MC5100 SERIES

CVD COATED GRADES FOR CAST IRON TURNING
FROM HIGH SPEED THROUGH TO INTERRUPTED TURNING

DIAEDGE

MITSUBISHI MATERIALS

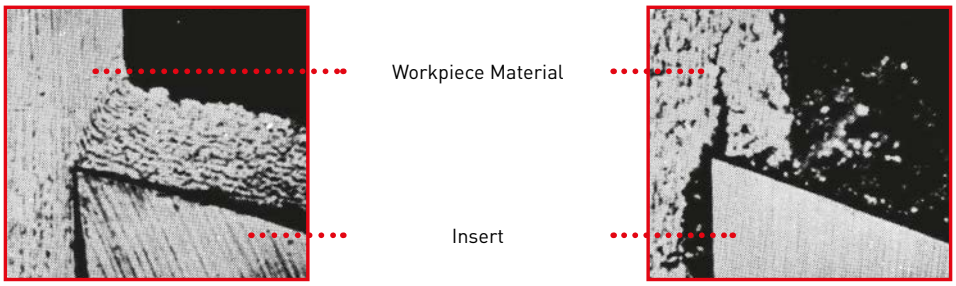
MC5100 SERIES

CVD COATED GRADES FOR CAST IRON TURNING

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 because contact with the workpiece can suddenly change 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



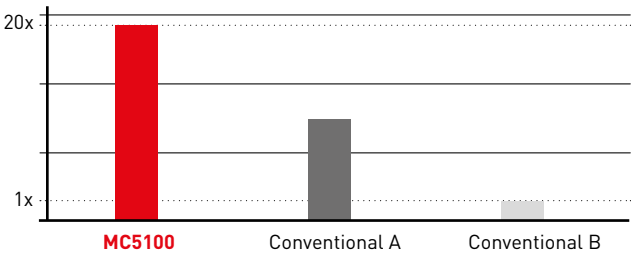
Ductile cast iron
Continuous type

Gray cast iron
Crack type

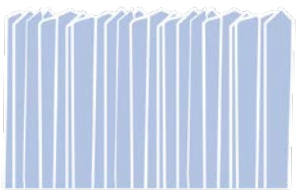
"SUPER" NANO TEXTURE TECHNOLOGY

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.

CRYSTAL ORIENTATION
(Image)



The ratio of Al_2O_3 crystal grains with the same orientation



"Super" Nano Texture

Uniformity of the growth direction has drastically improved.

Nano Texture

Uniformity of the grain size and growth direction has improved.

Conventional CVD inserts

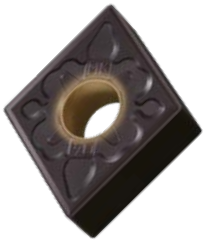
Grain size and growth direction are uneven.

MC5100 SERIES

CVD COATED GRADES FOR CAST IRON TURNING

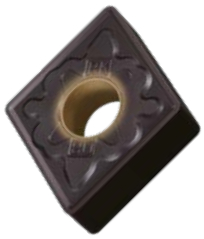
MC5105

FOR HIGH SPEED CUTTING OF GRAY CAST IRON
Provides outstanding wear resistance when turning gray cast iron at up to 1000 m/min cutting speeds.



MC5115

FIRST RECOMMENDED GRADE FOR DUCTILE CAST IRON
Prevents abnormal cutting edge damage and displays excellent wear and fracture resistance when machining ductile cast iron.



MC5125

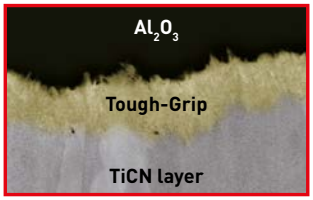
FOR HEAVY INTERRUPTED CUTTING OF DUCTILE CAST IRON
Demonstrates excellent fracture resistance that can withstand heavy interrupted cutting of high strength ductile cast iron.

TOUGH AND SUB GRIP LAYERS FOR DUCTILE CAST IRON GRADES

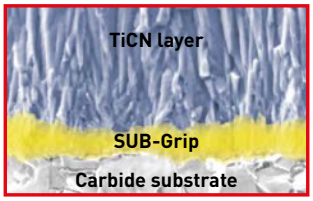
The extra strength of the adhesion between the coating layers (1.3 times stronger) suppresses peeling during machining of ductile cast iron.

Adhesion is 1.3 times* greater!

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.



*Compared with conventional grades from Mitsubishi Materials.

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 relatively 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.

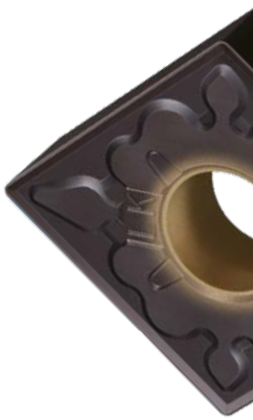
The MC5100 series has been expanded to include grades that are optimal for each type of cast iron turning. These grades will become an indispensable tool for customers that machine cast iron materials.

MC5100 SERIES

MC5105

FOR HIGH SPEED CUTTING OF GRAY CAST IRON
Harder and with outstanding wear resistance

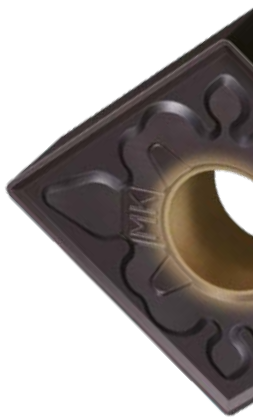
- A thick top coating layer.
- Intermediate layer suitable for high speed cutting.
- The substrate adopts a high hardness carbide material.



MC5115

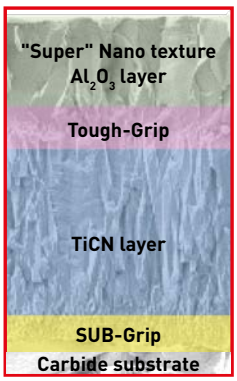
FIRST RECOMMENDED GRADE FOR DUCTILE CAST IRON
Excellent durability and resistance to impacts

- Al_2O_3 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.

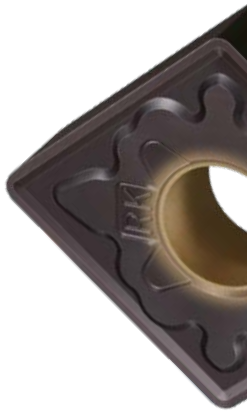


MC5125

FOR HEAVY INTERRUPTED CUTTING OF DUCTILE CAST IRON
Excellent stability and fracture resistance



- Al_2O_3 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.



