

7000 Series

GRADES FOR STAINLESS
STEEL TURNING

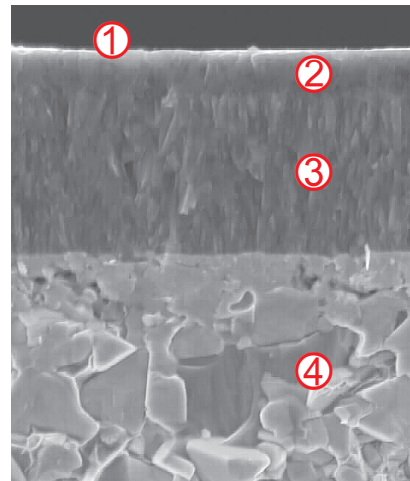
MC7015 **LM**
MC7025 + **MM**
MP7035 **RM**
 GM



7000 Series Grades for Stainless Steel Turning

CVD coated grade

MC7015/MC7025

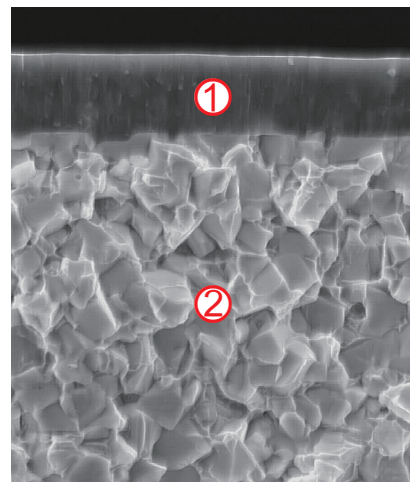


- ① Smooth cutting edge
Prevents chip welding
- ② Thin layer,
Nano-texture Al_2O_3
Controls abnormal damage
- ③ Tough,
Nano-texture TiCN
High wear resistance
- ④ Special carbide
substrate
Resists chipping & plastic
deformation

Newly developed

PVD coated grade

MP7035

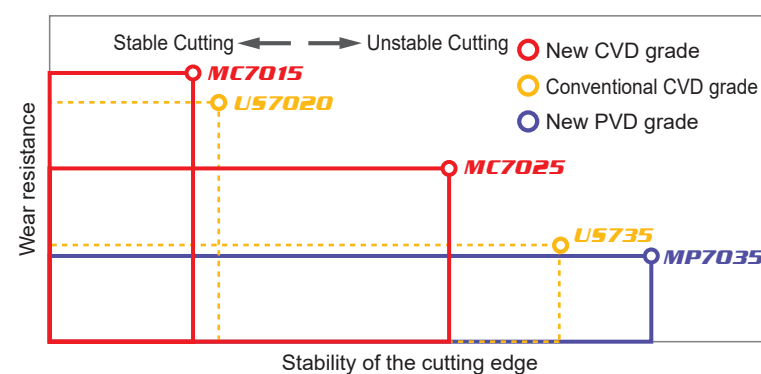


- ① (Al, Ti)N coating
Prevents chip welding
- ② Special carbide
substrate
Improved fracture &
thermal shock resistance

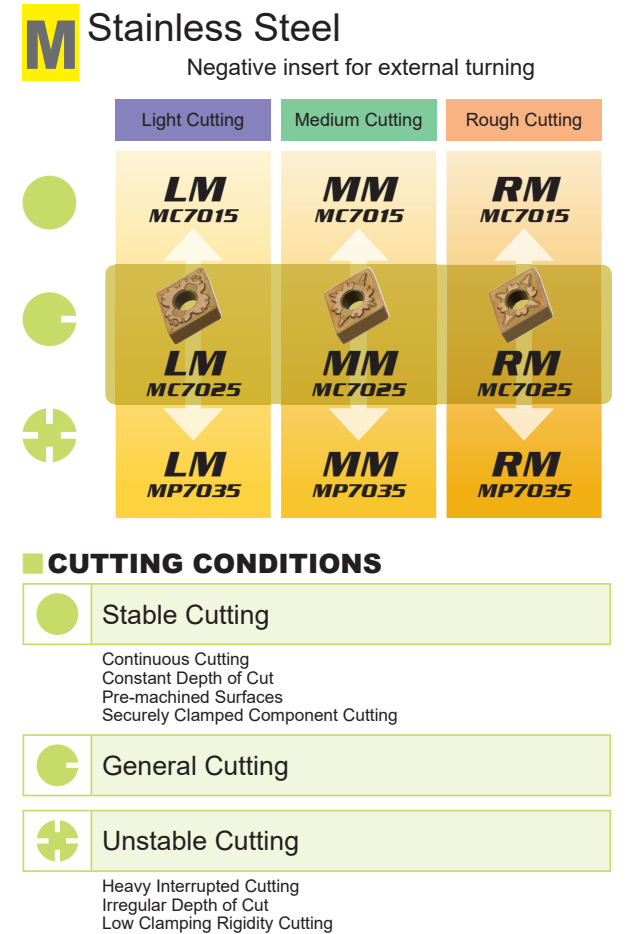
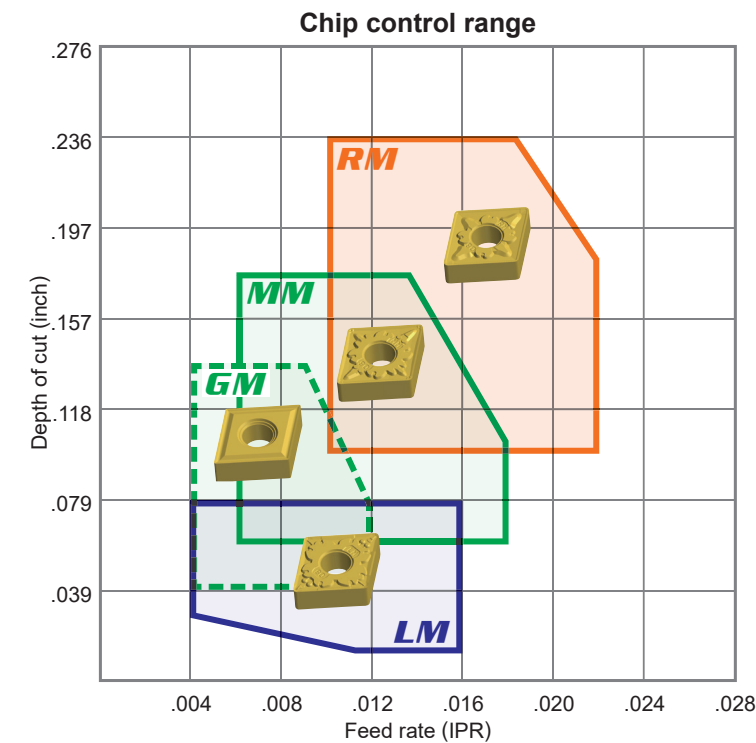
Application range

ISO Category Codes	Stainless Steel
M01	NEW MC7015
M10	MC7015
M20	NEW MC7025
M30	MC7025
M40	NEW MP7035

Concept of grade



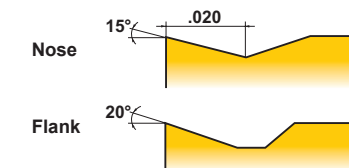
Breaker system for stainless steel turning (Negative inserts)



Main breaker

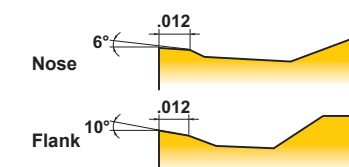
LM breaker for light cutting

Excellent burr control
Cutting edge sharpness and strength are optimized with varying rake angles drastically reducing the incidence of burrs.



