

NEW PRODUCT NEWS



Tungaloy Report No. 425S1-G

Cermet grades for steel finishing turning

NS/AT9530

**NEW SERIES OF JS, JP CHIPBREAKER
IS NOW AVAILABLE WITH CERMET TURNING INSERTS**



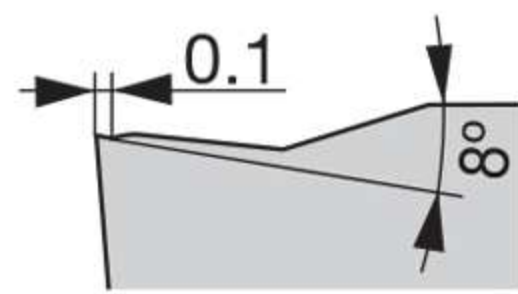
NS/AT9530

Pressed 3D chipbreaker series for small parts machining

Provides superior chip control and high parts quality in combination with cermet grades

New

JP First choice chipbreaker for high precision finishing



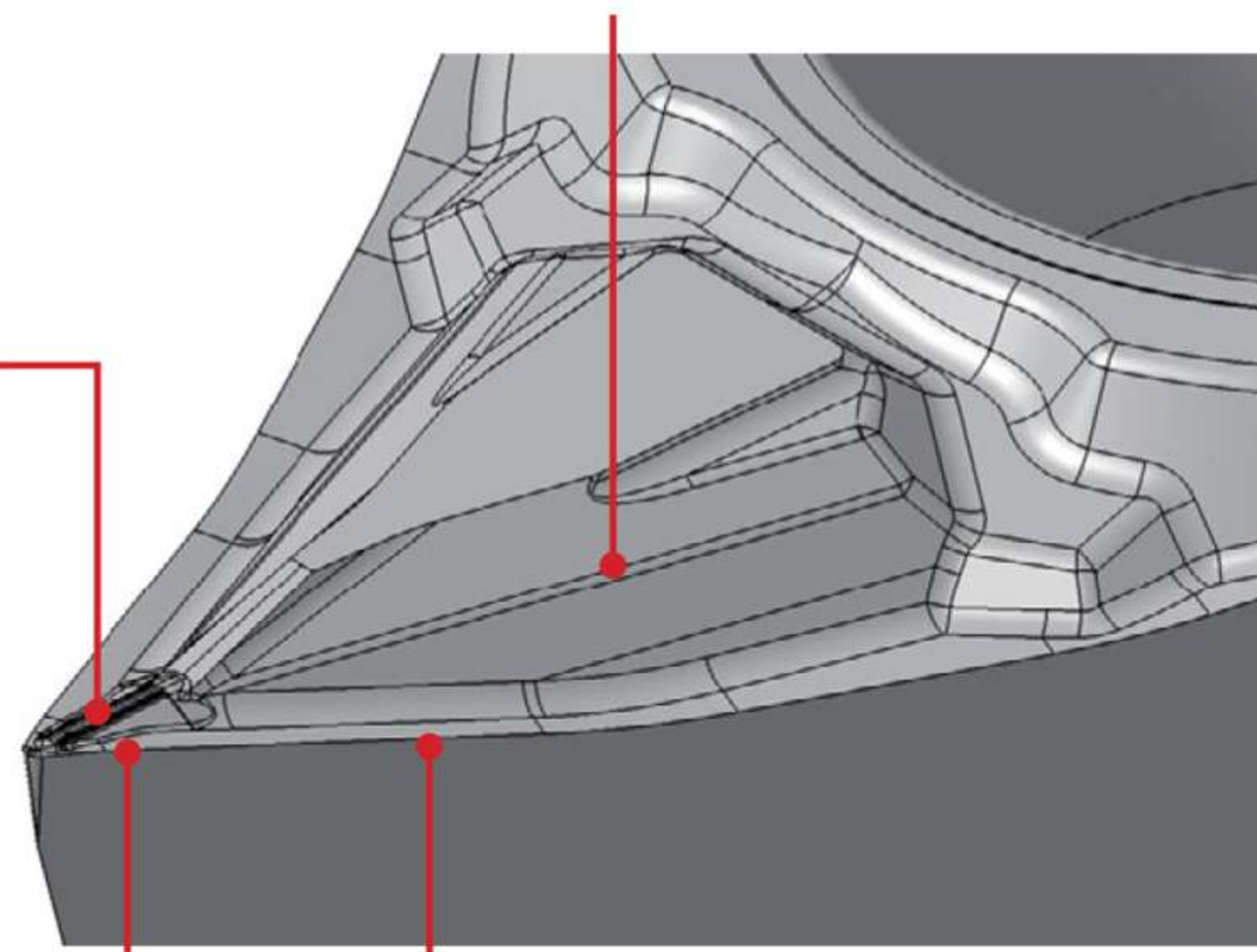
Eliminates chip nesting and other chip-associated issues that impede the shop's productivity and provides stable chip breaking over a wide range of feed rates and D.O.C.

