

High Feed Radius Milling Cutter

AJX

Application
Expansion

**Reduce costs with ultra high feed milling
over a wide range of applications!**



MIRACLE
SIGMA

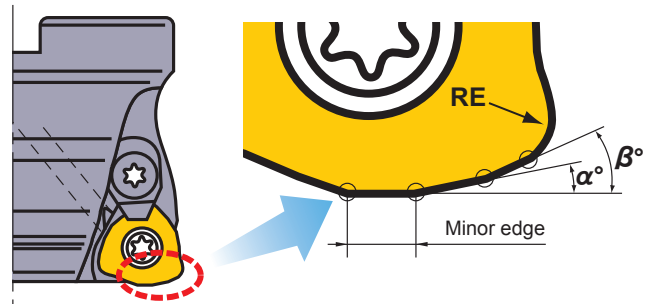
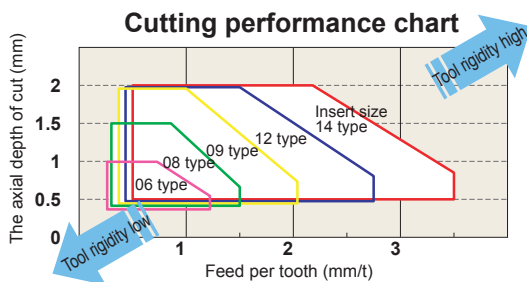
High Feed Radius Milling Cutter

AJX

Features

Ultra High Feed Cutting

Employing a double phased straight cutting edge to form the lead angle α and β with a minor edge, the AJX can achieve an extra high feed rate of up to 3.5mm/tooth for the ultimate efficiency in rough machining.



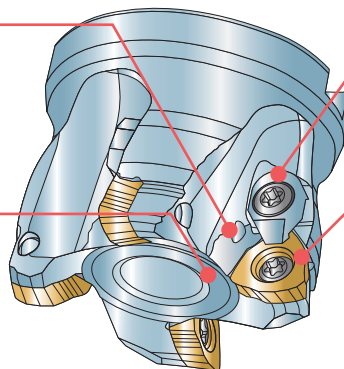
High Reliability Cutter Body

Standard with coolant holes

All AJX bodies are supplied with through coolant holes for smooth chip discharge, cutting edge cooling and lubrication.

Durable tool body

AJX bodies are made from a heat resistant alloy. The special surface treatment applied to the body increases corrosion and friction resistance.



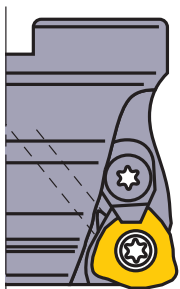
Highly rigid clamping

Insert clamp bridges are standard (except AJX 06, 08 type). Rigid insert clamping for stable and reliable cutting.

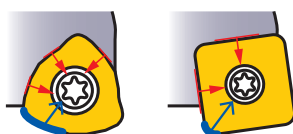
Cost-effective insert

Specially designed triangular style insert geometry for cost effective milling.

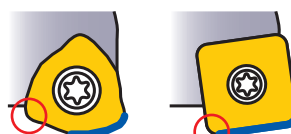
Triangular insert shape is ideal for safe multi-functional milling



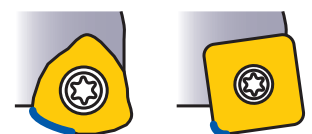
— Edge used during machining



Insert pocket is designed to ensure precise positioning and provide secure multi directional clamping.



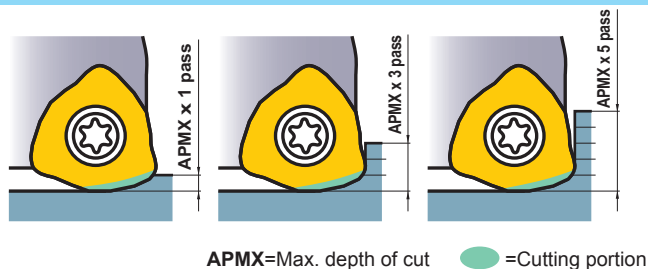
The unused edge is protected even during pocket machining and ramping.



Even if the ramping angle is steep, the left side of the cutting edge is designed to be used and therefore not be damaged.

Anti Vibration Properties

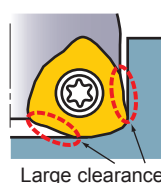
The AJX always uses the same portion of the cutting edge thereby maintaining stable cutting even when the tool overhang is long.



Preventing Chip Packing Problems

The indents engineered into the inner and outer cutting edges maintain a large clearance, preventing chip packing problems.

For improved efficiency and a more stable cutting performance when ramping and sinking compared to conventional products.



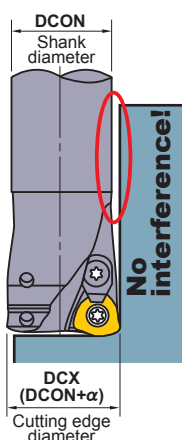
Comparison of ramping angles

	Max. ramping angle
AJX	2.8°
4 Corner Insert	1°
Conventional products	1°

★With ø63 mm type

No Workpiece Interference

The AJX shank type is designed with an offset cutting diameter for workpiece and chip clearance as shown. Ideal for deep cutting and reduces the need for special long tools.



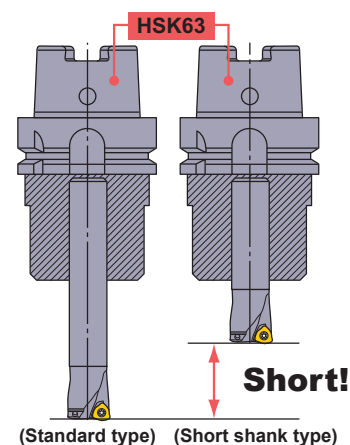
Order Number	DCX (mm)	DCON (mm)
AJX06R172SA16	17	16
AJX06R223SA20	22	20
AJX08R222SA20	22	20
AJX08R283SA25	28	25
AJX09R282SA25	28	25
AJX09R353SA32	35	32
AJX09R404SA32	40	32
AJX12R352SA32	35	32
AJX12R40SA32	40	32
AJX14R503SA42	50	42
AJX14R634SA42	63	42

Please refer to page 7 for details of the holder.

HSK63 type short shanks

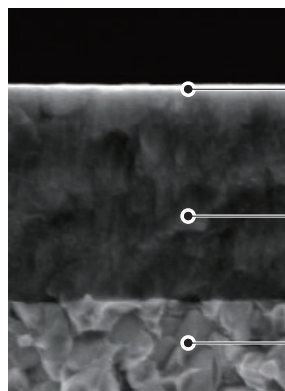
Short shank type AJX06 end mills are available. Although HSK63 holders are already short, the use of the short shank type AJX permits minimum overhang for maximum rigidity.

The minimum tool overhang length enables stable, high efficiency machining even on high-speed machining centres.



Insert Grades for a Wide Range of Materials

MIRACLE SIGMA accumulated Al-Ti-Cr-N based PVD coating

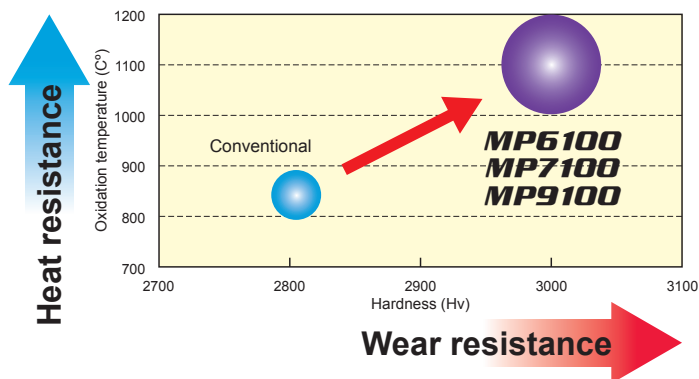


Excellent welding resistance due to low coefficient of friction

PVD accumulated coating (Each damage measures)

Special cemented carbide substrate

Dramatically improving the heat and wear resistance!



Excellent welding resistance due to low coefficient friction!

	Work Material	Grade	Coefficient of friction		
			Measured at 600 degrees		
			S55C	SUS304	Ti-6Al-4V
P	Carbon Steel, Alloy Steel	MP6100	0.4		
M	Stainless Steel	MP7100		0.5	
S	Titanium Alloy, Heat Resistant Alloy	MP9100			0.3
	Conventional		0.7	0.7	0.7

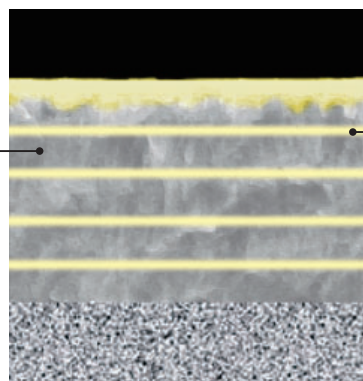
TOUGH-Σ Technology

A fusion of the separate coating technologies; PVD and multi-layering realises extra toughness.

PVD accumulated coating

Base layer High Al-(Al, Ti)N

The new technology Al-(Al, Ti)N coating provides stabilisation of the high hardness phase and succeeds in dramatically improving wear, crater and welding resistance.



*Graphical representation.

