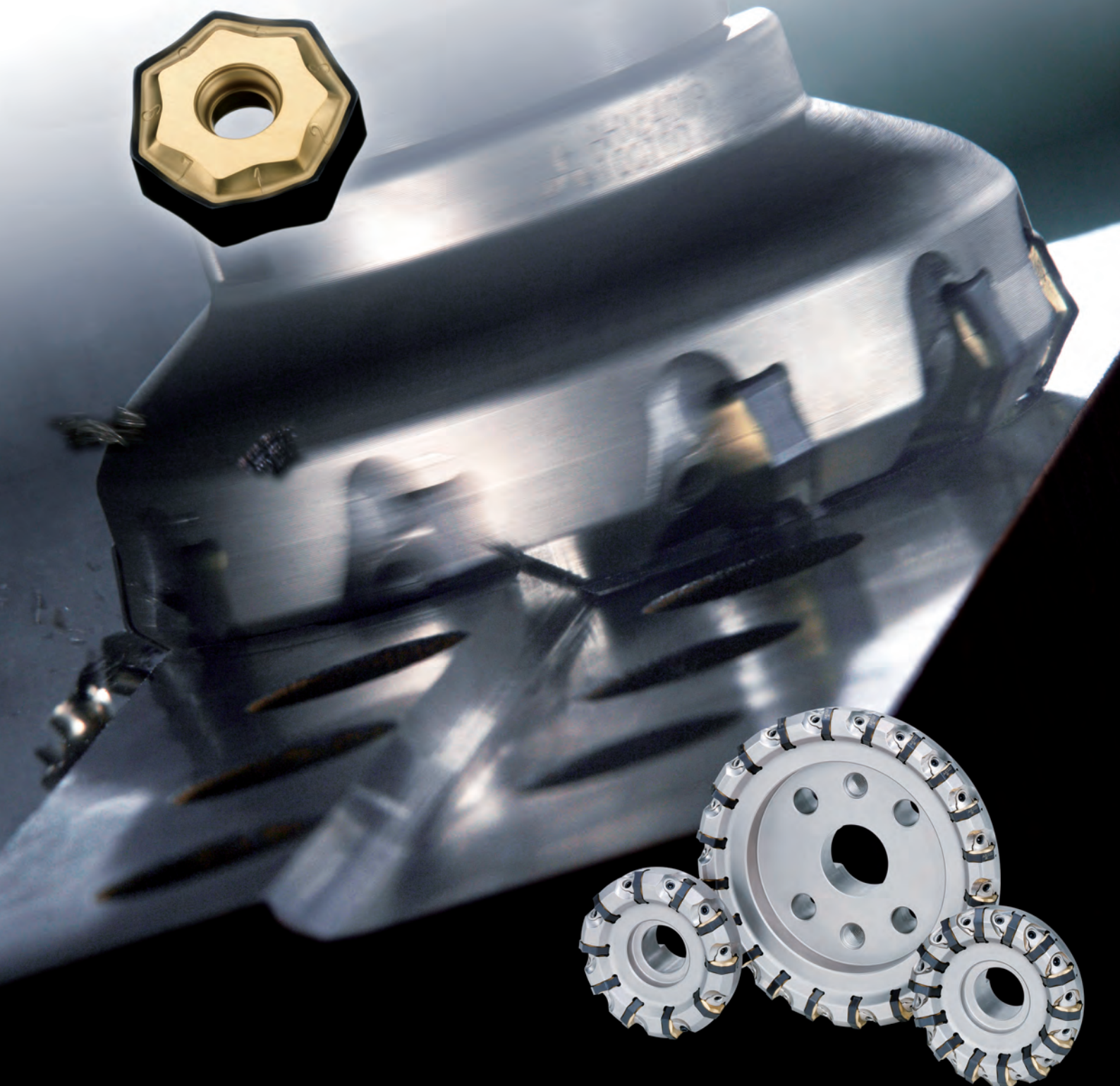


**Heptagonal double sided insert  
offering a breakthrough in  
cast iron machining.**



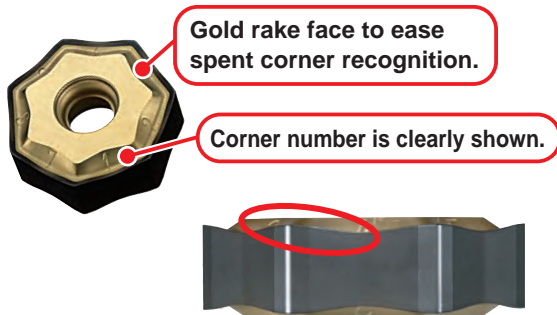
# Face Milling Cutter for High Efficiency Machining of Cast Irons

# AHX640W

## Features

### Unique 14 cornered insert

- Economical heptagonal double sided insert.
- Gold rake for easy recognition of used corners.
- Double positive cutting edge geometry offers lower cutting resistance for improved machining efficiency. (MK breaker)
- High rigidity inserts suitable for high feed milling of cast irons.

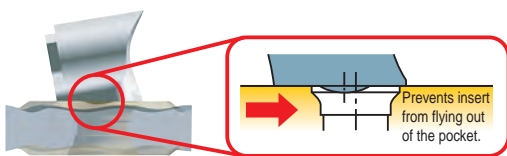


Sloped cutting edge and large rake angle



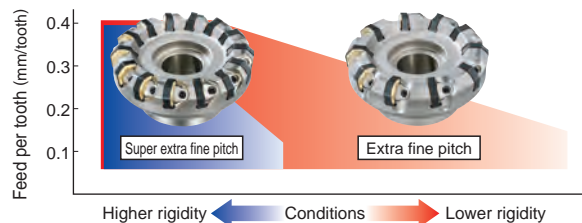
### Innovative clamp system

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



### 2 variations for different applications

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



### Insert applications



#### MK General-purpose insert

20° rake

