

ISO Insert Series for Stainless Steel Turning

Series
 Expansion

A revolution in stainless steel turning

Excellent resistance to notch wear and with good burr control.
 Long tool life achieved due to
 high plastic deformation resistance.

NEW - 5° and 7° positive inserts with MP7035 now included.



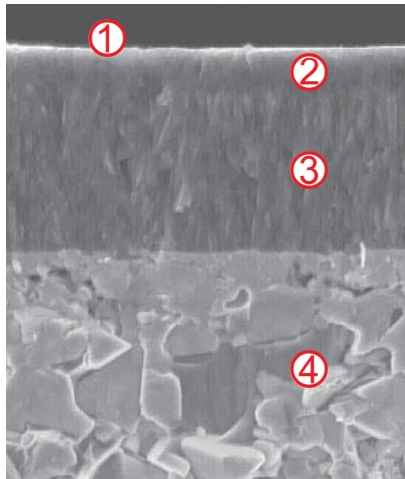
MC7015
MC7025
MP7035

+ **LM**
MM
RM
GM

ISO insert Series for Stainless Steel Turning

CVD coated grade

MC7015/MC7025

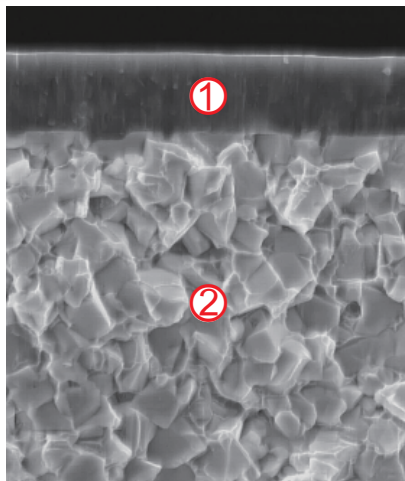


- ① Smooth cutting edge
Prevents welding
- ② Thin layer,
Nano-texture Al₂O₃
Controls abnormal damage
- ③ Tough,
Nano-texture TiCN
High wear resistance
- ④ Special carbide substrate
Plastic deformation resistance
Chipping resistance

Newly developed

PVD coated grade

MP7035

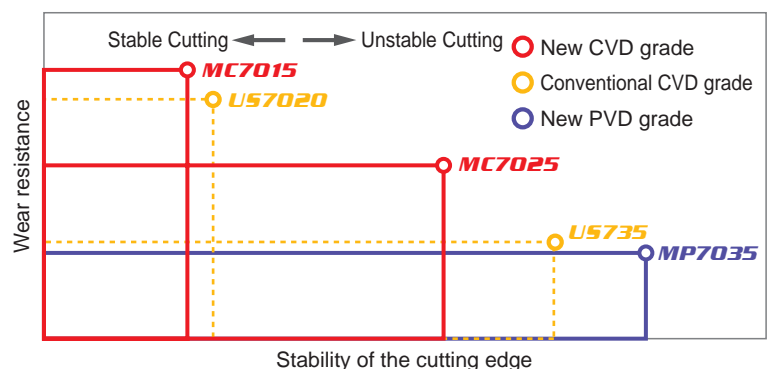


- ① (Al, Ti)N coating
Prevents welding
- ② Special carbide substrate
Improved fracture resistance
Thermal shock resistance

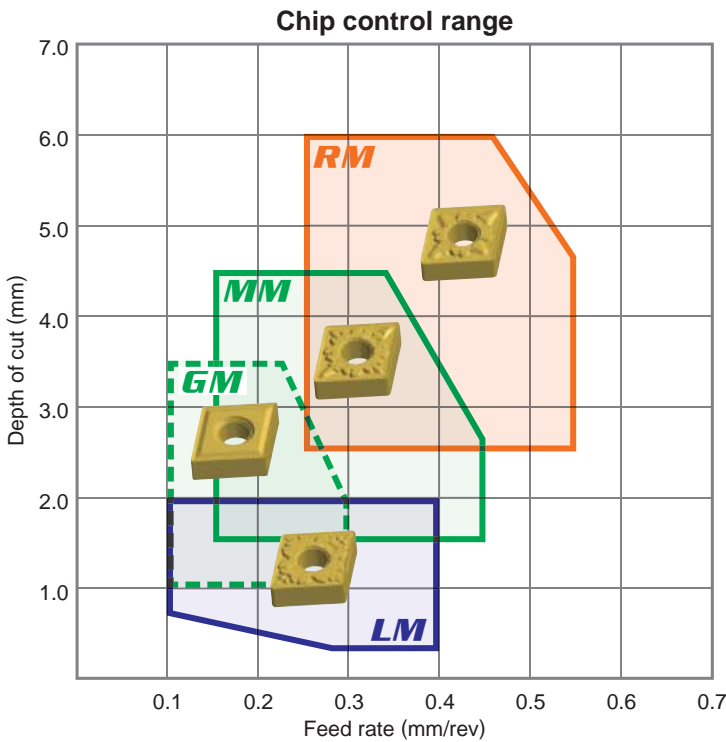
Application range

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)



Stainless Steel

Negative insert for external turning

	Light Cutting	Medium Cutting	Rough Cutting
●	LM MC7015	MM MC7015	RM MC7015
○	LM MC7025	MM MC7025	RM MC7025
⊕	LM MP7035	MM MP7035	RM MP7035

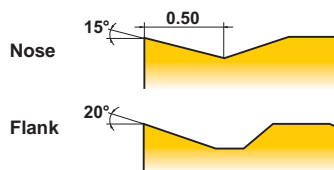
CUTTING CONDITIONS

- **Stable Cutting**
 - Continuous Cutting
 - Constant Depth of Cut
 - Pre-machined Surfaces
 - Securely Clamped Component Cutting
- **General Cutting**
- ⊕ **Unstable Cutting**
 - Heavy Interrupted Cutting
 - Irregular Depth of Cut
 - Low Clamping Rigidity Cutting

Main breaker

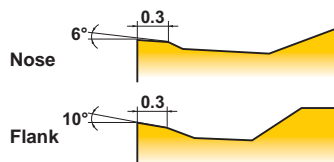
LM breaker for light cutting

Excellent burr control
Reduces the incidence of burrs drastically because the sharpness properties and cutting edge strength are optimized with different rake angles.



