5 0.1~0.5 0.1~0.5	0.3~0.5D 0.3~0.5D 1.0~1.5D	0.2~0.3D - 0.1~0.2D
Mold Alloy steel	Flank Groove Deep flank	30~40	120~200 120~160 120~200	0.1~0.3 0.1~0.3 0.1~0.3	0.3~0.5D 0.3~0.5D 1.0~1.5D	0.2~0.3D - 0.1~0.2D
Cast iron (GC, GCD)	Flank Groove Deep flank	20~30	150~300 150~300 150~300	0.2~0.7 0.2~0.7 0.2~0.7	0.3~0.5D 0.3~0.5D 1.0~1.5D	0.2~0.3D - 0.1~0.2D
Heat-treated steel	Flank Groove Deep flank	50~60	40~100 40~100 40~100	0.1~0.3 0.1~0.3 0.1~0.3	0.3~0.5D 0.3~0.5D 1.0~1.5D	0.2~0.3D - 0.1~0.2D

Line-up for indexable ball endmill

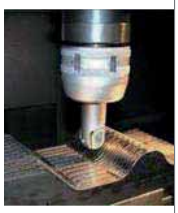


Type	Application				
	Quality	Machining Efficiency	Machining Dia. Equivalence	Economical	Flank Machining with LongEdge
Laser Mill	●	○	◐	○	○
GBE	◐	●	◐	◐	●
BRE	○	●	●	●	●

●: Very Good ◐: Good ○: Normal

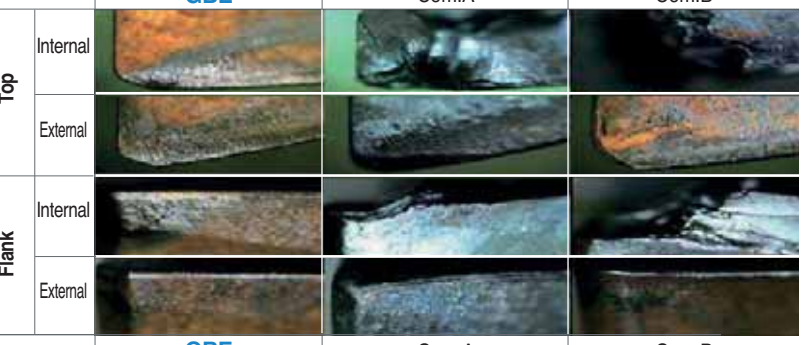
Test result for wear resistance

Cutting condition	Wear resistance photos



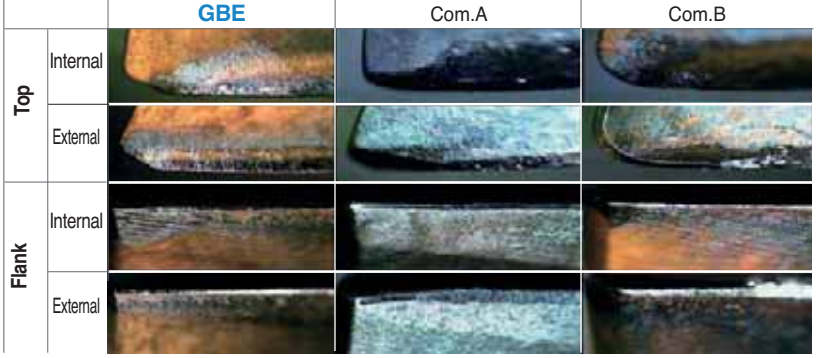
Time engaged : 4 Pass

■**Workpiece**
KP4M (HRC33), Dry
■**Condition**
vc = 280 m/min
fz = 0.25 mm/t
ap = 5~10 mm
ae = 5~10 mm
vf = 1,486 mm/min
n = 2,971 rpm
■**Tool**
Holder: GBE300-S32
Insert: ZPET150M-MM (PC3500)
ZPET150S-MM (PC3500)



Time engaged : 4 Pass

■**Workpiece**
STD11 (HRC20), Dry
■**Condition**
vc = 250 m/min
fz = 0.2 mm/t
ap = 5 mm
ae = 5 mm
vf = 1,062 mm/min
n = 2,653 rpm
■**Tool**
Holder: GBE300-S32
Insert: ZPET150M-MM (PC3500)
ZPET150S-MM (PC3500)



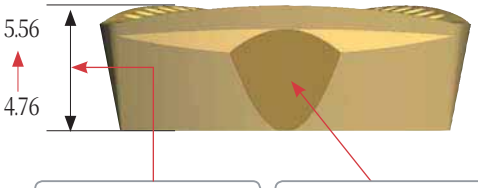
Better tool life with its anti-breakage special surface treatment

BRE

- Cutting performance: Good chip control & Superior cutting performance with optimal cutting-edge line
- High rigidity body: Better tool life and special surface treatment to strengthen the holder
  Easy to set and good durability with TCRX screw
  Good chip control with our 3D flute design & improved external quality
- Insert: Grade available for high speed & feed applications due to it's high wear and breakage resistance providing a stable cutting performance with high cutting-edge toughness and a chip breaker featuring a high rake angle

Multi-edge holder ISO View

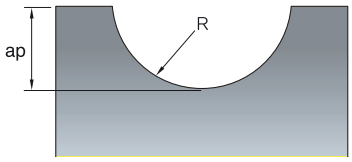
- Good chip flow
- Good heat emission



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

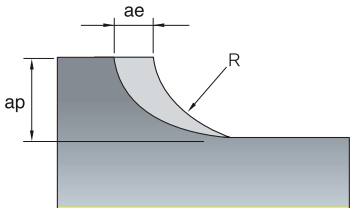
BRE machining type for roughing & Recommended cutting condition

Machining type 1



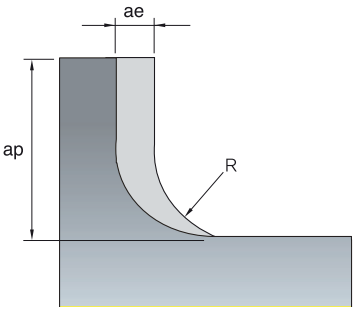
ap = 0.3D-0.5D

Machining type 2



ae = 0.2D-0.3D ap = 0.3D-0.5D

Machining type 3



ae = 0.1D-0.5D ap = 1.2D-1.5D

Workpiece	Machining type	Cutting speed (m/min)	Feed (mm/t)	Grades
Carbon/alloy steel	1 2 3	120~220 120~220 100~180	0.1~0.4 0.2~0.4 0.1~0.3	NCM325 NCM325 NCM325
Alloy steel	1 2 3	100~200 100~200 80~160	0.1~0.4 0.2~0.4 0.1~0.3	NCM325 NCM325 NCM325
Tool steel	1 2 3	80~150 80~150 60~120	0.1~0.3 0.15~0.35 0.1~0.3	NCM325 NCM325 NCM325
High hardness material (HRC35~45)	1 2 3	60~120 60~120 50~80	0.1~0.3 0.1~0.3 0.1~0.2	NCM325 NCM325 NCM325
Cast iron	1 2 3	100~180 100~180 80~160	0.2~0.5 0.2~0.5 0.15~0.4	NCM325 NCM325 NCM325

LBE 08/10/12/16/20/25/30/32

Straight type

Carbide Shank (Ball type)

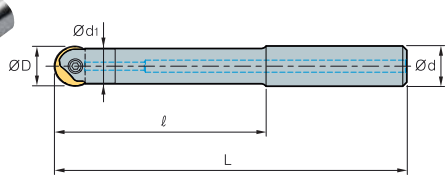


Fig. 1

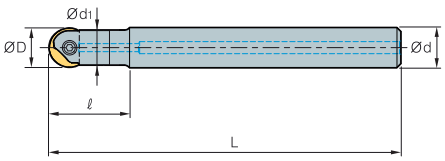
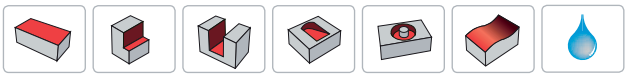


Fig. 2



(mm)

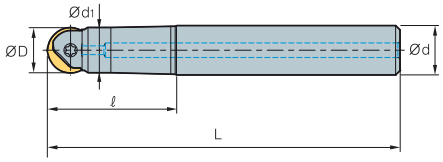
	Designation	Dimensions					Parts		Available inserts (Ø)	Fig.
		ØD	Ød	Ød1	ℓ	L	Clamp screw	Wrench		
LBE	080080S-S08C	8, 9	8	7.5	80	136	ETND02506F	TWP07S	8, 9	1
	080100S-S08C	8, 9	8	7.5	100	156				
	080020S-S08C-130	8, 9	8	7.5	20	130	ETND02506F	TWP07S	8, 9	2
	080020S-S08C-150	8, 9	8	7.5	20	150				
	100080S-S10C	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				

Available inserts **E08, E09**

LBE 08/10/12/16/20/25/30/32

Taper type

Steel Shank (Ball type)



(mm)

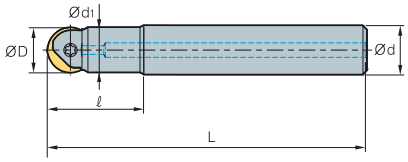
	Designation	Dimensions					Parts		Available inserts (Ø)
		ØD	Ød	Ød1	ℓ	L	Clamp screw	Wrench	
LBE	080035T-S12	8, 9	12	7.5	35	91	ETND02506F	TWP07S	8, 9
	080055T-S12	8, 9	12	7.5	55	111			
	080075T-S12	8, 9	12	7.5	75	131			
	100035T-S12	10, 11	12	9.5	35	91	ETND0307F	TWP08S	10, 11
	100055T-S12	10, 11	12	9.5	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			

Available inserts **E08, E09**

LBE12/16/20/25/30/32

Straight type

Steel Shank (Ball type)



(mm)

	Designation	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

Available inserts **E08, E09**

LRE 10/12/16/20/25/30/32

Straight type

Carbide Shank (Corner R type)

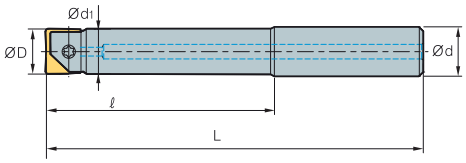


Fig. 1

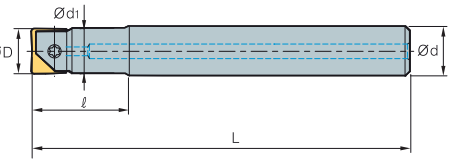
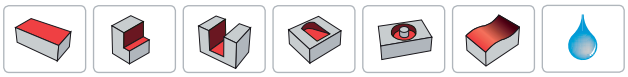


Fig. 2



(mm)

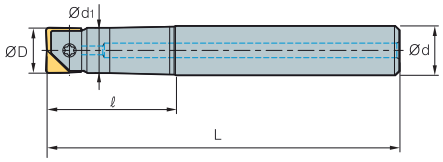
Designation		Dimensions					Parts		Available inserts (Ø)	Fig.
		ØD	Ød	Ød1	ℓ	L	Clamp screw	Wrench		
LRE	100080S-S10C	10, 11	10	9.5	80	136	ETND0307F	TWP08S	10, 11	1
	100120S-S10C	10, 11	10	9.5	120	176				
	100023S-S10C-130	10, 11	10	9.5	23	130	ETND0307F	TWP08S	10, 11	2
	100023S-S10C-170	10, 11	10	9.5	23	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				

Available inserts **E08, E09**

LRE 10/12

Taper type

Steel Shank (Corner R type)



(mm)

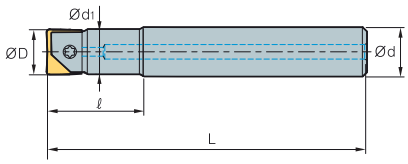
Designation		Dimensions					Parts		Available inserts (Ø)
		ØD	Ød	Ød1	ℓ	L	Clamp screw	Wrench	
LRE	100025T-S12	10, 11	12	9.5	25	111	ETND0307F	TWP08S	10,11
	100050T-S12	10, 11	12	9.5	50	150			
	120060T-S16	12, 13	16	11.5	60	160	ETND03509	TWP10S	12,13

Available inserts **E08, E09**

LRE 12/16/25/30/32

Straight type

Steel Shank (Corner R type)

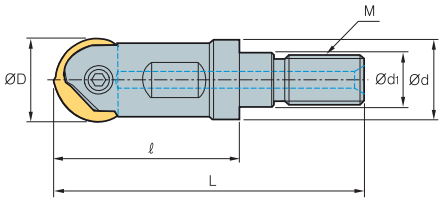


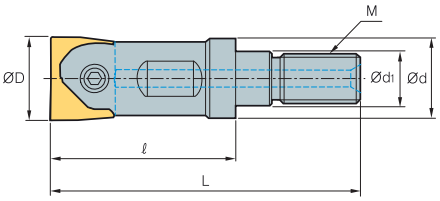
(mm)

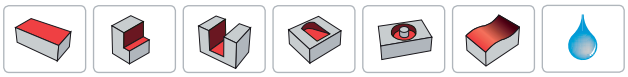
Designation		Dimensions					Parts		Available inserts (Ø)
		ØD	Ød	Ød1	ℓ	L	Clamp screw	Wrench	
LRE	120030S-S12	12, 13	12	11.5	30	111	ETND03509	TWP10S	12, 13
	160050S-S16	16, 17	16	15.5	50	131	ETND0413	TWP15S	16, 17
	160060S-S16	16, 17	16	15.5	60	160			
	200060S-S20	20, 21	20	19.5	60	145	ETKD0516	TWP20	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			

Available inserts **E08, E09**

LBE-MHD







(mm)

	Designation	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

Available inserts **E08, E09** Available adaptors **E371~E372**

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

=

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

BFE

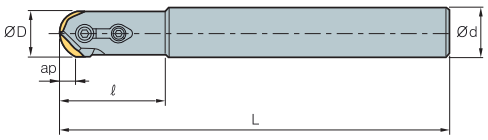


Fig. 1

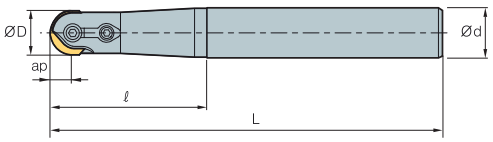
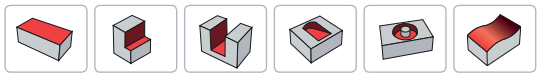


Fig. 2



(mm)

Designation		ØD	Ød	ℓ	L	ap	kg	Fig.	Available inserts
BFE	16-S	16	16	36	140	8.0	0.2	1	RC16
	16-M	16	20	65	170	8.0	0.3	2	
	16-L	16	25	65	200	8.0	0.5	2	
	20-S	20	20	45	160	10.0	0.4	1	RC20
	20-M	20	25	80	200	10.0	0.6	2	
	20-L	20	25	80	250	10.0	0.8	2	
	25-S	25	25	45	160	12.5	0.7	1	RC25
	25-M	25	32	90	210	12.5	1.1	2	
	25-L	25	32	90	300	12.5	1.7	2	
	30-S	30	32	65	175	15.0	0.9	2	RC30
	30-M	30	32	100	250	15.0	1.4	2	
	30-L	30	32	100	350	15.0	2.0	2	
	32-S	32	32	56	175	16.0	0.9	1	RC32
	32-M	32	32	100	250	16.0	1.4	1	
	32-L	32	32	100	350	16.0	2.0	1	

Available inserts

RC

Designation		Coated PC210F	page
RC	16	●	E15
	20	●	
	25	●	
	30		
	32	●	

Recommended cutting condition

Workpiece		Cutting condition vc (m/min)	Cutting condition fz (mm/t)
P	General steel (SS41, SM25C) Over HB180	150 ~ 250	0.10 ~ 0.30
P	Alloy steel (SM55C, SCM) Under HB300	100 ~ 200	0.10 ~ 0.20
K	Cast iron Under HB300	100 ~ 200	0.10 ~ 0.30

Parts

Specification	Screw	Clamp	Clamp screw	Stopper Ring	Wrench
Ø16	FTGA0513	CBH4.5R1	CTX04513	ER03	TW20
Ø20	FTGA0517	CBH4.5R2	CTX04513	ER03	TW20
Ø25	FTGA0621	CBH5R1	CTX0517	ER04	TW20
Ø30, 32	FTGA0826	CBH6R1	CTX0621	ER05	TW25

Available inserts **E15**

GBE (Single-edge)

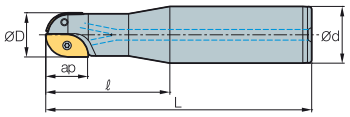


Fig. 1

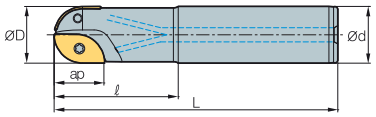


Fig. 2

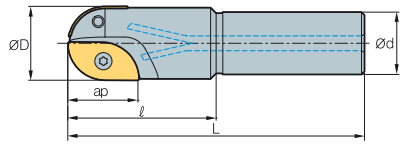
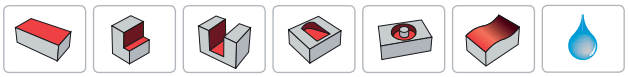


Fig. 3



(mm)

Designation		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	

Available inserts E31

GBE-M (Multi-edge)

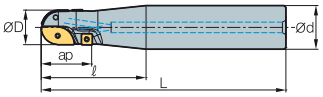


Fig. 1

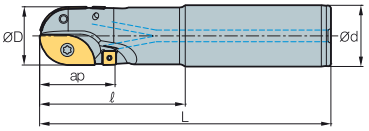


Fig. 2

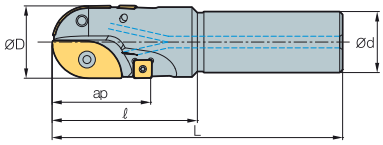


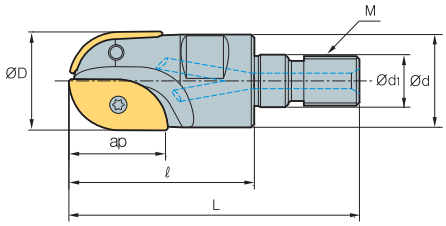
Fig. 3

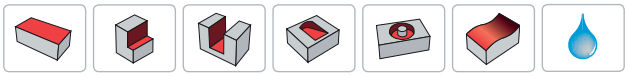
(mm)

Designation		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	

Available inserts **E25, E31**

GBEM





(mm)

Designation		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

Available inserts

ZPET-MM Internal

ZPET-MM External

SPMT Ext. main

SPMT-MM Ext. main

Designation		Coated				page	Designation		Coated				page
		NCM325	PC2510	PC3700	PC5300				NCM325	PC2510	PC3700	PC5300	
SPMT	060304	●				E25	ZPET	080S-MM					
	120408-MM			●	●	E25		090S-MM					
SDMT	090308-MM			●	●	E18		100S-MM		●	●	●	
ZPET	080M-MM							110S-MM					
	090M-MM							125S-MM		●	●	●	
	100M-MM		●	●	●			130S-MM					E31
	110M-MM							140S-MM					
	125M-MM		●		●			150S-MM			●	●	
	130M-MM					E31		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)

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

Available inserts E18, E25, E31 Available adaptors E371~E372

BRE

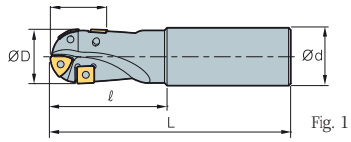


Fig. 1

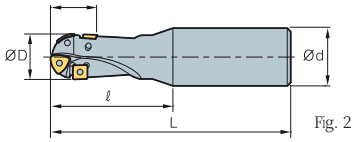


Fig. 2

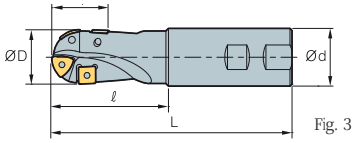


Fig. 3

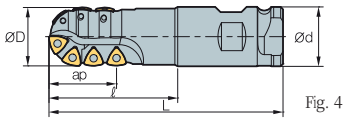


Fig. 4


• AR: 0°~10°
• RR: -3°~0°

(mm)

Designation		Dimensions					Available inserts		Parts		kg	Fig.
		ØD	Ød	ℓ	L	ap	Internal	External	Screw	Wrench		
BRE	20R-S	20	20	50	125	20	ZDMT080310R-MM	SPMT060304	ETNA02506	TW07P	0.25	1
	20R-M	20	20	75	150	20					0.31	
	20R-L	20	25	100	200	20					0.57	2
	20R-SL	20	25	65	125	20					0.33	3
	25R-S	25	25	70	150	23	ZDMT110312.5R-MM	SPMT060304	ETNA02506	TW07P	0.47	1
	25R-M	25	25	95	175	23					0.56	
	25R-L	25	32	100	200	23					0.92	2
	25R-SL	25	25	75	135	23					0.41	3
	32R-S	32	32	85	175	31	ZDMT130416R-MM	SDMT090308-MM	ETNA0408	TW15S	0.87	1
	32R-M	32	32	100	200	31					1.02	
	32R-L	32	32	150	250	31					1.3	
	32R-SL	32	32	75	150	31					0.71	3

Available inserts

SDMT-MM SPMT ZDMT-R-MM



Designation		Coated					page
		NCM325	PC3700	PC5300	PC3525	PC6510	
SDMT	090308-MM		●	●			E18
SPMT	060304	●					E25
ZDMT	080310R-MM		●	●			E30
	110312.5R-MM			●			
	130416R-MM		●	●			

Parts

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

Available inserts **E18, E25, E30**

BRE

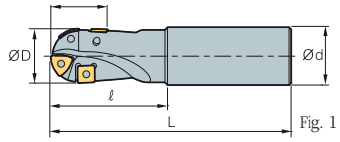


Fig. 1

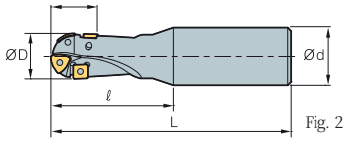


Fig. 2

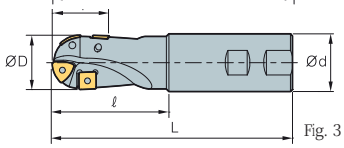


Fig. 3

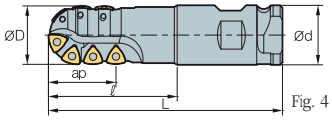


Fig. 4


• AR: 0°~10°
• RR: -3°~0°

(mm)

Designation		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	1.37	1
	40R-S-40	40	40	85	175	41					1.35	
	40R-M	40	42	100	200	41					1.62	
	40R-M-40	40	40	100	200	41					1.6	
	40R-L	40	42	150	250	41					2.1	
	40R-L-40	40	40	150	250	41					2	
	40R-SL	40	42	80	160	41					1.21	3
	40R-SL-40	40	40	80	160	41					1.2	
	50R-S	50	42	100	200	45	ZPMT160525R-MM	SPMT120408-MM SPMT120508-MMN	ETNA0511	TW20-100	2.02	1
	50R-S-40	50	40	100	200	45					1.93	
	50R-L	50	42	100	300	45					3.1	
	50R-L-40	50	40	100	300	45					2.92	
	50R-SL	50	42	100	250	45					2.56	3
	50R-SL-40	50	40	100	250	45					2.5	
	63R-S	63	42	100	200	52	ZPMT160531.5R-MM	SPMT120408-MM SPMT120508-MMN	ETNA0511	TW20-100	2.41	1
	63R-S-40	63	40	100	200	52					2.4	
	63R-L	63	42	100	300	52					3.5	
	63R-L-40	63	40	100	300	52					3.3	
	63R-SL	63	42	100	250	52					2.95	3
	63R-SL-40	63	40	100	250	52					2.9	
	40XR-SC40	40	40	110	200	54	ZPMT160520R-MM		ETNA0511	TW20-100	1.43	4
	40XR-LC40	40	40	150	250	54					1.89	
	50XR-SC50.8	50	50.8	110	200	57	ZPMT160525R-MM ZPMT160525R-MR		ETNA0511	TW20-100	2.34	4
	50XR-LC50.8	50	50.8	150	250	57					3.06	

Available inserts

SPMT-MM ZPMT-R-MM ZPMT-R-MR

Designation		Coated					page
		NCM325	PC3700	PC5300	PC3525	PC6510	
SPMT	120408-MM		●	●			E25
	120508-MMN						
ZPMT	160520R-MM		●	●			E31
	160525R-MM		●	●			
	160525R-MR						
	160531.5R-MM			●			

Parts

Specification	Screw	Wrench
Ø40~Ø63	ETNA0511	TW20-100

Available inserts E25, E31

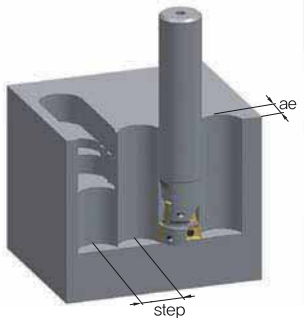
Multifunctional milling tool for mold making

HAVE

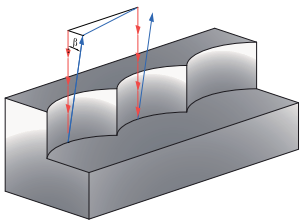
- Tools for Z-axis feed plunge machining to cut faster and more effectively in vertical machining
- Able to utilize the full diameter of the tools, thanks to the position and design of the inserts

Maximum step in vertical machining

ae	Diameter										
	16	17	20	21	25	26	32	33	35	40	50
	max step (mm)										
1	7.7	8	8.7	8.9	9.7	10	11.1	11.3	11.6	12.4	14
2	10.5	10.9	12	12.3	13.5	13.8	15.4	15.7	16.2	17.4	19.5
3	12.4	12.9	14.2	14.6	16.2	16.6	18.6	18.9	19.5	21	23.7
4	13.8	14.4	16	16.4	18.3	18.7	21.1	21.5	22.2	24	27.1
5	14.8	15.4	17.3	17.8	20	20.4	23.2	23.6	24.4	26.4	30
6	15.4	16.2	18.3	18.9	21.3	21.9	24.9	25.4	26.3	28.5	32.4
7	15.8	16.7	19	19.7	22.4	23	26.4	26.9	28	30.3	34.6
8	16	16.9	19.5	20.3	23.3	24	27.7	28.2	29.3	32	36.6
9	15.8	16.9	19.9	20.7	24	24.7	28.7	29.3	30.5	33.4	38.4
10	15.4	16.7	20	20.9	24.4	25.2	29.6	30.3	31.6	34.6	40
11	14.8	16.2	19.9	20.9	24.8	25.6	30.3	31.1	32.4	35.7	41.4
12	13.8	15.4	19.5	20.7	24.9	25.9	30.9	31.7	33.2	36.6	42.7
13	12.4	14.4	19	20.3	24.9	26	31.4	32.2	33.8	37.4	43.8
14	10.5	12.9	18.3	19.7	24.8	25.9	31.7	32.6	34.2	38.1	44.9
15	7.7	10.9	17.3	18.9	24.4	25.6	31.9	32.8	34.6	38.7	45.8
16	-	8	16	17.8	24	25.2	32	32.9	34.8	39.1	46.6
17	-	-	14.2	16.4	23.3	24.7	31.9	32.9	34.9	39.5	47.3
18	-	-	12	14.6	22.4	24	31.7	32.8	34.9	39.7	48
19	-	-	8.7	12.3	21.3	23	31.4	32.6	34.8	39.9	48.5
20	-	-	-	8.9	20	21.9	30.9	32.2	34.6	40	48.9
21	-	-	-	-	18.3	20.4	30.3	31.7	34.2	39.9	49.3
22	-	-	-	-	16.2	18.7	29.6	31.1	33.8	39.7	49.6
23	-	-	-	-	13.5	16.6	28.7	30.3	33.2	39.5	49.8
24	-	-	-	-	9.7	13.8	27.7	29.3	32.4	39.1	49.9
25	-	-	-	-	-	10	26.4	28.2	31.6	38.7	50



Programming in vertical cutting



Vertical machining route

Rapid feed

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

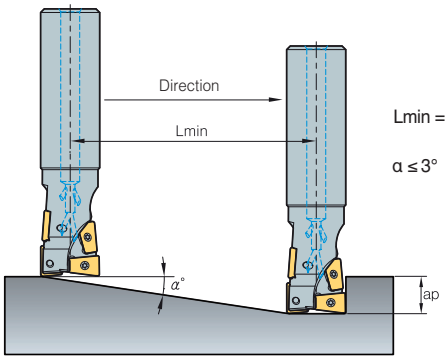
- Reduce 30% of feed till 3 mm machining
- Have the tool be away from the workpiece more than 1° (b) after finishing the machining or when moving the tool to the next step.

Cutting condition

Designation		Hardness	Grades	Cutting condition	Ø16, 17		Ø20, 21		Ø25, 26		Ø32, 33		Ø35		Ø40		Ø50	
				vc (m/min)	Feed (mm/rev)	Step (mm)	Feed (mm/rev)	Step (mm)	Feed (mm/rev)	Step (mm)	Feed (mm/rev)	Step (mm)	Feed (mm/rev)	Step (mm)	Feed (mm/rev)	Step (mm)	Feed (mm/rev)	Step (mm)
P	Mild steel, Low Carbon steel (SS400)	Under 200HB	PC3500	200 (150~250)	0.03	0.20	0.04	0.30	0.05	0.30	0.05	0.30	0.06	0.30	0.06	0.30	0.07	0.30
P	Carbon steel, Alloy steel (SM50C, SCM440)	Under 100HRC	PC3500	180 (120~220)	0.03	0.20	0.04	0.30	0.05	0.30	0.05	0.30	0.05	0.30	0.06	0.30	0.06	0.30
M	Stainless steel (STS)	Under 270HB	PC5300	160 (120~200)	0.03	0.15	0.04	0.25	0.05	0.25	0.05	0.25	0.05	0.25	0.06	0.25	0.06	0.25
K	Cast iron (GC, GCD)	350N/mm²	PC5300	200 (150~250)	0.04	0.40	0.05	0.50	0.06	0.50	0.06	0.50	0.06	0.50	0.07	0.50	0.07	0.50
H	Hardened steel	40~55HRC	PC5300	80 (50~120)	0.03	0.15	0.03	0.25	0.04	0.25	0.04	0.25	0.04	0.25	0.04	0.25	0.05	0.25

※ Please note - Step machining is required for aspect ratio under 0.5D or initial drilling

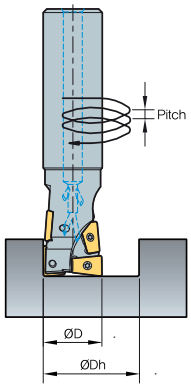
1. Ramping

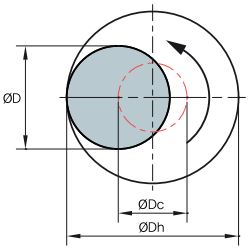


$$L_{min} = \frac{ap}{\tan \alpha} \text{ (mm)}$$

$\alpha \leq 3°$

2. Helical cutting





ØDc = ØDh-ØD

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

Cutting condition for ramping and helical operation

	Designation	Hardness	Grades	Cutting Speed	Ø16, 17				Ø20, 21				Ø25, 26				Ø32, 33				Ø35				Ø40				Ø50			
				vc (m/min)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)
P	Mild steel, Low Carbon steel (SS400)	≤ 200HB	PC3500	200 (150~250)	19 ~30	0.5D ~1D	0.15 ~0.12	0.35 ~1.61	23 ~28	0.5D ~1D	0.18 ~0.12	0.35 ~2.07	29 ~47	0.5D ~1D	0.2 ~0.15	0.46 ~2.53	37 ~60	0.5D ~1D	0.25 ~0.2	0.58 ~3.23	41 ~65	0.5D ~1D	0.28 ~0.2	0.69 ~3.46	47 ~75	0.5D ~1D	0.3 ~0.2	0.81 ~4.03	58 ~95	0.5D ~1D	0.35 ~0.25	0.92 ~5.18
P	Carbon steel, Alloy Steel (SM50C,SCM440)	≤ 100HB	PC3500	180 (120~220)	19 ~30	0.5D ~1D	0.15 ~0.1	0.26 ~1.23	23 ~28	0.5D ~1D	0.16 ~0.12	0.26 ~1.58	29 ~47	0.5D ~1D	0.18 ~0.12	0.35 ~1.93	37 ~60	0.5D ~1D	0.2 ~0.15	0.44 ~2.46	41 ~65	0.5D ~1D	0.22 ~0.17	0.53 ~2.63	47 ~75	0.5D ~1D	0.25 ~0.2	0.61 ~3.07	58 ~95	0.5D ~1D	0.28 ~0.25	0.70 ~3.95
M	Stainless steel (STS)	≤ 270HB	PC5300	160 (120~200)	19 ~30	0.2D ~0.5D	0.13 ~0.1	0.18 ~0.84	23 ~28	0.2D ~0.5D	0.15 ~0.12	0.18 ~1.09	29 ~47	0.2D ~0.5D	0.18 ~0.12	0.24 ~1.33	37 ~60	0.2D ~0.5D	0.2 ~0.15	0.24 ~1.33	41 ~65	0.2D ~0.5D	0.22 ~0.17	0.36 ~1.81	47 ~75	0.2D ~0.5D	0.25 ~0.2	0.42 ~2.11	58 ~95	0.2D ~0.5D	58 ~95	0.48 ~2.71
K	Cast iron (GC, GCD)	≤ 350N/mm²	PC5300	200 (150~250)	19 ~30	0.7D ~1D	0.17 ~0.12	0.43 ~2.0	23 ~28	0.7D ~1D	0.2 ~0.12	0.42 ~2.57	29 ~47	0.7D ~1D	0.2 ~0.15	0.57 ~3.14	37 ~60	0.7D ~1D	0.25 ~0.2	0.71 ~3.99	41 ~65	0.7D ~1D	0.28 ~0.2	0.86 ~4.28	47 ~75	0.7D ~1D	0.3 ~0.2	1.0 ~4.99	58 ~95	0.7D ~1D	0.35 ~0.25	1.14 ~6.42
H	Hardened steel	40~55HRC	PC5300	80 (50~120)	19 ~30	0.2D ~0.5D	0.1 ~0.05	0.18 ~0.84	23 ~28	0.2D ~0.5D	0.12 ~0.07	0.18 ~1.09	29 ~47	0.2D ~0.5D	0.13 ~0.1	0.24 ~1.33	37 ~60	0.2D ~0.5D	0.15 ~0.12	0.30 ~1.69	41 ~65	0.2D ~0.5D	0.17 ~0.13	0.36 ~1.81	47 ~75	0.2D ~0.5D	0.18 ~0.15	0.42 ~2.11	58 ~95	0.2D ~0.5D	0.2 ~0.15	0.48 ~2.71

Recommended cutting condition in shouldering

	Designation	Hardness	Grades	Cutting Speed	Ø16,17			Ø20,21			Ø25,26			Ø32,33			Ø35			Ø40			Ø50		
				vc (m/min)	max ap (mm)	max ae (mm)	max fz (mm/t)	max ap (mm)	max ae (mm)	max fz (mm/t)	max ap (mm)	max ae (mm)	max fz (mm/t)	max ap (mm)	max ae (mm)	max fz (mm/t)	max ap (mm)	max ae (mm)	max fz (mm/t)	max ap (mm)	max ae (mm)	max fz (mm/t)	max ap (mm)	max ae (mm)	max fz (mm/t)
P	Mild steel, Low Carbon steel (SS400)	≤ 200HB	PC3500	200 (150~250)	17	8	0.25	22	10	0.3	27	13	0.35	35	16	0.4	40	18	0.45	44	20	0.5	55	25	0.6
P	Carbon steel, Alloy Steel (SM50C,SCM440)	≤ 100HB	PC3500	180 (120~220)	17	8	0.2	22	10	0.25	27	13	0.3	35	16	0.35	40	18	0.4	44	20	0.4	55	25	0.5
M	Stainless steel (STS)	≤ 270HB	PC5300	160 (120~200)	17	8	0.2	22	10	0.25	27	13	0.3	35	16	0.35	40	18	0.4	44	20	0.4	55	25	0.5
K	Cast iron (GC, GCD)	≤ 350N/mm²	PC5300	200 (150~250)	17	8	0.25	22	10	0.3	27	13	0.35	35	16	0.4	40	18	0.45	44	20	0.5	55	25	0.6
H	Hardened steel	40~55HRC	PC5300	80 (50~120)	17	5	0.15	22	6	0.2	27	7	0.22	35	8	0.25	40	9	0.3	44	10	0.3	55	14	0.35

Recommended cutting condition in grooving

	Designation	Hardness	Grades	Cutting Speed	Ø16,17		Ø20,21		Ø25,26		Ø32,33		Ø35		Ø40		Ø50	
				vc (m/min)	max ap (mm)	max fz (mm/t)	max ap (mm)	max fz (mm/t)	max ap (mm)	max fz (mm/t)	max ap (mm)	max fz (mm/t)	max ap (mm)	max fz (mm/t)	max ap (mm)	max fz (mm/t)	max ap (mm)	max fz (mm/t)
P	Mild steel, Low Carbon steel (SS400)	≤ 200HB	PC3500	200 (150~250)	17	0.15	22	0.18	27	0.2	35	0.25	40	0.27	44	0.3	55	0.35
P	Carbon steel, Alloy Steel (SM50C,SCM440)	≤ 100HB	PC3500	180 (120~220)	17	0.15	22	0.15	27	0.18	35	0.2	40	0.22	44	0.25	55	0.3
M	Stainless steel (STS)	≤ 270HB	PC5300	160 (120~200)	17	0.15	22	0.15	27	0.18	35	0.2	40	0.22	44	0.25	55	0.3
K	Cast iron (GC, GCD)	≤ 350N/mm²	PC5300	200 (150~250)	17	0.15	22	0.18	27	0.2	35	0.25	40	0.27	44	0.3	55	0.35
H	Hardened steel	40~55HRC	PC5300	80 (50~120)	12	0.1	14	0.12	17	0.15	22	0.15	25	0.18	28	0.18	35	0.22

HAVE (Multi-edge)

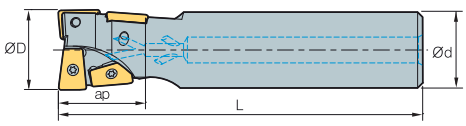


Fig. 1

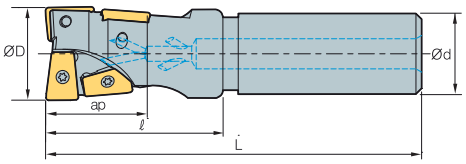


Fig. 2

AA
90°

- AR: 7°~12°
- RR: -12°~ -4°

(mm)

Designation			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	

Available inserts

XPMT-MM

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XPMT	0802ER-MM														●					E30
	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	

Available inserts **E30**

HAVE (Single-edge)

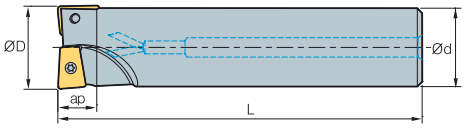


Fig. 1

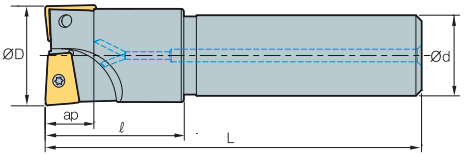


Fig. 2

AA
90°

- AR: 7°~12°
- RR: -12°~ -4°

(mm)

Designation			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	

Available inserts

XPMT-MM

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XPMT	0802ER-MM														●					E30
	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	

Available inserts E30

High productivity with optimized grade for high speed machining

O-ring Cutter

- Optimized for grooving the seat of an O-ring in a plastic mold
- Guarantees superior surface roughness compared to HSS and brazed tool
- High productivity with optimized grade for high speed machining
- Reduced time for regrinding and tool alignment
- Special types are available for quotation

Holder code system

ORC – P30

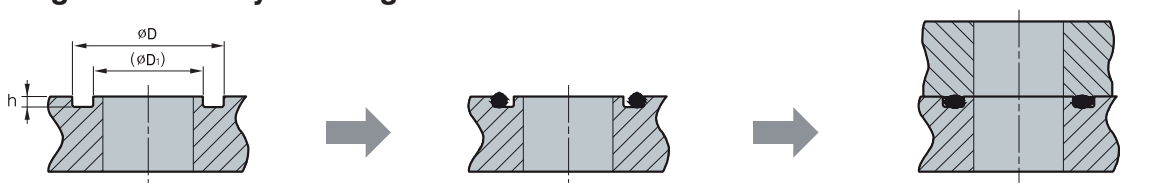
- ORC: O-ring Cutter
- P30: O-ring size

Insert code system

ORG – 325

- ORG: O-ring Groove (Grooving insert)
- 325: Width of groove (325: 3.25)

Grooving and assembly of O-ring



Grooving seat for O-ring (O-ring cutter) → O-ring on the seat → Engaging the upper punch and lower punch of a plastic mold

(mm)

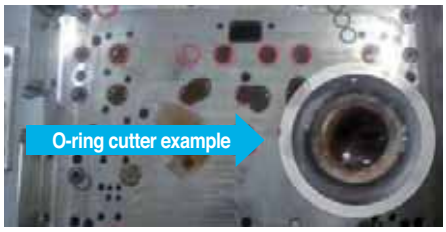
O-ring size	ØD	(ØD1)	h ± 0.05
P08	11.0	5.8	1.40
P09	12.0	6.8	
P10	13.0	7.8	
P11	15.0	8.5	1.80
P12	16.0	9.5	
P14	18.0	11.5	
P15	19.0	12.5	
P16	20.0	13.5	
P18	22.0	15.5	
P20	24.0	17.5	
P21	25.0	18.5	
P22	26.0	19.5	
P24	30.0	20.6	2.70
P25	31.0	21.6	

O-ring size	ØD	(ØD1)	h ± 0.05
P26	32.0	22.6	2.70
P28	34.0	24.6	
P29	35.0	25.6	
P30	36.0	26.6	
P31	37.0	27.6	
P32	38.0	28.6	
P34	40.0	30.6	
P35	41.0	31.6	
P38	44.0	34.6	
G40	46.0	36.6	
G25	30.0	21.8	2.40
G30	35.0	26.8	
G35	40.0	31.8	
G40	45.0	36.8	

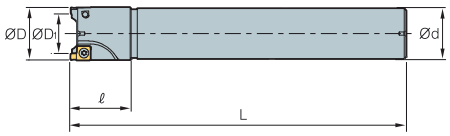
Recommended cutting condition

Workpiece	fz (mm/t)	vc (m/min)
		Coating
		PC3500
Stainless Steel (STS304)	0.03~0.12	60~130
Carbon Steel (SM□□C)	0.05~0.15	80~150
Alloy Steel (SCM)	0.05~0.15	80~150
Hardened Steel (STD, NAK)	0.03~0.12	60~130

Machining Example



ORC



(mm)

