

High Feed Radius Milling Cutter

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

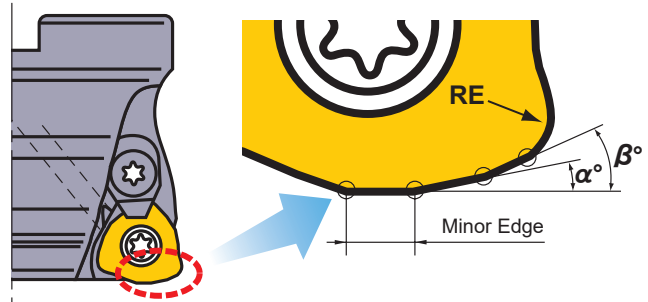
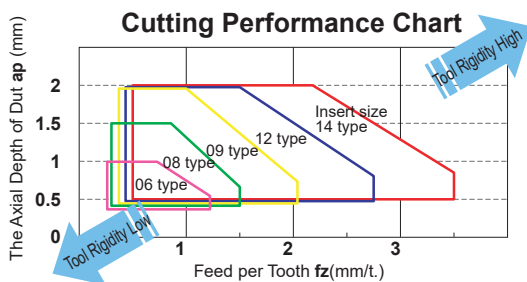
High Feed Radius Milling Cutter

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.



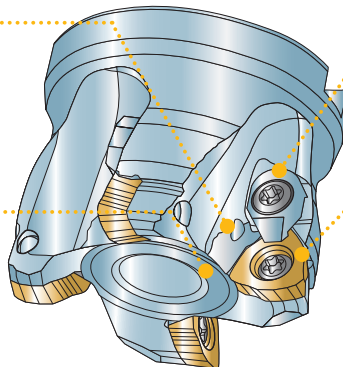
High Reliability Cutter Body

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 alloys. The special surface treatment applied to the body increases corrosion and friction resistance.



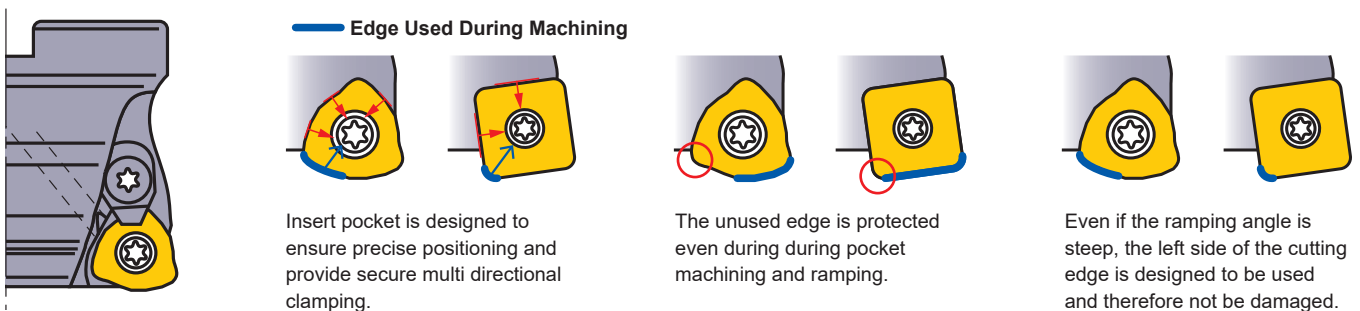
Highly Rigid Clamping

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

Cost-effective Insert

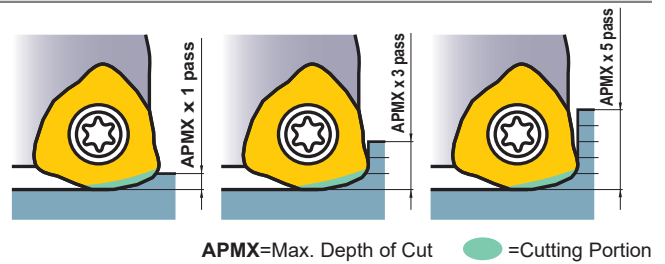
Specially designed triangular style insert geometry for cost effective milling.

Triangular Insert Shape is Ideal for Safe Multi-Functional Milling



Anti Vibration Properties

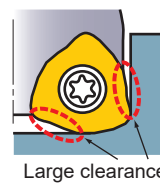
The AJX always uses the same portion of the cutting edge thereby maintaining stable cutting even when the tool overhang is long.



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

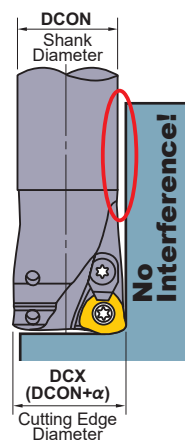
	Max. Ramping Angle
AJX	2.8°
4 Corner Insert	1°
Conventional Products	1°

*With DCX= ø63 mm type

No Workpiece Material Interference

The AJX shank type is designed with an offset cutting diameter for workpiece material and chip clearance as shown.

Ideal for deep cutting and reduces the need for special long tools.



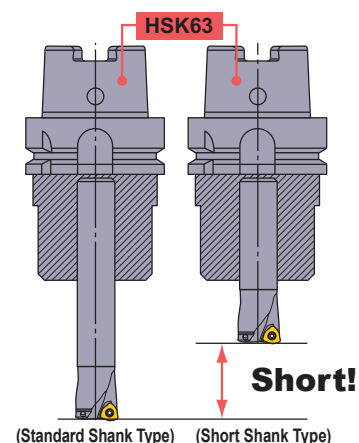
(mm)		
Order Number	DCX	DCON
AJX06R172SA16	17	16
AJX06R223SA20	22	20
AJX08R222SA20	22	20
AJX08R283SA25	28	25
AJX09R282SA25	28	25
AJX09R353SA32	35	32
AJX09R404SA32	40	32
AJX12R352SA32	35	32
AJX12R40SA32	40	32
AJX14R503SA42	50	42
AJX14R634SA42	63	42

Please refer to page 9 for details of the holder.

HSK63 type Short Shanks

Short shank type AJX06R○○○SA○○SS end mills are available. Although HSK63 holders are already short, the use of the short shank type AJX permits minimum overhang for maximum rigidity.

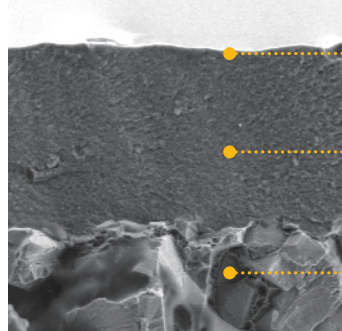
The minimum tool overhang length enables stable, high efficiency machining even on high-speed machining centres.



PVD Coated Grade for Difficult-to-cut Materials

NEW MP9140

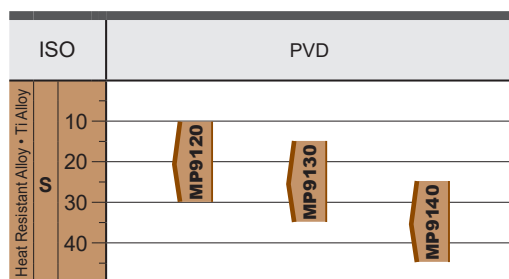
MP9140 Has Excellent Welding Resistance
Due to Smoothened Surface



Smooth surface are excellent in proving welding resistance.

The high Al-rich AlTiN coating succeeds in dramatically improving wear and heat resistance.

Special cemented carbide substrate with improved fracture resistance.