Best layer of each workpiece

P		(Al,Cr)N
		Tough! Thermal Cracks
M		TiN
		Tough! Notching
S		CrN
		Tough! Resistant Chipping

SELECTION STANDARD

ISO	Application range	
	CVD	PVD
P	P10	
	P20	
	P30	
	P40	

ISO	Application range
M	M10
	M20
	M30
	M40

ISO	Application range
K	K10
	K20
	K30
	K40

ISO	Application range
S	S10
	S20
	S30
	S40

ISO	Application range
H	H10
	H20
	H30
	H40

Wide Selection of Inserts

Focus on cutting edge strength

ST

Strong Cutting Edge Type Breaker

P

M

K

S

H

Stable machining even on interrupted workpiece surfaces

With increased fracture resistance during interrupted cutting due to the tougher cutting edges.
For increased reliability and higher efficiency machining to reduce costs.

FT

General Use Type Breaker

P

M

K

S

H

First recommended chipbreaker for general cutting

An optimum balance of sharpness and fracture resistance.
Versatile insert for a wide range of materials and cutting conditions.

JM

**Sharp Cutting Edge Type Breaker
(For general use)**

P

M

K

S

H

Suitable for use on BT40 and HSK63 machines

Boosts cutting performance with a large rake angle.
Effective for anti-vibration machining for long overhang applications at higher than normal feeds for cost saving efficiency.

JL

**Sharp Cutting Edge Type Breaker
(For difficult-to-cut materials)**

P

M

K

S

H

Optimized for difficult-to-cut materials

The optimized cutting edge of the JL breaker provides the sharpness and low cutting resistance that is ideal for difficult-to-cut materials.
The maximum depth of cut is different in the insert size.
Please refer to page 15.

Can continue machining

<Cutting Conditions>
 Tool : ø63-5 teeth
 Workpiece : Ti-6AL4V
 Revolution : 202 min⁻¹
 Cutting speed : 40 m/min
 Feed : 606 mm/min
 Feed per tooth : 0.6 mm/t
 Depth of cut : Axial 1.0 mm
 Radial 45 mm
 Cutting mode : Wet

Focus on cutting edge sharpness

Work Material	Cutting Conditions		
	Light	General	Interrupted
P K H	JM	FT	ST
M	JM	FT	ST
S	JL	JM	FT

High Feed Radius Milling Cutter

MULTI FUNCTIONAL MILLING



Roughing



AJX

P

M

K

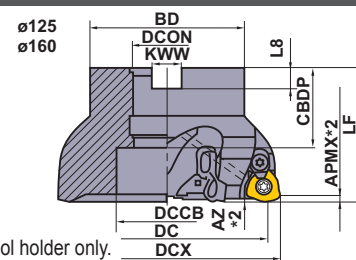
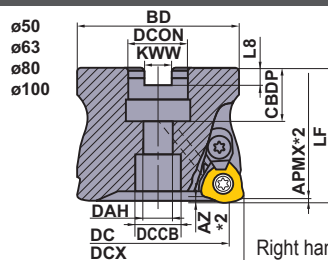
N

S

H



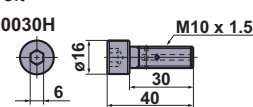
- 13° and 15° positive inserts.
- High rigidity double clamp structure.
- Suitable for high feed machining.
- With through coolant holes.
- Special insert design with 3 cutting edges.



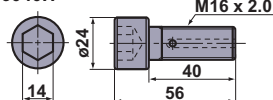
Right hand tool holder only.

Set Bolt

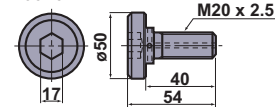
HSC10030H



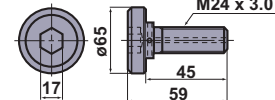
HSC16040H



MBA20040H



MBA24045H



ARBOR TYPE

AJX09 GAMP :+8° GAMF :-6°
AJX12 GAMP :+8° GAMF :-5°—-4°
AJX14 GAMP :+8° GAMF :-3°

Type	Order Number	Stock	Number of Teeth	Dimensions(mm)										WT (kg)	Accessories						
				DCX	DC	LF	DCON	CBDP	DAH	BD	KWW	L8	DCCB		Clamp Screw	Clamp Bridge	Clamp Bridge Screw	Spring	Wrench	Set Bolt	Insert
Coarse Pitch	AJX12-050A03R	●	3	50	38.3	50	22	20	11	47	10.4	6.3	17	0.4	TS43	AMS4	AJS40 12T15	ASS2	①TKY15T	HSC100 30H	JDM 1204 ZD R
	AJX12R05003B	●	3	50	38.3	50	22.225	19	11	47	8.4	5	17	0.4							
	AJX14-063A03R	●	3	63	51.1	50	22	20	11	60	10.4	6.3	17	0.7						HSC100 30H	
	AJX14R06303B	●	3	63	51.1	50	22.225	19	11	60	8.4	5	17	0.7							
	AJX14R08004D	●	4	80	68.1	63	31.75	32	17	76	12.7	8	26	1.3	TS54	AMS5	AJS50 14T25	ASS3	①TKY25T	HSC160 40H	JDM 1405 ZD R
	AJX14R10005D	●	5	100	88.1	63	31.75	32	17	96	12.7	8	26	2.4							
	AJX14R12505E	●	5	125	113.2	63	38.1	40	—	100	15.9	10	56	3.3						MBA200 40H	
Fine Pitch	AJX14R16006F	●	6	160	148.2	63	50.8	43	—	100	19.1	11	72	5.0						MBA240 45H	
	AJX12-050A04R	●	4	50	38.3	50	22	20	11	47	10.4	6.3	17	0.4	TS43	AMS4	AJS40 12T15	ASS2	①TKY15T	HSC100 30H	JDM 1204 ZD R
	AJX12R05004B	●	4	50	38.3	50	22.225	19	11	47	8.4	5	17	0.4							
	AJX14-063A04R	●	4	63	51.1	50	22	20	11	60	10.4	6.3	17	0.7						HSC100 30H	
	AJX14R06304B	●	4	63	51.1	50	22.225	19	11	60	8.4	5	17	0.7							
	AJX14R08005D	●	5	80	68.1	63	31.75	32	17	76	12.7	8	26	1.3	TS54	AMS5	AJS50 14T25	ASS3	①TKY25T	HSC160 40H	JDM 1405 ZD R
	AJX14R10006D	●	6	100	88.1	63	31.75	32	17	96	12.7	8	26	2.4							
Extra Fine Pitch	AJX14R12507E	●	7	125	113.2	63	38.1	40	—	100	15.9	10	56	3.3						MBA200 40H	
	AJX14R16008F	●	8	160	148.2	63	50.8	43	—	100	19.1	11	72	5.0						MBA240 45H	
	AJX09-050A05R	●	5	50	40	50	22	20	11	47	10.4	6.3	17	0.5	TS351	AMS3	AJS30 10T10	ASS2	②TKY10D	HSC100 30H	JDM 09T3 ZD R
	AJX09R05005B	●	5	50	40	50	22.225	19	11	47	8.4	5	17	0.5							
	AJX12-063A05R	●	5	63	51.3	50	22	20	11	60	10.4	6.3	17	0.9						HSC100 30H	
	AJX12R06305B	●	5	63	51.3	50	22.225	19	11	60	8.4	5	17	0.9							
	AJX12R08006D	●	6	80	68.3	63	31.75	32	17	76	12.7	8	26	1.7	TS43	AMS4	AJS40 12T15	ASS2	①TKY15T	HSC160 40H	JDM 1204 ZD R
Extra Fine Pitch	AJX12R10007D	●	7	100	88.3	63	31.75	32	17	96	12.7	8	26	2.9							

*1 Clamp Torque (N · m) : TS351=2.5, TS43=3.5, TS54=7.5, AJS3010T10=2.5, AJS4012T15=3.5, AJS5014T25=7.5

*2 Refer to page 15, for the max. depth of cut (APMX) and maximum drilling depth (AZ).

● : Inventory maintained in Japan.

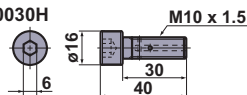


For metric arbor

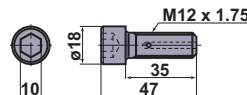
The cutter bore diameter DCON is indicated in millimetre.

