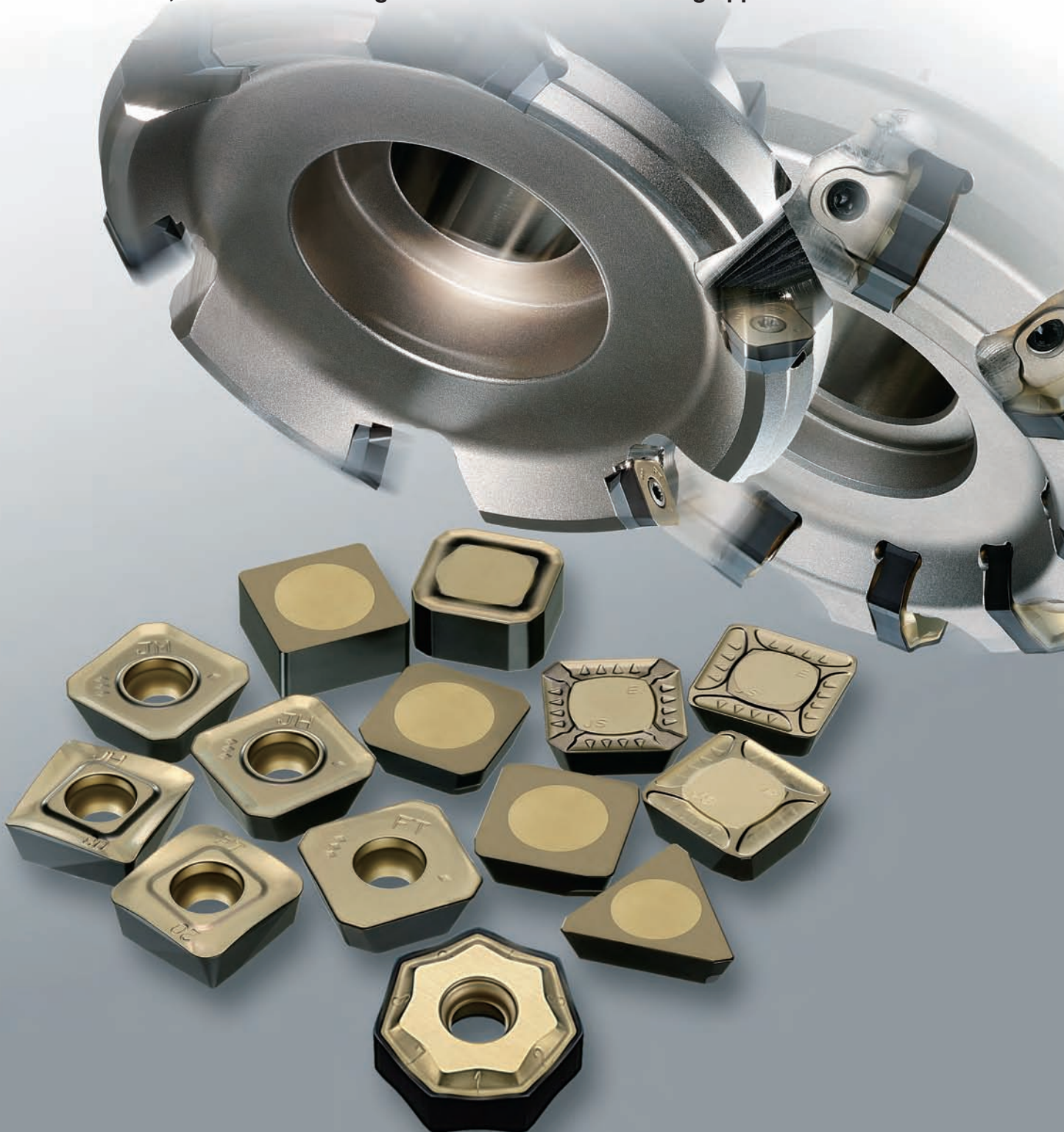


CVD Coated Grade for Cast Iron Milling

# MC5020

## Breakthrough for cast iron machining.

■ Ensures stable, reliable machining to cover all cast iron milling applications.

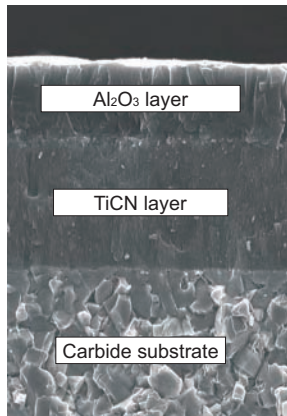


# CVD Coated Grade for Cast Iron Milling

# MC5020

## Features

- 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

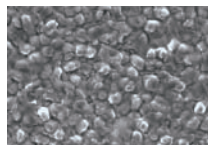
An extremely smooth black super-smooth coating prevents abnormal damage such as weld chipping.