- Effective chip breaking for high parts quality
- Versatile geometry designed for a broad application range
- Eliminates burr generation and controls vibration during aggressive D.O.C.

Secondary rake with multiple facets

Guides and redirects chips generated during machining at great cutting depths

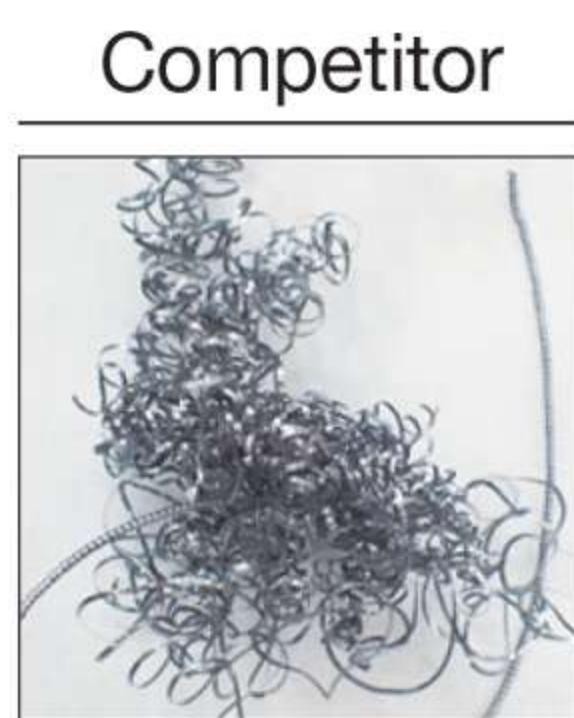
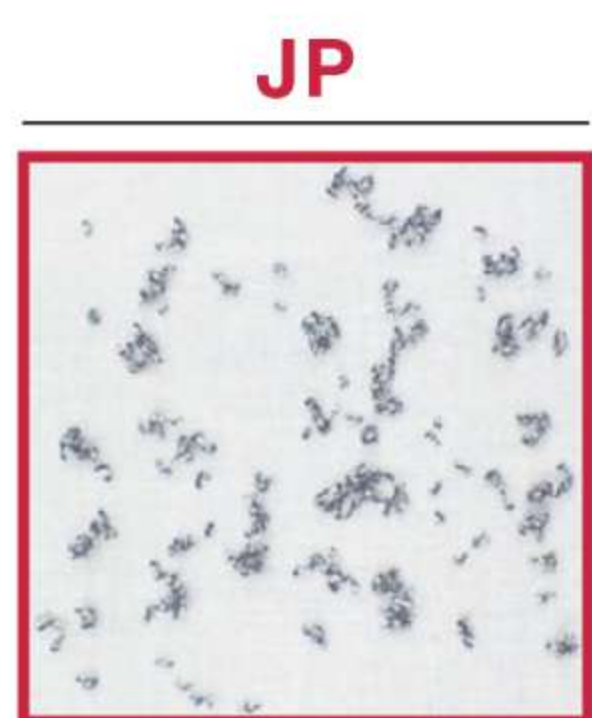
A protrusion extending towards the nose radius
Provides excellent chip control in finish to super-finish cutting



Cutting edge with a steep inclination angle
- For better chip evacuation
- For reduced cutting loads

Primary rake with variable angles
Controls the generation of burrs and vibration when machining at a maximum cutting depth capability

Chip control comparison

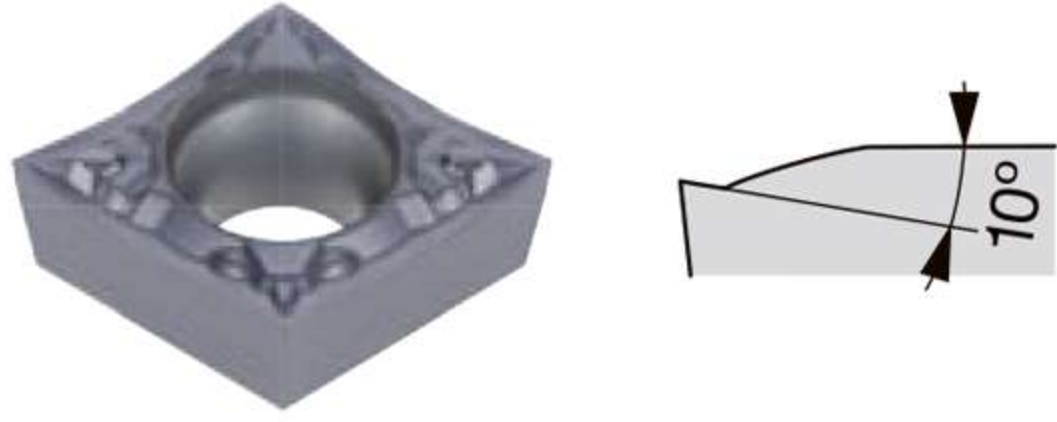


P Insert : DCGT11T301FN-JP NS9530
Workpiece material : S45C / C45
Cutting speed : $V_c = 80$ m/min
Feed : $f = 0.02$ mm/rev
Depth of cut : $a_p = 0.5$ mm
Coolant : Wet

