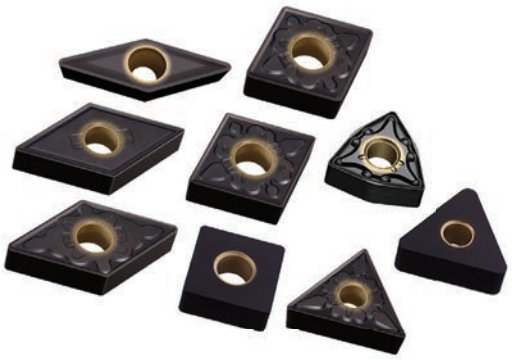
MC5105
MC5115
MC5125
+
LK
MK
RK

DIA EDGE



MC5100 SERIES

CVD COATED GRADES FOR CAST IRON TURNING

ABOUT OUR BRAND

Your manufacturing success is our success.

It's simple. We want to provide high-quality cutting tool products that help deliver unparalleled performance and control for you to manufacture precisely perfect products every day.

Our long heritage of building partnerships through cutting tool solutions to metal working manufacturers, like yours, has given Mitsubishi Materials USA a solid reputation as an industry leader. We understand the importance of getting it right the first time by delivering high-quality cutting tool product brands to help overcome machining challenges to improve machining processes.

Your success is our success and is the driving force behind our innovative products. Our product brands, DIAEDGE and MOLDINO, are trusted globally in the metal manufacturing and die & mold industries for delivering expertly-designed manufactured tools of the trade for highly specialized industries like yours.

With the acquisition of MOLDINO Tool Engineering, Ltd, our traditional Mitsubishi Materials USA cutting tool product line is now sold under the DIAEDGE product brand name.

Brands you can trust:

MITSUBISHI MATERIALS U.S.A.

TRUSTED PRODUCT BRANDS

DIAEDGE MOLDINO

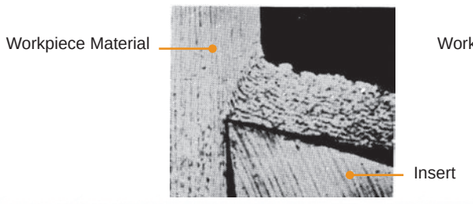
CVD Coated Grades for Cast Iron Turning

MC5100 Series

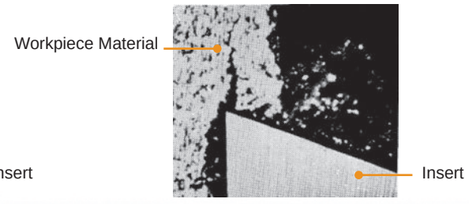
A choice of different grades ideally suited to all types of cast iron machining.

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



Ductile Cast Iron
Continuous Type



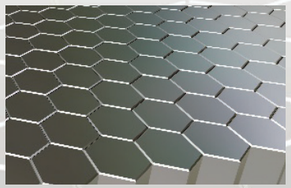
Gray Cast Iron
Crack Type

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.

The ratio of Al_2O_3 crystal grains with the same orientation



*By Image

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

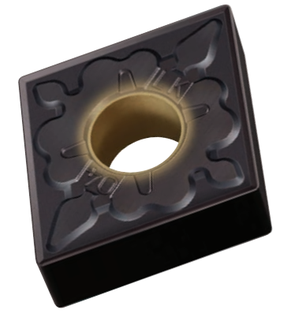
MC5105

Provides outstanding wear resistance when turning gray cast iron at up to 3280 SFM cutting speeds.

First recommended grade for ductile cast iron

MC5115

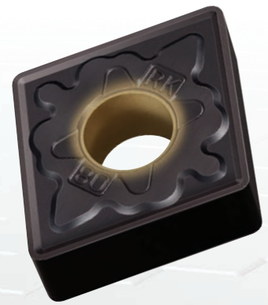
Prevents abnormal cutting edge damage and displays excellent wear and fracture resistance when machining ductile cast iron.



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 (1640-3280 SFM), 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 (330-985 SFM) 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.

