2026.07

B028E

AJX

REDUCE COSTS OVER A WIDE RANGE OF APPLICATIONS WITH ULTRA HIGH FEED MILLING

MITSUBISHI MATERIALS

NEW

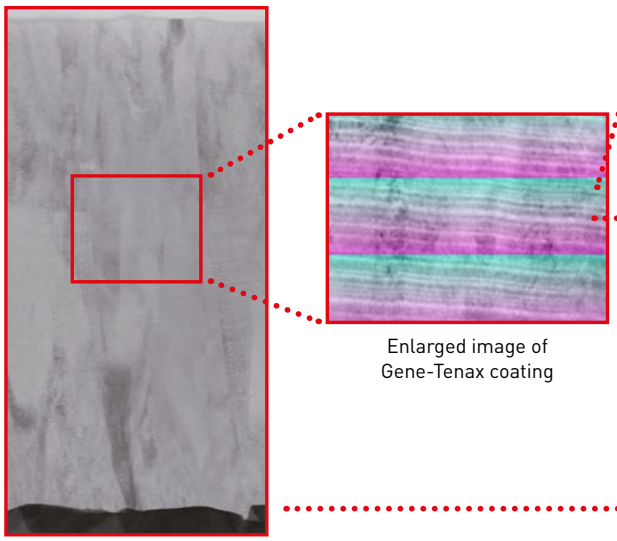
MP1220 / MP1230 / MP1240

MULTI-LAYER PVD COATING FOR MILLING

ONE INSERT SERIES TO SOLVE ALL PROBLEMS WHEN MACHINING STEELS, STAINLESS STEELS, HEAT RESISTANT AND TITANIUM ALLOYS.

GENE-TENAX COATING

By controlling the coating structure at the nano level, damage to the coating has been vastly reduced compared to conventional lamination. By successfully laminating multiple films, simultaneous strengthening of heat, wear and welding resistance is achieved. Additionally the coating is now much less prone to cracking and with the increased adhesive strength, the most stable grade for milling has been created.



Enlarged image of Gene-Tenax coating

Dedicated carbide base material

Al-RICH TECHNOLOGY AlTiN-BASED

Improved wear and heat resistance.

ORIGINAL AlTiN COMPOSITE FUNCTIONAL LAYER

Increasingly resistant to oxidation and welding.

Technology to improve adhesion strength.

ACHIEVES TOUGHNESS FOR A WIDE RANGE OF WORK MATERIALS

STEEL MACHINING DAMAGE

Cutting edge that is resistant to wear when machining steel

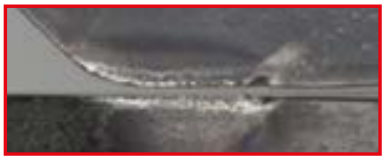
Thermal cracking

STAINLESS STEEL MACHINING DAMAGE

Cutting edge that is less susceptible to notching when machining stainless steel

Notching

HEAT RESISTANT AND TITANIUM ALLOYS MACHINING DAMAGE



Cutting edge that is resistant to chipping when machining heat resistant and titanium alloys

Chipped cutting edge

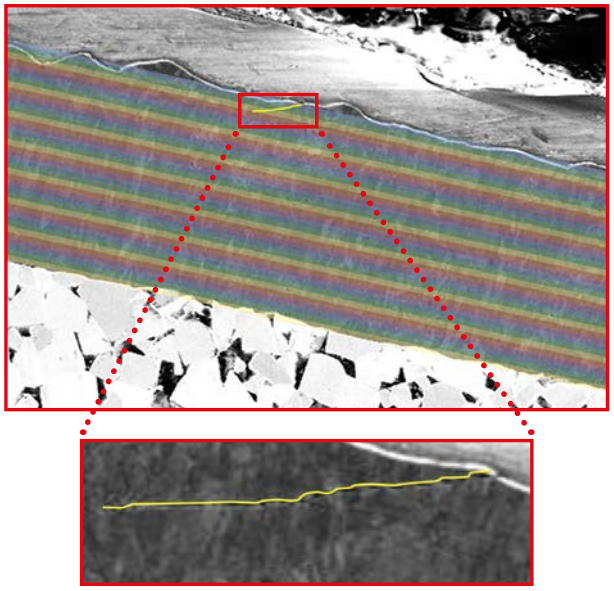
■ : MP1200 Series ■ : Conventional PVD

NEW

NEW MULTILAYER TECHNOLOGY

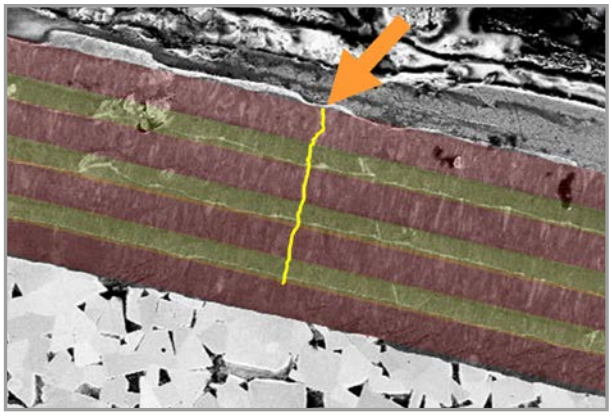
The adoption of a new multi-layer technology has succeeded in suppressing crack propagation and dramatically improved fracture resistance when compared to conventional technology.

MP1200 SERIES MULTI-LAYER TECHNOLOGY



Prevents cracks

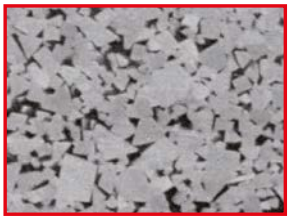
CONVENTIONAL LAYER TECHNOLOGY



MULTI-GRADE SYSTEM

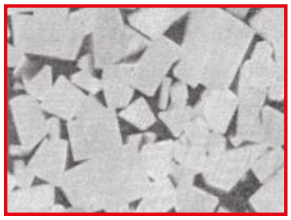
Using simulation technology, precise analysis of the cutting edge load and temperature when machining different workpiece materials was carried out. This led to the creation of different substrates for three different grades and ensures optimal performance for each type of workpiece material. Ensuring the best performance over a wide range of applications.

MP1220



MP1230

MP1240



2µm

SELECTION GUIDELINES

Steel, Carbon steel — **Stainless steel** — **Titanium alloys, Heat resistant alloys**

- Hard grade
- Stable cutting
- Emphasis on wear resistance and mechanical properties

- Tough grade
- Unstable cutting
- Emphasis on fracture resistance and thermal properties

MV1000 SERIES

COATED CARBIDE GRADE FOR MILLING

ADVANCED WEAR RESISTANCE

By adopting the newly developed Al-Rich coating technology, the (Al,Ti)N with a high Al content ratio displays very high hardness. This greatly improves oxidation and wear resistance.

ADVANCED THERMAL SHOCK RESISTANCE

The extreme heat resistance of this new series achieves amazing stability, not only during dry cutting, but also when wet cutting where inserts are usually prone to thermal cracking.

Graphical representation

EXCELLENT WELDING RESISTANCE

Smooth surface.

OUTSTANDING WEAR RESISTANCE

Newly developed Al-Rich coating.

EXCELLENT CHIPPING RESISTANCE FOR STABLE MACHINING

Newly developed bonding layer.

FRACTURE RESISTANCE FOR THE ULTIMATE STABILITY

Exclusive cemented carbide substrate.

MV1020

This grade has advanced wear and thermal shock resistance and also achieves stable cutting at unprecedented cutting speeds, especially when machining steel and ductile cast iron, thus greatly reducing work time.

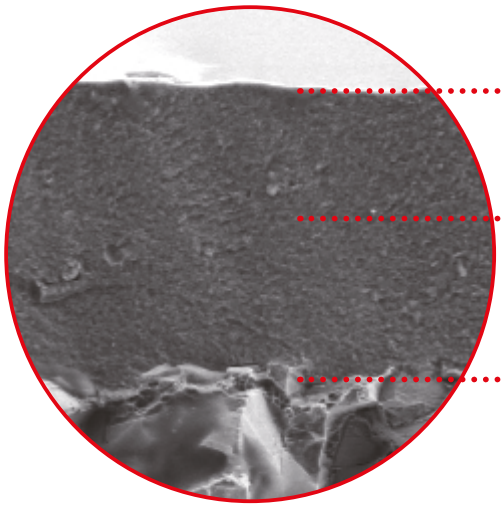
MV1030

The new Al-Rich coating also provides excellent wear resistance. An unprecedented performance against sudden breakage was also realised especially during problematic wet cutting and when machining stainless steels.

MP9140

PVD COATED GRADE FOR DIFFICULT-TO-CUT-MATERIALS

FEATURES OF THE COATING SURFACE



- The smooth coating surface provides excellent welding resistance.
- The high Al-rich AlTiN coating succeeds in dramatically improving wear and heat resistance.
- Special cemented carbide substrate with improved fracture resistance.

