DIA EDGE
TOOL NEWS
2017.1 Update
B195G

General Purpose Multi Corner Insert Type Face Milling Cutter

AHX Series

Series Expansion

Heptagonal double sided insert.
Economical 14 cutting edge inserts.

MITSUBISHI MATERIALS CORPORATION

General Purpose Multi Corner Insert Type Face Milling Cutter

AHX Series

Unique 14 Cornered Insert

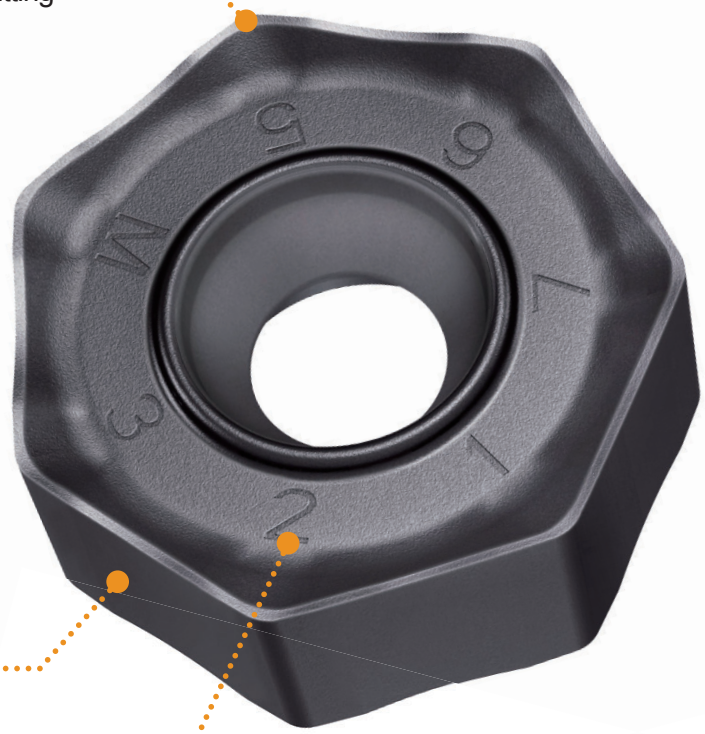
Economical Heptagonal Double Sided Insert

Double positive cutting edge geometry offers lower cutting resistance for improved machining efficiency.

(mm)

Tool Holder Number	IC	APMX
AHX4405	13.4	3.0
NEW AHX4755	13.4	1.6
AHX6405	20.0	6.0

The above "APMX" will vary depending on the breaker insert.



High Rigidity by Increasing the Thickness of the Inserts

Corner Number is Clearly Shown

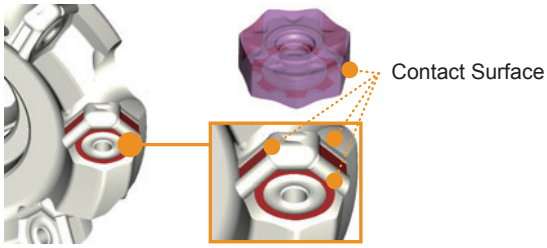
A Unique Face Mill for Machining of Steel, Stainless Steel and Cast Iron

AHX440S
AHX475S NEW
AHX640S

AHX475S is not compatible with stainless steel.

Designed to Control Abnormal Insert Breakage and Body Damage

The unique conical insert seat and Anti Fly mechanism (A.F.I) hold the insert securely. The outer edge of the insert is not in contact with the body, thereby preventing damage if sudden fracturing occurs.
The thick insert negates the need for a shim.

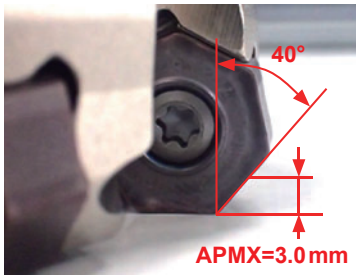


Through Coolant Holes

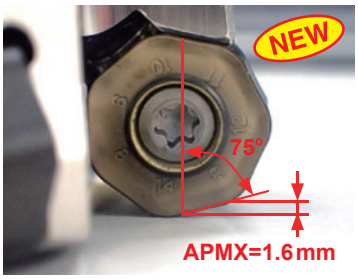
Improves chip discharge and prevents chip welding.

NEW AHX475S For High Feed Machining

High feed is possible with AHX440S by setting an RE = 3.2 mm insert to be used in a cutting body with a corner angle of 75° (KAPR15°).
The maximum depths of cut (APMX) will be limited to 1.6 mm.



AHX440S L Breaker



AHX475S

AHX Steel Series
Selection Reference Table (Cutting Edge Count and Cutting Conditions)

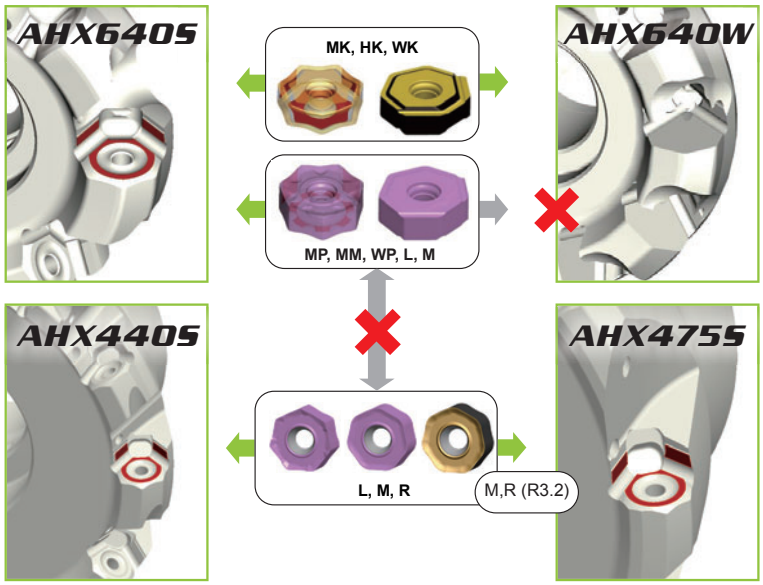
(mm)

DC	Type	Number of Teeth	AHX440S			AHX475S			AHX640S		
			General Cutting			High Feed Machining			General Cutting		
			Stock	fr (mm/rev)	APMX	Stock	fr (mm/rev)	APMX	Stock	fr (mm/rev)	APMX
40	Fine Pitch	3	●	0.6—1.2	3						
	Extra Fine Pitch	4	●	0.8—1.6	3						
50	Fine Pitch	4	●	0.8—1.6	3	●	2.4—4.0	1.6			
	Extra Fine Pitch	5	●	1.0—2.0	3	●	3.0—5.0	1.6			
	Super Extra Fine Pitch	6	●	1.2—2.4	3						
63	Coarse Pitch	4							●	0.8—1.6	6
	Fine Pitch	5	●	1.0—2.0	3	●	3.0—5.0	1.6	●	1.0—2.0	6
	Extra Fine Pitch	6	●	1.2—2.4	3	●	3.6—6.0	1.6			
	Super Extra Fine Pitch	8	●	1.6—3.2	3						
80	Coarse Pitch	4							●	0.8—1.6	6
	Fine Pitch	6	●	1.2—2.4	3	●	3.6—6.0	1.6	●	1.2—2.4	6
	Extra Fine Pitch	8	●	1.6—3.2	3	●	4.8—8.0	1.6			
	Super Extra Fine Pitch	10	●	2.0—4.0	3						
100	Coarse Pitch	5							●	1.0—2.0	6
	Fine Pitch	7	●	1.4—2.8	3	●	4.2—7.0	1.6	●	1.4—2.8	6
	Extra Fine Pitch	9				●	5.4—9.0	1.6			
		10	●	2.0—4.0	3						
	Super Extra Fine Pitch	12	●	2.4—4.8	3						
125	Coarse Pitch	6							●	1.2—2.4	6
	Fine Pitch	8	●	1.6—3.2	3	●	4.8—8.0	1.6	●	1.6—3.2	6
	Extra Fine Pitch	10				●	6.0—10.0	1.6			
		12	●	2.4—4.8	3						
	Super Extra Fine Pitch	14	●	2.8—5.6	3						
160	Coarse Pitch	7							●	1.4—2.8	6
	Fine Pitch	10	●	2.0—4.0	3	●	6.0—10.0	1.6	●	2.0—4.0	6
	Extra Fine Pitch	12				●	7.2—12.0	1.6			
		14	●	2.8—5.6	3						
	Super Extra Fine Pitch	16	●	3.2—6.4	3						
200	Coarse Pitch	8							●	1.6—3.2	6
	Fine Pitch	12							●	2.4—4.8	6

(Note 1) fr: Feed rate per revolution (AHX475S: the feed rate per cutter (fz) will be limited by the cutting width ae. Please refer to page 15 for details.)
(Note 2) APMX: Maximum depths of cut (AHX440S: the maximum depths of cut will vary depending on the breaker)
(Note 3) The depths of cut and feed rate are identical to the recommended conditions for carbon steel and alloy steel.

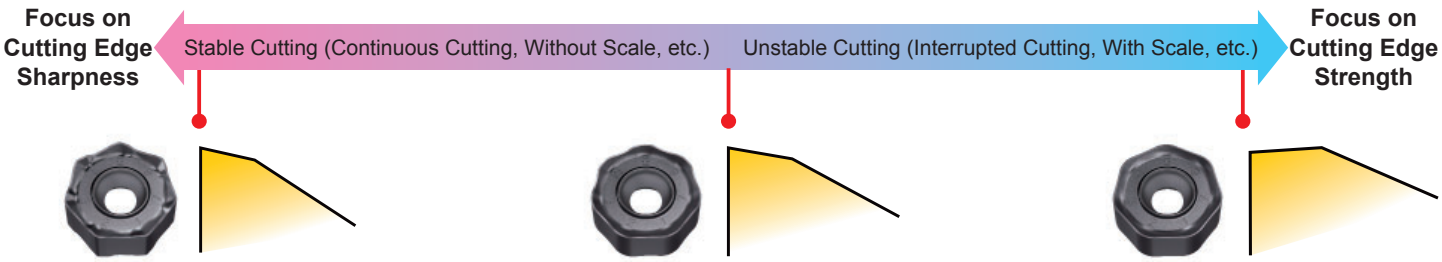
Compatibility with Inserts for AHX Series

The RE = 3.2 mm insert for use with AHX440S can be mounted on AHX475S. All inserts for use with AHX640 can be mounted on AHX640S (note, however, that the set height will differ).
The inserts for mounting on AHX640W are the MK, HK, and WK breakers for casting.



Breaker System

Breaker Series for Varied Cutting Conditions



L Breaker

The high rake angle boosts cutting performance. Positive land retains strength and provides low cutting resistance.

M Breaker

First recommendation for general applications. A good balance of edge strength and sharpness is provided by the optimized positive land and rake angle.

R and H Breaker

For unstable applications. Enhanced edge strength and retention of sharpness is provided by the negative land and positive rake angle respectively.

Work Material	Cutting Conditions		
	Stable Cutting	General Cutting	Unstable Cutting
P	AHX440S: L (With Wiper); M (R0.8) (With Wiper); M (R3.2) (Shared with AHX475); R (Shared with AHX475)		
	AHX640S: M; MP		
M	AHX440S: L (With Wiper); M (R0.8) (With Wiper); M (R3.2); R		
	AHX640S: MM		
K	AHX440S: L (With Wiper); M (R0.8) (With Wiper); M (R3.2) (Shared with AHX475); R (Shared with AHX475)		
	AHX640S: MK		HK

Wiper Insert of AHX640S

Based on the number of inserts and the cutting conditions, use of wiper inserts can improve overall surface finishes.

P

WP + combination with ***MP***
Right-hand 2 corners, left-hand 2 corners.

K

WK + combination with ***MK***
Right-hand 2 corners, left-hand 2 corners.

Face Milling Cutter for High Efficiency Machining of Cast Irons

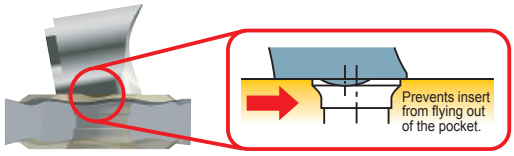
AHX640W

High Rigidity Inserts Suitable for High Feed Milling of Cast Irons

Sloped cutting edge and large rake angle

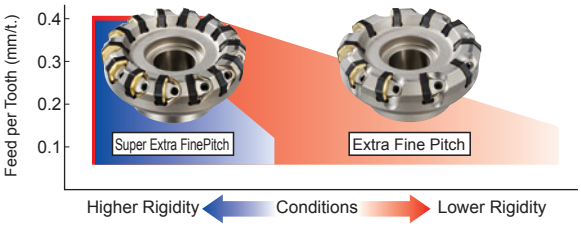
Innovative Clamp System

New wedge geometry developed to increase the permissible number of teeth.
Unique wedge geometry uses a protruding section that fits inside the insert hole acts as an Anti-Fly Insert (AFI) mechanism.