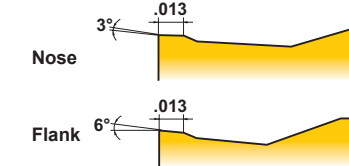
MM breaker for medium cutting

Excellent resistance to plastic deformation
Simulation analysis technology yielded the optimum land geometry, controlling plastic deformation and providing increased tool life.



RM breaker for rough cutting

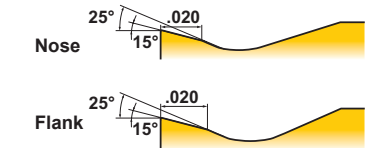
Excellent fracture resistance
During interrupted machining, high cutting edge stability is achieved through optimized edge land angle and hone.



Sub breaker

GM breaker

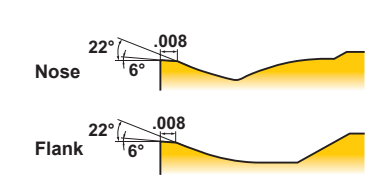
Sub breaker of the main LM and MM chip breaker.
Excellent in notching resistance for light cutting to medium cutting.



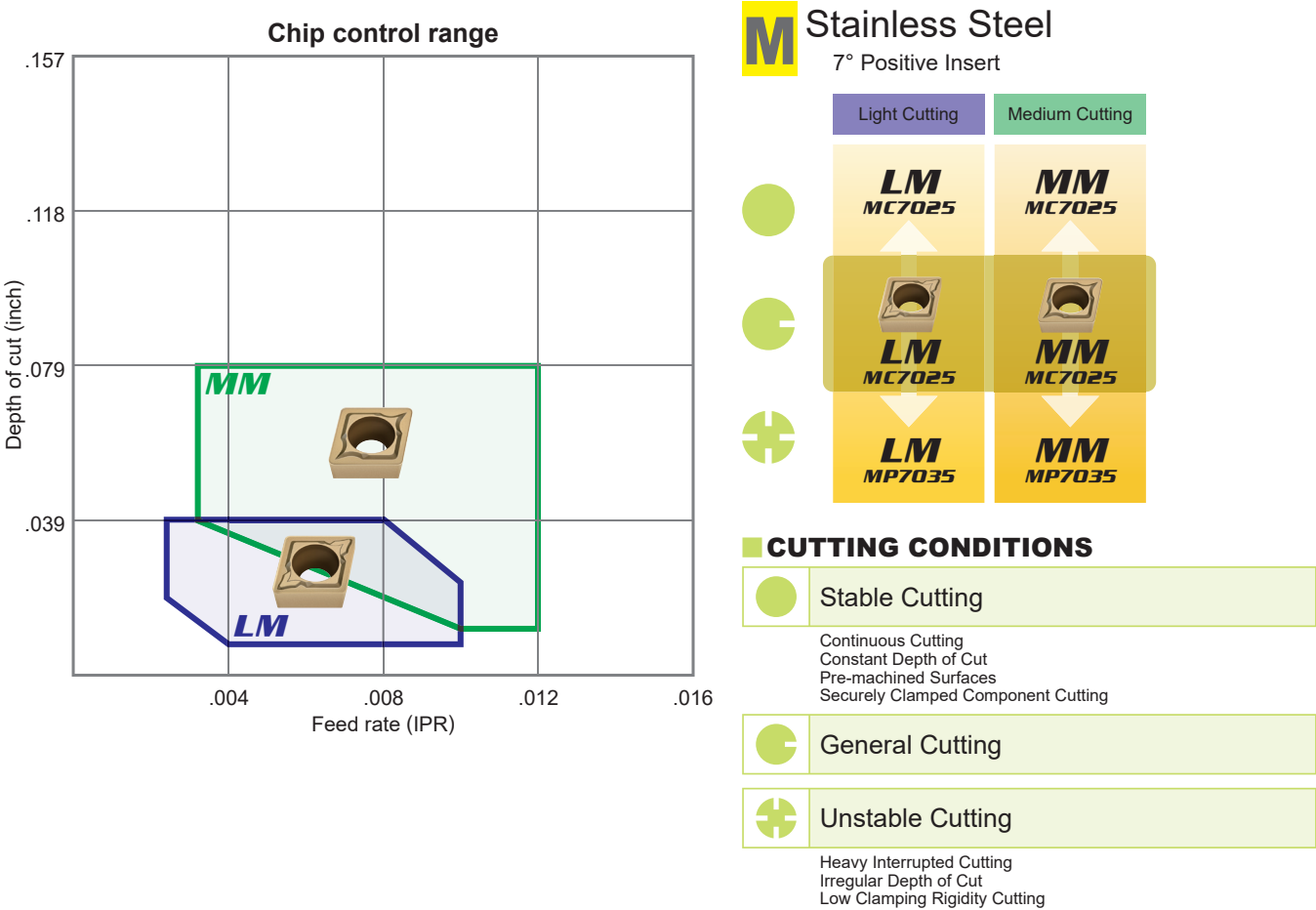
Multi-Assist breaker

MA breaker

Suitable for medium cutting range.



Breaker system for stainless steel turning (Positive inserts)



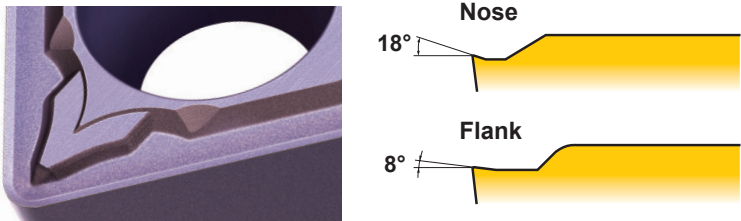
Main breaker

LM breaker for light cutting

First recommendation for light cutting of stainless steel

A high rake angle provides a sharp cutting edge preventing chip welding which, in turn, helps maintain surface finish. The chip breaking peninsula provides a wide range of chip control.