MC5100 SERIES

WAY TO SELECT MC5100 SERIES

GRAY CAST IRON

MC5105 is the first recommendation for high speed machining of gray cast iron.
Select a suitable chipbreaker 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 – 1000 M/MIN

MC5105 → Change to a chipbreaker with a stronger cutting edge geometry.

In case of fracture

CUTTING SPEED 100 – 300 M/MIN

MC5115 → Change to a chipbreaker with a sharper cutting edge geometry.

In case of fracture

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

FIRST RECOMMENDATION

MC5115 → Change to a chipbreaker with a stronger cutting edge geometry.

In case of fracture

↓

↑ In case of wear

HEAVY, INTERRUPTED CUTTING

MC5125 → Change to a chipbreaker with a sharper cutting edge geometry.

In case of wear

GRAY CAST IRON

DUCTILE CAST IRON

Cutting conditions: ● : Stable cutting ◕ : General cutting ✣ : Unstable cutting

MC5100 SERIES

CHIPBREAKER SYSTEM FOR CAST IRON TURNING

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

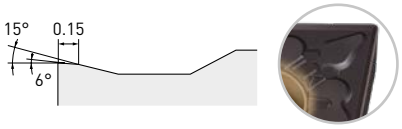
SELECT A CHIPBREAKER ACCORDING TO THE MACHINING CONDITIONS

Stable cutting (continuous cutting, without scale, etc.) / Low cutting resistance machining

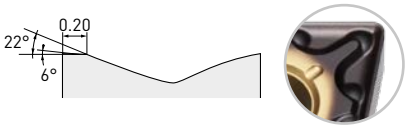
Focus on cutting edge sharpness

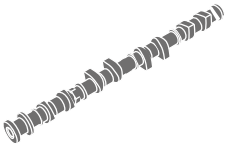
NEGATIVE INSERTS

LK breaker
Positive land provides a sharp cutting edge and low cutting resistance.

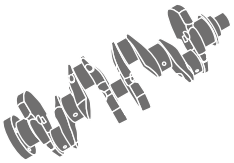


MA breaker
Positive land provides a sharp cutting edge.





MK breaker
Optimum balance between sharpness and high edge strength for general use.



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

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

Flat top
Flat top focusing on high edge strength.

Focus on cutting edge strength

Unstable cutting (interrupted cutting, with scale, etc.) / General to heavy cutting

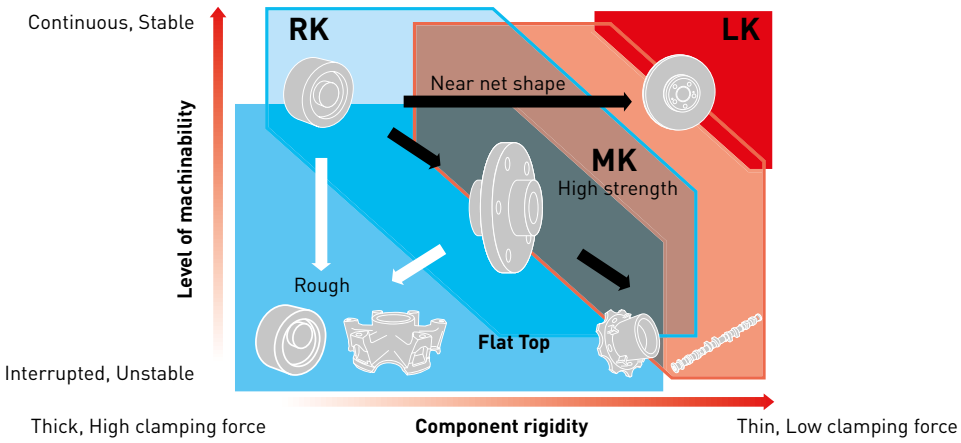
MC5100 SERIES

CHIPBREAKER SYSTEM FOR CAST IRON TURNING

CHPBREAKER SELECTION

		Features
LIGHT CUTTING		
SH		Can be used at low depths of cut and high feed rates. The curved edge allows smooth chip discharge.
SW		In comparison to conventional chip breakers, the component surface finish is maintained even if the feed per revolution is doubled. A wide chip pocket prevents chip jamming.
MEDIUM CUTTING		
MP		Suitable for medium to light cutting. Chip breaker geometry appropriate for copying and back turning. Cutting edge geometry for an optimum balance of sharpness and fracture resistance.
MW		The wiper allows up to double the feed rate. A wide chip pocket prevents chip jamming.
MH		A flat land offers high edge strength. Good chip control with a suitable chip pocket.
ROUGHING		
GH		For interrupted cutting and removing scale. The combination of a wide land and a large chip pocket allows high feed rates.

APPLICATION MAP FOR CAST IRON



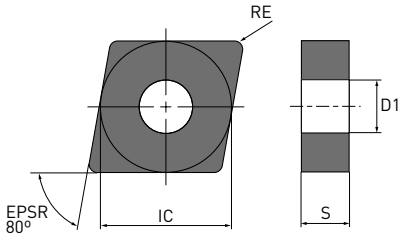
CNMG, CNMA

NEGATIVE INSERTS (WITH HOLE)

K

M-Class

Order number		MC5105	MC5115	MC5125	IC	S	RE	D1	Geometry
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-SH	L		●		12.7	4.76	0.4	5.16	
CNMG120408-SH	L		●		12.7	4.76	0.8	5.16	
CNMG120404-SW	L	★	●	★	12.7	4.76	0.4	5.16	
CNMG120408-SW	L	●	●	●	12.7	4.76	0.8	5.16	
									Wiper
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	
CNMG190612-MA	M	●	●	★	19.05	6.35	1.2	7.93	
CNMG190616-MA	M		●	★	19.05	6.35	1.6	7.93	
CNMG120408-MH	M		●		12.7	4.76	0.8	5.16	
CNMG120412-MH	M		●		12.7	4.76	1.2	5.16	
CNMG120416-MH	M		●		12.7	4.76	1.6	5.16	
CNMG160608-MH	M		●		15.875	6.35	0.8	6.35	
CNMG160612-MH	M		●		15.875	6.35	1.2	6.35	
CNMG160616-MH	M		●		15.875	6.35	1.6	6.35	
CNMG190612-MH	M		●		19.05	6.35	1.2	7.93	
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	



(10 inserts in one case)

20 Vc

● / ★ = Expansion

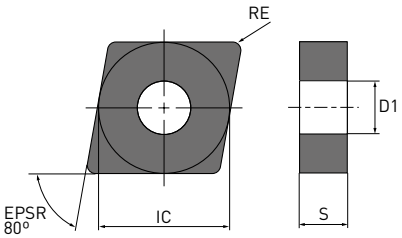
● : Inventory maintained. ★ : Inventory maintained in Japan.

