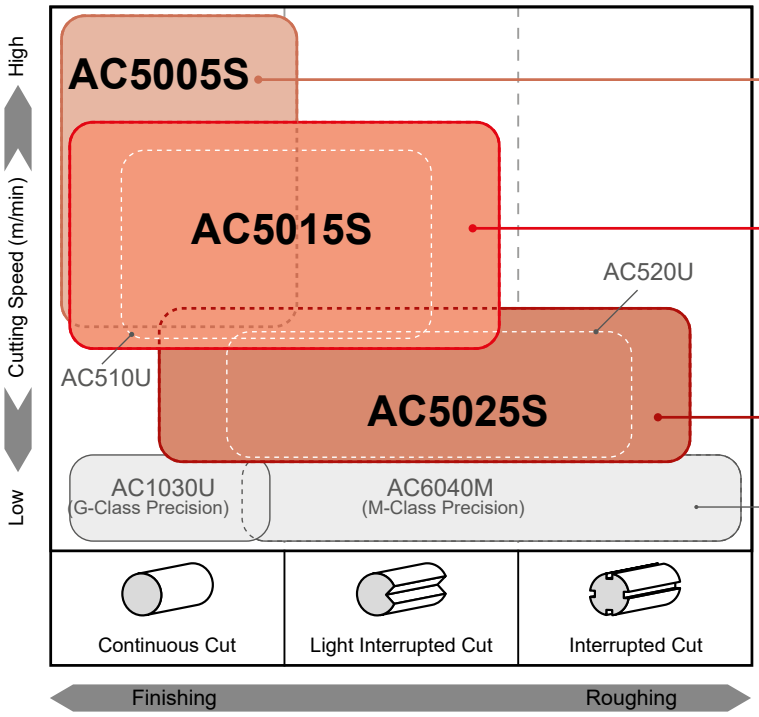
AC5005S/AC5015S/AC5025S

Application Range



AC5005S ABSOTECH

For high-efficiency machining
Excellent wear resistance, tool life 1,5 x conventional grade

AC5015S ABSOTECH

1st recommendation
Excellent wear resistance, 2 x conventional grade

AC5025S ABSOTECH

For interrupted machining
Fracture resistance, 1,5 x conventional grade

Also suitable for work materials other than exotic alloys

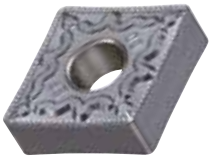
Applicable work materials: P M K S H

Try the following grades if even greater rigidity is required.

G-Class Precision → AC1030U

M-Class Precision → AC6040M

Features of AC5000S Series



Newly developed heat-resistant carbide substrate

High efficiency with a newly developed dedicated substrate with excellent high-temperature hardness/strength. Realises excellent wear resistance and plastic deformation resistance during machining.

Excellent high-temperature strength

Deformation at high temperatures
50% down
from conventional grade

(High-temperature deformation evaluation 800°C)

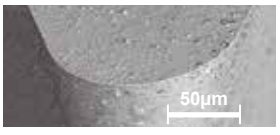
PVD-coating technology ABSOTECH™

Highly heat-resistant ultra-multi-layer thin-film AlTiSiN structure realizes excellent crater wear resistance and flank wear resistance.

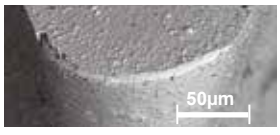
Newly developed tough carbide substrate

Introduction of a revolutionary new sintering process enables hardness to be maintained while greatly improving rigidity, whilst attaining a reduction in boundary defects and chipping resistant issues.

AC5005S Series



Conventional



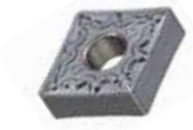
Excellent Cutting Edge Quality

Chipbreaker Selection Guide

Negative Type Inserts

Finishing

NEF

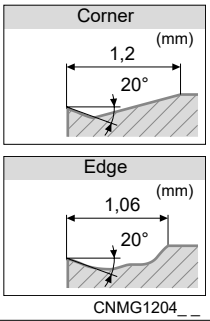


Main chipbreaker exhibits excellent chip evacuation performance even with small depth of cut.

Cutting edge designed with an emphasis on sharpness (20° rake angle) to suppress wear.

Grooved rake face suppresses heat generation and uneven contact.

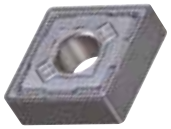
Chipbreaker Cross-Section



CNMG1204_ _

Medium to Rough Cutting

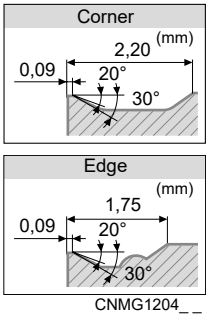
NEG



Spherical protrusions exhibits excellent chip evacuation performance over a wide range of conditions.