Designation			ØD	Ød1	Ød	ℓ	L	Available inserts	O-Ring size
ORC -	P08	1	11.0	5.7	16	30	150	ORG265	P08
	P09	1	12.0	6.7	16	30	150	ORG265	P09
	P10	1	13.0	7.7	16	30	150	ORG265	P10
	P11	1	15.0	8.5	16	30	150	ORG325	P11
	P12	2	16.0	9.5	16	30	200	ORG325	P12
	P14	2	18.0	11.5	20	30	200	ORG325	P14
	P15	2	19.0	12.5	20	30	200	ORG325	P15
	P16	2	20.0	13.5	20	30	200	ORG325	P16
	P18	2	22.0	15.5	20	30	200	ORG325	P18
	P20	2	24.0	17.5	25	30	200	ORG325	P20
	P21	2	25.0	18.5	25	30	200	ORG325	P21
	P22	2	26.0	19.5	25	30	200	ORG325	P22
	P24	2	30.0	20.6	32	40	250	ORG470	P24
	P25	2	31.0	21.6	32	40	250	ORG470	P25
	P26	2	32.0	22.6	32	40	250	ORG470	P26
	P28	2	34.0	24.6	32	40	250	ORG470	P28
	P29	2	35.0	25.6	32	40	250	ORG470	P29
	P30	2	36.0	26.6	32	40	250	ORG470	P30
	P31	2	37.0	27.6	32	40	250	ORG470	P31
	P32	2	38.0	28.6	32	40	250	ORG470	P32
	P34	2	40.0	30.6	42	40	250	ORG470	P34
	P35	2	41.0	31.6	42	40	250	ORG470	P35
	P38	2	44.0	34.6	42	40	250	ORG470	P38
	P40	2	46.0	36.6	42	40	250	ORG470	P40
ORC -	G25	2	30.0	21.9	32	40	250	ORG405	G25
	G30	2	35.0	26.9	32	40	250	ORG405	G30
	G35	2	40.0	31.9	42	40	250	ORG405	G35
	G40	2	45.0	36.9	42	40	250	ORG405	G40

Available inserts

ORG

Cutter Designation	Designation		Cermet		Coated												Uncoated			page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
ORC-P08~P10	ORG	265										●									E14
ORC-P11~P22		325										●									
ORC-P24~P40		470										●									
ORC-G25~G40		405										●									

Parts

Specification	Screw	Wrench
Ø11~Ø26	FTKA0307	TW09S
Ø30~Ø46	FTGA03508	TW15S
Ø30~Ø45		

Available inserts E14

All applications for chamfers

Chamfer Tool

- All chamfer applications
- Chamfer angles 15°, 30°, 45°, 60° for a variety of customer's needs
- The long cutting-edge provides a wide chamfering range

Back & Front Chamfer Tools

Long Chamfer Tools

Code system

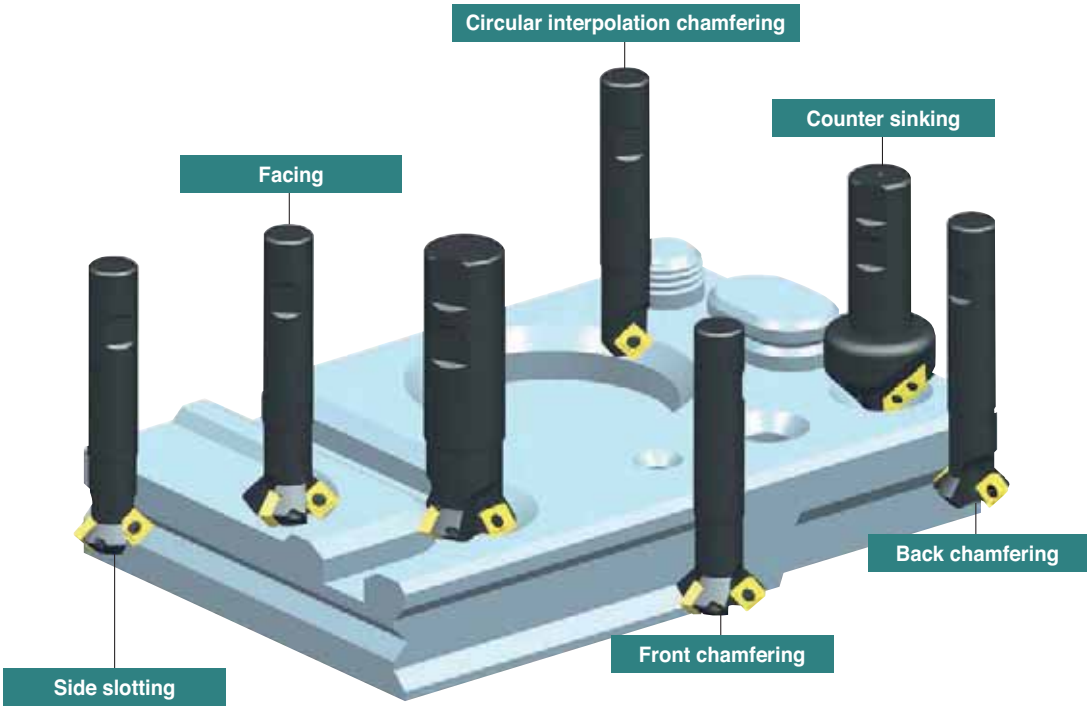
CE 45 – 11 25 R – S 20

Chamfer Endmill	Chamfer angle	Inscribed circle of insert	Min. Cutting Dia.	Hand	Overall length	Shank Dia.
	45°	11: SPMT110408-KC 12: SPMN120308 31: XCET310404ER-KC	Ø25	R: Right L: Left	S: Standard M: Middle L: Long	Ø20

Recommended cutting condition

Workpiece	Grades	ØD (Ø5~Ø20)		ØD (Ø25~Ø35)	
		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)
P	PC3500	160~270	0.05~0.25	160~270	0.05~0.25
	PC5300	190~310		190~310	
	ST30A	60~100		60~100	
M	PC5300	100~160	0.05~0.20	100~160	0.10~0.30
	PC5400	70~120		70~~120	
K	PC5300	110~180	0.10~0.30	110~180	0.30~0.50
	G10	50~90		50~90	

Application example



Multi-functional Chamfer Tool

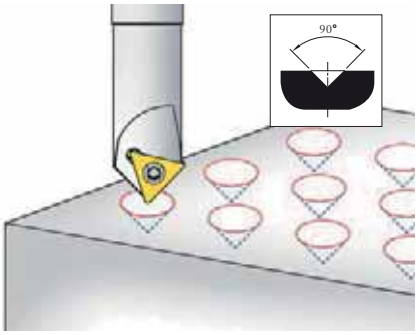
Code system

CE 45 – 16 00 R – S 20

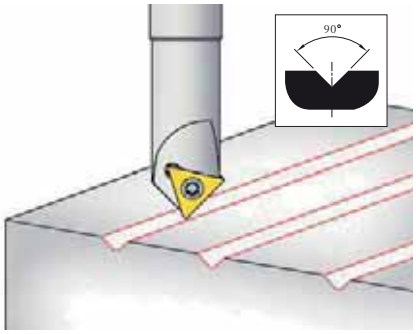
Chamfer Endmill	Chamfer angle	Inscribed circle of insert	Min. Cutting Dia.	Hand	Overall length	Shank Dia.
	45°	16: TWX16R-KC 22: TWX22R-KC	Ø0	R: Right L: Left	S: 90,110 L: 200	Ø12 Ø20 Ø25

Application area and recommended cutting condition

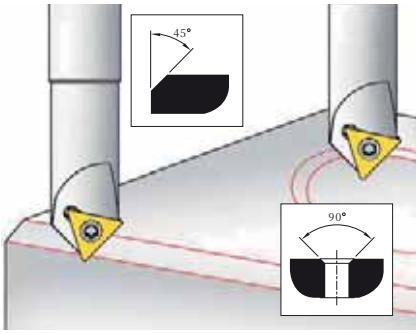
Centering



Grooving



Chamfering



Workpiece	Hardness (HRC)	Centering, Grooving		Chamfering	
		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)
Mild steel, Carbon steel, Alloy steel	Under HRC 30	80~200	0.01~0.04	100~250	0.04~0.06
High Carbon steel, Alloy steel	HRC 30, 40	150~250	0.02~0.06	150~300	0.05~0.10
Aluminum, Copper	-	150~300	0.04~0.08	150~350	0.05~0.10
Cast iron	-	80~150	0.02~0.06	100~250	0.05~0.10
Stainless steel	-	60~120	0.01~0.03	60~150	0.03~0.06
HRSA		60~80	0.01~0.03	60~100	0.03~0.06

Note) Please keep fz. backtouch & chipping one caused by wrong fz

Machining example

Chamfering

Grooving

Centering

Solid Chamfer Tool

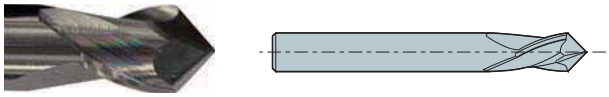
Code system

CCT 090 T – 080 L

Type	Chamfer angle	Cutting-edge	Diameter	Tool length
CCT: Centering & Chamfering Tool CET: Centering & Chamfering Endmill Tool	060: 60° 090: 90° 120: 120°	None: Single T: Twin	080: Ø8.0	None: Standard L: Long

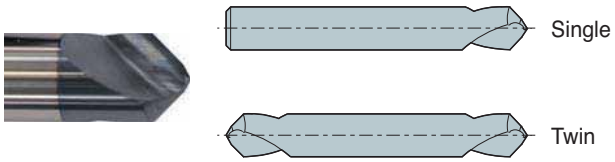
Features

CET (Centering & Chamfering Endmill Tool)



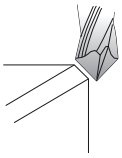
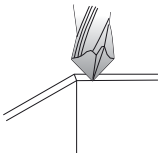
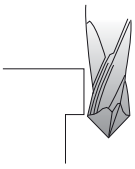
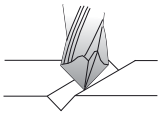
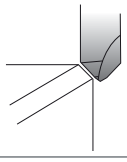
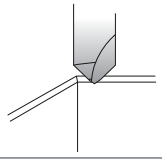
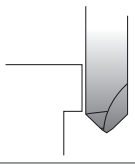
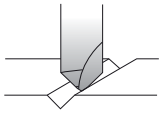
- For internal chamfering up to 0.5 mm
- Can be applied to side milling and easy to regrinding

CCT (Centering & Chamfering Tool)



- Chipping resistance realizes machining in high speed due to double point angle
- Lowers cutting load due to web thinning

CET/CCT Application example

Type	Centering	Hole Chamfering	Chamfering (External)	Chamfering (Internal)	Side milling	Slot milling
Applications (CET)						
60°	×	●	●	●~▲	●	×
90°	▲	●	●	●	●	●~▲
120°	●	●	●	●	●	●
Applications (CCT)						
60°	●	●	●~▲	▲~×	×	×
90°	●	●	●~▲	▲~×	×	×
120°	●	●	●	●	×	●

CE (Back & Front)

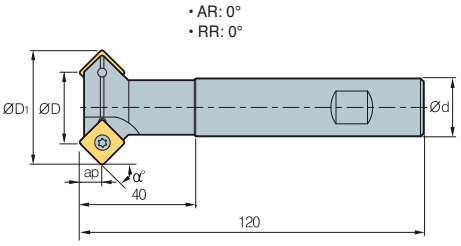


Fig. 1

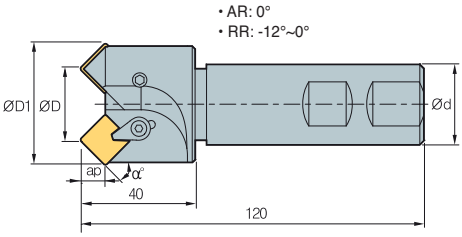


Fig. 2

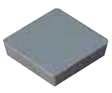
(mm)

Designation			ØD	$ØD_1$	Ød	ap	Fig.	Available inserts	α° (Chamfer angle)		Machining range (Min~Max)	Uses
									Front	Back		
CE	15-1125R-S20	2	25	30.5	20	9.5	1	SPMT110408-KC	15°	-	Ø25~Ø30	Front chamfering
	30-1125R-S20	2	25	35.5	20	8.5	1		30°	60°	Ø25~Ø35	Front, Back chamfering
	45-1107R-S20	1	7	21.9	20	7.0	1		45°	-	Ø7~Ø21	Front chamfering
	45-1119R-S20	2	19	33.9	20	7.0	1		45°	45°	Ø19~Ø33	Front, Back chamfering
	45-1125R-S20	3	25	39.9	20	7.0	1		45°	45°	Ø25~Ø39	Front, Back chamfering
	60-1125R-S32	3	25	43.3	32	5.0	1		60°	30°	Ø25~Ø42	Front, Back chamfering
	45-1207R-S32	1	7	23.3	32	7.8	2	SPMN120308	45°	-	Ø7~Ø22	Front chamfering
	45-1220R-S32	2	20	37.3	32	7.8	2		45°	-	Ø21~Ø36	Front chamfering
	45-1225R-S32	2	25	42.3	32	7.8	2		45°	-	Ø26~Ø41	Front chamfering
	45-1235R-S32	2	35	52.3	32	7.8	2		45°	-	Ø36~Ø51	Front chamfering

Available inserts

SPMT-KC

SPMN



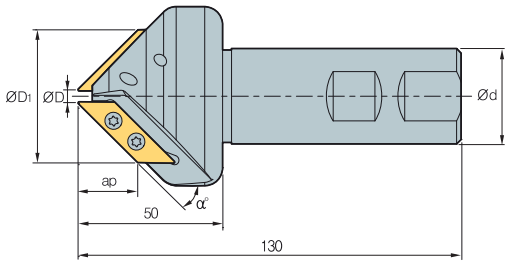
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SPMT	110408-KC										●						●	●		E25
SPMN	120308																●			

Parts

Specification	Screw	Clamp	C-Ring	Wrench	Wrench
Ø7~Ø25 (1100 type)	FTKA0408	-	-	TW15S	-
Ø7~Ø35 (1200 type)	CHX0617L	CH6R2	CR05	-	HW30L

Available inserts E25

CE (Long chamfer)



• AR: -5°~1°
• RR: 0°

(mm)

Designation			ØD	ØD1	Ød	ap	α° (Chamfer angle)	Machining range (Min~Max)	Uses
CE	30-3105R-S32	1	5	35	32	26	30°	Ø5~Ø35	Front Chamfering
	45-3105R-S32	2	5	48	32	21	45°	Ø5~Ø48	Front Chamfering
	60-3105R-S32	2	5	57	32	15	60°	Ø5~Ø57	Front Chamfering

Available inserts

XCET-KC

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XCET	310404ER-KC										●						●	●		E29

Parts

Specification	Screw	Wrench
Ø5	FTKA03510	TW15S

Available inserts E29

CE (Multi-functional)

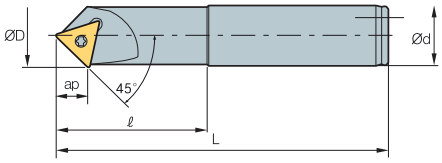


Fig. 1

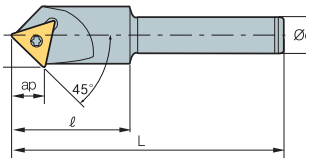
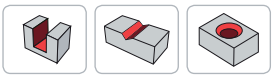


Fig. 2



• AR: -12°~15°
• RR: 0°

(mm)

Designation		ØD	Ød	ℓ	L	ap	Fig.	Available Inserts	Machining range (Min~Max)	Uses
CE	45-1600R-S12	21.2	12	40	90	10	2	TWX16R-KC	Ø0 ~ Ø20	Centering Grooving Chamfering
	45-1600R-S20	21.2	20	50	110	10	1	TWX16R-KC	Ø0 ~ Ø20	
	45-1600R-L20	21.2	20	60	200	10	1	TWX16R-KC	Ø0 ~ Ø20	
	45-2200R-S12	28.8	12	40	90	14	2	TWX22R-KC	Ø0 ~ Ø27	
	45-2200R-S25	28.8	25	50	110	14	1	TWX22R-KC	Ø0 ~ Ø27	
	45-2200R-L25	28.8	25	60	200	14	1	TWX22R-KC	Ø0 ~ Ø27	

Available inserts

TWX-KC

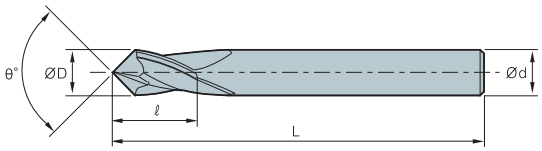
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TWX	16R-KC										●				●					E27
	22R-KC										●									

Parts

Specification	Screw	Wrench
Ø22~Ø29	FTNA0408	TW15L

Available inserts E27

CET



(mm)

Designation		ØD	Ød	ℓ	L	θ°
CET060 -	030	3	3	5.5	50	60°
	040	4	4	7	50	
	060	6	6	10	60	
	080	8	8	13	70	
	100	10	10	16	70	
	120	12	12	18	80	
	160	16	16	24	100	
CET090 -	030	3	3	5.5	50	90°
	040	4	4	7	50	
	060	6	6	10	60	
	080	8	8	13	70	
	100	10	10	16	70	
	120	12	12	18	80	
	160	16	16	24	100	
CET120 -	030	3	3	5.5	50	120°
	040	4	4	7	50	
	060	6	6	10	60	
	080	8	8	13	70	
	100	10	10	16	70	
	120	12	12	18	80	
	160	16	16	24	100	

CCT

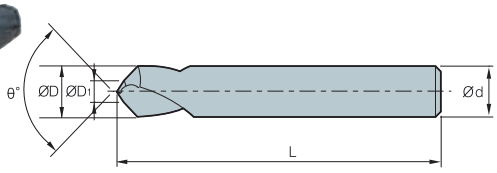


Fig. 1

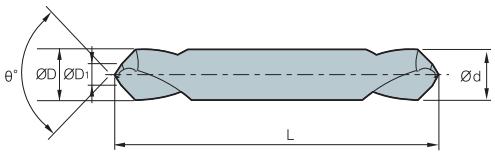
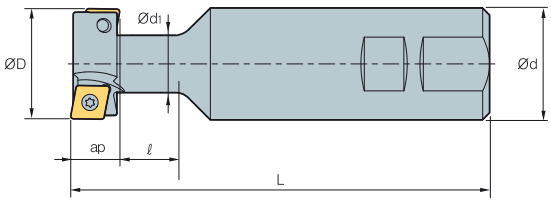


Fig. 2

(mm)

Designation		ØD = Ød	ØD1	L	θ°	Fig.
CCT060 -	030	3	1.0	40	60°	1
	040	4	1.5	40		
	060	6	2.0	50		
	080	8	2.5	60		
	100	10	3.0	70		
	120	12	4.0	80		
	160	16	5.0	100		
CCT060T -	030	3	1.0	40		2
	040	4	1.5	40		
	060	6	2.0	50		
	080	8	2.5	60		
	100	10	3.0	70		
	120	12	4.0	80		
	160	16	5.0	100		
CCT060T -	030L	3	1.0	100		
	040L	4	1.5	100		
	060L	6	2.0	100		
	080L	8	2.5	120		
	100L	10	3.0	120		
	120L	12	4.0	150		
CCT090 -	030	3	1.0	40	90°	1
	040	4	1.5	40		
	060	6	2.0	50		
	080	8	2.5	60		
	100	10	3.0	70		
	120	12	4.0	80		
	160	16	5.0	100		
CCT090T -	030	3	1.0	40		2
	040	4	1.5	40		
	060	6	2.0	50		
	080	8	2.5	60		
	100	10	3.0	70		
	120	12	4.0	80		
	160	16	5.0	100		
CCT090T -	030L	3	1.0	100		
	040L	4	1.5	100		
	060L	6	2.0	100		
	080L	8	2.5	120		
	100L	10	3.0	120		
	120L	12	4.0	150		
CCT120 -	030	3	1.0	40	120°	1
	040	4	1.5	40		
	060	6	2.0	50		
	080	8	2.5	60		
	100	10	3.0	70		
	120	12	4.0	80		
	160	16	5.0	100		
CCT120T -	030	3	1.0	40		2
	040	4	1.5	40		
	060	6	2.0	50		
	080	8	2.5	60		
	100	10	3.0	70		
	120	12	4.0	80		
	160	16	5.0	100		
CCT120T -	030L	3	1.0	100		
	040L	4	1.5	100		
	060L	6	2.0	100		
	080L	8	2.5	120		
	100L	10	3.0	120		
	120L	12	4.0	150		

TFE



AA
90°

- AR: 5°
- RR: -5°

(mm)

Designation			ØD	Ød	Ød1	ℓ	L	ap	Available inserts
TFE	2125R/L	2	21	25	10.5	20	109	9	CPMT06
	2525R/L	2	25	25	12.5	21	112	11	CPMT08
	3232R/L	2	32	32	16.5	26	120	14	CPMT09
	4032R/L	2	40	32	20.5	32	130	18	CPMH12
	5032R/L	4	50	32	26.5	38	140	22	CPMH12

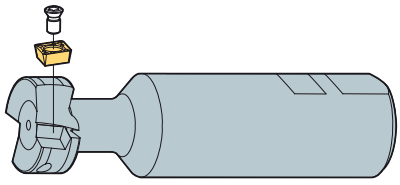
Available inserts

CPMT CPMH

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
CPMT	060204-MM										●									E07
	080308-MM										●									
	09T308-MM										●									
CPMH	120408-MM										●									

Parts

Specification	Screw	Wrench
Ø21	FTNA02555	TW08S
Ø25	FTNA0306	TW09S
Ø32	FTNA0407	TW15S
Ø40	PTMA0511A	TW15S
Ø50		

Assembling	
	

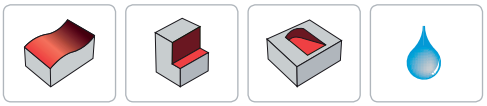
Available inserts E07

Inserts feature a buffed top surface ensuring better chip control and reducing built-up edge

Pro-A Mill

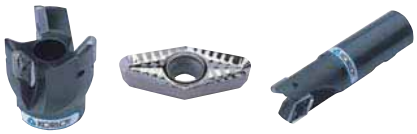
- Buffed top face of insert ensures good chip control and reduces built-up edge
- Small size modular type for aluminum machining
- Various line up of modular system for aluminum machining
- For shouldering, curved surface and ramping
- High rake angle chip breaker ensures excellent surface roughness, improved cooling effects, and chip control by through coolant system, even in deep pocket machining

Uses



Copying | Shouldering | Ramping | Through coolant system

Pro-A Mill series

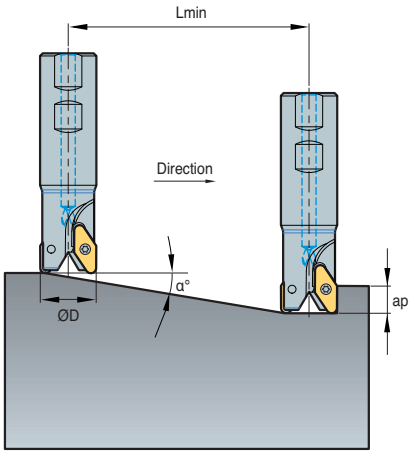
Type		Available inserts and tool holders	Through coolant system
Application of small-sized Aluminum machining	**Pro-A 2000**	 • Modular: Ø12~Ø42 • Shank: Ø12~Ø42 • Insert: VDKT11T210N-MA VDKT11T220N-MA	O
General application of Aluminum machining	**Pro-A 4000**	 • cutter: Ø40~Ø100 • Shank: Ø32~Ø40 • Insert: VCKT220530N-MA	O

Recommended cutting condition

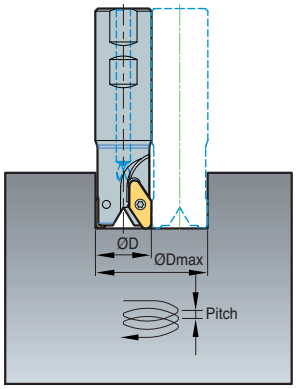
Workpiece		Cutting speed vc (m/min)
Aluminum alloy	Rm < 280 MPa	1000
	Rm > 280 MPa	800
Copper alloy	Long chip	250
Thermo plastic	-	300
Aluminum alloy	Si < 12%	800
Copper alloy	Short chip	400
Magnesium alloy	-	400
Duroplastics	-	150

Pro-A Mill ramping & helical cutting technical data

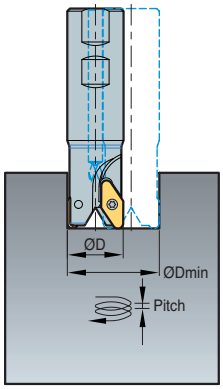
1. Ramping



2. Blind hole helical cutting



3. Thru hole helical cutting



(mm)

Designation	ØD (mm)	Ramping		Blind hole helical cutting				Thru hole helical cutting	
		α° (max)	Lmin (mm)	ØDH Min (mm)	dmax (mm)	ØDH Max (mm)	dmax (mm)	ØDH Min (mm)	dmax (mm)
PAS2012HR	12	11.9	38	21	4.4	23	4.8	19	4.0
PAS2016HR	16	12.5	36	29	6.4	31	6.9	27	6.0
PAS2020HR	20	9.7	47	37	6.3	39	6.7	35	6.0
PAS2025HR	25	7.6	60	47	6.3	49	6.5	45	6.0
PAS2032HR	32	5.8	79	61	6.2	63	6.4	59	6.0
PAS2042HR	42	4.3	105	81	6.2	83	6.3	79	6.0
PAS4032HR	32	24.4	22	54	15.0	59	26.8	40	15.0
PAS4040HR	40	18.4	30	70	15.0	75	25.0	56	15.0
PAS4050HR	50	14.0	40	90	15.0	95	23.8	76	15.0
PAS4063HR	63	10.7	53	116	15.0	121	22.8	102	15.0
PAC(M)4080HR	80	8.1	70	150	15.0	155	22.1	136	15.0
PAC(M)4100HR	100	6.3	90	190	15.0	195	21.7	176	15.0

- Lmin: When ap = 8 mm
- Lmin: Minimum inclination cutting length

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

α°: Max. rampig angle

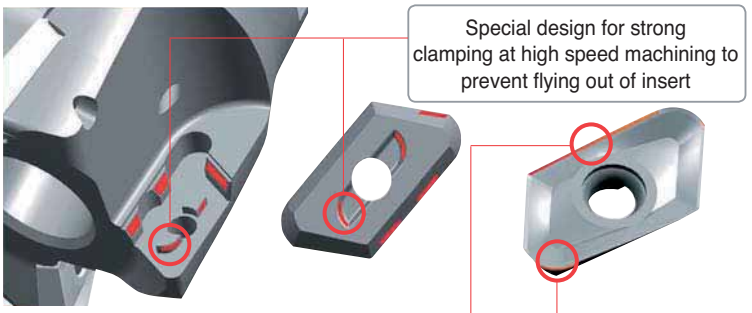
ap: Depth of cut

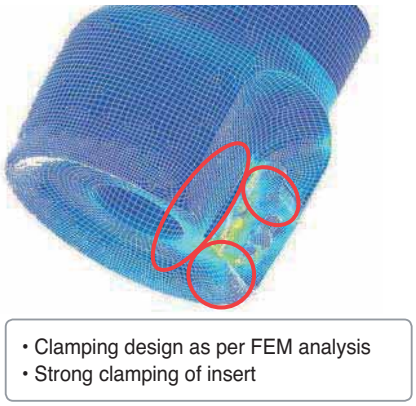
Features a strong clamping provided by the concave grooves on the back surface of the inserts

Pro-X Mill

- Inserts feature a buffed top surface ensuring a smoother chip evacuation and reducing built-up edge
- High rake angle of insert provides good surface finish and low cutting load
- Specially designed for high speed machining of aluminum
- Suitable for square shouldering and curved surface machining

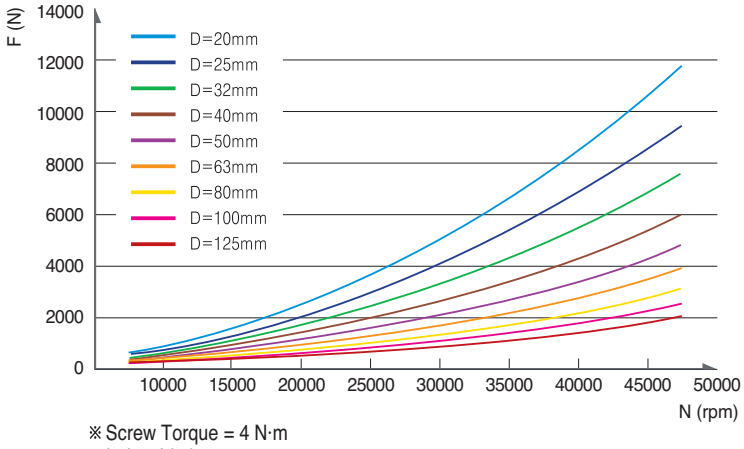
Clamping system for high speed





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

Centrifugal force as per RPM



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

Marking [· Designation · Max. RPM]

Max. RPM as per cutting diameter

Cutting diameter ØD (mm)	5000 type		6000 type	
	n (min^{-1})	vc (m/min)	n (min^{-1})	vc (m/min)
20	14,000	879	-	-
25	28,000	2,199	15,000	1,178
32	25,000	2,513	23,000	2,312
40	22,000	2,764	20,000	2,513
50	20,000	3,141	18,000	2,827
63	18,000	3,562	16,000	3,166
80	16,000	4,021	14,000	3,518
100	14,000	4,398	13,000	4,084
125	13,000	5,105	11,000	4,319

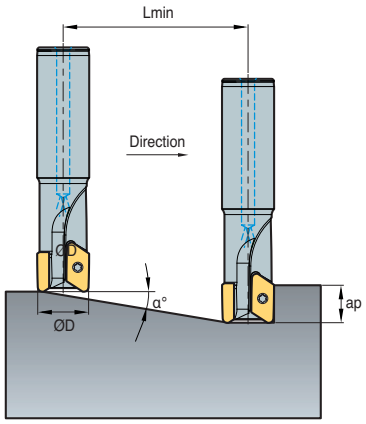
※ In case of actual machining accidental breakage of insert or tool could happen even under the written RPM special cover or door is necessary to prevent damage from broken insert or broken tool

Recommended cutting condition

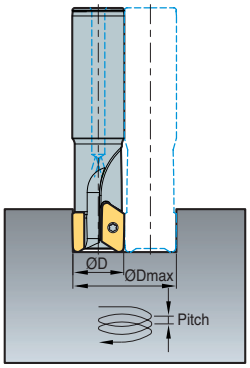
Workpiece		Cutting Speed vc (m/min)	Feed fz (mm/t)
Aluminum alloy	Rm280 < MPa	1200	0.30
	Rm280 > MPa	1000	0.25
Copper alloy	Long chipping	400	0.20
Thermo plastic	-	350	0.15
Aluminum alloy	Si < 12%	1000	0.25
	Si ≥ 12%	300	0.23
Copper alloy	Short chipping	500	0.20
Magnesium alloy	-	450	0.20
Duroplastics	-	200	0.15

Pro-X Mill ramping & helical cutting technical data

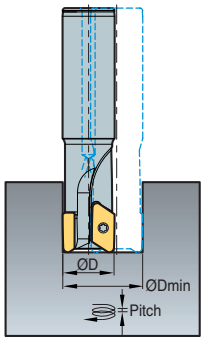
1. Ramping



2. Blind hole helical cutting



3. Thru hole helical cutting



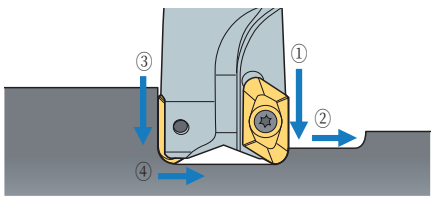
(mm)

Designation	ØD (mm)	Ramping		Blind hole Helical cutting				Thru hole Helical cutting	
		α° (max)	Lmin (mm)	ØDH Min (mm)	dmax (mm)	ØDH Max (mm)	dmax (mm)	ØDH Max (mm)	dmax (mm)
PAXS5020HR	20	8.4	68	32	4.7	34	5.0	27	4.0
PAXS5025HR	25	13.2	43	42	9.9	44	10.4	34	8.0
PAXS5032HR	32	9.5	60	56	9.3	58	9.7	48	8.0
PAXS5040HR	40	7.1	80	72	9.0	74	9.3	64	8.0
PAXCM5050HR	50	5.4	105	92	8.8	94	9.0	84	8.0
PAXCM5063HR	63	4.2	138	118	8.6	120	8.7	110	8.0
PAXC(M)5080HR	80	3.2	180	152	8.4	154	8.6	144	8.0
PAXC(M)5100HR	100	2.5	230	192	8.3	194	8.4	184	8.0
PAXC(M)5125HR	125	2.0	293	242	8.3	244	8.3	234	8.0
PAXS6025HR	25	9.0	63	42	6.6	44	6.9	38	6.0
PAXS6032HR	32	6.6	87	56	6.5	58	6.7	52	6.0
PAXS6040HR	40	12.1	47	72	15.4	74	15.9	56	12.0
PAXCM6050HR	50	9.0	63	92	14.5	94	14.8	76	12.0
PAXCM6063HR	63	6.7	85	118	13.9	120	14.1	102	12.0
PAXC(M)6080HR	80	5.0	113	152	13.4	154	13.6	136	12.0
PAXC(M)6100HR	100	3.9	147	192	13.1	194	13.2	176	12.0
PAXC(M)6125HR	125	3.0	188	242	12.8	244	13.0	226	12.0

- Lmin: When ap = 10mm
- Lmin: Minimum inclination cutting length
  α°: Max. rampig angle
  ap: Depth of cut

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

Plunging, slotting, drilling technical data



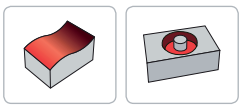
1. When drilling, grooving machining sequence is ① → ② → ③ → ④
2. When drilling, grooving, decrease the feed and cutting speed 30%~50% from the recommended data

• Cutting condition for drilling

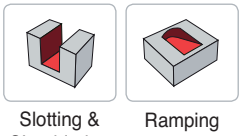
Holder	ap (mm)	
	5000 type	6000 type
Ø20	8	-
Ø25	4	11
Ø32	4	6
Ø40~125	4	6

Insert	ap (mm)
XETK19	4
XETK25	6

Uses



Copying | Helical cutting



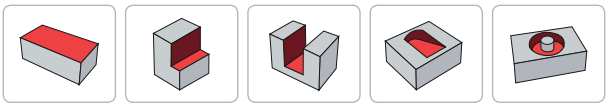
Slotting & Shouldering | Ramping

New indexable milling tool for the machining of high quality workpieces

Pro-L Mill

- Improved perpendicularity and lower cutting resistance due to the combined design of the clearance face and high helix edge of these inserts
- Productivity increase due to more than half as much of depth of cut comparing to existing product
- Strong clamping design by adaption of double screw on system
- Improved chip flow due to helical type design of chip pocket and application of coolant system

Uses



Facing | Shouldering | Slotting | Ramping | Helical cutting

Code system

• Shank type

PAL S 050 H R – 3 S 40

Pro-L Mill	Tool type	Tool Dia.	Coolant type	Hand	No. of tooth	Tool length	Shank Dia.
	S: Shank	050: Ø50	H: Thru-hole Unmarked: None	R: Right M: Multi-edge	3: 3 teeth	S: Standard type M: Middle type L: Long type	40: Ø40

• Cutter type

PAL C M 063 H R

Pro-L Mill	Tool type	Unit	Tool Dia.	Coolant type	Hand
	C: Cutter	M: Metric	063: Ø63	H: Thru-hole Unmarked: None	R: Right M: Multi-edge

Features

Enhanced chip flow and increased tool life by inner coolant system

Set of various Nose-R

Strong clamping by 2 screw on system

Improved perpendicularity and decreased cutting resistance due to application of high helix

Features of chip breakers

Insert		Cutting-edge	Uses	Features
MA			Al	Edge optimized for aluminum machining and buffed finish ensuring an excellent machining quality
ML			Hard-to-cut material	Design of low cutting resistance chip breaker ensures excellent machining quality for light cutting and hard-to-cut material

Selection of grades and chip breaker

Category	M (Stainless steel)	N (Aluminum alloy)	S (HRSA)
Grades	PC5300/PC5400	H01	PC5300/PC5400
MA	-	○	-
ML	○	-	○

Application examples

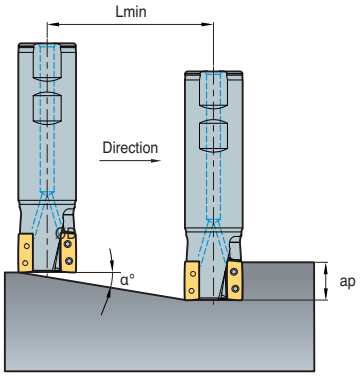
Al6061 (HRC30)

■Cutting condition

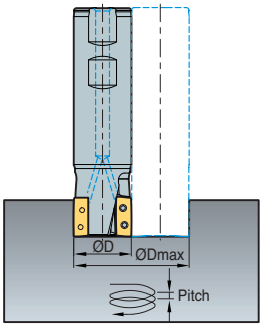
vc = 500 m/min, fz = 0.2 mm/t,
ap = 30~60 mm,
ae = 1~5 mm (finishing: 1 mm, roughing: 5 mm)
z = 3

Pro-L Mill ramping & helical cutting technical data

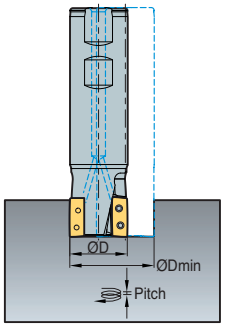
1. Ramping



2. Blind hole helical cutting



3. Thru hole helical cutting



(mm)

Designation	ØD (mm)	Ramping		Blind hole helical cutting				Thru hole helical cutting	
		α° (max)	Lmin (mm)	ØDH Min (mm)	dmax (mm)	ØDH Max (mm)	dmax (mm)	ØDH Min (mm)	dmax (mm)
PALS032HR-2S20	32	3.37	170	60	3.5	62	3.6	55	3.2
PALS032HR-2S25	32	3.37	170	60	3.5	62	3.6	55	3.2
PALS032HR-2S32	32	3.37	170	60	3.5	62	3.6	55	3.2
PALS040HR-2S32	40	2.12	270	76	2.8	78	2.9	71	2.6
PALS040HR-2S40	40	2.12	270	76	2.8	78	2.9	71	2.6
PALS040HR-2S42	40	2.12	270	76	2.8	78	2.9	71	2.6
PALS040HR-3S32	40	2.12	270	76	2.8	78	2.9	71	2.6
PALS040HR-3S40	40	2.12	270	76	2.8	78	2.9	71	2.6
PALS040HR-3S42	40	2.12	270	76	2.8	78	2.9	71	2.6
PALS050HR-3S32	50	2.08	275	96	3.5	98	3.6	91	3.3
PALS050HR-3S40	50	2.08	275	96	3.5	98	3.6	91	3.3
PALS050HR-3S42	50	2.08	275	96	3.5	98	3.6	91	3.3
PALS063HR-4S32	63	1.76	325	122	3.8	124	3.8	117	3.6
PALS063HR-4S40	63	1.76	325	122	3.8	124	3.8	117	3.6
PALS063HR-4S42	63	1.76	325	122	3.8	124	3.8	117	3.6
PALS063HM-4S32	63	1.76	325	122	3.8	124	3.8	117	3.6
PALS063HM-4S40	63	1.76	325	122	3.8	124	3.8	117	3.6
PALS063HM-4S42	63	1.76	325	122	3.8	124	3.8	117	3.6
PALCM063HR	63	1.76	325	122	3.8	124	3.8	117	3.6

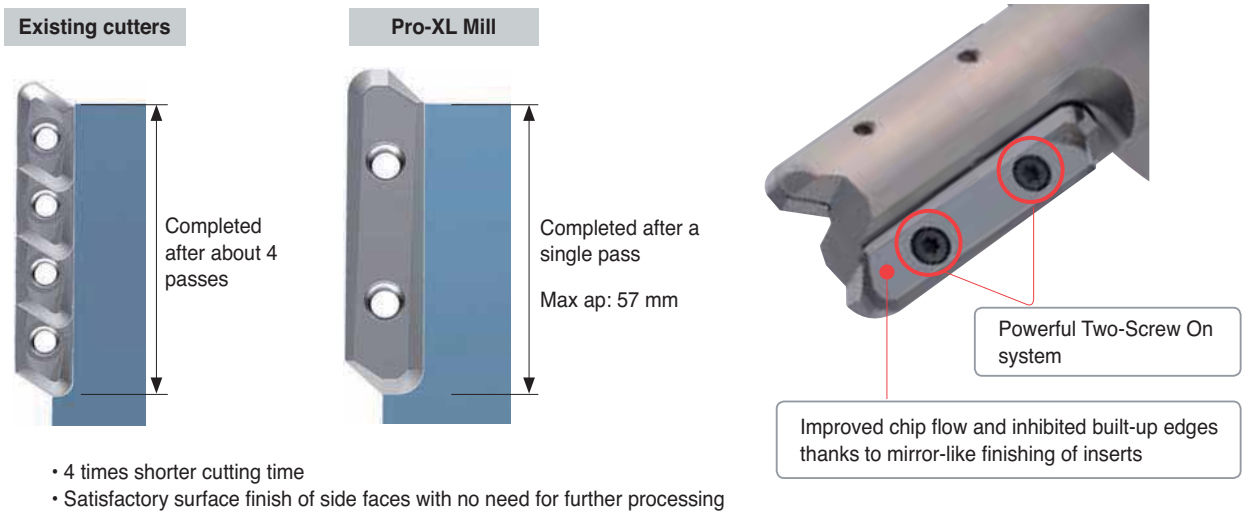
• Lmin: When ap = 10 mm
• Lmin: Minimum inclination cutting length $Lmin = \frac{ap}{\tan \alpha^\circ}$ (mm)
α° : Max. rampig angle
ap : Depth of cut

Deep cutting milling tools to maximize productivity in aluminum machining

Pro-XL Mill new

- **Productivity** - Cutting time is shortened by finishing the process with a single pass of deep shouldering in aluminum machining
- **High quality** - Shouldering within a single pass enables walls with perfect perpendicularity
- **Clamping stability** - Two-Screw On system secures clamping stability

Features of Pro-XL Mill



- 4 times shorter cutting time
- Satisfactory surface finish of side faces with no need for further processing

Application examples

Al7075

■Cutting condition
vc = 500 m/min, fz = 0.25 mm/t
ap = 56 mm, ae = 1 mm
z = 2

■Tools
Insert LDET650550PPFR-MA
Grades H01
Holder BT50-PXL04090HR-2F (ØD = 40 mm)

