

Coated Grades for Stainless Steel

AC6020M / AC6030M / ^{New}AC6135M / ^{New}AC6145M

Stainless steel turning grade series, achieving "ABSOLUTELY STABLE CUTTING"

^{New}

Light Interrupted Turning / Casted and Forged skin / Heavy Interrupted Turning

Introducing AC6135M/AC6145M

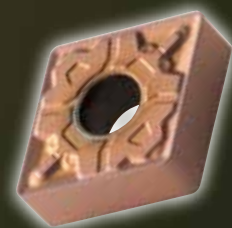
^{New}

Negative M Class Chipbreaker

NEH type Lineup

for Medium Cutting to Roughing

Stocked Grades: AC6135M/AC6145M

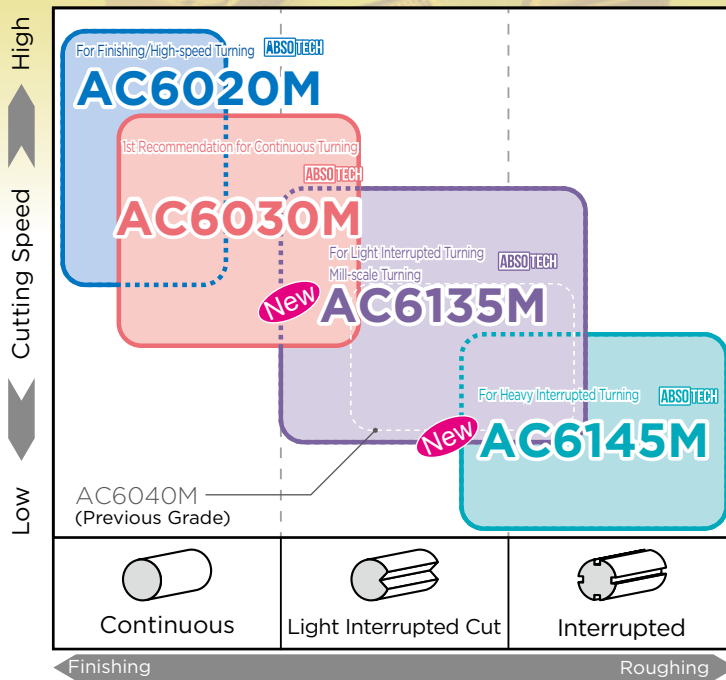




Coated Grades For Stainless Steel

AC6020M/AC6030M/AC6135M/AC6145M

Application Range



- AC6020M** CVD ABSOTECH

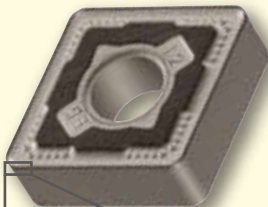
The combination of a CVD coating and a high-hardness carbide substrate realises long and stable tool life in **finishing and high-speed turning**.
- AC6030M** CVD ABSOTECH

1st recommended grade for continuous turning, using CVD coating to drastically reduce the occurrence of abnormal damage, a problem in stainless steel turning, to achieve a long and stable tool life.
- AC6135M** PVD ABSOTECH

Balances excellent wear resistance and fracture resistance in light interrupted turning and casted or forged skin turning through the use of new PVD coating.
- AC6145M** PVD ABSOTECH

The combination of a PVD coating and a high-toughness carbide substrate realises absolute stability in **heavy interrupted turning**.

Features of AC6020M/AC6030M



AC6020M/AC6030M CVD ABSOTECH

Stainless steel turning grades with significantly improved chipping and adhesion resistance through the use of our proprietary insert surface smoothing treatment



- Surface Smoothing Treatment**

Surface smoothing treatment improves adhesion resistance, significantly suppressing adhesion and the resulting chipping
- High Toughness Alumina Layer**

Realises stable long tool life through the use of an alumina layer with excellent toughnesping
- High Hardness Fine Grained TiCN Layer**

Fine and uniform crystal structure significantly improves the coating hardness
- High Adhesion Technology Layer**

Significantly improves adhesion strength through a smooth interface between the coating and carbide substrate

Coated Grades For Stainless Steel


AC6020M/AC6030M/AC6135M/AC6145M

Applications of AC6000M Series / AC6100M Series (Example: Stainless Steel)

Applicable Work Materials (1st Recommendation)

Ferritic (X6CrAl13/ X6Cr17 etc.)
Martensitic (X12Cr13/X30Cr13/X105CrMo17 etc.)
Precipitation Hardened Structure (X5CrNiCuNb16-4/X7CrNiAl17-7/ X8CrNiMoAl15-7-2 etc.)


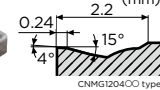
AC6030M CVD

General-Purpose 1st Recommendation	NGU type			For Light Interrupted Turning and Forged or Casted Skin
General-Purpose Chip Control Emphasized	NEG type			

Applicable Work Materials (1st Recommendation)


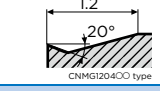

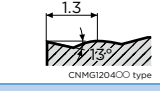
Austenitic (X5CrNi18-10/X5CrNiMo17-12-2 /X6CrNiTi18-10 etc.)
Duplex (X2CrNiMoN29-7-2/X2CrNiMoN22-5-3 / X2CrNiMoCuN25-6-3 etc.)

AC6135M PVD

General-Purpose 1st Recommendation	NGU type			For Heavy Interrupted Turning
Stable Machining Emphasized	NEH type			


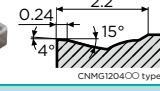

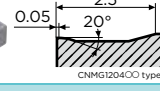
For Finishing/High-speed Turning

AC6020M CVD

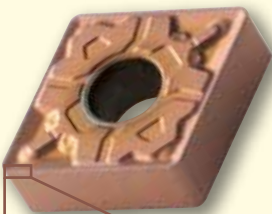
Chip Control Emphasized 1st Recommendation	NEF type		
Cutting Force Suppressed	NSU type		

For Heavy Interrupted Turning

AC6145M PVD

Chip Control Emphasized 1st Recommendation	NEF type		
Rapid Fractures Suppressed	NSU type		

Features of AC6135M/AC6145M New



AC6135M/AC6145M

PVD ABSOTECH

AlTiBN-based multi-layered coating provides excellent wear, fracture and adhesion resistance and exhibits absolute stability in the turning of stainless steels.

Adhesion Resistance Layer

The use of a TiCN-based composition with excellent lubricity suppresses adhesion and the resulting chipping

Wear Resistance Layer

The use of our proprietary high-hardness AlTiBN-based super multi-layered coating significantly suppresses crater wear and flank wear

Chipping Resistance Layer

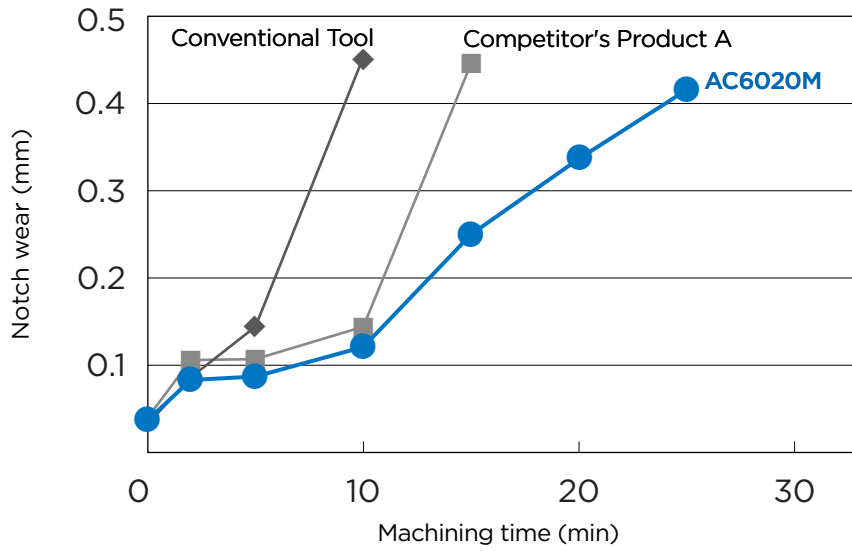
The use of an ultra-fine grain AlTiBN-based composition with excellent toughness suppresses unexpected chipping

High Adhesion Technology

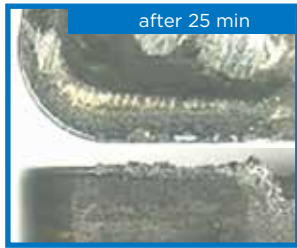
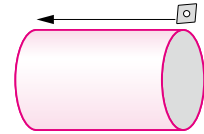
Improved stability with special technology enhancing coating adhesion strength