CNMG, CNMA – NEGATIVE INSERTS (WITH HOLE)

K

M-Class

Order number		MC5105	MC5115	MC5125	IC	S	RE	D1	Geometry
CNMG120404-MP	M		●		12.7	4.76	0.4	5.16	
CNMG120408-MP	M		●		12.7	4.76	0.8	5.16	
CNMG120412-MP	M		●		12.7	4.76	1.2	5.16	
CNMG120416-MP	M		●		12.7	4.76	1.6	5.16	
CNMG160608-MP	M		★		15.875	6.35	0.8	6.35	
CNMG160612-MP	M		★		15.875	6.35	1.2	6.35	
CNMG160616-MP	M		★		15.875	6.35	1.6	6.35	
CNMG120408-MW	M	●	●	●	12.7	4.76	0.8	5.16	
CNMG120412-MW	M	●	●	●	12.7	4.76	1.2	5.16	
									Wiper
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	
CNMG190612-GK	M	●	●	★	19.05	6.35	1.2	7.93	
CNMG190616-GK	M		●	★	19.05	6.35	1.6	7.93	
CNMG120408-GH	R	●	●	●	12.7	4.76	0.8	5.16	
CNMG120412-GH	R	●	●	●	12.7	4.76	1.2	5.16	
CNMG120416-GH	R	●	●	●	12.7	4.76	1.6	5.16	
CNMG160612-GH	R	●	●	●	15.875	6.35	1.2	6.35	
CNMG160616-GH	R	●	●	●	15.875	6.35	1.6	6.35	
CNMG190612-GH	R	●	●	★	19.05	6.35	1.2	7.93	
CNMG190616-GH	R	●	●	★	19.05	6.35	1.6	7.93	
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	
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	Flat top
CNMA190624	—	●	●	★	19.05	6.35	2.4	7.93	



(10 inserts in one case)

● / ★ = Expansion

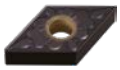
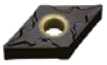
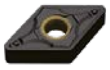
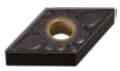
● : Inventory maintained. ★ : Inventory maintained in Japan.

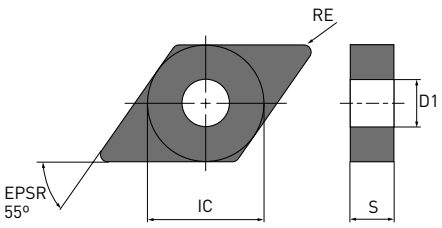
DNMG, DNMA

NEGATIVE INSERTS (WITH HOLE)

K

M-Class

Order number		MC5105	MC5115	MC5125	IC	S	RE	D1		Geometry
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-SH	L		★		12.7	4.76	0.4	5.16		
DNMG150408-SH	L		★		12.7	4.76	0.8	5.16		
DNMG150412-SH	L		★		12.7	4.76	1.2	5.16		
DNMG150608-SH	L		●		12.7	6.35	0.8	5.16		
DNMG150612-SH	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		
DNMG150408-MH	M		★		12.7	4.76	0.8	5.16		
DNMG150412-MH	M		★		12.7	4.76	1.2	5.16		
DNMG150604-MH	M		★		12.7	6.35	0.4	5.16		
DNMG150608-MH	M		●		12.7	6.35	0.8	5.16		
DNMG150612-MH	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-MP	M		★		12.7	4.76	0.4	5.16		
DNMG150408-MP	M		★		12.7	4.76	0.8	5.16		
DNMG150412-MP	M		★		12.7	4.76	1.2	5.16		
DNMG150416-MP	M		★		12.7	4.76	1.6	5.16		
DNMG150604-MP	M		●		12.7	6.35	0.4	5.16		
DNMG150608-MP	M		●		12.7	6.35	0.8	5.16		
DNMG150612-MP	M		●		12.7	6.35	1.2	5.16		
DNMG150616-MP	M		●		12.7	6.35	1.6	5.16		
DNMX150408-MW	M	●	★	★	12.7	4.76	0.8	5.16		
DNMX150412-MW	M	★	★	★	12.7	4.76	1.2	5.16		
DNMX150608-MW	M	●	●	●	12.7	6.35	0.8	5.16		
DNMX150612-MW	M	●	●	★	12.7	6.35	1.2	5.16	Wiper	



(10 inserts in one case)

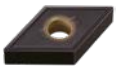
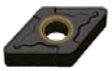
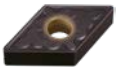
● / ★ = Expansion

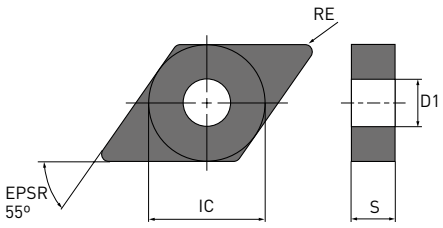
● : Inventory maintained. ★ : Inventory maintained in Japan.

DNMG, DNMA – NEGATIVE INSERTS (WITH HOLE)

K

M-Class

Order number		MC5105	MC5115	MC5125	IC	S	RE	D1		Geometry
DNMG110408-GK	M	●	●	★	9.525	4.76	0.8	3.81		
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-GH	R	●	●	★	12.7	4.76	0.8	5.16		
DNMG150412-GH	R	●	●	★	12.7	4.76	1.2	5.16		
DNMG150608-GH	R	●	●	●	12.7	6.35	0.8	5.16		
DNMG150612-GH	R	●	●	●	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		
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	Flat top	



2/2

(10 inserts in one case)

20 Vc

● / ★ = Expansion

● : Inventory maintained. ★ : Inventory maintained in Japan.

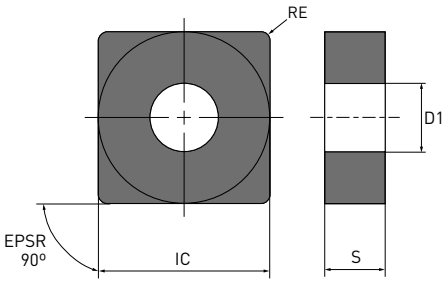
SNMG, SNMA

NEGATIVE INSERTS (WITH HOLE)

K

M-Class

Order number		MC5105	MC5115	MC5125	IC	S	RE	D1	Geometry
SNMG120408-LK	L	★	●	★	12.7	4.76	0.8	5.16	
SNMG120412-LK	L	★	●	★	12.7	4.76	1.2	5.16	
SNMG120404-SH	L		●		12.7	4.76	0.4	5.16	
SNMG120408-SH	L		●		12.7	4.76	0.8	5.16	
SNMG120412-SH	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	
SNMG190612-MA	M		●	★	19.05	6.35	1.2	7.93	
SNMG120408-MH	M		★		12.7	4.76	0.8	5.16	
SNMG120412-MH	M		★		12.7	4.76	1.2	5.16	
SNMG190612-MH	M		★		19.05	6.35	1.2	7.93	
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-MP	M		★		12.7	4.76	0.4	5.16	
SNMG120408-MP	M		★		12.7	4.76	0.8	5.16	
SNMG120412-MP	M		★		12.7	4.76	1.2	5.16	
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	
SNMG190612-GK	M	●	★	★	19.05	6.35	1.2	7.93	
SNMG190616-GK	M		★	★	19.05	6.35	1.6	7.93	



1/2

(10 inserts in one case)

20 Vc

● / ★ = Expansion

● : Inventory maintained. ★ : Inventory maintained in Japan.

