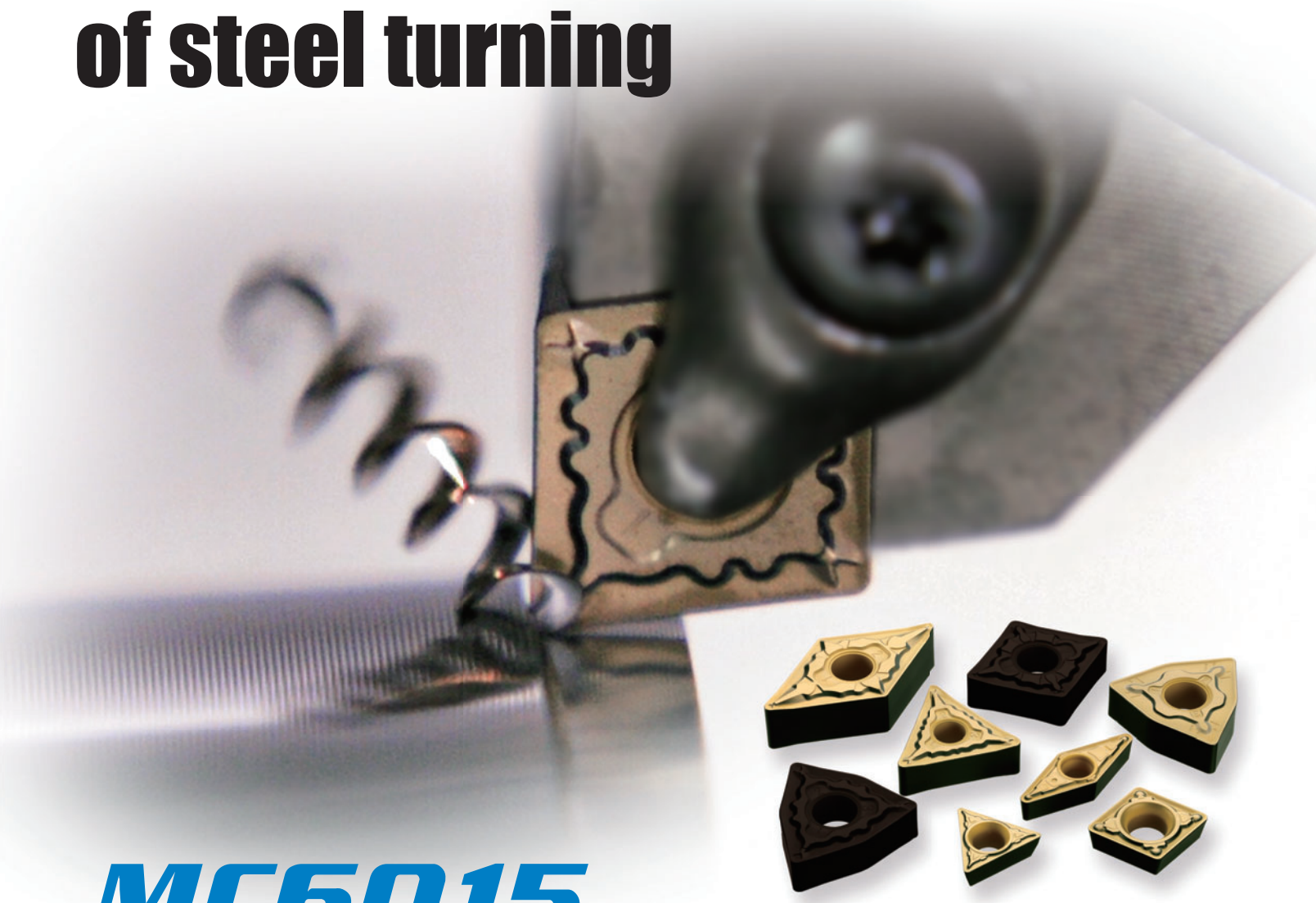
DIA EDGE
TOOL NEWS
2018.8 Update
B196A

6000 Series Grades for Steel Turning

Item Expansion

Pushing the boundaries of steel turning



MC6015
MC6025
MC6035

+

FP / LP
MP / RP

MITSUBISHI MATERIALS CORPORATION

Grade for Steel Turning

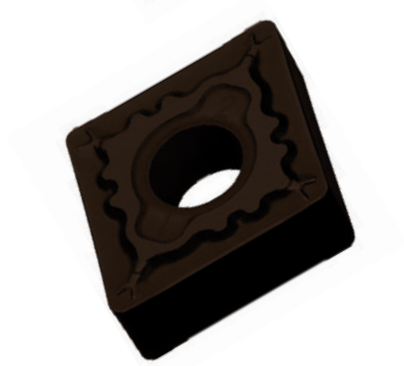
MC6000 Series

MC6015 for High Speed Cutting

Delivers outstanding heat and wear the resistance during high speed cutting.
Machining time can be shortened and number of workpieces per cutting edge can be increased in stable machining.

MC6025 the Standard Grade for Steels

MC6025 is a standard grade for steels, and utilizes an optimum CVD coating which is suitable for crater and flank wear, thereby achieving general versatility for increased stability.



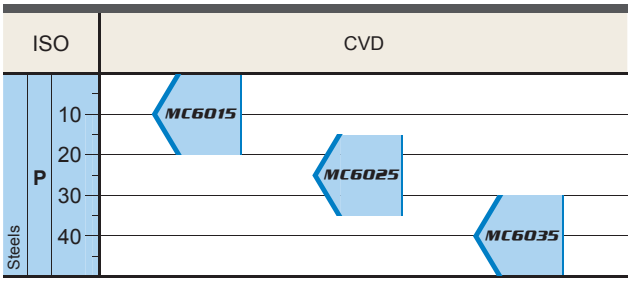
MC6035 for Interrupted Cutting, Medium to Low Speed Cutting

By dispersing an impact stress during interrupted machining, MC6035 controls crack development and achieves a good balance between fracture and welding resistance during low speed cutting.

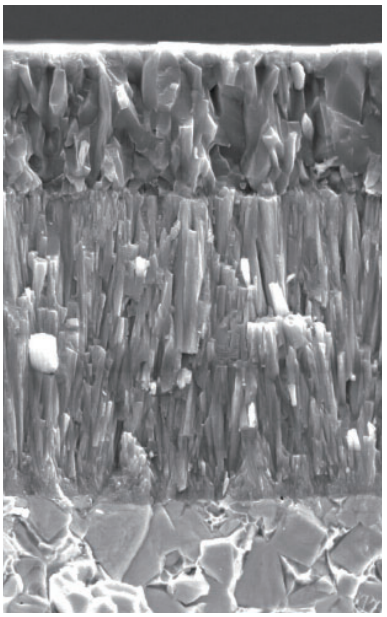
Selection Criteria

Work Material		Cutting Mode	Grade
P	Steels	Continuous Cutting	UE6105
			MC6015
			MC6025
		Interrupted Cutting	MC6035

Application Range



Key Technology



Improved Surface Finishes Welding Resistance
Prevents abnormal fracture and weld chipping.

The CVD Coating Layer Prevents Crater Wear
Flat Al_2O_3 layer with excellent heat resistance reduces crater wear development.

CVD Coating Layer Reduces Flank Wear
High wear resistance can be achieved due to the thickened Nano-texture TiCN layer.

Special Carbide Substrate with Improved Fracture Resistance

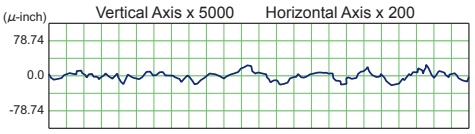
The Standard Grade for Steels

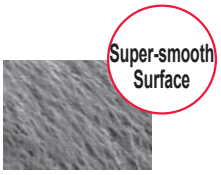
MC6025

Comparison for Coating Surface Roughness

With an extremely smooth surface, the Black Super Even Coating provides improved surface roughness which results in excellent resistance against adhesion, abnormal damage and weld chipping.

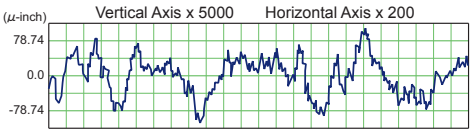
MC6000 Series

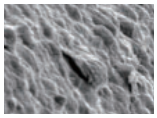




[Magnified Photo]
Surface characteristics of the chip breaker.

Conventional Coating

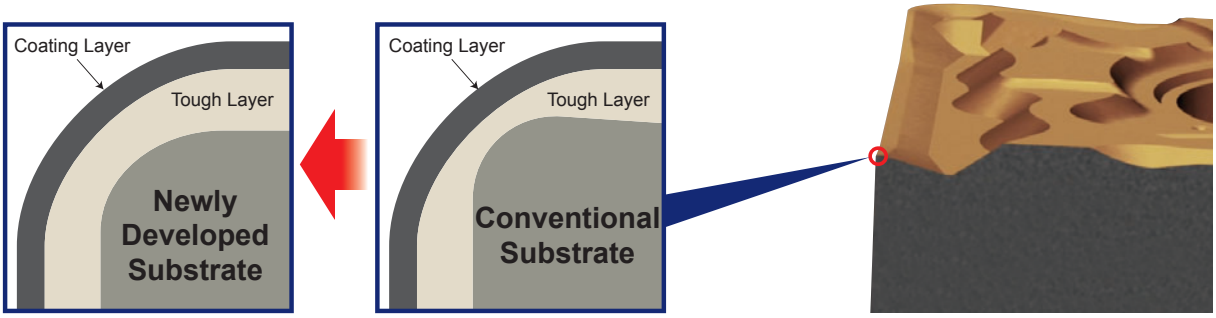




[Magnified Photo]
Surface characteristics of the chip breaker.

Substrate with Improved Tough Layer

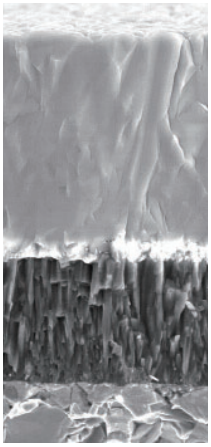
The new technology used in MC6025 ensures a tough edge layer that vastly reduces crack development and fracturing.