P Insert : DCGT11T301FN-JP NS9530
Workpiece material : S45C / C45
Cutting speed : $V_c = 80$ m/min
Feed : $f = 0.03$ mm/rev
Depth of cut : $a_p = 0.05$ mm
Coolant : Wet

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JS First choice chipbreaker for finish cutting



Chipbreaker geometry that allows light cutting action and excellent chip breaking

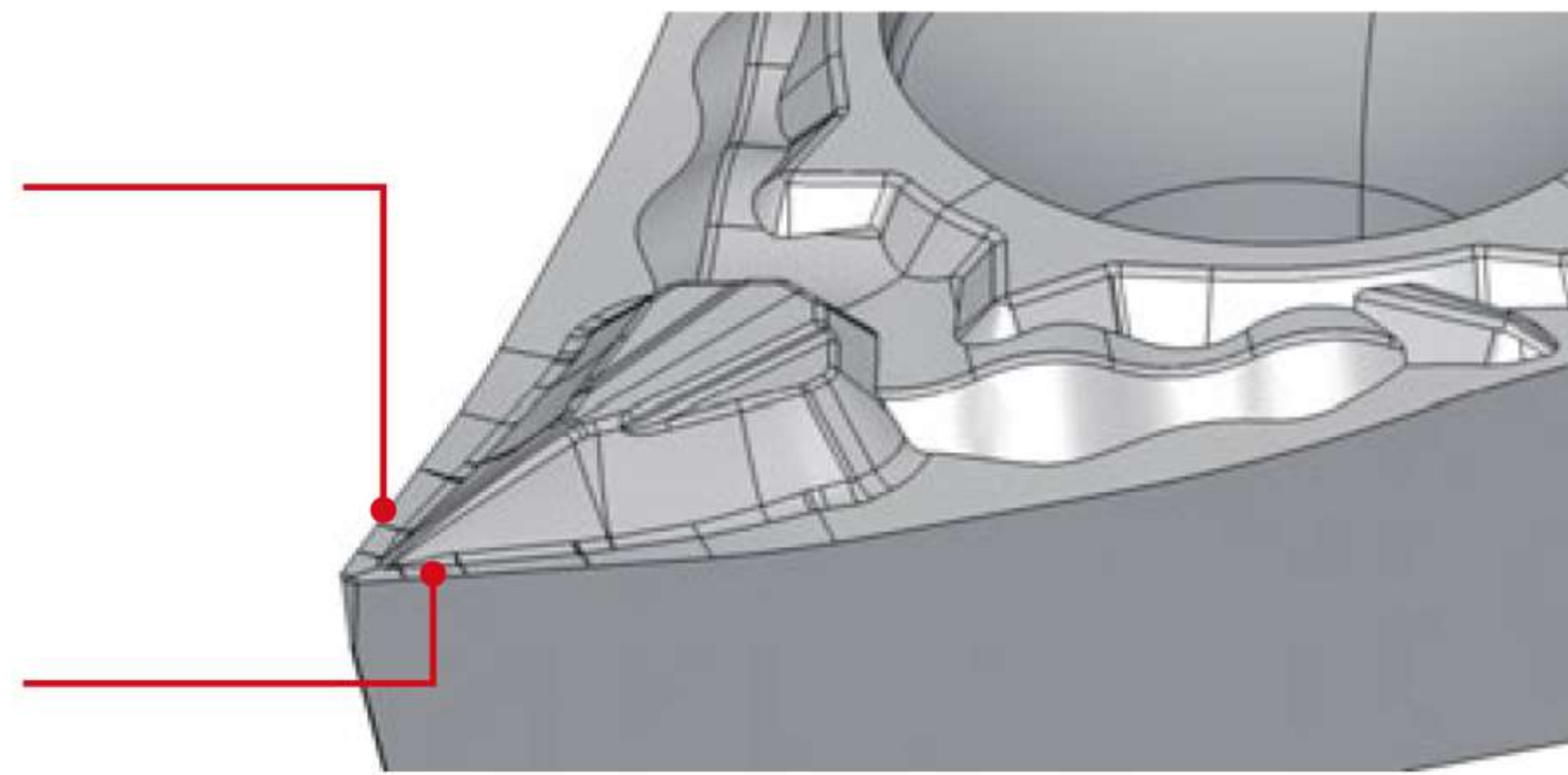
- A steep cutting edge inclination angle for better chip control and reduced cutting load
- A unique protrusion that extends towards the radius effectively controls chip flow from small to large cutting depths