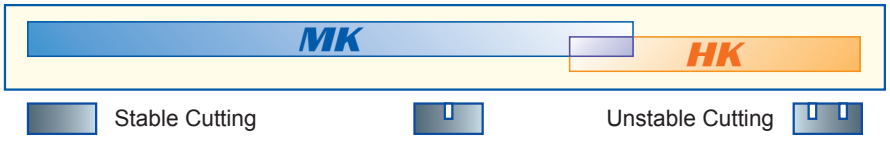


2 Variations for Different Applications

Extra fine pitch and super extra fine pitch types allow high efficiency milling under various machining conditions.
Additionally, left hand type for use on special machines are also available as standard. Inserts can be used with both right and left hand type cutters.



Insert Applications



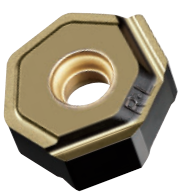
MK General-purpose Insert

High tolerance M-class insert.
Neutral, double sided 14 corners.
20° rake angle for low cutting resistance.
First recommendation for roughing and finishing.

HK Strong Cutting Edge Insert

High tolerance M-class insert.
Neutral, double sided 14 corners.
High cutting edge strength to prevent fracturing of the cutting edge during unstable machining of non-uniform workpieces and high feed machining.

WK Wiper Insert



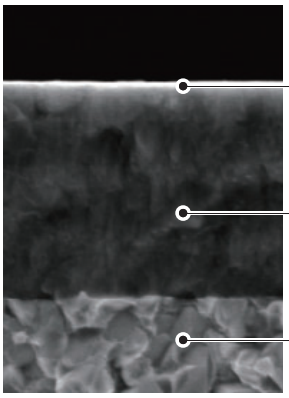
Improved Surface Finish

Right-hand 2 corners, left-hand 2 corners.
Based on the number of inserts and the cutting conditions, by using the wiper inserts it is possible to improve the overall surface finish.

The insert for AHX640W is compatible with AHX640S.

Insert Grades for a Wide Range of Materials

MIRACLE SIGMA Accumulated Al-Ti-Cr-N Based PVD Coating

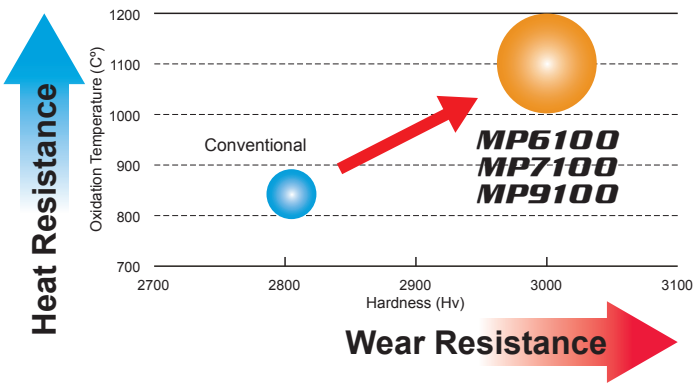


Excellent welding resistance due to low coefficient of friction

PVD accumulated coating (Each damage measures)

Special cemented carbide substrate

Dramatically Improving the Heat and Wear Resistance



Excellent Welding Resistance due to Low Coefficient Friction

	Work Material	Grade	Coefficient of Friction Measured at 600 Degress		
			AISI 1055	AISI 304	Ti-6Al-4V
P	Carbon Steel, Alloy Steel	MP6100	0.4		
M	Stainless Steel	MP7100		0.5	
S	Titanium Alloy, Heat Resistant Alloy	MP9100			0.3
	Conventional		0.7	0.7	0.7

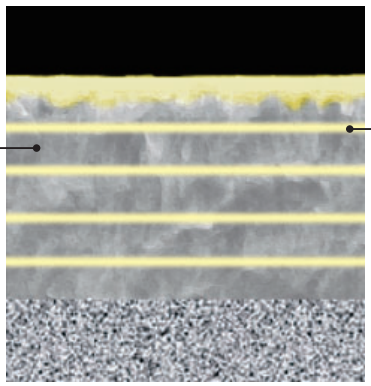
TOUGH-Σ Technology

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

PVD Accumulated Coating

Base Layer High Al-(Al, Ti)N

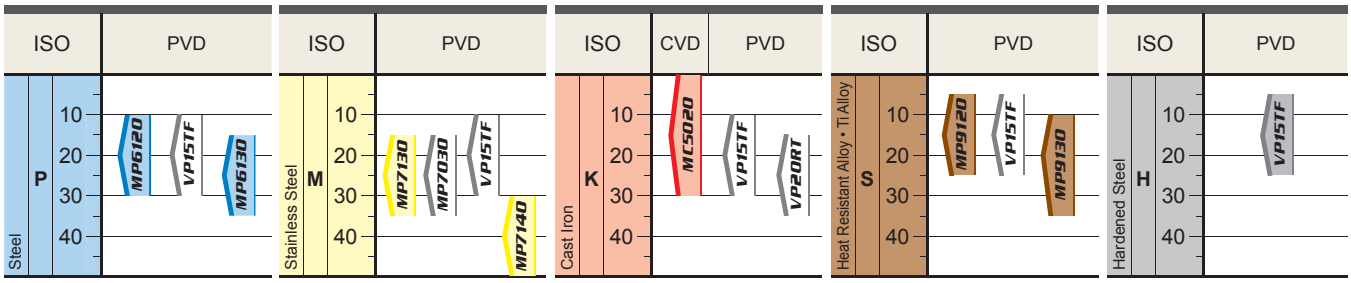
The new technology Al-(Al, Ti)N coating provides stabilisation of the high hardness phase and succeeds in dramatically improving wear, crater and welding resistance.



*Graphical Representation.

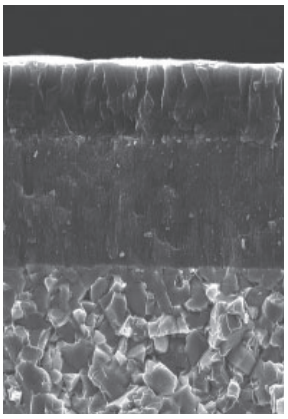
Each Grade has a Layer Suitable for Each Application Area

Selection Standard



MC5020

MC5020 has excellent wear, chipping and thermal crack resistance. These features prevent the problems usually associated with machining cast irons over prolonged periods.



Structure of MC5020

Improved Wear Resistance

The micro-grain wear resistant Al_2O_3 and fibrous TiCN layers deliver excellent wear resistance when milling a wide range of cast irons.

Improved Fracture Resistance

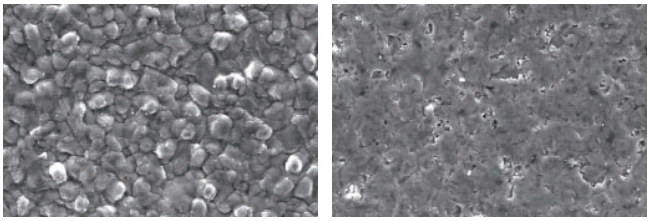
Use of a specially developed cemented carbide that provides superior resistance to fracture and thermal cracking prevents the cutting edge from sudden fracturing.

Reduced Abnormal Damage

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

Black Super-smooth Coating

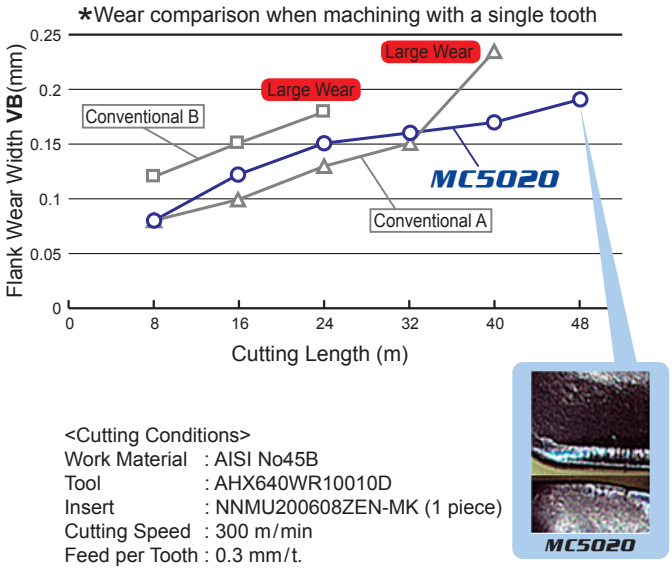
Comparison of Coating Surface



Conventional Coating　　Black Super-smooth Coating

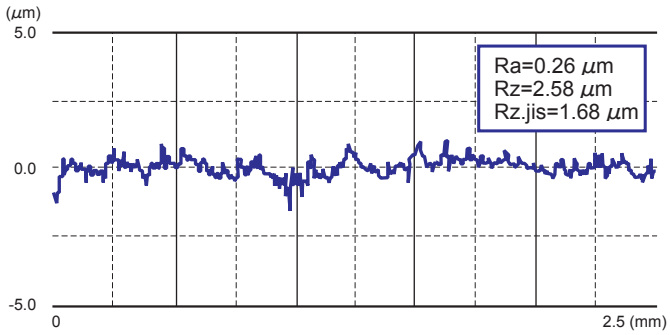
Cutting Performance

Wear Resistance

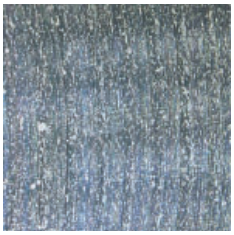


<Cutting Conditions>
Work Material : AISI No45B
Tool : AHX640WR10010D
Insert : NNMU200608ZEN-MK (1 piece)
Cutting Speed : 300 m/min
Feed per Tooth : 0.3 mm/t.
Depth of Cut : ap=5 mm
Cutting Mode : Dry Cutting
Single Insert

Surface Finish



<Finish Condition>



<Cutting Conditions>
Work Material : AISI 100-70-03
Tool : AHX640WR10014D
Insert : NNMU200608ZEN-MK (13 piece)
Wiper Insert : WNEU2006ZEN7C-WK (1 piece)
Cutting Speed : 350 m/min
Feed per Tooth : 0.1 mm/t.
Depth of Cut : ap=0.4 mm
: ae=80 mm
Cutting Mode : Air Blow

FACE MILLING
<GENERAL CUTTING>

40° Finishing Roughing

AHX440S

P M K N S H

Fig. 1
ø40
ø50
ø63
ø80

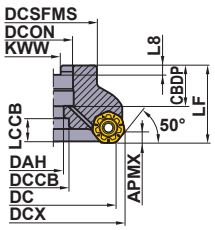


Fig. 2
ø100
ø125
ø160

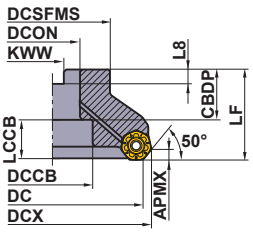
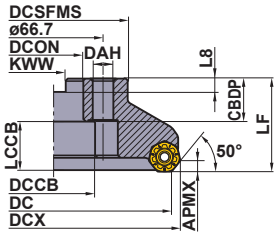


Fig. 3
ø160



KAPR :50° T :15° (When using the M breaker insert)
GAMP :-6° I :5°
GAMF :-7°
DC = mm size, DCON = Inch size

Right hand tool holder only.

(mm)

DC	Order Number	Stock	Coolant Hole	* No.T	LF	DCX	DCON	Fig.	WT(kg)	APMX
40	**AHX440S-040A03AR**	●	○	3	40	48.4	16	1	0.3	3
	AHX440S-040A04AR	●	○	4	40	48.4	16	1	0.2	3
50	**AHX440S-050A04AR**	●	○	4	40	58.4	22	1	0.4	3
	AHX440S-050A05AR	●	○	5	40	58.4	22	1	0.4	3
	AHX440S-050A06AR	●	○	6	40	58.4	22	1	0.4	3
63	**AHX440S-063A05AR**	●	○	5	40	71.4	22	1	0.6	3
	AHX440S-063A06AR	●	○	6	40	71.4	22	1	0.6	3
	AHX440S-063A08AR	●	○	8	40	71.4	22	1	0.5	3
80	**AHX440SR08006CA**	●	○	6	50	88.4	25.4	1	1.1	3
	AHX440SR08008CA	●	○	8	50	88.4	25.4	1	1.1	3
	AHX440SR08010CA	●	○	10	50	88.4	25.4	1	1.1	3
100	**AHX440SR10007DA**	●	○	7	50	108.4	31.75	2	1.6	3
	AHX440SR10010DA	●	○	10	50	108.4	31.75	2	1.6	3
	AHX440SR10012DA	●	○	12	50	108.3	31.75	2	1.6	3
125	**AHX440SR12508EA**	●	○	8	63	133.4	38.1	2	3.0	3
	AHX440SR12512EA	●	○	12	63	133.4	38.1	2	3.0	3
	AHX440SR12514EA	●	○	14	63	133.3	38.1	2	2.9	3
160	**AHX440SR16010FA**	●	○	10	63	168.4	50.8	2	4.8	3
	AHX440SR16014FA	●	○	14	63	168.4	50.8	2	4.6	3
	AHX440SR16016FA	●	○	16	63	168.4	50.8	2	4.7	3

(Note 1) The cutter body does not have a set bolt for an arbor.Please refer to page 9, when ordering.
(Note 2) The above "APMX" will vary depending on the breaker insert.
* Number of Teeth