AJX09	AJX12	AJX14
GAMP :+8°	GAMP :+8°	GAMP :+8°
GAMF :-6°	GAMF :-5°—-4°	GAMF :-3°

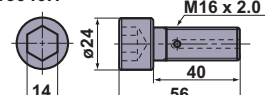
Set Bolt
HSC10030H



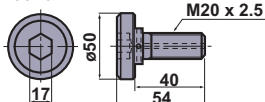
HSC12035H



HSC16040H



MBA20040H



ARBOR TYPE

Type	Order Number	Stock	Number of Teeth	Dimensions(mm)										WT (kg)	*1	*1	*1	① ②	① ②	① ②	① ②
				DCX	DC	LF	DCON	CBDP	DAH	BD	KWW	L8	DCCB								
Coarse Pitch	AJX12-050A03R	●	3	50	38.3	50	22	20	11	47	10.4	6.3	17	0.4	TS43	AMS4	AJS40 12T15	ASS2	①TKY15T	HSC100 30H	JDM 1204 ZD R
	AJX14-063A03R	●	3	63	51.1	50	22	20	11	60	10.4	6.3	17	0.7						HSC100 30H	JDM 1405 ZD R
	AJX14-080A04R	●	4	80	68.1	50	27	23	13	76	12.4	7.0	19	1.2						HSC120 35H	
	AJX14-100A05R	●	5	100	88.1	63	32	26	17	96	14.4	8.0	26	2.4	TS54	AMS5	AJS50 14T25	ASS3	①TKY25T	HSC160 40H	
	AJX14-125B05R	●	5	125	113.2	63	40	40	—	100	16.4	9.0	56	3.3						MBA200 40H	
Fine Pitch	AJX14-160B06R	●	6	160	148.2	63	40	40	—	100	16.4	9.0	56	5.0							
	AJX12-050A04R	●	4	50	38.3	50	22	20	11	47	10.4	6.3	17	0.4						HSC100 30H	JDM 1204 ZD R
	AJX12-080A06R	●	6	80	68.3	50	27	23	13	76	12.4	7.0	19	1.2	TS43	AMS4	AJS40 12T15	ASS2	①TKY15T	HSC120 35H	
	AJX12-100A07R	●	7	100	88.3	63	32	26	17	96	14.4	8.0	26	2.6						HSC160 40H	
	AJX14-063A04R	●	4	63	51.1	50	22	20	11	60	10.4	6.3	17	0.7						HSC100 30H	JDM 1405 ZD R
	AJX14-080A05R	●	5	80	68.1	50	27	23	13	76	12.4	7.0	19	1.2						HSC120 35H	
	AJX14-100A06R	●	6	100	88.1	63	32	26	17	96	14.4	8.0	26	2.4	TS54	AMS5	AJS50 14T25	ASS3	①TKY25T	HSC160 40H	
	AJX14-125B07R	●	7	125	113.2	63	40	40	—	100	16.4	9.0	56	3.3						MBA200 40H	
	AJX14-160B08R	●	8	160	148.2	63	40	40	—	100	16.4	9.0	56	5.0							
Extra Fine Pitch	AJX09-050A05R	●	5	50	40	50	22	20	11	47	10.4	6.3	17	0.4	TS351	AMS3	AJS30 10T10	ASS2	②TKY10D	HSC100 30H	JDM 09T3 ZD R
	AJX12-063A05R	●	5	63	51.3	50	22	20	11	60	10.4	6.3	17	0.7	TS43	AMS4	AJS40 12T15	ASS2	①TKY15T	HSC100 30H	JDM 1204 ZD R

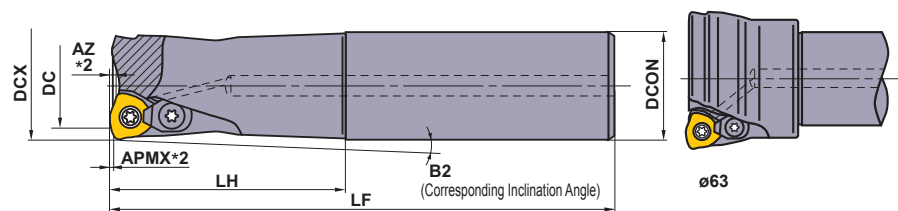
*1 Clamp Torque (N • m) : TS351=2.5, TS43=3.5, TS54=7.5, AJS3010T10=2.5, AJS4012T15=3.5, AJS5014T25=7.5

*2 Refer to page 15, for the max. depth of cut (APMX) and maximum drilling depth (AZ).

Dimensions and symbols (ISO 13399 compliance)

DCX	=	Maximum hole diameter
DC	=	Cutting diameter
LF	=	Functional length
DCON	=	Fixing part depth
CBDP	=	Connection bore depth
DAH	=	Diameter access hole
BD	=	Body diameter
KWW	=	Keyway width
DCCB	=	Fixing bolt seat diameter
WT	=	Weight of item
GAMP	=	Rake angle radial
GAMF	=	Rake angle axial

High Feed Radius Milling Cutter



SHANK TYPE

Right hand tool holder only.

Type	Order Number	Stock R	Number of Teeth	Dimensions(mm)						*1		*1				
				DCX	DCON	DC	LF	LH	B2	Clamp Screw	Clamp Bridge	Clamp Bridge Screw	Spring	Wrench	Insert	
Short	AJX06R162SA16SS	●	2	16	16	8.9	70	20	3°30'	TS25	—	—	—	①TKY08F	JOM 06T2	ZZ-R
	AJX06R172SA16SS	●	2	17	16	9.9	70	20	—	TS25	—	—	—	①TKY08F	ZZ-R	
Standard	AJX06R162SA16S	●	2	16	16	8.9	110	30	2°15'	TS25	—	—	—	①TKY08F	JOM 06T2	ZZ-R
	AJX06R172SA16S	●	2	17	16	9.9	110	20	—	TS25	—	—	—	①TKY08F	ZZ-R	
	AJX06R203SA20S	●	3	20	20	12.9	130	50	1°18'	TS25	—	—	—	①TKY08F	ZZ-R	
	AJX06R223SA20S	●	3	22	20	14.9	130	30	—	TS25	—	—	—	①TKY08F		
	AJX08R202SA20S	●	2	20	20	11.4	130	50	1°20'	TS33	—	—	—	②TKY08D	JOM 0803	ZZ-R
	AJX08R222SA20S	●	2	22	20	13.4	130	30	—	TS33	—	—	—	②TKY08D	ZZ-R	
	AJX08R253SA25S	●	3	25	25	16.4	140	60	1°06'	TS33	—	—	—	②TKY08D		
	AJX08R283SA25S	●	3	28	25	19.4	140	40	—	TS33	—	—	—	②TKY08D		
	AJX09R252SA25S	●	2	25	25	14.9	140	60	1°06'	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	JDM 09T3	ZD-R
	AJX09R282SA25S	●	2	28	25	17.9	140	40	—	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	ZD-R	
	AJX09R303SA32S	●	3	30	32	20.0	150	70	1°48'	TS351	AMS3	AJS3010T10	ASS2	②TKY10D		
	AJX09R323SA32S	●	3	32	32	21.9	150	70	0°56'	TS351	AMS3	AJS3010T10	ASS2	②TKY10D		
	AJX09R353SA32S	●	3	35	32	24.9	150	50	—	TS351	AMS3	AJS3010T10	ASS2	②TKY10D		
	AJX09R404SA32S	●	4	40	32	29.9	150	50	—	TS351	AMS3	AJS3010T10	ASS2	②TKY10D		
	AJX09R404SA42S	●	4	40	42	29.9	150	70	1°48'	TS351	AMS3	AJS3010T10	ASS2	②TKY10D		
	AJX12R302SA32S	●	2	30	32	18.3	150	70	1°48'	TS407	AMS4	AJS4012T15	ASS2	②TKY15D	JDM 1204	ZD-R
	AJX12R322SA32S	●	2	32	32	20.3	150	70	0°58'	TS43	AMS4	AJS4012T15	ASS2	②TKY15D	ZD-R	
	AJX12R352SA32S	●	2	35	32	23.3	150	50	—	TS43	AMS4	AJS4012T15	ASS2	②TKY15D		
	AJX12R403SA32S	●	3	40	32	28.3	150	50	—	TS43	AMS4	AJS4012T15	ASS2	②TKY15D		
	AJX12R403SA42S	●	3	40	42	28.3	150	70	1°48'	TS43	AMS4	AJS4012T15	ASS2	②TKY15D		
	AJX14R503SA42S	●	3	50	42	38.2	150	50	—	TS54	AMS5	AJS5014T25	ASS3	②TKY25D	JDM 1405	ZD-R
	AJX14R634SA42S	●	4	63	42	51.1	150	50	—	TS54	AMS5	AJS5014T25	ASS3	②TKY25D	ZD-R	

*1 Clamp Torque (N · m) : TS25=1.0, TS33=1.0, TS351=2.5, TS407=3.5, TS43=3.5, TS54=7.5, AJS3010T10=2.5, AJS4012T15=3.5, AJS5014T25=7.5

*2 Refer to page 15, for the max. depth of cut (APMX), and maximum drilling depth (AZ).

