

Positive M-Class Chipbreaker for General Turning

# NGU<sub>Type</sub> Chipbreaker

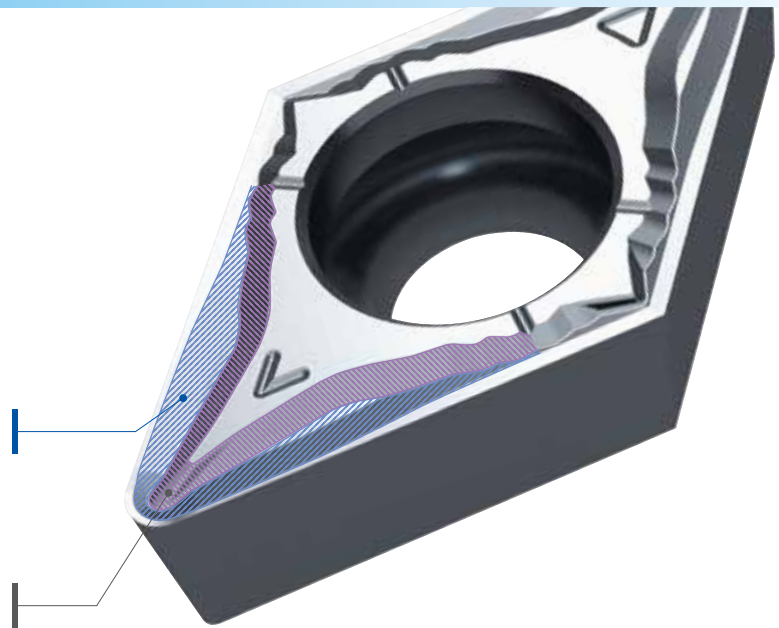
Highly Recommended Versatile Chipbreaker for Positive Inserts



# Chipbreaker for General Turning NGU Type

## NGU<sup>Positive</sup> type Chipbreaker

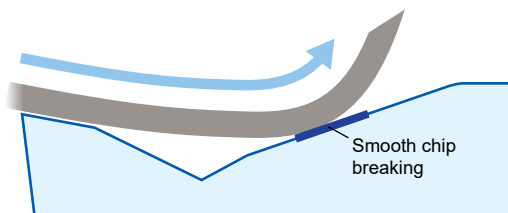
- Excellent chip control performance
- Wide chip pocket for various cutting conditions
- Less Vibration
- Improved chip control in a wide application field



- Suppresses chip jamming at high feed rates for ideal chip control



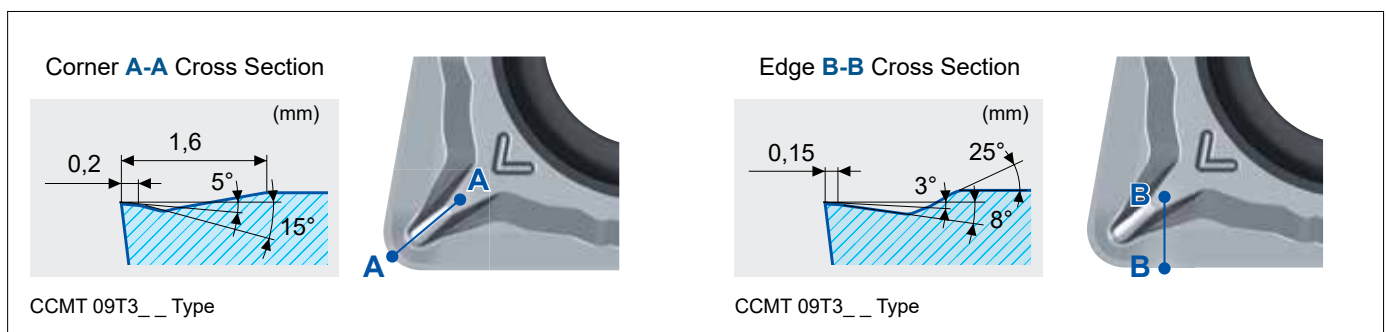
- Wide restraining face enables consistent chip control for light to medium cutting.
- Discharges chips well under high feed conditions and suppresses build-up



- Achieves stable machining with both versatility and low resistance

### Improved Fracture Resistance

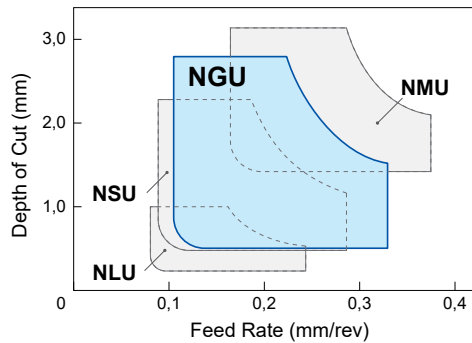
The two step rake angle geometry ensures outstanding sharpness and hardness.



