

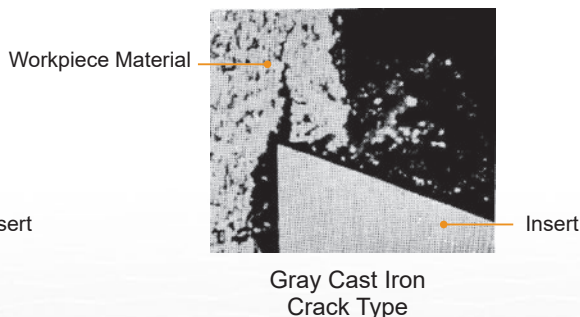
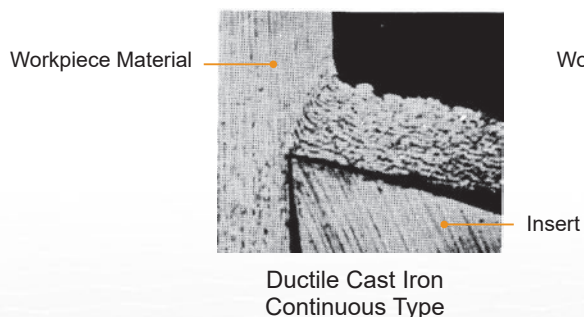
CVD Coated Grades for Cast Iron Turning

MC5100 Series

A choice of different grades ideally suited to all types of cast iron machining.

The process of casting iron enables complex geometries to be formed in the component that is produced. Different types of cast irons produce different chips when machined and can cause various types of damage to an insert. The complex shapes produced in castings also creates challenges when machining and can vary from continuous to interrupted cutting. In response to these challenges, Mitsubishi Materials has created a series of grades that are able to successfully machine all types of cast iron materials and component geometries.

Chip morphology of cast iron



Features

"Super" Nano Texture Technology

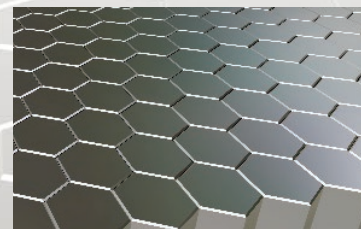
The standard Nano Texture Technology has been improved and developed to be an industry leading standard for crystal growth of Al_2O_3 coatings. This Super Nano Texture Technology increases tool life and wear resistance due to the fine, dense crystal growth process.

MC5100

Conventional A

Conventional B

20 times more than conventional B inserts



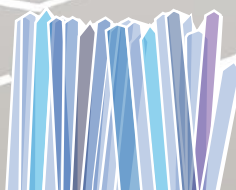
*By Image

The ratio of Al_2O_3 crystal grains with the same orientation



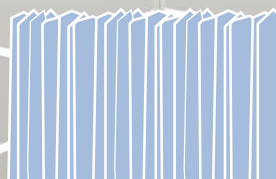
Conventional CVD inserts

Grain size and growth direction are uneven.



Nano Texture

Uniformity of the grain size and growth direction has improved.



"Super" Nano Texture

Uniformity of the growth direction has drastically improved.

Crystal Orientation

For high speed cutting of gray cast iron

MC5105

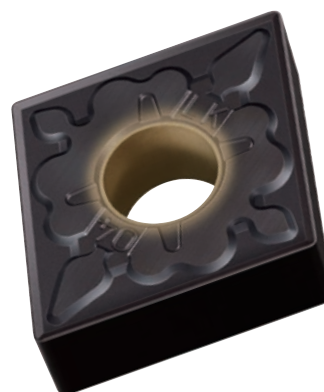
Provides outstanding wear resistance when turning gray cast iron at up to 1000 m/min cutting speeds.



First recommended grade for ductile cast iron

MC5115

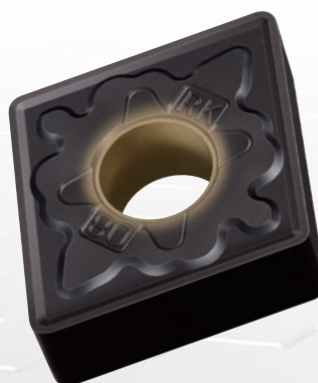
Prevents abnormal cutting edge damage and displays excellent wear and fracture resistance when machining ductile cast iron.



For heavy interrupted cutting of ductile cast iron

MC5125

Demonstrates excellent fracture resistance that can withstand heavy interrupted cutting of high strength ductile cast iron.



From the Developers

Since gray cast iron tends to be machined at high speeds (500-1000 m/min), it is important to make the Al_2O_3 film coating as strong as possible in order to ensure wear resistance. The focus was on the formation of crystals and the improvement of the intermediate layer of the coating. The coating has also been adjusted to provide excellent intermittent performance despite using a harder carbide substrate compared to conventional products.

Ductile cast iron is machined at relative low speeds (100-300 m/min) and TiCN has a higher hardness. As for the intermittent cutting performance, it was difficult to identify the cause of the edge chipping, but the investigation results revealed that the peeling of the coating was the cause of chipping so a stronger adhesion layer was introduced.

The MC5100 series has been expanded to include grades that are optimal for each type of cast iron turning. These grades will become an indispensable tool for customers that machine cast iron materials.

Tough and Sub Grip Layers for Ductile Cast Iron Grades

The extra strength of the adhesion between the coating layers (1.3 times stronger) suppresses peeling during machining of ductile cast iron.

Adhesion is
1.3 Times*
Greater!

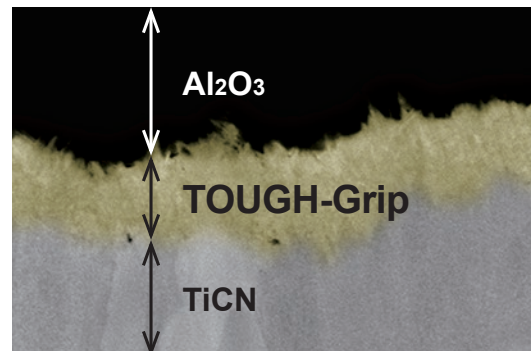


MC5115

*Compared with a conventional Mitsubishi product.

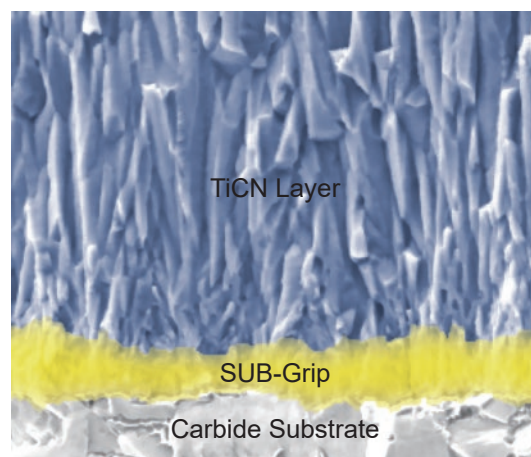
TOUGH-Grip

The interface between the layers is controlled at the nano level, allowing the TOUGH-Grip layer extremely high levels of adhesion to prevent delamination.