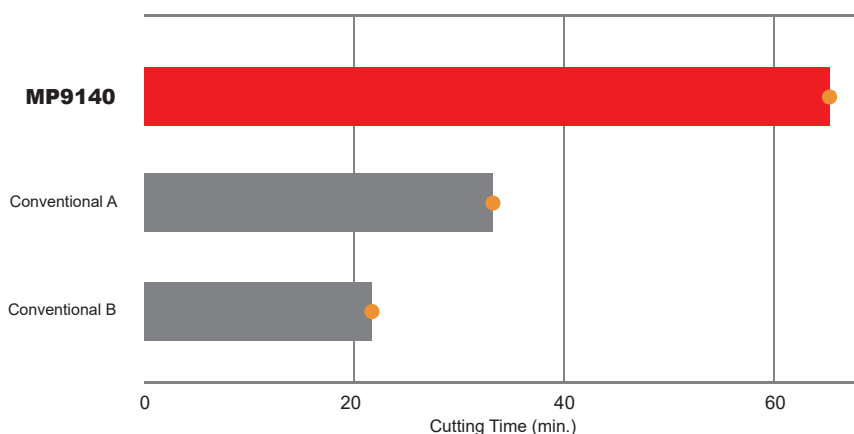


Grade	Features
MP9120	Focus on Wear Resistance
MP9130	Standard Grade
MP9140	Focus on Fracture Resistance

Cutting Performance

Comparison of Fracture Resistance by Titanium Alloy Machining.

MP9140 achieved triple more tool life than conventional product B.



<Cutting Conditions>
 Workpiece Material : Ti-6Al-4V
 Tool : AJX06R162AM0830
 Insert : JOMT06T216ZZER-JL
 Cutting Speed : $v_c=60$ m/min
 Feed per Tooth : $f_z=0.5$ mm/t
 Depth of Cut : $a_p=0.5$ mm
 Width of Cut : $a_e=8$ mm, 16 mm
 Cutting Mode : Wet Cutting

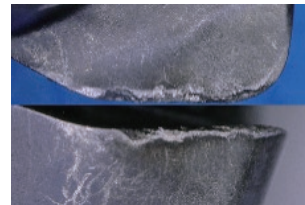
MP9140



Conventional A

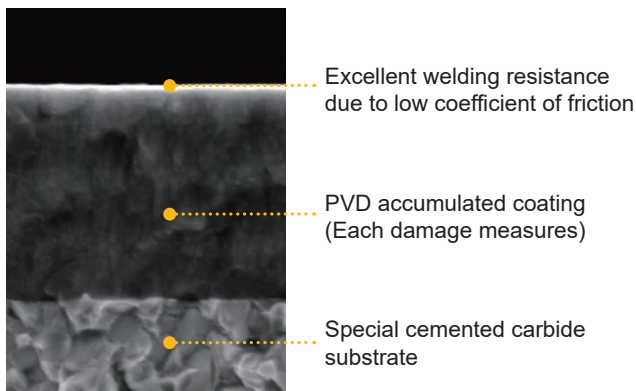


Conventional B

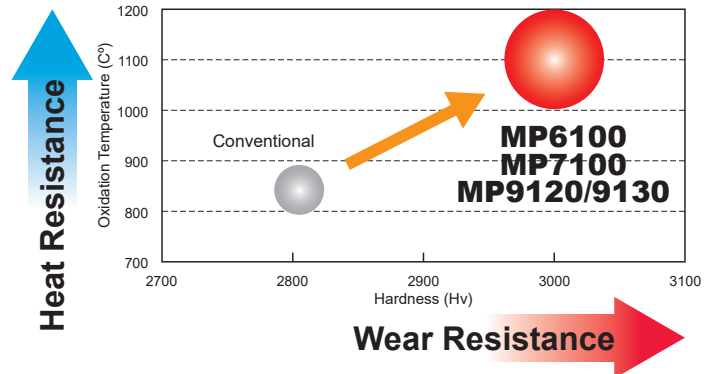


Insert Grades for a Wide Range of Materials

Al-Ti-Cr-N base PVD Accumulated Coating



Dramatically Improving the Heat and Wear Resistance!



Excellent Welding Resistance due to Low Coefficient Friction!

	Workpiece Material	Grade	Coefficient of Friction		
			Measured at 600 Degrees		
			S55C	SUS304	Ti-6Al-4V
P	Carbon Steels, Alloy Steels	MP6100	0.4		
M	Stainless Steels	MP7100		0.5	
S	Titanium Alloys, Heat Resistant Alloys	MP9120/9130			0.3
	Conventional		0.7	0.7	0.7

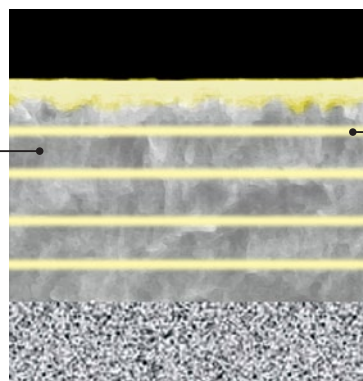
TOUGH-Σ Technology

A fusion of the separate coating technologies; PVD and multilayering 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.

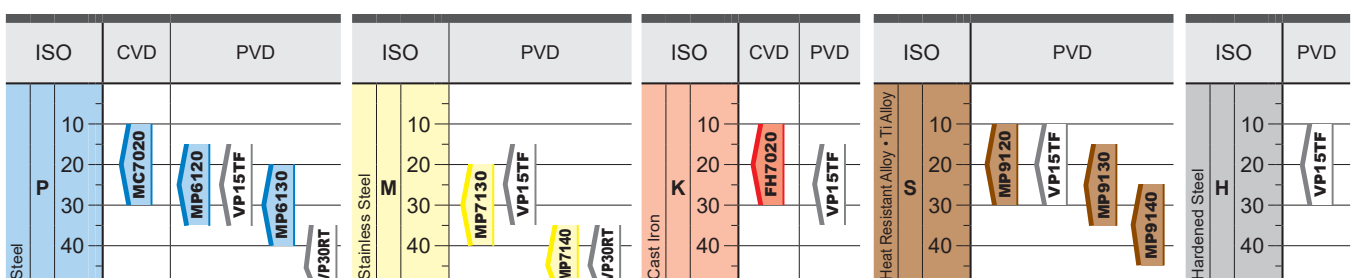


*Graphical Representation.

Best Layer of Each Workpiece Material

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

Application Range



Wide Selection of Inserts

Focus on Cutting Edge Strength

ST

Strong Cutting Edge Type Chip Breaker

P

M

K

S

H

Stable Machining even on Interrupted Workpiece Material 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 Chip Breaker

P

M

K

S

H

First Recommended Chip Breaker for General Cutting

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

JM

Sharp Cutting Edge Type Chip 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 Chip Breaker (For Difficult-to-cut Materials)

P

M

K

S

H

Optimised for Difficult-to-cut Materials

The optimised 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 17.