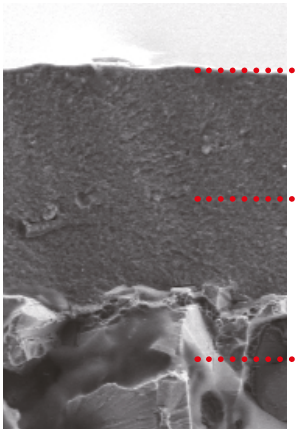
JL CHIPBREAKER

Grade	Features
MP9140	Focus on fracture resistance
MP9130	Standard grade
MP9120	Focus on wear resistance

INSERT GRADES FOR A WIDE RANGE OF MATERIALS

MP9140

PVD coated grade for difficult-to-cut-materials.



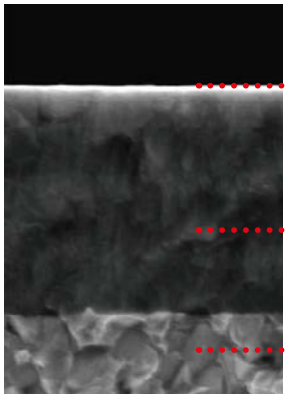
The smooth coating surface provides excellent welding resistance.

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

Special cemented carbide substrate with improved fracture resistance.

MP6100/MP7100

PVD coatings have properties such as toughness, low coefficient of friction and excellent welding, wear and heat resistance.



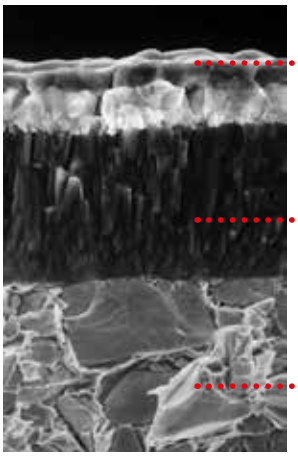
Excellent welding resistance due to a low coefficient of friction.

PVD accumulated coating.

Special cemented carbide substrate.

FH7020

CVD coated grade for long tool life and high resistance to thermal cracking.

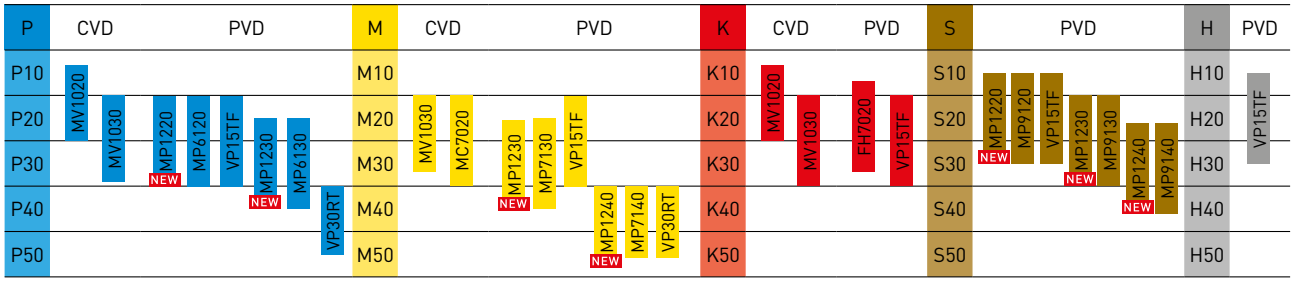


Vapor deposited by the newly developed even coating technology, the surface texture of the special titanium compound layers is very smooth and chemically stable. It enables a reliable cutting performance without chipping.

Flat alumina (fine gained aluminium oxide with a smooth surface) is used as the outer layer. It has superior strength at high temperatures and prevents crater wear usually associated with high speed cutting.

The newly developed cemented carbide base metal has improved resistance to heat-cracking and fracturing.

APPLICATION RANGE



CHIPBREAKER RECOMMENDATION

GENERAL USE TYPE

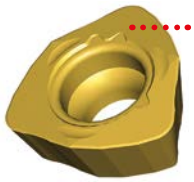
First recommended chipbreaker for general cutting.

FT Chipbreaker

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

STRONG CUTTING EDGE TYPE

Stability even when machining interrupted workpiece surfaces.



ST Chipbreaker

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

SHARP CUTTING EDGE TYPE

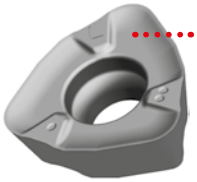
Suitable for use on BT40 and HSK63 machines.

JM Chipbreaker

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

SHARP CUTTING EDGE TYPE

Optimised for difficult-to-cut materials.

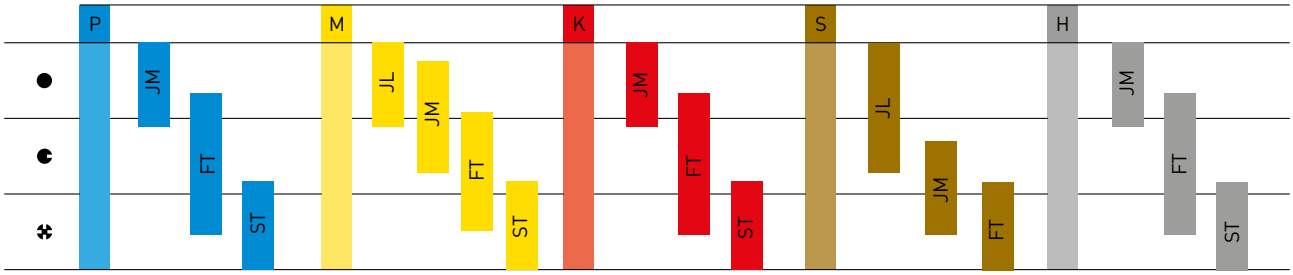


JL Chipbreaker

The optimised cutting edge of the JL breaker provides the sharpness and low cutting resistance that is ideal for difficult-to-cut materials.

APPLICATION OF CHIPBREAKERS

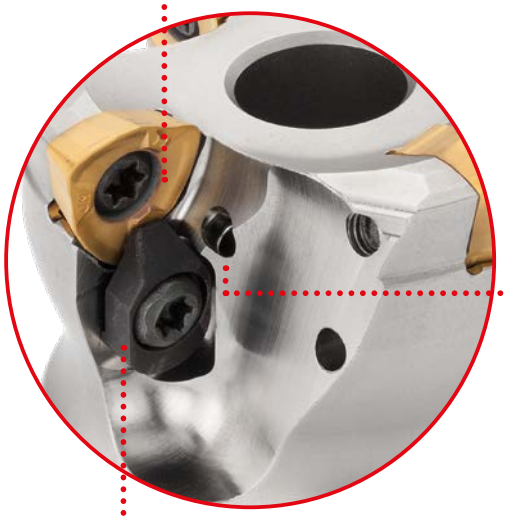
Cutting conditions: ●: Stable cutting ◔: General cutting ✤: Unstable cutting



AJX

HIGH FEED MILLING CUTTER

HARD WEARING CUTTER BODY



COST-EFFECTIVE INSERT

Specially designed triangular style insert geometry for efficient milling.

WITH COOLANT HOLES AS STANDARD

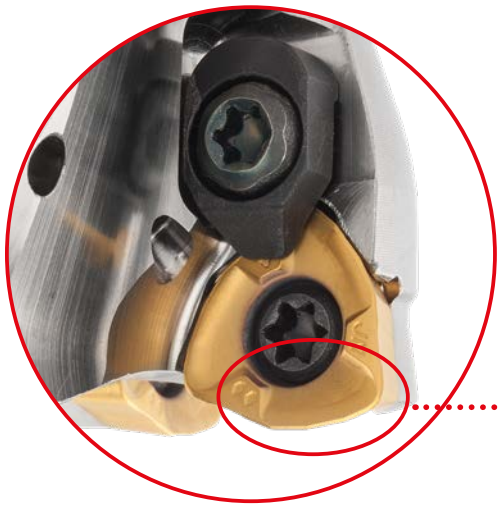
All AJX bodies are supplied with through coolant holes for cutting edge cooling, lubrication and for smooth chip discharge.

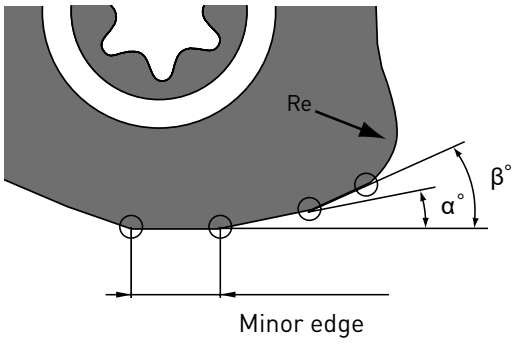
HIGH RIGIDITY CLAMPING

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

ULTRA HIGH FEED CUTTING

By using a double phased straight cutting edge to form the lead angle α and β with a minor edge, AJX can achieve an ultra high feed rate of up to 1.5 mm/tooth for the ultimate in rough machining efficiency.