SUB-Grip

By increasing the degree of adhesion between the carbide substrate and the coating layer, a coating layer has been developed that is resistant to peeling even during strong intermittent machining.

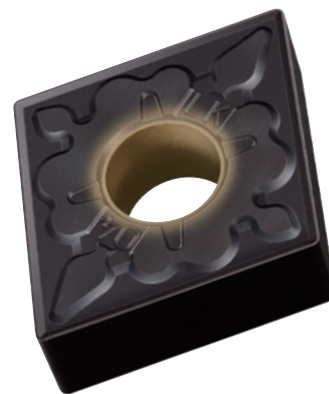


By Image

For high speed cutting of gray cast iron

MC5105

Harder and With Outstanding Wear Resistance

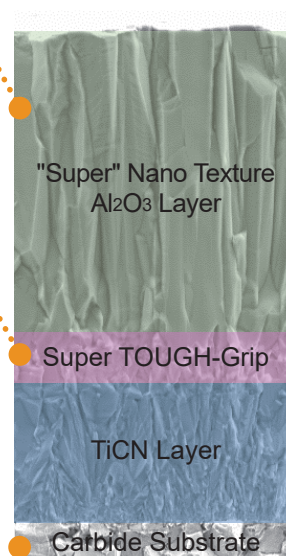
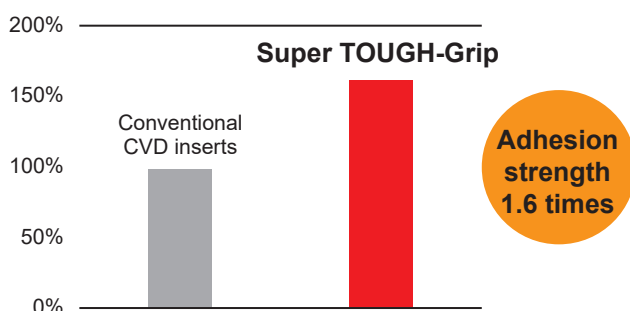


A thick top coating layer

Intermediate layer suitable for high speed cutting

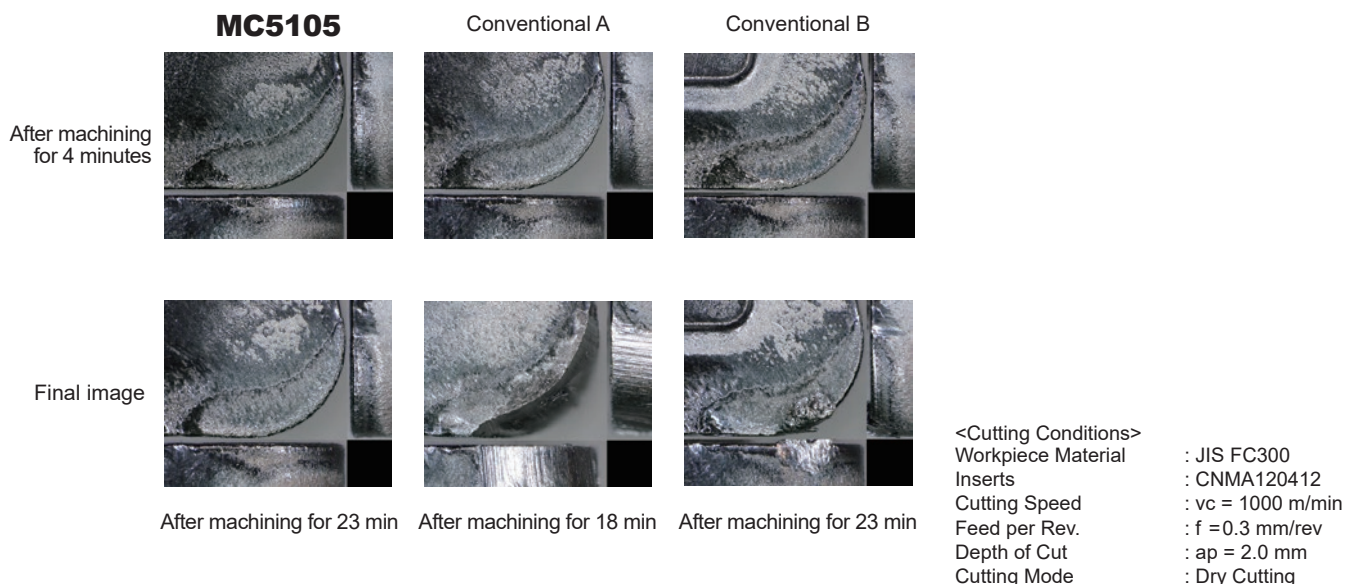
Adhesion Strength Evaluation*

*Adhesion strength measurement is obtained from a scratch test that records the force needed to peel the coating layers.



The substrate adopts a high hardness carbide material

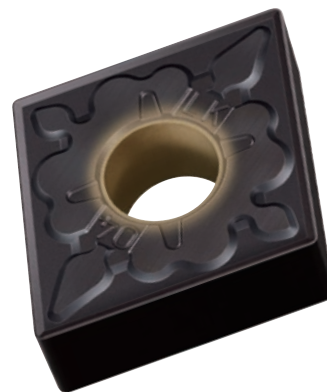
Comparison of wear resistance of FC300 at cutting speeds of 1000 m/min



