MITSUBISHI MITSUBISHI MATERIALS TOOLS NEWS
2015.11 Update B209G YOUR GLOBAL CRAFTSMAN STUDIO

ISO Insert Series for Cast Iron Turning

Series Expansion

Reduced cycle times!
New coating for speeds up to 600 m/min.

MC5005
MC5015
+
LK
MK
RK

ISO insert series for Cast Iron Turning

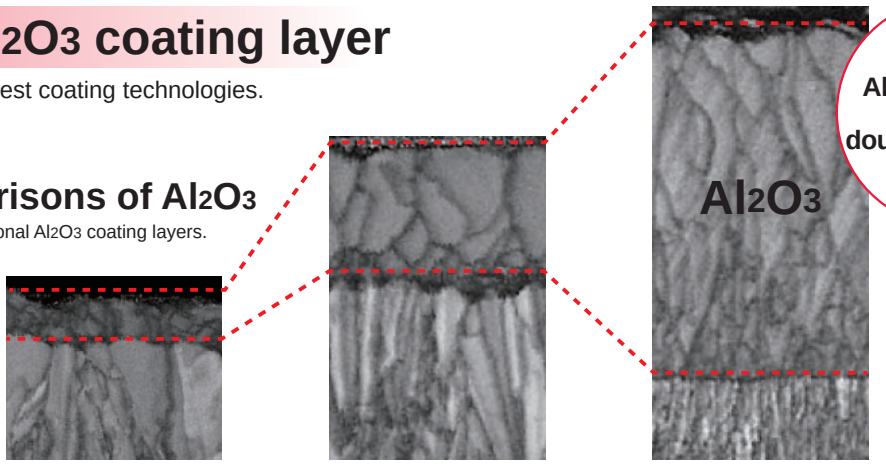
MC5005/MC5015

Extra thick Al_2O_3 coating layer

Achieved by combining the latest coating technologies.

Thickness comparisons of Al_2O_3

More than double as thick as conventional Al_2O_3 coating layers.



Conventional A

Conventional B

MC5005

★Based on our research.

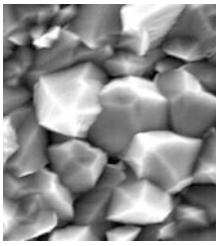
Patented technology

Nano-Texture Coating Technology

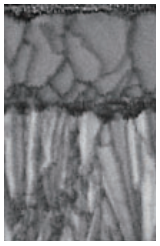
The optimised crystal growth, Nano-Texture coating technology gives outstanding wear and chipping resistance.

Conventional technology

Surface texture after coating

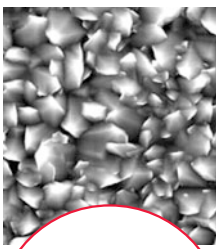


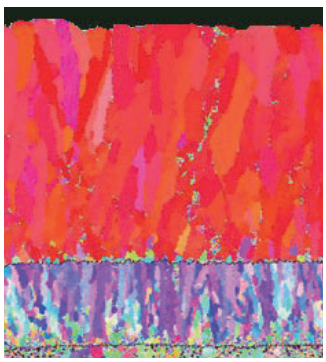
Section of coating structure



Crystallographic structure

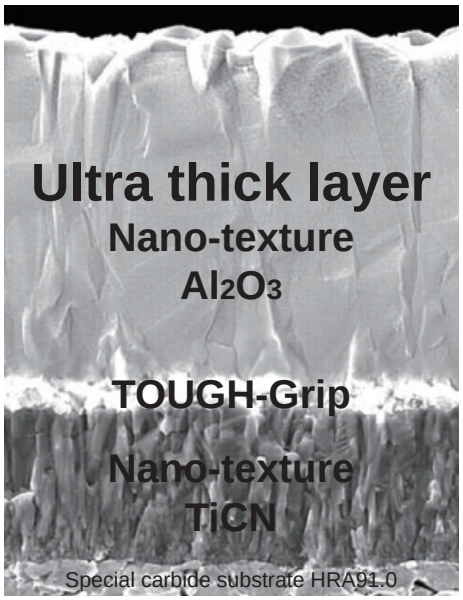
Nano-texture



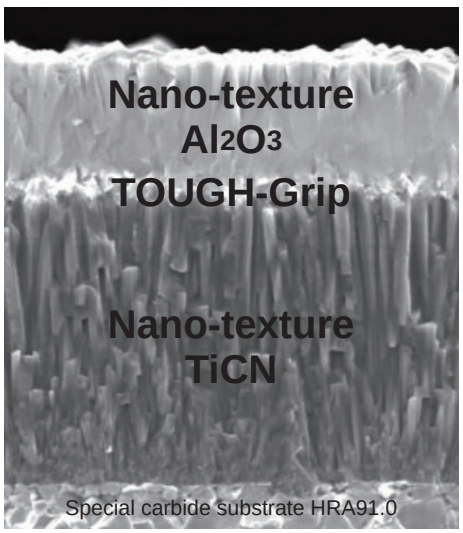


Similar colours demonstrates uniform direction of growth of the crystals.

Optimised crystal growth condition



MC5005

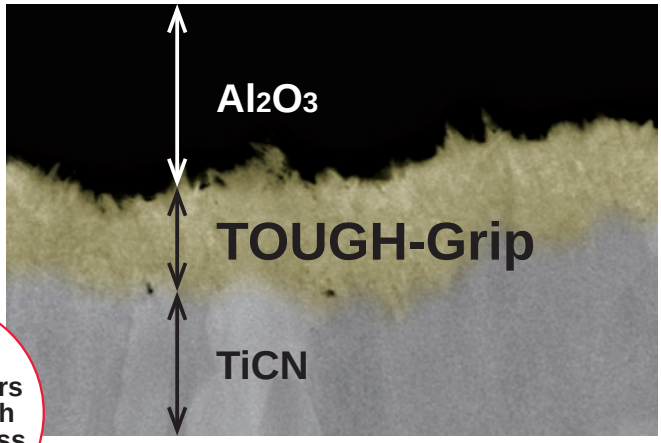


MC5015

Patented technology

TOUGH-Grip Technology

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

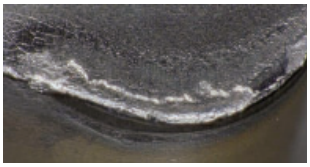


Coating layers with strength and toughness

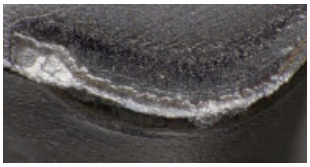
TOUGH-Grip performance comparison

Conventional thick layers show the adverse affects of peeling.

