MITSUBISHI MATERIALS

AHX Series

GENERAL PURPOSE MULTI-CORNER INSERT TYPE FACE MILLING CUTTER





TOOL NEWS **B195A**

General Purpose Multi-Corner Insert Type Face Milling Cutter

AHX Series

Unique 14 Cornered Insert

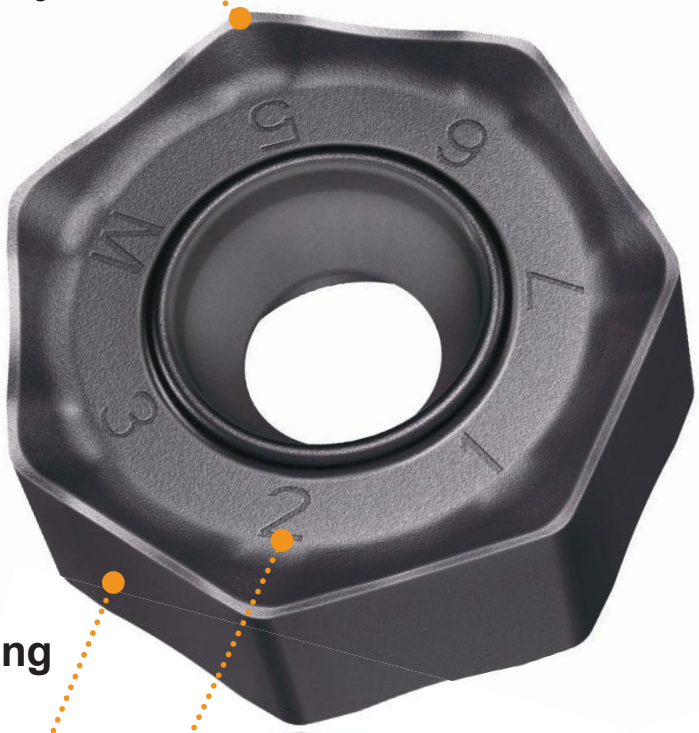
Economical Heptagonal Double-Sided Insert

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

(inch)

Tool Holder Number	IC	APMX
AHX440S	.528	.118
AHX475S	.528	.063
AHX640S	.787	.236

"APMX" of AHX will vary depending on the chipbreaker of the insert.



High Rigidity Created 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
AHX640S

AHX475S is not compatible with stainless steel.

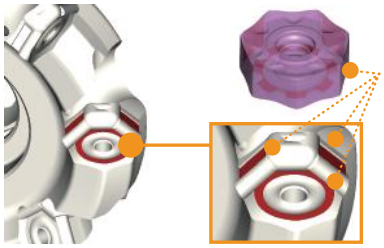






Designed to Control Abnormal Insert Breakage and Body Damage

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

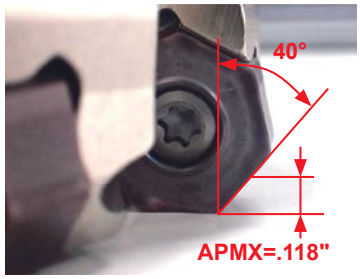


Through Coolant Through

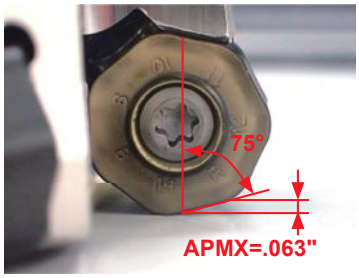
Improves chip discharge and prevents chip welding.

AHX475S For High Feed Machining

High feed is possible with AHX440S by setting an RE = .126 inch insert to be used in a cutter body with a corner angle of 75° (KAPR15°).
The maximum depth of cut (APMX) will be limited to .063 inch.



AHX440S L Chipbreaker



AHX475S

Face Milling Cutter for High Efficiency Machining of Cast Iron

AHX640W



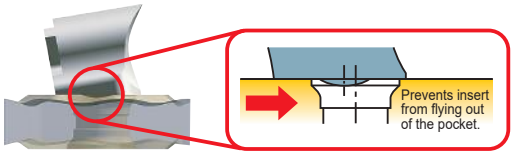
High Rigidity Inserts Suitable for High Feed Milling of Cast Iron



Sloped cutting edge and large rake angle

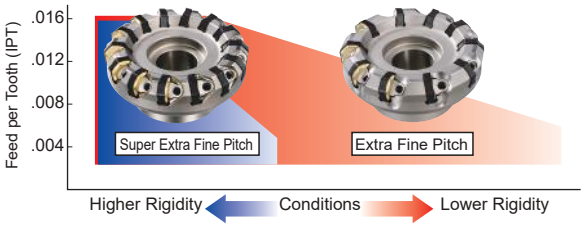
Innovative Clamp System

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

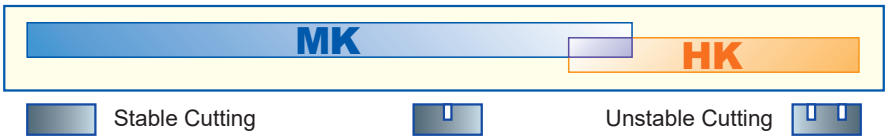


2 Variations for Different Applications

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



Insert Applications



Stable Cutting — Unstable Cutting

MK General-Purpose Insert





High tolerance M-class insert.
Neutral, double-sided 14 corners.
20º 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.
Please refer to P12, P13 for the proper use of the XC5010 insert.

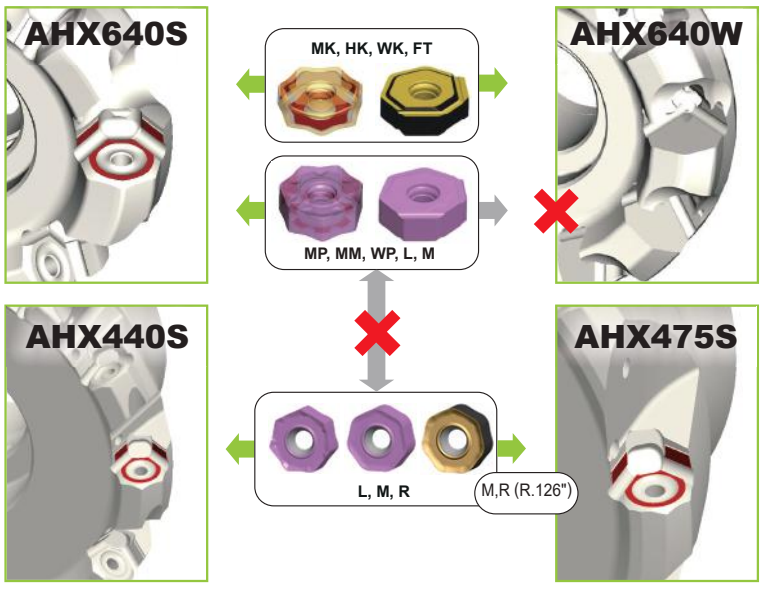
AHX Steel Series
Selection Reference Table (Cutting Edge Count and Cutting Conditions)

(inch)

DC	Type	Number of Teeth	AHX440S			AHX475S			AHX640S		
			General Cutting			High Feed Machining			General Cutting		
			Stock	fr (IPR)	APMX	Stock	fr (IPR)	APMX	Stock	fr (IPR)	APMX
1.500" 40mm	Fine Pitch	3	●	.024 — .047	.118						
	Extra Fine Pitch	4	●	.031 — .063	.118						
2.000" 50mm	Fine Pitch	4	●	.031 — .063	.118	●	.094 — .157	.063			
	Extra Fine Pitch	5	●	.039 — .079	.118	●	.118 — .197	.063			
	Super Extra Fine Pitch	6	●	.047 — .094	.118						
2.500" 63mm	Coarse Pitch	4							●	.031 — .063	.236
	Fine Pitch	5	●	.039 — .079	.118	●	.118 — .197	.063	●	.039 — .079	.236
	Extra Fine Pitch	6	●	.047 — .094	.118	●	.142 — .236	.063			
	Super Extra Fine Pitch	8	●	.063 — .126	.118						
3.000" 80mm	Coarse Pitch	4							●	.031 — .063	.236
	Fine Pitch	6	●	.047 — .094	.118	●	.142 — .236	.063	●	.047 — .094	.236
	Extra Fine Pitch	8	●	.063 — .126	.118	●	.189 — .315	.063			
	Super Extra Fine Pitch	10	●	.079 — .157	.118						
4.000" 100mm	Coarse Pitch	5							●	.039 — .079	.236
	Fine Pitch	7	●	.055 — .110	.118	●	.165 — .276	.063	●	.055 — .110	.236
	Extra Fine Pitch	9				●	.213 — .354	.063			
		10	●	.079 — .157	.118						
	Super Extra Fine Pitch	12	●	.094 — .189	.118						
5.000" 125mm	Coarse Pitch	6							●	.047 — .094	.236
	Fine Pitch	8	●	.063 — .126	.118	●	.189 — .315	.063	●	.063 — .126	.236
	Extra Fine Pitch	10				●	.236 — .394	.063			
		12	●	.094 — .189	.118						
	Super Extra Fine Pitch	14	●	.110 — .220	.118						
6.000" 160mm	Coarse Pitch	7							●	.055 — .110	.236
	Fine Pitch	10	●	.079 — .157	.118	●	.236 — .394	.063	●	.079 — .157	.236
	Extra Fine Pitch	12				●	.283 — .472	.063			
		14	●	.110 — .220	.118						
	Super Extra Fine Pitch	16	●	.126 — .252	.118						
8.000" 200mm	Coarse Pitch	8							●	.063 — .126	.236
	Fine Pitch	12							●	.094 — .189	.236

(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 25 for details.)
(Note 2) APMX: Maximum depths of cut (AHX440S: the maximum depths of cut will vary depending on the chipbreaker)
(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 = .126 inch 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, WK and FT for casting.

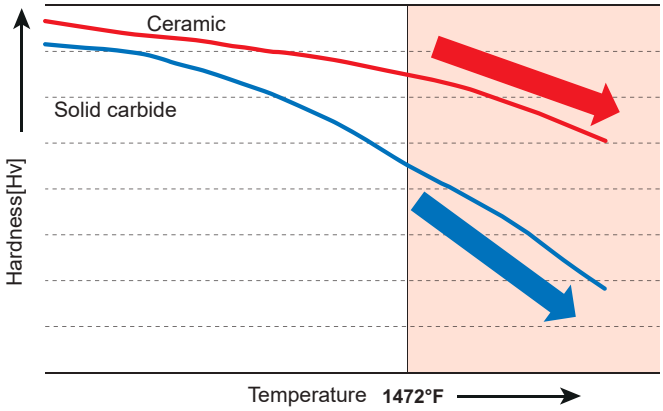
CVD Coated Ceramic Grade

XC5010

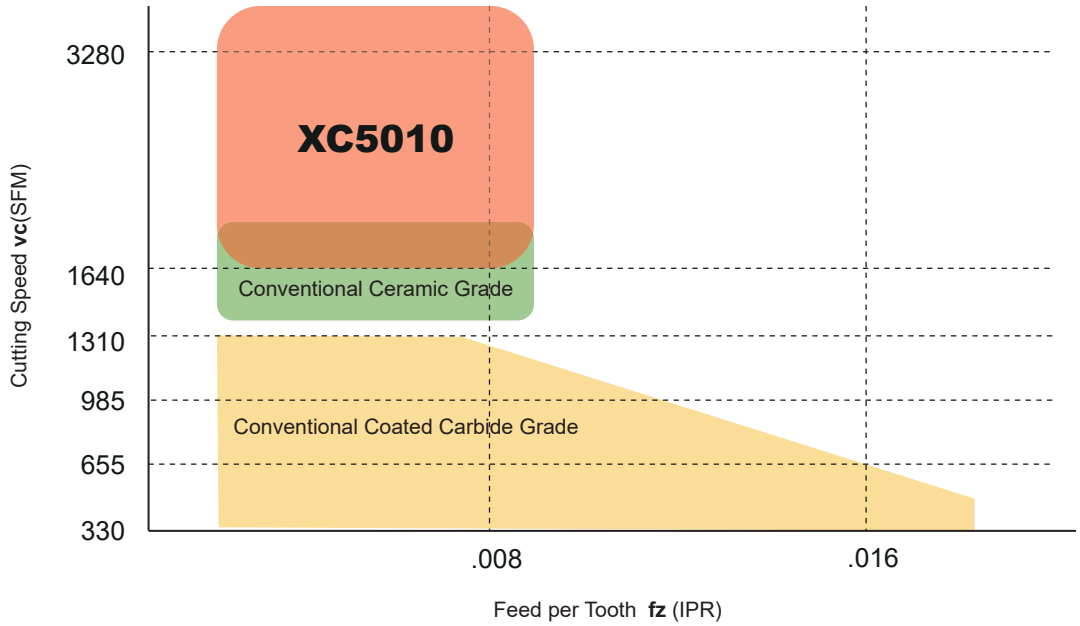
The strength of ceramics allows for stable machining even when cutting at high-speeds.

High Temperature Hardness of Cemented Carbide and Ceramic

Cemented carbide inserts are significantly reduced in strength when exceeding 1472 degrees. However, the strength of ceramic inserts is not affected at these high temperatures, therefore can be used at the high-speeds and depths of cut required to generate sufficient heat to enable machining.

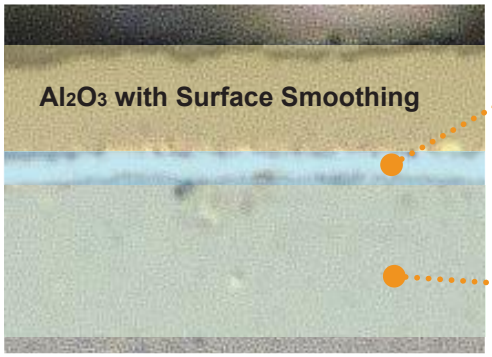


The combination of the unique shape and the coated ceramic grade achieves stable machining even at a cutting speeds of 1000 m/min.



Surface-smoothing Al_2O_3 coating suppresses the transmission of cutting heat

By applying an Al_2O_3 coating, which suppresses the transmission of cutting heat to the ceramic substrate, and together with a surface smoothing treatment, abnormal wear and adhesion of the workpiece material are suppressed.



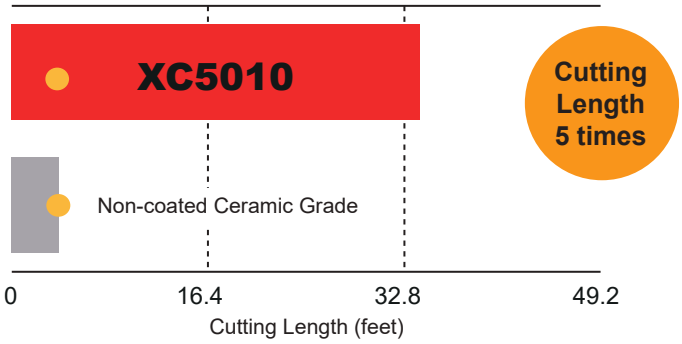
Technology Improves Adhesion Strength

Mitsubishi Materials' own adhesion technology has greatly improved the adhesion between the ceramic base material and the coating layer.

Silicon Nitride Ceramic Substrate

By adopting a high toughness silicon nitride ceramic substrate as the base material, ultra-high-speed milling of ductile cast iron can be achieved even at high temperatures with minimal loss of strength.

Achieves 5 times the cutting length of non-coated ceramic grade when used at high-speeds.

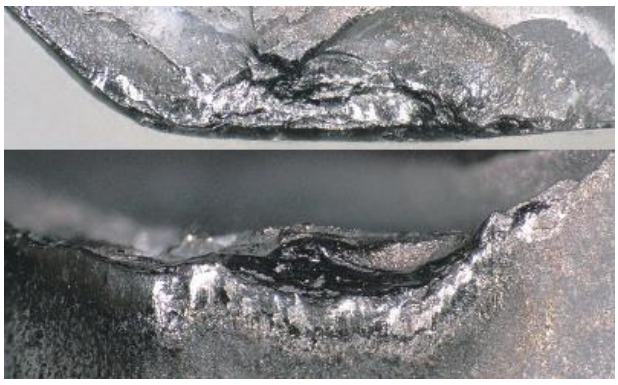


<Cutting Conditions>
Material : JIS FCD600
Tool : AHX640S DC=3.150 inch
Cutting Speed : vc=3280 SFM
Feed per Tooth : fz=.004 IPT
Depth of Cut : ap=.079 inch
ae=1.969 inch
Cutting Mode : Dry Cutting

After 6.6 feet Machining



XC5010



Non-coated Ceramic Grade



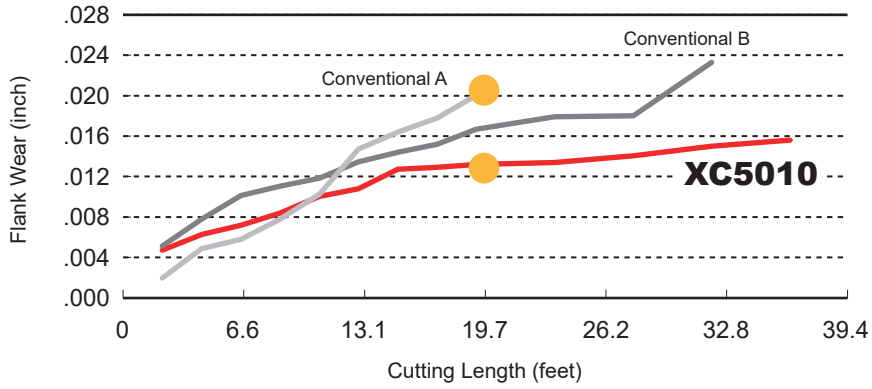
Machining video at VC=3935 SFM

YouTube

Cutting Performance

Comparison of Wear when machining 100-70-03 vc=3280 SFM

Achieves a level of wear resistance that greatly surpasses carbide grades when high-speed roughing.