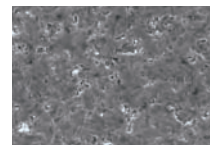
Gold rake face to ease spent corner recognition.

Black super-smooth coating

#### ● Comparison of Coating Surface



Conventional coating



Black super-smooth coating

### Application Range

MC5020 is the first recommendation for cast iron milling. Offers high wear resistance and superior fracture resistance over a wide application area.



### Recommended Cutting Conditions

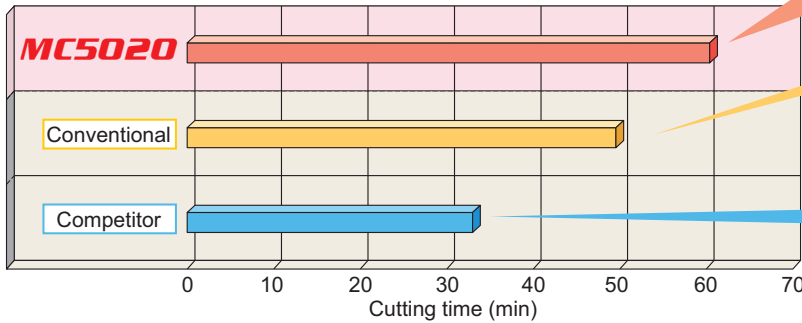
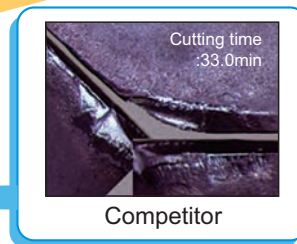
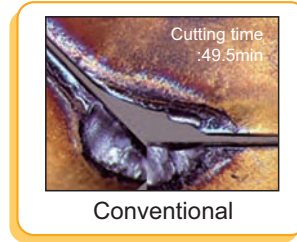
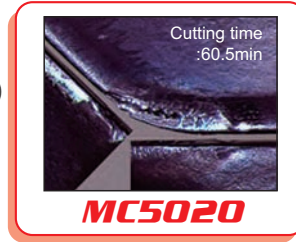
	Work Material	Tensile Strength	Cutting Speed (SFM)	Feed per Tooth (IPT)
K	Cast Iron	250–350MPa	985 (330–1150)	.010 (.004–.016)
	Ductile Cast Iron	≤450MPa	655 (330–820)	.008 (.004–.012)
		500–800MPa	555 (260–655)	.008 (.004–.012)

# Cutting Performance

## Wear Resistance

MC5020 delivers excellent wear resistance when machining cast iron.

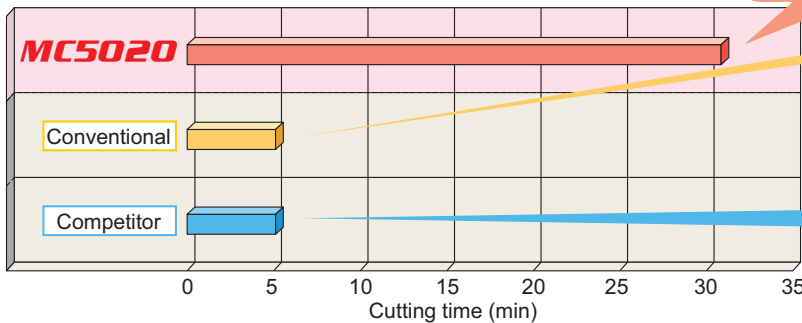
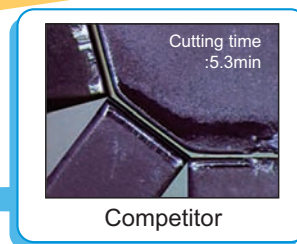
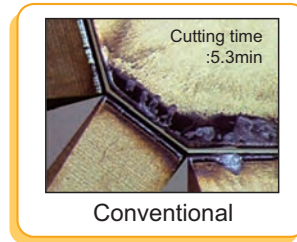
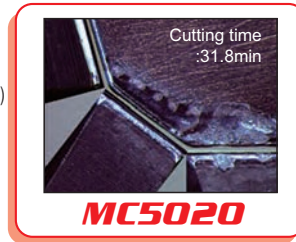
<Cutting conditions>  
 Workpiece : AISI No 45B  
 (Semi-heavy interrupted cutting)  
 Cutting speed: 1640 SFM  
 Feed : .012 IPT  
 Depth of cut : .020 inch  
 Dry cutting



## Fracture and Chipping Resistance

MC5020 displays exceptional fracture and chipping resistance with a highly reliable cutting edge!