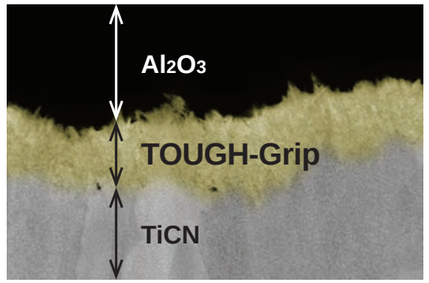
Adhesion is 1.3 Times* Greater!

MC5115

*Compared with a conventional Mitsubishi product.

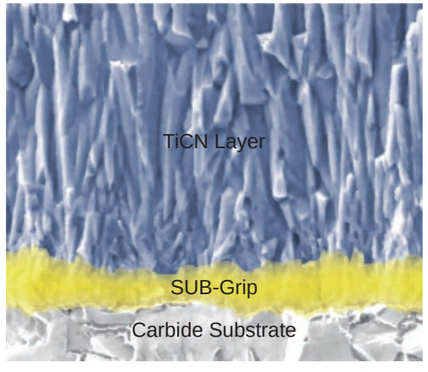
TOUGH-Grip

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

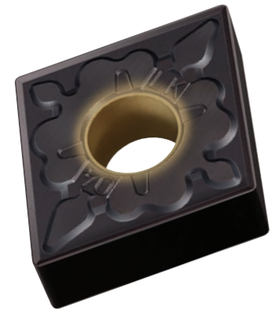
By increasing the degree of adhesion between the carbide substrate and the coating layer, a coating layer has been developed that is resistant to peeling even during strong intermittent machining.



By Image

For high speed cutting of gray cast iron

MC5105



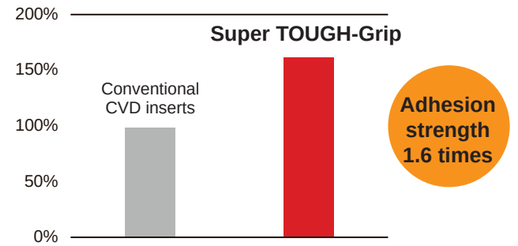
Harder and With Outstanding Wear Resistance

A thick top coating layer

Intermediate layer suitable for high speed cutting

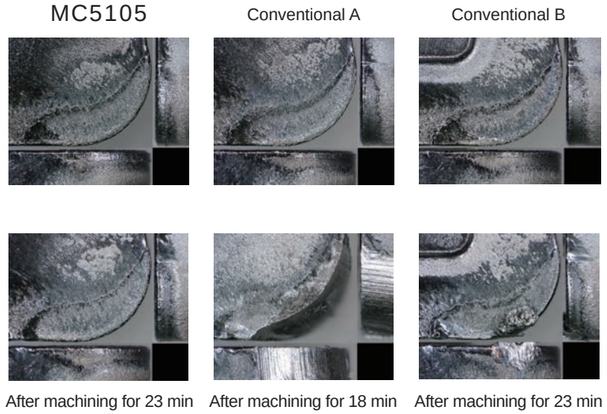
Adhesion Strength Evaluation*

*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 No 45 B at cutting speeds of 3280 SFM

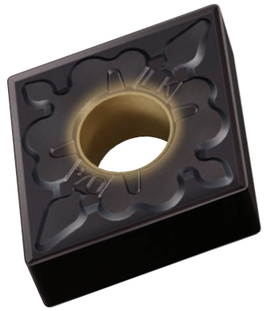


<Cutting Conditions>

Workpiece Material	: AISI No 45 B
Inserts	: CNMA433
Cutting Speed	: vc = 3280 SFM
Feed per Rev.	: f = .012 IPR
Depth of Cut	: ap = .079 inch
Cutting Mode	: Dry Cutting

First recommended grade
for ductile cast iron

MC5115



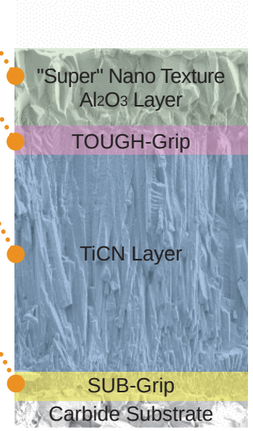
Excellent Durability and Resistance to Impacts