Cutting edge with a steep inclination angle

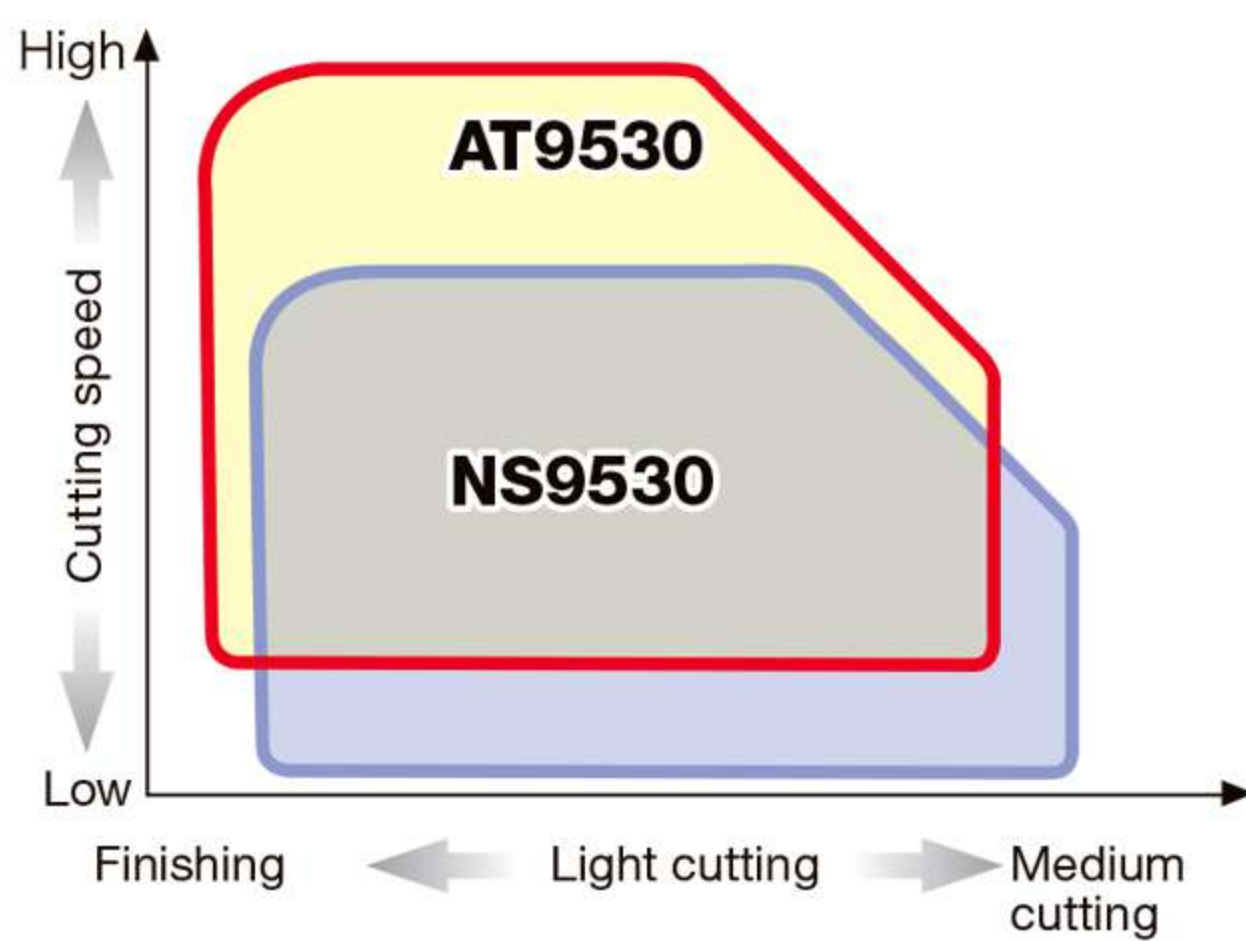
Provides good chip evacuation and reduced cutting loads

Rake with variable angles and step protrusion

Provides stable chip control in the small to large cutting depth range and also maintains cutting edge integrity and sharpness over extended period of time