Can Continue Machining

AJX + JL Breaker

Conventional A

Conventional B

0 1 2 3 4 5 6 7

Tool Length (m)

<Cutting Conditions>

Tool : DCX=ø63-5 teeth

Workpiece : Ti-6Al-4V

Material : Ti-6Al-4V

Revolution : n=202 min⁻¹

Cutting Speed : vc=40 m/min

Table Feed : vf=606 mm/min

Feed per Tooth : fz=0.6 mm/t

Depth of Cut : ap=1.0 mm

Width of Cut : ae=45 mm

Cutting Mode : Wet Cutting

Focus on Sutting Edge Sharpness

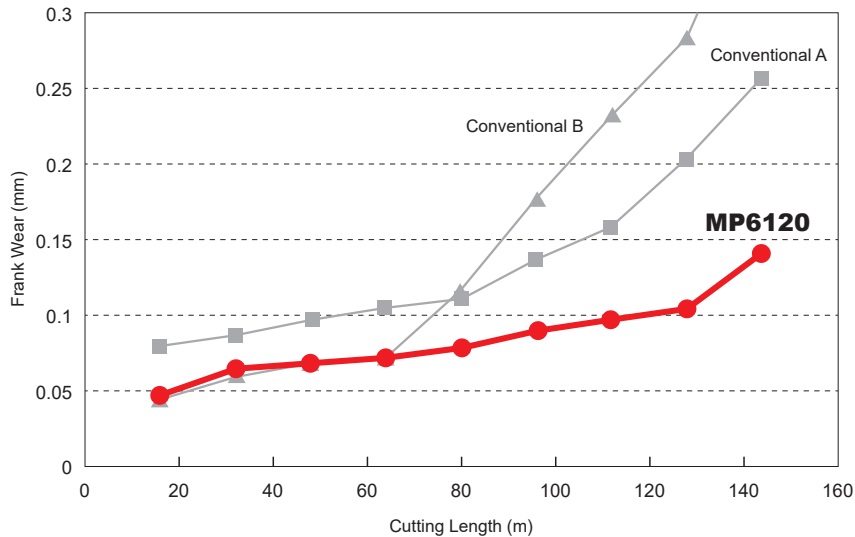
Workpiece Material	Cutting Conditions		
	Light	General	Interrupted
P K H	JM	FT	ST
M	JL	JM FT	ST
S	JL	JM	FT

5

Cutting Performance

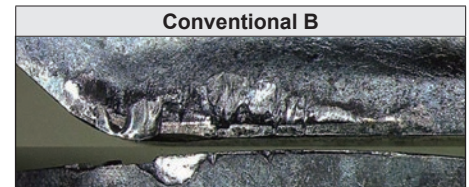
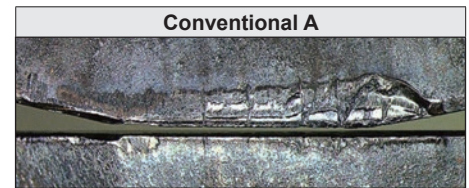
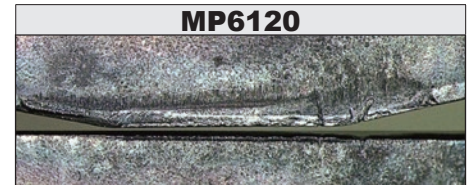
General Steel Machining

MP6120 Provides Superior Resistance to Thermal Cracking and Welding



<Cutting Conditions>

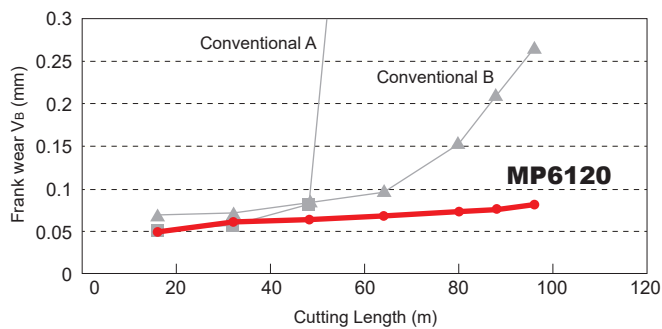
Tool : AJX14-063A04R
 Insert : JDMT140520ZDSR-JM
 Cutting Speed : $vc=200$ m/min
 Feed per Tooth : $fz=1.5$ mm/t
 Depth of Cut : $ap=1.0$ mm
 Width of Cut : $ae=50$ mm
 Cutting Mode : Dry Cutting



Cutting Length : 140 m

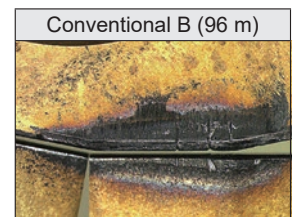
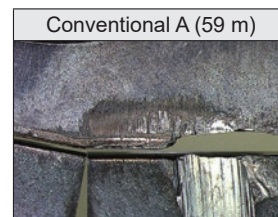
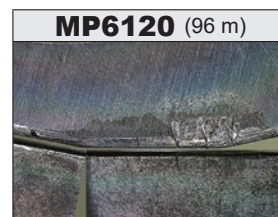
MP6120 Achieves Long Tool Life in Low to Middle Speed Cutting.

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



<Cutting Conditions>

Workpiece Material : JIS SCM440
 Tool : AJX14-063A04R
 Insert : JDMW140520ZDSR-FT
 Cutting Speed : $vc=200$ m/min
 Feed per Tooth : $fz=1.5$ mm/t
 Depth of Cut : $ap=1.0$ mm
 Width of Cut : $ae=50$ mm
 Cutting Mode : Dry Cutting



MULTI-FUNCTIONAL MILLING



Roughing

AJX

P

M

K

N

S

H



Fig.1

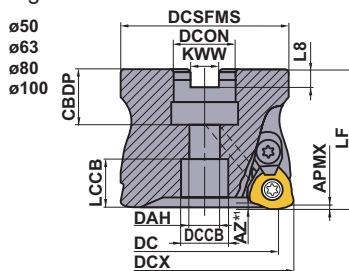
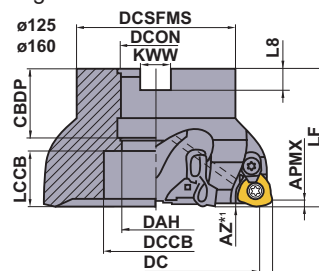


Fig.2



Right hand tool holder only.

(mm)

DCX		Set Bolt	Geometry	
DCON inch size	DCON mm size			
φ50, φ63	φ50, φ63	HSC10030H	①	
	φ80	HSC12035H		
φ80, φ100	φ100	HSC16040H		
φ125	φ125, φ160	MBA20040H	②	
φ160		MBA24045H		

(mm)

■ Arbor Type

With Coolant Hole

AJX09
GAMP :

GAMF :

AJX12
GAMP :

GAMF :

AJX14
GAMP :

GAMF :

DCX=mm size, DCON=inch size

DCX	Order Number	Stock	*2	DC	LF	DCON	WT (kg)	APMX	RMPX	Fig.	Insert Type
		R	No.T								
50	AJX12R05003B	●	3	38.3	50	22.225	0.4	1.2	2°	1	JDM 1204
50	AJX12R05004B	●	4	38.3	50	22.225	0.4	1.2	2°	1	JDM 1204
50	AJX09R05005B	●	5	40.0	50	22.225	0.5	1.2	1.1°	1	JDM 09T3
63	AJX14R06303B	●	3	51.1	50	22.225	0.7	1.2	2.8°	1	JDM 1405
63	AJX14R06304B	●	4	51.1	50	22.225	0.7	1.2	2.8°	1	JDM 1405
63	AJX12R06305B	●	5	51.3	50	22.225	0.9	1.2	1.5°	1	JDM 1204
80	AJX14R08004D	●	4	68.1	63	31.75	1.3	1.2	1.8°	1	JDM 1405
80	AJX14R08005D	●	5	68.1	63	31.75	1.3	1.2	1.8°	1	JDM 1405
80	AJX12R08006D	●	6	68.3	63	31.75	1.7	1.2	1.1°	1	JDM 1204
100	AJX14R10005D	●	5	88.1	63	31.75	2.4	1.2	1.2°	1	JDM 1405
100	AJX14R10006D	●	6	88.1	63	31.75	2.4	1.2	1.2°	1	JDM 1405
100	AJX12R10007D	●	7	88.3	63	31.75	2.9	1.2	0.8°	1	JDM 1204
125	AJX14R12505E	●	5	113.2	63	38.1	3.3	1.2	0.8°	2	JDM 1405
125	AJX14R12507E	●	7	113.2	63	38.1	3.3	1.2	0.8°	2	JDM 1405
160	AJX14R16006F	●	6	148.2	63	50.8	5.0	1.2	0.5°	2	JDM 1405
160	AJX14R16008F	●	8	148.2	63	50.8	5.0	1.2	0.5°	2	JDM 1405