Al_2O_3 layer with excellent wear resistance

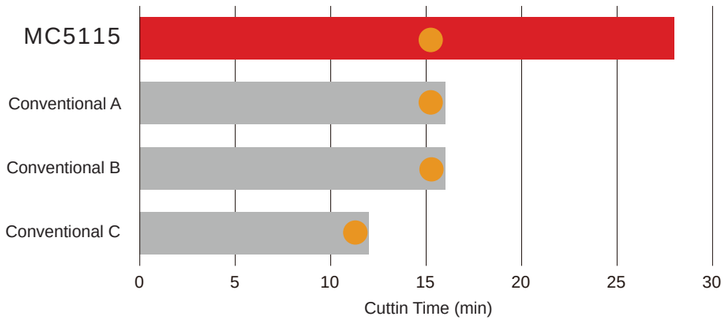
Intermediate layer with microstructure suitable for ductile cast iron

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

New adhesion layer with an enhanced resistance to peeling

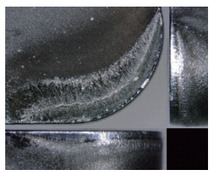


Comparison of wear resistance during continuous cutting of 100-70-03

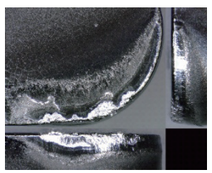


<Cutting Conditions>
Workpiece Material : AISI 100-70-03
Inserts : CNMA433
Cutting Speed : vc = 820 SFM
Feed per Rev. : f =.012 IPR
Depth of Cut : ap = .079 inch
Cutting Mode : Wet Cutting

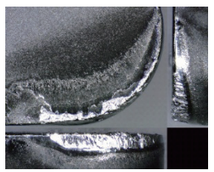
After machining for 16 minutes



MC5115

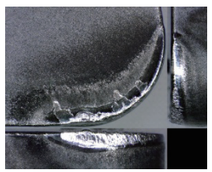


Conventional A



Conventional B

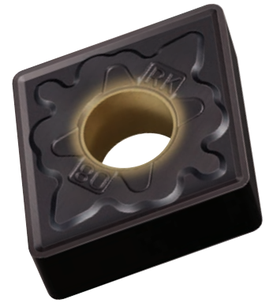
After machining for 12 minutes



Conventional C

For heavy interrupted cutting of ductile cast iron

MC5125



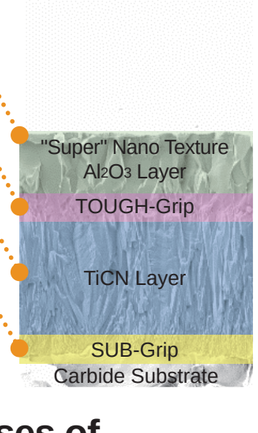
Excellent Stability and Fracture Resistance

Al_2O_3 layer with excellent wear resistance

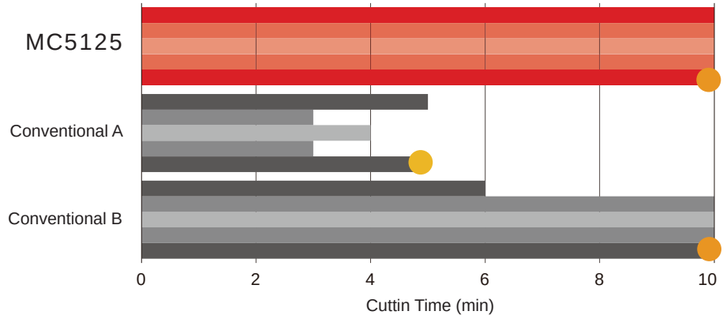
Intermediate layer with microstructure suitable for ductile cast iron

TiCN layer for hardness for heavy interrupted cutting

New adhesion layer with an enhanced resistance to peeling



Comparison of fracture resistance after 10 passes of interrupted cutting of 100-70-03



<Cutting Conditions>
Workpiece Material : AISI 100-70-03
Inserts : CNMA433
Cutting Speed : vc = 820 SFM
Feed per Rev. : f =.012 IPR
Depth of Cut : ap = .079 inch
Cutting Mode : Wet Cutting

After machining for 10 passes

MC5125

After machining for 5 passes

Conventional A

After machining for 10 passes

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 330-985 SFM and for unstable cutting conditions.

