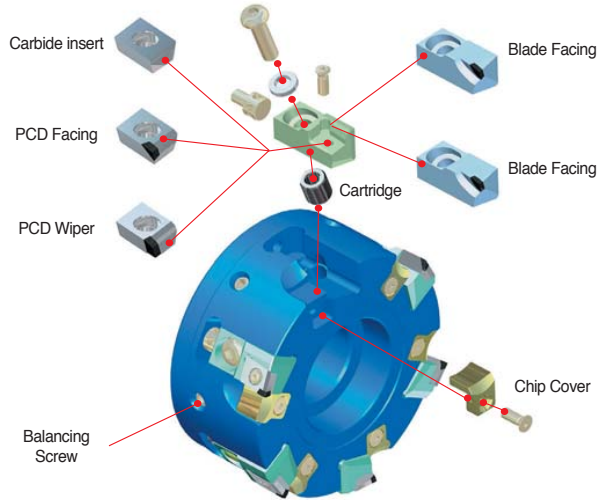
Lighter tool ensures excellent performance in high speed machining

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

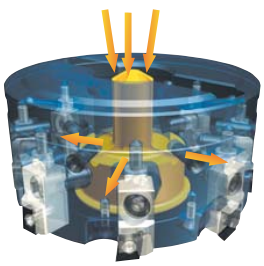
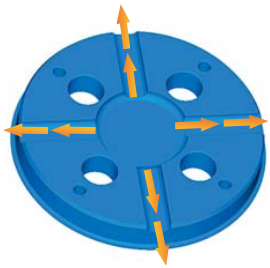


Features of cutter

- 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

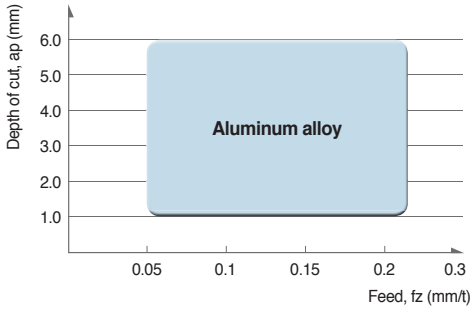
Coolant through system

- 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

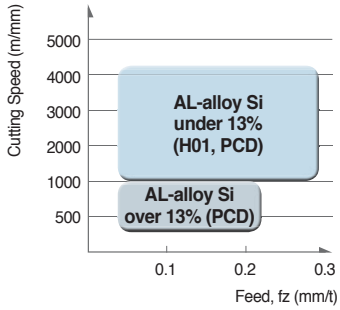
Coolant Bolt	Coolant Cover
	
For Ø80~Ø160	For Ø200 and over

Aero Mill

Application range

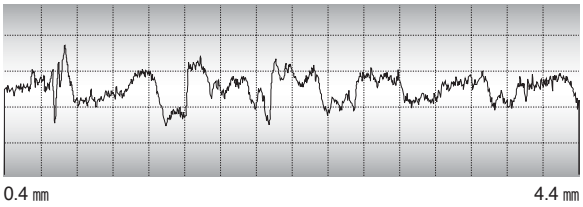


Recommended cutting condition



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			

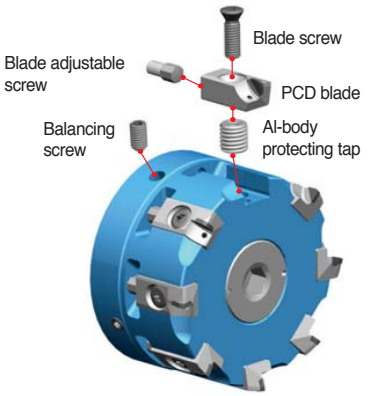
• Choice: CBP100-IN:APD type, General for unmarked item

