Applicable for Midum to Fine Machining on Materials Alloy , Carbon steel..etc materials.
Advantage: Excellent Performance, Low down cutting resistance a lot, improve quality of processed surface a lot.

M-Series
【Moulded Inserts】

1 Grade description

MC2010

Applicable Material
Carbon steel, Alloy, Stainless steel, Aluminum alloy etc. (Hardness below HRC40)

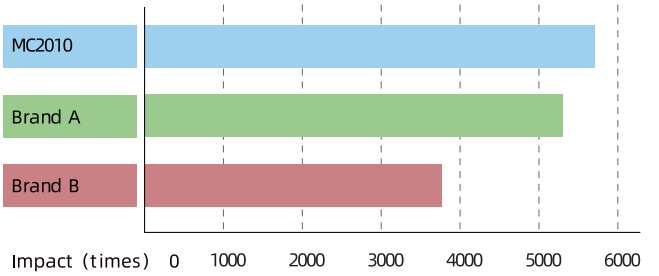
Application
General grade, Medium to Fine machining on Turning, Milling, Grooving.

Advantage:
Tiny-grain size, High wear risistance, High-finish surface, High cutting efficiency .

Density (g/cm³)	6.77	Hardness (HRA)	92.5
Bending (MPa)	≥1800	Toughness (MPa*m$^{1/2}$)	8.2

Fantastic Anti collapse performance

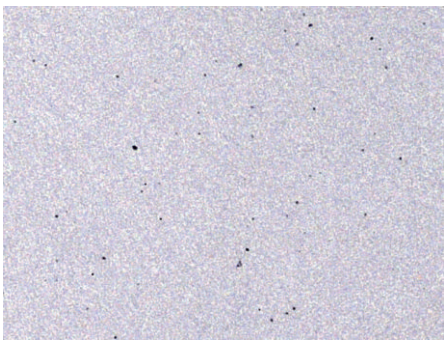
Collapse & Damage comparison Avarage value in 5 times (Internal test)



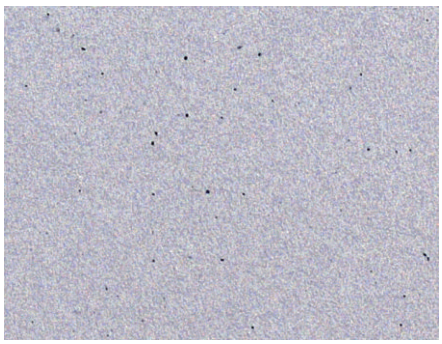
parameter: Vc=200m/min, ap=1.5mm, Feed=0.2mm/rev

Wet processing, Workpiece: 45#
(Interrupting cutting, 4 groove)

MC2010 Metallographic structure



Brand A Metallographic structure



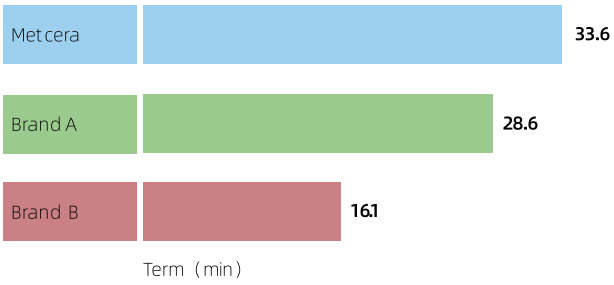
Brand B Metallographic structure

High compactness of base material, internal crack reduced a lot while prcessing, Strength higher, Better impact resistance. Applicable in Interupting or larger depth machining

Composite metal cohering metallography(Cobalt, Nickel) to guarantee fantastic bonding strength of coating.
Advantage: high Internal resilience, High collapse resistance, good heat resistance, tool tenacity and wear resistance in high temperature improved .

