MITSUBISHI MATERIALS

ASX Series

SCREW-ON INSERT TYPE MILLING CUTTER





TOOL NEWS **B188A**

Screw-on Insert Type Shoulder Milling Cutter

ASX300 NEW

Eco-Friendly Downsized Model

The downsized model features a multi-tooth design that improves table feed, resulting in shorter machining time and reduced power consumption - ultimately helping to lower CO_2 emissions.
In addition, by keeping the cutting load per tooth at an optimal level, tool life can be extended, reducing the overall number of inserts required.

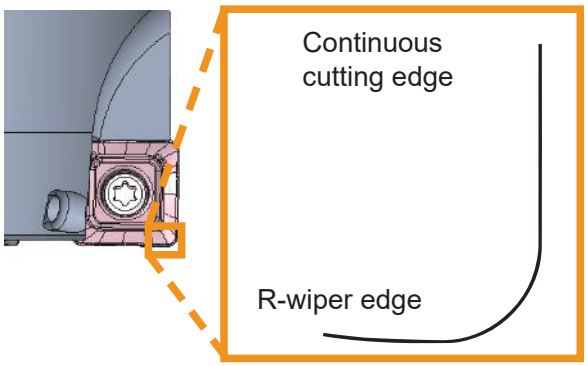
Improved Cutting Edge Ridge

ASX300 inserts have a smooth continuous cutting edge that improves the component surface finish and dimensional accuracy.

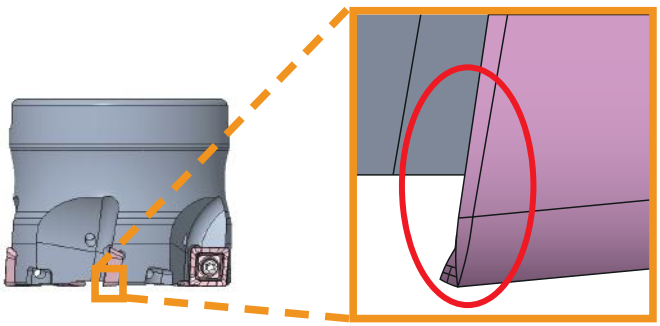
Optimized Cutting Edge Geometry

The geometry of the ASX300 optimizes the contact with the workpiece. This provides edge strength and improves chip evacuation. The extra edge strength resists damage even under high cutting loads.

Improved cutting edge profile



Cutting edge optimization

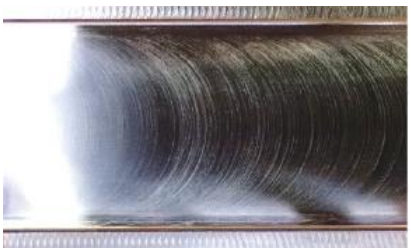


4140 Alloy Steel finished surface comparison

Achieves a glossy finish without cloudiness.



ASX300



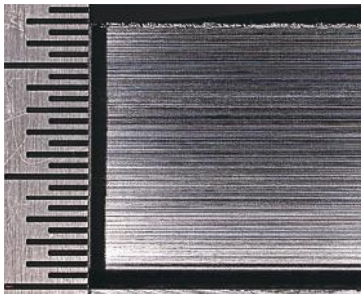
Conventional

<Cutting Conditions>
Material : AISI 4140 Alloy Steel
Cutter Dia. : ASX300 DC= .984 in
Insert : MV1030 M
Cutting Speed : vc= 985 SFM
Feed per Tooth : fz= .006 IPT
Depth of Cut : ap= .020 in
Width of Cut : ae= .984 in
Cutting Mode : Dry Cutting
Single Insert

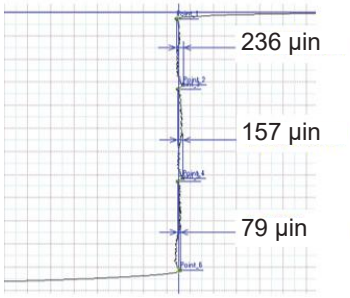
4140 Alloy Steel: Comparison of wall surface accuracy after shoulder milling

The improved cutting edge ridge reduces cutting steps.

ASX300

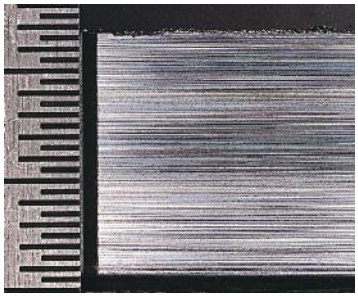


Maximum step height: 236 µin

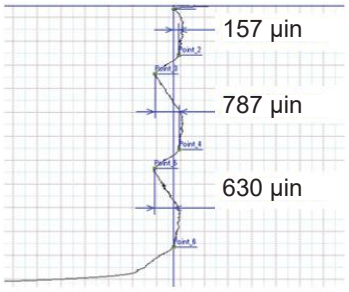


<Cutting Conditions>
Material : AISI 4140 Alloy Steel
Cutter Dia. : ASX300 DC= .984 in
Insert : MV1030 M
Cutting Speed : vc=820 SFM
Feed per Tooth : fz= .004 IPT
Depth of Cut : ap= .118 in × 3
Width of Cut : ae= .118 in
Cutting Mode : Dry Cutting
Single Insert

Conventional

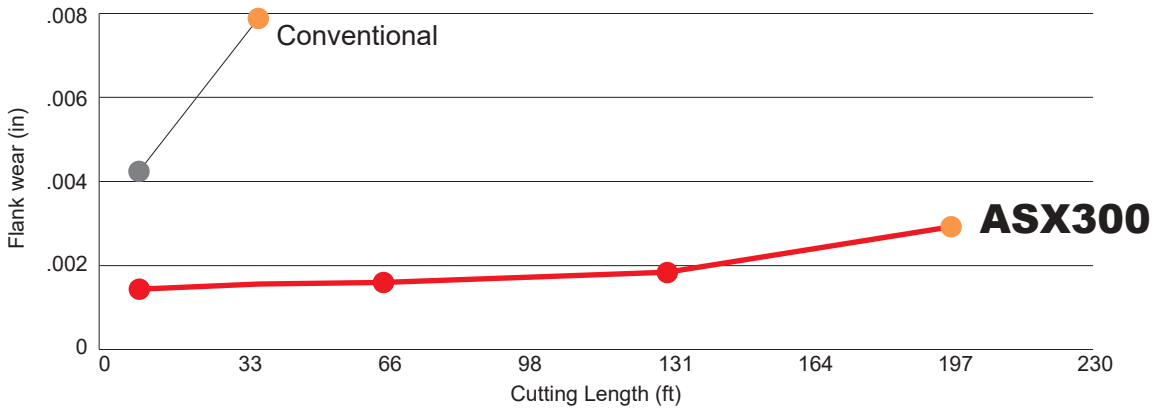


Maximum step height: 787 µin



Wear resistance comparison of 4140 Alloy Steel

The synergistic effect with grade MV1030 dramatically extends tool life under high-speed cutting conditions.



● : Cutting length at capture



ASX300



Conventional

<Cutting Conditions>
Material : AISI 4140 Alloy Steel
Cutter Dia. : ASX300 DC= .984 in
Insert : MV1030 M
Cutting Speed : vc= 1150 SFM
Feed per Tooth : fz= .004 IPT
Depth of Cut : ap= .008 in
Width of Cut : ae= .866 in
Cutting Mode : Dry Cutting
Single Insert

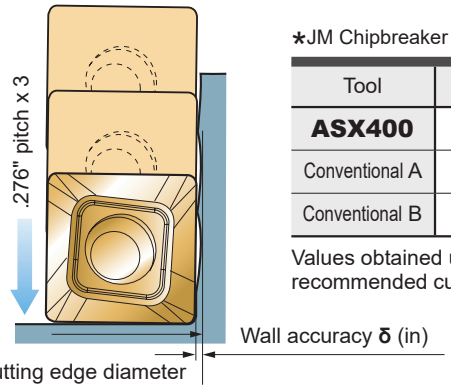
Screw-on Insert Type Shoulder Milling Cutter

ASX400

Features

Walls Finishes on Face

Due to the curved edge and high accuracy body and insert, accurate surface finishes on walls and good surface finishes on faces can be achieved.



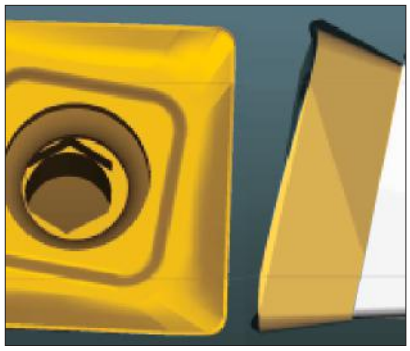
*JM Chipbreaker data

Tool	δ (mil)
ASX400	**1.2**
Conventional A	3.9
Conventional B	4.8

Values obtained under recommended cutting conditions.

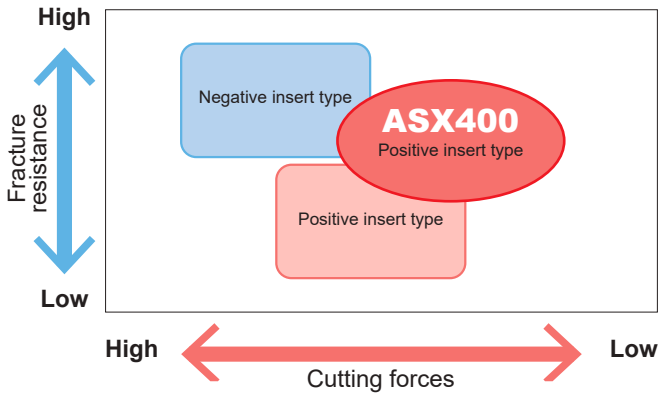
Low Resistance

Due to the 3D design of the cutting edge and a large rake angle, high cutting edge sharpness has been achieved with reduced cutting resistance.



	Cutting forces	Fracture resistance	Cutting heat
ASX400	Low	Low	Low
Negative triangular insert type	High	High	High

ASX400 is a well-balanced cutter for positive insert type that improves fracture resistance and reduces cutting resistance.
Effective for when workpiece with small thickness is cut and when heat generation is needed to suppress because of low cutting resistance, and ideal for finish cutting.



High Reliability

Uses a carbide shim and Mitsubishi's proprietary Anti-Fly-Insert (A.F.I) to prevent the inserts from moving when machining. Additionally the clamp screw uses TORXPLUS, for high clamping force ensuring high reliability.



Easy to Use

Employs a screw-on type mechanism, therefore inserts can easily be loaded. Additionally when indexing the insert, it is not necessary to remove the screw completely.



Screw-on Insert Type Face Milling Cutter

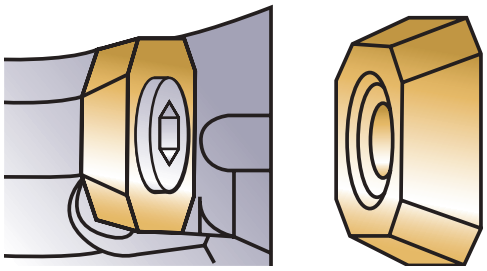
ASX445

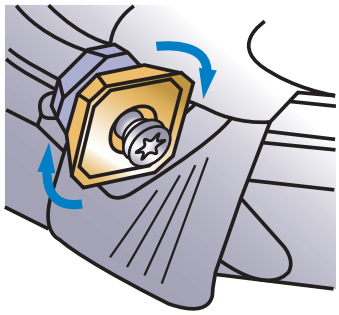
Features

Stable, Long Tool Life, High Accuracy Body

A carbide shim with Mitsubishi's proprietary Anti-Fly Insert (A.F.I) mechanism provides excellent insert location characteristics, permitting stable cutting even under high load conditions.

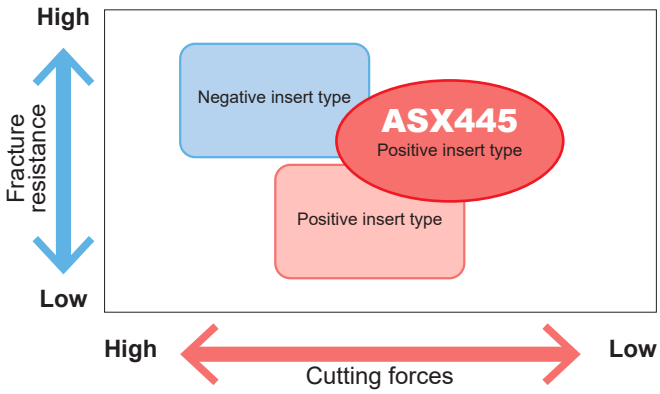
The ASX cutter uses screw-on type inserts that allow easy clamping of the inserts with high location precision. Indexing of the inserts can be performed without completely removing the screw.



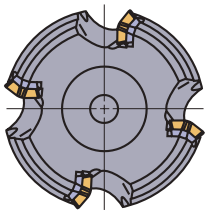


	Cutting forces	Fracture resistance	Cutting heat
ASX445	Low	Low	Low
Negative square insert type	High	High	High

ASX445 is a well-balanced cutter for positive insert type that improves fracture resistance and reduces cutting resistance.
Effective for when workpiece with small thickness is cut and when heat generation is needed to suppress because of low cutting resistance, and ideal for finish cutting.

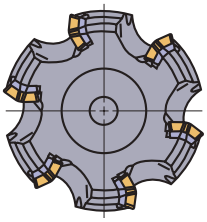


Classification by Number of Teeth



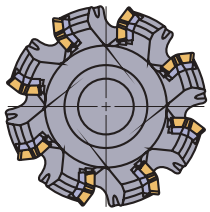
Coarse Pitch Type

1. **1st recommendation for cutting steel and stainless steel.**
2. For deep cutting and high feed rates with large-volume chip discharge.
3. Smooth cutting allows longer overhang applications.



Fine Pitch Type

1. **1st recommendation for cast iron, hardened steel and heat resistant alloys.**
2. For shallow cutting with low feed rates and low-volume chip discharge.



Extra Fine Pitch Type

1. **1st recommendation for cast iron.**
2. For cutting operations where chip discharge volume is small and a high table feed is desired.