Dimensions and symbols (ISO 13399 compliance)

DCX = Maximum hole diameter

DCON = Fixing part depth

DC = Cutting diameter

LF = Functional length

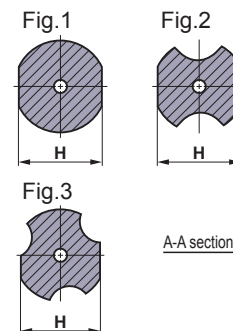
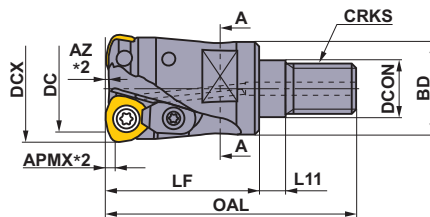
LH = Neck length

Type	Order Number	Stock	Number of Teeth	Dimensions(mm)											
				DCX	DCON	DC	LF	LH	B2	Clamp Screw	Clamp Bridge	Clamp Bridge Screw	Spring	Wrench	Insert
Long	AJX06R162SA16L	●	2	16	16	8.9	150	70	0°56'	TS25	—	—	—	①TKY08F	JOM 06T200 ZZ-R-00
	AJX06R172SA16L	●	2	17	16	9.9	150	20	—	TS25	—	—	—	①TKY08F	
	AJX06R203SA20L	●	3	20	20	12.9	180	100	0°38'	TS25	—	—	—	①TKY08F	
	AJX06R223SA20L	●	3	22	20	14.9	180	30	—	TS25	—	—	—	①TKY08F	
	AJX08R202SA20L	●	2	20	20	11.4	180	100	0°39'	TS33	—	—	—	②TKY08D	JOM 080300 ZZ-R-00
	AJX08R222SA20L	●	2	22	20	13.4	180	30	—	TS33	—	—	—	②TKY08D	
	AJX08R253SA25L	●	3	25	25	16.4	200	120	0°32'	TS33	—	—	—	②TKY08D	
	AJX08R283SA25L	●	3	28	25	19.4	200	40	—	TS33	—	—	—	②TKY08D	
	AJX09R252SA25L	●	2	25	25	14.9	200	120	0°32'	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	JDM 09T300 ZD-R-00
	AJX09R282SA25L	●	2	28	25	17.9	200	40	—	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
	AJX09R303SA32L	●	3	30	32	20.0	200	120	1°02'	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
	AJX09R323SA32L	●	3	32	32	21.9	200	120	0°32'	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
	AJX09R353SA32L	●	3	35	32	24.9	200	50	—	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
	AJX09R404SA32L	●	4	40	32	29.9	250	50	—	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
	AJX09R404SA42L	●	4	40	42	29.9	250	70	1°48'	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
	AJX12R302SA32L	●	2	30	32	18.3	200	120	1°02'	TS407	AMS4	AJS4012T15	ASS2	②TKY15D	JDM 120400 ZD-R-00
	AJX12R322SA32L	●	2	32	32	20.3	200	120	0°33'	TS43	AMS4	AJS4012T15	ASS2	②TKY15D	
	AJX12R352SA32L	●	2	35	32	23.3	200	50	—	TS43	AMS4	AJS4012T15	ASS2	②TKY15D	
	AJX12R403SA32L	●	3	40	32	28.3	250	50	—	TS43	AMS4	AJS4012T15	ASS2	②TKY15D	
	AJX12R403SA42L	●	3	40	42	28.3	250	70	1°48'	TS43	AMS4	AJS4012T15	ASS2	②TKY25D	JDM 140500 ZD-R-00
	AJX14R503SA42L	●	3	50	42	38.1	250	50	—	TS54	AMS5	AJS5014T25	ASS3	②TKY25D	
	AJX14R634SA42L	●	4	63	42	51.1	250	50	—	TS54	AMS5	AJS5014T25	ASS3	②TKY25D	JDM 06T200 ZZ-R-00
	AJX06R162SA16EL	●	2	16	16	8.9	200	100	0°38'	TS25	—	—	—	①TKY08F	
	AJX06R172SA16EL	●	2	17	16	9.9	200	20	—	TS25	—	—	—	①TKY08F	
	AJX08R202SA20EL	●	2	20	20	11.4	250	130	0°30'	TS33	—	—	—	②TKY08D	
	AJX08R222SA20EL	●	2	22	20	13.4	250	30	—	TS33	—	—	—	②TKY10D	
	AJX09R252SA25EL	●	2	25	25	14.9	300	180	0°22'	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
	AJX09R282SA25EL	●	2	28	25	17.9	300	40	—	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
	AJX12R302SA32EL	●	2	30	32	18.3	300	180	0°42'	TS407	AMS4	AJS4012T15	ASS2	②TKY15D	
	AJX12R322SA32EL	●	2	32	32	20.3	300	180	0°22'	TS43	AMS4	AJS4012T15	ASS2	②TKY15D	
	AJX12R352SA32EL	●	2	35	32	23.3	300	50	—	TS43	AMS4	AJS4012T15	ASS2	②TKY15D	
	AJX12R402SA32EL	●	2	40	32	28.3	350	50	—	TS43	AMS4	AJS4012T15	ASS2	②TKY15D	
	AJX12R402SA42EL	●	2	40	42	28.3	350	70	1°48'	TS43	AMS4	AJS4012T15	ASS2	②TKY15D	

*1 Clamp Torque (N・m) : TS25=1.0, TS33=1.0, TS351=2.5, TS407=3.5, TS43=3.5, TS54=7.5, AJS3010T10=2.5, AJS4012T15=3.5, AJS5014T25=7.5

*2 Refer to page 15, for the max. depth of cut (APMX), and maximum drilling depth (AZ).

High Feed Radius Milling Cutter



SCREW-IN TYPE

Right hand tool holder only.

Order Number	Stock	Coolant Hole	Number of Teeth	Dimensions(mm)									WT (kg)	Type (Fig.)	*1 Clamp Screw	*1 Clamp Bridge	*1 Clamp Bridge Screw	Spring	Wrench	Insert
				DCX	DCON	BD	DC	OAL	LF	L11	H	CRKS								
AJX06R162AM0830	●	○	2	16	8.5	13	8.9	48	30	6	10	M8	0.1	1	TS25	—	—	—	①TKY08F	JOM 06T2 ZZ-R
AJX06R172AM0830	●	○	2	17	8.5	13	9.9	48	30	6	10	M8	0.1	1	TS25	—	—	—	①TKY08F	
AJX06R203AM1030	●	○	3	20	10.5	18	12.9	49	30	6	14	M10	0.1	3	TS25	—	—	—	①TKY08F	
AJX06R223AM1030	●	○	3	22	10.5	18	14.9	49	30	6	14	M10	0.1	3	TS25	—	—	—	①TKY08F	
AJX08R202AM1030	●	○	2	20	10.5	18	11.4	49	30	6	14	M10	0.1	2	TS33	—	—	—	①TKY08D	JOM 0803 ZZ-R
AJX08R222AM1030	●	○	2	22	10.5	18	13.4	49	30	6	14	M10	0.1	2	TS33	—	—	—	①TKY08D	
AJX08R253AM1235	●	○	3	25	12.5	21	16.4	57	35	6	19	M12	0.1	1	TS33	—	—	—	①TKY08D	
AJX08R283AM1235	●	○	3	28	12.5	21	19.4	57	35	6	19	M12	0.1	1	TS33	—	—	—	①TKY08D	
AJX09R252AM1235	●	○	2	25	12.5	21	14.9	57	35	6	19	M12	0.2	2	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	JDM 09T3 ZD-R
AJX09R282AM1235	●	○	2	28	12.5	21	17.9	57	35	6	19	M12	0.2	2	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
AJX09R303AM1645	●	○	3	30	17	29	20.0	68	45	6	24	M16	0.2	1	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
AJX09R323AM1645	●	○	3	32	17	29	21.9	68	45	6	24	M16	0.2	1	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
AJX09R353AM1645	●	○	3	35	17	29	24.9	68	45	6	24	M16	0.2	1	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
AJX09R404AM1645	●	○	4	40	17	29	29.9	68	45	6	24	M16	0.2	1	TS351	AMS3	AJS3010T10	ASS2	②TKY10D	
AJX12R302AM1645	●	○	2	30	17	29	18.3	68	45	6	24	M16	0.3	2	TS407	AMS4	AJS4012T15	ASS2	②TKY15D	JDM 1204 ZD-R
AJX12R322AM1645	●	○	2	32	17	29	20.3	68	45	6	24	M16	0.3	2	TS43	AMS4	AJS4012T15	ASS2	②TKY15D	
AJX12R352AM1645	●	○	2	35	17	29	23.3	68	45	6	24	M16	0.3	2	TS43	AMS4	AJS4012T15	ASS2	②TKY15D	
AJX12R403AM1645	●	○	3	40	17	29	28.3	68	45	6	24	M16	0.3	2	TS43	AMS4	AJS4012T15	ASS2	②TKY15D	

(Note) For screw-in type arbors, refer to page 10—11.

*1 Clamp Torque (N · m) : TS25=1.0, TS33=1.0, TS351=2.5, TS407=3.5, TS43=3.5, AJS3010T10=2.5, AJS4012T15=3.5

*2 Refer to page 15 for the max. depth of cut (APMX), and maximum drilling depth (AZ).