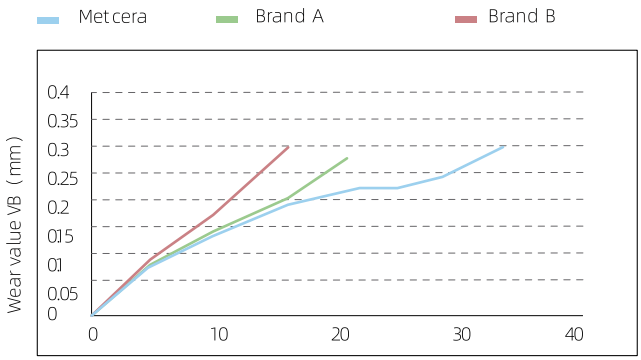
Tool life comparison

Average value of 5 times （Internal test ）



Wear resistance comparison

Average value of 5 times （Internal test ）

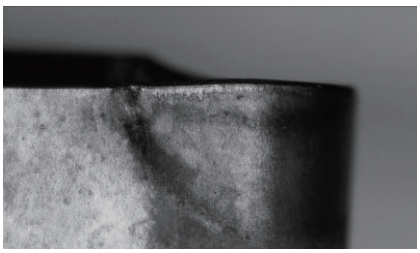


Parameter： Vc=280m/min，AP=1.5mm，f=0.2mm/rev，wet processing　　Workpiece： 42CrMo

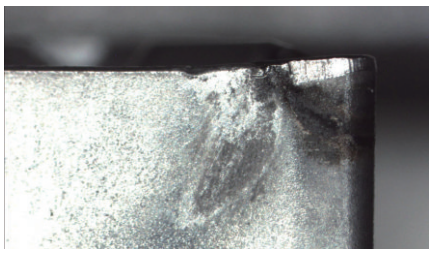
Tool tip wear resistance comparison

Average value of 5 times （Internal test ）

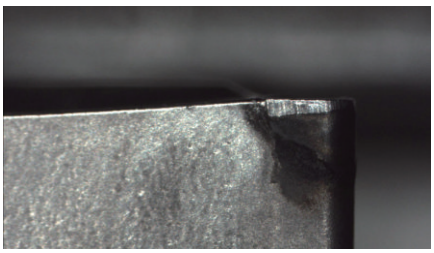
Metcera



Brand A



Brand B



PV2110

NANO涂层

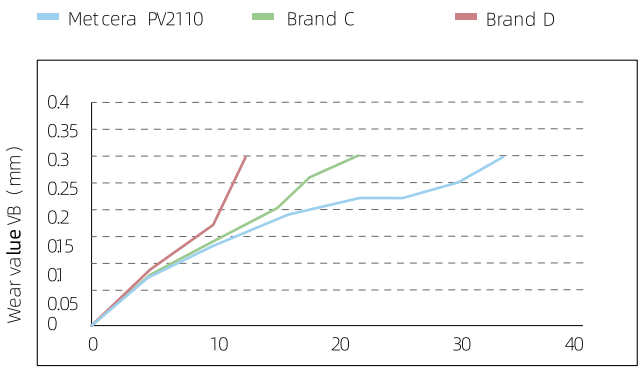
High-performance NANO-Coating，Additional composite coating TiN on surface，Stickingless，Appearance golden, Distinguish used tips easily.

Special PVD coating materials fantasticly combines with Tool base material, Priority recommendation grade on Steel high speed machining in company internal producing, Matching to be Good wear resistance and high toughness.

Density（g/cm ^{3}）	6.77	Hardness（HRA）	92.5
Bending（MPa）	≥1800	Breakage（MPa*m$^{1/2}$）	8.2

Wear resistance comparison

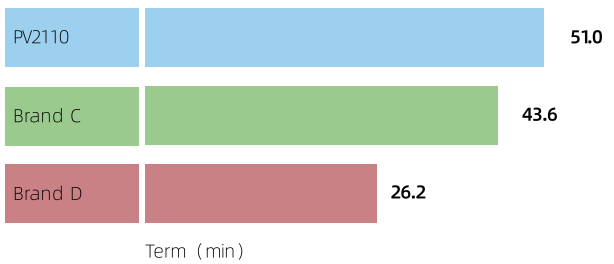
Average value of 5 times （Internal test ）