AJX

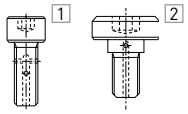
MULTI FUNCTIONAL MILLING

P M K S H

AJX09
GAMP : +8°
GAMF : −6°

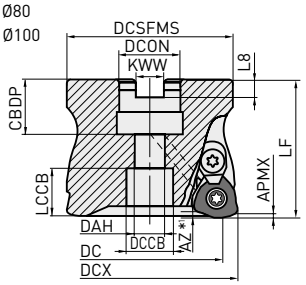
AJX12
GAMP : +8°
GAMF : −5° – -6°

AJX14
GAMP : +8°
GAMF : −3°

DCX	Set bolt		Geometry
Ø 63 (22)	HSC10030H	1	
Ø 63 (27), Ø66. Ø80	HSC12035H		
Ø 100	HSC16040H		
Ø 125. Ø160	MBA20040H	2	

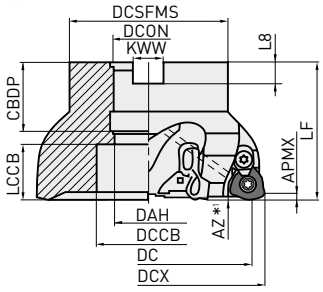
1

Ø50 Ø66
Ø52 Ø80
Ø63 Ø100



2

Ø125
Ø160



Right hand tool holder only.

ARBOR TYPE

Order number	Stock	APMX	DC	DCON	DCX	LF	RMPX	AZ	WT	ZEFP	Type	
AJX12-050A03R	●	2	38.3	22	50	50	2°	1.5	0.4	3	1	JDM○1204
AJX12-050A04R	●	2	38.3	22	50	50	2°	1.5	0.4	4	1	
AJX09-050A05R	●	2	40.0	22	50	50	1.1°	1	0.5	5	1	JDM○09T3
AJX12-052A03R	★	2	40.3	22	52	50	2.1°	1.5	0.4	3	1	JDM○1204
AJX12-052A04R	●	2	40.3	22	52	50	2.1°	1.5	0.4	4	1	
AJX09-052A05R	●	2	42	22	52	50	1°	1	0.4	5	1	JDM○09T3
AJX14-063A03R	★	2	51.1	22	63	50	2.8°	2	0.7	3	1	JDM○1405
AJX14-063X03R	●	2	51.1	27	63	50	2.8	2	0.6	3	1	
AJX14-063A04R	●	2	51.1	22	63	50	2.8°	2	0.7	4	1	
AJX14-063X04R	●	2	51.1	27	63	50	2.8	2	0.6	4	1	
AJX12-063A05R	●	2	51.3	22	63	50	1.5°	1.5	0.7	5	1	JDM○1204
AJX12-063X05R	●	2	51.3	27	63	50	1.5	1.5	0.6	5	1	
AJX14-066A03R	★	2	54.1	22	66	50	2.3°	2	0.7	3	1	JDM○1405
AJX14-066X03R	●	2	54.1	27	66	50	2.6	2	0.6	3	1	
AJX14-066A04R	●	2	54.1	22	66	50	2.3°	2	0.7	4	1	
AJX14-066X04R	●	2	54.1	27	66	50	2.6	2	0.6	4	1	
AJX12-066A05R	●	2	54.3	22	66	50	1.4°	1.5	0.8	5	1	JDM○1204
AJX12-066X05R	●	2	54.3	27	66	50	1.4	1.5	0.7	5	1	
AJX14-080A04R	★	2	68.1	27	80	50	1.8°	2	1.2	4	1	JDM○1405
AJX14-080A05R	●	2	68.1	27	80	50	1.8°	2	1.2	5	1	
AJX12-080A06R	●	2	68.3	27	80	50	1.1°	1.5	1.2	6	1	JDM○1204

1/2

1. Please refer to page 23, for maximum depth of cut (APMX) and maximum plunging depth (AZ).

23 Vc

● : Inventory maintained. ★ : Inventory maintained in Japan.

AJX – ARBOR TYPE

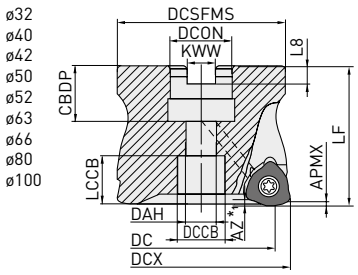
Order number	Stock	APMX	DC	DCON	DCX	LF	RMPX	AZ	WT	ZEFP	Type	
AJX14-100A05R	●	2	88.1	32	100	63	1.2°	2	2.4	5	1	JDM○1405
AJX14-100A06R	●	2	88.1	32	100	63	1.2°	2	2.4	6	1	
AJX12-100A07R	●	2	88.3	32	100	63	0.8°	1.5	2.6	7	1	JDM○1204
AJX14-125B05R	★	2	113.2	40	125	63	0.8°	2	3.3	5	2	JDM○1405
AJX14-125B07R	●	2	113.2	40	125	63	0.8°	2	3.3	7	2	
AJX14-160B06R	★	2	148.2	40	160	63	0.5°	2	5	6	2	
AJX14-160B08R	★	2	148.2	40	160	63	0.5°	2	5	8	2	

1. Please refer to page 23, for maximum depth of cut (APMX) and maximum plunging depth (AZ).

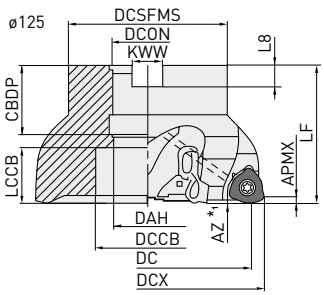
23 Vc

ARBOR TYPE – ULTRA FINE PITCH

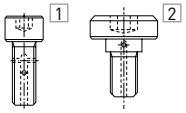
3



4



Right hand tool holder only.

DCX	Set bolt	Geometry	
Ø32, Ø40, Ø42	HSC08025H	1	
Ø50, Ø52, Ø63 Ø66 (DCON=22)	HSC10030H		
Ø63 Ø66 (DCON=27), Ø80	HSC12035H		
Ø 100	HSC16040H		
Ø 125. Ø160	MBA20040H	2	

Order number	Stock	APMX	DC	DCON	DCX	LF	RMPX	AZ	WT	ZEFP	Type	
AJX06-032A05R	●	1	24.9	16	32	40	0.5°	0.3	0.1	5	3	JOM○06T2
AJX06-032A06R	●	1	24.9	16	32	40	0.5°	0.3	0.1	6	3	JOM○06T2
AJX08-040A06R	●	1.5	31.4	16	40	40	1°	0.5	0.2	6	3	JOM○0803
AJX08-042A06R	●	1.5	33.4	16	42	40	0.9°	0.5	0.2	6	3	JOM○0803
AJX09-050A06R	●	2	39.3	22	50	50	1.1°	1	0.4	6	3	JDM○09T3
AJX08-050A07R	●	1.5	41.4	22	50	50	0.7°	0.5	0.4	7	3	JOM○0803
AJX09-052A06R	●	2	41.9	22	52	50	1°	1	0.4	6	3	JDM○09T3
AJX08-052A07R	●	1.5	43.4	22	52	50	0.7°	0.5	0.5	7	3	JOM○0803
AJX12-063A06R	●	2	51.3	22	63	50	1.5°	1.5	0.7	6	3	JDM○1204
AJX09-063A07R	●	2	52.9	22	63	50	0.8°	1	0.7	7	3	JDM○09T3
AJX12-063X06R	●	2	51.3	27	63	50	1.5°	1.5	0.6	6	3	JDM○1204
AJX09-063X07R	●	2	52.9	27	63	50	0.8°	1	0.7	7	3	JDM○09T3
AJX12-066A06R	●	2	54.3	22	66	50	1.4°	1.5	0.7	6	3	JDM○1204
AJX09-066A07R	●	2	55.9	22	66	50	0.8°	1	0.8	7	3	JDM○09T3
AJX12-066X06R	●	2	54.3	27	66	50	1.4°	1.5	0.7	6	3	JDM○1204
AJX09-066X07R	●	2	55.9	27	66	50	0.8°	1	0.8	7	3	JDM○09T3
AJX12-080A08R	●	2	68.3	27	80	50	1.1°	1.5	1.1	8	3	JDM○1204
AJX12-100A09R	●	2	88.3	32	100	63	0.8°	1.5	2.5	9	3	JDM○1204
AJX14-125B09R	●	2	113.2	40	125	63	0.8°	2	3.0	9	4	JDM○1405

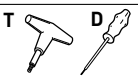
● : Inventory maintained. ★ : Inventory maintained in Japan.