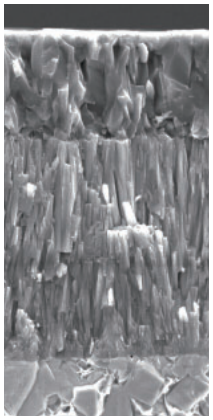
For High Speed Cutting

MC6015

Delivers Outstanding Wear Resistance even at High Temperatures



MC6015



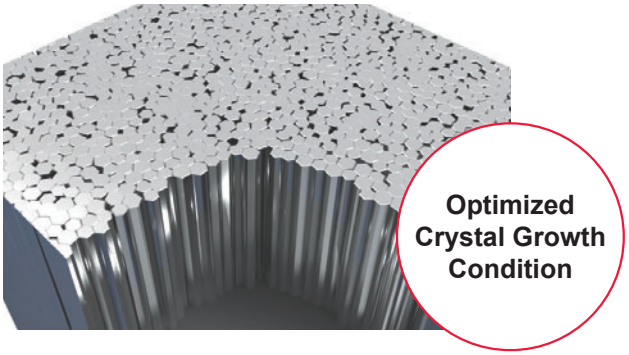
MC6025

Better wear resistance can be achieved even at high temperature due to the thickened Al_2O_3 layer.

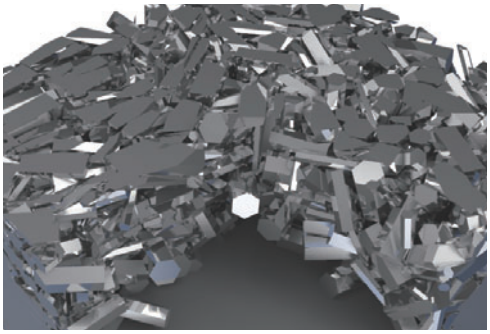
Nano-texture Coating Technology

The optimized crystal growth, Nano-texture coating technology provides outstanding wear and chipping.

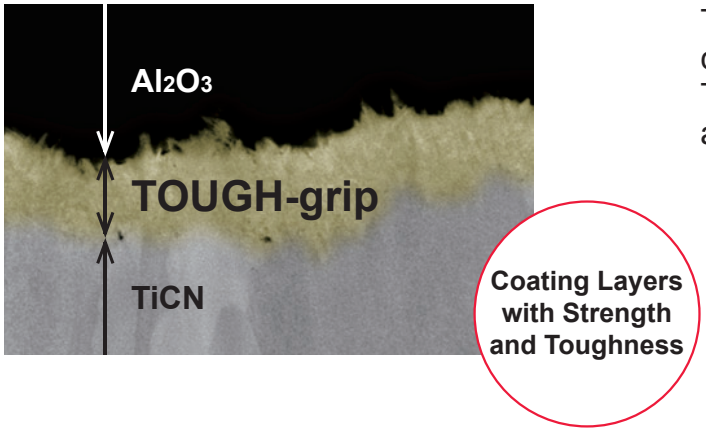
Nano-texture Coating Image



Conventional Coating Image



TOUGH-grip



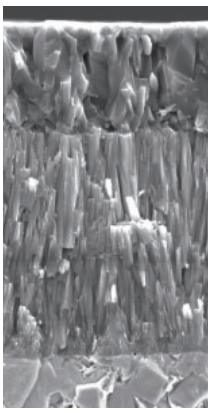
The interface between the layers is controlled at the nano level, allowing the TOUGH-grip layer extremely high levels of adhesion to prevent delamination.

For Interrupted Cutting, Medium to Low Speed Cutting

MC6035

Prevents Severe Damage for Increased Stability

MC6035

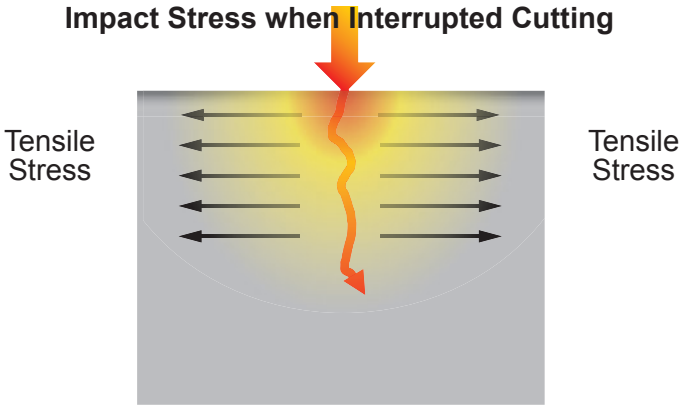


MC6025

The smooth coating surface provides excellent welding resistance. With the thickened TiCN, MC6035 also achieves superior wear resistance for increased stability.

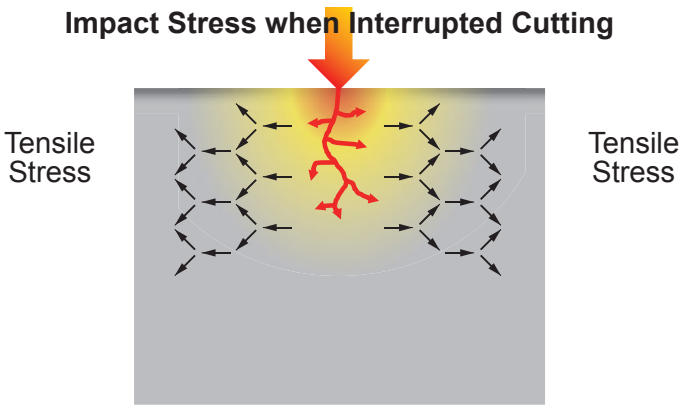
Reducing the Effect of Severe Fracturing

By reducing the tensile stress in the coating layer during interrupted cutting, crack development caused by impact stress is prevented.



Conventional Coating

Conventional products tend to result in fracturing because impact stress is transmitted deep into the coating layer during interrupted cutting.

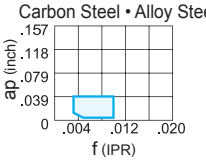
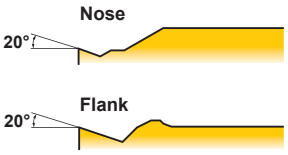
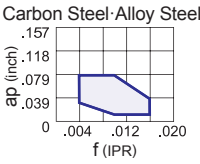
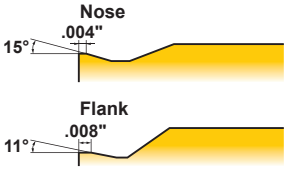
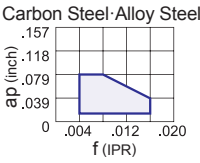
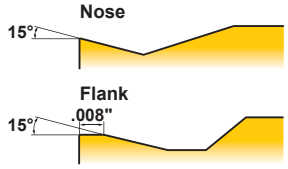
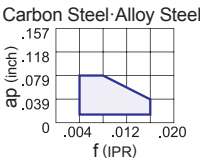
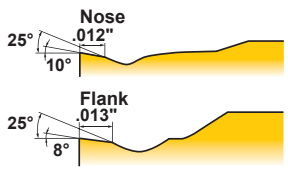
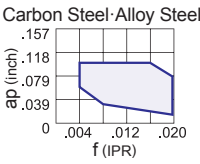
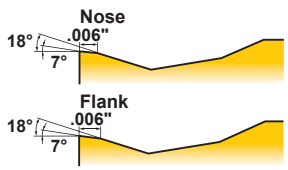
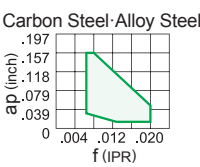
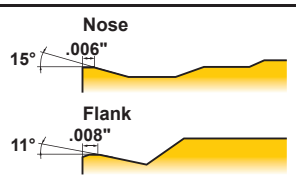
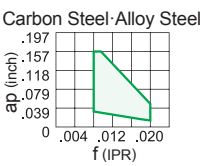
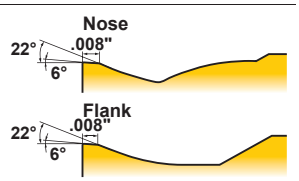
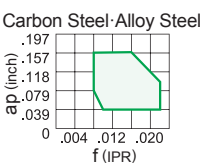
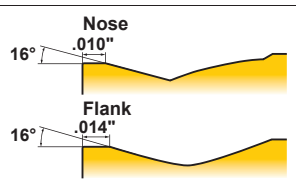
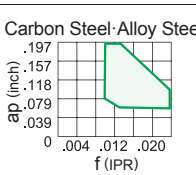
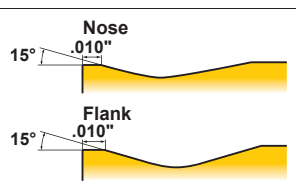
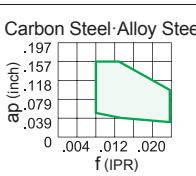
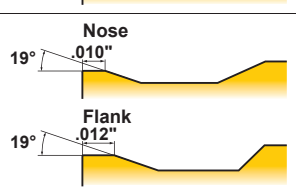


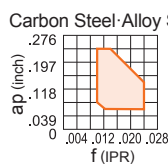
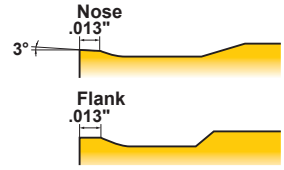
MC6035

MC6035 has succeeded in alleviating tensile stress in the coating layer therefore, cracks that can develop by impact stress can be prevented when interrupted cutting.