Application range



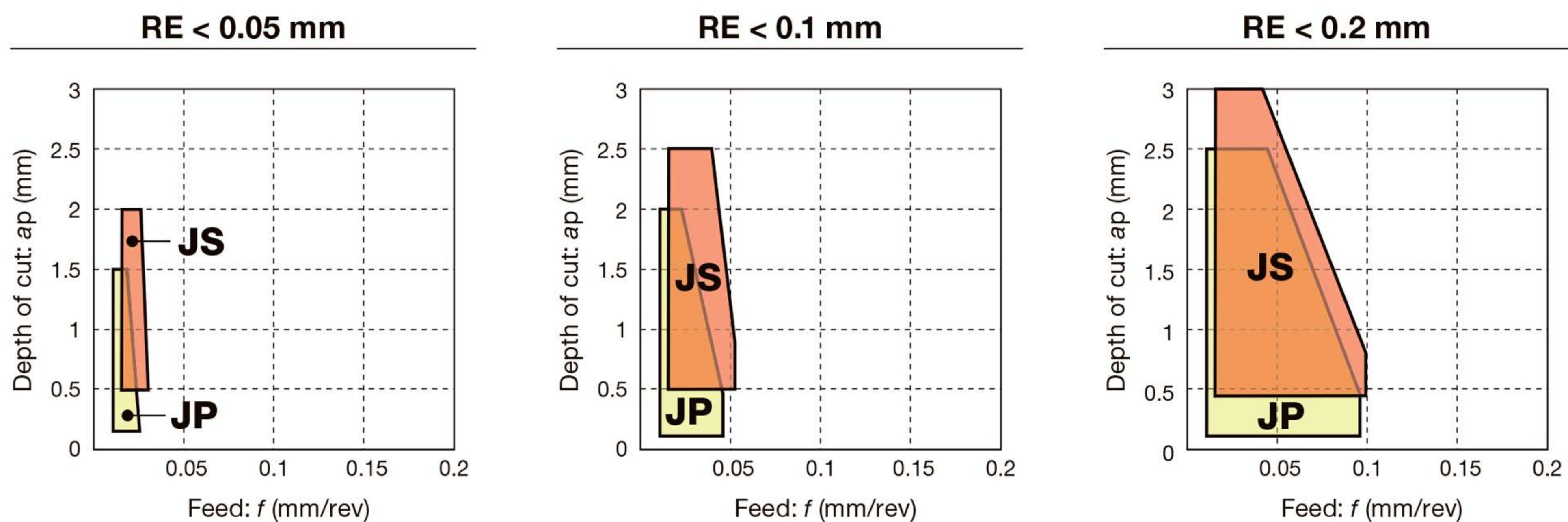
AT9530

- Coated cermet grade with excellent wear resistance in high-speed finishing
- The 1st recommendation for machining alloy steel due to its outstanding wear resistance.

NS9530

- Versatile cermet grade with incredible fracture and wear resistance.
- Provides long tool life and excellent surface appearance in finishing to medium cutting of steels.

Chip control range



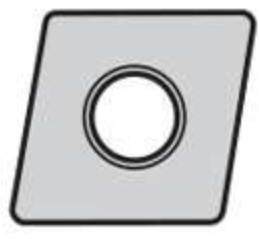
STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Chipbreaker	Grade	Cutting speed Vc (m/min)	Depth of cut ap (mm)	Feed: f (mm/rev)			
						RE < 0.05	RE < 0.1	RE < 0.2	RE < 0.4
P	Carbon steel Alloy steel	JP	NS9530	150 - 250	0.05 - 2.5	0.02 - 0.03	0.02 - 0.05	0.02 - 0.1	-
			AT9530	150 - 300	0.05 - 2.5	0.02 - 0.03	0.02 - 0.05	0.02 - 0.1	-
		JS	NS9530	150 - 250	0.5 - 3	0.02 - 0.03	0.02 - 0.05	0.02 - 0.1	0.05 - 0.2
			AT9530	150 - 300	0.5 - 3	0.02 - 0.03	0.02 - 0.05	0.02 - 0.1	0.05 - 0.2

Insert POSITIVE TYPE

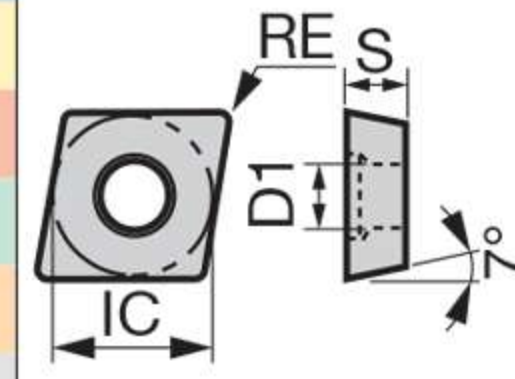
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

CC



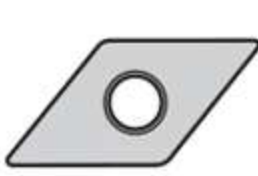
**Rhombic, 80°
with hole
Positive 7°**

	P Steel	M Stainless	K Cast iron	N Non-ferrous	S Superalloy	H Hard material
●	●					
◐						
✱						