AC6020M/AC6030M/AC6135M/AC6145M

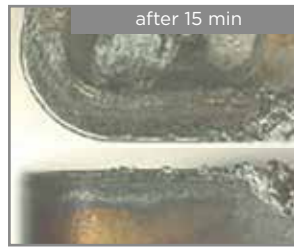
Wear Resistance of AC6020M (Continuous Turning of Stainless Steel)



Work Material: X2CrNiMo17-12-2
 Continuous Turning
 Insert: CNMG120408
 Cutting Conditions: $V_c = 150\text{m/min}$
 $f = 0.3\text{mm/rev}$
 $a_p = 2.0\text{mm}$
 Wet

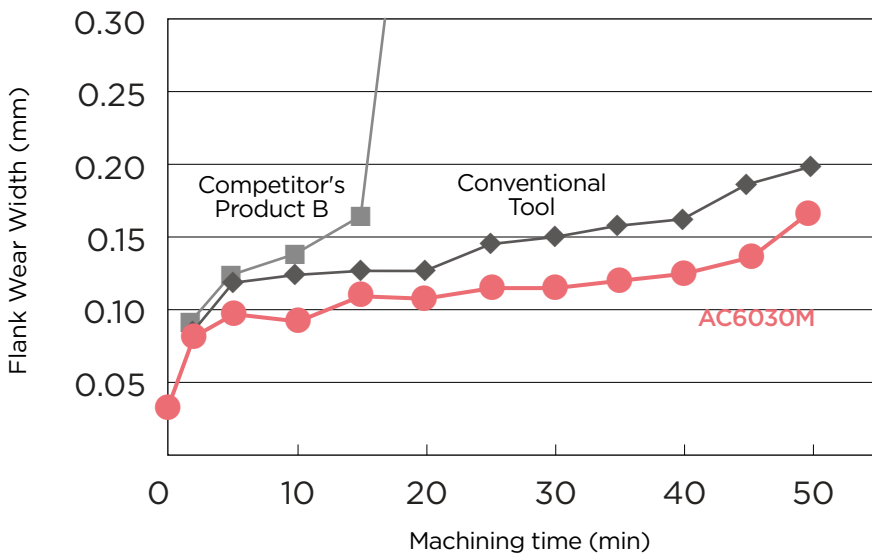


AC6020M

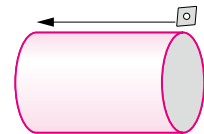


Competitor's Product A

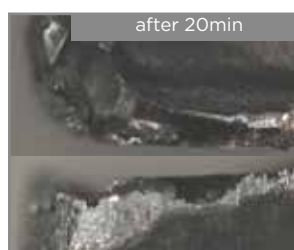
Wear Resistance of AC6030M (Continuous Turning of Stainless Steel)



Work Material: X5CrNiMo17-12-2
 Continuous Turning
 Insert: CNMG120408
 Cutting Conditions: $v_c = 200\text{m/min}$
 $f = 0.2\text{mm/rev}$
 $a_p = 2.0\text{mm}$
 Wet



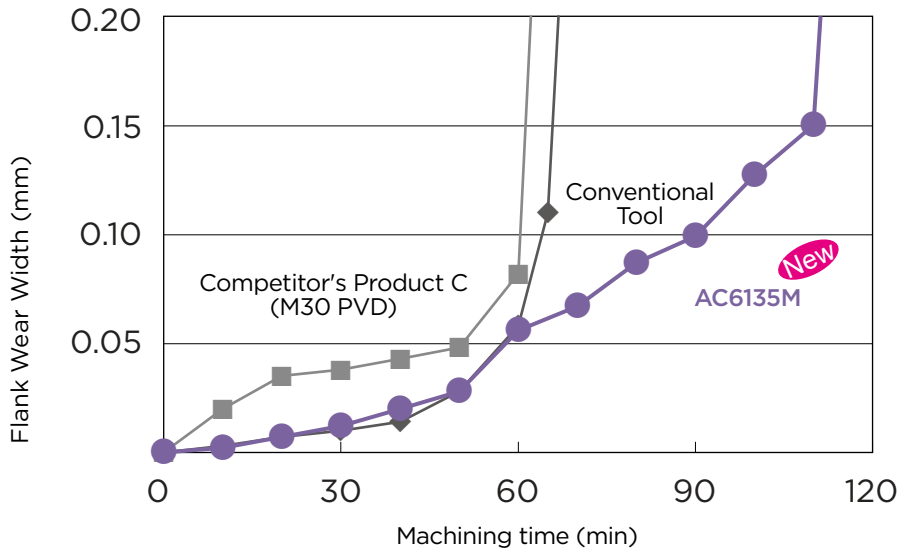
AC6030M



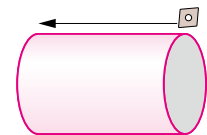
Competitor's Product B

AC6020M/AC6030M/AC6135M/AC6145M

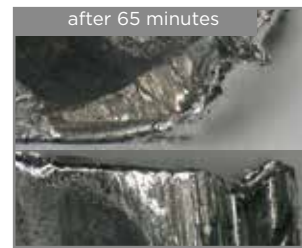
Wear Resistance of AC6135M (Continuous Turning of Stainless Steel)



Work Material: X5CrNiMo17-12-2
 Continuous Turning
 Insert: CNMG120408
 Cutting Conditions: $v_c = 150\text{m/min}$
 $f = 0.2\text{mm/rev}$
 $a_p = 2.0\text{mm}$
 Wet

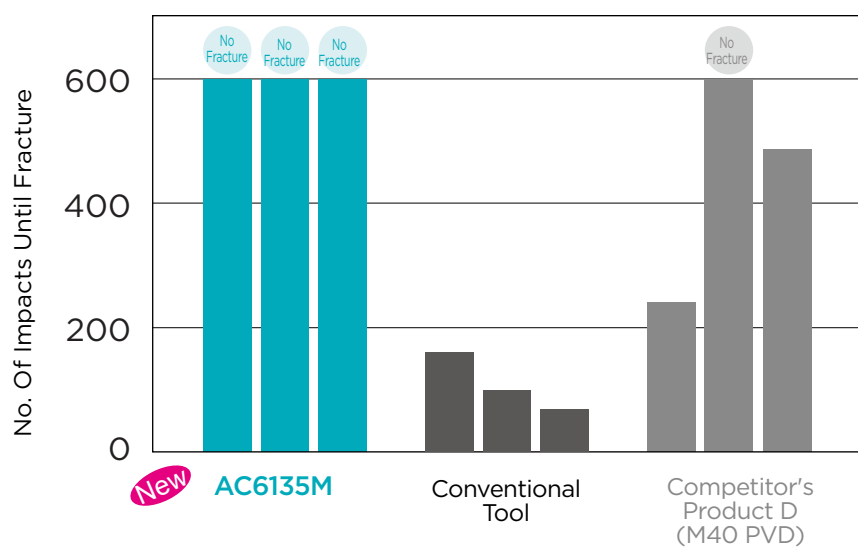


AC6135M **New**

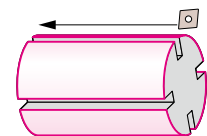


Competitor's Product C (M30 PVD)

Fracture Resistance of AC6145M (Interrupted Turning of Stainless Steel)



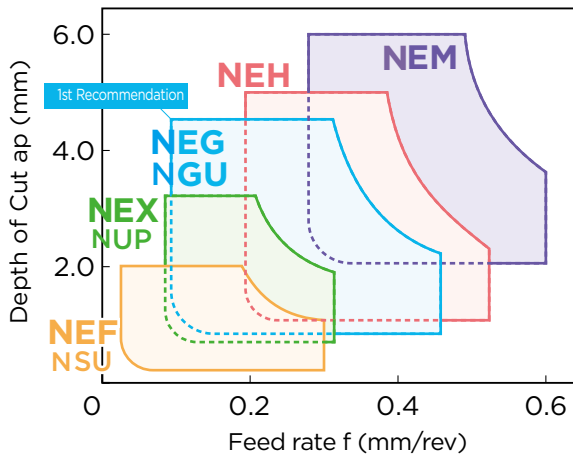
Work Material: X5CrNiMo17-12-2
 Interrupted Turning
 Insert: CNMG120408
 Cutting Conditions: $v_c = 70\text{m/min}$
 $f = 0.25\text{mm/rev}$
 $a_p = 1.0\text{mm}$
 Wet



Coated Grades For Stainless Steel

AC6020M/AC6030M/AC6135M/AC6145M

Chipbreaker Application Range



Chipbreaker series for stainless steel turning includes EF type for finishing, EX type for finishing to medium cutting, EG and GU types for medium cutting, and EM type for roughing. In addition, EH type for medium cutting to roughing and interrupted applications is also available