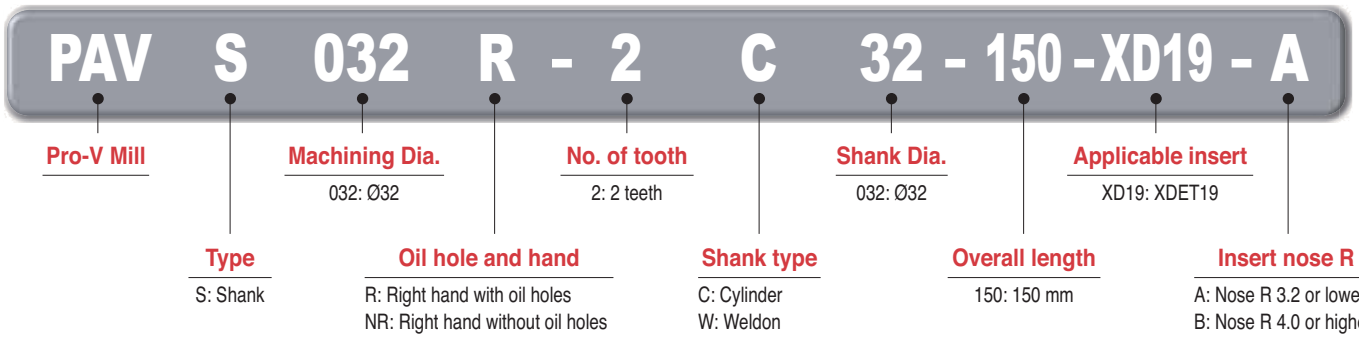
The Premium High-Speed Milling Tool for Aluminum

Pro-V Mill new

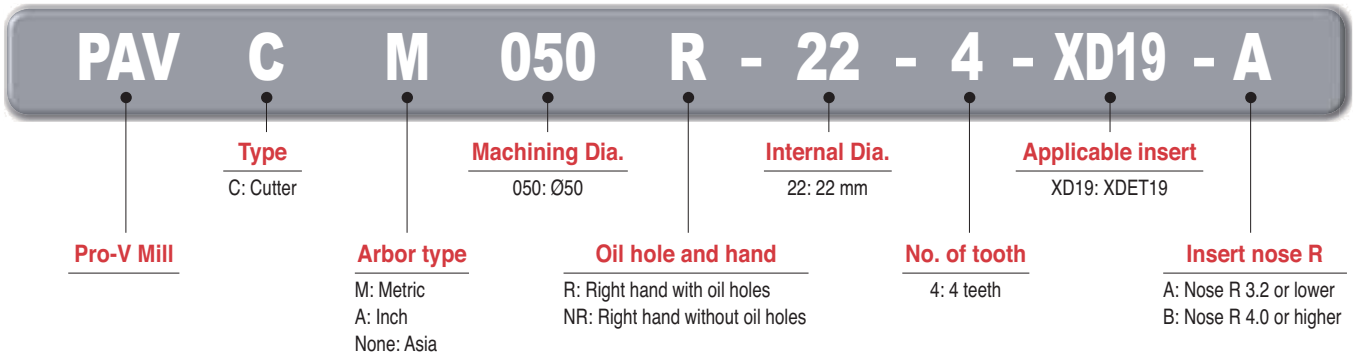
- **Enhanced productivity**- Increased productivity due to high speed capability
- **Improved surface finish**- Excellent surface finish and perpendicularity with high-precision products
- **Excellent clamping stability**- Satisfactory clamping force of inserts by the use of the key shape

Code system

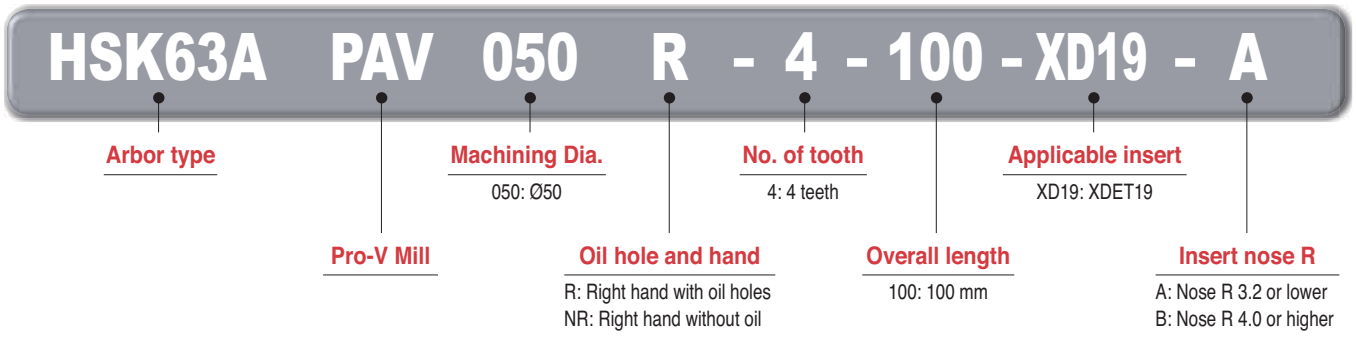
• Shank type



• Cutter Type



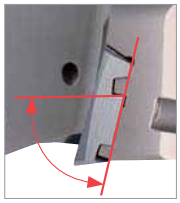
• Tooling System



Cutter Features

- The combined clamping system of the key to key slot structure and simple screw-on type ensures strong clamping force
  - Stable machining / prevention of insert breakage
- Avoiding uplifting problems of insert due to axial acute-angle clamping of cutters
  - Reduced vibrations and excellent surface finish

Axial acute-angle clamping
Inhibition of the axial force



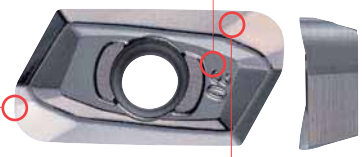
Screw-on clamping
New screw shape

Insert clamping area
Stable clamping force due to the key to key slot structure

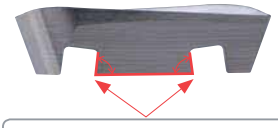
Insert Features

Wide minor cutting edges
Improved surface finish

Mirror-like finish of the rake surface of insert
Avoiding build-up edges through smooth chip flow

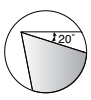


High-rake chip breaker and helix cutting edges
High rake and lower cutting load



Application of the key slot design
The bottom key of insert and the key slot in an acute angle
High clamping stability of the holder contact area
→ Improved clamping force

Features of chip breaker

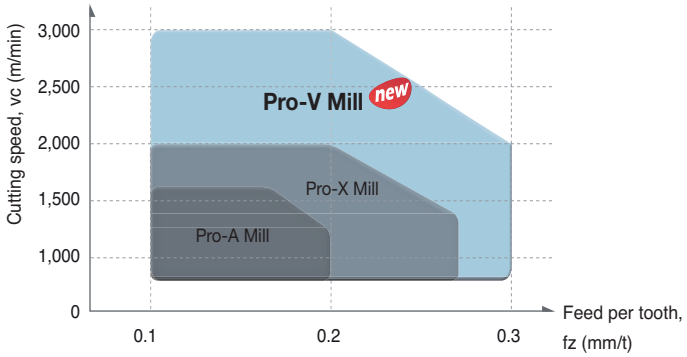
Insert		Cutting-edge	Uses	Features
MA			For non-ferrous metals	Ensuring satisfactory machining quality with the application of mirror-like cutting edges optimized for aluminum machining

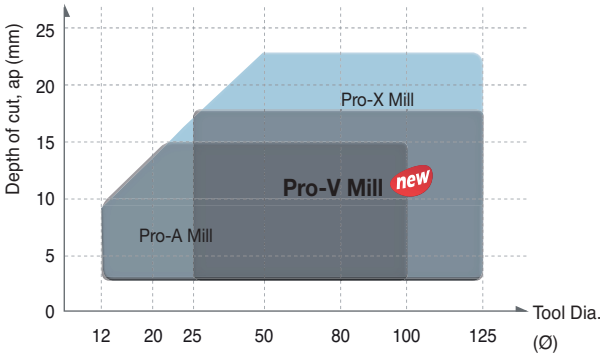
Recommended cutting condition

Workpiece			Grade	vc (m/min)	Max. ap (mm)
N	Aluminum	Si ≤ 5% (Si Lower than 5%)	H01	1,300 (500 - 2,200)	17
			H05	1,000 (300 - 1,700)	
			PD1005	1,500 (500 - 3,000)	
		Si ≤ 10% (Si Lower than 10%)	PD1010	1,200 (300 - 2,200)	

※ The recommended cutting conditions above are a general guideline. Their details may vary depending on the machining method of users and other conditions.

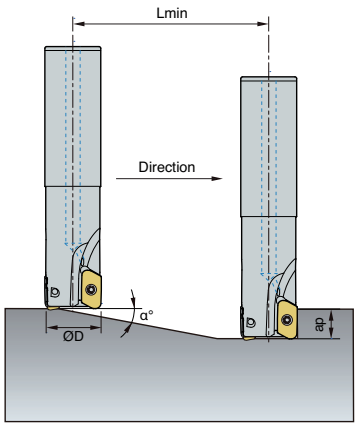
Application area



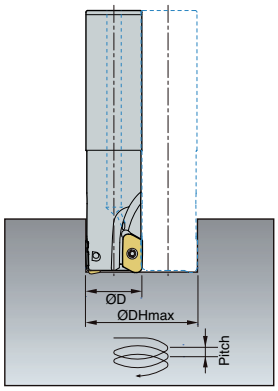


Pro-V Mill ramping & helical cutting technical data

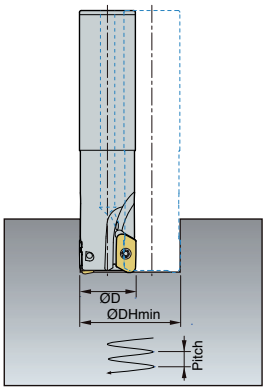
1. Ramping



2. Blind hole helical cutting



3. Thru hole helical cutting

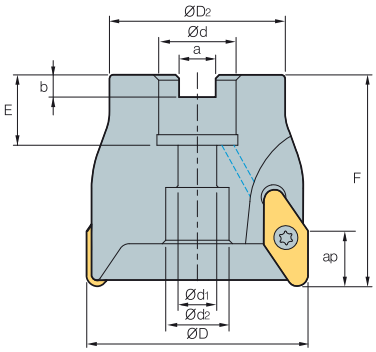


ØD (mm)	Ramping		Blind hole helical cutting				Thru hole helical cutting	
	α° (max)	Lmin (mm)	ØDH Min (mm)	dmax (mm)	ØDH Max (mm)	dmax (mm)	ØDH Min (mm)	dmax (mm)
25	15.0	59	41	13.0	44	15.5	27	2.0
32	10.0	99	55	11.0	58	12.5	41	4.5
40	7.0	142.5	71	10.5	74	11.5	57	6.0
50	5.0	200	91	10.0	94	10.5	77	6.5
63	3.5	286	117	9.2	120	9.5	103	7.0
80	2.6	385	151	9.0	154	9.5	137	7.3
100	2.0	501	191	9.0	194	9.0	177	7.6
125	1.5	668	241	8.5	244	8.5	227	7.5

- When ramping and helical milling, table feed, vf (mm/min) should be lower than 70% of the recommended cutting conditions.
- When helical milling, Max. pitch, DHmax should be lower than max. depth of cut, ap.
- When ramping, the depth of cut should be lower than max. depth of cut, ap.

- Lmin: ap/tan(α°) (mm)
- Lmin: Minimum inclination cutting length
  α° : Max. rampig angle
  ap : Depth of cut

PAC(M)2000/4000



AA 90°

- AR: 0°
- RR: -3°

(mm)

Designation			ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg
PACM	2040HR	3	40	34	16	9	14	8.4	5.6	18	40	8.7	0.2
	2050HR	4	50	42	22	11	18	10.4	6.3	22	50	8.7	0.4
	2063HR	5	63	49	22	11	18	10.4	6.3	22	50	8.7	0.6
	2080HR	5	80	57	27	14	20	12.4	7.0	25	50	8.7	0.9
	2100HR	6	100	67	32	18	26	14.4	8.0	30	63	8.7	1.9
	4040HR	3	40	32	16	9	11.5	8.4	5.6	20	55	15	0.2
	4050HR	3	50	40	22	11	18	10.4	6.3	20	55	15	0.3
	4063HR	4	63	50	22	11	18	10.4	6.3	20	60	15	0.6
	4080HR	4	80	60	27	14	20	12.4	7.0	25	60	15	1.0
	4100HR	5	100	80	32	18	26	14.4	8.0	26	60	15	1.6
PAC	2080HR	5	80	57	25.4	14	20	9.5	6.0	25	50	8.7	0.9
	2100HR	6	100	67	31.75	-	44	12.7	8.0	37	63	8.7	1.9
	4080HR	4	80	60	25.4	14	20	9.5	6.0	25	60	15	1.0
	4100HR	5	100	80	31.75	-	44	12.7	8.0	37	60	15	1.6

Available inserts

VCKT-MA

Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
VCKT	220530N-MA																		●	E27

Available arbors

Designation		Ød	Available arbors
PACM	2040HR	16	BT□□-FMC16-□□
	2050HR	22	BT□□-FMC22-□□
	2063HR	22	BT□□-FMC22-□□
PAC	2080HR	25.4	BT□□-FMC25.4-□□
		27	BT□□-FMC27-□□
	2100HR	31.75	BT□□-FMC31.75-□□
		32	BT□□-FMC32-□□

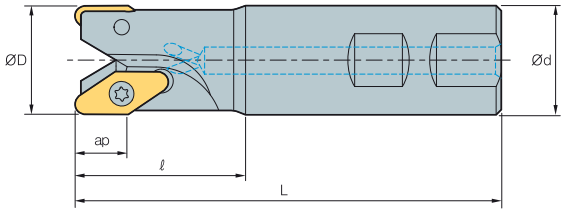
Designation		Ød	NC arbors
PACM	4040HR	16	BT□□-FMC16-□□
	4050HR	22	BT□□-FMC22-□□
	4063HR	22	BT□□-FMC22-□□
PAC	4080HR	25.4	BT□□-FMC25.4-□□
		27	BT□□-FMC27-□□
	4100HR	31.75	BT□□-FMC31.75-□□
		32	BT□□-FMC32-□□

Parts

Specification	Screw	Wrench	Arbor Bolt
Ø40~Ø100	FTNC04509(Ø40) FTNC04511	TW 20S	PHMA0834(Ø40)

Available inserts E27 Available arbors and bolt E400~E402

PAS2000/4000



AA 90°

- AR: 0°~7°
- RR: -21°~ -3°

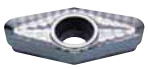
(mm)

Designation			⌀	ØD	Ød	ℓ	L	ap	kg
PAS		2012HR	1	12	16	25	85	8	0.1
		2016HR	2	16	16	25	90	8	0.11
	*	2016HR-R2.0	2	16	16	25	90	6	0.11
		2020HR	2	20	20	30	100	8	0.2
	*	2020HR-R2.0	2	20	20	30	100	6	0.2
		2025HR	3	25	25	35	115	8	0.36
		2032HR	4	32	32	40	125	8	0.66
		2042HR	5	42	32	42	130	8	0.84
		4032HR	2	32	32	50	125	15	0.6
		4040HR	3	40	32	50	140	15	0.8
		4040HR-S40	3	40	40	60	150	15	1.2
		4040HR-S42	3	40	42	60	150	15	1.2

Holders marked with an asterisk (*) are only for VDKT11T220N-MA.

Available inserts

VDKT-MA VCKT-MA



Type	Designation		Cermet		Coated												Uncoated			page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
2000 type	VDKT	11T210N-MA																		●	E27
		11T220N-MA																			
4000 type	VCKT	220530N-MA																		●	

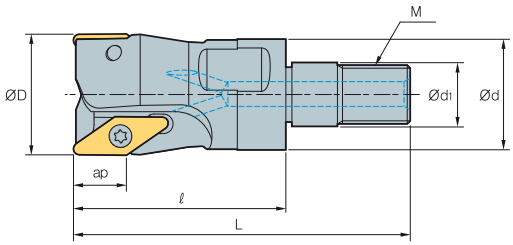
Parts

Specification	Screw	Wrench
Ø12~Ø42 (2000 type)	ETNA02505*	TW 07S
	ETNA02506	
Ø32~Ø40 (4000 type)	FTNC04509	TW 20S

Available inserts E27

* For PAS2012·2016

PAM2000









AA 90°

- AR: 7°~10°
- RR: -21°~ -9°

(mm)

Designation			ØD	Ød	Ød1	ℓ	L	M	ap	kg
PAM	2012HR-M06	1	12	11.0	6.5	33	48	M06	8	0.02
	2016HR-M08	2	16	14.5	8.5	36	53	M08	8	0.04
	2020HR-M10	2	20	18.0	10.5	36	57	M10	8	0.06
	2025HR-M12	3	25	22.5	12.5	41	65	M12	8	0.1
	2032HR-M16	4	32	28.5	17.0	45	72	M16	8	0.18
	2042HR-M16	5	42	28.5	17.0	45	72	M16	8	0.27

Available inserts

VDKT-MA

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
VDKT	11T210N-MA																		●	E27

Available adaptors

Designation		Available adaptors
PAM	2012HR-M06	MAT-M06
	2016HR-M08	MAT-M08
	2020HR-M10	MAT-M10
	2025HR-M12	MAT-M12
	2032HR-M16	MAT-M16
	2042HR-M16	MAT-M16

Designation: PAM2012HR-M06
Modular head threading measure size (M06)

II

Adaptor spec.: MAT-M06-030-S20S
Adaptor threading measure (M06)

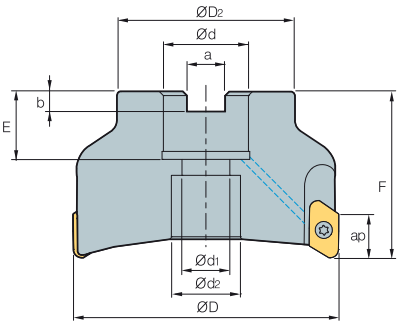
Parts

Specification	Screw	Wrench
Ø12~Ø42	ETNA02505*	TW 07S
	ETNA02506	

* For PAS2012·2016

Available inserts E27 Available adaptors E371~E372

PAXC(M)5000



AA 90°

- AR: 8°~17.5°
- RR: -9.5°~ -5°

(mm)

Designation			ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	Max rpm	ap	kg
PAXCM	5040HR-A,B	3	40	34	16	9	14	8.4	5.6	19	40	25,800	17	0.15
	5050HR-A,B	4	50	42	22	11	18	10.4	6.3	21	50	23,000	17	0.3
	5063HR-A,B	5 (4)	63	49	22	11	18	10.4	6.3	21	50	20,500	17	0.56
PAXC (PAXCM)	5080HR-A,B	5	80	57	25.4 (27)	14	20	9.5 (12.4)	6 (7)	2 4(23)	50	18,200	17	1.0
	5100HR-A,B	6	100	67	31.75 (32)	18	26	12.7 (14.4)	8(8)	32 (26)	63	16,300	17	2.3
	5125HR-A,B	7	125	87	38.1 (40)	22	32	15.9 (16.4)	10 (9)	35 (29)	63	14,600	17	3.2

• A type: Insert NoseR 0.4~3.2, B type: Insert NoseR 4.0~5.0

( )Metric size

Available inserts

XEKT-MA

XEKT-ML

Designation		Cermet		Coated											Uncoated				page
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT	19M504FR-MA													●	●				●	●	E29
	19M508FR-MA													●	●				●	●	
	19M512FR-MA													●	●				●	●	
	19M516FR-MA														●				●	●	
	19M518FR-MA																				
	19M520FR-MA													●	●				●	●	
	19M530FR-MA														●				●	●	
	19M532FR-MA													●	●				●	●	
	19M540FR-MA													●	●				●	●	
	19M550FR-MA													●	●				●	●	

Designation		Cermet		Coated											Uncoated				page
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT	19M504ER-ML																				E29
	19M508ER-ML																				
	19M512ER-ML																				
	19M516ER-ML																				
	19M518ER-ML																				
	19M520ER-ML																				
	19M530ER-ML																				
	19M532ER-ML																				
	19M540ER-ML																				
	19M550ER-ML																				

Available arbors

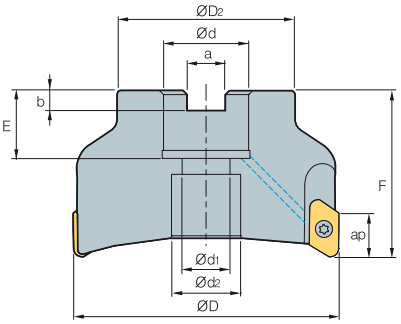
Designation		Ød	Available arbors
PAXCM	5040HR-A,B	16	BT□□-FMC16-□□
	5050HR-A,B	22	BT□□-FMC22-□□
	5063HR-A,B		
PAXC (PAXCM)	5080HR-A,B	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	5100HR-A,B	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	5125HR-A,B	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□

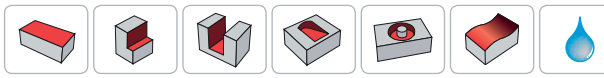
Parts

Specification	Screw	Wrench
Ø40~Ø125	PTKA0408	TW 15S

Available inserts E29 Available arbors and bolt E400~E402

PAXC(M)6000





AA 90°

- AR: 8°~17.5°
- RR: -9.5°~ -5°

(mm)

Designation			ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	Max rpm	ap	kg
PAXCM	6050HR-A,B	2	50	42	16	9	14	8.4	5.6	18	50	23,000	23	0.32
	6063HR-A,B	3	63	49	22	11	18	10.4	6.3	21	50	20,500	23	0.53
PAXC (PAXCM)	6080HR-A,B	4	80	57	25.4 (27)	14	20	9.5 (12.4)	6 (7)	25 (23)	50	18,200	23	0.73
	6100HR-A,B	5	100	67	31.75 (32)	18	26	12.7 (14.4)	8 (8)	32.5 (26)	63	16,300	23	1.7
	6125HR-A,B	6	125	87	38.1 (40)	22	32	15.9 (16.4)	10 (9)	35 (29)	63	14,600	23	3.06

- A type: Insert NoseR 0.4~3.2, B type: Insert NoseR 4.0~5.0

( )Metric size

Available inserts

XEKT-MA

XEKT-ML

Designation		Cermet		Coated												Uncoated				page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
XEKT	250604FR-MA																		●	●	E29
	250608FR-MA																		●	●	
	250612FR-MA																		●	●	
	250616FR-MA																				
	250620FR-MA																		●	●	
	250630FR-MA																				
	250632FR-MA																		●	●	
	250640FR-MA																				
	250650FR-MA																		●	●	

Designation		Cermet		Coated												Uncoated				page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
XEKT	250604ER-ML																				E29
	250608ER-ML																				
	250612ER-ML																				
	250616ER-ML																				
	250620ER-ML																				
	250630ER-ML																				
	250632ER-ML																				
	250640ER-ML																				
	250650ER-ML																				

Available arbors

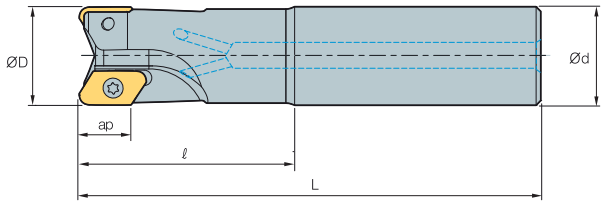
Designation		Ød	Available arbors
PAXCM	6050HR-A,B	16	BT□□-FMC16-□□
	6063HR-A,B	22	BT□□-FMC22-□□
PAXC (PAXCM)	6080HR-A,B	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	6100HR-A,B	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	6125HR-A,B	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□

Parts

Specification	Screw	Wrench
Ø50~Ø125	FTGA0513-P	TW 20-100

Available inserts E29 Available arbors and bolt E400~E402

PAXS5000



AA 90°

- AR: 5°~10°
- RR: -14°~ -5°

(mm)

Designation			ØD	Ød	ℓ	L	Max rpm	ap	kg
PAXS	5020HR-A,B	1	20	20	60	130	15,000	17	0.24
	5025HR-A,B	2	25	25	60	140	32,600	17	0.4
	5025HR-A,B-L200	2	25	25	60	200	32,600	17	0.63
	5032HR-A,B	2	32	32	70	150	28,800	17	0.74
	5032HR-A,B-L220	2	32	32	70	220	28,800	17	1.2
	5040HR-A,B-S32	3	40	32	70	160	25,800	17	1.0
	5040HR-A,B-L220	3	40	32	70	220	25,800	17	1.4
	5040HR-A,B-S40	3	40	40	70	160	25,800	17	1.3
	5040HR-A,B-S42	3	40	42	70	160	25,800	17	1.4

• A type: Insert NoseR 0.4~3.2, B type: Insert NoseR 4.0~5.0

Available inserts

XEKT-MA

XEKT-ML

Designation		Cermet		Coated											Uncoated				page
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT	19M504FR-MA														●	●			●	●	E29
	19M508FR-MA														●	●			●	●	
	19M512FR-MA														●	●			●	●	
	19M516FR-MA															●			●	●	
	19M518FR-MA																				
	19M520FR-MA														●	●			●	●	
	19M530FR-MA															●			●	●	
	19M532FR-MA														●	●			●	●	
	19M540FR-MA														●	●			●	●	
	19M550FR-MA														●	●			●	●	

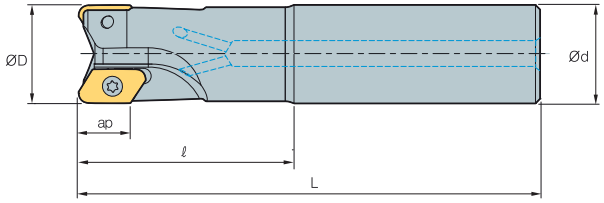
Designation		Cermet		Coated											Uncoated				page
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT	19M504ER-ML																				E29
	19M508ER-ML																				
	19M512ER-ML																				
	19M516ER-ML																				
	19M518ER-ML																				
	19M520ER-ML																				
	19M530ER-ML																				
	19M532ER-ML																				
	19M540ER-ML																				
	19M550ER-ML																				

Parts

Specification	Screw	Wrench
Ø20	PTKA0407	TW 15S
Ø25~Ø40	PTKA0408	

Available inserts E29

PAXS6000



AA 90°

- AR: 5°~10°
- RR: -14°~ -5°

(mm)

Designation			ØD	Ød	ℓ	L	Max rpm	ap	kg
PAXS	6025HR-A,B	1	25	25	60	140	32,600	23	0.42
	6025HR-A,B-L200	1	25	25	60	200	32,600	23	0.63
	6032HR-A,B	1	32	32	70	150	28,800	23	0.72
	6032HR-A,B-L220	1	32	32	70	220	28,800	23	1.14
	6040HR-A,B-S32	2	40	32	70	160	25,800	23	0.88
	6040HR-A,B-L220	2	40	32	70	220	25,800	23	1.23
	6040HR-A,B-S40	2	40	40	70	160	25,800	23	1.2
	6040HR-A,B-S42	2	40	42	70	160	25,800	23	1.3

- A type: Insert NoseR 0.4~3.2, B type: Insert NoseR 4.0~5.0

Available inserts

XEKT-MA

XEKT-ML

Designation		Cermet		Coated												Uncoated				page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
XEKT	250604FR-MA																		●	●	E29
	250608FR-MA																		●	●	
	250612FR-MA																		●	●	
	250616FR-MA																				
	250620FR-MA																		●	●	
	250630FR-MA																				
	250632FR-MA																		●	●	
	250640FR-MA																				
	250650FR-MA																		●	●	

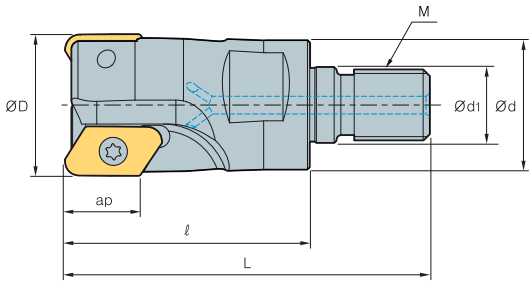
Designation		Cermet		Coated												Uncoated				page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
XEKT	250604ER-ML																				E29
	250608ER-ML																				
	250612ER-ML																				
	250616ER-ML																				
	250620ER-ML																				
	250630ER-ML																				
	250632ER-ML																				
	250640ER-ML																				
	250650ER-ML																				

Parts

Specification	Screw	Wrench
Ø25~Ø32	FTGA0510-P	TW 20-100
Ø40	FTGA0513-P	

Available inserts E29

PAXM5000



AA
90°

- AR: 6°~8°
- RR: -7°~ -5°

(mm)

Designation			ØD	Ød	Ød1	ℓ	L	M	ap	kg
PAXM	5025HR-A,B-M12	2	25	23	12.5	55	79	M12	17	0.12
	5032HR-A,B-M16	2	32	29	17.0	55	82	M16	17	0.2
	5040HR-A,B-M16	3	40	29	17.0	55	82	M16	17	0.4

• A type: Insert NoseR 0.4~3.2, B type: Insert NoseR 4.0~5.0

Available inserts

XEKT-MA

XEKT-ML

Designation		Cermet		Coated										Uncoated				page
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT	19M504FR-MA													●	●			●	●		E29
	19M508FR-MA													●	●			●	●		
	19M512FR-MA													●	●			●	●		
	19M516FR-MA														●			●	●		
	19M518FR-MA																				
	19M520FR-MA													●	●			●	●		
	19M530FR-MA														●			●	●		
	19M532FR-MA													●	●			●	●		
	19M540FR-MA													●	●			●	●		
	19M550FR-MA													●	●			●	●		

Designation		Cermet		Coated										Uncoated				page
		CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT	19M504ER-ML																				E29
	19M508ER-ML																				
	19M512ER-ML																				
	19M516ER-ML																				
	19M518ER-ML																				
	19M520ER-ML																				
	19M530ER-ML																				
	19M532ER-ML																				
	19M540ER-ML																				
	19M550ER-ML																				

Available adaptor

Designation		Available adaptor
PAXM	5025HR-A,B-M12	MAT-M12
	5032HR-A,B-M16	MAT-M16
	5040HR-A,B-M16	

Designation: PAXM5025HR-M12
Modular head threading measure size (M12)

||

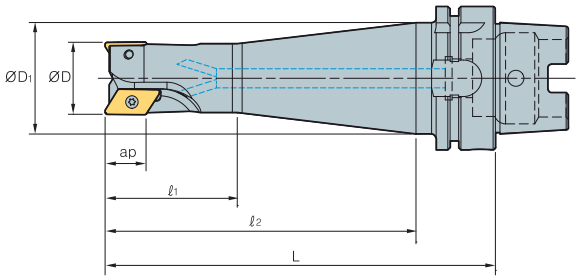
Adaptor spec.: MAT-M12-030-S25S
Adaptor threading measure (M12)

Parts

Specification	Screw	Wrench
Ø25~Ø40	PTKA0408	TW 15S

Available inserts E29 Available adaptors E371~E372

HSK63A/100A PAX5000



AA 90°

- AR: 5°~17.5°
- RR: -14°~ -5°

(mm)

Designation			ØD	ØD1	ℓ1	ℓ2	L	ap	kg
HSK63A	PAX5032HR-A, B	2	32	53	58	137	163	17	1.14
HSK100A	PAXCM5080HR-A, B	5	80	-	-	66	95	17	4
	PAXCM5100HR-A, B	6	100	-	-	66	95	17	4.6

- A type: Insert NoseR 0.4~3.2, B type: Insert NoseR 4.0~5.0
- For the maximum rake angle and the rpm limit, please refer to technical information on pp. E346~E347.

Available inserts

XEKT-MA

XEKT-ML

Designation	Cermet		Coated												Uncoated				page
	CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT 19M504FR-MA														●	●			●	●	E29
19M508FR-MA														●	●			●	●	
19M512FR-MA														●	●			●	●	
19M516FR-MA															●			●	●	
19M518FR-MA																				
19M520FR-MA														●	●			●	●	
19M530FR-MA															●			●	●	
19M532FR-MA														●	●			●	●	
19M540FR-MA														●	●			●	●	
19M550FR-MA														●	●			●	●	

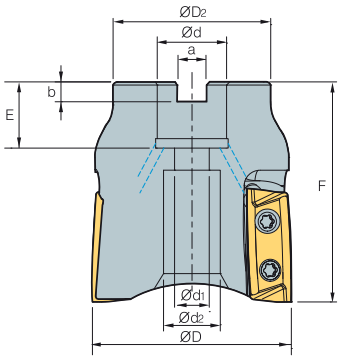
Designation	Cermet		Coated												Uncoated				page
	CN2000	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT 19M504ER-ML																				E29
19M508ER-ML																				
19M512ER-ML																				
19M516ER-ML																				
19M518ER-ML																				
19M520ER-ML																				
19M530ER-ML																				
19M532ER-ML																				
19M540ER-ML																				
19M550ER-ML																				

Parts

Specification	Screw	Wrench
Ø32~Ø100	PTKA0407 PTKA0408	TW 15S

Available inserts E29

PALCM







AA 90°

- AR: 16°
- RR: -8°

(mm)

Designation			ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	ap	kg
PALCM	063HR	4	63	50	22	11	21	10	6.3	20	70	34	0.57

Available inserts

LXET-MA LXET-ML


Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LXET	340504PEFR-63-MA																			E12
	3405PEFR-63-MA																		●	
	340512PEFR-63-MA																			
	340516PEFR-63-MA																			
	340504PEER-63-ML																			
	3405PEER-63-ML																			
	340512PEER-63-ML																			
	340516PEER-63-ML																			

Available arbors

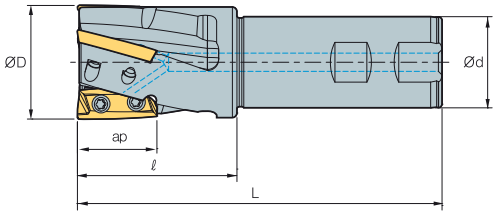
Designation		Ød	Available arbors
PALCM	063HR	22	BT□□-FMC22-□□

Parts

Specification	Screw	Wrench
Ø63	FTGA0511-P	TW20-100

Available inserts E12 Available arbors and bolt E400~E402

PALS (Single-edge)



AA 90°

- AR: 12°~16°
- RR: -5°~ -9°

(mm)

Designation			ØD	Ød	ℓ	L	ap	kg
PALS	032HR-2S20	2	32	20	50	140	25	0.36
	032HR-2S25	2	32	25	50	140	25	0.48
	032HR-2S32	2	32	32	50	140	25	0.71
	040HR-2S32	2	40	32	50	140	25	0.85
	040HR-2S40	2	40	40	50	140	25	1.16
	040HR-2S42	2	40	42	50	140	25	1.26
	040HR-3S32	3	40	32	50	140	25	0.80
	040HR-3S40	3	40	40	50	140	25	1.10
	040HR-3S42	3	40	42	50	140	25	1.20

Available inserts

LXET-MA LXET-ML

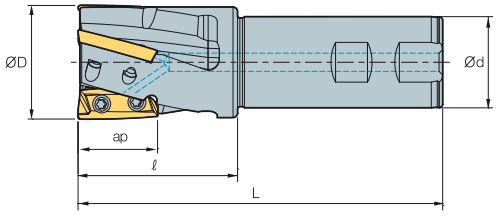
Type	Designation		Cermet		Coated												Uncoated			page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
Ø32	LXET	250404PEFR-32-MA																			E12
		2504PEFR-32-MA																		●	
		250412PEFR-32-MA																			
		250416PEFR-32-MA																			
		250404PEER-32-ML																			
		2504PEER-32-ML																			
		250412PEER-32-ML																			
		250416PEER-32-ML																			
Ø40	LXET	250404PEFR-40-MA																			
		2504PEFR-40-MA																			
		250412PEFR-40-MA																			
		250416PEFR-40-MA																			
		250404PEER-40-ML																			
		2504PEER-40-ML																			
		250412PEER-40-ML																			
		250416PEER-40-ML																			

Parts

Specification	Screw	Wrench
Ø32	FTKA0408	TW15S
Ø40	FTKA0410	TW15S

Available inserts E12

PALS (Single-edge)



AA 90°

- AR: 12°~16°
- RR: -5°~ -9°

(mm)

Designation			ØD	Ød	ℓ	L	ap	kg
PALS	050HR-3S32	3	50	32	70	160	34	1.10
	050HR-3S40	3	50	40	70	160	34	1.40
	050HR-3S42	3	50	42	70	160	34	1.50
	063HR-4S32	4	63	32	70	160	34	1.60
	063HR-4S40	4	63	40	70	160	34	1.92
	063HR-4S42	4	63	42	70	160	34	2.00

Available inserts

LXET-MA LXET-ML

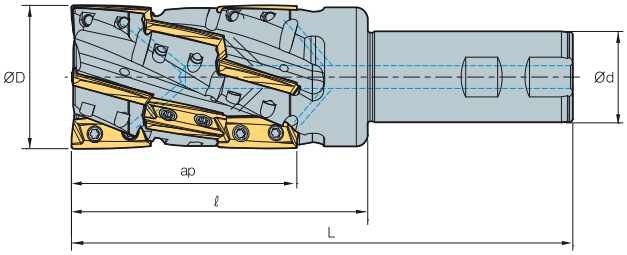
Type	Designation		Cermet		Coated												Uncoated			page
			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
Ø50	LXET	340504PEFR-50-MA																		●	E12
		3405PEFR-50-MA																		●	
		340512PEFR-50-MA																			
		340516PEFR-50-MA																			
		340504PEER-50-ML																			
		3405PEER-50-ML														●					
		340512PEER-50-ML																			
		340516PEER-50-ML																			
Ø63	LXET	340504PEFR-63-MA																			
		3405PEFR-63-MA																		●	
		340512PEFR-63-MA																			
		340516PEFR-63-MA																			
		340504PEER-63-ML																			
		3405PEER-63-ML																			
		340512PEER-63-ML																			
		340516PEER-63-ML																			

Parts

Specification	Screw	Wrench
Ø50	FTGA0510-P	TW20-100
Ø63	FTGA0511-P	TW20-100

Available inserts E12

PALS (Multi-edge)



• AR: 16°
• RR: -8°

(mm)

Designation			Ød	Ød1	ℓ	L	ap	kg
PALS	063HM-4S32	12	63	32	130	220	96	1.60
	063HM-4S40	12	63	40	130	220	96	1.92
	063HM-4S42	12	63	42	130	220	96	2.00

Available inserts

LXET-MA LXET-ML

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LXET	340504PEFR-63-MA																			E12
	3405PEFR-63-MA																		●	
	340512PEFR-63-MA																			
	340516PEFR-63-MA																			
	340504PEER-63-ML																			
	3405PEER-63-ML																			
	340512PEER-63-ML																			
	340516PEER-63-ML																			

Parts

Specification	Screw	Wrench
Ø63	FTGA0511-P	TW20-100

Available inserts E12

PXL(S) new

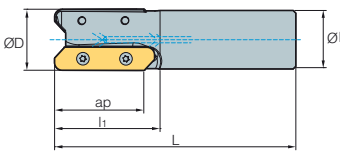


Fig. 1

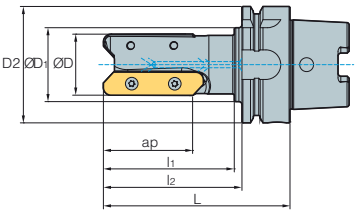


Fig. 2

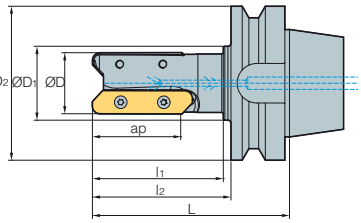
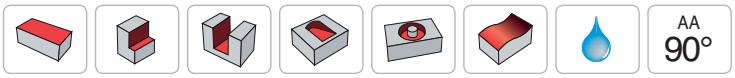


Fig. 3



AA
90°

- AR: 5°~17.5°
- RR: -14°~ -5°

(mm)

Designation			ØD	ØD1	ØD2	l1	l2	L	ap	kg	Fig.
PXLS	040HR-2S40	2	40	40	-	85	-	175	57	1.23	1
	040HR-3S40	3	40	40	-	85	-	175	57	1.11	1
	050HR-3S40	3	50	40	-	85	-	185	57	1.51	1
HSK63A	PXL04090HR-2F	2	40	48	63	85	90	116	57	1.13	2
HSK100A	PXL04090HR-3F	3	40	70	100	90	100	129	57	2.74	2
	PXL08090HR-5F	5	80	77	100	-	90	119	57	4.29	2
BT50	PXL04090HR-2F	2	40	48	100	85	90	128	57	4.13	3

Available inserts

LDET-MA

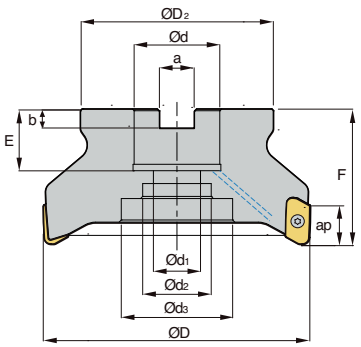
Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LDET	650540PPFR-MA																			E10
	650550PPFR-MA																			

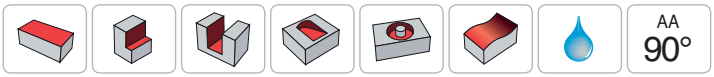
Parts

Specification	Screw	Wrench
Ø40~80	FTGA0511-P	TW20-100

Available inserts E10

PAVCM-XD19





AA 90°

- AR: 11°~14°
- RR: -11°~ -9°

(mm)

	Designation		ØD	ØD2	Ød	Ød1	Ød2	Ød3	a	b	E	F	ap	kg
PAVCM	040R-16-3-XD19-A,B	3	40	34	16	9	13.5	-	8.4	5.6	16	45	17	0.17
	050R-22-4-XD19-A,B	4	50	42	22	11	18	-	10.4	6.3	21	50	17	0.35
	063R-22-5-XD19-A,B	5	63	42	22	11	18	-	10.4	6.3	21	50	17	0.53
	080R-27-5-XD19-A,B	5	80	60	27	14	20	-	12.4	7.0	24	50	17	0.88
	100R-32-6-XD19-A,B	6	100	70	32	18	26	42	14.4	8.0	25	63	17	1.72
	125R-40-7-XD19-A,B	7	125	90	40	22	32	52	16.4	9.0	29	63	17	2.82

- Type A uses Insert Nose R 0.4~3.2, and Type B uses Nose R 4.0 ~ 5.0
- When using a spindle at high speed, please check the balance of tool and use it after replacing with the new screw.