Spare Parts

Tool Holder Number	 * Clamp Screw	 Wrench (Insert)
AHX440S	TS35R	TKY15T

* Clamp Torque (N • m) : TS35R=3.5

● : **Inventory maintained in Japan.**

MOUNTING DIMENSION ➤ P25
CUTTING CONDITIONS ➤ P11,12

Metric Standard

KAPR :50° T :15° (When using the M breaker insert)
GAMP :-6° I :5°
GAMF :-7°
DC = mm size, DCON = mm size

(mm)

DC	Order Number	Stock	Coolant Hole	* No.T	LF	DCX	DCON	Fig.	WT(kg)	APMX
40	**AHX440S-040A03AR**	●	○	3	40	48.4	16	1	0.3	3
	AHX440S-040A04AR	●	○	4	40	48.4	16	1	0.2	3
50	**AHX440S-050A04AR**	●	○	4	40	58.4	22	1	0.4	3
	AHX440S-050A05AR	●	○	5	40	58.4	22	1	0.4	3
	AHX440S-050A06AR	●	○	6	40	58.4	22	1	0.4	3
63	**AHX440S-063A05AR**	●	○	5	40	71.4	22	1	0.6	3
	AHX440S-063A06AR	●	○	6	40	71.4	22	1	0.6	3
	AHX440S-063A08AR	●	○	8	40	71.4	22	1	0.5	3
80	**AHX440S-080A06AR**	●	○	6	50	88.4	27	1	1.1	3
	AHX440S-080A08AR	●	○	8	50	88.4	27	1	1.1	3
	AHX440S-080A10AR	●	○	10	50	88.4	27	1	1.1	3
100	**AHX440S-100B07AR**	●	○	7	50	108.4	32	2	1.6	3
	AHX440S-100B10AR	●	○	10	50	108.4	32	2	1.6	3
	AHX440S-100B12AR	●	○	12	50	108.3	32	2	1.6	3
125	**AHX440S-125B08AR**	●	○	8	63	133.4	40	2	3.0	3
	AHX440S-125B12AR	●	○	12	63	133.4	40	2	3.0	3
	AHX440S-125B14AR	●	○	14	63	133.3	40	2	2.9	3
160	**AHX440S-160C10NR**	●	–	10	63	168.4	40	3	4.8	3
	AHX440S-160C14NR	●	–	14	63	168.4	40	3	4.6	3
	AHX440S-160C16NR	●	–	16	63	168.4	40	3	4.7	3

(Note 1) The cutter body does not have a set bolt for an arbor.Please refer to the table below,when ordering.
(Note 2) The above "APMX" will vary depending on the breaker insert.
* Number of Teeth

Optional Parts

(mm)

Tool Holder Number	Set Bolt		Fig.	Reference Dimensions							Geometry
	With Coolant Hole	With Coolant Hole		a	b	c	d	e	f	g	
	Order Number	Order Number									
AHX440S-040A○○AR	HSC08025H	HSC08040	1	13	M8×1.25	33	8	5	–	–	
AHX440S-050A○○AR	HSC10030H	HSC10035	1	16	M10×1.5	40	10	6	–	–	
AHX440S-063A○○AR	HSC10030H	HSC10035	1	16	M10×1.5	40	10	6	–	–	
AHX440S-080A○○AR	HSC12035H	HSC12035 HSC12045	1	18	M12×1.75	47 57	12	10	–	–	
AHX440S-100B○○AR	MBA16033H	–	2	40	M16×2	43	10	14	6	23	
AHX440S-125B○○AR	MBA20040H	–	2	50	M20×2.5	54	14	17	6	27	
AHX440S-160C○○NR	No coolant hole	–	2	50	M20×2.5	54	14	17	6	27	
AHX440SR080○○CA	HSC12035H	HSC12035 HSC12045	1	18	M12×1.75	47 57	12	10	–	–	
AHX440SR100○○DA	MBA16033H	–	2	40	M16×2	43	10	14	6	23	
AHX440SR125○○EA	MBA20040H	–	2	50	M20×2.5	54	14	17	6	27	
AHX440SR160○○FA	MBA24045H	–	2	65	M24×3	59	14	17	10	37	

Fig.1

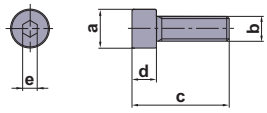
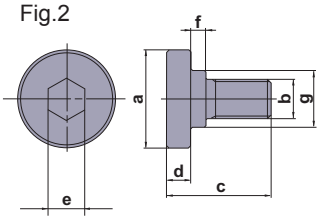


Fig.2



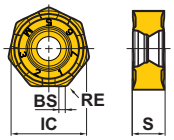
(Note 1) Internal coolant is necessary with the set bolt.

● : Inventory maintained in Japan. (10 inserts in one case)

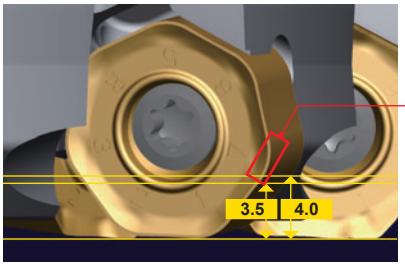
MOUNTING DIMENSION ➤ P25
CUTTING CONDITIONS ➤ P11,12

Inserts

(mm)

Application	Shape	Order Number	Class	Honing	Coated						IC	RE	BS	S	APMX	Geometry
					MP6120	MP6130	MP7130	MP7140	MC5020	VP15TF						
Stable Cutting		**NNMU130508ZER-L**	M	E	●	●	●	●	●	●	13.4	0.8	1	5.77	3	
General Cutting		**NNMU130508ZEN-M**	M	E	●	●	●	●	●	●	13.4	0.8	1	5.57	*4	
		NNMU130532ZEN-M	M	E	●	●	●	●	●	●	13.4	3.2	—	5.57	*4	
Unstable Cutting		**NNMU130532ZEN-R**	M	E	●	●	●	●	●	●	13.4	3.2	—	5.47	*4	

* When not using the Wiper, APMX = 3.5mm

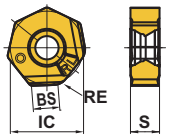


Corner R on Opposite Side

If using corner R on the opposite side, APMX = 4.0 mm
If not using the opposite corner, APMX = 3.5 mm

Wiper Inserts

(mm)

Application	Shape	Order Number	Class	Honing	Coated						IC	RE	BS	S	APMX	Geometry
					MP6120	MC5020	VP15TF									
Finish Cutting		**WNEU1305ZEN4C-M**	E	E	●	●	●				13.4	2.7	4	5.1	0.5	

Instructions for Use of Wiper linserts

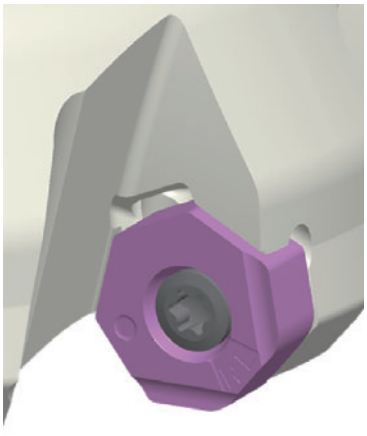


Fig.1

Fig.2

(Note 1) The specifications for these wipers are right hand body 2 corners and left hand body 2 corners. Refer to Figure 1.
(Note 2) A satisfactory finish surface can be achieved with one wiper insert.
However, if the feed rate per revolution will be equal to or greater than the width of the wiper edge, it is recommended to install the second and further wiper inserts spaced evenly within the cutting body.

Recommended Cutting Conditions

Dry Cutting

(mm)

	Work Material	Hardness	Grade	vc (m/min)	fz (mm/t.)	ap
P	Mild Steel	≤180HB	MP6120,VP15TF	250(200－300)	0.3(0.2－0.4)	≤3
			MP6130	240(190－290)	0.3(0.2－0.4)	≤3
	Carbon Steel,Alloy Steel	180－280HB	MP6120,VP15TF	220(170－270)	0.3(0.2－0.4)	≤3
			MP6130	200(150－250)	0.3(0.2－0.4)	≤3
	Carbon Steel,Alloy Steel	280－350HB	MP6120,VP15TF	140(100－180)	0.3(0.2－0.4)	≤3
			MP6130	120(90－150)	0.3(0.2－0.4)	≤3
	Alloy Tool Steel	≤350HB (annealing)	MP6120,VP15TF	140(100－180)	0.15(0.1－0.2)	≤1
			MP6130	120(90－150)	0.15(0.1－0.2)	≤1
	Pre-hardened Steel	35－45HRC	MP6120,VP15TF	140(100－180)	0.15(0.1－0.2)	≤1
			MP6130	120(90－150)	0.15(0.1－0.2)	≤1
M	Austenitic Stainless Steel	≤200HB	MP7130,VP15TF	200(150－250)	0.2(0.1－0.3)	≤3
			MP7140	180(120－230)	0.2(0.1－0.3)	≤3
		> 200HB	MP7130,VP15TF	150(100－200)	0.2(0.1－0.3)	≤3
			MP7140	130(80－180)	0.2(0.1－0.3)	≤3
	Ferritic and Maltensitic Stainless Steel	≤200HB	MP7130,VP15TF	200(150－250)	0.2(0.1－0.3)	≤3
			MP7140	180(120－230)	0.2(0.1－0.3)	≤3
		> 200HB	MP7130,VP15TF	150(100－200)	0.2(0.1－0.3)	≤3
			MP7140	130(80－180)	0.2(0.1－0.3)	≤3
	Two-phase Stainless Steel	≤280HB	MP7130,VP15TF	140(100－180)	0.15(0.05－0.25)	≤3
			MP7140	120(80－160)	0.15(0.05－0.25)	≤3
	Precipitation Hardening Stainless Steel	< 450HB	MP7130,VP15TF	130(100－160)	0.15(0.05－0.25)	≤3
			MP7140	110(80－140)	0.15(0.05－0.25)	≤3
K	Gray Cast Iron	Tensile Strength ≤350MPa	MC5020	220(150－300)	0.3(0.2－0.4)	≤3
			VP15TF	180(130－230)	0.3(0.2－0.4)	≤3
	Ductile Cast Ilon	Tensile Strength ≤450MPa	MC5020	200(150－250)	0.2(0.1－0.3)	≤3
			VP15TF	170(120－220)	0.2(0.1－0.3)	≤3
	Ductile Cast Ilon	Tensile Strength ≤800MPa	MC5020	170(150－200)	0.2(0.1－0.3)	≤3
			VP15TF	140(100－180)	0.2(0.1－0.3)	≤3
H	Hardened Steel	40－55HRC	VP15TF	80(60－100)	0.15(0.1－0.2)	≤1

Wet Cutting

(mm)

	Work Material	Hardness	Grade	vc (m/min)	fz (mm/t.)	ap
M	Austenitic Stainless Steel	≤200HB	MP7130,VP15TF	125(100－150)	0.15(0.1－0.2)	≤3
			MP7140	100(80－140)	0.15(0.1－0.2)	≤3
		> 200HB	MP7130,VP15TF	100(75－125)	0.15(0.1－0.2)	≤3
			MP7140	80(55－105)	0.15(0.1－0.2)	≤3
	Ferritic and Maltensitic Stainless Steel	≤200HB	MP7130,VP15TF	125(100－150)	0.15(0.1－0.2)	≤3
			MP7140	100(80－140)	0.15(0.1－0.2)	≤3
		> 200HB	MP7130,VP15TF	100(75－125)	0.15(0.1－0.2)	≤3
			MP7140	80(55－105)	0.15(0.1－0.2)	≤3
	Two-phase Stainless Steel	≤280HB	MP7130,VP15TF	80(60－100)	0.1(0.05－0.15)	≤3
			MP7140	60(40－80)	0.1(0.05－0.15)	≤3
	Precipitation Hardening Stainless Steel	< 450HB	MP7130,VP15TF	70(50－90)	0.1(0.05－0.15)	≤3
			MP7140	50(30－70)	0.1(0.05－0.15)	≤3

Cutting Conditions with Wiper Insert

(mm)

	Work Material	Hardness	Grade	vc (m/min)	fz (mm/t.)	ap
P	Mild Steel	≤180HB	**MP6120,VP15TF**	250(200－300)	0.3(0.2－0.4)	≤0.5
	Carbon Steel,Alloy Steel	180－280HB	**MP6120,VP15TF**	220(170－270)	0.3(0.2－0.4)	≤0.5
		280－350HB	**MP6120,VP15TF**	140(100－180)	0.3(0.2－0.4)	≤0.5
	Alloy Tool Steel	≤350HB (annealing)	**MP6120,VP15TF**	140(100－180)	0.15(0.1－0.2)	≤0.5
	Pre-hardened Steel	35－45HRC	**MP6120,VP15TF**	140(100－180)	0.15(0.1－0.2)	≤0.5
M	Austenitic Stainless Steel	≤200HB	**VP15TF**	125(100－150)	0.15(0.1－0.2)	≤0.5
		> 200HB	**VP15TF**	100(75－125)	0.15(0.1－0.2)	≤0.5
	Ferritic and Maltensitic Stainless Steel	≤200HB	**VP15TF**	125(100－150)	0.15(0.1－0.2)	≤0.5
		> 200HB	**VP15TF**	100(75－125)	0.15(0.1－0.2)	≤0.5
	Two-phase Stainless Steel	≤280HB	**VP15TF**	80(60－100)	0.1(0.05－0.15)	≤0.5
	Precipitation Hardening Stainless Steel	< 450HB	**VP15TF**	70(50－90)	0.1(0.05－0.15)	≤0.5
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	320(250－400)	0.3(0.2－0.4)	≤0.5
			VP15TF	220(150－300)	0.3(0.2－0.4)	≤0.5
	Ductile Cast Ilon	Tensile Strength ≤450MPa	**MC5020**	250(200－300)	0.2(0.1－0.3)	≤0.5
			VP15TF	200(150－250)	0.2(0.1－0.3)	≤0.5
		Tensile Strength ≤800MPa	**MC5020**	220(200－250)	0.2(0.1－0.3)	≤0.5
			VP15TF	170(150－200)	0.2(0.1－0.3)	≤0.5
H	Hardened Steel	40－55HRC	**VP15TF**	80(60－100)	0.15(0.1－0.2)	≤0.5

(Note 1) Refer to the above table and set up cutting conditions according to cutting applications.
(Note 2) When placing emphasis on surface finish quality, wet cutting is recommended. (tool life is lowered as compared to dry cutting)
(Note 3) The recommended depth of cut differs according to insert geometry.
(Note 4) When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30%.
(Note 5) Recommended wet cutting for good surface finishing of stainless steel. (Tool life is short compared to wet cutting.)