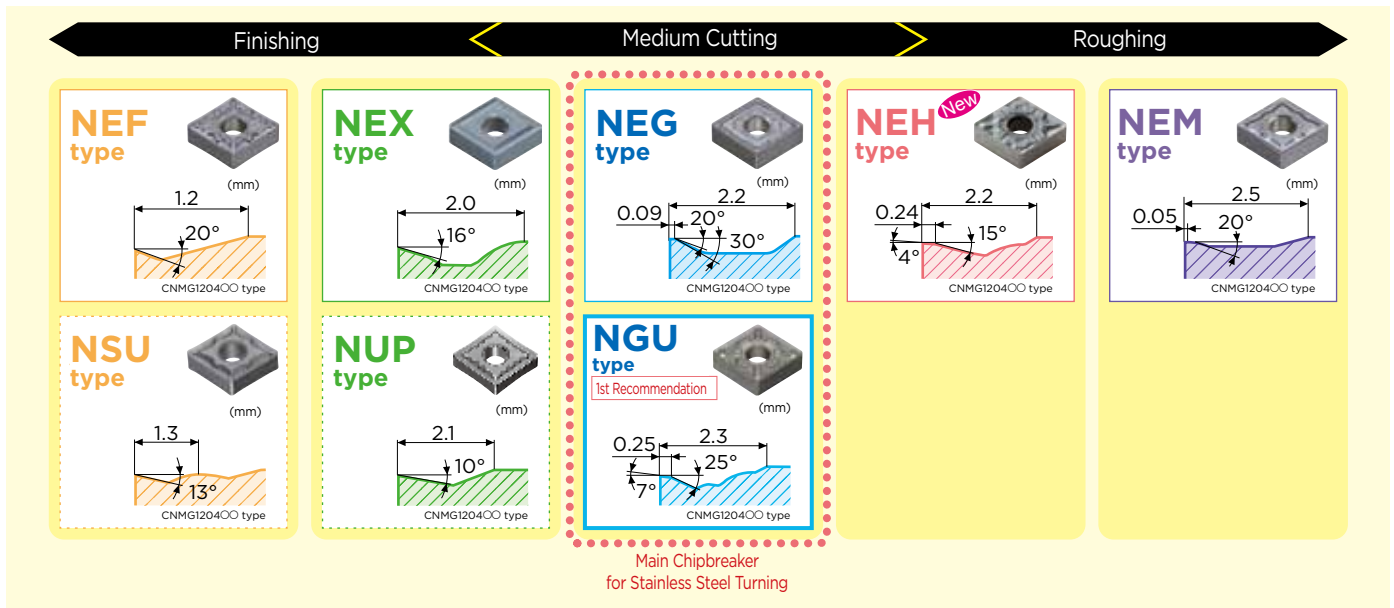
The entire series meets various needs such as chip control performance, wear resistance performance, fracture resistance performance and so on, realising stability in stainless steel turning

Features of Chipbreakers

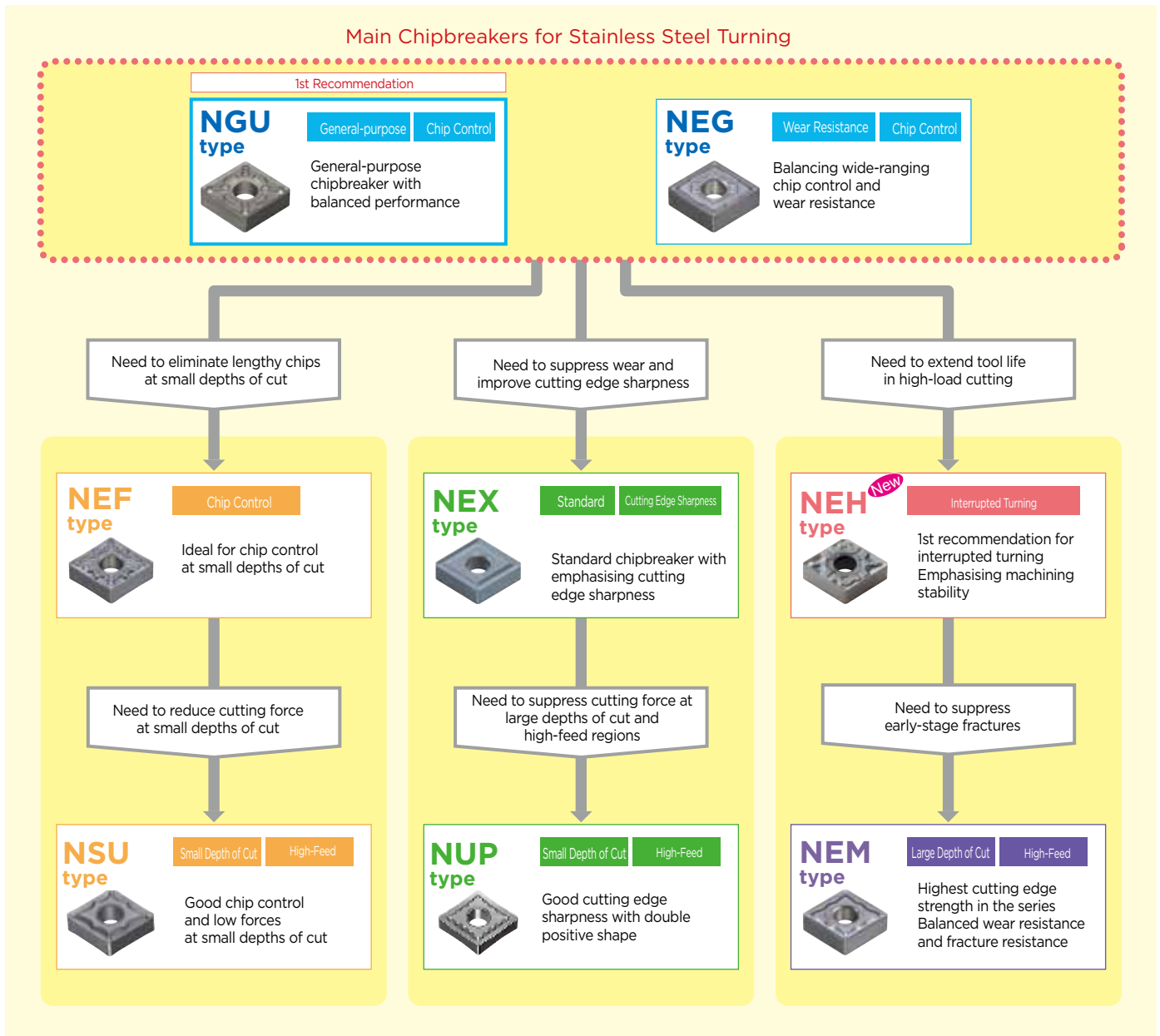
<p>NEF type For Finishing</p> <p>Main chipbreaker exhibits excellent chip evacuation performance even with small depths of cut</p> <p>Cutting edge designed with an emphasis on sharpness (20° rake angle) to suppress wear</p> <p>Grooved rake face suppresses heat generation and uneven contact</p>	<p>Chipbreaker Cross Section (CNMG1204SS type)</p> <p>Corner Part (mm): 1.2, 20°</p> <p>Cutting Edge (mm): 20°</p>	<p>NEX type For Light to Medium Cutting</p> <p>Curved chipbreaker reduces contact with chips to decrease heat generation and cutting load</p> <p>Straight cutting edge and large rake angle (16°) improve cutting edge sharpness and notch damage resistance performance</p>	<p>Chipbreaker Cross Section (CNMG1204SS type)</p> <p>Cutting Edge (Standard) (mm): 2.0, 16°</p>
<p>NEG type For Medium Cutting</p> <p>Spherical protrusions exhibit excellent chip control performance over a wide range of conditions</p> <p>Cutting edge shape that retains its strength even after wear progresses</p>	<p>Chipbreaker Cross Section (CNMG1204SS type)</p> <p>Corner Part (mm): 0.09, 2.2, 20°, 30°</p> <p>Cutting Edge (mm): 0.09, 20°, 30°</p>	<p>NGU type For Medium Cutting</p> <p>Wide chip control range with grooved spherical protrusions</p> <p>2step rake face shape suppresses wear progress</p>	<p>Chipbreaker Cross Section (CNMG1204SS type)</p> <p>Corner Part (mm): 0.25, 2.3, 25°, 7°</p> <p>Cutting Edge (mm): 0.3, 25°</p>
<p>NEH type For Medium Cutting to Roughing</p> <p>Spherical protrusions suppress resistance while controlling chips</p> <p>2step rake face shape enhances fracture resistance</p>	<p>Chipbreaker Cross Section (CNMG1204SS type)</p> <p>Corner Part (mm): 0.25, 4, 2.2, 15°, 4°</p> <p>Cutting Edge (mm): 0.25, 4, 15°, 4°</p>	<p>NEM type For Roughing</p> <p>Large convex rake face design keeps its cutting edge strength while suppressing crater wear</p> <p>Suppresses notch wear by eliminating the change of cutting points on the cutting edge</p>	<p>Chipbreaker Cross Section (CNMG1204SS type)</p> <p>Corner Part (mm): 0.05, 2.5, 20°</p> <p>Cutting Edge (mm): 0.30, 25°</p>