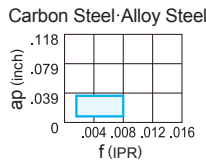
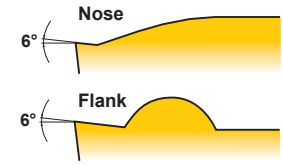
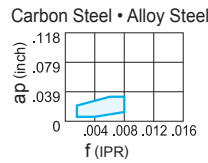
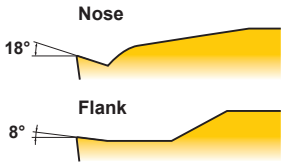
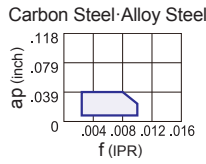
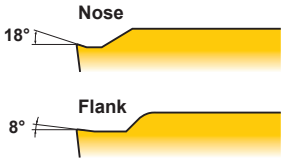
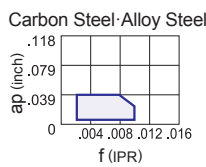
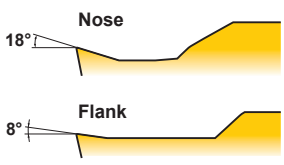
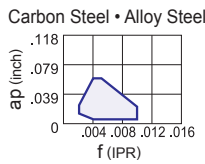
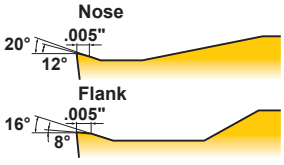
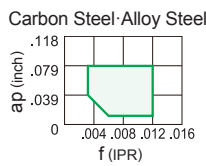
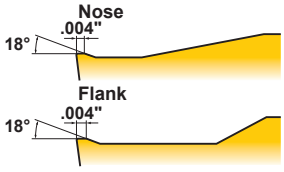
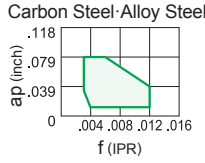
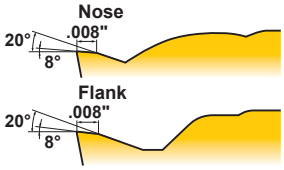
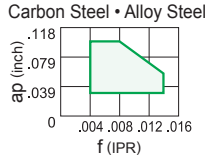
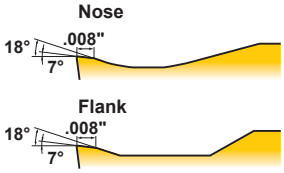
Chip Breaker System for Steel Turning

Negative Inserts

Application	Tolerance	Chip Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M	NEW **FP** 	**Better choice for finish cutting of steels Offers good chip control in wide cutting conditions** Stable chip control in wide range. Available to both general and low carbon steel cuttings. A good surface finish through the 20° positive high rake angle.	 
Light Cutting	M	**LP** 	**First recommendation for light cutting of carbon and alloy steels** Stable chip control in the light cutting range. The curved edge allows smooth chip discharge.	 
		SH 	**Alternative chip breaker for light cutting of carbon and alloy steels** Can be used at low depth of cuts and high feed rates. The curved edge allows smooth chip discharge. Recommended for work materials in the 160—250HB range.	 
		SA 	**Alternative chip breaker for light cutting of carbon and alloy steels** Superior chip control at small depths of cuts. Wavy cutting edge is ideal for copying and back turning. Recommended for work materials in the 200—300HB range.	 
		SW 	**Wiper insert for light cutting of carbon and alloy steels** In comparison to conventional chip breakers, the surface finish is maintained even if the feed per revolution is doubled.	 
Medium Cutting	M	**MP** 	**First recommendation for medium cutting of carbon and alloy steels** Suitable for medium to light cutting. Chip breaker geometry suitable for copying and back turning. Cutting edge geometry for an optimum balance of sharpness and fracture resistance.	 
		MA 	**Alternative chip breaker for medium cutting of carbon and alloy steels** Ideal for general-purpose use. Positive land provides sharp cutting action. Smooth chip control for low-carbon steels, etc.	 
		MH 	**First recommendation for rough cutting of mild steels Alternative chip breaker for medium cutting of carbon and alloy steels** Flat land offers high edge strength.	 
		Standard 	**First recommendation for medium cutting of cast irons Alternative chip breaker for medium cutting of carbon and alloy steels** Flat land offers high edge strength.	 
		MW 	**Wiper insert for medium cutting carbon and alloy steels** In comparison to conventional chip breakers, the surface finish is maintained even if the feed per revolution is doubled.	 

Application	Tolerance	Chip Breaker Name and Picture	Features	Cross Section Geometry
Rough Cutting	M	**RP** 	**First recommendation for rough cutting of carbon and alloy steels** For interrupted cuts and removing scale. Good balance of cutting edge strength and low cutting resistance because of a suitable rake angle.	 

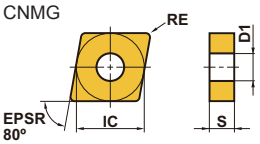
Positive Inserts

Application	Tolerance	Chip Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M	**FP** 	**First recommendation for finish cutting of carbon and alloy steels** The protuberance at the tip of the chip breaker controls chips even at small depths of cut. Corner strength is maintained to prevent abnormal fracturing. 5° 7° Positive Insert	 
		FV 	**Finish cutting of carbon steels, alloy steels and mild steels** Suitable for low depths of cut and low feed rates. Sharp cutting edge and low resistance design achieves excellent cutting performance. 7° Positive Insert	 
Light Cutting	M	**LP** 	**First recommendation for light cutting of carbon and alloy steels** Excellent cutting edge sharpness due to the large rake angle. Prevents chip welding of the insert to ensure good surface finishes. Optimized chip breaker realizes a wide range of chip control. 5° 7° Positive Insert	 
		SV 	**Light cutting of carbon steels, alloy steels and mild steels** Large rake angle provides sharp cutting action. A peninsular dot ensures chip control at depths of cut under .039". 7° 11° Positive Insert	 
		SW 	**Wiper insert for light cutting of carbon steels, alloy steels and mild steels** In comparison to conventional chip breakers, the surface finish is maintained even if the feed per revolution is doubled. 7° Positive Insert	 
Medium Cutting	M	**MP** 	**First recommendation for medium cutting of carbon and alloy steels** The wide pocket reduces vibration and chip jamming and also prevents increases in cutting resistance even at high depths of cut. 5° 7° Positive Insert	 
		MV 	**Medium cutting of carbon steels, alloy steels and mild steels** A positive insert and large rake angle achieves sharp cutting edge performance. Double chip breakers in the rake face give a wide range of chip control. 5° 7° 11° Positive Insert	 
		MW 	**Wiper insert for medium cutting of carbon steels, alloy steels and mild steels** In comparison to conventional chip breakers, the surface finish is maintained even if the feed per revolution is doubled. 7° Positive Insert	 

MC6015/MC6025/MC6035

Negative Inserts (With Hole)

M Class



Finish	Light	Light	Light	Light	
FP	LP	SH	SA	SW	
				 (Wiper)	
Medium	**Medium**	**Medium**	**Medium**	**Medium**	**Rough**
MP	MA	MH	Standard	MW	RP
				 (Wiper)	

(inch)

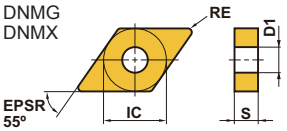
Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
CNMG430.5FP	F	●	●		.500	.187	.008	.203
CNMG431FP	F	●	●		.500	.187	.016	.203
CNMG432FP	F	●	●		.500	.187	.031	.203
NEW CNMG433FP	F	●	●		.500	.187	.047	.203
CNMG431LP	L	●	●	●	.500	.187	.016	.203
CNMG432LP	L	●	●	●	.500	.187	.031	.203
CNMG433LP	L	●	●	●	.500	.187	.047	.203
CNMG431SH	L	●	●		.500	.187	.016	.203
CNMG432SH	L	●	●		.500	.187	.031	.203
CNMG433SH	L	●	●		.500	.187	.047	.203
CNMG431SA	L	●	●		.500	.187	.016	.203
CNMG432SA	L	●	●		.500	.187	.031	.203
CNMG433SA	L	●	●		.500	.187	.047	.203
CNMG431SW	L	●			.500	.187	.016	.203
CNMG432SW	L	●			.500	.187	.031	.203
CNMG433SW	L	●			.500	.187	.047	.203

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
CNMG431MP	M	●	●	●	.500	.187	.016	.203
CNMG432MP	M	●	●	●	.500	.187	.031	.203
CNMG433MP	M	●	●	●	.500	.187	.047	.203
CNMG434MP	M	●	●	●	.500	.187	.063	.203
CNMG542MP	M		●		.625	.250	.031	.250
CNMG543MP	M		●		.625	.250	.047	.250
CNMG544MP	M		●		.625	.250	.063	.250
CNMG431MA	M	●	●		.500	.187	.016	.203
CNMG432MA	M	●	●	●	.500	.187	.031	.203
CNMG433MA	M	●	●	●	.500	.187	.047	.203
CNMG542MA	M	●	●	●	.625	.250	.031	.250
CNMG543MA	M	●	●	●	.625	.250	.047	.250
CNMG544MA	M	●	●	●	.625	.250	.063	.250
CNMG643MA	M	●	●	●	.750	.250	.047	.312
CNMG644MA	M	●	●	●	.750	.250	.063	.312
CNMG432MH	M	●	●	●	.500	.187	.031	.203
CNMG433MH	M	●	●	●	.500	.187	.047	.203
CNMG543MH	M	●	●	●	.625	.250	.047	.250
CNMG643MH	M	●	●	●	.750	.250	.047	.312
CNMG32.51	M	★	★		.375	.156	.016	.150
CNMG32.52	M	★	★		.375	.156	.031	.150
CNMG431	M	●	●		.500	.187	.016	.203
CNMG432	M	●	●	●	.500	.187	.031	.203
CNMG433	M	●	●	●	.500	.187	.047	.203
CNMG434	M	●	●		.500	.187	.063	.203
CNMG542	M	●	●	●	.625	.250	.031	.250
CNMG543	M	●	●	●	.625	.250	.047	.250
CNMG544	M	●	●	●	.625	.250	.063	.250
CNMG642	M	●	●	●	.750	.250	.031	.312
CNMG643	M	●	●	●	.750	.250	.047	.312
CNMG644	M	●	●	●	.750	.250	.063	.312
CNMG432MW	M	●	●		.500	.187	.031	.203
CNMG433MW	M	●	●		.500	.187	.047	.203
CNMG432RP	R	●	●	●	.500	.187	.031	.203
CNMG433RP	R	●	●	●	.500	.187	.047	.203
CNMG434RP	R	●	●	●	.500	.187	.063	.203
CNMG543RP	R	●	●	●	.625	.250	.047	.250
CNMG544RP	R	●	●	●	.625	.250	.063	.250
CNMG643RP	R	●	●	●	.750	.250	.047	.312
CNMG644RP	R	●	●	●	.750	.250	.063	.312