PVD Coated Carbide Grade for Milling

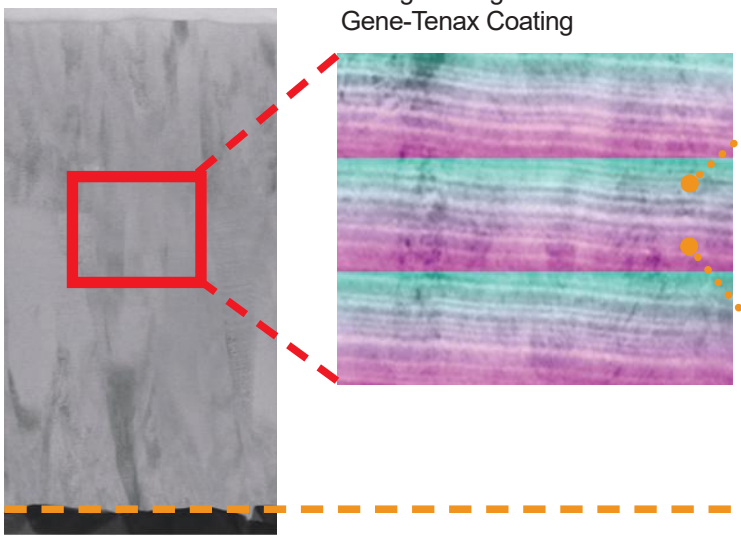
NEW

MP1200 Series MP1220, MP1230, MP1240

New Multilayer PVD Coating for Milling

Gene-Tenax Coating

A newly developed multilayer technology precisely controls the coating structure at the nano level. This simultaneously enhances wear, heat and adhesion resistance.
In addition, the high bonding strength with the carbide substrate ensures stable cutting performance across a wide range of workpiece materials.



Al-Rich Technology AlTiN-Based

Improved wear and heat resistance.

Original AlTiN Composite Functional Layer

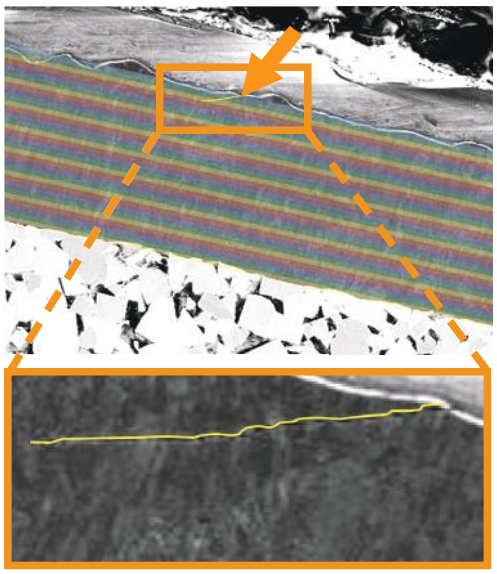
Increasingly resistant to oxidation and welding.

Technology to improve adhesion strength

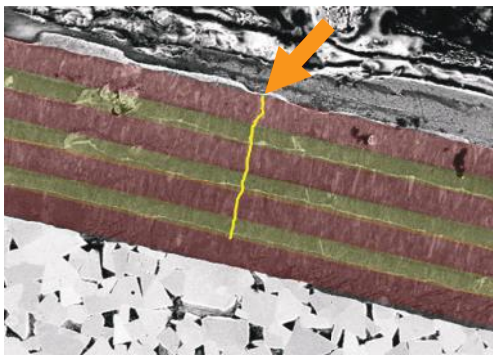
New Multilayer Technology

By adopting a new multilayer technology that laminates multiple coating layers, crack propagation is suppressed, resulting in a dramatic improvement in fracture resistance compared with conventional technologies.

New Multilayer Technology

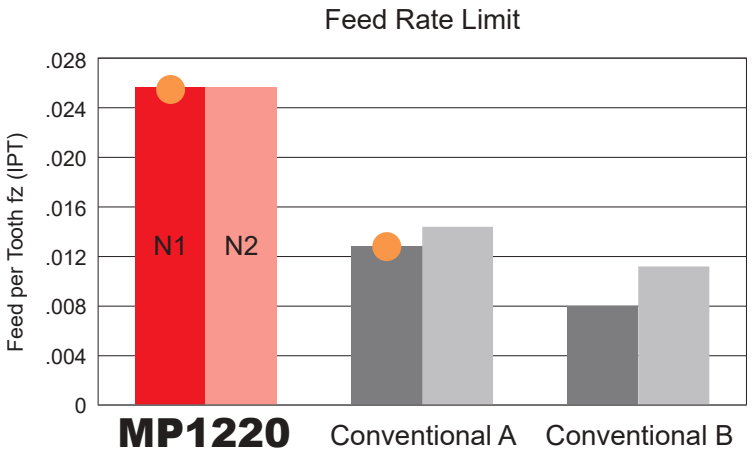


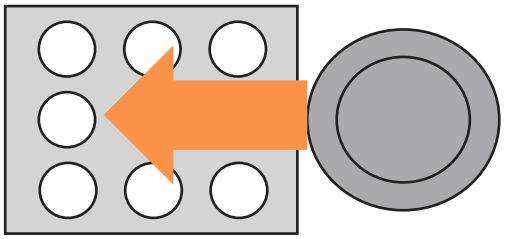
Conventional Layer Technology



4140 Alloy Steel: Fracture resistance comparison

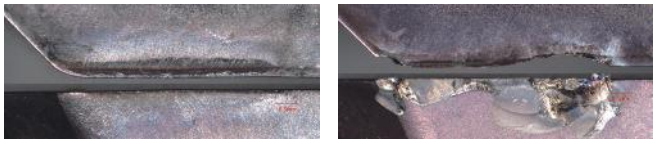
It suppresses breakage during high-load machining and exhibits more than twice the breakage resistance of conventional product A.





Machining Image

● : Feed per tooth at capture.

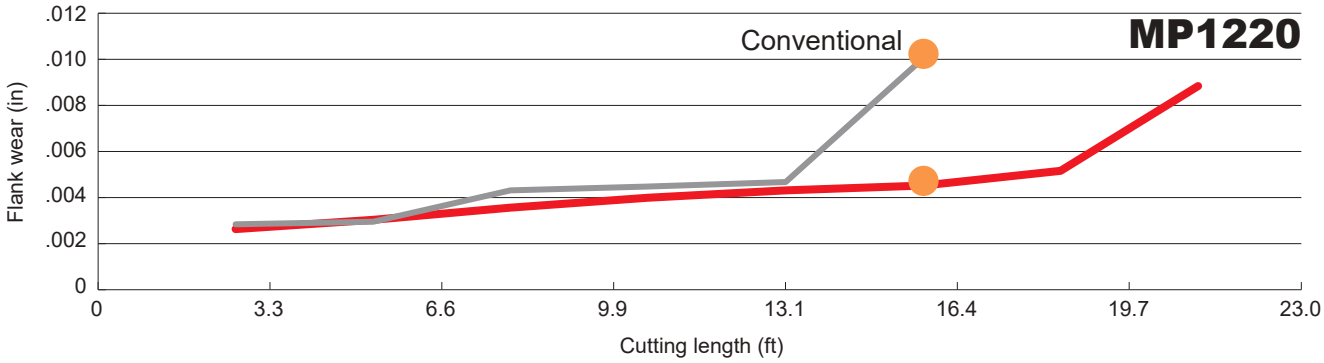


MP1220 Conventional A

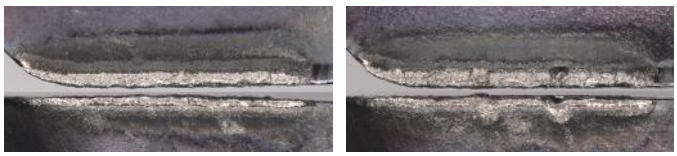
<Cutting Conditions>
Material : AISI 4140 Alloy Steel
Cutter Dia. : ASX445 DC=4.921 in
Insert : MP1220 JM
Cutting Speed : vc=655 SFM
Depth of Cut : ap= .118 in
Width of Cut : ae=3.937 in
Cutting Mode : Dry Cutting
Single Insert
Center Cut

A536 Ductile Cast Iron: Wear resistance comparison

Reduces wear and chipping during cast iron machining, delivering significantly improved performance compared with conventional products.



● Taken after cutting length of 15.7 ft



MP1220 Conventional

<Cutting Conditions>
Material : ASTM A536 Ductile Cast Iron
Cutter Dia. : ASX445 DC=4.921 in
Insert : MP1220 JM
Cutting Speed : vc=655 SFM
Feed per Tooth : fz= .008 IPT
Depth of Cut : ap= .079 in
Width of Cut : ae=3.937 in
Cutting Mode : Dry Cutting
Single Insert
Center Cut

304 Stainless steel: Fracture resistance comparison

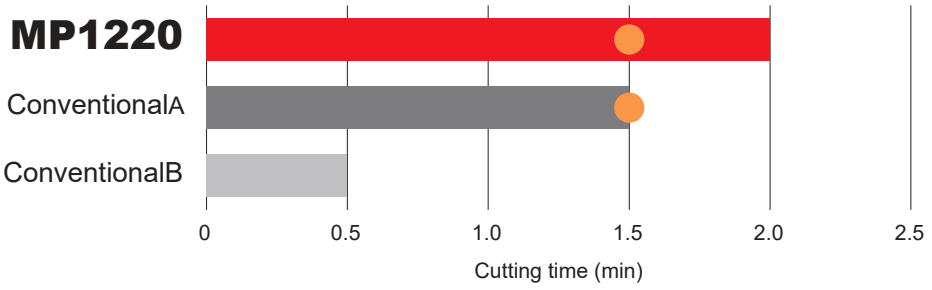
Reduces notching during stainless steel machining, delivering a significant performance improvement.

	MP1230	Conventional
After 1.3 ft of machining		
After 3.9 ft of machining		

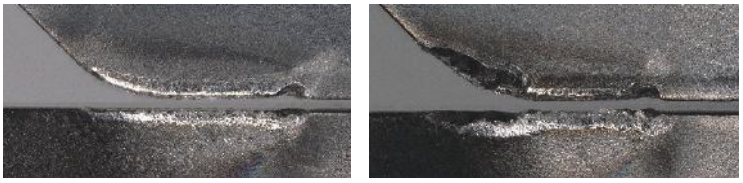
<Cutting Conditions>
Material : AISI 304 Stainless Steel
Tool : ASX445
Insert : MP1230 JM
Cutting Speed : vc=590 SFM
Feed per Tooth : fz= .008 IPT
Depth of Cut : ap= .079 in
Width of Cut : ae=3.937 in
Cutting Mode : Dry Cutting
Single Insert
Center Cut

Inconel 718: Wear resistance comparison

Reduces wear and chipping during heat resistant alloy machining, delivering improved performance.



Cutting edge condition (after 1.5 min)

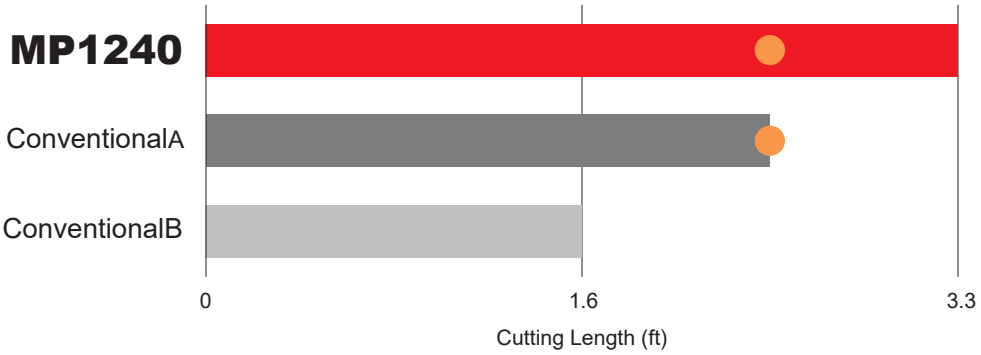


MP1220 Conventional A

<Cutting Conditions>
Material : Inconel 718
Tool : ASX445
Insert : MP1220 JM
Cutting Speed : vc=198 SFM
Feed per Tooth : fz= .008 IPT
Depth of Cut : ap= .039 in
Width of Cut : ae=3.937 in
Cutting Mode : Wet Cutting
Single Insert
Center Cut

Ti-6Al-4V: Cutting performance comparison

Greatly reduces adhesion-related chipping damage during titanium alloy machining, delivering improved performance.



Cutting edge condition (after 2.5 ft)



MP1240



Conventional A

<Cutting Conditions>

Material	: Ti-6Al-4V
Tool	: ASX445
Insert	: MP1240 JM
Cutting Speed	: vc=260 SFM
Feed per Tooth	: fz= .004 IPT
Depth of Cut	: ap= .039 in
Width of Cut	: ae=3.937 in
Cutting Mode	: Wet Cutting Single Insert Center Cut

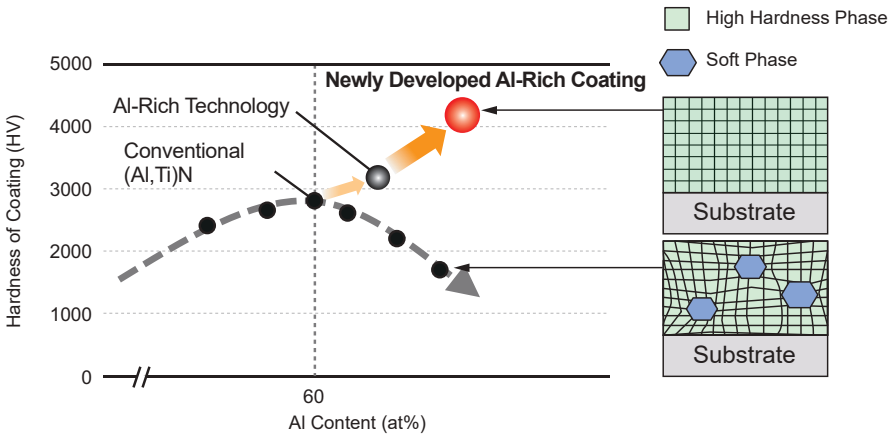
Coated Carbide Grade for Milling

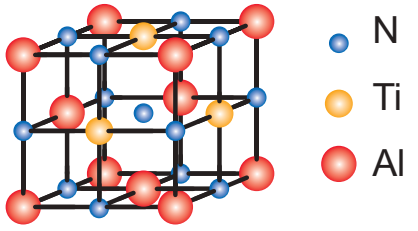
MV1020/MV1030

Newly Developed Al-Rich Coating

Advanced Wear and Thermal Shock Resistance

By adopting the newly developed Al-Rich coating technology, the (Al,Ti)N with a high Al content ratio displays a very high hardness. This greatly improves oxidation and wear 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.
MV1020 offers overwhelmingly superior performance in high-speed cutting, and MV1030 achieves stable performance during interrupted and stainless steel machining.

