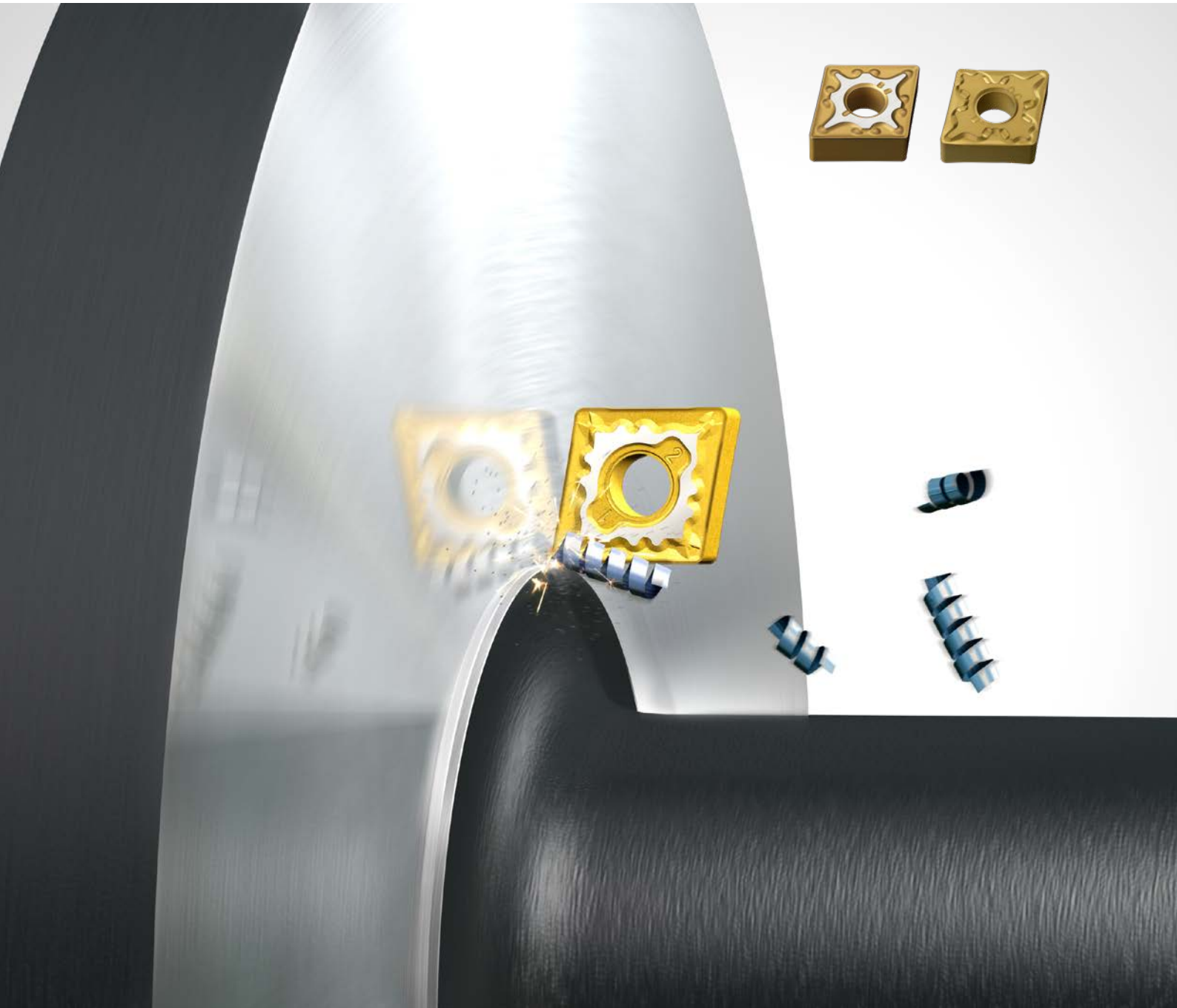

MC6100 SERIES

BRINGING THE ULTIMATE HIGH SPEED CUTTING
PERFORMANCE



MC6100 SERIES

CVD COATED GRADE FOR STEEL TURNING

Dramatic increase in stability and wear resistance, enabled by utilising the improved coating adhesion and crystal orientation technology.

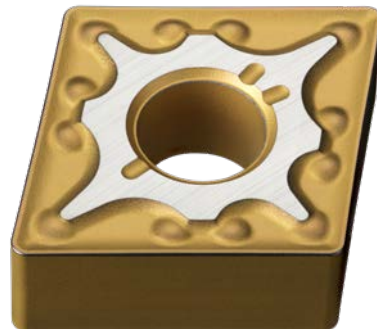
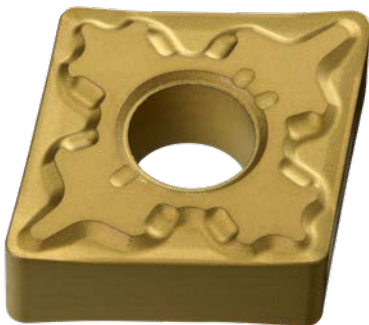
MC6115

For High Speed Turning

NEW

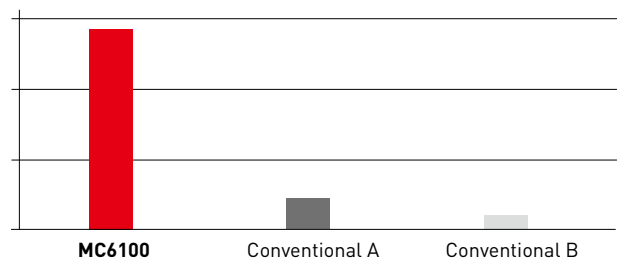
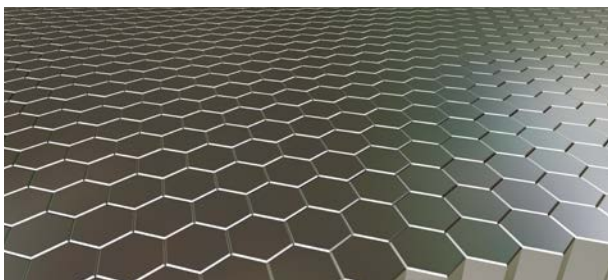
MC6125

First Recommendation



"SUPER" NANO TEXTURE TECHNOLOGY

The standard Nano Texture Technology has been improved and developed to be an industry leading standard for crystal growth of Al_2O_3 coatings. This Super Nano Texture Technology increases tool life and wear resistance due to the fine, dense crystal growth process.



CRYSTAL ORIENTATION

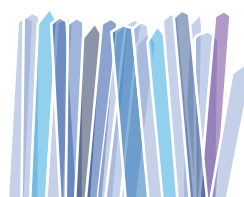
(Image)

The ratio of Al_2O_3 crystal grains with the same orientation



Conventional CVD inserts

Grain size and growth direction are uneven.



Nano Texture

Uniformity of the grain size and growth direction has improved.



„Super“ Nano Texture

Uniformity of the growth direction has drastically improved.

MC6100 SERIES

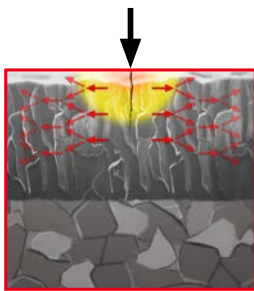
PROTECTION AGAINST SUDDEN FRACTURING

STRENGTHENED CHIPPING RESISTANCE

Cracks that occur during unstable machining are prevented due to the relaxing of the tensile stress in the coating. MC6100 series has an 80 % reduction in coating tensile stress compared to conventional CVD inserts.

RELAXING THE TENSILE STRESS

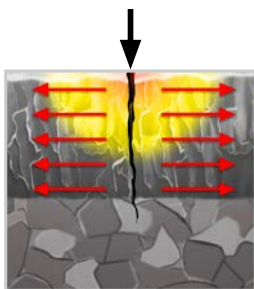
Impact stress during machining



Reduced
Tensile
Stress

MC6100 series has a much lower level of stress than conventional CVD coatings due to the surface treatment. This divides the force of impacts during machining and protects from sudden fracturing.

MC6100 Series



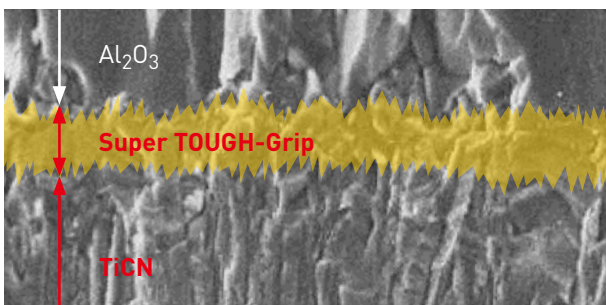
Large
tensile
stress

Cracks are generated in the surface of coatings during machining. They propagate through the coating into the substrate due to the large tensile stress in the coating structure. This creates one of the main causes of sudden insert breakage.