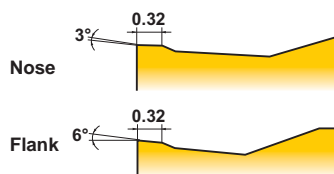
MM breaker for medium cutting

Excellent resistance to plastic deformation
As a result of obtaining the optimum land geometry by simulation analysis technology, the plastic deformation of the insert corner was controlled and achieved long tool life.



RM breaker for rough cutting

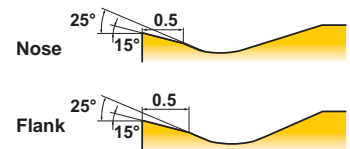
Excellent fracture resistance
By optimizing the land angle and honing geometry, high cutting edge stability is achieved during interrupted machining.



Sub breaker

GM breaker

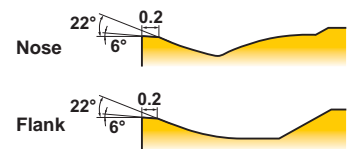
Sub breaker of the main LM and MM chip breaker. Excellent in notching resistance for light cutting to medium cutting.



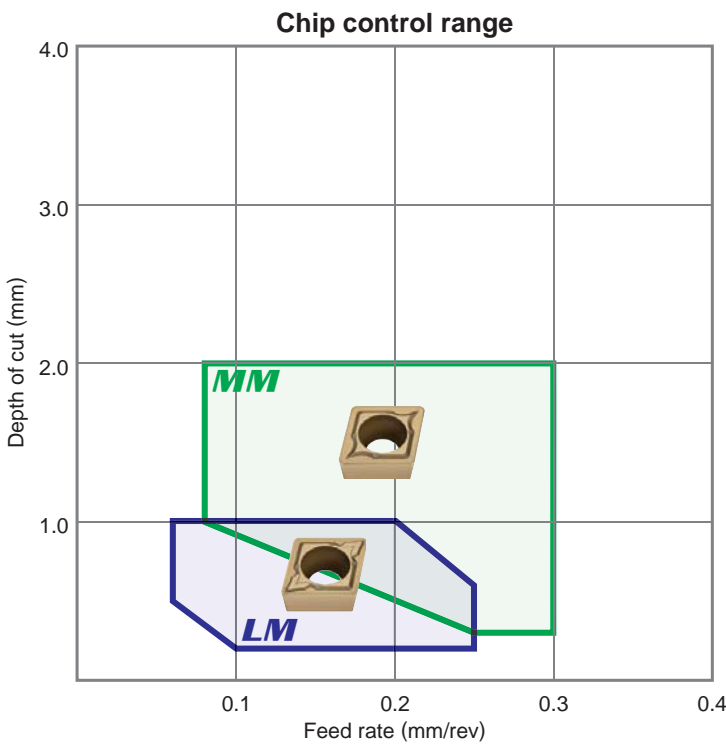
Multi-Assist breaker

MA breaker

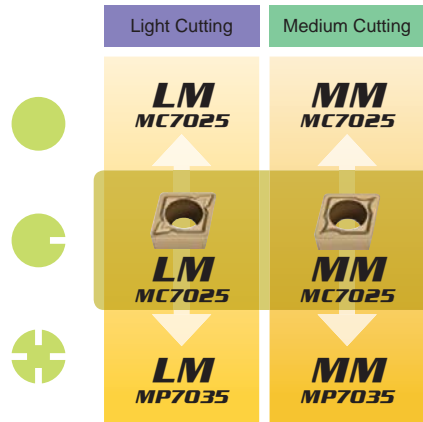
Suitable for medium cutting range.



Breaker system for stainless steel turning (Positive inserts)



M Stainless Steel 7° Positive Insert



CUTTING CONDITIONS

- **Stable Cutting**
 - Continuous Cutting
 - Constant Depth of Cut
 - Pre-machined Surfaces
 - Securely Clamped Component Cutting
- ◐ **General Cutting**
- ⊕ **Unstable Cutting**
 - Heavy Interrupted Cutting
 - Irregular Depth of Cut
 - Low Clamping Rigidity Cutting

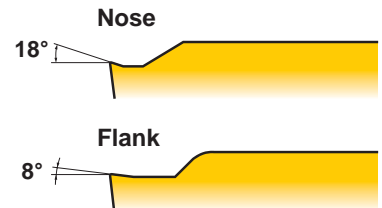
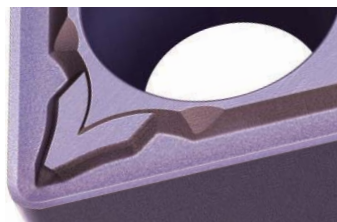
Main breaker

LM breaker for light cutting

First recommendation for light cutting of stainless steel

The large rake angle gives a sharp cutting edge that prevents chip welding, which in turn helps to control the surface finish. The protruding chipbreaker provides an ideal range of chip control.

5° 7° Positive Insert

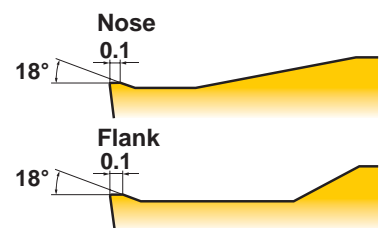
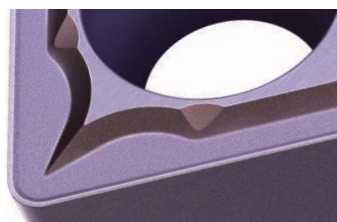


