FACE MILLING
<GENERAL CUTTING>

45° Finishing Roughing

ASX445

P	M	K	N	S	H
Steel	Stainless Steel	Cast Iron	Non-ferrous Metal	Heat Resistant Alloy	Hardened Steel

- Precision inexpensive moulded type 20°positive insert.
- Screw-on type.
- A wide range of chip breakers.
- High rigidity due to carbide shim.

KAPR :45°
GAMP:+20°—+23° T :+4°49′—+9°53′
GAMF:-13°—-10° I :+22°55′—+23°02′

Fig.1 ø50 ø63

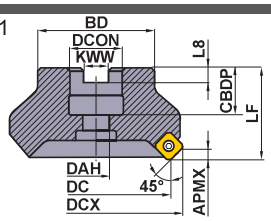


Fig.2 ø80 ø100 ø125 ø160

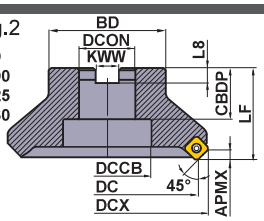


Fig.3 ø200 ø250

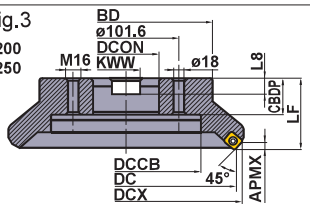
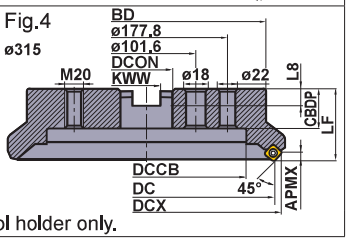


Fig.4 ø315

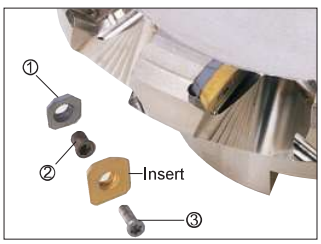


Right hand tool holder only.

ARBOR TYPE

Type	Order Number	Stock R	Number of Teeth	Dimensions(mm) DC	DCX	LF	DCON	CBDP	DAH	DCCB	BD	KWW	L8	WT* (kg)	APMX (mm)	Type (Fig.)
Coarse Pitch	**ASX445-050A03R**	●	3	50	63.0	40	22	20	11	—	45	10.4	6.3	0.5	6	1
	ASX445**-063A04R**	●	4	63	75.9	40	22	20	11	—	50	10.4	6.3	0.7	6	1
	ASX445**R08004C**	●	4	80	93.2	50	25.4	26	—	38	56	9.5	6	1.1	6	2
	ASX445**R10005D**	●	5	100	113.2	50	31.75	32	—	45	70	12.7	8	1.8	6	2
	ASX445**R12506E**	●	6	125	138.0	63	38.1	35	—	60	80	15.9	10	2.9	6	2
	ASX445**R16007F**	●	7	160	173.0	63	50.8	38	—	80	100	19.1	11	4.7	6	2
	ASX445**R20008K**	●	8	200	212.9	63	47.625	35	—	140	175	25.4	14.22	7.9	6	3
	ASX445**R25010K**	●	10	250	262.9	63	47.625	35	—	180	220	25.4	14.22	12.9	6	3
	ASX445**R31514P**	●	14	315	327.9	63	47.625	40	—	245	285	25.4	14.22	22.4	6	4
Fine Pitch	**ASX445-050A04R**	●	4	50	63.0	40	22	20	11	—	45	10.4	6.3	0.4	6	1
	ASX445**-063A05R**	●	5	63	75.9	40	22	20	11	—	50	10.4	6.3	0.6	6	1
	ASX445**R08006C**	●	6	80	93.2	50	25.4	26	—	38	56	9.5	6	1.0	6	2
	ASX445**R10007D**	●	7	100	113.2	50	31.75	32	—	45	70	12.7	8	1.7	6	2
	ASX445**R12508E**	●	8	125	138.0	63	38.1	35	—	60	80	15.9	10	2.8	6	2
	ASX445**R16010F**	●	10	160	173.0	63	50.8	38	—	80	100	19.1	11	4.6	6	2
	ASX445**R20012K**	●	12	200	212.9	63	47.625	35	—	140	175	25.4	14.22	7.8	6	3
	ASX445**R25014K**	●	14	250	262.9	63	47.625	35	—	180	220	25.4	14.22	12.8	6	3
	ASX445**R31518P**	●	18	315	327.9	63	47.625	40	—	245	285	25.4	14.22	22.2	6	4
Extra Fine Pitch	**ASX445-050A05R**	●	5	50	63.0	40	22	20	11	—	45	10.4	6.3	0.4	6	1
	ASX445**-063A06R**	●	6	63	75.9	40	22	20	11	—	50	10.4	6.3	0.6	6	1
	ASX445**R08008C**	●	8	80	93.2	50	25.4	26	—	38	56	9.5	6	1.1	6	2
	ASX445**R10010D**	●	10	100	113.2	50	31.75	32	—	45	70	12.7	8	1.8	6	2
	ASX445**R12512E**	●	12	125	138.0	63	38.1	35	—	60	80	15.9	10	2.9	6	2
	ASX445**R16016F**	●	16	160	173.0	63	50.8	38	—	80	100	19.1	11	4.7	6	2
	ASX445**R20020K**	●	20	200	212.9	63	47.625	35	—	140	175	25.4	14.22	7.8	6	3
	ASX445**R25024K**	●	24	250	262.9	63	47.625	35	—	180	220	25.4	14.22	12.8	6	3
	ASX445**R31528P**	●	28	315	327.9	63	47.625	40	—	245	285	25.4	14.22	21.8	6	4