Conventional CVD inserts

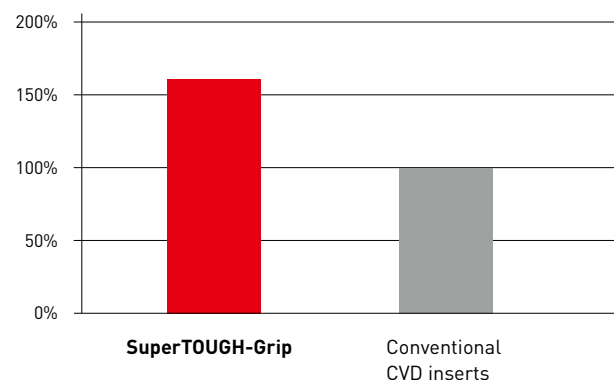
SUPER TOUGH-GRIP

The Super TOUGH-Grip layer has finer crystal grains that enhance the strength of the adhesion between the coating layers.



(Image)

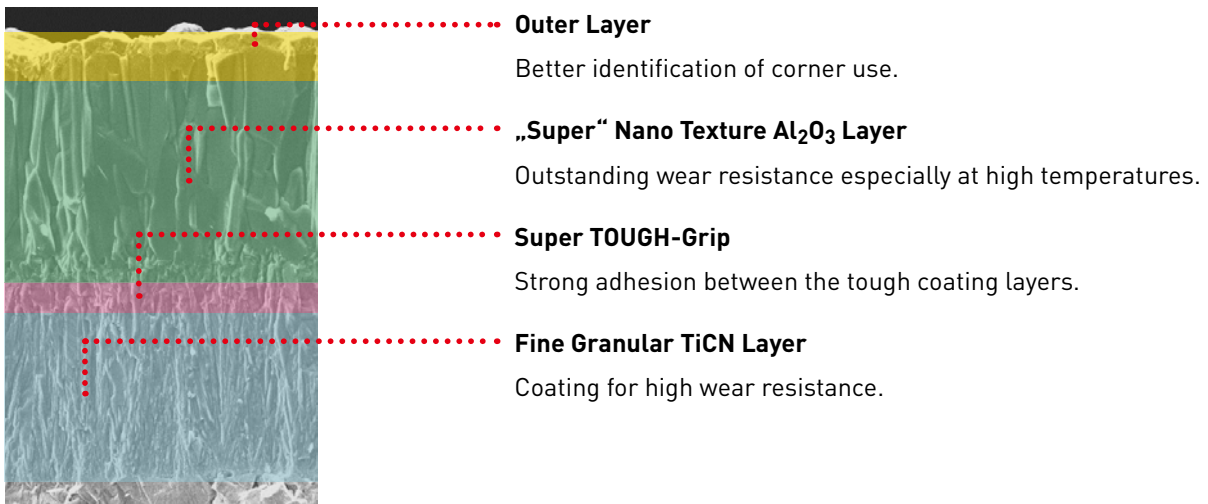
Adhesion Strength Evaluation*



*Adhesion strength measurement is obtained from a scratch test that records the force needed to peel the coating layers.

MC6115

MC6115 IMPROVES HIGH SPEED MACHINING AND PROCESS EFFICIENCY WITH A DRAMATIC INCREASE IN RESISTANCE TO WEAR AND HEAT



IMPROVED OUTER COATING (LAYER)

The outer layer of MC6115 restricts chip welding thereby improving the dimensional accuracy and surface roughness of components. This also enables easy recognition of whether the corner can continue machining.

EXAMPLE WHEN MACHINING DIN 20MNCr5

MACHINING S45C : COMPARISON OF WEAR RESISTANCE

Material	DIN 20MnCr5 170HB
Insert	CNMG120408-MH
Vc (m/min)	200
f (mm/rev)	0.3
ap (mm)	1.5
Cutting mode	Dry cutting

Results

When comparing the high edge strength MH breaker with a conventional low resistance chip breaker, it shows that MC6115 accomplishes both high welding and wear resistance.

AFTER 2 MINUTES OF MACHINING CHROME STEEL



**MC6115
MH Breaker**

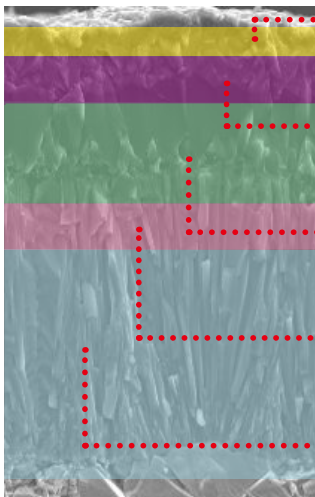


Conventional CVD insert

NEW

MC6125

FIRST RECOMMENDED GRADE FOR STEEL TURNING
INCREASING TOOL LIFE WITH STABLE PERFORMANCE
OVER A WIDER RANGE OF APPLICATIONS



Outer Layer

Better identification of corner use.

Multiple Layers of Ti compounds and an Al₂O₃ Layer

Achieves excellent wear resistance

„Super“ Nano Texture Al₂O₃ Layer

Outstanding wear resistance especially at high temperatures.

Super TOUGH-Grip

Strong adhesion between the tough coating layers.

Fine Granular TiCN Layer

Coating for high wear resistance.

SPECIAL SMOOTH SURFACE TREATMENT

MC6125 uses a new surface treatment at cutting edge for increased stability. Additionally the single layer are made with special smooth preparation that provides improved adhesion to enable a wider range of application.

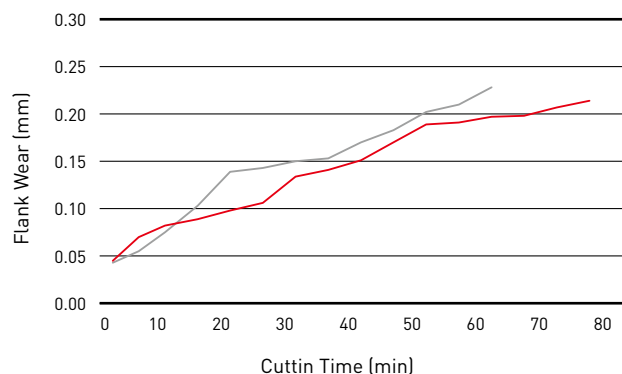
EXAMPLE WHEN MACHINING C45

MACHINING S45C : COMPARISON OF WEAR RESISTANCE

Material	C45
Insert	CNMG120408-MH
Vc (m/min)	200
f (mm/rev)	0.3
ap (mm)	1.5
Cutting mode	Wet cutting

Results



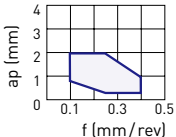
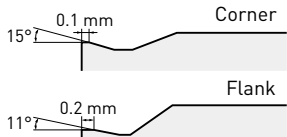

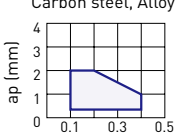
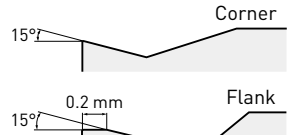

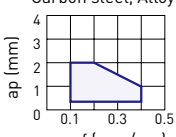

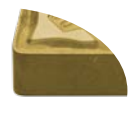
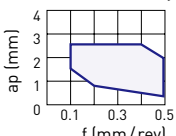
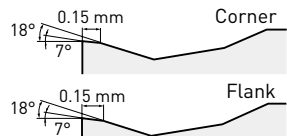
The surface treatment has improved stability and provided longer tool life.

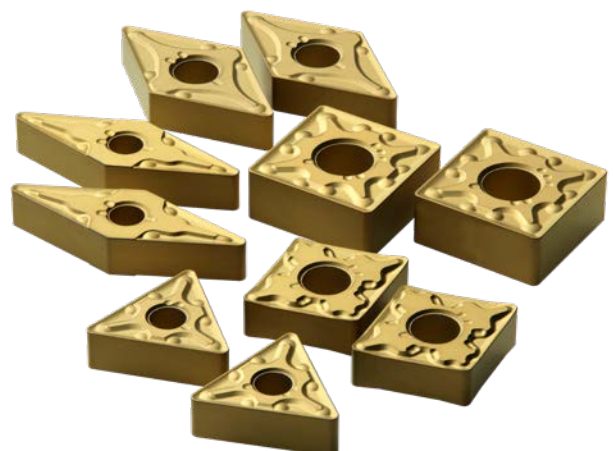
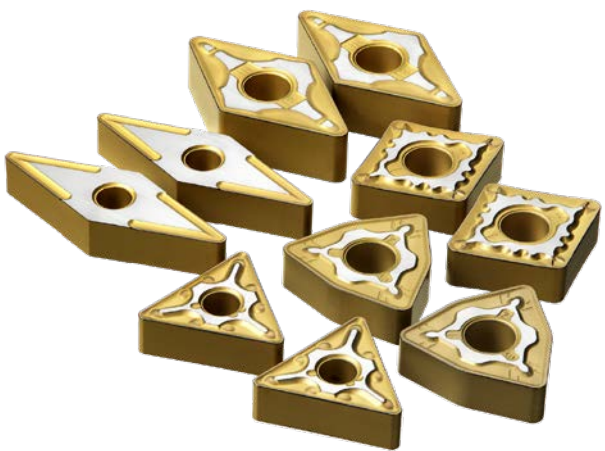


