SUMITOMO
CARBIDE - CBN - DIAMOND

Positive M-Class Chipbreaker for General Turning

NGU Type Chipbreaker

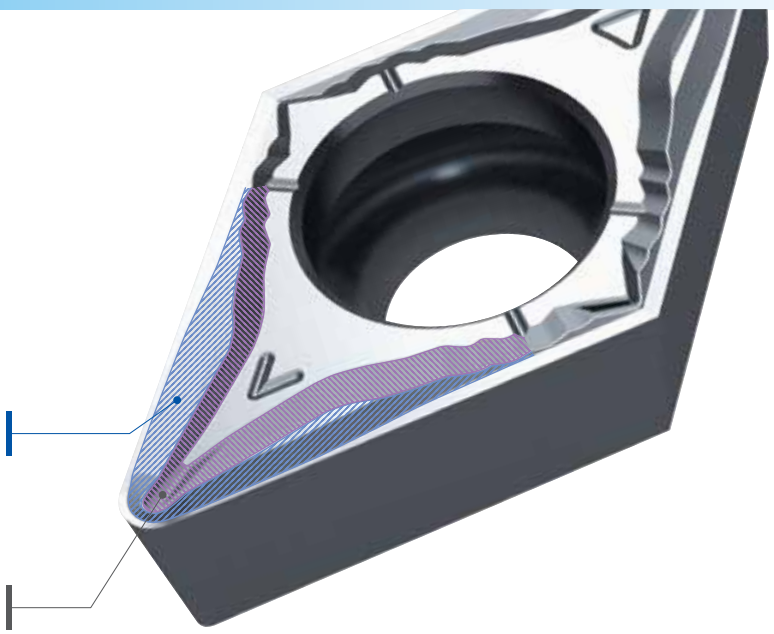
Highly Recommended Versatile Chipbreaker for Positive Inserts

P M K N S H

SUMITOMO ELECTRIC GROUP

NGU Type

NGU Positive type Chipbreaker



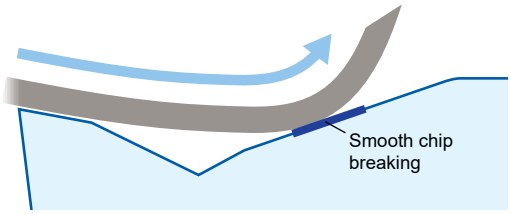
- Excellent chip control performance
- Wide chip pocket for various cutting conditions

- 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

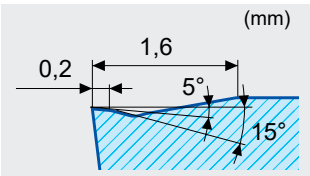


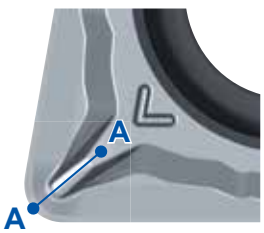
- Achieves stable machining with both versatility and low resistance

Improved Fracture Resistance

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

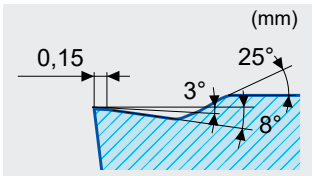
Corner **A-A** Cross Section

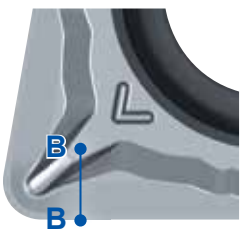




CCMT 09T3_ _ Type

Edge **B-B** Cross Section

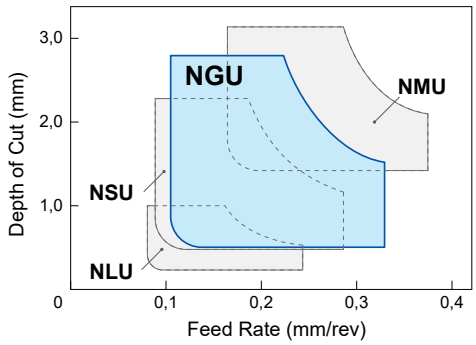


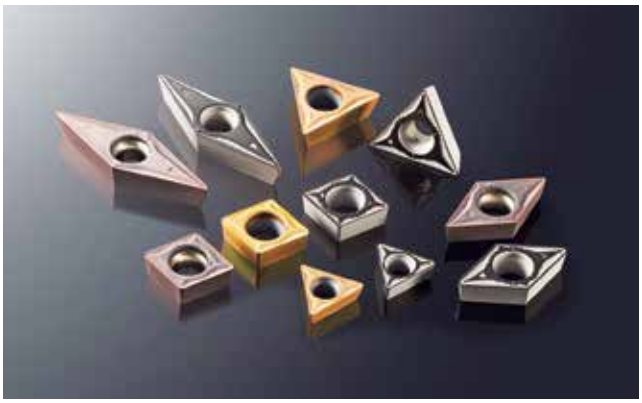


CCMT 09T3_ _ Type

Application Range

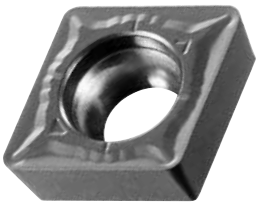
Enhanced application range over conventional products.