Parameter: Vc=320m/min,AP=1 .5mm，f=0.2mm/rev，wet processing, Workpiece ：42CrMo

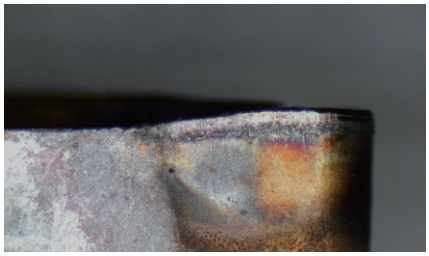
Tool tip wear resistance comparison

Average value of 5 times （Internal test ）

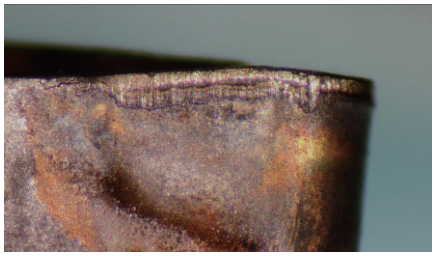


Tool tip wear resistance comparison (Photo show)

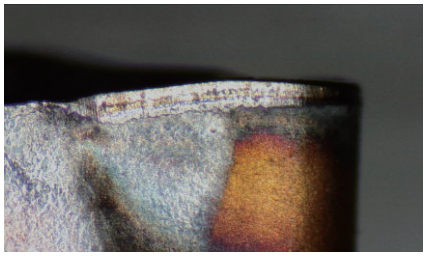
PV2110



Brand C



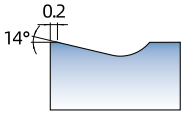
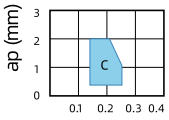
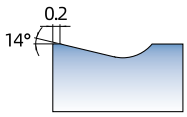
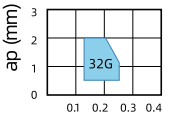
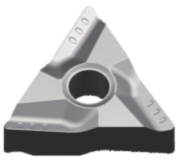
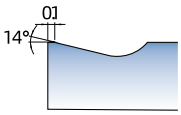
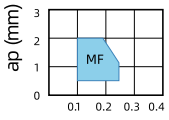
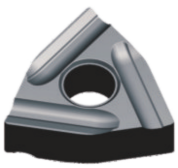
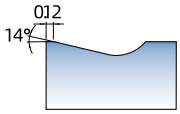
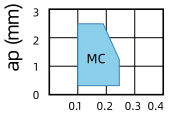
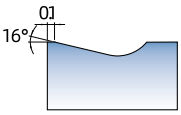
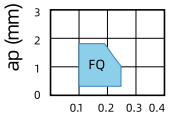
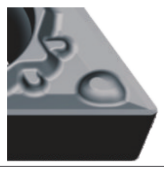
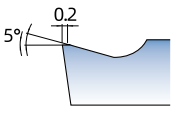
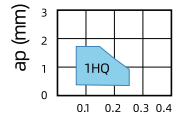
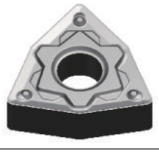
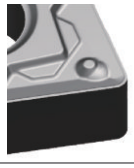
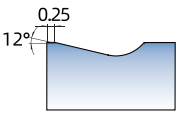
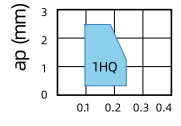
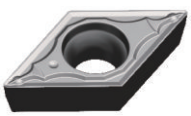
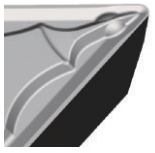
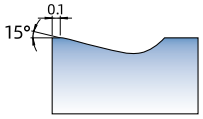
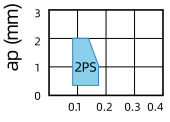
Brand D