High Speed Cutting 655–3280 SFM

MC5105 → Change to a chip breaker with a stronger cutting edge geometry

In case of fracture

Cutting Speed 330–985 SFM

MC5115 → Change to a chip breaker with a sharper cutting edge geometry

In case of wear

Refer to page 12 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 12 for the chip breaker selection.

Cutting Conditions : ●: Stable Cutting ◔: General Cutting ✣: Unstable Cutting

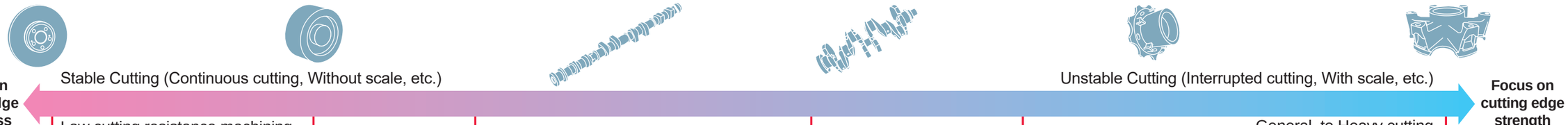
Chip breaker system for cast iron turning

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.



LK breaker

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

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.

Flat Top

Flat top focusing on high edge strength.

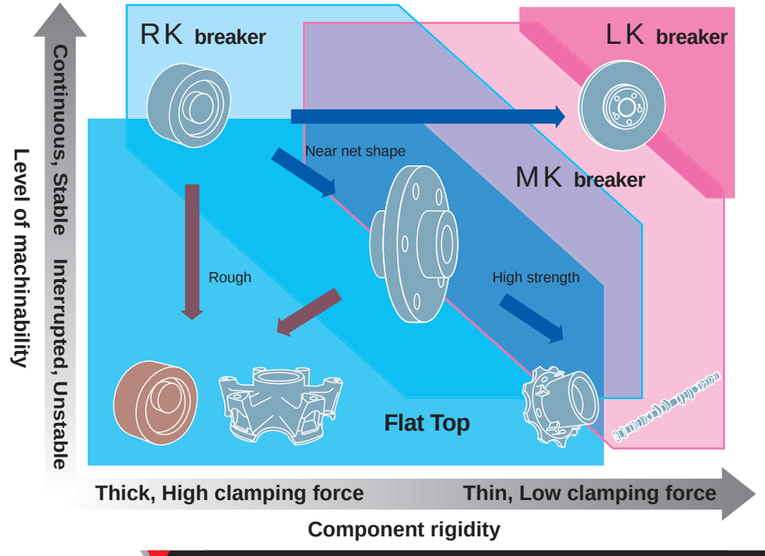
MA breaker

Positive land provides a sharp cutting edge.

GK breaker

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

Application map for cast iron

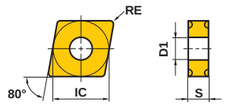


MC5100 Series NEW

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		
			

(inch)

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
CNMG431LK	L		●	●	.500	.187	.016	.203
CNMG432LK	L		●	●	.500	.187	.031	.203
CNMG433LK	L		●	★	.500	.187	.047	.203
CNMG431MA	M		●	●	.500	.187	.016	.203
CNMG432MA	M		●	●	.500	.187	.031	.203
CNMG433MA	M		●	●	.500	.187	.047	.203
CNMG434MA	M		★	★	.500	.187	.063	.203
CNMG542MA	M		★	●	.625	.250	.031	.250
CNMG543MA	M		★	●	.625	.250	.047	.250
CNMG544MA	M		★	★	.625	.250	.063	.250
CNMG431MK	M	●	●	●	.500	.187	.016	.203
CNMG432MK	M	●	●	●	.500	.187	.031	.203
CNMG433MK	M	●	●	●	.500	.187	.047	.203
CNMG434MK	M	●	●	●	.500	.187	.063	.203
CNMG542MK	M	●	●	★	.625	.250	.031	.250
CNMG543MK	M	★	●	●	.625	.250	.047	.250
CNMG544MK	M	●	●	★	.625	.250	.063	.250
CNMG643MK	M	●			.750	.250	.047	.312
CNMG644MK	M	★			.750	.250	.063	.312
CNMG431GK	M		●	★	.500	.187	.016	.203
CNMG432GK	M		●	●	.500	.187	.031	.203
CNMG433GK	M		●	★	.500	.187	.047	.203
CNMG434GK	M		★	★	.500	.187	.063	.203
CNMG543GK	M		★	●	.625	.250	.047	.250
CNMG544GK	M		★	★	.625	.250	.063	.250
CNMG432RK	R	●	●	●	.500	.187	.031	.203
CNMG433RK	R	●	●	●	.500	.187	.047	.203
CNMG434RK	R	★	●	●	.500	.187	.063	.203
CNMG542RK	R	★	●	●	.625	.250	.031	.250
CNMG543RK	R	●	●	●	.625	.250	.047	.250
CNMG544RK	R	●	●	★	.625	.250	.063	.250
CNMG643RK	R	●			.750	.250	.047	.312
CNMG644RK	R	★			.750	.250	.063	.312