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



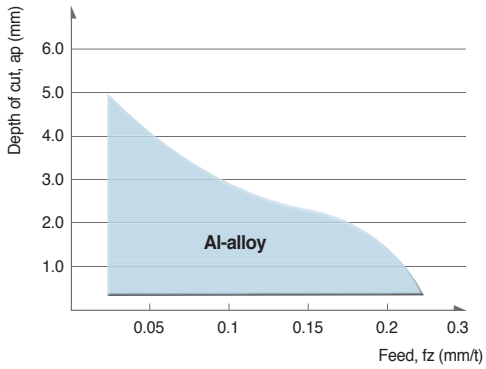
Features of cutter

- 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

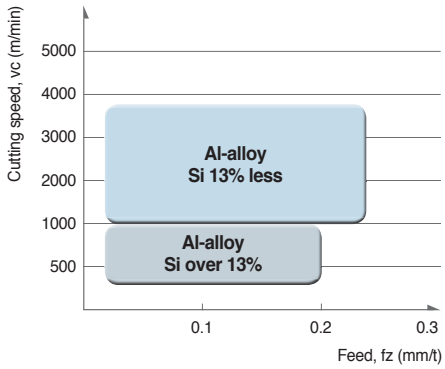
Code system

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

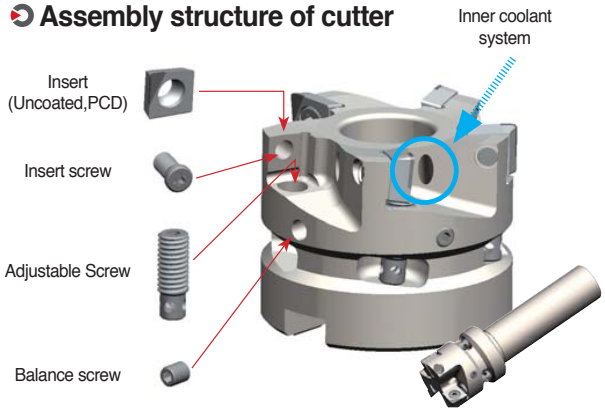
Aero Mill-Mini

- 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

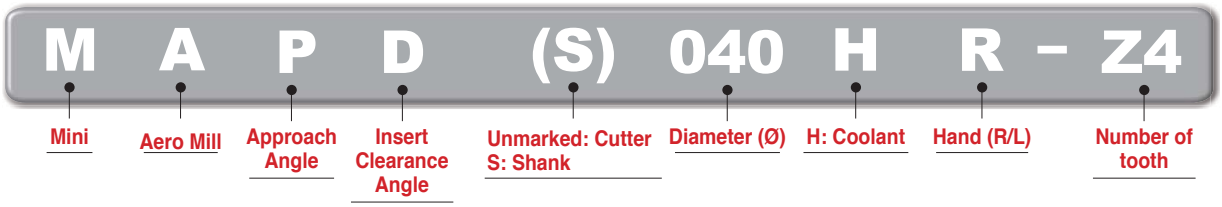
Features of cutter

- 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

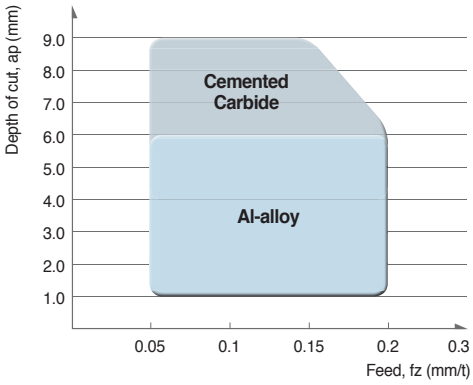
Assembly structure of cutter



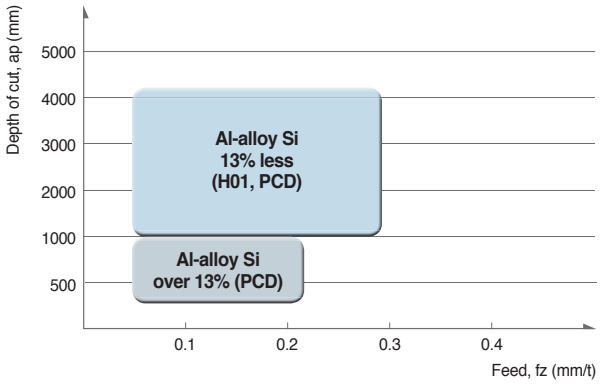
Code system



Application range



Recommended cutting condition

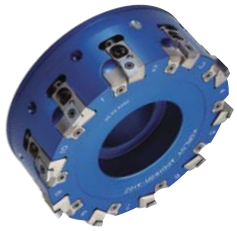


Max. RPM

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

APD(M)-A

Cartridge + insert



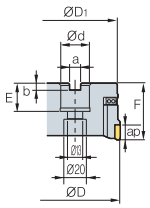


Fig. 1

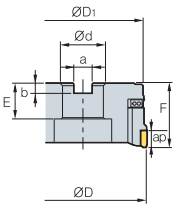


Fig. 2

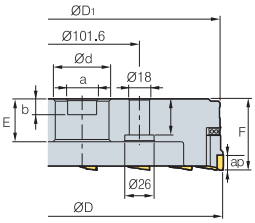


Fig. 3

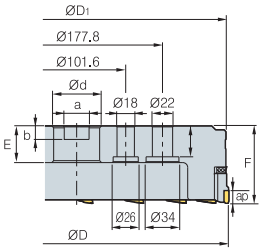


Fig. 4

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				●	
	1204R-XAW				●	
	1204L-XAW					
	1204R-NAW				●	

Available arbors