MM breaker for medium cutting

First recommendation for medium cutting of stainless steel

The flat land enables 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

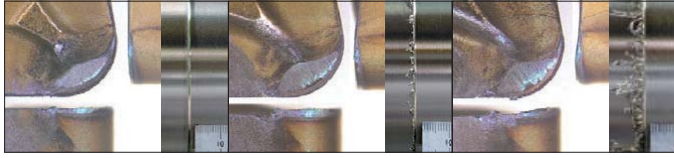


Cutting performance

MC7015

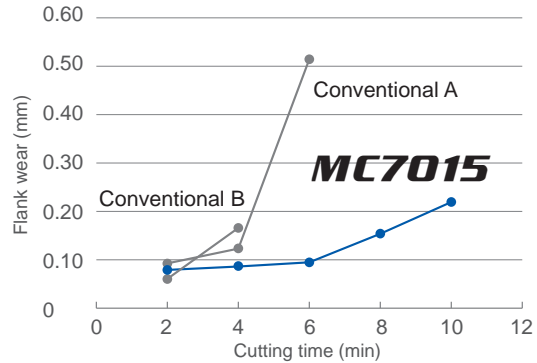
● Wear resistance comparison

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



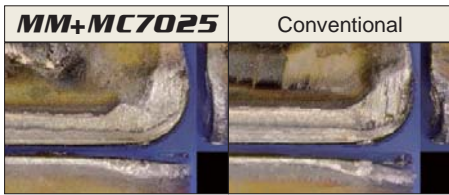
<Cutting conditions>

Inserts : CNMG120408-○○○
 Work piece : SUS304 (170HB)
 Cutting speed : 300m/min
 Feed rate : 0.2mm/rev
 Depth of cut : 1.0mm
 Coolant : Wet cutting



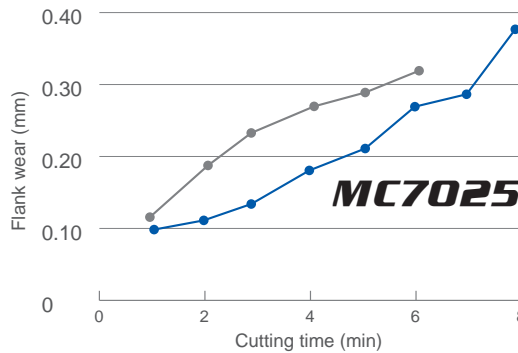
MC7025

● Wear resistance comparison



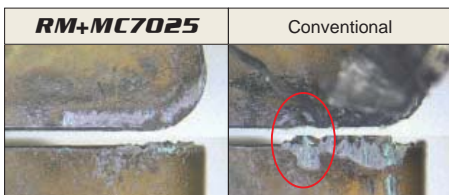
<Cutting conditions>

Inserts : CNMG120408-○○○
 Work piece : SUS304
 Cutting speed : 180m/min
 Feed rate : 0.35mm/rev
 Depth of cut : 4.0mm
 Coolant : Wet cutting



● Fracture resistance comparison

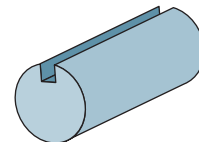
Fracture resistance was tested by turning a component with a slot. (Impact frequency: 150/pass)



Notch wear and large welding

<Cutting conditions>

Inserts : CNMG120408-○○○
 Work piece : SUS304
 Cutting speed : 120m/min
 Feed rate : 0.3mm/rev
 Depth of cut : 2.0mm
 Coolant : Wet cutting



MP7035

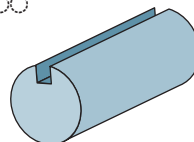
● Fracture resistance comparison

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




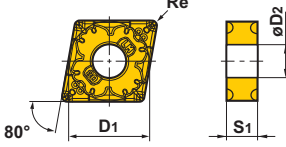

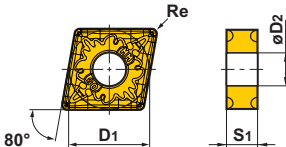

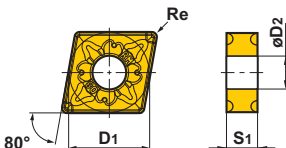

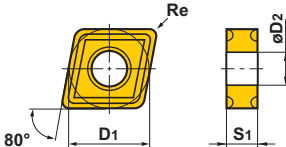

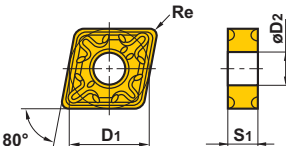

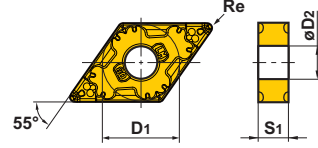

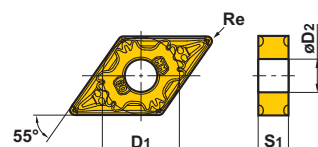
<Cutting conditions>

Inserts : CNMG120408-○○○
 Work piece : SUS316
 Cutting speed : 50m/min
 Feed rate : 0.15mm/rev
 Depth of cut : 1.0mm
 Coolant : Wet cutting


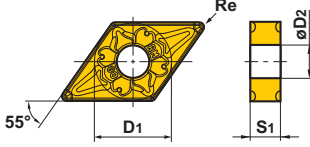
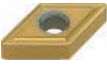
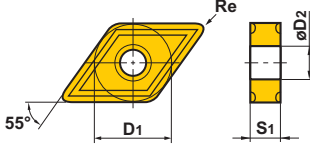

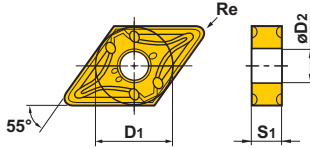

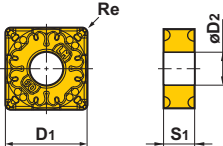

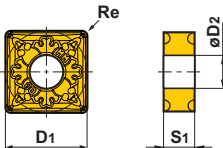

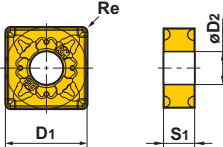



INSERTS

● Negative Inserts (With hole)