5° 7° Positive Insert

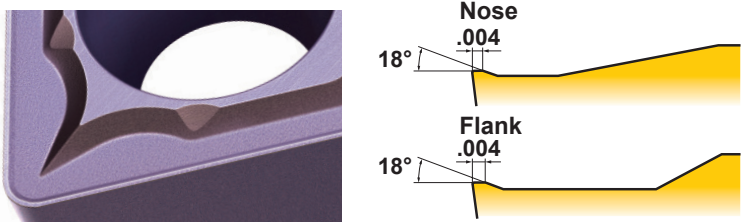


MM breaker for medium cutting

First recommendation for medium cutting of stainless steel

The flat land provides a good balance of wear and fracture resistance. The wide pocket reduces vibration and chip jamming and also prevents increases in cutting resistance even at large depths of cut.

5° 7° Positive Insert

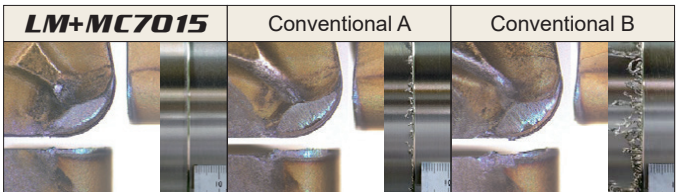


Cutting performance

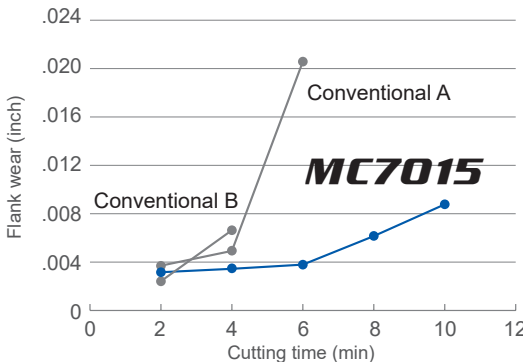
MC7015

Wear resistance comparison

Tool life comparison was made at a 1mm depth of cut where burrs were most likely to occur. MC7015 grade with the LM chipbreaker demonstrated good burr control and long tool life.

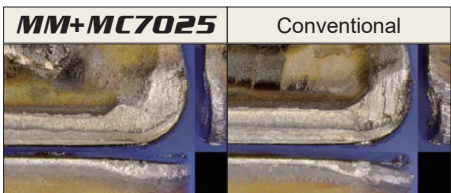


<Cutting conditions>
Inserts : CNMG43200
Work piece : ANSI 304
Cutting speed : 985 SFM
Feed rate : .008 IPR
Depth of cut : .039 inch
Coolant : Wet cutting

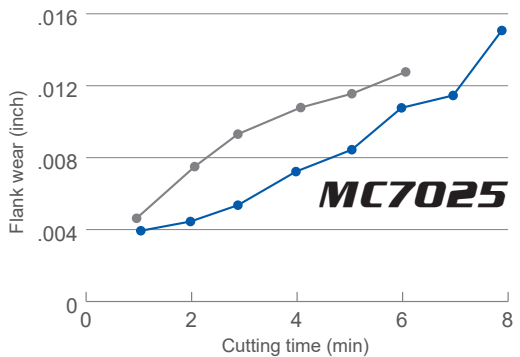


MC7025

Wear resistance comparison

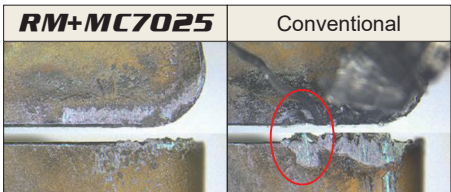


<Cutting conditions>
Inserts : CNMG43200
Work piece : AISI 304
Cutting speed : 590 SFM
Feed rate : .014 IPR
Depth of cut : .157 inch
Coolant : Wet cutting



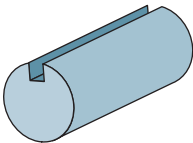
Fracture resistance comparison

Fracture resistance was tested by turning a component with a slot. (Impact frequency: 150/pass)



Notch wear and large welding

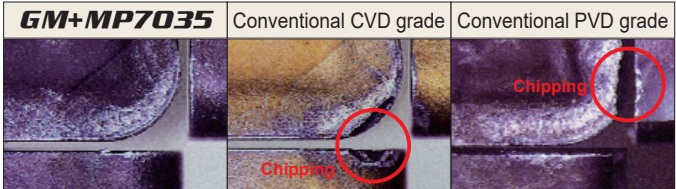
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Inserts : CNMG43200
Work piece : ANSI 304
Cutting speed : 395 SFM
Feed rate : .012 IPR
Depth of cut : .079 inch
Coolant : Wet cutting



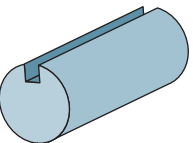
MP7035

Fracture resistance comparison

Fracture resistance was tested by turning a component with a slot. (Impact frequency: 300/pass)

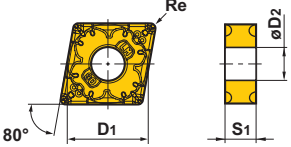
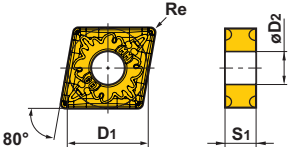
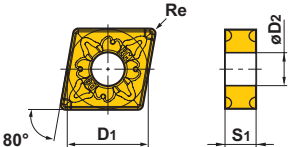
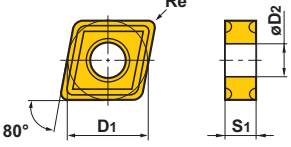
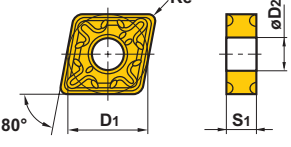
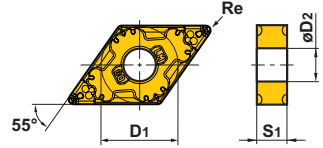
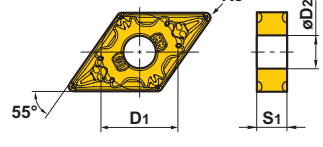


<Cutting conditions>
Inserts : CNMG43200
Work piece : ANSI 316
Cutting speed : 165 SFM
Feed rate : .006 IPR
Depth of cut : .039 inch
Coolant : Wet cutting