FACE MILLING

<HIGH FEED CUTTING FOR CAST IRON>

75°

Finishing Roughing

AHX475S

P M K N S H

Fig.1

ø50
ø63
ø80
ø100

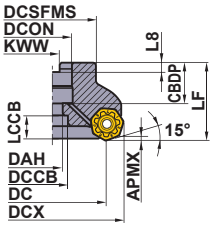
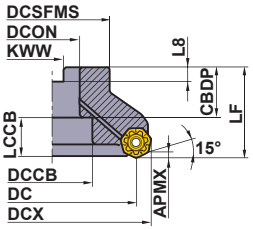


Fig.2

ø125
ø160



Right hand tool holder only.

KAPR :15° T :16° (When using the R breaker insert)
GAMP :-6° I :9°
GAMF :-10°
DC = mm size, DCON = Inch size

(mm)

DC	Order Number	Stock	Coolant Hole	* No.T	LF	DCX	DCON	Fig.	WT(kg)	APMX
50	**AHX475S-050A04AR**	●	○	4	50	65.7	22	1	0.6	1.6
	AHX475S-050A05AR	●	○	5	50	65.7	22	1	0.6	1.6
63	**AHX475S-063A05AR**	●	○	5	50	78.7	22	1	1.0	1.6
	AHX475S-063A06AR	●	○	6	50	78.7	22	1	1.0	1.6
80	**AHX475SR08006DA**	●	○	6	63	95.6	31.75	1	2.0	1.6
	AHX475SR08008DA	●	○	8	63	95.6	31.75	1	2.0	1.6
100	**AHX475SR10007DA**	●	○	7	63	115.6	31.75	1	3.2	1.6
	AHX475SR10009DA	●	○	9	63	115.6	31.75	1	3.2	1.6
125	**AHX475SR12508EA**	●	○	8	63	140.6	38.1	2	4.0	1.6
	AHX475SR12510EA	●	○	10	63	140.6	38.1	2	4.0	1.6
160	**AHX475SR16010FA**	●	○	10	63	175.6	50.8	2	5.5	1.6
	AHX475SR16012FA	●	○	12	63	175.6	50.8	2	5.5	1.6

(Note 1) The cutter body does not have a set bolt for an arbor.Please refer to page 14, when ordering.
* Number of Teeth

Metric Standard

KAPR :15° T :16° (When using the R breaker insert)
GAMP :-6° I :9°
GAMF :-10°
DC = mm size, DCON = mm size

(mm)

DC	Order Number	Stock	Coolant Hole	* No.T	LF	DCX	DCON	Fig.	WT(kg)	APMX
50	**AHX475S-050A04AR**	●	○	4	50	65.7	22	1	0.6	1.6
	AHX475S-050A05AR	●	○	5	50	65.7	22	1	0.6	1.6
63	**AHX475S-063A05AR**	●	○	5	50	78.7	22	1	1.0	1.6
	AHX475S-063A06AR	●	○	6	50	78.7	22	1	1.0	1.6
80	**AHX475S-080A06AR**	●	○	6	50	95.6	27	1	1.6	1.6
	AHX475S-080A08AR	●	○	8	50	95.6	27	1	1.6	1.6
100	**AHX475S-100A07AR**	●	○	7	63	115.6	32	1	3.3	1.6
	AHX475S-100A09AR	●	○	9	63	115.6	32	1	3.3	1.6
125	**AHX475S-125B08AR**	●	○	8	63	140.6	40	2	4.0	1.6
	AHX475S-125B10AR	●	○	10	63	140.6	40	2	4.0	1.6
160	**AHX475S-160B10AR**	●	○	10	63	175.6	40	2	6.0	1.6
	AHX475S-160B12AR	●	○	12	63	175.6	40	2	6.0	1.6

(Note 1) The cutter body does not have a set bolt for an arbor.Please refer to page 14, when ordering.
* Number of Teeth

● : **Inventory maintained in Japan. (10 inserts in one case)**

MOUNTING DIMENSION ➤ P25
CUTTING CONDITIONS ➤ P15

Spare Parts

Tool Holder Number	 *	
	Clamp Screw	Wrench (Insert)
AHX475S	TS35R	TKY15T

* Clamp Torque (N • m) : TS35R=3.5

Optional Parts

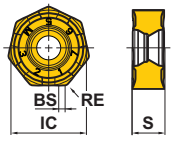
(mm)

Tool Holder Number	Set Bolt		Fig.	Reference Dimensions							Geometry
	With Coolant Hole	Without Coolant Hole		a	b	c	d	e	f	g	
	Order Number	Order Number									
AHX475S-050A○○AR	HSC10030H	HSC10035	1	16	M10×1.5	40	10	6	–	–	Fig.1
AHX475S-063A○○AR	HSC10030H	HSC10035	1	16	M10×1.5	40	10	6	–	–	
AHX475S-080A○○AR	HSC12035H	HSC12035 HSC12045	1	18	M12×1.75	47 57	12	10	–	–	
AHX475S-100B○○AR	HSC16040H	–	1	24	M16×2	56	16	14	–	–	
AHX475S-125B○○AR	MBA20040H	–	2	50	M20×2.5	54	14	17	6	27	Fig.2
AHX475S-160C○○AR	MBA20040H	–	2	50	M20×2.5	54	14	17	6	27	
AHX475SR080○○DA	HSC16040H	–	1	24	M16×2	56	16	14	–	–	
AHX475SR100○○DA	HSC16040H	–	1	24	M16×2	56	16	14	–	–	
AHX475SR125○○EA	MBA20040H	–	2	50	M20×2.5	54	14	17	6	27	
AHX475SR160○○FA	MBA24045H	–	2	65	M24×3	59	14	17	10	37	

(Note 1) Internal coolant is necessary with the set bolt.

Inserts

(mm)

Application	Shape	Order Number	Class	Honing	Coated						IC	RE	BS	S	APMX	Geometry
					MP6120	MP6130	MC5020	VP15TF								
General Cutting		**NNMU130532ZEN-M**	M	E	●	●	●	●			13.4	3.2	–	5.57	1.6	
Unstable Cutting		**NNMU130532ZEN-R**	M	E	●	●	●	●			13.4	3.2	–	5.47	1.6	

Recommended Cutting Conditions

Dry Cutting

(mm)

	Work Material	Hardness	Grade	Breaker	vc (m/min)	fz (mm/t.)	ap	ae
P	Mild Steel	≤180HB	**MP6120**	**R**	150(100－200)	0.6	≤1.6	≤0.5DC
			MP6120	**R**	150(100－200)	0.8	≤1.6	0.5－0.8DC
			MP6120	**M**	150(100－200)	1	≤1.6	0.8－1DC
			MP6130	**R**	130(80－180)	0.6	≤1.6	≤0.5DC
			MP6130	**R**	130(80－180)	0.8	≤1.6	0.5－0.8DC
			MP6130	**M**	130(80－180)	1	≤1.6	0.8－1DC
	Carbon Steel,Alloy Steel	180－280HB	**MP6120**	**R**	130(80－180)	0.6	≤1.6	≤0.5DC
			MP6120	**R**	130(80－180)	0.8	≤1.6	0.5－0.8DC
			MP6120	**M**	130(80－180)	1	≤1.6	0.8－1DC
			MP6130	**R**	110(60－160)	0.6	≤1.6	≤0.5DC
			MP6130	**R**	110(60－160)	0.8	≤1.6	0.5－0.8DC
			MP6130	**M**	110(60－160)	1	≤1.6	0.8－1DC
	Carbon Steel,Alloy Steel	280－350HB	**MP6120**	**R**	100(50－150)	0.5	≤1.6	≤0.5DC
			MP6120	**R**	100(50－150)	0.6	≤1.6	0.5－0.8DC
			MP6120	**R**	100(50－150)	0.7	≤1.6	0.8－1DC
			MP6130	**R**	80(30－130)	0.5	≤1.6	≤0.5DC
			MP6130	**R**	80(30－130)	0.6	≤1.6	0.5－0.8DC
			MP6130	**R**	80(30－130)	0.7	≤1.6	0.8－1DC
	Alloy Tool Steel	≤350HB (annealing)	**MP6120**	**R**	100(50－150)	0.5	≤1.6	≤0.5DC
			MP6120	**R**	100(50－150)	0.6	≤1.6	0.5－0.8DC
			MP6120	**R**	100(50－150)	0.7	≤1.6	0.8－1DC
			MP6130	**R**	80(30－120)	0.5	≤1.6	≤0.5DC
			MP6130	**R**	80(30－120)	0.6	≤1.6	0.5－0.8DC
			MP6130	**R**	80(30－120)	0.7	≤1.6	0.8－1DC
	Pre-hardened Steel	35－45HRC	**MP6120**	**R**	100(70－130)	0.5	≤1.6	≤0.5DC
			MP6120	**R**	100(70－130)	0.6	≤1.6	0.5－0.8DC
			MP6120	**R**	100(70－130)	0.7	≤1.6	0.8－1DC
			MP6130	**R**	80(50－110)	0.5	≤1.6	≤0.5DC
			MP6130	**R**	80(50－110)	0.6	≤1.6	0.5－0.8DC
			MP6130	**R**	80(50－110)	0.7	≤1.6	0.8－1DC
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	**R**	150(100－200)	0.6	≤1.6	≤0.5DC
			MC5020	**R**	150(100－200)	0.8	≤1.6	0.5－0.8DC
			MC5020	**M**	150(100－200)	1	≤1.6	0.8－1DC
			VP15TF	**M**	120(80－160)	0.6	≤1.6	≤0.5DC
			VP15TF	**M**	120(80－160)	0.8	≤1.6	0.5－0.8DC
			VP15TF	**M**	120(80－160)	1	≤1.6	0.8－1DC
	Ductile Cast Ilon	Tensile Strength ≤450MPa	**MC5020**	**R**	150(100－200)	0.6	≤1.6	≤0.5DC
			MC5020	**R**	150(100－200)	0.8	≤1.6	0.5－0.8DC
			MC5020	**M**	150(100－200)	1	≤1.6	0.8－1DC
			VP15TF	**R**	120(80－160)	0.6	≤1.6	≤0.5DC
			VP15TF	**R**	120(80－160)	0.8	≤1.6	0.5－0.8DC
			VP15TF	**M**	120(80－160)	1	≤1.6	0.8－1DC
	Ductile Cast Ilon	Tensile Strength ≤800MPa	**MC5020**	**R**	150(100－200)	0.5	≤1.6	≤0.5DC
			MC5020	**R**	150(100－200)	0.6	≤1.6	0.5－0.8DC
			MC5020	**R**	150(100－200)	0.7	≤1.6	0.8－1DC
			VP15TF	**R**	120(80－160)	0.5	≤1.6	≤0.5DC
			VP15TF	**R**	120(80－160)	0.6	≤1.6	0.5－0.8DC
			VP15TF	**R**	120(80－160)	0.7	≤1.6	0.8－1DC
H	Hardened Steel	40－55HRC	**VP15TF**	**R**	70(50－90)	0.4	≤1.6	≤0.5DC
			VP15TF	**R**	70(50－90)	0.5	≤1.6	0.5－0.8DC
			VP15TF	**R**	70(50－90)	0.6	≤1.6	0.8－1DC

(Note 1) When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30%.