Available inserts

XDET-MA

	Designation	Cermet		Coated												Uncoated		page	Designation	Cermet		Coated												Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05			CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05	
XDET	190504PEFR-MA																	●	E10	XDET	190524PEFR-MA															●	
	190508PEFR-MA																	●●			190530PEFR-MA															●●	
	190512PEFR-MA																	●			190532PEFR-MA															●	E10
	190516PEFR-MA																	●●			190540PEFR-MA															●	
	190520PEFR-MA																	●			190550PEFR-MA															●	

Available arbors

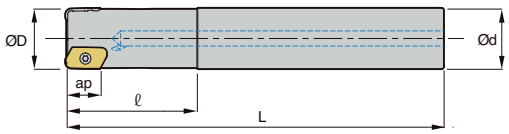
	Designation	Available arbors
PAVCM	040R-16-3-XD19	BT□□-FMC16-□□
	050R-22-4-XD19	BT□□-FMC22-□□
	063R-22-5-XD19	BT□□-FMC22-□□
	080R-27-5-XD19	BT□□-FMC27-□□
	100R-32-6-XD19	BT□□-FMC32-□□
	125R-40-7-XD19	BT□□-FMC40-□□

Parts

Specification	Screw	Wrench
Ø40~Ø125	PTKA0408-A	TW 15S

Available inserts E10 Available arbors and bolt E400~E402

PAVS-XD19



AA 90°

- AR: 8°~11°
- RR: -14°~ -11°

(mm)

Designation			ØD	Ød	ℓ	L	ap	kg
PAVS	025R-2C25-140-XD19-A,B	2	25	25	60	140	17	0.40
	032R-2C32-150-XD19-A,B	2	32	32	70	150	17	0.76
	032R-2C32-200-XD19-A,B	2	32	32	70	200	17	1.06
	040R-3C40-200-XD19-A,B	3	40	40	70	200	17	1.71

- Type A uses Insert Nose R 0.4~3.2, and Type B uses Nose R 4.0~5.0
- When using a spindle at high speed, please check the balance of tool and use it after replacing with the new screw.

Available inserts

XDET-MA

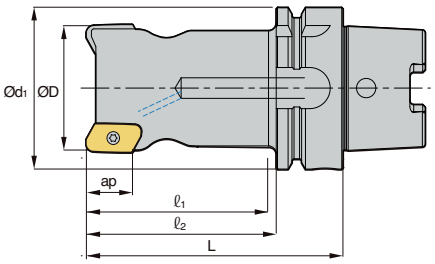
Designation		Cermet		Coated											Uncoated		page	Designation		Cermet		Coated										Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05				CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05	
XDET	190504PEFR-MA																	●		XDET	190524PEFR-MA															●	
	190508PEFR-MA																●	●			190530PEFR-MA															●	●	
	190512PEFR-MA																	●	E10		190532PEFR-MA															●	E10
	190516PEFR-MA																●	●			190540PEFR-MA															●	
	190520PEFR-MA																	●			190550PEFR-MA															●	

Parts

Specification	Screw	Wrench
Ø25~Ø40	PTKA0408-A	TW 15S

Available inserts **E10** Available arbors and bolt **E400~E402**

HSK-XD19



AA 90°

- AR: 9°~13°
- RR: -11°~ -13°

(mm)

Designation			ØD	Ød1	ℓ1	ℓ2	L	ap	kg
HSK63A	PAV032R-3-100-XD19-A,B	3	32	63	60	74	100	17	0.97
	PAV050R-3-100-XD19-A,B	3	50	63	72	74	100	17	1.37

- Type A uses Insert Nose R 0.4~3.2, and Type B uses Nose R 4.0 ~ 5.0
- When using a spindle at high speed, please check the balance of tool and use it after replacing with the new screw.

Available inserts

XDET-MA

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05	
XDET	190504PEFR-MA																	●	
	190508PEFR-MA																	●●	
	190512PEFR-MA																	●	E10
	190516PEFR-MA																	●●	
	190520PEFR-MA																	●	

Designation		Cermet		Coated											Uncoated		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05	
XDET	190524PEFR-MA																	●	
	190530PEFR-MA																	●●	
	190532PEFR-MA																	●	E10
	190540PEFR-MA																	●	
	190550PEFR-MA																	●	

Parts

Specification	Screw	Wrench
Ø32~Ø50	PTKA0408-A	TW 15S

Available inserts E10 Available arbors and bolt E400~E402

MAT (Steel shank type)

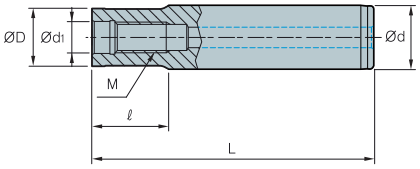


Fig. 1

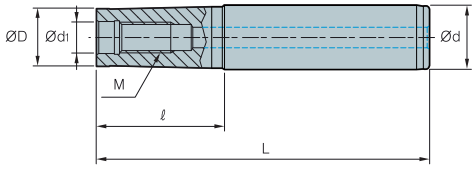


Fig. 2

(mm)

Designation		ØD	Ød	Ød1	ℓ	L	M	Fig.
MAT-	M06-020-S10S	9.5	10	6.5	20	70	M06	1
	M6B-020-S12S	11.0	12	6.5	20	76	M06	1
	M6B-040-S12S	11.0	12	6.5	40	96	M06	1
	M08-020-S16S	14.5	16	8.5	20	80	M08	1
	M10-030-S20S	18.0	20	10.5	30	100	M10	1
	M12-030-S25S	22.5	25	12.5	29	110	M12	1
	M16-035-S32S	28.5	32	17.0	35	125	M16	1
	M06-040-S12T	9.5	12	6.5	40	96	M06	2
	M06-065-S16T	9.5	16	6.5	65	125	M06	2
	M6B-065-S16T	11.0	16	6.5	65	125	M06	2
	M6B-080-S16T	11.0	16	6.5	80	140	M06	2
	M08-040-S16T	14.5	16	8.5	40	100	M08	2
	M08-065-S16T	14.5	16	8.5	65	125	M08	2
	M08-080-S20T	14.5	20	8.5	80	150	M08	2
	M08-110-S25T	14.5	25	8.5	110	190	M08	2
	M10-050-S20T	18.0	20	10.5	50	120	M10	2
	M10-070-S20T	18.0	20	10.5	70	140	M10	2
	M10-090-S25T	18.0	25	10.5	90	170	M10	2
	M10-110-S25T	18.0	25	10.5	110	190	M10	2
	M10-130-S32T	18.0	32	10.5	130	220	M10	2
	M12-050-S25T	22.5	25	12.5	50	130	M12	2
	M12-070-S25T	22.5	25	12.5	70	150	M12	2
	M12-090-S25T	22.5	25	12.5	90	170	M12	2
	M12-110-S32T	22.5	32	12.5	110	200	M12	2
	M12-175-S40T	22.5	40	12.5	175	300	M12	2
	M16-055-S32T	28.5	32	17.0	55	145	M16	2
	M16-080-S32T	28.5	32	17.0	80	170	M16	2
	M16-120-S32T	28.5	32	17.0	120	210	M16	2
	M16-175-S40T	28.5	40	17.0	175	300	M16	2

• S: straight neck adaptor • T: taper neck adaptor

FMRM type	LBE-MHD type	PAM/PAXM type	AMM type	RM3PM type	RM4PM/RM4ZM type
					
E244~247, E256~259	E322	E356, 361	E180~182	E94	E107, 109

RM6PM type	HFMDM type	HFMM type	HRMM type	HRMDM type	GBEM type
					
E114	E267	E275	E297, 298	E289~291	E326

Applicable Modular **E42, E43** (FMRM, LBE, PAM, AMM, RM4PM, HFMM, RM4ZM, HRMM, PAXM)

MAT-C (Carbide shank type)

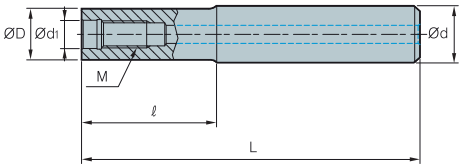


Fig. 1

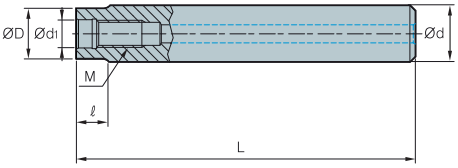


Fig. 2

(mm)

Designation		ØD	Ød	Ød1	ℓ	L	M	Fig.
MAT-	M06-030-S10S-C-80	9.5	10	6.5	30	80	M06	1
	M06-050-S10S-C-100	9.5	10	6.5	50	100	M06	1
	M06-080-S10S-C-130	9.5	10	6.5	80	130	M06	1
	M6B-030-S12S-C-80	11	12	6.5	30	80	M06	1
	M6B-050-S12S-C-100	11	12	6.5	50	100	M06	1
	M6B-080-S12S-C-130	11	12	6.5	80	130	M06	1
	M08-080-S16S-C	14.5	16	8.5	80	150	M08	1
	M08-110-S16S-C	14.5	16	8.5	110	180	M08	1
	M08-150-S16S-C	14.5	16	8.5	150	250	M08	1
	M08-010-S16S-C-150	14.5	16	8.5	10	150	M08	2
	M08-010-S16S-C-180	14.5	16	8.5	10	180	M08	2
	M08-010-S16S-C-250	14.5	16	8.5	10	250	M08	2
	M10-090-S20S-C	18	20	10.5	90	170	M10	1
	M10-110-S20S-C	18	20	10.5	110	200	M10	1
	M10-175-S20S-C	18	20	10.5	175	300	M10	1
	M10-010-S20S-C-170	18	20	10.5	10	170	M10	2
	M10-010-S20S-C-200	18	20	10.5	10	200	M10	2
	M10-010-S20S-C-300	18	20	10.5	10	300	M10	2
	M12-090-S25S-C	22.5	25	12.5	90	170	M12	1
	M12-110-S25S-C	22.5	25	12.5	110	200	M12	1
	M12-175-S25S-C	22.5	25	12.5	175	300	M12	1
	M12-015-S25S-C-170	22.5	25	12.5	15	170	M12	2
	M12-015-S25S-C-200	22.5	25	12.5	15	200	M12	2
	M12-015-S25S-C-300	22.5	25	12.5	15	300	M12	2
	M16-090-S32S-C	28.5	32	17	90	180	M16	1
	M16-120-S32S-C	28.5	32	17	120	210	M16	1
	M16-175-S32S-C	28.5	32	17	175	300	M16	1
	M16-020-S32S-C-180	28.5	32	17	20	180	M16	2
	M16-020-S32S-C-210	28.5	32	17	20	210	M16	2
	M16-020-S32S-C-300	28.5	32	17	20	300	M16	2

FMRM type	LBE-MHD type	PAM/PAXM type	AMM type	RM3PM type	RM4PM/RM4ZM type
					
E244~247, E256~259	E322	E356, 361	E180~182	E94	E107, 109

RM6PM type	HFMDM type	HFMM type	HRMM type	HRMDM type	GBEM type
					
E114	E267	E275	E297, 298	E289~291	E326

Applicable Modular **E42, E43** (FMRM, LBE, PAM, AMM, RM4PM, HFMM, RM4ZM, HRMM, PAXM)

Adjusting side cutter

Code system

P: Plane type

B: Boss type

A: Adjusting side cutter

Adjusting

Cutter type

For half side cutter, minimum width of the cutter will be written only

Max. width of cutter

R A FC B 125 14 18 – R

Insert clamping way

R: Radial type (Using SDXT)

T: Tangential type (Using CNHQ)

Insert configuration

FC Full side cutter

HC Half side cutter

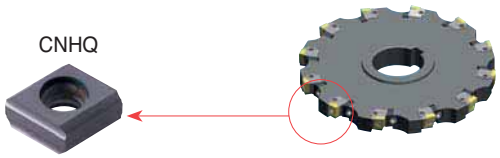
Cutter Dia.

Min. width of cutter

Hand

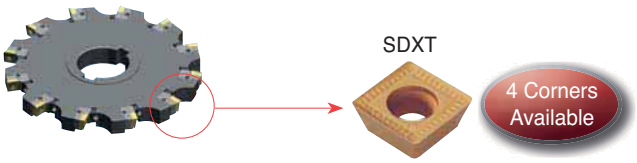
Unmarked	R	L
Neutral	Right	Left
Full side cutter (Plane type)	Half side cutter (Boss type)	

Tangential type (High rigidity)



- Medium/Roughing
- Excellent performance at medium to roughing range (14~30 mm) table operation due to the strong rigidity of the cutter
- Good performance in heavy interruption and deep depth of cut application

Radial type (Low cutting load)

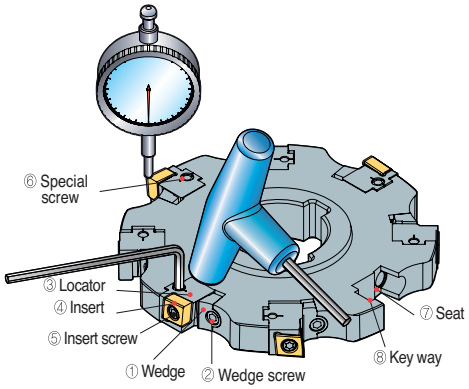


- Medium/Finishing
- Suitable for small width cutting operation (12~24 mm)
- 3 dimensional chip breaker provides smooth cutting operation
- Several chip breakers as per applications are available (MF, MM, FA)
- Economical insert using 4 cutting-edges per insert

Insert features

- Precise adjustable side cutter can control the width of the cutter by 5 ㎛ unit
- Since the width of the cutter is adjustable up to ±1.5 mm, single cutter can cover various cutting width
- Specially designed clamping system of the locator provides excellent rigidity by using elastic deformation of the locator
- Tangential type clamping system of insert provides enough strength can withstand large width cutting operations
- 3-dimensional chip breaker of insert provides smooth cutting with low cutting load at medium to finishing range

Operating manual



• How to assemble the adjusting side cutter

1. Clamp ①wedge slightly on ⑦locator-wedge pocket by using ②wedge screw
2. Put ③locator on ⑦locator-wedge pocket along with the ⑧key-way
3. Tighten the ⑥taper screw little bit to set proper position of locator
4. Tighten the ②wedge screw tightly by using 70~80N.m torque
5. After, put the ④insert on insert pocket of ③locator, clamp it with ⑤insert screw by using 40~50N.m torque

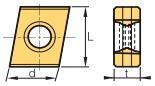
• How to adjust Run-out & cutting width

1. Settle the adjusting side cutter after cleaning to the jig for measurement
2. Un-screw the ②Wedge screw first, then tighten ①wedge slightly again by using 8N.m torque
3. Adjusting the height of cutting-edge by using a dial gauge to set the width of the cutter
4. Tighten the ②wedge screw tightly by using 70~80N.m torque
5. To finish the setting, tighten the ⑥taper screw for strong clamp

Tangential type

Cutting width per insert & type of cutter

CNHQ



(mm)

Designation		Coated		Cutting width for half side cutter (ap)	Cutting width for full side cutter (ap)	L	d	t
		NCM325	PC6510					
CNHQ1005	- C0.5			9.0	14~18	10	10	5.4
	- R0.5							
	- C1.0			8.5	14~17			
	- R1.0							
CNHQ1305	- C0.5			12	18~21/21~24	12.7	10	5.4
	- R0.5							
	- C1.0			11.5	18~21/21~23			
	- R1.0							
	- C1.5			11	18~21/21~22			
	- R1.5							
CNHQ1606	- C0.5			15	24~27/27~30	16	12	6.4
	- R0.5							
	- C1.0			14.5	24~27/27~29			
	- R1.0							
	- C1.5			14	24~27/27~28			
	- R1.5							
	- C2.0			13.5	24~27			
	- R2.0							

Applicable holder **E375, E376** Available arbors and bolt **E400~E402**

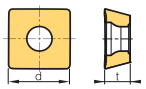
Recommended cutting condition

ISO	Grades	vc (m/min)	fz (mm/t)
P	NCM325	190~310	0.10~0.30
	PC3700	160~270	
M	PC5300	90~150	0.10~0.30
	NCM335	180~290	
K	PC6510	140~230	0.10~0.30

Radial type

Cutting width as per insert & type of cutter

MA MF MM



(mm)

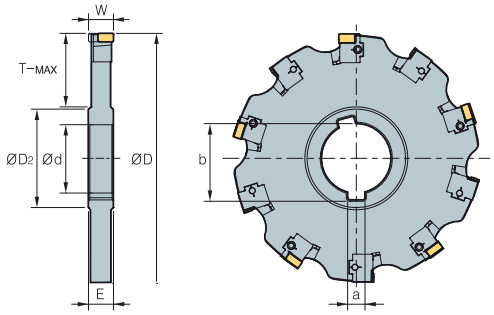
Designation		Coated												Uncoated		Cutting width for half side cutter (ap)	Cutting width for full side cutter (ap)	d	t
		NCM325	NC5330	NCM535	NCM545	PC2505	PC2510	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	H01	H05			
SDXT	09M405R-MA														●	●	8	12~14 14~16	9.525	4
	09M405L-MA																			
	09M405R-MF	●						●		●	●		●	●						
	09M405L-MF																			
	09M405R-MM	●						●		●	●		●	●						
	09M405L-MM							●		●										
	130508R-MA														●	●	10.5	16~18 18~20 20~22 22~24	13.5	5.56
	130508L-MA																			
	130508R-MF	●						●		●	●		●	●						
	130508L-MF																			
	130508R-MM	●						●		●	●		●	●						
	130508L-MM																			

Applicable holder **E377, E378** Available arbors and bolt **E400~E402**

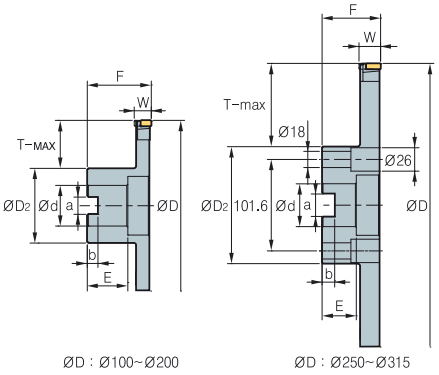
Recommended cutting condition

ISO	Grades	vc (m/min)	fz (mm/t)
P	NCM325	190~310	0.08~0.30
	NCM335	180~290	0.08~0.25
	PC3700	160~270	0.10~0.25
M	PC9530	90~150	0.10~0.25
	PC5300	90~150	
K	PC8110	140~230	0.10~0.25
	PC6510	140~230	

Tangential type (Full side cutter)



• TAFCP(M)



• TAFCB(M)

(mm)

Designation		Ød	E	ØD2	a	b	T-MAX
TAFCP (M)	1001418	31.75 (32)	14	48	7.92 (8)	35.2	24
	1251418	38.1 (40)	14	56	9.52 (10)	42.3	32
	1601418	38.1 (40)	14	56	9.52 (10)	42.3	50
	2001418	50.8 (50)	14	72	12.7 (12)	55.8	61
	2501418	50.8 (50)	14	72	12.7 (12)	55.8	86
	3151418	50.8 (50)	14	72	12.7 (12)	55.8	118
TAFCP (M)	1001821	31.75 (32)	18	48	7.92 (8)	35.2	24
	1251821	38.1 (40)	18	56	9.52 (10)	42.3	32
	1601821	38.1 (40)	18	56	9.52 (10)	42.3	50
	2001821	50.8 (50)	18	72	12.7 (12)	55.8	61
	2501821	50.8 (50)	18	72	12.7 (12)	55.8	86
	3151821	50.8 (50)	18	72	12.7 (12)	55.8	118
TAFCP (M)	1002124	31.75 (32)	21	48	7.92 (8)	35.2	24
	1252124	38.1 (40)	21	56	9.52 (10)	42.3	32
	1602124	38.1 (40)	21	56	9.52 (10)	42.3	50
	2002124	50.8 (50)	21	72	12.7 (12)	55.8	61
	2502124	50.8 (50)	21	72	12.7 (12)	55.8	86
	3152124	50.8 (50)	21	72	12.7 (12)	55.8	118
TAFCP (M)	1252427	38.1 (40)	24	56	9.52 (10)	42.3	32
	1602427	38.1 (40)	24	56	9.52 (10)	42.3	50
	2002427	50.8 (50)	24	72	12.7 (12)	55.8	61
	2502427	50.8 (50)	24	72	12.7 (12)	55.8	86
	3152427	50.8 (50)	24	72	12.7 (12)	55.8	118
TAFCP (M)	1252730	38.1 (40)	27	56	9.52 (10)	42.3	32
	1602730	38.1 (40)	27	56	9.52 (10)	42.3	50
	2002730	50.8 (50)	27	72	12.7 (12)	55.8	61
	2502730	50.8 (50)	27	72	12.7 (12)	55.8	86
	3152730	50.8 (50)	27	72	12.7 (12)	55.8	118

Designation		Ød	F	ØD2	a	b	E	T-MAX
TAFCB (M)	1001418R/L	31.75 (32)	50	54	12.7 (14.4)	8	28	21
	1251418R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25
	1601418R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43
	2001418R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53
	2501418R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58
	3151418R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90
TAFCB (M)	1001821R/L	31.75 (32)	50	50	12.7 (14.4)	8	28	21
	1251821R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25
	1601821R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43
	2001821R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53
	2501821R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58
	3151821R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90
TAFCB (M)	1002124R/L	31.75 (32)	50	54	12.7 (14.4)	8	28	21
	1252124R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25
	1602124R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43
	2002124R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53
	2502124R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58
	3152124R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90
TAFCB (M)	1252427R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25
	1602427R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43
	2002427R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53
	2502427R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58
	3152427R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90
TAFCB (M)	1252730R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25
	1602730R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43
	2002730R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53
	2502730R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58
	3152730R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90

Dimensions		
ØD	W	No. of tooth
100	14-18	6
125	14-18	8
160	14-18	10
200	14-18	12
250	14-18	16
315	14-18	20
100	18-21	6
125	18-21	8
160	18-21	10
200	18-21	12
250	18-21	16
315	18-21	20
100	21-24	6
125	21-24	8
160	21-24	10
200	21-24	12
250	21-24	16
315	21-24	20
125	24-27	8
160	24-27	10
200	24-27	12
250	24-27	16
315	24-27	20
125	27-30	8
160	27-30	10
200	27-30	12
250	27-30	16
315	27-30	20

Available inserts and Recommended cutting condition **E374** • The ap (Maximum width of cutter) size written above is the number when using insert having corner size C0.5 or R0.5

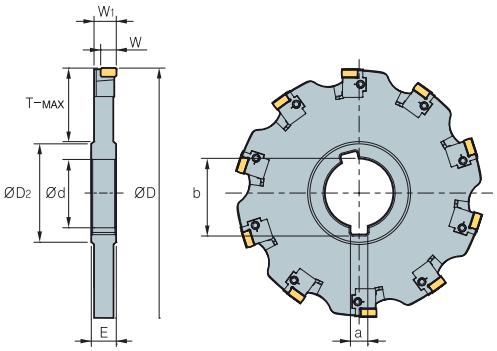
( )Metric size

Parts

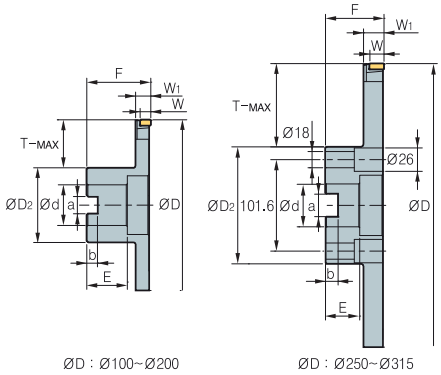
Specification Edge width (TAHCP/B)	Insert	Locator	Wedge	Insert screw	Wedge screw	Locator screw	Insert wrench	Wedge Wrench	Locator Wrench
□□□1418R/L	CNHQ1005-□□□	LSA-CH10R/L	WSA10N	FTKA0410	DHA0617	SHGA0411	TW15S	HW30	-
□□□1821R/L	CNHQ1305-□□□	LSA-CH13R/L	WSA13N	FTKA0410	DHA0821F	SHGA0411	TW15S	HW40	HW30L
□□□2124R/L	CNHQ1305-□□□	LSA-CH13R/L	WSA13N	FTKA0410	DHA0821F	SHGA0411	TW15S	HW40	HW30L
□□□2427R/L	CNHQ1606-□□□	LSA-CH16R/L	WSA13N	FTGA0513-P	DHA0821F	SHGA0411	TW20S	HW40	HW30L
□□□2730R/L	CNHQ1606-□□□	LSA-CH16R/L	WSA13N	FTGA0513-P	DHA0821F	SHGA0411	TW20S	HW40	HW30L

• Note) The Wedge screw for 1001821, 1002124 cutter is DHA0818F

Tangential type (Half side cutter)



• TAHCP(M)



• TAHCB(M)

(mm)

Designation		Ød	E	ØD2	a	b	T-MAX	Designation		Ød	F	ØD2	a	b	E	T-MAX	Dimensions ØD	W	W1	No. of tooth
TAHCP (M)	10014R/L	31.75 (32)	14	48	7.92 (8)	35.2	24	TAHCB (M)	10014R/L	31.75 (32)	50	54	12.7 (14.4)	8	28	21	100	9	13.25	6
	12514R/L	38.1 (40)	14	56	9.52 (10)	42.3	32		12514R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	9	13.25	8
	16014R/L	38.1 (40)	14	56	9.52 (10)	42.3	50		16014R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	9	13.25	10
	20014R/L	50.8 (50)	14	72	12.7 (12)	55.8	61		20014R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	9	13.25	12
	25014R/L	50.8 (50)	14	72	12.7 (12)	55.8	86		25014R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	9	13.25	16
	31514R/L	50.8 (50)	14	72	12.7 (12)	55.8	118		31514R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	9	13.25	20
TAHCP (M)	10018R/L	31.75 (32)	18	48	7.92 (8)	35.2	24	TAHCB (M)	10018R/L	31.75 (32)	50	50	12.7 (14.4)	8	28	21	100	12	16.75	6
	12518R/L	38.1 (40)	18	56	9.52 (10)	42.3	32		12518R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	12	16.75	8
	16018R/L	38.1 (40)	18	56	9.52 (10)	42.3	50		16018R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	12	16.75	10
	20018R/L	50.8 (50)	18	72	12.7 (12)	55.8	61		20018R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	12	16.75	12
	25018R/L	50.8 (50)	18	72	12.7 (12)	55.8	86		25018R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	12	16.75	16
	31518R/L	50.8 (50)	18	72	12.7 (12)	55.8	118		31518R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	12	16.75	20
TAHCP (M)	10021R/L	31.75 (32)	21	48	7.92 (8)	35.2	24	TAHCB (M)	10021R/L	31.75 (32)	50	54	12.7 (14.4)	8	28	21	100	12	19.75	6
	12521R/L	38.1 (40)	21	56	9.52 (10)	42.3	32		12521R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	12	19.75	8
	16021R/L	38.1 (40)	21	56	9.52 (10)	42.3	50		16021R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	12	19.75	10
	20021R/L	50.8 (50)	21	72	12.7 (12)	55.8	61		20021R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	12	19.75	12
	25021R/L	50.8 (50)	21	72	12.7 (12)	55.8	86		25021R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	12	19.75	16
	31521R/L	50.8 (50)	21	72	12.7 (12)	55.8	118		31521R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	12	19.75	20
TAHCP (M)	12524R/L	38.1 (40)	24	56	9.52 (10)	42.3	32	TAHCB (M)	12524R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	15	22.75	8
	16024R/L	38.1 (40)	24	56	9.52 (10)	42.3	50		16024R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	15	22.75	10
	20024R/L	50.8 (50)	24	72	12.7 (12)	55.8	61		20024R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	15	22.75	12
	25024R/L	50.8 (50)	24	72	12.7 (12)	55.8	86		25024R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	15	22.75	16
	31524R/L	50.8 (50)	24	72	12.7 (12)	55.8	118		31524R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	15	22.75	20
TAHCP (M)	12527R/L	38.1 (40)	27	56	9.52 (10)	42.3	32	TAHCB (M)	12527R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	15	25.75	8
	16027R/L	38.1 (40)	27	56	9.52 (10)	42.3	50		16027R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	15	25.75	10
	20027R/L	50.8 (50)	27	72	12.7 (12)	55.8	61		20027R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	15	25.75	12
	25027R/L	50.8 (50)	27	72	12.7 (12)	55.8	86		25027R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	15	25.75	16
	31527R/L	50.8 (50)	27	72	12.7 (12)	55.8	118		31527R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	15	25.75	20

Available inserts and Recommended cutting condition **E374** • The ap (Maximum width of cutter) size written above is the number when using insert having corner size C0.5 or R0.5

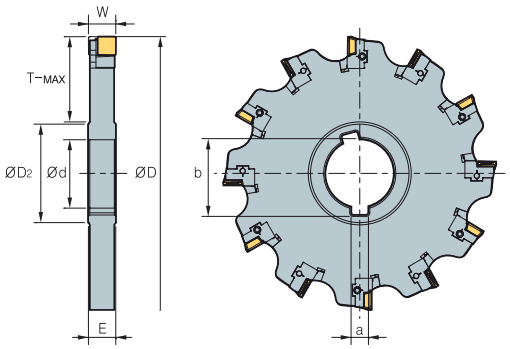
( )Metric size

Parts

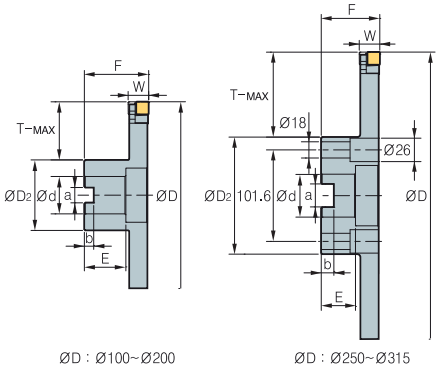
Specification / Edge width (TAHCP/B)	Insert	Locator	Wedge	Insert screw	Wedge screw	Locator screw	Insert wrench	Wedge Wrench	Locator Wrench
□□□1418R/L	CNHQ1005-□□□	LSA-CH10R/L	WSA10N	FTKA0410	DHA0617	SHGA0411	TW15S	HW30	-
□□□1821R/L	CNHQ1305-□□□	LSA-CH13R/L	WSA13N	FTKA0410	DHA0821F	SHGA0411	TW15S	HW40	HW30L
□□□2124R/L	CNHQ1305-□□□	LSA-CH13R/L	WSA13N	FTKA0410	DHA0821F	SHGA0411	TW15S	HW40	HW30L
□□□2427R/L	CNHQ1606-□□□	LSA-CH16R/L	WSA13N	FTGA0513-P	DHA0821F	SHGA0411	TW20S	HW40	HW30L
□□□2730R/L	CNHQ1606-□□□	LSA-CH16R/L	WSA13N	FTGA0513-P	DHA0821F	SHGA0411	TW20S	HW40	HW30L

• Note) The Wedge screw for 10018, 10021 cutter is DHA0818F

Radial type (Full side cutter)



• RAFCP(M)



• RAFCB(M)

(mm)

Designation		Ød	E	ØD2	a	b	T-MAX
RAFCP (M)	1001214	31.75 (32)	12	48	7.92 (8)	35.2	24
	1251214	38.1 (40)	12	56	9.52 (10)	42.3	32
	1601214	38.1 (40)	12	56	9.52 (10)	42.3	50
	2001214	50.8 (50)	12	72	12.7 (12)	55.8	61
	2501214	50.8 (50)	12	72	12.7 (12)	55.8	86
	3151214	50.8 (50)	12	72	12.7 (12)	55.8	118
RAFCP (M)	1001416	31.75 (32)	14	48	7.92 (8)	35.2	24
	1251416	38.1 (40)	14	56	9.52 (10)	42.3	32
	1601416	38.1 (40)	14	56	9.52 (10)	42.3	50
	2001416	50.8 (50)	14	72	12.7 (12)	55.8	61
	2501416	50.8 (50)	14	72	12.7 (12)	55.8	86
	3151416	50.8 (50)	14	72	12.7 (12)	55.8	118
RAFCP (M)	1251618	38.1 (40)	16	56	9.52 (10)	42.3	32
	1601618	38.1 (40)	16	56	9.52 (10)	42.3	50
	2001618	50.8 (50)	16	72	12.7 (12)	55.8	61
	2501618	50.8 (50)	16	72	12.7 (12)	55.8	86
	3151618	50.8 (50)	16	72	12.7 (12)	55.8	118
RAFCP (M)	1251820	38.1 (40)	18	56	9.52 (10)	42.3	32
	1601820	38.1 (40)	18	56	9.52 (10)	42.3	50
	2001820	50.8 (50)	18	72	12.7 (12)	55.8	61
	2501820	50.8 (50)	18	72	12.7 (12)	55.8	86
	3151820	50.8 (50)	18	72	12.7 (12)	55.8	118
RAFCP (M)	1252022	38.1 (40)	20	56	9.52 (10)	42.3	32
	1602022	38.1 (40)	20	56	9.52 (10)	42.3	50
	2002022	50.8 (50)	20	72	12.7 (12)	55.8	61
	2502022	50.8 (50)	20	72	12.7 (12)	55.8	86
	3152022	50.8 (50)	20	72	12.7 (12)	55.8	118
RAFCP (M)	1252224	38.1 (40)	22	56	9.52 (10)	42.3	32
	1602224	38.1(40)	22	56	9.52 (10)	42.3	50
	2002224	50.8 (50)	22	72	12.7 (12)	55.8	61
	2502224	50.8 (50)	22	72	12.7 (12)	55.8	86
	3152224	50.8 (50)	22	72	12.7 (12)	55.8	118

Designation		Ød	F	ØD2	a	b	E	T-MAX	Dimensions ØD	W	No. of tooth
RAFCB (M)	1001214R/L	31.75 (32)	50	54	12.7 (14.4)	8	28	21	100	12-14	6
	1251214R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	12-14	8
	1601214R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	12-14	10
	2001214R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	12-14	12
	2501214R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	12-14	16
	3151214R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	12-14	20
RAFCB (M)	1001416R/L	31.75 (32)	50	50	12.7 (14.4)	8	28	21	100	14-16	6
	1251416R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	14-16	8
	1601416R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	14-16	10
	2001416R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	14-16	12
	2501416R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	14-16	16
	3151416R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	14-16	20
RAFCB (M)	1251618R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	16-18	8
	1601618R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	16-18	10
	2001618R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	16-18	12
	2501618R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	16-18	16
	3151618R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	16-18	20
RAFCB (M)	1251820R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	18-20	8
	1601820R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	18-20	10
	2001820R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	18-20	12
	2501820R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	18-20	16
	3151820R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	18-20	20
RAFCB (M)	1252022R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	20-22	8
	1602022R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	20-22	10
	2002022R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	20-22	12
	2502022R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	20-22	16
	3152022R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	20-22	20
RAFCB (M)	1252224R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	22-24	8
	1602224R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	22-24	10
	2002224R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	22-24	12
	2502224R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	22-24	16
	3152224R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	22-24	20

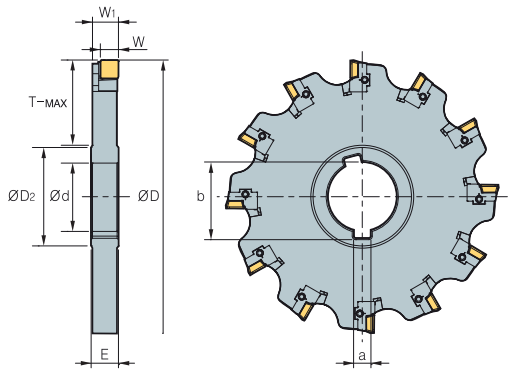
Available inserts and Recommended cutting condition **E374** • The ap (Maximum width of cutter) size written above is the number when using insert having corner size C0.5 or R0.5

( )Metric size

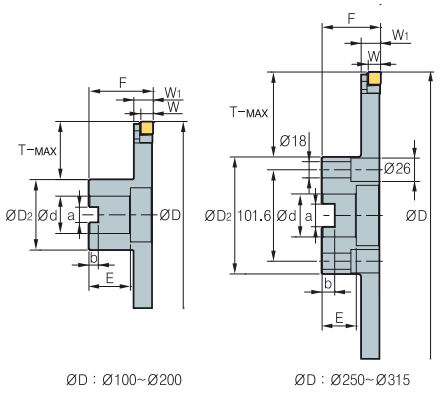
Parts

Specification Edge width (TAHCP/B)	Insert	Locator	Wedge		Insert screw	Wedge screw	Locator screw	Insert wrench	Wedge, locator wrench
			WSD09N	WSA10N					
□□□1214R/L	SDXT09M40□R/L	LSD09R/L	WSD09N		FTGA03508	DHA0617	SHGA0409	TW15S	HW30
□□□1416R/L	SDXT09M40□R/L	LSD09R/L	WSD09N		FTGA03508	DHA0617	SHGA0409	TW15S	HW30
□□□1618R/L	SDXT13050□R/L	LSD13R/L		WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□1820R/L	SDXT13050□R/L	LSD13R/L		WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□2022R/L	SDXT13050□R/L	LSD13R/L		WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□2224R/L	SDXT13050□R/L	LSD13R/L		WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30

Radial type (Half side cutter)



• RAHCP(M)



• RAHCB(M)

(mm)

Designation		Ød	E	ØD2	a	b	T-MAX
RAHCP (M)	10012R/L	31.75 (32)	12	48	7.92 (8)	35.2	24
	12512R/L	38.1 (40)	12	56	9.52 (10)	42.3	32
	16012R/L	38.1 (40)	12	56	9.52 (10)	42.3	50
	20012R/L	50.8 (50)	12	72	12.7 (12)	55.8	61
	25012R/L	50.8 (50)	12	72	12.7 (12)	55.8	86
	31512R/L	50.8 (50)	12	72	12.7 (12)	55.8	118
RAHCP (M)	10014R/L	31.75 (32)	14	48	7.92 (8)	35.2	24
	12514R/L	38.1 (40)	14	56	9.52 (10)	42.3	32
	16014R/L	38.1 (40)	14	56	9.52 (10)	42.3	50
	20014R/L	50.8 (50)	14	72	12.7 (12)	55.8	61
	25014R/L	50.8 (50)	14	72	12.7 (12)	55.8	86
	31514R/L	50.8 (50)	14	72	12.7 (12)	55.8	118
RAHCP (M)	12516R/L	38.1 (40)	16	56	9.52 (10)	42.3	32
	16016R/L	38.1 (40)	16	56	9.52 (10)	42.3	50
	20016R/L	50.8 (50)	16	72	12.7 (12)	55.8	61
	25016R/L	50.8 (50)	16	72	12.7 (12)	55.8	86
	31516R/L	50.8 (50)	16	72	12.7 (12)	55.8	118
RAHCP (M)	12518R/L	38.1 (40)	18	56	9.52 (10)	42.3	32
	16018R/L	38.1 (40)	18	56	9.52 (10)	42.3	50
	20018R/L	50.8 (50)	18	72	12.7 (12)	55.8	61
	25018R/L	50.8 (50)	18	72	12.7 (12)	55.8	86
	31518R/L	50.8 (50)	18	72	12.7 (12)	55.8	118
RAHCP (M)	12520R/L	38.1 (40)	20	56	9.52 (10)	42.3	32
	16020R/L	38.1 (40)	20	56	9.52 (10)	42.3	50
	20020R/L	50.8 (50)	20	72	12.7 (12)	55.8	61
	25020R/L	50.8 (50)	20	72	12.7 (12)	55.8	86
	31520R/L	50.8 (50)	20	72	12.7 (12)	55.8	118
RAHCP (M)	12522R/L	38.1 (40)	22	56	9.52 (10)	42.3	32
	16022R/L	38.1 (40)	22	56	9.52 (10)	42.3	50
	20022R/L	50.8 (50)	22	72	12.7 (12)	55.8	61
	25022R/L	50.8 (50)	22	72	12.7 (12)	55.8	86
	31522R/L	50.8 (50)	22	72	12.7 (12)	55.8	118

Designation		Ød	F	ØD2	a	b	E	T-MAX	Dimensions ØD	W	W1	No. of tooth
RAHCB (M)	10012R/L	31.75 (32)	50	54	12.7 (14.4)	8	28	21	100	8	11.1	6
	12512R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	8	11.1	8
	16012R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	8	11.1	10
	20012R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	8	11.1	12
	25012R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	8	11.1	16
	31512R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	8	11.1	20
RAHCB (M)	10014R/L	31.75 (32)	50	50	12.7 (14.4)	8	28	21	100	8	13.1	6
	12514R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	8	13.1	8
	16014R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	8	13.1	10
	20014R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	8	13.1	12
	25014R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	8	13.1	16
	31514R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	8	13.1	20
RAHCB (M)	12516R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	10.5	15	8
	16016R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	10.5	15	10
	20016R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	10.5	15	12
	25016R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	10.5	15	16
	31516R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	10.5	15	20
RAHCB (M)	12518R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	10.5	17	8
	16018R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	10.5	17	10
	20018R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	10.5	17	12
	25018R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	10.5	17	16
	31518R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	10.5	17	20
RAHCB (M)	12520R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	10.5	19	8
	16020R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	10.5	19	10
	20020R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	10.5	19	12
	25020R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	10.5	19	16
	31520R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	10.5	19	20
RAHCB (M)	12522R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	25	125	10.5	21	8
	16022R/L	38.1 (40)	60	70	15.9 (16.4)	10	30	43	160	10.5	21	10
	20022R/L	50.8 (40)	65	90	19.0 (16.4)	11	30	53	200	10.5	21	12
	25022R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	58	250	10.5	21	16
	31522R/L	47.625 (60)	65	130	25.4 (25.7)	14	38	90	315	10.5	21	20

Available inserts and Recommended cutting condition **E374**

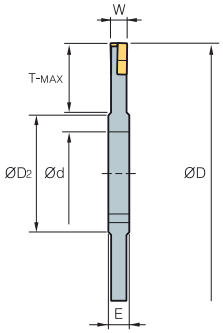
- The ap (Maximum width of cutter) size written above is the number when using insert having corner size R0.5. The ap is subject to change as per insert corner size
- The ap (Maximum width of cutter) size written above is the number when using SDXT09M405R-MM. The ap is subject to change as per insert corner size

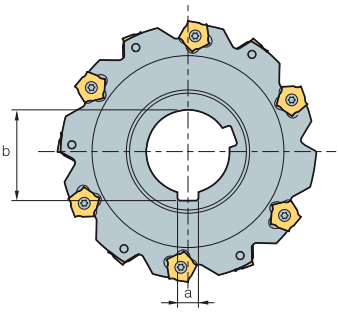
( ) Metric size

Parts

Specification Edge width (TAHCP/B)	Insert	Locator	Wedge	Insert screw	Wedge screw	Locator screw	Insert wrench	Wedge, locator wrench
□□□1214R/L	SDXT09M40□R/L	LSD09R/L	WSD09N	FTGA03508	DHA0617	SHGA0409	TW15S	HW30
□□□1416R/L	SDXT09M40□R/L	LSD09R/L	WSD09N	FTGA03508	DHA0617	SHGA0409	TW15S	HW30
□□□1618R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□1820R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□2022R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□2224R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30