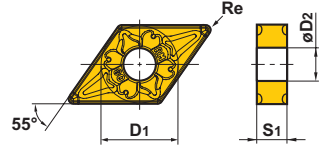
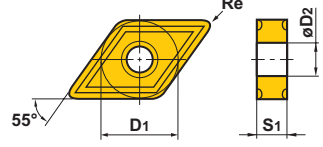
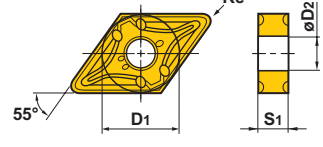
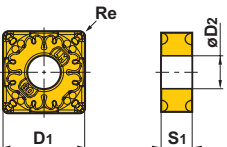
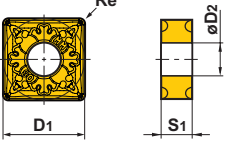
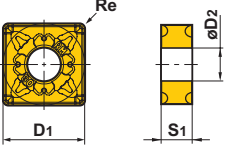
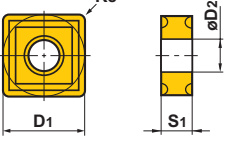


INSERTS

● Negative Inserts (With hole)

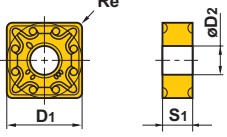
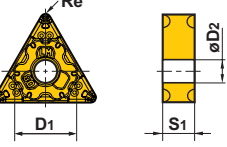
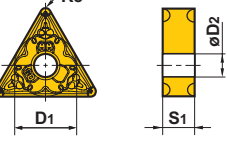
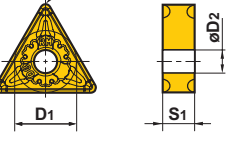
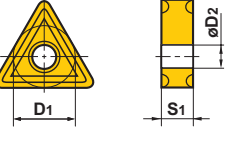
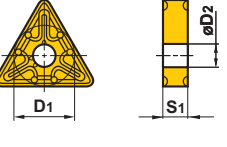
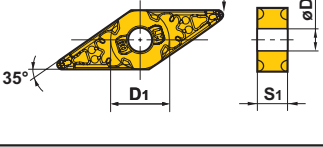
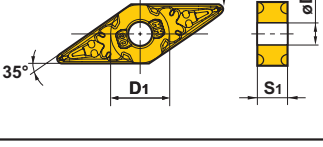
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			MC7015	MC7025	MP7035	D1	S1	Re	D2	
LM 	CNMG431LM	CNMG120404-LM	●	●	●	.500	.187	.016	.203	
	432LM	120408-LM	●	●	●	.500	.187	.031	.203	
	433LM	120412-LM	●	●	●	.500	.187	.047	.203	
Light Cutting										
MM 	CNMG432MM	CNMG120408-MM	●	●	●	.500	.187	.031	.203	
	433MM	120412-MM	●	●	●	.500	.187	.047	.203	
	434MM	120416-MM	●	●	●	.500	.187	.063	.203	
	542MM	160608-MM	●	●	●	.625	.250	.031	.250	
	543MM	160612-MM	●	●	●	.625	.250	.047	.250	
	544MM	160616-MM	●	●	●	.625	.250	.063	.250	
	642MM	190608-MM	●	●	●	.750	.250	.031	.312	
	643MM	190612-MM	●	●	●	.750	.250	.047	.312	
Medium Cutting	644MM	190616-MM	●	●	●	.750	.250	.063	.312	
RM 	CNMG432RM	CNMG120408-RM	●	●	●	.500	.187	.031	.203	
	433RM	120412-RM	●	●	●	.500	.187	.047	.203	
	434RM	120416-RM	●	●	●	.500	.187	.063	.203	
	543RM	160612-RM	●	●	●	.625	.250	.047	.250	
	544RM	160616-RM	●	●	●	.625	.250	.063	.250	
	643RM	190612-RM	●	●	●	.750	.250	.047	.312	
Rough Cutting	644RM	190616-RM	●	●	●	.750	.250	.063	.312	
GM 	CNMG431GM	CNMG120404-GM	●	●	●	.500	.187	.016	.203	
	432GM	120408-GM	●	●	●	.500	.187	.031	.203	
	433GM	120412-GM	●	●	●	.500	.187	.047	.203	
Medium Cutting										
MA 	CNMG431MA	CNMG120404-MA	●	●		.500	.187	.016	.203	
	432MA	120408-MA	●	●		.500	.187	.031	.203	
	433MA	120412-MA	●	●		.500	.187	.047	.203	
Medium Cutting										
LM 	DNMG331LM	DNMG110404-LM	●	●	●	.375	.187	.016	.150	
	332LM	110408-LM	●	●	●	.375	.187	.031	.150	
	431LM	150404-LM	●	●	●	.500	.187	.016	.203	
	432LM	150408-LM	●	●	●	.500	.187	.031	.203	
	433LM	150412-LM	●	●	●	.500	.187	.047	.203	
	441LM	150604-LM	●	●	●	.500	.250	.016	.203	
	442LM	150608-LM	●	●	●	.500	.250	.031	.203	
Light Cutting	443LM	150612-LM	●	●	●	.500	.250	.047	.203	
MM 	DNMG432MM	DNMG150408-MM	●	●	●	.500	.187	.031	.203	
	433MM	150412-MM	●	●	●	.500	.187	.047	.203	
	442MM	150608-MM	●	●	●	.500	.250	.031	.203	
Medium Cutting	443MM	150612-MM	●	●	●	.500	.250	.047	.203	

● : Inventory maintained.