* WT : Tool Weight



SPARE PARTS

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

* Clamp Torque (N • m) : WCS503507H=5.0, TPS35=3.5

● : Inventory maintained in Japan.

Fig.1 ø50 ø63

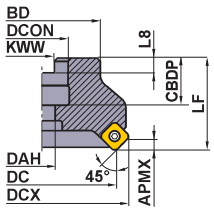


Fig.2 ø80 ø100

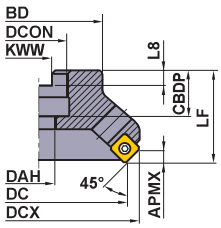
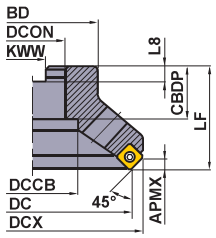


Fig.3 ø125



For metric arbor

The cutter bore diameter DCON is indicated in millimetre.

ø50, ø63

Over ø80

Fig.4 ø160

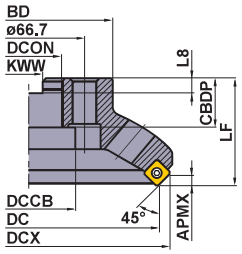
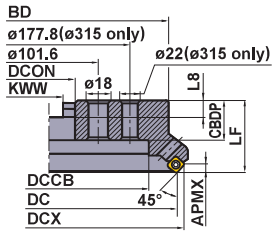


Fig.5 ø200 ø250 ø315



KAPR :45°
GAMP:+20°—+23° T :+4°49′—+9°53′
GAMF:-13°—-10° I :+22°55′—+23°02′

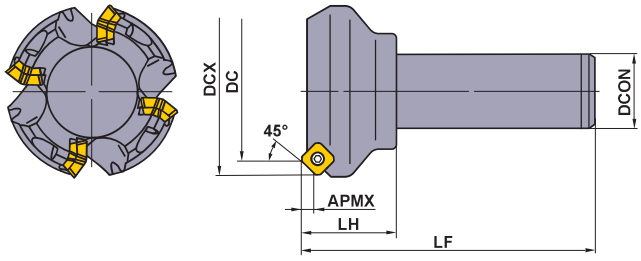
ARBOR TYPE

Right hand tool holder only.