Dimensions and symbols (ISO 13399 compliance)

DCX = Maximum hole diameter

DCON = Fixing part depth

BD = Body diameter

DC = Cutting diameter

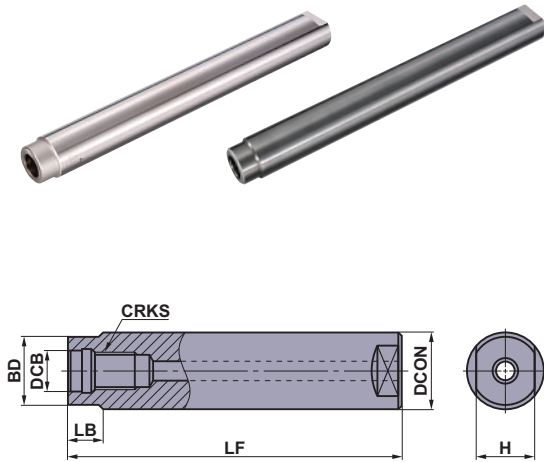
OAL = Overall length

LF = Functional length

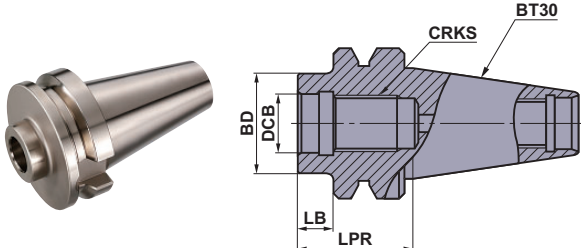
CRKS = Connection retention knob thread size

WT = Weight of item

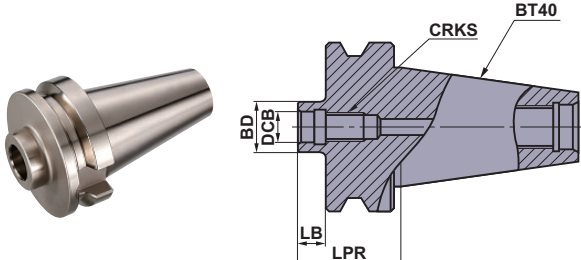
STRAIGHT SHANK ARBOR

	Type	Order Number	Stock	Dimensions (mm)					
				DCB	DCON	BD	LF	LB	CRKS
	STEEL SHANK TYPE	SC16M08S100S	●	8.5	16	14.5	100	10	M8
		SC16M08S200L	●	8.5	16	14.5	200	10	M8
		SC20M10S120S	●	10.5	20	18.5	120	10	M10
		SC20M10S220L	●	10.5	20	18.5	220	10	M10
		SC25M12S125S	●	12.5	25	23.5	125	10	M12
		SC25M12S245L	●	12.5	25	23.5	245	10	M12
		SC32M16S140S	●	17	32	28.5	140	15	M16
		SC32M16S280L	●	17	32	28.5	280	15	M16
	CARBIDE SHANK TYPE	SC16M08S100SW	●	8.5	16	14.5	100	10	M8
		SC16M08S200LW	●	8.5	16	14.5	200	10	M8
		SC20M10S120SW	●	10.5	20	18.5	120	10	M10
		SC20M10S220LW	●	10.5	20	18.5	220	10	M10
		SC25M12S125SW	●	12.5	25	23.5	125	10	M12
		SC25M12S245LW	●	12.5	25	23.5	245	10	M12
		SC32M16S140SW	●	17	32	28.5	140	15	M16
		SC32M16S280LW	●	17	32	28.5	280	15	M16

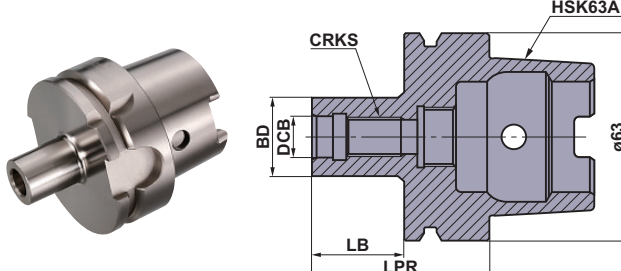
BT30 SHANK ARBOR

	Type	Order Number	Stock	Dimensions (mm)				
				DCB	BD	LPR	LB	CRKS
	BT30	SC16M08S10-BT30	●	8.5	14.5	32	10	M8
		SC20M10S10-BT30	●	10.5	18.5	32	10	M10
		SC25M12S10-BT30	●	12.5	23.5	32	10	M12
		SC32M16S10-BT30	●	17.0	28.5	32	10	M16

BT40 SHANK ARBOR

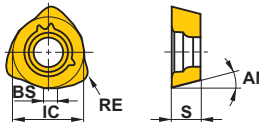
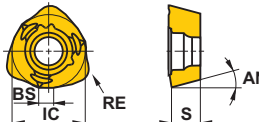
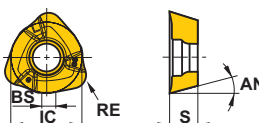
	Type	Order Number	Stock	Dimensions (mm)				
				DCB	BD	LPR	LB	CRKS
	BT40	SC16M08S10-BT40	●	8.5	14.5	37	10	M8
		SC20M10S10-BT40	●	10.5	18.5	37	10	M10
		SC25M12S10-BT40	●	12.5	23.5	37	10	M12
		SC32M16S10-BT40	●	17.0	28.5	37	10	M16

HSK63A SHANK ARBOR

	Type	Order Number	Stock	Dimensions (mm)				
				DCB	BD	LPR	LB	CRKS
	HSK63A	SC16M08S22-HSK63A	●	8.5	14.5	48	22	M8
		SC20M10S24-HSK63A	●	10.5	18.5	50	24	M10
		SC25M12S27-HSK63A	●	12.5	23.5	53	27	M12
		SC32M16S28-HSK63A	●	17.0	28.5	54	28	M16

High Feed Radius Milling Cutter

INSERTS

Work Material	P	Steel									Cutting Conditions :					
	M	Stainless Steel									● : Stable Cutting	● : General Cutting	✱ : Unstable Cutting			
Work Material	K	Cast Iron														
	S	Heat-resistant Alloy, Titanium Alloy														
Work Material	H	Hardened Materials														
Shape	Order Number	Class	Coated								Dimensions (inch)					Geometry
			FH7020	MP6120	MP6130	MP7130	MP7140	MP9120	MP9130	VP15TF	VP30RT	AN	IC	S	BS	
	JOMW06T215ZZSR-FT	M	●	●	●	●	●	●	●	●	13°	6.35	2.78	1.2	1.5	
	JOMW080320ZZSR-FT	M	●	●	●	●	●	●	●	●	13°	8	3.18	1.4	2	
	JDMW09T320ZDSR-FT	M	●	●	●	●	●	●	●	●	15°	9.525	3.97	1.8	2	
	JDMW120420ZDSR-FT	M	●	●	●	●	●	●	●	●	15°	12	4.76	2.5	2	
	JDMW140520ZDSR-FT	M	●	●	●	●	●	●	●	●	15°	14	5.56	2.8	2	
	JDMT120420ZDSR-ST	M	●	●	●	●			●	●	15°	12	4.76	2.5	2	
	JDMT140520ZDSR-ST	M	●	●	●	●			●	●	15°	14	5.56	2.8	2	
	JOMT06T216ZZER-JL	M			●	●	●	●			13°	6.35	2.78	1.2	1.6	
	JOMT080322ZZER-JL	M			●	●	●	●			13°	8	3.18	1.4	2.2	
	JDMT09T323ZDER-JL	M			●	●	●	●			15°	9.525	3.97	1.8	2.3	
	JDMT120423ZDER-JL	M			●	●	●	●			15°	12	4.76	2.5	2.3	
	JDMT140523ZDER-JL	M			●	●	●	●			15°	14	5.56	2.8	2.3	
	JOMT06T215ZZSR-JM	M	●	●	●	●	●	●	●	●	13°	6.35	2.78	1.2	1.5	
	JOMT080320ZZSR-JM	M	●	●	●	●	●	●	●	●	13°	8	3.18	1.4	2	
	JDMT09T320ZDSR-JM	M	●	●	●	●	●	●	●	●	15°	9.525	3.97	1.8	2	
	JDMT120420ZDSR-JM	M	●	●	●	●	●	●	●	●	15°	12	4.76	2.5	2	
	JDMT140520ZDSR-JM	M	●	●	●	●	●	●	●	●	15°	14	5.56	2.8	2	

(Note) When using ST chip breaker, please check the height setting as it differs from other chip breakers.



RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED

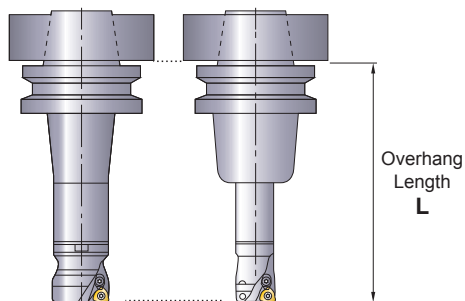
Work Material		Hardness	Cutting speed (m/min) for different grades			
P			FH7020	MP6120	MP6130	VP30RT
	Mild Steel	≤180HB	170 (120—220)	150 (100—200)	130 (80—180)	110 (60—160)
	Carbon Steel Alloy Steel	180—280HB	150 (100—200)	130 (80—180)	110 (60—160)	90 (40—140)
	Carbon Steel Alloy Steel	280—350HB	130 (80—180)	100 (50—150)	80 (30—130)	60 (20—110)
	Alloy Tool Steel	≤350HB	130 (80—180)	100 (50—150)	80 (30—120)	60 (20—90)
	Pre-hardened Steel	35—45HRC	—	100 (70—130)	80 (50—110)	80 (30—90)
M			MP7130	MP7140		
	Stainless Steel	≤270HB	140 (100—180)	120 (80—160)	—	—
K			FH7020	VP15TF		
	Gray Cast Iron	≤350MPa	150 (100—200)	—	—	—
	Ductile Cast Iron	≤800MPa	—	120 (80—160)	—	—
S			MP9120	MP9130		
	Heat Resistant Alloy	≤350HB	30 (20—40)	25 (20—35)	—	—
	Titanium Alloy	—	50 (40—60)	45 (30—55)		
H			VP15TF			
	Hardened Steel	40—55HRC	70 (50—90)	—	—	—