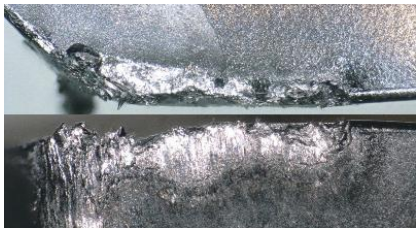


<Cutting Conditions>
Material : ASTM 100-70-03
Tool : AHX640S DC=3.150 inch
Cutting Speed : vc=3280 SFM
Feed per Tooth : fz=.004 IPT
Depth of Cut : ap=.079 inch
ae=1.575 inch
Cutting Mode : Dry Cutting
Single Insert

● After Machining 19.7 feet



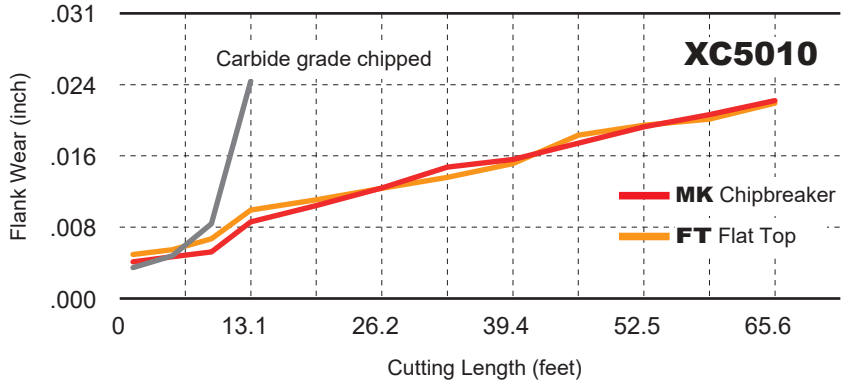
XC5010



Conventional A, Coated Carbide Grade

Comparison of finished surfaces when machining 100-70-03 at vc=3280 SFM

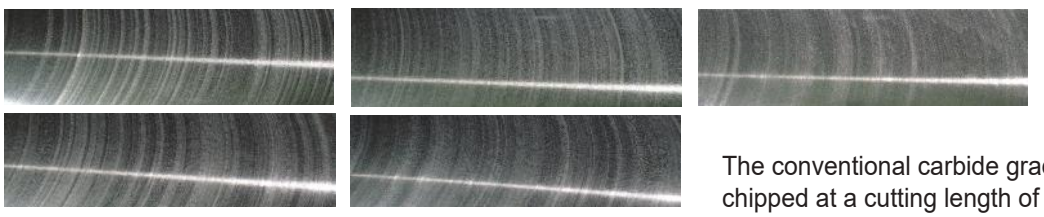
A high-quality machined surface is maintained even after a cutting length of 65.6 feet.



<Cutting Conditions>
Material : ASTM 100-70-03
Tool : AHX640S DC=4.921 inch
Cutting Speed : vc=3280 SFM
Feed per Tooth : fz=.004 IPT
Depth of Cut : ap=.079 inch
ae=3.937 inch
Cutting Mode : Dry Cutting

Cutting Length
13.1 feet

Cutting Length
65.6 feet



XC5010 MK **XC5010 FT**

The conventional carbide grade chipped at a cutting length of 13.1 feet.

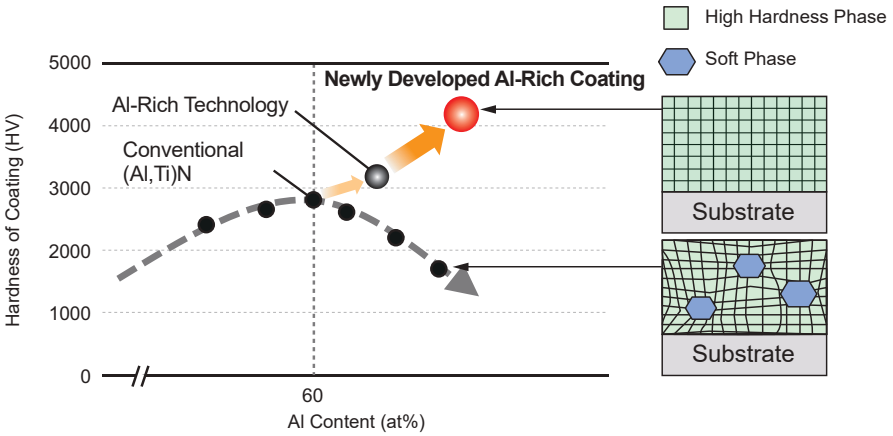
Coated Carbide Grade for Milling

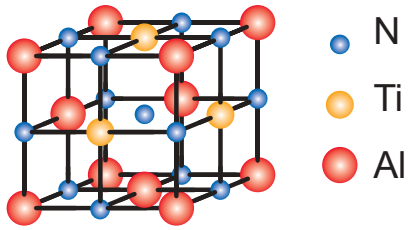
MV1020 / MV1030

Newly Developed Al-Rich Coating

Advanced Wear and Thermal Shock Resistant

By adopting the newly developed Al-Rich coating technology, the (Al,Ti)N with a high Al content ratio displays a very high hardness. This greatly improves oxidation and wear resistance.
The extreme heat resistance of this new series achieves amazing stability not only during dry cutting, but also when wet cutting where inserts are usually prone to thermal cracking.
MV1020 offers overwhelmingly superior performance in high-speed cutting, and MV1030 achieves stable performance during interrupted and stainless steel machining.

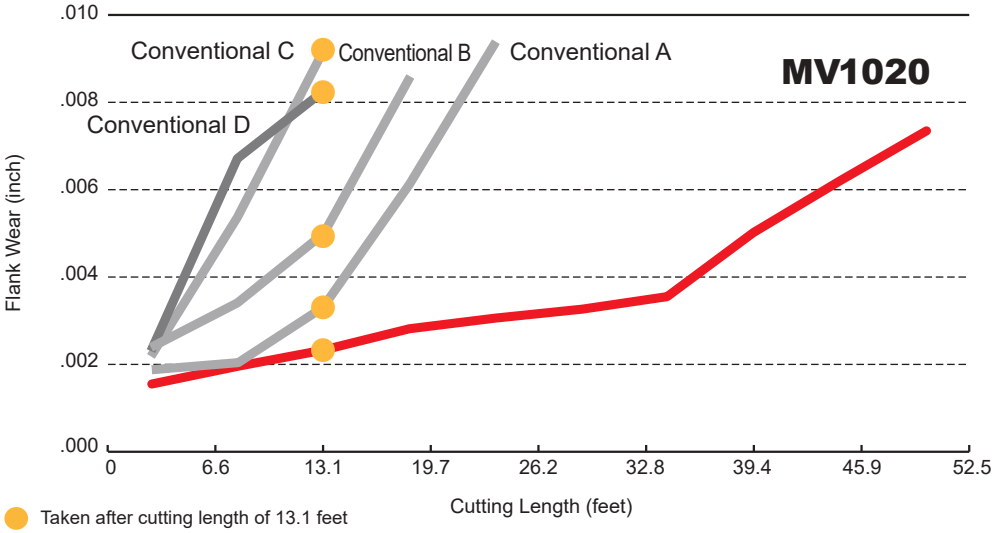




Crystal image of **MV1000** series

Cutting Performance

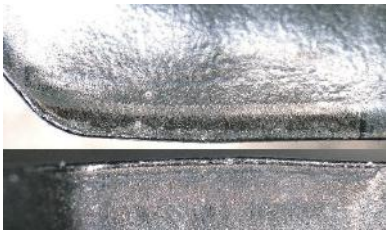
Comparison of wear resistance when machining ductile cast iron 100-70-03



Taken after cutting length of 13.1 feet

<Cutting Conditions>

Material	: ASTM 100-70-03
Tool	: AHX440
Inserts	: NNMU130508ZEN-M
Cutting Speed	: vc=985 SFM
Feed per Tooth	: fz=.004 IPT
Depth of Cut	: ap=.079 inch
Width of Cut	: ae=2.047 inch
Cutting Mode	: Dry Cutting Single Insert



MV1020



Conventional A



Conventional B



Conventional C



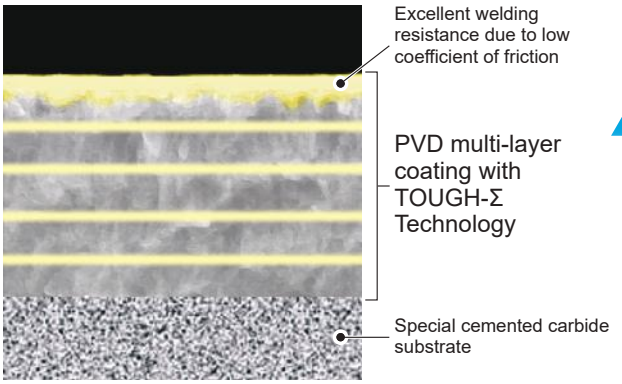
Conventional D

Insert Grades for a Wide Range of Materials

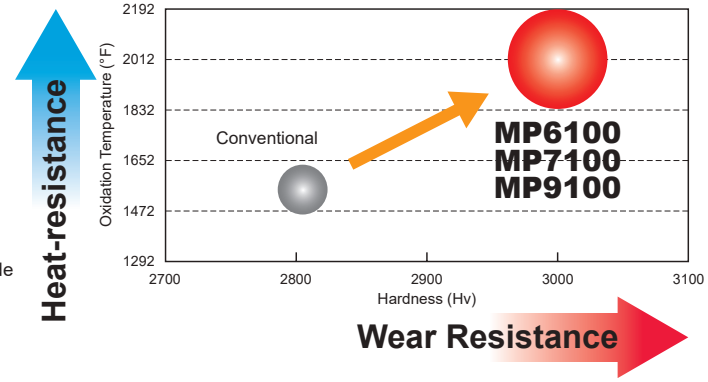
Accumulated Al-Ti-Cr-N Based PVD Coating

TOUGH-Σ Technology

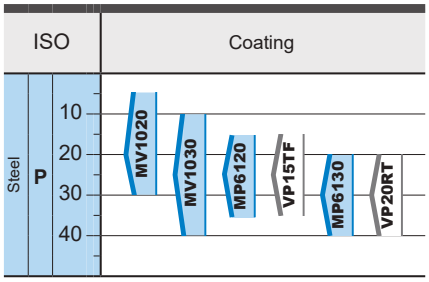
A fusion of the separate coating technologies; PVD and multi-layering provides extra toughness.

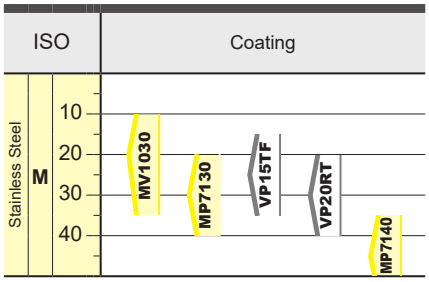


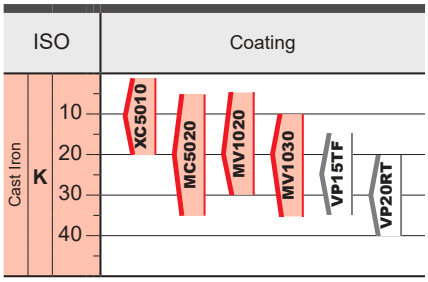
Dramatically Improving the Heat and Wear Resistance!

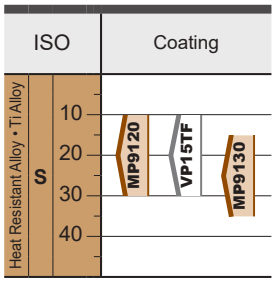


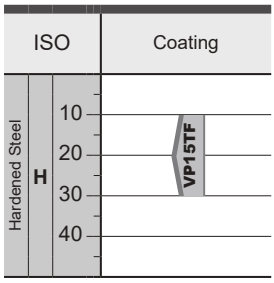
Selection Standard





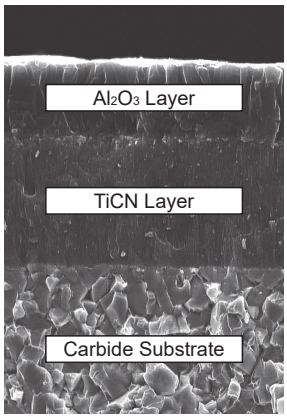






MC5020

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

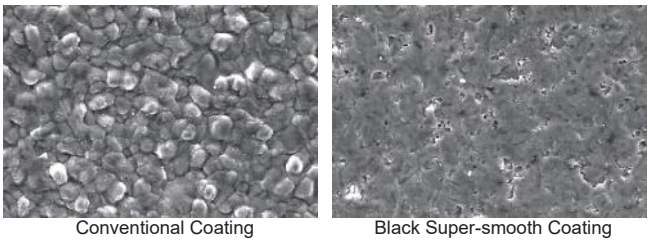
Use of a specially developed cemented carbide that provides superior resistance to fracture and thermal cracking prevents the cutting edge from sudden fracturing.

Reduced Abnormal Damage

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

Black Super-smooth Coating

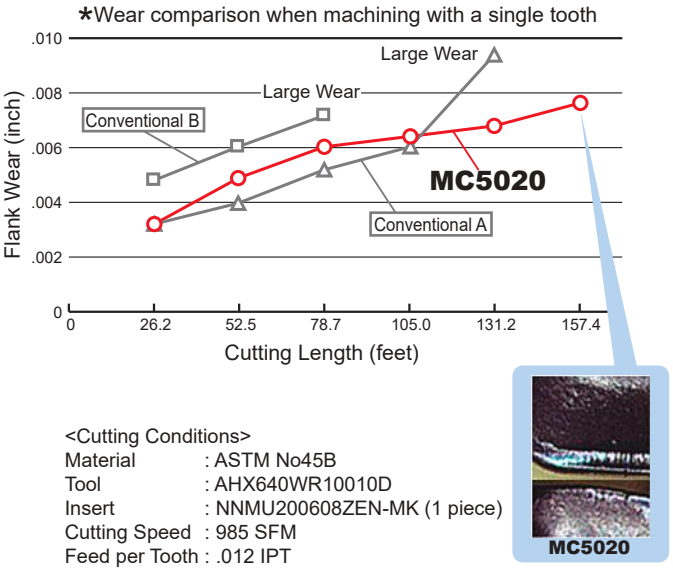
Comparison of Coating Surface



Conventional Coating | Black Super-smooth Coating

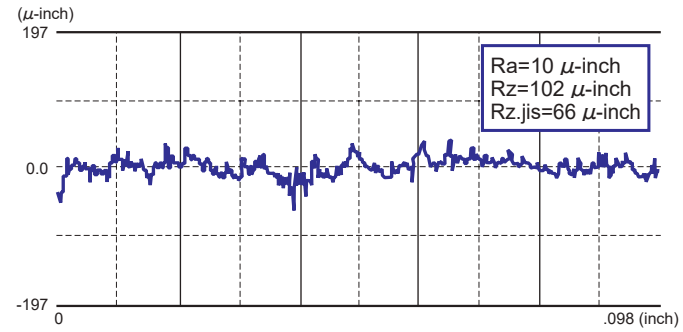
Cutting Performance

Wear Resistance

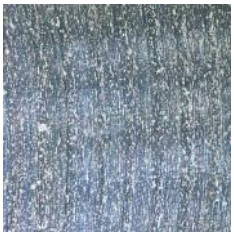


<Cutting Conditions>
Material : ASTM No45B
Tool : AHX640WR10010D
Insert : NNMU200608ZEN-MK (1 piece)
Cutting Speed : 985 SFM
Feed per Tooth : .012 IPT
Depth of Cut : ap=.197 inch
Cutting Mode : Dry Cutting
Single Insert

Surface Finish

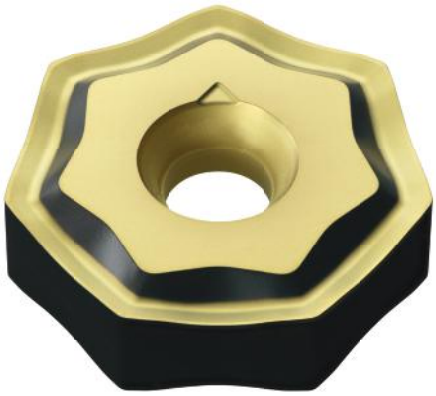


<Finish Condition>



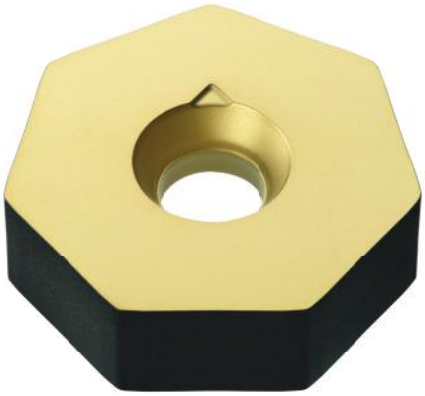
<Cutting Conditions>
Material : ASTM 100-70-03
Tool : AHX640WR10014D
Insert : NNMU200608ZEN-MK(13 pieces)
Wiper Insert : WNEU2006ZEN7C-WK(1 piece)
Cutting Speed : 1150 SFM
Feed per Tooth : .004 IPT
Depth of Cut : ap=.016 inch
: ae=3.150 inch
Cutting Mode : Air Blow

Insert for **XC5010**



MK Chipbreaker **General Cutting**

When compared to flat top inserts, the cutting resistance is lower when using the MK chipbreaker. This reduces the load on the spindle thereby making it suitable for high-speed cutting.



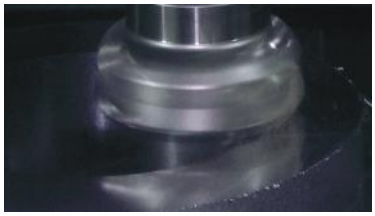
FT Flat Top **Cutting Edge Strength**

The high cutting edge strength of the flat top type enables stable cutting over long periods and helps to prevent sudden edge chipping.

The height setting when using MK inserts is different than when using FT type inserts.

FCD600 Finish Surface Comparison

A high-quality machined surface is maintained even when high speed cutting conditions are used.