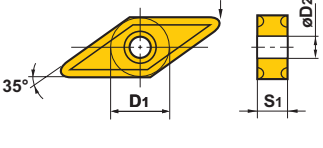
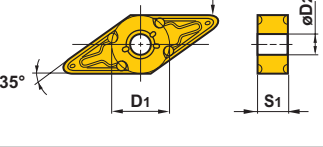
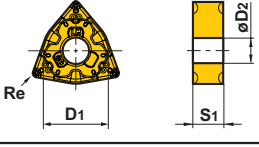
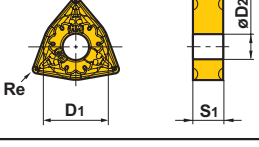
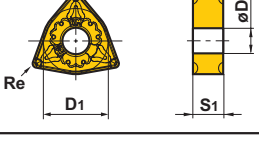
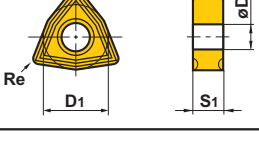
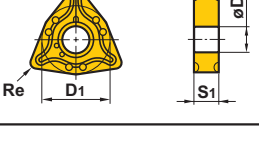
Shape	Order Number	(ISO) Number	Stock			Dimensions (inch)				Geometry
			MC7015	MC7025	MP7035	D1	S1	Re	D2	
RM 	DNMG432RM	DNMG150408-RM	●	●	●	.500	.187	.031	.203	
	433RM	150412-RM	●	●	●	.500	.187	.047	.203	
	434RM	150416-RM	●	●	●	.500	.187	.063	.203	
	442RM	150608-RM	●	●	●	.500	.250	.031	.203	
	443RM	150612-RM	●	●	●	.500	.250	.047	.203	
Rough Cutting	444RM	150616-RM	●	●	●	.500	.250	.063	.203	
GM 	DNMG431GM	DNMG150404-GM	●	●	●	.500	.187	.016	.203	
	432GM	150408-GM	●	●	●	.500	.187	.031	.203	
	433GM	150412-GM	●	●	●	.500	.187	.047	.203	
	441GM	150604-GM	●	●	●	.500	.250	.016	.203	
	442GM	150608-GM	●	●	●	.500	.250	.031	.203	
Medium Cutting	443GM	150612-GM	●	●	●	.500	.250	.047	.203	
MA 	DNMG431MA	DNMG150404-MA	●	●		.500	.187	.016	.203	
	432MA	150408-MA	●	●		.500	.187	.031	.203	
	433MA	150412-MA	●	●		.500	.187	.047	.203	
	441MA	150604-MA	●	●		.500	.250	.016	.203	
	442MA	150608-MA	●	●		.500	.250	.031	.203	
Medium Cutting	443MA	150612-MA	●	●		.500	.250	.047	.203	
LM 	SNMG431LM	SNMG120404-LM	●	●	●	.500	.187	.016	.203	
Light Cutting	432LM	120408-LM	●	●	●	.500	.187	.031	.203	
MM 	SNMG432MM	SNMG120408-MM	●	●	●	.500	.187	.031	.203	
	433MM	120412-MM	●	●	●	.500	.187	.047	.203	
	434MM	120416-MM	●	●	●	.500	.187	.063	.203	
	542MM	150608-MM	●	●	●	.625	.250	.031	.250	
	543MM	150612-MM	●	●	●	.625	.250	.047	.250	
	544MM	150616-MM	●	●	●	.625	.250	.063	.250	
Medium Cutting	643MM	190612-MM	●	●	●	.750	.250	.047	.312	
	644MM	190616-MM	●	●	●	.750	.250	.063	.312	
RM 	SNMG432RM	SNMG120408-RM	●	●	●	.500	.187	.031	.203	
	433RM	120412-RM	●	●	●	.500	.187	.047	.203	
	434RM	120416-RM	●	●	●	.500	.187	.063	.203	
	543RM	150612-RM	●	●	●	.625	.250	.047	.250	
	544RM	150616-RM	●	●	●	.625	.250	.063	.250	
	643RM	190612-RM	●	●	●	.750	.250	.047	.312	
Rough Cutting	644RM	190616-RM	●	●	●	.750	.250	.063	.312	
GM 	SNMG431GM	SNMG120404-GM	●	●	●	.500	.187	.016	.203	
	432GM	120408-GM	●	●	●	.500	.187	.031	.203	
	433GM	120412-GM	●	●	●	.500	.187	.047	.203	
Medium Cutting										

INSERTS

● Negative Inserts (With hole)

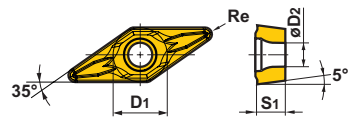
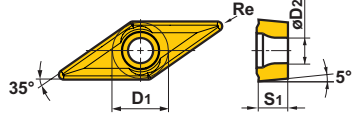
Shape	Order Number	(ISO) Number	Stock			Dimensions (inch)				Geometry
			MC7015	MC7025	MP7035	D1	S1	Re	D2	
MA  Medium Cutting	SNMG431MA	SNMG120404-MA	●	●		.500	.187	.016	.203	
	432MA	120408-MA	●	●		.500	.187	.031	.203	
	433MA	120412-MA	●	●		.500	.187	.047	.203	
LM  Light Cutting	TNMG331LM	TNMG160404-LM	●	●	●	.375	.187	.016	.150	
	332LM	160408-LM	●	●	●	.375	.187	.031	.150	
	333LM	160412-LM	●	●	●	.375	.187	.047	.150	
MM  Medium Cutting	TNMG332MM	TNMG160408-MM	●	●	●	.375	.187	.031	.150	
	333MM	160412-MM	●	●	●	.375	.187	.047	.150	
	432MM	220408-MM	●	●	●	.500	.187	.031	.203	
	433MM	220412-MM	●	●	●	.500	.187	.047	.203	
	434MM	220416-MM	●	●	●	.500	.187	.063	.203	
RM  Rough Cutting	TNMG332RM	TNMG160408-RM	●	●	●	.375	.187	.031	.150	
	333RM	160412-RM	●	●	●	.375	.187	.047	.150	
	432RM	220408-RM	●	●	●	.500	.187	.031	.203	
	433RM	220412-RM	●	●	●	.500	.187	.047	.203	
	434RM	220416-RM	●	●	●	.500	.187	.063	.203	
GM  Medium Cutting	TNMG331GM	TNMG160404-GM	●	●	●	.375	.187	.016	.150	
	332GM	160408-GM	●	●	●	.375	.187	.031	.150	
	333GM	160412-GM	●	●	●	.375	.187	.047	.150	
	432GM	220408-GM	●	●	●	.500	.187	.031	.203	
	433GM	220412-GM	●	●	●	.500	.187	.047	.203	
MA  Medium Cutting	TNMG331MA	TNMG160404-MA	●	●		.375	.187	.016	.150	
	332MA	160408-MA	●	●		.375	.187	.031	.150	
	333MA	160412-MA	●	●		.375	.187	.047	.150	
	432MA	220408-MA	●	●		.500	.187	.031	.203	
	433MA	220412-MA	●	●		.500	.187	.047	.203	
LM  Light Cutting	VNMG331LM	VNMG160404-LM	●	●	●	.375	.187	.016	.150	
	332LM	160408-LM	●	●	●	.375	.187	.031	.150	
MM  Medium Cutting	VNMG332MM	VNMG160408-MM	●	●	●	.375	.187	.031	.150	