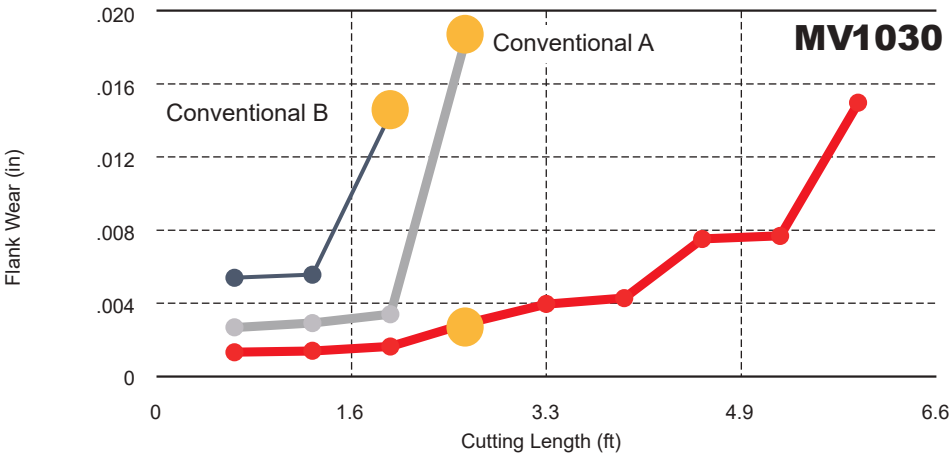




Crystal image of **MV1000** series

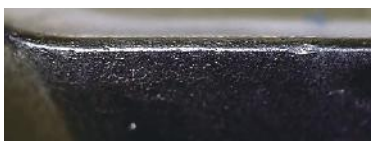
Comparison of wear resistance when machining 304 stainless steel

MV1030 suppresses damage at the cut border and can be expected to significantly improve tool life.



<Cutting Conditions>
Material : AISI 304 Stainless Steel
Tool : ASX445
Inserts : MV1030 JM
Cutting Speed : vc=590 SFM
Feed per Tooth : fz= .008 IPT
Depth of Cut : ap= .079 in
Width of Cut : ae=3.937 in
Cutting Mode : Dry Cutting
Single Insert

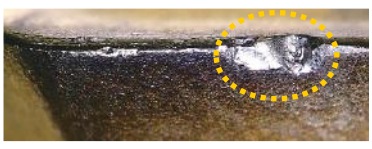
●Photographed after Machining



MV1030 After Machining 2.6 ft

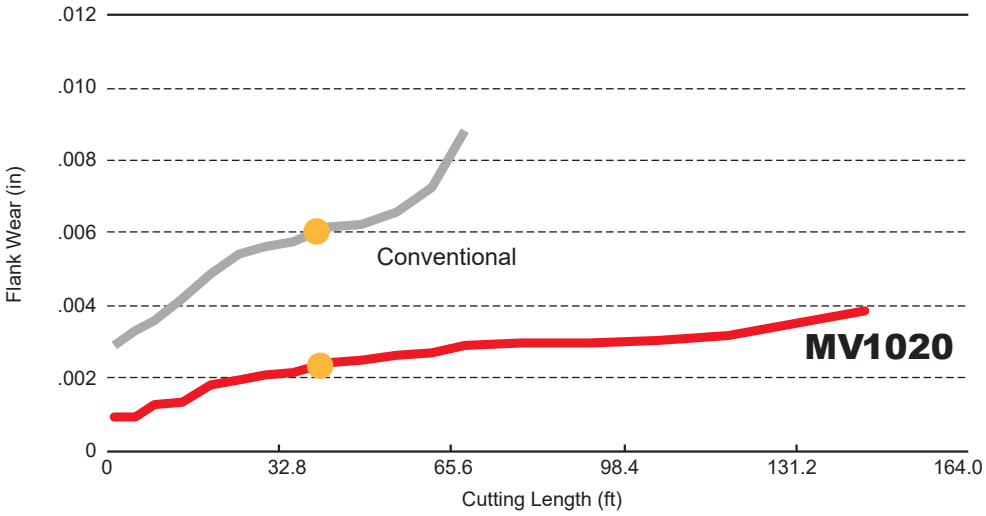


Conventional A After Machining 2.6 ft



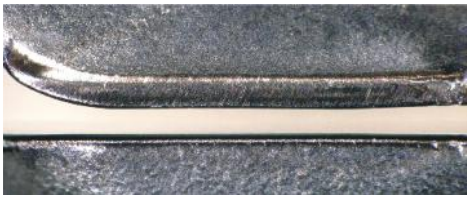
Conventional B After Machining 2.0 ft

Comparison of wear resistance for rolled steel

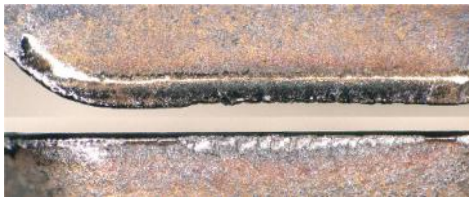


<Cutting Conditions>
Material : JIS SS400
Tool : ASX445
Inserts : MV1020 JM
Cutting Speed : vc=985 SFM
Feed per Tooth : fz= .008 IPT
Depth of Cut : ap= .079 in
Width of Cut : ae=3.937 in
Cutting Mode : Dry Cutting

●Taken after cutting length of 42.0 ft

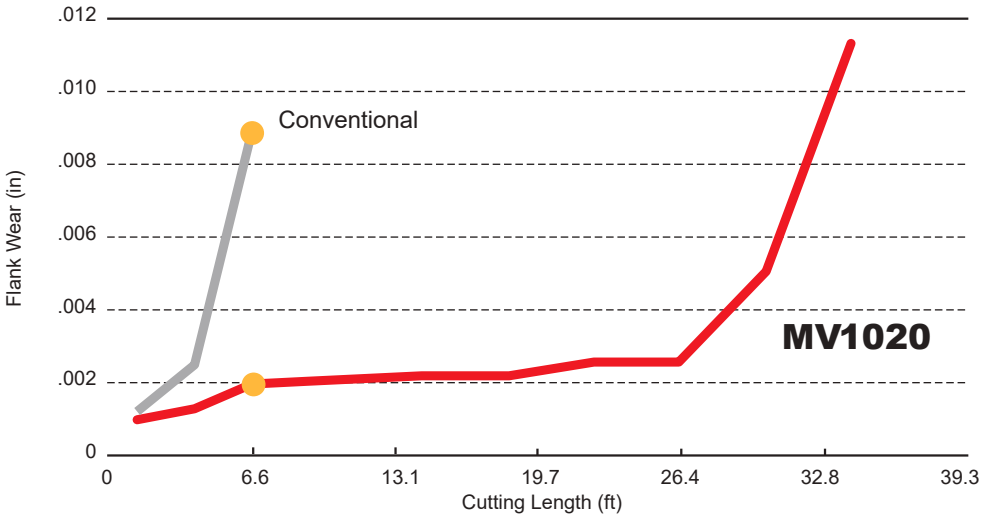


131.2 ft cutting length achieved
MV1020



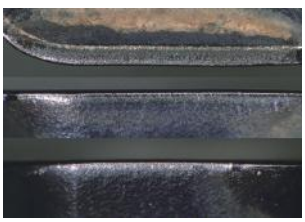
Wear progressed and the substrate was exposed
Conventional

Comparison of wear resistance when machining 1055 carbon steel



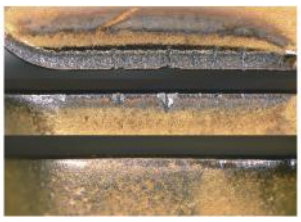
<Cutting Conditions>
Material : AISI 1055 Carbon Steel
Tool : ASX445
Inserts : MV1020 JM
Cutting Speed : vc=655 SFM
Feed per Tooth : fz= .008 IPT
Depth of Cut : ap= .079 in
Width of Cut : ae=3.937 in
Cutting Mode : Wet Cutting

●Taken after cutting length of 6.6 ft



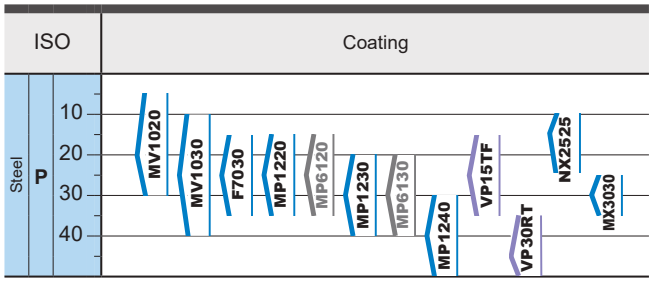
32.8 ft cutting length achieved
MV1020

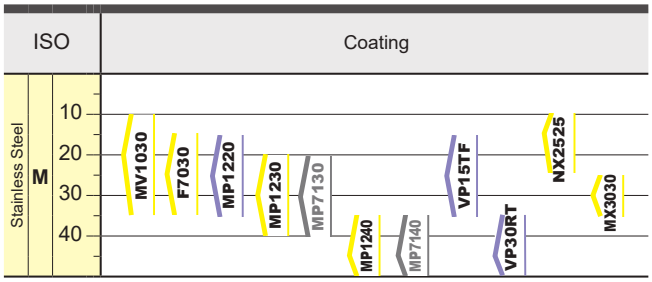
Rake Face
Main Cutting Edge
Wiper

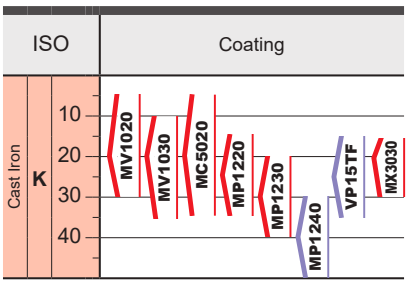


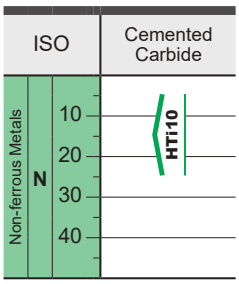
Chipping occurred due to thermal cracks at a cutting length of 6.6 ft
Conventional

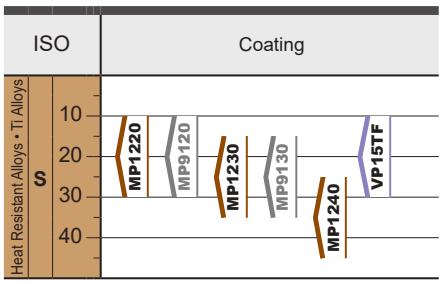
Insert Grades for a Wide Range of Materials

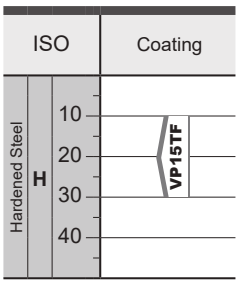








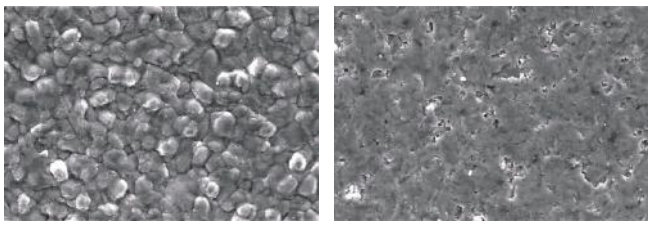




CVD Coating **MC5020**

First recommendation for cast iron milling.
MC5020 has excellent wear resistance and also controls thermal cracking and chipping that are common when machining ductile cast iron.

Comparison of Coating Surface



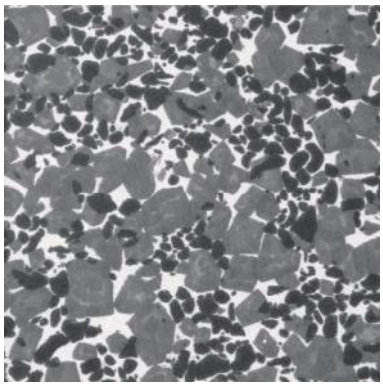
Conventional Coating | Black Super-smooth Coating

Black Super-smooth Coating

Black super-smooth coating prevents abnormal damage such as weld chipping.

MX3030

The cermet grade MX3030 is a suitable for finishing and light cutting, etc.



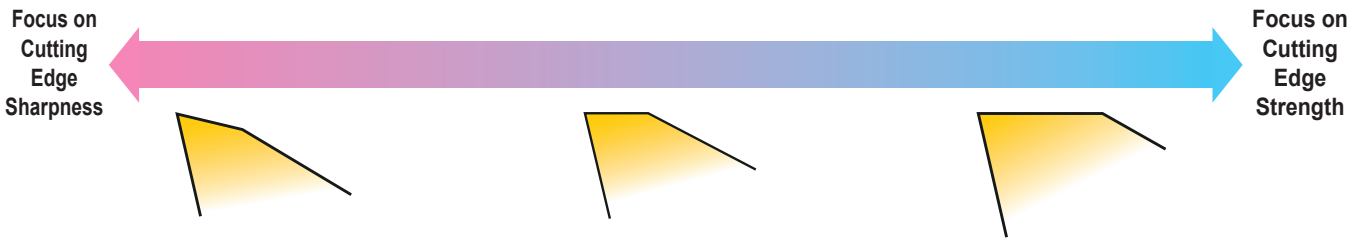
MX3030

MP6100, MP7100, MP9100

TOUGH-Σ Technology

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

ASX300 Chipbreaker System



L Chipbreaker

Sharpness and low cutting resistance

HTi10, polished mirror finish for machining aluminum alloys.
For machining hard-to-cut materials and low rigidity machines or workpieces.