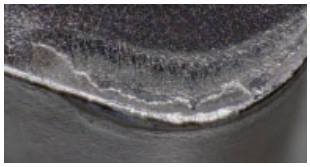
Conventional A



Conventional B



Conventional C



Large chipping and peeling of the coating

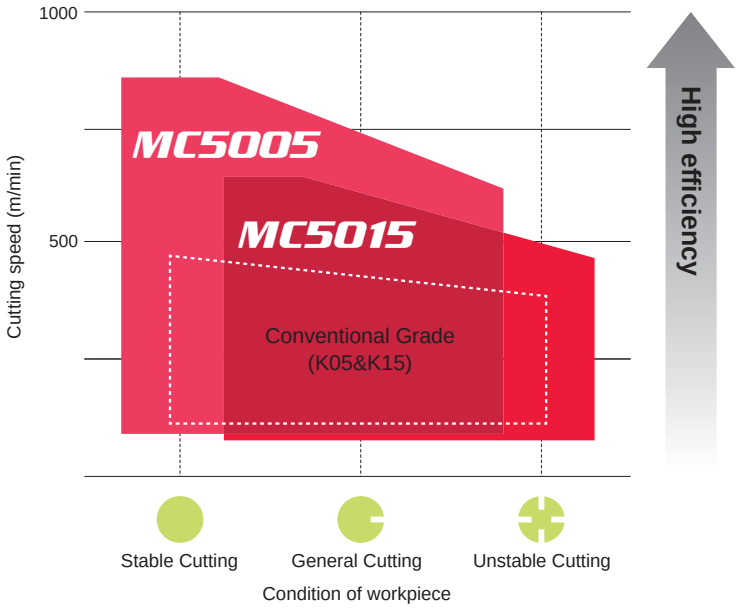
MC5005

Normal wear

<Cutting conditions>
Workpiece : FCD700
Inserts : CNMA120412
Cutting speed : 300 m/min
Feed rate : 0.3 mm/rev
Depth of cut : 2.0 mm
Cutting mode : Wet cutting
Cutting time : 4 min

Application range

Speeds normally associated with ceramic grades are now achievable. Reduction of costs when machining cast iron parts by using high efficiency methods is now possible because of improved tool life and cutting edge reliability.



New chip breaker system for cast iron turning

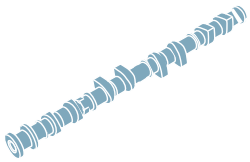
The entire range of new chip breakers has been designed by taking advantage of the properties of the new grades.
Each breaker has the optimum suitability for each respective application.

Negative Inserts

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

Chip breaker is selectable according to the machining conditions.

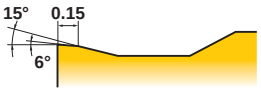




Focus on cutting edge sharpness

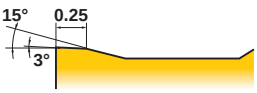
Stable Cutting (Continuous cutting, Without scale, etc.)

Low cutting resistance machining

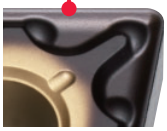
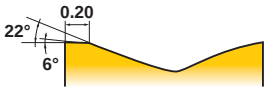
LK breaker

Positive land allows sharp cutting edge and low cutting resistance.

MK breaker

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

MA breaker

Positive land allows sharp cutting edge.

Positive Inserts

MK breaker/Flat Top

Chip breaker is selectable according to the machining conditions.


Focus on cutting edge sharpness

Stable Cutting
(Continuous cutting, Without scale, etc.)

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

Focus on cutting edge strength

Low cutting resistance machining

General to Heavy cutting


MK breaker

Flat top and steep rake angle for high wear and fracture resistance.


Flat Top

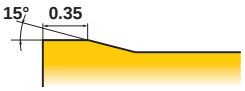
Flat top focusing on high edge strength.



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

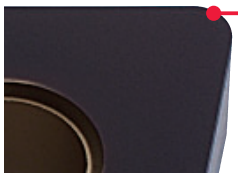
Focus on cutting edge strength

General to Heavy cutting

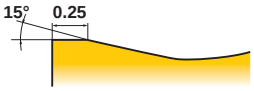
RKbreaker

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




Flat Top

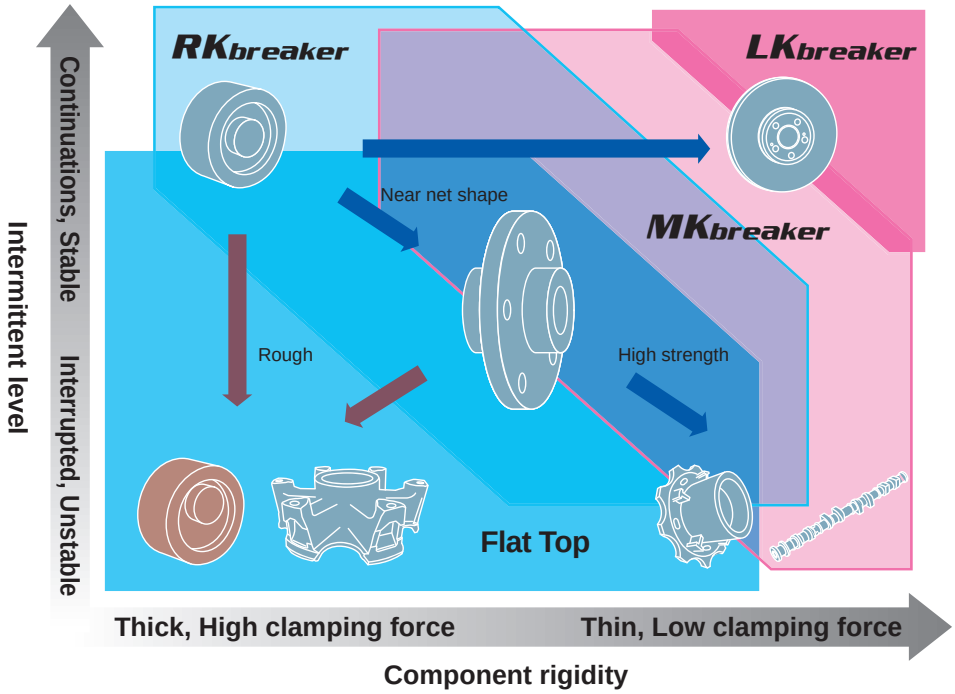
Flat top focusing on high edge strength.