Cutting Speed **: vc=820 SFM**



Cutting Speed **: vc=3280 SFM**

<Cutting Conditions>
Material : JIS FCD600
Tool : AHX640S DC=2.480 inch
Feed per Tooth : fz=.004 IPT
Depth of Cut : ap=.039 inch
ae=1.260 inch
Cutting Mode : Dry Cutting



Conventional, Coated Carbide Grade

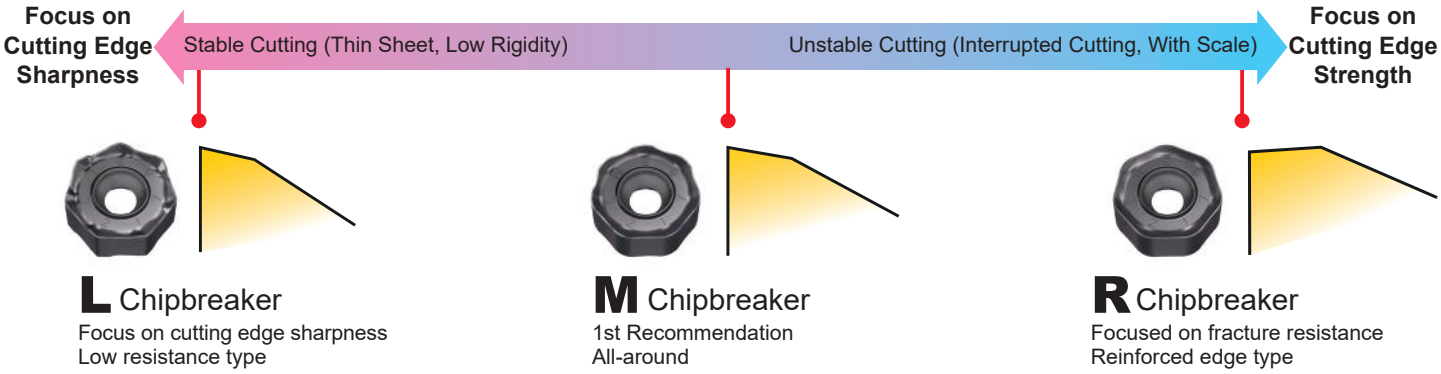


XC5010 MK

YouTube

Chipbreaker System

Chipbreaker System for Varied Cutting Conditions



L Chipbreaker
Focus on cutting edge sharpness
Low resistance type

M Chipbreaker
1st Recommendation
All-around

R Chipbreaker
Focused on fracture resistance
Reinforced edge type

Material	Cutting Conditions		
	Stable Cutting	General Cutting	Unstable Cutting
P	AHX440S: L With Wiper; M (R.031") With Wiper; M (R.126") Not with Wiper Shared with AHX475; R Not with Wiper Shared with AHX475		
	AHX640S: M; MP		
M	AHX440S: L With Wiper; M (R.031") With Wiper; M (R.126") Not with Wiper Shared with AHX475; R Not with Wiper Shared with AHX475		
	AHX640S: MM		
K	AHX440S: L With Wiper; M (R.031") With Wiper; M (R.126") Not with Wiper Shared with AHX475; R Not with Wiper Shared with AHX475		
	AHX640S: MK; HK; FT		

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
<GENERAL CUTTING>

50° KAPR

F R

AHX440S

P	M	K	N	S	H
Steel	Stainless Steel	Cast Iron			Hardened Steel



Fig. 1

ø1.500"
ø2.000"
ø2.500"
ø3.000"

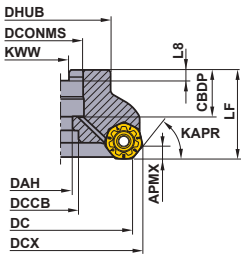
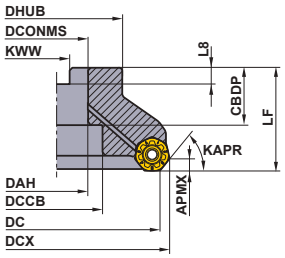


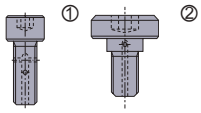
Fig. 2

ø4.000"
ø5.000"
ø6.000"



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ1.500	HSCU25011H	①
ϕ2.000	HSCU37513H	
ϕ2.500	HSCU50014H	
ϕ3.000		
ϕ4.000	MBAU75016H	②
ϕ5.000		
ϕ6.000		



With Coolant Through.

DCONMS=Inch size

(inch)

DC	Order Number	Stock	✶1 Coolant Thru	Number of Teeth	LF	DCX	DCONMS	Fig.	WT(lbs)	✶2 APMX
1.500	**AHX440SUR1503SA**	●	Y	3	1.750	1.829	.500	1	.7	.118, .138
	AHX440SUR1504SA	●	Y	4	1.750	1.829	.500	1	.6	.118, .138
2.000	**AHX440SUR0204AA**	●	Y	4	1.750	2.329	.750	1	1.0	.118, .138
	AHX440SUR0205AA	●	Y	5	1.750	2.329	.750	1	1.0	.118, .138
	AHX440SUR0206AA	●	Y	6	1.750	2.329	.750	1	.9	.118, .138
2.500	**AHX440SUR2505CA**	●	Y	5	2.000	2.829	1.000	1	1.8	.118, .138
	AHX440SUR2506CA	●	Y	6	2.000	2.829	1.000	1	1.7	.118, .138
	AHX440SUR2508CA	●	Y	8	2.000	2.829	1.000	1	1.6	.118, .138
3.000	**AHX440SUR0306CA**	●	Y	6	2.000	3.329	1.000	1	2.3	.118, .138
	AHX440SUR0308CA	●	Y	8	2.000	3.329	1.000	1	2.2	.118, .138
	AHX440SUR0310CA	●	Y	10	2.000	3.328	1.000	1	2.1	.118, .138
4.000	**AHX440SUR0407EA**	●	Y	7	2.500	4.329	1.500	2	5.1	.118, .138
	AHX440SUR0410EA	●	Y	10	2.500	4.329	1.500	2	5.0	.118, .138
	AHX440SUR0412EA	●	Y	12	2.500	4.329	1.500	2	4.9	.118, .138
5.000	**AHX440SUR0508EA**	●	Y	8	2.500	5.329	1.500	2	8.1	.118, .138
	AHX440SUR0512EA	●	Y	12	2.500	5.329	1.500	2	7.9	.118, .138
	AHX440SUR0514EA	●	Y	14	2.500	5.329	1.500	2	7.8	.118, .138
6.000	**AHX440SUR0610EA**	●	Y	10	2.500	6.329	1.500	2	10.3	.118, .138
	AHX440SUR0614EA	●	Y	14	2.500	6.329	1.500	2	10.1	.118, .138
	AHX440SUR0616EA	●	Y	16	2.500	6.329	1.500	2	10.1	.118, .138

✶1 Y=Yes

✶2 For NNMU130508ZER-L, APMX max = .118, for NNMU130508ZEN-M, NNMU130532ZEN-M & NNMU130532ZEN-R, APMX max = .138

Note 1) The above "APMX" will vary depending on the chipbreaker insert.

Note 2) The cutter body includes a set bolt for an arbor.

● : USA Stock ★ : Stocked in Japan



Metric Standard

For inch arbors

Fig. 1

ø80

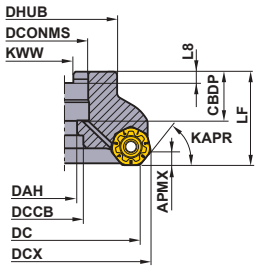
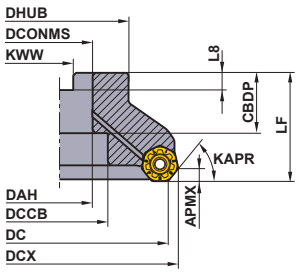


Fig. 2

ø100
ø125
ø160



Right hand tool holder only.

DCONMS=Inch size

(mm)

DC	Order Number	Stock	∗1 Coolant Thru	Number of Teeth	LF	DCX	DCONMS	Fig.	WT(kg)	∗2 APMX
80	**AHX440SR08006CA**	★	Y	6	50	88.4	25.4 [1.0"]	1	1.1	3.0, 3.5
	AHX440SR08008CA	★	Y	8	50	88.4	25.4 [1.0"]	1	1.1	3.0, 3.5
	AHX440SR08010CA	★	Y	10	50	88.4	25.4 [1.0"]	1	1.1	3.0, 3.5
100	**AHX440SR10007DA**	★	Y	7	50	108.4	31.75 [1.25"]	2	1.6	3.0, 3.5
	AHX440SR10010DA	★	Y	10	50	108.4	31.75 [1.25"]	2	1.6	3.0, 3.5
	AHX440SR10012DA	★	Y	12	50	108.3	31.75 [1.25"]	2	1.6	3.0, 3.5
125	**AHX440SR12508EA**	★	Y	8	63	133.4	38.1 [1.50"]	2	3.0	3.0, 3.5
	AHX440SR12512EA	★	Y	12	63	133.4	38.1 [1.50"]	2	3.0	3.0, 3.5
	AHX440SR12514EA	★	Y	14	63	133.3	38.1 [1.50"]	2	2.9	3.0, 3.5
160	**AHX440SR16010FA**	★	Y	10	63	168.4	50.8 [2.0"]	2	4.8	3.0, 3.5
	AHX440SR16014FA	★	Y	14	63	168.4	50.8 [2.0"]	2	4.6	3.0, 3.5
	AHX440SR16016FA	★	Y	16	63	168.4	50.8 [2.0"]	2	4.7	3.0, 3.5

∗1 Y=Yes

∗2 For NNMU130508ZER-L, APMX max = 3.0, for NNMU130508ZEN-M, NNMU130532ZEN-M & NNMU130532ZEN-R, APMX max = 3.5

Note 1) Set bolt not included.

Note 2) The above "APMX" will vary depending on the chipbreaker insert.

SPARE PARTS

Tool Holder Type	∗ 	
	Clamp Screw	Wrench (Insert)
AHX440S	TS35R	TKY15T

∗ Clamp Torque (lbf-in) : TS35R=31

MOUNTING DIMENSION ➤ pp.42–45

General Purpose Multi-Corner Insert Type Face Milling Cutter



Metric Standard

For metric arbors

Fig. 1

ø40
ø50
ø63
ø80

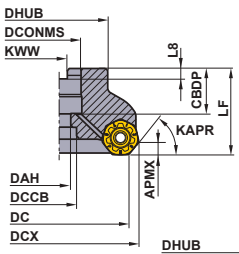


Fig. 2

ø100
ø125

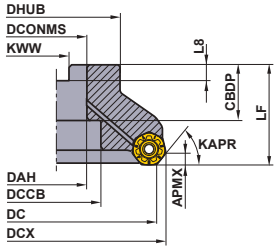
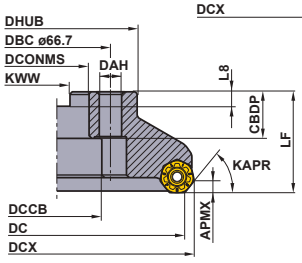


Fig. 3

ø160



Right hand tool holder only.

DCONMS=mm size

(mm)

DC	Order Number	Stock	✶1 Coolant Thru	Number of Teeth	LF	DCX	DCONMS	Fig.	WT(kg)	✶2 APMX
40	**AHX440S-040A03AR**	★	Y	3	40	48.4	16	1	0.3	3.0, 3.5
	AHX440S-040A04AR	★	Y	4	40	48.4	16	1	0.2	3.0, 3.5
50	**AHX440S-050A04AR**	★	Y	4	40	58.4	22	1	0.4	3.0, 3.5
	AHX440S-050A05AR	★	Y	5	40	58.4	22	1	0.4	3.0, 3.5
	AHX440S-050A06AR	★	Y	6	40	58.4	22	1	0.4	3.0, 3.5
63	**AHX440S-063A05AR**	★	Y	5	40	71.4	22	1	0.6	3.0, 3.5
	AHX440S-063A06AR	★	Y	6	40	71.4	22	1	0.6	3.0, 3.5
	AHX440S-063A08AR	★	Y	8	40	71.4	22	1	0.5	3.0, 3.5
80	**AHX440S-080A06AR**	★	Y	6	50	88.4	27	1	1.1	3.0, 3.5
	AHX440S-080A08AR	★	Y	8	50	88.4	27	1	1.1	3.0, 3.5
	AHX440S-080A10AR	★	Y	10	50	88.4	27	1	1.1	3.0, 3.5
100	**AHX440S-100B07AR**	★	Y	7	50	108.4	32	2	1.6	3.0, 3.5
	AHX440S-100B10AR	★	Y	10	50	108.4	32	2	1.6	3.0, 3.5
	AHX440S-100B12AR	★	Y	12	50	108.3	32	2	1.6	3.0, 3.5
125	**AHX440S-125B08AR**	★	Y	8	63	133.4	40	2	3.0	3.0, 3.5
	AHX440S-125B12AR	★	Y	12	63	133.4	40	2	3.0	3.0, 3.5
	AHX440S-125B14AR	★	Y	14	63	133.3	40	2	2.9	3.0, 3.5
160	**AHX440S-160C10NR**	★	N	10	63	168.4	40	3	4.8	3.0, 3.5
	AHX440S-160C14NR	★	N	14	63	168.4	40	3	4.6	3.0, 3.5
	AHX440S-160C16NR	★	N	16	63	168.4	40	3	4.7	3.0, 3.5

✶1 Y=Yes N=No

✶2 For NNMU130508ZER-L, APMX max = 3.0, for NNMU130508ZEN-M, NNMU130532ZEN-M & NNMU130532ZEN-R, APMX max = 3.5

Note 1) Set bolt not included.

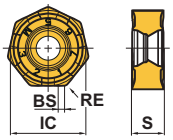
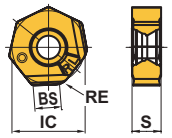
Note 2) The above "APMX" will vary depending on the chipbreaker insert.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

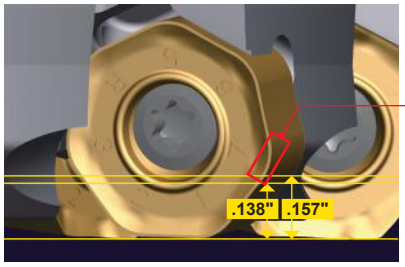
INSERTS

Material		
P	Steel	◆ ◆ ◆ ◆ ◆
M	Cast Iron	◇ ◇ ◇
K	Hardened Steel	◆ ◆ ◆ ◆
H	Hardened Steel	◆

This is the selection guideline for AHX440S.
Please note that the cutting conditions differ depending on multiple factors, for more details refer to the Recommended Cutting Conditions.
Edge Preparation :
E : Round

Application	Shape	Order Number	Class	Edge Preparation	Coated								Dimensions (inch)					Geometry
					MV1020	MV1030	MC5020	MP6120	MP6130	MP7130	MP7140	VP15TF	IC	RE	BS	S	APMX	
Stable Cutting		**NNMU130508ZER-L**	M	E	●	●	●	●	●	●	●	★	.528	.031	.039	.200	.118	
General Cutting		**NNMU130508ZEN-M**	M	E	●	●	●	●	●	●	●	★	.528	.031	.039	.200	＊.157	
		NNMU130532ZEN-M	M	E	●	●	●	●	●	●	●	★	.528	.126	—	.200	＊.157	
Unstable Cutting		**NNMU130532ZEN-R**	M	E	●	●	●	●	●	●	●	★	.528	.126	—	.200	＊.157	
Finish Cutting	 Wiper	**WNEU1305ZEN4C-M**	E	E			●	●				●	.528	.106	.157	.200	.020	

＊ When not using the Wiper, APMX = .138 inch



When the next corner is not to be used, the APMX is .157 inch. When the next corner is to be used later (clockwise insert indexing) , the APMX is .138 inch. This is to ensure that the next cutting edge isn't already worn from use at .157 inch depth of cut.

Instructions for Use of Wiper Inserts

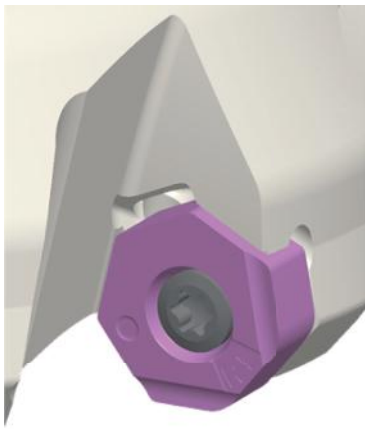


Fig.1



Fig.2

Note 1) These wiper inserts have 2 cutting edges for left-hand use and 2 corners for right-hand use. Position as shown in figure 1.
Note 2) A satisfactory finished 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.