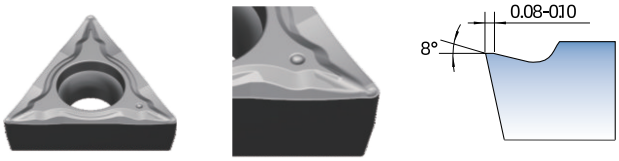
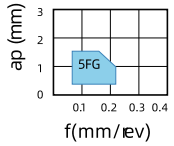
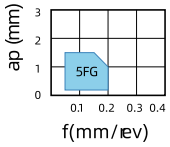
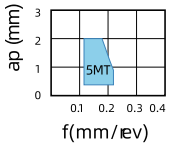
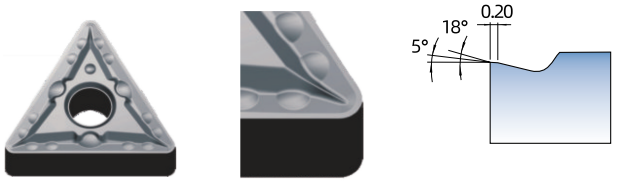
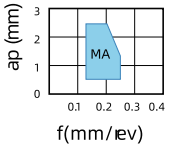
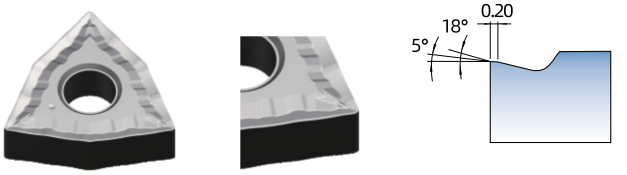
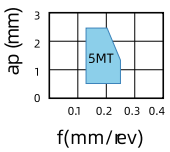
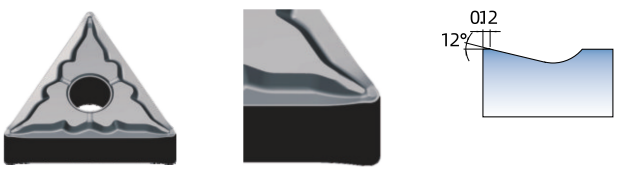
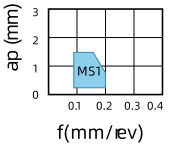
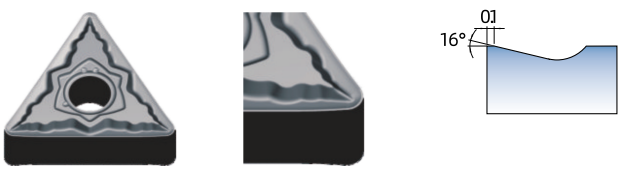
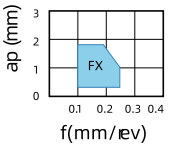
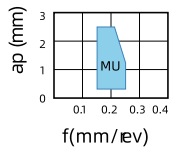
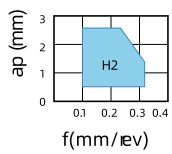


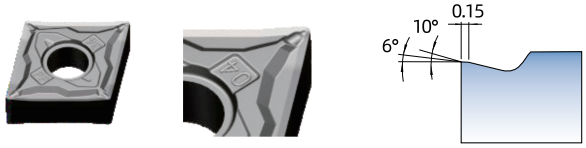
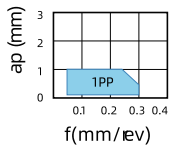
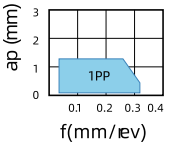
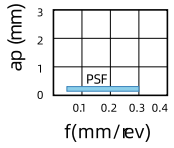
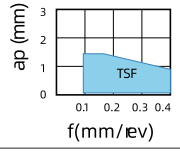
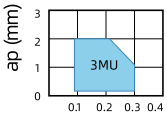
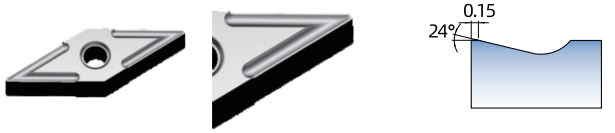
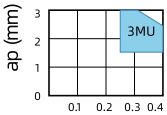
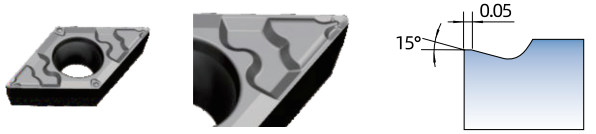
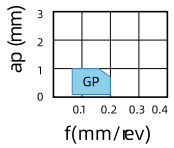
2 Chipbreaker Description