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

Negative Inserts (With Hole)

M Class



Finish	Light	Light	Light	Light	Medium
FP	LP	SH	SA	SW	MP
				(Wiper)	
Medium	**Medium**	**Medium**	**Medium**	**Rough**	
MA	MH	Standard	MW	RP	
			(Wiper)		

(inch)

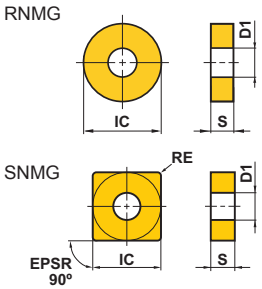
Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
DNMG430.5FP	F	●	●		.500	.187	.008	.203
DNMG431FP	F	●	●		.500	.187	.016	.203
DNMG432FP	F	●	●		.500	.187	.031	.203
NEW **DNMG433FP**	F	●	●		.500	.187	.047	.203
DNMG440.5FP	F	●	●		.500	.250	.008	.203
DNMG441FP	F	●	●		.500	.250	.016	.203
DNMG442FP	F	●	●		.500	.250	.031	.203
NEW **DNMG443FP**	F	●	●		.500	.250	.047	.203
DNMG331LP	L	●	●	●	.375	.187	.016	.150
DNMG332LP	L	●	●	●	.375	.187	.031	.150
DNMG431LP	L	●	●	●	.500	.187	.016	.203
DNMG432LP	L	●	●	●	.500	.187	.031	.203
DNMG433LP	L	●	●	●	.500	.187	.047	.203
DNMG441LP	L	●	●	●	.500	.250	.016	.203
DNMG442LP	L	●	●	●	.500	.250	.031	.203
DNMG443LP	L	●	●	●	.500	.250	.047	.203
DNMG431SH	L	●	●		.500	.187	.016	.203
DNMG432SH	L	●	●		.500	.187	.031	.203
DNMG433SH	L	●	●		.500	.187	.047	.203
DNMG431SA	L	●	●		.500	.187	.016	.203
DNMG432SA	L	●	●		.500	.187	.031	.203
DNMG433SA	L	●	●		.500	.187	.047	.203
DNMX331SW	L	●			.375	.187	.016	.150
DNMX332SW	L	●			.375	.187	.031	.150
DNMX431SW	L	●			.500	.187	.016	.203
DNMX432SW	L	●			.500	.187	.031	.203
DNMX433SW	L	●			.500	.187	.047	.203
DNMX441SW	L	●			.500	.250	.016	.203
DNMX442SW	L	●			.500	.250	.031	.203
DNMX443SW	L	●			.500	.250	.047	.203

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
DNMG431MP	M	●	●	●	.500	.187	.016	.203
DNMG432MP	M	●	●	●	.500	.187	.031	.203
DNMG433MP	M	●	●	●	.500	.187	.047	.203
DNMG434MP	M	●	●	●	.500	.187	.063	.203
DNMG441MP	M	●	●	●	.500	.250	.016	.203
DNMG442MP	M	●	●	●	.500	.250	.031	.203
DNMG443MP	M	●	●	●	.500	.250	.047	.203
DNMG444MP	M	●	●	●	.500	.250	.063	.203
DNMG331MA	M	●	●		.375	.187	.016	.150
DNMG332MA	M	●	●		.375	.187	.031	.150
DNMG333MA	M	●	●		.375	.187	.047	.150
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
DNMG432MH	M	●	●	●	.500	.187	.031	.203
DNMG433MH	M	●	●	●	.500	.187	.047	.203
DNMG442MH	M	●	●	●	.500	.250	.031	.203
DNMG443MH	M	●	●	●	.500	.250	.047	.203
DNMG431	M	●	●		.500	.187	.016	.203
DNMG432	M	●	●	●	.500	.187	.031	.203
DNMG433	M	●	●	●	.500	.187	.047	.203
DNMG434	M	●	●	●	.500	.187	.063	.203
DNMG441	M	●	●		.500	.250	.016	.203
DNMG442	M	●	●	●	.500	.250	.031	.203
DNMG443	M	●	●	●	.500	.250	.047	.203
DNMG444	M	●	●	●	.500	.250	.063	.203
DNMX432MW	M	●			.500	.187	.031	.203
DNMX433MW	M	●			.500	.187	.047	.203
DNMX442MW	M	●			.500	.250	.031	.203
DNMX443MW	M	●			.500	.250	.047	.203
DNMG432RP	R	●	●	●	.500	.187	.031	.203
DNMG433RP	R	●	●	●	.500	.187	.047	.203
DNMG434RP	R	●	●	●	.500	.187	.063	.203
DNMG442RP	R	●	●	●	.500	.250	.031	.203
DNMG443RP	R	●	●	●	.500	.250	.047	.203
DNMG444RP	R	●	●	●	.500	.250	.063	.203

MC6015/MC6025/MC6035

Negative Inserts (With Hole)

M Class



Medium	Finish	Light	Medium	Medium
Standard	FP	LP	MP	MA
				
Medium	**Medium**	**Rough**		
MH	Standard	RP		
				

(inch)

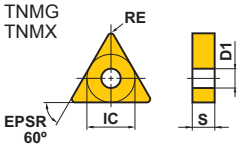
Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
RNMG43	M	●	●		.500	.187	—	.203

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
SNMG431FP	F	●	●		.500	.187	.016	.203
SNMG432FP	F	●	●		.500	.187	.031	.203
NEW **SNMG433FP**	F	●	●		.500	.187	.047	.203
SNMG431LP	L	●	●	●	.500	.187	.016	.203
SNMG432LP	L	●	●	●	.500	.187	.031	.203
SNMG433LP	L	●	●	●	.500	.187	.047	.203
SNMG431MP	M	●	●	●	.500	.187	.016	.203
SNMG432MP	M	●	●	●	.500	.187	.031	.203
SNMG433MP	M	●	●	●	.500	.187	.047	.203
SNMG431MA	M	●	●		.500	.187	.016	.203
SNMG432MA	M	●	●	●	.500	.187	.031	.203
SNMG433MA	M	●	●	●	.500	.187	.047	.203
SNMG543MA	M	●	●	●	.625	.250	.047	.250
SNMG544MA	M	●	●	●	.625	.250	.063	.250
SNMG643MA	M	●	●	●	.750	.250	.047	.312
SNMG644MA	M	●	●	●	.750	.250	.063	.312
SNMG432MH	M	●	●	●	.500	.187	.031	.203
SNMG433MH	M	●	●	●	.500	.187	.047	.203
SNMG321	M	●	●		.375	.125	.016	.150
SNMG322	M	●	●		.375	.125	.031	.150
SNMG431	M	●	●		.500	.187	.016	.203
SNMG432	M	●	●	●	.500	.187	.031	.203
SNMG433	M	●	●	●	.500	.187	.047	.203
SNMG434	M	●	●	●	.500	.187	.063	.203
SNMG435	M	●	●	●	.500	.187	.079	.203
SNMG543	M	●	●	●	.625	.250	.047	.250
SNMG544	M	●	●	●	.625	.250	.063	.250
SNMG643	M	●	●	●	.750	.250	.047	.312
SNMG644	M	●	●	●	.750	.250	.063	.312
SNMG432RP	R	●	●	●	.500	.187	.031	.203
SNMG433RP	R	●	●	●	.500	.187	.047	.203
SNMG434RP	R	●	●	●	.500	.187	.063	.203
SNMG543RP	R	●	●	●	.625	.250	.047	.250
SNMG544RP	R	●	●	●	.625	.250	.063	.250
SNMG643RP	R	●	●	●	.750	.250	.047	.312
SNMG644RP	R	●	●	●	.750	.250	.063	.312

● : Inventory maintained.

Negative Inserts (With Hole)

M Class



Finish	Light	Light	Light	Light	
FP	LP	SH	SA	SW	
				 (Wiper)	
Medium	**Medium**	**Medium**	**Medium**	**Medium**	**Rough**
MP	MA	MH	Standard	MW	RP
				 (Wiper)	

(inch)

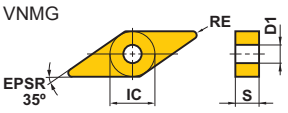
Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
TNMG330.5FP	F	●	●		.375	.187	.008	.150
TNMG331FP	F	●	●		.375	.187	.016	.150
TNMG332FP	F	●	●		.375	.187	.031	.150
NEW TNMG333FP	F	●	●		.375	.187	.047	.150
TNMG331LP	L	●	●	●	.375	.187	.016	.150
TNMG332LP	L	●	●	●	.375	.187	.031	.150
TNMG333LP	L	●	●	●	.375	.187	.047	.150
TNMG432LP	L	●	●	●	.500	.187	.031	.203
TNMG433LP	L	●	●	●	.500	.187	.047	.203
TNMG331SH	L	●	●		.375	.187	.016	.150
TNMG332SH	L	●	●		.375	.187	.031	.150
TNMG331SA	L	●	●		.375	.187	.016	.150
TNMG332SA	L	●	●		.375	.187	.031	.150
TNMX331SW	L	●			.375	.187	.016	.150
TNMX332SW	L	●			.375	.187	.031	.150