GKbreaker

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

Application map for cast iron

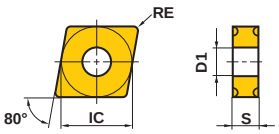


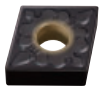
MC5005/MC5015

Negative Inserts (With hole)

M Class

CNMG
CNMA



Light Cutting	Light Cutting	Medium Cutting	Medium Cutting	Medium Cutting
LK	SW	MA	MK	MW
	 (Wiper)			 (Wiper)
Rough Cutting	**Rough Cutting**	**For Cast Iron**		
GK	RK	Flat Top		
				

Order Number	Cutting Area	Stock MC5005	Stock MC5015	Dimensions (mm) IC	S	RE	D1
CNMG120404-LK	L	●	●	12.7	4.76	0.4	5.16
CNMG**120408-LK**	L	●	●	12.7	4.76	0.8	5.16
CNMG**120412-LK**	L	●	●	12.7	4.76	1.2	5.16
CNMG120404-SW	L	●	●	12.7	4.76	0.4	5.16
CNMG**120408-SW**	L	●	●	12.7	4.76	0.8	5.16
CNMG120404-MA	M	●	●	12.7	4.76	0.4	5.16
CNMG**120408-MA**	M	●	●	12.7	4.76	0.8	5.16
CNMG**120412-MA**	M	●	●	12.7	4.76	1.2	5.16
CNMG120404-MK	M	●	●	12.7	4.76	0.4	5.16
CNMG**120408-MK**	M	●	●	12.7	4.76	0.8	5.16
CNMG**120412-MK**	M	●	●	12.7	4.76	1.2	5.16
CNMG**120416-MK**	M	●	●	12.7	4.76	1.6	5.16
NEW CNMG**160608-MK**	M	●	●	15.875	6.35	0.8	6.35
CNMG**160612-MK**	M	●	●	15.875	6.35	1.2	6.35
CNMG**160616-MK**	M	●	●	15.875	6.35	1.6	6.35
CNMG**190612-MK**	M	●	●	19.05	6.35	1.2	7.93
CNMG**190616-MK**	M	●	●	19.05	6.35	1.6	7.93
CNMG120408-MW	M	●	●	12.7	4.76	0.8	5.16
CNMG**120412-MW**	M	●	●	12.7	4.76	1.2	5.16

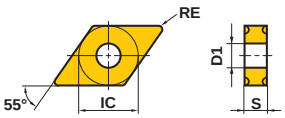
Order Number	Cutting Area	Stock MC5005	Stock MC5015	Dimensions (mm) IC	S	RE	D1
CNMG120404-GK	R	●	●	12.7	4.76	0.4	5.16
CNMG**120408-GK**	R	●	●	12.7	4.76	0.8	5.16
CNMG**120412-GK**	R	●	●	12.7	4.76	1.2	5.16
CNMG120408-RK	R	●	●	12.7	4.76	0.8	5.16
CNMG**120412-RK**	R	●	●	12.7	4.76	1.2	5.16
CNMG**120416-RK**	R	●	●	12.7	4.76	1.6	5.16
NEW CNMG**160608-RK**	R	●	●	15.875	6.35	0.8	6.35
CNMG**160612-RK**	R	●	●	15.875	6.35	1.2	6.35
CNMG**160616-RK**	R	●	●	15.875	6.35	1.6	6.35
CNMG**190612-RK**	R	●	●	19.05	6.35	1.2	7.93
CNMG**190616-RK**	R	●	●	19.05	6.35	1.6	7.93
CNMA120404	–	●	●	12.7	4.76	0.4	5.16
CNMA**120408**	–	●	●	12.7	4.76	0.8	5.16
CNMA**120412**	–	●	●	12.7	4.76	1.2	5.16
CNMA**120416**	–	●	●	12.7	4.76	1.6	5.16
CNMA**160612**	–	●	●	15.875	6.35	1.2	6.35
CNMA**160616**	–	●	●	15.875	6.35	1.6	6.35
CNMA**190612**	–	●	●	19.05	6.35	1.2	7.93
CNMA**190616**	–	●	●	19.05	6.35	1.6	7.93
NEW CNMA**190624**	–	●	●	19.05	6.35	2.4	7.93

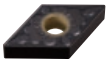
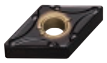
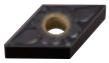
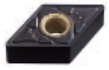
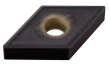
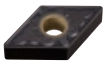
● : Inventory maintained in Japan.

Negative Inserts (With hole)

M Class

DNMG
DNMX
DNMA



Light Cutting	Medium Cutting	Medium Cutting	Medium Cutting
LK	MA	MK	MW
	 (Wiper)		 (Wiper)
Rough Cutting	**Rough Cutting**	**For Cast Iron**	
GK	RK	Flat Top	
			

Order Number	Cutting Area	Stock		Dimensions (mm)			
		MC5005	MC5015	IC	S	RE	D1
NEW **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
NEW **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
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

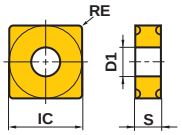
Order Number	Cutting Area	Stock		Dimensions (mm)			
		MC5005	MC5015	IC	S	RE	D1
DNMG150404-GK	R	●	●	12.7	4.76	0.4	5.16
DNMG150408-GK	R	●	●	12.7	4.76	0.8	5.16
DNMG150412-GK	R	●	●	12.7	4.76	1.2	5.16
DNMG150604-GK	R	●	●	12.7	6.35	0.4	5.16
DNMG150608-GK	R	●	●	12.7	6.35	0.8	5.16
DNMG150612-GK	R	●	●	12.7	6.35	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

MC5005/MC5015

Negative Inserts (With hole)

M Class

SNMG
SNMA



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

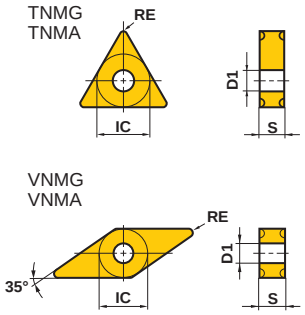
Order Number	Cutting Area	Stock MC5005	Stock MC5015	Dimensions (mm) IC	S	RE	D1
SNMG120408-LK	L	●	●	12.7	4.76	0.8	5.16
SNMG120412-LK	L	●	●	12.7	4.76	1.2	5.16
SNMG120404-MA	M	●	●	12.7	4.76	0.4	5.16
SNMG120408-MA	M	●	●	12.7	4.76	0.8	5.16
SNMG120412-MA	M	●	●	12.7	4.76	1.2	5.16
SNMG120408-MK	M	●	●	12.7	4.76	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
NEW **SNMG150612-MK**	M	●	●	15.875	6.35	1.2	6.35
NEW **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

Order Number	Cutting Area	Stock MC5005	Stock MC5015	Dimensions (mm) IC	S	RE	D1
SNMG120404-GK	R	●	●	12.7	4.76	0.4	5.16
SNMG120408-GK	R	●	●	12.7	4.76	0.8	5.16
SNMG120412-GK	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
NEW **SNMG150612-RK**	R	●	●	15.875	6.35	1.2	6.35
NEW **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
NEW **SNMA150612**	—	●	●	15.875	6.35	1.2	6.35
NEW **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

● : Inventory maintained in Japan.