SPP(M)





•AR: -2°
•RR: -28°

(mm)

Designation			ØD	W	T-MAX	Ød	a	b	E	ØD2	Insert	Screw	Wrench
SPP (SPPM)	080-04	8	80	4	20	25.4 (27)	6.35 (7)	28.04 (29.8)	8	40	PNEJ1223N	PTMA0403F	TW15S
	080-05	8	80	5	20	25.4 (27)	6.35 (7)	28.04 (29.8)	8	40	PNEJ1230N	PTMA0404F	TW15S
	080-06	8	80	6	20	25.4 (27)	6.35 (7)	28.04 (29.8)	8	40	PNEJ1235N	PTMA0405F	TW15S
	100-04	10	100	4	24	31.75 (32)	7.94 (8)	35.18 (34.8)	8	47	PNEJ1223N	PTMA0403F	TW15S
	100-05	10	100	5	24	31.75 (32)	7.94 (8)	35.18 (34.8)	8	47	PNEJ1230N	PTMA0404F	TW15S
	100-06	10	100	6	25	31.75 (32)	7.94 (8)	35.18 (34.8)	8	47	PNEJ1235N	PTMA0405F	TW15S
	100-07	10	100	7	25	31.75 (32)	7.94 (8)	35.18 (34.8)	10	47	PNEJ1240N	PTMA0406F	TW15S
	100-08	10	100	8	25	31.75 (32)	7.94 (8)	35.18 (34.8)	10	47	PNEJ1245N	PTKA0407F	TW15S
	100-09	10	100	9	25	31.75 (32)	7.94 (8)	35.18 (34.8)	12	47	PNEJ1250N	PTKA0408F	TW15S
	100-10	10	100	10	25	31.75 (32)	7.94 (8)	35.18 (34.8)	12	47	PNEJ1255N	PTKA0409F	TW15S
	125-04	12	125	4	30	38.1 (40)	9.53 (10)	42.32 (43.5)	8	56	PNEJ1223N	PTMA0403F	TW15S
	125-05	12	125	5	32	38.1 (40)	9.53 (10)	42.32 (43.5)	8	56	PNEJ1230N	PTMA0404F	TW15S
	125-06	12	125	6	32	38.1 (40)	9.53 (10)	42.32 (43.5)	8	56	PNEJ1235N	PTMA0405F	TW15S
	125-07	12	125	7	32	38.1 (40)	9.53 (10)	42.32 (43.5)	10	56	PNEJ1240N	PTMA0406F	TW15S
	125-08	12	125	8	32	38.1 (40)	9.53 (10)	42.32 (43.5)	10	56	PNEJ1245N	PTKA0407F	TW15S
	125-09	12	125	9	32	38.1 (40)	9.53 (10)	42.32 (43.5)	12	56	PNEJ1250N	PTKA0408F	TW15S
	125-10	12	125	10	32	38.1 (40)	9.53 (10)	42.32 (43.5)	12	56	PNEJ1255N	PTKA0409F	TW15S
	160-04	16	160	4	45	38.1 (40)	9.53 (10)	42.32 (43.5)	8	66	PNEJ1223N	PTMA0403F	TW15S
	160-05	16	160	5	45	38.1 (40)	9.53 (10)	42.32 (43.5)	8	66	PNEJ1230N	PTMA0404F	TW15S
	160-06	16	160	6	45	38.1 (40)	9.53 (10)	42.32 (43.5)	8	66	PNEJ1235N	PTMA0405F	TW15S
	160-07	16	160	7	45	38.1 (40)	9.53 (10)	42.32 (43.5)	10	66	PNEJ1240N	PTMA0406F	TW15S
	160-08	16	160	8	45	38.1 (40)	9.53 (10)	42.32 (43.5)	10	66	PNEJ1245N	PTKA0407F	TW15S
	160-09	16	160	9	45	38.1 (40)	9.53 (10)	42.32 (43.5)	12	66	PNEJ1250N	PTKA0408F	TW15S
	160-10	16	160	10	45	38.1 (40)	9.53 (10)	42.32 (43.5)	12	66	PNEJ1255N	PTKA0409F	TW15S
	160-11	16	160	11	45	38.1 (40)	9.53 (10)	42.32 (43.5)	14	66	PNEJ1260N	PTKA0410F	TW15S
	160-12	16	160	12	45	38.1 (40)	9.53 (10)	42.32 (43.5)	14	66	PNEJ1265N	PTKA0411F	TW15S
	160-13	16	160	13	45	38.1 (40)	9.53 (10)	42.32 (43.5)	16	66	PNEJ1270N	PTKA0412F	TW15S
	160-14	16	160	14	45	38.1 (40)	9.53 (10)	42.32 (43.5)	16	66	PNEJ1275N	PTKA0413F	TW15S
	200-06	18	200	6	60	50.8 (50)	12.7 (12)	55.83 (53.5)	8	70	PNEJ1235N	PTMA0405F	TW15S
	200-07	18	200	7	60	50.8 (50)	12.7 (12)	55.83 (53.5)	10	70	PNEJ1240N	PTMA0406F	TW15S
	200-08	18	200	8	60	50.8 (50)	12.7 (12)	55.83 (53.5)	10	70	PNEJ1245N	PTKA0407F	TW15S
	200-09	18	200	9	60	50.8 (50)	12.7 (12)	55.83 (53.5)	12	70	PNEJ1250N	PTKA0408F	TW15S
	200-10	18	200	10	60	50.8 (50)	12.7 (12)	55.83 (53.5)	12	70	PNEJ1255N	PTKA0409F	TW15S
	200-11	18	200	11	60	50.8 (50)	12.7 (12)	55.83 (53.5)	14	70	PNEJ1260N	PTKA0410F	TW15S
	200-12	18	200	12	60	50.8 (50)	12.7 (12)	55.83 (53.5)	14	70	PNEJ1265N	PTKA0411F	TW15S
	200-13	18	200	13	60	50.8 (50)	12.7 (12)	55.83 (53.5)	16	70	PNEJ1270N	PTKA0412F	TW15S
	200-14	18	200	14	60	50.8 (50)	12.7 (12)	55.83 (53.5)	16	70	PNEJ1275N	PTKA0413F	TW15S

( )Metric size

Available arbors

Designation		NC arbors		
		BT30	BT40	BT50
SPP	080-04~06	BT30-SCA25.4-60	BT40-SCA25.4-75/120	BT50-SCA25.4-90/135
	100-04~10	-	BT40-SCA31.75-105	BT50-SCA31.75-90/135
	125-04~09	-	-	BT50-SCA38.1-90/135
	160-04~14	-	-	BT50-SCA38.1-90/135
	200-06~14	-	-	-
SPPM	080-04~06	-	BT40-SCA27-75/120	BT50-SCA27-90/135
	100-04~10	-	BT40-SCA32-105	BT50-SCA32-90/135
	125-04~09	-	-	BT50-SCA40-90/135
	160-04~14	-	-	BT50-SCA40-90/135
	200-06~14	-	-	-

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~310	0.10~0.25	NCM325
	160~270	0.10~0.30	PC3700
	60~100	0.10~0.25	ST30A
M	90~150	0.10~0.25	PC9530
	80~150	0.10~0.30	ST30A
K	140~230	0.10~0.35	PC6510
	50~90	0.10~0.40	G10

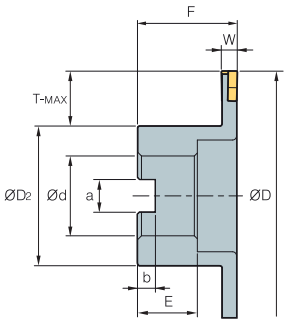
Code system

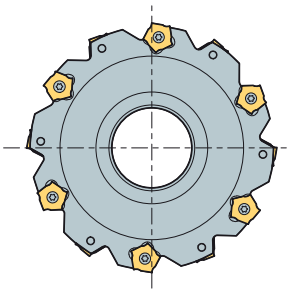
S P P 160 - 06 R

- S: Cutter use (S - Side cutter)
- P: Insert Shape (P - Pentagonal Insert)
- P: Cutter type (P - Plane type, B - Boss type)
- 160: Cutter diameter (ØD)
- 06: Width of cut (W)
- R: Hand of tool (R/L)

Available inserts **E15** Available arbors and bolt **E400~E402**

SPB(M)





•AR: -2°
•RR: 28°

(mm)

Designation			ØD	W	T-MAX	ØD2	Ød	a	b	F	E	Insert	Screw	Wrench
SPB (SPBM)	080-04R/L	8	80	4	18	40	25.4 (27)	9.5 (12.4)	6 (7)	50	25 (22)	PNEJ1223N	PTMA0403F	TW15S
	080-05R/L	8	80	5	18	40	25.4 (27)	9.5 (12.4)	6 (7)	50	25 (22)	PNEJ1230N	PTMA0404F	TW15S
	080-06R/L	8	80	6	18	40	25.4 (27)	9.5 (12.4)	6 (7)	50	25 (22)	PNEJ1235N	PTMA0405F	TW15S
	100-04R/L	10	100	4	21	54	31.75 (32)	12.7 (14.4)	8 (8)	50	32 (28)	PNEJ1223N	PTMA0403F	TW15S
	100-05R/L	10	100	5	21	54	31.75 (32)	12.7 (14.4)	8 (8)	50	32 (28)	PNEJ1230N	PTMA0404F	TW15S
	100-06R/L	10	100	6	21	54	31.75 (32)	12.7 (14.4)	8 (8)	50	32 (28)	PNEJ1235N	PTMA0405F	TW15S
	100-07R/L	10	100	7	21	54	31.75 (32)	12.7 (14.4)	8 (8)	50	32 (28)	PNEJ1240N	PTMA0406F	TW15S
	100-08R/L	10	100	8	21	54	31.75 (32)	12.7 (14.4)	8 (8)	50	32 (28)	PNEJ1245N	PTMA0407F	TW15S
	100-09R/L	10	100	9	21	54	31.75 (32)	12.7 (14.4)	8 (8)	50	32 (28)	PNEJ1250N	PTMA0408F	TW15S
	100-10R/L	10	100	10	21	54	31.75 (32)	12.7 (14.4)	8 (8)	50	32 (28)	PNEJ1255N	PTMA0409F	TW15S
	125-04R/L	12	125	4	25	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1223N	PTMA0403F	TW15S
	125-05R/L	12	125	5	25	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1230N	PTMA0404F	TW15S
	125-06R/L	12	125	6	25	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1235N	PTMA0405F	TW15S
	125-07R/L	12	125	7	25	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1240N	PTMA0406F	TW15S
	125-08R/L	12	125	8	25	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1245N	PTKA0407F	TW15S
	125-09R/L	12	125	9	25	70	38. (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1250N	PTKA0408F	TW15S
	125-10R/L	12	125	10	25	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1255N	PTKA0409F	TW15S
	160-04R/L	16	160	4	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1223N	PTMA0403F	TW15S
	160-05R/L	16	160	5	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1230N	PTMA0404F	TW15S
	160-06R/L	16	160	6	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1235N	PTMA0405F	TW15S
	160-07R/L	16	160	7	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1240N	PTMA0406F	TW15S
	160-08R/L	16	160	8	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1245N	PTKA0407F	TW15S
	160-09R/L	16	160	9	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1250N	PTKA0408F	TW15S
	160-10R/L	16	160	10	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1255N	PTKA0409F	TW15S
	160-11R/L	16	160	11	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1260N	PTKA0410F	TW15S
	160-12R/L	16	160	12	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1265N	PTKA0411F	TW15S
	160-13R/L	16	160	13	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1270N	PTKA0412F	TW15S
	160-14R/L	16	160	14	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60 (50)	38 (30)	PNEJ1275N	PTKA0413F	TW15S
	200-06R/L	18	200	6	53	90	50.8 (40)	19 (16.4)	11 (9)	65	38 (30)	PNEJ1235N	PTMA0405F	TW15S
	200-07R/L	18	200	7	53	90	50.8 (40)	19 (16.4)	11 (9)	65	38 (30)	PNEJ1240N	PTMA0406F	TW15S
	200-08R/L	18	200	8	53	90	50.8 (40)	19 (16.4)	11 (9)	65	38 (30)	PNEJ1245N	PTKA0407F	TW15S
	200-09R/L	18	200	9	53	90	50.8 (40)	19 (16.4)	11 (9)	65	38 (30)	PNEJ1250N	PTKA0408F	TW15S
	200-10R/L	18	200	10	53	90	50.8 (40)	19 (16.4)	11 (9)	65	38 (30)	PNEJ1255N	PTKA0409F	TW15S
	200-11R/L	18	200	11	53	90	50.8 (40)	19 (16.4)	11 (9)	65	38 (30)	PNEJ1260N	PTKA0410F	TW15S
	200-12R/L	18	200	12	53	90	50.8 (40)	19 (16.4)	11 (9)	65	38 (30)	PNEJ1265N	PTKA0411F	TW15S
	200-13R/L	18	200	13	53	90	50.8 (40)	19 (16.4)	11 (9)	65	38 (30)	PNEJ1270N	PTKA0412F	TW15S
	200-14R/L	18	200	14	53	90	50.8 (40)	19 (16.4)	11 (9)	65	38 (30)	PNEJ1275N	PTKA0413F	TW15S

( )Metric size

Notice (When mounting inserts)

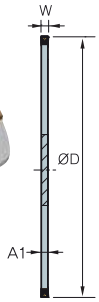
- Insert chip breaker should face chip pocket of the cutter
- Fasten screw after insert contacts securely on its seat
- If there is a gap between insert and its seat after mounting it may cause tool troubles

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	190~310 160~270 60~100	0.10~0.25 0.10~0.30 0.10~0.25	**NCM325** **PC3700** **ST30A**
M	90~150 80~150	0.10~0.25 0.10~0.30	**PC9530** **ST30A**
K	140~230	0.10~0.35 0.10~0.40	**PC6510** **G10**

Available inserts **E15** Available arbors and bolt **E400~E402**

SPS



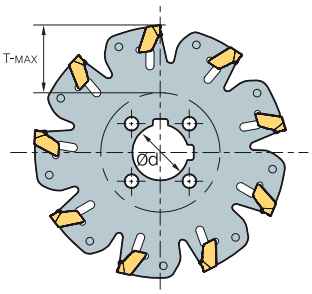


Fig. 1

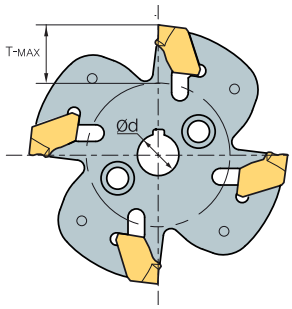


Fig. 2

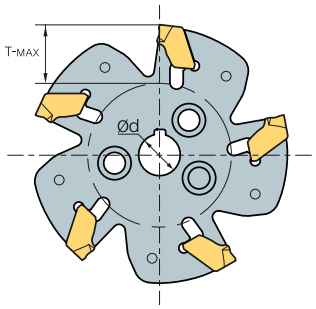


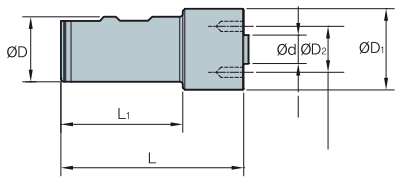
Fig. 3

(mm)

Designation			ØD	W	T-MAX	Ød	A_1	Fig.	Insert	Adaptor		Wrench
										WS	DF	
SPS	050-0204-08R	4	50	2.2	11	8	1.8	2	SPFN 200 - ( )	WS2528-M4	-	SW17P (separately ordered)
	063-0205-10R	5	63	2.2	15.5	10	1.8	3		WS2532-M5	-	
	080-0207-22R/F	7	80	2.2	20 (17)	22	1.8	1		WS3240-M5	DF22-46	
	100-0209-22R/F	9	100	2.2	30 (27)	22	1.8	1		WS3240-M5	DF22-46	
	125-0211-32F	11	125	2.2	35	32	1.8	1		-	DF32-55	
	160-0214-32F	14	160	2.2	52.5	32	1.8	3		-	DF32-55	
	063-0305-10R	5	63	3	15.5	10	2.55	1	SPFN 300 - ( )	WS2532-M5	-	
	080-0307-22R/F	7	80	3	20 (17)	22	2.55	1		WS3240-M5	DF22-46	
	100-0309-22R/F	9	100	3	30 (27)	22	2.55	1		WS3240-M5	DF22-46	
	125-0311-32F	11	125	3	35	32	2.55	1		-	DF32-55	
	160-0314-32F	14	160	3	52.5	32	2.55	1		-	DF32-55	
	200-0318-40F	18	200	3	60	40	2.55	1	SPFN 400 - ( )	-	DF40-80	
	080-0406-22R/F	6	80	4	20 (17)	22	3.4	1		WS3240-M5	DF22-46	
	100-0408-22R/F	8	100	4	30 (27)	22	3.4	1		WS3240-M5	DF22-46	
	125-0410-32F	10	125	4	35	32	3.4	1		-	DF32-55	
	160-0413-32F	13	160	4	52.5	32	3.4	1		-	DF32-55	
	200-0417-40F	17	200	4	60	40	3.4	1		-	DF40-80	

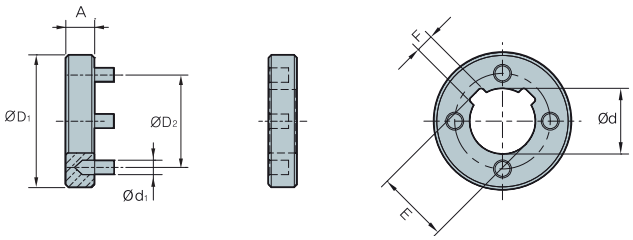
( )Metric size

WS( )-( ) (Weldon Shank)



Designation	L	L_1	D	D_1	D_2	d	Screw
WS2528-M4	110	85	25	28	18	8	PTKA0408
WS2532-M5	110	85	25	32	22	10	PTKA0515
WS3240-M5	120	90	32	40	32	22	PTKA0515

DF( )-( ) (Drive Flange set)



Designation	D_1	D_2	d	d_1	A	E	F
DF22-46	46	32	22	5	10	24.1	6
DF32-55	55	45	32	6	10	34.8	8
DF40-80	80	63	40	11	12	43.5	10
DF50-110	110	80	50	14	14	53.6	12

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
P	160~270	0.13~0.25	PC3700
M	90~150	0.10~0.22	PC5300
K	110~180	0.10~0.25	PC6510

Available inserts E25 Available arbors and bolt E400~E402

For slotting workpieces with corner radii of varying sizes and widths

Wind Mill

- Optimal machining for slotting applications
- A unique recess design on the minor cutting-edge reduces cutting load and improves tool life
- Special clamping system prevents incorrect clamping and fracture

Item description

• Insert

• Cutter

WFSP(M) - Plane type

WFSB(M) - Boss type

Cutter code system

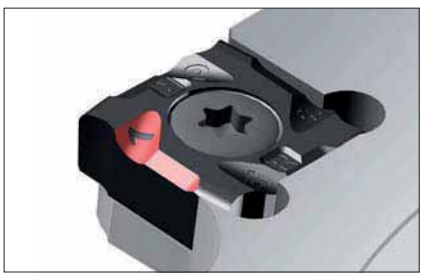
W	FS	P(B)	100	–	T04
Wind Mill	Insert arrangement	Cutter type	ØD		W
	FS: Full side HS: Half side	P: Plane type B: Boss type			

Insert code system

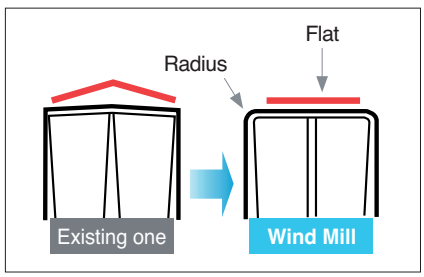
S	N	H	T	12	045	08	R/L	–	WX
Insert shape	Relief angle of major cutting-edge	tolerance	Shape of cross section	Ød	Height of cutting-edge	Nose R	R/L		Chip breaker

Features

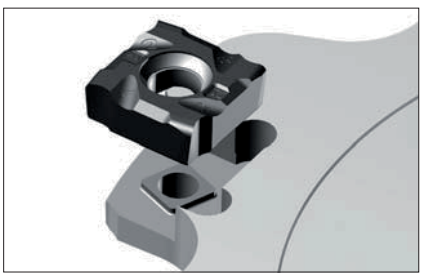
• Ideal geometry for superior surface roughness and extended tool life



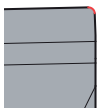
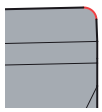
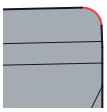
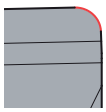
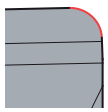
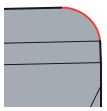
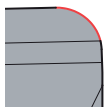
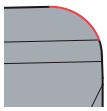
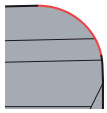
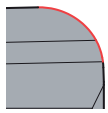
• Perpendicular slot



• Protruded part on tip seat prevents wrong clamping and fracture



• Workpieces with corner radii of varying size and width (R0.2~R2.0)

R0.2	R0.4	R0.6	R0.8	R1.0	R1.2	R1.4	R1.6	R1.8	R2.0
									

Application example

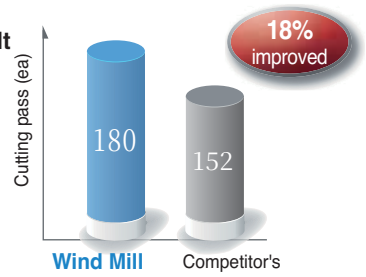
■**Use** Carriers for Motor Vehicles

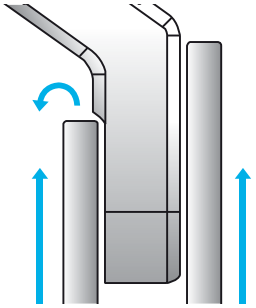
■**Workpiece** FCD500K

■**Cutting conditions**
vc (m/min) = 200
fz (mm/t) = 0.2
vf (mm/min) = 600
ap (mm) = 2~3

■**Tool** KSF140R-T14-HM-2
SNHT1205408R/L-WX (PC5300)

■**Test result**





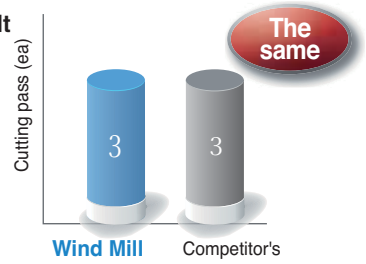
■**Use** Lug for Vessel

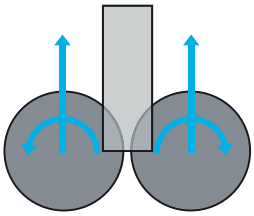
■**Workpiece** Mild steel

■**Cutting conditions**
vc (m/min) = 560
fz (mm/t) = 0.09
vf (mm/min) = 750
ap (mm) = 6

■**Tool** WFSP178R/L-T06
SNHT1203508R/L-WX (PC5300)

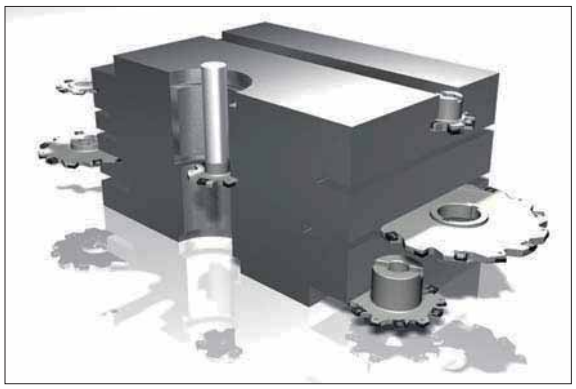
■**Test result**





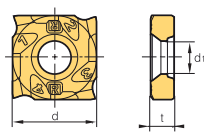
Recommended cutting condition

Workpiece	Cutting conditions		Grades
	vc (m/min)	fz (mm/t)	
P	150~250	0.10~0.25	PC5300
M	120~200	0.10~0.30	PC5300
K	100~150	0.10~0.30	PC5300



Available inserts

Designation		Coated	Dimensions (mm)				Nose R	Configuration
		PC5300	Ød	Ød1	t	W		
SNHT	1102308R/L-WX	●	11.0	4	2.30	4.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6	
	110308R/L-WX	●	11.0	4	3.00	5.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6	
	120308R/L-WX		12.7	5	3.25	5.5	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	1203508R/L-WX	●	12.7	5	3.54	6.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	120408R/L-WX		12.7	5	4.00	7.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	1204508R/L-WX	●	12.7	5	4.54	8.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	120508R/L-WX	●	12.7	5	5.00	9.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	1205408R/L-WX	●	12.7	5	5.47	10.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	120608R/L-WX		12.7	5	6.00	11.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	1206508R/L-WX		12.7	5	6.50	12.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	120708R/L-WX		12.7	5	7.00	13.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	1207508R/L-WX		12.7	5	7.50	14.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	



• Available cutter stock requires to be asked separately

WFSB(M)(Boss type)

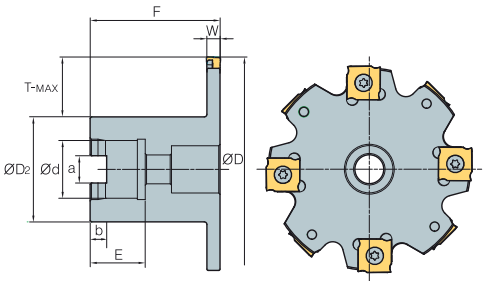


Fig. 1

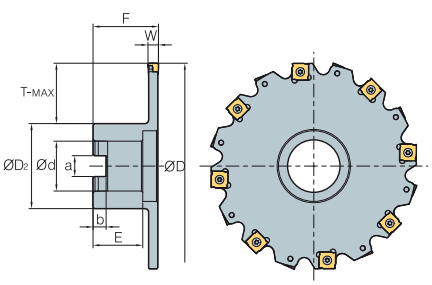


Fig. 2

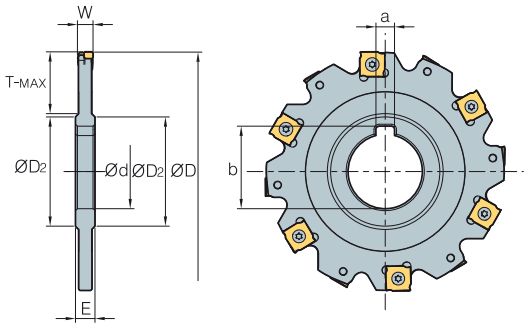
•AR: -2°
•RR:-12°

(mm)

Designation		⚙	ØD	W	T-MAX	ØD2	Ød	a	b	F	E	Insert	Screw	Wrench
WFSBM	080R/L-T04	8	80	4	17	40	22	10.4	6.3	50	21	SNHT11023R/L-WX	PTMA03503	TW09S
	080R/L-T05	8	80	5	17	40	22	10.4	6.3	50	21	SNHT1103R/L-WX	PTMA03504	TW09S
	080R/L-T06	8	80	6	17	40	22	10.4	6.3	50	21	SNHT12035R/L-WX	PTMA04045F	TW15S
WFSB (WFSBM)	100R/L-T04	10	100	4	21	50 (48)	25.4 (27)	9.5 (12.4)	6 (7)	50	25	SNHT11023R/L-WX	PTMA03503	TW09S
	100R/L-T05	10	100	5	21	50 (48)	25.4 (27)	9.5 (12.4)	6 (7)	50	25	SNHT1103R/L-WX	PTMA03504	TW09S
	100R/L-T06	10	100	6	21	50 (48)	25.4 (27)	9.5 (12.4)	6 (7)	50	25	SNHT12035R/L-WX	PTMA04045F	TW15S
	100R/L-T07	10	100	7	21	50 (48)	25.4 (27)	9.5 (12.4)	6 (7)	50	25	SNHT1204R/L-WX	PTMA0405F	TW15S
	100R/L-T08	10	100	8	21	50 (48)	25.4 (27)	9.5 (12.4)	6 (7)	50	25	SNHT12045R/L-WX	PTMA0406F	TW15S
	100R/L-T09	10	100	9	21	50 (48)	25.4 (27)	9.5 (12.4)	6 (7)	50	25	SNHT1205R/L-WX	PTMA0407F	TW15S
	100R/L-T10	10	100	10	21	50 (48)	25.4 (27)	9.5 (12.4)	6 (7)	50	25	SNHT12054R/L-WX	PTMA0408F	TW15S
	125R/L-T04	12	125	4	30	60 (58)	31.75 (32)	12.7 (14.4)	8	50	32 (30)	SNHT11023R/L-WX	PTMA03503	TW09S
	125R/L-T05	12	125	5	30	60 (58)	31.75 (32)	12.7 (14.4)	8	50	32 (30)	SNHT1103R/L-WX	PTMA03504	TW09S
	125R/L-T06	12	125	6	30	60 (58)	31.75 (32)	12.7 (14.4)	8	50	32 (30)	SNHT12035R/L-WX	PTMA04045F	TW15S
	125R/L-T07	12	125	7	30	60 (58)	31.75 (32)	12.7 (14.4)	8	50	32 (30)	SNHT1204R/L-WX	PTMA0405F	TW15S
	125R/L-T08	12	125	8	30	60 (58)	31.75 (32)	12.7 (14.4)	8	50	32 (30)	SNHT12045R/L-WX	PTMA0406F	TW15S
	125R/L-T09	12	125	9	30	60 (58)	31.75 (32)	12.7 (14.4)	8	50	32 (30)	SNHT1205R/L-WX	PTM A0407F	TW15S
	125R/L-T10	12	125	10	30	60 (58)	31.75 (32)	12.7 (14.4)	8	50	32 (30)	SNHT12054R/L-WX	PTMA0408F	TW15S
	160R/L-T04	16	160	4	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60	38 (32)	SNHT11023R/L-WX	PTMA03503	TW09S
	160R/L-T05	16	160	5	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60	38 (32)	SNHT1103R/L-WX	PTMA03504	TW09S
	160R/L-T06	16	160	6	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60	38 (32)	SNHT12035R/L-WX	PTMA04045F	TW15S
	160R/L-T07	16	160	7	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60	38 (32)	SNHT1204R/L-WX	PTMA0405F	TW15S
	160R/L-T08	16	160	8	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60	38 (32)	SNHT12045R/L-WX	PTMA0406F	TW15S
	160R/L-T09	16	160	9	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60	38 (32)	SNHT1205R/L-WX	PTMA0407F	TW15S
	160R/L-T10	16	160	10	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60	38 (32)	SNHT12054R/L-WX	PTMA0408F	TW15S
	160R/L-T11	16	160	11	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60	38 (32)	SNHT1206R/L-WX	PTKA0409F	TW15S
	160R/L-T12	16	160	12	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60	38 (32)	SNHT12065R/L-WX	PTKA0410F	TW15S
	160R/L-T13	16	160	13	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60	38 (32)	SNHT1207R/L-WX	PTKA0411F	TW15S
	160R/L-T14	16	160	14	43	70	38.1 (40)	15.9 (16.4)	10 (9)	60	38 (32)	SNHT12075R/L-WX	PTKA0412F	TW15S
	200R/L-T06	18	200	6	53	90	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT12035R/L-WX	PTMA04045F	TW15S
	200R/L-T07	18	200	7	53	90	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT1204R/L-WX	PTMA0405F	TW15S
	200R/L-T08	18	200	8	53	90	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT12045R/L-WX	PTMA0406F	TW15S
	200R/L-T09	18	200	9	53	90	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT1205R/L-WX	PTMA0407F	TW15S
	200R/L-T10	18	200	10	53	90	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT12054R/L-WX	PTMA0408F	TW15S
	200R/L-T11	18	200	11	53	90	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT1206R/L-WX	PTKA0409F	TW15S
	200R/L-T12	18	200	12	53	90	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT12065R/L-WX	PTKA0410F	TW15S
	200R/L-T13	18	200	13	53	90	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT1207R/L-WX	PTKA0411F	TW15S
	200R/L-T14	18	200	14	53	90	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT12075R/L-WX	PTKA0412F	TW15S
	250R/L-T06	20	250	6	73 (78)	100 (90)	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT12035R/L-WX	PTMA04045F	TW15S
	250R/L-T07	20	250	7	73 (78)	100 (90)	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT1204R/L-WX	PTMA0405F	TW15S
	250R/L-T08	20	250	8	73 (78)	100 (90)	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT12045R/L-WX	PTMA0406F	TW15S
	250R/L-T09	20	250	9	73 (78)	100 (90)	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT1205R/L-WX	PTMA0407F	TW15S
	250R/L-T10	20	250	10	73 (78)	100 (90)	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT12054R/L-WX	PTMA0408F	TW15S
	250R/L-T11	20	250	11	73 (78)	100 (90)	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT1206R/L-WX	PTKA0409F	TW15S
	250R/L-T12	20	250	12	73 (78)	100 (90)	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT12065R/L-WX	PTKA0410F	TW15S
	250R/L-T13	20	250	13	73 (78)	100 (90)	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT1207R/L-WX	PTKA0411F	TW15S
	250R/L-T14	20	250	14	73 (78)	100 (90)	50.8 (40)	19.1 (16.4)	11 (9)	65	38 (32)	SNHT12075R/L-WX	PTKA0412F	TW15S

• Ø80: Fig.1 , Ø100~Ø250: Fig.2 ( )Metric size Available inserts E23

WFSP(M)(Plane type)



•AR: -2°
•RR:-12°

(mm)

Designation		⊙	ØD	W	T-MAX	ØD2	Ød	a	b	E	Insert	Screw	Wrench
WFSP (WFSBM)	080-T04	8	80	4	20	40	25.4 (27)	6.35 (7)	28 (29.8)	8	SNHT11023R/L-WX	PTMA03503	TW09S
	080-T05	8	80	5	20	40	25.4 (27)	6.35 (7)	28 (29.8)	8	SNHT1103R/L-WX	PTMA03504	TW09S
	080-T06	8	80	6	20	40	25.4 (27)	6.35 (7)	28 (29.8)	8	SNHT12035R/L-WX	PTMA04045F	TW15S
	100-T04	10	100	4	24	47	31.75 (32)	7.92 (8)	35.2 (34.8)	8	SNHT11023R/L-WX	PTMA03503	TW09S
	100-T05	10	100	5	24	47	31.75 (32)	7.92 (8)	35.2 (34.8)	8	SNHT1103R/L-WX	PTMA03504	TW09S
	100-T06	10	100	6	24	47	31.75 (32)	7.92 (8)	35.2 (34.8)	8	SNHT12035R/L-WX	PTMA04045F	TW15S
	100-T07	10	100	7	24	47	31.75 (32)	7.92 (8)	35.2 (34.8)	10	SNHT1204R/L-WX	PTMA0405F	TW15S
	100-T08	10	100	8	24	47	31.75 (32)	7.92 (8)	35.2 (34.8)	10	SNHT12045R/L-WX	PTMA0406F	TW15S
	100-T09	10	100	9	24	47	31.75 (32)	7.92 (8)	35.2 (34.8)	12	SNHT1205R/L-WX	PTMA0407F	TW15S
	100-T10	10	100	10	24	47	31.75 (32)	7.92 (8)	35.2 (34.8)	12	SNHT12054R/L-WX	PTMA0408F	TW15S
	125-T04	12	125	4	32	56	38.1 (40)	9.52 (10)	42.3 (43.5)	8	SNHT11023R/L-WX	PTMA03503	TW09S
	125-T05	12	125	5	32	56	38.1 (40)	9.52 (10)	42.3 (43.5)	8	SNHT1103R/L-WX	PTMA03504	TW09S
	125-T06	12	125	6	32	56	38.1 (40)	9.52 (10)	42.3 (43.5)	8	SNHT12035R/L-WX	PTMA04045F	TW15S
	125-T07	12	125	7	32	56	38.1 (40)	9.52 (10)	42.3 (43.5)	10	SNHT1204R/L-WX	PTMA0405F	TW15S
	125-T08	12	125	8	32	56	38.1 (40)	9.52 (10)	42.3 (43.5)	10	SNHT12045R/L-WX	PTMA0406F	TW15S
	125-T09	12	125	9	32	56	38.1 (40)	9.52 (10)	42.3 (43.5)	12	SNHT1205R/L-WX	PTMA0407F	TW15S
	125-T10	12	125	10	32	56	38.1 (40)	9.52 (10)	42.3 (43.5)	12	SNHT12054R/L-WX	PTMA0408F	TW15S
	160-T04	16	160	4	45	66	38.1 (40)	9.52 (10)	42.3 (43.5)	8	SNHT11023R/L-WX	PTMA03503	TW09S
	160-T05	16	160	5	45	66	38.1 (40)	9.52 (10)	42.3 (43.5)	8	SNHT1103R/L-WX	PTMA03504	TW09S
	160-T06	16	160	6	45	66	38.1 (40)	9.52 (10)	42.3 (43.5)	8	SNHT12035R/L-WX	PTMA04045F	TW15S
	160-T07	16	160	7	45	66	38.1 (40)	9.52 (10)	42.3 (43.5)	10	SNHT1204R/L-WX	PTMA0405F	TW15S
	160-T08	16	160	8	45	66	38.1 (40)	9.52 (10)	42.3 (43.5)	10	SNHT12045R/L-WX	PTMA0406F	TW15S
	160-T09	16	160	9	45	66	38.1 (40)	9.52 (10)	42.3 (43.5)	12	SNHT1205R/L-WX	PTMA0407F	TW15S
	160-T10	16	160	10	45	66	38.1 (40)	9.52 (10)	42.3 (43.5)	12	SNHT12054R/L-WX	PTMA0408F	TW15S
	160-T11	16	160	11	45	66	38.1 (40)	9.52 (10)	42.3 (43.5)	14	SNHT1206R/L-WX	PTKA0409F	TW15S
	160-T12	16	160	12	45	66	38.1 (40)	9.52 (10)	42.3 (43.5)	14	SNHT12065R/L-WX	PTKA0410F	TW15S
	160-T13	16	160	13	45	66	38.1 (40)	9.52 (10)	42.3 (43.5)	16	SNHT1207R/L-WX	PTKA0411F	TW15S
	160-T14	16	160	14	45	66	38.1 (40)	9.52 (10)	42.3 (43.5)	16	SNHT12075R/L-WX	PTKA0412F	TW15S
	200-T06	18	200	6	60	70	50.8 (50)	12.7 (12)	55.8 (53.5)	8	SNHT12035R/L-WX	PTMA04045F	TW15S
	200-T07	18	200	7	60	70	50.8 (50)	12.7 (12)	55.8 (53.5)	10	SNHT1204R/L-WX	PTMA0405F	TW15S
	200-T08	18	200	8	60	70	50.8 (50)	12.7 (12)	55.8 (53.5)	10	SNHT12045R/L-WX	PTMA0406F	TW15S
	200-T09	18	200	9	60	70	50.8 (50)	12.7 (12)	55.8 (53.5)	12	SNHT1205R/L-WX	PTMA0407F	TW15S
	200-T10	18	200	10	60	70	50.8 (50)	12.7 (12)	55.8 (53.5)	12	SNHT12054R/L-WX	PTMA0408F	TW15S
	200-T11	18	200	11	60	70	50.8 (50)	12.7 (12)	55.8 (53.5)	14	SNHT1206R/L-WX	PTKA0409F	TW15S
	200-T12	18	200	12	60	70	50.8 (50)	12.7 (12)	55.8 (53.5)	14	SNHT12065R/L-WX	PTKA0410F	TW15S
	200-T13	18	200	13	60	70	50.8 (50)	12.7 (12)	55.8 (53.5)	16	SNHT1207R/L-WX	PTKA0411F	TW15S
	200-T14	18	200	14	60	70	50.8 (50)	12.7 (12)	55.8 (53.5)	16	SNHT12075R/L-WX	PTKA0412F	TW15S
	250-T06	20	250	6	88	70	50.8 (50)	12.7 (12)	55.8 (53.5)	8	SNHT12035R/L-WX	PTMA04045F	TW15S
	250-T07	20	250	7	88	70	50.8 (50)	12.7 (12)	55.8 (53.5)	10	SNHT1204R/L-WX	PTMA0405F	TW15S
	250-T08	20	250	8	88	70	50.8 (50)	12.7 (12)	55.8 (53.5)	10	SNHT12045R/L-WX	PTMA0406F	TW15S
	250-T09	20	250	9	88	70	50.8 (50)	12.7 (12)	55.8 (53.5)	12	SNHT1205R/L-WX	PTMA0407F	TW15S
	250-T10	20	250	10	88	70	50.8 (50)	12.7 (12)	55.8 (53.5)	12	SNHT12054R/L-WX	PTMA0408F	TW15S
	250-T11	20	250	11	88	70	50.8 (50)	12.7 (12)	55.8 (53.5)	14	SNHT1206R/L-WX	PTKA0409F	TW15S
	250-T12	20	250	12	88	70	50.8 (50)	12.7 (12)	55.8 (53.5)	14	SNHT12065R/L-WX	PTKA0410F	TW15S
	250-T13	20	250	13	88	70	50.8 (50)	12.7 (12)	55.8 (53.5)	16	SNHT1207R/L-WX	PTKA0411F	TW15S
	250-T14	20	250	14	88	70	50.8 (50)	12.7 (12)	55.8 (53.5)	16	SNHT12075R/L-WX	PTKA0412F	TW15S

Available inserts E23

( )Metric size

High feed cutter with extra pitch for cast iron and light alloy steels

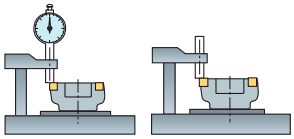
High feed Cutter

- High feed cutter employs extra pitch for cast iron and light alloy steels
- Quick change type for reduction of cutter change time
- Cutting-edge chatter is controlled
- Quick change type for cutter size under ø160, 2 piece types for cutter size over ø200

Guide of insert setting

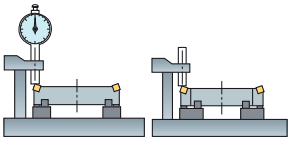
• Special equipment has to be used to get precise run out with high feed cutter.