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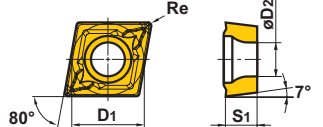
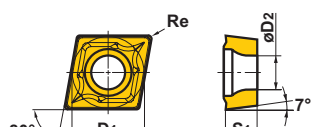
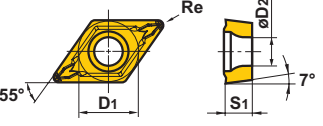
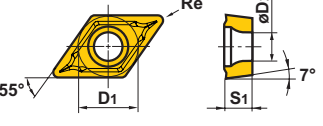
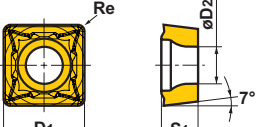
Shape	Order Number	(ISO) Number	Stock			Dimensions (inch)				Geometry
			MC7015	MC7025	MP7035	D1	S1	Re	D2	
GM  Medium Cutting	VNMG331GM	VNMG160404-GM	●	●	●	.375	.187	.016	.150	
	332GM	160408-GM	●	●	●	.375	.187	.031	.150	
MA  Medium Cutting	VNMG331MA	VNMG160404-MA	●	●		.375	.187	.016	.150	
	332MA	160408-MA	●	●		.375	.187	.031	.150	
LM  Light Cutting	WVMG331LM	WVMG060404-LM	●	●	●	.375	.187	.016	.150	
	332LM	060408-LM	●	●	●	.375	.187	.031	.150	
	431LM	080404-LM	●	●	●	.500	.187	.016	.203	
	432LM	080408-LM	●	●	●	.500	.187	.031	.203	
MM  Medium Cutting	WVMG332MM	WVMG060408-MM	●	●	●	.375	.187	.031	.150	
	333MM	060412-MM	●	●	●	.375	.187	.047	.150	
	432MM	080408-MM	●	●	●	.500	.187	.031	.203	
	433MM	080412-MM	●	●	●	.500	.187	.047	.203	
RM  Rough Cutting	WVMG332RM	WVMG060408-RM	●	●	●	.375	.187	.031	.150	
	333RM	060412-RM	●	●	●	.375	.187	.047	.150	
	432RM	080408-RM	●	●	●	.500	.187	.031	.203	
	433RM	080412-RM	●	●	●	.500	.187	.047	.203	
GM  Medium Cutting	WVMG331GM	WVMG060404-GM	●	●	●	.375	.187	.016	.150	
	332GM	060408-GM	●	●	●	.375	.187	.031	.150	
	431GM	080404-GM	●	●	●	.500	.187	.016	.203	
	432GM	080408-GM	●	●	●	.500	.187	.031	.203	
	433GM	080412-GM	●	●	●	.500	.187	.047	.203	
MA  Medium Cutting	WVMG332MA	WVMG060408-MA	●	●		.375	.187	.031	.150	
	333MA	060412-MA	●	●		.375	.187	.047	.150	
	431MA	080404-MA	●	●		.500	.187	.016	.203	
	432MA	080408-MA	●	●		.500	.187	.031	.203	
	433MA	080412-MA	●	●		.500	.187	.047	.203	

INSERTS

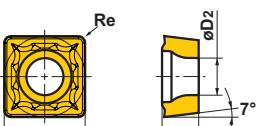
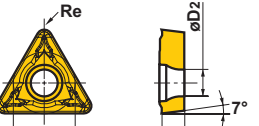
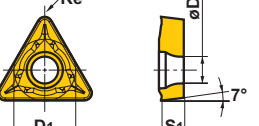
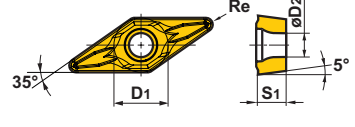
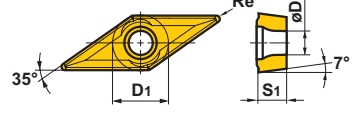
5° Positive inserts (With hole)

Shape	Order Number	(ISO) Number	Stock			Dimensions (inch)				Geometry
			MC7015	MC7025	MP7035	D1	S1	Re	D2	
 Light Cutting	VBMT221LM	VBMT110304-LM	●	●		.250	.125	.016	.114	
	222LM	110308-LM	●	●		.250	.125	.031	.114	
	331LM	160404-LM	●	●		.375	.187	.016	.173	
	332LM	160408-LM	●	●		.375	.187	.031	.173	
 Medium Cutting	VBMT331MM	VBMT160404-MM	●	●		.375	.187	.016	.173	
	332MM	160408-MM	●	●		.375	.187	.031	.173	

7° Positive inserts (With hole)

Shape	Order Number	(ISO) Number	Stock			Dimensions (inch)				Geometry
			MC7015	MC7025	MP7035	D1	S1	Re	D2	
 Light Cutting	CCMT21.51LM	CCMT060204-LM	●	●		.250	.094	.016	.110	
	21.52LM	060208-LM	●	●		.250	.094	.031	.110	
	32.51LM	09T304-LM	●	●		.375	.156	.016	.173	
	32.52LM	09T308-LM	●	●		.375	.156	.031	.173	
 Medium Cutting	CCMT21.51MM	CCMT060204-MM	●	●		.250	.094	.016	.110	
	21.52MM	060208-MM	●	●		.250	.094	.031	.110	
	32.51MM	09T304-MM	●	●		.375	.156	.016	.173	
	32.52MM	09T308-MM	●	●		.375	.156	.031	.173	
	431MM	120404-MM	●	●		.500	.187	.016	.217	
	432MM	120408-MM	●	●		.500	.187	.031	.217	
 Light Cutting	DCMT21.51LM	DCMT070204-LM	●	●		.250	.094	.016	.110	
	21.52LM	070208-LM	●	●		.250	.094	.031	.110	
	32.51LM	11T304-LM	●	●		.375	.156	.016	.173	
	32.52LM	11T308-LM	●	●		.375	.156	.031	.173	
 Medium Cutting	DCMT21.51MM	DCMT070204-MM	●	●		.250	.094	.016	.110	
	21.52MM	070208-MM	●	●		.250	.094	.031	.110	
	32.51MM	11T304-MM	●	●		.375	.156	.016	.173	
	32.52MM	11T308-MM	●	●		.375	.156	.031	.173	
	431MM	150404-MM	●	●		.500	.187	.016	.217	
	432MM	150408-MM	●	●		.500	.187	.031	.217	
 Light Cutting	SCMT32.51LM	SCMT09T304-LM	●	●		.375	.156	.016	.173	
	32.52LM	SCMT09T308-LM	●	●		.375	.156	.031	.173	

● : Inventory maintained.