Type	Order Number	Stock R	Number of Teeth	Dimensions(mm) DC	DCX	LF	DCON	CBDP	DAH	DCCB	BD	KWW	L8	WT* (kg)	APMX (mm)	Type (Fig.)
Coarse Pitch	**ASX445-050A03R**	●	3	50	63.0	40	22	20	11	—	45	10.4	6.3	0.5	6	1
	ASX445-063A04R	●	4	63	75.9	40	22	20	11	—	50	10.4	6.3	0.7	6	1
	ASX445-080A04R	●	4	80	93.2	50	27	23	13	—	56	12.4	7	1.0	6	2
	ASX445-100A05R	●	5	100	113.2	50	32	26	17	—	70	14.4	8	1.6	6	2
	ASX445-125B06R	●	6	125	138.0	63	40	32	—	56	80	16.4	9	2.4	6	3
	ASX445-160C07R	●	7	160	173.0	63	40	29	—	56	100	16.4	9	3.9	6	4
	ASX445-200C08R	●	8	200	212.9	63	60	32	—	135	155	25.7	14.22	6.7	6	5
	ASX445-250C10R	●	10	250	262.9	63	60	32	—	174	200	25.7	14.22	10.5	6	5
	ASX445-315C14R	●	14	315	327.9	80	60	57	—	256.8	285	25.7	14.22	22.4	6	5
Fine Pitch	**ASX445-050A04R**	●	4	50	63.0	40	22	20	11	—	45	10.4	6.3	0.4	6	1
	ASX445-063A05R	●	5	63	75.9	40	22	20	11	—	50	10.4	6.3	0.6	6	1
	ASX445-080A06R	●	6	80	93.2	50	27	23	13	—	56	12.4	7	0.9	6	2
	ASX445-100A07R	●	7	100	113.2	50	32	26	17	—	70	14.4	8	1.5	6	2
	ASX445-125B08R	●	8	125	138.0	63	40	32	—	56	80	16.4	9	2.3	6	3
	ASX445-160C10R	●	10	160	173.0	63	40	29	—	56	100	16.4	9	3.6	6	4
	ASX445-200C12R	●	12	200	212.9	63	60	32	—	135	155	25.7	14.22	5.8	6	5
	ASX445-250C14R	●	14	250	262.9	63	60	32	—	174	200	25.7	14.22	10.6	6	5
	ASX445-315C18R	●	18	315	327.9	80	60	57	—	256.8	285	25.7	14.22	22.2	6	5
Extra Fine Pitch	**ASX445-050A05R**	●	5	50	63.0	40	22	20	11	—	45	10.4	6.3	0.4	6	1
	ASX445-063A06R	●	6	63	75.9	40	22	20	11	—	50	10.4	6.3	0.6	6	1
	ASX445-080A08R	●	8	80	93.2	50	27	23	13	—	56	12.4	7	0.9	6	2
	ASX445-100A10R	●	10	100	113.2	50	32	26	17	—	70	14.4	8	1.5	6	2
	ASX445-125B12R	●	12	125	138.0	63	40	32	—	56	80	16.4	9	2.3	6	3
	ASX445-160C16R	●	16	160	173.0	63	40	29	—	56	100	16.4	9	3.6	6	4
	ASX445-200C20R	●	20	200	212.9	63	60	32	—	135	155	25.7	14.22	6.5	6	5
	ASX445-250C24R	●	24	250	262.9	63	60	32	—	174	200	25.7	14.22	10.3	6	5
	ASX445-315C28R	●	28	315	327.9	80	60	57	—	256.8	285	25.7	14.22	21.8	6	5

* WT : Tool Weight

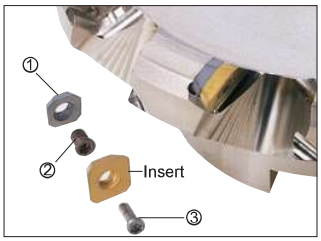
SPARE PARTS ➤ P001
TECHNICAL DATA ➤ Q001



Right hand tool holder only.