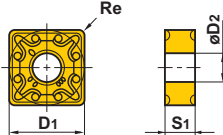

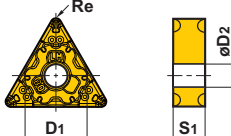

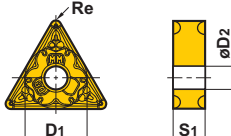

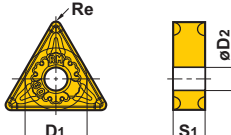

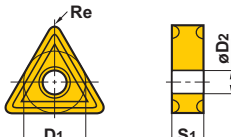

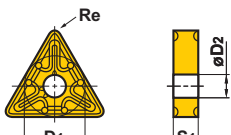

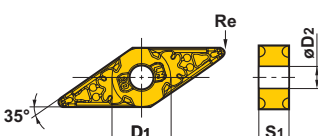

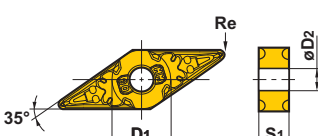
Shape	Order Number	Stock			Dimensions (mm)				Geometry
		MC7015	MC7025	MP7035	D1	S1	Re	D2	
 Light Cutting	CNMG120404-LM	●	●	●	12.7	4.76	0.4	5.16	
	120408-LM	●	●	●	12.7	4.76	0.8	5.16	
	120412-LM	●	●	●	12.7	4.76	1.2	5.16	
 Medium Cutting	CNMG120408-MM	●	●	●	12.7	4.76	0.8	5.16	
	120412-MM	●	●	●	12.7	4.76	1.2	5.16	
	120416-MM	●	●	●	12.7	4.76	1.6	5.16	
	160608-MM	●	●	●	15.875	6.35	0.8	6.35	
	160612-MM	●	●	●	15.875	6.35	1.2	6.35	
	160616-MM	●	●	●	15.875	6.35	1.6	6.35	
	190608-MM	●	●	●	19.05	6.35	0.8	7.93	
	190612-MM	●	●	●	19.05	6.35	1.2	7.93	
190616-MM	●	●	●	19.05	6.35	1.6	7.93		
 Rough Cutting	CNMG120408-RM	●	●	●	12.7	4.76	0.8	5.16	
	120412-RM	●	●	●	12.7	4.76	1.2	5.16	
	120416-RM	●	●	●	12.7	4.76	1.6	5.16	
	160612-RM	●	●	●	15.875	6.35	1.2	6.35	
	160616-RM	●	●	●	15.875	6.35	1.6	6.35	
	190612-RM	●	●	●	19.05	6.35	1.2	7.93	
190616-RM	●	●	●	19.05	6.35	1.6	7.93		
 Medium Cutting	CNMG120404-GM	●	●	●	12.7	4.76	0.4	5.16	
	120408-GM	●	●	●	12.7	4.76	0.8	5.16	
	120412-GM	●	●	●	12.7	4.76	1.2	5.16	
 Medium Cutting	CNMG120404-MA		●	●	12.7	4.76	0.4	5.16	
	120408-MA		●	●	12.7	4.76	0.8	5.16	
	120412-MA		●	●	12.7	4.76	1.2	5.16	
 Light Cutting	DNMG110404-LM	●	●	●	9.525	4.76	0.4	3.81	
	110408-LM	●	●	●	9.525	4.76	0.8	3.81	
	150404-LM	●	●	●	12.7	4.76	0.4	5.16	
	150408-LM	●	●	●	12.7	4.76	0.8	5.16	
	150412-LM	●	●	●	12.7	4.76	1.2	5.16	
	150604-LM	●	●	●	12.7	6.35	0.4	5.16	
	150608-LM	●	●	●	12.7	6.35	0.8	5.16	
150612-LM	●	●	●	12.7	6.35	1.2	5.16		
 Medium Cutting	DNMG150408-MM	●	●	●	12.7	4.76	0.8	5.16	
	150412-MM	●	●	●	12.7	4.76	1.2	5.16	
	150608-MM	●	●	●	12.7	6.35	0.8	5.16	
	150612-MM	●	●	●	12.7	6.35	1.2	5.16	

● : Inventory maintained in Japan.