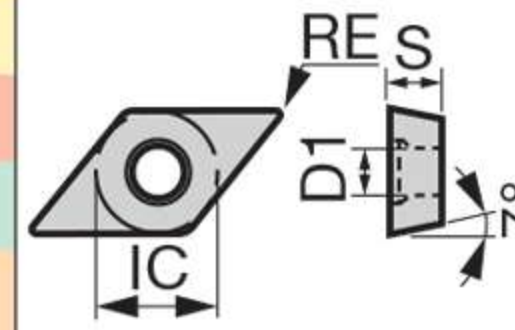
Application	Chipbreaker	Designation	Coated cermet		Cermet		Dimension (mm)			
			AT9530		NS9530		RE	IC	S	D1
Precision finishing (sharp edge)		JP CCGT09T300FN-JP			●		<0.05	9.525	3.97	4.4
		CCGT09T301FN-JP			●		<0.1	9.525	3.97	4.4
		CCGT09T302FN-JP			●		<0.2	9.525	3.97	4.4
Finishing (sharp edge)		JS CCGT09T300FN-JS			●		<0.05	9.525	3.97	4.4
		CCGT09T301FN-JS			●		<0.1	9.525	3.97	4.4
		CCGT09T302FN-JS			●		<0.2	9.525	3.97	4.4
		CCGT09T304FN-JS			●		<0.4	9.525	3.97	4.4
Finishing		JS CCGT09T301N-JS	●				<0.1	9.525	3.97	4.4
		CCGT09T302N-JS	●				<0.2	9.525	3.97	4.4
		CCGT09T304N-JS	●				<0.4	9.525	3.97	4.4

DC



**Rhombic, 55°
with hole
Positive 7°**

	P Steel	M Stainless	K Cast iron	N Non-ferrous	S Superalloy	H Hard material
●	●					
◐						
✱						



Application	Chipbreaker	Designation	Coated cermet		Cermet		Dimension (mm)			
			AT9530		NS9530		RE	IC	S	D1
Precision finishing (sharp edge)		JP DCGT11T300FN-JP			●		<0.05	9.525	3.97	4.4
		DCGT11T301FN-JP			●		<0.1	9.525	3.97	4.4
		DCGT11T302FN-JP			●		<0.2	9.525	3.97	4.4
Finishing (sharp edge)		JS DCGT11T300FN-JS			●		<0.05	9.525	3.97	4.4
		DCGT11T301FN-JS			●		<0.1	9.525	3.97	4.4
		DCGT11T302FN-JS			●		<0.2	9.525	3.97	4.4
		DCGT11T304FN-JS			●		<0.4	9.525	3.97	4.4
Finishing		JS DCGT11T301N-JS	●				<0.1	9.525	3.97	4.4
		DCGT11T302N-JS	●				<0.2	9.525	3.97	4.4
		DCGT11T304N-JS	●				<0.4	9.525	3.97	4.4

Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : New

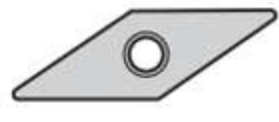
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Insert POSITIVE TYPE

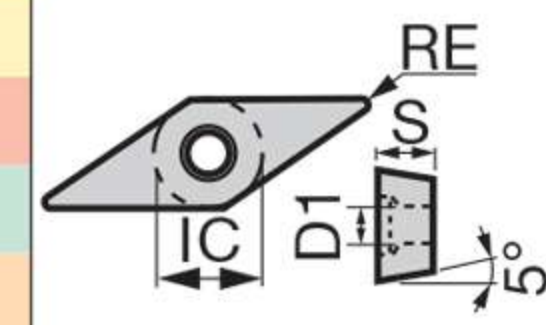
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

VB

Rhombic, 35°
 with hole
 Positive 5°



P Steel	●●	●●																			
M Stainless																					
K Cast iron	●●	●●																			
N Non-ferrous																					
S Superalloy																					
H Hard material																					



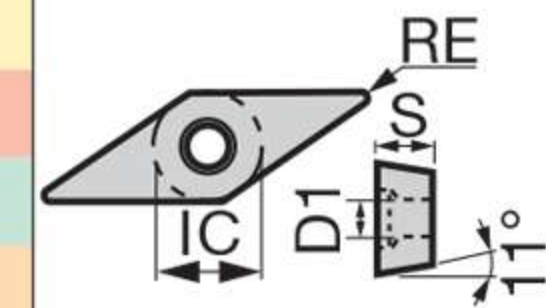
Application	Chipbreaker	Designation	Coated cermet		Cermet		Dimension (mm)			
			AT9530		NS9530		RE	IC	S	D1
Precision finishing (sharp edge)		JP VBGT110300FN-JP			●		<0.05	6.35	3.18	2.8
		VBGT110301FN-JP			●		<0.1	6.35	3.18	2.8
		VBGT110302FN-JP			●		<0.2	6.35	3.18	2.8
Finishing (sharp edge)		JS VBGT110300FN-JS			●		<0.05	6.35	3.18	2.8
		VBGT110301FN-JS			●		<0.1	6.35	3.18	2.8
		VBGT110302FN-JS			●		<0.2	6.35	3.18	2.8
		VBGT110304FN-JS			●		<0.4	6.35	3.18	2.8
Finishing		JS VBGT110301N-JS	●				<0.1	6.35	3.18	2.8
		VBGT110302N-JS	●				<0.2	6.35	3.18	2.8
		VBGT110304N-JS	●				<0.4	6.35	3.18	2.8