SHANK TYPE

Order Number	Stock R	Number of Teeth	Dimensions(mm) DC	DCX	LF	DCON	LH	APMX (mm)
ASX445R503S32	●	3	50	63.0	125	32	40	6
ASX445R**634S32**	●	4	63	75.9	125	32	40	6
ASX445R**804S32**	●	4	80	93.2	125	32	40	6



SPARE PARTS

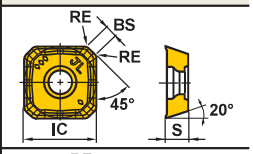
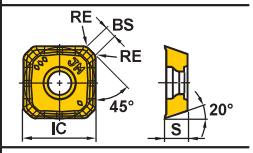
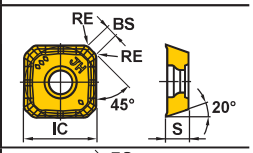
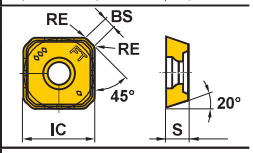
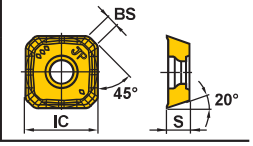
Tool Holder Number	① Shim	② Shim Screw *	③ Clamp Screw *	Wrench (Insert)	Wrench (Shim)
ASX445	STASX445N	WCS503507H	TPS35	TIP15T	HKY35R

* Clamp Torque (N • m) : WCS503507H=5.0, TPS35=3.5

Wrench	1. Wrench The ASX400 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 3.5mm.
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.

● : Inventory maintained in Japan. (10 inserts in one case) (CBN and PCD inserts are available in 1 piece in one case)

INSERTS WITH BREAKER

Work Material			Coated										Cermet		Carbide		Dimensions(mm)				Geometry
			F7030	MC5020	MP6120 NEW	MP6130 NEW	MP7130 NEW	MP7140 NEW	MP9120 NEW	MP9130 NEW	VP15TF	VP30RT	NX4545		HTi10		IC	S	BS	RE	
P	Steel	Application / Shape / Order Number / Class / Honing																			
M	Stainless Steel	Finish–Light Cutting / JL Breaker / SEET13T3AGEN-JL / E / E	●		●	●	●	●	●	●	●	●	●				13.4	3.97	1.9	1.5	
K	Cast Iron	Light–Rough Cutting / JM Breaker / SEMT13T3AGSN-JM / M / S	●	●	●	●	●	●	●	●	●	●	●				13.4	3.97	1.9	1.5	
N	Non-ferrous Metal	Medium–Heavy Cutting / JH Breaker / SEMT13T3AGSN-JH / M / S	●	●	●	●	●	●	●	●	●	●					13.4	3.97	1.9	1.5	
S	Heat-resistant Alloy, Titanium Alloy	Roughing For Cast Iron / FT Breaker / SEMT13T3AGSN-FT / M / S		●													13.4	3.97	1.9	1.5	
H	Hardened Steel	For Aluminium Alloy / JP Breaker / SEGT13T3AGFN-JP / G / F													●		13.4	3.97	2.2	—	

Cutting Conditions (Guide) :
●: Stable Cutting ◐: General Cutting ✲: Unstable Cutting

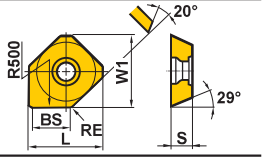
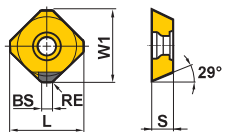
Honing :
E : Round F : Sharp
S : Chamfer + Hone T : Chamfer

■ = MIRACLE SIGMA

Instructions for use of the JP breaker

* The JP breaker has sharp cutting edges.
  Wear gloves when handling.
* When machining aluminium alloy, welding to the cutting edge tends to occur, often leading to insert failure. To prevent this, wet cutting is recommended.