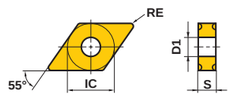
Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
CNMA431	–		●	●	.500	.187	.016	.203
CNMA432	–		●	●	.500	.187	.031	.203
CNMA433	–		●	●	.500	.187	.047	.203
CNMA434	–		●	★	.500	.187	.063	.203
CNMA543	–		●	●	.625	.250	.047	.250
CNMA544	–		★	●	.625	.250	.063	.250
CNMA643	–		●		.750	.250	.047	.312
CNMA644	–		★		.750	.250	.063	.312
CNMA646	–		★		.750	.250	.094	.312

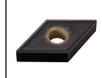
● : USA Stock ★ : Stocked in Japan
(10 inserts in one case)

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		
			

(inch)

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
DNMG332LK	L		●	★	.375	.187	.031	.150
DNMG431LK	L		●	★	.500	.187	.016	.203
DNMG432LK	L		●	●	.500	.187	.031	.203
DNMG433LK	L		●	★	.500	.187	.047	.203
DNMG441LK	L		★	★	.500	.250	.016	.203
DNMG442LK	L		★	★	.500	.250	.031	.203
DNMG443LK	L		★	★	.500	.250	.047	.203
DNMG431MA	M		●	★	.500	.187	.016	.203
DNMG432MA	M		●	●	.500	.187	.031	.203
DNMG433MA	M		●	★	.500	.187	.047	.203
DNMG441MA	M		★	★	.500	.250	.016	.203
DNMG442MA	M		★	★	.500	.250	.031	.203
DNMG443MA	M		★	★	.500	.250	.047	.203
DNMG332MK	M	★	●	●	.375	.187	.031	.150
DNMG431MK	M	●	●	●	.500	.187	.016	.203
DNMG432MK	M	●	●	●	.500	.187	.031	.203
DNMG433MK	M	★	●	●	.500	.187	.047	.203
DNMG441MK	M	★	★	★	.500	.250	.016	.203
DNMG442MK	M	★	●	★	.500	.250	.031	.203
DNMG443MK	M	★	★	★	.500	.250	.047	.203
DNMG431GK	M		★	★	.500	.187	.016	.203
DNMG432GK	M		●	★	.500	.187	.031	.203
DNMG433GK	M		★	★	.500	.187	.047	.203
DNMG441GK	M		★	★	.500	.250	.016	.203
DNMG442GK	M		★	★	.500	.250	.031	.203
DNMG443GK	M		★	★	.500	.250	.047	.203
DNMG432RK	R	★	●	●	.500	.187	.031	.203
DNMG433RK	R	★	●	★	.500	.187	.047	.203
DNMG442RK	R	★	★	★	.500	.250	.031	.203
DNMG443RK	R	★	★	★	.500	.250	.047	.203

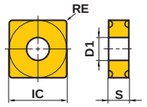
Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
DNMA431	–	★	●	★	.500	.187	.016	.203
DNMA432	–	●	●	●	.500	.187	.031	.203
DNMA433	–	●	●	★	.500	.187	.047	.203
DNMA441	–	★	●	★	.500	.250	.016	.203
DNMA442	–	★	●	★	.500	.250	.031	.203
DNMA443	–	★	●	★	.500	.250	.047	.203