MC6100 SERIES

CHIPBREAKER SYSTEM FOR STEEL TURNING

NEGATIVE INSERTS


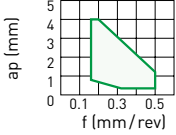
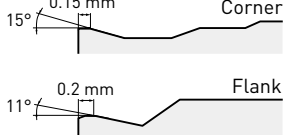

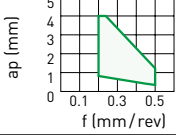
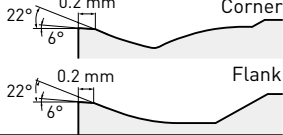

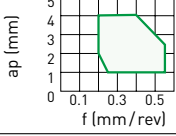
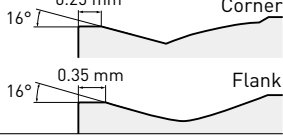

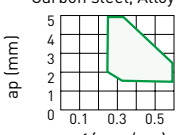
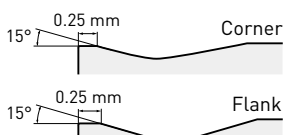

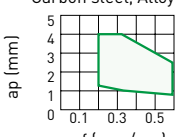
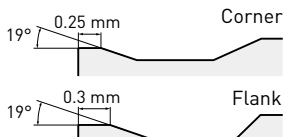

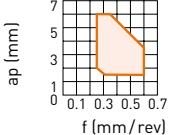
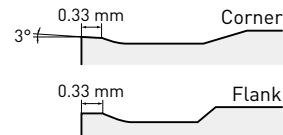

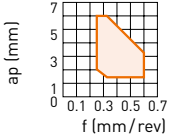
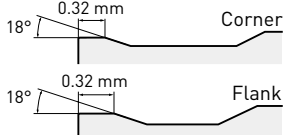
Tolerance	 Features	Cross section geometry	
M	LIGHT CUTTING		
	 LP	<p>FIRST RECOMMENDATION FOR LIGHT CUTTING OF CARBON STEEL AND ALLOY STEEL</p> <p>Stable chip control in the light cutting range. The curved edge allows smooth chip discharge.</p>	<p>Carbon steel, Alloy steel</p>  
	 SH	<p>ALTERNATIVE CHIPBREAKER FOR LIGHT CUTTING OF CARBON STEEL AND ALLOY STEEL</p> <p>Can be used at low depth of cuts and high feed rates. The curved edge allows smooth chip discharge. Recommended for workpieces in the 160-250HB range.</p>	<p>Carbon steel, Alloy steel</p>  
	 SA	<p>ALTERNATIVE CHIPBREAKER FOR LIGHT CUTTING OF CARBON STEEL AND ALLOY STEEL</p> <p>Superior chip control at small depths of cuts. Covers copying and back turning with a wavy edge. Recommended for workpieces in the 200-300HB range.</p>	<p>Carbon steel, Alloy steel</p>  
	 SW	<p>WIPER INSERT FOR LIGHT CUTTING OF CARBON STEEL, ALLOY STEEL, STAINLESS STEEL AND CAST IRON</p> <p>In comparison to conventional chipbreakers, the surface finish is maintained even if the feed per revolution is doubled. Wiper design for increased productivity and improved surface finishes.</p>	<p>Carbon steel, Alloy steel</p>  



MC6100 SERIES

CHIPBREAKER SYSTEM FOR STEEL TURNING

NEGATIVE INSERTS

Tolerance	Features	Cross section geometry
MEDIUM CUTTING		
M	 <p>MP</p> <p>FIRST RECOMMENDATION FOR MEDIUM CUTTING OF CARBON STEEL AND ALLOY STEEL Suitable for medium to light cutting. Breaker geometry appropriate for copying and back turning. Cutting edge geometry for an optimum balance of sharpness and fracture resistance.</p>	<p>Carbon steel, Alloy steel</p>  
	 <p>MA</p> <p>FIRST RECOMMENDATION FOR MEDIUM CUTTING OF CARBON STEEL AND ALLOY STEEL Ideal for general cutting applications. Positive land provides sharp cutting action.</p>	<p>Carbon steel, Alloy steel</p>  
	 <p>MH</p> <p>ALTERNATIVE CHIPBREAKER FOR MEDIUM CUTTING OF CARBON STEEL AND ALLOY STEEL Flat land offers high edge strength. Good chip control with a suitable chip pocket.</p>	<p>Carbon steel, Alloy steel</p>  
	 <p>Standard</p> <p>ALTERNATIVE CHIPBREAKER FOR MEDIUM CUTTING OF CARBON STEEL AND ALLOY STEEL Flat land offers high edge strength. Flat top breaker shape offers high edge strength.</p>	<p>Carbon steel, Alloy steel</p>  
	 <p>MW</p> <p>WIPER INSERT FOR MEDIUM CUTTING CARBON STEEL, ALLOY STEEL, STAINLESS STEEL AND CAST IRON The wiper allows up to two times higher feed. A wide chip pocket prevents chip jamming.</p>	<p>Carbon steel, Alloy steel</p>  
	ROUGH CUTTING	
M	 <p>RP</p> <p>FIRST RECOMMENDATION FOR ROUGH CUTTING OF CARBON STEEL AND ALLOY STEEL For interrupted cutting and removing scale. Good balance of cutting edge strength and low cutting resistance because of a suitable rake angle.</p>	<p>Carbon steel, Alloy steel</p>  
	 <p>GH</p> <p>ALTERNATIVE CHIPBREAKER FOR ROUGH CUTTING OF CARBON STEEL, ALLOY STEEL AND CAST IRON For interrupted cutting and removing scale. A combination of a wide land and a large chip pocket allows high feed rates.</p>	<p>Carbon steel, Alloy steel</p>  

MC6115

CUTTING PERFORMANCE

MACHINING C45: COMPARISON OF WEAR RESISTANCE DURING CONTINUOUS DRY CUTTING

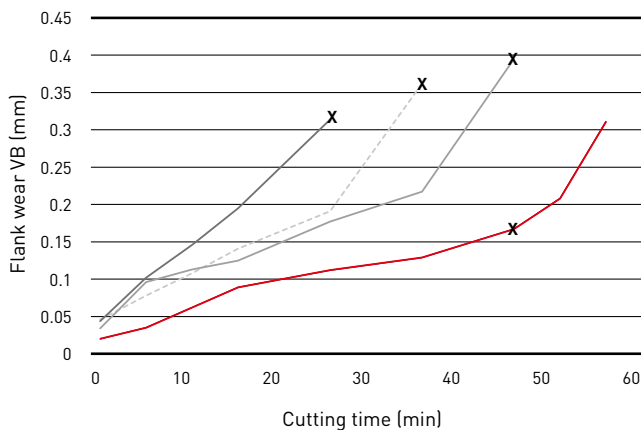
Material	C45
Insert	CNMG120408-00
Vc (m/min)	300
f (mm/rev)	0.3
ap (mm)	1.5
Cutting mode	Dry cutting



MC6115
10 min

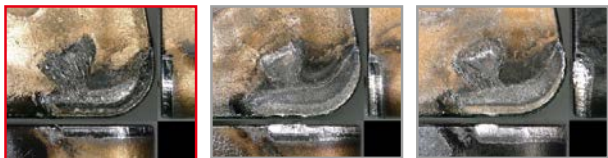
Conventional A
10 min

Conventional B
8 min



MACHINING DIN 100CR6: COMPARISON OF WEAR RESISTANCE DURING CONTINUOUS WET CUTTING

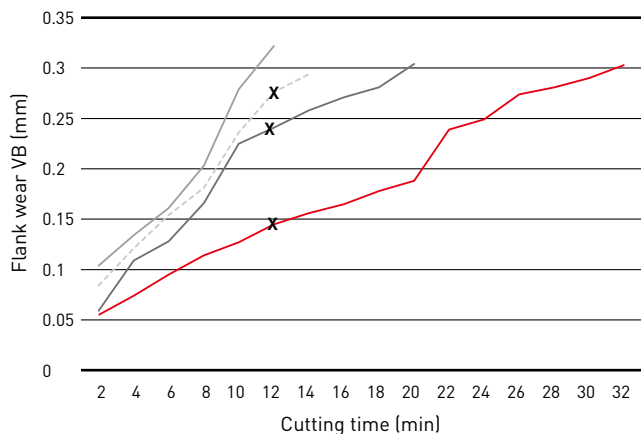
Material	DIN 100Cr6
Insert	CNMG120408-00
Vc (m/min)	300
f (mm/rev)	0.3
ap (mm)	1.5
Cutting mode	Wet cutting