M Chipbreaker

First recommendation

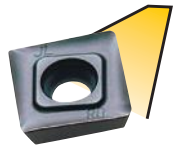
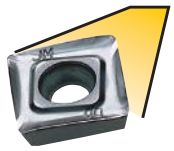
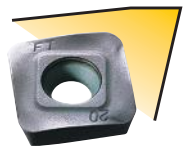
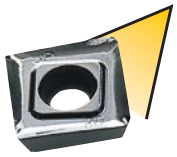
For general cutting.

R Chipbreaker

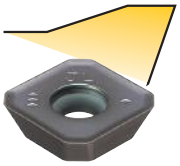
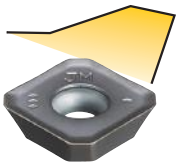
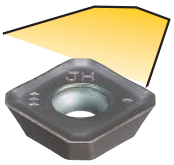
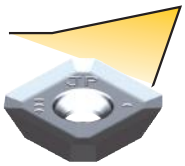
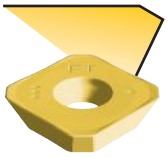
Reinforced edge

For rough cutting and interrupted cutting.

ASX400 Chipbreaker System

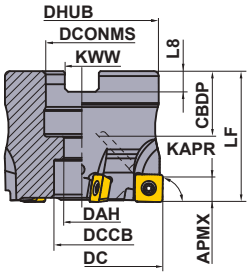
JL For finish to light cutting	JM For light to rough cutting	JH For medium to heavy cutting	FT For heavy and interrupted cutting	JP For aluminum alloys
				
High accuracy insert with ground-finished periphery. Large rake angle for low cutting resistance.	High accuracy M class insert. For a wide range of workpiece materials and cutting conditions.	High accuracy M class insert. Strong cutting edge for high fracture resistance.	High accuracy M-class insert. Nose radius of .079" has improved fracture resistance. Strong main cutting edge allows heavy cutting and heavy interrupted cutting. Stable cutting performance.	High accuracy insert with ground-finished periphery. Large rake angle and mirror-finished rake face for sharp cutting performance and high welding resistance.

ASX445 Chipbreaker System

JL For finish to light cutting	JM For light to rough cutting	JH For medium to heavy cutting	JP For aluminum alloys	FT For rough cutting and cast iron
				
High accuracy insert with ground-finished periphery. Large rake angle leading to low cutting resistance. **1.Workpiece rigidity is low.**	High accuracy M class insert. For a wide range of workpiece materials and cutting conditions. **1.General cutting.**	High accuracy M class insert. Strong cutting edge for high fracture resistance. **1.Interrupted cutting.** **2.Scaling.**	High accuracy insert with ground-finished periphery.Large rake angle and mirror-finished rake face for sharp cutting performance and high welding resistance. **1.General cutting of aluminum alloys.**	High M class inserts. Higher fracture-resistant flat-top inserts. **1.For rough accuracy machining of scaled cast iron.**

SHOULDER MILLING
GENERAL CUTTING
ASX300 NEW





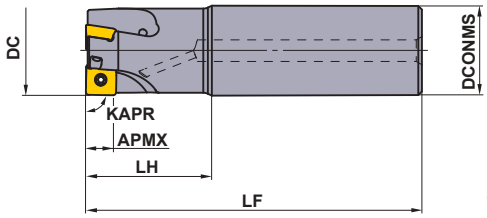
Type 1

Arbor Type (Inch Standard)

Order Number	Stock R	CSP	Number of Teeth	Dimensions (in) DC	LF	DCONMS	CBDP	DAH	DCCB	DHUB	KWW	L8	WT (lbs)	APMX (in)	RPMX (min^{-1})	Type
ASX300UR1.5004AA	●	○	4	1.500	1.575	.750	.748	.413	.630	1.438	.313	.187	.419	.217	13100	1
ASX300UR1.5006AA	●	○	6	1.500	1.575	.750	.748	.413	.630	1.438	.313	.187	.397	.217	13100	1
ASX300UR2.0005AA	●	○	5	2.000	1.575	.750	.748	.413	.630	1.750	.313	.187	.816	.217	11100	1
ASX300UR2.0007AA	●	○	7	2.000	1.575	.750	.748	.413	.630	1.750	.313	.187	.816	.217	11100	1
ASX300UR2.5006CA	●	○	6	2.500	2.000	1.000	.945	.539	.787	2.188	.375	.219	1.587	.217	10000	1
ASX300UR2.5008CA	●	○	8	2.500	2.000	1.000	.945	.539	.787	2.188	.375	.219	1.609	.217	10000	1
ASX300UR3.0008CA	●	○	8	3.000	2.000	1.000	.945	.539	.787	2.188	.375	.219	2.006	.217	9100	1
ASX300UR3.0010CA	●	○	10	3.000	2.000	1.000	.945	.539	.787	2.188	.375	.219	2.028	.217	9100	1

● = NEW
* CSP : ○ = With coolant through, — = Without coolant through
Note 1) The rotational speed maximum (RPMX) is set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.
Note 3) Set bolt not included.





Type 1

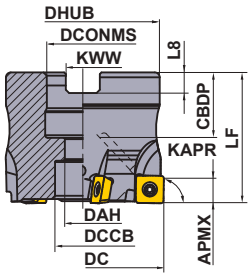
Shank Type (Inch Standard)

Order Number	Stock R	CSP	Number of Teeth	Dimensions (in) DC	LF	DCONMS	LH	WT (lbs)	APMX (in)	Type
ASX300UR1202SA10S	●	○	2	.750	4.375	.625	1.000	.331	.217	1
ASX300UR1202SA12S	●	○	2	.750	4.375	.750	1.500	.463	.217	1
ASX300UR1202SA10L	●	○	2	.750	6.000	.625	1.000	.463	.217	1
ASX300UR1202SA12L	●	○	2	.750	7.250	.750	2.000	.794	.217	1
ASX300UR1603SA12S	●	○	3	1.000	4.750	.750	1.500	.573	.217	1
ASX300UR1603SA16S	●	○	3	1.000	4.750	1.000	1.750	.904	.217	1
ASX300UR1603SA12L	●	○	3	1.000	8.500	.750	1.500	1.014	.217	1
ASX300UR1603SA16L	●	○	3	1.000	8.500	1.000	2.500	1.676	.217	1
ASX300UR2004SA16S	●	○	4	1.250	5.125	1.000	1.750	1.124	.217	1
ASX300UR2004SA20S	●	○	4	1.250	5.125	1.250	1.750	1.543	.217	1
ASX300UR2004SA16L	●	○	4	1.250	9.000	1.000	1.750	1.940	.217	1
ASX300UR2004SA20L	●	○	4	1.250	9.000	1.250	3.000	2.778	.217	1

● = NEW
* CSP : ○ = With coolant through, — = Without coolant through
● : USA Stock ★ : Stocked in Japan
▲ : Inventory maintained. To be replaced by new products.

10 inserts in one case. PCD inserts are available with 1 piece in one case.





Type 1

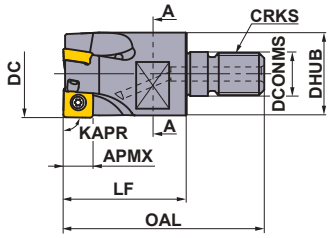
Arbor Type (DC = mm size, DCONMS = mm size)

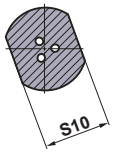
Order Number	Stock R	CSP	Number of Teeth	Dimensions (mm) DC	LF	DCONMS	CBDP	DAH	DCCB	KWW	L8	DHUB	WT (kg)	APMX (mm)	RPMX (min^{-1})	Type
ASX300-040A04R	★	○	4	40	40	16	18	9	14	8.4	6.3	37	0.22	5.5	12800	1
ASX300-040A06R	★	○	6	40	40	16	18	9	14	8.4	6.3	37	0.21	5.5	12800	1
ASX300-050A05R	★	○	5	50	40	22	20	11	17	10.4	6.3	47	0.36	5.5	11300	1
ASX300-050A07R	★	○	7	50	40	22	20	11	17	10.4	6.3	47	0.36	5.5	11300	1
ASX300-063A06R	★	○	6	63	40	22	20	11	17	10.4	6.3	50	0.54	5.5	10000	1
ASX300-063A08R	★	○	8	63	40	22	20	11	17	10.4	6.3	50	0.54	5.5	10000	1
ASX300-080A08R	★	○	8	80	50	27	23	13	20	12.4	7	56	0.98	5.5	8800	1
ASX300-080A10R	★	○	10	80	50	27	23	13	20	12.4	7	56	0.99	5.5	8800	1

● = NEW

* CSP : ○ = With coolant through, — = Without coolant through
Note 1) The rotational speed maximum (RPMX) is set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.
Note 3) Set bolt not included.







Type 1

Screw-in Type (Metric Standard)

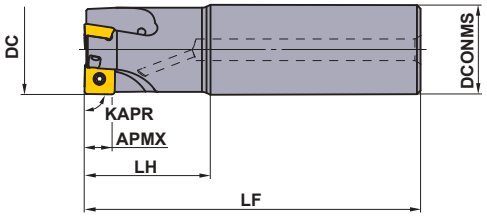
Order Number	Stock R	CSP	Number of Teeth	Dimensions (mm) DC	LF	OAL	DCONMS	S10	DHUB	CRKS	WT (kg)	APMX (mm)	Type
ASX300R2002AM1030	★	○	2	20	30	49	10.5	14	18.5	M10	0.05	5.5	1
ASX300R2503AM1235	★	○	3	25	35	57	12.5	19	23.5	M12	0.1	5.5	1
ASX300R3204AM1640	★	○	4	32	40	63	17	24	28.5	M16	0.2	5.5	1

● = NEW

* CSP : ○ = With coolant through, — = Without coolant through
Note 1) Please check the web catalog for screw-in type mounting arbors.

Screw-on Insert Type Milling Cutter





Type 1

Shank Type (Metric Standard)

Order Number	Stock R	CSP	Number of Teeth	Dimensions (mm) DC	LF	DCONMS	LH	WT (kg)	APMX (mm)	Type
ASX300R2002SA16S	★	○	2	20	100	16	27	0.14	5.5	1
ASX300R2002SA16L	★	○	2	20	150	16	27	0.21	5.5	1
ASX300R2002SA20S	★	○	2	20	100	20	27	0.21	5.5	1
ASX300R2002SA20L	★	○	2	20	150	20	62	0.31	5.5	1
ASX300R2503SA20S	★	○	3	25	115	20	35	0.26	5.5	1
ASX300R2503SA20L	★	○	3	25	170	20	35	0.39	5.5	1
ASX300R2503SA25S	★	○	3	25	115	25	35	0.38	5.5	1
ASX300R2503SA25L	★	○	3	25	170	25	73	0.56	5.5	1
ASX300R3204SA25S	★	○	4	32	125	25	43	0.48	5.5	1
ASX300R3204SA25L	★	○	4	32	190	25	43	0.71	5.5	1
ASX300R3204SA32S	★	○	4	32	125	32	43	0.69	5.5	1
ASX300R3204SA32L	★	○	4	32	190	32	93	1.04	5.5	1

● = NEW

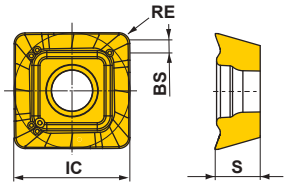
* CSP : ○ = With coolant through, — = Without coolant through

Inserts

Material		
P	Steel	◆
M	Stainless Steel	◆
K	Cast Iron	◆
N	Non-ferrous Metals	◆
S	Heat Resistant Alloys, Titanium Alloys	◆
H	Hardened Steel	◆

Edge Preparation :
E : Round F : Sharp
S : Chamfer + Round
T : Chamfer

Shape Chipbreaker	Order Number	Class	Edge Preparation	Coated MV1020	MV1030	NEW MP1220	NEW MP1230	NEW MP1240	VP15TF	Carbide HTI10		Dimensions (in) IC	BS	RE	S	Geometry
L	SOGT083308PEFR-L	G	F							●		.335	.047	.031	.130	
	SOMT083304PEER-L	M	E	●	●	●	●	●	★			.335	.063	.016	.130	
	SOMT083308PEER-L	M	E	●	●	●	●	●	★			.335	.047	.031	.130	
M	SOMT083308PEER-M	M	E	●	●	●	●	●	★			.335	.047	.031	.130	
	SOMT083312PEER-M	M	E	●	●	●	●	●	★			.335	.031	.047	.130	
	SOMT083316PEER-M	M	E	●	●	●	●	●	★			.335	.016	.063	.130	
R	SOMT083308PEER-R	M	E	●	●	●	●	●	★			.335	.047	.031	.130	
	SOMT083312PEER-R	M	E	●	●	●	●	●	★			.335	.031	.047	.130	
	SOMT083316PEER-R	M	E	●	●	●	●	●	★			.335	.016	.063	.130	



● = NEW

SPARE PARTS

Tool Holder Type	* Clamp Screw	Wrench	Anti-seize Lubricant
ASX300	TPS25-1	TIP07F	MK1KS

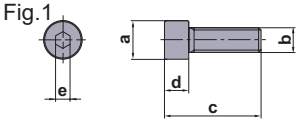
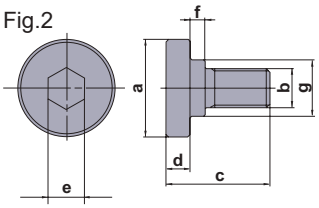
* Clamp Torque (lbf-in): TPS25—1=8.9

● : USA Stock ★ : Stocked in Japan

▲ : Inventory maintained. To be replaced by new products.

10 inserts in one case. PCD inserts are available with 1 piece in one case.

SET BOLT (SOLD SEPARATELY)

Tool Holder Type	Set Bolt		Fig.	Reference Dimensions (in)					Geometry
	With Coolant Thru	Without Coolant Thru		a	b	c	d	e	
	Order Number	Order Number							
ASX300UR1.5/2.0	HSCU37513H	–	1	.562	3/8-24UNF	1.625	.375	.250	Fig.1 
ASX300UR2.5/3.0	HSCU50014H	–	1	.750	1/2-20UNF	1.875	.500	.375	
ASX300-040	HSC08025H	–	1	.512	M8× .049	1.299	.315	.197	Fig.2 
ASX300-050/063	HSC10030H	HSC10035	2	.630	M10× .059	1.575 (1.772)	.394	.236 (.315)	
ASX300-080	HSC12035H	HSC12035	2	.709	M12× .069	1.850	.472	.394	

Note 1) Please purchase the appropriate set bolt after confirming the reference dimensions.
The items with an order number listed under the set bolt columns are also sold by Mitsubishi Materials.
Note 2) Internal coolant is necessary with the set bolt.