Variety of chipbreaker types for your selection

N=negative P=positive

Application	Type	Breaker name	Breaker geometry & Profile	Feature	Recommended parameter
Simi-Fine Fine	N	C	  	Ageneralchipbreaker appliedtoordinary cuttingmode.	Carbon Steel & Alloy  f(mm/rev)
Simi-Fine	N	32G	  	Moulded Double-sided breaker Excellent cutting edge strength and chip evacuation performance. Suitable for semi-finishing applications.	Carbon Steel & Alloy  f(mm/rev)
Simi-Fine Fine	N	MF (5VF)	  	Suitable for slender workpiece machining ,the large rake angle reduces cutting fore.	Carbon Steel & Alloy  f(mm/rev)
		MC (5FS)	  	Suitable for machining carbon steel or alloy steel under HRC40 and oxide scale under HRC30.	Carbon Steel & Alloy  f(mm/rev)
Simi-Fine	N	FQ	  	Suitable for machining carbon steel or alloy steel under HRC40	Carbon Steel & Alloy  f(mm/rev)
Simi-Fine Fine	P	1HQ	  	Suitable for low cutting dep th applications,workpiece li ke carbon steel or alloy stee l under HRC40.	Carbon Steel & Alloy  f(mm/rev)
Simi-Fine	N	HS	  	Suitable for machining carbon steel or alloy steel under HRC 40 and oxide scale under HRC30.	Carbon Steel & Alloy  f(mm/rev)
Simi-Fine	P	2PS	  	Excellent chip evacuation performance and low cutting force.Suitable for boring machining.	Carbon Steel & Alloy  f(mm/rev)

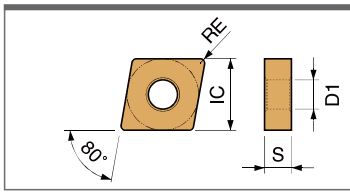
Application	Type	Breaker name	Breaker geometry & Profile	Feature	Recommended parameter
Simi-Fine Fine	P	5FG		Excellent chip evacuation p erformance.Suitable for ma chining carbon steel or alloy steel under HRC40	Carbon Steel & Alloy 
	N			Suitable for machining carbon steel or alloy steel under HRC40. Recommended touse under stable cutting conditions.	Carbon Steel & Alloy 
Simi-Fine	P	5MT		For semi-fnishing and roughing applications.Like carbon steel or alloy steel under HRC40 and oxide scale underHRC30.	Carbon Steel & Alloy 
	N	MA		For semi-fnishing and roughing applications.Like carbon steel or alloy steel underHRC40 and oxide scale under HRC30.	Carbon Steel & Alloy 
	N	5MT		For semi-fnishing and roughing applications.Like carbon steel or alloy steel underHRC40 and oxide scale under HRC30.	Carbon Steel & Alloy 
Simi-Fine Fine	N	MS1 (TS)		Moulded Double-sided breaker For finishing and semi-finishing applications. Like carbon steel or alloy steel under HRC40	Carbon Steel & Alloy 
		FX		Low cutting force for finishing and semi-finishing applications.Like carbon steel or alloy steel under HRC40	Carbon Steel & Alloy 
Simi-Fine	N	MU		Suitable for sheet metal roughing machining and carbon steel or alloy steel under HRC40.	Carbon Steel & Alloy 
Simi-Fine Fine	P	H2		Cutting edge strengthened milling inserts, used for side wall machining.	Carbon Steel & Alloy 