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
TNMG331MP	M	●	●	●	.375	.187	.016	.150
TNMG332MP	M	●	●	●	.375	.187	.031	.150
TNMG333MP	M	●	●	●	.375	.187	.047	.150
TNMG432MP	M	●	●	●	.500	.187	.031	.203
TNMG433MP	M	●	●	●	.500	.187	.047	.203
TNMG331MA	M	●	●		.375	.187	.016	.150
TNMG332MA	M	●	●	●	.375	.187	.031	.150
TNMG333MA	M	●	●	●	.375	.187	.047	.150
TNMG432MA	M	●	●	●	.500	.187	.031	.203
TNMG433MA	M	●	●	●	.500	.187	.047	.203
TNMG332MH	M	●	●	●	.375	.187	.031	.150
TNMG333MH	M	●	●	●	.375	.187	.047	.150
TNMG432MH	M	●	●	●	.500	.187	.031	.203
TNMG433MH	M	●	●	●	.500	.187	.047	.203
TNMG221	M	●	●		.250	.125	.016	.089
TNMG222	M	●	●		.250	.125	.031	.089
TNMG321	M	●	●		.375	.125	.016	.150
TNMG322	M	●	●		.375	.125	.031	.150
TNMG331	M	●	●		.375	.187	.016	.150
TNMG332	M	●	●	●	.375	.187	.031	.150
TNMG333	M	●	●	●	.375	.187	.047	.150
TNMG334	M	●	●	●	.375	.187	.063	.150
TNMG431	M	●	●	●	.500	.187	.016	.203
TNMG432	M	●	●	●	.500	.187	.031	.203
TNMG433	M	●	●	●	.500	.187	.047	.203
TNMG434	M	●	●	●	.500	.187	.063	.203
TNMG542	M	●	●	●	.625	.250	.031	.250
TNMG543	M	●	●	●	.625	.250	.047	.250
TNMX332MW	M	●			.375	.187	.031	.150
TNMX333MW	M	●			.375	.187	.047	.150
TNMG332RP	R	●	●	●	.375	.187	.031	.150
TNMG333RP	R	●	●	●	.375	.187	.047	.150
TNMG432RP	R	●	●	●	.500	.187	.031	.203
TNMG433RP	R	●	●	●	.500	.187	.047	.203
TNMG434RP	R	●	●	●	.500	.187	.063	.203
TNMG543RP	R	●	●	●	.625	.250	.047	.250
TNMG544RP	R	●	●	●	.625	.250	.063	.250

MC6015/MC6025/MC6035

Negative Inserts (With Hole)

M Class



Finish	Light	Light	Light
FP	LP	SH	SA
			
Medium	**Medium**	**Medium**	**Medium**
MP	MA	MH	Standard
			

(inch)

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
VNMG330.5FP	F	●	●		.375	.187	.008	.150
VNMG331FP	F	●	●		.375	.187	.016	.150
VNMG332FP	F	●	●		.375	.187	.031	.150
NEW **VNMG333FP**	F	●	●		.375	.187	.047	.150
VNMG331LP	L	●	●	●	.375	.187	.016	.150
VNMG332LP	L	●	●	●	.375	.187	.031	.150
VNMG331SH	L	●	●		.375	.187	.016	.150
VNMG332SH	L	●	●		.375	.187	.031	.150
VNMG331SA	L	●	●		.375	.187	.016	.150
VNMG332SA	L	●	●		.375	.187	.031	.150

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
VNMG331MP	M	●	●	●	.375	.187	.016	.150
VNMG332MP	M	●	●	●	.375	.187	.031	.150
VNMG333MP	M	●	●	●	.375	.187	.047	.150
VNMG331MA	M	●	●		.375	.187	.016	.150
VNMG332MA	M	●	●	●	.375	.187	.031	.150
VNMG332MH	M	●	●	●	.375	.187	.031	.150
VNMG331	M	●	●		.375	.187	.016	.150
VNMG332	M	●	●	●	.375	.187	.031	.150
VNMG333	M	●	●	●	.375	.187	.047	.150

● : **Inventory maintained.**

Negative Inserts (With Hole)

M Class

WNMG EPSR 80° RE

Finish	Light	Light	Light	Light	
FP	LP	SH	SA	SW	
				 (Wiper)	
Medium	**Medium**	**Medium**	**Medium**	**Medium**	**Rough**
MP	MA	MH	Standard	MW	RP
				 (Wiper)	

(inch)

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
WNMG430.5FP	F	●	●		.500	.187	.008	.203
WNMG431FP	F	●	●		.500	.187	.016	.203
WNMG432FP	F	●	●		.500	.187	.031	.203
NEW **WNMG433FP**	F	●	●		.500	.187	.047	.203
WNMG32.51LP	L	●	●	●	.375	.156	.016	.150
WNMG32.52LP	L	●	●	●	.375	.156	.031	.150
WNMG331LP	L	●	●	●	.375	.187	.016	.150
WNMG332LP	L	●	●	●	.375	.187	.031	.150
WNMG431LP	L	●	●	●	.500	.187	.016	.203
WNMG432LP	L	●	●	●	.500	.187	.031	.203
WNMG433LP	L	●	●	●	.500	.187	.047	.203
WNMG431SH	L	●	●		.500	.187	.016	.203
WNMG432SH	L	●	●		.500	.187	.031	.203
WNMG433SH	L	●	●		.500	.187	.047	.203
WNMG431SA	L	●	●		.500	.187	.016	.203
WNMG432SA	L	●	●		.500	.187	.031	.203
WNMG433SA	L	●	●		.500	.187	.047	.203
WNMG331SW	L	●			.375	.187	.016	.150
WNMG332SW	L	●			.375	.187	.031	.150
WNMG431SW	L	●			.500	.187	.016	.203
WNMG432SW	L	●			.500	.187	.031	.203
WNMG433SW	L	●			.500	.187	.047	.203

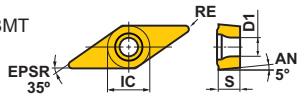
Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
WNMG32.51MP	M	●	●	●	.375	.156	.016	.150
WNMG32.52MP	M	●	●	●	.375	.156	.031	.150
WNMG32.53MP	M	●	●	●	.375	.156	.047	.150
WNMG331MP	M	●	●	●	.375	.187	.016	.150
WNMG332MP	M	●	●	●	.375	.187	.031	.150
WNMG333MP	M	●	●	●	.375	.187	.047	.150
WNMG431MP	M	●	●	●	.500	.187	.016	.203
WNMG432MP	M	●	●	●	.500	.187	.031	.203
WNMG433MP	M	●	●	●	.500	.187	.047	.203
WNMG434MP	M	●	●	●	.500	.187	.063	.203
WNMG331MA	M	●	●		.375	.187	.016	.150
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
WNMG432MH	M	●	●	●	.500	.187	.031	.203
WNMG433MH	M	●	●	●	.500	.187	.047	.203
WNMG431	M	●	●		.500	.187	.016	.203
WNMG432	M	●	●	●	.500	.187	.031	.203
WNMG433	M	●	●	●	.500	.187	.047	.203
WNMG332MW	M	●	●		.375	.187	.031	.150
WNMG333MW	M	●	●		.375	.187	.047	.150
WNMG432MW	M	●	●		.500	.187	.031	.203
WNMG433MW	M	●	●		.500	.187	.047	.203
WNMG432RP	R	●	●	●	.500	.187	.031	.203
WNMG433RP	R	●	●	●	.500	.187	.047	.203

MC6015/MC6025/MC6035

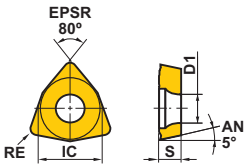
5° Positive Inserts (With Hole)

M Class

VBMT



WBMT



Finish	Light	Medium	Medium
FP	LP	MP	MV
			
Medium			
MV			
			

(inch)

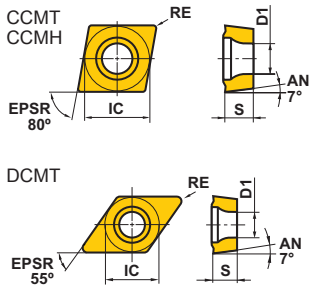
Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
VBMT220.5FP	F	●	●		.250	.125	.008	.115
VBMT221FP	F	●	●		.250	.125	.016	.115
VBMT222FP	F	●	●		.250	.125	.031	.115
VBMT331FP	F	●	●		.375	.187	.016	.173
VBMT332FP	F	●	●		.375	.187	.031	.173
VBMT221LP	L	●	●		.250	.125	.016	.115
VBMT222LP	L	●	●		.250	.125	.031	.115
VBMT331LP	L	●	●		.375	.187	.016	.173
VBMT332LP	L	●	●		.375	.187	.031	.173
VBMT331MP	M	●	●		.375	.187	.016	.173
VBMT332MP	M	●	●		.375	.187	.031	.173
VBMT221MV	M		●		.250	.125	.016	.115
VBMT222MV	M		●		.250	.125	.031	.115
VBMT331MV	M		●		.375	.187	.016	.173
VBMT332MV	M		●		.375	.187	.031	.173

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
WBMT1.51.50.5RMV	M		●		.187	.094	.008	.091
WBMT1.51.50.5LMV	M		●		.187	.094	.008	.091
WBMT1.51.51RMV	M		●		.187	.094	.016	.091
WBMT1.51.51LMV	M		●		.187	.094	.016	.091

● : **Inventory maintained.**

7° Positive Inserts (With Hole)

M Class



Finish	Light	Light	Light	Medium	Medium
FP	LP	SV	SW	MP	MV
			(Wiper)		

Medium	Finish	Light	Medium	Medium	
MW	FP	LP	MP	MV	
(Wiper)					

(inch)

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
CCMT21.50.5FP	F	●	●		.250	.094	.008	.110
CCMT21.51FP	F	●	●		.250	.094	.016	.110
CCMT32.50.5FP	F	●	●		.375	.156	.008	.173
CCMT32.51FP	F	●	●		.375	.156	.016	.173
CCMT32.52FP	F	●	●		.375	.156	.031	.173
CCMT21.51LP	L	●	●		.250	.094	.016	.110
CCMT21.52LP	L	●	●		.250	.094	.031	.110
CCMT32.51LP	L	●	●		.375	.156	.016	.173
CCMT32.52LP	L	●	●		.375	.156	.031	.173
CCMH21.50.5SV	L		●		.250	.094	.008	.110
CCMH21.51SV	L		●		.250	.094	.016	.110
CCMT21.50.5SW	L	●	●		.250	.094	.008	.110
CCMT21.51SW	L	●	●		.250	.094	.016	.110
CCMT32.50.5SW	L	●	●		.375	.156	.008	.173
CCMT32.51SW	L	●	●		.375	.156	.016	.173
CCMT21.51MP	M	●	●		.250	.094	.016	.110
CCMT21.52MP	M	●	●		.250	.094	.031	.110
CCMT32.51MP	M	●	●		.375	.156	.016	.173
CCMT32.52MP	M	●	●		.375	.156	.031	.173
CCMT431MP	M	●	●		.500	.187	.016	.217
CCMT432MP	M	●	●		.500	.187	.031	.217
CCMT433MP	M	●	●		.500	.187	.047	.217
CCMH21.50.5MV	M		●		.250	.094	.008	.110
CCMH21.51MV	M		●		.250	.094	.016	.110
CCMT21.51MW	M	●	●		.250	.094	.016	.110
CCMT21.52MW	M	●	●		.250	.094	.031	.110
CCMT32.51MW	M	●	●		.375	.156	.016	.173
CCMT32.52MW	M	●	●		.375	.156	.031	.173
CCMT431MW	M	●	●		.500	.187	.016	.217
CCMT432MW	M	●	●		.500	.187	.031	.217