AJX – ARBOR TYPE

MOUNTING DIMENSIONS

Order number	CBDP	DAH	DCCB	DCON	DCSFMS	DCX	KWW	LCCB	L8	Type
AJX12-050A03R	20	11	17	22	47	50	10.4	17.28	6.3	1
AJX12-050A04R	20	11	17	22	47	50	10.4	17.28	6.3	1
AJX09-050A05R	20	11	17	22	47	50	10.4	17.31	6.3	1
AJX12-052A03R	20	11	17	22	47	52	10.4	17.28	6.3	1
AJX12-052A04R	20	11	17	22	47	52	10.4	17.28	6.3	1
AJX09-052A05R	20	11	17	22	47	52	10.4	17.31	6.3	1
AJX14-063A03R	20	11	17	22	60	63	10.4	17.16	6.3	1
AJX14-063A04R	20	11	17	22	60	63	10.4	17.16	6.3	1
AJX12-063A05R	20	11	17	22	60	63	10.4	17.28	6.3	1
AJX14-066A03R	20	11	17	22	60	66	10.4	17.16	6.3	1
AJX14-066A04R	20	11	17	22	60	66	10.4	17.16	6.3	1
AJX12-066A05R	20	11	17	22	60	66	10.4	17.28	6.3	1
AJX09-063X	23	13	20	27	60	63	12.4	16.3	7.0	3
AJX12-063X	23	13	20	27	60	63	12.4	16.3	7.0	3
AJX14-063X	23	13	20	27	60	63	12.4	16.3	7.0	1
AJX09-066X	23	13	20	27	60	66	12.4	16.3	7.0	3
AJX12-066X	23	13	20	27	60	66	12.4	16.3	7.0	1, 3
AJX14-066X	23	13	20	27	60	66	12.4	16.2	7.0	1
AJX14-080A04R	23	13	19	27	76	80	12.4	16.16	7	1
AJX14-080A05R	23	13	19	27	76	80	12.4	16.16	7	1
AJX12-080A06R	23	13	19	27	76	80	12.4	16.28	7	1
AJX14-100A05R	26	17	26	32	96	100	14.4	26.16	8	1
AJX14-100A06R	26	17	26	32	96	100	14.4	26.16	8	1
AJX12-100A07R	26	17	26	32	96	100	14.4	26.28	8	1
AJX14-125B05R	40	—	56	40	100	125	16.4	22.14	9	2
AJX14-125B07R	40	—	56	40	100	125	16.4	22.14	9	2
AJX14-160B06R	40	—	56	40	100	160	16.4	22.14	9	2
AJX14-160B08R	40	—	56	40	100	160	16.4	22.14	9	2

SPARE PARTS

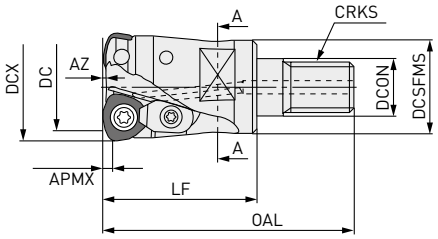
Tool holder					
	Clamp screw	**Clamp bridge**	**Clamp bridge screw**	**Spring**	**Wrench**
AJX09	TS351	AMS3	AJS3010T10	ASS2	TKY10**D**
AJX12	TS43	AMS4	AJS4012T15	ASS2	TKY15**T**
AJX14	TS54	AMS5	AJS5014T25	ASS3	TKY25**T**

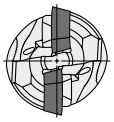
1. Clamp torque (N • m) : **TS351=2.5. TS43=3.5. TS54=7.5. AJS3010T10=2.5. AJS4012T15=3.5. AJS5014T25=7.5**

AJX

MULTI FUNCTIONAL MILLING

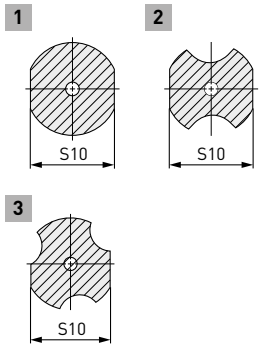
P M K S H





Right hand tool holder only.

A-A



SCREW-IN-TYPE

Order number	Stock	APMX	DC	DCON	DCX	LF	OAL	RMPX	AZ	WT	ZEFP	Type	
AJX06R162AM08	●	1	8.9	8.5	16	25	43	3°	0.3	0.1	2	2	JOM○06 T2○○ZZoR -○○
AJX06R172AM08	●	1	9.9	8.5	17	25	43	2.5°	0.3	0.1	2	2	
AJX06R203AM10	●	1	12.9	10.5	20	28	47	1.5°	0.3	0.1	3	3	
AJX06R223AM10	●	1	14.9	10.5	22	28	47	1°	0.3	0.1	3	3	
AJX06R254AM1235	●	1	17.9	12.5	25	35	57	0.8°	0.3	0.1	4	1	JOM○06T2
AJX06R284AM1235	●	1	20.9	12.5	28	35	57	0.7°	0.3	0.1	4	1	JOM○06T2
AJX08R202AM10	●	1.5	11.4	10.5	20	28	47	3.5°	0.5	0.1	2	2	JOM○080 3○○ZZ○R -○○
AJX08R222AM10	●	1.5	13.4	10.5	22	28	47	3°	0.5	0.1	2	2	
AJX08R253AM12	●	1.5	16.4	12.5	25	36	58	2°	0.5	0.1	3	1	
AJX08R283AM12	●	1.5	19.4	12.5	28	36	58	1.7°	0.5	0.1	3	1	
AJX08R324AM1645	●	1.5	23.4	17.0	32	45	68	1.4°	0.5	0.2	4	1	JOM○0803
AJX08R354AM1645	●	1.5	26.4	17.0	35	45	68	1.2°	0.5	0.2	4	1	JOM○0803
AJX08R406AM1645	●	1.5	31.4	17.0	40	45	68	1°	0.5	0.3	6	1	JOM○0803
AJX09R252AM12	●	2	14.9	12.5	25	36	58	4°	1	0.2	2	2	JDM○09T 3○○ZD○R -○○
AJX09R282AM12	●	2	17.9	12.5	28	36	58	3°	1	0.2	2	2	
AJX09R303AM16	●	2	20.0	17	30	47	70	2.7°	1	0.2	3	1	
AJX09R323AM16	●	2	21.9	17	32	47	70	2.5°	1	0.2	3	1	
AJX09R353AM16	●	2	24.9	17	35	47	70	2°	1	0.2	3	1	
AJX09R404AM16	●	2	29.9	17	40	60	83	1.5°	1	0.2	4	1	
AJX12R302AM16	●	2	18.3	17	30	47	70	4.5°	1.5	0.3	2	2	JDM○ 1204○○ ZD○R -○○
AJX12R322AM16	●	2	20.3	17	32	47	70	4°	1.5	0.3	2	2	
AJX12R352AM16	●	2	23.3	17	35	47	70	3.5°	1.5	0.3	2	2	
AJX12R403AM16	●	2	28.3	17	40	60	83	3°	1.5	0.3	3	2	

1/1

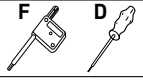
● : Inventory maintained. ★ : Inventory maintained in Japan.

AJX – SCREW-IN-TYPE

MOUNTING DIMENSIONS

Order number	CRKS	S10	DCON	DCSFMS	DCX	Type
AJX06R162AM08	M8	10	8.5	13	16	2
AJX06R172AM08	M8	10	8.5	13	17	2
AJX06R203AM10	M10	15	10.5	18	20	3
AJX06R223AM10	M10	15	10.5	18	22	3
AJX06R254AM1235	M12	19	12.5	23.5	25	1
AJX06R284AM1235	M12	19	12.5	23.5	28	1
AJX08R202AM10	M10	15	10.5	18	20	2
AJX08R222AM10	M10	15	10.5	18	22	2
AJX08R253AM12	M12	17	12.5	21	25	1
AJX08R283AM12	M12	17	12.5	21	28	1
AJX08R324AM1645	M16	24	17	29	32	1
AJX08R354AM1645	M16	24	17	29	35	1
AJX08R406AM1645	M16	24	17	29	40	1
AJX09R252AM12	M12	17	12.5	21	25	2
AJX09R282AM12	M12	17	12.5	21	28	2
AJX09R303AM16	M16	22	17	29	30	1
AJX09R323AM16	M16	22	17	29	32	1
AJX09R353AM16	M16	22	17	29	35	1
AJX09R404AM16	M16	22	17	29	40	1
AJX12R302AM16	M16	22	17	29	30	2
AJX12R322AM16	M16	22	17	29	32	2
AJX12R352AM16	M16	22	17	29	35	2
AJX12R403AM16	M16	22	17	29	40	2

SPARE PARTS

Tool holder					
	Clamp screw	Clamp bridge	Clamp bridge screw	Spring	Wrench
AJX06	TS25	—	—	—	TKY08**F**
AJX08	TS33	—	—	—	TKY08**D**
AJX09	TS351	AMS3	AJS3010T10	ASS2	TKY10**D**
AJX12R302AM16	TS407	AMS4	AJS4012T15	ASS2	TKY15**D**
AJX12	TS43	AMS4	AJS4012T15	ASS2	TKY15**D**

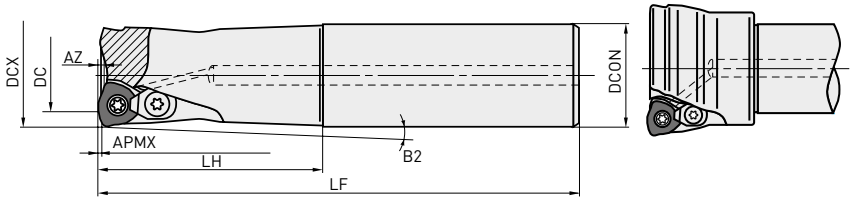
1. Clamp torque (N • m) : **TS25=1.0. TS33=1.0. TS351=2.5. TS407=3.5. TS43=3.5. AJS3010T10=2.5. AJS4012T15=3.5**

● : Inventory maintained. ★ : Inventory maintained in Japan.