SNMG, SNMA – NEGATIVE INSERTS (WITH HOLE)

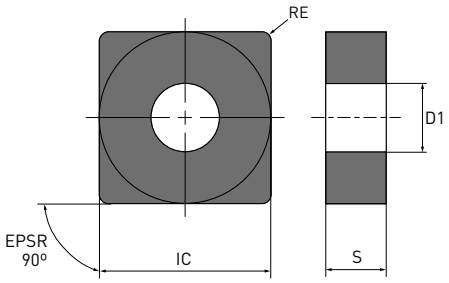
K

M-Class

Order number		MC5105	MC5115	MC5125	IC	S	RE	D1	
SNMG120408-GH	R	●	●	★	12.7	4.76	0.8	5.16	
SNMG120412-GH	R	●	●	★	12.7	4.76	1.2	5.16	
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	
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	

Flat top

Geometry



2/2

(10 inserts in one case)

20 Vc

● / ★ = Expansion

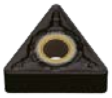
● : Inventory maintained. ★ : Inventory maintained in Japan.

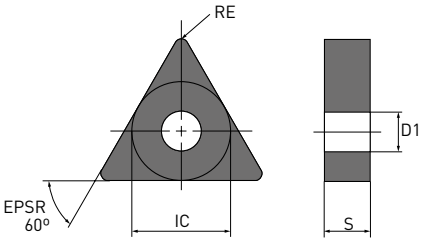
TNMG, TNMA, TNMX

NEGATIVE INSERTS (WITH HOLE)

K

M-Class

Order number		MC5105	MC5115	MC5125	IC	S	RE	D1	Geometry
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-SH	L		★		9.525	4.76	0.4	3.81	
TNMG160408-SH	L		★		9.525	4.76	0.8	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-MH	M		★		9.525	4.76	0.4	3.81	
TNMG160408-MH	M		★		9.525	4.76	0.8	3.81	
TNMG160412-MH	M		★		9.525	4.76	1.2	3.81	
TNMG220408-MH	M		★		12.7	4.76	0.8	5.16	
TNMG220412-MH	M		★		12.7	4.76	1.2	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-MP	M		★		9.525	4.76	0.4	3.81	
TNMG160408-MP	M		★		9.525	4.76	0.8	3.81	
TNMG160412-MP	M		★		9.525	4.76	1.2	3.81	
TNMG220408-MP	M		★		12.7	4.76	0.8	5.16	
TNMG220412-MP	M		★		12.7	4.76	1.2	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	
TNMX160408-MW	M	●	●	★	9.525	4.76	0.8	3.81	
TNMX160412-MW	M	●	●	★	9.525	4.76	1.2	3.81	 Wiper



1/2

(10 inserts in one case)

20 Vc

● / ★ = Expansion

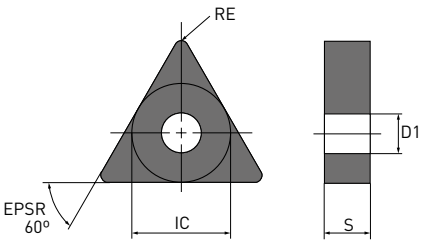
● : Inventory maintained. ★ : Inventory maintained in Japan.

TNMG, TNMA – NEGATIVE INSERTS (WITH HOLE)

K

M-Class

Order number	L M R	MC5105	MC5115	MC5125	IC	S	RE	D1	Geometry
TNMG160408-GH	R	●	●	●	9.525	4.76	0.8	3.81	
TNMG160412-GH	R		●	★	9.525	4.76	1.2	3.81	
TNMG220408-GH	R		●	★	12.7	4.76	0.8	5.16	
TNMG220412-GH	R	●	●	★	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	Flat top
TNMA220416	—	●	●	●	12.7	4.76	1.6	5.16	



2/2

(10 inserts in one case)

20 Vc

VNMG, VNMA

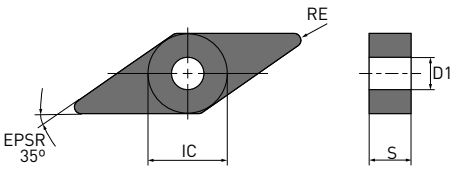
NEGATIVE INSERTS (WITH HOLE)

K

M-Class

Order number		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-MH	M		★		9.525	4.76	0.4	3.81	
VNMG160408-MH	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-MP	M		★		9.525	4.76	0.4	3.81	
VNMG160408-MP	M		★		9.525	4.76	0.8	3.81	
VNMG160412-MP	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	Flat top

Geometry



1/1

(10 inserts in one case)

20 Vc

● / ★ = Expansion

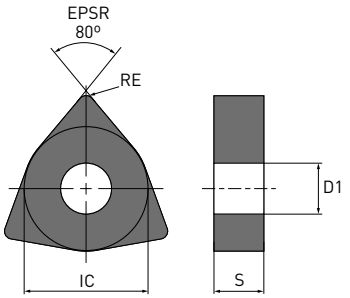
● : Inventory maintained. ★ : Inventory maintained in Japan.

WNMG, WNMA

NEGATIVE INSERTS (WITH HOLE)

K

M-Class

Order number		MC5105	MC5115	MC5125	IC	S	RE	D1		Geometry
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		
WNMG080404-SH	L		★		12.7	4.76	0.4	5.16		
WNMG080408-SH	L		★		12.7	4.76	0.8	5.16		
WNMG080412-SH	L		★		12.7	4.76	1.2	5.16		
WNMG080404-SW	L	★	★	★	12.7	4.76	0.4	5.16	 Wiper	
WNMG080408-SW	L	★	●	●	12.7	4.76	0.8	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		
WNMG080408-MH	M		●		12.7	4.76	0.8	5.16		
WNMG080412-MH	M		●		12.7	4.76	1.2	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		

1/2

(10 inserts in one case)

20 Vc

● / ★ = Expansion

● : Inventory maintained. ★ : Inventory maintained in Japan.