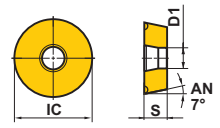
Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
DCMT21.50.5FP	F	●	●		.250	.094	.008	.110
DCMT21.51FP	F	●	●		.250	.094	.016	.110
DCMT32.50.5FP	F	●	●		.375	.156	.008	.173
DCMT32.51FP	F	●	●		.375	.156	.016	.173
DCMT32.52FP	F	●	●		.375	.156	.031	.173
DCMT21.51LP	L	●	●		.250	.094	.016	.110
DCMT21.52LP	L	●	●		.250	.094	.031	.110
DCMT32.51LP	L	●	●		.375	.156	.016	.173
DCMT32.52LP	L	●	●		.375	.156	.031	.173
DCMT21.51MP	M	●	●		.250	.094	.016	.110
DCMT21.52MP	M	●	●		.250	.094	.031	.110
DCMT32.51MP	M	●	●		.375	.156	.016	.173
DCMT32.52MP	M	●	●		.375	.156	.031	.173
DCMT431MP	M	●	●		.500	.187	.016	.217
DCMT432MP	M	●	●		.500	.187	.031	.217
DCMT21.50.5MV	M		●		.250	.094	.008	.110
DCMT21.51MV	M		●		.250	.094	.016	.110
DCMT21.52MV	M		●		.250	.094	.031	.110
DCMT32.50.5MV	M		●		.375	.156	.008	.173
DCMT32.51MV	M		●		.375	.156	.016	.173
DCMT32.52MV	M		●		.375	.156	.031	.173

MC6015/MC6025/MC6035

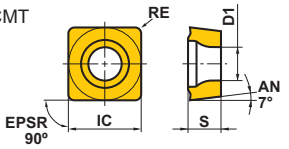
7° Positive Inserts (With Hole)

M Class

RCMX



SCMT



Medium	Rough	
Standard	RR	
		

Finish	Light	Medium
FP	LP	MP
		

(inch)

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
RCMX1003M0	M		★		.394	.125	–	.142
RCMX1204M0	M		★		.472	.187	–	.165
RCMX1606M0	M		★		.630	.250	–	.205
RCMX2006M0	M		★		.787	.250	–	.256
RCMX1606M0-RR	R		★		.630	.250	–	.205
RCMX2006M0-RR	R		★		.787	.250	–	.256

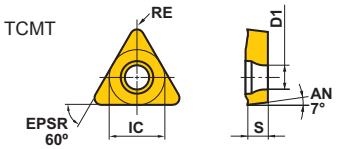
Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
SCMT32.51FP	F	●	●		.375	.156	.016	.173
SCMT32.52FP	F	●	●		.375	.156	.031	.173
SCMT32.51LP	L	●	●		.375	.156	.016	.173
SCMT32.52LP	L	●	●		.375	.156	.031	.173
SCMT32.51MP	M	●	●		.375	.156	.016	.173
SCMT32.52MP	M	●	●		.375	.156	.031	.173
SCMT431MP	M	●	●		.500	.187	.016	.217
SCMT432MP	M	●	●		.500	.187	.031	.217

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

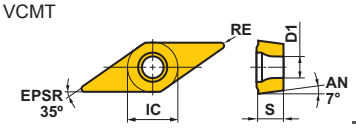
7° Positive Inserts (With Hole)

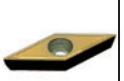
M Class

TCMT



VCMT



Finish	Light	Medium			
FP	LP	MP			
					
Finish	**Finish**	**Light**	**Light**	**Medium**	**Medium**
FP	FV	LP	SV	MP	MV
					

(inch)

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
TCMT1.81.50.5FP	F	●	●		.219	.094	.008	.098
TCMT1.81.51FP	F	●	●		.219	.094	.016	.098
TCMT21.50.5FP	F	●	●		.250	.094	.008	.110
TCMT21.51FP	F	●	●		.250	.094	.016	.110
TCMT32.51FP	F	●	●		.375	.156	.016	.173
TCMT1.81.51LP	L	●	●		.219	.094	.016	.098
TCMT1.81.52LP	L	●	●		.219	.094	.031	.098
TCMT21.51LP	L	●	●		.250	.094	.016	.110
TCMT21.52LP	L	●	●		.250	.094	.031	.110
TCMT32.51LP	L	●	●		.375	.156	.016	.173
TCMT32.52LP	L	●	●		.375	.156	.031	.173
TCMT1.81.51MP	M	●	●		.219	.094	.016	.098
TCMT1.81.52MP	M	●	●		.219	.094	.031	.098
TCMT21.51MP	M	●	●		.250	.094	.016	.110
TCMT21.52MP	M	●	●		.250	.094	.031	.110
TCMT2.521MP	M	●	●		.313	.125	.016	.134
TCMT32.51MP	M	●	●		.375	.156	.016	.173
TCMT32.52MP	M	●	●		.375	.156	.031	.173
TCMT32.53MP	M	●	●		.375	.156	.047	.173

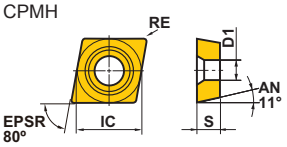
Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
VCMT220.5FP	F	●	●		.250	.125	.008	.110
VCMT221FP	F	●	●		.250	.125	.016	.110
VCMT331FP	F	●	●		.375	.187	.016	.173
VCMT332FP	F	●	●		.375	.187	.031	.173
VCMT1.51.50.5FV	F		●		.187	.094	.008	.097
VCMT1.51.51FV	F		●		.187	.094	.016	.097
VCMT221LP	L	●	●		.250	.125	.016	.110
VCMT222LP	L	●	●		.250	.125	.031	.110
VCMT331LP	L	●	●		.375	.187	.016	.173
VCMT332LP	L	●	●		.375	.187	.031	.173
VCMT1.51.50.5SV	L		●		.187	.094	.008	.097
VCMT1.51.51SV	L		●		.187	.094	.016	.097
VCMT331MP	M	●	●		.375	.187	.016	.173
VCMT332MP	M	●	●		.375	.187	.031	.173
VCMT333MP	M	●	●		.375	.187	.047	.173
VCMT1.51.50.5MV	M		●		.187	.094	.008	.097
VCMT1.51.51MV	M		●		.187	.094	.016	.097

MC6015/MC6025/MC6035

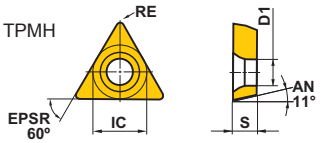
11° Positive Inserts (With Hole)

M Class

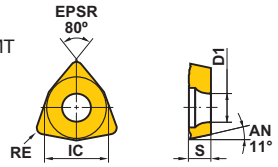
CPMH



TPMH



WPMT



Light	Medium	
SV	MV	
		

Light	Medium	Medium
SV	MV	MV
		

(inch)

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
CPMH2.51.50.5SV	L		●		.313	.094	.008	.138
CPMH2.51.51SV	L		●		.313	.094	.016	.138
CPMH320.5SV	L		●		.375	.125	.008	.177
CPMH321SV	L		●		.375	.125	.016	.177
CPMH322SV	L		●		.375	.125	.031	.177
CPMH2.51.51MV	M		●		.313	.094	.016	.138
CPMH2.51.52MV	M		●		.313	.094	.031	.138
CPMH321MV	M		●		.375	.125	.016	.177
CPMH322MV	M		●		.375	.125	.031	.177

Order Number	Cutting Area	MC6015	MC6025	MC6035	IC	S	RE	D1
TPMH1.51.50.5SV	L		●		.187	.094	.008	.098
TPMH1.51.51SV	L		●		.187	.094	.016	.098
TPMH1.81.50.5SV	L		●		.219	.094	.008	.114
TPMH1.81.51SV	L		●		.219	.094	.016	.114
TPMH220.5SV	L		●		.250	.125	.008	.134
TPMH221SV	L		●		.250	.125	.016	.134
TPMH222SV	L		●		.250	.125	.031	.134
TPMH320.5SV	L		●		.375	.125	.008	.173
TPMH321SV	L		●		.375	.125	.016	.173
TPMH322SV	L		●		.375	.125	.031	.173
TPMH1.51.50.5MV	M		●		.187	.094	.008	.098
TPMH1.51.51MV	M		●		.187	.094	.016	.098
TPMH1.81.50.5MV	M		●		.219	.094	.008	.114
TPMH1.81.51MV	M		●		.219	.094	.016	.114
TPMH1.81.52MV	M		●		.219	.094	.031	.114
TPMH220.5MV	M		●		.250	.125	.008	.134
TPMH221MV	M		●		.250	.125	.016	.134
TPMH222MV	M		●		.250	.125	.031	.134
TPMH321MV	M		●		.375	.125	.016	.173
TPMH322MV	M		●		.375	.125	.031	.173
WPMT21.50.5MV	M		●		.250	.094	.008	.110
WPMT21.51MV	M		●		.250	.094	.016	.110
WPMT321MV	M		●		.375	.125	.016	.173
WPMT322MV	M		●		.375	.125	.031	.173

● : Inventory maintained.