Application	Type	Breaker name	Breaker geometry & Profile	Feature	Recommended parameter
Fine	N	1PP		First choice for Fine machining. Stable cutting while large feed application. High stability with both fantastic performance under strong strength.	Carbon Steel & Alloy 
	P			The 3-stage-bump guarantee stable chip-breaking in a large feed range. The rake of breaker reduce the resistance a lot.	Carbon Steel & Alloy 
Simi-Fine Fine	P	PSF		Suitable for low cutting force and high wear resistance. First choice for Fine machining. Pre vent chip entanglement while the inner-hole processing by this breaker.	Carbon Steel & Alloy 
Simi-Fine Fine	N	TSF		First choice for P-material (Steel) cutting Sharp edge and bump nearby tip leading fantastic chip breaking.	Carbon Steel & Alloy 
Simi-Fine Fine	P	3MU		Suitable for sheet metal roughing machining and carbon steel or alloy steel under HRC40.	Carbon Steel & Alloy 
	N			First choice for Cast iron Machining Moulded Double-sided breaker. High flat blade band edge strength, General circumference breaker	Carbon Steel & Alloy 
Fine	P	GP		New present breaker with fantastic cutting performance	Carbon Steel & Alloy 

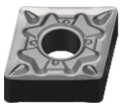
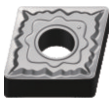
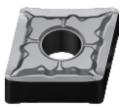
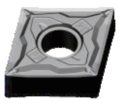
3 Products Model

Moulded series products

Negative-(Semi-)Moulded Series

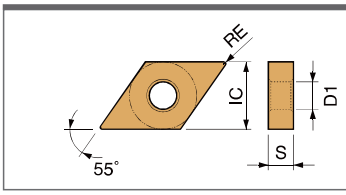


Example Model	IC	S	D1
CN_1204_	12.70	4.76	5.16

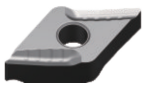
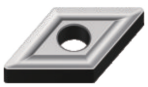
Appearance	Part No.	Re	Cermet Grade						Carbide Grade					
			MC1020	MC2010	MC3015	PV1120	PV2110	PV3115	PV4112	PV4212	PV4312	PV8110	PV8210	PV8310
	CNMG120404-FQ	0.4		●	●		●	●	●	●	●	●	●	●
	CNMG120408-FQ	0.8		●	●		●	●	●	●	●	●	●	●
	CNMG120404-FX	0.4		●	●		●	●	●	●	●	●	●	●
	CNMG120408-FX	0.8		●	●		●	●	●	●	●	●	●	●
	CNMG120404-MS1	0.4		●	●		●	●	●	●	●	●	●	●
	CNMG120408-MS1	0.8		●	●		●	●	●	●	●	●	●	●
	CNMG120404-MU	0.4		●	●		●	●	●	●	●	●	●	●
	CNMG120408-MU	0.8		●	●		●	●	●	●	●	●	●	●
	CNMG120402-1PP	0.2		●	●		●	●	●	●	●	●	●	●
	CNMG120404-1PP	0.4		●	●		●	●	●	●	●	●	●	●

3 Products Model

Negative-(Semi-)Moulded Series



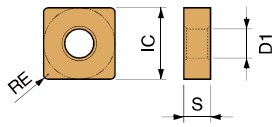
Example Model	IC	S	D1
DN_1504_	12.70	4.76	5.16
DN_1506_	12.70	6.35	5.16

Appearance	Part No.	Re	Cermet Grade						Carbide Grade					
			MC1020	MC2010	MC3015	PV1120	PV2110	PV3115	PV4112	PV4212	PV4312	PV8110	PV8210	PV8310
	DNMG150404-FQ	0.4		●	●		●	●	●	●	●	●	●	●
	DNMG150408-FQ	0.8		●	●		●	●	●	●	●	●	●	●
	DNMG150604-FQ	0.4		●	●		●	●	●	●	●	●	●	●
	DNMG150608-FQ	0.8		●	●		●	●	●	●	●	●	●	●
	DNMG150404R/L-MF	0.4		●	●		●	●	●	●	●	●	●	●
	DNMG150404-MU	0.4		●	●		●	●	●	●	●	●	●	●
	DNMG150408-MU	0.8		●	●		●	●	●	●	●	●	●	●
	DNMG150604-MU	0.4		●	●		●	●	●	●	●	●	●	●
	DNMG150608-MU	0.8		●	●		●	●	●	●	●	●	●	●

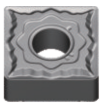
3 Products Model

Moulded series products

Negative-(Semi-)Moulded Series



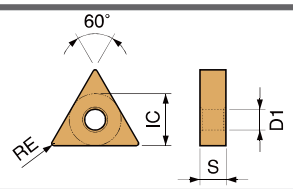
Example Model	IC	S	D1
SN_1204_	12.70	4.76	5.16