- High tolerance M-class insert.
- Neutral, double sided 14 corners.
- 20° rake angle for low cutting resistance. First recommendation for roughing and finishing.
- New MC5020 grade for cast iron machining allows longer tool life.

#### HK Strong cutting edge insert

0° rake

- 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 work pieces and high feed machining.
- New MC5020 grade for cast iron machining allows longer tool life.

#### 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.
- New MC5020 grade for cast iron machining allows longer tool life.

# AHX640W

Light Alloy	Cast Iron	Carbon Steel Alloy Steel	Stainless Steel	Hardened Steel
	➔			



Fig.1  
ø80

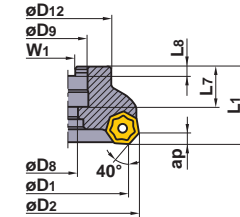


Fig.2  
ø100  
ø125

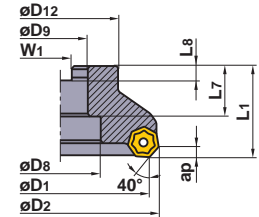


Fig.3  
ø160

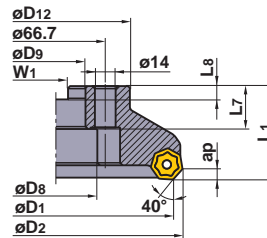
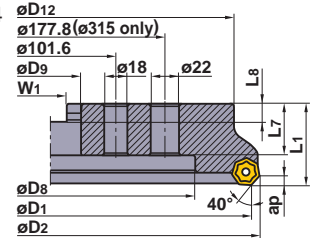


Fig.4  
ø200  
ø250  
ø315




Right hand tool holder shown.