AJX

MULTI FUNCTIONAL MILLING

P M K S H



Right hand tool holder only.

STRAIGHT SHANK TYPE

Order number	Stock	APMX	DC	DCON	DCX	LF	LH	B2	RMPX	AZ	ZEFP	
AJX06R162SA16ES	●	1	8.9	16	16	70	20	3.5°	3°	0.3	2	
AJX06R172SA16ES	●	1	9.9	16	17	70	20	—	2.5°	0.3	2	
AJX06R162SA16S	●	1	8.9	16	16	110	30	2.25°	3°	0.3	2	
AJX06R172SA16S	●	1	9.9	16	17	110	20	—	2.5°	0.3	2	
AJX06R203SA20S	●	1	12.9	20	20	130	50	1.31°	1.5°	0.3	3	
AJX06R223SA20S	●	1	14.9	20	22	130	30	—	1°	0.3	3	
AJX06R254SA25S	●	1	17.9	25	25	140	60	1.11	0.8°	0.3	4	
AJX06R284SA25S	●	1	20.9	25	28	140	40	—	0.7°	0.3	4	
AJX06R325SA32S	●	1	24.9	32	32	150	70	0.94	0.5°	0.3	5	
AJX06R326SA32S	●	1	24.9	32	32	150	70	0.94	0.5°	0.3	6	JOMO06T2OO ZZOR-OO
AJX06R162SA16L	●	1	8.9	16	16	150	70	0.93°	3°	0.3	2	
AJX06R172SA16L	●	1	9.9	16	17	150	20	—	2.5°	0.3	2	
AJX06R203SA20L	●	1	12.9	20	20	180	100	0.64°	1.5°	0.3	3	
AJX06R223SA20L	●	1	14.9	20	22	180	30	—	1°	0.3	3	
AJX06R254SA25L	●	1	17.9	25	25	200	120	0.54	0.8°	0.3	4	
AJX06R284SA25L	●	1	20.9	25	28	200	40	—	0.7°	0.3	4	
AJX06R325SA32L	●	1	24.9	32	32	200	120	0.54	0.5°	0.3	5	
AJX06R162SA16EL	★	1	8.9	16	16	200	100	0.64°	3°	0.3	2	
AJX06R172SA16EL	★	1	9.9	16	17	200	20	—	2.5°	0.3	2	
AJX08R202SA20S	●	1.5	11.4	20	20	130	50	1.34°	3.5°	0.5	2	
AJX08R222SA20S	●	1.5	13.4	20	22	130	30	—	3°	0.5	2	
AJX08R253SA25S	●	1.5	16.4	25	25	140	60	1.1°	2°	0.5	3	
AJX08R283SA25S	●	1.5	19.4	25	28	140	40	—	1.7°	0.5	3	
AJX08R324SA32S	●	1.5	23.4	32	32	150	70	0.95	1.4°	0.5	4	
AJX08R406SA32S	●	1.5	31.4	32	40	150	50	—	1°	0.5	6	
AJX08R202SA20L	●	1.5	11.4	20	20	180	100	0.65°	3.5°	0.5	2	JOMO0803OO ZZOR-OO
AJX08R222SA20L	●	1.5	13.4	20	22	180	30	—	3°	0.5	2	
AJX08R253SA25L	●	1.5	16.4	25	25	200	120	0.54°	2°	0.5	3	
AJX08R283SA25L	●	1.5	19.4	25	28	200	40	—	1.7°	0.5	3	
AJX08R324SA32L	●	1.5	23.4	32	32	200	120	0.55	1.4°	0.5	4	
AJX08R406SA32L	●	1.5	31.4	32	40	250	50	—	1°	0.5	6	
AJX08R202SA20EL	★	1.5	11.4	20	20	250	130	0.5°	3.5°	0.5	2	
AJX08R222SA20EL	★	1.5	13.4	20	22	250	30	—	3°	0.5	2	

1. Please refer to page 23, for maximum depth of cut (APMX) and maximum plunging depth (AZ).

● : Inventory maintained. ★ : Inventory maintained in Japan.

AJX – STRAIGHT SHANK TYPE

Order number	Stock	APMX	DC	DCON	DCX	LF	LH	B2	RMPX	AZ	ZEFP	
AJX09R252SA25S	●	2	14.9	25	25	140	60	1.1°	4°	1	2	
AJX09R282SA25S	●	2	17.9	25	28	140	40	—	3°	1	2	
AJX09R303SA32S	●	2	20.0	32	30	150	70	1.79°	2.7°	1	3	
AJX09R323SA32S	●	2	21.9	32	32	150	70	0.94°	2.5°	1	3	
AJX09R353SA32S	●	2	24.9	32	35	150	50	—	2°	1	3	
AJX09R404SA32S	●	2	29.9	32	40	150	50	—	1.5°	1	4	
AJX09R252SA25L	●	2	14.9	25	25	200	120	0.54°	4°	1	2	
AJX09R282SA25L	●	2	17.9	25	28	200	40	—	3°	1	2	JDM○09T3○○ ZD○R-○○
AJX09R303SA32L	●	2	20.0	32	30	200	120	1.03°	2.7°	1	3	
AJX09R323SA32L	●	2	21.9	32	32	200	120	0.54°	2.5°	1	3	
AJX09R353SA32L	●	2	24.9	32	35	200	50	—	2°	1	3	
AJX09R404SA32L	●	2	29.9	32	40	250	50	—	1.5°	1	4	
AJX09R404SA40S	●	1.2	29.9	40	40	150	70	1.8°	1.8°	1	4	
AJX09R404SA40L	□	1.2	29.9	40	40	250	70	0.43°	0.92°	1	4	
AJX09R252SA25EL	★	2	14.9	25	25	300	180	0.36°	4°	1	2	
AJX09R282SA25EL	★	2	17.9	25	28	300	40	—	3°	1	2	
AJX12R302SA32S	●	2	18.3	32	30	150	70	1.82°	4.5°	1.5	2	
AJX12R322SA32S	●	2	20.3	32	32	150	70	0.96°	4°	1.5	2	
AJX12R352SA32S	●	2	23.3	32	35	150	50	—	3.5°	1.5	2	
AJX12R403SA32S	●	2	28.3	32	40	150	50	—	3°	1.5	3	
AJX12R403SA40S	●	1.2	28.3	40	40	150	70	0.35°	0.95°	1.5	3	
AJX12R403SA40L	□	1.2	28.3	40	40	250	70	0.35°	0.95°	1.5	3	
AJX12R402SA40EL	□	1.2	28.3	40	40	350	70	0.35°	0.95°	1.5	2	
AJX12R403SA42S	★	2	28.3	42	40	150	70	1.79°	3°	1.5	3	
AJX12R302SA32L	●	2	18.3	32	30	200	120	1.04°	4.5°	1.5	2	JDM○1204○ ZD○R-○○
AJX12R322SA32L	●	2	20.3	32	32	200	120	0.55°	4°	1.5	2	
AJX12R352SA32L	●	2	23.3	32	35	200	50	—	3.5°	1.5	2	
AJX12R403SA32L	●	2	28.3	32	40	250	50	—	3°	1.5	3	
AJX12R403SA42L	★	2	28.3	42	40	250	70	1.79°	3°	1.5	3	
AJX12R302SA32EL	★	2	18.3	32	30	300	180	0.69°	4.5°	1.5	2	
AJX12R322SA32EL	★	2	20.3	32	32	300	180	0.36°	4°	1.5	2	
AJX12R352SA32EL	★	2	23.3	32	35	300	50	—	3.5°	1.5	2	
AJX12R402SA32EL	★	2	28.3	32	40	350	50	—	3°	1.5	2	
AJX12R402SA42EL	★	2	28.3	42	40	350	70	1.79°	3°	1.5	2	
AJX14R503SA40S	●	1.2	38.2	40	50	150	50	—	4.2°	2	3	
AJX14R503SA40L	□	1.2	38.2	40	50	250	50	—	4.2°	2	3	
AJX14R503SA42S	★	2	38.2	42	50	150	50	—	4.2°	2	3	
AJX14R503SA42L	★	2	38.1	42	50	250	50	—	4.2°	2	4	JDM○1405○○ ZD○R-○
AJX14R634SA40S	□	1.2	51.1	40	63	150	50	—	2.8°	2	4	
AJX14R634SA40L	□	1.2	51.1	40	63	250	50	—	2.8°	2	4	
AJX14R634SA42S	★	2	51.1	42	63	150	50	—	2.8°	2	4	
AJX14R634SA42L	★	2	51.1	42	63	250	50	—	2.8°	2	4	

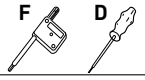
1. Please refer to page 23, for maximum depth of cut (APMX) and maximum plunging depth (AZ).