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		
			

(inch)

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
SNMG432LK	L		★	★	.500	.187	.031	.203
SNMG433LK	L		●	★	.500	.187	.047	.203
SNMG431MA	M		★	★	.500	.187	.016	.203
SNMG432MA	M		●	●	.500	.187	.031	.203
SNMG433MA	M		●	★	.500	.187	.047	.203
SNMG434MA	M		★	★	.500	.187	.063	.203
SNMG543MA	M		★	★	.625	.250	.047	.250
SNMG432MK	M	★	●	★	.500	.187	.031	.203
SNMG433MK	M	●	●	★	.500	.187	.047	.203
SNMG434MK	M	★	★	★	.500	.187	.063	.203
SNMG543MK	M	★	●	★	.625	.250	.047	.250
SNMG544MK	M	★	●	★	.625	.250	.063	.250
SNMG643MK	M	★			.750	.250	.047	.312
SNMG644MK	M	★			.750	.250	.063	.312
SNMG431GK	M		●	★	.500	.187	.016	.203
SNMG432GK	M		●	★	.500	.187	.031	.203
SNMG433GK	M		●	★	.500	.187	.047	.203
SNMG434GK	M		★	●	.500	.187	.063	.203
SNMG543GK	M		★	●	.625	.250	.047	.250
SNMG432RK	R	★	●	★	.500	.187	.031	.203
SNMG433RK	R	★	●	★	.500	.187	.047	.203
SNMG434RK	R	★	●	★	.500	.187	.063	.203
SNMG543RK	R	●	●	●	.625	.250	.047	.250
SNMG544RK	R	★	★	★	.625	.250	.063	.250
SNMG643RK	R	★			.750	.250	.047	.312
SNMG644RK	R	★			.750	.250	.063	.312

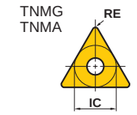
Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
SNMA322	–	●	●	★	.375	.125	.031	.150
SNMA432	–	★	●	★	.500	.187	.031	.203
SNMA433	–	●	●	●	.500	.187	.047	.203
SNMA434	–	★	●	★	.500	.187	.063	.203
SNMA543	–	●	●	★	.625	.250	.047	.250
SNMA544	–	★	●	★	.625	.250	.063	.250
SNMA643	–	●			.750	.250	.047	.312
SNMA644	–	●			.750	.250	.063	.312

● : USA Stock ★ : Stocked in Japan
(10 inserts in one case)

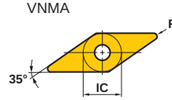
Negative Inserts (With hole)

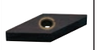
M Class

TNMG
TNMA



VNMG
VNMA



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	
					

(inch)

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
TNMG331LK	L		★	★	.375	.187	.016	.150
TNMG332LK	L		●	★	.375	.187	.031	.150
TNMG333LK	L		★	★	.375	.187	.047	.150
TNMG331MA	M		★	★	.375	.187	.016	.150
TNMG332MA	M		●	●	.375	.187	.031	.150
TNMG333MA	M		●	★	.375	.187	.047	.150
TNMG334MA	M		★	★	.375	.187	.063	.150
TNMG432MA	M		●	★	.500	.187	.031	.203
TNMG433MA	M		●	★	.500	.187	.047	.203
TNMG434MA	M		★	★	.500	.187	.063	.203
TNMG331MK	M	★	●	★	.375	.187	.016	.150
TNMG332MK	M	★	●	★	.375	.187	.031	.150
TNMG333MK	M	★	★	★	.375	.187	.047	.150
TNMG432MK	M	●	★	★	.500	.187	.031	.203
TNMG433MK	M	★	●	★	.500	.187	.047	.203
TNMG434MK	M	★	★	★	.500	.187	.063	.203
TNMG331GK	M		★	★	.375	.187	.016	.150
TNMG332GK	M		●	★	.375	.187	.031	.150
TNMG333GK	M		★	★	.375	.187	.047	.150
TNMG334GK	M		★	★	.375	.187	.063	.150
TNMG432GK	M		●	★	.500	.187	.031	.203
TNMG433GK	M		★	★	.500	.187	.047	.203
TNMG332RK	R	★	●	★	.375	.187	.031	.150
TNMG333RK	R	★	★	★	.375	.187	.047	.150
TNMG334RK	R	●	★	★	.375	.187	.063	.150
TNMG432RK	R	★	●	★	.500	.187	.031	.203
TNMG433RK	R	★	●	★	.500	.187	.047	.203
TNMG434RK	R	★	●	★	.500	.187	.063	.203
TNMA331	-	★	★	★	.375	.187	.016	.150
TNMA332	-	★	★	★	.375	.187	.031	.150
TNMA333	-	★	★	★	.375	.187	.047	.150
TNMA334	-	★	★	★	.375	.187	.063	.150
TNMA335	-	★	★	★	.375	.187	.079	.150
TNMA432	-	★	●	★	.500	.187	.031	.203
TNMA433	-	★	★	★	.500	.187	.047	.203
TNMA434	-	★	★	★	.500	.187	.063	.203