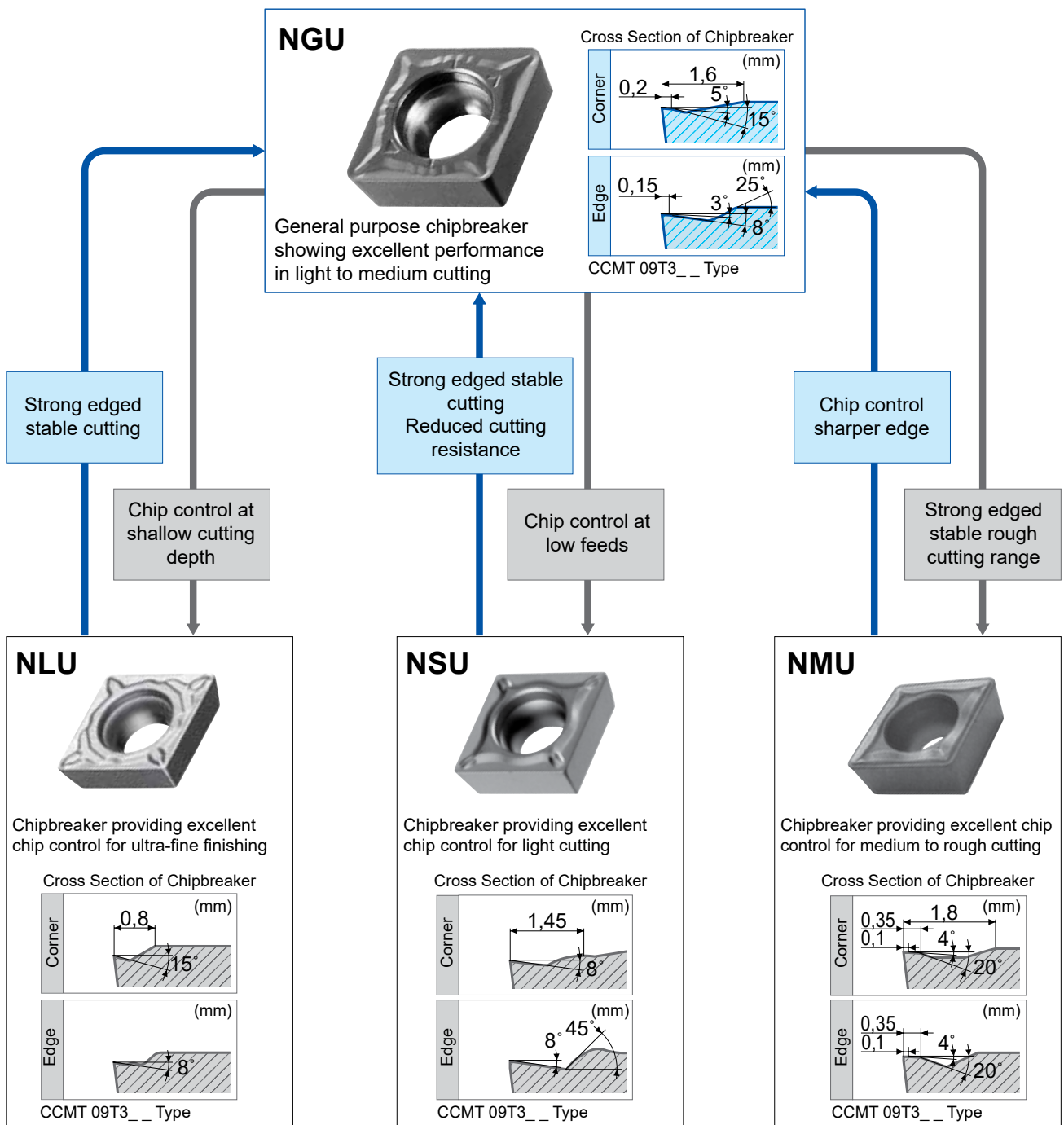
# Chipbreaker for General Turning NGU Type

## Application Range

Enhanced application range over conventional products.