MC6115
12 min

Conventional A
12 min

Conventional B
12 min



MACHINING DIN41CRM04: COMPARISON OF WEAR RESISTANCE DURING CONTINUOUS WET CUTTING

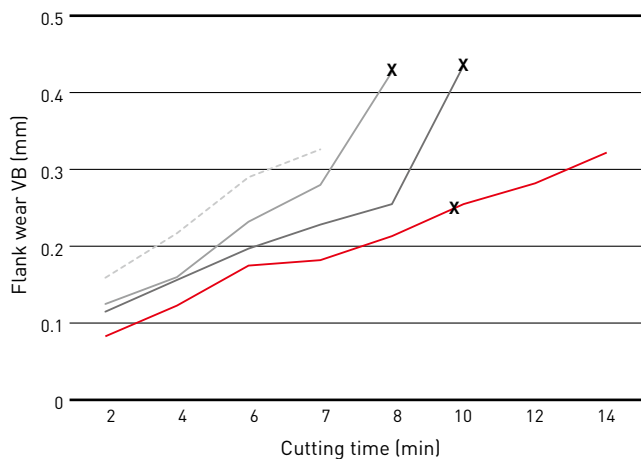
Material	DIN 41CrMo4
Insert	CNMG120408-00
Vc (m/min)	350
f (mm/rev)	0.3
ap (mm)	1.5
Cutting mode	Wet cutting



MC6115
10 min

Conventional A
10 min

Conventional B
8 min



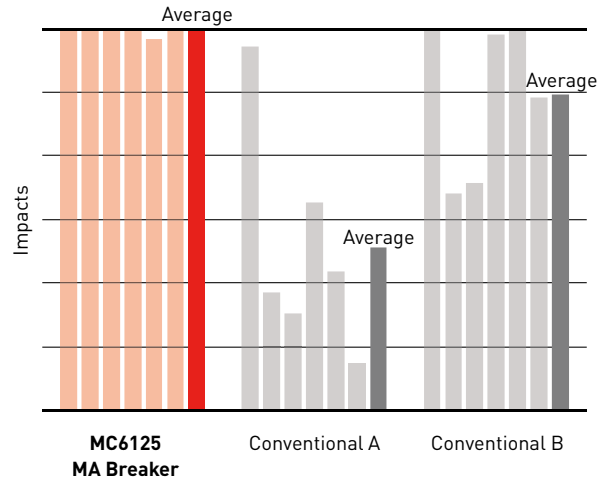
NEW

MC6125

CUTTING PERFORMANCE

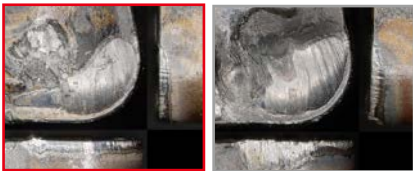
COMPARISON OF TOUGHNESS DURING INTERRUPTED CUTTING

Material	DIN 42CrMo4
Insert	CNMG120408-00
Vc (m/min)	200
f (mm/rev)	0.25
ap (mm)	1.5
Cutting mode	Wet cutting



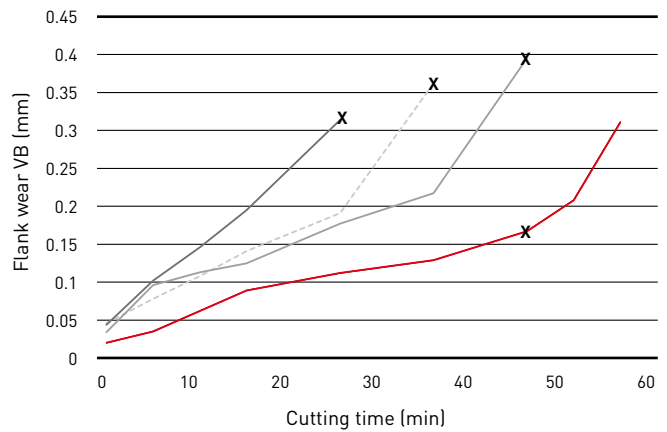
MACHINING DIN 20MNCr5: COMPARISON OF WEAR RESISTANCE DURING CONTINUOUS WET CUTTING

Material	DIN 20MNCr5
Insert	CNMG120408-00
Vc (m/min)	300
f (mm/rev)	0.3
ap (mm)	1.5
Cutting mode	Wet cutting



MC6125
46 min

Conventional A
46 min

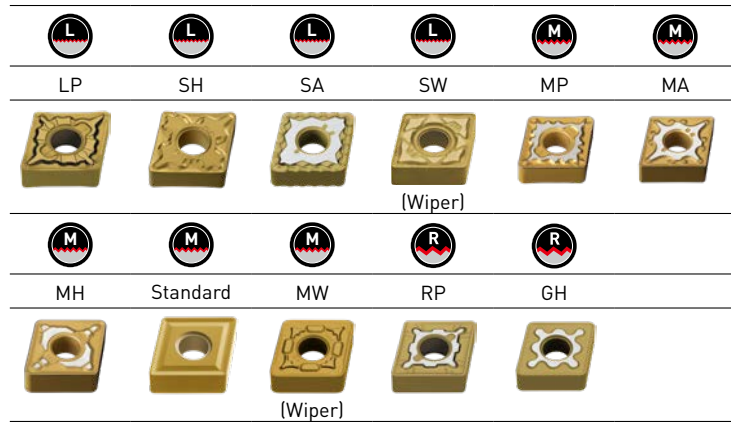
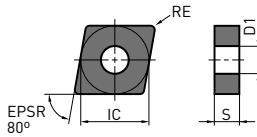


MC6100 SERIES

NEGATIVE INSERTS (WITH HOLE)

M Class

CNMG




Order number		MC6115	NEW MC6125	IC	S	RE	D1
CNMG120404-LP	L	●	●	12.7	4.76	0.4	5.16
CNMG120408-LP	L	●	●	12.7	4.76	0.8	5.16
CNMG120412-LP	L	●	●	12.7	4.76	1.2	5.16
CNMG120404-SH	L	★	★	12.7	4.76	0.4	5.16
CNMG120408-SH	L	★	★	12.7	4.76	0.8	5.16
CNMG120412-SH	L	★	★	12.7	4.76	1.2	5.16
CNMG120404-SA	L	★	★	12.7	4.76	0.4	5.16
CNMG120408-SA	L	●	★	12.7	4.76	0.8	5.16
CNMG120412-SA	L	★	★	12.7	4.76	1.2	5.16
CNMG120404-SW	L	●	★	12.7	4.76	0.4	5.16
CNMG120408-SW	L	●	★	12.7	4.76	0.8	5.16
CNMG120412-SW	L	●	★	12.7	4.76	1.2	5.16
CNMG120404-MP	M	●	●	12.7	4.76	0.4	5.16
CNMG120408-MP	M	●	●	12.7	4.76	0.8	5.16
CNMG120412-MP	M	●	●	12.7	4.76	1.2	5.16
CNMG120416-MP	M	●	●	12.7	4.76	1.6	5.16
CNMG160608-MP	M	★	●	15.875	6.35	0.8	6.35
CNMG160612-MP	M	★	●	15.875	6.35	1.2	6.35
CNMG160616-MP	M	★	●	15.875	6.35	1.6	6.35
CNMG120404-MA	M	●	●	12.7	4.76	0.4	5.16
CNMG120408-MA	M	●	●	12.7	4.76	0.8	5.16
CNMG120412-MA	M	●	●	12.7	4.76	1.2	5.16
CNMG120416-MA	M	★	★	12.7	4.76	1.6	5.16
CNMG160608-MA	M	●	●	15.875	6.35	0.8	6.35
CNMG160612-MA	M	●	●	15.875	6.35	1.2	6.35
CNMG160616-MA	M	●	●	15.875	6.35	1.6	6.35
CNMG190612-MA	M	●	●	19.05	6.35	1.2	7.93
CNMG190616-MA	M	●	●	19.05	6.35	1.6	7.93
CNMG120404-MH	M	★	●	12.7	4.76	0.4	5.16
CNMG120408-MH	M	●	●	12.7	4.76	0.8	5.16
CNMG120412-MH	M	●	●	12.7	4.76	1.2	5.16
CNMG120416-MH	M	★	●	12.7	4.76	1.6	5.16

(10 inserts in one case)



MC6100 SERIES

NEGATIVE INSERTS (WITH HOLE)