MOUNTING DIMENSION ➤ pp.44—45

RECOMMENDED CUTTING CONDITIONS

Dry Cutting

(inch)

	Material	Properties	Grade	vc (SFM)	fz (IPT)	ap	ae
P	Mild Steel	Hardness ≤180HB	**MV1020**	985 (655—1310)	.012 (.008—.016)	≤.118	≤.8DC
			MP6120,VP15TF	820 (655—985)	.012 (.008—.016)	≤.118	≤.8DC
			MV1030	805 (620—985)	.012 (.008—.016)	≤.118	≤.8DC
			MP6130	785 (620—950)	.012 (.008—.016)	≤.118	≤.8DC
	Carbon Steel,Alloy Steel	Hardness 180-280HB	**MV1020**	850 (560—1150)	.012 (.008—.016)	≤.118	≤.8DC
			MP6120,VP15TF	720 (560—885)	.012 (.008—.016)	≤.118	≤.8DC
			MV1030	690 (490—885)	.012 (.008—.016)	≤.118	≤.8DC
			MP6130	655 (490—820)	.012 (.008—.016)	≤.118	≤.8DC
	Carbon Steel,Alloy Steel	Hardness 280—350HB	**MV1020**	590 (330—820)	.012 (.008—.016)	≤.118	≤.8DC
			MP6120,VP15TF	460 (330—590)	.012 (.008—.016)	≤.118	≤.8DC
			MV1030	440 (295—590)	.012 (.008—.016)	≤.118	≤.8DC
			MP6130	395 (295—490)	.012 (.008—.016)	≤.118	≤.8DC
	Alloy Tool Steel	Hardness ≤350HB (annealing)	**MP6120,VP15TF**	460 (330—590)	.006 (.004—.008)	≤.039	≤.8DC
			MP6130	395 (295—490)	.006 (.004—.008)	≤.039	≤.8DC
	Pre-hardened Steel	Hardness 35—45HRC	**MP6120**	460 (330—590)	.006 (.004—.008)	≤.039	≤.8DC
			MP6130	395 (295—490)	.006 (.004—.008)	≤.039	≤.8DC
M	Austenitic Stainless Steel	Hardness ≤200HB	**MP7130,VP15TF**	655 (490—820)	.008 (.004—.012)	≤.118	≤.8DC
			MV1030	605 (395—820)	.008 (.004—.012)	≤.118	≤.8DC
			MP7140	590 (395—755)	.008 (.004—.012)	≤.118	≤.8DC
		Hardness > 200HB	**MP7130,VP15TF**	490 (330—655)	.008 (.004—.012)	≤.118	≤.8DC
			MV1030	460 (260—655)	.008 (.004—.012)	≤.118	≤.8DC
			MP7140	425 (260—590)	.008 (.004—.012)	≤.118	≤.8DC
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	**MP7130,VP15TF**	655 (490—820)	.008 (.004—.012)	≤.118	≤.8DC
			MV1030	605 (395—820)	.008 (.004—.012)	≤.118	≤.8DC
			MP7140	590 (395—755)	.008 (.004—.012)	≤.118	≤.8DC
		Hardness > 200HB	**MP7130,VP15TF**	490 (330—655)	.008 (.004—.012)	≤.118	≤.8DC
			MV1030	460 (260—655)	.008 (.004—.012)	≤.118	≤.8DC
			MP7140	425 (260—590)	.008 (.004—.012)	≤.118	≤.8DC
	Two-Phase Stainless Steel	Hardness ≤280HB	**MP7130,VP15TF**	460 (330—590)	.006 (.002—.010)	≤.118	≤.8DC
			MP7140	395 (260—525)	.006 (.002—.010)	≤.118	≤.8DC
	Precipitation-Hardened Stainless Steel	Hardness < 450HB	**MP7130,VP15TF**	425 (330—525)	.006 (.002—.010)	≤.118	≤.8DC
			MP7140	360 (260—460)	.006 (.002—.010)	≤.118	≤.8DC
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	720 (490—985)	.012 (.008—.016)	≤.118	≤.8DC
			VP15TF	590 (425—755)	.012 (.008—.016)	≤.118	≤.8DC
	Ductile Cast Iron	Tensile Strength ≤450MPa	**MV1020**	785 (425—1150)	.008 (.004—.012)	≤.118	≤.8DC
			MC5020	720 (490—985)	.008 (.004—.012)	≤.118	≤.8DC
			MV1030	605 (395—820)	.008 (.004—.012)	≤.118	≤.8DC
			VP15TF	560 (395—720)	.008 (.004—.012)	≤.118	≤.8DC
	Ductile Cast Iron	Tensile Strength ≤800MPa	**MV1020**	720 (260—1150)	.008 (.004—.012)	≤.118	≤.8DC
			MC5020	560 (490—655)	.008 (.004—.012)	≤.118	≤.8DC
			MV1030	490 (330—655)	.008 (.004—.012)	≤.118	≤.8DC
			VP15TF	460 (330—590)	.008 (.004—.012)	≤.118	≤.8DC
H	Hardened Steel	Hardness 40—55HRC	**VP15TF**	260 (195—330)	.006 (.004—.008)	≤.039	≤.8DC

Wet Cutting

(inch)

	Material	Properties	Grade	vc (SFM)	fz (IPT)	ap	ae
M	Austenitic Stainless Steel	Hardness ≤200HB	**MP7130,VP15TF**	410 (330–490)	.006 (.004–.008)	≤.118	≤.8DC
			MP7140	330 (260–460)	.006 (.004–.008)	≤.118	≤.8DC
		Hardness > 200HB	**MP7130,VP15TF**	330 (245–410)	.006 (.004–.008)	≤.118	≤.8DC
			MP7140	260 (180–345)	.006 (.004–.008)	≤.118	≤.8DC
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	**MP7130,VP15TF**	410 (330–490)	.006 (.004–.008)	≤.118	≤.8DC
			MP7140	330 (260–460)	.006 (.004–.008)	≤.118	≤.8DC
		Hardness > 200HB	**MP7130,VP15TF**	330 (245–410)	.006 (.004–.008)	≤.118	≤.8DC
			MP7140	260 (180–345)	.006 (.004–.008)	≤.118	≤.8DC
	Two-Phase Stainless Steel	Hardness ≤280HB	**MP7130,VP15TF**	260 (195–330)	.004 (.002–.006)	≤.118	≤.8DC
			MP7140	195 (130–260)	.004 (.002–.006)	≤.118	≤.8DC
	Precipitation-Hardening Stainless Steel	Hardness < 450HB	**MP7130,VP15TF**	230 (165–295)	.004 (.002–.006)	≤.118	≤.8DC
			MP7140	165 (100–230)	.004 (.002–.006)	≤.118	≤.8DC

Cutting Conditions with Wiper Insert

(inch)

	Material	Properties	Grade	vc (SFM)	fz (IPT)	ap
P	Mild Steel	≤180HB	**MP6120,VP15TF**	820 (655—985)	.012 (.008—.016)	≤.020
	Carbon Steel,Alloy Steel	180—280HB	**MP6120,VP15TF**	720 (560—885)	.012 (.008—.016)	≤.020
		280—350HB	**MP6120,VP15TF**	460 (330—590)	.012 (.008—.016)	≤.020
	Alloy Tool Steel	≤350HB (Annealing)	**MP6120,VP15TF**	460 (330—590)	.006 (.004—.008)	≤.020
	Pre-hardened Steel	35—45HRC	**MP6120,VP15TF**	460 (330—590)	.006 (.004—.008)	≤.020
M	Austenitic Stainless Steel	≤200HB	**VP15TF**	410 (330—490)	.006 (.004—.008)	≤.020
		> 200HB	**VP15TF**	330 (245—410)	.006 (.004—.008)	≤.020
	Ferritic and Martensitic Stainless Steel	≤200HB	**VP15TF**	410 (330—490)	.006 (.004—.008)	≤.020
		> 200HB	**VP15TF**	330 (245—410)	.006 (.004—.008)	≤.020
	Two-phase Stainless Steel	≤280HB	**VP15TF**	260 (195—330)	.004 (.002—.006)	≤.020
	Precipitation Hardening Stainless Steel	< 450HB	**VP15TF**	230 (165—295)	.004 (.002—.006)	≤.020
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	1050 (820—1310)	.012 (.008—.016)	≤.020
			VP15TF	720 (490—985)	.012 (.008—.016)	≤.020
	Ductile Cast Iron	Tensile Strength ≤450MPa	**MC5020**	820 (655—985)	.008 (.004—.012)	≤.020
			VP15TF	655 (490—820)	.008 (.004—.012)	≤.020
		Tensile Strength ≤800MPa	**MC5020**	720 (655—820)	.008 (.004—.012)	≤.020
			VP15TF	560 (490—655)	.008 (.004—.012)	≤.020
H	Hardened Steel	40—55HRC	**VP15TF**	260 (195—330)	.006 (.004—.008)	≤.020

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 when 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 dry cutting.)

Parts Sold Separately Set Bolt

(inch)

Tool Holder Type	Set Bolt		Fig.	a	b	c	d	e	f	g	Geometry
	With Coolant Thru	Without Coolant Thru									
	Order Number	Order Number									
AHX440S-040A○○AR	HSC08025H	HSC08040	1	.512	M8×1.25	1.299	.315	.197	–	–	Fig.1
AHX440S-050A○○AR	HSC10030H	HSC10035	1	.630	M10×1.5	1.575	.394	.236	–	–	
AHX440S-063A○○AR	HSC10030H	HSC10035	1	.630	M10×1.5	1.575	.394	.236	–	–	
AHX440S-080A○○AR	HSC12035H	HSC12035 HSC12045	1	.709	M12×1.75	1.850 2.244	.472	.394	–	–	
AHX440S-100B○○AR	MBA16033H	–	2	1.575	M16×2	1.693	.394	.551	.236	.906	Fig.2
AHX440S-125B○○AR	MBA20040H	–	2	1.969	M20×2.5	2.126	.551	.669	.236	1.063	
AHX440S-160C○○NR	MBA20040H	–	2	1.969	M20×2.5	2.126	.551	.669	.236	1.063	
AHX440SR080○○CA	HSC12035H	HSC12035 HSC12045	1	.709	M12×1.75	1.850 2.244	.472	.394	–	–	
AHX440SR100○○DA	MBA16033H	–	2	1.575	M16×2	1.693	.394	.551	.236	.906	
AHX440SR125○○EA	MBA20040H	–	2	1.969	M20×2.5	2.126	.551	.669	.236	1.063	
AHX440SR160○○FA	MBA24045H	–	2	2.559	M24×3	2.323	.551	.669	.394	1.457	

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

● : USA Stock

FACE MILLING
<HIGH-FEED CUTTING FOR CAST IRON>

15° KAPR

AHX475S

P	M	K	N	S	H
Steel		Cast Iron			Hardened Steel



Fig.1

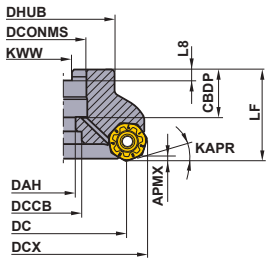
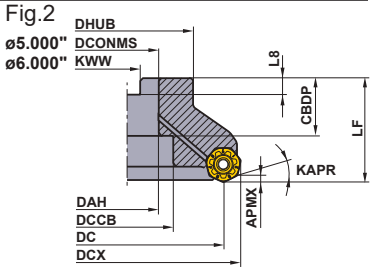
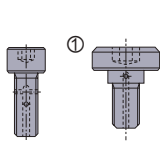


Fig.2



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ2.000	HSCU37513H	①
ϕ2.500	HSCU50014H	①
ϕ3.000	HSCU50014H	①
ϕ4.000	MBAU75016H	②
ϕ5.000	MBAU75016H	②
ϕ6.000	MBAU75016H	②



With Coolant Through.

DCONMS = Inch size

(inch)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	LF	DCX	DCONMS	Fig.	WT(lbs)	APMX
2.000	**AHX475SUR0204AA**	●	Y	4	2.000	2.616	.750	1	1.5	.063
	AHX475SUR0205AA	●	Y	5	2.000	2.616	.750	1	1.4	.063
2.500	**AHX475SUR2505CA**	●	Y	5	2.000	3.116	1.000	1	2.2	.063
	AHX475SUR2506CA	●	Y	6	2.000	3.116	1.000	1	2.2	.063
3.000	**AHX475SUR0306CA**	●	Y	6	2.000	3.614	1.000	1	3.2	.063
	AHX475SUR0308CA	●	Y	8	2.000	3.614	1.000	1	3.1	.063
	AHX475SUR0306DA	●	Y	6	2.500	3.614	1.250	1	4.1	.063
	AHX475SUR0308DA	●	Y	8	2.500	3.614	1.250	1	4.0	.063
4.000	**AHX475SUR0407EA**	●	Y	7	2.500	4.616	1.500	1	7.0	.063
	AHX475SUR0409EA	●	Y	9	2.500	4.616	1.500	1	6.9	.063
5.000	**AHX475SUR0508EA**	●	Y	8	2.500	5.616	1.500	2	8.8	.063
	AHX475SUR0510EA	●	Y	10	2.500	5.616	1.500	2	8.8	.063
6.000	**AHX475SUR0610FA**	●	Y	10	2.500	6.616	2.000	2	12.4	.063
	AHX475SUR0612FA	●	Y	12	2.500	6.616	2.000	2	12.5	.063

* Y=Yes

Note 1) The cutter body includes a set bolt for an arbor.

MOUNTING DIMENSION ➤ pp.42-43



Metric Standard

For inch arbors

Fig.1
ø50
ø63
ø80
ø100

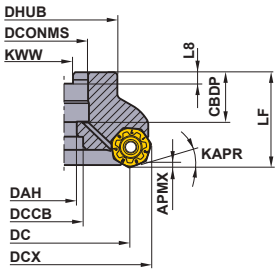
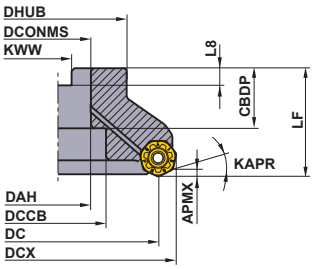


Fig.2
ø125
ø160



Right hand tool holder only.

DCONMS = Inch size

(mm)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	LF	DCX	DCONMS	Fig.	WT(kg)	APMX
80	**AHX475SR08006DA**	★	Y	6	63	95.6	31.75 [1.25"]	1	2.0	1.6
	AHX475SR08008DA	★	Y	8	63	95.6	31.75 [1.25"]	1	2.0	1.6
100	**AHX475SR10007DA**	★	Y	7	63	115.6	31.75 [1.25"]	1	3.2	1.6
	AHX475SR10009DA	★	Y	9	63	115.6	31.75 [1.25"]	1	3.2	1.6
125	**AHX475SR12508EA**	★	Y	8	63	140.6	38.1 [1.50"]	2	4.0	1.6
	AHX475SR12510EA	★	Y	10	63	140.6	38.1 [1.50"]	2	4.0	1.6
160	**AHX475SR16010FA**	★	Y	10	63	175.6	50.8 [2.0"]	2	5.5	1.6
	AHX475SR16012FA	★	Y	12	63	175.6	50.8 [2.0"]	2	5.5	1.6

★ Y=Yes

Note 1) Set bolt not included.

Metric Standard

For metric arbors

DCONMS = mm size

(mm)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	LF	DCX	DCONMS	Fig.	WT(kg)	APMX
50	**AHX475S-050A04AR**	★	Y	4	50	65.7	22	1	0.6	1.6
	AHX475S-050A05AR	★	Y	5	50	65.7	22	1	0.6	1.6
63	**AHX475S-063A05AR**	★	Y	5	50	78.7	22	1	1.0	1.6
	AHX475S-063A06AR	★	Y	6	50	78.7	22	1	1.0	1.6
80	**AHX475S-080A06AR**	★	Y	6	50	95.6	27	1	1.6	1.6
	AHX475S-080A08AR	★	Y	8	50	95.6	27	1	1.6	1.6
100	**AHX475S-100A07AR**	★	Y	7	63	115.6	32	1	3.3	1.6
	AHX475S-100A09AR	★	Y	9	63	115.6	32	1	3.3	1.6
125	**AHX475S-125B08AR**	★	Y	8	63	140.6	40	2	4.0	1.6
	AHX475S-125B10AR	★	Y	10	63	140.6	40	2	4.0	1.6
160	**AHX475S-160B10AR**	★	Y	10	63	175.6	40	2	6.0	1.6
	AHX475S-160B12AR	★	Y	12	63	175.6	40	2	6.0	1.6

★ Y=Yes

Note 1) Set bolt not included.

● : USA Stock ★ : Stocked in Japan

<10 inserts in one case>

SPARE PARTS

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

* Clamp Torque (lbf-in) : TS35R=31

Parts Sold Separately Set Bolt

(inch)

Tool Holder Type	Set Bolt		Fig.	Reference Dimensions							Geometry
	With Coolant Thru	Without Coolant Thru		a	b	c	d	e	f	g	
	Order Number	Order Number									
AHX475S-050A○○AR	HSC10030H	HSC10035	1	.630	M10×1.5	1.575	.394	.236	–	–	Fig.1
AHX475S-063A○○AR	HSC10030H	HSC10035	1	.630	M10×1.5	1.575	.394	.236	–	–	
AHX475S-080A○○AR	HSC12035H	HSC12035 HSC12045	1	.709	M12×1.75	2.244	.472	.394	–	–	
AHX475S-100B○○AR	HSC16040H	–	1	.945	M16×2	2.205	.630	.551	–	–	
AHX475S-125B○○AR	MBA20040H	–	2	1.969	M20×2.5	2.126	.551	.669	.236	1.063	Fig.2
AHX475S-160C○○AR	MBA20040H	–	2	1.969	M20×2.5	2.126	.551	.669	.236	1.063	
AHX475SR080○○DA	HSC16040H	–	1	.945	M16×2	2.205	.630	.551	–	–	
AHX475SR100○○DA	HSC16040H	–	1	.945	M16×2	2.205	.630	.551	–	–	
AHX475SR125○○EA	MBA20040H	–	2	1.969	M20×2.5	2.126	.551	.669	.236	1.063	
AHX475SR160○○FA	MBA24045H	–	2	2.559	M24×3	2.323	.551	.669	.394	1.457	

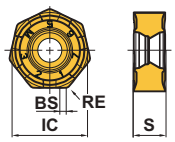
Note 1)Please purchase the appropriate set bolt after confirming the reference dimensions.
The items with an order number listed under the Set Bolt columns are also sold by MITSUBISHI MATERIALS.
Note 2) Internal coolant through is necessary with the set bolt.

INSERTS

Material			MV1020	MV1030	MC5020	MP6120	MP6130	VP15TF
	P	Steel	◆	◆		◆	◆	◆
	K	Cast Iron	◆	◆	◆			◆
	H	Hardened Steel						◆

This is the selection guideline for AHX475S.
Please note that the cutting conditions differ depending on multiple factors, for more details refer to the Recommended Cutting Conditions.

Edge Preparation :
E : Round

Application	Shape	Order Number	Class	Edge Preparation	Coated MV1020	MV1030	MC5020	MP6120	MP6130	VP15TF	Dimensions (inch) IC	RE	BS	S	APMX	Geometry
General Cutting		**NNMU130532ZEN-M**	M	E	●	●	●	●	●	★	.528	.126	–	.200	.063	
Unstable Cutting		**NNMU130532ZEN-R**	M	E	●	●	●	●	●	★	.528	.126	–	.200	.063	

MOUNTING DIMENSION ➤ pp.44-45

RECOMMENDED CUTTING CONDITIONS

Dry Cutting

(inch)

	Material	Properties	Grade	vc (SFM)
P	Mild Steel	Hardness ≤180HB	**MV1020**	720 (560–885)
			MP6120	490 (330–655)
			MV1030	460 (260–655)
			MP6130	425 (260–590)
	Carbon Steel, Alloy Steel	Hardness 180–280HB	**MV1020**	655 (490–820)
			MP6120	425 (260–590)
			MV1030	395 (195–590)
			MP6130	360 (195–525)
	Carbon Steel, Alloy Steel	Hardness 280–350HB	**MV1020**	490 (330–655)
			MP6120	330 (165–490)
			MV1030	295 (100–490)
			MP6130	260 (100–425)
	Alloy Tool Steel	Hardness ≤350HB (annealing)	**MP6120**	330 (165–490)
			MP6130	260 (100–395)
	Pre-hardened Steel	Hardness 35–45HRC	**MP6120**	330 (230–425)
			MP6130	260 (165–360)
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	490 (330–655)
			VP15TF	395 (260–525)
	Ductile Cast Iron	Tensile Strength ≤450MPa	**MV1020**	655 (490–820)
			MC5020	490 (330–655)
			MV1030	460 (260–655)
			VP15TF	395 (260–525)
	Ductile Cast Iron	Tensile Strength ≤800MPa	**MV1020**	590 (425–755)
			MC5020	490 (330–655)
			MV1030	460 (260–655)
			VP15TF	395 (260–525)
H	Hardened Steel	Hardness 40–55HRC	**VP15TF**	230 (165–295)

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%.