RECOMMENDED CUTTING CONDITIONS

DEPTH OF CUT / FEED

	Work Material	Hardness	Shank Type / Screw-in Type								
			ø16, ø17			ø20, ø22			ø25, ø28		
			L (mm)	ap (mm)	fz (mm/t)	L (mm)	ap (mm)	fz (mm/t)	L (mm)	ap (mm)	fz (mm/t)
P	Mild Steel	≤180HB	140	0.8	0.8	160	1.0	1.0	170	1.0	1.2
			180	0.6	0.6	210	0.8	0.8	230	0.8	1.0
			210	0.4	0.4	240	0.6	0.6	290	0.6	0.8
	Carbon Steel Alloy Steel	180—280HB	140	0.8	0.8	160	1.0	1.0	170	1.0	1.2
			180	0.6	0.6	210	0.8	0.8	230	0.8	1.0
			210	0.4	0.4	240	0.6	0.6	290	0.6	0.8
	Carbon Steel Alloy Steel	280—350HB	140	0.7	0.8	160	0.8	1.0	170	0.8	1.2
			180	0.5	0.6	210	0.6	0.8	230	0.6	1.0
			210	0.3	0.4	240	0.4	0.6	290	0.4	0.8
	Alloy Tool Steel	≤350HB	140	0.7	0.8	160	0.8	1.0	170	0.8	1.2
			180	0.5	0.6	210	0.6	0.8	230	0.6	1.0
			210	0.3	0.4	240	0.4	0.6	290	0.4	0.8
	Pre-hardened Steel	35—45HRC	140	0.7	0.7	160	0.8	0.8	170	0.8	1.0
			180	0.5	0.5	210	0.6	0.6	230	0.6	0.8
			210	0.3	0.3	240	0.4	0.4	290	0.4	0.6
M	Stainless Steel	≤270HB	140	0.8	0.7	160	1.0	0.8	170	1.0	1.0
			180	0.6	0.5	210	0.8	0.6	230	0.8	0.8
			210	0.4	0.3	240	0.6	0.4	290	0.6	0.6
K	Gray Cast Iron	Tensile Strength ≤350MPa	140	0.8	1.0	160	1.0	1.2	170	1.0	1.4
			180	0.6	0.8	210	0.8	1.0	230	0.8	1.2
			210	0.4	0.6	240	0.6	0.8	290	0.6	1.0
	Ductile Cast Iron	Tensile Strength ≤800MPa	140	0.7	0.8	160	0.8	1.0	170	0.8	1.2
			180	0.5	0.6	210	0.6	0.8	230	0.6	1.0
			210	0.3	0.4	240	0.4	0.6	290	0.4	0.8
S	Heat Resistant Alloy	≤350HB	140	0.6	0.6	160	0.8	0.6	170	1.0	0.6
	Titanium Alloy	—	180	0.4	0.4	210	0.6	0.4	230	0.8	0.4
			210	0.3	0.3	240	0.4	0.3	290	0.6	0.3
H	Hardened Steel	40—55HRC	140	0.5	0.5	160	0.5	0.6	170	0.5	0.8
			180	0.4	0.3	210	0.4	0.4	230	0.4	0.6
			210	0.3	0.2	240	0.3	0.2	290	0.3	0.4

① Overhang Length L



② Main Spindle Revolution

$$n(\text{min}^{-1}) = (\text{Recommended Cutting Speed} \times 1000) \div (\text{Outer Tool Diameter} \times 3.14)$$

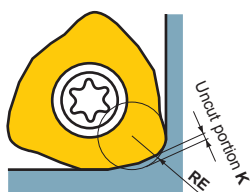
③ Table Feed Rate

$$vf(\text{mm/min}) = n \times \text{Feed per Tooth} \times \text{Number of Teeth}$$

- ④ Recommended width of cut (ae) is more than 60% of the cutting edge diameter.
- ⑤ The above cutting conditions are guides to cutting on a #50 BT machine. In case of #40 BT and #63 HSK machines, a cutting edge diameter of under 35mm is recommended. In this case, reduce the depth of cut and table feed rate.
- ⑥ Use of ST chipbreaker with tougher cutting edges is recommended for machining parts that require interrupted cutting. First recommended insert grade for non-standard 06/08/09 ST chipbreakers is VP30RT irrespective of the workpiece material.
- ⑦ Cutter body with coarse pitch is recommended for the unstable cutting caused by the long tool overhang.
- ⑧ Use the "sharp" JM chipbreaker to lower cutting forces or when long tool overhangs are used.
- ⑨ Heavy chips are generated when machining with the AJX. To avoid chip jamming-related problems, use air blow while machining to discharging chips effectively.
- ⑩ The maximum depth of cut of JL breaker is different in the insert size. 06 size is up to 0.6mm, 08 size is up to 0.9mm, and 09,12,14 size is up to 1.2mm.

	Shank Type / Screw-in Type												Arbor Type					
	ø30, ø32, ø35			ø40 (ø32 Shank)			ø40 (ø42 Shank)			ø50, ø63			ø50, ø63			ø80, ø100, ø125, ø160		
	L (mm)	ap (mm)	fz (mm/t)	L (mm)	ap (mm)	fz (mm/t)	L (mm)	ap (mm)	fz (mm/t)	L (mm)	ap (mm)	fz (mm/t)	L (mm)	ap (mm)	fz (mm/t)	L (mm)	ap (mm)	fz (mm/t)
	180	1.2	1.4	180	1.2	1.4	180	1.2	1.5	180	1.4	1.5	150	1.5	1.5	170	1.5	1.5
	230	1.0	1.2	240	1.0	1.2	240	1.0	1.3	240	1.2	1.3	250	1.3	1.3	300	1.3	1.3
	290	0.8	1.0	300	0.8	1.0	300	0.8	1.1	—	—	—	350	1.1	1.1	450	1.0	1.0
	180	1.2	1.4	180	1.2	1.4	180	1.2	1.5	180	1.4	1.5	150	1.5	1.5	170	1.5	1.5
	230	1.0	1.2	240	1.0	1.2	240	1.0	1.3	240	1.2	1.3	250	1.3	1.3	300	1.3	1.3
	290	0.8	1.0	300	0.8	1.0	300	0.8	1.1	—	—	—	350	1.1	1.1	450	1.0	1.0
	180	1.0	1.4	180	1.0	1.4	180	1.0	1.5	180	1.2	1.5	150	1.3	1.5	170	1.3	1.5
	230	0.8	1.2	240	0.8	1.2	240	0.8	1.3	240	1.0	1.3	250	1.1	1.3	300	1.1	1.3
	290	0.6	1.0	300	0.6	1.0	300	0.6	1.1	—	—	—	350	0.9	1.1	450	0.8	1.0
	180	1.0	1.4	180	1.0	1.4	180	1.0	1.5	180	1.2	1.5	150	1.3	1.5	170	1.3	1.5
	230	0.8	1.2	240	0.8	1.2	240	0.8	1.3	240	1.0	1.3	250	1.1	1.3	300	1.1	1.3
	290	0.6	1.0	300	0.6	1.0	300	0.6	1.1	—	—	—	350	0.9	1.1	450	0.8	1.0
	180	1.0	1.2	180	1.0	1.2	180	1.0	1.3	180	1.2	1.3	150	1.3	1.3	170	1.3	1.3
	230	0.8	1.0	240	0.8	1.0	240	0.8	1.1	240	1.0	1.1	250	1.1	1.1	300	1.1	1.1
	290	0.6	0.8	300	0.6	0.8	300	0.6	0.9	—	—	—	350	0.9	0.9	450	0.8	0.8
	180	1.2	1.2	180	1.2	1.2	180	1.2	1.3	180	*1.4	1.3	150	*1.5	1.3	170	*1.5	1.3
	230	1.0	1.0	240	1.0	1.0	240	1.0	1.1	240	1.2	1.1	250	*1.3	1.1	300	*1.3	1.1
	290	0.8	0.8	300	0.8	0.8	300	0.8	0.9	—	—	—	350	1.1	0.9	450	1.0	0.8
	180	1.2	1.6	180	1.2	1.6	180	1.2	1.7	180	1.4	1.7	150	1.5	1.7	170	1.5	1.7
	230	1.0	1.4	240	1.0	1.4	240	1.0	1.5	240	1.2	1.5	250	1.3	1.5	300	1.3	1.5
	290	0.8	1.2	300	0.8	1.2	300	0.8	1.3	—	—	—	350	1.1	1.3	450	1.0	1.2
	180	1.0	1.4	180	1.0	1.4	180	1.0	1.5	180	1.2	1.5	150	1.3	1.5	170	1.3	1.5
	230	0.8	1.2	240	0.8	1.2	240	0.8	1.3	240	1.0	1.3	250	1.1	1.3	300	1.1	1.3
	290	0.6	1.0	300	0.6	1.0	300	0.6	1.1	—	—	—	350	0.9	1.1	450	0.8	1.0
	180	1.2	0.6	180	1.2	0.6	180	1.2	0.6	180	1.2	0.6	150	1.2	0.6	170	1.2	0.6
	230	1.0	0.4	240	1.0	0.4	240	1.0	0.4	240	1.0	0.4	250	1.0	0.4	300	1.0	0.4
	290	0.8	0.3	300	0.8	0.3	300	0.8	0.3	—	—	—	350	0.8	0.3	450	0.8	0.3
	180	0.6	1.0	180	0.6	1.0	180	0.6	1.1	180	0.8	1.1	150	0.9	1.1	170	0.9	1.1
	230	0.5	0.8	240	0.5	0.8	240	0.5	0.9	240	0.6	0.9	250	0.7	0.9	300	0.7	0.9
	290	0.4	0.6	300	0.4	0.6	300	0.4	0.7	—	—	—	—	—	—	—	—	—

NOTE FOR PROGRAMMING



When using the AJX, please programme as an R3 radius cutter. The approximate uncut portions for the programme are as follows.