First recommended grade
for ductile cast iron

MC5115

**Excellent Durability and
Resistance to Impacts**

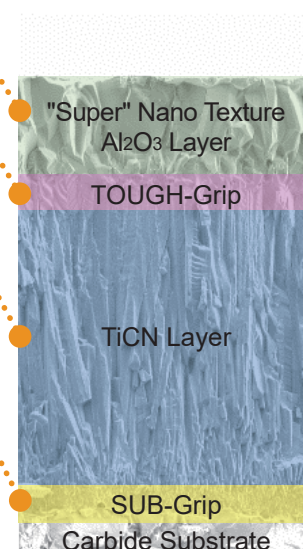


Al₂O₃ layer with excellent wear resistance

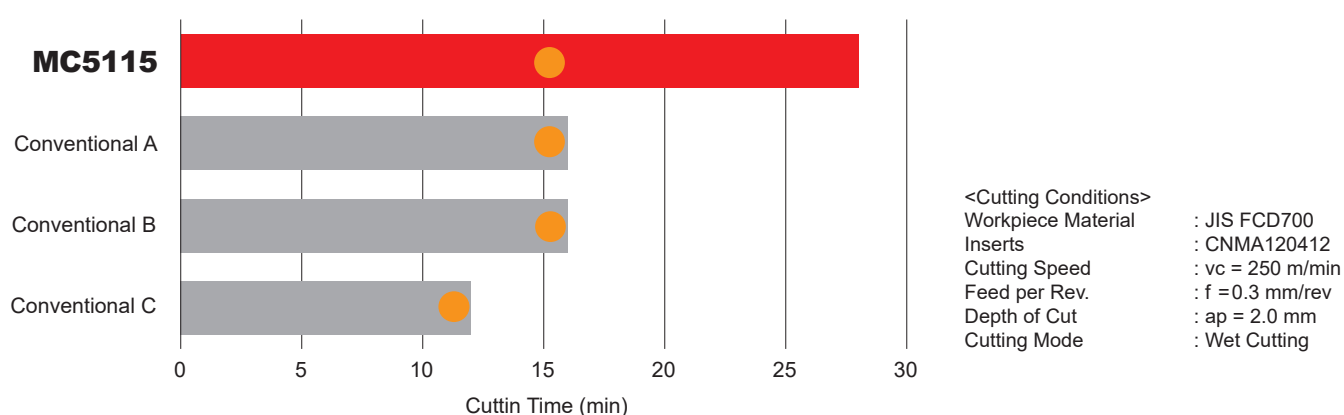
**Intermediate layer with microstructure suitable
for ductile cast iron**

**Thick TiCN layer suitable for coping with the
hardness of ductile cast iron**

**New adhesion layer with an enhanced resistance
to peeling**



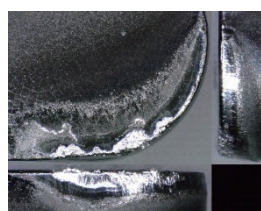
Comparison of wear resistance during continuous cutting of FCD700



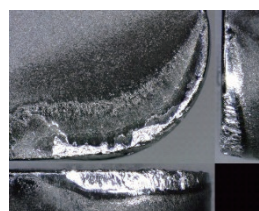
After machining for 16 minutes



MC5115



Conventional A



Conventional B



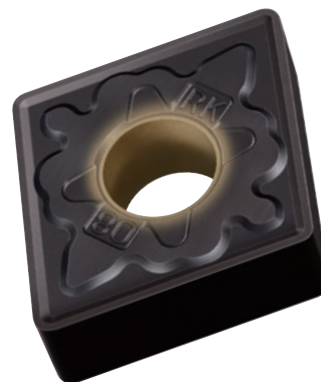
Conventional C

After machining for 12 minutes

For heavy interrupted cutting of ductile cast iron

MC5125

Excellent Stability and Fracture Resistance



Al₂O₃ layer with excellent wear resistance

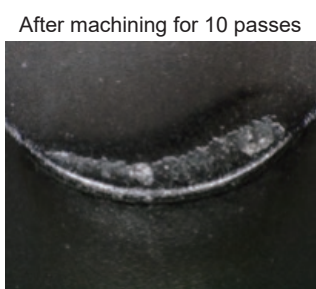
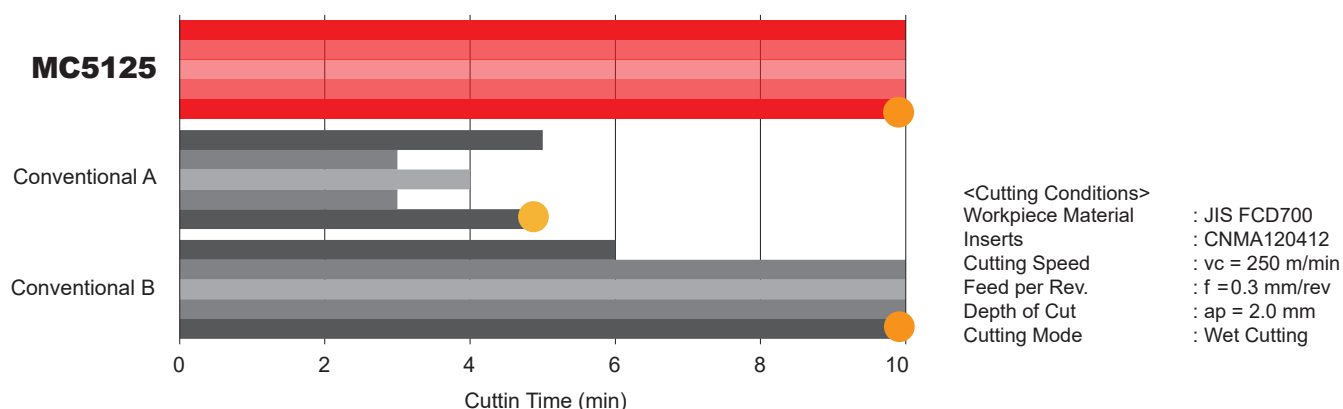
Intermediate layer with microstructure suitable for ductile cast iron

TiCN layer for hardness for heavy interrupted cutting

New adhesion layer with an enhanced resistance to peeling



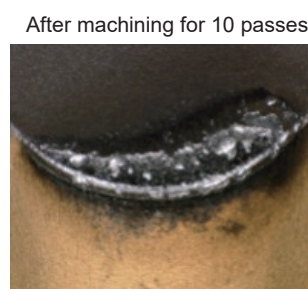
Comparison of fracture resistance after 10 passes of interrupted cutting of FCD700



MC5125



Conventional A



Conventional B

Way to Select MC5100 Series

Gray Cast Iron

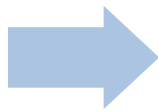
MC5105 is the first recommendation for high speed machining of gray cast iron.

Select a suitable chip breaker to optimise tool life and reduce wear.

MC5115 is also capable of reliable machining at speeds of 100-300 m/min and for unstable cutting conditions.