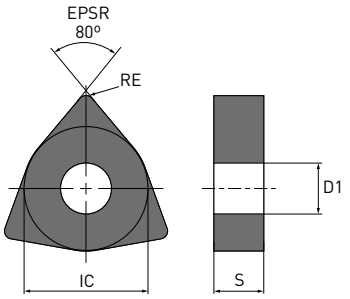
WNMG, WNMA – NEGATIVE INSERTS (WITH HOLE)

K

M-Class

Order number		MC5105	MC5115	MC5125	IC	S	RE	D1	Geometry
WNMG060404-MP	M		●		9.525	4.76	0.4	3.81	
WNMG060408-MP	M		●		9.525	4.76	0.8	3.81	
WNMG060412-MP	M		●		9.525	4.76	1.2	3.81	
WNMG06T304-MP	M		●		9.525	3.97	0.4	3.81	
WNMG06T308-MP	M		●		9.525	3.97	0.8	3.81	
WNMG06T312-MP	M		●		9.525	3.97	1.2	3.81	
WNMG080404-MP	M		●		12.7	4.76	0.4	5.16	
WNMG080408-MP	M		●		12.7	4.76	0.8	5.16	
WNMG080412-MP	M		●		12.7	4.76	1.2	5.16	
WNMG080416-MP	M		●		12.7	4.76	1.6	5.16	
WNMG060408-MW	M	●	●	★	9.525	4.76	0.8	3.81	
WNMG060412-MW	M	★	●	★	9.525	4.76	1.2	3.81	
WNMG080408-MW	M	●	●	●	12.7	4.76	0.8	5.16	
WNMG080412-MW	M	●	●	★	12.7	4.76	1.2	5.16	
									Wiper
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-GH	R	●	●	●	12.7	4.76	0.8	5.16	
WNMG080412-GH	R	●	●	●	12.7	4.76	1.2	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	
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	

Flat top



2/2

(10 inserts in one case)

● / ★ = Expansion

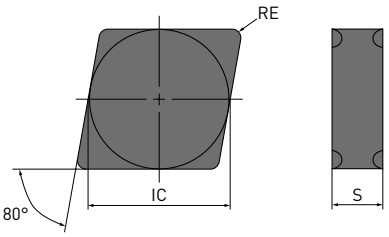
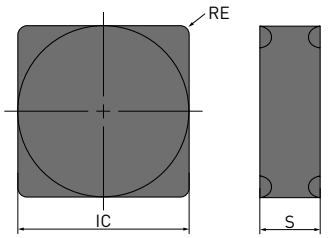
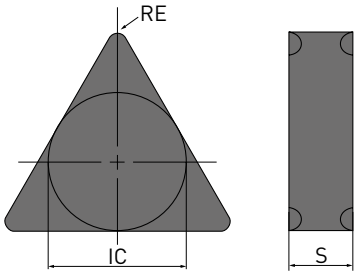
● : Inventory maintained. ★ : Inventory maintained in Japan.

CNMN, SNMN, TNMN

NEGATIVE INSERTS (WITHOUT HOLE)

K

M-Class

Order number	L M R	MC5105	MC5115	MC5125	IC	S	RE	D1		Geometry
CNMN120408	—	★	●	★	12.7	4.76	0.8	–	 Flat top	
CNMN120412	—	★	●	★	12.7	4.76	1.2	–		
CNMN120416	—	★	●	★	12.7	4.76	1.6	–		
SNMN120408	—	★	●	★	12.7	4.76	0.8	–	 Flat top	
SNMN120412	—	★	●	●	12.7	4.76	1.2	–		
SNMN120416	—	★	★	★	12.7	4.76	1.6	–		
SNMN120420	—	★	●	★	12.7	4.76	2.0	–		
TNMN160408	—	★	●	★	9.525	4.76	0.8	–	 Flat top	
TNMN160412	—	★	●	★	9.525	4.76	1.2	–		
TNMN160416	—	★	★	●	9.525	4.76	1.6	–		
TNMN160420	—	★	●	★	9.525	4.76	2.0	–		

1/1

(10 inserts in one case)

20 Vc

● : Inventory maintained. ★ : Inventory maintained in Japan.

MC5100 SERIES

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS (FOR EXTERNAL TURNING)

	Material	Hardness	Cutting conditions	Grade	Vc
K	Grey cast iron	Tensile Strength ≤ 350MPa	●	MC5105	230 – 700
			◕	MC5105	210 – 640
			✣	MC5105	195 – 605
			✣	MC5115	190 – 350
		Tensile Strength ≤ 450MPa	●	MC5115	195 – 365
			◕	MC5115	180 – 330
			✣	MC5125	95 – 190
	Ductile cast iron	Tensile Strength ≤ 800MPa	●	MC5115	175 – 325
			◕	MC5115	160 – 295
			✣	MC5125	85 – 170

1/1

	f	ap
LIGHT CUTTING		
LK	0.15 – 0.50	0.5 – 2.5
SH	0.10 – 0.40	0.3 – 2.0
SW	0.10 – 0.50	0.3 – 2.5
MEDIUM CUTTING		
MK	0.20 – 0.55	0.5 – 4.0
GK	0.20 – 0.60	1.5 – 5.0
MP	0.16 – 0.50	0.3 – 4.0
MA	0.20 – 0.50	0.3 – 4.0
MH	0.20 – 0.55	1.0 – 4.0
MW	0.20 – 0.60	0.9 – 4.0
ROUGH CUTTING		
RK	0.20 – 0.60	1.5 – 6.0
GH	0.25 – 0.60	1.5 – 6.0
HEAVY CUTTING		
Flat	0.20 – 0.60	2.5 – 6.0

Cutting conditions: ●: Stable cutting ◕: General cutting ✣: Unstable cutting

VBMT, VBMW

5° POSITIVE INSERTS (WITH HOLE)

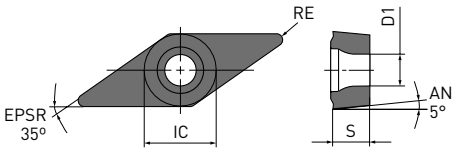
K

M-Class

Order number		MC5105	MC5115	MC5125	IC	S	RE	D1	
VBMT160404-MK	M	★	●	★	9.525	4.76	0.4	4.4	
VBMT160408-MK	M	★	●	★	9.525	4.76	0.8	4.4	
VBMT110304-MV	M		●		6.35	3.18	0.4	2.9	
VBMT110308-MV	M		●		6.35	3.18	0.8	2.9	
VBMT160404-MV	M		●		9.525	4.76	0.4	4.4	
VBMT160408-MV	M		●		9.525	4.76	0.8	4.4	
VBMW160408	—	★	★	★	9.525	4.76	0.8	4.4	

Flat top

Geometry



1/1

(10 inserts in one case)

28 Vc

● / ★ = Expansion

● : Inventory maintained. ★ : Inventory maintained in Japan.