Designation		General arbor	NC arbors
APD(M)	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

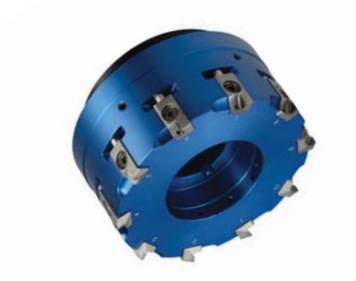
Parts

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 E371~E373

APD(M)-PB

Blade



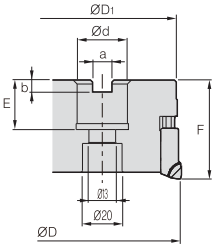


Fig. 1

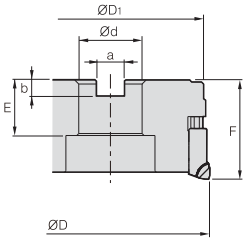


Fig. 2

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(M)-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)-□□

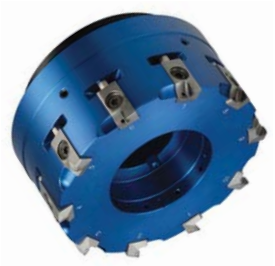
Parts

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 **E371~E373**

APD(M)-PB

Blade



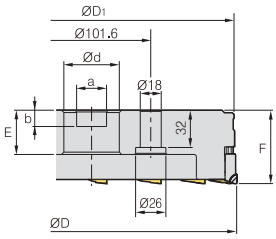


Fig. 1

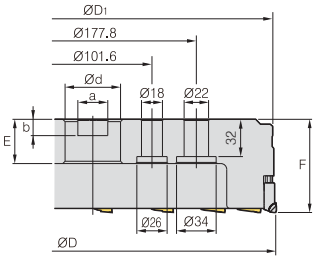


Fig. 2



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



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

Available arbors

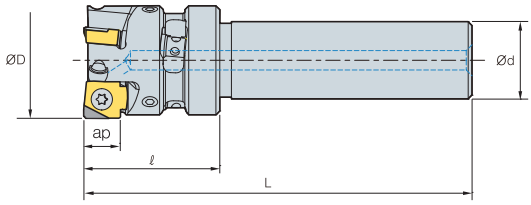
Designation		NC arbors
APD(M)-PB	200R/L-PB□□Z	BT□□-FMA47.625(FMB60)-□□
	250R/L-PB□□Z	
	315R/L-PB□□Z	

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 E371~E373

MAPDS000HR/L-Z0



※ PCD ap: 5mm

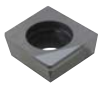
AA 90°
- AR: 6°
- RR: -4°~1°

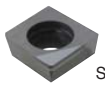
(mm)