Appearance	Part No.	Re	Cermet Grade						Carbide Grade					
			MC1020	MC2010	MC3015	PV1120	PV2110	PV3115	PV4112	PV4212	PV4312	PV8110	PV8210	PV8310
	SNMG120404-FQ	0.4		●	●		●	●	●	●	●	●	●	●
	SNMG120408-FQ	0.8		●	●		●	●	●	●	●	●	●	●
	SNMG120404-FX	0.4		●	●		●	●	●	●	●	●	●	●
	SNMG120408-FX	0.8		●	●		●	●	●	●	●	●	●	●
	SNMG120404-5MT	0.4		●	●		●	●	●	●	●	●	●	●
	SNMG120408-5MT	0.8		●	●		●	●	●	●	●	●	●	●
	SNMG120408-MA	0.8		●	●		●	●	●	●	●	●	●	●

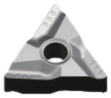
3 Products Model

Moulded series products

Negative-(Semi-)Moulded Series

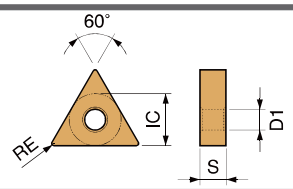


Example Model	IC	S	D1
TN_1604_	9.525	4.76	3.81

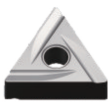
Appearance	Part No.	Re	Cermet Grade						Carbide Grade					
			MC1020	MC2010	MC3015	PV1120	PV2110	PV3115	PV4112	PV4212	PV4312	PV8110	PV8210	PV8310
	TNMG160404-FQ	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408-FQ	0.8		●	●		●	●	●	●	●	●	●	●
	TNMG160404-FX	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408-FX	0.8		●	●		●	●	●	●	●	●	●	●
	TNMG160404R/L-MF	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408R/L-MF	0.8		●	●		●	●	●	●	●	●	●	●
	TNMG160404R/L-5VF	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408R/L-5VF	0.8		●	●		●	●	●	●	●	●	●	●
	TNMG160404R-MC1	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408R-MC1	0.8		●	●		●	●	●	●	●	●	●	●
	TNMG160404-5MT	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160404-MA	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408-MA	0.8		●	●		●	●	●	●	●	●	●	●
	TNMG160404-5FG	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408-5FG	0.8		●	●		●	●	●	●	●	●	●	●
	TNMG160404R/L-5FS	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408R/L-5FS	0.8		●	●		●	●	●	●	●	●	●	●
	TNMG160404-MS1	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408-MS1	0.8		●	●		●	●	●	●	●	●	●	●

3 Products Model

Negative-(Semi-)Moulded Series

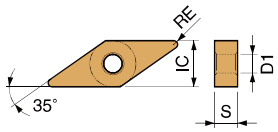


Example Model	IC	S	D1
TN_1604_	9.525	4.76	3.81

Appearance	Part No.	Re	Cermet Grade						Carbide Grade					
			MC1020	MC2010	MC3015	PV1120	PV2110	PV3115	PV4112	PV4212	PV4312	PV8110	PV8210	PV8310
	TNMG160404-2TS	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408-2TS	0.8		●	●		●	●	●	●	●	●	●	●
	TNMG160404R/L-MC	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408R/L-MC	0.8		●	●		●	●	●	●	●	●	●	●
	TNMG160404-MU	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408-MU	0.8		●	●		●	●	●	●	●	●	●	●
	TNMG160402R/L-C	0.2		●			●		●	●	●	●	●	●
	TNMG160404R/L-C	0.4		●			●		●	●	●	●	●	●
	TNMG160408R/L-C	0.8		●			●		●	●	●	●	●	●
	TNMG160404R/L-32G	0.4		●			●		●	●	●	●	●	●
	TNMG160408R/L-32G	0.8		●			●		●	●	●	●	●	●
	TNMG160404-TSF	0.4		●	●		●	●	●	●	●	●	●	●
	TNMG160408-TSF	0.8		●	●		●	●	●	●	●	●	●	●