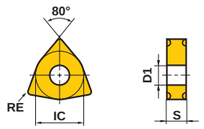
Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
VNMG331LK	L		●	★	.375	.187	.016	.150
VNMG332LK	L		●	★	.375	.187	.031	.150
VNMG331MA	M		●	★	.375	.187	.016	.150
VNMG332MA	M		●	●	.375	.187	.031	.150
VNMG331MK	M	●	●	★	.375	.187	.016	.150
VNMG332MK	M	★	●	●	.375	.187	.031	.150
VNMG333MK	M	★	●	★	.375	.187	.047	.150
VNMG331GK	M		★	★	.375	.187	.016	.150
VNMG332GK	M		●	●	.375	.187	.031	.150
VNMG333GK	M		●	★	.375	.187	.047	.150
VNMA331	–	★	●	★	.375	.187	.016	.150
VNMA332	–	★	●	★	.375	.187	.031	.150
VNMA333	–	★	★	★	.375	.187	.047	.150

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		
			

(inch)

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
WNMG431LK	L		●	●	.500	.187	.016	.203
WNMG432LK	L		●	★	.500	.187	.031	.203
WNMG433LK	L		★	★	.500	.187	.047	.203
WNMG332MA	M		●	★	.375	.187	.031	.150
WNMG333MA	M		★	★	.375	.187	.047	.150
WNMG431MA	M		●	★	.500	.187	.016	.203
WNMG432MA	M		●	●	.500	.187	.031	.203
WNMG433MA	M		●	●	.500	.187	.047	.203
WNMG434MA	M		★	●	.500	.187	.063	.203
WNMG431MK	M	●	●	★	.500	.187	.016	.203
WNMG432MK	M	●	●	●	.500	.187	.031	.203
WNMG433MK	M	★	●	★	.500	.187	.047	.203
WNMG434MK	M	★	●	★	.500	.187	.063	.203
WNMG331GK	M		●	★	.375	.187	.016	.150
WNMG332GK	M		●	★	.375	.187	.031	.150
WNMG431GK	M		●	★	.500	.187	.016	.203
WNMG432GK	M		●	★	.500	.187	.031	.203
WNMG433GK	M		●	★	.500	.187	.047	.203
WNMG434GK	M		★	★	.500	.187	.063	.203
WNMG432RK	R	●	●	●	.500	.187	.031	.203
WNMG433RK	R	●	●	★	.500	.187	.047	.203
WNMG434RK	R	★	●	★	.500	.187	.063	.203

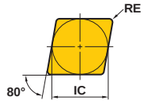
Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
WNMA332	–	★	★	★	.375	.187	.031	.150
WNMA333	–	●	★	★	.375	.187	.047	.150
WNMA431	–	★	★	★	.500	.187	.016	.203
WNMA432	–	●	●	●	.500	.187	.031	.203
WNMA433	–	●	●	●	.500	.187	.047	.203
WNMA434	–	★	●	★	.500	.187	.063	.203

● : USA Stock ★ : Stocked in Japan
(10 inserts in one case)

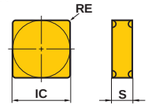
Negative Inserts (Without hole)