Coated Grades For Stainless Steel AC6020M/AC6030M/AC6135M/AC6145M

Applications of Chipbreakers (Negative Inserts): Application Range



Applications of Chipbreakers (Negative Inserts): Troubleshooting



80° Diamond type Negative Inserts

Shape	Cat. No.	Stock				Dimensions (mm)									
		AC6020M	AC6030M	AC6135M	AC6145M	Inscribed Circle	Thickness	Hole Dia.	Corner Radius						
	CNMG 090304 NFE	○	○	○	○	9.525	3.18	3.81	0.4						
	090308 NFE	○	○	○	○				0.8						
	CNMG 090404 NFE	○	○	○	○				9.525	4.76	3.81	0.4			
	090408 NFE	○	○	○	○							0.8			
	CNMG 120402 NFE	○	○	○	○							12.7	4.76	5.16	0.2
	120404 NFE	○	○	○	○										0.4
120408 NFE	○	○	○	○	0.8										
120412 NFE	○	○	○	○	1.2										
CNMG 090304 NLU	○	○	○	○	9.525	3.18	3.81	0.4							
090308 NLU	○	○	○	○				0.8							
CNMG 120402 NLU	○	○	○	○				12.7	4.76	5.16	0.2				
120404 NLU	○	○	○	○							0.4				
120408 NLU	○	○	○	○							0.8				
120412 NLU	○	○	○	○							1.2				
CNMG 120404 NLUW	●	○	○	○	12.7	4.76	5.16				0.4				
120408 NLUW	○	○	○	○							0.8				
120412 NLUW	○	○	○	○				1.2							
CNMG 090304 NSU	○	○	○	○				9.525	3.18	3.81	0.4				
090308 NSU	○	○	○	○							0.8				
CNMG 120402 NSU	●	○	○	○							12.7	4.76	5.16	0.2	
120404 NSU	●	○	○	○	0.4										
120408 NSU	●	○	○	○	0.8										
120412 NSU	○	○	○	○	1.2										
CNMG 090404 NEF	○	○	○	○	9.525	4.76	3.81	0.4							
090408 NEF	○	○	○	○				0.8							
CNMG 120404 NEF	●	○	○	○				12.7	4.76	5.16	0.4				
120408 NEF	●	○	○	○							0.8				
120412 NEF	○	○	○	○							1.2				
CNMG 120404 NEX	●	○	○	○							12.7	4.76	5.16	0.4	
120408 NEX	●	○	○	○	0.8										
120412 NEX	○	○	○	○	1.2										
120416 NEX	○	○	○	○	1.6										
CNMG 160612 NEX	○	○	○	○	15.875	6.35	6.35	1.2							
CNMG 190612 NEX	○	○	○	○	19.05	6.35	7.94	1.2							
CNMG 120404 NUP	●	○	○	○	12.7	4.76	5.16	0.4							
120408 NUP	●	○	○	○				0.8							
120412 NUP	○	○	○	○				1.2							
CNMG 120404 NGU	○	○	○	○				12.7	4.76	5.16	0.4				
120408 NGU	○	○	○	○							0.8				
120412 NGU	○	○	○	○							1.2				
120416 NGU	○	○	○	○	1.6										
CNMG 160608 NGU	○	○	○	○	15.875	6.35	6.35				0.8				
160612 NGU	○	○	○	○	15.875	6.35	6.35				1.2				
160616 NGU	○	○	○	○	15.875	6.35	6.35	1.6							
CNMG 120408 NGUW	○	○	○	○	12.7	4.76	5.16	0.8							
120412 NGUW	●	○	○	○				1.2							
CNMG 090408 NEG	○	○	○	○				9.525	4.76	3.81	0.8				
090412 NEG	○	○	○	○							1.2				
CNMG 120404 NEG	○	○	○	○							12.7	4.76	5.16	0.4	
120408 NEG	●	○	○	○										0.8	
120412 NEG	●	○	○	○	1.2										
CNMG 160608 NEG	○	○	○	○	15.875	6.35	6.35							0.8	
160612 NEG	○	○	○	○	15.875	6.35	6.35	1.2							
160616 NEG	○	○	○	○	15.875	6.35	6.35	1.6							
CNMG 190612 NEG	○	○	○	○	19.05	6.35	7.94	1.2							
190616 NEG	○	○	○	○				1.6							
CNMG 120408 NMU	●	○	○	○				12.7	4.76	5.16	0.8				
120412 NMU	●	○	○	○							1.2				
CNMG 160612 NMU	●	○	○	○							15.875	6.35	6.35	1.2	
160616 NMU	●	○	○	○							15.875	6.35	6.35	1.6	
CNMG 190612 NMU	○	○	○	○	19.05	6.35	7.94				1.2				
190616 NMU	○	○	○	○							1.6				
CNMG 120404 NEH	○	○	○	○				12.7	4.76	5.16	0.4				
120408 NEH	○	○	○	○							0.8				
120412 NEH	○	○	○	○							1.2				
120416 NEH	○	○	○	○							1.6				
CNMG 190612 NEH	○	○	○	○	19.05	6.35	7.94				1.2				
190616 NEH	○	○	○	○							1.6				

80° Diamond type Negative Inserts

Shape	Cat. No.	Stock				Dimensions (mm)															
		AC6020M	AC6030M	AC6135M	AC6145M	Inscribed Circle	Thickness	Hole Dia.	Corner Radius												
	CNMG 120408 NEM	○	○	○	○	12.7	4.76	5.16	0.8												
	120412 NEM	○	○	○	○				1.2												
	120416 NEM	○	○	○	○				1.6												
	CNMG 160608 NEM	○	○	○	○				15.875	6.35	6.35	0.8									
	160612 NEM	○	○	○	○							1.2									
	160616 NEM	○	○	○	○							1.6									
	CNMG 190612 NEM	○	○	○	○							19.05	6.35	7.94	1.2						
	190616 NEM	○	○	○	○										1.6						
	190624 NEM	○	○	○	○										2.4						
	CNMG 250924 NEM	○	○	○	○										25.4	9.52	9.12	2.4			
	CNMG 160616 NUX	○	○	○	○										15.875	6.35	6.35	1.6			
	CNMG 160608 NMU	○	○	○	○										15.875	6.35	6.35	0.8			
	160612 NMU	○	○	○	○													1.2			
	CNMG 190612 NMU	○	○	○	○													19.05	6.35	7.94	1.2
	190616 NMU	○	○	○	○																1.6
CNMM 120408 NMP	○	○	○	○	12.7	4.76	5.16	0.8													
120412 NMP	○	○	○	○				1.2													
120416 NMP	○	○	○	○				1.6													
CNMM 160608 NMP	○	○	○	○				15.875	6.35	6.35	0.8										
160612 NMP	○	○	○	○							1.2										
160616 NMP	○	○	○	○							1.6										
CNMM 190608 NMP	○	○	○	○							19.05	6.35	7.94	0.8							
190612 NMP	○	○	○	○										1.2							
190616 NMP	○	○	○	○										1.6							
190624 NMP	○	○	○	○										2.4							

55° Diamond type Negative Inserts

Shape	Cat. No.	Stock				Dimensions (mm)											
		AC6020M	AC6030M	AC6135M	AC6145M	Inscribed Circle	Thickness	Hole Dia.	Corner Radius								
	DNMG 110404 NFE	○	○	○	○	9.525	4.76	3.81	0.4								
	110408 NFE	○	○	○	○				0.8								
	110412 NFE	○	○	○	○				1.2								
	DNMG 150402 NFE	○	○	○	○				12.7	4.76	5.16	0.2					
	150404 NFE	○	○	○	○							0.4					
	150408 NFE	○	○	○	○							0.8					
	150412 NFE	○	○	○	○							1.2					
	DNMG 150602 NFE	○	○	○	○							12.7	6.35	5.16	0.2		
	150604 NFE	○	○	○	○										0.4		
	150608 NFE	○	○	○	○										0.8		
	150612 NFE	○	○	○	○										1.2		
	DNMG 110404 NLU	○	○	○	○										9.525	4.76	3.81
110408 NLU	○	○	○	○	0.8												
110412 NLU	○	○	○	○	1.2												
DNMG 150402 NLU	○	○	○	○	12.7	4.76	5.16	0.2									
150404 NLU	○	○	○	○				0.4									
150408 NLU	○	○	○	○				0.8									
150412 NLU	○	○	○	○				1.2									
DNMG 110404 NSU	○	○	○	○				9.525	4.76	3.81	0.4						
110408 NSU	○	○	○	○							0.8						
110412 NSU	○	○	○	○							1.2						
DNMG 150402 NSU	○	○	○	○							12.7	4.76	5.16	0.2			
150404 NSU	○	○	○	○										0.4			
150408 NSU	○	○	○	○										0.8			
150412 NSU	○	○	○	○										1.2			
DNMG 150604 NSU	○	○	○	○										12.7	6.35	5.16	0.4
150608 NSU	○	○	○	○	0.8												