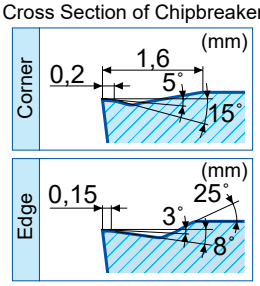
Chipbreaker Selection Guide

NGU



General purpose chipbreaker showing excellent performance in light to medium cutting

Cross Section of Chipbreaker



CCMT 09T3_ _ Type

Strong edged stable cutting

Chip control at shallow cutting depth

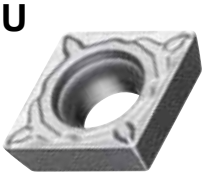
Strong edged stable cutting Reduced cutting resistance

Chip control at low feeds

Chip control sharper edge

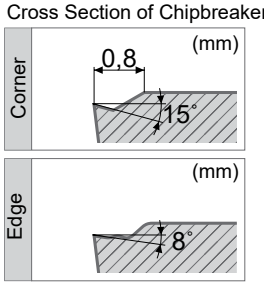
Strong edged stable rough cutting range

NLU



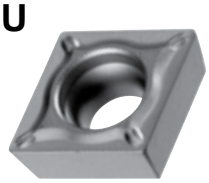
Chipbreaker providing excellent chip control for ultra-fine finishing