DCX=mm size, DCON=mm size

(mm)

DCX	Order Number	Stock	*2	DC	LF	DCON	WT (kg)	APMX	RMPX	Fig.	Insert Type
		R	No.T								
50	AJX12-050A03R	●	3	38.3	50	22	0.4	1.2	2°	1	JDM○1204
50	AJX12-050A04R	●	4	38.3	50	22	0.4	1.2	2°	1	JDM○1204
50	AJX09-050A05R	●	5	40.0	50	22	0.5	1.2	1.1°	1	JDM○09T3
63	AJX14-063A03R	●	3	51.1	50	22	0.7	1.2	2.8°	1	JDM○1405
63	AJX14-063A04R	●	4	51.1	50	22	0.7	1.2	2.8°	1	JDM○1405
63	AJX12-063A05R	●	5	51.3	50	22	0.9	1.2	1.5°	1	JDM○1204
80	AJX14-080A04R	●	4	68.1	50	27	1.2	1.2	1.8°	1	JDM○1405
80	AJX14-080A05R	●	5	68.1	50	27	1.2	1.2	1.8°	1	JDM○1405
80	AJX12-080A06R	●	6	68.3	50	27	1.2	1.2	1.1°	1	JDM○1204
100	AJX14-100A05R	●	5	88.1	63	32	2.4	1.2	1.2°	1	JDM○1405
100	AJX14-100A06R	●	6	88.1	63	32	2.4	1.2	1.2°	1	JDM○1405
100	AJX12-100A07R	●	7	88.3	63	32	2.6	1.2	0.8°	1	JDM○1204
125	AJX14-125B05R	●	5	113.2	63	40	3.3	1.2	0.8°	2	JDM○1405
125	AJX14-125B07R	●	7	113.2	63	40	3.3	1.2	0.8°	2	JDM○1405
160	AJX14-160B06R	●	6	148.2	63	40	5.0	1.2	0.5°	2	JDM○1405
160	AJX14-160B08R	●	8	148.2	63	40	5.0	1.2	0.5°	2	JDM○1405

*1 Refer to page 17, for the maximum drilling depth (AZ).

*2 Number of Teeth

Note 1) Refer to page 17, for the max. depth of cut (**APMX**) and maximum drilling depth (**AZ**).

● : Inventory maintained in Japan.

Mounting Dimensions

DCX = mm size, DCON = inch size

(mm)

DCX	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
50	AJX12R05003B	22.225	19	11	17	18.28	47	8.4	5	1
50	AJX12R05004B	22.225	19	11	17	18.28	47	8.4	5	1
50	AJX09R05005B	22.225	19	11	17	18.31	47	8.4	5	1
63	AJX14R06303B	22.225	19	11	17	18.16	60	8.4	5	1
63	AJX14R06304B	22.225	19	11	17	18.16	60	8.4	5	1
63	AJX12R06305B	22.225	19	11	17	18.28	60	8.4	5	1
80	AJX14R08004D	31.75	32	17	26	20.16	76	12.7	8	1
80	AJX14R08005D	31.75	32	17	26	20.16	76	12.7	8	1
80	AJX12R08006D	31.75	32	17	26	20.28	76	12.7	8	1
100	AJX14R10005D	31.75	32	17	26	20.16	96	12.7	8	1
100	AJX14R10006D	31.75	32	17	26	20.16	96	12.7	8	1
100	AJX12R10007D	31.75	32	17	26	20.28	96	12.7	8	1
125	AJX14R12505E	38.1	40	—	56	22.14	100	15.9	10	2
125	AJX14R12507E	38.1	40	—	56	22.14	100	15.9	10	2
160	AJX14R16006F	50.8	43	—	72	19.14	100	19.1	11	2
160	AJX14R16008F	50.8	43	—	72	19.14	100	19.1	11	2

DCX = mm size, DCON = mm size

(mm)

DCX	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
50	AJX12-050A03R	22	20	11	17	17.28	47	10.4	6.3	1
50	AJX12-050A04R	22	20	11	17	17.28	47	10.4	6.3	1
50	AJX09-050A05R	22	20	11	17	17.31	47	10.4	6.3	1
63	AJX14-063A03R	22	20	11	17	17.16	60	10.4	6.3	1
63	AJX14-063A04R	22	20	11	17	17.16	60	10.4	6.3	1
63	AJX12-063A05R	22	20	11	17	17.28	60	10.4	6.3	1
80	AJX14-080A04R	27	23	13	19	16.16	76	12.4	7.0	1
80	AJX14-080A05R	27	23	13	19	16.16	76	12.4	7.0	1
80	AJX12-080A06R	27	23	13	19	16.28	76	12.4	7.0	1
100	AJX14-100A05R	32	26	17	26	26.16	96	14.4	8.0	1
100	AJX14-100A06R	32	26	17	26	26.16	96	14.4	8.0	1
100	AJX12-100A07R	32	26	17	26	26.28	96	14.4	8.0	1
125	AJX14-125B05R	40	40	—	56	22.14	100	16.4	9.0	2
125	AJX14-125B07R	40	40	—	56	22.14	100	16.4	9.0	2
160	AJX14-160B06R	40	40	—	56	22.14	100	16.4	9.0	2
160	AJX14-160B08R	40	40	—	56	22.14	100	16.4	9.0	2

Spare Parts

(mm)

Tool Holder Type	 *				
	Clamp Screw	Clamp Bridge	Clamp Bridge Screw	Spring	Wrench
AJX09	TS351	AMS3	AJS3010T10	ASS2	TKY10D
AJX12	TS43	AMS4	AJS4012T15	ASS2	TKY15T
AJX14	TS54	AMS5	AJS5014T25	ASS3	TKY25T

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

Dimensions and Symbols (ISO 13399 Compliance)

DCX = Cutting Diameter Max.

DC = Cutting Diameter

LF = Functional Length

DCON = Connection Diameter

WT = Weight of Item

APMX = Depth of Cut Max.

RMPX = Ramping Angle Max.

CBDP = Connection Bore Depth

DAH = Diameter Access Hole

DCCB = Counterbore Diameter Connection Bore

LCCB = Counterbore Depth Connection Bore

DCSFMS = Contact Surface Diameter Machine Side

KWW = Keyway Width

High Feed Radius Milling Cutter



Fig.1

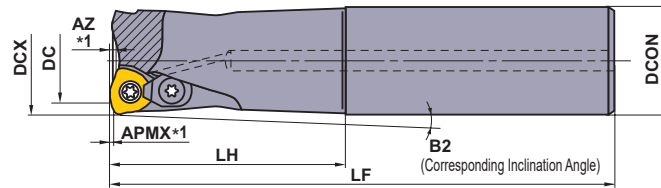
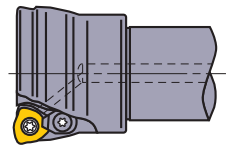


Fig.2



Shank Type

With Coolant Hole

Right hand tool holder only.