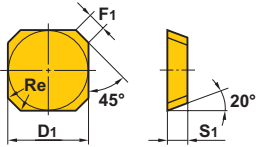

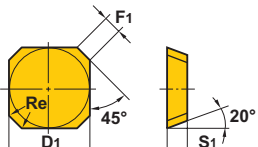

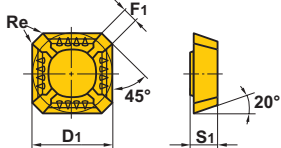

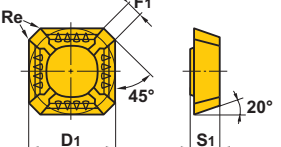

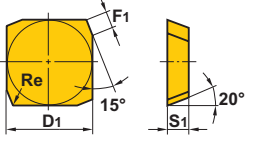

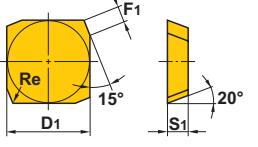

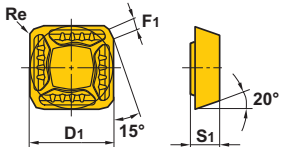
<Cutting conditions>  
 Workpiece : AISI 100-70-03  
 (Heavy interrupted cutting)  
 Cutting speed: 490 SFM  
 Feed : .008 IPT  
 Depth of cut : .059 inch  
 Dry cutting



# MC5020

## Inserts

Honing E: Round S: Chamfer + Round T: Chamfer


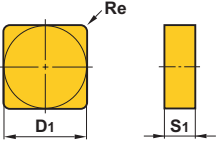

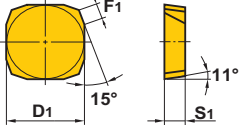

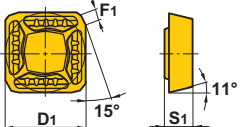
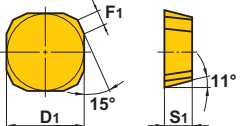

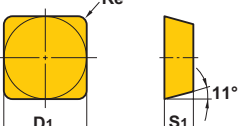

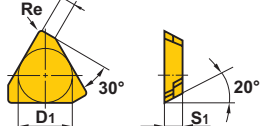

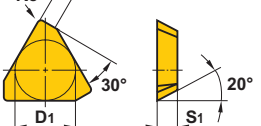
Cutter Type Insert Sharp	Order Number	(ISO) Number	Class	Honing	Stock	Dimensions (inch)				Geometry
						D1	S1	F1	Re	
	SEEN42AFSN1	SEEN1203AFSN1	E	S	●	.500	.125	.055	.039	
	SEEN53AFSN1	SEEN1504AFSN1	E	S	●	.625	.187	.055	.039	
	SEER42AFEN-JS	SEER1203AFEN-JS	E	E	●	.500	.125	.055	.039	
	SEER53AFEN-JS	SEER1504AFEN-JS	E	E	★	.625	.187	.055	.039	
	SEEN42EFSR1	SEEN1203EFSR1	E	S	★	.500	.125	.055	.039	
	SEEN53EFSR1	SEEN1504EFSR1	E	S	★	.625	.187	.055	.039	
	SEER42EFER-JS	SEER1203EFER-JS	E	E	★	.500	.187	.055	.039	


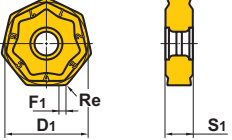

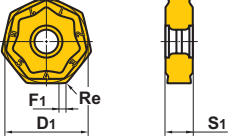

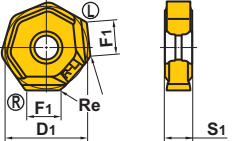
Cutter Type Insert Sharp	Order Number	(ISO) Number	Class	Honing	Stock	Dimensions (inch)				Geometry
						D1	S1	F1	Re	
ASX445 	SEMT13T3AGSN-FT	SEMT13T3AGSN-FT	M	S	●	.528	.156	.078	.059	
ASX445 	SEMT13T3AGSN-JH	SEMT13T3AGSN-JH	M	S	●	.528	.156	.078	.059	
ASX445 	SEMT13T3AGSN-JM	SEMT13T3AGSN-JM	M	S	●	.528	.156	.078	.059	
ASX400 	SOMT12T320PEER-FT	SOMT12T320PEER-FT	M	E	●	.500	.156	.020	.079	
ASX400 	SOMT12T308PEER-JH	SOMT12T308PEER-JH	M	E	●	.500	.156	.055	.031	
ASX400 	SOMT12T308PEER-JM	SOMT12T308PEER-JM	M	E	●	.500	.156	.055	.031	