Order number		MC6115	NEW MC6125	IC	S	RE	D1
CNMG160608-MH	M	★	★	15.875	6.35	0.8	6.35
CNMG160612-MH	M	●	●	15.875	6.35	1.2	6.35
CNMG160616-MH	M	★	★	15.875	6.35	1.6	6.35
CNMG190612-MH	M	●	●	19.05	6.35	1.2	7.93
CNMG190616-MH	M	★	●	19.05	6.35	1.6	7.93
CNMG120404	M	●	●	12.7	4.76	0.4	5.16
CNMG120408	M	●	●	12.7	4.76	0.8	5.16
CNMG120412	M	●	●	12.7	4.76	1.2	5.16
CNMG120416	M	●	●	12.7	4.76	1.6	5.16
CNMG160608	M	●	●	15.875	6.35	0.8	6.35
CNMG160612	M	●	●	15.875	6.35	1.2	6.35
CNMG160616	M	●	●	15.875	6.35	1.6	6.35
CNMG190608	M	●	●	19.05	6.35	0.8	7.93
CNMG190612	M	●	●	19.05	6.35	1.2	7.93
CNMG190616	M	●	●	19.05	6.35	1.6	7.93
CNMG120408-MW	M	●	●	12.7	4.76	0.8	5.16
CNMG120412-MW	M	●	●	12.7	4.76	1.2	5.16
CNMG120408-RP	R	●	●	12.7	4.76	0.8	5.16
CNMG120412-RP	R	●	●	12.7	4.76	1.2	5.16
CNMG120416-RP	R	●	●	12.7	4.76	1.6	5.16
CNMG160612-RP	R	●	●	15.875	6.35	1.2	6.35
CNMG160616-RP	R	●	●	15.875	6.35	1.6	6.35
CNMG190612-RP	R	●	●	19.05	6.35	1.2	7.93
CNMG190616-RP	R	●	●	19.05	6.35	1.6	7.93
CNMG120408-GH	R	★	●	12.7	4.76	0.8	5.16
CNMG120412-GH	R	★	●	12.7	4.76	1.2	5.16
CNMG120416-GH	R	★	★	12.7	4.76	1.6	5.16
CNMG160612-GH	R	★	●	15.875	6.35	1.2	6.35
CNMG160616-GH	R	★	●	15.875	6.35	1.6	6.35
CNMG190612-GH	R	★	●	19.05	6.35	1.2	7.93
CNMG190616-GH	R	★	●	19.05	6.35	1.6	7.93

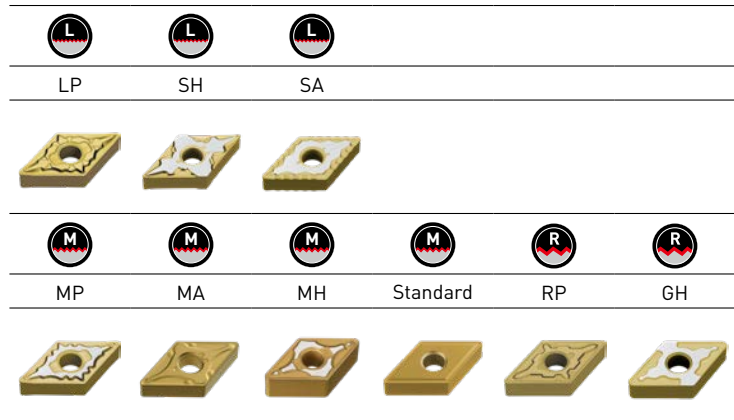
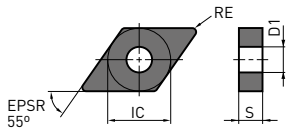
(10 inserts in one case)





MC6100 SERIES

NEGATIVE INSERTS (WITH HOLE)

M Class

DNMG





Order number	  	MC6115	 MC6125	IC	S	RE	D1
DNMG150404-LP	L	●	●	12.7	4.76	0.4	5.16
DNMG150408-LP	L	●	●	12.7	4.76	0.8	5.16
DNMG150412-LP	L	●	●	12.7	4.76	1.2	5.16
DNMG150604-LP	L	●	●	12.7	6.35	0.4	5.16
DNMG150608-LP	L	●	●	12.7	6.35	0.8	5.16
DNMG150612-LP	L	●	●	12.7	6.35	1.2	5.16
DNMG150404-SH	L	★	★	12.7	4.76	0.4	5.16
DNMG150408-SH	L	★	★	12.7	4.76	0.8	5.16
DNMG150412-SH	L	★	★	12.7	4.76	1.2	5.16
DNMG150604-SH	L	★	★	12.7	6.35	0.4	5.16
DNMG150608-SH	L	★	★	12.7	6.35	0.8	5.16
DNMG150612-SH	L	★	★	12.7	6.35	1.2	5.16
DNMG150404-SA	L	★	★	12.7	4.76	0.4	5.16
DNMG150408-SA	L	★	★	12.7	4.76	0.8	5.16
DNMG150412-SA	L	★	★	12.7	4.76	1.2	5.16
DNMG150604-SA	L	★	●	12.7	6.35	0.4	5.16
DNMG150608-SA	L	★	●	12.7	6.35	0.8	5.16
DNMG150612-SA	L	●	●	12.7	6.35	1.2	5.16
DNMG150404-MP	M	●	●	12.7	4.76	0.4	5.16
DNMG150408-MP	M	●	●	12.7	4.76	0.8	5.16
DNMG150412-MP	M	●	●	12.7	4.76	1.2	5.16
DNMG150416-MP	M	★	●	12.7	4.76	1.6	5.16
DNMG150604-MP	M	●	●	12.7	6.35	0.4	5.16
DNMG150608-MP	M	●	●	12.7	6.35	0.8	5.16
DNMG150612-MP	M	●	●	12.7	6.35	1.2	5.16
DNMG150616-MP	M	●	●	12.7	6.35	1.6	5.16
DNMG150404-MA	M	●	●	12.7	4.76	0.4	5.16
DNMG150408-MA	M	●	●	12.7	4.76	0.8	5.16
DNMG150412-MA	M	●	●	12.7	4.76	1.2	5.16
DNMG150604-MA	M	●	●	12.7	6.35	0.4	5.16
DNMG150608-MA	M	●	●	12.7	6.35	0.8	5.16
DNMG150612-MA	M	●	●	12.7	6.35	1.2	5.16

(10 inserts in one case)



MC6100 SERIES

NEGATIVE INSERTS (WITH HOLE)

Order number		MC6115		IC	S	RE	D1
		MC6115	 MC6125				
DNMG150404-MH	M	★	★	12.7	4.76	0.4	5.16
DNMG150408-MH	M	●	●	12.7	4.76	0.8	5.16
DNMG150412-MH	M	●	●	12.7	4.76	1.2	5.16
DNMG150604-MH	M	★	★	12.7	6.35	0.4	5.16
DNMG150608-MH	M	●	●	12.7	6.35	0.8	5.16
DNMG150612-MH	M	●	●	12.7	6.35	1.2	5.16
DNMG150404	M	●	●	12.7	4.76	0.4	5.16
DNMG150408	M	●	●	12.7	4.76	0.8	5.16
DNMG150412	M	●	●	12.7	4.76	1.2	5.16
DNMG150604	M	●	●	12.7	6.35	0.4	5.16
DNMG150608	M	●	●	12.7	6.35	0.8	5.16
DNMG150612	M	●	●	12.7	6.35	1.2	5.16
DNMG150408-RP	R	●	●	12.7	4.76	0.8	5.16
DNMG150412-RP	R	●	●	12.7	4.76	1.2	5.16
DNMG150416-RP	R	★	★	12.7	4.76	1.6	5.16
DNMG150608-RP	R	●	●	12.7	6.35	0.8	5.16
DNMG150612-RP	R	●	●	12.7	6.35	1.2	5.16
DNMG150616-RP	R	●	●	12.7	6.35	1.6	5.16
DNMG150408-GH	R	★	●	12.7	4.76	0.8	5.16
DNMG150412-GH	R	★	★	12.7	4.76	1.2	5.16
DNMG150608-GH	R	★	●	12.7	6.35	0.8	5.16
DNMG150612-GH	R	★	●	12.7	6.35	1.2	5.16

(10 inserts in one case)

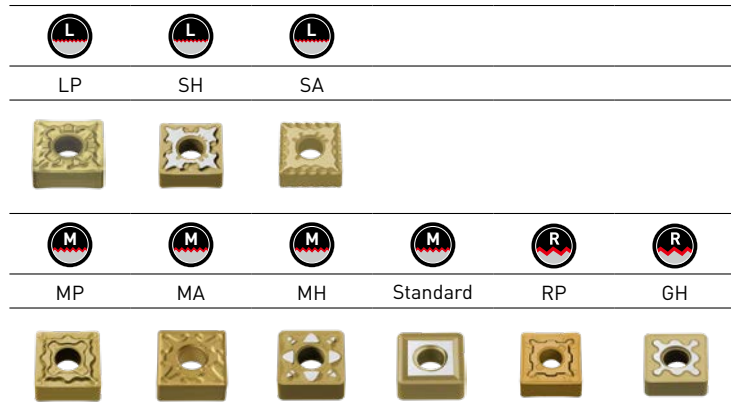
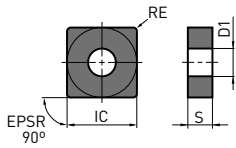