High Speed Cutting 200–1000m/min

MC5105

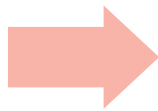


In case of fracture

Change to a chip breaker with a stronger cutting edge geometry

Cutting Speed 100–300m/min

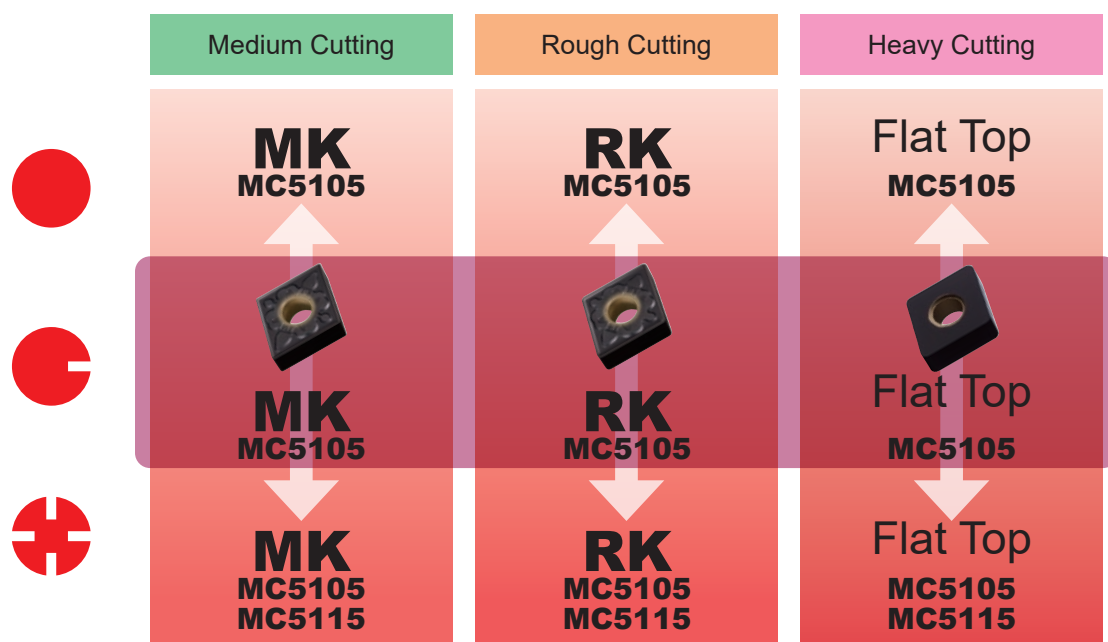
MC5115



In case of wear

Change to a chip breaker with a sharper cutting edge geometry

Refer to page 9 for the chip breaker selection.



Cutting Conditions : ● : Stable Cutting ◐ : General Cutting ⊕ : Unstable Cutting

Ductile Cast Iron

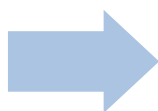
MC5115 is the first recommendation for ductile cast iron, including high strength ductile cast iron.

In order to prevent breakage and wear, select a suitable chip breaker.

MC5125 is also effective for heavy, interrupted and unstable cutting conditions.

First Recommendation

MC5115



Change to a chip breaker with a stronger cutting edge geometry

In case of fracture



In case of fracture



In case of wear

Heavy, Interrupted Cutting

MC5125



Change to a chip breaker with a sharper cutting edge geometry

In case of wear

Refer to page 9 for the chip breaker selection.

	Light Cutting	Medium Cutting	Rough Cutting	Heavy Cutting
●	LK MC5115	MK MC5115	RK MC5115	Flat Top MC5115
◐	LK MC5115	MK MC5115	RK MC5115	Flat Top MC5115
⊕	LK MC5125	MK MC5125	RK MC5125	Flat Top MC5125

Cutting Conditions : ● : Stable Cutting ◐ : General Cutting ⊕ : Unstable Cutting

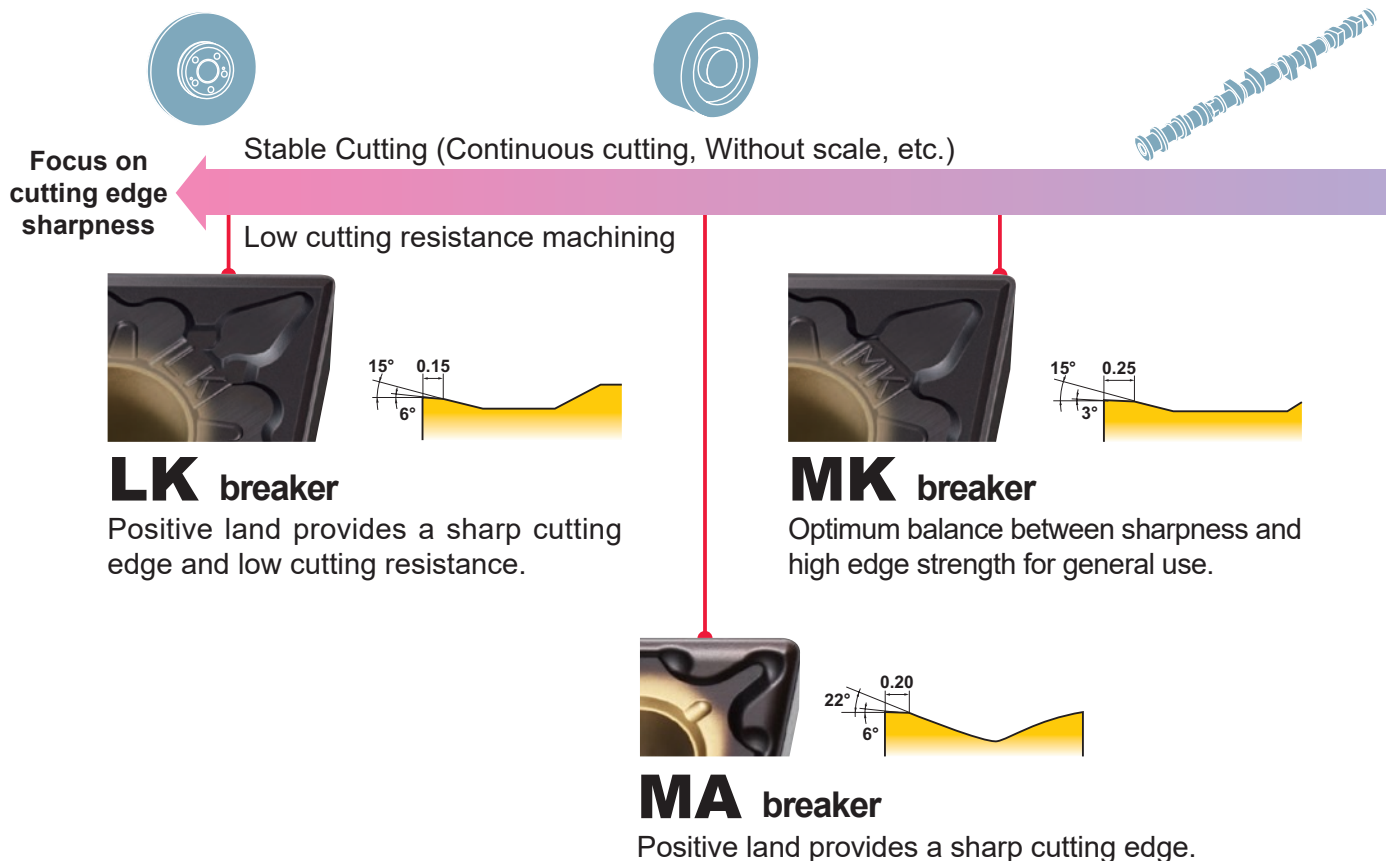
Chip breaker system for cast iron turning

The entire range of new chip breakers has been designed by taking advantage of the properties of the new grades. Each breaker has the optimum suitability for each respective application.