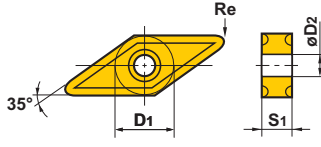

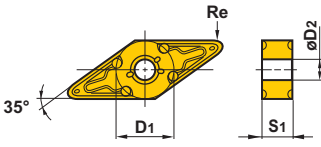

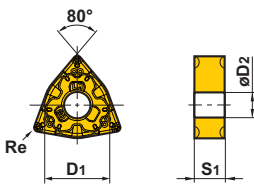

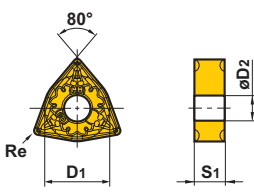

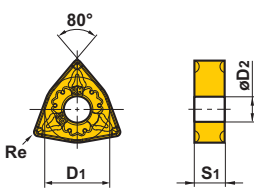

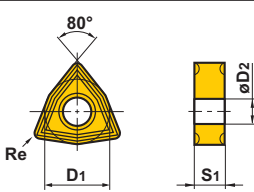

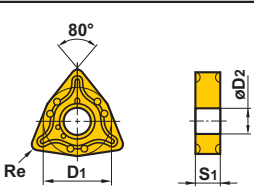
Shape	Order Number	Stock			Dimensions (mm)				Geometry
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 Rough Cutting	DNMG150408-RM	●	●	●	12.7	4.76	0.8	5.16	
	150412-RM	●	●	●	12.7	4.76	1.2	5.16	
	150416-RM	●	●	●	12.7	4.76	1.6	5.16	
	150608-RM	●	●	●	12.7	6.35	0.8	5.16	
	150612-RM	●	●	●	12.7	6.35	1.2	5.16	
	150616-RM	●	●	●	12.7	6.35	1.6	5.16	
 Medium Cutting	DNMG150404-GM	●	●	●	12.7	4.76	0.4	5.16	
	150408-GM	●	●	●	12.7	4.76	0.8	5.16	
	150412-GM	●	●	●	12.7	4.76	1.2	5.16	
	150604-GM	●	●	●	12.7	6.35	0.4	5.16	
	150608-GM	●	●	●	12.7	6.35	0.8	5.16	
	150612-GM	●	●	●	12.7	6.35	1.2	5.16	
 Medium Cutting	DNMG150404-MA		●	●	12.7	4.76	0.4	5.16	
	150408-MA		●	●	12.7	4.76	0.8	5.16	
	150412-MA		●	●	12.7	4.76	1.2	5.16	
	150604-MA		●	●	12.7	6.35	0.4	5.16	
	150608-MA		●	●	12.7	6.35	0.8	5.16	
	150612-MA		●	●	12.7	6.35	1.2	5.16	
 Light Cutting	SNMG120404-LM	●	●	●	12.7	4.76	0.4	5.16	
	120408-LM	●	●	●	12.7	4.76	0.8	5.16	
 Medium Cutting	SNMG120408-MM	●	●	●	12.7	4.76	0.8	5.16	
	120412-MM	●	●	●	12.7	4.76	1.2	5.16	
	120416-MM	●	●	●	12.7	4.76	1.6	5.16	
	150608-MM	●	●	●	15.875	6.35	0.8	6.35	
	150612-MM	●	●	●	15.875	6.35	1.2	6.35	
	150616-MM	●	●	●	15.875	6.35	1.6	6.35	
	190612-MM	●	●	●	19.05	6.35	1.2	7.93	
	190616-MM	●	●	●	19.05	6.35	1.6	7.93	
 Rough Cutting	SNMG120408-RM	●	●	●	12.7	4.76	0.8	5.16	
	120412-RM	●	●	●	12.7	4.76	1.2	5.16	
	120416-RM	●	●	●	12.7	4.76	1.6	5.16	
	150612-RM	●	●	●	15.875	6.35	1.2	6.35	
	150616-RM	●	●	●	15.875	6.35	1.6	6.35	
	190612-RM	●	●	●	19.05	6.35	1.2	7.93	
	190616-RM	●	●	●	19.05	6.35	1.6	7.93	
	 Medium Cutting	SNMG120404-GM	●	●	●	12.7	4.76	0.4	
120408-GM		●	●	●	12.7	4.76	0.8	5.16	
120412-GM		●	●	●	12.7	4.76	1.2	5.16	

INSERTS

● Negative Inserts (With hole)


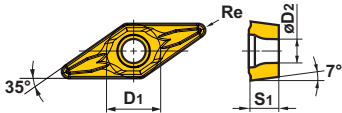
Shape	Order Number	Stock			Dimensions (mm)				Geometry
		ML7015	ML7025	MP7035	D1	S1	Re	D2	
 Medium Cutting	SNMG120404-MA	●	●		12.7	4.76	0.4	5.16	
	120408-MA	●	●		12.7	4.76	0.8	5.16	
	120412-MA	●	●		12.7	4.76	1.2	5.16	
 Light Cutting	TNMG160404-LM	●	●	●	9.525	4.76	0.4	3.81	
	160408-LM	●	●	●	9.525	4.76	0.8	3.81	
	160412-LM	●	●	●	9.525	4.76	1.2	3.81	
 Medium Cutting	TNMG160408-MM	●	●	●	9.525	4.76	0.8	3.81	
	160412-MM	●	●	●	9.525	4.76	1.2	3.81	
	220408-MM	●	●	●	12.7	4.76	0.8	5.16	
	220412-MM	●	●	●	12.7	4.76	1.2	5.16	
	220416-MM	●	●	●	12.7	4.76	1.6	5.16	
 Rough Cutting	TNMG160408-RM	●	●	●	9.525	4.76	0.8	3.81	
	160412-RM	●	●	●	9.525	4.76	1.2	3.81	
	220408-RM	●	●	●	12.7	4.76	0.8	5.16	
	220412-RM	●	●	●	12.7	4.76	1.2	5.16	
	220416-RM	●	●	●	12.7	4.76	1.6	5.16	
 Medium Cutting	TNMG160404-GM	●	●	●	9.525	4.76	0.4	3.81	
	160408-GM	●	●	●	9.525	4.76	0.8	3.81	
	160412-GM	●	●	●	9.525	4.76	1.2	3.81	
	220408-GM	●	●	●	12.7	4.76	0.8	5.16	
	220412-GM	●	●	●	12.7	4.76	1.2	5.16	
 Medium Cutting	TNMG160404-MA		●	●	9.525	4.76	0.4	3.81	
	160408-MA		●	●	9.525	4.76	0.8	3.81	
	160412-MA		●	●	9.525	4.76	1.2	3.81	
	220408-MA		●	●	12.7	4.76	0.8	5.16	
	220412-MA		●	●	12.7	4.76	1.2	5.16	
 Light Cutting	VNMG160404-LM	●	●	●	9.525	4.76	0.4	3.81	
	160408-LM	●	●	●	9.525	4.76	0.8	3.81	
 Medium Cutting	VNMG160408-MM	●	●	●	9.525	4.76	0.8	3.81	

● : Inventory maintained in Japan.


