

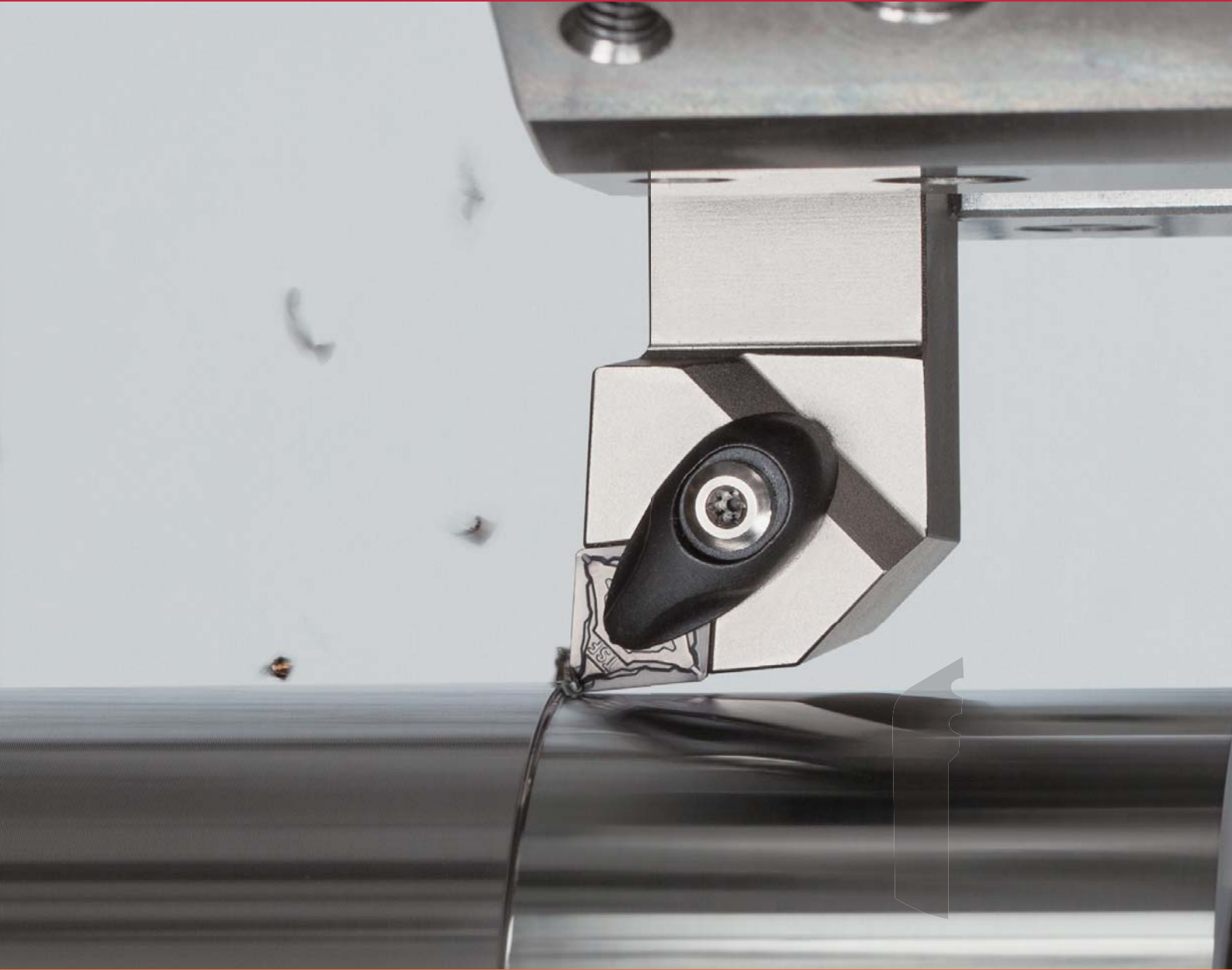
TurnLine

**NS/GT/AT9530**

www.tungaloy.com

Tungaloy Report No. 425-G

**Stable tool life** due to incredible fracture resistance!



**INDUSTRY 4.0**  
*FEED the SPEED!*



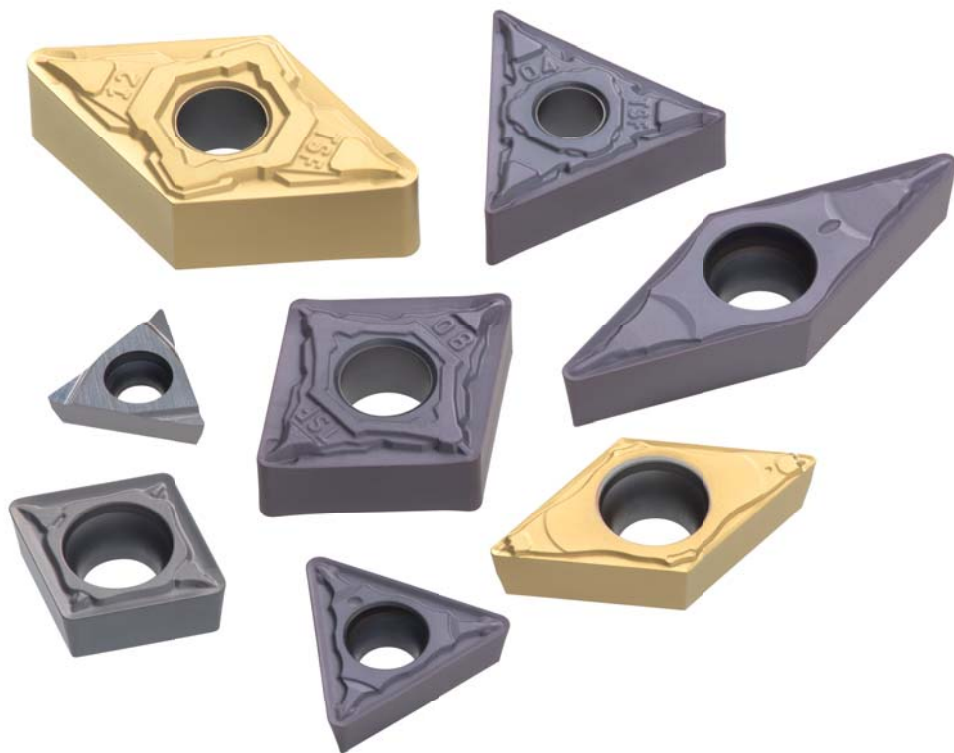
ACCELERATED MACHINING



TurnLine

# NS/GT/AT9530

TUNGALOY



Incredible cermet grades with remarkable toughness!

[www.tungaloy.com](http://www.tungaloy.com)

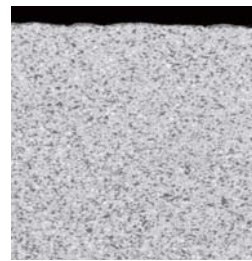
Innovative cermet grade with incredible toughness provides extremely stable tool life!

## Special Surface Technology

- **Tough and smooth top layer**  
Creates the ideal balance of hardness and toughness due to the controlled crystal composition

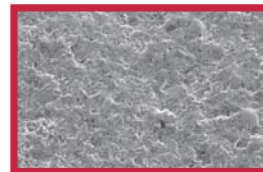


Consists of incredible fracture and wear resistance  
**Allows exceptionally stable machining!**

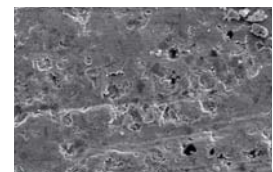


**Improved toughness by 25% at the top layer**

- **Drastically improved microscopic roughness**  
Effectively reduces chip welding on edges, improving surface finish. Enhances wear resistance