Dry Cutting

(inch)

	Material	Properties	Grade	ap	Width of Cut ae					
					≤.5DC		.5DC—.8DC		.8DC—DC	
					Chip-breaker	fz (IPT)	Chip-breaker	fz (IPT)	Chip-breaker	fz (IPT)
P	Mild Steel	Hardness ≤180HB	**MV1020 MV1030 MP6120 MP6130**	≤.063	**R**	.024	**R**	.031	**M**	.039
	Carbon Steel, Alloy Steel	Hardness 180—280HB	**MV1020 MV1030 MP6120 MP6130**	≤.063	**R**	.024	**R**	.031	**M**	.039
	Carbon Steel, Alloy Steel	Hardness 280—350HB	**MV1020 MV1030 MP6120 MP6130**	≤.063	**R**	.020	**R**	.024	**R**	.028
	Alloy Tool Steel	Hardness ≤350HB (annealing)	**MP6120 MP6130**	≤.063	**R**	.020	**R**	.024	**R**	.028
	Pre-hardened Steel	Hardness 35-45HRC	**MP6120 MP6130**	≤.063	**R**	.020	**R**	.024	**R**	.028
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	≤.063	**R**	.024	**R**	.031	**M**	.039
			VP15TF	≤.063	**M**	.024	**M**	.031	**M**	.039
	Ductile Cast Iron	Tensile Strength ≤450MPa	**MV1020 MV1030 MC5020 VP15TF**	≤.063	**R**	.024	**R**	.031	**M**	.039
	Ductile Cast Iron	Tensile Strength ≤800MPa	**MV1020 MV1030 MC5020 VP15TF**	≤.063	**R**	.020	**R**	.024	**R**	.028
H	Hardened Steel	Hardness 40—55HRC	**VP15TF**	≤.063	**R**	.016	**R**	.020	**R**	.024

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>

50° KAPR

AHX640S

P	M	K	N	S	H
Steel	Stainless Steel	Cast Iron		Heat Resistant Alloy	Hardened Steel



Fig. 1
ø2.500"
ø3.000"

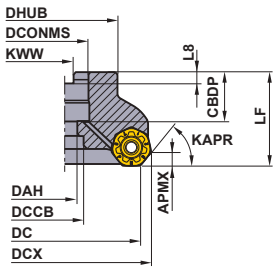
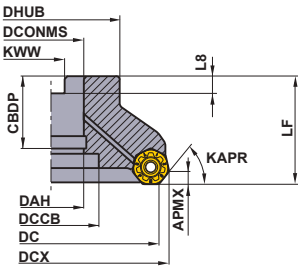
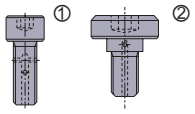


Fig. 2
ø4.000"
ø5.000"
ø6.000"



Right hand tool holder shown.

DC	Set Bolt	Geometry
ϕ2.500	HSCU37513H	①
ϕ3.000	HSCU62516H	
ϕ4.000	HSCU75016H	
ϕ5.000	MBAU75016H	②
ϕ6.000	MBAU100016H	
ϕ8.000	—	—



With Coolant Through.

DCONMS=Inch size

(inch)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	Type	LF	DCX	DCONMS	Fig.	WT(lbs)	APMX
2.500	**AHX640SUR2504AA**	●	Y	4	R	2.000	2.994	.750	1	2.0	.236
	AHX640SUL2504AA	□	Y	4	L	2.000	2.994	.750	1	2.0	.236
	AHX640SUR2505AA	●	Y	5	R	2.000	2.994	.750	1	1.8	.236
	AHX640SUL2505AA	□	Y	5	L	2.000	2.994	.750	1	1.8	.236
3.000	**AHX640SUR0304DA**	●	Y	4	R	2.500	3.494	1.250	1	3.7	.236
	AHX640SUL0304DA	□	Y	4	L	2.500	3.494	1.250	1	3.7	.236
	AHX640SUR0306DA	●	Y	6	R	2.500	3.494	1.250	1	3.5	.236
	AHX640SUL0306DA	□	Y	6	L	2.500	3.494	1.250	1	3.5	.236
4.000	**AHX640SUR0405EA**	●	Y	5	R	2.500	4.494	1.500	2	6.4	.236
	AHX640SUL0405EA	□	Y	5	L	2.500	4.494	1.500	2	6.4	.236
	AHX640SUR0407EA	●	Y	7	R	2.500	4.494	1.500	2	6.4	.236
	AHX640SUL0407EA	□	Y	7	L	2.500	4.494	1.500	2	6.4	.236

* Y=Yes

Note 1) The cutter body includes a set bolt for an arbor.
Note 2) The above "APMX" will vary depending on the chipbreaker insert.

● : USA Stock □ : Made to Order



Fig. 1
ø2.500"
ø3.000"

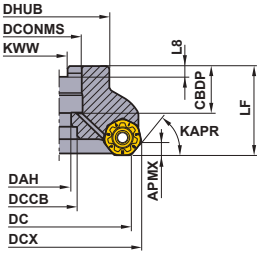


Fig. 2
ø4.000"
ø5.000"
ø6.000"

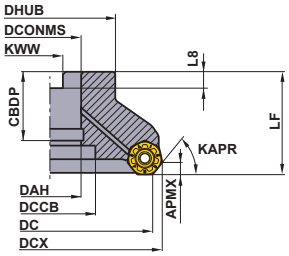
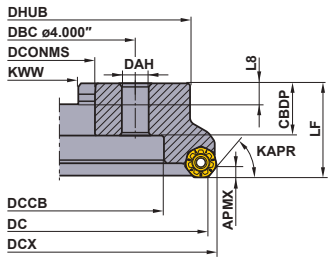


Fig. 3
ø8.000"



Right hand tool holder shown.

DC	Set Bolt		Geometry
ϕ2.500	HSCU37513H	①	① ② With Coolant Through.
ϕ3.000	HSCU62516H		
ϕ4.000	HSCU75016H		
ϕ5.000	MBAU75016H	②	
ϕ6.000	MBAU100016H		
ϕ8.000	—	—	

DCONMS=Inch size

(inch)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	Type	LF	DCX	DCONMS	Fig.	WT(lbs)	APMX
5.000	**AHX640SUR0506EA**	●	Y	6	R	2.500	5.494	1.500	2	8.2	.236
	AHX640SUL0506EA	□	Y	6	L	2.500	5.494	1.500	2	8.2	.236
	AHX640SUR0508EA	●	Y	8	R	2.500	5.494	1.500	2	7.9	.236
	AHX640SUL0508EA	□	Y	8	L	2.500	5.494	1.500	2	7.9	.236
6.000	**AHX640SUR0607FA**	●	Y	7	R	2.500	6.494	2.000	2	11.7	.236
	AHX640SUL0607FA	□	Y	7	L	2.500	6.494	2.000	2	11.7	.236
	AHX640SUR0610FA	●	Y	10	R	2.500	6.494	2.000	2	11.2	.236
	AHX640SUL0610FA	□	Y	10	L	2.500	6.494	2.000	2	11.2	.236
8.000	**AHX640SUR0808MN**	●	N	8	R	2.500	8.494	2.500	3	18.5	.236
	AHX640SUL0808MN	□	N	8	L	2.500	8.494	2.500	3	18.5	.236
	AHX640SUR0812MN	●	N	12	R	2.500	8.494	2.500	3	18.3	.236
	AHX640SUL0812MN	□	N	12	L	2.500	8.494	2.500	3	18.3	.236

* Y=Yes, N=No

Note 1) The cutter body includes a set bolt for an arbor.

SPARE PARTS

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

* Clamp Torque (lbf-in) : CS5015060T=44

MOUNTING DIMENSION ➤ pp.42-43

General Purpose Multi-Corner Insert Type Face Milling Cutter

Fig. 1
ø63
ø80

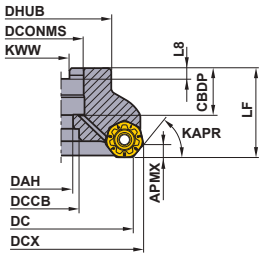


Fig. 2
ø100
ø125
ø160

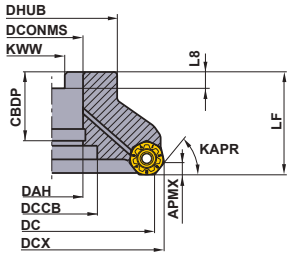
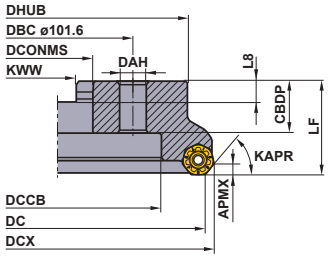


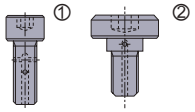
Fig. 3
ø200





Metric Standard
For inch arbors

Right hand tool holder only.

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

DCONMS=Inch size

(mm)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	LF	DCX	DCONMS	Fig.	WT(kg)	APMX
80	**AHX640SR08004CA**	★	Y	4	50	92.55	25.4 [1.0"]	1	1.1	6
	AHX640SR08006CA	★	Y	6	50	92.55	25.4 [1.0"]	1	1.0	6
100	**AHX640SR10005DA**	★	Y	5	50	112.55	31.75 [1.25"]	2	1.7	6
	AHX640SR10007DA	★	Y	7	50	112.55	31.75 [1.25"]	2	1.5	6
125	**AHX640SR12506EA**	★	Y	6	63	137.55	38.1 [1.50"]	2	3.0	6
	AHX640SR12508EA	★	Y	8	63	137.55	38.1 [1.50"]	2	2.9	6
160	**AHX640SR16007FA**	★	Y	7	63	172.55	50.8 [2.0"]	2	4.9	6
	AHX640SR16010FA	★	Y	10	63	172.55	50.8 [2.0"]	2	4.7	6
200	**AHX640SR20008KN**	★	N	8	63	212.55	47.625 [1.875"]	3	8.2	6
	AHX640SR20012KN	★	N	12	63	212.55	47.625 [1.875"]	3	7.9	6

★ Y=Yes, N=No
Note 1) Set bolt not included.

★ : **Stocked in Japan**



Metric Standard

For metric arbors

Fig. 1
ø63
ø80

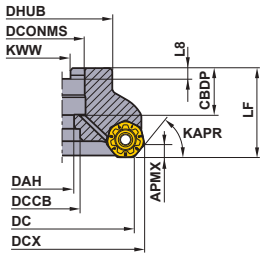


Fig. 2
ø100
ø125

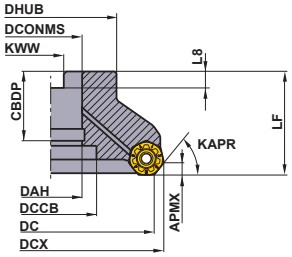


Fig. 3
ø160

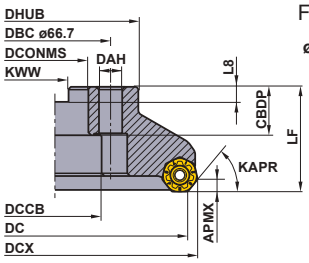
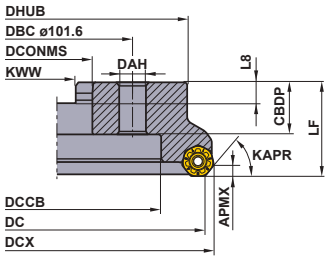
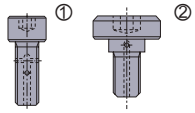


Fig. 4
ø200



Right hand tool holder only.

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

DCONMS=mm size

(mm)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	LF	DCX	DCONMS	Fig.	WT(kg)	APMX
63	**AHX640S-063A04AR**	★	Y	4	50	75.55	22	1	0.7	6
	AHX640S-063A05AR	★	Y	5	50	75.55	22	1	0.6	6
80	**AHX640S-080A04AR**	★	Y	4	50	92.55	27	1	1.1	6
	AHX640S-080A06AR	★	Y	6	50	92.55	27	1	1.0	6
100	**AHX640S-100B05AR**	★	Y	5	50	112.55	32	2	1.7	6
	AHX640S-100B07AR	★	Y	7	50	112.55	32	2	1.6	6
125	**AHX640S-125B06AR**	★	Y	6	63	137.55	40	2	3.1	6
	AHX640S-125B08AR	★	Y	8	63	137.55	40	2	3.0	6
160	**AHX640S-160C07NR**	★	N	7	63	172.55	40	3	5.4	6
	AHX640S-160C10NR	★	N	10	63	172.55	40	3	5.2	6
200	**AHX640S-200C08NR**	★	N	8	63	212.55	60	4	7.8	6
	AHX640S-200C12NR	★	N	12	63	212.55	60	4	7.5	6

* Y=Yes, N=No

Note 1) Set bolt not included.

SPARE PARTS

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

* Clamp Torque (lbf-in) : CS5015060T=44

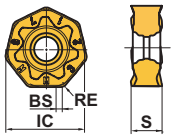
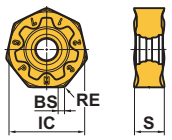
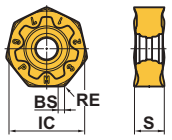
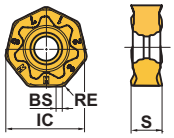
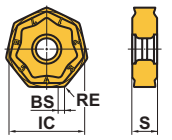
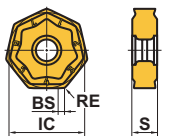
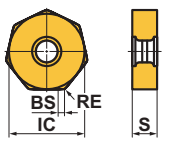
MOUNTING DIMENSION ➤ pp.44-45

INSERTS

Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	S	Heat Resistant and Titanium Alloys
	H	Hardened Steel

This is the selection guideline for AHX640S.
Please note that the cutting conditions differ depending on multiple factors, for more details refer to the Recommended Cutting Conditions.

Edge Preparation : E : Round

Application	Shape	Order Number	Class	Edge Preparation	Coated										Dimensions (inch)					Geometry
					XC5010	MC5020	MV1020	MV1030	MP6120	MP6130	MP7030	MP9120	MP9130	VP15TF	VP20RT	IC	RE	BS	S	APMX	
For Titanium Alloys and Heat Resistant Alloys		**NNMU200712ZER-L**	M	E			●	●				●	●			.787	.047	.039	.285	.236	
General Cutting		**NNMU200708ZEN-M**	M	E			●	●	●	●						.787	.031	.039	.287	.236	
		**NNMU200708ZEN-MP**	M	E										●		.787	.031	.039	.287	.236	
		**NNMU200712ZER-MM**	M	E							●					.787	.047	.039	.287	.236	
		**NNMU200608ZEN-MK**	M	E	●	●	●	●						●	●	.787	.031	.039	.240	.236	
For Cast Iron Strong Cutting Edge Type		**NNMU200608ZEN-HK**	M	E		●	●	●						●	●	.787	.031	.039	.240	.236	
		**NNMQ200708ZEN-FT**	M	E	●											.787	.031	.039	.258	.236	

Note 1) The height of the cutter when setting MK or HK inserts is different from when setting MP, MM and FT inserts.

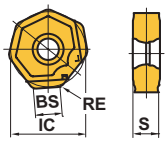
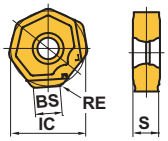
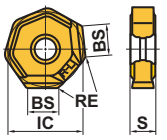
● : USA Stock
<10 inserts in one case>

Wiper Inserts

Material			XC5010	MC5020	MP6120	MP6130	MP7030	MP9120	MP9130	VP15TF	VP20RT
	P	Steel			◆					◆	
	M	Stainless Steel								◇	
	K	Cast Iron		◆						◆	
	S	Heat Resistant and Titanium Alloys									
	H	Hardened Steel								◆	

This is the selection guideline for AHX640S.
Please note that the cutting conditions differ depending on multiple factors, for more details refer to the Recommended Cutting Conditions.