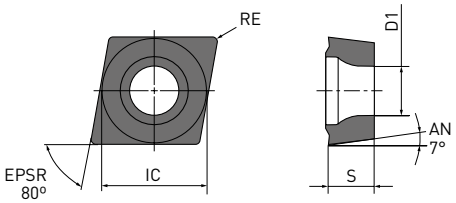
CCMT, CCMH, CCMW

7° POSITIVE INSERTS (WITH HOLE)

K

M-Class

Order number	L M R	MC5105	MC5115	MC5125	IC	S	RE	D1		Geometry
CCMT060204-SW	L		●		6.35	2.38	0.4	2.8		
CCMT09T302-SW	L		●		9.525	3.97	0.2	4.4		
CCMT09T304-SW	L		●		9.525	3.97	0.4	4.4		
									Wiper	
CCMT060202-MK	M	●	●	●	6.35	2.38	0.2	2.8		
CCMT060204-MK	M	●	●	●	6.35	2.38	0.4	2.8		
CCMT060208-MK	M	●	●	★	6.35	2.38	0.8	2.8		
CCMT09T302-MK	M	●	●	●	9.525	3.97	0.2	4.4		
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		
CCMH060204-MV	M		★		6.35	2.38	0.4	2.8		
CCMT120404-MW	M		●		12.7	4.76	0.4	5.5		
CCMT120408-MW	M		●		12.7	4.76	0.8	5.5		
									Wiper	
CCMW060204	—	●	●	★	6.35	2.38	0.4	2.8		
CCMW060208	—	★	●	★	6.35	2.38	0.8	2.8		
CCMW09T304	—	●	●	●	9.525	3.97	0.4	4.4		
CCMW09T308	—	●	●	●	9.525	3.97	0.8	4.4		
CCMW09T312	—	★	●	★	9.525	3.97	1.2	4.4		
CCMW120404	—	●	●	★	12.7	4.76	0.4	5.5		
CCMW120408	—	●	●	●	12.7	4.76	0.8	5.5	Flat top	
CCMW120412	—	★	●	★	12.7	4.76	1.2	5.5		



1/1

(10 inserts in one case)

28 Vc

● / ★ = Expansion

● : Inventory maintained. ★ : Inventory maintained in Japan.

DCMT, DCMW

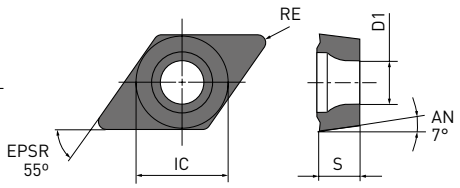
7° POSITIVE INSERTS (WITH HOLE)

K

M-Class

Order number	L M R	MC5105	MC5115	MC5125	IC	S	RE	D1	Geometry
DCMT070202-MK	M	●	●	●	6.35	2.38	0.2	2.8	
DCMT070204-MK	M	★	●	★	6.35	2.38	0.4	2.8	
DCMT070208-MK	M	★	●	★	6.35	2.38	0.8	2.8	
DCMT11T302-MK	M	●	●	●	9.525	3.97	0.2	4.4	
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	
DCMT070204-MV	M		●		6.35	2.38	0.4	2.8	
DCMT070208-MV	M		●		6.35	2.38	0.8	2.8	
DCMT11T304-MV	M		●		9.525	3.97	0.4	4.4	
DCMT11T308-MV	M		●		9.525	3.97	0.8	4.4	
DCMW070204	—	●	★	★	6.35	2.38	0.4	2.8	
DCMW11T304	—	●	●	★	9.525	3.97	0.4	4.4	
DCMW11T308	—	●	●	●	9.525	3.97	0.8	4.4	

Flat top



1/1

(10 inserts in one case)

28 Vc

● / ★ = Expansion

● : Inventory maintained. ★ : Inventory maintained in Japan.

RCMX, SCMT, SCMW

7° POSITIVE INSERTS (WITH HOLE)

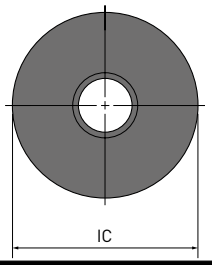
K

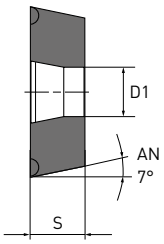
M-Class

RCMX

Order number		MC5105	MC5115	MC5125	IC	S	RE	D1
RCMX1204M0	M		●		12	4.76	–	4.2

Standard





1/1

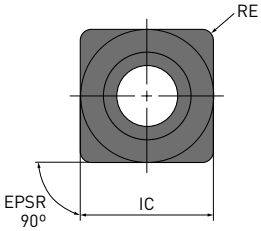
(10 inserts in one case)

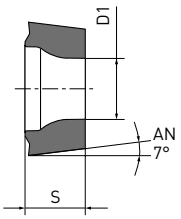
28 Vc

SCMT, SCMW

Order number		MC5105	MC5115	MC5125	IC	S	RE	D1
SCMT09T304-MK	M	★	●	★	9.525	3.97	0.4	4.4
SCMT09T308-MK	M	●	●	●	9.525	3.97	0.8	4.4
SCMT120404-MK	M	★	●	★	12.7	4.76	0.4	5.5
SCMT120408-MK	M	●	●	●	12.7	4.76	0.8	5.5
SCMW09T304	—	●	●	★	9.525	3.97	0.4	4.4
SCMW09T308	—	●	●	●	9.525	3.97	0.8	4.4
SCMW120408	—	●	●	★	12.7	4.76	0.8	5.5

Flat top





1/1

(10 inserts in one case)

28 Vc

● / ★ = Expansion

● : Inventory maintained. ★ : Inventory maintained in Japan.