M Class

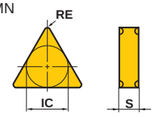
CNMN



SNMN



TNMN



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

(inch)

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
CNMN432	–	★	●	★	.500	.187	.031	–
CNMN433	–	★	●	★	.500	.187	.047	–
CNMN434	–	★	●	★	.500	.187	.063	–
SNMN432	–	●	●	★	.500	.187	.031	–
SNMN433	–	★	★	★	.500	.187	.047	–
SNMN434	–	★	★	★	.500	.187	.063	–
SNMN435	–	★	★	★	.500	.187	.079	–

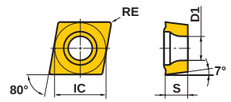
Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
TNMN332	–	★	★	★	.375	.187	.031	–
TNMN333	–	★	★	★	.375	.187	.047	–
TNMN334	–	★	★	★	.375	.187	.063	–
TNMN335	–	★	★	★	.375	.187	.079	–

MC5100 Series NEW

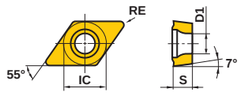
7° Positive inserts (With hole)

M Class

CCMT



DCMT



Medium Cutting	Medium Cutting
MK	MK
	

(inch)

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
CCMT21.51MK	M		●	●	.250	.094	.016	.110
CCMT21.52MK	M		●	●	.250	.094	.031	.110
CCMT32.51MK	M		●	●	.375	.156	.016	.173
CCMT32.52MK	M		●	●	.375	.156	.031	.173
CCMT431MK	M		★	★	.500	.187	.016	.217
CCMT432MK	M		●	●	.500	.187	.031	.217
CCMT433MK	M		●	★	.500	.187	.047	.217

Order Number	Cutting Area	MC5105	MC5115	MC5125	IC	S	RE	D1
DCMT21.51MK	M		●	●	.250	.094	.016	.110
DCMT21.52MK	M		●	★	.250	.094	.031	.110
DCMT32.51MK	M		●	●	.375	.156	.016	.173
DCMT32.52MK	M		●	●	.375	.156	.031	.173
DCMT431MK	M		●	★	.500	.187	.016	.217
DCMT432MK	M		●	★	.500	.187	.031	.217

● : USA Stock ★ : Stocked in Japan
(10 inserts in one case)

Recommended Cutting Conditions

Negative Inserts (For External Turning)

	Workpiece Material	Properties	Cutting Conditions	Grade	Cutting Speed **vc** (SFM)
K	Gray Cast Iron	Tensile Strength ≤350MPa	●	**MC5105**	755—2295
			◔	**MC5105**	690—2100
			✣	**MC5105**	640—1985
			✣	**MC5115**	620—1150
	Ductile Cast Iron	Tensile Strength ≤450MPa	●	**MC5115**	640—1200
			◔	**MC5115**	590—1080
			✣	**MC5125**	310—620
		Tensile Strength ≤800MPa	●	**MC5115**	575—1065
			◔	**MC5115**	525—970
			✣	**MC5125**	280—560

Cutting Range	Chip Breaker	Feed **f** (IPR)	Depth of Cut **ap**
Light Cutting	**LK**	.004—.020	.020—.098
Medium Cutting	**MK**	.008—.022	.020—.157
Medium Cutting	**MA**	.008—.020	.012—.157
Medium Cutting	**GK**	.010—.024	.059—.197
Rough Cutting	**RK**	.008—.024	.059—.236
Cast Iron Cutting	**Flat**	.008—.024	.098—.236

7° Positive Inserts (For External Turning)

	Workpiece Material	Properties	Cutting Conditions	Grade	Cutting Speed **vc** (SFM)
K	Ductile Cast Iron	Tensile Strength ≤450MPa	●	**MC5115**	560—1050
			◔	**MC5115**	425—820
			✣	**MC5125**	195—425
		Tensile Strength ≤800MPa	●	**MC5115**	410—785
			◔	**MC5115**	345—655
			✣	**MC5125**	180—375

Cutting Range	Chip Breaker	Feed **f** (IPR)	Depth of Cut **ap**
Medium Cutting	**MK**	.003—.012	.012—.079

Cutting Conditions : ● : Stable Cutting ◔ : General Cutting ✣ : Unstable Cutting

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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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