Negative Inserts (With hole)

M Class



Light Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Rough Cutting	Rough Cutting
LK	MA	MK	MW (Wiper)	GK	RK
					
For Cast Iron	**Light Cutting**	**Medium Cutting**	**Medium Cutting**	**Rough Cutting**	**For Cast Iron**
Flat Top	LK	MA	MK	GK	Flat Top
					

Order Number	Cutting Area	Stock		Dimensions (mm)			
		MC5005	MC5015	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
TNMG220408-MA	M	●	●	12.7	4.76	0.8	5.16
TNMG220412-MA	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
TNMX160408-MW	M	●	●	9.525	4.76	0.8	3.81
TNMX160412-MW	M	●	●	9.525	4.76	1.2	3.81
TNMG160404-GK	R	●	●	9.525	4.76	0.4	3.81
TNMG160408-GK	R	●	●	9.525	4.76	0.8	3.81
TNMG160412-GK	R	●	●	9.525	4.76	1.2	3.81
TNMG220408-GK	R	●	●	12.7	4.76	0.8	5.16
TNMG220412-GK	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
TNMA220416	–	●	●	12.7	4.76	1.6	5.16

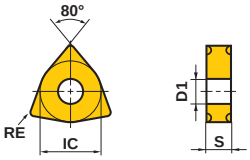
Order Number	Cutting Area	Stock		Dimensions (mm)			
		MC5005	MC5015	IC	S	RE	D1
VNMG160404-LK	L	●	●	9.525	4.76	0.4	3.81
VNMG160408-LK	L	●	●	9.525	4.76	0.8	3.81
VNMG160404-MA	M	●	●	9.525	4.76	0.4	3.81
VNMG160408-MA	M	●	●	9.525	4.76	0.8	3.81
VNMG160404-MK	M	●	●	9.525	4.76	0.4	3.81
VNMG160408-MK	M	●	●	9.525	4.76	0.8	3.81
VNMG160412-MK	M	●	●	9.525	4.76	1.2	3.81
VNMG160404-GK	R	●	●	9.525	4.76	0.4	3.81
VNMG160408-GK	R	●	●	9.525	4.76	0.8	3.81
NEW **VNMG160412-GK**	R	●	●	9.525	4.76	1.2	3.81
NEW **VNMA160404**	–	●	●	9.525	4.76	0.4	3.81
NEW **VNMA160408**	–	●	●	9.525	4.76	0.8	3.81
NEW **VNMA160412**	–	●	●	9.525	4.76	1.2	3.81

MC5005/MC5015

Negative Inserts (With hole)

M Class

WNMG
WNMA



Light Cutting	Light Cutting	Medium Cutting	Medium Cutting	Medium Cutting
LK	SW	MA	MK	MW
	 (Wiper)			 (Wiper)
Rough Cutting	**Rough Cutting**	**For Cast Iron**		
GK	RK	Flat Top		
				

Order Number	Cutting Area	Stock		Dimensions (mm)			
		MC5005	MC5015	IC	S	RE	D1
WNMG080404-LK	L	●	●	12.7	4.76	0.4	5.16
WNMG**080408-LK**	L	●	●	12.7	4.76	0.8	5.16
WNMG**080412-LK**	L	●	●	12.7	4.76	1.2	5.16
WNMG080404-SW	L	●	●	12.7	4.76	0.4	5.16
WNMG**080408-SW**	L	●	●	12.7	4.76	0.8	5.16
WNMG060408-MA	M	●	●	9.525	4.76	0.8	3.81
WNMG**060412-MA**	M	●	●	9.525	4.76	1.2	3.81
WNMG**080404-MA**	M	●	●	12.7	4.76	0.4	5.16
WNMG**080408-MA**	M	●	●	12.7	4.76	0.8	5.16
WNMG**080412-MA**	M	●	●	12.7	4.76	1.2	5.16
WNMG080404-MK	M	●	●	12.7	4.76	0.4	5.16
WNMG**080408-MK**	M	●	●	12.7	4.76	0.8	5.16
WNMG**080412-MK**	M	●	●	12.7	4.76	1.2	5.16
WNMG**080416-MK**	M	●	●	12.7	4.76	1.6	5.16
WNMG060408-MW	M	●	●	9.525	4.76	0.8	3.81
WNMG**060412-MW**	M	●	●	9.525	4.76	1.2	3.81
WNMG**080408-MW**	M	●	●	12.7	4.76	0.8	5.16
WNMG**080412-MW**	M	●	●	12.7	4.76	1.2	5.16

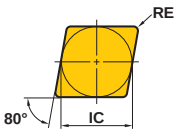
Order Number	Cutting Area	Stock		Dimensions (mm)			
		MC5005	MC5015	IC	S	RE	D1
WNMG060404-GK	R	●	●	9.525	4.76	0.4	3.81
WNMG**060408-GK**	R	●	●	9.525	4.76	0.8	3.81
WNMG**080404-GK**	R	●	●	12.7	4.76	0.4	5.16
WNMG**080408-GK**	R	●	●	12.7	4.76	0.8	5.16
WNMG**080412-GK**	R	●	●	12.7	4.76	1.2	5.16
WNMG080408-RK	R	●	●	12.7	4.76	0.8	5.16
WNMG**080412-RK**	R	●	●	12.7	4.76	1.2	5.16
WNMG**080416-RK**	R	●	●	12.7	4.76	1.6	5.16
NEW **WNMA060408**	—	●	●	9.525	4.76	0.8	3.81
NEW WNMA**060412**	—	●	●	9.525	4.76	1.2	3.81
WNMA**080404**	—	●	●	12.7	4.76	0.4	5.16
WNMA**080408**	—	●	●	12.7	4.76	0.8	5.16
WNMA**080412**	—	●	●	12.7	4.76	1.2	5.16
WNMA**080416**	—	●	●	12.7	4.76	1.6	5.16

● : Inventory maintained in Japan.