Negative Inserts

LK/MK/RK/Flat Top, GK/MA breaker

Select a chip breaker according to the machining conditions.

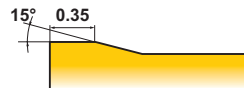




Unstable Cutting (Interrupted cutting, With scale, etc.)

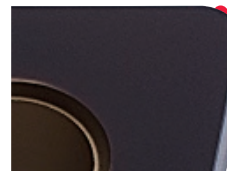
Focus on cutting edge strength

General to Heavy cutting



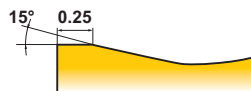
RK breaker

Extra wide land provides a stable cutting edge for interrupted machining and removal of scale.



Flat Top

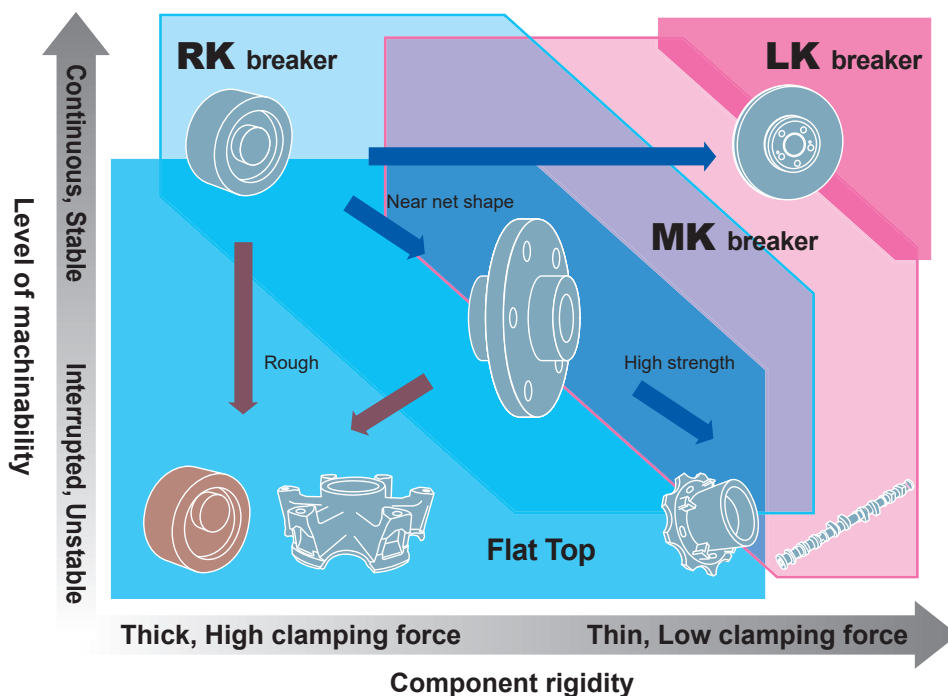
Flat top focusing on high edge strength.



GK breaker

Versatile standard breaker. Flat land maintains a stable cutting edge.

Application map for cast iron

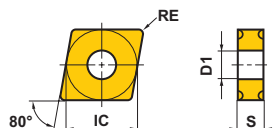


MC5100 Series

NEW

Negative Inserts (With hole)

M Class

CNMG
CNMA

Light Cutting	Medium Cutting	Medium Cutting	Medium Cutting
LK	MA	MK	GK
Rough Cutting	For Cast Iron		
RK	Flat Top		

(mm)

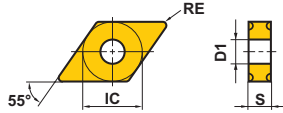
Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
CNMG120404-LK	L	●	●	●	12.7	4.76	0.4	5.16
CNMG120408-LK	L	●	●	●	12.7	4.76	0.8	5.16
CNMG120412-LK	L	●	●	●	12.7	4.76	1.2	5.16
CNMG120404-MA	M	●	●	●	12.7	4.76	0.4	5.16
CNMG120408-MA	M	●	●	●	12.7	4.76	0.8	5.16
CNMG120412-MA	M	●	●	●	12.7	4.76	1.2	5.16
CNMG120416-MA	M	●	●	●	12.7	4.76	1.6	5.16
CNMG160608-MA	M	●	●	●	15.875	6.35	0.8	6.35
CNMG160612-MA	M	●	●	●	15.875	6.35	1.2	6.35
CNMG160616-MA	M	●	●	●	15.875	6.35	1.6	6.35
CNMG120404-MK	M	●	●	●	12.7	4.76	0.4	5.16
CNMG120408-MK	M	●	●	●	12.7	4.76	0.8	5.16
CNMG120412-MK	M	●	●	●	12.7	4.76	1.2	5.16
CNMG120416-MK	M	●	●	●	12.7	4.76	1.6	5.16
CNMG160608-MK	M	●	●	●	15.875	6.35	0.8	6.35
CNMG160612-MK	M	●	●	●	15.875	6.35	1.2	6.35
CNMG160616-MK	M	●	●	●	15.875	6.35	1.6	6.35
CNMG190612-MK	M	●	●	●	19.05	6.35	1.2	7.93
CNMG190616-MK	M	●	●	●	19.05	6.35	1.6	7.93
CNMG120404-GK	M	●	●	●	12.7	4.76	0.4	5.16
CNMG120408-GK	M	●	●	●	12.7	4.76	0.8	5.16
CNMG120412-GK	M	●	●	●	12.7	4.76	1.2	5.16
CNMG120416-GK	M	●	●	●	12.7	4.76	1.6	5.16
CNMG160612-GK	M	●	●	●	15.875	6.35	1.2	6.35
CNMG160616-GK	M	●	●	●	15.875	6.35	1.6	6.35
CNMG120408-RK	R	●	●	●	12.7	4.76	0.8	5.16
CNMG120412-RK	R	●	●	●	12.7	4.76	1.2	5.16
CNMG120416-RK	R	●	●	●	12.7	4.76	1.6	5.16
CNMG160608-RK	R	●	●	●	15.875	6.35	0.8	6.35
CNMG160612-RK	R	●	●	●	15.875	6.35	1.2	6.35
CNMG160616-RK	R	●	●	●	15.875	6.35	1.6	6.35
CNMG190612-RK	R	●	●	●	19.05	6.35	1.2	7.93
CNMG190616-RK	R	●	●	●	19.05	6.35	1.6	7.93