WIPER INSERTS

Shape	Order Number	Honing	Coated		Cermet		Coated Cermet	Carbide		CBN		PCD		Dimensions (mm)					Geometry
			MC5020	VP15TF	NX2525		VP25N		HTi05T		MB710		MD220		L	W1	S	BS	RE	
	WEEW13T3AGER8C	E	●	●					●						16.48	16.60	3.97	7.5	1.5	
	WEEW13T3AGTR8C	T			●		●								16.48	16.60	3.97	7.5	1.5	
	WEEW13T3AGFR3C	F											●		16.48	16.60	3.97	3.0	1.5	
	WEEW13T3AGTR3C	T									●				16.48	16.60	3.97	3.0	1.5	

*Wiper inserts are single-cornered.
*CBN grade MB710 is for cast iron.
*PCD grade MD220 is for aluminum alloy.
*Please refer to page L023 for notes when using wiper insert.

SPARE PARTS ➤ P001
TECHNICAL DATA ➤ Q001

RECOMMENDED CUTTING CONDITIONS

	Work Material	Hardness	Grade	Cutting Speed (m/min)	Finish—Light Cutting		Light—Rough Cutting		Medium—Heavy Cutting	
					Feed per Tooth (mm/t.)	Breaker	Feed per Tooth (mm/t.)	Breaker	Feed per Tooth (mm/t.)	Breaker
P	Mild Steel	≤180HB	F7030	280 (210—350)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			MP6120 VP15TF	250 (200—300)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			MP6130	240 (190—290)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			VP30RT	230 (180—280)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			NX4545	180 (130—230)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	—	—
	Carbon Steel Alloy Steel	180—280HB	F7030	250 (200—300)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			MP6120 VP15TF	220 (170—270)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			MP6130	200 (150—230)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			VP30RT	150 (120—180)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			NX4545	150 (120—180)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	—	—
		280—350HB	F7030	180 (130—230)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			MP6120 VP15TF	140 (100—180)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			MP6130	120 (90—150)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			VP30RT	100 (80—160)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			NX4545	100 (80—160)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	—	—
M	Stainless Steel	≤270HB	MP7130 VP15TF	220 (170—270)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			MP7140 VP30RT	200 (150—250)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			NX4545	150 (120—180)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	—	—
K	Cast Iron Ductile Cast Iron	Tensile Strength ≤450MPa	MC5020	200 (150—250)	—	—	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH FT
			VP15TF	180 (130—250)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
		Tensile Strength ≥450MPa	MC5020	110 (80—150)	—	—	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH FT
N	Aluminium Alloy	—	HTi10	650 (300—1000)	0.15 (0.1—0.2)	JP	0.2 (0.1—0.3)	JP	0.3 (0.2—0.4)	JP
S	Titanium Alloy	—	MP9120 VP15TF	50 (40—60)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			MP9130	45 (30—55)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
	Heat Resistant Alloy (Inconel718 etc.)	—	MP9120 VP15TF	40 (20—50)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
			MP9130	35 (15—45)	0.15 (0.1—0.2)	JL	0.2 (0.1—0.3)	JM	0.3 (0.2—0.4)	JH
H	Hardened Steel	40—55HRC	VP15TF	80 (60—100)	0.1 (0.05—0.15)	JL	0.15 (0.1—0.2)	JM	0.2 (0.1—0.3)	JH

●Revolution (min^{-1})=(1000 x Cutting Speed)÷(3.14 x DC) ●Table Feed (mm/min)=Feed per Tooth x Number of Teeth x Cutter Revolution

Instructions for use of wiper inserts

Fig.1

Fig.2

- These wiper inserts are single-cornered.
- 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.)
- Recommended depth of cutting is ap=0.2-0.5(mm).
  (Be aware of the cutting load if the depth of cut is over the recommendation.)
- 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 0.2 mm/tooth)
- Excellent finished surface can be obtained with one wiper insert.
- 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

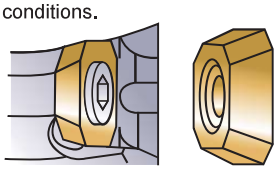
Work Material	Grade	Recommended Cutting Speed (m/min)
P	VP25N	200 (80—250)
	VP15TF	180 (80—250)
M	VP15TF	120—270
K	MC5020	130—250
	VP15TF	
S	VP15TF	20—50
H	VP15TF	40—80

●Recommended depth of cut (ap) is 0.2mm-0.5mm and feed per tooth (fz) is up to 0.2mm/t.