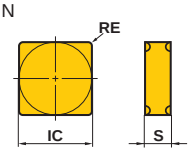
Negative Inserts (Without hole)

M Class

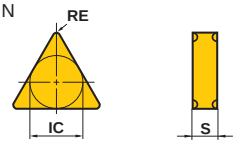
CNMN



SNMN



TNMN



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

Order Number	Cutting Area	Stock		Dimensions (mm)			
		MC5005	MC5015	IC	S	RE	D1
NEW **CNMN120408**	—	●	●	12.7	4.76	0.8	—
NEW **CNMN120412**	—	●	●	12.7	4.76	1.2	—
NEW **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	—
TNMN160408	—	●	●	9.525	4.76	0.8	—
TNMN160412	—	●	●	9.525	4.76	1.2	—
TNMN160416	—	●	●	9.525	4.76	1.6	—

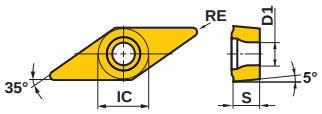
MC5005/MC5015

5°Positive inserts (With hole)

M Class

VBMT
VBMW

Medium Cutting	Medium Cutting	For Cast Iron
MK	MV	Flat Top
		



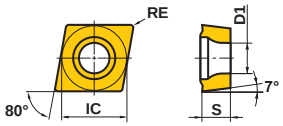
Order Number	Cutting Area	Stock MC5005	Stock MC5015	Dimensions (mm) IC	S	RE	D1
VBMT160404-MK	M	●	●	9.525	4.76	0.4	4.4
VBMT160408-MK	M	●	●	9.525	4.76	0.8	4.4
NEW **VBMT110304-MV**	M		●	6.35	3.18	0.4	2.9
NEW **VBMT110308-MV**	M		●	6.35	3.18	0.8	2.9
NEW **VBMT160404-MV**	M		●	9.525	4.76	0.4	4.4
NEW **VBMT160408-MV**	M		●	9.525	4.76	0.8	4.4
VBMW160408	—	●	●	9.525	4.76	0.8	4.4

● : **Inventory maintained in Japan.**

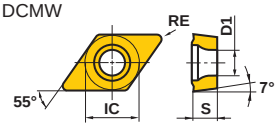
7°Positive inserts (With hole)

M Class

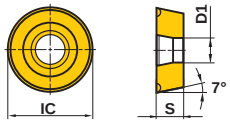
CCMT
CCMH
CCMW

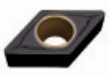
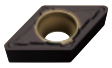
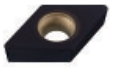


DCMT
DCMW



RCMX



Medium Cutting	Medium Cutting	For Cast Iron	Medium Cutting
MK	MV	Flat Top	MK
			
Medium Cutting	**For Cast Iron**	**Medium Cutting**	
MV	Flat Top	Standard	
			

Order Number	Cutting Area	Stock MC5005	Stock MC5015	Dimensions (mm) 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
NEW **CCMT120412-MK**	M	●	●	12.7	4.76	1.2	5.5
NEW **CCMH060204-MV**	M		●	6.35	2.38	0.4	2.8
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
CCMW120412	—	●	●	12.7	4.76	1.2	5.5

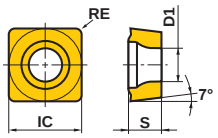
Order Number	Cutting Area	Stock MC5005	Stock MC5015	Dimensions (mm) IC	S	RE	D1
DCMT070204-MK	M	●	●	6.35	2.38	0.4	2.8
NEW **DCMT070208-MK**	M	●	●	6.35	2.38	0.8	2.8
DCMT11T304-MK	M	●	●	9.525	3.97	0.4	4.4
DCMT11T308-MK	M	●	●	9.525	3.97	0.8	4.4
DCMT150404-MK	M	●	●	12.7	4.76	0.4	5.5
DCMT150408-MK	M	●	●	12.7	4.76	0.8	5.5
NEW **DCMT070204-MV**	M		●	6.35	2.38	0.4	2.8
NEW **DCMT070208-MV**	M		●	6.35	2.38	0.8	2.8
NEW **DCMT11T304-MV**	M		●	9.525	3.97	0.4	4.4
NEW **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
RCMX1204M0	M		●	12.7	4.76	—	4.2

MC5005/MC5015

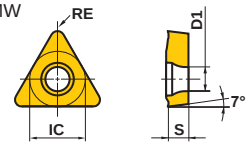
7°Positive inserts (With hole)

M Class

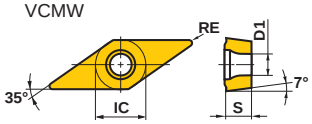
SCMT
SCMW



TCMT
TCMW



VCMT
VCMW



Medium Cutting	Medium Cutting	Medium Cutting	For Cast Iron
MK	Flat Top	MK	Flat Top
			
Medium Cutting	**Medium Cutting**	**For Cast Iron**	
MK	MV	Flat Top	
			

Order Number	Cutting Area	Stock MC5005	Stock MC5015	Dimensions (mm) IC	S	RE	D1
SCMT09T304-MK	M	●	●	9.525	3.97	0.4	4.4
SCMT**09T308-MK**	M	●	●	9.525	3.97	0.8	4.4
NEW SCMT**120404-MK**	M	●	●	12.7	4.76	0.4	5.5
SCMT**120408-MK**	M	●	●	12.7	4.76	0.8	5.5
SCMW09T304	—	●	●	9.525	3.97	0.4	4.4
SCMW**09T308**	—	●	●	9.525	3.97	0.8	4.4
SCMW**120408**	—	●	●	12.7	4.76	0.8	5.5
TCMT110204-MK	M	●	●	6.35	2.38	0.4	2.8
NEW TCMT**110208-MK**	M	●	●	6.35	2.38	0.8	2.8
TCMT**16T304-MK**	M	●	●	9.525	3.97	0.4	4.4
TCMT**16T308-MK**	M	●	●	9.525	3.97	0.8	4.4
TCMT**16T312-MK**	M	●	●	9.525	3.97	1.2	4.4
TCMW110204	—	●	●	6.35	2.38	0.4	2.8
TCMW**16T304**	—	●	●	9.525	3.97	0.4	4.4
TCMW**16T308**	—	●	●	9.525	3.97	0.8	4.4
TCMW**16T312**	—	●	●	9.525	3.97	1.2	4.4

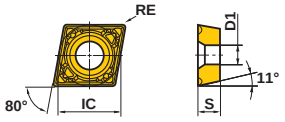
Order Number	Cutting Area	Stock MC5005	Stock MC5015	Dimensions (mm) IC	S	RE	D1
VCMT160404-MK	M	●	●	9.525	4.76	0.4	4.4
VCMT**160408-MK**	M	●	●	9.525	4.76	0.8	4.4
NEW **VCMT080204-MV**	M		●	4.76	2.38	0.4	2.4
VCMW160404	—	●	●	9.525	4.76	0.4	4.4
VCMW**160408**	—	●	●	9.525	4.76	0.8	4.4

● : Inventory maintained in Japan.