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

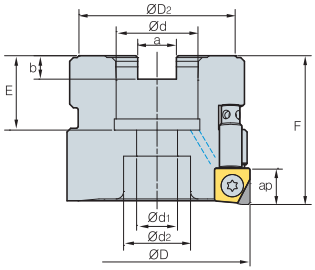
Designation		Uncoated			PCD	page
		H01	G10	ST30A	DP200	
SNEW	09T3ADFR	●				E22 E23
	09T3ADTR-XAF				●	
	09T3ADTR-XAW				●	
	09T3ADTR-NAF				●	
	09T3ADTR-NAW				●	

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: 5mm

AA
90°

- AR: 6°
- RR: -1°~12°

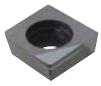
(mm)

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

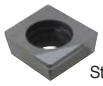
Available inserts

SNEW

SNEW-XAF



SNEW-NAF



Strengthened edge

Designation		Cermet			Uncoated				PCD	page
		CN2000	CN20	CN30	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

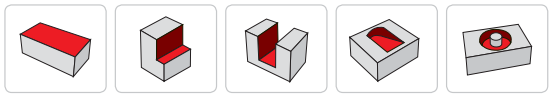
Available inserts E22, E23 Available arbors and bolt E371~E373

New indexable milling tool for the machining of high quality workpieces

Pro-L Mill

- Improved perpendicularity and lower cutting resistance by composition of clearance face and high helix edge
- 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

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

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	Unmarked: None H: Thru-hole	R: Right L: Left		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	Unmarked: None H: Thru-hole	R: Right M: Multi-edge

Chip breakers

Usage	Insert's type		Edge type	Features
Al	MA			Application of the edge optimized for Aluminum machining and buffed finish ensure excellent machining quality
Hard-to-cut material	ML			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

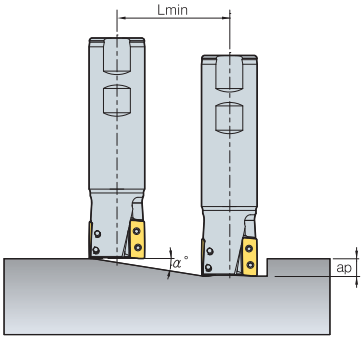
N Al6061 (HRC30)

■ **Cutting condition**

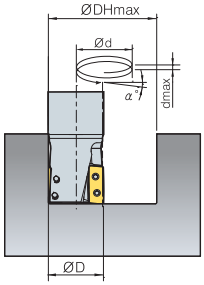
vc = 500 m/min, fz = 0.2 mm/t,
ap = 30~60 mm,
ae = 1~5 mm (finishing: 1 mm, roughing: 5 mm)
z = 3

Pro-L Mill ramping & helical cutting technical data

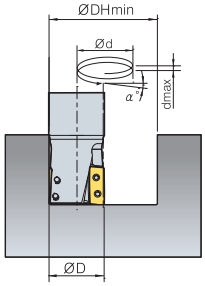
1. Ramping



2. Blind hole helical cutting



3. Thru hole helical cutting



Designation	ØD (mm)	Ramping		Blind hole helical cutting				Thru hole helical cutting	
		α° (max)	Lmin (mm)	ØDH Max (mm)	dmax (mm)	ØDH Min (mm)	dmax (mm)	ØDH Min (mm)	dmax (mm)
PALS032HR-2S20	32	3.37	170	62	3.6	60	3.5	55	3.2
PALS032HR-2S25	32	3.37	170	62	3.6	60	3.5	55	3.2
PALS032HR-2S32	32	3.37	170	62	3.6	60	3.5	55	3.2
PALS040HR-2S32	40	2.12	270	78	2.9	76	2.8	71	2.6
PALS040HR-2S40	40	2.12	270	78	2.9	76	2.8	71	2.6
PALS040HR-2S42	40	2.12	270	78	2.9	76	2.8	71	2.6
PALS040HR-3S32	40	2.12	270	78	2.9	76	2.8	71	2.6
PALS040HR-3S40	40	2.12	270	78	2.9	76	2.8	71	2.6
PALS040HR-3S42	40	2.12	270	78	2.9	76	2.8	71	2.6
PALS050HR-3S32	50	2.08	275	98	3.6	96	3.5	91	3.3
PALS050HR-3S40	50	2.08	275	98	3.6	96	3.5	91	3.3
PALS050HR-3S42	50	2.08	275	98	3.6	96	3.5	91	3.3
PALS063HR-4S32	63	1.76	325	124	3.8	122	3.8	117	3.6
PALS063HR-4S40	63	1.76	325	124	3.8	122	3.8	117	3.6
PALS063HR-4S42	63	1.76	325	124	3.8	122	3.8	117	3.6
PALS063HM-4S32	63	1.76	325	124	3.8	122	3.8	117	3.6
PALS063HM-4S40	63	1.76	325	124	3.8	122	3.8	117	3.6
PALS063HM-4S42	63	1.76	325	124	3.8	122	3.8	117	3.6
PALCM063HR	63	1.76	325	124	3.8	122	3.8	117	3.6