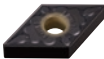
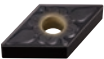
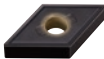
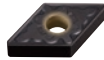
Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
CNMA120404	—	●	●	●	12.7	4.76	0.4	5.16
CNMA120408	—	●	●	●	12.7	4.76	0.8	5.16
CNMA120412	—	●	●	●	12.7	4.76	1.2	5.16
CNMA120416	—	●	●	●	12.7	4.76	1.6	5.16
CNMA160612	—	●	●	●	15.875	6.35	1.2	6.35
CNMA160616	—	●	●	●	15.875	6.35	1.6	6.35
CNMA190612	—	●	●	●	19.05	6.35	1.2	7.93
CNMA190616	—	●	●	●	19.05	6.35	1.6	7.93
CNMA190624	—	●	●	●	19.05	6.35	2.4	7.93

Negative Inserts (With hole)

M Class

DNMG
DNMA



Light Cutting	Medium Cutting	Medium Cutting	Medium Cutting
LK	MA	MK	GK
			
Rough Cutting	For Cast Iron		
RK	Flat Top		
			

(mm)

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
DNMG110408-LK	L	●	●	●	9.525	4.76	0.8	3.81
DNMG150404-LK	L	●	●	●	12.7	4.76	0.4	5.16
DNMG150408-LK	L	●	●	●	12.7	4.76	0.8	5.16
DNMG150412-LK	L	●	●	●	12.7	4.76	1.2	5.16
DNMG150604-LK	L	●	●	●	12.7	6.35	0.4	5.16
DNMG150608-LK	L	●	●	●	12.7	6.35	0.8	5.16
DNMG150612-LK	L	●	●	●	12.7	6.35	1.2	5.16
DNMG150404-MA	M	●	●	●	12.7	4.76	0.4	5.16
DNMG150408-MA	M	●	●	●	12.7	4.76	0.8	5.16
DNMG150412-MA	M	●	●	●	12.7	4.76	1.2	5.16
DNMG150604-MA	M	●	●	●	12.7	6.35	0.4	5.16
DNMG150608-MA	M	●	●	●	12.7	6.35	0.8	5.16
DNMG150612-MA	M	●	●	●	12.7	6.35	1.2	5.16
DNMG110408-MK	M	●	●	●	9.525	4.76	0.8	3.81
DNMG150404-MK	M	●	●	●	12.7	4.76	0.4	5.16
DNMG150408-MK	M	●	●	●	12.7	4.76	0.8	5.16
DNMG150412-MK	M	●	●	●	12.7	4.76	1.2	5.16
DNMG150604-MK	M	●	●	●	12.7	6.35	0.4	5.16
DNMG150608-MK	M	●	●	●	12.7	6.35	0.8	5.16
DNMG150612-MK	M	●	●	●	12.7	6.35	1.2	5.16
DNMG150404-GK	M	●	●	●	12.7	4.76	0.4	5.16
DNMG150408-GK	M	●	●	●	12.7	4.76	0.8	5.16
DNMG150412-GK	M	●	●	●	12.7	4.76	1.2	5.16
DNMG150604-GK	M	●	●	●	12.7	6.35	0.4	5.16
DNMG150608-GK	M	●	●	●	12.7	6.35	0.8	5.16
DNMG150612-GK	M	●	●	●	12.7	6.35	1.2	5.16
DNMG150408-RK	R	●	●	●	12.7	4.76	0.8	5.16
DNMG150412-RK	R	●	●	●	12.7	4.76	1.2	5.16
DNMG150608-RK	R	●	●	●	12.7	6.35	0.8	5.16
DNMG150612-RK	R	●	●	●	12.7	6.35	1.2	5.16

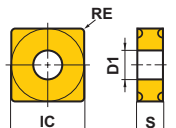
Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
DNMA150404	—	●	●	●	12.7	4.76	0.4	5.16
DNMA150408	—	●	●	●	12.7	4.76	0.8	5.16
DNMA150412	—	●	●	●	12.7	4.76	1.2	5.16
DNMA150604	—	●	●	●	12.7	6.35	0.4	5.16
DNMA150608	—	●	●	●	12.7	6.35	0.8	5.16
DNMA150612	—	●	●	●	12.7	6.35	1.2	5.16

MC5100 Series

NEW

Negative Inserts (With hole)

M Class

SNMG
SNMA

Light Cutting	Medium Cutting	Medium Cutting	Medium Cutting
LK	MA	MK	GK
			
Rough Cutting	For Cast Iron		
RK	Flat Top		
			

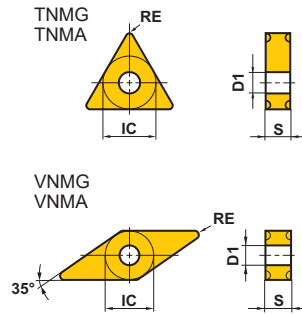
(mm)

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
SNMG120408-LK	L	●	●		12.7	4.76	0.8	5.16
SNMG120412-LK	L	●	●		12.7	4.76	1.2	5.16
SNMG120404-MA	M	●	●		12.7	4.76	0.4	5.16
SNMG120408-MA	M	●	●		12.7	4.76	0.8	5.16
SNMG120412-MA	M	●	●		12.7	4.76	1.2	5.16
SNMG120416-MA	M	●	●		12.7	4.76	1.6	5.16
SNMG150612-MA	M	●	●		15.875	6.35	1.2	6.35
SNMG120408-MK	M	●	●	●	12.7	4.76	0.8	5.16
SNMG120412-MK	M	●	●	●	12.7	4.76	1.2	5.16
SNMG120416-MK	M	●	●	●	12.7	4.76	1.6	5.16
SNMG150612-MK	M	●	●	●	15.875	6.35	1.2	6.35
SNMG150616-MK	M	●	●	●	15.875	6.35	1.6	6.35
SNMG190612-MK	M	●			19.05	6.35	1.2	7.93
SNMG190616-MK	M	●			19.05	6.35	1.6	7.93
SNMG120404-GK	M	●	●		12.7	4.76	0.4	5.16
SNMG120408-GK	M	●	●		12.7	4.76	0.8	5.16
SNMG120412-GK	M	●	●		12.7	4.76	1.2	5.16
SNMG120416-GK	M	●	●		12.7	4.76	1.6	5.16
SNMG150612-GK	M	●	●		15.875	6.35	1.2	6.35
SNMG120408-RK	R	●	●	●	12.7	4.76	0.8	5.16
SNMG120412-RK	R	●	●	●	12.7	4.76	1.2	5.16
SNMG120416-RK	R	●	●	●	12.7	4.76	1.6	5.16
SNMG150612-RK	R	●	●	●	15.875	6.35	1.2	6.35
SNMG150616-RK	R	●	●	●	15.875	6.35	1.6	6.35
SNMG190612-RK	R	●			19.05	6.35	1.2	7.93
SNMG190616-RK	R	●			19.05	6.35	1.6	7.93