18 Vc

● : Inventory maintained. ★ : Inventory maintained in Japan. □ : Produced to order only

AJX – STRAIGHT SHANK TYPE

SPARE PARTS

Tool holder					
	Clamp screw	**Clamp bridge**	**Clamp bridge screw**	**Spring**	**Wrench**
AJX06	TS25	—	—	—	TKY08**F**
AJX08	TS33	—	—	—	TKY08**D**
AJX09	TS351	AMS3	AJS3010T10	ASS2	TKY10**D**
AJX12R302	TS407	AMS4	AJS4012T15	ASS2	TKY15**D**
AJX12	TS43	AMS4	AJS4012T15	ASS2	TKY15**D**
AJX14	TS54	AMS5	AJS5014T25	ASS3	TKY25**D**

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**

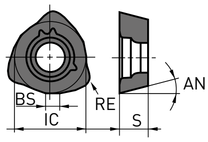
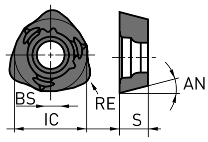
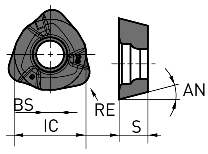
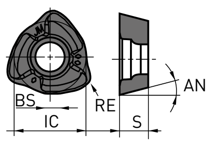
● : Inventory maintained. ★ : Inventory maintained in Japan.

AJX

INSERTS

		MP1220	MP1230	MP1240	FH7020	MP6120	MP6130	MP7130	MP7140	MP9120	MP9130	MP9140	MV1020	MV1030	VP15TF	VP30RT
P	Steel	●	◐		◐	◐	✤						◆	◆	◐	✤
M	Stainless steel		◐	✤				◐	✤					◆	◐	✤
K	Cast iron					●							◆	◆	✤	
S	Heat resistant alloy, Titanium	●	◐	✤						◐	✤	✤			◐	
H	Hardened steel														◐	

Cutting conditions:
●: Stable cutting ◐: General cutting ✤: Unstable cutting

Order number	Class	NEW MP1220	NEW MP1230	NEW MP1240	FH7020	MP6120	MP6130	MP7130	MP7140	MP9120	MP9130	MP9140	MV1020	MV1030	VP15TF	VP30RT	IC	S	BS	RE	AN	**Geometry** *Right hand insert only.*
JOMW06T215ZZSR-FT	M	●	●	●	●	●	●	●	●	●	●		●	●	●	●	6.35	2.78	1.2	1.5	13°	
JOMW080320ZZSR-FT	M	●	●	●	●	●	●	●	●	●	●		●	●	●	●	8.0	3.18	1.4	2.0	13°	
JDMW09T320ZDSR-FT	M	●	●	●	●	●	●	●	●	●	●		●	●	●	●	9.525	3.97	1.8	2.0	15°	
JDMW120420ZDSR-FT	M	●	●	●	●	●	●	●	●	●	●		●	●	●	●	12.0	4.76	2.5	2.0	15°	
JDMW140520ZDSR-FT	M	●	●	●	●	●	●	●	●	●	●		●	●	●	●	14.0	5.56	2.8	2.0	15°	
JDMT120420ZDSR-ST	M	●	●		●	●	●	●	●				●	●	●	●	12.0	4.76	2.5	2.0	15°	
JDMT140520ZDSR-ST	M	★	●		●	●	●	●	●				●	●	●	●	14.0	5.56	2.8	2.0	15°	
JOMT06T216ZZER-JL	M	●	●	●				●	●	●	●	●	●	●			6.35	2.78	1.2	1.6	13°	
JOMT080322ZZER-JL	M	●	●	●				●	●	●	●	●	●	●			8.0	3.18	1.4	2.2	13°	
JDMT09T323ZDER-JL	M	●	●	●				●	●	●	●	●	●	●			9.525	3.97	1.8	2.3	15°	
JDMT120423ZDER-JL	M	●	●	●				●	●	●	●	●	●	●			12.0	4.76	2.5	2.3	15°	
JDMT140523ZDER-JL	M	●	●	●				●	●	●	●	●	●	●			14.0	5.56	2.8	2.3	15°	
JOMT06T215ZZSR-JM	M	●	●	●	●	●	●	●	●	●	●		●	●	●	●	6.35	2.78	1.2	1.5	13°	
JOMT080320ZZSR-JM	M	●	●	●	●	●	●	●	●	●	●		●	●	●	●	8.0	3.18	1.4	2.0	13°	
JDMT09T320ZDSR-JM	M	●	●	●	●	●	●	●	●	●	●		●	●	●	●	9.525	3.97	1.8	2.0	15°	
JDMT120420ZDSR-JM	M	●	●	●	●	●	●	●	●	●	●		●	●	●	●	12.0	4.76	2.5	2.0	15°	
JDMT140520ZDSR-JM	M	●	●	●	●	●	●	●	●	●	●		●	●	●	●	14.0	5.56	2.8	2.0	15°	

1/1

1. When using the ST chipbreaker, please check the height setting as it differs from other chipbreakers.

18

AJX

RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED

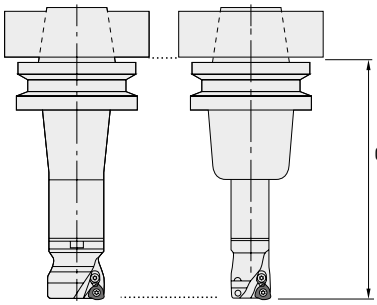
	Material	Properties	Grade	Vc
P	Mild steel	≤180HB	MV1020	230 (180 – 280)
			FH7020	170 (120–220)
			MV1030	160 (100 – 220)
			MP1220	150 (100–200)
			MP6120	150 (100–200)
			MP1230	130 (80–180)
			MP6130	130 (80–180)
			VP30RT	110 (60–160)
	Carbon steel Alloy steel	180–280HB	MV1020	220 (170 – 270)
			MV1030	150 (80 – 220)
			FH7020	150 (100–200)
			MP1220	130 (80–180)
			MP6120	130 (80–180)
			MP1230	110 (60–160)
			MP6130	110 (60–160)
			VP30RT	90 (40–140)
	Carbon steel Alloy steel	280–350HB	MV1020	180 (100 – 250)
			MV1030	140 (70 – 210)
			FH7020	130 (80–180)
			MP1220	100 (50–150)
			MP6120	100 (50–100)
			MP1230	80 (30–130)
			MP6130	80 (30–130)
			VP30RT	60 (20–110)
	Alloy tool steel	≤350HB (Annealing)	MV1020	180 (100 – 250)
			MV1030	140 (70 – 210)
			FH7020	130 (80–180)
			MP1220	100 (50–150)
			MP6120	100 (50–150)
			MP1230	80 (30–120)
			MP6130	80 (30–120)
			VP30RT	60 (20– 90)
	Pre-hardened steel	35–45HRC	MP1220	100 (70–130)
			MP6120	100 (70–130)
			MP1230	80 (50–110)
			MP6130	80 (50–110)
			VP30RT	80 (30– 90)
M	Austenitic stainless steel	≤200HB	MV1030	160 (130 – 200)
		>200HB	MV1030	140 (80 – 200)
		≤270HB	MP1230	140 (100–180)
			MP7130	140 (100–180)
			MP1240	120 (80–160)
			MP7140	120 (80–160)
	PH stainless steel	<450HB	MV1030	140 (80 – 200)

AJX – CUTTING SPEED

	Material	Properties	Grade	Vc
K	Gray cast iron	≤350MPa	MP1220	150 (100–200)
			FH7020	150 (100–200)
			MP1230	140 (100–180)
		≤450MPa	MV1020	210 (160 – 260)
			MV1030	160 (120 – 210)
	Ductile cast iron	≤450MPa	MP1220	150 (100–200)
			MP1230	140 (100–180)
		≤800MPa	MV1020	190 (140 – 240)
			MP1220	120 (80–160)
			MV1030	130 (90 – 170)
			MP1230	110 (80–140)
			VP15TF	120 (80–160)
S	Titanium alloy	—	MP1220	50 (40– 60)
			MP9120	50 (40– 60)
			MP1230	45 (30– 55)
			MP9130	45 (30– 55)
			MP1240	40 (30– 50)
			MP9140	40 (30– 50)
	Heat resistant alloy	≤350 HB	MP1220	30 (20– 40)
			MP9120	30 (20– 40)
			MP1230	25 (20– 35)
			MP9130	25 (20– 35)
			MP1240	20 (15– 30)
			MP9140	20 (15– 30)
H	Hardened steel	40–55HRC	VP15TF	70 (50– 90)

AJX

1 Overhang length L



2 Main spindle revolution n (min^{-1})= (Recommended cutting speed x 1000)÷ (Outer tool diameter x 3.14)

3 Table feed rate Vf(mm/min) = n x feed per tooth x 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 35 mm is recommended. In these cases, also reduce the depth of cut and table feed rate.