Recommended Cutting Conditions

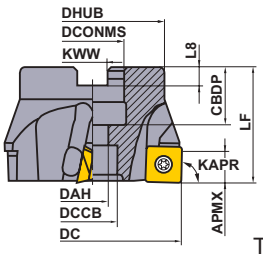
	Material	Properties	Grade	Cutting Speed (SFM)	Finish–Light Cutting	Light–Rough Cutting	Medium–Heavy Cutting
					Feed per Tooth (IPT)	Feed per Tooth (IPT)	Feed per Tooth (IPT)
P	Mild Steel	Hardness ≤180HB	**MV1020**	985 (655–1310)	.006 (.003–.008)	.006 (.004–.008)	.007 (.004–.010)
			MV1030	900 (655–1150)	.006 (.003–.008)	.006 (.004–.008)	.007 (.004–.010)
			MP1220, VP15TF	820 (655–985)	.006 (.003–.008)	.006 (.004–.008)	.007 (.004–.010)
			MP1230	785 (620–950)	.006 (.003–.008)	.006 (.004–.008)	.007 (.004–.010)
			MP1240	755 (590–920)	.006 (.003–.008)	.006 (.004–.008)	.007 (.004–.010)
	Carbon Steel Alloy Steel	Hardness ≤180–280HB	**MV1020, MV1030**	850 (560–1150)	.005 (.003–.006)	.006 (.004–.008)	.006 (.004–.008)
			MP1220, VP15TF	720 (560–885)	.005 (.003–.006)	.006 (.004–.008)	.006 (.004–.008)
			MP1230	590 (490–755)	.005 (.003–.006)	.006 (.004–.008)	.006 (.004–.008)
			MP1240	490 (395–655)	.005 (.003–.006)	.006 (.004–.008)	.006 (.004–.008)
		Hardness ≤280–350HB	**MV1020**	590 (330–820)	.004 (.002–.006)	.006 (.004–.007)	.006 (.004–.008)
			MV1030	540 (330–755)	.004 (.002–.006)	.006 (.004–.007)	.006 (.004–.008)
			MP1220, VP15TF	460 (330–590)	.004 (.002–.006)	.006 (.004–.007)	.006 (.004–.008)
			MP1230	395 (295–490)	.004 (.002–.006)	.006 (.004–.007)	.006 (.004–.008)
			MP1240	330 (230–425)	.004 (.002–.006)	.006 (.004–.007)	.006 (.004–.008)
M	Stainless Steel	Hardness ≤270HB	**MV1030, MP1230 VP15TF**	720 (560–885)	.005 (.003–.006)	.006 (.004–.008)	.006 (.004–.008)
			MP1240	655 (490–820)	.005 (.003–.006)	.006 (.004–.008)	.006 (.004–.008)
K	Cast Iron Ductile Cast Iron	Tensile Strength ≤450MPa	**MV1020**	785 (425–1150)	.006 (.004–.008)	.006 (.004–.008)	.007 (.004–.010)
			MV1030	620 (425–820)	.006 (.004–.008)	.006 (.004–.008)	.007 (.004–.010)
			MP1220, VP15TF	590 (425–755)	.006 (.004–.008)	.006 (.004–.008)	.007 (.004–.010)
			MP1230	560 (395–720)	.006 (.004–.008)	.006 (.004–.008)	.007 (.004–.010)
		Tensile Strength ≥450MPa	**MV1020**	720 (260–1150)	.006 (.004–.008)	.006 (.004–.008)	.007 (.004–.010)
			MV1030	360 (260–490)	.006 (.004–.008)	.006 (.004–.008)	.007 (.004–.010)
			MP1220	425 (330–525)	.006 (.004–.008)	.006 (.004–.008)	.007 (.004–.010)
			MP1230	395 (295–490)	.006 (.004–.008)	.006 (.004–.008)	.007 (.004–.010)
N	Aluminum Alloys	–	**HTi10**	2130 (985–3280)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
S	Titanium Alloys	–	**MP1220, VP15TF**	165 (130–195)	.004 (.002–.006)	.004 (.002–.006)	.006 (.004–.008)
			MP1230, MP1240	150 (100–180)	.004 (.002–.006)	.004 (.002–.006)	.006 (.004–.008)
	Heat Resistant Alloys	–	**MP1220, VP15TF**	130 (65–165)	.004 (.002–.006)	.004 (.002–.006)	.006 (.004–.008)
			MP1230, MP1240	100 (50–150)	.004 (.002–.006)	.004 (.002–.006)	.006 (.004–.008)
H	Hardened Steel	40–55HRC	**VP15TF**	260 (195–330)	.003 (.002–.004)	.003 (.002–.004)	.004 (.003–.005)

SHOULDER MILLING
GENERAL CUTTING
ASX400

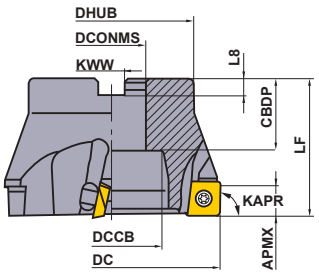
90° KAPR

P M K N S H

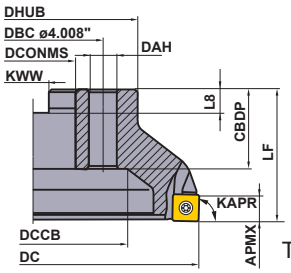




Type 1



Type 2



Type 3

Arbor Type (Inch Standard)

Order Number	Stock	CSP	Number of Teeth	Dimensions (in)									WT	APMX	RPMX	Type
	R			DC	LF	DCONMS	CBDP	DAH	DCCB	KWW	L8	DHUB	(lbs)	(in)	(min^{-1})	
ASX400R0203	●	—	3	2.000	1.575	.750	.748	.415	—	.313	.187	1.614	.394	.8	18000	1
ASX400R0204	●	—	4	2.000	1.575	.750	.748	.415	—	.313	.187	1.614	.394	.8	18000	1
ASX400R0205	●	—	5	2.000	1.575	.750	.748	.415	—	.313	.187	1.614	.394	.8	18000	1
ASX400R2504	●	—	4	2.500	1.575	.750	.748	.415	—	.313	.187	1.969	.394	1.1	16000	1
ASX400R2505	●	—	5	2.500	1.575	.750	.748	.415	—	.313	.187	1.969	.394	1.1	16000	1
ASX400R2506	●	—	6	2.500	1.575	.750	.748	.415	—	.313	.187	1.969	.394	1.1	16000	1
ASX400R0304C	●	—	4	3.000	1.969	1.000	1.024	—	1.496	.375	.219	2.362	.394	2.2	14000	2
ASX400R0306C	●	—	6	3.000	1.969	1.000	1.024	—	1.496	.375	.219	2.362	.394	2.2	14000	2
ASX400R0308C	●	—	8	3.000	1.969	1.000	1.024	—	1.496	.375	.219	2.362	.394	2.2	14000	2
ASX400R0405E	●	—	5	4.000	1.969	1.500	1.378	—	2.362	.625	.375	2.756	.394	3.3	13000	2
ASX400R0407E	●	—	7	4.000	1.969	1.500	1.378	—	2.362	.625	.375	2.756	.394	3.3	13000	2
ASX400R0410E	●	—	10	4.000	1.969	1.500	1.378	—	2.362	.625	.375	2.756	.394	3.3	13000	2
ASX400R0506E	●	—	6	5.000	2.480	1.500	1.378	—	2.362	.625	.375	3.150	.394	5.5	12000	2
ASX400R0508E	●	—	8	5.000	2.480	1.500	1.378	—	2.362	.625	.375	3.150	.394	5.5	12000	2
ASX400R0512E	●	—	12	5.000	2.480	1.500	1.378	—	2.362	.625	.375	3.150	.394	5.5	12000	2
ASX400R0608E	●	—	8	6.000	2.480	1.500	1.378	—	2.362	.625	.375	3.937	.394	8.8	10000	2
ASX400R0612E	●	—	12	6.000	2.480	1.500	1.378	—	2.362	.625	.375	3.937	.394	8.8	10000	2
ASX400R0615E	●	—	15	6.000	2.480	1.500	1.378	—	2.362	.625	.375	3.937	.394	8.8	10000	2
ASX400R0810M	●	—	10	8.000	2.480	2.500	1.378	—	5.315	1.000	.560	6.299	.394	15.0	9000	3
ASX400R0816M	●	—	16	8.000	2.480	2.500	1.378	—	5.315	1.000	.560	6.299	.394	15.0	9000	3
ASX400R0819M	●	—	19	8.000	2.480	2.500	1.378	—	5.315	1.000	.560	6.299	.394	15.0	9000	3
ASX400R1012M	●	—	12	10.000	2.480	2.500	1.378	—	7.087	1.000	.560	8.268	.394	26.0	8000	3
ASX400R1018M	●	—	18	10.000	2.480	2.500	1.378	—	7.087	1.000	.560	8.268	.394	26.0	8000	3
ASX400R1022M	●	—	22	10.000	2.480	2.500	1.378	—	7.087	1.000	.560	8.268	.394	26.0	8000	3

* CSP : ○ = With coolant through, — = Without coolant through

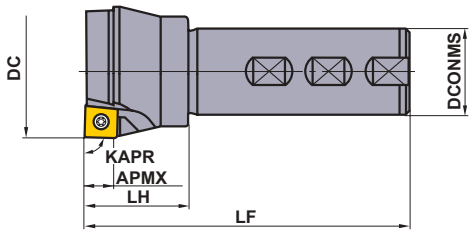
Note 1) The rotational speed maximum (RPMX) is set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.
Note 3) Set bolt not included.

● : USA Stock ★ : Stocked in Japan

▲ : Inventory maintained. To be replaced by new products.

10 inserts in one case. PCD inserts are available with 1 piece in one case.





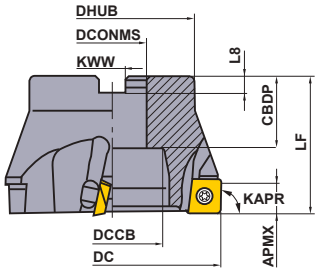
Weldon Shank Type (Inch Standard)

Order Number	Stock	CSP	Number of Teeth	Dimensions (in)				APMX	Type
	R			DC	LF	DCONMS	LH	(in)	
ASX400R202W20	●	–	2	1.250	4.750	1.250	1.500	.394	1
ASX400R243W20	●	–	3	1.500	4.750	1.250	1.500	.394	1
ASX400R324W20	●	–	4	2.000	4.750	1.250	1.575	.394	1

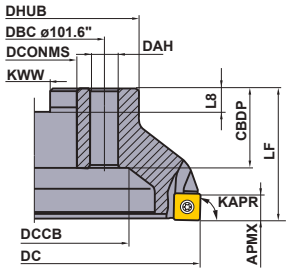
* CSP : O = With coolant through, – = Without coolant through

Screw-on Insert Type Milling Cutter





Type 1



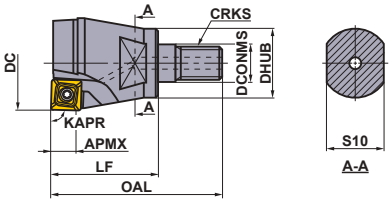
Type 2

Arbor Type (DC = mm size, DCONMS = in size)

Order Number	Stock R	CSP	Number of Teeth	Dimensions (mm) [in] DC	LF	DCONMS		CBDP	DAH	DCCB	KWW	L8	DHUB	WT (kg)	APMX (mm)	RPMX (min^{-1})	Type
ASX400R08004C	★	—	4	80	50	25.4	[1.0"]	26	—	38	9.5	6	60	1	10	14000	1
ASX400R08006C	★	—	6	80	50	25.4	[1.0"]	26	—	38	9.5	6	60	1	10	14000	1
ASX400R10005D	★	—	5	100	50	31.75	[1.25"]	32	—	45	12.7	8	70	1.5	10	13000	1
ASX400R10007D	★	—	7	100	50	31.75	[1.25"]	32	—	45	12.7	8	70	1.5	10	13000	1
ASX400R12506E	★	—	6	125	63	38.1	[1.5"]	35	—	60	15.9	10	80	2.5	10	12000	1
ASX400R12508E	★	—	8	125	63	38.1	[1.5"]	35	—	60	15.9	10	80	2.5	10	12000	1
ASX400R16008F	★	—	8	160	63	50.8	[2.0"]	38	—	90	19.1	11	100	4	10	10000	1
ASX400R16012F	★	—	12	160	63	50.8	[2.0"]	38	—	90	19.1	11	100	4	10	10000	1
ASX400R20010K	★	—	10	200	63	47.625	[1.875"]	35	18	135	25.4	14.22	160	7	10	9000	2
ASX400R20016K	★	—	16	200	63	47.625	[1.875"]	35	18	135	25.4	14.22	160	7	10	9000	2
ASX400R25012K	★	—	12	250	63	47.625	[1.875"]	35	18	180	25.4	14.22	210	12	10	8000	2
ASX400R25018K	★	—	18	250	63	47.625	[1.875"]	35	18	180	25.4	14.22	210	12	10	8000	2

* CSP : ○ = With coolant through, — = Without coolant through
Note 1) The rotational speed maximum (RPMX) is set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.
Note 3) Set bolt not included.





Type 1

Screw-in Type (Metric Standard)

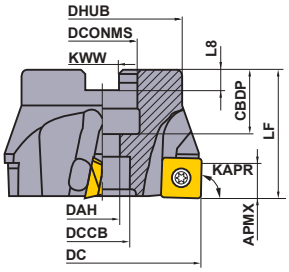
Order Number	Stock R	CSP	Number of Teeth	Dimensions (mm) DC	LF	OAL	DCONMS	S10	DHUB	CRKS	WT (kg)	APMX (mm)	Type
ASX400R322AM1640	★	○	2	32	40	63	17	24	29	M16	0.3	10	1
ASX400R403AM1645	★	○	3	40	45	68	17	24	29	M16	0.3	10	1

* CSP : ○ = With coolant through, — = Without coolant through
Note 1) Please check the catalog for screw-in type mounting arbors.