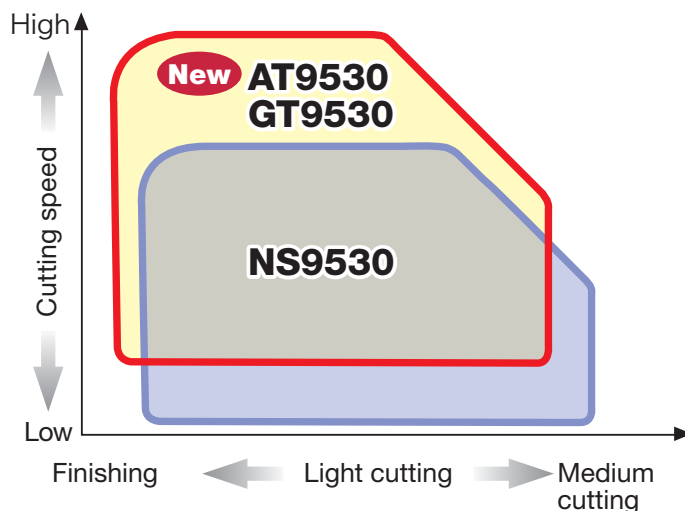


**NS9530**



**Conventional**

## Application range



### **New 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**

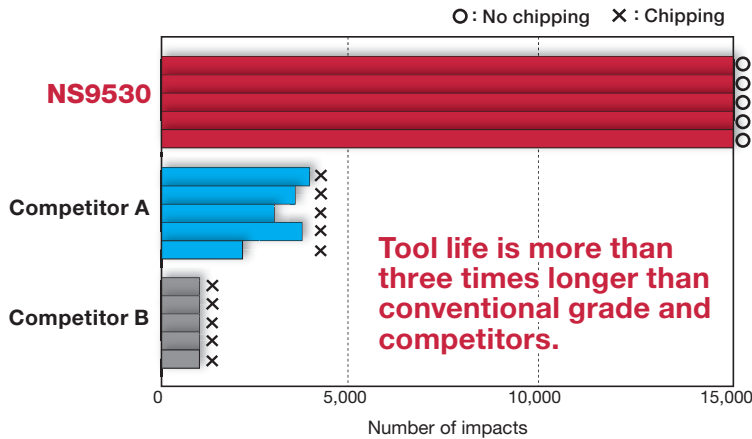
- Versatile cermet grade with incredible fracture and wear resistance.
- Provides long tool life and excellent surface appearance in finishing to medium cutting of steels.

### **GT9530**

- Coated cermet grade with premium coating demonstrates exceptional wear resistance.
- Provides remarkable performance in finishing of steels during high speed machining.

## CUTTING PERFORMANCE

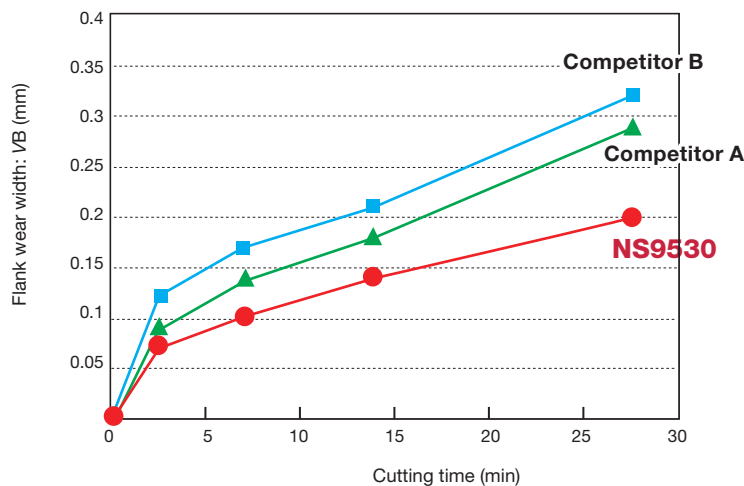
### Comparison of chipping or fracture resistance



Insert : CNMG120408-TSF  
 Workpiece : S55C (C55)  
 Cutting speed :  $V_c = 150$  m/min  
 Feed :  $f = 0.25$  mm/rev  
 Depth of cut :  $a_p = 1.0$  mm  
 Work process : Interrupted cutting  
 Coolant : Wet

**New cermet grade with tough and smooth top layer demonstrates amazing fracture resistance. NS9530 provides stable tool life due to incredible toughness.**

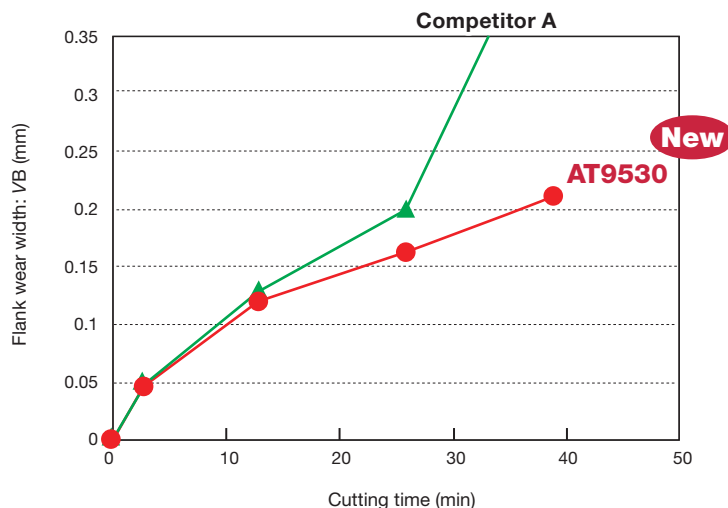
### Comparison of wear resistance ①



Insert : CNMG120408-TSF  
 Workpiece : S55C (C55)  
 Cutting speed :  $V_c = 250$  m/min  
 Feed :  $f = 0.2$  mm/rev  
 Depth of cut :  $a_p = 1.0$  mm  
 Work process : Continuous cutting  
 Coolant : Wet