(mm)

DCX	Order Number	Stock	*2 No.T	LF	DC	LH	DCON	B2	APMX	RMPX	Fig.	Insert Type
		R										
16	AJX06R162SA16SS	●	2	70	8.9	20	16	3.5°	0.6	3°	1	JOM06T2
16	AJX06R162SA16S	●	2	110	8.9	30	16	2.25°	0.6	3°	1	JOM06T2
16	AJX06R162SA16L	●	2	150	8.9	70	16	0.93°	0.6	3°	1	JOM06T2
16	AJX06R162SA16EL	●	2	200	8.9	100	16	0.64°	0.6	3°	1	JOM06T2
17	AJX06R172SA16SS	●	2	70	9.9	20	16	—	0.6	2.5°	1	JOM06T2
17	AJX06R172SA16S	●	2	110	9.9	20	16	—	0.6	2.5°	1	JOM06T2
17	AJX06R172SA16L	●	2	150	9.9	20	16	—	0.6	2.5°	1	JOM06T2
17	AJX06R172SA16EL	●	2	200	9.9	20	16	—	0.6	2.5°	1	JOM06T2
20	AJX08R202SA20S	●	2	130	11.4	50	20	1.34°	0.9	3.5°	1	JOM0803
20	AJX06R203SA20S	●	3	130	12.9	50	20	1.31°	0.6	1.5°	1	JOM06T2
20	AJX08R202SA20L	●	2	180	11.4	100	20	0.65°	0.9	3.5°	1	JOM0803
20	AJX06R203SA20L	●	3	180	12.9	100	20	0.64°	0.6	1.5°	1	JOM06T2
20	AJX08R202SA20EL	●	2	250	11.4	130	20	0.5°	0.9	3.5°	1	JOM0803
22	AJX08R222SA20S	●	2	130	13.4	30	20	—	0.9	3°	1	JOM0803
22	AJX06R223SA20S	●	3	130	14.9	30	20	—	0.6	1°	1	JOM06T2
22	AJX08R222SA20L	●	2	180	13.4	30	20	—	0.9	3°	1	JOM0803
22	AJX06R223SA20L	●	3	180	14.9	30	20	—	0.6	1°	1	JOM06T2
22	AJX08R222SA20EL	●	2	250	13.4	30	20	—	0.9	3°	1	JOM0803
25	AJX09R252SA25S	●	2	140	14.9	60	25	1.1°	1.2	4°	1	JDM09T3
25	AJX08R253SA25S	●	3	140	16.4	60	25	1.1°	0.9	2°	1	JOM0803
25	AJX09R252SA25L	●	2	200	14.9	120	25	0.54°	1.2	4°	1	JDM09T3
25	AJX08R253SA25L	●	3	200	16.4	120	25	0.54°	0.9	2°	1	JOM0803
25	AJX09R252SA25EL	●	2	300	14.9	180	25	0.36°	1.2	4°	1	JDM09T3
28	AJX09R282SA25S	●	2	140	17.9	40	25	—	1.2	3°	1	JDM09T3
28	AJX08R283SA25S	●	3	140	19.4	40	25	—	0.9	1.7°	1	JOM0803
28	AJX09R282SA25L	●	2	200	17.9	40	25	—	1.2	3°	1	JDM09T3
28	AJX08R283SA25L	●	3	200	19.4	40	25	—	0.9	1.7°	1	JOM0803
28	AJX09R282SA25EL	●	2	300	17.9	40	25	—	1.2	3°	1	JDM09T3
30	AJX12R302SA32S	●	2	150	18.3	70	32	1.82°	1.2	4.5°	1	JDM1204
30	AJX09R303SA32S	●	3	150	20.0	70	32	1.79°	1.2	2.7°	1	JDM09T3
30	AJX12R302SA32L	●	2	200	18.3	120	32	1.04°	1.2	4.5°	1	JDM1204
30	AJX09R303SA32L	●	3	200	20.0	120	32	1.03°	1.2	2.7°	1	JDM09T3
30	AJX12R302SA32EL	●	2	300	18.3	180	32	0.69°	1.2	4.5°	1	JDM1204
32	AJX12R322SA32S	●	2	150	20.3	70	32	0.96°	1.2	4°	1	JDM1204
32	AJX09R323SA32S	●	3	150	21.9	70	32	0.94°	1.2	2.5°	1	JDM09T3
32	AJX12R322SA32L	●	2	200	20.3	120	32	0.55°	1.2	4°	1	JDM1204
32	AJX09R323SA32L	●	3	200	21.9	120	32	0.54°	1.2	2.5°	1	JDM09T3
32	AJX12R322SA32EL	●	2	300	20.3	180	32	0.36°	1.2	4°	1	JDM1204
35	AJX12R352SA32S	●	2	150	23.3	50	32	—	1.2	3.5°	1	JDM1204
35	AJX09R353SA32S	●	3	150	24.9	50	32	—	1.2	2°	1	JDM09T3
35	AJX12R352SA32L	●	2	200	23.3	50	32	—	1.2	3.5°	1	JDM1204
35	AJX09R353SA32L	●	3	200	24.9	50	32	—	1.2	2°	1	JDM09T3
35	AJX12R352SA32EL	●	2	300	23.3	50	32	—	1.2	3.5°	1	JDM1204

*1 Refer to page 17, for the maximum drilling depth (AZ).

*2 Number of Teeth

Note 1) Refer to page 17, for the max. depth of cut (APMX) and maximum drilling depth (AZ).

● : Inventory maintained in Japan.

(mm)

DCX	Order Number	Stock	*2	LF	DC	LH	DCON	B2	APMX	RMPX	Fig.	Insert Type
		R	No.T									
40	AJX12R403SA32S	●	3	150	28.3	50	32	—	1.2	3°	1	JDM1204
40	AJX09R404SA32S	●	4	150	29.9	50	32	—	1.2	1.5°	1	JDM09T3
40	AJX12R403SA32L	●	3	250	28.3	50	32	—	1.2	3°	1	JDM1204
40	AJX09R404SA32L	●	4	250	29.9	50	32	—	1.2	1.5°	1	JDM09T3
40	AJX12R402SA32EL	●	2	350	28.3	50	32	—	1.2	3°	1	JDM1204
40	AJX12R403SA42S	●	3	150	28.3	70	42	1.79°	1.2	3°	1	JDM1204
40	AJX09R404SA42S	●	4	150	29.9	70	42	1.8°	1.2	1.5°	1	JDM09T3
40	AJX12R403SA42L	●	3	250	28.3	70	42	1.79°	1.2	3°	1	JDM1204
40	AJX09R404SA42L	●	4	250	29.9	70	42	1.8°	1.2	1.5°	1	JDM09T3
40	AJX12R402SA42EL	●	2	350	28.3	70	42	1.79°	1.2	3°	1	JDM1204
50	AJX14R503SA42S	●	3	150	38.2	50	42	—	1.2	4.2°	1	JDM1405
50	AJX14R503SA42L	●	3	250	38.1	50	42	—	1.2	4.2°	1	JDM1405
63	AJX14R634SA42S	●	4	150	51.1	50	42	—	1.2	2.8°	2	JDM1405
63	AJX14R634SA42L	●	4	250	51.1	50	42	—	1.2	2.8°	2	JDM1405

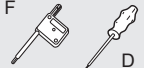
*1 Refer to page 17, for the maximum drilling depth (AZ).

*2 Number of Teeth

Note 1) Refer to page 17, for the max. depth of cut (APMX) and maximum drilling depth (AZ).