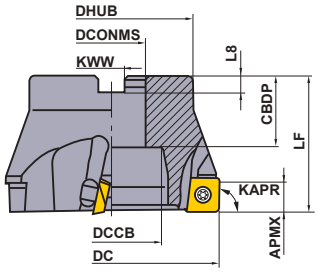
● : USA Stock ★ : Stocked in Japan
▲ : Inventory maintained. To be replaced by new products.

10 inserts in one case. PCD inserts are available with 1 piece in one case.

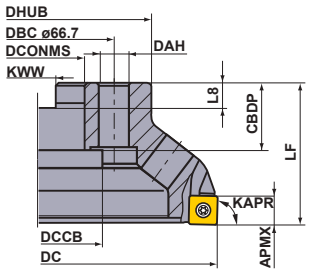




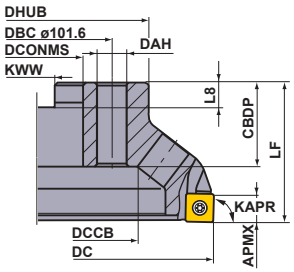
Type 1



Type 2



Type 3



Type 4

Arbor Type (DC = mm size, DCONMS = mm size)

Order Number	Stock	CSP	Number of Teeth	Dimensions (mm)									WT	APMX	RPMX	Type
	R			DC	LF	DCONMS	CBDP	DAH	DCCB	KWW	L8	DHUB	(kg)	(mm)	(min^{-1})	
ASX400-050A03R	★	–	3	50	40	22	20	11	17	10.4	6.3	41	0.3	10	18000	1
ASX400-050A04R	★	–	4	50	40	22	20	11	17	10.4	6.3	41	0.3	10	18000	1
ASX400-050A05R	★	–	5	50	40	22	20	11	17	10.4	6.3	41	0.3	10	18000	1
ASX400-063A04R	★	–	4	63	40	22	20	11	17	10.4	6.3	50	0.5	10	16000	1
ASX400-063A05R	★	–	5	63	40	22	20	11	17	10.4	6.3	50	0.5	10	16000	1
ASX400-063A06R	★	–	6	63	40	22	20	11	17	10.4	6.3	50	0.5	10	16000	1
ASX400-080B04R	★	–	4	80	50	27	29	–	38	12.4	7	60	0.9	10	14000	2
ASX400-080B06R	★	–	6	80	50	27	29	–	38	12.4	7	60	0.9	10	14000	2
ASX400-080B08R	★	–	8	80	50	27	29	–	38	12.4	7	60	0.9	10	14000	2
ASX400-100B05R	★	–	5	100	50	32	32	–	45	14.4	8	70	1.4	10	13000	2
ASX400-100B07R	★	–	7	100	50	32	32	–	45	14.4	8	70	1.4	10	13000	2
ASX400-100B10R	★	–	10	100	50	32	32	–	45	14.4	8	70	1.4	10	13000	2
ASX400-125B06R	★	–	6	125	63	40	32	–	60	16.4	9	80	2.3	10	12000	2
ASX400-125B08R	★	–	8	125	63	40	32	–	60	16.4	9	80	2.2	10	12000	2
ASX400-125B12R	★	–	12	125	63	40	32	–	60	16.4	9	80	2.1	10	12000	2
ASX400-160C08R	★	–	8	160	63	40	29	14	56	16.4	9	100	3.6	10	10000	3
ASX400-160C12R	★	–	12	160	63	40	29	14	56	16.4	9	100	3.5	10	10000	3
ASX400-160C15R	★	–	15	160	63	40	29	14	56	16.4	9	100	3.4	10	10000	3
ASX400-200C10R	★	–	10	200	63	60	32	18	135	25.7	14.22	160	6.3	10	9000	4
ASX400-200C16R	★	–	16	200	63	60	32	18	135	25.7	14.22	160	6.2	10	9000	4
ASX400-200C19R	★	–	19	200	63	60	32	18	135	25.7	14.22	160	6.2	10	9000	4
ASX400-250C12R	★	–	12	250	63	60	32	18	180	25.7	14.22	210	10.8	10	8000	4
ASX400-250C18R	★	–	18	250	63	60	32	18	180	25.7	14.22	210	10.7	10	8000	4
ASX400-250C22R	★	–	22	250	63	60	32	18	180	25.7	14.22	210	10.5	10	8000	4

* CSP : ○ = With coolant through, – = Without coolant through

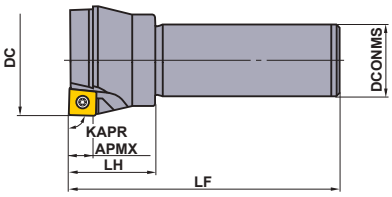
Note 1) The rotational speed maximum (RPMX) is set to ensure tool and insert stability.

Note 2) When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.

Note 3) Set bolt not included.

Screw-on Insert Type Milling Cutter





Type 1

Shank Type (Metric Standard)

Order Number	Stock	CSP	Number of Teeth	Dimensions (mm)				APMX	Type
	R			DC	LF	DCONMS	LH	(mm)	
ASX400R403S32	★	—	3	40	125	32	40	10	1
ASX400R503S32	★	—	3	50	125	32	40	10	1
ASX400R504S32	★	—	4	50	125	32	40	10	1
ASX400R634S32	★	—	4	63	125	32	40	10	1
ASX400R635S32	★	—	5	63	125	32	40	10	1
ASX400R804S32	★	—	4	80	125	32	40	10	1
ASX400R806S32	★	—	6	80	125	32	40	10	1

* CSP : ○ = With coolant through, — = Without coolant through

● : USA Stock ★ : Stocked in Japan

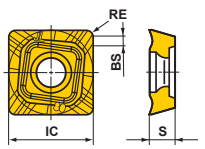
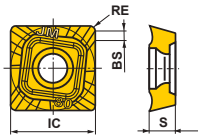
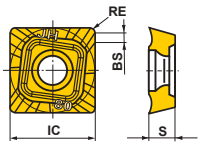
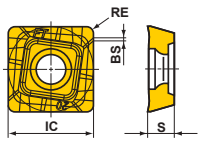
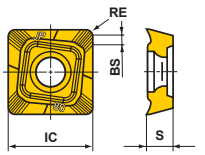
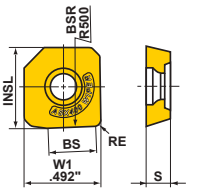
▲ : Inventory maintained. To be replaced by new products.

10 inserts in one case. PCD inserts are available with 1 piece in one case.

Inserts

Material		
P	Steel	◆
M	Stainless Steel	◆
K	Cast Iron	◆
N	Non-ferrous Metals	◆
S	Heat Resistant Alloys, Titanium Alloys	◆
H	Hardened Steel	◆

Edge Preparation :
E : Round F : Sharp
S : Chamfer + Round
T : Chamfer

Application	Shape Chipbreaker	Order Number	Class	Edge Preparation	Coated															Cermet		Carbide		Dimensions (in)					Geometry
					MC5020	MV1020	MV1030	F7030	NEW MP1220	NEW MP1230	NEW MP1240	MP6120	MP6130	MP7130	MP7140	MP9120	MP9130	VP15TF	VP30RT	NX2525	MX3030	HTi05T	HTi10	IC	BS	RE	INSL	S	
Finish–Light Cutting	JL	SOET12T308PEER-JL	E	E		●	●	●	●	●	●	▲	▲	▲	▲	▲	▲	●	●		●			.500	.055	.031	—	.156	
Light–Rough Cutting	JM	SOMT12T308PEER-JM	M	E	●	●	●	●	●	●	●	▲	▲	▲	▲	▲	▲	●	●		●			.500	.055	.031	—	.156	
Medium–Heavy Cutting	JH	SOMT12T308PEER-JH	M	E	●	●	●	●	●	●	●	▲	▲	▲	▲	▲	▲	●	●					.500	.055	.031	—	.156	
Heavy Interrupted Cutting	FT	SOMT12T320PEER-FT	M	E	●	●	●		●	●	●	▲				▲	▲	●						.500	.020	.079	—	.156	
For Aluminum Alloys	JP	SOGT12T308PEFR-JP	G	F																			●	.500	.055	.031	—	.156	
Wiper		WOEW12T308PEER8C	E	E																		●		—	.315	.031	.520	.156	
		WOEW12T308PETR8C	E	T																●				—	.315	.031	.520	.156	

● = NEW

INSTRUCTIONS FOR USING INSERTS

Instructions for use of the JP chipbreaker

The JP chipbreaker has sharp cutting edges. Wear gloves when handling.

When machining aluminum alloys, welding to the cutting edge tends to occur, often leading to insert failure. To prevent this, wet cutting is recommended.

Instructions for use of wiper inserts



Wiper inserts for the ASX400 are single-cornered.

When installing the wiper insert, place the insert so that the small chamfer is located as shown.

The peripheral cutting edge of the wiper insert is located further back than general inserts. Beware of wear of the insert just behind the wiper insert.

When using a wiper set the following standard conditions. depth of cut (ap)≤.020", feed per tooth (fz)≤.008 IPT

SPARE PARTS

Tool Holder Type		 *	 *		
	Shim	Shim Screw	Clamp Screw	Wrench (Insert)	Wrench (Shim)
ASX400	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R

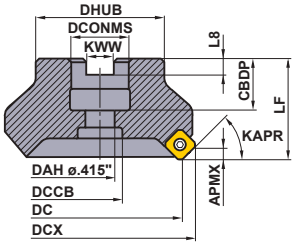
* Clamp Torque (lbf-in) : WCS503507H=44, TPS35=31

Recommended Cutting Conditions

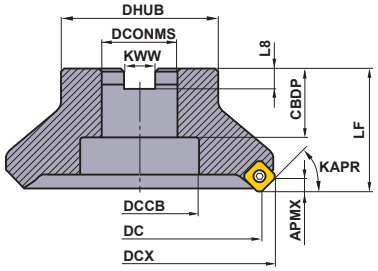
	Material	Properties	Grade	Cutting Speed (SFM)	Finish—Light Cutting	Light—Rough Cutting	Medium—Heavy Cutting
					Feed per Tooth (IPT)	Feed per Tooth (IPT)	Feed per Tooth (IPT)
P	Mild Steel	Hardness ≤180HB	**MV1020**	985 (655–1310)	.007 (.003–.011)	.008 (.004–.012)	.010 (.004–.014)
			MV1030	900 (655–1150)	.007 (.003–.011)	.008 (.004–.012)	.010 (.004–.014)
			F7030	920 (690–1150)	.007 (.003–.011)	.008 (.004–.012)	.010 (.004–.014)
			MP1220, MP6120 VP15TF	820 (655–985)	.007 (.003–.011)	.008 (.004–.012)	.010 (.004–.014)
			MP1230, MP6130	785 (620–950)	.007 (.003–.011)	.008 (.004–.012)	.010 (.004–.014)
			MP1240, VP30RT	755 (590–920)	.007 (.003–.011)	.008 (.004–.012)	.010 (.004–.014)
			MX3030	590 (425–755)	.006 (.003–.009)	.007 (.004–.011)	—
	Carbon Steel Alloy Steel	Hardness ≤180–280HB	**MV1020**	850 (560–1150)	.006 (.003–.009)	.007 (.004–.011)	.008 (.004–.012)
			MV1030	770 (560–985)	.006 (.003–.009)	.007 (.004–.011)	.008 (.004–.012)
			F7030	820 (655–985)	.006 (.003–.009)	.007 (.004–.011)	.008 (.004–.012)
			MP1220, MP6120 VP15TF	720 (560–885)	.006 (.003–.009)	.007 (.004–.011)	.008 (.004–.012)
			MP1230, MP6130	590 (490–755)	.006 (.003–.009)	.007 (.004–.011)	.008 (.004–.012)
			MP1240, VP30RT	490 (395–590)	.006 (.003–.009)	.007 (.004–.011)	.008 (.004–.012)
			MX3030	490 (395–590)	.005 (.002–.008)	.006 (.004–.010)	—
		Hardness ≤280–350HB	**MV1020**	590 (330–820)	.005 (.002–.008)	.006 (.004–.010)	.007 (.004–.011)
			MV1030	540 (330–755)	.005 (.002–.008)	.006 (.004–.010)	.007 (.004–.011)
			F7030	590 (425–755)	.005 (.002–.008)	.006 (.004–.010)	.007 (.004–.011)
			MP1220, MP6120 VP15TF	460 (330–590)	.005 (.002–.008)	.006 (.004–.010)	.007 (.004–.011)
			MP1230, MP6130	395 (295–490)	.005 (.002–.008)	.006 (.004–.010)	.007 (.004–.011)
			MP1240, VP30RT	330 (260–525)	.005 (.002–.008)	.006 (.004–.010)	.007 (.004–.011)
			MX3030	330 (260–525)	.004 (.002–.006)	.005 (.004–.008)	—
M	Stainless Steel	Hardness ≤270HB	**MV1030, MP1230 MP7130, VP15TF**	720 (560–885)	.006 (.003–.009)	.007 (.004–.011)	.008 (.004–.012)
			MP1240, MP7140 VP30RT	655 (490–820)	.006 (.003–.009)	.007 (.004–.011)	.008 (.004–.012)
			MX3030	490 (395–590)	.006 (.003–.009)	.007 (.004–.011)	—
K	Cast Iron Ductile Cast Iron	Tensile Strength ≤450MPa	**MV1020**	785 (425–1150)	.007 (.004–.011)	.008 (.004–.012)	.010 (.004–.014)
			MV1030	620 (425–820)	.007 (.004–.011)	.008 (.004–.012)	.010 (.004–.014)
			MP1220, VP15TF	590 (425–755)	.007 (.004–.011)	.008 (.004–.012)	.010 (.004–.014)
			MP1230	560 (395–720)	.007 (.004–.011)	.008 (.004–.012)	.010 (.004–.014)
			MC5020	655 (490–820)	—	.008 (.004–.012)	.010 (.004–.014)
		Tensile Strength ≥450MPa	**MV1020**	720 (260–1150)	.007 (.004–.011)	.008 (.004–.012)	.010 (.004–.014)
			MV1030	360 (260–490)	.007 (.004–.011)	.008 (.004–.012)	.010 (.004–.014)
			MP1220	425 (330–525)	.007 (.004–.011)	.008 (.004–.012)	.010 (.004–.014)
			MP1230	395 (295–490)	.007 (.004–.011)	.008 (.004–.012)	.010 (.004–.014)
N	Aluminum Alloys	—	**HTi10**	2130 (985–3280)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
S	Titanium Alloys	—	**MP1220, MP9120 VP15TF**	165 (130–195)	.005 (.002–.008)	.006 (.002–.008)	.007 (.004–.011)
			MP1230, MP9130	150 (100–180)	.004 (.002–.008)	.006 (.002–.008)	.007 (.004–.011)
	Heat Resistant Alloys	—	**MP1220, MP9120 VP15TF**	130 (65–165)	.005 (.002–.008)	.006 (.002–.008)	.007 (.004–.011)
			MP1230, MP1240 MP9130	115 (50–150)	.004 (.002–.008)	.006 (.002–.008)	.007 (.004–.011)
H	Hardened Steel	40–55HRC	**VP15TF**	260 (195–330)	.003 (.002–.005)	.004 (.002–.006)	.005 (.003–.007)