FACE MILLING
<GENERAL CUTTING>

40° Finishing Roughing

AHX640S

P M K N S H

Fig. 1
ø63
ø80

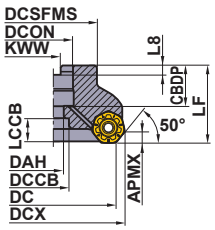


Fig. 2
ø100
ø125
ø160

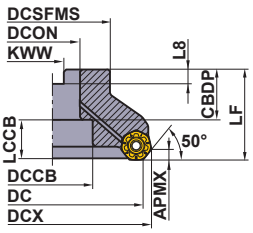
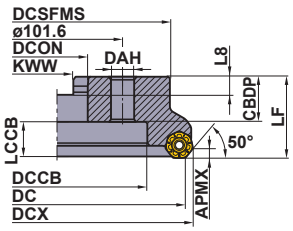
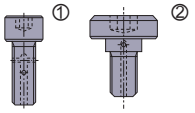


Fig. 3
ø200



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ63	HSC10030H	①
ϕ80	HSC12035H	
ϕ100	MBA16033H	②
ϕ125	MBA20040H	
ϕ160	MBA24045H	
ϕ200	—	—



KAPR :50° T :10° (When using the MK breaker insert)
GAMP :-6° T :20° (When using MP, MM breaker inserts)
GAMF :-5° I :+9°—+10°
DC=mm size, DCON=Inch size

(mm)

DC	Order Number	Stock	Coolant Hole	*No.T	LF	DCX	DCON	Fig.	WT(kg)	APMX
63	**AHX640S-063A04AR**	●	○	4	50	75.55	22	1	0.7	6
	AHX640S-063A05AR	●	○	5	50	75.55	22	1	0.6	6
80	**AHX640SR08004CA**	●	○	4	50	92.55	25.4	1	1.1	6
	AHX640SR08006CA	●	○	6	50	92.55	25.4	1	1.0	6
100	**AHX640SR10005DA**	●	○	5	50	112.55	31.75	2	1.7	6
	AHX640SR10007DA	●	○	7	50	112.55	31.75	2	1.5	6
125	**AHX640SR12506EA**	●	○	6	63	137.55	38.1	2	3.0	6
	AHX640SR12508EA	●	○	8	63	137.55	38.1	2	2.9	6
160	**AHX640SR16007FA**	●	○	7	63	172.55	50.8	2	4.9	6
	AHX640SR16010FA	●	○	10	63	172.55	50.8	2	4.7	6
200	**AHX640SR20008KN**	●	—	8	63	212.55	47.625	3	8.2	6
	AHX640SR20012KN	●	—	12	63	212.55	47.625	3	7.9	6

* Number of Teeth

● : Inventory maintained in Japan.

MOUNTING DIMENSION ➤ P25
CUTTING CONDITIONS ➤ P20,21

Fig. 1
ø63
ø80

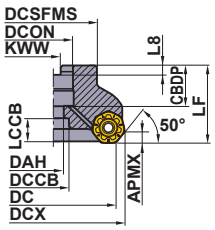


Fig. 2
ø100
ø125

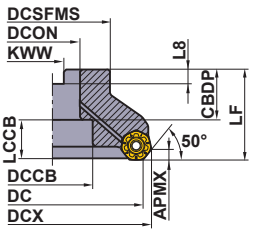


Fig. 3
ø160

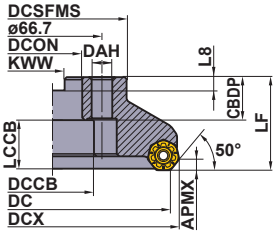
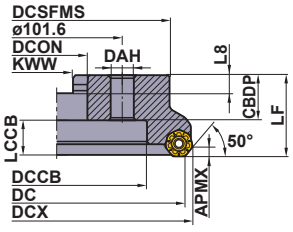
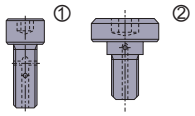


Fig. 4
ø200



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ63	HSC10030H	①
ϕ80	HSC12035H	
ϕ100	MBA16033H	②
ϕ125	MBA20040H	
ϕ160	—	—
ϕ200	—	—



Metric Standard

KAPR :50° T :10° (When using the MK breaker insert)
GAMP :-6° T :20° (When using MP, MM breaker inserts)
GAMF :-5° I :+9°—+10°
DC = mm size, DCON = mm size

(mm)

DC	Order Number	Stock	Coolant Hole	* No.T	LF	DCX	DCON	Fig.	WT(kg)	APMX
63	**AHX640S-063A04AR**	●	○	4	50	75.55	22	1	0.7	6
	AHX640S-063A05AR	●	○	5	50	75.55	22	1	0.6	6
80	**AHX640S-080A04AR**	●	○	4	50	92.55	27	1	1.1	6
	AHX640S-080A06AR	●	○	6	50	92.55	27	1	1.0	6
100	**AHX640S-100B05AR**	●	○	5	50	112.55	32	2	1.7	6
	AHX640S-100B07AR	●	○	7	50	112.55	32	2	1.6	6
125	**AHX640S-125B06AR**	●	○	6	63	137.55	40	2	3.1	6
	AHX640S-125B08AR	●	○	8	63	137.55	40	2	3.0	6
160	**AHX640S-160C07NR**	●	–	7	63	172.55	40	3	5.4	6
	AHX640S-160C10NR	●	–	10	63	172.55	40	3	5.2	6
200	**AHX640S-200C08NR**	●	–	8	63	212.55	60	4	7.8	6
	AHX640S-200C12NR	●	–	12	63	212.55	60	4	7.5	6

* Number of Teeth

Spare Parts

Tool Holder Number	 * Clamp Screw	 Wrench (Insert)
AHX640S	CS5015060T	TKY20T

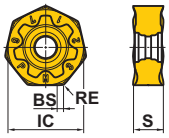
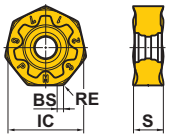
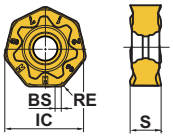
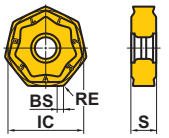
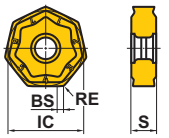
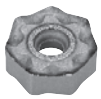
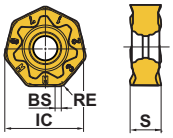
* Clamp Torque (N • m) : CS5015060T=5.0

● : Inventory maintained in Japan. (10 inserts in one case)

MOUNTING DIMENSION ➤ P25
CUTTING CONDITIONS ➤ P20,21

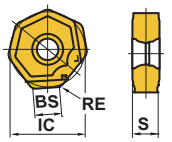
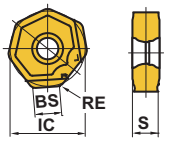
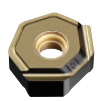
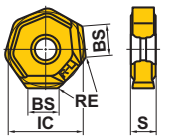
Inserts

(mm)

Application	Shape	Order Number	Class	Honing	Coated								IC	RE	BS	S	APMX	Geometry
					MP6120	MP6130	MP7030	MP9120	MP9130	MC5020	VP15TF	VP20RT						
For Steel General Cutting		**NNMU200708ZEN-M**	M	E	●	●							20	0.8	1	8	6	
For Steel General Cutting		**NNMU200708ZEN-MP**	M	E							●		20	0.8	1	8	6	
For Stainless Steel		**NNMU200712ZER-MM**	M	E			●						20	1.2	1	8	6	
For Cast Iron General Cutting		**NNMU200608ZEN-MK**	M	E						●	●	●	20	0.8	1	6.55	6	
For Cast Iron Strong Cutting Edge Type		**NNMU200608ZEN-HK**	M	E						●	●	●	20	0.8	1	6.55	6	
For Titanium Alloy and Heat Resistant Alloy		**NNMU200712ZER-L**	M	E				●	●				20	1.2	1	8	6	

Wiper Inserts

(mm)

Application	Shape	Order Number	Class	Honing	Coated								IC	RE	BS	S	APMX	Geometry
					MP6120	MP6130	MP7030	MP9120	MP9130	MC5020	VP15TF	VP20RT						
For Steel		**WNEU2007ZEN7C-M**	E	E	●								20	0.8	7.2	6.9	0.5	
General Cutting		**WNEU2007ZEN7C-WP**	E	E							●		20	0.8	7.1	6.9	0.5	
For Cast Iron		**WNEU2006ZEN7C-WK**	E	E						●			20	0.8	7.4	6.55	0.5	

(Note) The height of cutter when setting MK, HK inserts are different from when setting MP, MM inserts.

Instructions for Use of Wiper Inserts

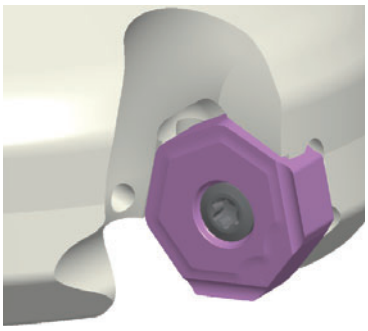


Fig.1

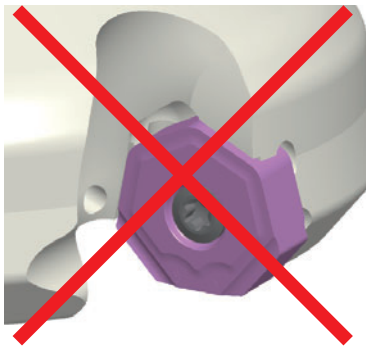


Fig.2

(Note 1) The specifications for these wipers are right hand body 2 corners and left hand body 2 corners. Refer to Figure 1.
(Note 2) A satisfactory finish surface can be achieved with one wiper insert.
However, if the feed rate per revolution will be equal to or greater than the width of the wiper edge, it is recommended to install the second and further wiper inserts spaced evenly within the cutting body.

Recommended Cutting Conditions

Dry Cutting

(mm)

	Work Material	Hardness	Grade	Breaker	vc (m/min)	fz (mm/t.)	ap	ae
P	Mild Steel	≤180HB	**MP6120**	**M**	250(200－300)	0.3(0.2－0.4)	≤5	≤0.8DC
			VP15TF	**MP**	250(200－300)	0.3(0.2－0.4)	≤5	≤0.8DC
			MP6130	**M**	220(170－270)	0.4(0.3－0.5)	≤5	≤0.8DC
	Carbon Steel,Alloy Steel	180－280HB	**MP6120**	**M**	220(170－270)	0.3(0.2－0.4)	≤5	≤0.8DC
			VP15TF	**MP**	220(170－270)	0.3(0.2－0.4)	≤5	≤0.8DC
			MP6130	**M**	190(140－240)	0.4(0.3－0.5)	≤5	≤0.8DC
	Carbon Steel,Alloy Steel	280－350HB	**MP6120**	**M**	140(100－180)	0.3(0.2－0.4)	≤5	≤0.8DC
			VP15TF	**MP**	140(100－180)	0.3(0.2－0.4)	≤5	≤0.8DC
			MP6130	**M**	110(70－150)	0.4(0.3－0.5)	≤5	≤0.8DC
	Alloy Tool Steel	≤350HB (annealing)	**MP6120**	**M**	140(100－180)	0.15(0.1－0.2)	≤3	≤0.8DC
			VP15TF	**MP**	140(100－180)	0.15(0.1－0.2)	≤3	≤0.8DC
			MP6130	**M**	110(70－150)	0.25(0.2－0.3)	≤3	≤0.8DC
	Pre-hardened Steel	35－45HRC	**MP6120**	**M**	140(100－180)	0.15(0.1－0.2)	≤3	≤0.8DC
			VP15TF	**MP**	140(100－180)	0.15(0.1－0.2)	≤5	≤0.8DC
			MP6130	**M**	110(70－150)	0.25(0.2－0.3)	≤3	≤0.8DC
M	Austenitic Stainless Steel	≤200HB	**MP7030**	**MM**	200(150－250)	0.2(0.1－0.3)	≤5	≤0.8DC
	Austenitic Stainless Steel	> 200HB	**MP7030**	**MM**	150(100－200)	0.2(0.1－0.3)	≤5	≤0.8DC
	Two-phase Stainless Steel	≤280HB	**MP7030**	**MM**	140(100－180)	0.15(0.05－0.25)	≤5	≤0.8DC
	Ferritic and Maltensitic Stainless Steel	≤200HB	**MP7030**	**MM**	200(150－250)	0.2(0.1－0.3)	≤5	≤0.8DC
	Ferritic and Maltensitic Stainless Steel	> 200HB	**MP7030**	**MM**	150(100－200)	0.2(0.1－0.3)	≤5	≤0.8DC
	Precipitation Hardening Stainless Steel	< 450HB	**MP7030**	**MM**	130(100－160)	0.15(0.05－0.25)	≤5	≤0.8DC
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	**MK,HK**	220(150－300)	0.3(0.2－0.4)	≤5	≤0.8DC
			VP15TF,VP20RT	**MK,HK**	180(130－230)	0.3(0.2－0.4)	≤5	≤0.8DC
			VP15TF	**MP**	180(130－230)	0.3(0.2－0.4)	≤5	≤0.8DC
	Ductile Cast Ilon	Tensile Strength ≤450MPa	**MC5020**	**MK,HK**	200(150－250)	0.2(0.1－0.3)	≤5	≤0.8DC
			VP15TF,VP20RT	**MK,HK**	170(120－220)	0.2(0.1－0.3)	≤5	≤0.8DC
			VP15TF	**MP**	170(120－220)	0.2(0.1－0.3)	≤5	≤0.8DC
	Ductile Cast Ilon	Tensile Strength ≤800MPa	**MC5020**	**MK,HK**	170(150－200)	0.2(0.1－0.3)	≤5	≤0.8DC
			VP15TF,VP20RT	**MK,HK**	140(100－180)	0.2(0.1－0.3)	≤5	≤0.8DC
			VP15TF	**MP**	140(100－180)	0.2(0.1－0.3)	≤5	≤0.8DC
H	Hardened Steel	40－55HRC	**VP15TF**	**MP**	80(60－100)	0.15(0.1－0.2)	≤ 3	≤ 0.8DC

(Note1) Recommended wet cutting for good surface finishing of stainless steel. (Tool life is short compared to wet cutting.)
(Note2) We recommend wet cutting with internal coolant for titanium alloy and heat resistant alloy,
(Note3) When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30%.