Spare Parts

(mm)

Tool Holder Type	 *		 *		
	Clamp Screw	Clamp Bridge	Clamp Bridge Screw	Spring	Wrench
AJX06R162	TS25	—	—	—	TKY08F
AJX06R172	TS25	—	—	—	TKY08F
AJX06R203	TS25	—	—	—	TKY08F
AJX06R223	TS25	—	—	—	TKY08F
AJX08R202	TS33	—	—	—	TKY08D
AJX08R222	TS33	—	—	—	TKY08D
AJX08R253	TS33	—	—	—	TKY08D
AJX08R283	TS33	—	—	—	TKY08D
AJX09R252	TS351	AMS3	AJS3010T10	ASS2	TKY10D
AJX09R282	TS351	AMS3	AJS3010T10	ASS2	TKY10D
AJX09R303	TS351	AMS3	AJS3010T10	ASS2	TKY10D
AJX09R323	TS351	AMS3	AJS3010T10	ASS2	TKY10D
AJX09R353	TS351	AMS3	AJS3010T10	ASS2	TKY10D
AJX09R404	TS351	AMS3	AJS3010T10	ASS2	TKY10D
AJX12R302	TS407	AMS4	AJS4012T15	ASS2	TKY15D
AJX12R322	TS43	AMS4	AJS4012T15	ASS2	TKY15D
AJX12R352	TS43	AMS4	AJS4012T15	ASS2	TKY15D
AJX12R402	TS43	AMS4	AJS4012T15	ASS2	TKY15D
AJX12R403	TS43	AMS4	AJS4012T15	ASS2	TKY15D
AJX14R503	TS54	AMS5	AJS5014T25	ASS3	TKY25D
AJX14R634	TS54	AMS5	AJS5014T25	ASS3	TKY25D

* 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

Dimensions and Symbols (ISO 13399 Compliance)

DCX = Cutting Diameter Max.

DC = Cutting Diameter

LF = Functional Length

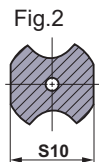
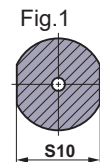
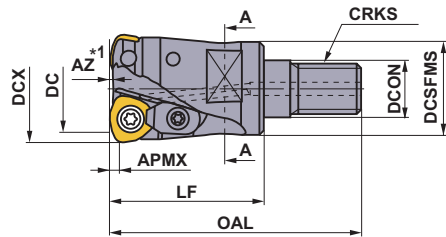
LH = Head Length

DCON = Connection Diameter

APMX = Depth of Cut Max.

RMPX = Ramping Angle Max.

High Feed Radius Milling Cutter



A-A Section

■ Screw-in Type

With Coolant Hole

Right hand tool holder only.

(mm)

DCX	Order Number	Stock	*2	DC	LF	OAL	DCON	DCSFMS	S10	CRKS	WT (kg)	APMX	RMPX	Fig.	Shank Arbor Type	Insert Type
		R	No.T													
16	AJX06R162AM0830	●	2	8.9	30	48	8.5	13	10	M8	0.1	0.6	3°	1	SC16M08	JOM006T2
17	AJX06R172AM0830	●	2	9.9	30	48	8.5	13	10	M8	0.1	0.6	2.5°	1	SC16M08	JOM006T2
20	AJX08R202AM1030	●	2	11.4	30	49	10.5	18	14	M10	0.1	0.9	3.5°	2	SC20M10	JOM00803
20	AJX06R203AM1030	●	3	12.9	30	49	10.5	18	14	M10	0.1	0.6	1.5°	3	SC20M10	JOM006T2
22	AJX08R222AM1030	●	2	13.4	30	49	10.5	18	14	M10	0.1	0.9	3°	2	SC20M10	JOM00803
22	AJX06R223AM1030	●	3	14.9	30	49	10.5	18	14	M10	0.1	0.6	1°	3	SC20M10	JOM006T2
25	AJX09R252AM1235	●	2	14.9	35	57	12.5	21	19	M12	0.2	1.2	4°	2	SC25M12	JDM009T3
25	AJX08R253AM1235	●	3	16.4	35	57	12.5	21	19	M12	0.1	0.9	2°	1	SC25M12	JOM00803
28	AJX09R282AM1235	●	2	17.9	35	57	12.5	21	19	M12	0.2	1.2	3°	2	SC25M12	JDM009T3
28	AJX08R283AM1235	●	3	19.4	35	57	12.5	21	19	M12	0.1	0.9	1.7°	1	SC25M12	JOM00803
30	AJX12R302AM1645	●	2	18.3	45	68	17.0	29	24	M16	0.3	1.2	4.5°	2	SC32M16	JDM01204
30	AJX09R303AM1645	●	3	20.0	45	68	17.0	29	24	M16	0.2	1.2	2.7°	1	SC32M16	JDM009T3
32	AJX12R322AM1645	●	2	20.3	45	68	17.0	29	24	M16	0.3	1.2	4°	2	SC32M16	JDM01204
32	AJX09R323AM1645	●	3	21.9	45	68	17.0	29	24	M16	0.2	1.2	2.5°	1	SC32M16	JDM009T3
35	AJX12R352AM1645	●	2	23.3	45	68	17.0	29	24	M16	0.3	1.2	3.5°	2	SC32M16	JDM01204
35	AJX09R353AM1645	●	3	24.9	45	68	17.0	29	24	M16	0.2	1.2	2°	1	SC32M16	JDM009T3
40	AJX12R403AM1645	●	3	28.3	45	68	17.0	29	24	M16	0.3	1.2	3°	2	SC32M16	JDM01204
40	AJX09R404AM1645	●	4	29.9	45	68	17.0	29	24	M16	0.2	1.2	1.5°	1	SC32M16	JDM009T3

*1 Refer to page 17, for the maximum drilling depth (AZ).

*2 Number of Teeth

Note 1) Refer to page 17, for the max. depth of cut (APMX) and maximum drilling depth (AZ).

Note 2) For screw-in type arbors, refer to page 12.

Dimensions and Symbols (ISO 13399 Compliance)

DCX = Cutting Diameter Max.

DC = Cutting Diameter

LF = Functional Length

OAL = Overall Length

DCON = Connection Diameter

DCSFMS = Contact Surface Diameter Machine Side

CRKS = Connection Retention Knob Thread Size

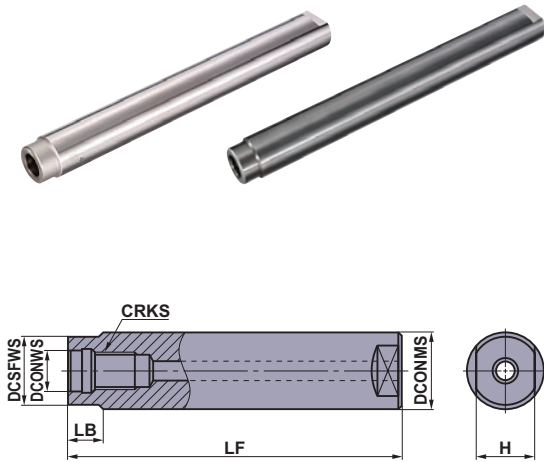
APMX = Depth of Cut Max.

RMPX = Ramping Angle Max.

● : Inventory maintained in Japan.