Edge Preparation : E : Round

Application	Shape	Order Number	Class	Edge Preparation	Coated									Dimensions (inch)					Geometry
					XC5010	MC5020	MP6120	MP6130	MP7030	MP9120	MP9130	VP15TF	VP20RT	IC	RE	BS	S	APMX	
For Finish Cutting	 Wiper	**WNEU2007ZEN7C-M**	E	E			●							.787	.031	.283	.272	.020	
For Finish Cutting	 Wiper	**WNEU2007ZEN7C-WP**	E	E								●		.787	.031	.280	.272	.020	
For Finish Cutting	 Wiper	**WNEU2006ZEN7C-WK**	E	E		●								.787	.031	.291	.258	.020	

Instructions for use of wiper inserts

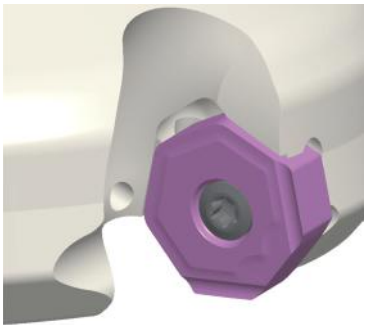


Fig.1

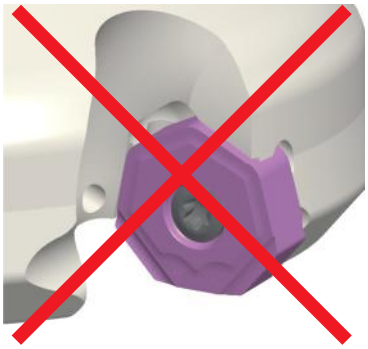


Fig.2

Note 1) These wiper inserts have 2 cutting edges for left-hand use and 2 corners for right-hand use. Position as shown in 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

(inch)

	Material	Properties	Cutting Conditions	Grade	Chip-breaker	vc (SFM)	fz (IPT)	ap	ae
P	Mild Steel	Hardness ≤180HB	●	**MV1020**	**M**	985 (655—1310)	.012 (.008—.016)	≤.197	≤.8DC
			●	**MV1030**	**M**	805 (620—985)	.012 (.008—.016)	≤.197	≤.8DC
			●	**MP6120**	**M**	820 (655—985)	.012 (.008—.016)	≤.197	≤.8DC
			●	**VP15TF**	**MP**	820 (655—985)	.012 (.008—.016)	≤.197	≤.8DC
			✱	**MP6130**	**M**	720 (560—885)	.016 (.012—.020)	≤.197	≤.8DC
	Carbon Steel, Alloy Steel	Hardness **180—280HB**	●	**MV1020**	**M**	850 (560—1150)	.012 (.008—.016)	≤.197	≤.8DC
			●	**MV1030**	**M**	690 (490—885)	.012 (.008—.016)	≤.197	≤.8DC
			●	**MP6120**	**M**	720 (560—885)	.012 (.008—.016)	≤.197	≤.8DC
			●	**VP15TF**	**MP**	720 (560—885)	.012 (.008—.016)	≤.197	≤.8DC
			✱	**MP6130**	**M**	620 (460—785)	.016 (.012—.020)	≤.197	≤.8DC
	Carbon Steel, Alloy Steel	Hardness **280—350HB**	●	**MV1020**	**M**	590 (330—820)	.012 (.008—.016)	≤.197	≤.8DC
			●	**MV1030**	**M**	440 (295—590)	.012 (.008—.016)	≤.197	≤.8DC
			●	**MP6120**	**M**	460 (330—590)	.012 (.008—.016)	≤.197	≤.8DC
			●	**VP15TF**	**MP**	460 (330—590)	.012 (.008—.016)	≤.197	≤.8DC
			✱	**MP6130**	**M**	360 (230—490)	.016 (.012—.020)	≤.197	≤.8DC
	Alloy Tool Steel	Hardness ≤350HB (annealing)	●	**MP6120**	**M**	460 (330—590)	.006 (.004—.008)	≤.118	≤.8DC
			●	**VP15TF**	**MP**	460 (330—590)	.006 (.004—.008)	≤.118	≤.8DC
			✱	**MP6130**	**M**	360 (230—490)	.010 (.008—.012)	≤.118	≤.8DC
	Pre-hardened Steel	Hardness 35—45HRC	●	**MP6120**	**M**	460 (330—590)	.006 (.004—.008)	≤.118	≤.8DC
			●	**VP15TF**	**MP**	460 (330—590)	.006 (.004—.008)	≤.197	≤.8DC
			✱	**MP6130**	**M**	360 (230—490)	.010 (.008—.012)	≤.118	≤.8DC
M	Austenitic Stainless Steel	Hardness ≤200HB	●	**MV1030**	**L**	605 (395—820)	.008 (.004—.012)	≤.197	≤.8DC
			●	**MP7030**	**MM**	655 (490—820)	.008 (.004—.012)	≤.197	≤.8DC
	Austenitic Stainless Steel	Hardness **> 200HB**	●	**MV1030**	**L**	460 (260—655)	.008 (.004—.012)	≤.197	≤.8DC
			●	**MP7030**	**MM**	490 (330—655)	.008 (.004—.012)	≤.197	≤.8DC
	Two-phase Stainless Steel	Hardness ≤280HB	●	**MP7030**	**MM**	460 (330—590)	.006 (.002—.010)	≤.197	≤.8DC
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	●	**MP7030**	**MM**	655 (490—820)	.008 (.004—.012)	≤.197	≤.8DC
	Ferritic and Martensitic Stainless Steel	Hardness **> 200HB**	●	**MP7030**	**MM**	490 (330—655)	.008 (.004—.012)	≤.197	≤.8DC
	Precipitation-Hardening Stainless Steel	Hardness **< 450HB**	●	**MP7030**	**MM**	425 (330—525)	.006 (.002—.010)	≤.197	≤.8DC

(Note1) Wet cutting is recommended for good surface finishing of stainless steel. (Tool life is short compared to dry cutting.)
(Note2) Wet cutting with internal coolant through is recommended for titanium and heat resistant alloys.
(Note3) If the clamping rigidity of the workpiece material is low and the tool overhang is long, adjust the cutting speed and feed in the table above.

(inch)

	Material	Properties	Cutting Conditions	Grade	Chip-breaker	vc (SFM)	fz (IPT)	ap	ae
K	Gray Cast Iron	Tensile Strength ≤350MPa	●	**XC5010**	**MK, FT**	2625 (1640—3280)	.004 (.004—.012)	≤.118	≤.8DC
			●	**MC5020**	**MK, HK**	720 (490—985)	.012 (.008—.016)	≤.197	≤.8DC
			●	**VP15TF**	**MP**	590 (425—755)	.012 (.008—.016)	≤.197	≤.8DC
			✱	**VP15TF,VP20RT**	**MK, HK**	590 (425—755)	.012 (.008—.016)	≤.197	≤.8DC
	Ductile Cast Iron	Tensile Strength ≤450MPa	●	**XC5010**	**MK, FT**	2625 (1640—3280)	.004 (.004—.012)	≤.118	≤.8DC
			●	**MV1020**	**MK, HK**	785 (425—1150)	.008 (.004—.012)	≤.197	≤.8DC
			●	**MC5020**	**MK, HK**	655 (490—820)	.008 (.004—.012)	≤.197	≤.8DC
			●	**MV1030**	**MK, HK**	605 (395—820)	.008 (.004—.012)	≤.197	≤.8DC
			●	**VP15TF**	**MP**	560 (395—720)	.008 (.004—.012)	≤.197	≤.8DC
			✱	**VP15TF,VP20RT**	**MK, HK**	560 (395—720)	.008 (.004—.012)	≤.197	≤.8DC
	Ductile Cast Iron	Tensile Strength ≤800MPa	●	**XC5010**	**MK, FT**	2625 (1640—3280)	.004 (.004—.012)	≤.118	≤.8DC
			●	**MV1020**	**MK, HK**	720 (260—1150)	.008 (.004—.012)	≤.197	≤.8DC
			●	**MC5020**	**MK, HK**	560 (490—655)	.008 (.004—.012)	≤.197	≤.8DC
			●	**MV1030**	**MK, HK**	490 (330—655)	.008 (.004—.012)	≤.197	≤.8DC
			●	**VP15TF**	**MP**	460 (330—590)	.008 (.004—.012)	≤.197	≤.8DC
			✱	**VP15TF,VP20RT**	**MK, HK**	460 (330—590)	.008 (.004—.012)	≤.197	≤.8DC
H	Hardened Steel	**40—55HRC**	●	**VP15TF**	**MP**	260 (195—330)	.006 (.004—.008)	≤.118	≤.8DC

(Note1) Wet cutting is recommended for good surface finishing of stainless steel. (Tool life is short compared to dry cutting.)
(Note2) Wet cutting with internal coolant through is recommended for titanium and heat resistant alloys.
(Note3) If the clamping rigidity of the workpiece material is low and the tool overhang is long, adjust the cutting speed and feed in the table above.

RECOMMENDED CUTTING CONDITIONS

Wet Cutting

(inch)

	Material	Properties	Grade	Chip-breaker	vc (SFM)	fz (IPT)	ap	ae
M	Austenitic Stainless Steel	Hardness ≤200HB	**MP7030**	**MM**	410 (330—490)	.006 (.004—.008)	≤.197	≤.8DC
	Austenitic Stainless Steel	Hardness > 200HB	**MP7030**	**MM**	330 (245—410)	.006 (.004—.008)	≤.197	≤.8DC
	Two-phase Stainless Steel	Hardness ≤280HB	**MP7030**	**MM**	260 (195—330)	.004 (.002—.006)	≤.197	≤.8DC
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	**MP7030**	**MM**	410 (330—490)	.006 (.004—.008)	≤.197	≤.8DC
	Ferritic and Martensitic Stainless Steel	Hardness > 200HB	**MP7030**	**MM**	330 (245—410)	.006 (.004—.008)	≤.197	≤.8DC
	Precipitation Hardening Stainless Steel	Hardness < 450HB	**MP7030**	**MM**	230 (165—295)	.004 (.002—.006)	≤.197	≤.8DC
S	Titanium Alloy	—	**MP7030**	**MM**	130 (65—165)	.006 (.004—.008)	≤.118	≤.6DC
		—	**MP9120**	**L**	195 (165—230)	.004 (.002—.006)	≤.118	≤.6DC
		—	**MP9130**	**L**	130 (65—165)	.006 (.004—.008)	≤.118	≤.6DC
	Heat Resistant Alloy	—	**MP7030**	**MM**	130 (65—165)	.006 (.004—.008)	≤.118	≤.6DC
		—	**MP9120**	**L**	195 (165—230)	.004 (.002—.006)	≤.118	≤.6DC
		—	**MP9130**	**L**	130 (65—165)	.006 (.004—.008)	≤.118	≤.6DC

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

Cutting Conditions with Wiper Insert

(inch)

	Material	Properties	Main Insert	Breaker	Wiper Insert	Chip-breaker	vc (SFM)	fz (IPT)	ap	ae
P	Mild Steel	Hardness ≤180HB	**VP15TF**	**MP**	**VP15TF**	**WP**	820 (655—985)	.012 (.008—.016)	≤.0197	≤.8DC
			MP6120	**M**	**MP6120**	**M**	820 (655—985)	.012 (.008—.016)	≤.0197	≤.8DC
	Carbon Steel,Alloy Steel	Hardness 180—280HB	**VP15TF**	**MP**	**VP15TF**	**WP**	720 (560—885)	.012 (.008—.016)	≤.0197	≤.8DC
			MP6120	**M**	**MP6120**	**M**	720 (560—885)	.012 (.008—.016)	≤.0197	≤.8DC
	Carbon Steel,Alloy Steel	Hardness 280—350HB	**VP15TF**	**MP**	**VP15TF**	**WP**	460 (330—590)	.012 (.008—.016)	≤.0197	≤.8DC
			MP6120	**M**	**MP6120**	**M**	460 (330—590)	.012 (.008—.016)	≤.0197	≤.8DC
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	**MK,HK**	**MC5020**	**WK**	1050 (820—1310)	.012 (.008—.016)	≤.0197	≤.8DC
			VP15TF	**MP**	**VP15TF**	**WP**	720 (490—985)	.012 (.008—.016)	≤.0197	≤.8DC
	Ductile Cast Iron	Tensile Strength ≤450MPa	**MC5020**	**MK,HK**	**MC5020**	**WK**	820 (655—985)	.008 (.004—.012)	≤.0197	≤.8DC
			VP15TF	**MP**	**VP15TF**	**WP**	655 (490—820)	.008 (.004—.012)	≤.0197	≤.8DC
	Ductile Cast Iron	Tensile Strength ≤800MPa	**MC5020**	**MK,HK**	**MC5020**	**WK**	720 (655—820)	.008 (.004—.012)	≤.0197	≤.8DC
			VP15TF	**MP**	**VP15TF**	**WP**	560 (490—655)	.008 (.004—.012)	≤.0197	≤.8DC
S	Heat Resistant Alloys	—	**VP15TF**	**MP**	**VP15TF**	**WP**	130 (65—165)	.006 (.004—.008)	≤.0197	≤.8DC
H	Hardened Steel	40—55HRC	**VP15TF**	**MP**	**VP15TF**	**WP**	260 (195—330)	.006 (.004—.008)	≤.0197	≤.8DC

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

● : USA Stock □ : Made to Order

FACE MILLING
<HIGH-FEED CUTTING FOR CAST IRON>

50° KAPR

AHX640W

P | M | **K** | N | S | H

Cast Iron



Fig.1

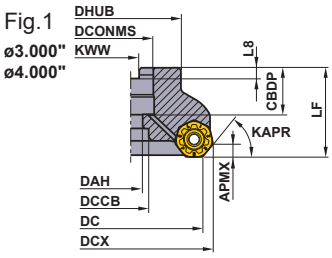
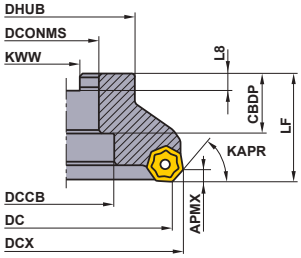


Fig.2



Right hand tool holder shown.

DCONMS=Inch size (inch)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	Type	LF	DCX	DCONMS	Fig.	WT(lbs)	APMX
3.000	**AHX640WR0308D**	●	N	8	R	2.500	3.494	1.250	1	4.2	.236
	AHX640WL0308D	□	N	8	L	2.500	3.494	1.250	1	4.2	.236
	AHX640WR0310D	●	N	10	R	2.500	3.494	1.250	1	4.2	.236
	AHX640WL0310D	□	N	10	L	2.500	3.494	1.250	1	4.2	.236
4.000	**AHX640WR0410E**	●	N	10	R	2.500	4.494	1.500	1	7.3	.236
	AHX640WL0410E	□	N	10	L	2.500	4.494	1.500	1	7.3	.236
	AHX640WR0414E	●	N	14	R	2.500	4.494	1.500	1	7.3	.236
	AHX640WL0414E	□	N	14	L	2.500	4.494	1.500	1	7.3	.236
5.000	**AHX640WR0512E**	●	N	12	R	2.500	5.494	1.500	2	8.8	.236
	AHX640WL0512E	□	N	12	L	2.500	5.494	1.500	2	8.8	.236
	AHX640WR0518E	●	N	18	R	2.500	5.494	1.500	2	8.8	.236
	AHX640WL0518E	□	N	18	L	2.500	5.494	1.500	2	8.8	.236
6.000	**AHX640WR0614F**	●	N	14	R	2.500	6.494	2.000	2	12.6	.236
	AHX640WL0614F	□	N	14	L	2.500	6.494	2.000	2	12.6	.236
	AHX640WR0620F	●	N	20	R	2.500	6.494	2.000	2	12.6	.236
	AHX640WL0620F	□	N	20	L	2.500	6.494	2.000	2	12.6	.236

* N=No

Note 1) Set bolt not included.

MOUNTING DIMENSION ➤ p.46



Fig.3

ø8.000"
ø10.000"

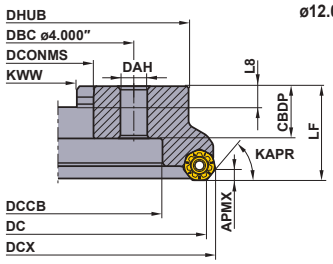
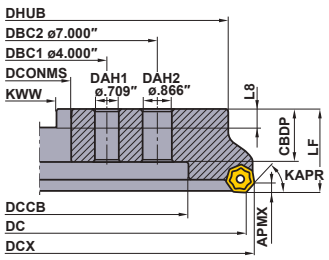


Fig.4

ø12.000"



Right hand tool holder shown.

DCONMS=Inch size (inch)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	Type	LF	DCX	DCONMS	Fig.	WT(lbs)	APMX
8.000	**AHX640WR0820M**	●	N	20	R	2.500	8.494	2.500	3	19.6	.236
	AHX640WL0820M	□	N	20	L	2.500	8.494	2.500	3	19.6	.236
	AHX640WR0828M	●	N	28	R	2.500	8.494	2.500	3	19.6	.236
	AHX640WL0828M	□	N	28	L	2.500	8.494	2.500	3	19.6	.236
10.000	**AHX640WR1024M**	●	N	24	R	2.500	10.494	2.500	3	32.0	.236
	AHX640WL1024M	□	N	24	L	2.500	10.494	2.500	3	32.0	.236
	AHX640WR1036M	●	N	36	R	2.500	10.494	2.500	3	32.0	.236
	AHX640WL1036M	□	N	36	L	2.500	10.494	2.500	3	32.0	.236
12.000	**AHX640WR1228M**	●	N	28	R	2.500	12.494	2.500	4	49.2	.236
	AHX640WL1228M	□	N	28	L	2.500	12.494	2.500	4	49.2	.236
	AHX640WR1242M	●	N	42	R	2.500	12.494	2.500	4	49.2	.236
	AHX640WL1242M	□	N	42	L	2.500	12.494	2.500	4	49.2	.236

* N=No
Note 1) Set bolt not included.



SPARE PARTS

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

* Clamp Torque (lbf-in) : LS0622T=53

● : USA Stock ★ : Stocked in Japan □ : Made to Order



Metric Standard

For inch arbors

Fig.1 ø80

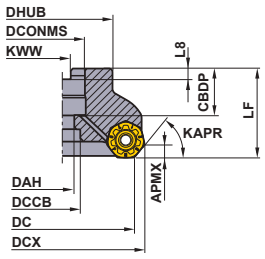


Fig.2 ø100 ø125 ø160

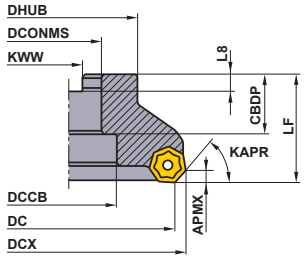


Fig.3 ø200 ø250

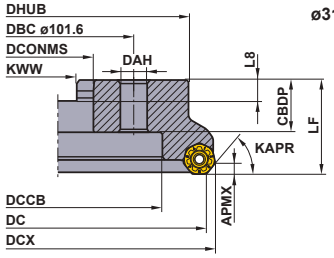
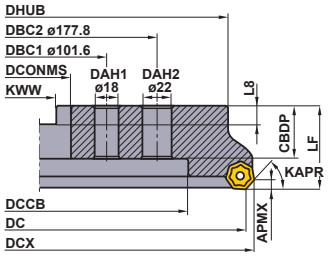


Fig.4 ø315



Right hand tool holder shown.