3 Products Model

Negative-(Semi-)Moulded Series



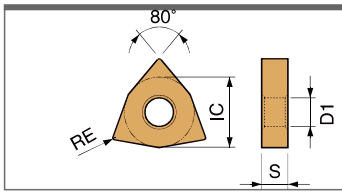
Example Model	IC	S	D1
VN_1604_	9.525	4.76	3.81

Appearance	Part No.	Re	Cermet Grade						Carbide Grade					
			MC1020	MC2010	MC3015	PV1120	PV2110	PV3115	PV4112	PV4212	PV4312	PV8110	PV8210	PV8310
	VNMG160404-FQ	0.4		●	●		●	●	●	●	●	●	●	●
	VNMG160408-FQ	0.8		●	●		●	●	●	●	●	●	●	●
	VNMG160404-5MT	0.4		●	●		●	●	●	●	●	●	●	●
	VNMG160408-MA	0.8		●	●		●	●	●	●	●	●	●	●
	VNMG160404-MU	0.4		●	●		●	●	●	●	●	●	●	●
	VNMG160408-MU	0.8		●	●		●	●	●	●	●	●	●	●
	VNMG160404-3MU	0.4		●	●		●	●	●	●	●	●	●	●
	VNMG160408-3MU	0.8		●	●		●	●	●	●	●	●	●	●
	VNMG160404-TSF	0.4		●	●		●	●	●	●	●	●	●	●
	VNMG160408-TSF	0.8		●	●		●	●	●	●	●	●	●	●

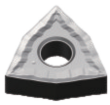
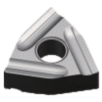
3 Products Model

Moulded series products

Negative-(Semi-)Moulded Series



Example Model	IC	S	D1
WN_0604_	9.525	4.76	3.81
WN_0804_	12.70	4.76	5.16

Appearance	Part No.	Re	Cermet Grade						Carbide Grade					
			MC1020	MC2010	MC3015	PV1120	PV2110	PV3115	PV4112	PV4212	PV4312	PV8110	PV8210	PV8310
	WNMG080404-FQ	0.4		●	●		●	●	●	●	●	●	●	●
	WNMG080408-FQ	0.8		●	●		●	●	●	●	●	●	●	●
	WNMG080412-FQ	1.2		●	●		●	●	●	●	●	●	●	●
	WNMG080404-FX	0.4		●	●		●	●	●	●	●	●	●	●
	WNMG080408-FX	0.8		●	●		●	●	●	●	●	●	●	●
	WNMG080404-HS	0.4		●	●		●	●	●	●	●	●	●	●
	WNMG080408-HS	0.8		●	●		●	●	●	●	●	●	●	●
	WNMG080404-5MT	0.4		●	●		●	●	●	●	●	●	●	●
	WNMG080408-5MT	0.8		●	●		●	●	●	●	●	●	●	●
	WNMG060404-5FG	0.4		●	●		●	●	●	●	●	●	●	●
	WNMG080404-5FG	0.4		●	●		●	●	●	●	●	●	●	●
	WNMG080408-5FG	0.8		●	●		●	●	●	●	●	●	●	●
	WNMG080404-MS1	0.4		●	●		●	●	●	●	●	●	●	●
	WNMG080408-MS1	0.8		●	●		●	●	●	●	●	●	●	●
	WNMG080404-2TS	0.4		●	●		●	●	●	●	●	●	●	●
	WNMG080408-2TS	0.8		●	●		●	●	●	●	●	●	●	●
	WNMG080404R/L-MC	0.4		●	●		●	●	●	●	●	●	●	●
	WNMG080408R/L-MC	0.8		●	●		●	●	●	●	●	●	●	●
	WNMG080404-MU	0.4		●	●		●	●	●	●	●	●	●	●
	WNMG080408-MU	0.8		●	●		●	●	●	●	●	●	●	●
	WNMG080404-TSF	0.4		●	●		●	●	●	●	●	●	●	●
	WNMG080408-TSF	0.8		●	●		●	●	●	●	●	●	●	●