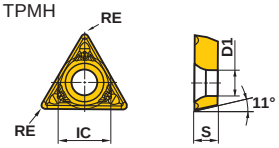
11°Positive inserts

M Class

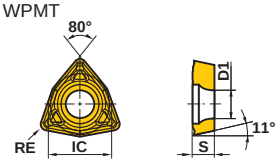
CPMH



TPMH



WPMT



Medium Cutting	Medium Cutting	Medium Cutting
MV	MV	MV
		
For Cast Iron		
Flat Top		
		

Order Number	Cutting Area	Stock		Dimensions (mm)			
		MC5005	MC5015	IC	S	RE	D1
NEW **CPMH080204-MV**	M		●	7.94	2.38	0.4	3.5
NEW CPMH**080208-MV**	M		●	7.94	2.38	0.8	3.5
NEW CPMH**090304-MV**	M		●	9.525	3.18	0.4	4.5
NEW CPMH**090308-MV**	M		●	9.525	3.18	0.8	4.5
NEW **TPMH080204-MV**	M		●	4.76	2.38	0.4	2.4
NEW TPMH**090204-MV**	M		●	5.56	2.38	0.4	2.9
NEW TPMH**090208-MV**	M		●	5.56	2.38	0.8	2.9
NEW TPMH**110304-MV**	M		●	6.35	3.18	0.4	3.4
NEW TPMH**110308-MV**	M		●	6.35	3.18	0.8	3.4
NEW TPMH**160304-MV**	M		●	9.525	3.18	0.4	4.4
NEW TPMH**160308-MV**	M		●	9.525	3.18	0.8	4.4

Order Number	Cutting Area	Stock		Dimensions (mm)			
		MC5005	MC5015	IC	S	RE	D1
NEW **WPMT040204-MV**	M		●	6.35	2.38	0.4	2.8
NEW WPMT**060304-MV**	M		●	9.525	3.18	0.4	4.4
NEW WPMT**060308-MV**	M		●	9.525	3.18	0.8	4.4
TPMN110304	M	●	●	6.35	3.18	0.4	–
TPMN**110308**	M	●	●	6.35	3.18	0.8	–
TPMN**160304**	M	●	●	9.525	3.18	0.4	–
TPMN**160308**	M	●	●	9.525	3.18	0.8	–
TPMN**160312**	M	●	●	9.525	3.18	1.2	–

RECOMMENDED CUTTING CONDITIONS

Negative Inserts

	Work Material	Tensile Strength	Grade	**vc** (m/min)	**f** (mm/rev)	**ap** (mm)
K	Cast Iron (FC300)	≤ 350 MPa	**MC5005**	210—600	0.1—0.5	0.3—6.0
			MC5015	190—450	0.1—0.5	0.3—6.0
	Ductile Cast Iron (FCD450)	≤ 450 MPa	**MC5005**	200—435	0.1—0.5	0.3—5.0
			MC5015	180—395	0.1—0.5	0.3—5.0
	Ductile Cast Iron (FCD700)	≤ 800 MPa	**MC5005**	175—385	0.1—0.5	0.3—4.0
			MC5015	160—350	0.1—0.5	0.3—4.0

*For internal cutting, please refer to the appropriate boring bar conditions.

Positive Inserts

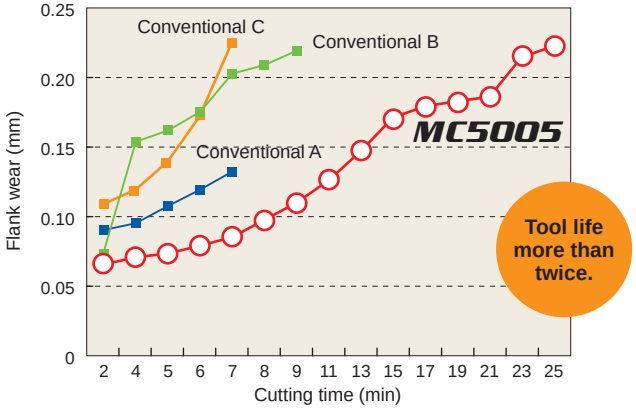
	Work Material	Tensile Strength	Grade	**vc** (m/min)	**f** (mm/rev)	**ap** (mm)
K	Cast Iron (FC300)	≤ 350 MPa	**MC5005**	170—475	0.08—0.3	0.3—3.0
			MC5015	155—355	0.08—0.3	0.3—3.0
	Ductile Cast Iron (FCD450)	≤ 450 MPa	**MC5005**	160—345	0.08—0.3	0.3—2.5
			MC5015	145—320	0.08—0.3	0.3—2.5
	Ductile Cast Iron (FCD700)	≤ 800 MPa	**MC5005**	140—305	0.08—0.3	0.3—2.0
			MC5015	130—275	0.08—0.3	0.3—2.0

*For internal cutting, please refer to the appropriate boring bar conditions.