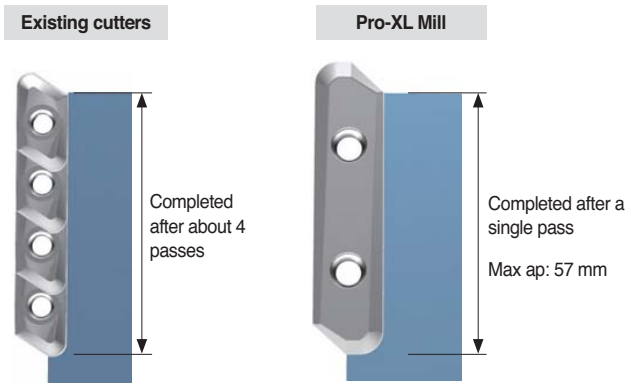
• Lmin: When ap = 10mm
• Lmin: Minimum inclination cutting length $\quad L_{min} = \frac{ap}{\tan \alpha^\circ}$ (mm)
α° : Max. rampig angle
ap : Depth of cut

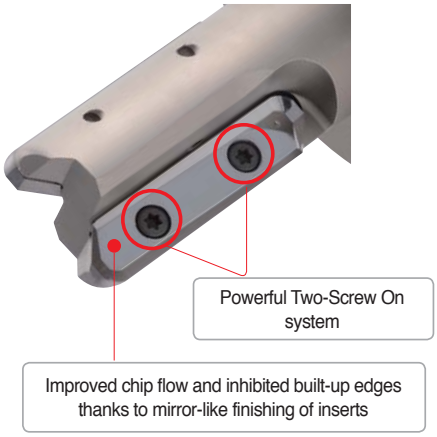
Deep cutting milling tools to maximize productivity in aluminum machining

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**- The single pass of shouldering enables perpendicular side faces without unevenness
- **Clamping stability**- Two-Screw On system secures clamping stability

Features of Pro-XL Mill





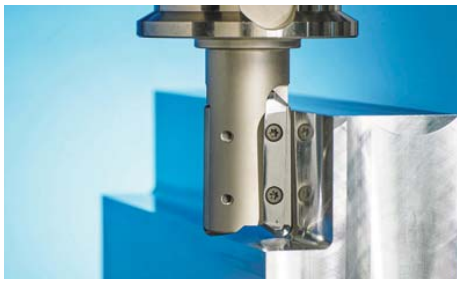
• 4 times shorter cutting time
• Satisfactory surface finish of side faces with no need for further processing

Application examples

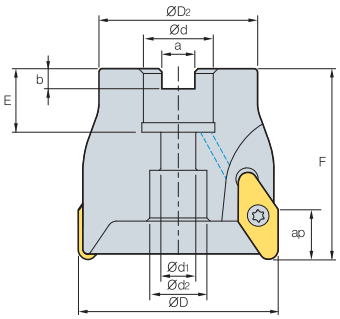
N Al7075

■ **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)



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	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	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-□□