FACE MILLING
GENERAL CUTTING
ASX445

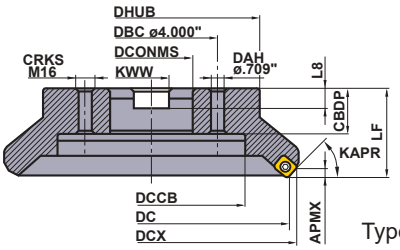




Type 1



Type 2



Type 3

Arbor Type (Inch Standard)

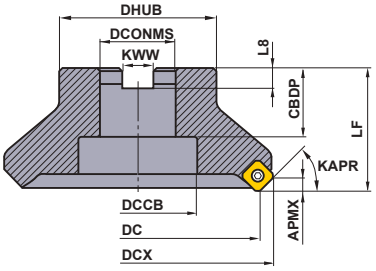
Order Number	Stock R	CSP	Number of Teeth	Dimensions (in) DC	DCX	LF	DCONMS	CBDP	DCCB	KWW	L8	DHUB	WT (lbs)	APMX (in)	RPMX (min^{-1})	Type
ASX445R0204	●	–	4	2.000	2.513	1.575	.750	.748	–	.313	.187	1.772	.9	.236	18000	1
ASX445R0205	●	–	5	2.000	2.513	1.575	.750	.748	–	.313	.187	1.772	.9	.236	18000	1
ASX445R2504	●	–	4	2.500	3.009	1.575	.750	.748	–	.313	.187	1.969	1.5	.236	16000	1
ASX445R2505	●	–	5	2.500	3.009	1.575	.750	.748	–	.313	.187	1.969	1.5	.236	16000	1
ASX445R0304C	●	–	4	3.000	3.520	1.969	1.000	1.024	1.496	.375	.219	2.205	2.4	.236	14000	2
ASX445R0306C	●	–	6	3.000	3.520	1.969	1.000	1.024	1.496	.375	.219	2.205	2.2	.236	14000	2
ASX445R0308C	●	–	8	3.000	3.520	1.969	1.000	1.024	1.496	.375	.219	2.205	2.2	.236	14000	2
ASX445R0405E	●	–	5	4.000	4.518	1.969	1.500	1.378	2.362	.625	.375	3.150	4	.236	13000	2
ASX445R0407E	●	–	7	4.000	4.518	1.969	1.500	1.378	2.362	.625	.375	3.150	3.7	.236	13000	2
ASX445R0410E	●	–	10	4.000	4.518	1.969	1.500	1.378	2.362	.625	.375	3.150	3.8	.236	13000	2
ASX445R0506E	●	–	6	5.000	5.513	2.480	1.500	1.378	2.362	.625	.375	3.150	6.6	.236	12000	2
ASX445R0508E	●	–	8	5.000	5.513	2.480	1.500	1.378	2.362	.625	.375	3.150	6.2	.236	12000	2
ASX445R0512E	●	–	12	5.000	5.513	2.480	1.500	1.378	2.362	.625	.375	3.150	6.4	.236	12000	2
ASX445R0607E	●	–	7	6.000	6.511	2.480	1.500	1.378	2.362	.625	.375	3.937	10.4	.236	10000	2
ASX445R0610E	●	–	10	6.000	6.511	2.480	1.500	1.378	2.362	.625	.375	3.937	10.1	.236	10000	2
ASX445R0616E	●	–	16	6.000	6.511	2.480	1.500	1.378	2.362	.625	.375	3.937	10.3	.236	10000	2
ASX445R0808M	●	–	8	8.000	8.509	2.480	2.500	1.378	5.512	1.000	.560	6.890	17.4	.236	9000	3
ASX445R0812M	●	–	12	8.000	8.509	2.480	2.500	1.378	5.512	1.000	.560	6.890	17	.236	9000	3
ASX445R0820M	●	–	20	8.000	8.509	2.480	2.500	1.378	5.512	1.000	.560	6.890	17.2	.236	9000	3
ASX445R1010M	●	–	10	10.000	10.508	2.480	2.500	1.378	7.087	1.000	.560	8.661	28.6	.236	8000	3
ASX445R1014M	●	–	14	10.000	10.508	2.480	2.500	1.378	7.087	1.000	.560	8.661	28.2	.236	8000	3
ASX445R1024M	●	–	24	10.000	10.508	2.480	2.500	1.378	7.087	1.000	.560	8.661	28.4	.236	8000	3

* CSP : ○ = With coolant through, – = Without coolant through
Note 1) The rotational speed maximum (RPMX) is set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.
Note 3) Set bolt not included.

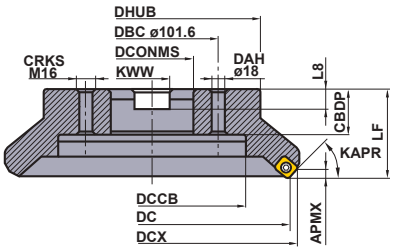
● : USA Stock ★ : Stocked in Japan
▲ : Inventory maintained. To be replaced by new products.

10 inserts in one case. PCD inserts are available with 1 piece in one case.

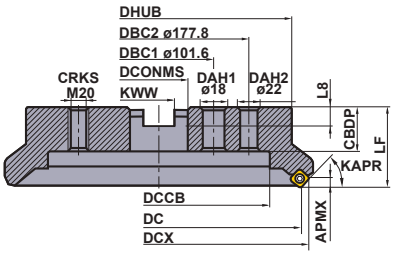




Type 1



Type 2



Type 3

Arbor Type (DC = mm size, DCONMS = in size)

Order Number	Stock	CSP	Number of Teeth	Dimensions (mm) [in]									WT	APMX	RPMX	Type
	R			DC	DCX	LF	DCONMS	CBDP	DCCB	KWW	L8	DHUB	(kg)	(mm)	(min^{-1})	
ASX445R08004C	★	–	4	80	93.2	50	25.4 [1.0"]	26	38	9.5	6	56	1.1	6	14000	1
ASX445R08006C	★	–	6	80	93.2	50	25.4 [1.0"]	26	38	9.5	6	56	1	6	14000	1
ASX445R08008C	★	–	8	80	93.2	50	25.4 [1.0"]	26	38	9.5	6	56	1.1	6	14000	1
ASX445R10005D	★	–	5	100	113.2	50	31.75 [1.25"]	32	45	12.7	8	70	1.8	6	13000	1
ASX445R10007D	★	–	7	100	113.2	50	31.75 [1.25"]	32	45	12.7	8	70	1.7	6	13000	1
ASX445R10010D	★	–	10	100	113.2	50	31.75 [1.25"]	32	45	12.7	8	70	1.8	6	13000	1
ASX445R12506E	★	–	6	125	138	63	38.1 [1.5"]	35	60	15.9	10	80	2.9	6	12000	1
ASX445R12508E	★	–	8	125	138	63	38.1 [1.5"]	35	60	15.9	10	80	2.8	6	12000	1
ASX445R12512E	★	–	12	125	138	63	38.1 [1.5"]	35	60	15.9	10	80	2.9	6	12000	1
ASX445R16007F	★	–	7	160	173	63	50.8 [2.0"]	38	80	19.1	11	100	4.7	6	10000	1
ASX445R16010F	★	–	10	160	173	63	50.8 [2.0"]	38	80	19.1	11	100	4.6	6	10000	1
ASX445R16016F	★	–	16	160	173	63	50.8 [2.0"]	38	80	19.1	11	100	4.7	6	10000	1
ASX445R20008K	★	–	8	200	212.9	63	47.625 [1.875"]	35	140	25.4	14.22	175	7.9	6	9000	2
ASX445R20012K	★	–	12	200	212.9	63	47.625 [1.875"]	35	140	25.4	14.22	175	7.8	6	9000	2
ASX445R20020K	★	–	20	200	212.9	63	47.625 [1.875"]	35	140	25.4	14.22	175	7.8	6	9000	2
ASX445R25010K	★	–	10	250	262.9	63	47.625 [1.875"]	35	180	25.4	14.22	220	12.9	6	8000	2
ASX445R25014K	★	–	14	250	262.9	63	47.625 [1.875"]	35	180	25.4	14.22	220	12.8	6	8000	2
ASX445R25024K	★	–	24	250	262.9	63	47.625 [1.875"]	35	180	25.4	14.22	220	12.8	6	8000	2
ASX445R31514P	★	–	14	315	327.9	63	47.625 [1.875"]	40	245	25.4	14.22	285	22.4	6	6500	3
ASX445R31518P	★	–	18	315	327.9	63	47.625 [1.875"]	40	245	25.4	14.22	285	22.2	6	6500	3
ASX445R31528P	★	–	28	315	327.9	63	47.625 [1.875"]	40	245	25.4	14.22	285	21.8	6	6500	3

* CSP : ○ = With coolant through, – = Without coolant through

Note 1) The rotational speed maximum (RPMX) is set to ensure tool and insert stability.

Note 2) When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.

Note 3) Set bolt not included.

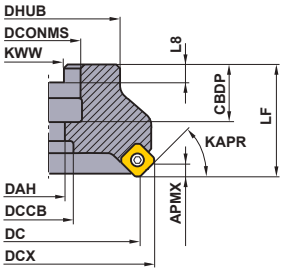
Screw-on Insert Type Milling Cutter



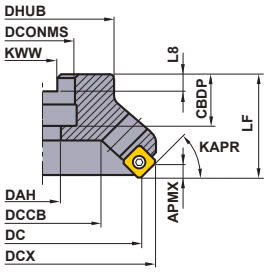
Φ50, Φ63



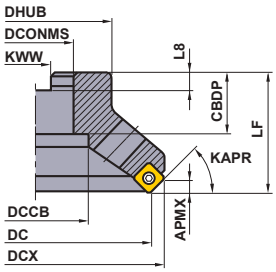
Φ80-



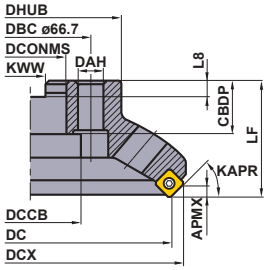
Type 1



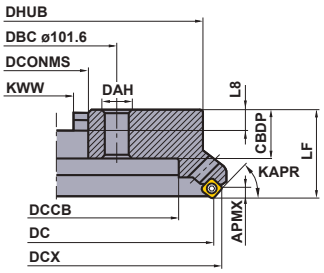
Type 2



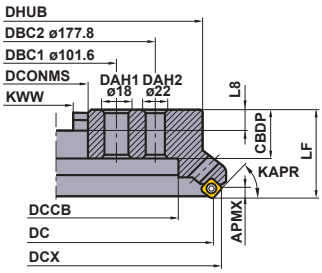
Type 3



Type 4



Type 5



Type 6

Arbor Type (DC = mm size, DCONMS = mm size)

Order Number	Stock R	CSP	Number of Teeth	Dimensions (mm) DC	DCX	LF	DCONMS	CBDP	DAH	DCCB	KWW	L8	DHUB	WT (kg)	APMX (mm)	RPMX (min^{-1})	Type
ASX445-050A03R	★	—	3	50	63	40	22	20	11	17	10.4	6.3	45	0.5	6	18000	1
ASX445-050A04R	★	—	4	50	63	40	22	20	11	17	10.4	6.3	45	0.4	6	18000	1
ASX445-050A05R	★	—	5	50	63	40	22	20	11	17	10.4	6.3	45	0.4	6	18000	1
ASX445-063A04R	★	—	4	63	75.9	40	22	20	11	17	10.4	6.3	50	0.7	6	16000	1
ASX445-063A05R	★	—	5	63	75.9	40	22	20	11	17	10.4	6.3	50	0.6	6	16000	1
ASX445-063A06R	★	—	6	63	75.9	40	22	20	11	17	10.4	6.3	50	0.6	6	16000	1
ASX445-080A04R	★	—	4	80	93.2	50	27	23	13	37.84	12.4	7	56	1	6	14000	2
ASX445-080A06R	★	—	6	80	93.2	50	27	23	13	37.84	12.4	7	56	0.9	6	14000	2
ASX445-080A08R	★	—	8	80	93.2	50	27	23	13	37.84	12.4	7	56	0.9	6	14000	2
ASX445-100A05R	★	—	5	100	113.2	50	32	26	17	56.92	14.4	8	70	1.6	6	13000	2
ASX445-100A07R	★	—	7	100	113.2	50	32	26	17	56.92	14.4	8	70	1.5	6	13000	2
ASX445-100A10R	★	—	10	100	113.2	50	32	26	17	56.92	14.4	8	70	1.5	6	13000	2
ASX445-125B06R	★	—	6	125	138	63	40	32	—	56	16.4	9	80	2.4	6	12000	3
ASX445-125B08R	★	—	8	125	138	63	40	32	—	56	16.4	9	80	2.3	6	12000	3
ASX445-125B12R	★	—	12	125	138	63	40	32	—	56	16.4	9	80	2.3	6	12000	3
ASX445-160C07R	★	—	7	160	173	63	40	29	14	56	16.4	9	100	3.9	6	10000	4
ASX445-160C10R	★	—	10	160	173	63	40	29	14	56	16.4	9	100	3.6	6	10000	4
ASX445-160C16R	★	—	16	160	173	63	40	29	14	56	16.4	9	100	3.6	6	10000	4
ASX445-200C08R	★	—	8	200	212.9	63	60	32	18	135	25.7	14.22	155	6.7	6	9000	5
ASX445-200C12R	★	—	12	200	212.9	63	60	32	18	135	25.7	14.22	155	5.8	6	9000	5
ASX445-200C20R	★	—	20	200	212.9	63	60	32	18	135	25.7	14.22	155	6.5	6	9000	5
ASX445-250C10R	★	—	10	250	262.9	63	60	32	18	174	25.7	14.22	200	10.5	6	8000	5

* CSP : ○ = With coolant through, — = Without coolant through

Note 1) The rotational speed maximum (RPMX) is set to ensure tool and insert stability.