AC6020M/AC6030M/AC6135M/AC6145M

55° Diamond type Negative Inserts

Shape	Cat. No.	Stock				Dimensions (mm)				
		AC6020M	AC6030M	AC6135M	AC6145M	Inscribed Circle	Thickness	Hole Dia.	Corner Radius	
	DNMG 110404 NEF	●	●	○	○	9.525	4.76	3.81	0.4	
	110408 NEF	●	●	○	○				0.8	
	110412 NEF	○	○	○	○				1.2	
	DNMG 150404 NEF	○	○	○	○	12.7	4.76	5.16	0.4	
	150408 NEF	○	○	○	○				0.8	
	150412 NEF	○	○	○	○				1.2	
	DNMG 150604 NEF	●	●	○	○	12.7	6.35	5.16	0.4	
	150608 NEF	●	●	○	○				0.8	
	150612 NEF	○	○	○	○				1.2	
	DNMG 110404 NEX	○	○	○	○	9.525	4.76	3.81	0.4	
	110408 NEX	○	○	○	○				0.8	
	110412 NEX	○	○	○	○				1.2	
	DNMG 150404 NEX	○	○	○	○	12.7	4.76	5.16	0.4	
	150408 NEX	○	○	○	○				0.8	
	150412 NEX	○	○	○	○				1.2	
	DNMG 150604 NEX	●	●	○	○	12.7	6.35	5.16	0.4	
	150608 NEX	●	●	○	○				0.8	
	150612 NEX	○	○	○	○				1.2	
	DNMG 150404 NUP	○	○	○	○	12.7	4.76	5.16	0.4	
	150408 NUP	○	○	○	○				0.8	
	150412 NUP	○	○	○	○				1.2	
	DNMG 150604 NUP	●	○	○	○	12.7	6.35	5.16	0.4	
	150608 NUP	●	○	○	○				0.8	
	150612 NUP	○	○	○	○				1.2	
		DNMG 110404 NGU	○	●	○	○	9.525	4.76	3.81	0.4
		110408 NGU	○	●	○	○				0.8
		110412 NGU	○	○	○	○				1.2
DNMG 150404 NGU		○	○	○	○	12.7	4.76	5.16	0.4	
150408 NGU		○	○	○	○				0.8	
150412 NGU		○	○	○	○				1.2	
DNMG 150604 NGU		●	○	○	○	12.7	6.35	5.16	0.4	
150608 NGU		●	○	○	○				0.8	
150612 NGU		○	○	○	○				1.2	
	DNMG 110404 NEG	○	●	○	○	9.525	4.76	3.81	0.8	
	110412 NEG	○	○	○	○				1.2	
	DNMG 150404 NEG	○	○	○	○				0.4	
	150408 NEG	○	○	○	○	12.7	4.76	5.16	0.8	
	150412 NEG	○	○	○	○				1.2	
	DNMG 150604 NEG	○	○	○	○				0.4	
	150608 NEG	●	○	○	○	12.7	6.35	5.16	0.8	
	150612 NEG	○	○	○	○				1.2	
	DNMG 150408 NMU	○	○	○	○				12.7	4.76
150412 NMU	○	○	○	○	1.2					
DNMG 150608 NMU	○	○	○	○	0.8					
150612 NMU	○	○	○	○	12.7	6.35	5.16	1.2		
150616 NMU	○	○	○	○				1.6		
DNMG 150404 NEH	○	○	○	○				12.7	4.76	5.16
150408 NEH	○	○	○	○	0.8					
150412 NEH	○	○	○	○	1.2					
DNMG 150608 NEH	○	○	○	○	12.7	6.35	5.16	0.8		
150612 NEH	○	○	○	○				1.2		
DNMG 150408 NEM	○	○	○	○				12.7	4.76	5.16
150412 NEM	○	○	○	○	1.2					
150416 NEM	○	○	○	○	1.6					
DNMG 150608 NEM	○	○	○	○	12.7	6.35	5.16	0.8		
150612 NEM	○	○	○	○				1.2		
DNMG 150404 RHM	○	○	○	○				12.7	4.76	5.16
150404 LHM	○	○	○	○	0.4					
150408 RHM	○	○	○	○	0.8					
150408 LHM	○	○	○	○	0.8					

Square type Negative Inserts

Shape	Cat. No.	Stock				Dimensions (mm)						
		AC6020M	AC6030M	AC6135M	AC6145M	Inscribed Circle	Thickness	Hole Dia.	Corner Radius			
	SNMG 120404 NFE	○	○	○	○	12.7	4.76	5.16	0.4			
	120408 NFE	○	○	○	○				0.8			
	120412 NFE	○	○	○	○				1.2			
	SNMG 120408 NLU	○	○	○	○	12.7	4.76	5.16	0.8			
	120412 NLU	○	○	○	○				1.2			
	SNMG 120408 NSU	○	○	○	○	12.7	4.76	5.16	0.8			
	SNMG 120404 NEF	○	○	○	○	12.7	4.76	5.16	0.4			
	120408 NEF	○	○	○	○				0.8			
	SNMG 120404 NEX	○	●	○	○	12.7	4.76	5.16	0.4			
	120408 NEX	○	●	○	○				0.8			
	120412 NEX	○	○	○	○				1.2			
	SNMG 150612 NEX	○	○	○	○				15.875	6.35	6.35	1.2
	SNMG 190612 NEX	○	○	○	○	19.05	6.35	7.94	1.2			
	SNMG 120404 NUP	○	○	○	○	12.7	4.76	5.16	0.4			
	120408 NUP	○	●	○	○				0.8			
	120412 NUP	○	○	○	○				1.2			
	SNMG 120404 NGU	○	○	○	○	12.7	4.76	5.16	0.4			
	120408 NGU	○	○	○	○				0.8			
	120412 NGU	○	○	○	○				1.2			
	120416 NGU	○	○	○	○				1.6			
	SNMG 150608 NGU	○	○	○	○	15.875	6.35	6.35	0.8			
	150612 NGU	○	○	○	○				1.2			
	150616 NGU	○	○	○	○				1.6			
	SNMG 120404 NEG	○	○	○	○	12.7	4.76	5.16	0.4			
	120408 NEG	○	○	○	○				0.8			
	120412 NEG	○	○	○	○				1.2			
	SNMG 150608 NEG	○	○	○	○				15.875	6.35	6.35	0.8
	150612 NEG	○	○	○	○				1.2			
	150616 NEG	○	○	○	○				1.6			
	SNMG 190612 NEG	○	○	○	○				19.05	6.35	7.94	1.2
	SNMG 120408 NMU	○	○	○	○	12.7	4.76	5.16	0.8			
	120412 NMU	○	○	○	○				1.2			
	120416 NMU	○	○	○	○				1.6			
	SNMG 150612 NMU	○	○	○	○				15.875	6.35	6.35	1.2
	150616 NMU	○	○	○	○				1.6			
	SNMG 190612 NMU	○	○	○	○				19.05	6.35	7.94	1.2
	190616 NMU	○	○	○	○				1.6			
	SNMG 120404 NEH	○	○	○	○	12.7	4.76	5.16	0.4			
	120408 NEH	○	○	○	○				0.8			
	120412 NEH	○	○	○	○				1.2			
	SNMG 190612 NEH	○	○	○	○				19.05	6.35	7.94	1.2
	SNMG 120408 NEM	○	○	○	○	12.7	4.76	5.16	0.8			
	120412 NEM	○	○	○	○				1.2			
	120416 NEM	○	○	○	○				1.6			
	SNMG 150608 NEM	○	○	○	○				15.875	6.35	6.35	0.8
	150612 NEM	○	○	○	○	1.2						
	150616 NEM	○	○	○	○	1.6						
	SNMG 190612 NEM	○	○	○	○	19.05	6.35	7.94	1.2			
	190616 NEM	○	○	○	○	1.6						
	SNMG 190624 NEM	○	○	○	○	19.05	6.35	7.94	2.4			
	SNMG 250924 NEM	○	○	○	○	25.4	9.52	9.12	2.4			
	SNMG 120408 RHM	○	○	○	○	12.7	4.76	5.16	0.8			
	120408 LHM	○	○	○	○				0.8			
	SNMM 120408 NMP	○	○	○	○	12.7	4.76	5.16	0.8			
	120412 NMP	○	○	○	○				1.2			
	120416 NMP	○	○	○	○				1.6			
	SNMM 150612 NMP	○	○	○	○				15.875	6.35	6.35	1.2
	150616 NMP	○	○	○	○				1.6			
	SNMM 190612 NMP	○	○	○	○				19.05	6.35	7.94	1.2
	190616 NMP	○	○	○	○				1.6			
	SNMM 250724 NMP	○	○	○	○				25.4	7.94	9.12	2.4
SNMM 250924 NMP	○	○	○	○	25.4	9.52	9.12	2.4				
SNMM 310924 NMP	○	○	○	○	31.75	9.52	8.8	2.4				