Wet Cutting

(mm)

	Work Material	Hardness	Breaker	Grade	vc (m/min)	fz (mm/t.)	ap	ae
M	Austenitic Stainless Steel	≤200HB	**MP7030**	**MM**	125(100−150)	0.15(0.1−0.2)	≤5	≤0.8DC
	Austenitic Stainless Steel	> 200HB	**MP7030**	**MM**	100(75−125)	0.15(0.1−0.2)	≤5	≤0.8DC
	Two-phase Stainless Steel	≤280HB	**MP7030**	**MM**	80(60−100)	0.1(0.05−0.15)	≤5	≤0.8DC
	Ferritic and Maltensitic Stainless Steel	≤200HB	**MP7030**	**MM**	125(100−150)	0.15(0.1−0.2)	≤5	≤0.8DC
	Ferritic and Maltensitic Stainless Steel	> 200HB	**MP7030**	**MM**	100(75−125)	0.15(0.1−0.2)	≤5	≤0.8DC
	Precipitation Hardening Stainless Steel	< 450HB	**MP7030**	**MM**	70(50−90)	0.1(0.05−0.15)	≤5	≤0.8DC
S	Titanium Alloy	—	**MP7030**	**MM**	40(20−50)	0.15(0.1−0.2)	≤3	≤0.6DC
		—	**MP9120**	**L**	60(50−70)	0.1(0.05−0.15)	≤3	≤0.6DC
		—	**MP9130**	**L**	40(20−50)	0.15(0.1−0.2)	≤3	≤0.6DC
	Heat Resistant Alloy	—	**MP7030**	**MM**	40(20−50)	0.15(0.1−0.2)	≤3	≤0.6DC
		—	**MP9120**	**L**	60(50−70)	0.1(0.05−0.15)	≤3	≤0.6DC
		—	**MP9130**	**L**	40(20−50)	0.15(0.1−0.2)	≤3	≤0.6DC

(Note1) Recommended wet cutting for good surface finishing of stainless steel. (Tool life is short compared to wet cutting.)
(Note2) We recommend wet cutting with internal coolant for titanium alloy and heat resistant alloy.
(Note3) When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30%.

Cutting Conditions with Wiper Insert

(mm)

	Work Material	Hardness	Main Insert	Grade	Wiper Insert	Grade	vc (m/min)	fz (mm/t.)	ap	ae
P	Mild Steel	≤180HB	**VP15TF**	**MP**	**VP15TF**	**WP**	250(200−300)	0.3(0.2−0.4)	≤0.5	≤0.8DC
			MP6120	**M**	**MP6120**	**M**	250(200−300)	0.3(0.2−0.4)	≤0.5	≤0.8DC
	Carbon Steel,Alloy Steel	180−280HB	**VP15TF**	**MP**	**VP15TF**	**WP**	220(170−270)	0.3(0.2−0.4)	≤0.5	≤0.8DC
			MP6120	**M**	**MP6120**	**M**	220(170−270)	0.3(0.2−0.4)	≤0.5	≤0.8DC
	Carbon Steel,Alloy Steel	280−350HB	**VP15TF**	**MP**	**VP15TF**	**WP**	140(100−180)	0.3(0.2−0.4)	≤0.5	≤0.8DC
			MP6120	**M**	**MP6120**	**M**	140(100−180)	0.3(0.2−0.4)	≤0.5	≤0.8DC
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	**MK,HK**	**MC5020**	**WK**	320(250−400)	0.3(0.2−0.4)	≤0.5	≤0.8DC
			VP15TF	**MP**	**VP15TF**	**WP**	220(150−300)	0.3(0.2−0.4)	≤0.5	≤0.8DC
	Ductile Cast Ilon	Tensile Strength ≤450MPa	**MC5020**	**MK,HK**	**MC5020**	**WK**	250(200−300)	0.2(0.1−0.3)	≤0.5	≤0.8DC
			VP15TF	**MP**	**VP15TF**	**WP**	200(150−250)	0.2(0.1−0.3)	≤0.5	≤0.8DC
	Ductile Cast Ilon	Tensile Strength ≤800MPa	**MC5020**	**MK,HK**	**MC5020**	**WK**	220(200−250)	0.2(0.1−0.3)	≤0.5	≤0.8DC
			VP15TF	**MP**	**VP15TF**	**WP**	170(150−200)	0.2(0.1−0.3)	≤0.5	≤0.8DC
S	Heat Resistant Alloy	—	**VP15TF**	**MP**	**VP15TF**	**WP**	40(20−50)	0.15(0.1−0.2)	≤0.5	≤0.8DC
H	Hardened Steel	40−55HRC	**VP15TF**	**MP**	**VP15TF**	**WP**	80(60−100)	0.15(0.1−0.2)	≤0.5	≤0.8DC

(Note 1) When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30%.
(Note 2) Please use WP geometry insert in combination with MP or M geometry inserts, and use WK geometry insert in combination with MK or HK geometry inserts

FACE MILLING

<HIGH FEED CUTTING FOR CAST IRON>

40°

Finishing Roughing

AHX640W

P M **K** N S H

Fig.1
ø80

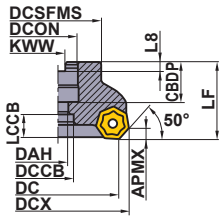


Fig.2
ø100
ø125
ø160

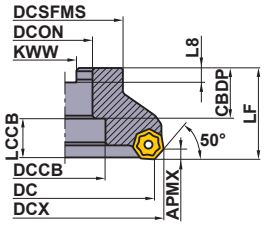


Fig.3
ø200
ø250

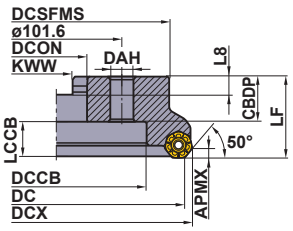
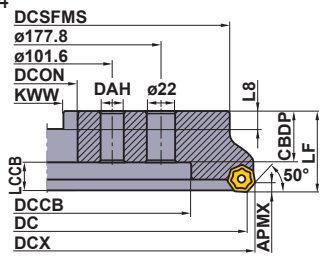


Fig.4
ø315



KAPR :50°
GAMP:-6° T :+10°
GAMF:-4° I :+9°—+10° (T,I : When using the MK breaker insert)
Right Hand Tool Holder
DC = mm size, DCON = Inch size

Right hand tool holder shown.

(mm)

DC	Order Number	Stock	Coolant Hole	* No.T	LF	DCX	DCON	Fig.	WT(kg)	APMX
80	**AHX640WR08008C**	●	–	8	50	92.6	25.4	1	1.5	6
	AHX640WR08010C	●	–	10	50	92.6	25.4	1	1.5	6
100	**AHX640WR10010D**	●	–	10	50	112.6	31.75	2	2.1	6
	AHX640WR10014D	●	–	14	50	112.6	31.75	2	2.1	6
125	**AHX640WR12512E**	●	–	12	63	137.6	38.1	2	3.5	6
	AHX640WR12518E	●	–	18	63	137.6	38.1	2	3.5	6
160	**AHX640WR16016F**	●	–	16	63	172.6	50.8	2	5.6	6
	AHX640WR16022F	●	–	22	63	172.6	50.8	2	5.6	6
200	**AHX640WR20020K**	●	–	20	63	212.6	47.625	3	9.0	6
	AHX640WR20028K	●	–	28	63	212.6	47.625	3	9.0	6
250	**AHX640WR25024K**	●	–	24	63	262.6	47.625	3	14.4	6
	AHX640WR25036K	●	–	36	63	262.6	47.625	3	14.4	6
315	**AHX640WR31528P**	●	–	28	63	327.6	47.625	4	23.8	6
	AHX640WR31544P	●	–	44	63	327.6	47.625	4	23.8	6

Left Hand Tool Holder
DC = mm size, DCON = Inch size

(mm)

DC	Order Number	Stock	Coolant Hole	* No.T	LF	DCX	DCON	Fig.	WT(kg)	APMX
80	**AHX640WL08008C**	●	–	8	50	92.6	25.4	1	1.5	6
	AHX640WL08010C	●	–	10	50	92.6	25.4	1	1.5	6
100	**AHX640WL10010D**	●	–	10	50	112.6	31.75	2	2.1	6
	AHX640WL10014D	●	–	14	50	112.6	31.75	2	2.1	6
125	**AHX640WL12512E**	●	–	12	63	137.6	38.1	2	3.5	6
	AHX640WL12518E	●	–	18	63	137.6	38.1	2	3.5	6
160	**AHX640WL16016F**	●	–	16	63	172.6	50.8	2	5.6	6
	AHX640WL16022F	●	–	22	63	172.6	50.8	2	5.6	6
200	**AHX640WL20020K**	●	–	20	63	212.6	47.625	3	9.0	6
	AHX640WL20028K	●	–	28	63	212.6	47.625	3	9.0	6
250	**AHX640WL25024K**	●	–	24	63	262.6	47.625	3	14.4	6
	AHX640WL25036K	●	–	36	63	262.6	47.625	3	14.4	6
315	**AHX640WL31528P**	●	–	28	63	327.6	47.625	4	23.8	6
	AHX640WL31544P	●	–	44	63	327.6	47.625	4	23.8	6

* Number of Teeth

● : Inventory maintained in Japan.

MOUNTING DIMENSION ➤ P27
CUTTING CONDITIONS ➤ P24

Fig.1
ø80

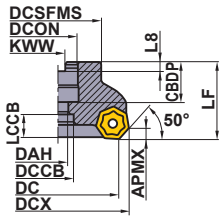


Fig.2
ø100
ø125

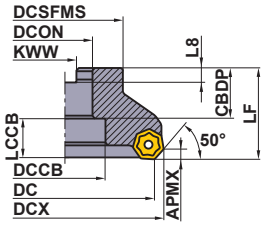


Fig.3
ø160

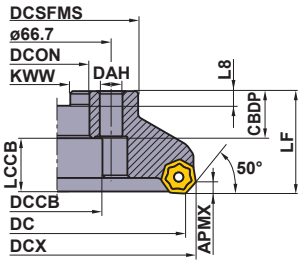


Fig.4
ø200
ø250

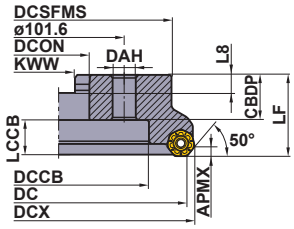
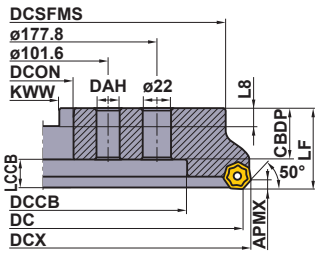


Fig.5
ø315



Metric Standard

KAPR :50°
GAMP:-6° T :+10°
GAMF :-4° I :+9°—+10° (T,I : When using the MK breaker insert)
Right Hand Tool Holder
DC = mm size, DCON = mm size

Right hand tool holder shown.