Cross Section of Chipbreaker



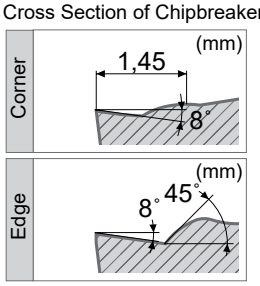
CCMT 09T3_ _ Type

NSU



Chipbreaker providing excellent chip control for light cutting

Cross Section of Chipbreaker

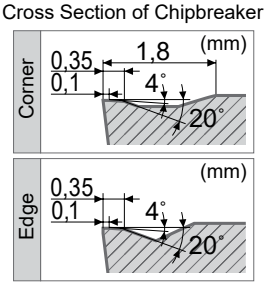


CCMT 09T3_ _ Type

NMU

Chipbreaker providing excellent chip control for medium to rough cutting

Cross Section of Chipbreaker

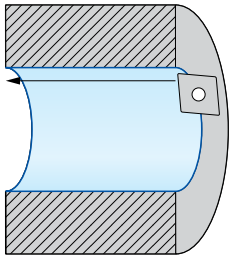


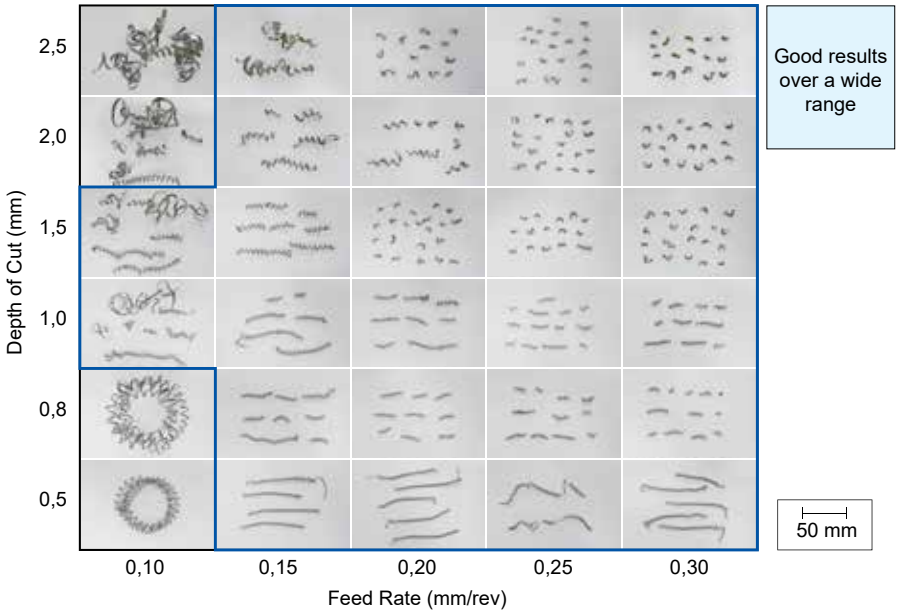
CCMT 09T3_ _ Type

Cutting Performance

Chip Control

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

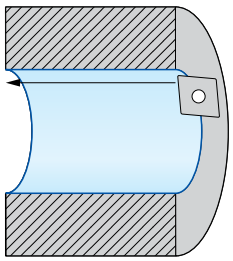


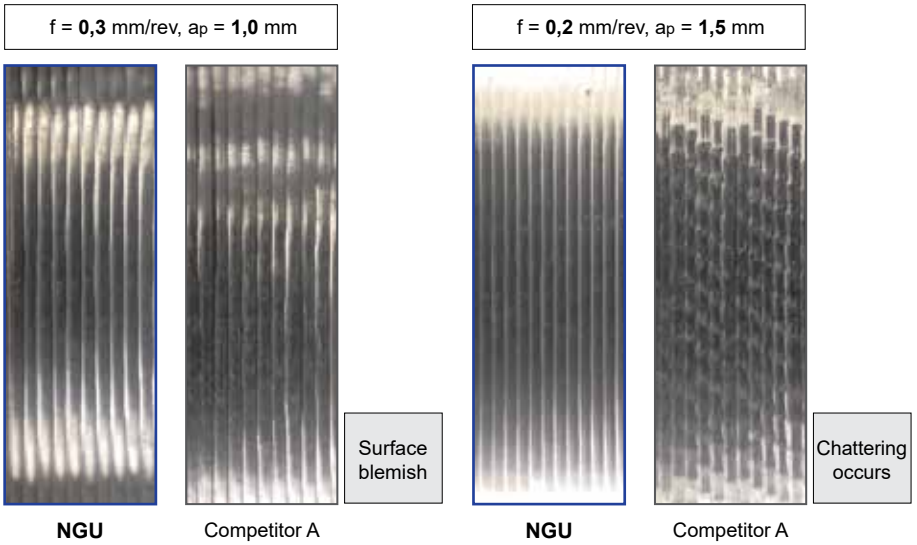


Work Material:	STKM13A, pipe material (Ø30 mm, internal boring)
Insert:	CCMT 09T308 NGU (AC8025P)
Cutting Conditions:	v_c = 200 m/min, wet

Chatter Resistance

Protrusion design with a smooth incline that suppresses chatter.



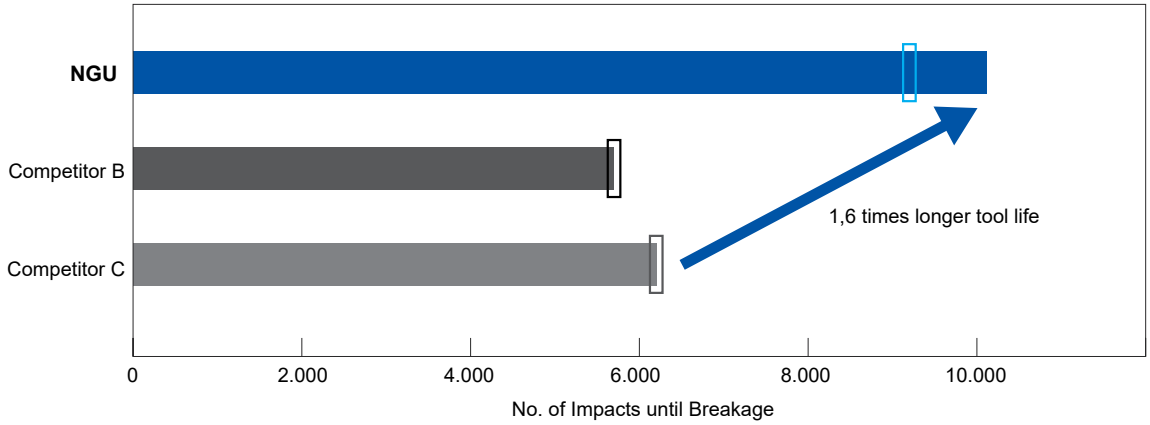


Work Material:	15CrMo5, (Ø15 mm, internal boring)
Holder:	S10K-STUP R1103-12 (steel holder L/D=3)
Insert:	TPMT 110308 NGU (AC8025P)
Cutting Conditions:	v_c = 100 m/min, wet

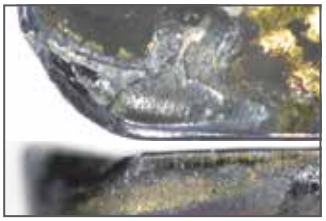
Cutting Performance

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

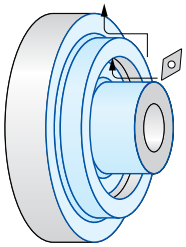
Min. - **Optimum** - Max.