6 Use of ST chipbreaker with a tougher cutting edge is recommended for machining parts that require interrupted cutting. First recommended grade for ST chipbreakers is VP30RT, irrespective of the workpiece material.

7 Cutter body with a coarse pitch is recommended for the unstable cutting caused by a 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 AJX. To avoid chip jamming related problems, use air blow while machining to discharge chips effectively.

DEPTH OF CUT / FEED PER TOOTH

	Material	Properties	DCX=16.17			DCX=20.22			DCX=25.28		
			L	ap	fz	L	ap	fz	L	ap	fz
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	≤350 HB	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	Austenitic stainless steel	≤270 HB	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	≤350 MPa	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	≤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	Titanium alloy	—	140	0.6	0.6	160	0.8	0.6	170	1.0	0.6
	Heat resistant alloy	≤350 HB	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

1/2

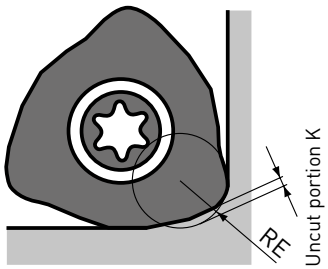
AJX – DEPTH OF CUT / FEED PER TOOTH

	Material	Properties	DCX=30. 32. 35			DCX=40. (32 Shank Type)			DCX=40. (42 Shank Type)			DCX=50. 63		
			L	ap	fz	L	ap	fz	L	ap	fz	L	ap	fz
P	Mild steel	≤180HB	180	1.2	1.4	180	1.2	1.4	180	1.2	1.5	180	1.4	1.5
			230	1.0	1.2	240	1.0	1.2	240	1.0	1.3	240	1.2	1.3
			290	0.8	1.0	300	0.8	1.0	300	0.8	1.1	—	—	—
	Carbon steel Alloy steel	180 – 280HB	180	1.2	1.4	180	1.2	1.4	180	1.2	1.5	180	1.4	1.5
			230	1.0	1.2	240	1.0	1.2	240	1.0	1.3	240	1.2	1.3
			290	0.8	1.0	300	0.8	1.0	300	0.8	1.1	—	—	—
	Carbon steel Alloy steel	280 – 350HB	180	1.0	1.4	180	1.0	1.4	180	1.0	1.5	180	1.2	1.5
			230	0.8	1.2	240	0.8	1.2	240	0.8	1.3	240	1.0	1.3
			290	0.6	1.0	300	0.6	1.0	300	0.6	1.1	—	—	—
	Alloy tool steel	≤350 HB	180	1.0	1.4	180	1.0	1.4	180	1.0	1.5	180	1.2	1.5
			230	0.8	1.2	240	0.8	1.2	240	0.8	1.3	240	1.0	1.3
			290	0.6	1.0	300	0.6	1.0	300	0.6	1.1	—	—	—
	Pre-hardened steel	35 – 45HRC	180	1.0	1.2	180	1.0	1.2	180	1.0	1.3	180	1.2	1.3
			230	0.8	1.0	240	0.8	1.0	240	0.8	1.1	240	1.0	1.1
			290	0.6	0.8	300	0.6	0.8	300	0.6	0.9	—	—	—
M	Austenitic stainless steel	≤270HB	180	1.2	1.2	180	1.2	1.2	180	1.2	1.3	180	*1.4	1.3
			230	1.0	1.0	240	1.0	1.0	240	1.0	1.1	240	1.2	1.1
			290	0.8	0.8	300	0.8	0.8	300	0.8	0.9	—	—	—
K	Gray cast iron	≤350MPa	180	1.2	1.6	180	1.2	1.6	180	1.2	1.7	180	1.4	1.7
			230	1.0	1.4	240	1.0	1.4	240	1.0	1.5	240	1.2	1.5
			290	0.8	1.2	300	0.8	1.2	300	0.8	1.3	—	—	—
	Ductile cast iron	≤450MPa	180	1.0	1.4	180	1.0	1.4	180	1.0	1.5	180	1.2	1.5
			230	0.8	1.2	240	0.8	1.2	240	0.8	1.3	240	1.0	1.3
			290	0.6	1.0	300	0.6	1.0	300	0.6	1.1	—	—	—
S	Titanium alloy	—	180	1.2	0.6	180	1.2	0.6	180	1.2	0.6	180	1.2	0.6
	Heat resistant alloy	≤350 HB	230	1.0	0.4	240	1.0	0.4	240	1.0	0.4	240	1.0	0.4
			290	0.8	0.3	300	0.8	0.3	300	0.8	0.3	—	—	—
H	Hardened steel	40 – 55HRC	180	0.6	1.0	180	0.6	1.0	180	0.6	1.1	180	0.8	1.1
			230	0.5	0.8	240	0.5	0.8	240	0.5	0.9	240	0.6	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 0.6 mm for the size 06. up to 0.9 mm for the size 08 and up to 1.2 mm for the size 09. 12. 14.

NOTE FOR PROGRAMMING

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



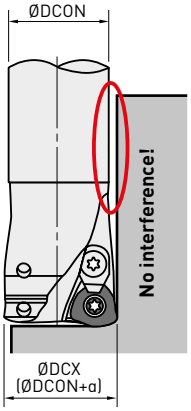
Insert size		Approx. RE	Uncut portion K
06	FT/JM	2.0	0.33
	JL	2.5	0.32
08	FT/JM	2.5	0.46
	JL	2.0	0.40
09	FT/JM	3.0	0.47
	JL	3.0	0.46
12	FT/JM/ST	3.0	0.63
	JL	3.0	0.53
14	FT/JM/ST	3.0	0.64
	JL	3.0	0.55

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

NO WORKPIECE INTERFERENCE

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

Shank diameter



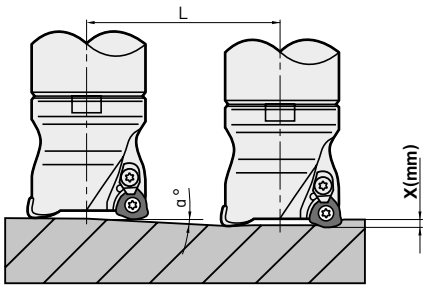
Cutting edge diameter

Order number	DCX	DCON
AJX06R172SA16◌	17	16
AJX06R223SA20◌	22	20
AJX08R222SA20◌	22	20
AJX08R283SA20◌	28	20
AJX09R282SA25◌	28	25
AJX09R353SA32◌	35	32
AJX09R404SA32◌	40	32
AJX12R352SA32◌	35	32
AJX12R40oSA32◌	40	32
AJX14R503SA42◌	50	42
AJX14R634SA42◌	63	42

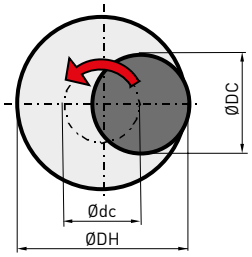
1. Please refer to page 14/15 for details of the holder.

RECOMMENDED CUTTING CONDITIONS

RAMPING



HELICAL DRILLING



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

Ødc	=	ØDH	- ØDC
Locus of the center of the tool		Desired hole diameter	Cutting edge 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 0.2 mm/rev or less.
- The long chips generated can disperse, so ensure that adequate safety precautions are taken.

Tool holder type	DCX	DC	APMX		RMPX	Ramping				Helical drilling		AZ
			Breaker			L (mm) Required distance for X mm depth				DH		
			FT/JM/ST	JL		X=1	x=1.2	x=1.5	x=2	Min	Max.	
SHANK TYPE/SCREW-IN TYPE												
AJX06	16	8.9	1	0.6	3°	19.1	—	—	—	23	29	0.3
AJX06	17	9.9	1	0.6	2.5°	22.9	—	—	—	25	31	0.3
AJX06	20	12.9	1	0.6	1.5°	38.2	—	—	—	31	37	0.3
AJX06	22	14.9	1	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	—	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	1.2	4°	14.3	17.2	21.5	28.6	33	46	1
AJX09	28	17.9	2	1.2	3°	19.1	22.9	28.6	38.1	39	52	1
AJX09	30	20	2	1.2	2.7°	21.2	25.4	31.8	42.4	43	56	1
AJX09	32	21.9	2	1.2	2.5°	22.9	27.5	34.4	45.8	47	60	1
AJX09	35	24.9	2	1.2	2°	28.6	34.4	43	57.3	53	66	1
AJX09	40	29.9	2	1.2	1.5°	38.2	45.8	57.3	76.4	63	76	1
AJX12	30	18.3	2	1.2	4.5°	12.7	15.2	19	25.4	39	56	1.5
AJX12	32	20.3	2	1.2	4°	14.3	17.2	21.4	28.6	41	60	1.5
AJX12	35	23.3	2	1.2	3.5°	16.3	19.6	24.5	32.7	47	66	1.5
AJX12	40	28.3	2	1.2	3°	19.1	22.9	28.6	38.2	57	76	1.5
AJX14	50	38.2	2	1.2	4.2°	13.6	16.3	20.4	27.2	72	96	2
AJX14	63	51.1	2	1.2	2.8°	20.4	24.5	30.7	40.9	98	122	2
ARBOR TYPE												
AJX09	50	40	2	1.2	1.1°	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

● : Inventory maintained. ★ : Inventory maintained in Japan.