# MC5020

## Inserts

Honing E:Round S:Chamfer + Round T:Chamfer


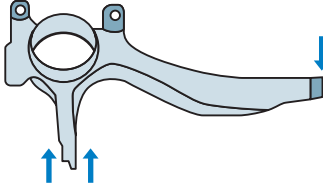
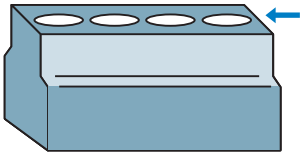
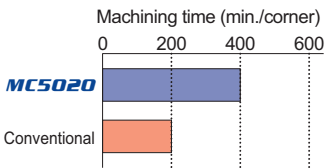
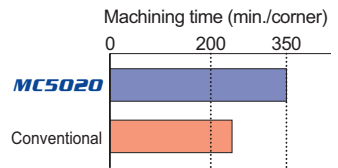
Cutter Type Insert Sharp	Order Number	(ISO) Number	Class	Honing	Stock	Dimensions (inch)				Geometry
						D1	S1	F1	Re	
	<b>SNMN432</b>	<b>SNMN120408</b>	M	E	★	.500	.187	—	.031	
	<b>433</b>	<b>120412</b>	M	E	★	.500	.187	—	.047	
	<b>SPEN42EEER1</b>	<b>SPEN1203EEER1</b>	E	E	●	.500	.125	.055	—	 Right hand tool holder shown.
	<b>42EEEL1</b>	<b>1203EEEL1</b>	E	E	●	.500	.125	.055	—	
	<b>SPNN42EEER1</b>	<b>SPNN1203EEER1</b>	N	E	●	.500	.125	.055	—	
	<b>SPER42EEER-JS</b>	<b>SPER1203EEER-JS</b>	E	E	●	.500	.125	.055	—	
Corner Angle 15°	<b>SPKN42EDR</b>	<b>SPKN1203EDR</b>	K	T	●	.500	.125	.055	—	
	<b>SPMN432</b>	<b>SPMN120408</b>	M	E	★	.500	.187	—	.031	
	<b>433</b>	<b>120412</b>	M	E	★	.500	.187	—	.047	
	<b>TEEN32PESR1</b>	<b>TEEN1603PESR1</b>	E	S	★	.375	.125	.055	.016	
	<b>TEEN43PESR1</b>	<b>TEEN2204PESR1</b>	E	S	★	.500	.187	.055	.039	

Cutter Type Insert Sharp	Order Number	(ISO) Number	Class	Honing	Stock	Dimensions (inch)				Geometry
						D1	S1	F1	Re	
AHX640W (MK Breaker) 	* NNMU200608ZEN-MK	* NNMU200608ZEN-MK	M	E	●	.787	.258	.039	.031	
AHX640W (HK Breaker) 	* NNMU200608ZEN-HK	* NNMU200608ZEN-HK	M	E	●	.787	.258	.039	.031	
AHX640W (Wiper) 	* WNEU2006ZEN7C-WK 2RH Corners & 2LH Corners	* WNEU2006ZEN7C-WK	E	E	●	.787	.258	.291	.031	

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

# MC5020

## Application Examples

Insert (Grade)		NNMU200608ZEN-MK(MC5020)	SNMN433(MC5020)	SPEN42EEER1(MC5020)
Workpiece		 <p>AHX640W Type Cutter</p>		
		Roughing	Roughing	Roughing
Component		Housing case	Steering knuckle	Cylinder block
Cutting Conditions	Cutting Speed (SFM)	490	1640	985
	Feed per Tooth (IPT)	.004	.005	.005
	Depth of Cut (inch)	.118	.138	.197-.276
	Coolant	Dry cutting	Dry cutting	Dry cutting
Results		<p>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.</p>	 <p>Machining time (min./corner)</p> <p>0 200 400 600</p> <p><b>MC5020</b> achieved longer tool life than a conventional grade.</p>	 <p>Machining time (min./corner)</p> <p>0 200 350</p> <p><b>MC5020</b> achieved longer tool life than a conventional grade.</p>

**For Your Safety**

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

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(Tools specifications subject to change without notice.)