AC6020M/AC6030M/AC6135M/AC6145M

△ Triangular type Negative Inserts

Shape	Cat. No.	Stock				Dimensions (mm)			
		AC6020M	AC6030M	AC6135M	AC6145M	Inscribed Circle	Thickness	Hole Dia.	Corner Radius
	TNMG 160402 NFE	○	○	○	○	9.525	4.76	3.81	0.2
	160404 NFE	○	○	○	○				0.4
	160408 NFE	○	○	○	○				0.8
	160412 NFE	○	○	○	○				1.2
	TNMG 160402 NLU	○	○	○	○	9.525	4.76	3.81	0.2
	160404 NLU	○	○	○	○				0.4
	160408 NLU	○	○	○	○				0.8
	160412 NLU	○	○	○	○				1.2
	TNMG 160402 NSU	○	○	○	○	9.525	4.76	3.81	0.2
	160404 NSU	●	●	○	○				0.4
	160408 NSU	○	●	○	○				0.8
	160412 NSU	○	○	○	○				1.2
	TNMG 160404 NEF	●	○	○	○	9.525	4.76	3.81	0.4
	160408 NEF	●	●	○	○				0.8
	TNMG 160404 NEX	○	●	○	○	9.525	4.76	3.81	0.4
	160408 NEX	○	●	○	○				0.8
	160412 NEX	○	○	○	○				1.2
	TNMG 160404 NUP	○	○	○	○	9.525	4.76	3.81	0.4
	160408 NUP	○	●	○	○				0.8
	160412 NUP	○	○	○	○				1.2
	TNMG 220408 NUP	○	○	○	○				12.7
220412 NUP	○	○	○	○	1.2				
	TNMG 160404 NGU	○	○	○	○	9.525	4.76	3.81	0.4
	160408 NGU	○	●	○	○				0.8
	160412 NGU	○	○	○	○				1.2
	TNMG 220408 NGU	○	○	○	○				12.7
220412 NGU	○	○	○	○	1.2				
	TNMG 160404 NEG	○	○	○	○	9.525	4.76	3.81	0.4
	160408 NEG	○	○	○	○				0.8
	160412 NEG	○	○	○	○				1.2
	TNMG 160408 NMU	○	○	○	○				9.525
160412 NMU	○	○	○	○	1.2				
TNMG 220408 NMU	○	○	○	○	12.7	4.76	5.16	0.8	
220412 NMU	○	○	○	○				1.2	
	TNMG 160404 NEH	○	○	○	○	9.525	4.76	3.81	0.4
	160408 NEH	○	○	○	○				0.8
	160412 NEH	○	○	○	○				1.2
	TNMG 160408 NEM	○	○	○	○				9.525
160412 NEM	○	○	○	○	1.2				
TNMG 330924 NEM	○	○	○	○	19.05	9.52	7.93	2.4	
	TNMG 160404 RHM	○	○	○	○	9.525	4.76	3.81	0.4
	160404 LHM	○	○	○	○				0.4
	160408 RHM	○	○	○	○				0.8
	160408 LHM	○	○	○	○				0.8

△ Trigon type Negative Inserts









Shape	Cat. No.	Stock				Dimensions (mm)						
		AC6020M	AC6030M	AC6135M	AC6145M	Inscribed Circle	Thickness	Hole Dia.	Corner Radius			
	WNMG 060404 NFE	○	○	○	○	9.525	4.76	3.81	0.4			
	060408 NFE	○	○	○	○				0.8			
	WNMG 080402 NFE	○	○	○	○				12.7	4.76	5.16	0.2
	080404 NFE	○	○	○	○							0.4
	WNMG 080402 NFE	○	○	○	○	12.7	4.76	5.16	0.8			
	080408 NFE	○	○	○	○				1.2			
	WNMG 080404 NLU	○	○	○	○				12.7	4.76	5.16	0.4
	080412 NLU	○	○	○	○							0.8
	WNMG 060404 NLUW	○	○	○	○	9.525	4.76	3.81	0.4			
	060408 NLUW	○	○	○	○				0.8			
	WNMG 080404 NLUW	○	○	○	○	12.7	4.76	5.16	0.4			
	080408 NLUW	○	○	○	○				0.8			
	080412 NLUW	○	○	○	○				1.2			
	WNMG 060404 NSU	○	○	○	○				9.525	4.76	3.81	0.4
060408 NSU	○	○	○	○	0.8							
WNMG 080402 NSU	○	○	○	○	12.7	4.76	5.16	0.4				
080408 NSU	○	○	○	○				0.8				
	WNMG 080404 NSU	○	○	○	○	12.7	4.76	5.16	1.2			
	080412 NSU	○	○	○	○				0.4			
	WNMG 060404 NEF	○	○	○	○				9.525	4.76	3.81	0.8
	060408 NEF	○	○	○	○							0.4
	WNMG 080404 NEF	○	○	○	○	12.7	4.76	5.16	0.8			
	080408 NEF	○	○	○	○				0.4			
	WNMG 060404 NEX	○	○	○	○				9.525	4.76	3.81	0.4
	060408 NEX	○	○	○	○							0.8
	WNMG 080404 NEX	○	○	○	○	12.7	4.76	5.16	0.4			
	080408 NEX	○	○	○	○				0.8			
	080412 NEX	○	○	○	○				1.2			
	WNMG 080408 NUP	○	○	○	○				12.7	4.76	5.16	0.8
080412 NUP	○	○	○	○	1.2							
	WNMG 060404 NGU	○	○	○	○	9.525	4.76	3.81	0.4			
	060408 NGU	○	○	○	○				0.8			
	WNMG 080402 NGU	○	○	○	○				12.7	4.76	5.16	0.4
	080408 NGU	○	○	○	○							0.8
	WNMG 080412 NGU	○	○	○	○	12.7	4.76	5.16	1.2			
	WNMG 060408 NEG	○	○	○	○				9.525	4.76	3.81	0.8
	060412 NEG	○	○	○	○							1.2
	WNMG 080404 NEG	○	○	○	○							12.7
080408 NEG	○	○	○	○	0.8							
080412 NEG	○	○	○	○	1.2							
	WNMG 080408 NUP	○	○	○	○	12.7	4.76	5.16	0.8			
	080412 NUP	○	○	○	○				1.2			
	WNMG 060408 NMU	○	○	○	○				9.525	4.76	3.81	0.8
	060412 NMU	○	○	○	○							1.2
	WNMG 080408 NMU	○	○	○	○	12.7	4.76	5.16	0.8			
	080412 NMU	○	○	○	○				1.2			
	WNMG 080404 NEH	○	○	○	○				12.7	4.76	5.16	0.4
	080408 NEH	○	○	○	○							0.8
080412 NEH	○	○	○	○	1.2							
	WNMG 080416 NEH	○	○	○	○	12.7	4.76	5.16	1.6			
	WNMG 080408 NEM	○	○	○	○				12.7	4.76	5.16	0.8
	080412 NEM	○	○	○	○							1.2
	WNMG 080408 NEM	○	○	○	○				12.7	4.76	5.16	0.8
080412 NEM	○	○	○	○	1.2							