MC6100 SERIES

NEGATIVE INSERTS (WITH HOLE)

M Class

SNMG





Order number		MC6115	NEW MC6125	IC	S	RE	D1
SNMG120404-LP	L	●	●	12.7	4.76	0.4	5.16
SNMG120408-LP	L	●	●	12.7	4.76	0.8	5.16
SNMG120412-LP	L	●	●	12.7	4.76	1.2	5.16
SNMG120408-SH	L	★	●	12.7	4.76	0.8	5.16
SNMG120408-SA	L	★	●	12.7	4.76	0.8	5.16
SNMG120404-MP	M	●	●	12.7	4.76	0.4	5.16
SNMG120408-MP	M	●	●	12.7	4.76	0.8	5.16
SNMG120412-MP	M	●	●	12.7	4.76	1.2	5.16
SNMG120404-MA	M	●	●	12.7	4.76	0.4	5.16
SNMG120408-MA	M	●	●	12.7	4.76	0.8	5.16
SNMG120412-MA	M	●	●	12.7	4.76	1.2	5.16
SNMG150608-MA	M	★	●	15.875	6.35	0.8	6.35
SNMG150612-MA	M	●	●	15.875	6.35	1.2	6.35
SNMG190612-MA	M	●	●	19.05	6.35	1.2	7.93
SNMG190616-MA	M	●	●	19.05	6.35	1.6	7.93
SNMG120408-MH	M	●	●	12.7	4.76	0.8	5.16
SNMG120412-MH	M	●	●	12.7	4.76	1.2	5.16
SNMG190612-MH	M	★	●	19.05	6.35	1.2	7.93
SNMG190616-MH	M	★	●	19.05	6.35	1.6	7.93
SNMG120404	M	●	●	12.7	4.76	0.4	5.16
SNMG120408	M	●	●	12.7	4.76	0.8	5.16
SNMG120412	M	●	●	12.7	4.76	1.2	5.16
SNMG150612	M	●	●	15.875	6.35	1.2	6.35
SNMG190612	M	●	●	19.05	6.35	1.2	7.93
SNMG190616	M	●	●	19.05	6.35	1.6	7.93

(10 inserts in one case)



MC6100 SERIES

NEGATIVE INSERTS (WITH HOLE)

Order number				MC6115		IC	S	RE	D1
	L	M	R						
SNMG120408-RP		R		●	●	12.7	4.76	0.8	5.16
SNMG120412-RP		R		●	●	12.7	4.76	1.2	5.16
SNMG120416-RP		R		●	●	12.7	4.76	1.6	5.16
SNMG150612-RP		R		●	●	15.875	6.35	1.2	6.35
SNMG150616-RP		R		●	●	15.875	6.35	1.6	6.35
SNMG190612-RP		R		●	●	19.05	6.35	1.2	7.93
SNMG190616-RP		R		●	●	19.05	6.35	1.6	7.93
SNMG120408-GH		R		★	●	12.7	4.76	0.8	5.16
SNMG120412-GH		R		★	●	12.7	4.76	1.2	5.16
SNMG120416-GH		R		★	★	12.7	4.76	1.6	5.16
SNMG150612-GH		R		★	●	15.875	6.35	1.2	6.35
SNMG190612-GH		R		★	●	19.05	6.35	1.2	7.93
SNMG190616-GH		R		★	●	19.05	6.35	1.6	7.93

(10 inserts in one case)

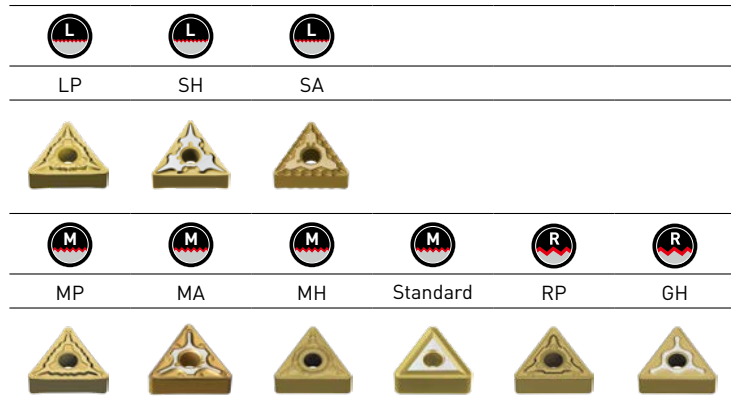
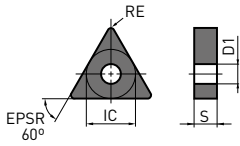


MC6100 SERIES

NEGATIVE INSERTS (WITH HOLE)

M Class

TNMG





Order number		MC6115	NEW MC6125	IC	S	RE	D1
TNMG160404-LP	L	●	●	9.525	4.76	0.4	3.81
TNMG160408-LP	L	●	●	9.525	4.76	0.8	3.81
TNMG160412-LP	L	●	●	9.525	4.76	1.2	3.81
TNMG220408-LP	L	●	●	12.7	4.76	0.8	5.16
TNMG220412-LP	L	●	●	12.7	4.76	1.2	5.16
TNMG160404-SH	L	★	★	9.525	4.76	0.4	3.81
TNMG160408-SH	L	★	★	9.525	4.76	0.8	3.81
TNMG220408-SH	L	★	★	12.7	4.76	0.8	5.16
TNMG160404-SA	L	★	★	9.525	4.76	0.4	3.81
TNMG160408-SA	L	★	★	9.525	4.76	0.8	3.81
TNMG160412-SA	L	★	●	9.525	4.76	1.2	3.81
TNMG220408-SA	L	●	★	12.7	4.76	0.8	5.16
TNMG160404-MP	M	●	●	9.525	4.76	0.4	3.81
TNMG160408-MP	M	●	●	9.525	4.76	0.8	3.81
TNMG160412-MP	M	●	●	9.525	4.76	1.2	3.81
TNMG220408-MP	M	●	●	12.7	4.76	0.8	5.16
TNMG220412-MP	M	●	●	12.7	4.76	1.2	5.16
TNMG160404-MA	M	●	●	9.525	4.76	0.4	3.81
TNMG160408-MA	M	●	●	9.525	4.76	0.8	3.81
TNMG160412-MA	M	●	●	9.525	4.76	1.2	3.81
TNMG220408-MA	M	●	●	12.7	4.76	0.8	5.16
TNMG220412-MA	M	●	●	12.7	4.76	1.2	5.16
TNMG270608-MA	M	★	★	15.875	6.35	0.8	6.35
TNMG270612-MA	M	★	★	15.875	6.35	1.2	6.35
TNMG160404-MH	M	★	●	9.525	4.76	0.4	3.81
TNMG160408-MH	M	●	●	9.525	4.76	0.8	3.81
TNMG160412-MH	M	●	●	9.525	4.76	1.2	3.81
TNMG220408-MH	M	●	●	12.7	4.76	0.8	5.16
TNMG220412-MH	M	●	●	12.7	4.76	1.2	5.16

(10 inserts in one case)



MC6100 SERIES

NEGATIVE INSERTS (WITH HOLE)

Order number				IC	S	RE	D1
		MC6115	 MC6125				
TNMG160404	M	●	●	9.525	4.76	0.4	3.81
TNMG160408	M	●	●	9.525	4.76	0.8	3.81
TNMG160412	M	●	●	9.525	4.76	1.2	3.81
TNMG220404	M	●	●	12.7	4.76	0.4	5.16
TNMG220408	M	●	●	12.7	4.76	0.8	5.16
TNMG220412	M	●	●	12.7	4.76	1.2	5.16
TNMG160408-RP	R	●	●	9.525	4.76	0.8	3.81
TNMG160412-RP	R	●	●	9.525	4.76	1.2	3.81
TNMG220408-RP	R	●	●	12.7	4.76	0.8	5.16
TNMG220412-RP	R	●	●	12.7	4.76	1.2	5.16
TNMG220416-RP	R	●	●	12.7	4.76	1.6	5.16
TNMG270612-RP	R	★	★	15.875	6.35	1.2	6.35
TNMG270616-RP	R	★	★	15.875	6.35	1.6	6.35
TNMG160408-GH	R	★	★	9.525	4.76	0.8	3.81
TNMG160412-GH	R	★	★	9.525	4.76	1.2	3.81
TNMG220408-GH	R	★	★	12.7	4.76	0.8	5.16
TNMG220412-GH	R	★	★	12.7	4.76	1.2	5.16
TNMG220416-GH	R	★	★	12.7	4.76	1.6	5.16
TNMG270612-GH	R	★	★	15.875	6.35	1.2	6.35
TNMG270616-GH	R	★	★	15.875	6.35	1.6	6.35

(10 inserts in one case)