TCMT, TCMW, VCMT, VCMW

7° POSITIVE INSERTS (WITH HOLE)

K

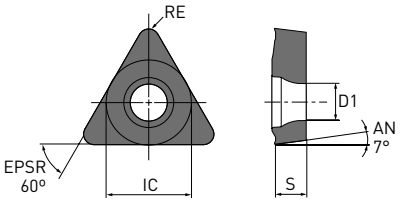
M-Class

TCMT, TCMW

Order number	L M R	MC5105	MC5115	MC5125	IC	S	RE	D1	Geometry
TCMT110202-LK	L	●	●	●	6.35	2.38	0.2	2.8	
TCMT110204-LK	L	●	●	●	6.35	2.38	0.4	2.8	
TCMT110208-LK	L	●	●	●	6.35	2.38	0.8	2.8	
TCMT110204-MK	M	★	●	★	6.35	2.38	0.4	2.8	
TCMT110208-MK	M	★	●	★	6.35	2.38	0.8	2.8	
TCMT16T304-MK	M	●	●	★	9.525	3.97	0.4	4.4	
TCMT16T308-MK	M	●	●	●	9.525	3.97	0.8	4.4	
TCMT16T312-MK	M	●	●	●	9.525	3.97	1.2	4.4	
TCMW110204	—	●	●	★	6.35	2.38	0.4	2.8	
TCMW16T304	—	●	●	●	9.525	3.97	0.4	4.4	
TCMW16T308	—	●	●	●	9.525	3.97	0.8	4.4	
TCMW16T312	—	●	●	★	9.525	3.97	1.2	4.4	



Flat top



1/1

(10 inserts in one case)

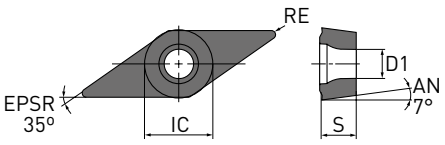
28 Vc

VCMT, VCMW

Order number	L M R	MC5105	MC5115	MC5125	IC	S	RE	D1	Geometry
VCMT160404-MK	M	●	●	●	9.525	4.76	0.4	4.4	
VCMT160408-MK	M	●	●	●	9.525	4.76	0.8	4.4	
VCMT080204-MV	M		●		4.76	2.38	0.4	2.4	
VCMW160404	—	●	●	★	9.525	4.76	0.4	4.4	
VCMW160408	—	●	●	★	9.525	4.76	0.8	4.4	



Flat top



1/1

(10 inserts in one case)

28 Vc

● / ★ = Expansion

● : Inventory maintained. ★ : Inventory maintained in Japan.

CPMH, TPMH

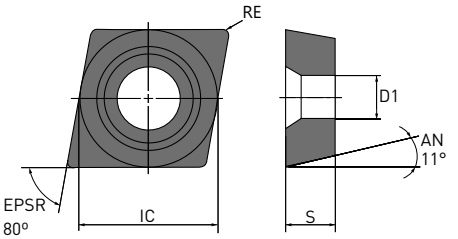
11° POSITIVE INSERTS (WITH HOLE)

K

M-Class

CPMH

Order number	L M R	MC5105	MC5115	MC5125	IC	S	RE	D1	Geometry
CPMH080204-MK	M	●	●	●	7.94	2.38	0.4	3.5	
CPMH080208-MK	M	●	●	●	7.94	2.38	0.8	3.5	
CPMH090304-MK	M	●	●	●	9.525	3.18	0.4	4.5	
CPMH090308-MK	M	●	●	●	9.525	3.18	0.8	4.5	
CPMH080204-MV	M		★		7.94	2.38	0.4	3.5	
CPMH080208-MV	M		★		7.94	2.38	0.8	3.5	
CPMH090304-MV	M		★		9.525	3.18	0.4	4.5	
CPMH090308-MV	M		★		9.525	3.18	0.8	4.5	



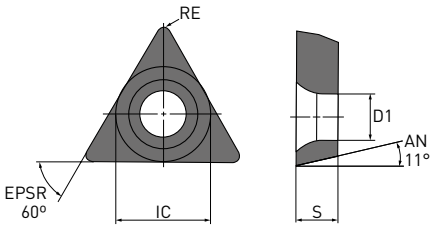
1/1

(10 inserts in one case)

28 Vc

TPMH

Order number	L M R	MC5105	MC5115	MC5125	IC	S	RE	D1	Geometry
TPMH110302-LK	L	●	●	●	6.35	3.18	0.2	3.4	
TPMH110304-LK	L	●	●	●	6.35	3.18	0.4	3.4	
TPMH110308-LK	L	●	●	●	6.35	3.18	0.8	3.4	
TPMH160302-LK	L	●	●	●	9.525	3.18	0.2	4.4	
TPMH160304-LK	L	●	●	●	9.525	3.18	0.4	4.4	
TPMH160308-LK	L	●	●	●	9.525	3.18	0.8	4.4	
TPMH080204-MV	M		●		4.76	2.38	0.4	2.4	
TPMH090204-MV	M		★		5.56	2.38	0.4	2.9	
TPMH090208-MV	M		★		5.56	2.38	0.8	2.9	
TPMH110304-MV	M		★		6.35	3.18	0.4	3.4	
TPMH110308-MV	M		★		6.35	3.18	0.8	3.4	
TPMH160304-MV	M		●		9.525	3.18	0.4	4.4	
TPMH160308-MV	M		●		9.525	3.18	0.8	4.4	



1/1

(10 inserts in one case)

28 Vc

● / ★ = Expansion

● : Inventory maintained. ★ : Inventory maintained in Japan.

WPMT

11° POSITIVE INSERTS (WITH HOLE)

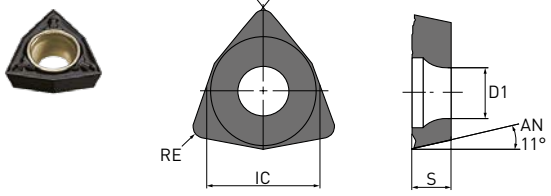
K

M-Class

WPMT

Order number	L M R	MC5105	MC5115	MC5125	IC	S	RE	D1
WPMT040204-MV	M		★		6.35	2.38	0.4	2.8
WPMT060304-MV	M		★		9.525	3.18	0.4	4.4
WPMT060308-MV	M		★		9.525	3.18	0.8	4.4

Geometry



1/1

(10 inserts in one case)

28 Vc

TPMR, TPMN

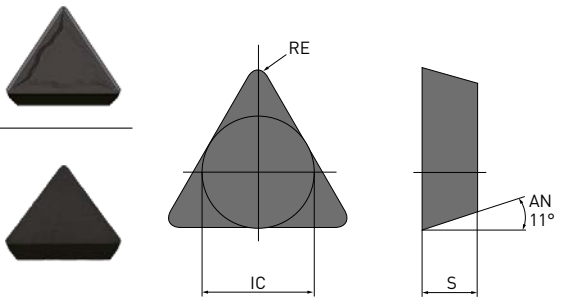
11° POSITIVE INSERTS (WITHOUT HOLE)

K

M-Class

Order number	L M R	MC5105	MC5115	MC5125	IC	S	RE	D1
TPMR110304-MK	M	●	●	●	6.35	3.18	0.4	–
TPMR110308-MK	M	●	●	●	6.35	3.18	0.8	–
TPMR160304-MK	M	●	●	●	9.525	3.18	0.4	–
TPMR160308-MK	M	●	●	●	9.525	3.18	0.8	–
TPMN110304	—	★	●	★	6.35	3.18	0.4	–
TPMN110308	—	●	●	★	6.35	3.18	0.8	–
TPMN160304	—	●	●	★	9.525	3.18	0.4	–
TPMN160308	—	●	●	★	9.525	3.18	0.8	–
TPMN160312	—	★	●	★	9.525	3.18	1.2	–

Geometry



Flat top

1/1

(10 inserts in one case)

28 Vc

● / ★ = Expansion

● : Inventory maintained. ★ : Inventory maintained in Japan.