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

Application Examples

SPHC, Press Material Cylinder Parts

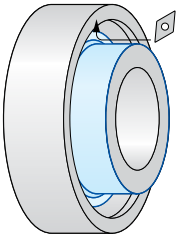
Stable machining without cutting edge failure.



Insert: DCMT 11T304 NGU (AC8025P)
Cutting Conditions: v_c = 220 m/min, f = 0,2 mm/rev,
a_p = 0,5 mm, wet, external profiling

15CrMo5, Automotive Drive Parts

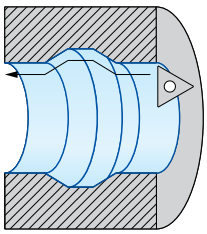
Improves chip entanglement for improved machining efficiency.



Insert: DCMT 11T308 NGU (AC8015P)
Cutting Conditions: v_c = 180 m/min, f = 0,3 mm/rev,
a_p = 1,5 mm, wet, external profiling

15CrMo5, Precision Mechanical Parts

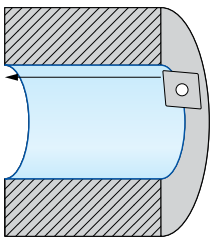
Suppresses cutting edge temperature rise, reducing wear and damage.

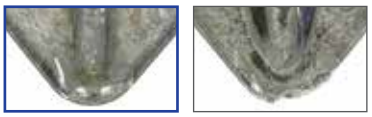


Insert: TPMT 110304 NGU (AC6040M)
Cutting Conditions: v_c = 130 m/min, f = 0,2 mm/rev,
a_p = 0,5 mm, wet, internal profiling

15CrMo5, Fastening Parts

Strong cutting edge design realizes 1,5 times the tool life.

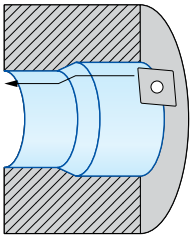


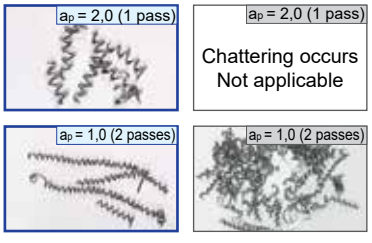


Insert: CCMT 09T308 NGU (AC8025P)
Cutting Conditions: v_c = 190m/min, f = 0,25 mm/rev,
a_p = 1,0 mm, wet, internal boring

24CrMo5, Automotive Parts

Improves chip entanglement for improved machining efficiency.

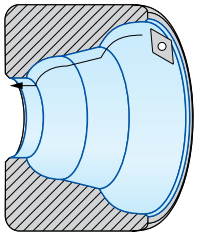


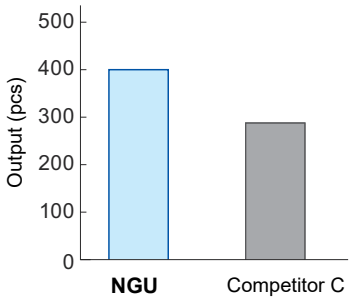


Insert: CPMT 090308 NGU (AC8025P)
Cutting Conditions: v_c = 200 m/min, f = 0,2 mm/rev,
a_p = 2,0 mm, wet, internal taper boring

Bearing Steel, Bearing Parts

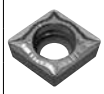
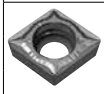
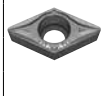
Strong cutting edge design realizes 1,3 times the tool life.





Insert: DCMT 11T312 NGU (AC8025P)
Cutting Conditions: v_c = 220 m/min, f = 0,15-0,35 mm/rev,
a_p = 0,8-3,8 mm, wet, internal boring

Stock Items

Shape	Relief Angle	Cat. No.	Grade													Dimensions (mm)			
			Coated Carbide										Coated Cermet		Cermet				
			AC8015P	AC8025P	AC8035P	AC6020M	AC6030M	AC6040M	AC4010K	AC4015K	AC5015S	AC5025S	T1500Z	T2500Z	T1500A	Inscribed Circle	Thick-ness	Screw Hole Ø	Nose Radius
	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

● = Euro stock ❍ = Japan stock

NGU Type

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CARBIDE - CBN - DIAMOND

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