(mm)

DC	Order Number	Stock	Coolant Hole	* No.T	LF	DCX	DCON	Fig.	WT(kg)	APMX
80	**AHX640W-080A08R**	●	–	8	50	92.6	27	1	1.5	6
	AHX640W-080A10R	●	–	10	50	92.6	27	1	1.5	6
100	**AHX640W-100B10R**	●	–	10	50	112.6	32	2	2.1	6
	AHX640W-100B14R	●	–	14	50	112.6	32	2	2.1	6
125	**AHX640W-125B12R**	●	–	12	63	137.6	40	2	3.1	6
	AHX640W-125B18R	●	–	18	63	137.6	40	2	3.1	6
160	**AHX640W-160C16R**	●	–	16	63	172.6	40	3	5.6	6
	AHX640W-160C22R	●	–	22	63	172.6	40	3	5.6	6
200	**AHX640W-200C20R**	●	–	20	63	212.6	60	4	8	6
	AHX640W-200C28R	●	–	28	63	212.6	60	4	8	6
250	**AHX640W-250C24R**	●	–	24	63	262.6	60	4	12.6	6
	AHX640W-250C36R	●	–	36	63	262.6	60	4	12.6	6
315	**AHX640W-315C28R**	●	–	28	80	327.6	60	5	31.5	6
	AHX640W-315C44R	●	–	44	80	327.6	60	5	31.5	6

Left Hand Tool Holder
DC = mm size, DCON = mm size

(mm)

DC	Order Number	Stock	Coolant Hole	* No.T	LF	DCX	DCON	Fig.	WT(kg)	APMX
80	**AHX640W-080A08L**	●	–	8	50	92.6	27	1	1.5	6
	AHX640W-080A10L	●	–	10	50	92.6	27	1	1.5	6
100	**AHX640W-100B10L**	●	–	10	50	112.6	32	2	2.1	6
	AHX640W-100B14L	●	–	14	50	112.6	32	2	2.1	6
125	**AHX640W-125B12L**	●	–	12	63	137.6	40	2	3.1	6
	AHX640W-125B18L	●	–	18	63	137.6	40	2	3.1	6
160	**AHX640W-160C16L**	●	–	16	63	172.6	40	3	5.6	6
	AHX640W-160C22L	●	–	22	63	172.6	40	3	5.6	6
200	**AHX640W-200C20L**	●	–	20	63	212.6	60	4	8.0	6
	AHX640W-200C28L	●	–	28	63	212.6	60	4	8.0	6
250	**AHX640W-250C24L**	●	–	24	63	262.6	60	4	12.6	6
	AHX640W-250C36L	●	–	36	63	262.6	60	4	12.6	6
315	**AHX640W-315C28L**	●	–	28	80	327.6	60	5	31.5	6
	AHX640W-315C44L	●	–	44	80	327.6	60	5	31.5	6

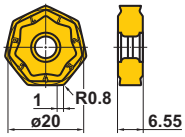
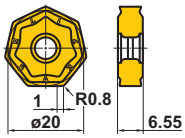
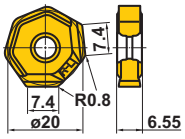
* Number of Teeth

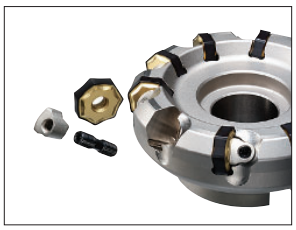
● : **Inventory maintained in Japan. (10 inserts in one case)**

MOUNTING DIMENSION ➤ P27
CUTTING CONDITIONS ➤ P24

Inserts

(mm)

Shape	Order Number	Class	Honing	Coated MC5020	Coated VP15TF	Coated VP20RT	Geometry
 General Cutting	**NNMU200608ZEN-MK**	M	E	●	●	●	
 Strong Cutting Edge Type	**NNMU200608ZEN-HK**	M	E	●	●	●	
 Wiper	**WNEU2006ZEN7C-WK**	E	E	●			



Spare Parts

Tool Holder Number		 *	
	Wedge	Clamp Screw	Wrench
AHX640W	CWAHX640WN	LS0622T	TKY15T

* Clamp Torque (N • m) : LS0622T=6.0

Recommended Cutting Conditions

Dry·Wet Cutting

(mm)

Work Material		Tensile Strength	Grade	vc (m/min)	fz (mm/t.)
K	Gray Cast Iron	≤350MPa	**MC5020**	220 (150—300)	0.3 (0.2—0.4)
			VP15TF VP20RT	180 (130—250)	0.3 (0.2—0.4)
	Ductile Cast Iron	≤450MPa	**MC5020**	200 (150—250)	0.2 (0.1—0.3)
			VP15TF VP20RT	170 (120—220)	0.2 (0.1—0.3)
		≤800MPa	**MC5020**	170 (150—200)	0.2 (0.1—0.3)
			VP15TF VP20RT	140 (100—180)	0.2 (0.1—0.3)

*Please use 2-3 pcs of Wiper inserts in case of 'over 6mm/rev'.

Finishing (Use of Wiper Inserts)

(mm)

Work Material		Grade	ap	vc (m/min)	fz (mm/t.)
K	Gray Cast Iron	**MC5020**	<0.5	320 (250—400)	0.2 (0.1—0.3)
			0.5—3	270 (200—350)	
	Ductile Cast Iron		<0.5	270 (200—350)	
			0.5—3	220 (200—250)	

(Note) With reference to the above examples, adjust the cutting conditions according to the use environment.
(Note) Tool life when wet cutting is short compared to dry cutting.

AHX440S, AHX475S, AHX640S Mounting Dimensions

Fig. 1

ø40
ø50
ø63
ø80

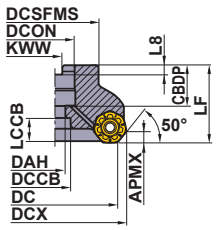


Fig. 2

ø100
ø125
ø160

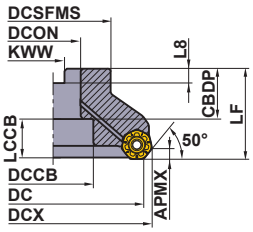
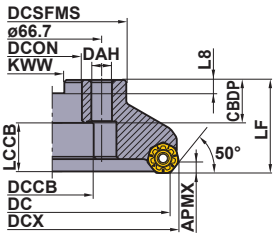


Fig. 3

ø160



Right hand tool holder only.

(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
16	40	**AHX440S-040A03AR**	18	9	14	13.9	37	8.4	5.6	1
16	40	**AHX440S-040A04AR**	18	9	14	13.9	37	8.4	5.6	1
22	50	**AHX440S-050A04AR**	20	11	17	11.9	47	10.4	6.3	1
22	50	**AHX440S-050A05AR**	20	11	17	11.9	47	10.4	6.3	1
22	50	**AHX440S-050A06AR**	20	11	17	11.9	47	10.4	6.3	1
22	50	**AHX475S-050A04AR**	20	11	17	16.7	47	10.4	6.3	5
22	50	**AHX475S-050A05AR**	20	11	17	16.7	47	10.4	6.3	5
22	63	**AHX440S-063A05AR**	20	11	17	11.9	50	10.4	6.3	1
22	63	**AHX440S-063A06AR**	20	11	17	11.9	50	10.4	6.3	1
22	63	**AHX440S-063A08AR**	20	11	17	11.9	50	10.4	6.3	1
22	63	**AHX475S-063A05AR**	20	11	17	16.7	60	10.4	6.3	5
22	63	**AHX475S-063A06AR**	20	11	17	16.7	60	10.4	6.3	5
22	63	**AHX640S-063A04AR**	20	11	17	16.2	50	10.4	6.3	1
22	63	**AHX640S-063A05AR**	20	11	17	16.2	50	10.4	6.3	1
25.4	80	**AHX440SR08006CA**	26	13	20	14.9	56	9.5	6	1
25.4	80	**AHX440SR08008CA**	26	13	20	14.9	56	9.5	6	1
25.4	80	**AHX440SR08010CA**	26	13	20	14.9	56	9.5	6	1
25.4	80	**AHX640SR08004CA**	26	13	20	14.2	56	9.5	6	1
25.4	80	**AHX640SR08006CA**	26	13	20	14.2	56	9.5	6	1
27	80	**AHX440S-080A06AR**	23	13	20	14.9	56	12.4	7	1
27	80	**AHX440S-080A08AR**	23	13	20	14.9	56	12.4	7	1
27	80	**AHX440S-080A10AR**	23	13	20	14.9	56	12.4	7	1
27	80	**AHX475S-080A06AR**	23	13	20	14.7	76	12.4	7	5
27	80	**AHX475S-080A08AR**	23	13	20	14.7	76	12.4	7	5
27	80	**AHX640S-080A04AR**	23	13	20	15.2	56	12.4	7	1
27	80	**AHX640S-080A06AR**	23	13	20	15.2	56	12.4	7	1
31.75	80	**AHX475SR08006DA**	32	17	26	19.7	76	12.7	8	5
31.75	80	**AHX475SR08008DA**	32	17	26	19.7	76	12.7	8	5
31.75	100	**AHX440SR10007DA**	37	—	45	11.9	70	12.7	8	2
31.75	100	**AHX440SR10010DA**	37	—	45	11.9	70	12.7	8	2
31.75	100	**AHX440SR10012DA**	37	—	45	11.9	70	12.7	8	2
31.75	100	**AHX475SR10007DA**	32	17	26	19.7	96	12.7	8	5
31.75	100	**AHX475SR10009DA**	32	17	26	19.7	96	12.7	8	5
31.75	100	**AHX640SR10005DA**	35	—	45	13.2	70	12.7	8	2
31.75	100	**AHX640SR10007DA**	35	—	45	13.2	70	12.7	8	2

Fig. 4
ø200

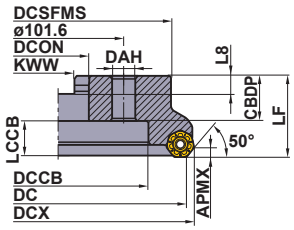
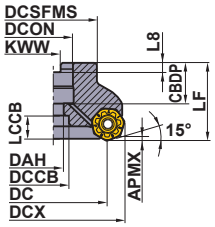
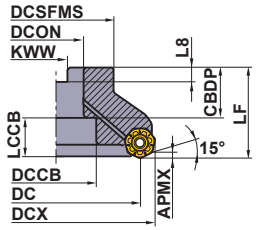


Fig.5
ø50
ø63
ø80
ø100



Right hand tool holder only.

Fig.6
ø125
ø160



(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
32	100	**AHX440S-100B07AR**	32	–	45	16.9	78	14.4	8	2
32	100	**AHX440S-100B10AR**	32	–	45	16.9	78	14.4	8	2
32	100	**AHX440S-100B12AR**	32	–	45	16.9	78	14.4	8	2
32	100	**AHX475S-100A07AR**	26	17	26	25.7	96	14.4	8	5
32	100	**AHX475S-100A09AR**	26	17	26	25.7	96	14.4	8	5
32	100	**AHX640S-100B05AR**	32	–	45	16.2	78	14.4	8	2
32	100	**AHX640S-100B07AR**	32	–	45	16.2	78	14.4	8	2
38.1	125	**AHX440SR12508EA**	42	–	56	19.9	80	15.9	10	2
38.1	125	**AHX440SR12512EA**	42	–	56	19.9	80	15.9	10	2
38.1	125	**AHX440SR12514EA**	42	–	56	19.9	80	15.9	10	2
38.1	125	**AHX475SR12508EA**	42	–	56	19.7	100	15.9	10	6
38.1	125	**AHX475SR12510EA**	42	–	56	19.7	100	15.9	10	6
38.1	125	**AHX640SR12506EA**	42	–	56	19.2	80	15.9	10	2
38.1	125	**AHX640SR12508EA**	42	–	56	19.2	80	15.9	10	2
40	125	**AHX440S-125B08AR**	40	–	56	21.9	89	16.4	9	2
40	125	**AHX440S-125B12AR**	40	–	56	21.9	89	16.4	9	2
40	125	**AHX440S-125B14AR**	40	–	56	21.9	89	16.4	9	2
40	125	**AHX475S-125B08AR**	40	–	56	21.7	100	16.4	9	6
40	125	**AHX475S-125B10AR**	40	–	56	21.7	100	16.4	9	6
40	125	**AHX640S-125B06AR**	42	–	56	19.2	89	16.4	9	2
40	125	**AHX640S-125B08AR**	42	–	56	19.2	89	16.4	9	2
40	160	**AHX440S-160C10NR**	40	14	56	21.9	100	16.4	9	3
40	160	**AHX440S-160C14NR**	40	14	56	21.9	100	16.4	9	3
40	160	**AHX440S-160C16NR**	40	14	56	21.9	100	16.4	9	3
40	160	**AHX475S-160B10AR**	40	–	56	21.7	100	16.4	9	6
40	160	**AHX475S-160B12AR**	40	–	56	21.7	100	16.4	9	6
40	160	**AHX640S-160C07NR**	29	14	56	32.2	120	16.4	9	3
40	160	**AHX640S-160C10NR**	29	14	56	32.2	120	16.4	9	3
47.625	200	**AHX640SR20008KN**	35	18	140	26.2	175	25.4	14.22	4
47.625	200	**AHX640SR20012KN**	35	18	140	26.2	175	25.4	14.22	4
50.8	160	**AHX440SR16010FA**	45	–	72	16.9	100	19.1	11	2
50.8	160	**AHX440SR16014FA**	45	–	72	16.9	100	19.1	11	2
50.8	160	**AHX440SR16016FA**	45	–	72	16.9	100	19.1	11	2
50.8	160	**AHX475SR16010FA**	45	–	72	16.7	100	19.1	11	6
50.8	160	**AHX475SR16012FA**	45	–	72	16.7	100	19.1	11	6
50.8	160	**AHX640SR16007FA**	43	–	72	18.2	100	19.1	11	2
50.8	160	**AHX640SR16010FA**	43	–	72	18.2	100	19.1	11	2
60	200	**AHX640S-200C08NR**	32	18	140	29.2	175	25.7	14.22	4
60	200	**AHX640S-200C12NR**	32	18	140	29.2	175	25.7	14.22	4

AHX640W Mounting Dimensions

Fig.1

ø80

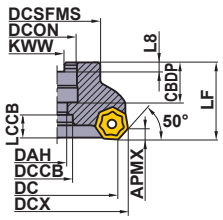
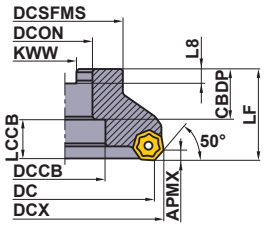


Fig.2

ø100
ø125
ø160



Right hand tool holder shown.