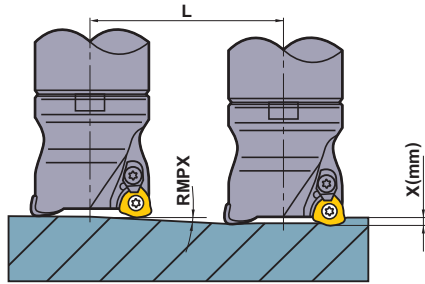
Insert size	Breaker	Approx. RE(mm)	Uncut portion K(mm)
06	FT / JM	2.0	0.33
	JL	2.5	0.32
08	FT / JM	2.5	0.46
	JL	2.0	0.40
09	FT / JM	3.0	0.47
	JL	3.0	0.46
12	FT / JM / ST	3.0	0.63
	JL	3.0	0.53
14	FT / JM / ST	3.0	0.64
	JL	3.0	0.55

(Note.) The uncut portion may change slightly depending on cutting conditions.

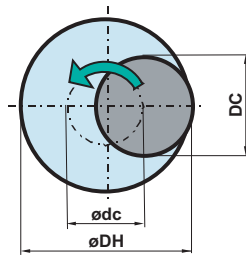
High Feed Radius Milling Cutter

MAXIMUM CAPACITIES BY MODE

RAMPING



HELICAL DRILLING



- How to derive a locus of the centre of the tool.

$$\phi_{dc} = \phi_{DH} - DC$$

ϕ_{dc} : Locus of the center of the tool
 ϕ_{DH} : Desired hole diameter
 DC : Tool diameter
- For the depth of cut per pass, refer to the cutting conditions above for helical drilling.
- Set the machine spindle revolution so that the tool is rotating and cutting in a down cut direction.

- When ramping and helical cutting, please apply a lower feed (60% of the calculated feed rate or less).
- When drilling, please set the feed in the axial direction at 0.2mm/rev or less.
- The long chips generated can disperse, ensure that adequate safety precautions are taken.

Type	Order Number	DCX (mm)	DC (mm)	APMX (mm)		RMPX	Ramping				Helical Drilling		AZ (mm)
				FT/JM/ST Breaker	JL Breaker		L (mm) Required distance for X mm depth	DH (mm)					
								X=1	X=1.2	X=1.5	X=2	Min	
Shank type/Screw-in type	AJX06R162	16	8	1	0.6	3°	19.1	—	—	—	23	29	0.3
	AJX06R172	17	9	1	0.6	2° 30'	22.9	—	—	—	25	31	0.3
	AJX06R203	20	12	1	0.6	1° 30'	38.2	—	—	—	31	37	0.3
	AJX06R223	22	14	1	0.6	1°	57.3	—	—	—	35	41	0.3
	AJX08R202	20	11	1.5	0.9	3° 30'	16.3	19.6	24.5	—	27	36	0.5
	AJX08R222	22	13	1.5	0.9	3°	19.1	22.9	28.6	—	31	40	0.5
	AJX08R253	25	16	1.5	0.9	2°	28.6	34.4	43	—	37	46	0.5
	AJX08R283	28	19	1.5	0.9	1° 42'	33.7	40.4	50.5	—	43	52	0.5
	AJX09R252	25	14	2	1.2	4°	14.3	17.2	21.5	28.6	33	46	1
	AJX09R282	28	17	2	1.2	3°	19.1	22.9	28.6	38.1	39	52	1
	AJX09R303	30	19	2	1.2	2° 42'	21.2	25.4	31.8	42.4	43	56	1
	AJX09R323	32	21	2	1.2	2° 30'	22.9	27.5	34.4	45.8	47	60	1
	AJX09R353	35	24	2	1.2	2°	28.6	34.4	43	57.3	53	66	1
	AJX09R404	40	29	2	1.2	1° 30'	38.2	45.8	57.3	76.4	63	76	1
	AJX12R302	30	18	2	1.2	4° 30'	12.7	15.2	19	25.4	39	56	1.5
	AJX12R322	32	20	2	1.2	4°	14.3	17.2	21.4	28.6	41	60	1.5
	AJX12R352	35	23	2	1.2	3° 30'	16.3	19.6	24.5	32.7	47	66	1.5
	AJX12R402	40	28	2	1.2	3°	19.1	22.9	28.6	38.2	57	76	1.5
	AJX12R403	40	28	2	1.2	3°	19.1	22.9	28.6	38.2	57	76	1.5
	AJX14R503	50	38	2	1.2	4° 12'	13.6	16.3	20.4	27.2	72	96	2
	AJX14R634	63	51	2	1.2	2° 48'	20.4	24.5	30.7	40.9	98	122	2
Arbor type	AJX09-050	50	40	2	1.2	1° 06'	52.1	62.5	78.1	104.2	83	96	1
	AJX09R05005B	50	40	2	1.2	1° 06'	52.1	62.5	78.1	104.2	83	96	1
	AJX12-050	50	38	2	1.2	2°	28.6	34.4	43	57.3	77	96	1.5
	AJXR050	50	38	2	1.2	2°	28.6	34.4	43	57.3	77	96	1.5
	AJX12-063	63	51	2	1.2	1° 30'	38.2	45.8	57.3	76.4	103	122	1.5
	AJXR063	63	51	2	1.2	1° 30'	38.2	45.8	57.3	76.4	103	122	1.5
	AJXR080	80	68	2	1.2	1° 06'	52.1	62.5	78.1	104.2	137	156	1.5
	AJXR100	100	88	2	1.2	0° 48'	71.6	85.9	107.4	143.2	177	196	1.5
	AJX14-063	63	51	2	1.2	2° 48'	20.4	24.5	30.7	40.9	98	122	2
	AJXR063	63	51	2	1.2	2° 48'	20.4	24.5	30.7	40.9	98	122	2
	AJXR080	80	68	2	1.2	1° 48'	31.8	38.2	47.7	63.6	132	156	2
	AJXR100	100	88	2	1.2	1° 12'	47.7	57.3	71.6	95.5	172	196	2
	AJXR125	125	113	2	1.2	0° 48'	71.6	85.9	107.4	143.2	222	246	2
	AJXR160	160	148	2	1.2	0° 30'	114.6	137.5	171.9	229.2	292	316	2

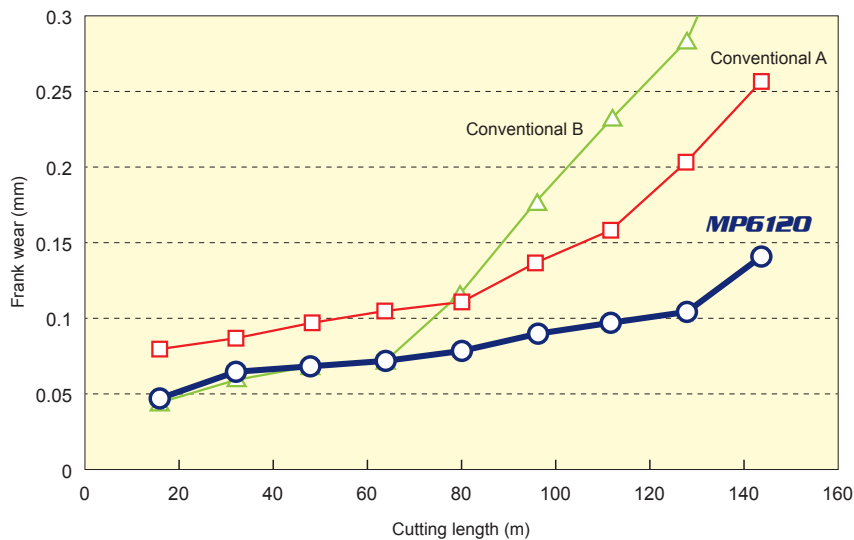
DCX = Maximum hole diameter **DC** = Cutting diameter
APMX = Max. depth of cut **RMPX** = Ramping angle