Recommended Cutting Conditions

Negative Inserts (For External Turning)

(inch)

	Work Material	Properties	Cutting Area	Cutting Conditions	Grade	Chip Breaker	vc (SFM)	f (IPR)	ap
P	Carbon and Alloy Steels (AISI 1045, 4140 etc.)	180—280HB	Finish Cutting	General Cutting	MC6015	FP	755—1295	.003—.010	.004—.039
				Unstable Cutting	MC6025	FP	755—1230	.003—.010	.004—.039
			Light Cutting	General Cutting	MC6015	LP,SH,SA	690—1165	.004—.016	.012—.079
						SW	690—1165	.004—.020	.012—.098
				Unstable Cutting	MC6025	LP,SH,SA	690—1115	.004—.016	.012—.079
					MC6035	LP	605—850	.004—.016	.012—.079
			Medium Cutting	General Cutting	MC6015	MP	620—1065	.006—.020	.012—.157
						MA	620—1065	.008—.020	.012—.157
						MH	620—1065	.008—.022	.039—.157
						Standard	620—1065	.010—.024	.059—.197
						MW	620—1065	.008—.024	.035—.157
				Unstable Cutting	MC6025	MP	620—1015	.006—.020	.012—.157
						MA	620—1015	.008—.020	.012—.157
						MH	620—1015	.008—.022	.039—.157
						Standard	620—1015	.010—.024	.059—.197
						MW	620—1015	.008—.024	.035—.157
					MC6035	MP	560—785	.006—.020	.012—.157
						MA	560—785	.008—.020	.012—.157
						MH	560—785	.008—.022	.039—.157
						Standard	560—785	.010—.024	.059—.197
			Rough Cutting	General Cutting	MC6015	RP	590—1015	.010—.024	.059—.236
				Unstable Cutting	MC6025	RP	590—970	.010—.024	.059—.236
					MC6035	RP	525—740	.010—.024	.059—.236

7° Positive Inserts (For External Turning)

(inch)

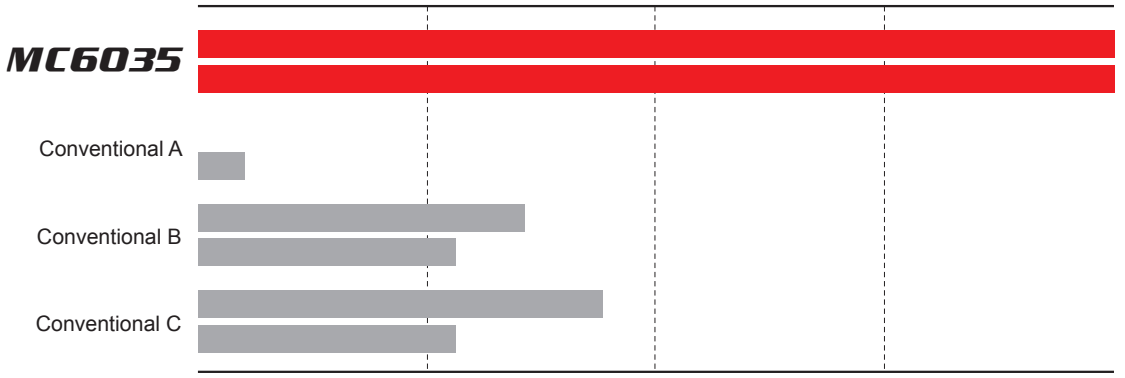
	Work Material	Properties	Cutting Area	Cutting Conditions	Grade	Chip Breaker	vc (SFM)	f (IPR)	ap
P	Mild Steels (ASTM 283, 1010 etc.)	≤180HB	Finish Cutting	General Cutting	MC6015	FP,FV	820—1395	.002—.008	.008—.035
				Unstable Cutting	MC6025	FP,FV	820—1330	.002—.008	.008—.035
			Light Cutting	General Cutting	MC6015	LP	820—1395	.002—.010	.008—.039
				Unstable Cutting	MC6025	LP,SV	820—1330	.002—.010	.008—.039
			Medium Cutting	General Cutting	MC6015	MP	670—1150	.003—.012	.012—.079
				Unstable Cutting	MC6025	MP, MV	670—1100	.003—.012	.012—.079
	Carbon and Alloy Steels (AISI 1045, 4140 etc.)	180—280HB	Finish Cutting	General Cutting	MC6015	FP,FV	605—1015	.002—.008	.008—.035
				Unstable Cutting	MC6025	FP,FV	605—970	.002—.008	.008—.035
			Light Cutting	General Cutting	MC6015	LP	605—1015	.002—.010	.008—.039
						SW	605—1015	.002—.009	.008—.059
				Unstable Cutting	MC6025	LP,SV	605—970	.002—.010	.008—.039
						SW	605—970	.002—.009	.008—.059
			Medium Cutting	General Cutting	MC6015	MP	490—850	.003—.012	.012—.079
						MW	490—850	.004—.014	.031—.098
				Unstable Cutting	MC6025	MP,MV	490—805	.003—.012	.012—.079
						MW	490—805	.004—.014	.031—.098
	Carbon and Alloy Steels (AISI 4340 etc.)	280—350HB	Medium Cutting	General Cutting	MC6015	MP	360—605	.003—.012	.012—.079
				Unstable Cutting	MC6025	MP,MV	360—575	.003—.012	.012—.079

*Recommended cutting conditions for 5°/7°/11° positive inserts are provided as a guideline only.
Verify the recommended conditions for each boring bar as cutting conditions for internal machining will vary depending on the length of overhang.

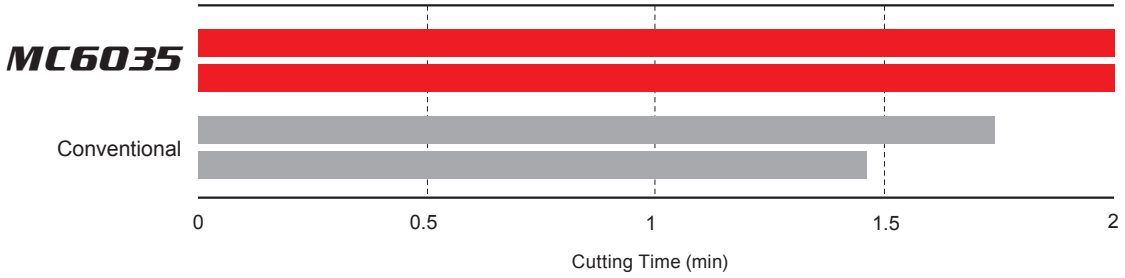
Cutting Performance

Interuppted Machining of AISI 4340

f = .012 IPR



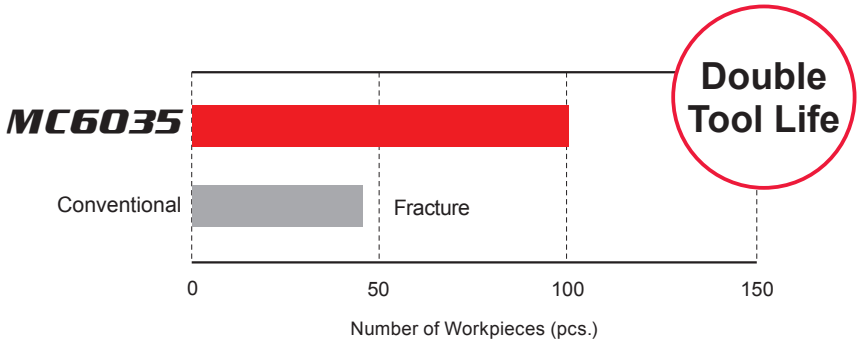
f = .013 IPR



<Cutting Conditions>
Work Material : AISI 4340
Insert : CNMG432○○
Cutting Speed : vc=330 SFM
Depth of Cut : ap=.118 inch
Cutting Mode : Dry Cutting

Interrupted Machining of AISI 1050

It is possible to machine up to 100 pieces without fracturing.



<Cutting Conditions>
Work Material : AISI 1050
Insert : WNMG433○○
Cutting Speed : vc=360 SFM
Feed per Rev. : f=.012 IPR
Depth of Cut : ap=.048 inch
Cutting Mode : Dry Cutting

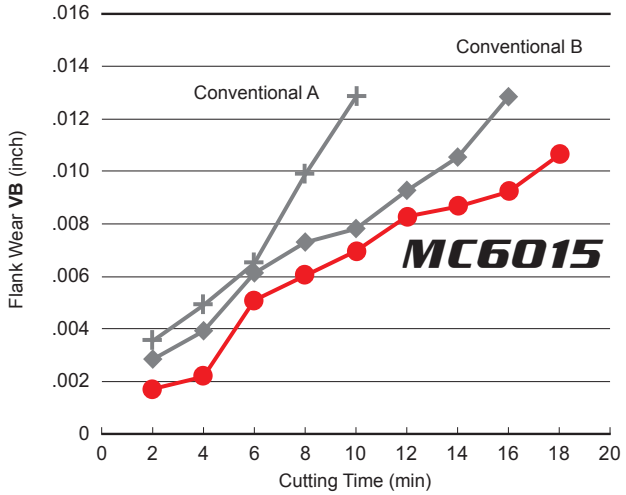
Conventional

45 pieces

MC6035

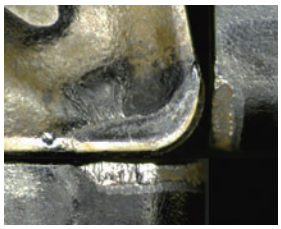
100 pieces

Continuous Cutting of Bearing Steels



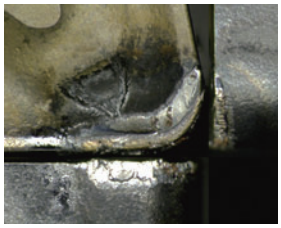
<Cutting Conditions>
Work Material : AISI 52100
Inserts : CNMG432○○
Cutting Speed : vc=985 SFM
Feed per Rev. : f=.012 IPR
Depth of Cut : ap=.059 inch
Cutting Mode : Wet Cutting

MC6015



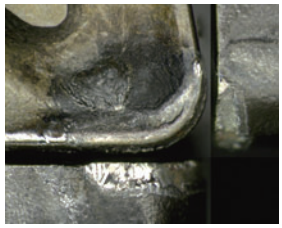
Cutting Time: 18 min

Conventional A



Cutting Time: 10 min

Conventional B

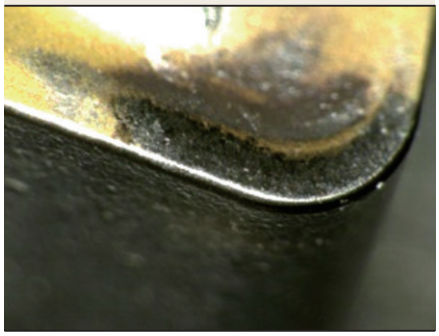


Cutting Time: 16 min

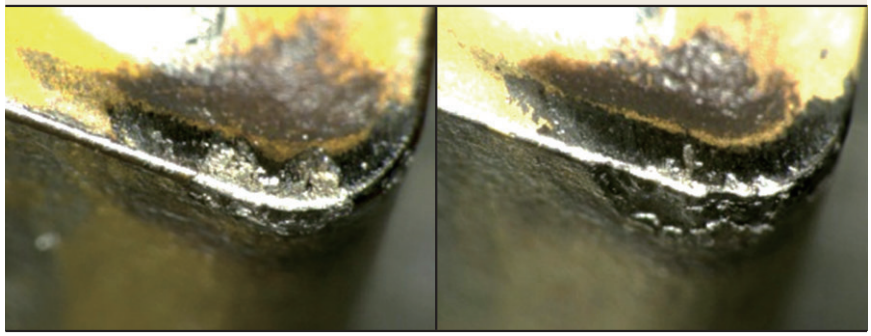
Performance Evaluation During Interrupted Turning of AISI 4131

Provides outstanding fracture resistance and prevents crack development.