DCONMS=Inch size

(mm)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	Type	LF	DCX	DCONMS	Fig.	WT(kg)	APMX
80	**AHX640WR08008C**	★	N	8	R	50	92.6	25.4 [1.0"]	1	1.5	6
	AHX640WL08008C	★	N	8	L	50	92.6	25.4 [1.0"]	1	1.5	6
	AHX640WR08010C	★	N	10	R	50	92.6	25.4 [1.0"]	1	1.5	6
	AHX640WL08010C	★	N	10	L	50	92.6	25.4 [1.0"]	1	1.5	6
100	**AHX640WR10010D**	★	N	10	R	50	112.6	31.75 [1.25"]	2	2.1	6
	AHX640WL10010D	★	N	10	L	50	112.6	31.75 [1.25"]	2	2.1	6
	AHX640WR10014D	★	N	14	R	50	112.6	31.75 [1.25"]	2	2.1	6
	AHX640WL10014D	★	N	14	L	50	112.6	31.75 [1.25"]	2	2.1	6
125	**AHX640WR12512E**	★	N	12	R	63	137.6	38.1 [1.50"]	2	3.5	6
	AHX640WL12512E	★	N	12	L	63	137.6	38.1 [1.50"]	2	3.5	6
	AHX640WR12518E	★	N	18	R	63	137.6	38.1 [1.50"]	2	3.5	6
	AHX640WL12518E	★	N	18	L	63	137.6	38.1 [1.50"]	2	3.5	6
160	**AHX640WR16016F**	★	N	16	R	63	172.6	50.8 [2.0"]	2	5.6	6
	AHX640WL16016F	★	N	16	L	63	172.6	50.8 [2.0"]	2	5.6	6
	AHX640WR16022F	★	N	22	R	63	172.6	50.8 [2.0"]	2	5.6	6
	AHX640WL16022F	★	N	22	L	63	172.6	50.8 [2.0"]	2	5.6	6
200	**AHX640WR20020K**	★	N	20	R	63	212.6	47.625 [1.875"]	3	9.0	6
	AHX640WL20020K	★	N	20	L	63	212.6	47.625 [1.875"]	3	9.0	6
	AHX640WR20028K	★	N	28	R	63	212.6	47.625 [1.875"]	3	9.0	6
	AHX640WL20028K	★	N	28	L	63	212.6	47.625 [1.875"]	3	9.0	6
250	**AHX640WR25024K**	★	N	24	R	63	262.6	47.625 [1.875"]	3	14.4	6
	AHX640WL25024K	★	N	24	L	63	262.6	47.625 [1.875"]	3	14.4	6
	AHX640WR25036K	★	N	36	R	63	262.6	47.625 [1.875"]	3	14.4	6
	AHX640WL25036K	★	N	36	L	63	262.6	47.625 [1.875"]	3	14.4	6
315	**AHX640WR31528P**	★	N	28	R	63	327.6	47.625 [1.875"]	4	23.8	6
	AHX640WL31528P	★	N	28	L	63	327.6	47.625 [1.875"]	4	23.8	6
	AHX640WR31544P	★	N	44	R	63	327.6	47.625 [1.875"]	4	23.8	6
	AHX640WL31544P	★	N	44	L	63	327.6	47.625 [1.875"]	4	23.8	6

* N=No

Note 1) Set bolt not included.

MOUNTING DIMENSION ➤ pp.46-48

General Purpose Multi-Corner Insert Type Face Milling Cutter



Metric Standard

For metric arbors

Fig.1 ø80

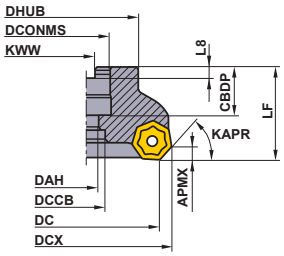


Fig.2 ø100 ø125

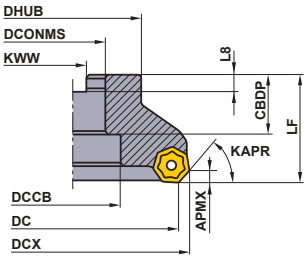


Fig.3 ø160

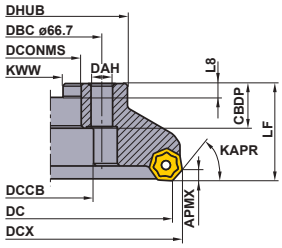


Fig.4 ø200 ø250

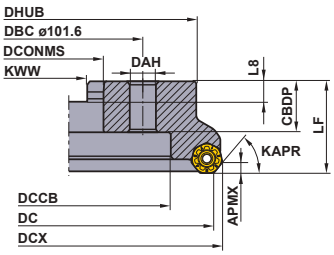
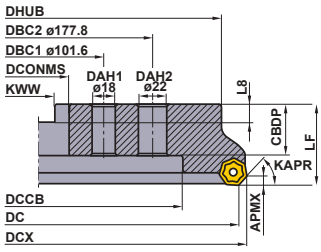


Fig.5 ø315



Right hand tool holder shown.

DCONMS=mm size

(mm)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	Type	LF	DCX	DCONMS	Fig.	WT(kg)	APMX
80	**AHX640W-080A08R**	★	N	8	R	50	92.6	27	1	1.5	6
	AHX640W-080A08L	★	N	8	L	50	92.6	27	1	1.5	6
	AHX640W-080A10R	★	N	10	R	50	92.6	27	1	1.5	6
	AHX640W-080A10L	★	N	10	L	50	92.6	27	1	1.5	6
100	**AHX640W-100B10R**	★	N	10	R	50	112.6	32	2	2.1	6
	AHX640W-100B10L	★	N	10	L	50	112.6	32	2	2.1	6
	AHX640W-100B14R	★	N	14	R	50	112.6	32	2	2.1	6
	AHX640W-100B14L	★	N	14	L	50	112.6	32	2	2.1	6
125	**AHX640W-125B12R**	★	N	12	R	63	137.6	40	2	3.1	6
	AHX640W-125B12L	★	N	12	L	63	137.6	40	2	3.1	6
	AHX640W-125B18R	★	N	18	R	63	137.6	40	2	3.1	6
	AHX640W-125B18L	★	N	18	L	63	137.6	40	2	3.1	6
160	**AHX640W-160C16R**	★	N	16	R	63	172.6	40	3	5.6	6
	AHX640W-160C16L	★	N	16	L	63	172.6	40	3	5.6	6
	AHX640W-160C22R	★	N	22	R	63	172.6	40	3	5.6	6
	AHX640W-160C22L	★	N	22	L	63	172.6	40	3	5.6	6
200	**AHX640W-200C20R**	★	N	20	R	63	212.6	60	4	8.0	6
	AHX640W-200C20L	★	N	20	L	63	212.6	60	4	8.0	6
	AHX640W-200C28R	★	N	28	R	63	212.6	60	4	8.0	6
	AHX640W-200C28L	★	N	28	L	63	212.6	60	4	8.0	6
250	**AHX640W-250C24R**	★	N	24	R	63	262.6	60	4	12.6	6
	AHX640W-250C24L	★	N	24	L	63	262.6	60	4	12.6	6
	AHX640W-250C36R	★	N	36	R	63	262.6	60	4	12.6	6
	AHX640W-250C36L	★	N	36	L	63	262.6	60	4	12.6	6
315	**AHX640W-315C28R**	★	N	28	R	80	327.6	60	5	31.5	6
	AHX640W-315C28L	★	N	28	L	80	327.6	60	5	31.5	6
	AHX640W-315C44R	★	N	44	R	80	327.6	60	5	31.5	6
	AHX640W-315C44L	★	N	44	L	80	327.6	60	5	31.5	6

★ N=No

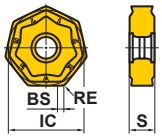
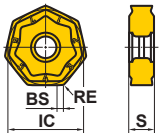
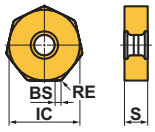
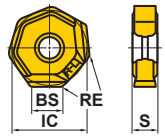
Note 1) Set bolt not included.

● : **USA Stock** ★ : **Stocked in Japan** **<10 inserts in one case>**

INSERTS

Material	K	Cast Iron	XC5010	MC5020	MV1020	MV1030	VP15TF	VP20RT
			◆	◆	◆	◆	◆	◆

This is the selection guideline for AHX640W.
Please note that the cutting conditions differ depending on multiple factors, for more details refer to the Recommended Cutting Conditions.
Edge Preparation :
E : Round

Application	Shape	Order Number	Class	Edge Preparation	Coated						Dimensions(inch)					Geometry
					XC5010	MC5020	MV1020	MV1030	VP15TF	VP20RT	IC	RE	BS	S	APMX	
General Cutting		**NNMU200608ZEN-MK**	M	E	●	●	●	●	●	●	.787	.031	.039	.240	.236	
Unstable Cutting		**NNMU200608ZEN-HK**	M	E		●	●	●	●	●	.787	.031	.039	.240	.236	
		**NNMQ200708ZEN-FT**	M	E	●						.787	.031	.039	.258	.236	
Finish Cutting	 Wiper	**WNEU2006ZEN7C-WK**	E	E		●					.787	.031	.291	.258	.020	



SPARE PARTS

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

* Clamp Torque (lbf-in) : LS0622T=53

MOUNTING DIMENSION ➢ pp.47-48

Recommended Cutting Conditions

Dry·Wet Cutting

(inch)

	Material	Properties	Cutting Conditions	Grade	Chip-breaker	Cutting Speed **vc** (SFM)	Feed per Tooth **fz** (IPT)	**ap**	**ae**
K	Gray Cast Iron	Tensile Strength ≤350MPa	●	**XC5010**	**MK, FT**	2625 (1640—3280)	.004 (.004—.012)	≤.118	≤.8DC
			●	**MC5020**	**MK, HK**	720 (490—985)	.012 (.008—.016)	≤.197	≤.8DC
			● ✲	**VP15TF,VP20RT**	**MK, HK**	590 (425—755)	.012 (.008—.016)	≤.197	≤.8DC
	Ductile Cast Iron	Tensile Strength ≤450MPa	●	**XC5010**	**MK, FT**	2625 (1640—3280)	.004 (.004—.012)	≤.118	≤.8DC
			●	**MC5020**	**MK, HK**	655 (490—820)	.008 (.004—.012)	≤.197	≤.8DC
			●	**MV1020**	**MK, HK**	785 (425—1150)	.008 (.004—.012)	≤.197	≤.8DC
			●	**MV1030**	**MK, HK**	605 (395—820)	.008 (.004—.012)	≤.197	≤.8DC
			● ✲	**VP15TF,VP20RT**	**MK, HK**	560 (395—720)	.008 (.004—.012)	≤.197	≤.8DC
	Ductile Cast Iron	Tensile Strength ≤800MPa	●	**XC5010**	**MK, FT**	2625 (1640—3280)	.004 (.004—.012)	≤.118	≤.8DC
			●	**MC5020**	**MK, HK**	560 (490—655)	.008 (.004—.012)	≤.197	≤.8DC
			●	**MV1020**	**MK, HK**	720 (260—1150)	.008 (.004—.012)	≤.197	≤.8DC
			●	**MV1030**	**MK, HK**	490 (330—655)	.008 (.004—.012)	≤.197	≤.8DC
			● ✲	**VP15TF,VP20RT**	**MK, HK**	460 (330—590)	.008 (.004—.012)	≤.197	≤.8DC

(Note 1) With reference to the above examples, adjust the cutting conditions according to the machining setup.
(Note 2) Tool life when wet cutting is short compared to dry cutting.
(Note 3) MV1020 and MV1030 are not recommended for wet cutting.

Finishing (Use of Wiper Inserts)

(inch)

	Material	Properties	Cutting Conditions	Grade	Chip-breaker	**vc** (SFM)	**fz** (IPT)	**ap**
K	Gray Cast Iron	Tensile Strength ≤350MPa	●	**MC5020**	**MK, HK**	1050 (820—1310)	.008 (.004—.012)	<.020
			●	**MC5020**	**MK, HK**	885 (655—1150)	.008 (.004—.012)	.020—.118
	Ductile Cast Iron	Tensile Strength ≤450MPa	●	**MC5020**	**MK, HK**	885 (655—1150)	.008 (.004—.012)	<.020
			●	**MC5020**	**MK, HK**	720 (655—820)	.008 (.004—.012)	.020—.118

(Note 3) Please use 2-3 pieces of wiper inserts where the feed rate exceeds 6mm/rev.

Memo

AHX440S, AHX475S, AHX640S Mounting Dimension

Fig. 1
ø1.500"
ø2.000"
ø2.500"
ø3.000"

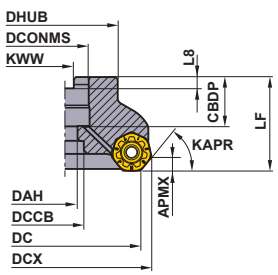


Fig. 2
ø4.000"
ø5.000"
ø6.000"

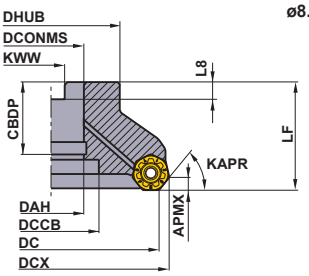
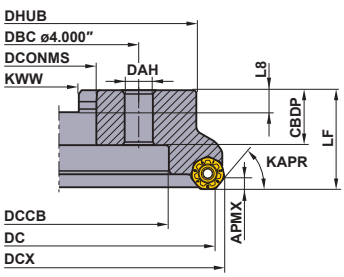


Fig. 3
ø8.000"



Right hand tool holder shown.

(inch)

DCONMS	DC	Order Number	CBDP	DAH	DCCB	DHUB	KWW	L8	Fig.
.500	1.500	**AHX440SUR1503SA**	.630	.276	.433	1.44	.250	.156	1
.500	1.500	**AHX440SUR1504SA**	.630	.276	.433	1.44	.250	.156	1
.750	2.000	**AHX440SUR0204AA**	.748	.413	.630	1.75	.313	.187	1
.750	2.000	**AHX440SUR0205AA**	.748	.413	.630	1.75	.313	.187	1
.750	2.000	**AHX440SUR0206AA**	.748	.413	.630	1.75	.313	.187	1
.750	2.000	**AHX475SUR0204AA**	.748	.413	.630	1.88	.313	.187	4
.750	2.000	**AHX475SUR0205AA**	.748	.413	.630	1.88	.313	.187	4
.750	2.500	**AHX640SUL2504AA**	.748	.413	.630	1.75	.313	.187	1
.750	2.500	**AHX640SUL2505AA**	.748	.413	.630	1.75	.313	.187	1
.750	2.500	**AHX640SUR2504AA**	.748	.413	.630	1.75	.313	.187	1
.750	2.500	**AHX640SUR2505AA**	.748	.413	.630	1.75	.313	.187	1
1.000	2.500	**AHX440SUR2505CA**	.945	.539	.787	2.19	.375	.219	1
1.000	2.500	**AHX440SUR2506CA**	.945	.539	.787	2.19	.375	.219	1
1.000	2.500	**AHX440SUR2508CA**	.945	.539	.787	2.19	.375	.219	1
1.000	2.500	**AHX475SUR2505CA**	.945	.539	.787	2.38	.375	.219	4
1.000	2.500	**AHX475SUR2506CA**	.945	.539	.787	2.38	.375	.219	4
1.000	3.000	**AHX440SUR0306CA**	.945	.539	.787	2.19	.375	.219	1
1.000	3.000	**AHX440SUR0308CA**	.945	.539	.787	2.19	.375	.219	1
1.000	3.000	**AHX440SUR0310CA**	.945	.539	.787	2.19	.375	.219	1
1.000	3.000	**AHX475SUR0306CA**	.945	.539	.787	2.75	.375	.219	4
1.000	3.000	**AHX475SUR0308CA**	.945	.539	.787	2.75	.375	.219	4
1.250	3.000	**AHX475SUR0306DA**	1.260	.669	1.024	2.88	.500	.281	4
1.250	3.000	**AHX475SUR0308DA**	1.260	.669	1.024	2.88	.500	.281	4
1.250	3.000	**AHX640SUL0304DA**	1.260	.669	1.024	2.88	.500	.281	1
1.250	3.000	**AHX640SUL0306DA**	1.260	.669	1.024	2.88	.500	.281	1
1.250	3.000	**AHX640SUR0304DA**	1.260	.669	1.024	2.88	.500	.281	1
1.250	3.000	**AHX640SUR0306DA**	1.260	.669	1.024	2.88	.500	.281	1
1.500	4.000	**AHX440SUR0407EA**	1.417	—	1.500	3.50	.625	.375	2
1.500	4.000	**AHX440SUR0410EA**	1.417	—	1.500	3.50	.625	.375	2

Fig.4
ø2.000"
ø2.500"
ø3.000"
ø4.000"

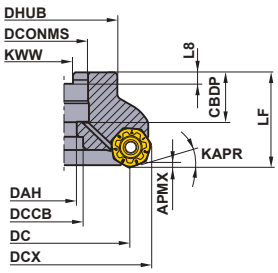
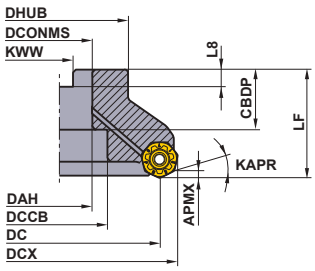


Fig.5
ø5.000"
ø6.000"



Right hand tool holder only.