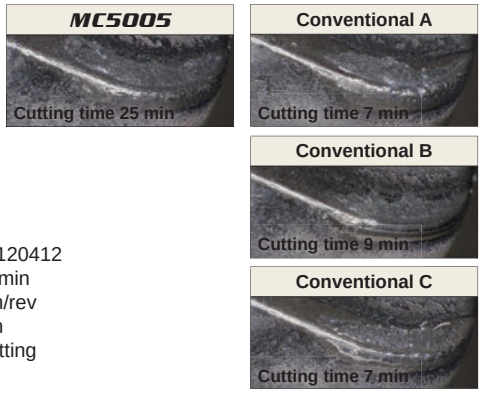
vc = Cutting Speed **f** = Feed Rate
ap = Depth of Cut

Technical Data

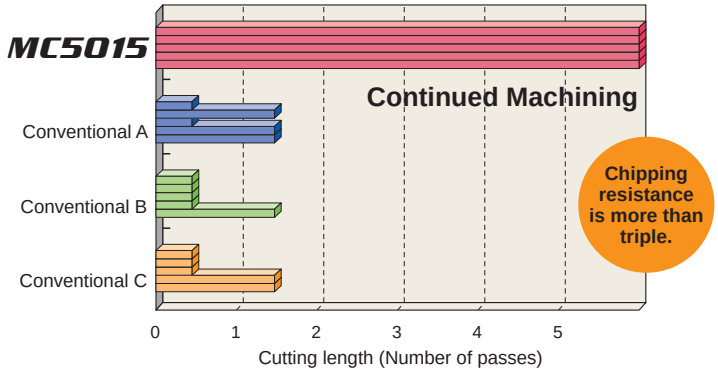
Continuous cutting of FC300

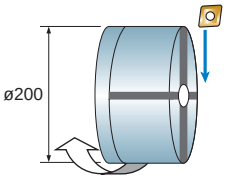


<Cutting Conditions>
Work material : FC300
Insert : CNMA120412
Cutting Speed : 450 m/min
Feed : 0.3 mm/rev
Depth of Cut : 2.0 mm
Cutting mode : Dry Cutting



FCD700 interrupted turning

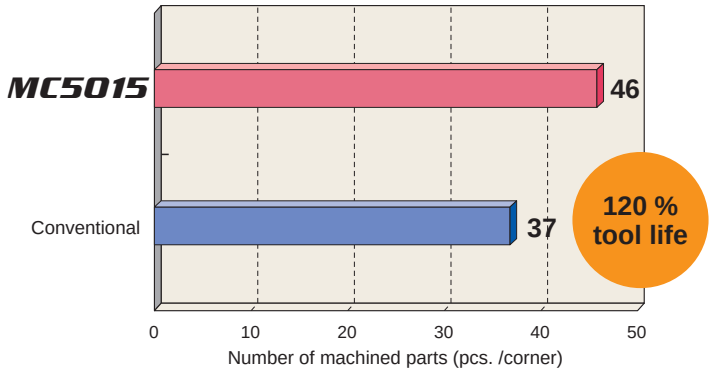


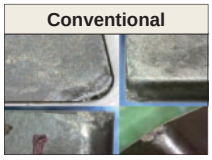


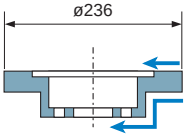
<Cutting Conditions>
Work material : FCD700
Insert : CNMA120412
Cutting Speed : 150 m/min
Feed : 0.3 mm/rev
Depth of Cut : 1.5 mm
Cutting mode : Wet Cutting

FC200 Parts trial No.1

20 % increase in tool life was achieved even at 600 m/min cutting speeds.





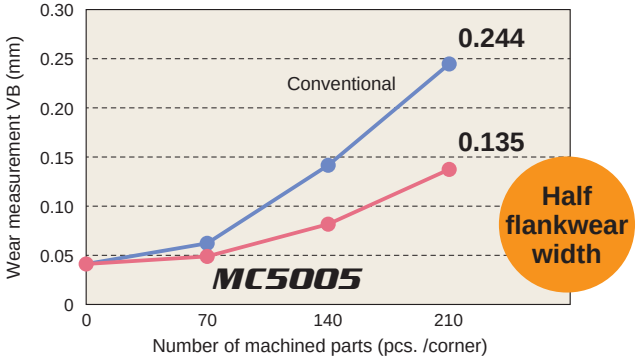


<Cutting conditions>
Workpiece : FC200 ID and OD turning of Brake disc
Inserts : WNMA080412 Flat Top
Cutting speed : 600 m/min
Feed rate : 0.4 mm/rev
Depth of cut : 2.0 mm
Cutting mode : Wet cutting

FC300 Parts trial No.2

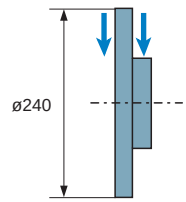
Higher wear resistance than ceramic grades.

After machining 210 pcs.



Wear 0.135 mm

Wear 0.244 mm



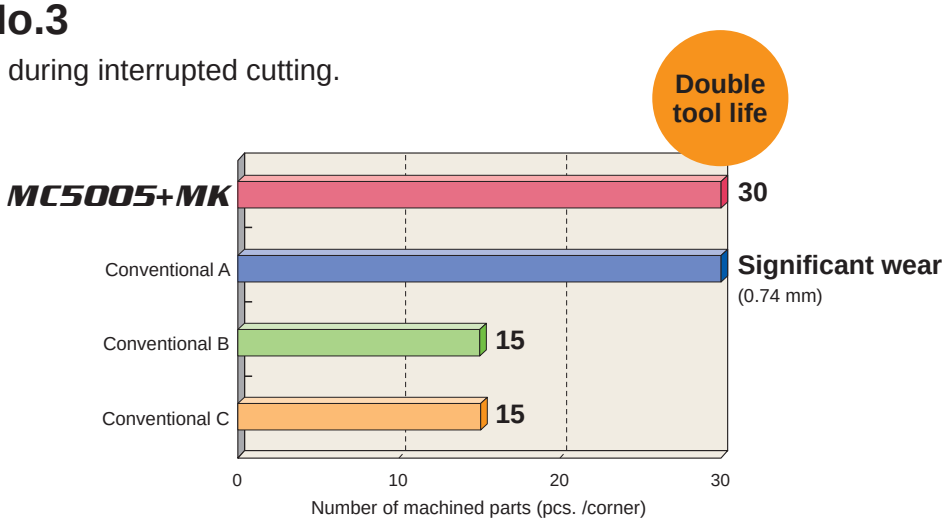
<Cutting conditions>
Workpiece : FC300 Facing of Brake disc
Inserts : CNMA120412 Flat Top
Cutting speed : 450 m/min
Feed rate : 0.25 mm/rev
Depth of cut : 0.3 mm
Cutting mode : Dry cutting

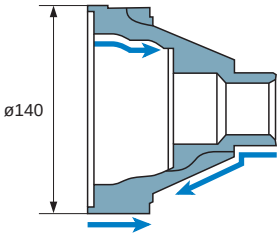
Technical Data

FCD700 Parts trial No.3

No breakage of the component during interrupted cutting.

Wear 0.29 mm
After machining 30 pcs.



