



For more information

Cermet grades for steel finishing turning

**NS/AT9530**

Tungaloy Report No. 425S1-G

**New series of JS, JP chipbreaker** is now available with cermet turning inserts

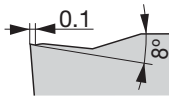
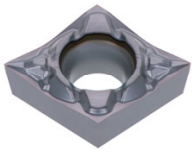


## Pressed 3D chipbreaker series for small parts machining

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

**New**

### I JP First choice chipbreaker for high precision finishing



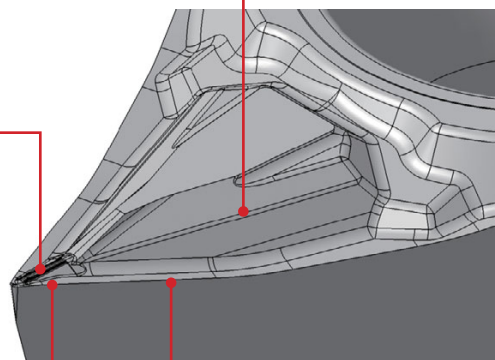
Eliminates chip nesting and other chip-associated issues that impede the shop's productivity and provides stable chip breaking over a wide range of feed rates and D.O.C.

- 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



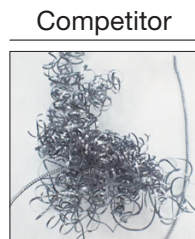
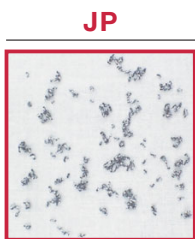
Cutting edge with a steep inclination angle

- 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

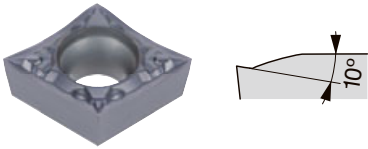
### ■ Chip control comparison



**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

# JS First choice chipbreaker for finish cutting



**Chipbreaker geometry that allows light cutting action and excellent chip breaking**

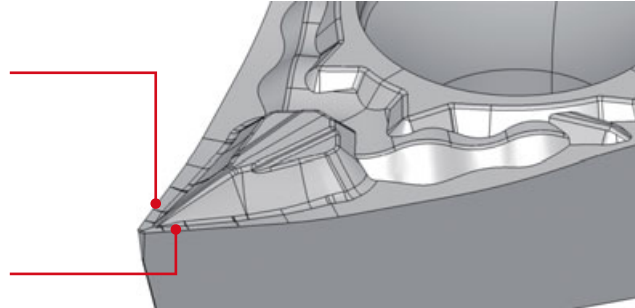
- A steep cutting edge inclination angle for better chip control and reduced cutting load
- A unique protrusion that extends towards the radius effectively controls chip flow from small to large cutting depths

## Cutting edge with a steep inclination angle

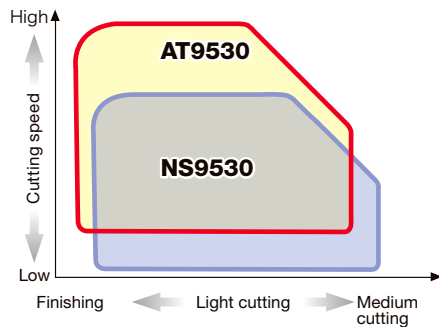
Provides good chip evacuation and reduced cutting loads

## Rake with variable angles and steep 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

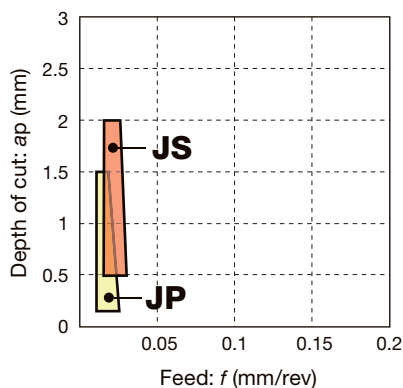
- Coated cermet grade with excellent wear resistance in high-speed finishing
- The 1st recommendation for machining alloy steel due to its outstanding wear resistance.

### NS9530

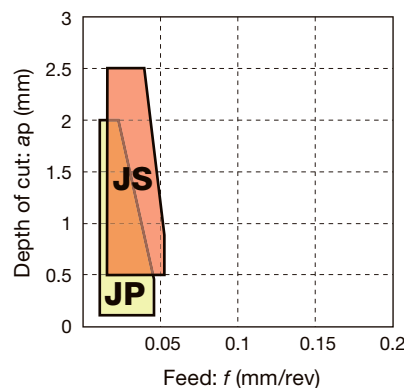
- Versatile cermet grade with incredible fracture and wear resistance.
- Provides long tool life and excellent surface appearance in finishing to medium cutting of steels.

## Chip control range

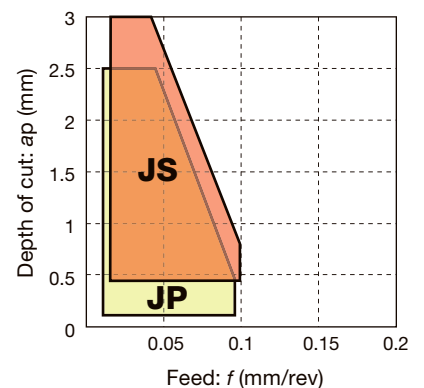
RE < 0.05 mm



RE < 0.1 mm



RE < 0.2 mm



## STANDARD CUTTING CONDITIONS

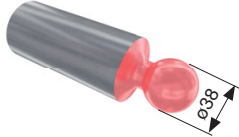


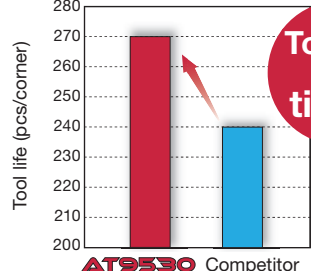
ISO	Workpiece materials	Chipbreaker	Grade	Cutting speed Vc (m/min)	Depth of cut ap (mm)	Feed: f (mm/rev)			
						RE < 0.05	RE < 0.1	RE < 0.2	RE < 0.4
P	Carbon steel Alloy steel	JP	NS9530	150 - 250	0.05 - 2.5	0.02 - 0.03	0.02 - 0.05	0.02 - 0.1	-
			AT9530	150 - 300	0.05 - 2.5	0.02 - 0.03	0.02 - 0.05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







## ■ PRACTICAL EXAMPLES

Workpiece type	Piston shoe	Automotive part
Insert	VBGT110304N-JS	DCGT11T302FN-JP
Grade	AT9530	NS9530
Workpiece material	SCM440 / 42CrMo4	SCM435 / 34CrMo4
	 <b>P</b>	 <b>P</b>
Cutting conditions	Cutting speed: $V_c$ (m/min)	200
	Feed : $f$ (mm/rev)	0.05 - 0.1
	Depth of cut : $a_p$ (mm)	0.5
	Coolant	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>



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