Shape	Order Number	(ISO) Number	Stock			Dimensions (inch)				Geometry
			MC7015	MC7025	MP7035	D1	S1	Re	D2	
 Medium Cutting	SCMT32.51MM	SCMT09T304-MM	●	●		.375	.156	.016	.173	
	32.52MM	09T308-MM	●	●		.375	.156	.031	.173	
	431MM	120404-MM	●	●		.500	.187	.016	.217	
	432MM	120408-MM	●	●		.500	.187	.031	.217	
 Light Cutting	TCMT1.81.51LM	TCMT090204-LM	●	●		.219	.094	.016	.098	
	1.81.52LM	090208-LM	●	●		.219	.094	.031	.098	
	21.51LM	110204-LM	●	●		.250	.094	.016	.110	
	21.52LM	110208-LM	●	●		.250	.094	.031	.110	
	32.51LM	16T304-LM	●	●		.375	.156	.016	.173	
 Medium Cutting	32.52LM	16T308-LM	●	●		.375	.156	.031	.173	
	TCMT1.81.51MM	TCMT090204-MM	●	●		.219	.094	.016	.098	
	1.81.52MM	090208-MM	●	●		.219	.094	.031	.098	
	21.51MM	110204-MM	●	●		.250	.094	.016	.110	
	21.52MM	110208-MM	●	●		.250	.094	.031	.110	
	2.521MM	130304-MM	●	●		.313	.125	.016	.134	
	32.51MM	16T304-MM	●	●		.375	.156	.016	.173	
	32.52MM	16T308-MM	●	●		.375	.156	.031	.173	
 Light Cutting	VCMT221LM	VCMT110304-LM	●	●		.250	.125	.016	.110	
	222LM	110308-LM	●	●		.250	.125	.031	.110	
	331LM	160404-LM	●	●		.375	.187	.016	.173	
	332LM	160408-LM	●	●		.375	.187	.031	.173	
 Medium Cutting	VCMT331MM	VCMT160404-MM	●	●		.375	.187	.016	.173	
	332MM	160408-MM	●	●		.375	.187	.031	.173	
	333MM	160412-MM	●	●		.375	.187	.047	.173	

RECOMMENDED CUTTING CONDITIONS

Negative Inserts (External turning tools)

Work Material	Hardness	Cutting Conditions	Cutting Range	Breaker	Grade	Cutting Speed (SFM)	Feed Rate (IPR)	Depth of Cut (inch)
M	Austenitic Stainless Steel (AISI 304, 316, etc.)	Stable Cutting	Light Cutting	LM	MC7015	590—935	.004—.012	.012—.080
			Medium Cutting	MM	MC7015	525—835	.006—.018	.028—.197
			Rough Cutting	RM	MC7015	510—800	.010—.022	.060—.236
		General Cutting	Light Cutting	LM	MC7025	525—705	.004—.012	.012—.080
			Medium Cutting	MM	MC7025	475—640	.006—.018	.028—.197
			Rough Cutting	RM	MC7025	460—605	.010—.022	.060—.236
		Unstable Cutting	Light Cutting	LM	MP7035	310—510	.004—.012	.012—.080
			Medium Cutting	MM	MP7035	280—460	.006—.018	.028—.197
			Rough Cutting	RM	MP7035	280—440	.010—.022	.060—.236
	Austenitic Stainless Steel (AISI 304LN, 316LN, etc.)	Stable Cutting	Light Cutting	LM	MC7015	490—790	.004—.012	.012—.080
			Medium Cutting	MM	MC7015	440—705	.006—.018	.028—.197
			Rough Cutting	RM	MC7015	425—670	.010—.022	.060—.236
		General Cutting	Light Cutting	LM	MC7025	440—590	.004—.012	.012—.080
			Medium Cutting	MM	MC7025	410—540	.006—.018	.028—.197
			Rough Cutting	RM	MC7025	375—510	.010—.022	.060—.236
		Unstable Cutting	Light Cutting	LM	MP7035	260—425	.004—.012	.012—.080
			Medium Cutting	MM	MP7035	245—390	.006—.018	.028—.197
			Rough Cutting	RM	MP7035	230—375	.010—.022	.06—.236
	Duplex Stainless Steel (ASTM 32900, etc.)	Stable Cutting	Light Cutting	LM	MC7015	400—640	.004—.012	.012—.080
			Medium Cutting	MM	MC7015	360—575	.006—.018	.028—.197
			Rough Cutting	RM	MC7015	345—540	.010—.022	.060—.236
		General Cutting	Light Cutting	LM	MC7025	360—490	.004—.012	.012—.080
			Medium Cutting	MM	MC7025	330—440	.006—.018	.028—.197
			Rough Cutting	RM	MC7025	310—410	.010—.022	.060—.236
		Unstable Cutting	Light Cutting	LM	MP7035	215—345	.004—.012	.012—.080
			Medium Cutting	MM	MP7035	195—310	.006—.018	.028—.197
			Rough Cutting	RM	MP7035	180—295	.010—.022	.060—.236
	Ferritic and Martensitic Stainless Steels (AISI 410, 430, etc.)	Stable Cutting	Light Cutting	LM	MC7015	590—935	.004—.012	.012—.080
			Medium Cutting	MM	MC7015	525—835	.006—.018	.028—.197
			Rough Cutting	RM	MC7015	510—800	.010—.022	.060—.236
		General Cutting	Light Cutting	LM	MC7025	525—705	.004—.012	.012—.080
			Medium Cutting	MM	MC7025	475—640	.006—.018	.028—.197
			Rough Cutting	RM	MC7025	460—605	.010—.024	.060—.236
		Unstable Cutting	Light Cutting	LM	MP7035	310—510	.004—.012	.012—.080
			Medium Cutting	MM	MP7035	280—460	.006—.018	.028—.197
			Rough Cutting	RM	MP7035	280—440	.010—.022	.060—.236

Work Material	Hardness	Cutting Conditions	Cutting Range	Breaker	Grade	Cutting Speed (SFM)	Feed Rate (IPR)	Depth of Cut (inch)
M	Ferritic and Martensitic Stainless Steels (AISI 431)	Stable Cutting	Light Cutting	LM	MC7015	490—790	.004—.012	.012—.080
			Medium Cutting	MM	MC7015	440—705	.006—.018	.028—.197
			Rough Cutting	RM	MC7015	425—670	.010—.022	.060—.236
		General Cutting	Light Cutting	LM	MC7025	440—590	.004—.012	.012—.080
			Medium Cutting	MM	MC7025	410—540	.006—.018	.028—.197
			Rough Cutting	RM	MC7025	375—510	.010—.024	.060—.236
		Unstable Cutting	Light Cutting	LM	MP7035	260—425	.004—.012	.012—.080
			Medium Cutting	MM	MP7035	245—390	.006—.018	.028—.197
			Rough Cutting	RM	MP7035	230—375	.010—.022	.060—.236
	Hardened Stainless Steels (17-4PH, 17-7 PH, etc.)	Stable Cutting	Light Cutting	LM	MC7015	330—525	.004—.012	.012—.080
			Medium Cutting	MM	MC7015	295—475	.006—.018	.028—.197
			Rough Cutting	RM	MC7015	280—440	.010—.022	.060—.236
		General Cutting	Light Cutting	LM	MC7025	295—390	.004—.012	.012—.080
			Medium Cutting	MM	MC7025	260—360	.006—.018	.028—.197
			Rough Cutting	RM	MC7025	260—345	.010—.024	.060—.236
		Unstable Cutting	Light Cutting	LM	MP7035	180—280	.004—.012	.012—.080
			Medium Cutting	MM	MP7035	165—260	.006—.018	.028—.197
			Rough Cutting	RM	MP7035	145—245	.010—.022	.060—.236

*Please use with reference to the recommended conditions of the boring bar in internal machining.