Adaptor type



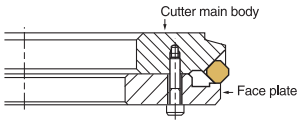
- Mainly under ø160 diameter is used in 1 piece type
- Available for fixed size of cutter and assembling & checking can be done at the same time

Roller type



- Mainly over ø200 diameter is used in 2 piece type
- Due to 3 adjustable guide rollers, variety size of cutter can be assembled

Plate type



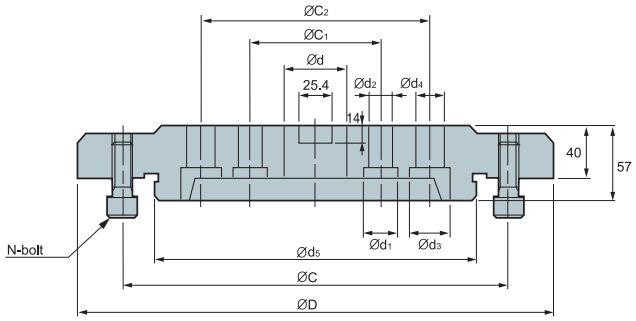
- Suitable for small size cutter due to the simple structure
- It is unnecessary to unclamp the cutter from the machine, it's possible to reassemble the cutter as it mounted on the machine
- You should make plate by yourself

• Guide of insert setting in adaptor/roller type

1. Clean the cutter and equipment
2. Pointer should be assembled with same height with cutter
3. Move to each insert on tip seat to end of pointer and tighten (torque 2 N.m) wedge
4. Exchange pointer to dial gauge
5. Measure the run-out totally
6. When a insert over run-out, loosen wedge and adjust run-out. (for roughing 10~20 μ, for finishing 5~10 μ)
7. Tighten (torque 7-8 N.m) wedge
8. Measure the final run-out by dial gauge

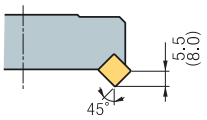
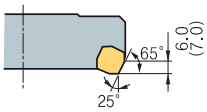
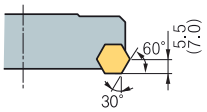
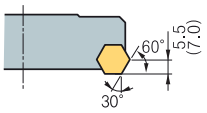
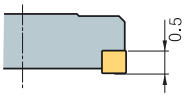
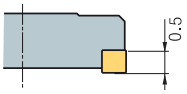
Note: When you clamp wedge too tightly, run-out will get worse due to cutter distortion.
When you clamp the wedge, use torque wrench to set precisely.

Adaptor (Ø200~Ø450)



Designation		ØD	Ød	Ød1	Ød2	Ød3	Ød4	Ød5	ØC	ØC1	ØC2	N	Cutter
APR	200	180	47.625	26	18	-	-	80	120	101.6	-	4	Ø200
	250	230	47.625	26	18	-	-	120	170	101.6	-	4	Ø250
	315	295	47.625	26	18	32	22	180	230	101.6	177.8	6	Ø315
	355	335	63.50	26	18	32	22	220	270	101.6	177.8	6	Ø355
	400	370	63.50	26	18	32	22	250	300	101.6	177.8	8	Ø400
	450	420	63.50	26	18	32	22	300	350	101.6	177.8	8	Ø450

High feed cutters type and features

Designation	Cutter diameter	Workpiece, Application range	Min. surface roughness	Approach angle and Max. cutting depth is for 5000 type	Axial rake angle	Radial rake angle	Available insert
ANH4000 ANH5000	Ø100~Ø450	Cast iron Roughing	25Z		-5°	-6°	SNCN1204ENN SNCN1504ENN
CDH4000 CDH5000	Ø100~Ø450	Cast iron Roughing Finishing	18Z		+10°	+5°	SDCN42R SDCN53R
DEH5000	Ø100~Ø450	Al alloy Roughing	20Z		+14°	+6°	HECN090408FN
DPH5000	Ø100~Ø450	Cast iron Roughing Finishing	12Z		+5°	-3°	HPEN090408 HPEN090408-WC
PNH4000 PNH5000	Ø125~Ø450	Cast iron Finishing	12Z		-5°	-6°	SNEF435 SNEF535
PPH4000	Ø125~Ø450	Cast iron Finishing	12Z		+5°	-5°	SPEN120416-WC

Recommended cutting condition

Workpiece	Cutting condition		Grades	Remark
	vc (m/min)	fz (mm/t)		
Cast iron	100~230	0.05~0.20	**PC6510**	PVD Coated
	80~150	0.05~0.20	**H01, G10**	Uncoated
Al alloy	400	0.10~0.30	**PC6510**	PVD Coated
	400	0.05~0.20	**H01, G10**	Uncoated

Special Korloy cutter for cast iron roughing

Cube Mill

- Special Korloy cutter for cast iron roughing
- 8-corner using insert (maximum 16-corner available with 2 cutter, R/L cutter)
- Excellent cutting performance with positive rake angle made by 3-dimensional chip breaker
- Excellent tool life by a wide combination of grade varieties and chip breakers to match most working conditions
- 2 different type of inserts (chamfer/nose R) are available with 1 type cutter

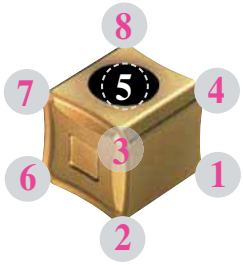
Roughing for cast iron

Code system

CBM	E	3	250	R	(2) – 28Z
Cutter	AA	Inscribed circle of Insert	Cutter Dia	Hand	Cutter shape	No. of tooth (Z)
CBM: CUBE MILL	Q: 88° C: 65° F: 85° A: 45° E: 75°	3: 9.525 4: 12.7	Ø250	R: Right L: Left	Unmarked: Normal type 2: Quick change type (2 pieces type)	

• Cube Mill and Cube Mill Couple are available by order made.

Insert (R/L type)

Chamfer type	Nose R type
	

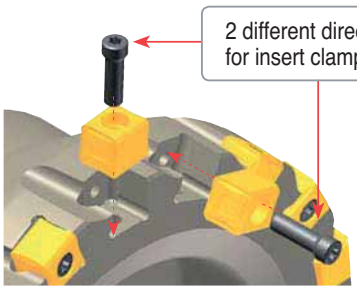
Cutter body

Cutter diameter (Ø)	General	Quick change
	Ø80~315 mm	Ø200~450 mm
	3 1/4~12 1/2 Inch	8~18 Inch
AA: 88°, 85°, 75°, 65°, 45°		

Cutter

Special design to make actual positive rake angle

Simple screw on system



2 different direction for insert clamping

Screw on clamping system

Parts

Cube Mill 3000	Screw	Wrench
	FTGA0417CBM	TW15-100
	ETGA0520CBM	TW20-100

Ideal combination of aluminum body with cast iron high feed cutter

Couple Mill

- Ideal combination of Aluminum body with cast iron high feed cutter
- Since the weight of the cutter has been reduced 50% vs. a steel cutter, it is very easy to handle and very effective in preventing loading accidents
- Applicable for Cube Mill, Storm Mill

Cube-couple code system

CBM E 3 355 R 28Z – CP

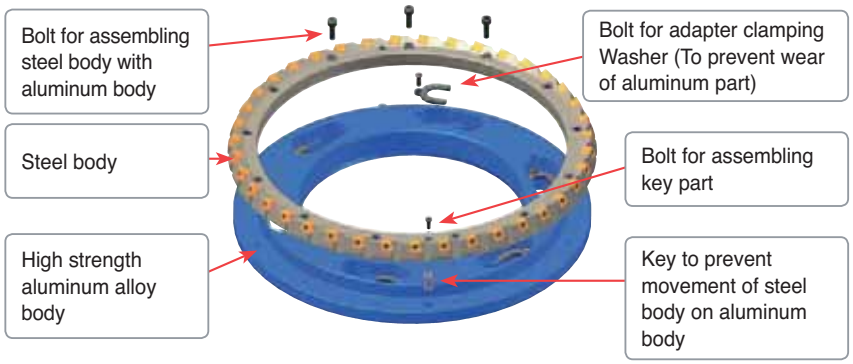
Cutter	AA	Inscribed circle of Insert	Cutter Dia	Hand	No. of tooth (Z)	Couple Mill
CBM: Cube MIll	Q: 88° C: 65° F: 85° A: 45° E: 75°	3: 9.525 4: 12.7	Ø355	R: Right L: Left	28Z: 28	

Storm-couple code system

S Q N 3 355 R 28Z – CP

Cutter	AA	Relief angle of insert	Inscribed circle of Insert	Cutter Dia	Hand	No. of tooth (Z)	Couple Mill
S: Storm Mill	Q: 88° E: 75° F: 85° A: 45°	N: Negative (0°)	3: 9.525 4: 12.7	Ø355	R: Right L: Left	28Z: 28	

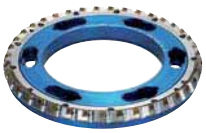
Assembling structure



Cutter body

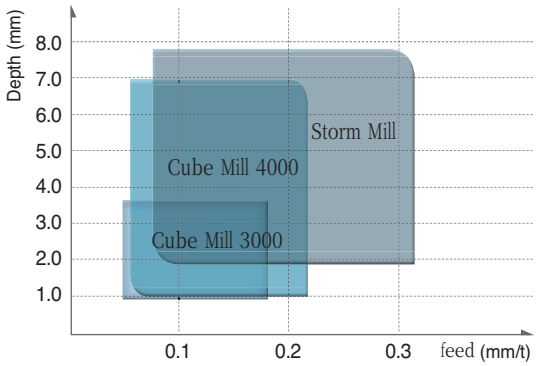
Cutter diameter (Ø)	Quick change	
	Metric	Ø355~450 mm
	Inch	14 1/4~18 Inch

Parts



		Screw	Wrench	Wrench	Bolt for body	Bolt for key	Key for body
Cube-Couple	3000 type	FTGA0417CBM	TW15-100	-	BHA0616	MHBO410	PN1019-DRV
	4000 type	ETGA0520CBM	TW20-100		BHA0620		
Storm-Couple	3000 type	FTNA0513	-	TW15S	-	-	-

Application range of high feed cutters for cast iron



Recommended cutting condition

Cube Mill		Gray cast iron		Ductile cast iron	
		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)
PVD	PC6510	150~300	0.08~0.18	100~200	0.08~0.18
Uncoated	G10	90~120	0.05~0.18	60~130	0.05~0.18

Available arbors and adaptors

Designation		Available arbors and adaptors		
		Arbors	General arbor	Adaptor
CBMQ (CBMF) (CBME) (CBMC) (CBMA)	3080R/L-00Z	BT□□-FMA25.4-□□	NT*□□(M/U)-FMA25.4-25	
	3100R/L-00Z	BT□□-FMA31.75-□□	NT*□□(M/U)-FMA31.75-□□	
	3125R/L-00Z	BT□□-FMA38.1-□□	NT*□□(M/U)-FMA38.1-□□	
	3160R/L-00Z	BT□□-FMA50.8-□□	NT*□□(M/U)-FMA50.8-□□	
	3200R/L-00Z	BT□□-FMA47.625-□□	NT*□□(M/U)-FMA47.625-25, KCP-8***	
	3250R/L-00Z	BT□□-FMA47.625-□□	KNT*□□(M/U)-FMA47.625-25, KCP-8***	
	3315R/L-00Z		KCP-8*** (Centering Plug)	
	3200R/L2-00Z			APR200
	3250R/L2-00Z			APR250
	3315R/L2-00Z			APR315
	3355R/L2-00Z			APR355
	3400R/L2-00Z			APR400
	3450R/L2-00Z			APR450
SQN (SFN) (SEN) (SAN)	3080R/L-00Z	BT□□-FMA25.4-□□	NT*□□(M/U)-FMA25.4-25	
	3100R/L-00Z	BT□□-FMA31.75-□□	NT*□□(M/U)-FMA31.75-□□	
	3125R/L-00Z	BT□□-FMA38.1-□□	NT*□□(M/U)-FMA38.1-□□	
	3160R/L-00Z	BT□□-FMA50.8-□□	NT*□□(M/U)-FMA50.8-□□	
	3200R/L-00Z	BT□□-FMA47.625-□□	NT*□□(M/U)-FMA47.625-25, KCP-8***	
	3250R/L-00Z	BT□□-FMA47.625-□□	NT*□□(M/U)-FMA47.625-25, KCP-8***	
	3315R/L-00Z		KCP-8*** (Centering Plug)	
	3200R/L2-00Z			APR200
	3250R/L2-00Z			APR250
	3315R/L2-00Z			APR315
	3355R/L2-00Z			APR355
	3400R/L2-00Z			APR400
	3450R/L2-00Z			APR450

• *□□ -NT number / **□□ -BT number / ***Milling over 5
<Arbors **add>
ex) BT**□□

Excellent tool life achieved by the wide variety of grades to match work conditions

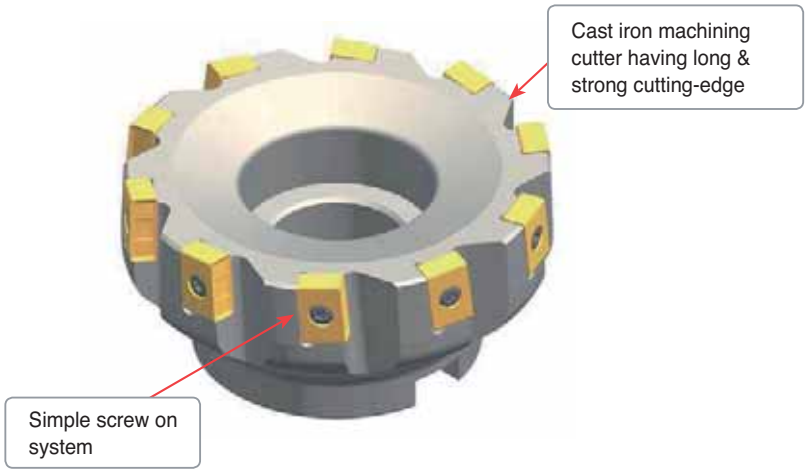
Storm Mill

- Conventional cutter with wide coverage
- Using 4 corners (Maximum 8 corner available with R/L type cutter)
- Effective on large depth of cut applications due to the long cutting-edge
- Excellent tool life guaranteed by wide variety of grades to suit any working conditions
- 2 different types of inserts (chamfer/nose R) are available with 1 type of cutter

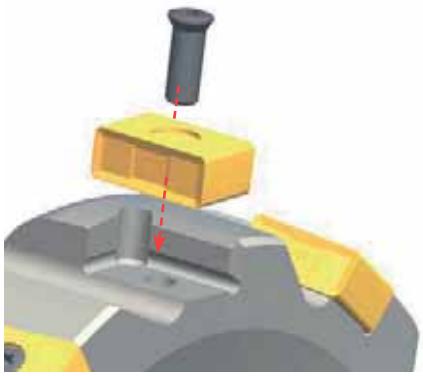
Code system

S	Q	N	3	250	R	(2) – 28Z
Cutter	**Approach angle**	**Relief angle of insert**	**Insert**	**Cutter Dia.**	**Hand**	**Cutter shape**	**No. of tooth**
S: Storm Mill	Q: 88° F: 85° A: 45° E: 75°	N: Negative (0°)	3: 9.525 mm 4: 12.7 mm	MM	R: Right L: Left	No code: Normal type 2: Quick change type (2 pieces type)	

Features



Clamping of insert



Recommended cutting condition

Designation / Grades	Gray cast iron		Ductile cast iron	
	GC		GCD	
	vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)
PC3500	150~250	0.08~0.28	100~180	0.08~0.28
PC6510	150~300	0.10~0.28	100~200	0.10~0.28
PC5400	150~250	0.08~0.22	100~180	0.08~0.22
H01	100~200	0.08~0.22	70~140	0.08~0.22
G10	90~120	0.08~0.28	60~130	0.08~0.28

Optimal cutter for steel and cast iron machining with easily adjustable run-out

Shave Mill

- Adjustable Range (Adjustable range: 0.1 mm, Adjustable allowance: within 2 μm)
- Wiper crown type 8-cornered insert reduces machining cost and realizes excellent surface roughness
- Grades with high toughness and wear resistance ensures long tool life
- The cBN grade achieves superior surface finish

Cutter code system

SVM	M	4	250	R	Z6
Shave Mill	Metric type M: Metric A: Inch	Inscribed Circle 4: 12.7mm	Cutter Dia. (Ø) Ø250	Hand of tool R: Right handed L: Left handed	No. of tooth (Z)

Insert code system

■Carbide

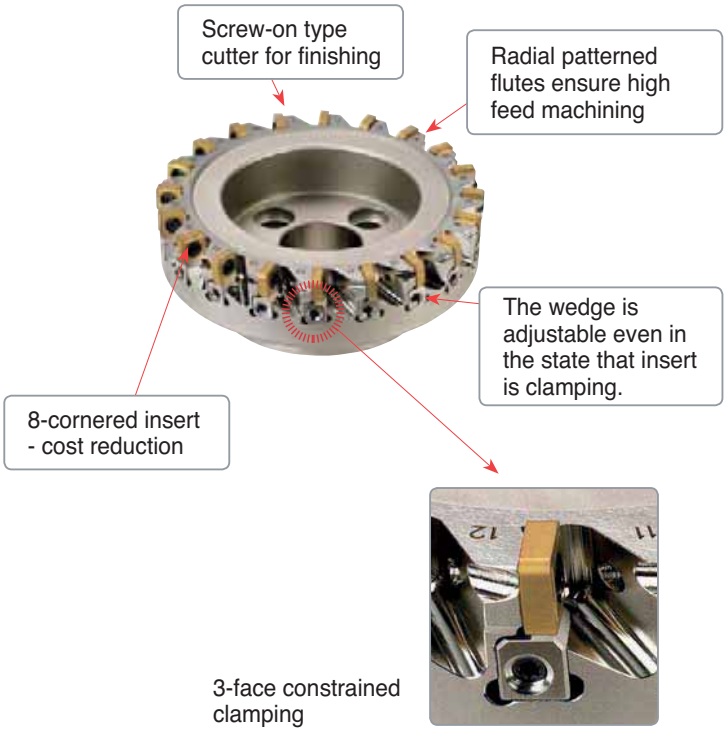
Nose R type	SNEU120420-MF
Chamfer type	SNEU1204ANN-MF
Low cutting type	SNEU1204-WMF

■cBN

SNEU1204-TBW

T: Nagaland
B: cBN
W: Wiper

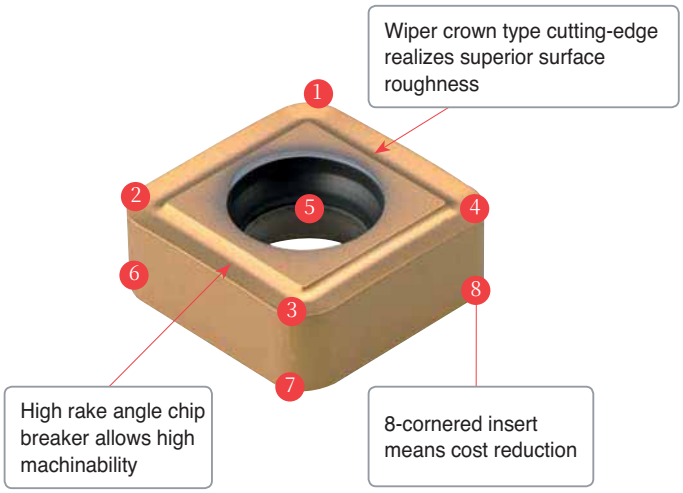
Features



Adjustment

- Adjustable range: 0.1 mm
- Adjustability: below 2 μ
- Operation: easy and simple

Features of insert



SNEU120420-MF	SNEU1204ANN-MF
	
Nose R type	Chamfer type

SNEU1204-WMF	SNEU1204-TBW
	
For low cutting load	Wiper for high speed machining

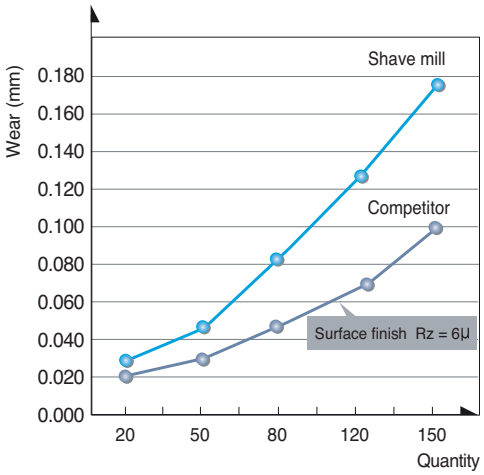
Recommended cutting condition

Workpiece	Cutting condition			Grades
	vc (m/min)	fz (mm/t)	ap (mm)	
P	160~270	0.05~0.2	~0.5	PC3700
K	140~230 600~1000	0.05~0.3 0.05~0.2	~0.5 ~0.5	PC6510 DBN920

Application example

■**Workpiece** Cylinder head (facing)
■**Cutting conditions** vc = 200, fz = 0.15, ap = 0.5, Dry
■**Tools** **Cutter** SVMM4250R
Insert PC6510 SNEU120420-MF

■**Workpiece** FC25 (HB250) Cylinder head (facing)
■**Cutting conditions** vc = 700, fz = 0.1, ap = 0.5, Dry
■**Tools** **Cutter** SVMM4160R
Insert DBN920 SNEU1204-cBN



• Results

	Tool life	Surface finish	Machinability
Shave Mill	250 pcs	Rz = 3μ	High
Competitor	180 pcs	Rz = 3.5μ	Normal

• Korloy's Shave Mills ensure twice the machinability, adjustability, and surface roughness than competitor's, along with twice the tool life.

Better tool life with special grade which has both toughness and wear resistance

Shave Mill-Ultra

- Superior surface roughness for this Finishing cutter when applied to heavy work pieces
- Easy to handle and good rigidity with simple screw on system
- Superior surface finishes due to the wiper crown cutting-edge
- Better tool life with special grade which has both toughness and wear resistance
- Two different types: economical normal type and adjustable run-out type 'B'

Code system of cutter

SVU	M	6	250	R	Z6	–	B
Shave Mill-Ultra	Metric type M: Metric A: Inch	Inscribed Circle 6: 19.05mm	Cutter Dia. (Ø) Ø250	Hand of tool R: Right L: Left	No. of tooth (Z)		Cutter type None: Normal B: Adjustable

Code System of Insert

L	N	C	S	1	9	0	7	–	R3.0	–	WC
			Shave Mill-Ultra						Corner type C: Chamfer R: Round		Wiper Crown

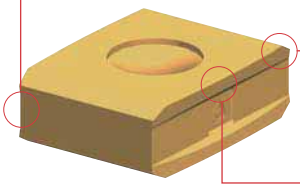
Features

Normal type

- Good rigidity and economical due to simple screw on type
- Better surface roughness when you use only 1 insert but adjust the 'ap' under 0.03 mm

Adjustable cutting-edge (Type B)

- Easy to handle the run-out due to Korloy exclusive high toughness cutting-edge special parts



- Good cutting performance & chip flow due to positive rake angle chip breaker
- Economical 4 corner insert
- Good surface roughness by wiper crown cutting-edge design

Adjustable Range

· Range: 1.0 mm
· Allowance: Within 2 μ

Recommended cutting condition

Workpiece	Cutting condition			Tooth	Grades
	vc (m/min)	fz (mm/t)	ap (mm)		
P	160~270	0.05~0.20	~0.50	Full use	PC3700
	160~270	2~5	~0.03	1 use	
K	140~230	0.05~0.20	~0.50	Full use	PC6510
	140~230	2~5	~0.03	1 use	

PNH4000/5000

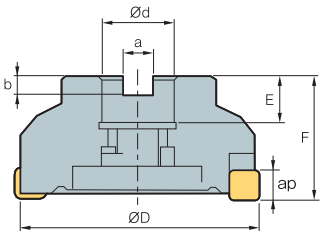


Fig. 1

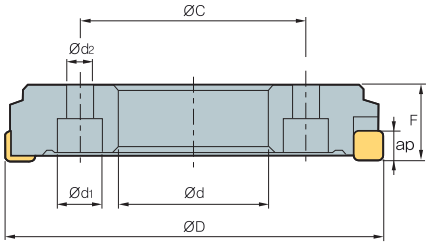


Fig. 2

AA
90°

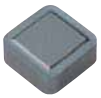
- AR: -5°
- RR: -6°

(mm)

Designation		⊚	ØD	Ød	Ød1	Ød2	a	b	E	F	ØC	ap	kg	Fig.
PNH	4125R/L	10	125	38.1	-	-	15.9	10	27	63	-	Max 0.5	3.4	1
	4160R/L	14	160	50.8	-	-	19.0	11	27	63	-	Max 0.5	5.5	1
	4200R/L	18	200	80	24	14	-	-	-	40	120	Max 0.5	5.5	2
	4250R/L	24	250	120	30	18	-	-	-	40	170	Max 0.5	7.7	2
	4315R/L	30	315	180	30	18	-	-	-	40	230	Max 0.5	10.5	2
	4355R/L	34	355	220	30	18	-	-	-	40	270	Max 0.5	12.9	2
	4400R/L	38	400	250	30	18	-	-	-	40	300	Max 0.5	16.1	2
	4450R/L	44	450	300	30	18	-	-	-	40	350	Max 0.5	19.1	2
PNH	5125R/L	10	125	38.1	-	-	15.9	10	27	63	-	Max 0.5	3.4	1
	5160R/L	14	160	50.8	-	-	19.0	11	27	63	-	Max 0.5	5.3	1
	5200R/L	18	200	80	24	14	-	-	-	40	120	Max 0.5	5.4	2
	5250R/L	24	250	120	30	18	-	-	-	40	170	Max 0.5	7.6	2
	5315R/L	30	315	180	30	18	-	-	-	40	230	Max 0.5	10.4	2
	5355R/L	34	355	220	30	18	-	-	-	40	270	Max 0.5	12.8	2
	5400R/L	38	400	250	30	18	-	-	-	40	300	Max 0.5	15.9	2
	5450R/L	44	450	300	30	18	-	-	-	40	350	Max 0.5	18.9	2

Available inserts

SNEF



Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEF	435											●								E21

Available arbors

Designation		NC arbors	
PNH	125R/L	NT*□□(M/U)-FMA38.1-□□	-
	160R/L	NT*□□(M/U)-FMA50.8-□□	-
	200R/L	-	APR200
	250R/L	-	APR250
	315R/L	-	APR315
	355R/L	-	APR355
	400R/L	-	APR400
	450R/L	-	APR450

Parts

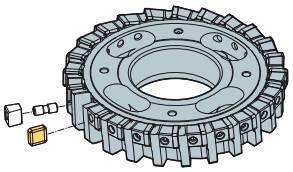
Specification	Wedge	Wedge screw	Wrench
Ø125~Ø450	WPNH4N	DHA0821F	HW40
Ø125~Ø450	WPNH5N		

Available inserts E21 Available arbors and bolt E400~E402

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
K	140~230	0.05~0.30	PC6510
	135~220	0.10~0.30	H01
	50~90	0.10~0.30	G10

Assembling



PPH4000

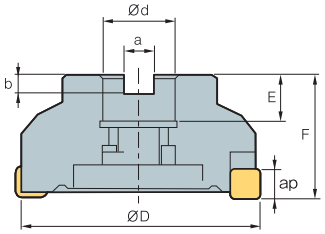


Fig. 1

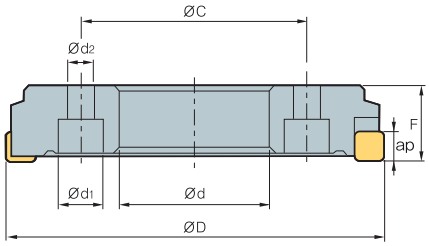


Fig. 2

AA
90°

- AR: 5°
- RR: -6°

(mm)

Designation		⚙	ØD	Ød	Ød1	Ød2	a	b	E	F	ØC	ap	kg	Fig.
PPH	4125R/L	10	125	38.1	-	-	15.9	10	27	63	-	Max 0.5	3.4	1
	4160R/L	14	160	50.8	-	-	19.0	11	27	63	-	Max 0.5	5.3	1
	4200R/L	18	200	80	24	14	-	-	-	40	120	Max 0.5	5.5	2
	4250R/L	24	250	120	24	14	-	-	-	40	170	Max 0.5	7.7	2
	4315R/L	30	315	180	30	18	-	-	-	40	230	Max 0.5	10.5	2
	4355R/L	34	355	220	30	18	-	-	-	40	270	Max 0.5	13	2
	4400R/L	38	400	250	30	18	-	-	-	40	300	Max 0.5	16	2
	4450R/L	44	450	300	30	18	-	-	-	40	350	Max 0.5	19	2

Available inserts

SPEN-WC

Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SPEN	120416-WC																			E24

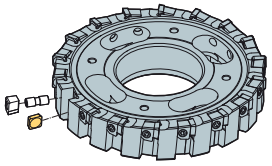
Available arbors

Designation		NC arbors	
PPH	4125R/L	NT*□□(M/U)-FMA38.1-□□	-
	4160R/L	NT*□□(M/U)-FMA50.8-□□	-
	4200R/L	-	APR200
	4250R/L	-	APR250
	4315R/L	-	APR315
	4355R/L	-	APR355
	4400R/L	-	APR400
	4450R/L	-	APR450

Recommended cutting condition

Workpiece	Cutting condition		Grades
	vc (m/min)	fz (mm/t)	
K	140~230	0.05~0.30	PC6510
	135~220	0.10~0.30	H01
	50~90	0.10~0.30	G10

Assembling



Parts

Specification	Wedge	Wedge screw	Wrench
Ø125~Ø450	WPPH4R/L	DHA0821F	HW40

Available inserts E24 Available arbors and bolt E400~E402

SVM(M)4000

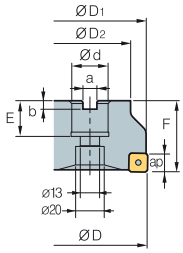


Fig. 1

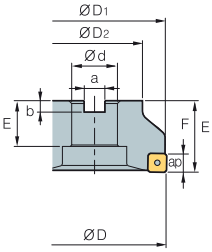


Fig. 2

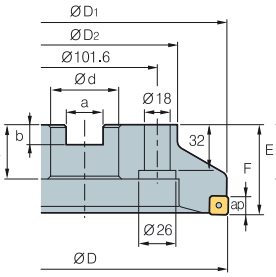


Fig. 3

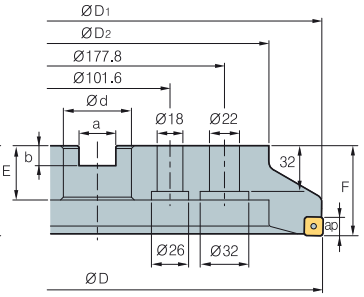


Fig. 4

(mm)

Designation			ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
SVM	4080R/L-Z8	8	80	79	57	25.4	12.4	6	25	50	1.0	1.2	1
	4100R/L-Z12	12	100	99	67	31.75	14.4	8	32	63	1.0	2.3	1
	4125R/L-Z16	16	125	124	87	38.1	16.4	10	38	63	1.0	3.5	2
	4160R/L-Z20	20	160	159	107	50.8	16.4	11	38	63	1.0	5	2
	4200R/L-Z24	24	200	199	130	47.625	25.7	14	38	63	1.0	7.2	3
	4250R/L-Z30	30	250	249	180	47.625	25.7	14	38	63	1.0	12	3
	4315R/L-Z36	36	315	314	240	47.625	25.7	14	38	63	1.0	19.5	4
SVMM	4080R/L-Z8	8	80	79	57	27	12.4	7	22	50	1.0	1.2	1
	4100R/L-Z12	12	100	99	67	32	14.4	8	28	63	1.0	2.3	1
	4125R/L-Z16	16	125	124	87	40	16.4	9	30	63	1.0	3.5	2
	4160R/L-Z20	20	160	159	107	40	16.4	9	30	63	1.0	5	3
	4200R/L-Z24	24	200	199	130	60	25.7	14	38	63	1.0	7.2	3
	4250R/L-Z30	30	250	249	180	60	25.7	14	38	63	1.0	12	3
	4315R/L-Z36	36	315	314	240	60	25.7	14	38	63	1.0	19.5	4

Available inserts

	SNEU-MF	SNEU1204ANN-MF	SNEU-WMF	SNEU-TBW
				

Designation		Cermet		Coated												초경		page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
SNEU	120420-MF											●							E21 E22
	1204ANN-MF																		
	1204R-WMF																		
	1204-TBW																		

Parts

Specification	Wedge	Wedge screw	Contract Screw	Wrench
Ø80~Ø315	WKAJ3	DTA0619	XTKA0412	TW15-100

Available inserts **E21, E22**

SVUM6000

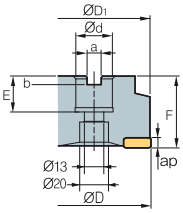


Fig. 1

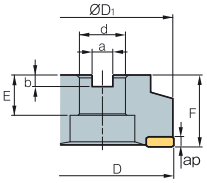


Fig. 2

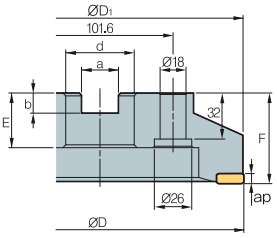


Fig. 3

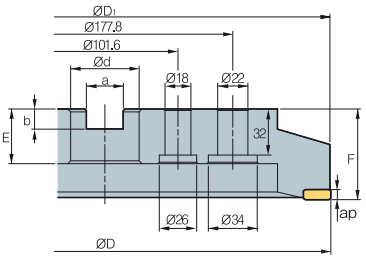


Fig. 4

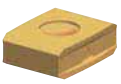
(mm)

Designation		⊚	ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
SVUM	6080R/L-Z4	4	80	79	57	27	12.4	7	22	50	0.5	1.2	1
	6100R/L-Z4	4	100	100	67	32	14.4	8	28	63	0.5	2.3	1
	6125R/L-Z4	4	125	125	87	40	16.4	9	30	63	0.5	3.5	2
	6160R/L-Z4	4	160	160	107	40	16.4	9	30	63	0.5	5	3
	6200R/L-Z6	6	200	200	130	60	25.7	14	38	63	0.5	7.2	3
	6250R/L-Z6	6	250	250	180	60	25.7	14	38	63	0.5	12	3
	6315R/L-Z8	8	315	315	240	60	25.7	14	38	63	0.5	19.5	4

Available inserts

LNCS (R3.0)

LNCS (C1.5)



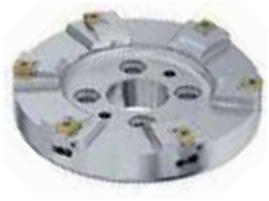
Designation		Cermet		Coated												Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNCS	1907-R3.0-WC																			E10
	1907-C1.5-WC																			

Parts

Specification	Screw	Wrench
Ø80~Ø315	FTNA0513	TW20-100

Available inserts E10

SVUM6000-B



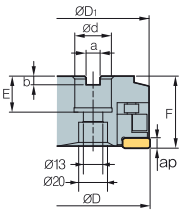


Fig. 1

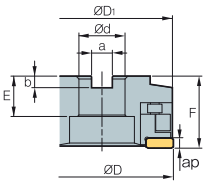


Fig. 2

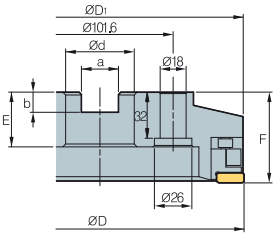


Fig. 3

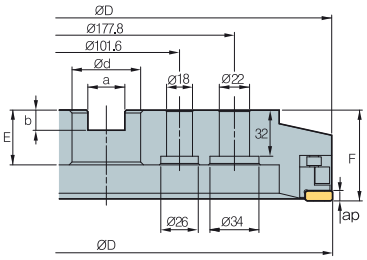


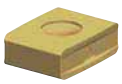
Fig. 4

(mm)

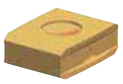
Designation			ØD	ØD1	ØD2	Ød	a	b	E	F	ap	kg	Fig.
SVUM	6080R/L-Z4-B	4	80	79	57	27	12.4	7	22	50	0.5	1.2	1
	6100R/L-Z4-B	4	100	99	67	32	14.4	8	28	63	0.5	2.3	1
	6125R/L-Z4-B	4	125	124	87	40	16.4	9	30	63	0.5	3.5	2
	6160R/L-Z4-B	4	160	160	107	40	16.4	9	30	63	0.5	5	3
	6200R/L-Z6-B	6	200	200	130	60	25.7	14	38	63	0.5	7.2	3
	6250R/L-Z6-B	6	250	250	180	60	25.7	14	38	63	0.5	12	3
	6315R/L-Z8-B	8	315	315	240	60	25.7	14	38	63	0.5	19.5	4

Available inserts

LNCS(R3.0)



LNCS(C1.5)



Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NCM325	NC5330	NCM535	NCM545	PC2505	PC2010	PC3600	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNCS	1907-R3.0-WC																			E10
	1907-C1.5-WC																			

Parts

Specification	Locator	Wedge	Wedge screw	Adjust Screw	Contract Screw	Wrench
Ø80~Ø315	LSH4R	WSH4	DHA0724F	AZ0619F-D	FTNA0512	TW20-100

Available inserts **E10**

Inch

Actual designations of milling cutter

Fig. 1

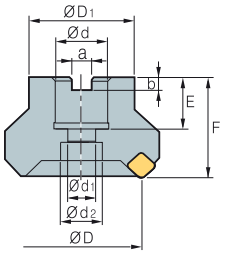


Fig. 2

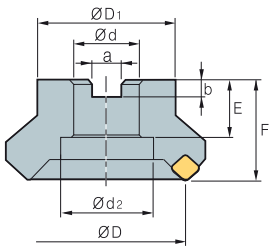


Fig. 3

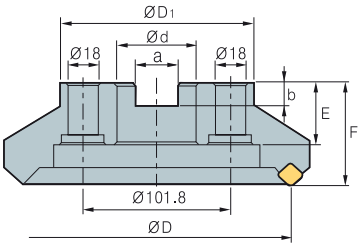
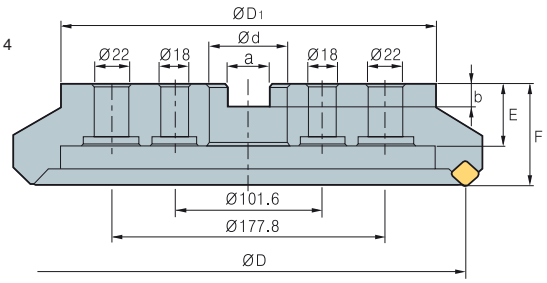


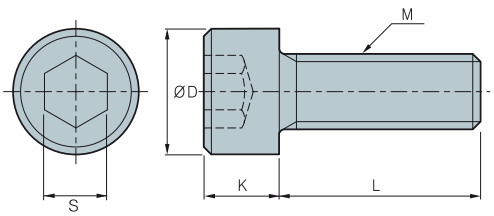
Fig. 4



Inch type

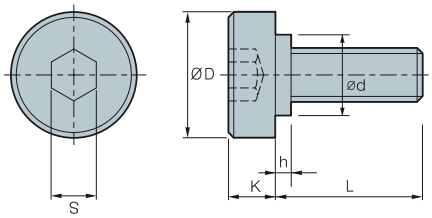
Dimensions (mm)									Fig.	Available arbors
ØD	Ød	a	b	E	F	ØD1	Ød1	Ød2		
40	16	8.4	5.6	18	40	34	9	14	1	FMC16, SMA16
50	22	10.4	6.3	20	40	42	11	18	1	FMC22
63	22	10.4	6.3	20	40	49	11	18	1	FMC22
80	25.4	9.5	6	25	50	57	14	20	1	FMA25.4
100	31.75	12.7	8	32	50	67	-	45	2	FMA31.75, SMB31.75
125	38.1	15.9	10	38	63	87	-	56	2	FMA38.1
160	50.8	19	11	38	63	107	-	-	2	FMA50.8
200	47.625	25.4	14	38	63	130	-	-	3	FMA47.625
250	47.625	25.4	14	38	63	180	-	-	3	FMA47.625
315	47.625	25.4	14	38	63	240	-	-	4	-

Wrench bolt



Designation	ØD	S	K	L	M	Cutter size
SB0825	13	6	8	25	M08×1.25	Ø40
SB1025	16	8	10	25	M10×1.50	Ø50, Ø63
SB1035	16	8	10	35	M10×1.50	Ø50, Ø63 (HRM)
SB1230	18	10	12	30	M12×1.75	Ø80
SB1630	24	14	16	30	M16×2.0	Ø100
SB1645	24	14	16	45	M16×2.0	Ø80, Ø100 (HRM)
SB2040	30	17	20	40	M20×2.5	Ø125

Clamp bolt



Designation	Dimensions (mm)						Cutter size
	D	L	K	S	h	d	
M8×1.25	20	20	7	6	-	-	Ø40
M10×1.5	28	24	9	8	-	-	Ø50, Ø63
M12×1.75	33	28	10	10	2	23	Ø80
M16×2	40	32	10	14	5	23	Ø100
M20×2.5	50	40	14	17	5	27	Ø125
M24×3	64	46	14	19	9	37	Ø160

Metric - ISO6462, DIN138

Clamping part of milling cutter

Fig. 1

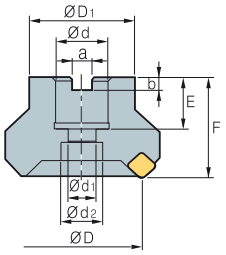


Fig. 2

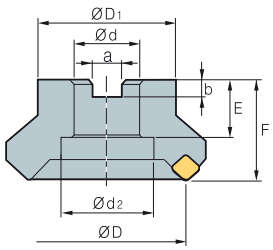


Fig. 3

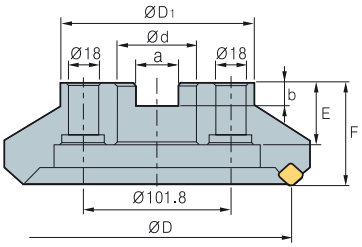
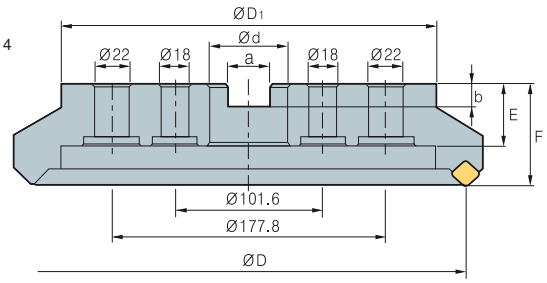