FEATURES

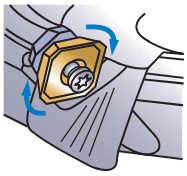
STABLE, LONG TOOL LIFE, HIGH ACCURACY BODY

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

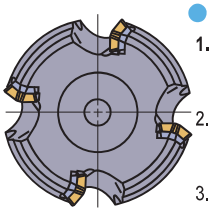


The cutter body is made from a special alloy that provides high strength at high temperature. A special surface treatment improves the corrosion resistance.

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.

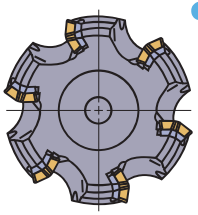


EFFECTIVE FOR VARIOUS MACHINING APPLICATIONS



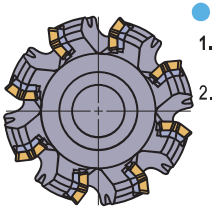
Coarse Pitch Type

1. **The 1st recommendation for cutting steel and stainless steel.**
2. For deep cutting and high feed rates with large-volume chip discharge.
3. Longer overhang possible for relatively low machining riidity.



Fine Pitch Type

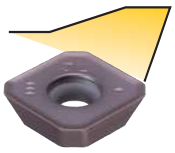
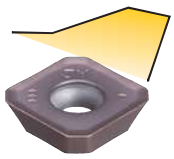
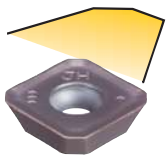
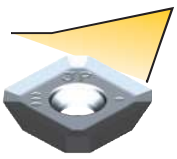
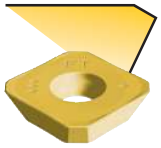
1. **The 1st recommendation type for cast iron, hardened steel and heat-resistant alloys.**
2. For shallow cutting with low feed rates and low-volume chip discharge.



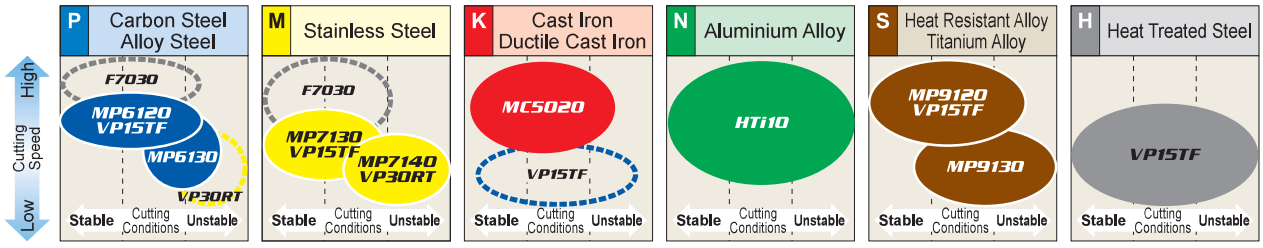
Extra Fine Pitch Type

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

CHIPBREAKERS FOR A WIDE RANGE OF APPLICATIONS

JL Finish to Light cutting Breaker	JM Light to Rough cutting Breaker	JH Medium to Heavy cutting Breaker	JP Aluminium alloy cutting Breaker	FT Rough cutting for cast iron Breaker
				
High accuracy insert with ground-finished periphery. Large rake angle leading to 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 insert with ground-finished periphery. Large rake angle and mirror-finished rake face for sharp cutting performance and high welding resistance.	High accurate M class inserts. Higher fracture-resistant flat-top inserts.
①Workpiece rigidity is low.	**①General cutting.**	**①Interrupted cutting. ②Scaling.**	**①General cutting of aluminium alloy.**	**①For rough machining of scaled cast iron.**

INSERT GRADES FOR A WIDE RANGE OF MATERIALS



(Note) When machining steel or stainless steel where the emphasis is on surface finish, use cermet grade NX4545.
Stable Cutting : Continuous cutting, Constant depth of cut, Pre-machined securely clamped component cutting
Unstable Cutting : Heavy interrupted, Irregular depth of cut, Low clamping rigidity cutting