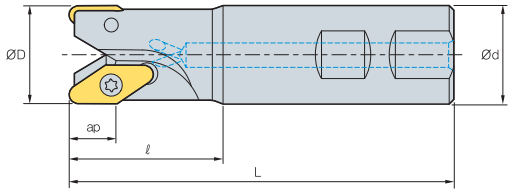
Designation		Ød	NC arbors
PACM	4040HR	16	BT□□-FMC16-□□
	4050HR	22	BT□□-FMC22-□□
	4063HR	22	BT□□-FMC22-□□
PAC	4080HR	25.4	BT□□-FMC25.4-□□
		27	BT□□-FMC27-□□
	4100HR	31.75	BT□□-FMC31.75-□□
		32	BT□□-FMC32-□□

Parts

Specification	Screw	Wrench	Arbor Bolt
Ø40~Ø100	FTNC04509 (Ø40) FTNC04511	TW 20S	PHMA0834 (Ø40)

Available inserts E27 Available arbors and bolt E371~E373

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	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	ST30A	G10	H01	
2000 type	VDKT	11T210N-MA																●	E27
		11T220N-MA																	
4000 type	VCKT	220530N-MA																●	

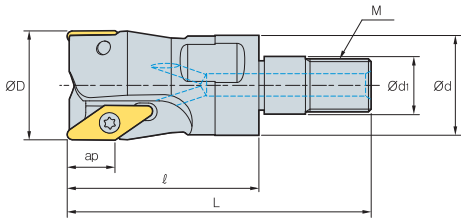
Parts

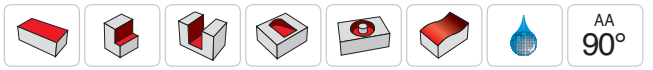
Specification	Screw	Wrench
Ø12~Ø42 (2000 type)	ETNA02505*	TW 07S
	ETNA02506	
Ø32~Ø40 (4000 type)	FTNC04509	TW 20S

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	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	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)

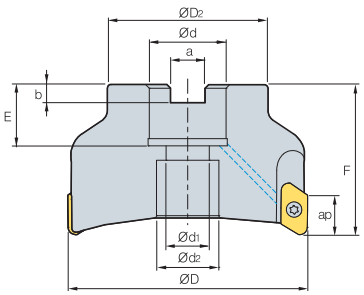
Parts

Specification	Screw	Wrench
Ø12~Ø42	ETNA02505* ETNA02506	TW 07S

* For PAS2012·2016

Available inserts E27 Available adaptors E342~E343

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)	24 (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	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC5300	PC5400	PD2000	ST30A	G10	H01	
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	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC5300	PC5400	PD2000	ST30A	G10	H01	
XEKT	19M504ER-ML																	E29
	19M508ER-ML																	
	19M512ER-ML																	
	19M516ER-ML																	
	19M518ER-ML																	
	19M520ER-ML																	
	19M530ER-ML																	
	19M532ER-ML																	
	19M540ER-ML																	
	19M550ER-ML																	

Available arbors

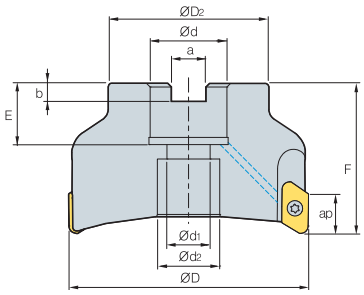
Designation		Ød	Available arbors
PAXC(M)	5040HR-A,B	16	BT□□-FMC16-□□
	5050HR-A,B	22	BT□□-FMC22-□□
	5063HR-A,B		
	5080HR-A,B	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	5100HR-A,B	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	5125HR-A,B	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□

Parts

Specification	Screw	Wrench
Ø40~Ø125	PTKA0408	TW 15S

Available inserts E29 Available arbors and bolt E371~E373

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

Available inserts

XEKT-MA

XEKT-ML

Designation		Cermet		Coated									Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC5300	PC5400	PD2000	ST30A	G10	H01	
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	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC5300	PC5400	PD2000	ST30A	G10	H01	
XEKT	250604ER-ML																	E29
	250608ER-ML																	
	250612ER-ML																	
	250616ER-ML																	
	250620ER-ML																	
	250630ER-ML																	
	250632ER-ML																	
	250640ER-ML																	
	250650ER-ML																	