## Chipbreaker Selection Guide

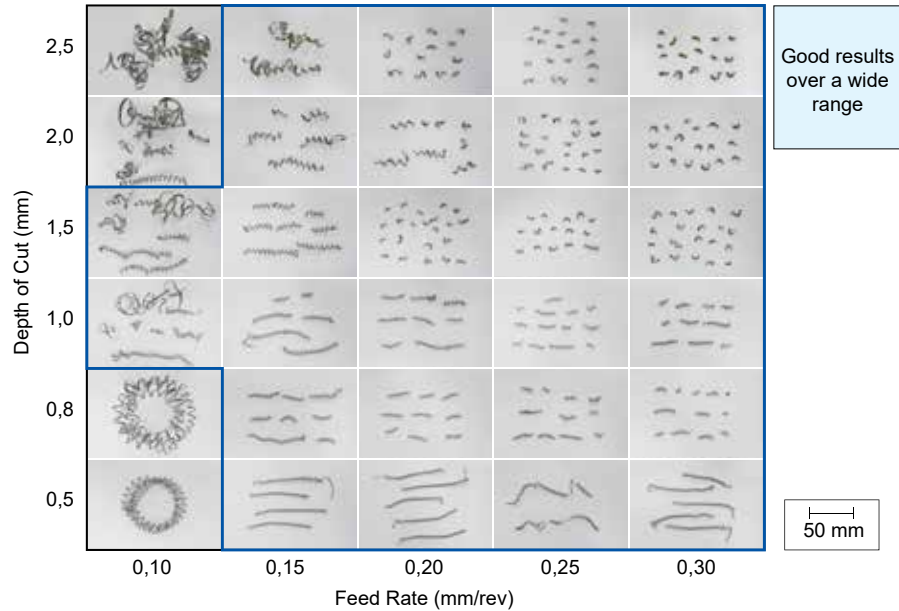
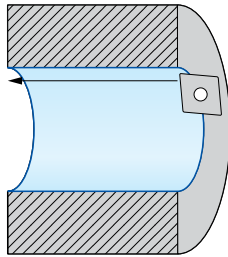


# Chipbreaker for General Turning NGU Type

## ■ Cutting Performance

### Chip Control

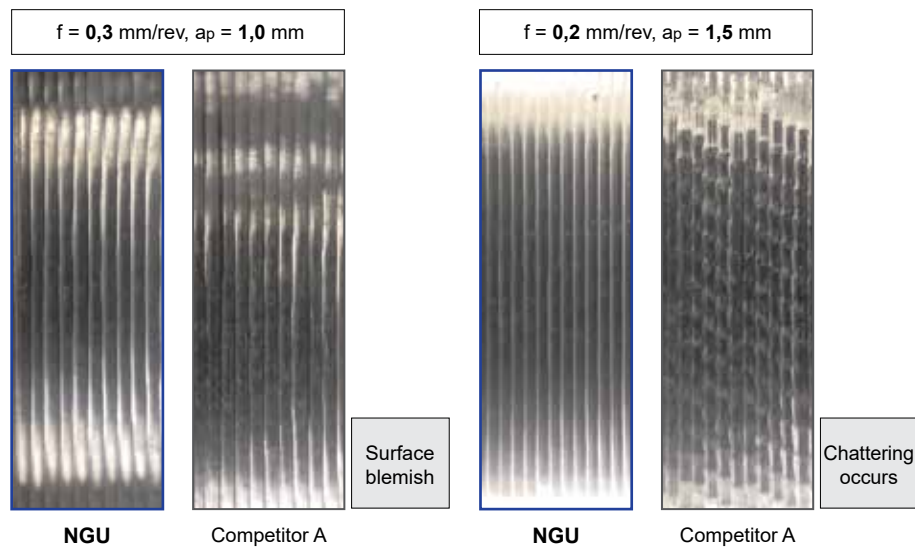
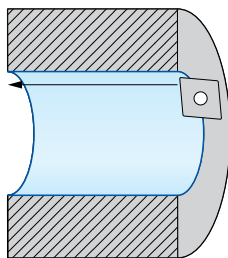
Wide ranging compatibility from light to medium cutting. Suppresses chip entanglement under high feed conditions to realize stable machining.



Work Material: STKM13A, pipe material (Ø30 mm, internal boring)  
 Insert: CCMT 09T308 NGU (AC8025P)  
 Cutting Conditions:  $v_c = 200$  m/min, wet

### Chatter Resistance

Protrusion design with a smooth incline that suppresses chatter.