(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
25.4	80	**AHX640WL08008C**	26	13	20	14.8	56	9.5	6	1
25.4	80	**AHX640WL08010C**	26	13	20	14.8	56	9.5	6	1
25.4	80	**AHX640WR08008C**	26	13	20	14.8	56	9.5	6	1
25.4	80	**AHX640WR08010C**	26	13	20	14.8	56	9.5	6	1
27	80	**AHX640W-080A08L**	23	13	20	14.8	56	12.4	7	1
27	80	**AHX640W-080A08R**	23	13	20	14.8	56	12.4	7	1
27	80	**AHX640W-080A10L**	23	13	20	14.8	56	12.4	7	1
27	80	**AHX640W-080A10R**	23	13	20	14.8	56	12.4	7	1
31.75	100	**AHX640WL10010D**	32	—	45	16.8	70	12.7	8	2
31.75	100	**AHX640WL10014D**	32	—	45	16.8	70	12.7	8	2
31.75	100	**AHX640WR10010D**	32	—	45	16.8	70	12.7	8	2
31.75	100	**AHX640WR10014D**	32	—	45	16.8	70	12.7	8	2
32	100	**AHX640W-100B10L**	32	—	45	16.8	70	14.4	8	2
32	100	**AHX640W-100B10R**	32	—	45	16.8	70	14.4	8	2
32	100	**AHX640W-100B14L**	32	—	45	16.8	70	14.4	8	2
32	100	**AHX640W-100B14R**	32	—	45	16.8	70	14.4	8	2
38.1	125	**AHX640WL12512E**	35	—	56	26.8	80	15.9	10	2
38.1	125	**AHX640WL12518E**	35	—	56	26.8	80	15.9	10	2
38.1	125	**AHX640WR12512E**	35	—	56	26.8	80	15.9	10	2
38.1	125	**AHX640WR12518E**	35	—	56	26.8	80	15.9	10	2
40	125	**AHX640W-125B12L**	32	—	56	29.8	80	16.4	9	2
40	125	**AHX640W-125B12R**	32	—	56	29.8	80	16.4	9	2
40	125	**AHX640W-125B18L**	32	—	56	29.8	80	16.4	9	2
40	125	**AHX640W-125B18R**	32	—	56	29.8	80	16.4	9	2
40	160	**AHX640W-160C16L**	29	14	56	32.8	100	16.4	9	3
40	160	**AHX640W-160C16R**	29	14	56	32.8	100	16.4	9	3
40	160	**AHX640W-160C22L**	29	14	56	32.8	100	16.4	9	3
40	160	**AHX640W-160C22R**	29	14	56	32.8	100	16.4	9	3

Fig.3

ø160

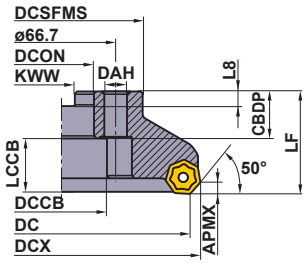


Fig.4

ø200
ø250

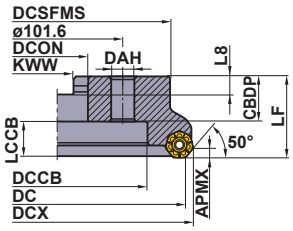
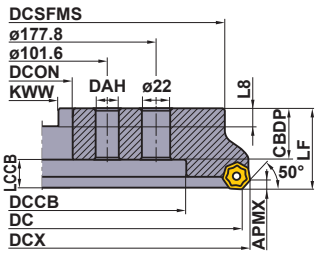


Fig.5

ø315

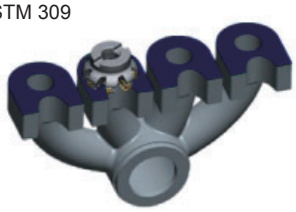
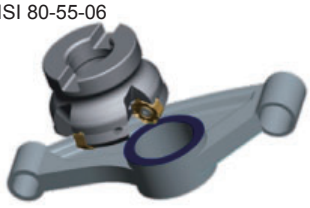
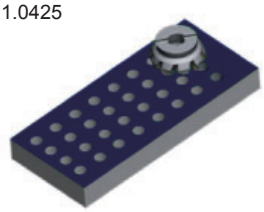


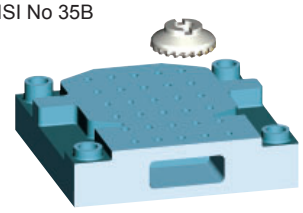
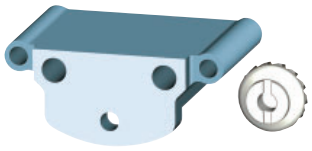
Right hand tool holder shown.

(mm)

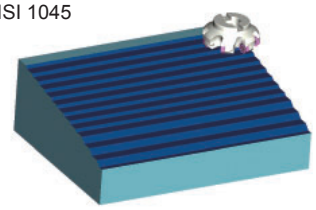
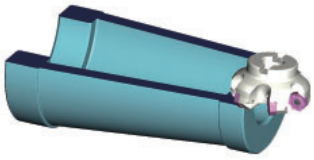
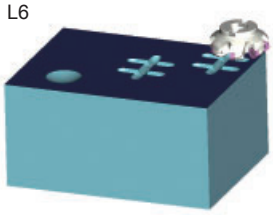
DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
47.625	200	**AHX640WL20020K**	35	18	140	26.8	175	25.4	14.22	4
47.625	200	**AHX640WL20028K**	35	18	140	26.8	175	25.4	14.22	4
47.625	200	**AHX640WR20020K**	35	18	140	26.8	175	25.4	14.22	4
47.625	200	**AHX640WR20028K**	35	18	140	26.8	175	25.4	14.22	4
47.625	250	**AHX640WL25024K**	35	18	180	26.8	220	25.4	14.22	4
47.625	250	**AHX640WL25036K**	35	18	180	26.8	220	25.4	14.22	4
47.625	250	**AHX640WR25024K**	35	18	180	26.8	220	25.4	14.22	4
47.625	250	**AHX640WR25036K**	35	18	180	26.8	220	25.4	14.22	4
47.625	315	**AHX640WL31528P**	40	18	225	21.8	285	25.4	14.22	5
47.625	315	**AHX640WL31544P**	40	18	225	21.8	285	25.4	14.22	5
47.625	315	**AHX640WR31528P**	40	18	225	21.8	285	25.4	14.22	5
47.625	315	**AHX640WR31544P**	40	18	225	21.8	285	25.4	14.22	5
50.8	160	**AHX640WL16016F**	38	—	72	23.8	100	19.1	11	2
50.8	160	**AHX640WL16022F**	38	—	72	23.8	100	19.1	11	2
50.8	160	**AHX640WR16016F**	38	—	72	23.8	100	19.1	11	2
50.8	160	**AHX640WR16022F**	38	—	72	23.8	100	19.1	11	2
60	200	**AHX640W-200C20L**	32	18	135	29.8	155	25.7	14	4
60	200	**AHX640W-200C20R**	32	18	135	29.8	155	25.7	14	4
60	200	**AHX640W-200C28L**	32	18	135	29.8	155	25.7	14	4
60	200	**AHX640W-200C28R**	32	18	135	29.8	155	25.7	14	4
60	250	**AHX640W-250C24L**	32	18	180	29.8	200	25.7	14	4
60	250	**AHX640W-250C24R**	32	18	180	29.8	200	25.7	14	4
60	250	**AHX640W-250C36L**	32	18	180	29.8	200	25.7	14	4
60	250	**AHX640W-250C36R**	32	18	180	29.8	200	25.7	14	4
60	315	**AHX640W-315C28L**	57	18	225	21.8	285	25.7	14	5
60	315	**AHX640W-315C28R**	57	18	225	21.8	285	25.7	14	5
60	315	**AHX640W-315C44L**	57	18	225	21.8	285	25.7	14	5
60	315	**AHX640W-315C44R**	57	18	225	21.8	285	25.7	14	5

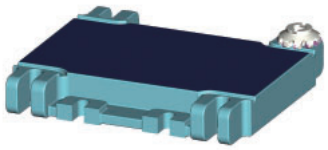
Application Example

Component		Parts for Turbo	Automobile Parts	Steel Plate for Pressure Containers
Workpiece		ASTM 309 	AISI 80-55-06 	W-nr 1.0425 
Tool		**AHX440S-063A08AR**	**AHX440S-050A04AR**	**AHX440S-100B10AR**
Cutting Conditions	Cutting Speed (m/min)	99	141	251
	Feed per Tooth (mm/t.)	0.3	0.15	0.15
	Depth of Cut **ap** (mm)	3	0.8	1.5
	Depth of Cut **ae** (mm)	50	35	80
Cutting Mode		Dry Cutting	Dry Cutting	Wet Cutting
Results		AHX440S achieved 1.4 times the tool life of conventional.	AHX440S achieved 1.4 times the tool life of conventional. 160min. could be expanded. The tool life was expanded 160 min in total of rough and finish cutting.	AHX440S showed 1.3 times longer tool life than that of conventional in heavy interrupted cutting. Tool life was evaluated based on wheather burrs were generated around holes.

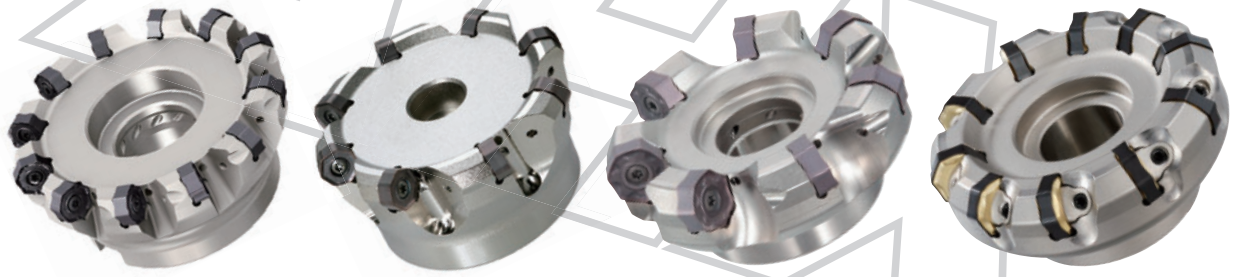
Component		Press Mold Base	Housing Case	Automotive Suspension Part
Workpiece		AISI No 35B 	AISI No 35B 	AISI 100-70-03 
Tool		**AHX640WR16016F**	**AHX640WR12512E**	**AHX640WR10014D**
Cutting Conditions	Cutting Speed (m/min)	240	150	240
	Table Feed (mm/min)	3060	500	3000
	Feed per Tooth (mm/t.)	0.4	0.1	0.28
	Depth of Cut **ap** (mm)	3–4	3	3–4
	Depth of Cut **ae** (mm)	160	40	80
Cutting Mode		Dry Cutting	Dry Cutting	Dry Cutting
Results		In comparison with the conventional insert that suffered sudden fracturing during machining of surface scale, AHX640W gave a stable performance even at 3 times higher table feeds, thus substantially improving machining efficiency and reliability.	In comparison with a conventional 8 corner insert that fractured while machining an unstable component, the AHX640W gave double tool life. In combination with the use of the extra cutting edges a substantial saving can be made.	Even when machining ductile cast irons, AHX640W gave double tool life compared to a conventional tool.

● With reference to the above examples, adjust the cutting conditions according to the machine specifications, workpiece geometry and clamping method used.

Component		Machine Parts		Machine Parts		Mold	
Workpiece		AISI 1045 		AISI 4140 		AISI L6 	
Tool		Conventional	**AHX640SR10007DA**	Conventional	**AHX640SR10007DA**	Conventional	**AHX640SR10007DA**
Cutting Conditions	Cutting Speed (m/min)	200	250	75	100	95	95
	Feed per Tooth (mm/t.)	0.19	0.22	0.05	0.17	0.2	0.26
	Depth of Cut **ap** (mm)	5	5	1	2	3	3
	Depth of Cut **ae** (mm)	75	75	70	70	60	60
Cutting Mode		Air Blow	Air Blow	Air Blow	Air Blow	Air Blow	Air Blow
Results		With older products, raising the cutting speed to 250 m/min caused chattering and damage to the inserts, but the AHX640S enables stable machining even when the feed is raised. In addition, the inserts have more usable corners, helping to reduce costs.		Previously, low rigidity workpiece clamping led to chattering, making it impossible to raise cutting conditions. However, with the low cutting resistance of the AHX640S, cutting conditions can be raised, achieving more than six times the efficiency of existing products.		With conventional products, insert wear occurred frequently. In contrast, the AHX640S with 30% higher feed enables stable cutting with no damage to the inserts.	

Component		Mold	
Workpiece		AISI No 45B 	
Tool		Conventional	**AHX640SR16010FA**
Cutting Conditions	Cutting Speed (m/min)	70	240
	Feed per Tooth (mm/t.)	1.5	0.3
	Depth of Cut **ap** (mm)	1	3
	Depth of Cut **ae** (mm)	100	100
Cutting Mode		Air Blow	Air Blow
Results		Compared with earlier tools for high feed milling, depth of cut is three times greater with the equivalent table feed. In addition, the inserts have more usable corners than earlier products, helping to reduce costs.	

● With reference to the above examples, adjust the cutting conditions according to the machine specifications, workpiece geometry and clamping method used.



General Purpose Multi Corner Insert Type Face Milling Cutter

AHX Series

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

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(Tools specifications subject to change without notice.)

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