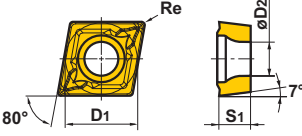

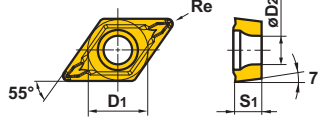

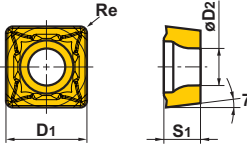
Shape	Order Number	Stock			Dimensions (mm)				Geometry
		ML7015	ML7025	MP7035	D1	S1	Re	D2	
GM  Medium Cutting	VNMG160404-GM	●	●	●	9.525	4.76	0.4	3.81	
	160408-GM	●	●	●	9.525	4.76	0.8	3.81	
MA  Medium Cutting	VNMG160404-MA		●	●	9.525	4.76	0.4	3.81	
	160408-MA		●	●	9.525	4.76	0.8	3.81	
LM  Light Cutting	WNMG060404-LM	●	●	●	9.525	4.76	0.4	3.81	
	060408-LM	●	●	●	9.525	4.76	0.8	3.81	
	080404-LM	●	●	●	12.7	4.76	0.4	5.16	
	080408-LM	●	●	●	12.7	4.76	0.8	5.16	
MM  Medium Cutting	WNMG060408-MM	●	●	●	9.525	4.76	0.8	3.81	
	060412-MM	●	●	●	9.525	4.76	1.2	3.81	
	080408-MM	●	●	●	12.7	4.76	0.8	5.16	
	080412-MM	●	●	●	12.7	4.76	1.2	5.16	
RM  Rough Cutting	WNMG060408-RM	●	●	●	9.525	4.76	0.8	3.81	
	060412-RM	●	●	●	9.525	4.76	1.2	3.81	
	080408-RM	●	●	●	12.7	4.76	0.8	5.16	
	080412-RM	●	●	●	12.7	4.76	1.2	5.16	
GM  Medium Cutting	WNMG060404-GM	●	●	●	9.525	4.76	0.4	3.81	
	060408-GM	●	●	●	9.525	4.76	0.8	3.81	
	080404-GM	●	●	●	12.7	4.76	0.4	5.16	
	080408-GM	●	●	●	12.7	4.76	0.8	5.16	
	080412-GM	●	●	●	12.7	4.76	1.2	5.16	
MA  Medium Cutting	WNMG060408-MA		●	●	9.525	4.76	0.8	3.81	
	060412-MA		●	●	9.525	4.76	1.2	3.81	
	080404-MA		●	●	12.7	4.76	0.4	5.16	
	080408-MA		●	●	12.7	4.76	0.8	5.16	
	080412-MA		●	●	12.7	4.76	1.2	5.16	

INSERTS


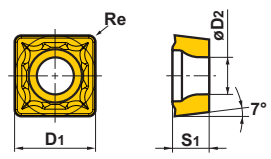

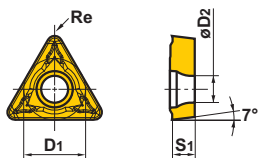

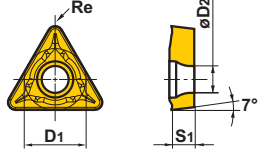

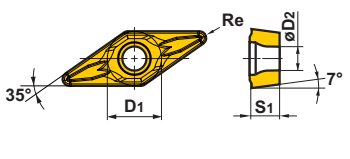

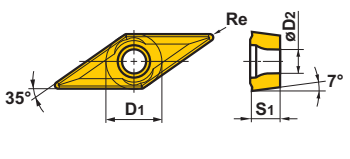
● 5° Positive inserts (With hole)

Shape	Order Number	Stock			Dimensions (mm)				Geometry
		MC7015	MC7025	MP7035	D1	S1	Re	D2	
 Light Cutting	NEW VBMT110304-LM 110308-LM 160404-LM 160408-LM		●	●	6.35	3.18	0.4	2.9	
	NEW MM VBMT160404-MM 160408-MM		●	●	9.525	4.76	0.4	4.4	
			●	●	9.525	4.76	0.8	4.4	

● 7° Positive inserts (With hole)

Shape	Order Number	Stock			Dimensions (mm)				Geometry
		MC7015	MC7025	MP7035	D1	S1	Re	D2	
 Light Cutting	NEW CCMT060204-LM 060208-LM 09T304-LM 09T308-LM		●	●	6.35	2.38	0.4	2.8	
	NEW MM CCMT060204-MM 060208-MM 09T304-MM 09T308-MM 120404-MM 120408-MM 120412-MM		●	●	6.35	2.38	0.4	2.8	
			●	●	9.525	3.97	0.4	4.4	
			●	●	9.525	3.97	0.8	4.4	
 Light Cutting	NEW DCMT070204-LM 070208-LM 11T304-LM 11T308-LM		●	●	6.35	2.38	0.4	2.8	
	NEW MM DCMT070204-MM 070208-MM 11T304-MM 11T308-MM 150404-MM 150408-MM		●	●	6.35	2.38	0.4	2.8	
			●	●	9.525	3.97	0.4	4.4	
			●	●	9.525	3.97	0.8	4.4	
 Light Cutting	NEW SCMT09T304-LM SCMT09T308-LM		●	●	9.525	3.97	0.4	4.4	
			●	●	9.525	3.97	0.8	4.4	

● : Inventory maintained in Japan.

Shape	Order Number	Stock			Dimensions (mm)				Geometry	
		ML7015	ML7025	MP7035	D1	S1	Re	D2		
 Medium Cutting	NEW MM		●	●	9.525	3.97	0.4	4.4		
		SCMT09T304-MM		●	●	9.525	3.97	0.8		4.4
		09T308-MM		●	●	12.7	4.76	0.4		5.5
		120404-MM		●	●	12.7	4.76	0.8		5.5
 Light Cutting	NEW LM		●	●	5.56	2.38	0.4	2.5		
		TCMT090204-LM		●	●	5.56	2.38	0.8		2.5
		090208-LM		●	●	6.35	2.38	0.4		2.8
		110204-LM		●	●	6.35	2.38	0.8		2.8
		110208-LM		●	●	9.525	3.97	0.4		4.4
		16T304-LM		●	●	9.525	3.97	0.8		4.4
 Medium Cutting	NEW MM		●	●	5.56	2.38	0.4	2.5		
		TCMT090204-MM		●	●	5.56	2.38	0.8		2.5
		090208-MM		●	●	6.35	2.38	0.4		2.8
		110204-MM		●	●	6.35	2.38	0.8		2.8
		110208-MM		●	●	7.94	3.18	0.4		3.4
		130304-MM		●	●	9.525	3.97	0.4		4.4
		16T304-MM		●	●	9.525	3.97	0.8		4.4
		16T308-MM		●	●	9.525	3.97	1.2		4.4
 Light Cutting	NEW LM		●	●	6.35	3.18	0.4	2.8		
		VCMT110304-LM		●	●	6.35	3.18	0.8		2.8
		110308-LM		●	●	9.525	4.76	0.4		4.4
		160404-LM		●	●	9.525	4.76	0.8		4.4
 Medium Cutting	NEW MM		●	●	9.525	4.76	0.4	4.4		
		VCMT160404-MM		●	●	9.525	4.76	0.8		4.4
		160408-MM		●	●	9.525	4.76	1.2		4.4
	160412-MM		●	●						