Available arbors

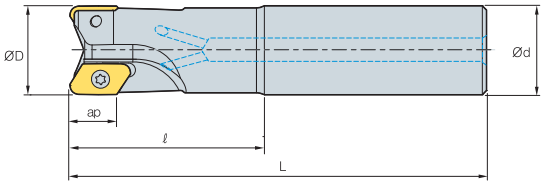
Designation		Ød	Available adaptor
PAXC(M)	6050HR-A,B	16	BT□□-FMC16-□□
	6063HR-A,B	22	BT□□-FMC22-□□
	6080HR-A,B	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	6100HR-A,B	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	6125HR-A,B	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□

Parts

Specification	Screw	Wrench
Ø50~Ø125	FTGA0513-P	TW 20-100

Available inserts E29 Available arbors and bolt E371~E373

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

( )Metric size

Available inserts

XEKT-MA

XEKT-ML

Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC5300	PC5400	PD2000	ST30A	G10	H01	
XEKT	19M504FR-MA												●		●	●		E29
	19M508FR-MA												●		●	●		
	19M512FR-MA												●		●	●		
	19M516FR-MA															●		
	19M518FR-MA																	
	19M520FR-MA												●			●		
	19M530FR-MA															●		
	19M532FR-MA												●			●		
	19M540FR-MA												●			●		
	19M550FR-MA												●			●		

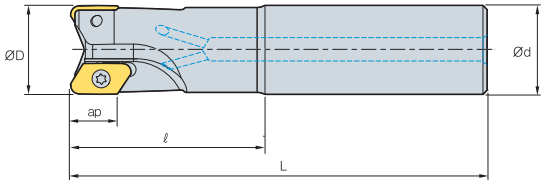
Designation		Cermet		Coated											Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC5300	PC5400	PD2000	ST30A	G10	H01	
XEKT	19M504ER-ML																	E29
	19M508ER-ML																	
	19M512ER-ML																	
	19M516ER-ML																	
	19M518ER-ML																	
	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	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC5300	PC5400	PD2000	ST30A	G10	H01	
XEKT	250604FR-MA														●			E29
	250608FR-MA														●			
	250612FR-MA														●			
	250616FR-MA																	
	250620FR-MA																	
	250630FR-MA																	
	250632FR-MA														●			
	250640FR-MA																	
	250650FR-MA														●			

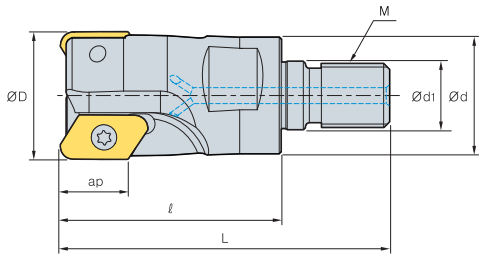
Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC5300	PC5400	PD2000	ST30A	G10	H01	
XEKT	250604ER-ML																	E29
	250608ER-ML																	
	250612ER-ML																	
	250616ER-ML																	
	250620ER-ML																	
	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	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC5300	PC5400	PD2000	ST30A	G10	H01	
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	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC5300	PC5400	PD2000	ST30A	G10	H01	
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)

=

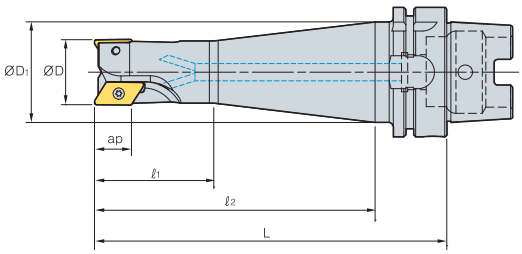
Adaptor spec.: MAT-M12-030-S25S
Adaptor threading measure (M12)

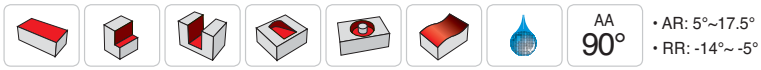
Parts

Specification	Screw	Wrench
Ø25~Ø40	PTKA0408	TW 15S

Available inserts E29 Available adaptors E342~E343

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. E323~E324.