Cutting edge shape that retains its strength even after wear progresses.

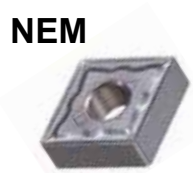
Chipbreaker Cross-Section



CNMG1204_ _

Rough Cutting

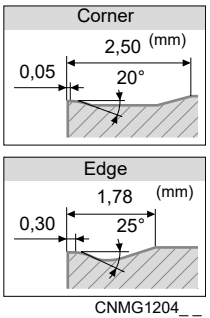
NEM



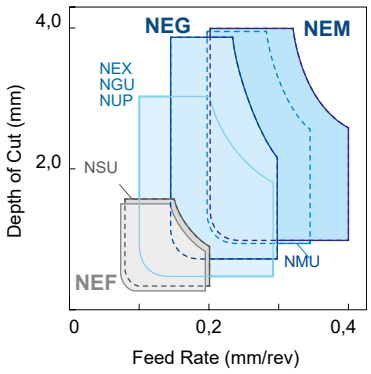
Large convex rake face design keeps its cutting edge strength while suppressing crater wear.

Suppresses notch wear by eliminating the change of cutting points on the cutting edge.

Chipbreaker Cross-Section



CNMG1204_ _

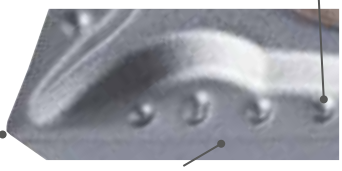


Positive Type Inserts

Finishing to Light Cutting

NSI

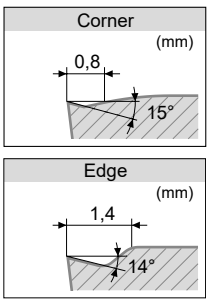
Dimpled shape suppresses heat generation due to large depths of cut.



Cutting edge designed with an emphasis on sharpness (15° rake angle).

Cutting edge shape intended to improve profiling and reduce cutting force.

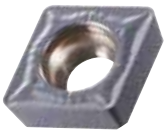
Chipbreaker Cross-Section



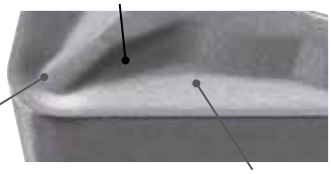
CCGT09T3_ _

Light to Medium Cutting

NGU



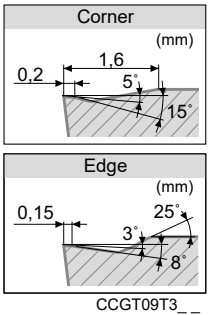
Suppresses chip build-up at high feed rates for ideal chip control.



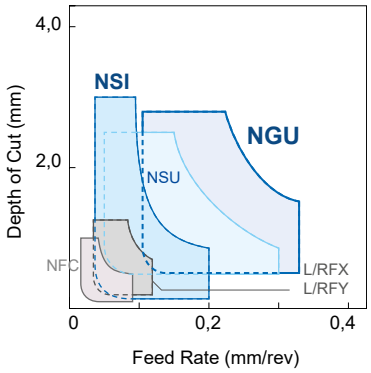
Protrusion design controls chip flow.

Rake face shape with excellent balance of sharpness and strength.