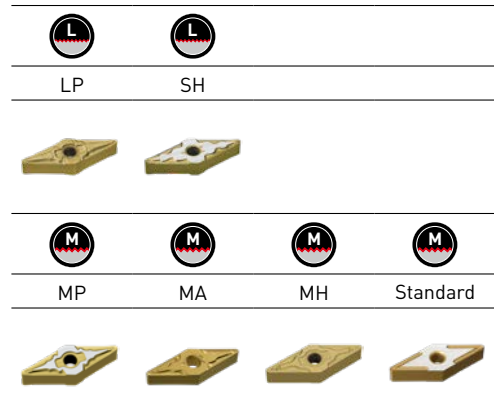
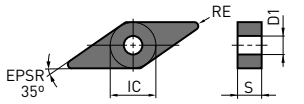





MC6100 SERIES

NEGATIVE INSERTS (WITH HOLE)

M Class

VNMG



Order number	  	MC6115	NEW MC6125	IC	S	RE	D1
VNMG160404-LP	L	●	●	9.525	4.76	0.4	3.81
VNMG160408-LP	L	●	●	9.525	4.76	0.8	3.81
VNMG160404-SH	L	★	★	9.525	4.76	0.4	3.81
VNMG160408-SH	L	★	★	9.525	4.76	0.8	3.81
VNMG160404-MP	M	●	●	9.525	4.76	0.4	3.81
VNMG160408-MP	M	●	●	9.525	4.76	0.8	3.81
VNMG160412-MP	M	●	●	9.525	4.76	1.2	3.81
VNMG160404-MA	M	●	●	9.525	4.76	0.4	3.81
VNMG160408-MA	M	●	●	9.525	4.76	0.8	3.81
VNMG160404-MH	M	★	★	9.525	4.76	0.4	3.81
VNMG160408-MH	M	●	●	9.525	4.76	0.8	3.81
VNMG160404	M	●	●	9.525	4.76	0.4	3.81
VNMG160408	M	●	●	9.525	4.76	0.8	3.81
VNMG160412	M	●	●	9.525	4.76	1.2	3.81

[10 inserts in one case]

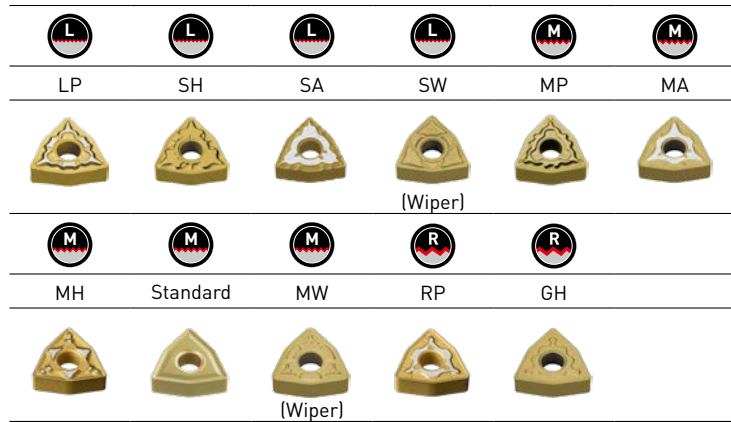
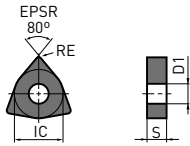
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MC6100 SERIES

NEGATIVE INSERTS (WITH HOLE)

M Class

WNMG



Order number		MC6115	NEW MC6125	IC	S	RE	D1
WNMG080404-LP	L	●	●	12.7	4.76	0.4	5.16
WNMG080408-LP	L	●	●	12.7	4.76	0.8	5.16
WNMG080412-LP	L	●	●	12.7	4.76	1.2	5.16
WNMG080404-SH	L	★	★	12.7	4.76	0.4	5.16
WNMG080408-SH	L	★	★	12.7	4.76	0.8	5.16
WNMG080412-SH	L	★	★	12.7	4.76	1.2	5.16
WNMG080404-SA	L	★	★	12.7	4.76	0.4	5.16
WNMG080408-SA	L	★	★	12.7	4.76	0.8	5.16
WNMG080412-SA	L	★	★	12.7	4.76	1.2	5.16
WNMG080404-SW	L	●	★	12.7	4.76	0.4	5.16
WNMG080408-SW	L	●	★	12.7	4.76	0.8	5.16
WNMG080412-SW	L	●	★	12.7	4.76	1.2	5.16
WNMG080404-MP	M	●	●	12.7	4.76	0.4	5.16
WNMG080408-MP	M	●	●	12.7	4.76	0.8	5.16
WNMG080412-MP	M	●	●	12.7	4.76	1.2	5.16
WNMG080416-MP	M	●	●	12.7	4.76	1.6	5.16
WNMG080404-MA	M	●	●	12.7	4.76	0.4	5.16
WNMG080408-MA	M	●	●	12.7	4.76	0.8	5.16
WNMG080412-MA	M	●	●	12.7	4.76	1.2	5.16
WNMG080416-MA	M	●	●	12.7	4.76	1.6	5.16
WNMG080404-MH	M	★	●	12.7	4.76	0.4	5.16
WNMG080408-MH	M	●	●	12.7	4.76	0.8	5.16
WNMG080412-MH	M	●	●	12.7	4.76	1.2	5.16
WNMG080404	M	●	●	12.7	4.76	0.4	5.16
WNMG080408	M	●	●	12.7	4.76	0.8	5.16
WNMG080412	M	●	●	12.7	4.76	1.2	5.16
WNMG080408-MW	M	●	●	12.7	4.76	0.8	5.16
WNMG080412-MW	M	●	●	12.7	4.76	1.2	5.16
WNMG080408-RP	R	●	●	12.7	4.76	0.8	5.16
WNMG080412-RP	R	●	●	12.7	4.76	1.2	5.16
WNMG080408-GH	R	★	●	12.7	4.76	0.8	5.16
WNMG080412-GH	R	★	●	12.7	4.76	1.2	5.16

(10 inserts in one case)

MC6100 SERIES

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS (FOR EXTERNAL TURNING)

Cutting conditions: ●: Stable cutting ●: General cutting ✖: Unstable cutting

Material	Properties	Conditions	Grade	Vc	f	ap	
P Carbon and alloy steels	180-280HB	● L	MC6115 LP	250-480	0.10-0.40	0.30-2.00	
		● L	MC6125 LP	275-425	0.10-0.40	0.30-2.00	
		● L	MC6115 SH	250-480	0.10-0.40	0.30-2.00	
		● L	MC6125 SH	275-425	0.10-0.40	0.30-2.00	
		● L	MC6115 SA	250-480	0.10-0.40	0.30-2.00	
		● L	MC6125 SA	275-425	0.10-0.40	0.30-2.00	
		● L	MC6115 SW	250-480	0.10-0.50	0.30-2.50	
		● L	MC6125 SW	275-425	0.10-0.50	0.30-2.50	
		● M	MC6115 MP	230-440	0.16-0.50	0.30-4.00	
		● M	MC6125 MP	250-390	0.16-0.50	0.30-4.00	
		● M	MC6115 MA	230-440	0.2-0.500	0.30-4.00	
		● M	MC6125 MA	250-390	0.20-0.50	0.30-4.00	
		● M	MC6115 Std	230-440	0.25-0.60	1.50-5.00	
		● M	MC6125 Std	250-390	0.25-0.60	1.50-5.00	
		● M	MC6115 MW	230-440	0.20-0.60	0.90-4.00	
		● M	MC6125 MW	250-390	0.20-0.60	0.90-4.00	
		● R	MC6115 RP	215-415	0.25-0.60	1.50-6.00	
		● R	MC6125 RP	235-370	0.25-0.60	1.50-6.00	
		● R	MC6115 GH	215-415	0.25-0.60	1.50-6.00	
		● R	MC6125 GH	235-370	0.25-0.60	1.50-6.00	
		●	L	MC6115 LP	250-480	0.10-0.40	0.30-2.00
		●	L	MC6125 LP	275-425	0.10-0.40	0.30-2.00
		●	L	MC6115 SH	250-480	0.10-0.40	0.30-2.00
		●	L	MC6125 SH	275-425	0.10-0.40	0.30-2.00
		●	L	MC6115 SA	250-480	0.10-0.40	0.30-2.00
		●	L	MC6125 SA	275-425	0.10-0.40	0.30-2.00
		●	L	MC6115 SW	250-480	0.10-0.50	0.30-2.50
		●	L	MC6125 SW	275-425	0.10-0.50	0.30-2.50
		●	M	MC6125 MP	250-390	0.16-0.50	0.30-4.00
		●	M	MC6115 MP	230-440	0.16-0.50	0.30-4.00
		●	M	MC6125 MA	250-390	0.20-0.50	0.30-4.00
		●	M	MC6115 MA	230-440	0.20-0.50	0.30-4.00
		●	M	MC6125 MH	250-390	0.20-0.55	1.00-4.00
		●	M	MC6115 MH	230-440	0.20-0.55	1.00-4.00
		●	M	MC6125 Std	250-390	0.25-0.60	1.50-5.00
		●	M	MC6115 Std	230-440	0.25-0.60	1.50-5.00
		●	M	MC6125 MW	250-390	0.20-0.60	0.90-4.00
		●	M	MC6115 MW	230-440	0.20-0.60	0.90-4.00
		●	R	MC6125 RP	235-370	0.25-0.60	1.50-6.00
		●	R	MC6115 RP	215-415	0.25-0.60	1.50-6.00
		●	R	MC6125 GH	235-370	0.25-0.60	1.50-6.00
		●	R	MC6115 GH	215-415	0.25-0.60	1.50-6.00

1. Verify the recommended conditions for each boring bar as cutting conditions for internal machining will vary depending on the length of overhang.