Note 2) When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.

Note 3) Set bolt not included.

● : USA Stock ★ : Stocked in Japan

▲ : Inventory maintained. To be replaced by new products.

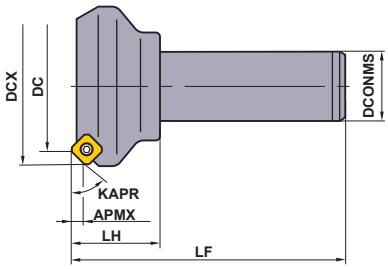
10 inserts in one case. PCD inserts are available with 1 piece in one case.

Arbor Type (DC = mm size, DCONMS = mm size)

Order Number	Stock R	CSP	Number of Teeth	Dimensions (mm) DC	DCX	LF	DCONMS	CBDP	DAH	DCCB	KWW	L8	DHUB	WT (kg)	APMX (mm)	RPMX (min^{-1})	Type
ASX445-250C14R	★	—	14	250	262.9	63	60	32	18	174	25.7	14.22	200	10.6	6	8000	5
ASX445-250C24R	★	—	24	250	262.9	63	60	32	18	174	25.7	14.22	200	10.3	6	8000	5
ASX445-315C14R	★	—	14	315	327.9	80	60	57	—	256.8	25.7	14.22	285	22.4	6	6500	6
ASX445-315C18R	★	—	18	315	327.9	80	60	57	—	256.8	25.7	14.22	285	22.2	6	6500	6
ASX445-315C28R	★	—	28	315	327.9	80	60	57	—	256.8	25.7	14.22	285	21.8	6	6500	6

* CSP : ○ = With coolant through, — = Without coolant through
Note 1) The rotational speed maximum (RPMX) is set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.
Note 3) Set bolt not included.





Type 1

Shank Type (Metric Standard)

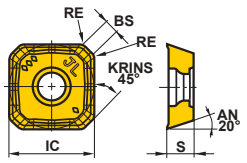
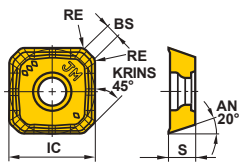
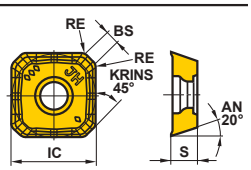
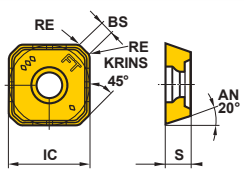
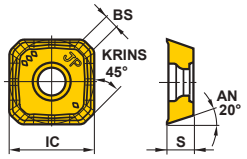
Order Number	Stock R	CSP	Number of Teeth	Dimensions (mm) DC	DCX	LF	DCONMS	LH	APMX (mm)	Type
ASX445R503S32	★	—	3	50	63	125	32	40	6	1
ASX445R634S32	★	—	4	63	75.9	125	32	40	6	1
ASX445R804S32	★	—	4	80	93.2	125	32	40	6	1

* CSP : ○ = With coolant through, — = Without coolant through

Inserts

Material			P	M	K	N	S	H
		Steel	◆	◆	◆	◆	◆	◆
		Stainless Steel	◆	◆	◆	◆	◆	◆
		Cast Iron	◆	◆	◆	◆	◆	◆
		Non-ferrous Metals	◆	◆	◆	◆	◆	◆
		Heat Resistant Alloys, Titanium Alloys	◆	◆	◆	◆	◆	◆
		Hardened Steel	◆	◆	◆	◆	◆	◆

Edge Preparation :
E : Round F : Sharp
S : Chamfer + Round
T : Chamfer

Application	Shape Chipbreaker	Order Number	Class	Edge Preparation	Coated														Cermet		WC	Dimensions (in)				Geometry
					MC5020	MV1020	MV1030	F7030	NEW MP1220	NEW MP1230	NEW MP1240	MP6120	MP6130	MP7130	MP7140	MP9120	MP9130	VP15TF	VP30RT	MX3030		HTi10	IC	BS	RE	S	
Finish–Light Cutting	JL	SEET13T3AGEN-JL	E	E		●	●	●	●	●	●	▲	▲	▲	▲	▲	▲	●	●	●			.528	.075	.059	.156	
Light–Rough Cutting	JM	SEMT13T3AGSN-JM	M	E	●	●	●	●	●	●	●	▲	▲	▲	▲	▲	▲	●	●	●			.528	.075	.059	.156	
Medium–Heavy Cutting	JH	SEMT13T3AGSN-JH	M	E	●	●	●	●	●	●	●	▲	▲	▲	▲	▲	▲	●	●				.528	.075	.059	.156	
Heavy Interrupted Cutting	FT	SEMT13T3AGSN-FT	M	E	●	●	●																.528	.075	.059	.156	
For Aluminum Alloys	JP	SEGT13T3AGFN-JP	G	F																		●	.528	.087	—	.156	

● = NEW

Note 1) The JP chipbreaker has sharp cutting edges. Wear gloves when handling.
Note 2) When machining aluminum alloys, welding to the cutting edge tends to occur, often leading to insert failure. To prevent this, wet cutting is recommended.

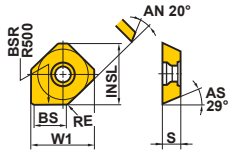
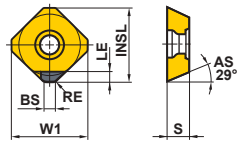
● : USA Stock ★ : Stocked in Japan
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10 inserts in one case. PCD inserts are available with 1 piece in one case.

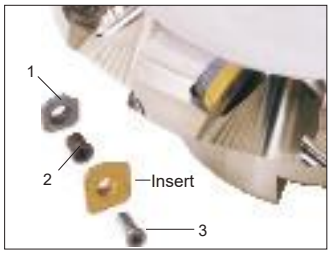
Wiper Inserts

Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-ferrous Metals
	S	Heat Resistant Alloys, Titanium Alloys
	H	Hardened Steel

Edge Preparation :
E : Round F : Sharp
S : Chamfer + Round
T : Chamfer

Shape	Order Number	Class	Edge Preparation	Coated		Coated Cermet		Cermet		Carbide		PCD		Dimensions (in)						Geometry
				MC5020	VP15TF	VP25N		NX2525		HTi05T		MD220		BS	LE	RE	W1	INSL	S	
	**WEEW13T3AGER8C**	E	E	●	●					●				.295	—	.059	.649	.654	.156	
	WEEW13T3AGTR8C	E	T			●		●						.295	—	.059	.649	.654	.156	
	**WEEW13T3AGFR3C**	E	F									●		.118	.071	.059	.649	.654	.156	
	WEEW13T3AGTR3C	E	T											.118	.071	.059	.649	.654	.156	

*Wiper inserts are single-cornered.
*PCD grade MD220 is for aluminum alloys.



SPARE PARTS

Tool Holder Type	1 Shim	2 * Shim Screw	3 * Clamp Screw	Wrench (Insert)	Wrench (Shim)
ASX445	STASX445N	WCS503507H	TPS35	TIP15T	HKY35R

* Clamp Torque (lbf-in) : WCS503507H=44, TPS35=31

Wrench	1. Wrench — The ASX445 uses a TORXPLUS clamp screw. The attached wrench is for the exclusive use of this screw. To ensure the effectiveness of TORXPLUS only use the attached wrench. 2. Hexagonal wrench — The attached hexagonal wrench is for use with the seat and the shim. The wrench size is .138".
Spare Parts	Only use the original parts that were supplied when purchased. If other parts are used the performance and safety can not be assured.

Instructions for use of wiper inserts



Fig.1



Fig.2

Note 1) These wiper inserts are single-cornered.
Note 2) Install the insert so that the cutting edge is located as shown in Fig. 1.
Do not install the wiper insert as shown in Fig. 2. (The insert may be damaged by a too heavy cutting load.)
Note 3) Recommended depth of cutting is ap=.008"- .020". (Be aware of the cutting load if the depth of cut is over the recommendation.)
Note 4) The major cutting edge of a wiper insert is set more inside than a general tooth.
This is to prevent heavy loads on the wiper insert. (To prevent fracture set the feed under .008 IPT)
Note 5) Excellent finished surface can be obtained with one wiper insert.
Note 6) When the feed per revolution is larger than the width of the wiper edge, install 2 or more wiper inserts equally inside the cutting body.

RECOMMENDED CUTTING CONDITIONS WHEN USING A WIPER INSERT

Material	Grade	Recommended Cutting Speed (SFM)
P	**VP25N**	655 (260—820)
	VP15TF	590 (260—820)
M	**VP15TF**	390—885
K	**MC5020**	425—820
	VP15TF	
S	**VP15TF**	65—165
H	**VP15TF**	130—260
N	**MD220**	2130 (985-3280)

●Recommended depth of cut (ap) is .008"- .020" and feed per tooth (fz) is up to .008 IPT.

Recommended Cutting Conditions

	Material	Properties	Grade	Cutting Speed (SFM)	Finish—Light Cutting Feed per Tooth (IPT)	Light—Rough Cutting Feed per Tooth (IPT)	Medium—Heavy Cutting Feed per Tooth (IPT)
P	Mild Steel	Hardness ≤180HB	**MV1020**	985 (655–1310)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MV1030	900 (655–1150)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			F7030	920 (690–1150)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1220, MP6120 VP15TF	820 (655–985)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1230, MP6130	785 (620–950)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1240, VP30RT	755 (590–920)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MX3030	590 (425–755)	.006 (.004–.008)	.008 (.004–.012)	—
	Carbon Steel Alloy Steel	Hardness ≤180—280HB	**MV1020**	850 (560–1150)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MV1030	770 (560–985)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			F7030	820 (655–985)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1220, MP6120 VP15TF	720 (560–885)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1230, MP6130	655 (490–755)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1240, VP30RT	490 (395–590)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MX3030	490 (395–590)	.006 (.004–.008)	.008 (.004–.012)	—
		Hardness ≤280—350HB	**MV1020**	590 (330–820)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MV1030	540 (330–755)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			F7030	590 (425–755)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1220, MP6120 VP15TF	460 (330–590)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1230, MP6130	395 (295–490)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1240, VP30RT	330 (260–525)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MX3030	330 (260–525)	.006 (.004–.008)	.008 (.004–.012)	—
M	Stainless Steel	Hardness ≤270HB	**MV1030, MP1230 MP7130, VP15TF**	720 (560–885)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1240, MP7140 VP30RT	655 (490–820)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MX3030	490 (395–590)	.006 (.004–.008)	.008 (.004–.012)	—
K	Cast Iron Ductile Cast Iron	Tensile Strength ≤450MPa	**MV1020**	785 (425–820)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MV1030	620 (425–820)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1220, VP15TF	590 (425–820)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1230	560 (395–720)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MC5020	655 (490–820)	—	.008 (.004–.012)	.012 (.008–.016)
		Tensile Strength ≥450MPa	**MV1020**	720 (425–1150)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MV1030, MP1220 MC5020	360 (260–490)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1230	330 (260–425)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
N	Aluminum Alloys	—	**HTi10**	2130 (985–3280)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
S	Titanium Alloys	—	**MP1220, MP9120 VP15TF**	165 (130–195)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1230, MP9130	150 (100–180)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
	Heat Resistant Alloys	—	**MP1220, MP9120 VP15TF**	130 (65–165)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
			MP1230, MP1240 MP9130	115 (50–150)	.006 (.004–.008)	.008 (.004–.012)	.012 (.008–.016)
H	Hardened Steel	40—55HRC	**VP15TF**	260 (195–330)	.004 (.002–.006)	.006 (.004–.008)	.008 (.004–.012)

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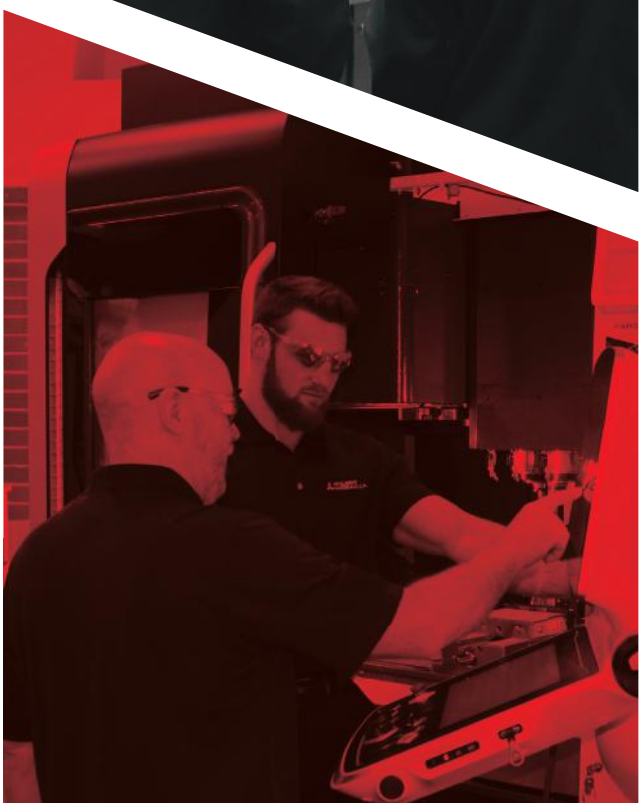
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FOR YOUR SAFETY

- 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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