C.H : 40°  
A.R : -6° T : +10°  
R.R : -4° I : +9° - +10° (T, I : When using the MK breaker insert)

Type	Order Number	Stock		Number of Teeth	Dimensions (mm)								Tool Weight (kg)	Max. Depth of Cut ap (mm)	Figure	
		R	L		D1	D2	L1	D9	L7	D8	D12	W1				L8
Extra fine pitch	AHX640W-080A08R/L	●	★	8	80	92.6	50	27	23	13	56	12.4	7	1.5	6	1
	-100B10R/L	●	★	10	100	112.6	50	32	32	45	70	14.4	8	2.1	6	2
	-125B12R/L	●	★	12	125	137.6	63	40	32	56	80	16.4	9	3.1	6	2
	-160C16R/L	●	★	16	160	172.6	63	40	29	56	100	16.4	9	5.6	6	3
	-200C20R/L	●	★	20	200	212.6	63	60	32	135	155	25.7	14	8.0	6	4
	-250C24R/L	●	★	24	250	262.6	63	60	32	180	200	25.7	14	12.6	6	4
	-315C28R/L	●	★	28	315	327.6	80	60	57	225	285	25.7	14	31.5	6	4
Supper extra fine pitch	AHX640W-080A10R/L	●	★	10	80	92.6	50	27	23	13	56	12.4	7	1.5	6	1
	-100B14R/L	●	★	14	100	112.6	50	32	32	45	70	14.4	8	2.1	6	2
	-125B18R/L	●	★	18	125	137.6	63	40	32	56	80	16.4	9	3.1	6	2
	-160C22R/L	●	★	22	160	172.6	63	40	29	56	100	16.4	9	5.6	6	3
	-200C28R/L	●	★	28	200	212.6	63	60	32	135	155	25.7	14	8.0	6	4
	-250C36R/L	●	★	36	250	262.6	63	60	32	180	200	25.7	14	12.6	6	4
	-315C44R/L	●	★	44	315	327.6	80	60	57	225	285	25.7	14	31.5	6	4


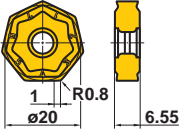

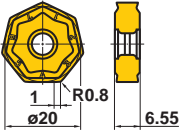

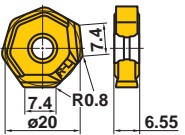
## Spare Parts



Order Number		 *	
AHX640W	CWAHX640WN	LS0622T	TKY15T

\* Clamp Torque (N • m) : LS0622T=6.0

## Inserts

Sharp	Order Number	Class	Honing	Coated		Geometry
				MC5020		
<b>MK Breaker</b> 	<b>NNMU200608ZEN-MK</b>	M	E	●		 1 R0.8 ø20 6.55
<b>HK Breaker</b> 	<b>NNMU200608ZEN-HK</b>	M	E	●		 1 R0.8 ø20 6.55
<b>Wipper</b> 	<b>WNEU2006ZEN7C-WK</b>	E	E	●		 7.4 R0.8 7.4 ø20 6.55

\* The inserts can be used with both right and left hand cutters.

● : Inventory maintained. (10 inserts in a case)

## Reccomended Cutting Conditions

### General Maching

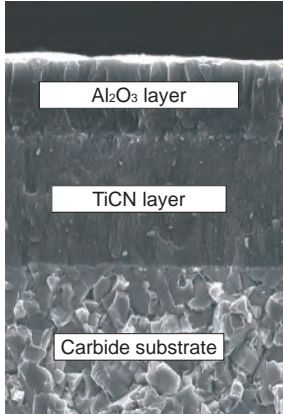
Work Material	Tensile Strength	Insert Grade	Cutting Speed (m/min)	Feed per Tooth (mm/tooth)
<b>K</b> Gray Cast Iron	≤200MPa	<b>MC5020</b>	300 (250–350)	0.3 (0.2–0.4)
	250–350 MPa		220 (150–300)	0.3 (0.2–0.4)
Ductile Cast Iron	≤450MPa		200 (150–250)	0.2 (0.1–0.3)
	500–800 MPa		170 (150–200)	0.2 (0.1–0.3)