Chipbreaker Cross-Section

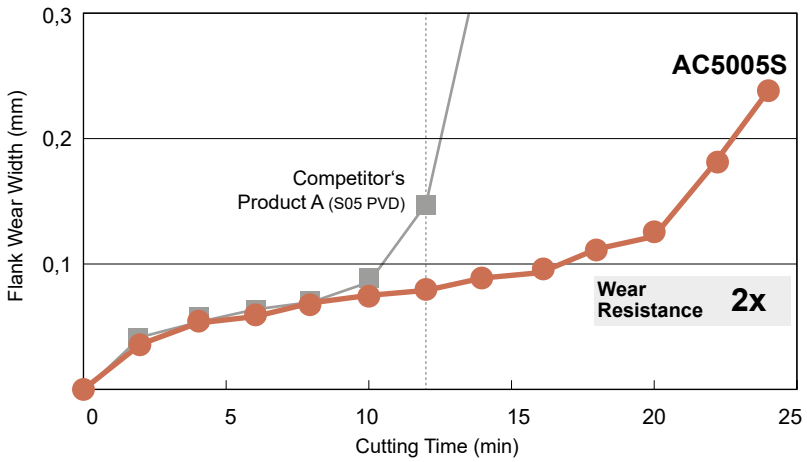


CCGT09T3_ _



Cutting Performance of AC5005S

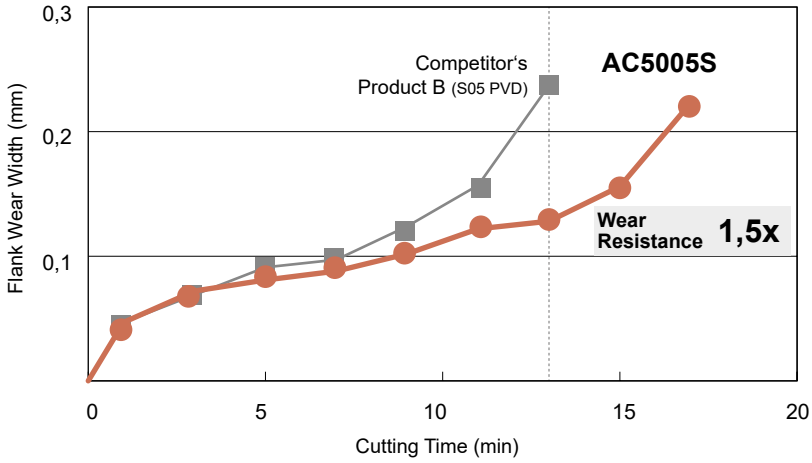
Comparison of Wear Resistance (High-speed)

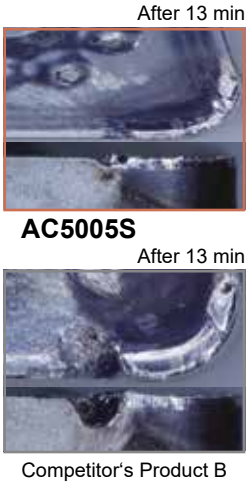


Newly developed heat-resistant carbide substrate and PVD coating technology ABSOTECH™ suppress wear.

Work Material: Inconel 718 (44HRC)	Insert: DNMG150408	Cutting Conditions: v_c = 100 m/min, f = 0,15 mm/rev, a_p = 0,50 mm, wet

Comparison of Wear Resistance (High-feed)

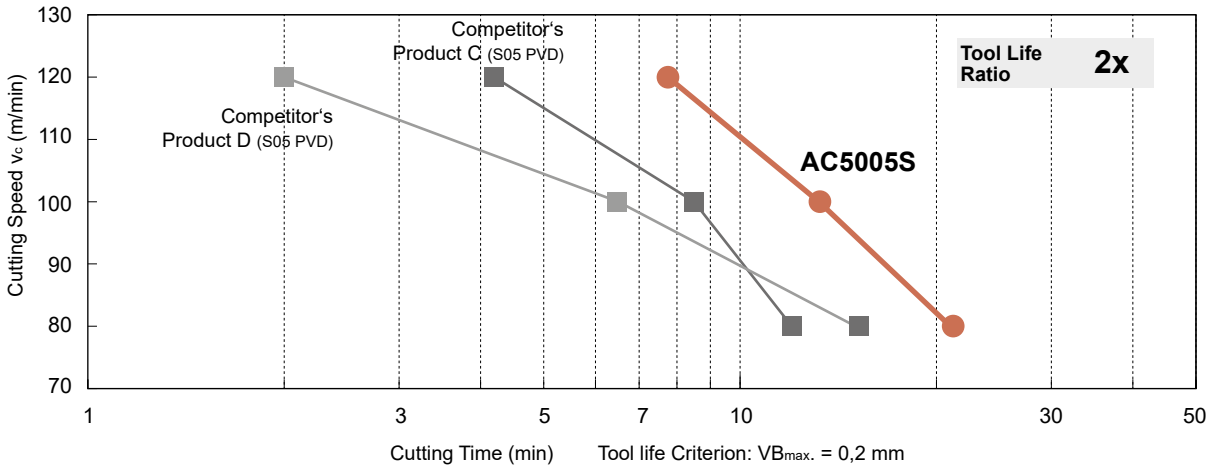




Newly developed heat-resistant carbide substrate and PVD coating technology ABSOTECH™ suppress wear.