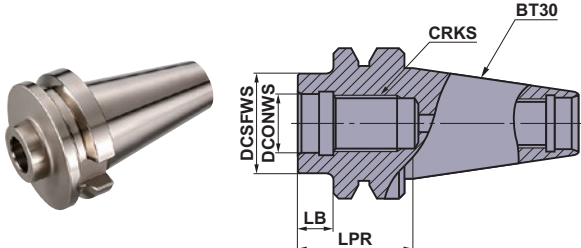
■ Straight Shank Arbor

(mm)

	Type	Order Number	Stock	DCONWS	DCONMS	DCSFWS	LF	LB	H	CRKS
	Steel Shank Type	SC16M08S100S	●	8.5	16	14.5	100	10	10	M8
		SC16M08S200L	●	8.5	16	14.5	200	10	10	M8
		SC20M10S120S	●	10.5	20	18.5	120	10	14	M10
		SC20M10S220L	●	10.5	20	18.5	220	10	14	M10
		SC25M12S125S	●	12.5	25	23.5	125	10	19	M12
		SC25M12S245L	●	12.5	25	23.5	245	10	19	M12
		SC32M16S140S	●	17.0	32	28.5	140	15	24	M16
		SC32M16S280L	●	17.0	32	28.5	280	15	24	M16
	Carbide Shank Type	SC16M08S100SW	●	8.5	16	14.5	100	10	10	M8
		SC16M08S200LW	●	8.5	16	14.5	200	10	10	M8
		SC20M10S120SW	●	10.5	20	18.5	120	10	14	M10
		SC20M10S220LW	●	10.5	20	18.5	220	10	14	M10
		SC25M12S125SW	●	12.5	25	23.5	125	10	19	M12
		SC25M12S245LW	●	12.5	25	23.5	245	10	19	M12
		SC32M16S140SW	●	17.0	32	28.5	140	15	24	M16
		SC32M16S280LW	●	17.0	32	28.5	280	15	24	M16

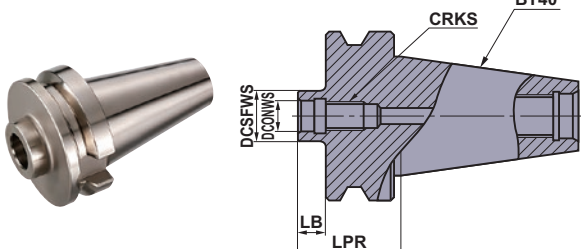
■ BT30 Shank Arbor

(mm)

	Order Number	Stock	DCONWS	DCSFWS	LPR	LB	CRKS
	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

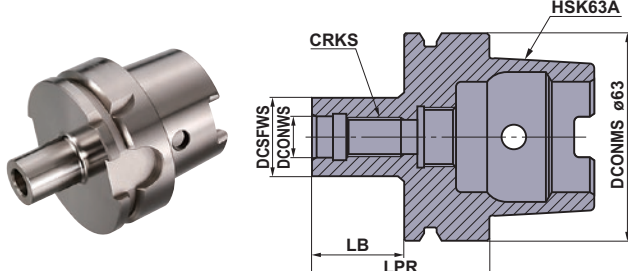
■ BT40 Shank Arbor

(mm)

	Order Number	Stock	DCONWS	DCSFWS	LPR	LB	CRKS
	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

(mm)

	Order Number	Stock	DCONWS	DCSFWS	LPR	LB	CRKS
	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

(mm)

Workpiece Material	P	Steels	●	●	✱																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Note 1) When using ST breaker, please check the height setting as it differs from other chip breakers.

Recommended Cutting Conditions

■ Cutting Speed

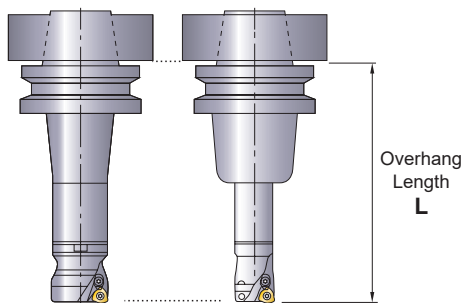
Workpiece Material		Properties	Cutting Speed vc (m/min)			
P			FH7020	MP6120	MP6130	VP30RT
	Mild Steels	Hardness ≤180HB	170 (120–220)	150 (100–200)	130 (80–180)	110 (60–160)
	Carbon Steels Alloy Steels	Hardness 180–280HB	150 (100–200)	130 (80–180)	110 (60–160)	90 (40–140)
	Carbon Steels Alloy Steels	Hardness 280–350HB	130 (80–180)	100 (50–150)	80 (30–130)	60 (20–110)
	Alloy Tool Steels	Hardness ≤350HB (Annealing)	130 (80–180)	100 (50–150)	80 (30–120)	60 (20–90)
	Pre-hardened Steels	Hardness 35–45HRC	—	100 (70–130)	80 (50–110)	80 (30–90)
M			MP7130	MP7140		
	Stainless Steels	Hardness ≤270HB	140 (100–180)	120 (80–160)	—	—
K			FH7020	VP15TF		
	Gray Cast Irons	Tensile Strength ≤350MPa	150 (100–200)	—	—	—
	Ductile Cast Irons	Tensile Strength ≤800MPa	—	120 (80–160)	—	—
S			MP9120	MP9130	MP9140	
	Heat Resistant Alloys	Hardness ≤350HB	30 (20–40)	25 (20–35)	20 (15–30)	—
	Titanium Alloys	—	50 (40–60)	45 (30–55)	40 (30–50)	
H			VP15TF			
	Hardened Steels	Hardness 40–55HRC	70 (50–90)	—	—	—

Recommended Cutting Conditions

■ Depth of Cut / Feed

	Workpiece Material	Properties	Shank Type / Screw-in Type								
			DCX=ø16, ø17			DCX=ø20, ø22			DCX=ø25, ø28		
			L	ap	fz (mm/t.)	L	ap	fz (mm/t.)	L	ap	fz (mm/t.)
P	Mild Steels	Hardness ≤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 Steels Alloy Steels	Hardness 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 Steels Alloy Steels	Hardness 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 Steels	Hardness ≤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 Steels	Hardness 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 Steels	Hardness ≤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 Irons	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 Irons	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 Alloys	Hardness ≤350HB	140	0.6	0.6	160	0.8	0.6	170	1.0	0.6
	Titanium Alloys	—	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 Steels	Hardness 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

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

③ Table Feed Rate

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

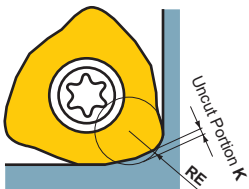
- ④ Recommended width of cut (ae) is more than 60% of the cutting edge diameter.
- ⑤ The above cutting conditions are guides to cutting on a #50 BT machine. In case of #40 BT and #63 HSK machines, a cutting edge diameter of under 35mm is recommended. In this case, reduce the depth of cut and table feed rate.
- ⑥ Use of ST breaker with tougher cutting edges is recommended for machining parts that require interrupted cutting. First recommended insert grade for non-standard 06/08/09 ST breakers 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 breaker 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.

(mm)

	Shank Type / Screw-in Type												Arbor Type					
	DCX=ø30, ø32, ø35			DCX=ø40 (ø32 Shank)			DCX=ø40 (ø42 Shank)			DCX=ø50, ø63			DCX=ø50, ø63			DCX=ø80, ø100, ø125, ø160		
	L	ap	fz (mm/t.)	L	ap	fz (mm/t.)	L	ap	fz (mm/t.)	L	ap	fz (mm/t.)	L	ap	fz (mm/t.)	L	ap	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	—	—	—	—	—	—	—	—	—

* Depth of cut of JL breaker is up to 1.2 mm.

Note for Programming



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

(mm)

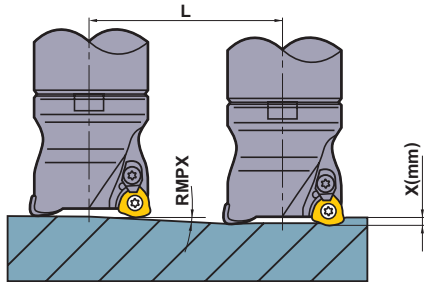
Insert Size	Chip Breaker	Approx. RE	Uncut Portion K
06	FT / JM	2.0	0.33
	JL	2.5	0.32
08	FT / JM	2.5	0.46
	JL	2.0	0.40
09	FT / JM	3.0	0.47
	JL	3.0	0.46
12	FT / JM / ST	3.0	0.63
	JL	3.0	0.53
14	FT / JM / ST	3.0	0.64
	JL	3.0	0.55

Note 1) The uncut portion may change slightly depending on cutting conditions.