RECOMMENDED CUTTING CONDITIONS

Negative Inserts (External turning tools)

Work Material	Hardness	Cutting Conditions	Cutting Range	Breaker	Grade	Cutting Speed (m/min)	Feed Rate (mm/rev)	Depth of Cut (mm)
Austenitic Stainless Steel (SUS304, SUS316)	≤200HB	Stable Cutting	Light Cutting	LM	MC7015	180—285	0.10—0.30	0.30—2.00
			Medium Cutting	MM	MC7015	160—255	0.15—0.45	0.70—5.00
			Rough Cutting	RM	MC7015	155—245	0.25—0.55	1.50—6.00
		General Cutting	Light Cutting	LM	MC7025	160—215	0.10—0.30	0.30—2.00
			Medium Cutting	MM	MC7025	145—195	0.15—0.45	0.70—5.00
			Rough Cutting	RM	MC7025	140—185	0.25—0.55	1.50—6.00
		Unstable Cutting	Light Cutting	LM	MP7035	95—155	0.10—0.30	0.30—2.00
			Medium Cutting	MM	MP7035	85—140	0.15—0.45	0.70—5.00
			Rough Cutting	RM	MP7035	85—135	0.25—0.55	1.50—6.00
Austenitic Stainless Steel (SUS304LN, SUS316LN)	>200HB	Stable Cutting	Light Cutting	LM	MC7015	150—240	0.10—0.30	0.30—2.00
			Medium Cutting	MM	MC7015	135—215	0.15—0.45	0.70—5.00
			Rough Cutting	RM	MC7015	130—205	0.25—0.55	1.50—6.00
		General Cutting	Light Cutting	LM	MC7025	135—180	0.10—0.30	0.30—2.00
			Medium Cutting	MM	MC7025	125—165	0.15—0.45	0.70—5.00
			Rough Cutting	RM	MC7025	115—155	0.25—0.55	1.50—6.00
		Unstable Cutting	Light Cutting	LM	MP7035	80—130	0.10—0.30	0.30—2.00
			Medium Cutting	MM	MP7035	75—120	0.15—0.45	0.70—5.00
			Rough Cutting	RM	MP7035	70—115	0.25—0.55	1.50—6.00
Duplex Stainless Steel (SUS329J1)	≤280HB	Stable Cutting	Light Cutting	LM	MC7015	120—195	0.10—0.30	0.30—2.00
			Medium Cutting	MM	MC7015	110—175	0.15—0.45	0.70—5.00
			Rough Cutting	RM	MC7015	105—165	0.25—0.55	1.50—6.00
		General Cutting	Light Cutting	LM	MC7025	110—150	0.10—0.30	0.30—2.00
			Medium Cutting	MM	MC7025	100—135	0.15—0.45	0.70—5.00
			Rough Cutting	RM	MC7025	95—125	0.25—0.55	1.50—6.00
		Unstable Cutting	Light Cutting	LM	MP7035	65—105	0.10—0.30	0.30—2.00
			Medium Cutting	MM	MP7035	60—95	0.15—0.45	0.70—5.00
			Rough Cutting	RM	MP7035	55—90	0.25—0.55	1.50—6.00
Ferritic and Martensitic Stainless Steels (SUS410, SUS430)	≤200HB	Stable Cutting	Light Cutting	LM	MC7015	180—285	0.10—0.30	0.30—2.00
			Medium Cutting	MM	MC7015	160—255	0.15—0.45	0.70—5.00
			Rough Cutting	RM	MC7015	155—245	0.25—0.55	1.50—6.00
		General Cutting	Light Cutting	LM	MC7025	160—215	0.10—0.30	0.30—2.00
			Medium Cutting	MM	MC7025	145—195	0.15—0.45	0.70—5.00
			Rough Cutting	RM	MC7025	140—185	0.25—0.55	1.50—6.00
		Unstable Cutting	Light Cutting	LM	MP7035	95—155	0.10—0.30	0.30—2.00
			Medium Cutting	MM	MP7035	85—140	0.15—0.45	0.70—5.00
			Rough Cutting	RM	MP7035	85—135	0.25—0.55	1.50—6.00

Work Material	Hardness	Cutting Conditions	Cutting Range	Breaker	Grade	Cutting Speed (m/min)	Feed Rate (mm/rev)	Depth of Cut (mm)	
M Ferritic and Martensitic Stainless Steels (SUS431, SUS420J2)	>200HB	Stable Cutting	Light Cutting	LM	MC7015	150—240	0.10—0.30	0.30—2.00	
			Medium Cutting	MM	MC7015	135—215	0.15—0.45	0.70—5.00	
			Rough Cutting	RM	MC7015	130—205	0.25—0.55	1.50—6.00	
		General Cutting	Light Cutting	LM	MC7025	135—180	0.10—0.30	0.30—2.00	
			Medium Cutting	MM	MC7025	125—165	0.15—0.45	0.70—5.00	
			Rough Cutting	RM	MC7025	115—155	0.25—0.55	1.50—6.00	
		Unstable Cutting	Light Cutting	LM	MP7035	80—130	0.10—0.30	0.30—2.00	
			Medium Cutting	MM	MP7035	75—120	0.15—0.45	0.70—5.00	
			Rough Cutting	RM	MP7035	70—115	0.25—0.55	1.50—6.00	
	Hardened Stainless Steels (SUS630, SUS631)	<450HB	Stable Cutting	Light Cutting	LM	MC7015	100—160	0.10—0.30	0.30—2.00
				Medium Cutting	MM	MC7015	90—145	0.15—0.45	0.70—5.00
				Rough Cutting	RM	MC7015	85—135	0.25—0.55	1.50—6.00
General Cutting			Light Cutting	LM	MC7025	90—120	0.10—0.30	0.30—2.00	
			Medium Cutting	MM	MC7025	80—110	0.15—0.45	0.70—5.00	
			Rough Cutting	RM	MC7025	80—105	0.25—0.55	1.50—6.00	
Unstable Cutting			Light Cutting	LM	MP7035	55—85	0.10—0.30	0.30—2.00	
			Medium Cutting	MM	MP7035	50—80	0.15—0.45	0.70—5.00	
			Rough Cutting	RM	MP7035	45—75	0.25—0.55	1.50—6.00	