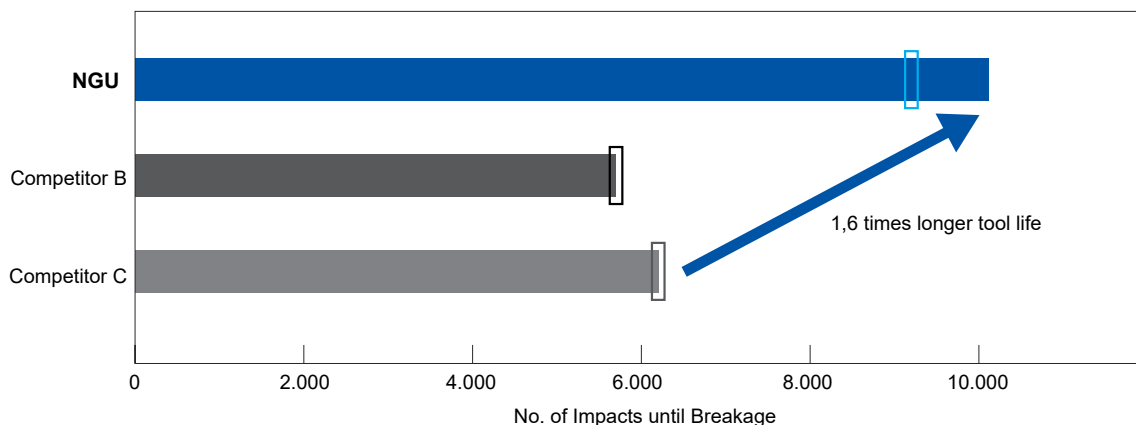


Work Material: 15CrMo5, (Ø15 mm, internal boring)  
 Holder: S10K-STUP R1103-12 (steel holder L/D=3)  
 Insert: TPMT 110308 NGU (AC8025P)  
 Cutting Conditions:  $v_c = 100$  m/min, wet

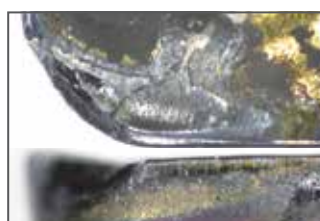
## Cutting Performance

### Fracture Resistance

Strengthened cutting edge design improves fracture resistance.



**NGU**  
(9.200 impacts)



Competitor B  
(5.700 impacts)



Competitor C  
(6.200 impacts)

Work Material: 34CrMo4, groove material (light interrupted cut, external turning)  
 Insert: CCMT 09T308 NGU (AC8025P)  
 Cutting Conditions:  $v_c = 300$  m/min,  $f = 0,2$  mm/rev,  $a_p = 1,5$  mm, wet

## Recommended Cutting Conditions

Min. - Optimum - Max.

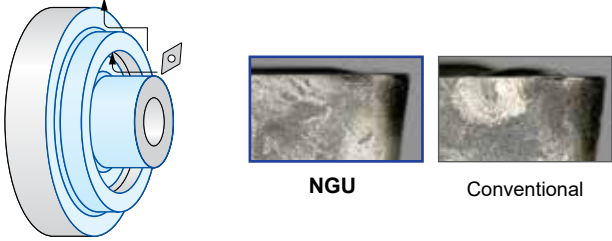
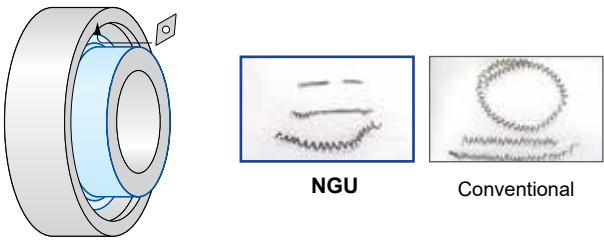
	Work Material	Grades	Cutting Conditions		
			Cutting Speed (m/min)	Feed Rate (mm/rev)	Depth of Cut (mm)
<b>P</b>	Soft Steel (STKM13A, ST44-2, etc.)	AC8015P	240- <b>330</b> -420	0,12- <b>0,20</b> -0,30	0,50- <b>1,00</b> -2,50
		AC8025P	220- <b>300</b> -380		
		AC8035P	160- <b>200</b> -240		
		T1500A	100- <b>190</b> -280		
		T1500Z	110- <b>220</b> -310		
		T2500Z	80- <b>180</b> -280		
	Carbon Steel, Alloy Steel (C45, 34CrMo4, etc.)	AC8015P	220- <b>300</b> -380	0,10- <b>0,20</b> -0,30	0,40- <b>1,00</b> -2,50
		AC8025P	190- <b>250</b> -310		
		AC8035P	140- <b>180</b> -220		
		T1500A	90- <b>170</b> -250		
		T1500Z	100- <b>200</b> -300		
		T2500Z	70- <b>160</b> -250		
<b>M</b>	Stainless Steel (austenitic)	AC6020M	130- <b>170</b> -210	0,10- <b>0,20</b> -0,30	0,40- <b>1,00</b> -2,50
		AC6030M	100- <b>130</b> -160		
		AC6040M	90- <b>115</b> -140		
<b>K</b>	GG GGG	AC4010K	200- <b>400</b> -700	0,12- <b>0,20</b> -0,30	0,50- <b>1,00</b> -2,50
		AC4015K	180- <b>300</b> -450		
<b>S</b>	Heat Resistant Alloy (Ni, Fe, Co material)	AC5015S	30- <b>55</b> -80	0,08- <b>0,15</b> -0,25	0,40- <b>0,80</b> -2,00
		AC5025S	30- <b>55</b> -80		