MC6100 SERIES

RECOMMENDED CUTTING CONDITIONS

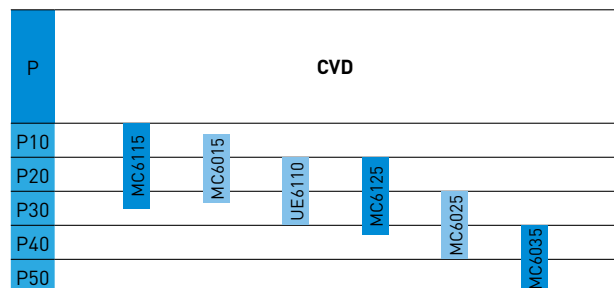
NEGATIVE INSERTS (FOR EXTERNAL TURNING)

Cutting conditions: ●: Stable cutting ●: General cutting ✖: Unstable cutting

Material	Properties	Conditions	Grade	Vc	f	ap
P Carbon and alloy steels	180-280HB	✖ L	MC6125 LP	275-425	0.10-0.40	0.30-2.00
		✖ L	MC6125 SH	275-425	0.10-0.40	0.30-2.00
		✖ L	MC6125 SA	275-425	0.10-0.40	0.30-2.00
		✖ M	MC6125 MP	250-390	0.16-0.50	0.30-4.00
		✖ M	MC6125 MA	250-390	0.20-0.50	0.30-4.00
		✖ M	MC6125 MH	250-390	0.20-0.55	1.00-4.00
		✖ M	MC6125 Std	250-390	0.25-0.60	1.50-5.00
		✖ R	MC6125 RP	235-370	0.25-0.60	1.50-6.00
		✖ R	MC6125 GH	235-370	0.25-0.60	1.50-6.00

SELECTION CRITERIA AND APPLICATION RANGE

Material	Cutting mode	Grade
P Steels	Continuous cutting	Low MC6115
		Medium MC6125
	Interrupted cutting	High MC6035

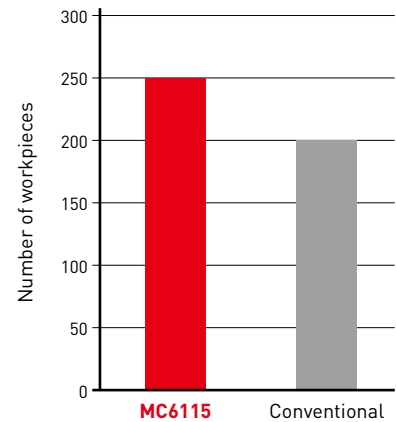


MC6115

APPLICATION EXAMPLES

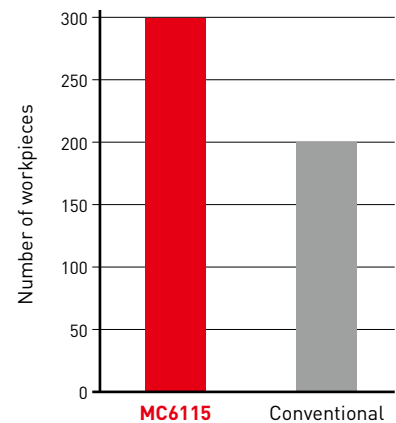
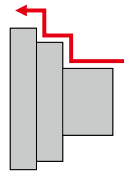
Tool	WNMG080412-MP
Material	DIN 20MnCr5
Component	Machine parts
Application	Face turning
Vc (m/min)	235
f (mm/rev)	0.35
ap (mm)	1.0
Cutting mode	Wet cutting

Results MC6115 achieved long tool life with excellent wear resistance and stable cutting, compared with conventional product.



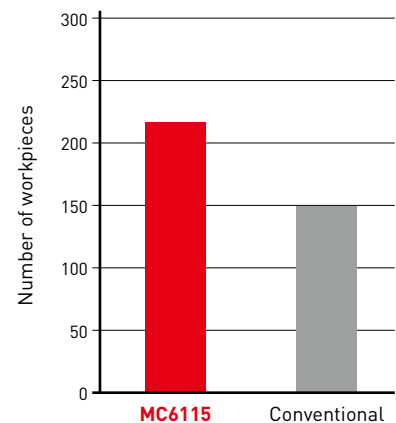
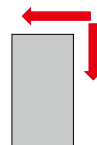
Tool	WNMG080408-MP
Material	DIN 41Cr4
Component	Hub
Application	External turning and facing
Vc (m/min)	300
f (mm/rev)	0.25-0.35
ap (mm)	1-2.5
Cutting mode	Wet cutting

Results Superior wear resistance compared to conventional products means tool life was extended.



Tool	DNMG150612-SA
Material	Bearing steel
Component	Bearing parts
Application	External turning and facing
Vc (m/min)	260
f (mm/rev)	0.3-0.35
ap (mm)	0.5
Cutting mode	Wet cutting

Results Extreme resistance to chipping achieved 150 % tool life and enabled easy identification of wear.



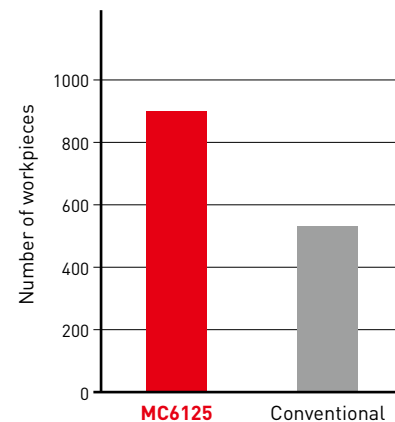
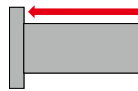
The above application examples are customer's applications, therefore can differ from the recommended conditions.

MC6125

APPLICATION EXAMPLES

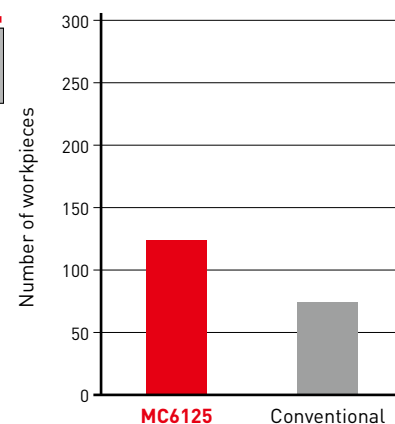
Tool	CNMG120408-MA
Material	C45
Component	Hex Bar Parts
Application	Interrupted finish turning
Vc (m/min)	150
f (mm/rev)	0.2
ap (mm)	2.0, 1.6
Cutting mode	Wet cutting

Results Conventional products fractured after chipping but MC6125 formed good chip shapes and achieved a longer tool life.



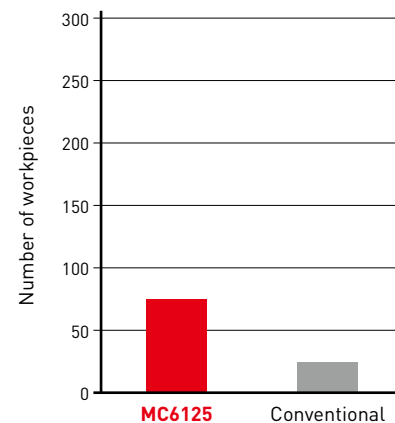
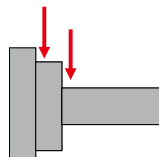
Tool	DNMG150412-SH
Material	DIN C50E
Application	Interrupted finish turning
Vc (m/min)	200
f (mm/rev)	0.3
ap (mm)	1.2
Cutting mode	Wet cutting

Results MC6125 provided a stable cutting action and achieved 1.5 times more tool life than conventional products.



Tool	CNMG120412-RP
Material	DIN 34CrMo4
Component	Flange Parts
Application	External turning and facing
Vc (m/min)	200
f (mm/rev)	0.25
ap (mm)	1.5
Cutting mode	Wet cutting

Results Conventional products machined an inconsistent number of components. MC6125 was more consistent and improved tool life.



The above application examples are customer's applications, therefore can differ from the recommended conditions.

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