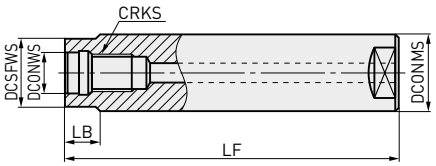
SELECTION REFERENCE TABLE

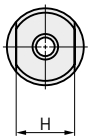
CUTTING EDGE COUNT AND CUTTING CONDITIONS

DCX	Coarse pitch			Fine pitch			Extra fine pitch			Ultra fine pitch					
	Tool holder type	ZEFP	Vf	Tool holder type	ZEFP	Vf	Tool holder type	ZEFP	Vf	Tool holder type	ZEFP	Vf	Tool holder type	ZEFP	Vf
ARBOR TYPE															
32										AJX06	5	7400	AJX06	6	8900
40										AJX08	6	7100			
42										AJX08	6	6800			
50	AJX12	3	3100	AJX12	4	4200	AJX09	5	5200	AJX09	6	6300	AJX08	7	7300
52										AJX09	6	6000	AJX08	7	7000
63	AJX14	3	2500	AJX14	4	3300	AJX12	5	4100	AJX12	6	5000	AJX09	7	5800
63	AJX14	3	2500	AJX14	4	3300	AJX12	5	4100	AJX12	6	5000	AJX09	7	5800
66	AJX14	3	2300	AJX14	4	3100	AJX12	5	3900	AJX12	6	4700	AJX09	7	5500
80	AJX14	4	2300	AJX14	5	2900	AJX12	6	3500	AJX12	8	4700			
100	AJX14	5	2300	AJX14	6	2800	AJX12	7	3300	AJX12	9	4200			
125	AJX14	5	1900	AJX14	7	2600				AJX14	9	3400			
160	AJX14	6	1700	AJX14	8	2300									
SHANK TYPE AND LONG SHANK TYPE															
16	AJX06	2	2300												
17	AJX06	2	2200												
20	AJX08	2	2800	AJX06	3	4200									
22	AJX08	2	2600	AJX06	3	3900									
25	AJX09	2	3000	AJX08	3	4500	AJX06	4	6100						
28	AJX09	2	2700	AJX08	3	4000	AJX06	4	5400						
30	AJX12	2	3100	AJX09	3	4700									
32	AJX12	2	2900	AJX09	3	4400	AJX08	4	5900	AJX06	5	7400	AJX06	6	8900
40 (DCON=40)	AJX12	3	3500	AJX09	4	4700	AJX08	6	7100						
40 (DCON=42)	AJX12	3	3900	AJX09	4	5200									
50	AJX14	3	3700												
63	AJX14	4	3900												
SCREW-IN TYPE															
16	AJX06	2	2300												
17	AJX06	2	2200												
20	AJX08	2	2800	AJX06	3	4200									
22	AJX08	2	2600	AJX06	3	3900									
25	AJX09	2	3000	AJX08	3	4500	AJX06	4	6100						
28	AJX09	2	2700	AJX08	3	4000	AJX06	4	5400						
30	AJX12	2	3100	AJX09	3	4700									
32	AJX12	2	2900	AJX09	3	4400	AJX08	4	5900						
35	AJX12	2	2700	AJX09	3	4000	AJX08	4	5400						
40	AJX12	3	3500	AJX09	4	4700	AJX08	6	7100						

Cutting conditions
Material: SCM440
Insert: FH7020
Vc (m/min): 150
Protrusion amount is calculated based on the maximum value in the table for recommended conditions. (Rounded down to the last two digits.)

STRAIGHT SHANK ARBOR

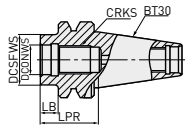




Order number	Stock	DCONWS	DCONMS	DCSFWS	LF	LB	H	CRKS
STEEL SHANK								
SC16M08S100S	★	8.5	16	14.5	100	10	10	M8
SC16M08S200L	★	8.5	16	14.5	200	10	10	M8
SC20M10S120S	★	10.5	20	18.5	120	10	14	M10
SC20M10S220L	★	10.5	20	18.5	220	10	14	M10
SC25M12S125S	★	12.5	25	23.5	125	10	19	M12
SC25M12S245L	★	12.5	25	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								
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

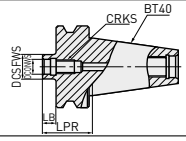
BT30 SHANK ARBOR

Order number	Stock	DCONWS	DCSFWS	LPR	LB	CRKS	Execution
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	



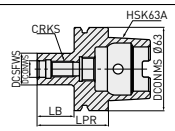
BT40 SHANK ARBOR

Order number	Stock	DCONWS	DCSFWS	LPR	LB	CRKS	Execution
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

Order number	Stock	DCONWS	DCSFWS	LPR	LB	CRKS	Execution
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	



● : Inventory maintained. ★ : Inventory maintained in Japan.

SYMBOLS

Recommended cutting conditions

Completely new products or expansions released in the current Spring or Autumn product launch and are not included in the latest version of the General Catalogue.

Products or expansions that have already been introduced in one of the previous Spring or Autumn product launches but are not included in the latest General Catalogue.

APPLICATION

Face milling

Chamfer milling

Shoulder milling with R

Face milling close to a wall

Shoulder milling

Side milling

Slot milling

Ramping

Pocket milling

Slot milling with R

Copy milling

T-Slot milling

MACHINING TYPE

Roughing

Medium cutting

Light cutting

Pre-finishing

Finishing

Fine-finishing

TOOL MATERIAL

Ultra micro grain carbide
Ultra micro grain carbide substrate material.

Cubic boron nitride
Mitsubishi Materials' original CBN material.

Ceramic
For high speed efficient machining of super alloys due to the excellent high temperature strength property.

High hardness powder metallurgy HSS
High hardness powder metallurgy HSS substrate material.

High grade high alloy HSS
High grade high alloy HSS substrate material.

Cobalt high speed steel
Cobalt high speed steel substrate material.

High speed steel
High speed steel substrate material.

SYMBOLS

COATING

SMART MIRACLE coating
New smooth and dense coating technology for high efficiency milling of difficult to cut materials.

CRN coating
Newly developed CrN coating for Copper Electrodes machining.

Violet coating
Increased tool life of 2-3 times more than TiN coated products.

DP coating
New generation coating suitable for a wide range of materials.

MIRACLE coating
The original Miracle (Al,Ti)N coating.
Also suitable for dry cutting.

(Al, Ti)N coating
(Al,Ti)N highly versatile application range.

(Al,Ti,Cr)N multi-layer coating
For carbon, alloy and hardened steels.

IMPACT MIRACLE coating
Single phase nano crystal coating technology has higher film hardness and heat resistance.

MIRACLE coating
The original MIRACLE (Al,Ti)N coating.
Also suitable for dry cutting.

VFR coating
The (AlCrSi)N/(AlTiSti)N PVD multilayer coating is ideal for machining of extremely hard materials up to 70 HRC.

DLC coating
Hardness similar to CVD diamond coating achieved with high adhesion strength.

Diamond coating
Suitable for CFRP and CFRP-aluminium materials.

Diamond coating
Suitable for graphite machining.

Diamond coating
The original CVD diamond coating.

CVD Diamond coating
Unique multi-layer micro-grain diamond crystal control technology drastically improves wear resistance and smoothness.

CUTTING EDGE PROPERTIES

Sharp corner edge
Indicates the end mill has a sharp corner edge.

Gash land
Indicates the end mill cutting edge has a protective chamfer.

Rake angle

Helix angle
Indicates the helix angle of the end mill.

Point angle
Indicates the drill point angle.

Roughing flute geometry

Variable helix

Rounded gash

Corner angle

WEB THINNING

X type point geometry
X web thinning used at the drill point.

XR type point geometry
XR web thinning used at the drill point.

S type point geometry
Easy cutting geometry.

N type point geometry
Effective when the point web is thick.

Chipbreaker

SYMBOLS

TOLERANCES	
	**Tolerance of taper angle** Indicates the tolerance of the taper angle.
	**R tolerance** Indicates the radial tolerance of a ball nose end mill.
	**R tolerance** Indicates the radial tolerance of the corner radius.
	**R tolerance** Indicates the radial tolerance of a cutter with a corner radius.
	**Outside diameter tolerance** Indicates the diameter tolerance of the end mill.
	**Peak tolerance** Indicates the tolerance for the end diameter.
	**Shank diameter tolerance**
	**Shank diameter tolerance**
	**Drill tolerance / diameter**
COOLANT HOLES	
	**External coolant**
	**Internal coolant**
	**Internal coolant**
	**Centered, internal coolant hole**
	**Radial, internal coolant holes**
	**Internal coolant holes**
	**Internal coolant holes**

MEMO

MEMO

MEMO

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