MC5100 SERIES

RECOMMENDED CUTTING CONDITIONS

5°, 7° POSITIVE INSERTS (FOR EXTERNAL TURNING)

	Material	Hardness	Cutting conditions	Grade	Vc
K	Gray cast iron	Tensile Strength ≤ 350MPa	●	MC5115	190 – 350
			◐	MC5115	140 – 270
			✣	MC5115	80 – 150
	Ductile cast iron	Tensile Strength ≤ 450MPa	●	MC5115	170 – 320
			◐	MC5115	130 – 250
			✣	MC5125	60 – 130
		Tensile Strength ≤ 800MPa	●	MC5115	125 – 240
			◐	MC5115	105 – 200
			✣	MC5125	55 – 115

1/1

11° POSITIVE INSERTS (FOR EXTERNAL TURNING)

	Material	Hardness	Cutting conditions	Grade	Vc
K	Gray cast iron	Tensile Strength ≤ 350MPa	●	MC5115	150 – 300
			◐	MC5115	140 – 270
			✣	MC5115	80 – 150
	Ductile cast iron	Tensile Strength ≤ 450MPa	●	MC5115	170 – 320
			◐	MC5115	130 – 250
			✣	MC5125	60 – 130
		Tensile Strength ≤ 800MPa	●	MC5115	125 – 240
			◐	MC5115	105 – 200
			✣	MC5125	55 – 115

1/1

	f	ap
LIGHT CUTTING		
LK	0.06 – 0.25	0.2 – 1.0
SW	0.06 – 0.24	0.2 – 1.5
MEDIUM CUTTING		
MK	0.08 – 0.30	0.3 – 2.0
MV	0.08 – 0.30	0.3 – 2.0
Standard	0.08 – 0.30	0.3 – 2.0
MW	0.10 – 0.35	0.8 – 2.5
HEAVY CUTTING		
Flat	0.08 – 0.30	0.3 – 2.0

Cutting conditions: ●: Stable cutting ◐: General cutting ✣: Unstable cutting

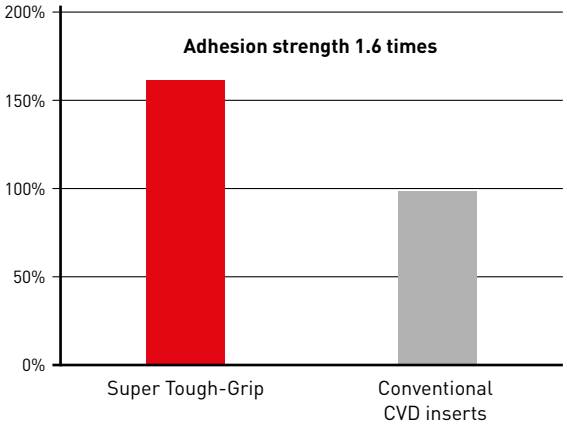
APPLICATION EXAMPLES

MC5105

COMPARISON OF WEAR RESISTANCE WHEN TURNING DIN GG30 AT CUTTING SPEEDS OF 1000 M/MIN

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

Material	DIN GG30
Tool	CNMA120412
Vc (m/min)	1.000
f (mm/rev.)	0.3
ap (mm)	2.0
Coolant	Dry cutting



After machining for 4 minutes

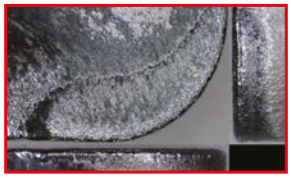
MC5105

Conventional A

Conventional B

Final image

After machining for 23 min



MC5105

After machining for 18 min

Conventional A

After machining for 23 min

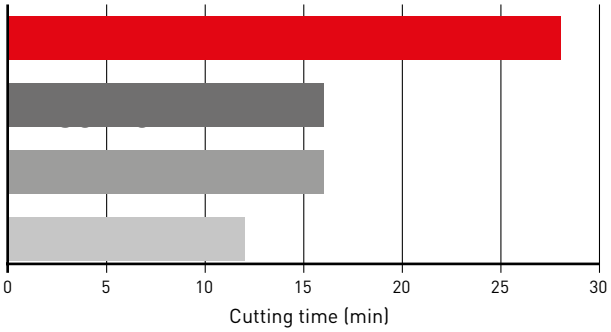
Conventional B

APPLICATION EXAMPLES

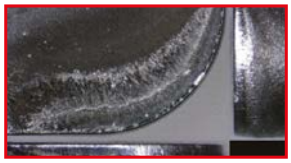
MC5115

COMPARISON OF WEAR RESISTANCE DURING CONTINUOUS CUTTING OF DIN GGG70

Material	DIN GGG70
Tool	CNMA120412
Vc (m/min)	250
f (mm/rev.)	0.3
ap (mm)	2.0
Coolant	Wet cutting



After machining for 16 min

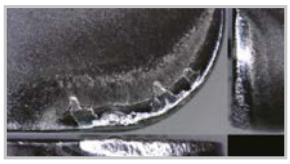


MC5115

After machining for 12 min

Conventional A

Conventional B

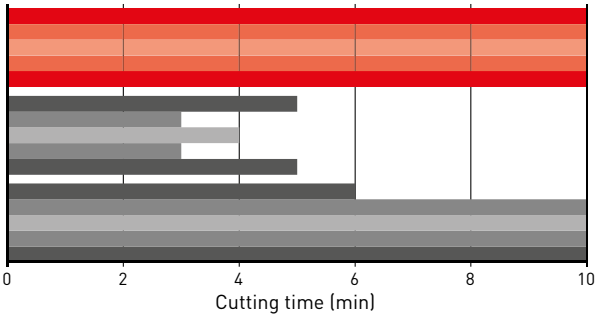


Conventional C

MC5125

COMPARISON OF FRACTURE RESISTANCE AFTER 10 PASSES OF INTERRUPTED CUTTING OF DIN GGG70

Material	DIN GGG70
Tool	CNMA120412
Vc (m/min)	150
f (mm/rev.)	0.25
ap (mm)	1.5
Coolant	Wet cutting



After machining for 10 passes

MC5125

After machining for 5 passes

Conventional A

After machining for 10 passes

Conventional B

: MC5100 A B C : Conventional tool

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