◇ 35° Diamond type Negative Inserts


Shape	Cat. No.	Stock				Dimensions (mm)			
		AC6020M	AC6030M	AC6135M	AC6145M	Inscribed Circle	Thickness	Hole Dia.	Corner Radius
	VNMG 160402 NFE	○	○	○	○	9.525	4.76	3.81	0.2
	160404 NFE	○	○	○	○				0.4
	160408 NFE	○	○	○	○				0.8
	160412 NFE	○	○	○	○				1.2
	VNMG 160402 NLU	○	○	○	○	9.525	4.76	3.81	0.2
	160404 NLU	○	○	○	○				0.4
	160408 NLU	○	○	○	○				0.8
	VNMG 160402 NSU	○	○	○	○				9.525
160404 NSU	○	○	○	○	0.4				
160408 NSU	○	○	○	○	0.8				
	VNMG 160402 NEF	○	○	○	○	9.525	4.76	3.81	0.2
	160404 NEF	○	○	○	○				0.4
	160408 NEF	○	○	○	○				0.8
	VNMG 160404 NEX	○	○	○	○				9.525
160408 NEX	○	○	○	○	0.8				
	VNMG 160404 NUP	○	○	○	○	9.525	4.76	3.81	0.4
	160408 NUP	○	○	○	○				0.8
	VNMG 160404 NGU	○	○	○	○	9.525	4.76	3.81	0.4
	160408 NGU	○	○	○	○				0.8
	160412 NGU	○	○	○	○				1.2
	VNMG 160404 NEG	○	○	○	○				9.525
160412 NEG	○	○	○	○	0.8				

AC6020M/AC6030M/AC6135M/AC6145M

35° Diamond type Positive Inserts

Shape	Relief Angle	Cat. No.	Stock				Dimensions (mm)			
			AC6020M	AC6030M	AC6135M	AC6145M	Inscribed Circle	Thickness	Hole Dia.	Corner Radius
	5	VBMT 110304 NLU	●	○	○	○	6.35	3.18	2.8	0.4
		110308 NLU	●	○	○	○				0.8
		VBMT 160404 NLU	○	○	○	○	9.525	4.76	4.4	0.4
		160408 NLU	○	○	○	○				0.8
	5	VBMT 110302 NLB	○	○	○	○	6.35	3.18	2.8	0.2
		110304 NLB	○	○	○	○				0.4
		110308 NLB	○	○	○	○	9.525	4.76	4.4	0.8
		VBMT 160404 NLB	○	○	○	○				0.4
		160408 NLB	○	○	○	○	0.8			
		160412 NLB	○	○	○	○	1.2			
	5	VBMT 110204 NSU	●	○	○	○	6.35	2.38	2.8	0.4
		110208 NSU	●	○	○	○				0.8
		VBMT 110302 NSU	○	○	○	○	6.35	3.18	2.8	0.2
		110304 NSU	●	○	○	○				0.4
		110308 NSU	○	○	○	○	9.525	4.76	4.4	0.8
		VBMT 160404 NSU	●	●	○	○				0.4
160408 NSU	●	●	○	○	0.8					
	5	VBMT 110304 NGU	○	○	○	○	6.35	3.18	2.8	0.4
		110308 NGU	○	○	○	○				0.8
		VBMT 160404 NGU	○	●	○	○	9.525	4.76	4.4	0.4
		160408 NGU	○	●	○	○				0.8
	7	VCMT 160404 NLU	○	○	○	○	9.525	4.76	4.4	0.4
		160408 NLU	○	○	○	○				0.8
	7	VCMT 080202 NLB	○	○	○	○	4.76	2.38	2.3	0.2
		080204 NLB	○	○	○	○				0.4
		VCMT 160404 NLB	○	○	○	○	9.525	4.76	4.4	0.4
		160408 NLB	○	○	○	○				0.8
	7	VCMT 080204 NSU	○	○	○	○	4.76	2.38	2.3	0.4
		VCMT 110302 NSU	●	●	○	○				0.2
		110304 NSU	●	●	○	○	6.35	3.18	2.8	0.4
		110308 NSU	○	○	○	○				0.8
		VCMT 160404 NSU	●	●	○	○	9.525	4.76	4.4	0.4
		160408 NSU	○	○	○	○				0.8
	7	VCMT 160404 NGU	○	○	○	○	9.525	4.76	4.4	0.4
		160408 NGU	○	○	○	○				0.8

Positive Trigon type

Shape	Relief Angle	Cat. No.	Stock				Dimensions (mm)			
			AC6020M	AC6030M	AC6135M	AC6145M	Inscribed Circle	Thickness	Hole Dia.	Corner Radius
	11	WPMT 110204 NLB	○	○	○	○	6.35	2.38	2.8	0.4
		WPMT 160308 NLB	○	○	○	○	9.525	3.18	4.4	0.8

AC6020M/AC6030M/AC6135M/AC6145M

■ Applications of Chipbreakers (Negative Inserts): Application Range

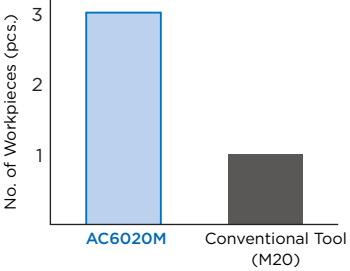
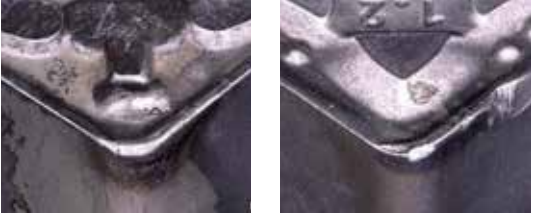
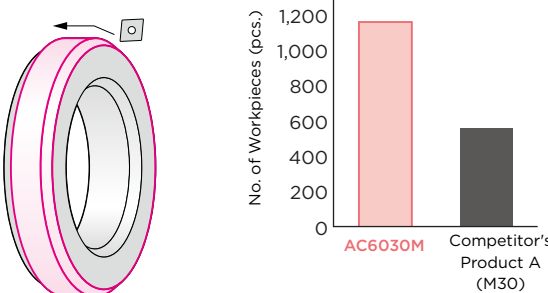
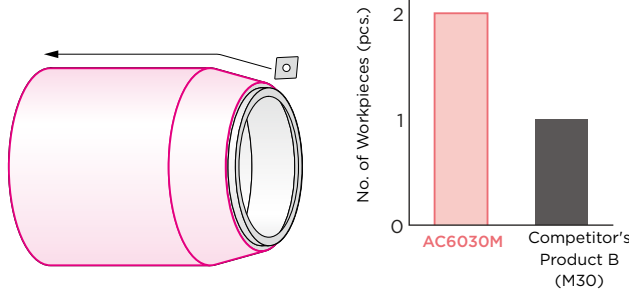
Min. - Optimum - Max.

Work Material	Application	Chipbreaker	Grade	Cutting Conditions		
				Depth of Cut ap (mm)	Feed Rate f (mm/rev)	Cutting Speed vc (m/min)
Ferritic X6CrAl13, X2Cr12, X6Cr17, etc.	Finishing	NEF(NSU)	AC6020M	0.5 - 1.5 - 2.0	0.05 - 0.15 - 0.25	170 - 230 - 300
	Continuous	NEG/NGU/NEX	AC6030M	1.0 - 2.5 - 4.0	0.10 - 0.25 - 0.40	140 - 170 - 250
	Light Interruption	NGU/NEH	AC6135M	1.0 - 3.0 - 5.0	0.20 - 0.35 - 0.50	140 - 170 - 200
	Interrupted	NEH/NEM	AC6145M	1.5 - 3.5 - 6.0	0.25 - 0.40 - 0.60	100 - 130 - 160
Martensitic X12Cr13, X30Cr13, X110Cr17, etc.	Finishing	NEF(NSU)	AC6020M	0.5 - 1.5 - 2.0	0.05 - 0.15 - 0.25	120 - 180 - 240
	Continuous	NEG/NGU/NEX	AC6030M	1.0 - 2.5 - 4.0	0.10 - 0.25 - 0.40	100 - 150 - 200
	Light Interruption	NGU/NEH	AC6135M	1.0 - 3.0 - 5.0	0.20 - 0.35 - 0.50	80 - 130 - 180
	Interrupted	NEH/NEM	AC6145M	1.5 - 3.5 - 6.0	0.25 - 0.40 - 0.60	60 - 100 - 140
Austenitic X5CrNi18-10, X5CrNiMo17-12-2, X6CrNiTi18-10, etc.	Finishing	NEF(NSU)	AC6030M	0.5 - 1.5 - 2.0	0.05 - 0.15 - 0.25	120 - 180 - 240
	Continuous	NEG/NGU/NEX	AC6135M	1.0 - 2.5 - 4.0	0.10 - 0.25 - 0.40	100 - 150 - 200
	Light Interruption	NGU/NEH	AC6135M	1.0 - 3.0 - 5.0	0.20 - 0.35 - 0.50	80 - 130 - 180
	Interrupted	NEH/NEM	AC6145M	1.5 - 3.5 - 6.0	0.25 - 0.40 - 0.60	60 - 100 - 140
Duplex X6CrNiMo26-4-2, X2CrNiMoN22-5-3, X2CrNiMoN25-7-3, etc.	Finishing	NEF(NSU)	AC6030M	0.5 - 1.5 - 2.0	0.05 - 0.15 - 0.25	100 - 140 - 180
	Continuous	NEG/NGU/NEX	AC6135M	1.0 - 2.5 - 4.0	0.10 - 0.25 - 0.40	80 - 120 - 160
	Light Interruption	NGU/NEH	AC6135M	1.0 - 3.0 - 5.0	0.20 - 0.35 - 0.50	70 - 100 - 140
	Interrupted	NEH/NEM	AC6145M	1.5 - 3.5 - 6.0	0.25 - 0.40 - 0.60	50 - 80 - 120
Precipitation Hardened Structures X5CrNiCuNb16-4, X7CrNiAl17-7, etc.	Finishing	NEF(NSU)	AC6020M	0.5 - 1.5 - 2.0	0.05 - 0.15 - 0.25	90 - 115 - 140
	Continuous	NEG/NGU/NEX	AC6030M	1.0 - 2.5 - 4.0	0.10 - 0.25 - 0.40	70 - 90 - 130
	Light Interruption	NGU/NEH	AC6135M	1.0 - 3.0 - 5.0	0.20 - 0.35 - 0.50	50 - 80 - 120
	Interrupted	NEH/NEM	AC6145M	1.5 - 3.5 - 6.0	0.25 - 0.40 - 0.60	40 - 70 - 100