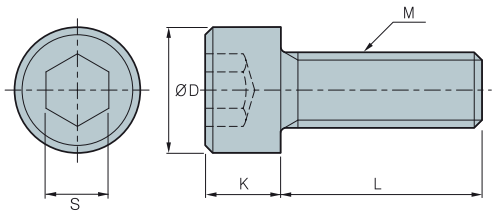
Fig. 4



Metric type

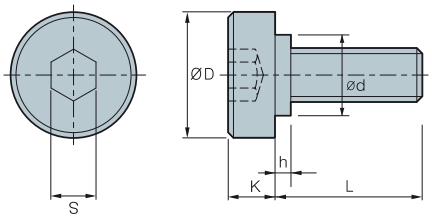
Dimensions (mm)									Fig.	Available arbors
ØD	Ød	a	b	E	F	ØD1	Ød1	Ød2		
40	16	8.4	5.6	18	40	34	9	14	1	FMC16, SMA16
50	22	10.4	6.3	20	40	42	11	18	1	FMC22
63	22	10.4	6.3	20	40	49	11	18	1	FMC22
80	27	12.4	7	22	50	57	14	20	1	FMC27
100	32	14.4	8	28	50	67	-	45	2	FMC32
125	40	16.4	9	32	63	87	-	56	2	FMB40
160	40	16.4	9	32	63	107	-	-	2	FMB40
200	60	25.7	14	38	63	130	-	-	3	FMB60
250	60	25.7	14	38	63	180	-	-	3	FMB60
315	60	25.7	14	38	63	240	-	-	4	-

Wrench bolt



Designation	ØD	S	K	L	M	Cutter size
SB0825	13	6	8	25	M08×1.25	Ø40
SB1025	16	8	10	25	M10×1.50	Ø50, Ø63
SB1035	16	8	10	35	M10×1.50	Ø50, Ø63 (HRM)
SB1230	18	10	12	30	M12×1.75	Ø80
SB1245	18	10	12	45	M12×1.75	Ø80 (HRM)
SB1630	24	14	16	30	M16×2.0	Ø100
SB1645	24	14	16	45	M16×2.0	Ø100 (HRM)
SB2040	30	17	20	40	M20×2.5	Ø125

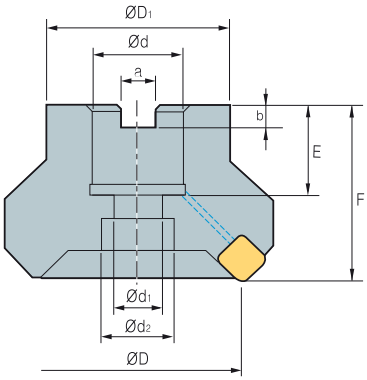
Clamp bolt



Specifications	Dimensions (mm)						Cutter size
	D	L	K	S	h	d	
M12×1.75	33	28	10	10	2	23	Ø80
M16×2	40	32	10	14	5	23	Ø100
M20×2.5	50	40	14	17	5	27	Ø125, Ø160

Clamping part of milling cutter (Oil-hole)

Clamping part of milling cutter



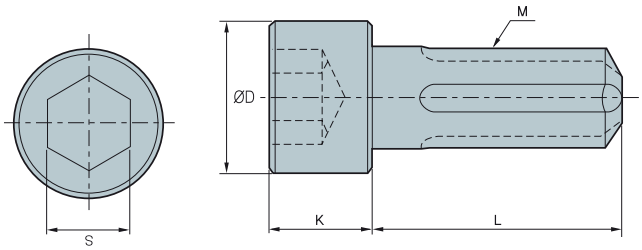
Inch type

Dimensions (mm)									Available arbors
ØD	Ød	a	b	E	F	ØD1	Ød1	Ød2	
40	16	8.4	5.6	19	40	34	9	14	FMC16, SMA16
50	22	10.4	6.3	21	40	42	11	18	FMC22
63	22	10.4	6.3	21	40	49	11	18	FMC22
80	25.4	9.5	6	24	50	57	14	20	FMA25.4, FMB25.4
100	31.75	12.7	8	32	63	67	18	26	FMA31.75, SMB31.75
125	38.1	15.9	10	35	63	87	22	32	FMA38.1, FMB38.1, FMC38.1

Metric type

Dimensions (mm)									Available arbors
ØD	Ød	a	b	E	F	ØD1	Ød1	Ød2	
40	16	8.4	5.6	19	40	34	9	14	FMC16, SMA16
50	22	10.4	6.3	21	40	42	11	18	FMC22
63	22	10.4	6.3	21	40	49	11	18	FMC22
80	27	12.4	7.0	23	50	57	14	20	FMC27
100	32	14.4	8.0	25	50	67	18	26	FMC32
125	40	16.4	9.0	29	63	87	22	32	FMB40/FMC40

Wrench bolt



Designation	ØD	S	K	L	M	Cutter size
CB0825	13	6	8	25	M08×1.25	Ø40
CB1025	16	8	10	25	M10×1.50	Ø50, Ø63
CB1035	16	8	10	35	M10×1.50	Ø50, Ø63 (HRM)
CB1230	18	10	12	30	M12×1.75	Ø80
CB1245	18	10	12	45	M12×1.75	Ø80 (HRM)
CB1630	24	14	16	30	M16×2.0	Ø100
CB1645	24	14	16	45	M16×2.0	Ø100 (HRM)
CB2040	30	17	20	40	M20×2.5	Ø125

Gear cutter applicable example

Applicable example-external tooth gear

Finishing: M20

- **Cutter Dia**: Ø400
- **Tooth No**: 20 tooth
- **External tooth gear**: Formal cutter for gear processing which can be expected to KS 4 level accuracy
- Cutter can simultaneously chamfer while milling

M20XZ130-EX

Semi-finishing

- **Cutter Dia**: Ø280
- **Tooth No**: 48 tooth
- Designed for processing of external gear involute curve line shape
- Possible to work for gear root portion R with optimal insert R design

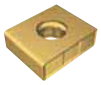
M20-M22-ROU

Roughing

- **Cutter Dia**: Ø300
- **Tooth No**: 60 tooth
- High feed rate with low cutting resistance due to V shape insert setting design

LNE333-02-1

LNE434-02-1



KEL1906-C0.6-MF

Applicable example-internal tooth gear

Finishing: M16

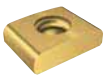
- **Cutter Dia**: Ø400
- **Tooth No**: 20 tooth
- **Internal tooth gear**: Formal cutter for gear processing which can be expected to KS 4 level accuracy
- Cutter can simultaneously chamfer while milling

M16XZ130

Semi-finishing

- **Cutter Dia**: Ø280
- **Tooth No**: 48 tooth
- The semi-finishing cutter was designed for processing of external gear involute curb line shape

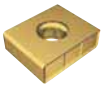
M16-M18-ROU



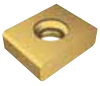
LNE433-R60

Roughing

- **Cutter Dia**: Ø560
- **Tooth No**: 40 tooth
- Possible to use for gear processing of all module due to step type of insert setting design



KEL1906-C0.6-MF

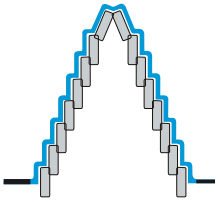
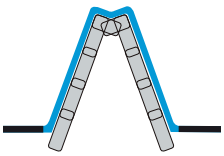
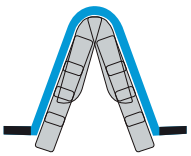
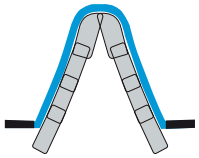
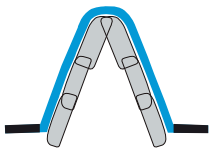
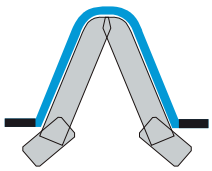
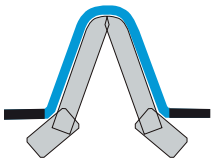
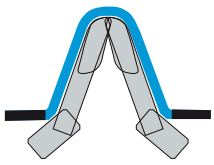


LNE434-02-1

Gear cutter machining example

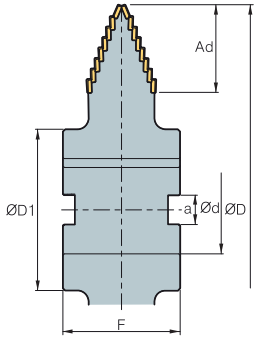
- **Machine**
  Gleason-PFAUTER CNC Hobbing Machine (Power: 52kW)
- **Cutting condition**
  vc = 119.98 m/min (n = 86.8 rpm)
  fz = 0.518 mm/t (vf = 450 mm/min)
  ae = 36 mm
  Dry
- **Tools**
  M16-PT-RACK-KOR03 (Ø440xW90)
- **Semi-finishing cutter (low cut, low resistance)**

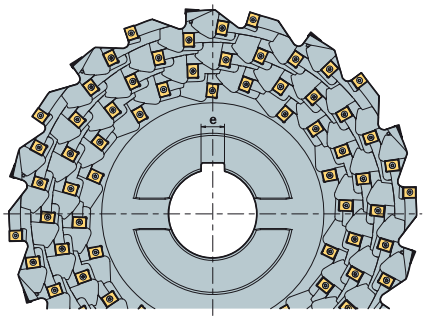
- **Machine**
  KARATS (30kw)
- **Cutting condition**
  vc = 150 m/min, n = 119 rpm
  fz = 0.09 mm/t, vf = 81.6 mm/min
  ae = 45 mm
  Dry
- **Tools**
  M24 Semi-finishing External type
  Applicable Insert
  M40-ROU (Main),
  CPE424-01 (Flank)

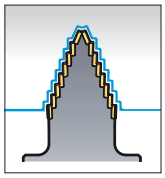
Type	Cutter shape	Cutting-edge shape	Type	Figure
Roughing			Step type	• Working for big sized gear tooth • Low cutting resistance with step type insert setting
			V shape type	• Low cutting resistance with V shape cutting insert setting • Optimal cutting-edge line setting according to Rach type & cutting-edge shape
Semi-finishing			Low cutting resistance type	• 4-Corner insert on Root portion • 3D chip breaker shape on flank • Optimal cutting-edge line setting for low cutting resistance
			External gear high rigidity type	• Optimal R type insert setting on Root portion • Superior Semi-finishing cutting with high rigidity shape of cutter & insert
			Internal gear high rigidity type	• Exclusive semi-finishing Internal Gear insert • Optimal cutting-edge line setting with Internal tooth shape
Finishing			External gear	• Concave shape of cutting-edge line according to external gear type • Optimal cutting insert setting design according to a customer conditions
			Internal gear	• 2-corner insert setting on right & left side and chamfering insert setting • Adjustable chamfering cartridge use for chamfering control
			2 STEP type	• Exclusive insert for machining the root part • 4-cornered insert

• Optimal cutting insert setting design according to customer condition

Gear Roughing Cutter (Step type)





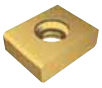
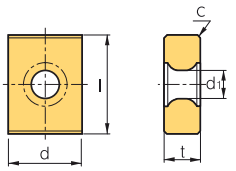
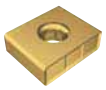


(mm)

m	⊚	ØD	Ad	Ød	ØD1	a	e	F
30	96	450	90	100	180	25	14	140
	108	500	90	100	180	25	14	140
	120	560	90	120	220	40	32	160
40	112	450	105	100	180	25	14	140
	126	500	105	100	180	25	14	140
	140	560	105	120	220	40	32	160
50	160	560	119	120	220	40	32	160

Available inserts

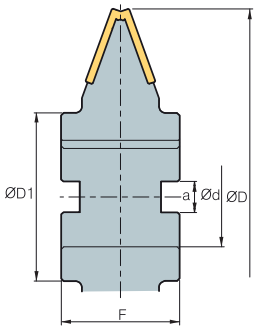
(mm)

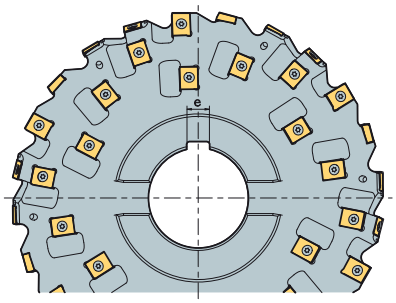
Picture	Designation		Coated				Uncoated		Dimensions					Configuration
			NC5330	PC9530	PC3500	PC5300	H01	G10	l	d	t	d_1	c	
 Reinforced cutting-edge	LNE	434-02-1			○	鞭			19.05	14.29	6.35	5.4	0.6	
 Low cutting resistance	KEL	1906-C0.6-MF			○	鞭			19.05	14.29	6.35	5.4	0.6	
		190610-MR			○	鞭			19.05	14.29	6.35	5.4	-	

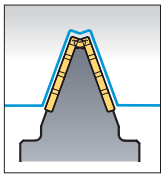
※ The above specification is subject to change according to customer related condition & Korloy technical condition

◎: 1st Rec ○: 2nd Rec

Gear Roughing Cutter (V shape type)





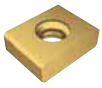
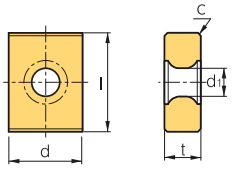
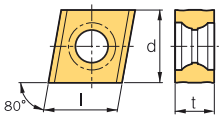


(mm)

m	Type		ØD	Ød	ØD1	a	e	F
20	rack	48	280	80	135	25	18	95
22	rack	48	280	80	135	25	18	95
24	rack	48	320	80	145	25	18	105
26	rack	60	320	80	145	25	18	105
28	rack	96	400	100	180	25	24	130
30	rack	96	400	100	180	25	24	130
32	rack	96	400	100	180	25	24	130
34	rack	112	400	100	180	25	24	130
36	rack	112	450	100	180	25	24	130
38	rack	112	450	100	180	25	24	130
40	rack	128	450	100	180	25	24	160
42	rack	128	450	100	180	25	24	160
44	rack	128	560	120	220	32	32	160
46	rack	144	560	120	220	32	32	160
48	rack	144	560	120	220	32	32	160
50	rack	144	560	120	220	32	32	160

Available inserts

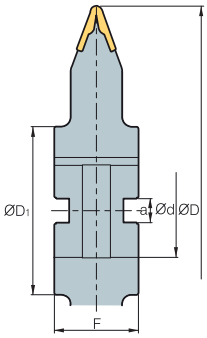
(mm)

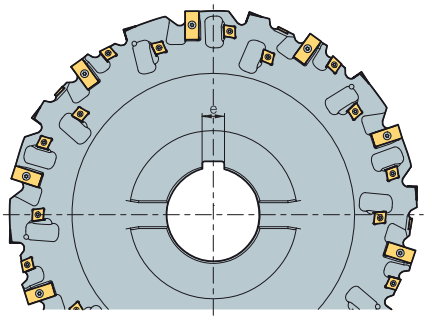
Picture	Designation		Coated				Uncoated		Dimensions					Configuration
			NC5330	PC9530	PC3500	PC5300	H01	G10	l	d	t	d1	c	
 Reinforced cutting-edge	LNE	434-02-1			○	◎			19.05	14.29	6.35	5.4	0.6	
 Low cutting resistance	LNE	1906-C0.6-MF			○	◎			19.05	14.29	6.35	5.4	0.6	
		190610-MR							19.05	14.29	6.35	5.4	-	
 Reinforced cutting-edge	KEL	333-02-1			○	◎			14.3	12.7	6.35	5.8	0.8	
	CNHQ	1005-C0.5							10	10	5.4	-	-	

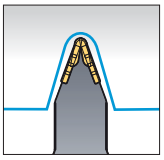
※ The above specification is subject to change according to customer related condition & Korloy technical condition

◎: 1st Rec ○: 2nd Rec

Gear Semi-finishing Cutter
(Low cutting resistance type)





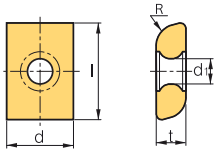
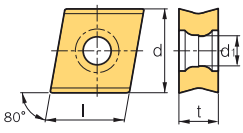


(mm)

m	No.of teeth	⦾	ØD	Ød	ØD1	a	e	F
6	30,60,120	18	250	60	100	25	18	70
8	30,60,120	18	250	60	100	25	18	80
10	30,60,120	24	250	60	100	25	18	80
12	30,60,120	24	250	60	100	25	18	90
14	30,60,120	24	280	80	135	25	24	95
16	30,60,120	32	280	80	135	25	24	100
18	30,60,120	32	320	80	145	25	24	105
20	30,60,120	64	400	100	180	25	24	110
22	30,60,120	64	400	100	180	25	24	110
24	30,60,120	64	400	100	180	25	24	120

Available inserts

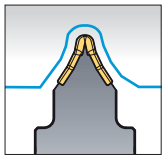
(mm)

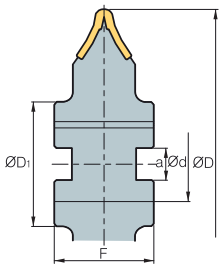
Picture	Designation		Coated				Uncoated		Dimensions					Configuration
			NC5330	PC9530	PC3500	PC5300	H01	G10	l	d	t	d1	c	
		M6-2ST			○	◎			19.05	11.6	3.8	4.4	2.25	
		M8-2ST			○	◎			19.05	11.6	4	4.4	3	
		M10-2ST			○	◎			19.05	11.6	4.76	4.4	3.75	
		M12-2ST			○	◎			19.05	14.3	6.35	5.5	4.5	
		M14-2ST			○	◎			25.4	14.3	6.35	5.5	5.25	
		M16-2ST			○	◎			31.8	14.3	7.14	5.5	6	
		M18-2ST			○	◎			31.8	14.3	7.14	5.5	6.75	
		M20-2ST			○	◎			31.8	14.3	9.52	5.5	7.5	
		M22-2ST			○	◎			31.8	14.3	9.52	5.5	8.25	
		M24-2ST			○	◎			31.8	14.3	9.52	5.5	9	
	KEC	120606-MX			○	◎			12	12.7	6.35	4.5	-	
		150708-MX			○	◎			15.15	15	7.6	5.8	-	

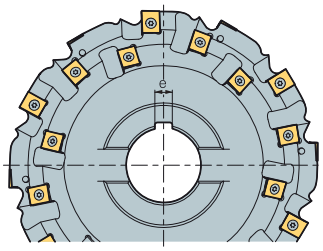
※ The above specification is subject to change according to customer related condition & Korloy technical condition

◎: 1st Rec ○: 2nd Rec

Gear Semi-finishing Cutter
(High rigid edge type, External gear)





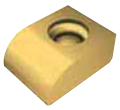
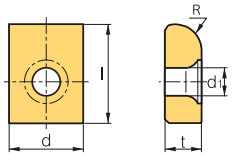
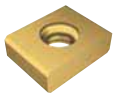
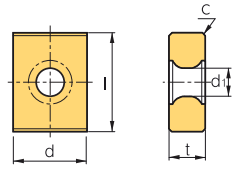
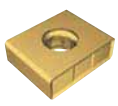


(mm)

m	No.of teeth	⚙	ØD	Ød	ØD1	a	e	F
12	30, 60, 120	24	250	60	100	25	14	70
14	30, 60, 120	36	250	60	100	25	14	80
16	30, 60, 120	36	250	60	100	25	14	80
18	30, 60, 120	36	250	60	100	25	14	90
20	30, 60, 120	48	280	80	135	25	18	95
22	30, 60, 120	48	280	80	135	25	18	100
24	30, 60, 120	48	320	80	145	25	18	105
26	30, 60, 120	72	400	100	180	25	24	110
28	30, 60, 120	72	400	100	180	25	24	110
30	30, 60, 120	72	400	100	180	25	24	120
32	30, 60, 120	84	400	100	180	25	24	130
34	30, 60, 120	84	400	100	180	25	24	130

Available inserts

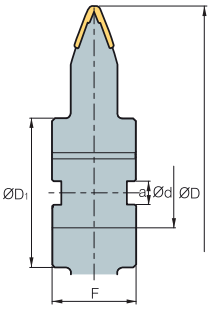
(mm)

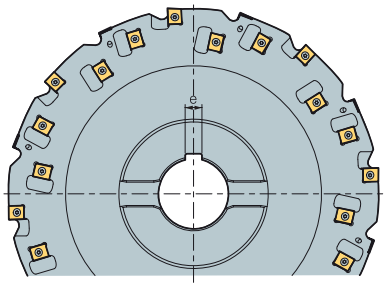
Picture	Designation	Coated				Uncoated		Dimensions						Configuration
		NC5330	PC9530	PC3500	PC5300	H01	G10	l	d	t	d1	R	c	
	**M8-ROU**			○	◎			15.875	11	4.76	4.6	4.6	-	
	M12-M14-ROU			○	◎			19.05	14.29	6.35	5.4	5.4	-	
	M16-M18-ROU			○	◎			19.05	14.29	7	5.4	5.4	-	
	M20-M22-ROU			○	◎			19.05	14.29	7.94	5.4	5.4	-	
	M40-ROU			○	◎			25.4	14.29	9.52	5.4	5.4	-	
	**LNE 434-02-1**			○	◎			19.05	14.29	6.35	5.4	-	0.6	
	**KEL 1906-C0.6-MF**			○	◎			19.05	14.29	6.35	5.4	-	0.6	
	190610-MR			○	◎			19.05	14.29	6.35	5.4		-	

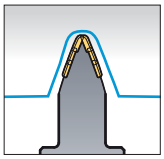
※ The above specification is subject to change according to customer related condition & Korloy technical condition

◎: 1st Rec ○: 2nd Rec

Gear Semi-finishing Cutter
(High rigid edge type, Internal gear)





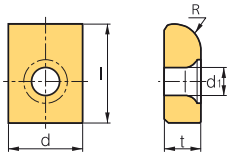
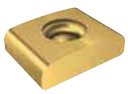
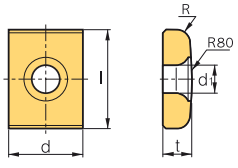


(mm)

m	No.of teeth		ØD	Ød	ØD1	a	e	F
12	30,60,120	24	250	60	100	25	14	70
14	30,60,120	36	250	60	100	25	14	80
16	30,60,120	36	250	60	100	25	14	80
18	30,60,120	36	250	60	100	25	14	90
20	30,60,120	48	280	80	135	25	18	95
22	30,60,120	48	280	80	135	25	18	100
24	30,60,120	48	320	80	145	25	18	105
26	30,60,120	72	400	100	180	25	24	110
28	30,60,120	72	400	100	180	25	24	110
30	30,60,120	72	400	100	180	25	24	120
32	30,60,120	84	400	100	180	25	24	130
34	30,60,120	84	400	100	180	25	24	130

Available inserts

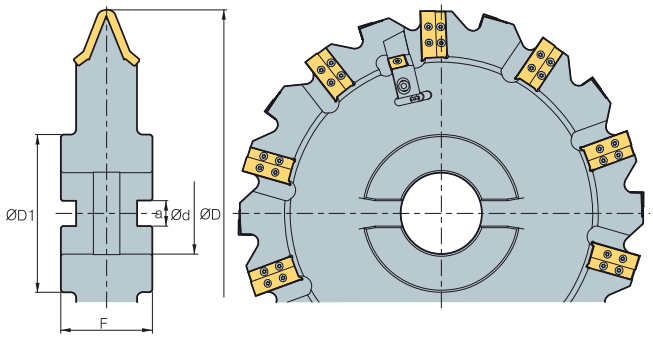
(mm)

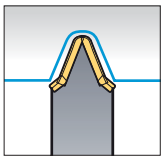
Picture	Designation	Coated				Uncoated		Dimensions					Configuration
		NC5330	PC9530	PC3500	PC5300	H01	G10	l	d	t	d1	c	
	M8-ROU			○	◎			15.875	11	4.76	4.6	2	
	M12-M14-ROU			○	◎			19.05	14.29	6.35	5.4	3	
	M16-M18-ROU			○	◎			19.05	14.29	7	5.4	5	
	M20-M22-ROU			○	◎			19.05	14.29	7.94	5.4	7	
	M40-ROU			○	◎			25.4	14.29	9.52	5.4	10	
	LNE 433-R80			○	◎			19.05	14.29	5.56	5.4	2.5	

※ The above specification is subject to change according to customer related condition & Korloy technical condition

◎: 1st Rec ○: 2nd Rec

Gear Finishing Cutter
(1 Step type, External gear)



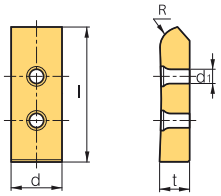
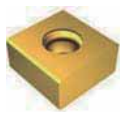
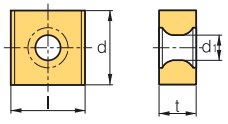


(mm)

m	⊚	ØD	Ød	ØD1	a	F
6	20	400	80	155	25	90
8	20	400	80	155	25	90
10	20	400	80	155	25	90
12	20	400	80	155	25	90
14	20	400	80	155	25	90
16	20	400	80	155	25	90
18	20	400	80	155	25	90
20	20	400	80	155	25	90
22	20	400	80	155	25	90
24	20	400	80	155	25	90

Available inserts

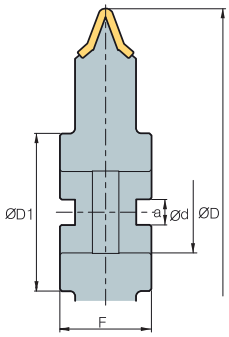
(mm)

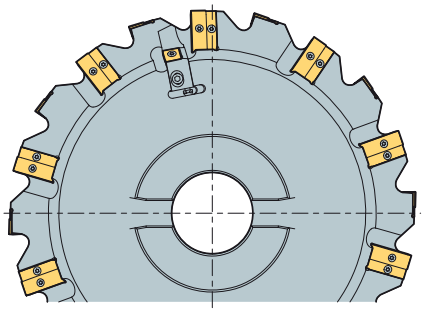
Picture	Designation		Coated				Uncoated		Dimensions					Configuration
			NC5330	PC9530	PC3500	PC5300	H01	G10	l	d	t	d_1	R	
		M6			◦	◉			19	14.3	5	5.5	2.25	
		M8			◦	◉			27	14.3	5.4	5.5	3	
		M10			◦	◉			29	14.3	6.35	5.5	3.75	
		M12			◦	◉			33	14.3	6.35	5.5	4.5	
		M14			◦	◉			39	14.3	6.35	5.5	5.25	
		M16			◦	◉			43	14.3	7.94	5.5	6	
		M18			◦	◉			50	14.3	7.94	5.5	6.75	
		M20			◦	◉			54	14.3	9.53	5.5	7.5	
		M22			◦	◉			57	14.3	9.53	5.5	8.25	
		M24			◦	◉			64	14.3	9.53	5.5	9	
	SNEQ	1507-C0.8			◦	◉			15.875	15.875	7.94	-	-	

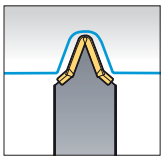
※ The above specification is subject to change according to customer related condition & Korloy technical condition

◎: 1st Rec ○: 2nd Rec

Gear Finishing Cutter
(1 Step type, Internal gear)





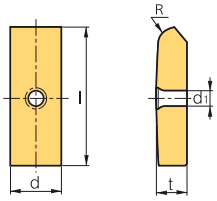
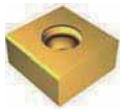
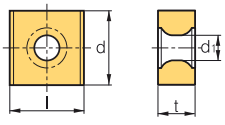


(mm)

m	⊚	ØD	Ød	ØD1	a	F
6	20	400	80	155	25	90
8	20	400	80	155	25	90
10	20	400	80	155	25	90
12	20	400	80	155	25	90
14	20	400	80	155	25	90
16	20	400	80	155	25	90
18	20	400	80	155	25	90
20	20	400	80	155	25	90
22	20	400	80	155	25	90
24	20	400	80	155	25	90

Available inserts

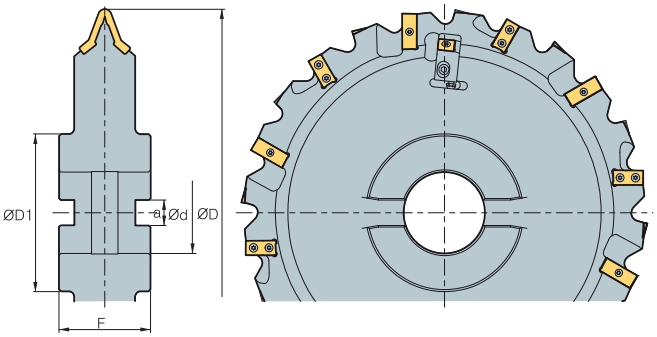
(mm)

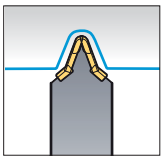
Picture	Designation		Coated				Uncoated		Dimensions					Configuration
			NC5330	PC9530	PC3500	PC5300	H01	G10	l	d	t	d1	R	
		M6			◦	轉			19	14.3	5	5.5	2.25	
		M8			◦	轉			27	14.3	5.4	5.5	3	
		M10			◦	轉			29	14.3	6.35	5.5	3.75	
		M12			◦	轉			33	14.3	6.35	5.5	4.5	
		M14			◦	轉			39	14.3	6.35	5.5	5.25	
		M16			◦	轉			43	14.3	7.94	5.5	6	
		M18			◦	轉			50	14.3	7.94	5.5	6.75	
		M20			◦	轉			54	14.3	9.53	5.5	7.5	
		M22			◦	轉			57	14.3	9.53	5.5	8.25	
		M24			◦	轉			64	14.3	9.53	5.5	9	
	SNEQ	1507-C0.8			◦	轉			15.875	15.875	7.94	-	-	

※ The above specification is subject to change according to customer related condition & Korloy technical condition

◎: 1st Rec ○: 2nd Rec

Gear Finishing Cutter
(2 Step type, Internal/Externa gear)



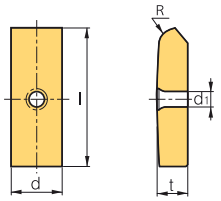
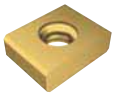
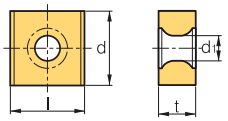
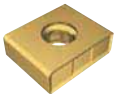
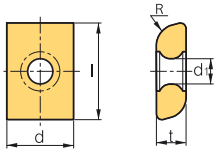


(mm)

m	⚙	ØD	Ød	ØD1	a	F
6	24	400	80	155	25	90
8	24	400	80	155	25	90
10	24	400	80	155	25	90
12	24	400	80	155	25	90
14	24	400	80	155	25	90
16	24	400	80	155	25	90
18	24	400	80	155	25	90
20	24	400	80	155	25	90
22	24	400	80	155	25	90
24	24	400	80	155	25	90

Available inserts

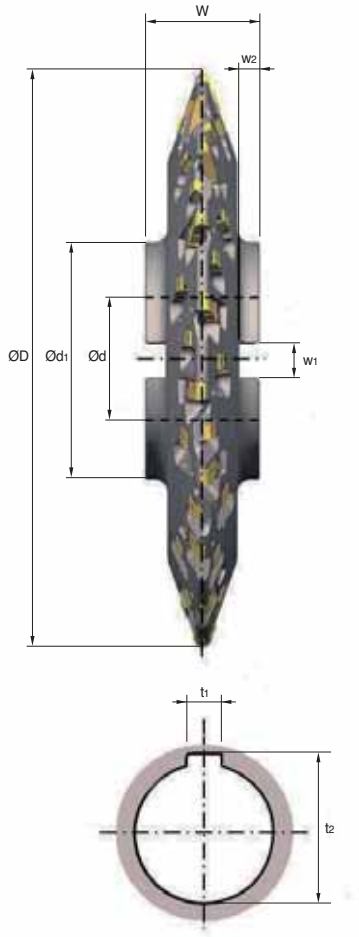
(mm)

Picture	Designation		Coated				Uncoated		Dimensions					Configuration
			NC5330	PC9530	PC3500	PC5300	H01	G10	l	d	t	d_1	R	
		M6		○		轉			19	14.3	5	5.5	2.25	
		M8		○		轉			27	14.3	5.4	5.5	3	
		M10		○		轉			29	14.3	6.35	5.5	3.75	
		M12		○		轉			33	14.3	6.35	5.5	4.5	
		M14		○		轉			39	14.3	6.35	5.5	5.25	
		M16		○		轉			43	14.3	7.94	5.5	6	
		M18		○		轉			50	14.3	7.94	5.5	6.75	
		M20		○		轉			54	14.3	9.53	5.5	7.5	
		M22		○		轉			57	14.3	9.53	5.5	8.25	
		M24		○		轉			64	14.3	9.53	5.5	9	
	SNEQ	1507-C0.8		○		轉			15.875	15.875	7.94	-	-	
		M6-2ST							19.05	11.6	3.8	4.4	2.25	
		M8-2ST							19.05	11.6	4	4.4	3	
		M10-2ST							19.05	11.6	4.76	4.4	3.75	
		M12-2ST							19.05	14.3	6.35	5.5	4.5	
		M14-2ST							25.4	14.3	6.35	5.5	5.25	
		M16-2ST							31.8	14.3	7.14	5.5	6	
		M18-2ST							31.8	14.3	7.14	5.5	6.75	
		M20-2ST							31.8	14.3	9.52	5.5	7.5	
		M22-2ST							31.8	14.3	9.52	5.5	8.25	
		M24-2ST							31.8	14.3	9.52	5.5	9	

※ The above specification is subject to change according to customer related condition & Korloy technical condition

◎: 1st Rec ○: 2nd Rec

Gear cutter order form



Cutter type

☐ **Roughing** ☐ **Semi-finishing** ☐ **Finishing**

☐ Step ☐ Low cutting resistance ☐ 1 Step

☐ V shape ☐ High rigid edge ☐ 2 Step

■Stock for finishing (one side) (mm):

■Outside diameter D (mm):

■Bore diameter d (mm):

■Hub diameter d1 (mm):

■Cutter width W (mm):

■Radial keyway w1 (mm):

■Radial keyway w2 (mm):

■Axial keyway t1 (mm):

■Axial keyway t2 (mm):

Involute gear data

☐ **External gear** ☐ **Internal gear** ☐ **Rack gear**

■Module M (mm):

■No.of teeth Z (mm):

■Pressure angle α (°):

■Helix angle β (°):

■Addendum modification coefficient x:

■Tip diameter da (mm):

■Root diameter d_f (mm):

■Root radius ρ_{fp} (mm)

■Base tangent length W_k (mm)

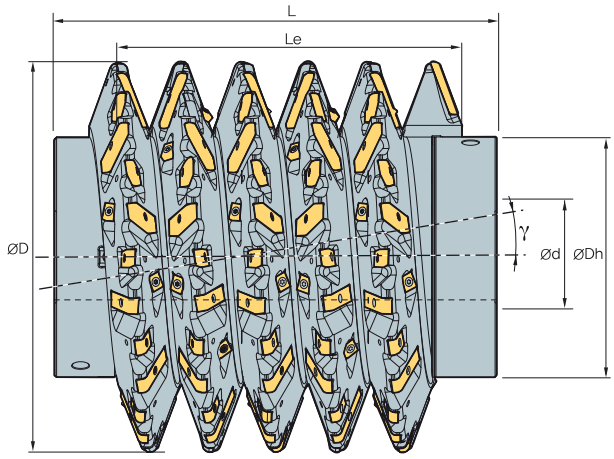
■No. of measuring teeth K:

■Dimensions/Dimension over balls M_d (mm):

■Ball diameter D_M (mm):

■Gear quality (DIN, JIS):

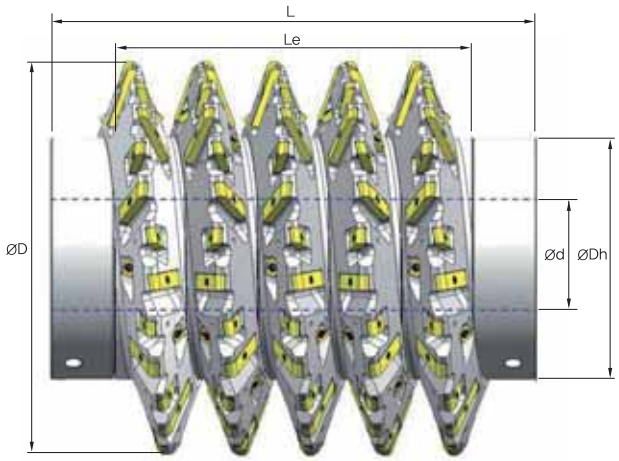
Indexable HOB



(mm)

Gear module	ØD	ØDh	Ød	No.Segm. (Pitch)	Le	Segment insert	Total insert	γ (Lead Ang.)
6	180	125	40	6	(113)	15	90	2.084
	210	125	50	6	(113)	17	102	1.763
	240	160	60	6	(113)	19	114	1.528
7	180	125	40	6	(132)	15	90	2.469
	210	125	50	6	(132)	17	102	2.084
	240	160	60	6	(132)	19	114	1.803
8	210	125	50	6	(151)	17	102	2.413
	240	160	60	6	(151)	19	114	2.084
	270	180	80	6	(151)	21	126	1.834
9	210	125	50	6	(169)	17	102	2.751
	240	160	60	6	(169)	19	114	2.372
	270	180	80	6	(169)	21	126	2.084
10	210	125	50	6	(189)	17	102	3.099
	240	160	60	6	(189)	19	114	2.666
	270	180	80	6	(189)	21	126	2.339
12	240	140	60	6	(226)	18	108	3.276
	270	180	80	6	(226)	22	132	2.866
	350	215	80	6	(226)	26	156	2.149
14	270	180	80	6	(264)	22	132	3.415
	350	215	80	6	(264)	26	156	2.547
16	270	160	80	6	(302)	22	132	3.989
	350	215	80	6	(302)	26	156	2.959
18	270	145	80	5	(283)	22	110	4.589
	350	215	80	5	(283)	26	130	3.383
20	350	215	80	5	(314)	26	130	3.823
	450	265	100	5	(314)	34	170	2.866

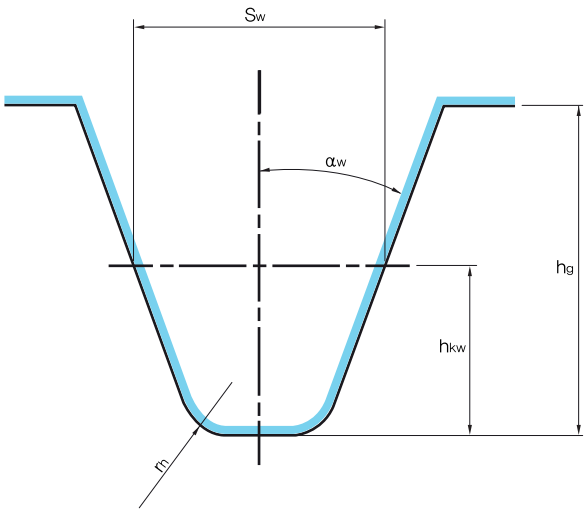
Indexable HOB



Tool SPEC.