RECOMMENDED CUTTING CONDITIONS

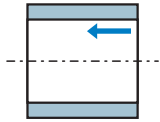
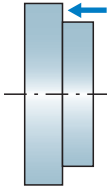
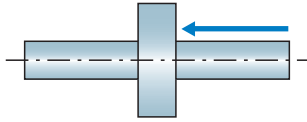






Positive Insert (External turning tools)

Work Material	Hardness	Cutting Conditions	Cutting Range	Breaker	Grade	Cutting Speed (m/min)	Feed Rate (mm/rev)	Depth of Cut (mm)		
Austenitic Stainless Steel (SUS304, SUS316)	≤200HB	Stable Cutting	Light Cutting	LM	MC7025	140—190	0.06—0.25	0.20—1.00		
			Medium Cutting	MM	MC7025	115—155	0.08—0.30	0.30—2.00		
		General Cutting	Light Cutting	LM	MC7025	140—190	0.06—0.25	0.20—1.00		
			Medium Cutting	MM	MC7025	115—155	0.08—0.30	0.30—2.00		
		Unstable Cutting	Light Cutting	LM	MP7035	85—135	0.06—0.25	0.20—1.00		
			Medium Cutting	MM	MP7035	70—115	0.08—0.30	0.30—2.00		
		Austenitic Stainless Steel (SUS304LN, SUS316LN)	>200HB	Stable Cutting	Light Cutting	LM	MC7025	120—160	0.06—0.25	0.20—1.00
					Medium Cutting	MM	MC7025	100—130	0.08—0.30	0.30—2.00
General Cutting	Light Cutting			LM	MC7025	120—160	0.06—0.25	0.20—1.00		
	Medium Cutting			MM	MC7025	100—130	0.08—0.30	0.30—2.00		
Unstable Cutting	Light Cutting			LM	MP7035	70—115	0.06—0.25	0.20—1.00		
	Medium Cutting			MM	MP7035	60—95	0.08—0.30	0.30—2.00		
Duplex Stainless Steel (SUS329J1)	≤280HB			Stable Cutting	Light Cutting	LM	MC7025	95—130	0.06—0.25	0.20—1.00
					Medium Cutting	MM	MC7025	80—105	0.08—0.30	0.30—2.00
		General Cutting	Light Cutting	LM	MC7025	95—130	0.06—0.25	0.20—1.00		
			Medium Cutting	MM	MC7025	80—105	0.08—0.30	0.30—2.00		
		Unstable Cutting	Light Cutting	LM	MP7035	55—95	0.06—0.25	0.20—1.00		
			Medium Cutting	MM	MP7035	45—75	0.08—0.30	0.30—2.00		
		Ferritic and Martensitic Stainless Steels (SUS410, SUS430)	≤200HB	Stable Cutting	Light Cutting	LM	MC7025	140—190	0.06—0.25	0.20—1.00
					Medium Cutting	MM	MC7025	115—155	0.08—0.30	0.30—2.00
General Cutting	Light Cutting			LM	MC7025	140—190	0.06—0.25	0.20—1.00		
	Medium Cutting			MM	MC7025	115—155	0.08—0.30	0.30—2.00		
Unstable Cutting	Light Cutting			LM	MP7035	85—135	0.06—0.25	0.20—1.00		
	Medium Cutting			MM	MP7035	70—115	0.08—0.30	0.30—2.00		
Ferritic and Martensitic Stainless Steels (SUS431, SUS420J2)	>200HB			Stable Cutting	Light Cutting	LM	MC7025	120—160	0.06—0.25	0.20—1.00
					Medium Cutting	MM	MC7025	100—130	0.08—0.30	0.30—2.00
		General Cutting	Light Cutting	LM	MC7025	120—160	0.06—0.25	0.20—1.00		
			Medium Cutting	MM	MC7025	100—130	0.08—0.30	0.30—2.00		
		Unstable Cutting	Light Cutting	LM	MP7035	70—115	0.06—0.25	0.20—1.00		
			Medium Cutting	MM	MP7035	60—95	0.08—0.30	0.30—2.00		
		Hardened Stainless Steel (SUS630, SUS631)	<450HB	Stable Cutting	Light Cutting	LM	MC7025	80—105	0.06—0.25	0.20—1.00
					Medium Cutting	MM	MC7025	65—90	0.08—0.30	0.30—2.00
General Cutting	Light Cutting			LM	MC7025	80—105	0.06—0.25	0.20—1.00		
	Medium Cutting			MM	MC7025	65—90	0.08—0.30	0.30—2.00		
Unstable Cutting	Light Cutting			LM	MP7035	45—75	0.06—0.25	0.20—1.00		
	Medium Cutting			MM	MP7035	40—65	0.08—0.30	0.30—2.00		

*Recommended cutting conditions for 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		WNMG080408-MM	CNMG160612-RM	CNMG120408-MM
Work Piece		SCS13 (Stainless Cast Steel) 	SUS329J3L 	SUS321 
	Cutting Conditions			
	Cutting Speed (m/min)	145	50	220
	Feed Rate (mm/rev)	0.13	0.45	0.28
	Depth of Cut (mm)	2.0	4.0	1.6
	Coolant	Wet	Wet	Wet
Results		Competitor's MC7025  5 pieces machined 10 pieces machined	Competitor's MC7025  8 pieces machined 8 pieces machined	Competitor's MC7015  4 pieces machined 8 pieces machined
	Cutting Conditions			
	Cutting Speed (m/min)	70	122	80
	Feed Rate (mm/rev)	0.2	0.3	0.1
	Depth of Cut (mm)	1.1	2.2	2
	Coolant	Wet	Wet	Wet
Results		Competitor's MC7025  12 pieces machined 15 pieces machined	Competitor's MC7015  60 pieces machined 60 pieces machined	Competitor's MP7035  5 pieces machined 5 pieces machined
	Cutting Conditions			

For Your Safety

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

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(Tools specifications subject to change without notice.)