Coated Grades For Stainless Steel

AC6020M/AC6030M/AC6135M/AC6145M

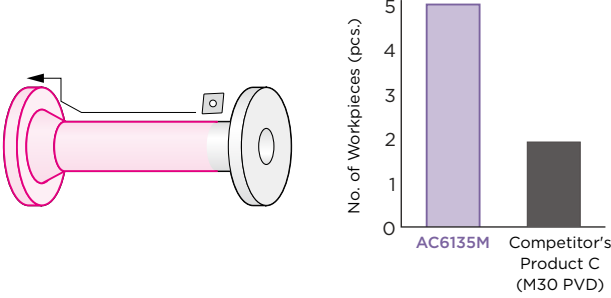
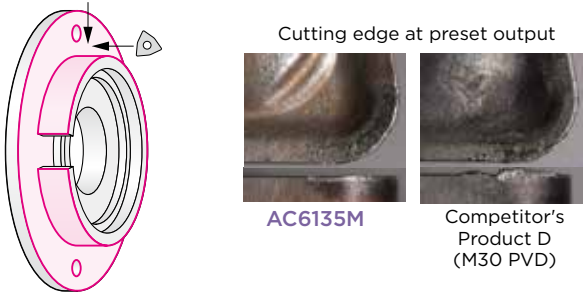
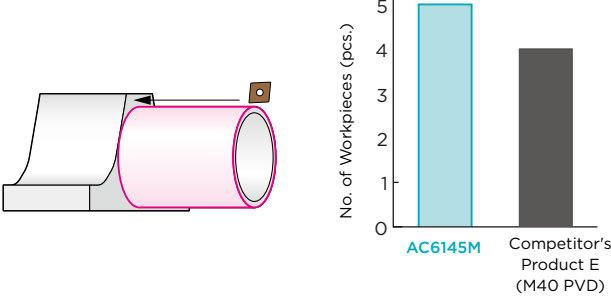
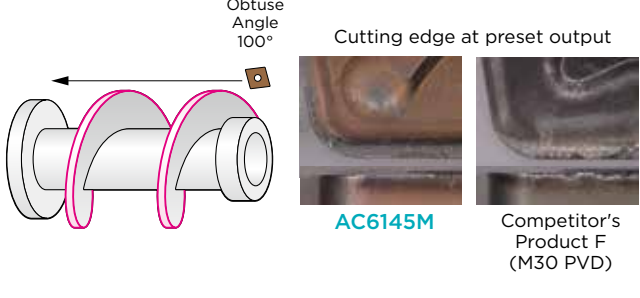
Application Examples of AC6020M / AC6030M

<p>X5CrNiMo17-12-2 Component AC6020M M</p> <p>AC6020M has good wear resistance with 3x longer tool life</p>  <p>Insert: CNMG120408N-GU (AC6020M) Continuous Turning Cutting Conditions: $vc = 180\text{m/min}$ $f = 0.25\text{mm/rev}$ $ap = 3.0\text{mm}$ Wet</p>	<p>X5CrNiMo17-12-2 Casing AC6020M M</p> <p>AC6020M's excellent chipping resistance performance improves tool life by 30%</p>  <p>Insert: SNMG120412N-GU (AC6020M) Continuous Turning Cutting Conditions: $vc = 180\text{m/min}$ $f = 0.25\text{mm/rev}$ $ap = 2.5\text{mm}$ Wet</p>
<p>X6Cr17 Motorcycle Component AC6030M M</p> <p>AC6030M provides stable machined surface quality and achieves double tool life thanks to excellent adhesion resistance performance</p>  <p>Insert: CNMG120404N-EF (AC6030M) Continuous Turning Cutting Conditions: $vc = 120\text{m/min}$ $f = 0.1\text{mm/rev}$ $ap = 0.8$ to 1.5mm Wet</p>	<p>X8CrNi-Mo27-5 - Casted Pump Component AC6030M M</p> <p>AC6030M achieves double tool life at 2.5x efficiency ($vc = 60 \rightarrow 100\text{m/min}$, $f = 0.2 \rightarrow 0.3\text{mm/rev}$) as well</p>  <p>Insert: CNMG120408N-EG (AC6030M) Continuous Turning Cutting Conditions: $vc = 100\text{m/min}$ $f = 0.3\text{mm/rev}$ $ap = 0.5\text{mm}$ Wet</p>

Coated Grades For Stainless Steel

AC6020M/AC6030M/AC6135M/AC6145M

Application Examples of AC6135M / AC6145M

<p>X5CrNiMo17-12-2 Pipe AC6135M M</p> <p>AC6135M suppresses crater wear and realises 2.5x tool life</p>  <p>No. of Workpieces (pcs.)</p> <table border="1"> <tr> <th>Material</th> <th>No. of Workpieces (pcs.)</th> </tr> <tr> <td>AC6135M</td> <td>5</td> </tr> <tr> <td>Competitor's Product C (M30 PVD)</td> <td>2</td> </tr> </table>	Material	No. of Workpieces (pcs.)	AC6135M	5	Competitor's Product C (M30 PVD)	2	<p>X5CrNiMo17-12-2 Flange AC6135M M</p> <p>AC6135M suppresses crater wear and adhesion and realises stable machining</p>  <p>Cutting edge at preset output</p> <p>AC6135M Competitor's Product D (M30 PVD)</p>
Material	No. of Workpieces (pcs.)						
AC6135M	5						
Competitor's Product C (M30 PVD)	2						
<p>Insert: CNMG120408NGU (AC6135M) Cutting Conditions: $vc = 150\text{m/min}$ $f = 0.25\text{mm/rev}$ $ap = 1.5\text{mm}$ Wet</p>	<p>Insert: WNMG080408NGU (AC6135M) Cutting Conditions: $vc = 130\text{m/min}$ $f = 0.15\text{mm/rev}$ $ap = 1.0\text{mm}$ Wet</p>						
<p>X5CrNiMo17-12-2 Casted Valve AC6145M M</p> <p>AC6145M suppresses fractures and realises 1.3x longer tool life</p>  <p>No. of Workpieces (pcs.)</p> <table border="1"> <tr> <th>Material</th> <th>No. of Workpieces (pcs.)</th> </tr> <tr> <td>AC6145M</td> <td>5</td> </tr> <tr> <td>Competitor's Product E (M40 PVD)</td> <td>4</td> </tr> </table>	Material	No. of Workpieces (pcs.)	AC6145M	5	Competitor's Product E (M40 PVD)	4	<p>X5CrNiMo17-12-2 Screw AC6145M M</p> <p>AC6145M suppresses chipping and thermal cracking and realises stable machining</p>  <p>Obtuse Angle 100°</p> <p>Cutting edge at preset output</p> <p>AC6145M Competitor's Product F (M30 PVD)</p>
Material	No. of Workpieces (pcs.)						
AC6145M	5						
Competitor's Product E (M40 PVD)	4						
<p>Insert: CNMG120408NEH (AC6145M) Interrupted Turning Cutting Conditions: $vc = 110\text{m/min}$ $f = 0.15\text{mm/rev}$ $ap = 1.0\text{mm}$ Wet</p>	<p>Insert: CNMG120412NGU (AC6145M) Interrupted Turning Cutting Conditions: $vc = 110\text{m/min}$ $f = 0.15\text{mm/rev}$ $ap = 1.5\text{mm}$ Wet</p>						



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