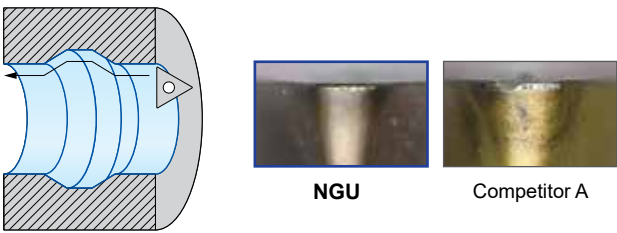
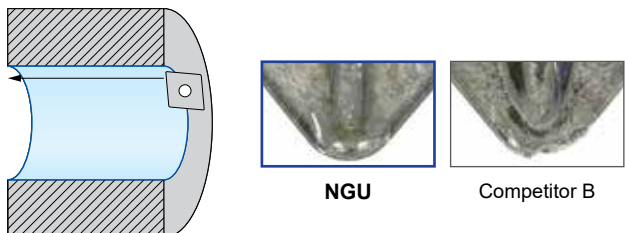


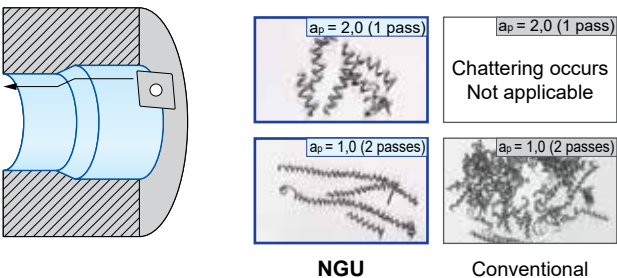
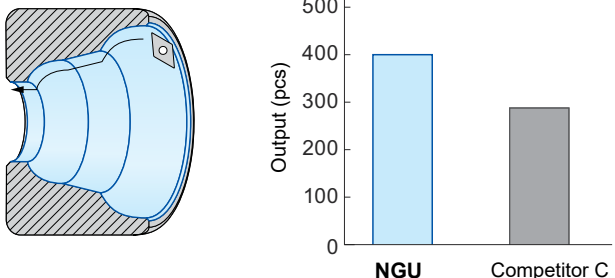
# Chipbreaker for General Turning

## NGU Type

### Application Examples








SPHC, Press Material Cylinder Parts	15CrMo5, Automotive Drive Parts
<p>Stable machining without cutting edge failure.</p> 	<p>Improves chip entanglement for improved machining efficiency.</p> 
<p>Insert: DCMT 11T304 NGU (AC8025P)            Cutting Conditions: <math>v_c = 220</math> m/min, <math>f = 0,2</math> mm/rev, <math>a_p = 0,5</math> mm, wet, external profiling</p>	<p>Insert: DCMT 11T308 NGU (AC8015P)            Cutting Conditions: <math>v_c = 180</math> m/min, <math>f = 0,3</math> mm/rev, <math>a_p = 1,5</math> mm, wet, external profiling</p>

15CrMo5, Precision Mechanical Parts	15CrMo5, Fastening Parts
<p>Suppresses cutting edge temperature rise, reducing wear and damage.</p> 	<p>Strong cutting edge design realizes 1,5 times the tool life.</p> 
<p>Insert: TPMT 110304 NGU (AC6040M)            Cutting Conditions: <math>v_c = 130</math> m/min, <math>f = 0,2</math> mm/rev, <math>a_p = 0,5</math> mm, wet, internal profiling</p>	<p>Insert: CCMT 09T308 NGU (AC8025P)            Cutting Conditions: <math>v_c = 190</math> m/min, <math>f = 0,25</math> mm/rev, <math>a_p = 1,0</math> mm, wet, internal boring</p>