### Finishing (When using wipper insert)

Work Material	Axial Depth of Cut (mm)	Cutting Speed (m/min)	Feed per Revolution (mm/rev.)
<b>K</b> Gray Cast Iron	<0.5	320 (250–400)	1–6
	0.5–3	270 (200–350)	
Ductile Cast Iron	<0.5	270 (200–350)	
	0.5–3	220 (200–250)	

## Features of MC5020

- MC5020 has excellent wear, chipping and thermal crack resistance and prevents 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

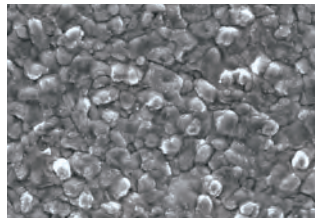
Use of a specially developed cemented carbide that provides superior resistance to fracture and thermal cracking prevents the cutting edge from sudden fracturing.

### Reduced abnormal damage

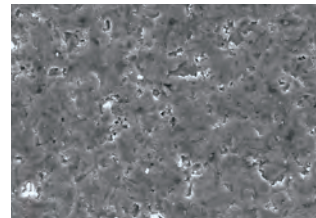
An extremely smooth black super-smooth coating prevents abnormal damage such as weld chipping.

### Black super-smooth coating

#### Comparison of Coating Surface



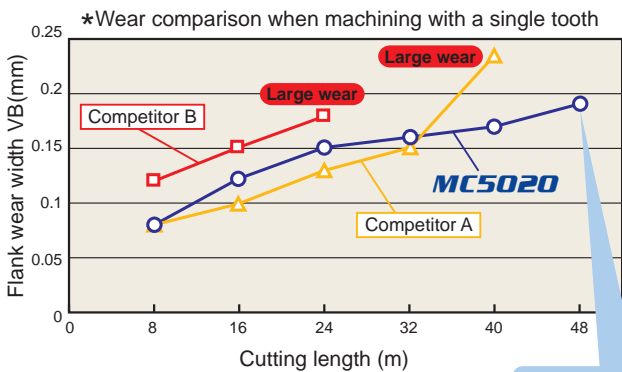
Conventional coating



Black super-smooth coating

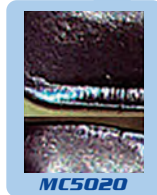
## Cutting Performance

### Wear Resistance

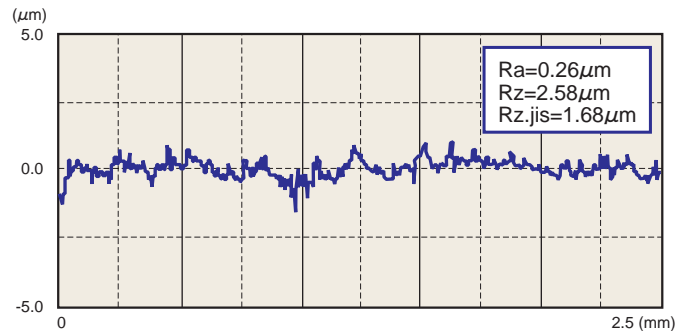


#### <Cutting Conditions>

Workpiece : DIN GG30  
 Tool : AHX640W-100B10R  
 Insert : NNMU200608ZEN-MK (1 piece)  
 Cutting speed : 300m/min  
 Feed per Tooth : 0.3mm/tooth  
 Axial Depth of Cut : 4.5mm  
 Dry cutting



### Surface Finish



#### <Finish condition>



#### <Cutting Conditions>

Workpiece : DIN GGG70  
 Tool : AHX640W-100B14R  
 Insert : NNMU200608ZEN-MK (13 pieces)  
 Wiper insert : WNEU2006ZEN7C-MK (1 piece)  
 Cutting speed : 350m/min  
 Feed per Tooth : 0.1mm/tooth  
 Axial Depth of Cut : 0.4mm  
 Radial Depth of Cut : 80mm  
 Air blow



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