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
SNMA090308	—	●	●	●	9.525	3.18	0.8	3.81
SNMA120408	—	●	●	●	12.7	4.76	0.8	5.16
SNMA120412	—	●	●	●	12.7	4.76	1.2	5.16
SNMA120416	—	●	●	●	12.7	4.76	1.6	5.16
SNMA150612	—	●	●	●	15.875	6.35	1.2	6.35
SNMA150616	—	●	●	●	15.875	6.35	1.6	6.35
SNMA190612	—	●			19.05	6.35	1.2	7.93
SNMA190616	—	●			19.05	6.35	1.6	7.93

Negative Inserts (With hole)

M Class



Light Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Rough Cutting	For Cast Iron
LK	MA	MK	GK	RK	Flat Top
Light Cutting	Medium Cutting	Medium Cutting	Medium Cutting	For Cast Iron	
LK	MA	MK	GK	Flat Top	

(mm)

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
TNMG160404-LK	L	●	●	●	9.525	4.76	0.4	3.81
TNMG160408-LK	L	●	●	●	9.525	4.76	0.8	3.81
TNMG160412-LK	L	●	●	●	9.525	4.76	1.2	3.81
TNMG160404-MA	M	●	●	●	9.525	4.76	0.4	3.81
TNMG160408-MA	M	●	●	●	9.525	4.76	0.8	3.81
TNMG160412-MA	M	●	●	●	9.525	4.76	1.2	3.81
TNMG160416-MA	M	●	●	●	9.525	4.76	1.6	3.81
TNMG220408-MA	M	●	●	●	12.7	4.76	0.8	5.16
TNMG220412-MA	M	●	●	●	12.7	4.76	1.2	5.16
TNMG220416-MA	M	●	●	●	12.7	4.76	1.6	5.16
TNMG160404-MK	M	●	●	●	9.525	4.76	0.4	3.81
TNMG160408-MK	M	●	●	●	9.525	4.76	0.8	3.81
TNMG160412-MK	M	●	●	●	9.525	4.76	1.2	3.81
TNMG220408-MK	M	●	●	●	12.7	4.76	0.8	5.16
TNMG220412-MK	M	●	●	●	12.7	4.76	1.2	5.16
TNMG220416-MK	M	●	●	●	12.7	4.76	1.6	5.16
TNMG160404-GK	M	●	●	●	9.525	4.76	0.4	3.81
TNMG160408-GK	M	●	●	●	9.525	4.76	0.8	3.81
TNMG160412-GK	M	●	●	●	9.525	4.76	1.2	3.81
TNMG160416-GK	M	●	●	●	9.525	4.76	1.6	3.81
TNMG220408-GK	M	●	●	●	12.7	4.76	0.8	5.16
TNMG220412-GK	M	●	●	●	12.7	4.76	1.2	5.16
TNMG160408-RK	R	●	●	●	9.525	4.76	0.8	3.81
TNMG160412-RK	R	●	●	●	9.525	4.76	1.2	3.81
TNMG160416-RK	R	●	●	●	9.525	4.76	1.6	3.81
TNMG220408-RK	R	●	●	●	12.7	4.76	0.8	5.16
TNMG220412-RK	R	●	●	●	12.7	4.76	1.2	5.16
TNMG220416-RK	R	●	●	●	12.7	4.76	1.6	5.16
TNMA160404	-	●	●	●	9.525	4.76	0.4	3.81
TNMA160408	-	●	●	●	9.525	4.76	0.8	3.81
TNMA160412	-	●	●	●	9.525	4.76	1.2	3.81
TNMA160416	-	●	●	●	9.525	4.76	1.6	3.81
TNMA160420	-	●	●	●	9.525	4.76	2.0	3.81
TNMA220408	-	●	●	●	12.7	4.76	0.8	5.16
TNMA220412	-	●	●	●	12.7	4.76	1.2	5.16
TNMA220416	-	●	●	●	12.7	4.76	1.6	5.16

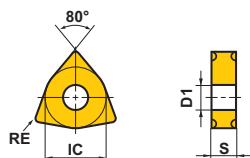
Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
VNMG160404-LK	L	●	●	●	9.525	4.76	0.4	3.81
VNMG160408-LK	L	●	●	●	9.525	4.76	0.8	3.81
VNMG160404-MA	M	●	●	●	9.525	4.76	0.4	3.81
VNMG160408-MA	M	●	●	●	9.525	4.76	0.8	3.81
VNMG160404-MK	M	●	●	●	9.525	4.76	0.4	3.81
VNMG160408-MK	M	●	●	●	9.525	4.76	0.8	3.81
VNMG160412-MK	M	●	●	●	9.525	4.76	1.2	3.81
VNMG160404-GK	M	●	●	●	9.525	4.76	0.4	3.81
VNMG160408-GK	M	●	●	●	9.525	4.76	0.8	3.81
VNMG160412-GK	M	●	●	●	9.525	4.76	1.2	3.81
VNMA160404	-	●	●	●	9.525	4.76	0.4	3.81
VNMA160408	-	●	●	●	9.525	4.76	0.8	3.81
VNMA160412	-	●	●	●	9.525	4.76	1.2	3.81

MC5100 Series

NEW

Negative Inserts (With hole)

M Class

WNMG
WNMA

Light Cutting	Medium Cutting	Medium Cutting	Medium Cutting
LK	MA	MK	GK
			
Rough Cutting	For Cast Iron		
RK	Flat Top		
			

(mm)