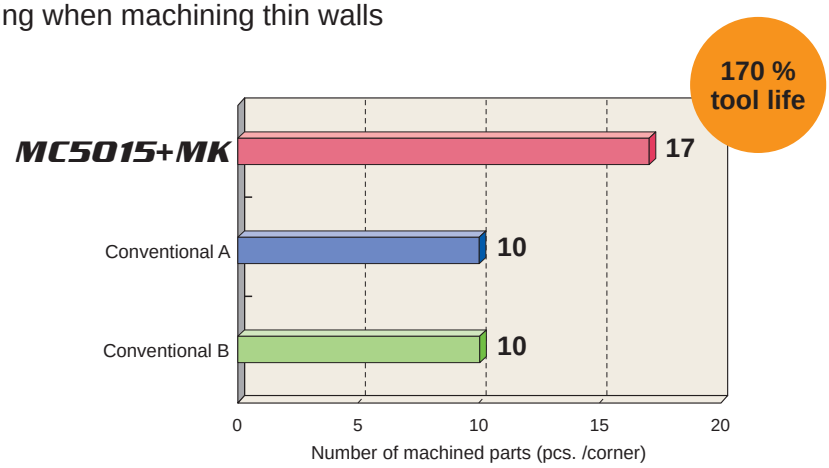


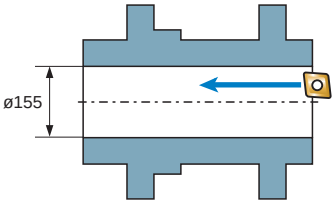
<Cutting Conditions>
Workpiece : FCD700 ID and OD turning of Differential case
Insert : WNMG080412-MK (MC5005)
Cutting Speed : 170−200 m/min
Feed : 0.35−0.5 mm/rev
Depth of Cut : 1.5−2.0 mm
Cutting mode : Wet Cutting

FCD700 Parts trial No.4

Substantial reduction of fracturing when machining thin walls

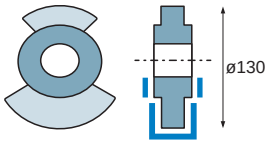
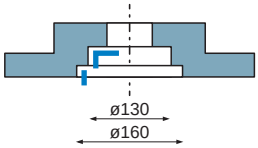
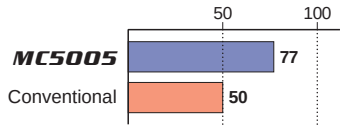
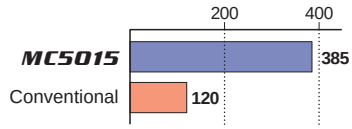
Wear 0.44 mm
After machining 17 pcs.

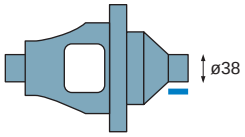
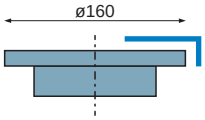
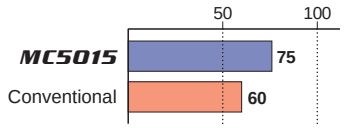
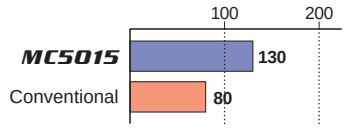


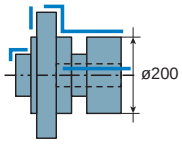
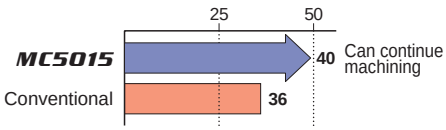


<Cutting Conditions>
Workpiece : FCD700 ID for case
Insert : CNMG080412-MK (MC5015)
Cutting Speed : 120 m/min
Feed : 0.1 mm/rev
Depth of Cut : Rough=4 mm, Finish=3 mm
Cutting mode : Dry Cutting

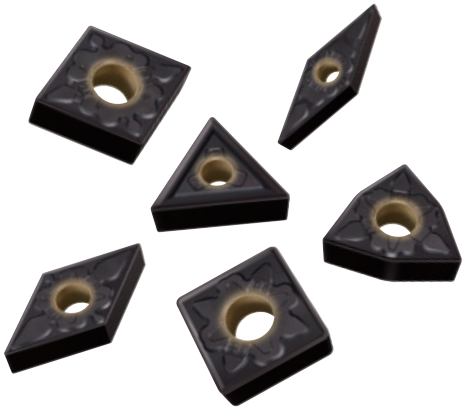
Application Examples

Insert	WNMG080412-MK (MC5005)	CNMA120412(MC5015)
Workpiece	Cast Iron FC250 	Cast Iron FC200 
Component	Counter weight	Brake disc
Cutting Conditions: Cutting Speed (m/min)	400−500	650
Cutting Conditions: Feed (mm/rev)	0.20	0.3
Cutting Conditions: Depth of Cut (mm)	2.0	0.5
Cutting mode	Wet cutting	Wet cutting
Results	Number of machined parts (pcs. /corner)  When using high efficiency conditions, 1.5 times tool life was achieved.	Number of machined parts (pcs. /corner)  Internal and face cutting gave 1.2 times tool life.

Insert	WNMA080412 (MC5015)	CNMG120408-MK (MC5015)
Workpiece	Ductile Cast Iron FCD500 	Ductile Cast Iron FCD600 
Component	Differential case	Brake disc
Cutting Conditions: Cutting Speed (m/min)	350	80
Cutting Conditions: Feed (mm/rev)	0.47	0.35
Cutting Conditions: Depth of Cut (mm)	3.0	2.0−3.0
Cutting mode	Wet cutting	Wet cutting
Results	Number of machined parts (pcs. /corner)  No damage occurred during high speed roughing of material with scale.	Number of machined parts (pcs. /corner)  External and face roughing gave 1.2 times tool life.

Insert	CNMG160616-RK (MC5015)
Workpiece	Ductile Cast Iron FCD600 
Component	Hub
Cutting Conditions: Cutting Speed (m/min)	250
Cutting Conditions: Feed (mm/rev)	0.5
Cutting Conditions: Depth of Cut (mm)	3.0−4.0
Cutting mode	Wet cutting
Results	Number of machined parts (pcs. /corner)  Reduced wear meant an increase in the number of pieces machined per edge.

New CVD coating for cast iron turning
MC5005/MC5015



New chip breaker system for cast iron turning
LK/MK/RK

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.

MITSUBISHI MATERIALS CORPORATION

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(Tools specifications subject to change without notice.)

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2015.11.E(-)