(inch)

DCONMS	DC	Order Number	CBDP	DAH	DCCB	DHUB	KWW	L8	Fig.
1.500	4.000	**AHX440SUR0412EA**	1.417	—	1.500	3.50	.625	.375	2
1.500	4.000	**AHX475SUR0407EA**	1.181	.787	1.181	3.75	.625	.375	4
1.500	4.000	**AHX475SUR0409EA**	1.181	.787	1.181	3.75	.625	.375	4
1.500	4.000	**AHX640SUL0405EA**	1.181	—	.787	3.81	.625	.375	2
1.500	4.000	**AHX640SUL0407EA**	1.181	—	.787	3.81	.625	.375	2
1.500	4.000	**AHX640SUR0405EA**	1.181	—	.787	3.81	.625	.375	2
1.500	4.000	**AHX640SUR0407EA**	1.181	—	.787	3.81	.625	.375	2
1.500	5.000	**AHX440SUR0508EA**	1.417	—	1.500	3.81	.625	.375	2
1.500	5.000	**AHX440SUR0512EA**	1.417	—	1.500	3.81	.625	.375	2
1.500	5.000	**AHX440SUR0514EA**	1.417	—	1.500	3.81	.625	.375	2
1.500	5.000	**AHX475SUR0508EA**	1.417	—	1.500	3.81	.625	.375	5
1.500	5.000	**AHX475SUR0510EA**	1.417	—	1.500	3.81	.625	.375	5
1.500	5.000	**AHX640SUL0506EA**	1.575	—	2.205	3.81	.625	.375	2
1.500	5.000	**AHX640SUL0508EA**	1.575	—	2.205	3.81	.625	.375	2
1.500	5.000	**AHX640SUR0506EA**	1.575	—	2.205	3.81	.625	.375	2
1.500	5.000	**AHX640SUR0508EA**	1.575	—	2.205	3.81	.625	.375	2
1.500	6.000	**AHX440SUR0610EA**	1.417	—	1.500	3.81	.625	.375	2
1.500	6.000	**AHX440SUR0614EA**	1.417	—	1.500	3.81	.625	.375	2
1.500	6.000	**AHX440SUR0616EA**	1.417	—	1.500	3.81	.625	.375	2
2.000	6.000	**AHX475SUR0610FA**	1.417	—	3.228	4.88	.750	.437	5
2.000	6.000	**AHX475SUR0612FA**	1.417	—	3.228	4.88	.750	.437	5
2.000	6.000	**AHX640SUL0607FA**	1.693	—	3.228	4.88	.750	.437	2
2.000	6.000	**AHX640SUL0610FA**	1.693	—	3.228	4.88	.750	.437	2
2.000	6.000	**AHX640SUR0607FA**	1.693	—	3.228	4.88	.750	.437	2
2.000	6.000	**AHX640SUR0610FA**	1.693	—	3.228	4.88	.750	.437	2
2.500	8.000	**AHX640SUL0808MN**	1.378	—	5.512	6.89	1.000	.560	3
2.500	8.000	**AHX640SUL0812MN**	1.378	—	5.512	6.89	1.000	.560	3
2.500	8.000	**AHX640SUR0808MN**	1.378	—	5.512	6.89	1.000	.560	3
2.500	8.000	**AHX640SUR0812MN**	1.378	—	5.512	6.89	1.000	.560	3

AHX440S, AHX475S, AHX640S Mounting Dimension

Fig. 1
ø40
ø50
ø63
ø80

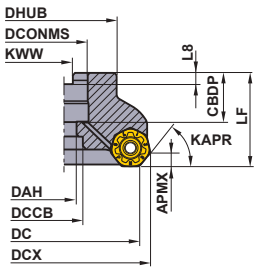


Fig. 2
ø100
ø125
ø160

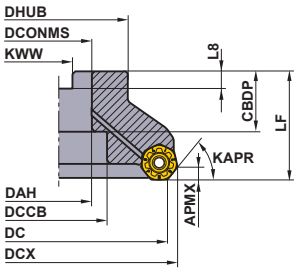
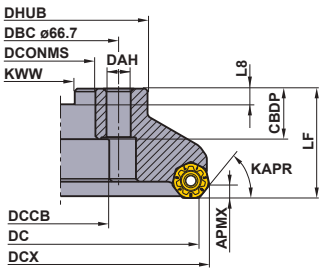


Fig. 3
ø160



Right hand tool holder only.

(mm)

DCONMS	DC	Order Number	CBDP	DAH	DCCB	DHUB	KWW	L8	Fig.
16	40	**AHX440S-040A03AR**	18	9	14	37	8.4	5.6	1
16	40	**AHX440S-040A04AR**	18	9	14	37	8.4	5.6	1
22	50	**AHX440S-050A04AR**	20	11	17	47	10.4	6.3	1
22	50	**AHX440S-050A05AR**	20	11	17	47	10.4	6.3	1
22	50	**AHX440S-050A06AR**	20	11	17	47	10.4	6.3	1
22	50	**AHX475S-050A04AR**	20	11	17	47	10.4	6.3	5
22	50	**AHX475S-050A05AR**	20	11	17	47	10.4	6.3	5
22	63	**AHX440S-063A05AR**	20	11	17	50	10.4	6.3	1
22	63	**AHX440S-063A06AR**	20	11	17	50	10.4	6.3	1
22	63	**AHX440S-063A08AR**	20	11	17	50	10.4	6.3	1
22	63	**AHX475S-063A05AR**	20	11	17	60	10.4	6.3	5
22	63	**AHX475S-063A06AR**	20	11	17	60	10.4	6.3	5
22	63	**AHX640S-063A04AR**	20	11	17	50	10.4	6.3	1
22	63	**AHX640S-063A05AR**	20	11	17	50	10.4	6.3	1
25.4	80	**AHX440SR08006CA**	26	13	20	56	9.5	6	1
25.4	80	**AHX440SR08008CA**	26	13	20	56	9.5	6	1
25.4	80	**AHX440SR08010CA**	26	13	20	56	9.5	6	1
25.4	80	**AHX640SR08004CA**	26	13	20	56	9.5	6	1
25.4	80	**AHX640SR08006CA**	26	13	20	56	9.5	6	1
27	80	**AHX440S-080A06AR**	23	13	20	56	12.4	7	1
27	80	**AHX440S-080A08AR**	23	13	20	56	12.4	7	1
27	80	**AHX440S-080A10AR**	23	13	20	56	12.4	7	1
27	80	**AHX475S-080A06AR**	23	13	20	76	12.4	7	5
27	80	**AHX475S-080A08AR**	23	13	20	76	12.4	7	5
27	80	**AHX640S-080A04AR**	23	13	20	56	12.4	7	1
27	80	**AHX640S-080A06AR**	23	13	20	56	12.4	7	1
31.75	80	**AHX475SR08006DA**	32	17	26	76	12.7	8	5
31.75	80	**AHX475SR08008DA**	32	17	26	76	12.7	8	5
31.75	100	**AHX440SR10007DA**	37	—	45	70	12.7	8	2
31.75	100	**AHX440SR10010DA**	37	—	45	70	12.7	8	2
31.75	100	**AHX440SR10012DA**	37	—	45	70	12.7	8	2
31.75	100	**AHX475SR10007DA**	32	17	26	96	12.7	8	5
31.75	100	**AHX475SR10009DA**	32	17	26	96	12.7	8	5
31.75	100	**AHX640SR10005DA**	35	—	45	70	12.7	8	2
31.75	100	**AHX640SR10007DA**	35	—	45	70	12.7	8	2
32	100	**AHX440S-100B07AR**	32	—	45	78	14.4	8	2
32	100	**AHX440S-100B10AR**	32	—	45	78	14.4	8	2
32	100	**AHX440S-100B12AR**	32	—	45	78	14.4	8	2

Fig. 4
ø200

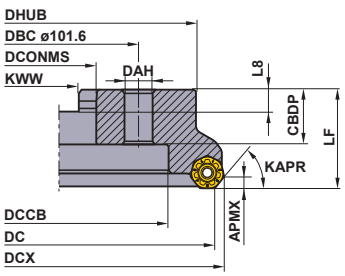


Fig.5
ø50
ø63
ø80
ø100

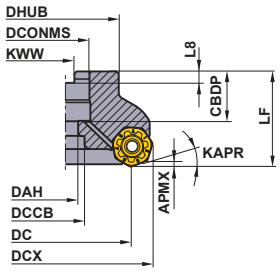
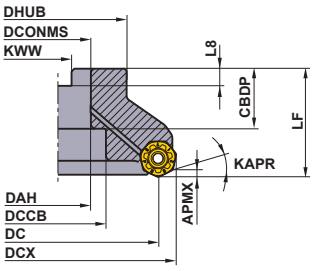


Fig.6
ø125
ø160



Right hand tool holder only.

(mm)

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

AHX640W Mounting Dimension

Fig.1
ø3.000"
ø4.000"

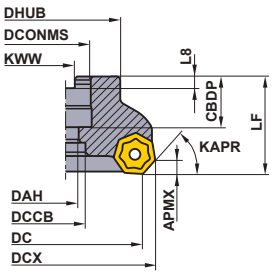


Fig.2
ø5.000"
ø6.000"

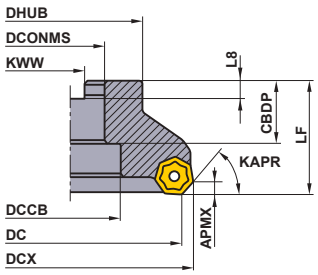


Fig.3
ø8.000"
ø10.000"

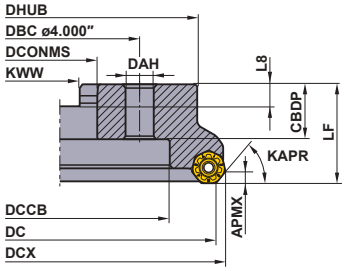
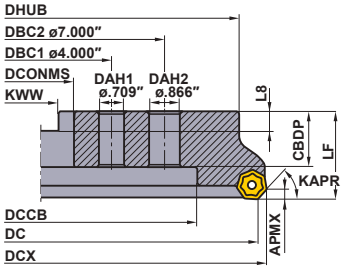


Fig.4
ø12.000"



Right hand tool holder shown.

(inch)

DCONMS	DC	Order Number	CBDP	DAH	DCCB	DHUB	KWW	L8	Fig.
1.250	3.000	**AHX640WL0308D**	1.260	.669	1.024	2.87	.500	.281	1
1.250	3.000	**AHX640WL0310D**	1.260	.669	1.024	2.87	.500	.281	1
1.250	3.000	**AHX640WR0308D**	1.260	.669	1.024	2.87	.500	.281	1
1.250	3.000	**AHX640WR0310D**	1.260	.669	1.024	2.87	.500	.281	1
1.500	4.000	**AHX640WL0410E**	1.181	.787	1.181	3.80	.625	.375	1
1.500	4.000	**AHX640WL0414E**	1.181	.787	1.181	3.80	.625	.375	1
1.500	4.000	**AHX640WR0410E**	1.181	.787	1.181	3.80	.625	.375	1
1.500	4.000	**AHX640WR0414E**	1.181	.787	1.181	3.80	.625	.375	1
1.500	5.000	**AHX640WL0512E**	1.378	—	2.362	3.80	.625	.375	2
1.500	5.000	**AHX640WL0518E**	1.378	—	2.362	3.80	.625	.375	2
1.500	5.000	**AHX640WR0512E**	1.378	—	2.362	3.80	.625	.375	2
1.500	5.000	**AHX640WR0518E**	1.378	—	2.362	3.80	.625	.375	2
2.000	6.000	**AHX640WL0614F**	1.496	—	3.150	4.72	.750	.437	2
2.000	6.000	**AHX640WL0620F**	1.496	—	3.150	4.72	.750	.437	2
2.000	6.000	**AHX640WR0614F**	1.496	—	3.150	4.72	.750	.437	2
2.000	6.000	**AHX640WR0620F**	1.496	—	3.150	4.72	.750	.437	2
2.500	8.000	**AHX640WL0820M**	1.378	—	5.512	6.89	1.000	.560	3
2.500	8.000	**AHX640WL0828M**	1.378	—	5.512	6.89	1.000	.560	3
2.500	8.000	**AHX640WR0820M**	1.378	—	5.512	6.89	1.000	.560	3
2.500	8.000	**AHX640WR0828M**	1.378	—	5.512	6.89	1.000	.560	3
2.500	10.000	**AHX640WL1024M**	1.378	—	7.087	8.66	1.000	.560	3
2.500	10.000	**AHX640WL1036M**	1.378	—	7.087	8.66	1.000	.560	3
2.500	10.000	**AHX640WR1024M**	1.378	—	7.087	8.66	1.000	.560	3
2.500	10.000	**AHX640WR1036M**	1.378	—	7.087	8.66	1.000	.560	3
2.500	12.000	**AHX640WL1228M**	1.575	—	9.646	11.22	1.000	.560	4
2.500	12.000	**AHX640WL1242M**	1.575	—	9.646	11.22	1.000	.560	4
2.500	12.000	**AHX640WR1228M**	1.575	—	9.646	11.22	1.000	.560	4
2.500	12.000	**AHX640WR1242M**	1.575	—	9.646	11.22	1.000	.560	4

AHX640W Mounting Dimension

Fig.1
ø80

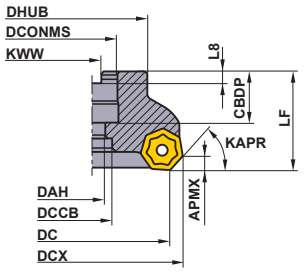


Fig.2
ø100
ø125
ø160

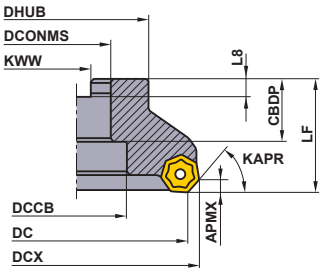


Fig.3
ø160

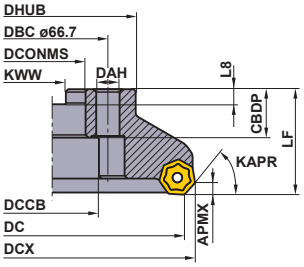


Fig.4
ø200
ø250

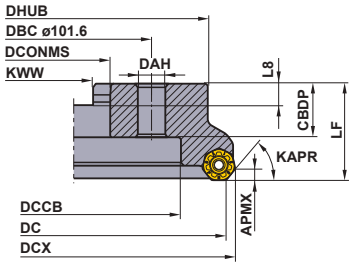
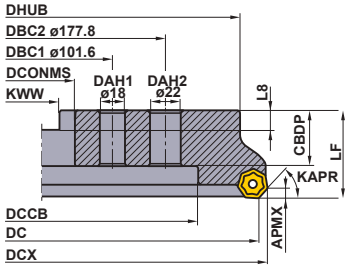


Fig.5
ø315



Right hand tool holder shown.

(mm)

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

AHX640W Mounting Dimension

Fig.1
ø80

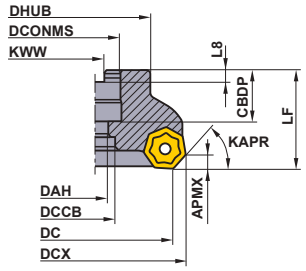


Fig.2
ø100
ø125
ø160

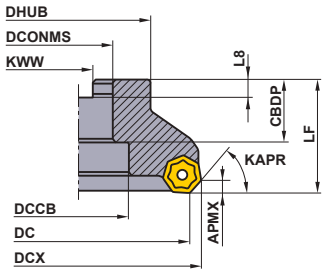


Fig.3
ø160

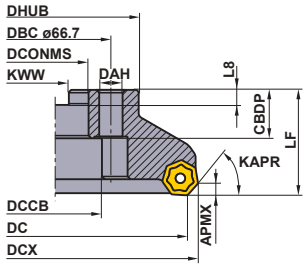


Fig.4
ø200
ø250

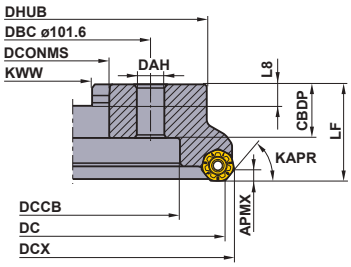
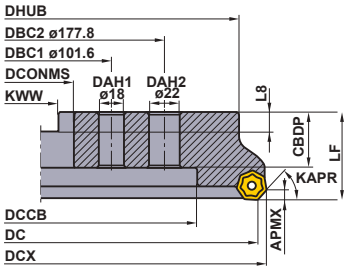


Fig.5
ø315



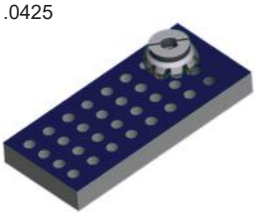
Right hand tool holder shown.

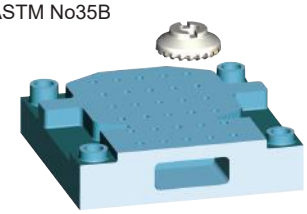
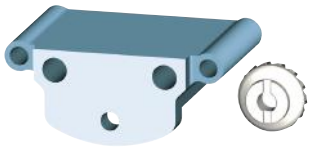
(mm)

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

Memo

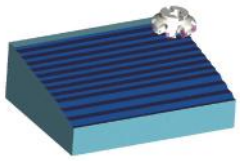
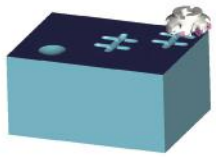
Application Example

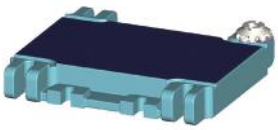
Component		Parts for Turbo	Automobile Parts	Steel Plate for Pressure Containers
Workpiece		AISI 309 	ASTM 80-55-06 	W-nr 1.0425 
Tool		**AHX440S-063A08AR**	**AHX440S-050A04AR**	**AHX440S-100B10AR**
Cutting Conditions	Cutting Speed (SFM)	325	460	820
	Feed per Tooth (IPT)	.012	.006	.006
	Depth of Cut **ap** (inch)	.118	.031	.059
	Depth of Cut **ae** (inch)	1.969	1.378	3.150
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. 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 whether burrs were generated around holes.

Component		Press Mold Base	Housing Case	Automotive Suspension Part
Workpiece		ASTM No35B 	ASTM No35B 	ASTM 100-70-03 
Tool		**AHX640WR16016F**	**AHX640WR12512E**	**AHX640WR10014D**
Cutting Conditions	Cutting Speed (SFM)	785	490	785
	Table Feed (IPM)	121	19.7	118.1
	Feed per Tooth (IPT)	.016	.004	.011
	Depth of Cut **ap** (inch)	.118–.157	.118	.118–.157
	Depth of Cut **ae** (inch)	6	1.57	3.15
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 iron, 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.

Application Example

Component		Machine Parts		Machine Parts		Mold	
Workpiece		AISI 1045 		AISI 4140 		AISI L6 (HRC43) 	
Tool		Conventional	**AHX640SR10007DA**	Conventional	**AHX640SR10007DA**	Conventional	**AHX640SR10007DA**
Cutting Conditions	Cutting Speed (SFM)	655	820	245	330	310	310
	Feed per Tooth (IPT)	.007	.009	.002	.007	.008	.010
	Depth of Cut **ap** (inch)	.197	.197	.039	.079	.118	.118
	Depth of Cut **ae** (inch)	2.953	2.953	2.756	2.756	2.362	2.362
Cutting Mode		Air Blow	Air Blow	Air Blow	Air Blow	Air Blow	Air Blow
Results		With older products, raising the cutting speed to 820 SFM 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		ASTM No45B 	
Tool		Conventional	**AHX640SR16010FA**
Cutting Conditions	Cutting Speed (SFM)	230	785
	Feed per Tooth (IPT)	.059	.012
	Depth of Cut **ap** (inch)	.039	.118
	Depth of Cut **ae** (inch)	3.937	3.937
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.

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Fax: 248.308.2627

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.

www.mmc-carbide.com/us

Tools specifications subject to change without notice.

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