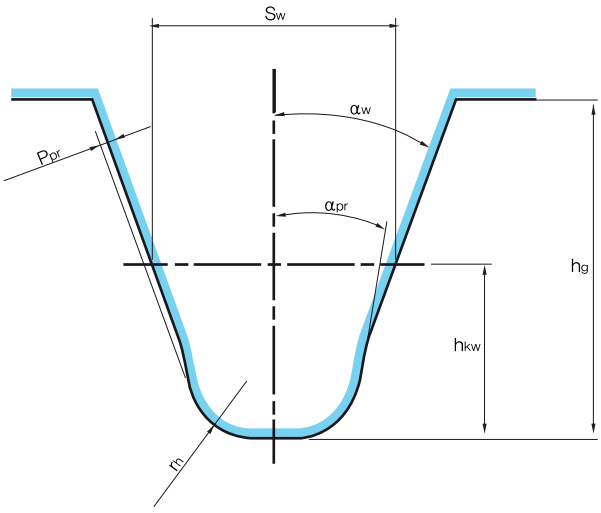
- Outside diameter ØD (mm):
- Bore diameter Ød (mm):
- Hub diameter ØDh (mm):
- Hob length L (mm):
- Cutting length Le (mm):
- Spiral direction RH/LH:
- Quality class acc. to DIN 3968:

Profile of hob [Module m6~]



- Module M (mm):
- Addendum hkw (mm):
- Tooth thickness Sw (mm):
- Tooth depth hg (mm):

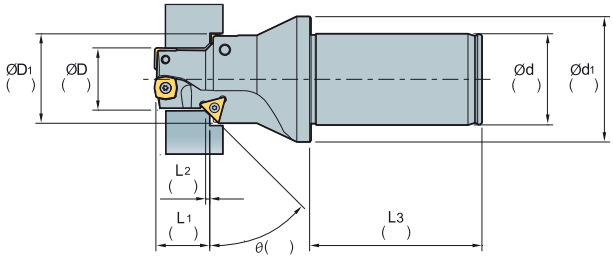
Profile of roughing hob [Module m8~]



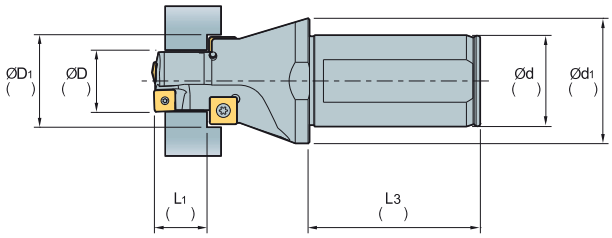
- Pressure angle α_w (mm):
- Protuberance amount P_{pr} (mm):
- Protuberance angle α_{pr} (mm):
- Tip radius r_h (mm):

Special drill holder for multi-purpose

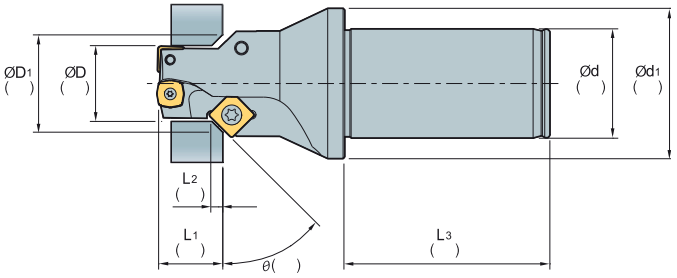
Drilling & Chamfering & Counter Boring



Drilling & Counter Boring



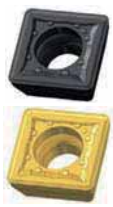
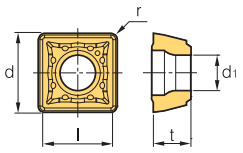
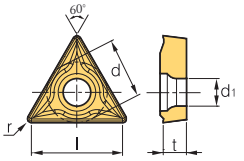
Drilling & Chamfering



※ Order-made items available outer above configulations

Available inserts

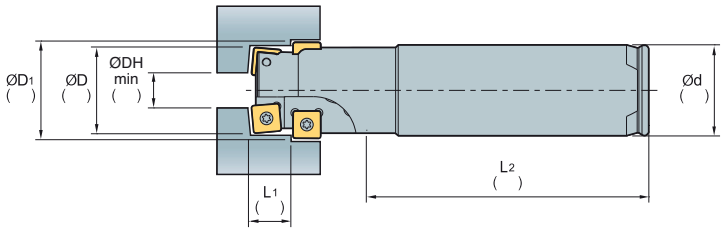
(mm)

Picture	Designation		Coated PC5300	Coated PC3600	l	d	t	r	d1	Available screw	Configuration
	SPMT	050204-BC	●		4.2	5	2.48	0.4	2.25	FTNA0204	
		060204-BC	●		5.2	6	2.48	0.4	2.61	FTNA02205	
		07T308-BC	●		6.34	7.94	3.97	0.8	2.85	FTKA02565	
		090408-BC	●		7.9	9.525	4.3	0.8	4.05	FTNA03508	
		110408-BC	●		9.9	11.5	5	0.8	4.45	FTKA0408	
		120408-BC	●		11.1	12.7	5	0.8	4.45	FTKA0408	
		140512-BC	●		11.9	14.3	5.4	1.2	5.75	FTNA0510	
	TCMT	090204-MP			8.6	5.56	2.38	0.4	2.50	FTKA02206	
		090208-MP			7.6	5.56	2.38	0.8	2.50	FTKA02206	
		110202-MP			10.5	6.35	2.38	0.2	2.80	FTKA2565	
		110204-MP			10.0	6.35	2.38	0.4	2.80	FTKA2565	
		110208-MP	●		9.0	6.35	2.38	0.8	2.80	FTKA2565	
		16T304-MP	●		15.5	9.525	3.97	0.4	4.40	FTGA3512	
		16T308-MP	●		14.5	9.525	3.97	0.8	4.40	FTGA3512	

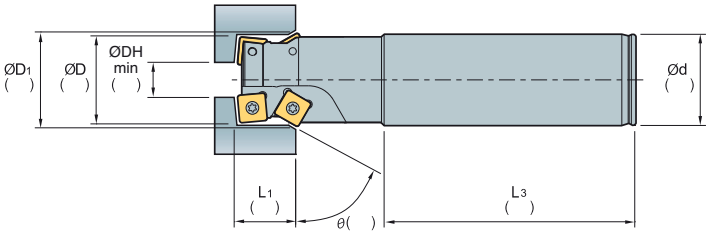
●Stock item

Special Boring holder for multi-purpose

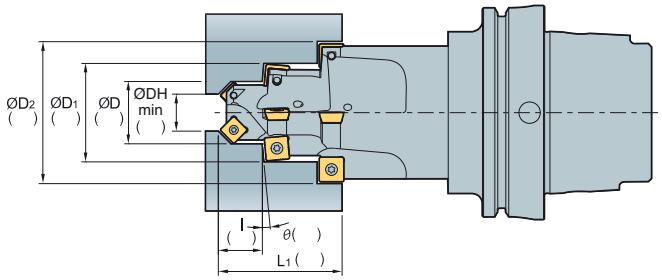
Boring & Counter Boring



Boring & Chamfering



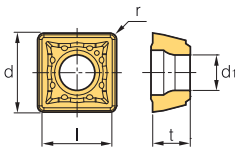
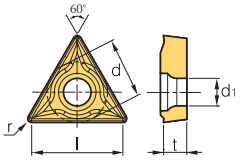
Boring & Chamfering & Counter Boring



※ Order-made items available outer above configulations

Available inserts

(mm)

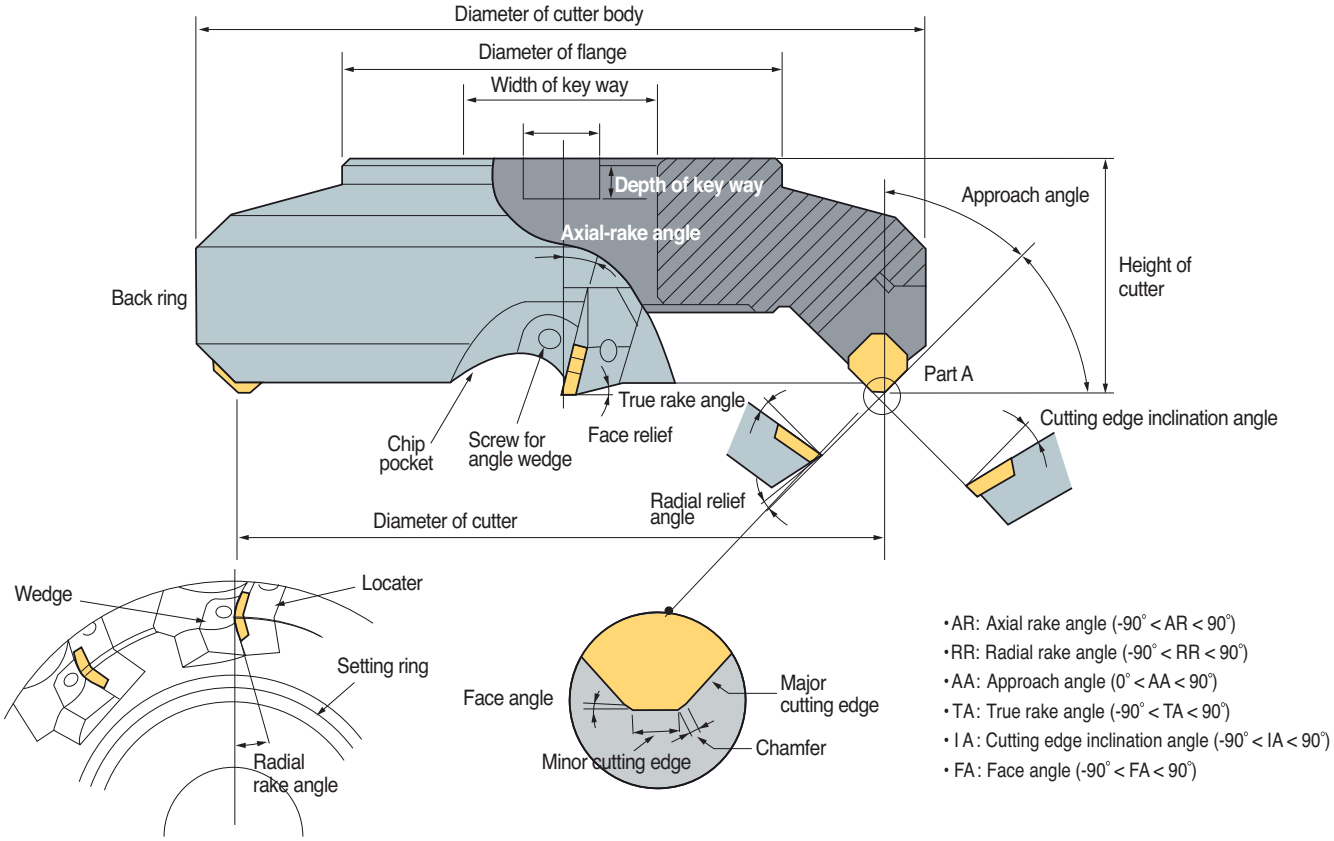
Picture	Designation		Coated PC5300	Coated PC3600	l	d	t	r	d1	Available screw	Configuration
	SPMT	050204-BC	●		4.2	5	2.48	0.4	2.25	FTNA0204	
		060204-BC	●		5.2	6	2.48	0.4	2.61	FTNA02205	
		07T308-BC	●		6.34	7.94	3.97	0.8	2.85	FTKA02565	
		090408-BC	●		7.9	9.525	4.3	0.8	4.05	FTNA03508	
		110408-BC	●		9.9	11.5	5	0.8	4.45	FTKA0408	
		120408-BC	●		11.1	12.7	5	0.8	4.45	FTKA0408	
		140512-BC	●		11.9	14.3	5.4	1.2	5.75	FTNA0510	
	TCMT	090204-MP			8.6	5.56	2.38	0.4	2.50	FTKA02206	
		090208-MP			7.6	5.56	2.38	0.8	2.50	FTKA02206	
		110202-MP			10.5	6.35	2.38	0.2	2.80	FTKA2565	
		110204-MP			10.0	6.35	2.38	0.4	2.80	FTKA2565	
		110208-MP	●		9.0	6.35	2.38	0.8	2.80	FTKA2565	
		16T304-MP	●		15.5	9.525	3.97	0.4	4.40	FTGA3512	
		16T308-MP	●		14.5	9.525	3.97	0.8	4.40	FTGA3512	

●Stock item

L

TECHNICAL INFORMATION

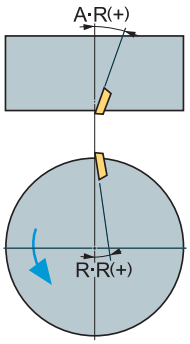
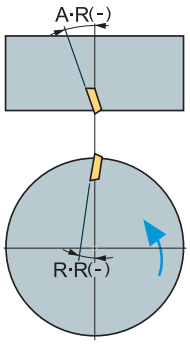
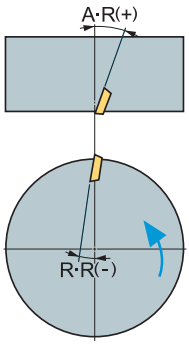
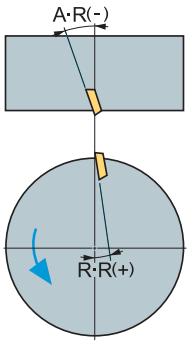
Milling cutter shape and designation



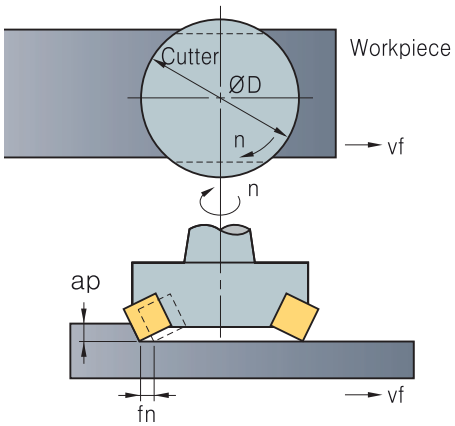
● The terminology and functions of cutting edge angle

No.	Tool failure	Symbol	Function	Effects
1	Axial rake angle	A.R	Chip flow direction, Adhesion	Positive: Excellent cutting, built-up edge prevented
2	Radial rake angle	R.R	Affecting on thrust	Negative: Excellent chip control
3	Approach angle	A.A	Chip thickness, Determines flow direction	(+): Chip thickness become thinner, cutting force could be reduced
4	True rake angle	T.A	Effective rake angle	(+): Better cutting. Preventing adhesion, Weakening cutting edge strength (−): Cutting edge strength increases, easy to adhere
5	Cutting edge inclination angle	I.A	Determines chip flow direction	(+): Good chip flow, cutting force could decreases, Comer edge strength weakens
6	Relief angle	F.A	Controlling cutting edge strenght, tool life and chattering	Surface roughness increases as F.A gets close to 0 degree

Features by combination of rake angle

Division	Double positive angle	Double negative angle	Posi - Negative angle	Nega - Positive angle
				
Use	• General machining of steel, cast iron, stainless steel • Machining soft steel that brings about built-up edge easily • Machining material having tendency to poor surface roughness	• Under interrupted cutting condition • Roughing of cast iron and steel	• Machining difficult to cut material • Roughing with deep depth of cut and wide width of cut in steel and cast iron	• Chip flows to center of cutter body
Advantages	• As for tough workpiece material It prevents built-up edge to improve surface roughness • Low cutting load and better machinability	• Strong cutting edge • Roughing of workpiece that has bad surface condition containing sand, mill scale • Double sided inserts can be applied(Economical) • Good chip control	• Good chip flow and machinability. • Suitable for machining of difficult-to-cut material	-
Disadvantages	• Weak cutting edge strength • Only single sided inserts are available (No economical) • Machine and cutter need enough power and rigidity	• Machine and cutter need enough power and rigidity	• Only single sided inserts are available (No economical)	• Since the chips flows toward the center of cutter. Chips scratch on machined surface • Bad chip flow • No economical

Major cutting formulas



● Cutting speed

$$vc = \frac{\pi \cdot D \cdot n}{1000} \text{ (m/min)}$$

- vc: Cutting speed (m/min)
- D: Diameter of tool (mm)
- n: Revolution per minute (min^{-1})
- π: Circular constant (3.14)

● Feed

$$fz = \frac{vf}{z \cdot n} \text{ (mm/t)}$$

- fz: Feed per tooth (mm/t)
- vf: Feed per minute (mm/min)
- n: Revolution per minute (min^{-1})
- z: Number of tooth

● Chip removal amount

$$Q = \frac{Lxvfxap}{1000} \text{ (cm^3/min)}$$

- Q: Chip removal amount (cm^3/min)
- L: Width of cut (mm)
- vf: Table feed (mm/min)
- ap: Depth of cut (mm)

● Power requirement

$$P_{kw} = \frac{Q \times kc}{60 \times 102 \times \eta} \qquad P_{hp} = \frac{P_{kw}}{0.75}$$

- Pc: Power requirement (kW)
- H: Horse power requirement (hp) (mm/min)
- Q: Chip removal amount (cm^3/min)
- kc: Specific cutting resistance (kgf/mm^3)
- η: Machine efficiency rate (0.7~0.8)

● Machining time

$$T = \frac{60 \times Lt}{vf} \text{ (sec)}$$

- T: Machining time (sec)
- Lt: Total length of table feed (mm) (= Lw+D+2R)
- Lw: The length of workpiece (mm)
- D: The diameter of cutter body (mm)
- vf: Table feed (mm/min)
- R: Relief length (mm)

● True rake angle/Cutting edge inclination angle

True rake angle: $\tan(T) = \tan(R) \times \cos(AA) + \tan(A) \times \sin(C)$

Cutting edge inclination angle: $\tan(I) = \tan(A) \times \cos(AA) - \tan(R) \times \sin(C)$

Values of specific cutting resistance

Workpiece	Tensile strength (kg/mm²) and hardness	Specific cutting resistance according to various feed kc(MPa)				
		0.1 (mm/t)	0.2 (mm/t)	0.3 (mm/t)	0.4 (mm/t)	0.6 (mm/t)
Soft steel	52	220	195	182	170	158
Medium carbon steel	62	198	180	173	160	157
High carbon steel	72	252	220	204	185	174
Tool steel	67	198	180	173	170	160
Tool steel	77	203	180	175	170	158
Chrome manganese steel	77	230	200	188	175	166
Chrome manganese steel	63	275	230	206	180	178
Chrome molybdenum steel	73	254	225	214	200	180
Chrome molybdenum steel	60	218	200	186	180	167
Nickel Chrome molybdenum steel	94	200	180	168	160	150
Nickel Chrome molybdenum steel	HB352	210	190	176	170	153
Cast steel	52	280	250	232	220	204
Hardened cast iron	HRC46	300	270	250	240	220
Meehanite cast iron	36	218	200	175	160	147
Gray cast iron	HB200	175	140	124	105	97
Brass	50	115	95	80	70	63
Light alloy (Al - Mg)	16	58	48	40	35	32
Light alloy (Al - Si)	20	70	60	52	45	39

Chip removal amount (cm³/min) per rated horse power

Workpiece \ Rated horse power		5Hp	10Hp	20Hp	30Hp	40Hp	50Hp
Steel	Soft	32	75	163	295	425	570
	Medium	26	55	127	212	310	425
	hard	18	41	93	163	228	310
Cast iron	Soft	52	116	260	455	670	880
	Medium	32	75	163	295	425	570
	hard	26	55	127	212	310	425
Bronze Brass	Soft	77	163	390	670	980	1,280
	Medium	54	118	275	490	700	910
	hard	26	55	127	245	325	425
Aluminum		90	195	440	780	1,110	1,500

Selection of MILL-MAX diameter (D)

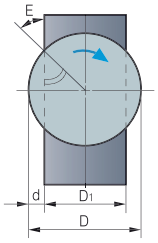
● Selection by machine rigidity

Machine horse power (PS)	10~15	15~20	Over 20
Proper cutter body specification (mm)	Ø80~Ø100	Ø125~Ø160	Ø160~Ø200

● Selection by machine rigidity

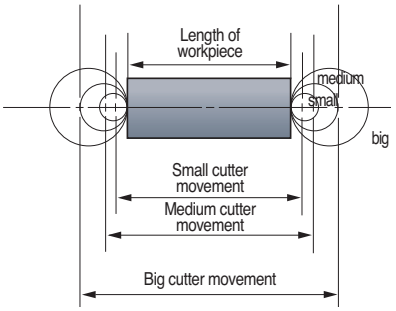
Workpiece	E	δ
Steel	+20°~-10°	3 : 2
Cast iron	Under +50°	5 : 4
Light alloy	Under +40°	5 : 3

D: External diameter of cutter body
D1: Width of workpiece
d: Projected part of cutter body
E: Engage angle
δ: Ratio of cutter body and width of workpiece (D: D1)



● Selection by machining time

The bigger size cutter the longer machining time

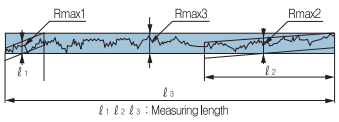
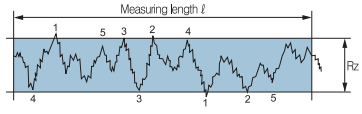
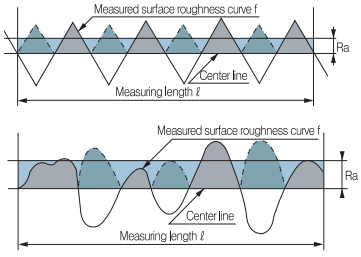


● Selection by number of tooth

Workpiece	Steel	Cast iron	Light alloy
Number of tooth	D× (1~1.5)	D× (1~4)	D×1+α

ex) D = ø100 ⇒ 4" x(1~1.5) = 4~6 D is the size of cutter body converted into inch size

Classification of surface roughness

Type	Symbol	How to calculate	Measured value
Maximum height	Rmax	• The distance between the top of profile peak line and the bottom of profile valley line on this sampled portion is measured in the longitudinal magnification direction of roughness curve (Expressed by unit: μ) • Exclude extraordinary values (too small or big) that look like grooves or mountains	
+10 point mean roughness	Rz	• Sampled from the roughness curve in the direction of its mean line, the sum of the average value of absolute value of the highest profile peaks and the depths of five deepest profile valleys measured in the vertical magnification is expressed by micro meter (μ)	
Arithmetic mean roughness	Ra	• Sampling only the reference length from the roughness curve in the direction of mean line , taking X-axis in the direction of mean line and Y-axis in the direction of longitudinal magnification of this sampled part and is expressed by micro meter (μ) • Generally, Read measured value by Ra measurer	

Finish mark		▽▽▽▽	▽▽▽	▽▽	▽	~
Surface roughness	Rmax	0.8s	6.3s	25s	100s	Unspecified
	Rz	0.8z	6.3z	25z	100z	
	Ra	0.2a	1.6a	6.3a	25a	

Trouble shooting for milling

Trouble	Causes	Solutions										
		Cutting conditions				Tool shape					Insert grade	
		Cutting speed	Depth of cut	Feed	Coolant	Rake angle	Relief angle	Approach angle	Chattering at cutting edge	Nose radius	Toughness	Hardness
Flank wear	• Improper insert grade • Improper cutting conditions • Chattering	⬇		⬆			⬆	⬇		⬆		⬆
Crater wear	• Improper cutting conditions • Improper insert grade	⬇	⬇	⬇	●	⬆	⬆			⬇		⬆
Chipping	• Lack of insert toughness • Excessive feed • Excessive cutting load			⬇		⬇	⬇	⬇		⬆	⬆	
Built-up edge	• Improper cutting conditions • Improper cutting edge shape • Improper insert grade	⬆	⬇			⬆				⬇		
Chattering	• Improper cutting conditions • Lack of number of cutting teeth • Improper cutting edge shape • Bad chip flow • Unstable workpiece clamping		⬇	⬇	●	⬆		⬆	⬇	⬇		
Poor surface finish	• Built-up edge • Improper cutting conditions • Chattering • Bad chip flow	⬆	⬇	⬇	●	⬆			⬇	⬆		
Thermal crack	• Improper cutting conditions • Improper insert grade	⬇	⬇	⬇	◉	⬆				⬆	⬆	
Fracture	• Improper insert grade • Excessive cutting load • Bad chip flow • Chattering • Excessive overhang		⬇	⬇	●						⬆	

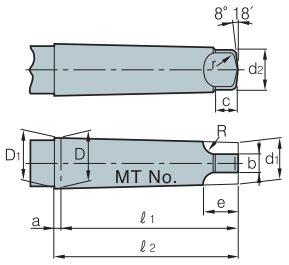
⬆: Increase ⬇: Decrease ●: use ◉: Correct use

General formulas for milling

● Machine efficiency rate (η)

Power transmission mode	Efficiency rate (E)	Reference
Principal axis direct connection driving	0.90	
Belt driving	0.85	Double connection: 0.85 × 0.85 ≒ 0.70
Starting driving	0.75	
Oil pressure driving	0.60~0.90	

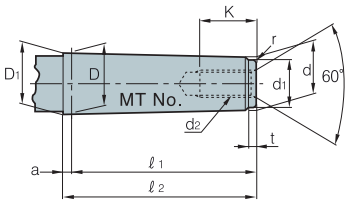
Morse taper (Tang type)



(mm)

MT No.	Taper	Taper angle (α)	D	a	D1	d1	ℓ1	ℓ2	d2	b	c	e	R	r
0	1/19.212	1°29′27″	9.045	3	9.201	6.104	56.5	59.5	6.0	3.9	6.5	10.5	4	1
1	1/20.047	1°25′43″	12.065	3.5	12.240	8.972	62.0	65.5	8.7	5.2	8.5	13.5	5	1.2
2	1/20.020	1°25′50″	17.780	5	18.030	14.034	75.0	80.0	13.5	6.3	10	16	6	1.6
3	1/19.922	1°26′16″	23.825	5	24.076	19.107	94.0	99.0	18.5	7.9	13	20	7	2
4	1/19.254	1°29′15″	31.267	6.5	31.605	25.164	117.5	124.0	24.5	11.9	16	24	8	2.5
5	1/19.002	1°30′26″	44.399	6.5	4.741	36.531	149.5	156.0	35.7	15.9	19	29	10	3
6	1/19.180	1°29′36″	63.348	8	63.765	52.399	210.0	218.0	51.0	19.0	27	40	13	4
7	1/19.231	1°29′22″	83.058	10	83.578	68.186	286.0	296.0	66.8	28.6	35	54	19	5

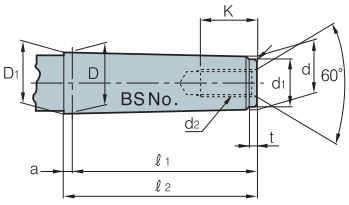
Morse taper (Screw type)



(mm)

MT No.	Taper	Taper angle (α)	D	a	D1	d	ℓ1	ℓ2	d1	d2	k	t	r
0	1/19.212	1°29′27″	9.045	3	9.201	6.442	50	53	6	-		4	0.2
1	1/20.047	1°25′43″	12.065	3.5	12.230	9.396	53.5	57	9	M6	16	5	0.2
2	1/20.020	1°25′50″	17.780	5	18.030	14.583	64	69	14	M10	24	5	0.2
3	1/19.922	1°26′16″	23.825	5	24.076	19.759	81	86	19	M12	28	7	0.6
4	1/19.254	1°29′15″	31.267	6.5	31.605	25.943	102.5	109	25	M16	32	9	1
5	1/19.002	1°30′26″	44.399	6.5	4.741	37.584	129.5	136	35.7	M20	40	9	2.5
6	1/19.180	1°29′36″	63.348	8	63.765	53.859	182	190	51	M24	50	12	4
7	1/19.231	1°29′22″	83.058	10	83.578	70.058	250	260	65	M33	80	18.5	5

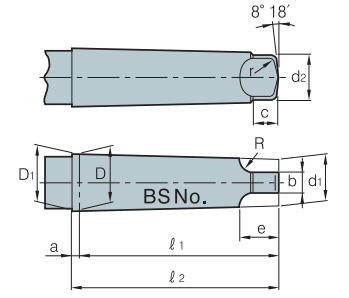
Brown sharp taper (Screw type)



(mm)

B&S No.	D	a	D1	d	d1	ℓ1	ℓ2	t	r	d2	K
4	10.221	2.4	10.321	8.890	8.0	31.0	34.2	2	0.2	-	-
5	13.286	2.4	13.386	11.430	10.0	44.4	46.8	3	0.2	-	-
6	15.229	2.4	15.330	12.700	11.0	60.0	62.7	3	0.2	M 8(1/4)	20
7	18.424	2.4	18.524	15.240	14.0	76.2	78.6	4	0.2	M10(3/8)	24
8	22.828	3.2	22.962	19.090	17.0	90.5	93.7	4	0.6	M12(1/2)	28
9	27.104	3.2	27.238	22.863	21.0	101.6	104.8	4	0.6	M12(1/2)	28
10	32.749	3.2	32.887	26.534	24.0	144.5	147.7	5	1.0	M16(5/8)	32
11	38.905	3.2	39.039	31.749	29.0	171.4	174.6	5	1.0	M16(5/8)	32
12	45.641	3.2	45.774	38.103	35.0	181.0	184.2	6	2.5	M20(3/4)	40
13	52.654	3.2	52.787	44.451	41.0	196.8	200.0	6	3.0	M20(3/4)	40
14	59.533	3.2	59.666	50.800	47.0	209.6	212.8	7	4.0	M24(1)	40
15	66.408	3.2	66.541	57.150	53.0	222.2	225.4	7	4.0	M24(1)	50
16	73.292	3.2	73.425	63.500	59.0	35.0	238.2	8	5.0	M30(11/8)	60

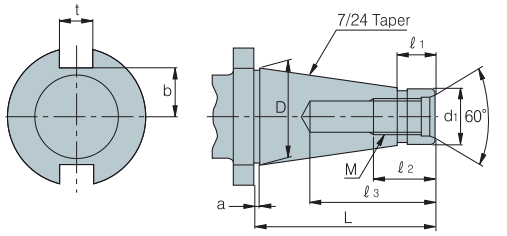
Brown sharp taper (Tang type)



(mm)

B&S No.	D	a	D1	d1	d2	ℓ1	ℓ2	b	c	e	R	r
4	10.221	2.4	10.321	8.458	8.1	42.1	44.5	5.5	8.7	14.4	7.9	1.3
5	13.286	2.4	13.386	10.962	10.7	55.6	58.0	6.3	9.5	16.2	7.9	1.5
6	15.229	2.4	15.330	12.167	11.7	73.0	75.4	7.1	11.1	18.0	7.9	1.5
7	18.424	2.4	18.524	14.675	14.2	89.7	92.1	7.9	11.9	20.3	9.5	1.8
8	22.828	3.2	22.962	18.453.	18.0	104.8	108.0	8.7	12.7	22.0	9.5	2.0
9	28.104	3.2	27.238	22.200	21.8	117.5	120.7	9.5	14.3	25.4	11.1	2.5
10	32.749	3.2	32.887	25.751	25.7	162.7	165.9	11.1	16.7	28.1	11.1	2.8
11	38.905	3.2	39.039	30.985	30.7	189.7	192.9	11.1	16.7	30.0	12.7	3.3
12	45.641	3.2	45.774	37.246	37.1	201.6	204.8	12.7	190	32.5	12.7	3.8
13	52.654	3.2	52.787	43.589	43.4	217.5	220.7	12.7	19.0	35.7	15.9	4.3
14	59.533	3.2	59.666	49.841	49.8	232.6	235.8	14.2	21.4	41.2	19.0	4.8
15	66.408	3.2	66.541	56.186	56.1	245.3	248.5	14.2	21.4	44.4	22.2	5.3
16	73.292	3.2	73.425	62.441	62.2	260.4	263.6	15.8	23.8	50.0	25.4	5.8

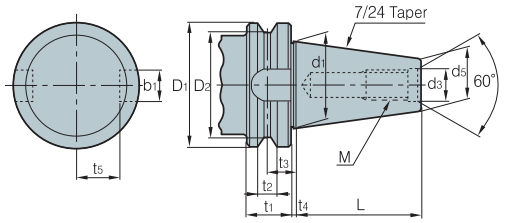
Standard taper of american milling machine



(mm)

NT No.	Dimensions	D	D1	L	ℓ1	M	ℓ2	ℓ3	a	t	b
30	$1\frac{1}{4}$	31.750	$17.40^{-0.29}_{-0.36}$	70	20	UNC $\frac{1}{2}''$	24	50	1.6	15.9	6
40	$1\frac{3}{4}$	44.450	$25.32^{-0.30}_{-0.384}$	95	25	UNC $\frac{5}{8}''$	30	60	1.6	15.9	22.5
50	$2\frac{3}{4}$	69.850	$39.60^{-0.31}_{-0.41}$	130	25	UNC $1''$	45	90	3.2	25.4	35
60	$4\frac{1}{4}$	107.950	$60.20^{-0.34}_{-0.46}$	210	45	UNC $1\frac{1}{4}''$	56	110	3.2	25.4	60

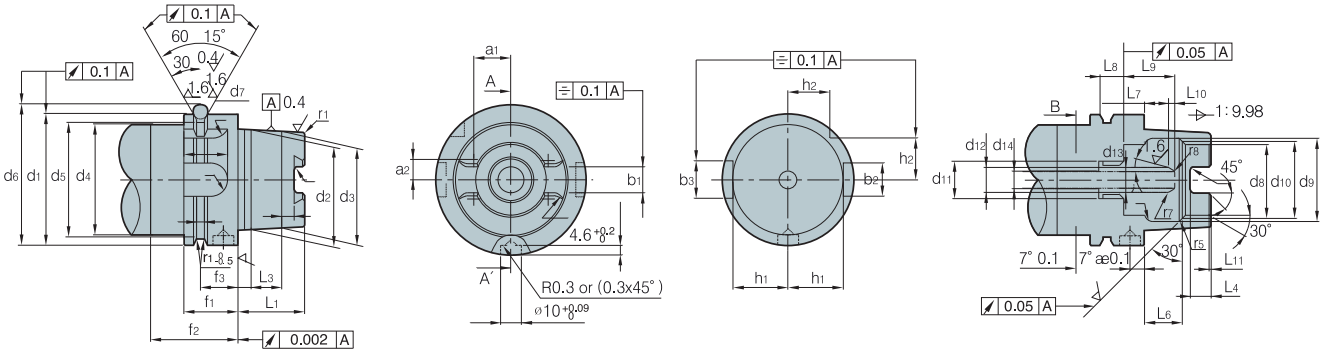
Bottle grip taper



(mm)

BT No.	D1	D2	t1	t2	t3	t4	d1	d3	L	M	b1	t5	d5
35	53	43	22	10	14.6	2	38.1	13	56.5	M12×1.75	16.1	19.6	21.62
40	63	52	25	10	16.6	2	44.45	17	65.4	M16×2	16.1	22.6	25.3
45	85	73	30	12	21.2	3	57.15	21	82.8	M20×25	19.3	29.1	33.1
50	100	85	35	15	23.2	3	69.85	25	101.8	M24×3	25.7	35.4	40.1
60	155	135	45	20	28.2	3	107.95	31	161.8	M30×3.5	25.7	60.1	60.7

HSK shank (DIN 69893)



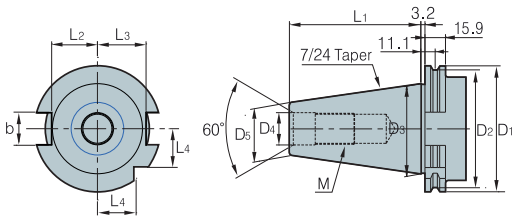
(mm)

HSK No.	b1	b2	b3	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	d12	d13	d14	a1	a2
50	10.54	12	14	50	38	36.90	42	43	59.3	7	26	32	29	M16X1	10	6.8	6.8	13.997	7.648
63	12.5	16	14	63	48	46.53	53	55	72.3	7	34	40	37	M18X1	12	8	8.4	17.862	9.25
100	20	20	14	100	75	72,80	85	92	109.75	7	53	63	58	M24X1.5	16	12	12	27.329	15.00

(mm)

HSK No.	f1	f2	f3	f4	b1	b2	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	r1	r2	r3	r4	r5	r6	r7	r8
50	26	42	18	3.75	2	15.5	25	5	11	7.5	4.5	14.13	10	10	23	3	1	19	1	1.5	2.38	6	0.5	1	2	6
63	26	42	18	3.75	28.5	20	32	6.3	14.7	10	6	18.13	10	12	24.5	3	1	21	1.2	1.5	3	8	0.6	1.5	3	8
100	29	45	20	3.75	44	31.5	50	10	24	15	10	28.56	12.5	16	28	3	1.5	24	2	2	3	12	1	1.5	3	10

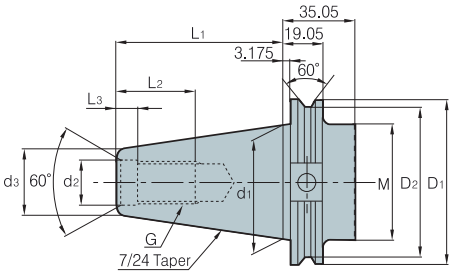
DIN 69871



(mm)

Shank No	D1	D2	D3	D4	D5	L1	L2	L3	L	b	M
30	50.0	44.3	31.75	13	17.8	47.8	16.4	19.0	33.5	16.0	M12×1.75
40	63.5	56.2	44.45	17	24.5	68.4	22.8	25.0	42.5	16.1	M16×2
45	82.5	57.2	57.15	21	33.0	82.7	29.1	31.3	52.5	19.3	M20×2.5
50	97.5	91.2	68.85	25	40.1	101.7	35.5	37.7	61.5	25.7	M24×3

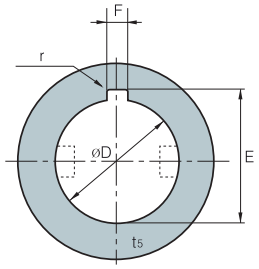
CAT shank



(mm)

Shank No	D1	D2	M	d1	d2	d3	L1	L2	L3	G
CAT40	63.5	56.36	M16×2	44.45	16.28	21.84	68.25	28.45	4.78	5/8-11
CAT45	82.55	75.41	M20×25	57.15	19.46	27.69	82.55	38.1	4.78	3/4-10
CAT50	98.43	91.29	M24×3	69.85	26.19	35.05	101.6	44.45	6.35	1-8

Standard of milling cutter hole (KSB3203)



● Type A

Diameter	øDH7	E	F	r
8	$8^{+0.015}_{0}$	$8.9^{+0.25}_{0}$	$2^{+0.16}_{+0.06}$	0.4
10	$10^{+0.015}_{0}$	$11.5^{+0.25}_{0}$	$3^{+0.16}_{+0.06}$	0.4
13	$13^{+0.018}_{0}$	$14.6^{+0.25}_{0}$	$3^{+0.16}_{+0.06}$	0.6
16	$16^{+0.018}_{0}$	$17.7^{+0.25}_{0}$	$4^{+0.19}_{+0.07}$	0.6
19	$19^{+0.021}_{0}$	$21.1^{+0.25}_{0}$	$5^{+0.19}_{+0.07}$	1
22	$22^{+0.021}_{0}$	$24.1^{+0.25}_{0}$	$6^{+0.19}_{+0.07}$	1
27	$27^{+0.021}_{0}$	$29.8^{+0.25}_{0}$	$7^{+0.23}_{+0.08}$	1.2
32	$32^{+0.025}_{0}$	$34.8^{+0.25}_{0}$	$8^{+0.23}_{+0.08}$	1.2
40	$40^{+0.025}_{0}$	$43.5^{+0.3}_{0}$	$10^{+0.23}_{+0.08}$	1.2
50	$50^{+0.025}_{0}$	$53.5^{+0.3}_{0}$	$12^{+0.23}_{+0.095}$	1.6
60	$60^{+0.030}_{0}$	$64.2^{+0.3}_{0}$	$14^{+0.275}_{+0.095}$	1.6
70	$70^{+0.030}_{0}$	$75.0^{+0.3}_{0}$	$16^{+0.275}_{+0.095}$	2
80	$80^{+0.030}_{0}$	$85.5^{+0.3}_{0}$	$18^{+0.275}_{+0.095}$	2
100	$100^{+0.035}_{0}$	$107.0^{+0.3}_{0}$	$24^{+0.32}_{+0.11}$	2.5

● Type B

Diameter	øDH7	E	F	r
$\frac{1}{2}$	$12.70^{+0.018}_{0}$	$14.17^{+0.25}_{0}$	$2.38^{+0.31}_{+0.13}$	0.5
$\frac{5}{8}$	$15.875^{+0.018}_{0}$	$17.74^{+0.25}_{0}$	$3.18^{+0.31}_{+0.13}$	0.8
$\frac{3}{4}$	$19.050^{+0.021}_{0}$	$20.89^{+0.25}_{0}$	$3.18^{+0.31}_{+0.13}$	0.8
$\frac{7}{8}$	$22.225^{+0.021}_{0}$	$24.07^{+0.25}_{0}$	$3.18^{+0.31}_{+0.13}$	0.8
1	$25.40^{+0.021}_{0}$	$28.04^{+0.25}_{0}$	$6.35^{+0.31}_{+0.13}$	1.2
$1\frac{1}{4}$	$31.750^{+0.025}_{0}$	$35.18^{+0.25}_{0}$	$7.94^{+0.32}_{+0.14}$	1.6
$1\frac{1}{2}$	$38.10^{+0.025}_{0}$	$42.32^{+0.25}_{0}$	$9.53^{+0.89}_{+0.25}$	1.6
$1\frac{3}{4}$	$44.450^{+0.025}_{0}$	$49.48^{+0.25}_{0}$	$11.11^{+0.89}_{+0.25}$	1.6
2	$50.80^{+0.03}_{0}$	$55.83^{+0.25}_{0}$	$12.7^{+0.89}_{+0.25}$	1.6
$2\frac{1}{2}$	$63.50^{+0.03}_{0}$	$69.42^{+0.25}_{0}$	$15.81^{+0.89}_{+0.25}$	1.6
3	$76.20^{+0.03}_{0}$	$82.93^{+0.25}_{0}$	$19.05^{+0.89}_{+0.25}$	2.4
$3\frac{1}{2}$	$88.90^{+0.035}_{0}$	$98.81^{+0.25}_{0}$	$22.23^{+0.89}_{+0.25}$	2.4
4	$101.60^{+0.035}_{0}$	$111.51^{+0.25}_{0}$	$25.4^{+0.89}_{+0.25}$	2.4
$4\frac{1}{2}$	$114.30^{+0.035}_{0}$	$125.81^{+0.25}_{0}$	$25.58^{+0.89}_{+0.25}$	3.2
5	$127.0^{+0.04}_{0}$	$140.08^{+0.25}_{0}$	$31.75^{+0.89}_{+0.25}$	3.2

The comparison of grade for milling

CVD coated

ISO		KORLOY	SUMITOMO	KYOCERA	ISCAR	SANDVIK	SECO	KENNAMETAL	TOSHIBA	MITSUBISHI	HITACHI	VALENITE	WALTER	TAEGUTEC	NTK	DIJET
Milling	P	NC5330 NCM325 NCM535★ NCM335 NCM545★	ACP100		IC5100 IC5400	GC4210 GC4220 GC4230	MP1500 MS2500 MP2500 MS2500 T350M MM4500	KCPM20 KCMP30 KC927M	T3130	FH7020 F7030		SM245	WKP25S WKP35S WKP35G	TT8515 TT7800		
	M	NC5330 NC5340★ NC5350★	ACP400			GC2040	MP2500 MM4500		T3130	F7030						
	K	NC5330 NCM535★ NCM545★	ACK200		IC5100	GC3330 GC3040	MK1500 MK2000 MS2500 T350M MK3000	KC907M KCK15 KC914M KCPK30 KC917M KC924M	T1115 T1015	MC5020			WAK15 WKK25 WKP25S WKP35S WKP35G	TT7515 TT6800		

PVD coated

ISO		KORLOY	SUMITOMO	KYOCERA	ISCAR	SANDVIK	SECO	KENNAMETAL	TOSHIBA	MITSUBISHI	HITACHI	VALENITE	WALTER	TAEGUTEC	NTK	DIJET
Milling	P	PC2005★ PC2010★ PC2015★ PC2505★ PC2510★ PC3600 PC3700★ PC210F PC5300 PC5400★	ACZ310 ACP200 ACZ330 ACP300 ACZ350	PR730 PR830 PR630 PR660	IC903 IC908 IC950 IC1008 IC928	P20A GC1010 GC1025 GC1030 GC1030	MP3000 F25M F30M F40M T60M	KC522M KUC20M KC525M KUC30M KC935M KC7140 KC720	GH330 AH120 AH3135	AP20M GP20M MP6120 VP15TF UP20M MP6130 VP30RT	ATH80D PCA08M ACS05E PCA12M PC20M JX1005 TB6005 JX1020 CY9020 TB6045 CY250 PTH30E JP4160 JM4160 PTH40H	VC935	WKP25 WKP35 WKP45	TT2510 TT7070 TT7080 TT7030 TT8020	QM3 ZM3	DH102 JC5003 JC5015 JC5030 JC5040
	M	PC210F PC5300 PC9530 PC5400★ PC9540★	ACM100 ACP200 ACM300 ACP300 ACZ350	PR730 PR1025 PR630 PR660 PR1535 PR660	IC903 IC900 IC250 IC928 IC328	GC1125 GC1025 GC2030 GC1030	F25M F30M F40M	KC5510 KC7020 KC522M KC725M KC735M KC7030 KC722	AH120 AH140 AH3135	MP7130 MP7140	JX1020 CY9020 JX1015 TB6020 CY250 JX1045 TB6045 JX1060 TB6060	VC928 VC902 VC901	WQM35 WSM35S WSP45 WSM45S	TT9030 TT9080 TT8020	QM3 ZM3	JC5003 JC5015 JC5030 JC5040
	K	PC6510 PC5300		PR510 PR905	DT7150 IC900 IC910 IC950 IC350		MK2050	KC510M KC915M KC520M	AH120	VP10MF VP15TF VP20RT		VC903 VC928 VC902 VC901		TT6290 TT6030 TT6060		JC5003 JC5015
	S	PC5300 PC5400★ PC9540★	AC520U	PR620 PR660 PR1535	IC328 IC408	GC1025 GC1040 S40T	F40M MS2050	KC510M KCU30M		VP15TF VP30RT MP9130	ACS05E		WSM35S WSM45S	TT9030 TT8020 TT8080		

CERMET

ISO		KORLOY	SUMITOMO	KYOCERA	ISCAR	SANDVIK	SECO	KENNAMETAL	TOSHIBA	MITSUBISHI	HITACHI	VALENITE	WALTER	TAEGUTEC	NTK	DIJET
Milling	P	CN2000 CN30	T250A	TN100M TC60M	IC30N			KT195M	NS540 NS740	NX2525 NX4545	CH550 CH570			CT3000 CT7000	C50	
	M		T250A			CT530										
	K									NX2525						

★ : PVD Coating cermet ★ : New Grade