Work Material: Inconel 718 (44HRC)	Insert: CNMG120408	Cutting Conditions: v_c = 50 m/min, f = 0,25 mm/rev, a_p = 1,50 mm, wet

Tool Life (V-T Chart, High-feed)

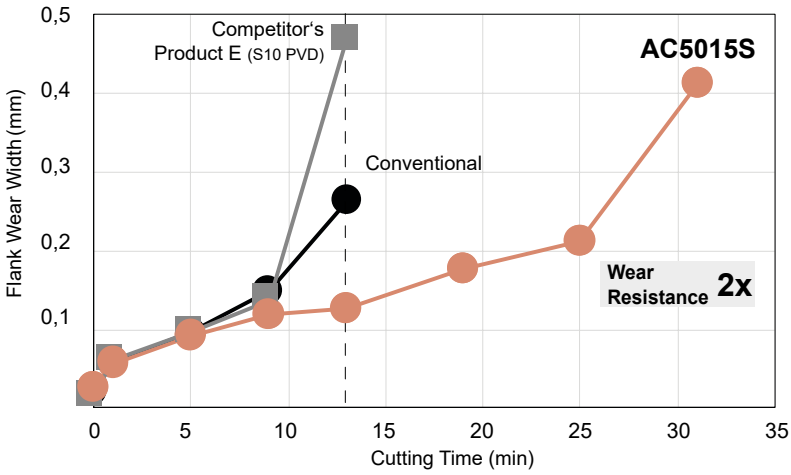


2 x longer tool life in high-speed machining.

Work Material: Inconel 718 (45HRC)	Insert: CNMG120408	Cutting Conditions: f = 0,15 mm/rev, a_p = 0,50 mm, wet

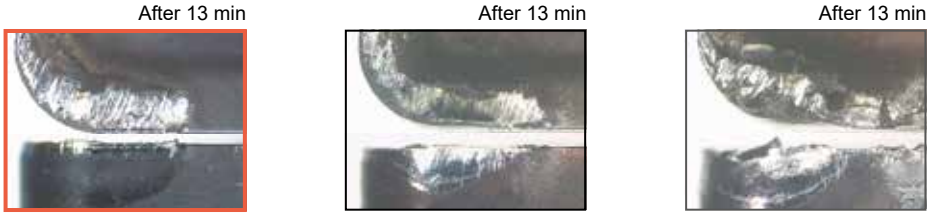
Cutting Performance of AC5015S

Wear Resistance

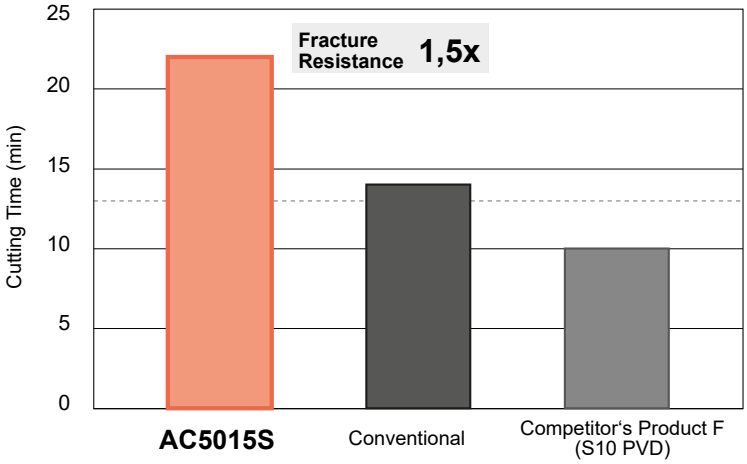


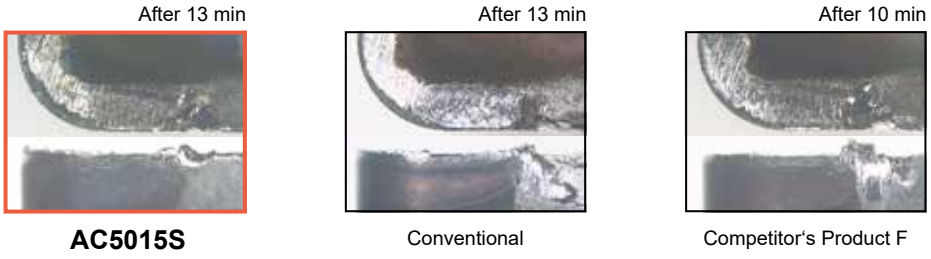
New PVD coating technology ABSOTECH™ reduces wear.
AC5015S achieves **2x** wear resistance compared to conventional grade.

Work Material:	Inconel 718 (44HRC)
Insert:	CNMG120408
Cutting Conditions:	v_c = 40 m/min,
	f = 0,1 mm/rev,
	a_p = 1,5 mm,
	wet



Fracture Resistance



Newly developed hard base material suppresses boundary defects.
AC5015S achieves **1,5x** fracture resistance compared to conventional grade.

Work Material:	Hastelloy (22HRC)
Insert:	CNMG120408
Cutting Conditions:	v_c = 50 m/min,
	f = 0,1 mm/rev,
	a_p = 1,5 mm,
	wet