MC6025

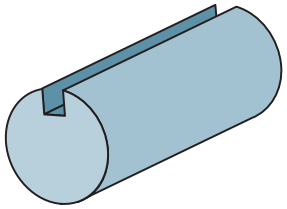


Conventional

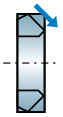
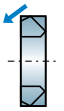


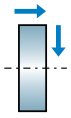
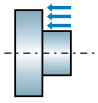
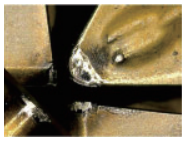
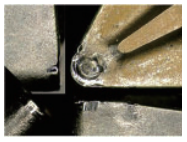
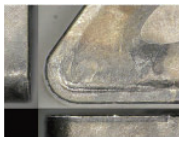
* Cutting edge after 3000 times of impacts

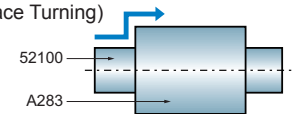
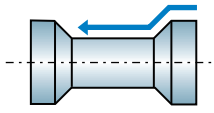
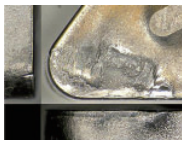
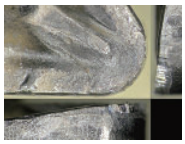
<Cutting Conditions>
Work Material : AISI 4131
Inserts : CNMG432○○
Cutting Speed : vc=655 SFM
Feed per Rev. : f=.010 IPR
Depth of Cut : ap=.059 inch
Cutting Mode : Wet Cutting



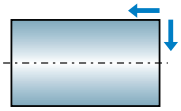
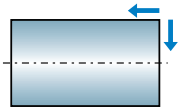
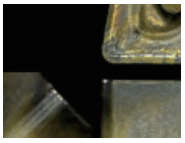
Application Example

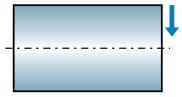
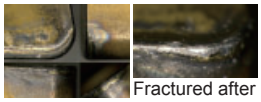
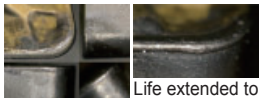
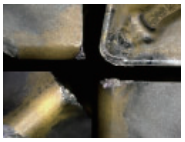
Insert	Conventional	CNMG432SH	Conventional	DNMG433MA
Workpiece	Carbon Steel (External Turning) 		Carbon Steel (External Turning) 	
Cutting Conditions: Cutting Speed **vc** (SFM)	820	1150	1310	
Cutting Conditions: Feed per Rev. **f** (IPR)	.016		.016	
Cutting Conditions: Depth of Cut **ap** (inch)	.079 – .118		.039 – .055	
Cutting Mode	Wet Cutting		Wet Cutting	
Results	Conventional VB= .012 inch  300 pieces	MC6015-SH VB= .009 inch  535 pieces	Conventional VB= .015 inch  300 pieces	MC6015-MA VB= .013 inch  400 pieces
	MC6015 could use increased cutting conditions and gave double tool life.		MC6015 achieved 1.3 times longer tool life during high speed cutting.	

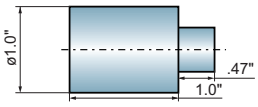
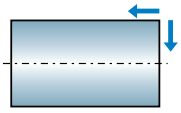
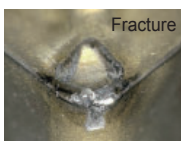
Insert	Conventional	TNMG331LP	Conventional	DNMG432RP
Workpiece	AISI W1-10 (External, Face Turning) 		AISI 1045 (External Turning) 	
Cutting Conditions: Cutting Speed **vc** (SFM)	560		655	
Cutting Conditions: Feed per Rev. **f** (IPR)	.006		.010	
Cutting Conditions: Depth of Cut **ap** (inch)	.006		.118	
Cutting Mode	Wet Cutting		Wet Cutting	
Results	Conventional VB= .010 inch  75 pieces	MC6015-LP VB = .009 inch  90 pieces	Number of Workpieces (pcs. /corner) 20 40 60 MC6015 50 20 Conventional	MC6015-RP VB= .007 inch  50 pieces
	MC6015 produced a good surface finish and provided a longer tool life.		MC6015 is resistant to sudden fracturing so could achieve 2.5 times longer tool life.	

Insert	Conventional	DNMG432MA	Conventional	DNMG432SA
Workpiece	AISI 52100 + A283 (External, Face Turning) 		AISI 1043 (External Copy Turning) 	
Cutting Conditions: Cutting Speed **vc** (SFM)	720		950	
Cutting Conditions: Feed per Rev. **f** (IPR)	.014		.010 – .013	
Cutting Conditions: Depth of Cut **ap** (inch)	.079		.020 – .059	
Cutting Mode	Wet Cutting		Wet Cutting	
Results	Number of Workpieces (pcs. /corner) 20 40 60 80 MC6015 60 Conventional 45	MC6015-MA VB= .007 inch  60 pieces	Number of Workpieces (pcs. /corner) 40 80 120 MC6015 110 Conventional 60	MC6015-SA VB= .010 inch  110 pieces
	MC6015 achieved longer tool life when machining composite materials.		MC6015 is resistant to sudden fracturing so could achieve double longer tool life.	

The above application examples are customer's applications, so it can be different from the recommended conditions.

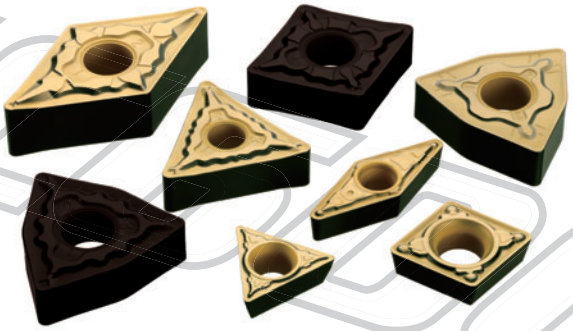
Insert	Conventional	**WNMG432MP**	Conventional	**WNMG431LP**
Workpiece	AISI 1055 (External, Face Turning) 		AISI 4140H (External, Face Turning) 	
Cutting Conditions: Cutting Speed **vc** (SFM)	590(External) 655(Face Turning)		460	
Cutting Conditions: Feed per Rev. **f** (IPR)	.010(External) .011(Face Turning)		.008 – .009	
Cutting Conditions: Depth of Cut **ap** (inch)	.039 – .079		.031 – .039	
Cutting Mode	Wet Cutting		Wet Cutting	
Results	Conventional  120 pieces	***MC6025-MP***  120 pieces	Conventional  70 pieces	***MC6025-LP***  132 pieces
	MC6025 achieved longer tool life due to its exclent wear resistance.		MC6025 achieved 1.8 times longer tool life.	

Insert	Conventional	**CNMG432MP**	Conventional	**CNMG432MP**
Workpiece	AISI 4135H (Face Turning) 		AISI H13 (External Turning) 	
Cutting Conditions: Cutting Speed **vc** (SFM)	590		395	
Cutting Conditions: Feed per Rev. **f** (IPR)	.010		.010	
Cutting Conditions: Depth of Cut **ap** (inch)	.079		.039	
Cutting Mode	Wet Cutting		Wet Cutting	
Results	Conventional (Number of Workpieces: 20)  Fractured after 25 pieces	***MC6025-MP*** (Number of Workpieces: 20)  Life extended to 40 pieces.	Conventional  60 pieces machined	***MC6025-MP***  60 pieces machined
	MC6025 achieved longer tool life compared to a conventional insert due to its excellent chipping resistance.		MC6025 exhibited substantially less wear after machining the same number of workpieces .	

Insert	Conventional	**CNMG432MP**	Conventional	**WNMG432RP**
Workpiece	Cr-Mo Steel (External Turning) 		AISI 1045 (External, Face Turning) 	
Cutting Conditions: Cutting Speed **vc** (SFM)	490		820	
Cutting Conditions: Feed per Rev. **f** (IPR)	.010		.010	
Cutting Conditions: Depth of Cut **ap** (inch)	.039		.087	
Cutting Mode	Wet Cutting		Wet Cutting	
Results	Conventional  Fractured after machining 185 pieces	***MC6025-MP***  After machining 555 pieces	Conventional  218 pieces	***MC6025-RP***  267 pieces
	MC6025 tool life was triple longer than conventional grades.		MC6025 achieved 1.2 times longer tool life due to its excellent welding resistance.	

The above application examples are customer's applications, so it can be different from the recommended conditions.

6000 Series Grades for Steel Turning



MC6015/MC6025/MC6035

For your safety
●Don't touch breakers and chips without gloves. ●Please machine within recommended application range, and exchange expired tools with new parts in advance. ●Please use safety cover and wear safety glasses. ●When using compounded cutting oils, please take fire prevention. ●When attaching inserts or spare parts, please use the attached wrench or driver. ●When using tools in revolution machining, please make a trial run to check run-out, vibration, abnormal sounds etc.

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