DH = Desired hole diameter
AZ = Plunge depth maximum

Cutting Performance

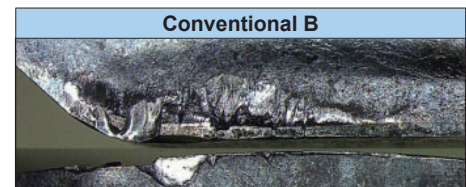
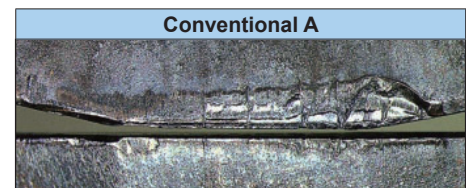
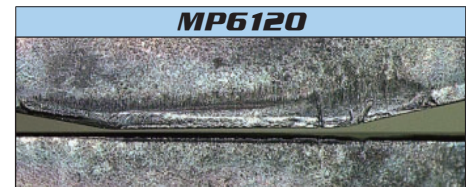
General steel machining

MP6120 provides superior resistance to thermal cracking and welding



<Cutting conditions>

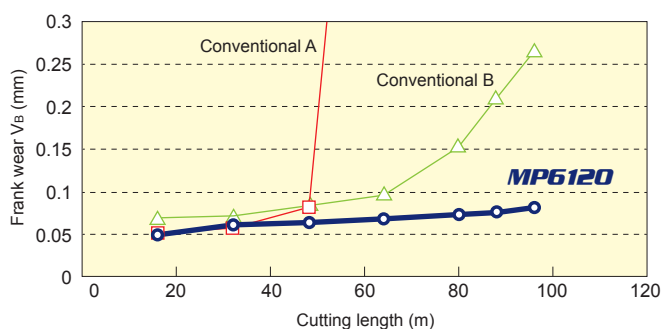
Tool : AJX14-063A04R
 Insert : JDMT140520ZDSR-JM
 Cutting speed : 200 m/min
 Feed : 1.5 mm/t
 Depth of cut : ap=1.0 mm ae=50 mm
 Cutting mode : Dry



Cutting length : 140 m

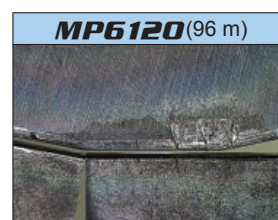
MP6120 achieves long tool life in low to middle speed cutting.

CVD coated FH7020 is recommended for higher speeds that exceed 200m/min.



<Cutting conditions>

Workpiece : JIS SCM440
 Tool : AJX14-063A04R
 Insert : JDMW140520ZDSR-FT
 Cutting speed : 200 m/min
 Feed : 1.5 mm/t
 Depth of cut : ap=1.0 mm
 ae=50 mm
 Cutting mode : Dry



MP6120 (96 m)



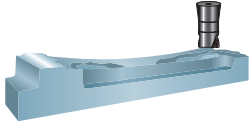
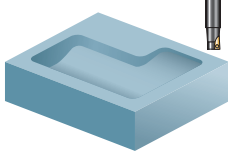
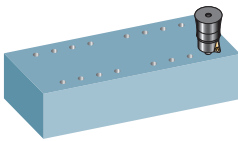
Conventional A (59 m)

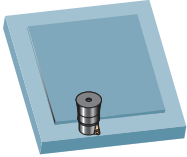
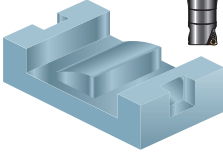
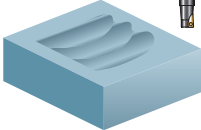


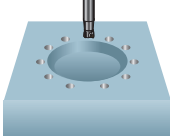
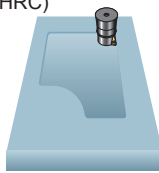
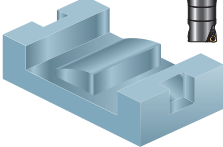
Conventional B (96 m)

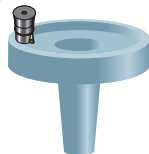
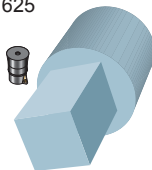
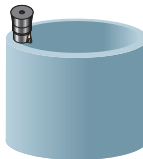
High Feed Radius Milling Cutter

APPLICATION EXAMPLES

Tool (Grade)		AJX14-063A04R FT breaker (FH7020)	AJX09R323SA32S FT breaker (VP15TF)	AJX14R08004D ST breaker (FH7020)
Workpiece		JIS S55C (220HB) 	JIS SKD11 (56HRC) 	JIS S50C (200HB) 
	Component	Resin mold	Press mold	Resin mold
Cutting Conditions	Cutting Speed (mm ⁻¹)	178 m/min(900 min ⁻¹)	100 m/min(995 min ⁻¹)	150 m/min(597 min ⁻¹)
	Feed (mm/t)	4000 mm/min(1.1 mm/t)	1200 mm/min(0.4 mm/t)	4776 mm/min(2.0 mm/tooth)
	Depth of Cut (mm)			
	ap (Axial)	1.5	0.35	1.5
	ae (Radial)	45	18	50
	Overhang length (mm)	248	170	213
Cutting mode		Air blow	Air blow	Air blow
Results		Tool life increased by 50% and gave an excellent reduction in costs.	Use of the AJX extra fine pitch type allows for high feed machining and increases the metal removal rate by 44%. Longer insert life and improved productivity.	The workpiece was perforated and conventional inserts suffered from fracturing. The ST chipbreaker with tougher cutting edges did not fracture, making unmanned machining possible.

Tool (Grade)		AJX14R06304B FT breaker (MP7130)	AJX14R08005D FT breaker (FH7020)	AJX12R403SA32S ST breaker (VP15TF)
Workpiece		SUS304 (200HB) 	JIS FC300 	JIS SKD61 (48-52HRC) 
	Component	Electronics part manufacturing component	Press mold	Forging mold
Cutting Conditions	Cutting Speed (mm ⁻¹)	178 m/min(900 min ⁻¹)	196 m/min(780 min ⁻¹)	60 m/min(477 min ⁻¹)
	Feed (mm/t)	4000 mm/min(1.1 mm/t)	4000 mm/min(1.0 mm/t)	1145 mm/min(0.8 mm/t)
	Depth of Cut (mm)			
	ap (Axial)	1	2	1
	ae (Radial)	60	50	30
	Overhang length (mm)	138	298	200
Cutting mode		Dry	Air blow	Air blow
Results		Although the work was a thin stainless plate, AJX displayed stable cutting performance without suffering from vibrations. AJX achieved 3 times longer tool life than a conventional product.	Enabled a stable cutting performance despite an uneven machining allowance. FH7020 achieved a longer tool life due to less crater wear of the insert.	When machining recycled moulds with holes or welds, conventional inserts suffered from fracturing. The ST chipbreaker with tougher cutting edges suffered no sudden fracturing.

Tool (Grade)		AJX09R252SA25S JM breaker (FH7020)	AJX08R222SA20L FT breaker (VP15TF)	AJX14R10006D JM breaker (MP6120)
Workpiece		PX-5 (33HRC) 	DH31-S (48HRC) 	SKT4 (35HRC) 
	Component	Resin mold	Die casting mold	Press mold
Cutting Conditions	Cutting Speed (mm ⁻¹)	150 m/min(597 min ⁻¹)	70 m/min(1013 min ⁻¹)	100 m/min(318 min ⁻¹)
	Feed (mm/t)	4776 mm/min(2.0 mm/t)	1620 mm/min(0.8 mm/t)	760 mm/min(0.4 mm/t)
	Depth of Cut (mm)			
	ap (Axial)	0.8	1	1.5
	ae (Radial)	12	9	70
	Overhang length (mm)	170	200	80
Cutting mode		Air blow	Air blow	Air blow
Results		Possible to use an HSK63 high-speed machining center to full capacity. No fear of workpiece distortion thanks to low cutting resistance and low heat generation of the JM chipbreaker.	High efficiency machining possible even on a high speed machining centre with a BT40 main spindle. Manufacturing costs have been slashed by directly machining quenched steel.	Achieved twice the tool life compared to a conventional product.

Tool (Grade)		AJX12R08006D JL breaker (MP9130)	AJX12-080A06R JL breaker (MP9120)	AJX12-080A06R JL breaker (MP9130)
Workpiece		Co-Cr Alloy 	INCONEL 625 	Ti-6Al-4V 
Component		Medical component	Aerospace component	Aerospace component
Cutting Conditions	Cutting Speed (mm ⁻¹)	50 m/min(240 min ⁻¹)	35 m/min(140 min ⁻¹)	50 m/min(240 min ⁻¹)
	Feed (mm/t)	864 mm/min(0.6 mm/t)	501 mm/min(0.6 mm/t)	454 mm/min(0.38 mm/t)
	Depth of Cut (mm)	ap (Axial)	0.5	0.8
		ae (Radial)	60	65
	Overhang length (mm)	—	—	—
Cutting mode		Wet	Wet	Wet
Results		The reduced wear displayed by MP9130 grade with JL breaker gave an increase in efficiency of 40%.	JL breaker + MP9120 achieves 1.5 times longer tool life compared to conventional products.	The increased tool life and reduced wear displayed by MP9130 grade with JL breaker gave an increase in efficiency of 40%.



High Feed Radius Milling Cutter

For Your Safety

●Don't handle inserts and chips without gloves. ●Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage. ●Please use safety covers and wear safety glasses. ●When using compounded cutting oils, please take fire precautions. ●When attaching inserts or spare parts, please use only the correct wrench or driver. ●When using rotating tools, please make a trial run to check run-out, vibration and abnormal sounds etc.

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(Tools specifications subject to change without notice.)