VP

35° Rhombic
 with hole
 Positive 11°



P Steel	●●	●●																			
M Stainless																					
K Cast iron	●●	●●																			
N Non-ferrous																					
S Superalloy																					
H Hard material																					



Application	Chipbreaker	Designation	Coated cermet		Cermet		Dimension (mm)			
			AT9530		NS9530		RE	IC	S	D1
Precision finishing (sharp edge)		JP VPGT110300FN-JP			●		<0.05	6.35	3.18	2.8
		VPGT110301FN-JP			●		<0.1	6.35	3.18	2.8
		VPGT110302FN-JP			●		<0.2	6.35	3.18	2.8
Finishing (sharp edge)		JS VPGT110300FN-JS			●		<0.05	6.35	3.18	2.8
		VPGT110301FN-JS			●		<0.1	6.35	3.18	2.8
		VPGT110302FN-JS			●		<0.2	6.35	3.18	2.8
		VPGT110304FN-JS			●		<0.4	6.35	3.18	2.8
Finishing		JS VPGT110301N-JS	●				<0.1	6.35	3.18	2.8
		VPGT110302N-JS	●				<0.2	6.35	3.18	2.8
		VPGT110304N-JS	●				<0.4	6.35	3.18	2.8

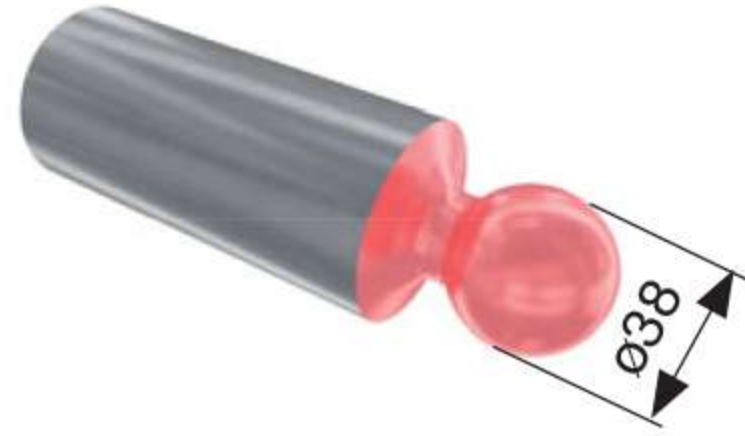

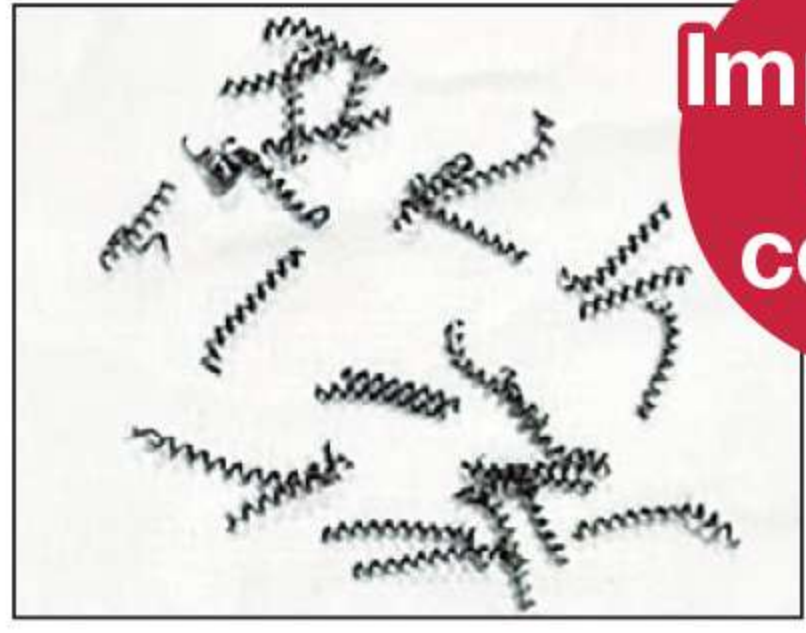
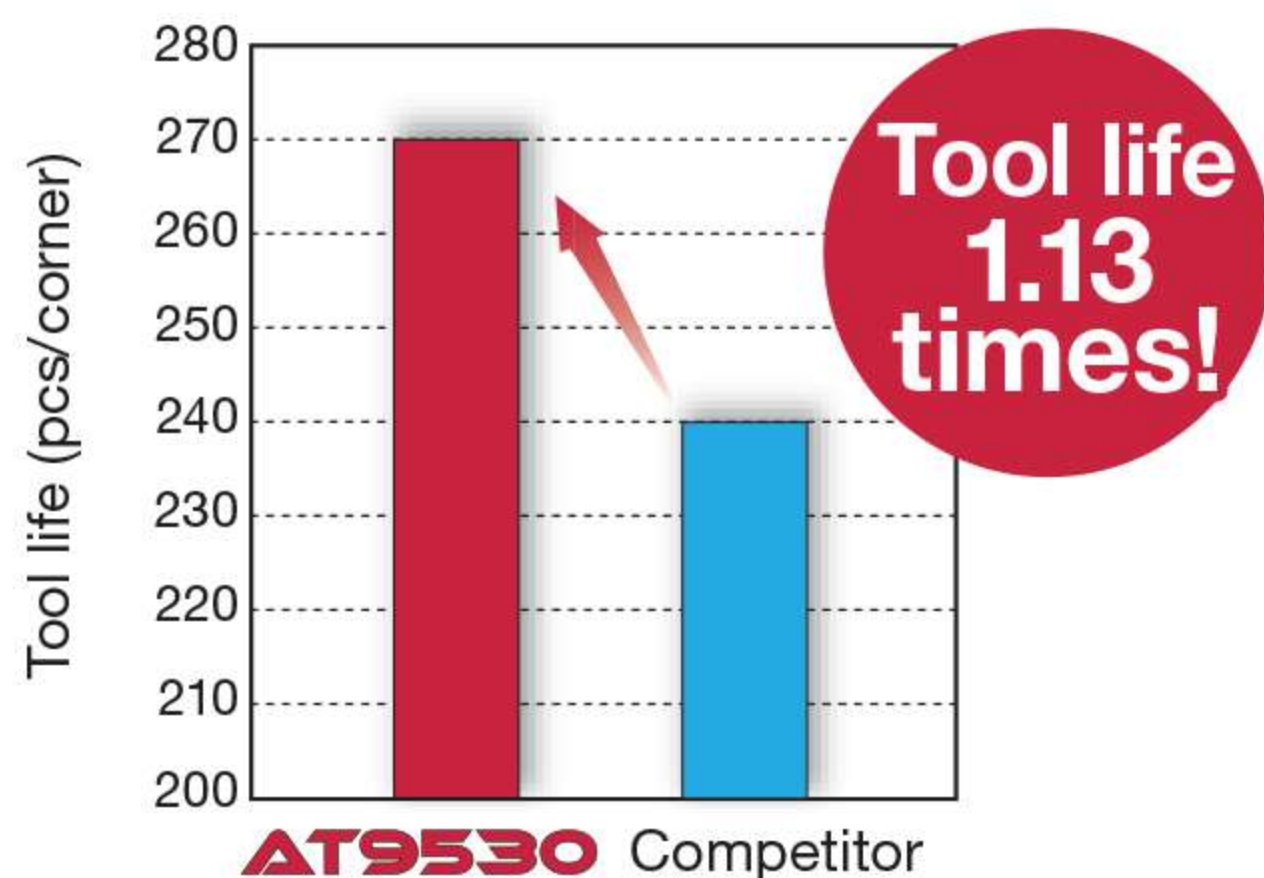
Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : New

Tolerance

NS/AT9530

PRACTICAL EXAMPLES

Workpiece type		Piston shoe	Automotive part
Insert		VBGT110304N-JS	DCGT11T302FN-JP
Grade		AT9530	NS9530
Workpiece material		SCM440 / 42CrMo4	SCM435 / 34CrMo4
		 P	 P
Cutting conditions	Cutting speed: V_c (m/min)	200	150
	Feed : f (mm/rev)	0.05 - 0.1	0.05
	Depth of cut : a_p (mm)	0.5	0.1
	Coolant	Wet	Wet
Results		 <p>Improved chip control</p> <p>Chips formed by JS chipbreaker</p> <p>JS chipbreaker significantly reduced bird nesting of chips, while improving part surface quality.</p>	 <p>Tool life (pcs/corner)</p> <p>AT9530 Competitor</p> <p>Tool life 1.13 times!</p> <p>Provided 1.13 times tool life increase over the competitor.</p>

CONTACT US



MEGA TECH METALWORK CO.,LTD (Headquarter)



Tel : 02-943-1591



Fax : 02-943-1592



Line ID : @mgt_metalwork



Email : sales.m@mgtg.co.th



Web : <https://www.mgtg.co.th/>



**17/4 Soi Ramintra 89
Ramintra Khannayao
Bangkok 10230**