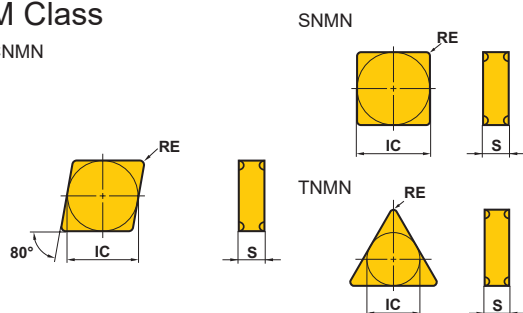
Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
WNMG080404-LK	L	●	●	●	12.7	4.76	0.4	5.16
WNMG080408-LK	L	●	●	●	12.7	4.76	0.8	5.16
WNMG080412-LK	L	●	●	●	12.7	4.76	1.2	5.16
WNMG060408-MA	M	●	●	●	9.525	4.76	0.8	3.81
WNMG060412-MA	M	●	●	●	9.525	4.76	1.2	3.81
WNMG080404-MA	M	●	●	●	12.7	4.76	0.4	5.16
WNMG080408-MA	M	●	●	●	12.7	4.76	0.8	5.16
WNMG080412-MA	M	●	●	●	12.7	4.76	1.2	5.16
WNMG080416-MA	M	●	●	●	12.7	4.76	1.6	5.16
WNMG080404-MK	M	●	●	●	12.7	4.76	0.4	5.16
WNMG080408-MK	M	●	●	●	12.7	4.76	0.8	5.16
WNMG080412-MK	M	●	●	●	12.7	4.76	1.2	5.16
WNMG080416-MK	M	●	●	●	12.7	4.76	1.6	5.16
WNMG060404-GK	M	●	●	●	9.525	4.76	0.4	3.81
WNMG060408-GK	M	●	●	●	9.525	4.76	0.8	3.81
WNMG080404-GK	M	●	●	●	12.7	4.76	0.4	5.16
WNMG080408-GK	M	●	●	●	12.7	4.76	0.8	5.16
WNMG080412-GK	M	●	●	●	12.7	4.76	1.2	5.16
WNMG080416-GK	M	●	●	●	12.7	4.76	1.6	5.16
WNMG080408-RK	R	●	●	●	12.7	4.76	0.8	5.16
WNMG080412-RK	R	●	●	●	12.7	4.76	1.2	5.16
WNMG080416-RK	R	●	●	●	12.7	4.76	1.6	5.16

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
WNMA060408	—	●	●	●	9.525	4.76	0.8	3.81
WNMA060412	—	●	●	●	9.525	4.76	1.2	3.81
WNMA080404	—	●	●	●	12.7	4.76	0.4	5.16
WNMA080408	—	●	●	●	12.7	4.76	0.8	5.16
WNMA080412	—	●	●	●	12.7	4.76	1.2	5.16
WNMA080416	—	●	●	●	12.7	4.76	1.6	5.16

Negative Inserts (Without hole)

M Class

CNMN



For Cast Iron	For Cast Iron	For Cast Iron
Flat Top	Flat Top	Flat Top
		

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
CNMN120408	—	●	●	●	12.7	4.76	0.8	—
CNMN120412	—	●	●	●	12.7	4.76	1.2	—
CNMN120416	—	●	●	●	12.7	4.76	1.6	—
SNMN120408	—	●	●	●	12.7	4.76	0.8	—
SNMN120412	—	●	●	●	12.7	4.76	1.2	—
SNMN120416	—	●	●	●	12.7	4.76	1.6	—
SNMN120420	—	●	●	●	12.7	4.76	2.0	—

(mm)

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
TNMN160408	—	●	●	●	9.525	4.76	0.8	—
TNMN160412	—	●	●	●	9.525	4.76	1.2	—
TNMN160416	—	●	●	●	9.525	4.76	1.6	—
TNMN160420	—	●	●	●	9.525	4.76	2.0	—

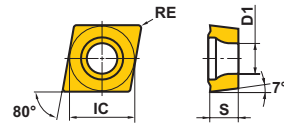
MC5100 Series

NEW

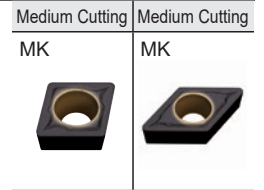
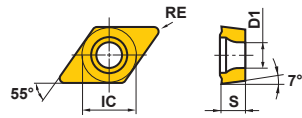
7° Positive inserts (With hole)

M Class

CCMT



DCMT



Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
CCMT060204-MK	M	●	●		6.35	2.38	0.4	2.8
CCMT060208-MK	M	●	●		6.35	2.38	0.8	2.8
CCMT09T304-MK	M	●	●		9.525	3.97	0.4	4.4
CCMT09T308-MK	M	●	●		9.525	3.97	0.8	4.4
CCMT120404-MK	M	●	●		12.7	4.76	0.4	5.5
CCMT120408-MK	M	●	●		12.7	4.76	0.8	5.5
CCMT120412-MK	M	●	●		12.7	4.76	1.2	5.5

(mm)

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
DCMT070204-MK	M	●	●		6.35	2.38	0.4	2.8
DCMT070208-MK	M	●	●		6.35	2.38	0.8	2.8
DCMT11T304-MK	M	●	●		9.525	3.97	0.4	4.4
DCMT11T308-MK	M	●	●		9.525	3.97	0.8	4.4
DCMT150404-MK	M	●	●		12.7	4.76	0.4	5.5
DCMT150408-MK	M	●	●		12.7	4.76	0.8	5.5

Recommended Cutting Conditions

Negative Inserts (For External Turning)

Workpiece Material	Properties	Cutting Conditions	Grade	Cutting Speed vc (m/min)
K	Gray Cast Irons	●	MC5105	230—700
		●	MC5105	210—640
		⊕	MC5105	195—605
		⊕	MC5115	190—350
	Ductile Cast Irons	●	MC5115	195—365
		●	MC5115	180—330
		⊕	MC5125	95—190
		●	MC5115	175—325
		●	MC5115	160—295
		⊕	MC5125	85—170

Cutting Range	Chip Breaker	Feed f (mm/rev)	Depth of Cut ap
Light Cutting	LK	0.10—0.50	0.50—2.50
Medium Cutting	MK	0.20—0.55	0.50—4.00
Medium Cutting	MA	0.20—0.50	0.30—4.00
Medium Cutting	GK	0.25—0.60	1.50—5.00
Rough Cutting	RK	0.20—0.60	1.50—6.00
Cast Iron Cutting	Flat	0.20—0.60	2.50—6.00

7° Positive Inserts (For External Turning)

Workpiece Material	Properties	Cutting Conditions	Grade	Cutting Speed vc (m/min)
K	Ductile Cast Irons	●	MC5115	170—320
		●	MC5115	130—250
		⊕	MC5125	60—130
	Tensile Strength ≤800MPa	●	MC5115	125—240
		●	MC5115	105—200
		⊕	MC5125	55—115

Cutting Range	Chip Breaker	Feed f (mm/rev)	Depth of Cut ap
Medium Cutting	MK	0.08—0.30	0.30—2.00

Cutting Conditions : ● : Stable Cutting ● : General Cutting ⊕ : Unstable Cutting



CVD Coated Grades for Cast Iron Turning

MC5100 Series

For Your Safety

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



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(Tools specifications subject to change without notice.)

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