Available inserts

XEKT-MA

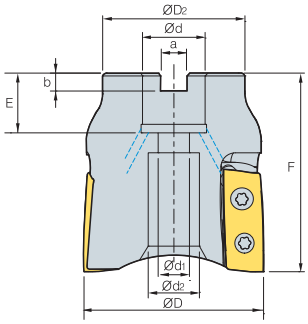
Designation		Cermet		Coated										Uncoated			page
		CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC5300	PC5400	PD2000	ST30A	G10	H01	
XEKT	19M504FR-MA													●			●	E29
	19M508FR-MA													●			●	
	19M512FR-MA													●			●	
	19M516FR-MA																●	
	19M518FR-MA																	
	19M520FR-MA													●			●	
	19M530FR-MA																●	
	19M532FR-MA													●			●	
	19M540FR-MA													●			●	
	19M550FR-MA													●			●	

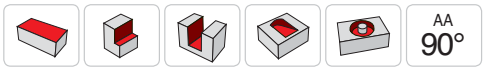
Parts

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	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC5300	PC5400	PD2000	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

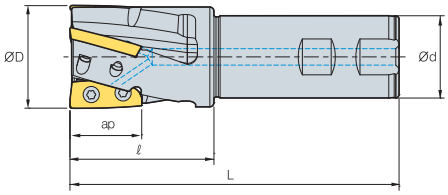
Designation		Ød	Available arbors
PALCM	063HR	22	BT□□-FMC22-□□

Parts

Specification	Screw	Wrench
Ø63	FTGA0511-P	TW20-100

Available inserts E12 Available arbors and bolt E371~E373

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

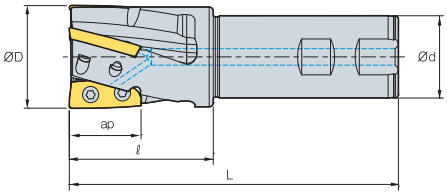
Type	Designation		Cermet		Coated											Uncoated			page
			CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	ST30A	G10	H01	
Ø32	LXET	250404PEFR-32-MA																	E12
		2504PEFR-32-MA																●	
		250412PEFR-32-MA																	
		250416PEFR-32-MA																	
		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

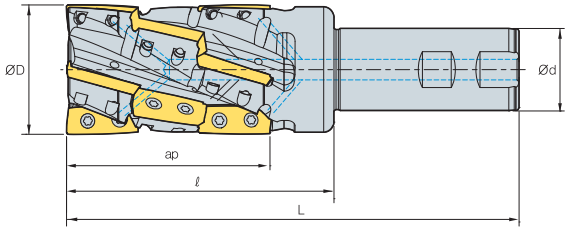
Type	Designation		Cermet		Coated											Uncoated			page
			CN2000	CN30	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	ST30A	G10	H01	
Ø50	LXET	340504PEFR-50-MA																	E12
		3405PEFR-50-MA																●	
		340512PEFR-50-MA																	
		340516PEFR-50-MA																	
		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	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	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

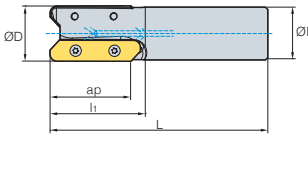


Fig. 1

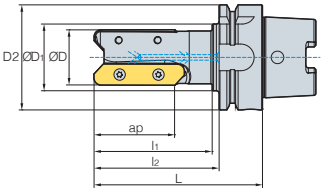


Fig. 2

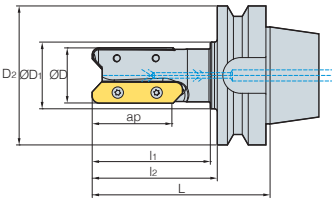


Fig. 3

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	NC5330	NC5340	NC5350	PC2505	PC2510	PC3500	PC3600	PC9530	PC6510	PC5300	PC5400	ST30A	G10	H01	
LDET	650540PPFR-MA																	E09
	650550PPFR-MA																	

Parts

Specification	Screw	Wrench
Ø40~80	FTGA0511-P	TW20-100

Available inserts E09