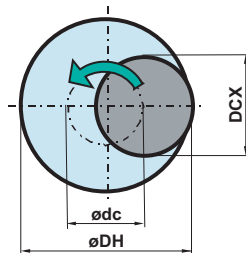
High Feed Radius Milling Cutter

Maximum Capacities by Mode

Ramping



Helical Drilling



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

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

Locus of the centre of the tool Desired hole diameter Cutting Diameter Maximum

- 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.

(mm)

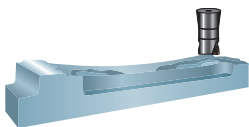
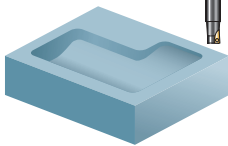
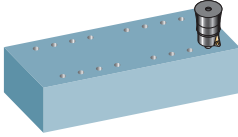
Tool Holder Type		DCX	DC	APMX		Ramping					Helical Drilling		AZ
						RMPX	L Required Distance for X mm Depth				DH		
				FT/JM/ST Breaker	JL Breaker		X=1	X=1.2	X=1.5	X=2	Min	Max	
Shank Type/Screw-in Type	AJX06	16	8.9	1.0	0.6	3°	19.1	—	—	—	23	29	0.3
	AJX06	17	9.9	1.0	0.6	2.5°	22.9	—	—	—	25	31	0.3
	AJX06	20	12.9	1.0	0.6	1.5°	38.2	—	—	—	31	37	0.3
	AJX06	22	14.9	1.0	0.6	1°	57.3	—	—	—	35	41	0.3
	AJX08	20	11.4	1.5	0.9	3.5°	16.3	19.6	24.5	—	27	36	0.5
	AJX08	22	13.4	1.5	0.9	3°	19.1	22.9	28.6	—	31	40	0.5
	AJX08	25	16.4	1.5	0.9	2°	28.6	34.4	43.0	—	37	46	0.5
	AJX08	28	19.4	1.5	0.9	1.7°	33.7	40.4	50.5	—	43	52	0.5
	AJX09	25	14.9	2.0	1.2	4°	14.3	17.2	21.5	28.6	33	46	1.0
	AJX09	28	17.9	2.0	1.2	3°	19.1	22.9	28.6	38.1	39	52	1.0
	AJX09	30	20.0	2.0	1.2	2.7°	21.2	25.4	31.8	42.4	43	56	1.0
	AJX09	32	21.9	2.0	1.2	2.5°	22.9	27.5	34.4	45.8	47	60	1.0
	AJX09	35	24.9	2.0	1.2	2°	28.6	34.4	43.0	57.3	53	66	1.0
	AJX09	40	29.9	2.0	1.2	1.5°	38.2	45.8	57.3	76.4	63	76	1.0
	AJX12	30	18.3	2.0	1.2	4.5°	12.7	15.2	19.0	25.4	39	56	1.5
	AJX12	32	20.3	2.0	1.2	4°	14.3	17.2	21.4	28.6	41	60	1.5
	AJX12	35	23.3	2.0	1.2	3.5°	16.3	19.6	24.5	32.7	47	66	1.5
	AJX12	40	28.3	2.0	1.2	3°	19.1	22.9	28.6	38.2	57	76	1.5
AJX14	50	38.2	2.0	1.2	4.2°	13.6	16.3	20.4	27.2	72	96	2.0	
AJX14	63	51.1	2.0	1.2	2.8°	20.4	24.5	30.7	40.9	98	122	2.0	
Arbor Type	AJX09	50	40.0	2.0	1.2	1.1°	52.1	62.5	78.1	104.2	83	96	1.0
	AJX12	50	38.3	2.0	1.2	2°	28.6	34.4	43.0	57.3	77	96	1.5
	AJX12	63	51.3	2.0	1.2	1.5°	38.2	45.8	57.3	76.4	103	122	1.5
	AJX12	80	68.3	2.0	1.2	1.1°	52.1	62.5	78.1	104.2	137	156	1.5
	AJX12	100	88.3	2.0	1.2	0.8°	71.6	85.9	107.4	143.2	177	196	1.5
	AJX14	63	51.1	2.0	1.2	2.8°	20.4	24.5	30.7	40.9	98	122	2.0
	AJX14	80	68.1	2.0	1.2	1.8°	31.8	38.2	47.7	63.6	132	156	2.0
	AJX14	100	88.1	2.0	1.2	1.2°	47.7	57.3	71.6	95.5	172	196	2.0
	AJX14	125	113.2	2.0	1.2	0.8°	71.6	85.9	107.4	143.2	222	246	2.0
	AJX14	160	148.2	2.0	1.2	0.5°	114.6	137.5	171.9	229.2	292	316	2.0

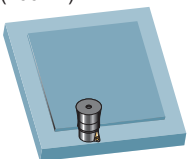
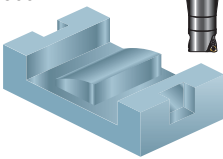
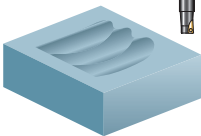
DCX = Cutting Diameter Max.
APMX = Depth of Cut Max.

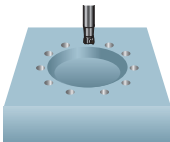
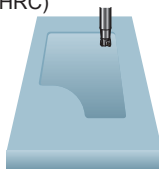
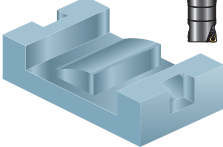
DC = Cutting Diameter
RMPX = Ramping Angle Max.

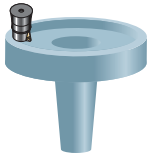
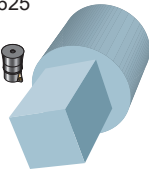
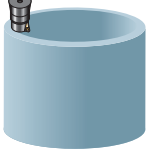
DH = Desired Hole Diameter
AZ = Maximum Drilling Depth

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 Mould	Press Mould	Resin Mould
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 vf (Feed per T. fz)	4000 mm/min(1.1 mm/t.)	1200 mm/min(0.4 mm/t.)	4776 mm/min(2.0 mm/t.)
	Depth of Cut ap (mm)	1.5	0.35	1.5
	Depth of Cut ae (mm)	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 breaker 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 Mould	Forging Mould
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 vf (Feed per T. fz)	4000 mm/min(1.1 mm/t.)	4000 mm/min(1.0 mm/t.)	1145 mm/min(0.8 mm/t.)
	Depth of Cut ap (mm)	1	2	1
	Depth of Cut ae (mm)	60	50	30
	Overhang Length (mm)	138	298	200
Cutting Mode		Dry Cutting	Air Blow	Air Blow
Results		Although the workpiece was a thin stainless plate, AJX displayed stable cutting performance without suffering from vibrations. AJX achieved triple 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 breaker 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 Mould	Die Casting Mould	Press Mould
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 vf (Feed per T. fz)	4776 mm/min(2.0 mm/t.)	1620 mm/min(0.8 mm/t.)	760 mm/min(0.4 mm/t.)
	Depth of Cut ap (mm)	0.8	1	1.5
	Depth of Cut ae (mm)	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 centre to full capacity. No fear of workpiece distortion thanks to low cutting resistance and low heat generation of the JM breaker.	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 vf (Feed per T. fz)	864 mm/min(0.6 mm/t.)	501 mm/min(0.6 mm/t.)	454 mm/min(0.38 mm/t.)
	Depth of Cut ap (mm)	0.5	0.8	1
	Depth of Cut ae (mm)	60	65	50
	Overhang Length (mm)	—	—	—
Cutting Mode		Wet Cutting	Wet Cutting	Wet Cutting
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%.

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.)

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