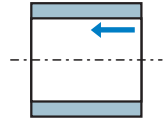
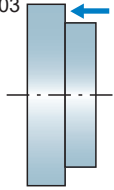
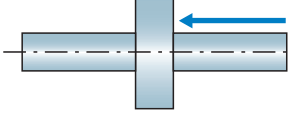
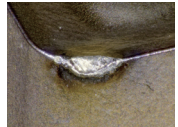
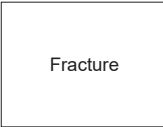
RECOMMENDED CUTTING CONDITIONS

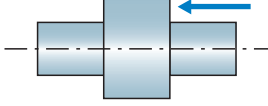
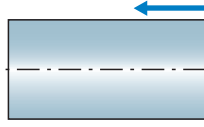
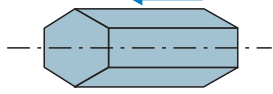
7° Positive Insert (External turning tools)

Work Material		Hardness	Cutting Conditions	Cutting Range	Breaker	Grade	Cutting Speed (SFM)	Feed Rate (IPR)	Depth of Cut (inch)
M	Austenitic Stainless Steel (AISI 304, 316, etc.)	≤200HB	Stable Cutting	Light Cutting	LM	MC7025	460—620	.002—.010	.008—.039
				Medium Cutting	MM	MC7025	375—510	.003—.012	.012—.079
			General Cutting	Light Cutting	LM	MC7025	460—620	.002—.010	.008—.039
				Medium Cutting	MM	MC7025	375—510	.003—.012	.012—.079
			Unstable Cutting	Light Cutting	LM	MP7035	280—440	.002—.010	.008—.039
				Medium Cutting	MM	MP7035	230—375	.003—.012	.012—.079
	Austenitic Stainless Steel (AISI 304LN, 316LN, etc.)	>200HB	Stable Cutting	Light Cutting	LM	MC7025	395—525	.002—.010	.008—.039
				Medium Cutting	MM	MC7025	330—425	.003—.012	.012—.079
			General Cutting	Light Cutting	LM	MC7025	395—525	.002—.010	.008—.039
				Medium Cutting	MM	MC7025	330—425	.003—.012	.012—.079
			Unstable Cutting	Light Cutting	LM	MP7035	230—375	.002—.010	.008—.039
				Medium Cutting	MM	MP7035	195—310	.003—.012	.012—.079
	Duplex Stainless Steel (ASTM 32900, etc.)	≤280HB	Stable Cutting	Light Cutting	LM	MC7025	310—425	.002—.010	.008—.039
				Medium Cutting	MM	MC7025	260—345	.003—.012	.012—.079
			General Cutting	Light Cutting	LM	MC7025	310—425	.002—.010	.008—.039
				Medium Cutting	MM	MC7025	260—345	.003—.012	.012—.079
	Ferritic and Martensitic Stainless Steels (AISI 410, 430, etc.)	≤200HB	Stable Cutting	Light Cutting	LM	MC7025	460—620	.002—.010	.008—.039
				Medium Cutting	MM	MC7025	375—510	.003—.012	.012—.079
			General Cutting	Light Cutting	LM	MC7025	460—620	.002—.010	.008—.039
				Medium Cutting	MM	MC7025	375—510	.003—.012	.012—.079
			Unstable Cutting	Light Cutting	LM	MP7035	280—440	.002—.010	.008—.039
				Medium Cutting	MM	MP7035	230—375	.003—.012	.012—.079
	Ferritic and Martensitic Stainless Steels (AISI 431)	>200HB	Stable Cutting	Light Cutting	LM	MC7025	395—525	.002—.010	.008—.039
				Medium Cutting	MM	MC7025	330—425	.003—.012	.012—.079
			General Cutting	Light Cutting	LM	MC7025	395—525	.002—.010	.008—.039
				Medium Cutting	MM	MC7025	330—425	.003—.012	.012—.079
			Unstable Cutting	Light Cutting	LM	MP7035	230—375	.002—.010	.008—.039
				Medium Cutting	MM	MP7035	195—310	.003—.012	.012—.079
	Hardened Stainless Steel (17-4PH, 17-7 PH, etc.)	<450HB	Stable Cutting	Light Cutting	LM	MC7025	260—345	.002—.010	.008—.039
				Medium Cutting	MM	MC7025	210—295	.003—.012	.012—.079
			General Cutting	Light Cutting	LM	MC7025	260—345	.002—.010	.008—.039
				Medium Cutting	MM	MC7025	210—295	.003—.012	.012—.079
			Unstable Cutting	Light Cutting	LM	MP7035	150—245	.002—.010	.008—.039
				Medium Cutting	MM	MP7035	130—210	.003—.012	.012—.079

*Recommended cutting conditions for 7° 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.

EXAMPLES OF USAGE

Insert		WNMG432MM		CNMG543RM		CNMG432MM	
Work Piece		AISI 304		ASTM S 31803		AISI 321	
Cutting Conditions	Cutting Speed (SFM)	475		165		720	
	Feed Rate (IPR)	.005		.018		.011	
	Depth of Cut (inch)	.079		.157		.063	
Coolant		Wet		Wet		Wet	
Results		Conventional		Conventional		Conventional	
		MC7025		MC7025		MC7015	
		5 pieces machined	10 pieces machined	8 pieces machined	8 pieces machined	4 pieces machined	8 pieces machined

Insert		CNMG432LM		WNMG432MM		CNMG432LM	
Work Piece		ASTM N 08367		AISI 316		AISI 304	
Cutting Conditions	Cutting Speed (SFM)	230		400		260	
	Feed Rate (IPR)	.008		.012		.004	
	Depth of Cut (inch)	.043		.087		.079	
Coolant		Wet		Wet		Wet	
Results		Conventional		Conventional		Conventional	
		MC7025		MC7015		MP7035	
		12 pieces machined	15 pieces machined	60 pieces machined	60 pieces machined	5 pieces machined	5 pieces machined



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FOR YOUR SAFETY

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

www.mmc-carbide.com/us

Tools specifications subject to change without notice.

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