24CrMo5, Automotive Parts	Bearing Steel, Bearing Parts
<p>Improves chip entanglement for improved machining efficiency.</p> 	<p>Strong cutting edge design realizes 1,3 times the tool life.</p> 
<p>Insert: CPMT 090308 NGU (AC8025P)            Cutting Conditions: <math>v_c = 200</math> m/min, <math>f = 0,2</math> mm/rev, <math>a_p = 2,0</math> mm, wet, internal taper boring</p>	<p>Insert: DCMT 11T312 NGU (AC8025P)            Cutting Conditions: <math>v_c = 220</math> m/min, <math>f = 0,15-0,35</math> mm/rev, <math>a_p = 0,8-3,8</math> mm, wet, internal boring</p>

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## Stock Items

Shape	Relief Angle	Cat. No.	Grade											Dimensions (mm)					
			Coated Carbide									Coated Cermet		Cermet	Inscribed Circle	Thick-ness	Screw Hole Ø	Nose Radius	
			AC8015P	AC8025P	AC8035P	AC6020M	AC6030M	AC6040M	AC4010K	AC4015K	AC5015S	AC5025S	T1500Z	T2500Z					T1500A
	7°	CCMT 060204 NGU	●	●	●	●	●	●		●	●	○	●	○	○	6,35	2,38	2,8	0,4
		060208 NGU	●	●	○	○	●	●					○	○	○	6,35	2,38	2,8	0,8
		CCMT 09T304 NGU	●	●	●	●	●	●			●	●	●	●	○	9,525	3,97	4,4	0,4
		09T308 NGU	●	●	●	●	●	●	●	●		●	●	○	○	9,525	3,97	4,4	0,8
		CCMT 120408 NGU	●	●	●	●	●		●	●						12,7	4,76	5,5	0,8
	11°	CPMT 090304 NGU	○	○	○	○	○	○					○	○	○	9,525	3,18	4,4	0,4
		090308 NGU	○	○	○	○	○	○					○	○	○	9,525	3,18	4,4	0,8
	7°	DCMT 070204 NGU	●	●	●	●	●	○					●	○	○	6,35	2,38	2,8	0,4
		070208 NGU	●	●	○	○	●	○					○	○	○	6,35	2,38	2,8	0,8
		DCMT 11T302 NGU	●	●	○	●	●	○					●	○	○	9,525	3,97	4,4	0,2
		11T304 NGU	●	●	●	●	●	●	●	●	●	●	●	●	●	9,525	3,97	4,4	0,4
		11T308 NGU	●	●	●	●	●	●	●	●	●	●	●	●	●	9,525	3,97	4,4	0,8
		11T312 NGU		○			○									9,525	3,97	4,4	1,2
	7°	SCMT 09T304 NGU	●	●	○	○	●	○			●				9,525	3,97	4,4	0,4	
		09T308 NGU	●	●	●	○	●	○		●	●	●			9,525	3,97	4,4	0,8	
		120408 NGU	○	●	○		●								12,7	4,76	5,5	0,8	
	11°	TPMT 110304 NGU	○	●	○	○	●	○					○	○	○	6,35	3,18	3,4	0,4
		110308 NGU	○	○	○	○	○	○					○	○	○	6,35	3,18	3,4	0,8
		160404 NGU	○	○	○	○	○	○					○	○	○	9,525	4,76	4,4	0,4
		160408 NGU	●	○	○	○	●	○					○	○	○	9,525	4,76	4,4	0,8
	5°	VBMT 110304 NGU	○	○	○	○	●	○					○	○	○	6,35	3,18	2,8	0,4
		110308 NGU	●	○	○	●	○	○					○	○	○	6,35	3,18	2,8	0,8
		VBMT 160404 NGU	●	●	○	●	●	○		●	●	●	●	●	○	9,525	4,76	4,4	0,4
		160408 NGU	●	●	●	●	●	○	●	●		●	●	○	○	9,525	4,76	4,4	0,8
	7°	VCMT 160404 NGU	●	●	○	○	●	○		●	●	○			9,525	4,76	4,4	0,4	
		160408 NGU	●	●	○	○	●	○				○			9,525	4,76	4,4	0,8	

# Chipbreaker for General Turning

## NGU Type



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