**NS9530 with PremiumTec avoids chipping and chip welding, reducing machining cost.**

### Comparison of wear resistance ②



Insert : CNMG120408-TS  
 Workpiece : SCM440  
 Cutting speed :  $V_c = 250$  m/min  
 Feed :  $f = 0.2$  mm/rev  
 Depth of cut :  $a_p = 1.0$  mm  
 Work process : Continuous cutting  
 Coolant : Wet

**In machining alloy steel, AT9530 provides higher wear resistance and longer tool life than the conventional coated cermet grades.**

## P Steel

### Negative type

Finishing - light cutting  
 $ap = 0.2 - 1.5 \text{ mm}$

**Recommended**

Wear → **TSF AT9530 GT9530** New

Impact → **TS NS9530**

Chip control → **ZF NS9530**

**TSF NS9530**

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Finishing - medium cutting  
 $ap = 1.0 - 2.5 \text{ mm}$

**Recommended**

Wear → **TS AT9530 GT9530** New

Impact → **TQ NS9530**

Chip control → **ZM NS9530**

**TS NS9530**

### Positive type

Finishing - light cutting  
 $ap = 0.5 - 1.5 \text{ mm}$

**Recommended**

Wear → **PSS GT9530**

Impact → **PS NS9530**

Chip control → **PSF NS9530**

**PSS NS9530**

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Finishing - medium cutting  
 $ap = 1.0 - 2.5 \text{ mm}$

**Recommended**

Wear → **PS AT9530 GT9530** New

Impact → **PM NS9530**

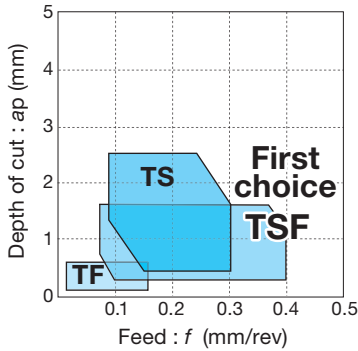
Chip control → **PSS NS9530**

**PS NS9530**



## CHIPBREAKER (FOR NEGATIVE TYPE INSERTS)

### Basic chipbreakers



Application	Chip-breaker	Shape			Features
Precision finishing	<b>TF</b>				The sharp cutting edge and raised projection near the corner contribute to excellent chip control at very small depths of cut and low feeds. Economical M-class tolerance performance with low costs.
Finishing	<b>TSF</b>				First choice chipbreaker for finishing steels. The dimple structure decreases the contact area between the insert surface and chips, resulting in significant reduction of heat occurrence.
Finishing to medium cutting	<b>TS</b>				Ideal chipbreaker for finishing at a wide range of cutting conditions. The sharp cutting edge allows excellent chip control when machining shaft type components.

### Standard cutting conditions

Application	Chipbreaker	Grades	Cutting speed Vc (m/min)			Depth of cut ap (mm)	Feed f (mm/rev)
			Low carbon steels Alloy steels 180HB	Medium carbon steels Alloy steels 240HB	High carbon steels Alloy steels 300HB		
Precision finishing	<b>TF</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 0.5	0.03 - 0.15
Finishing	<b>TSF</b> <small>New</small>	<b>AT9530</b>	150 - 300	80 - 250	80 - 200	0.2 - 1.5	0.08 - 0.4
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200		
Finishing to medium cutting	<b>TS</b> <small>New</small>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.5 - 2.5	0.1 - 0.3
		<b>AT9530</b>	150 - 300	80 - 250	80 - 200		
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200		

### Complementary chipbreakers

Application	Chipbreaker	Shape			Features
Precision finishing	<b>01</b>				Ground insert for precision finishing that provides high accuracy levels at low cutting conditions.
	<b>A - D</b>				Handed chipbreakers suitable for finishing to medium cutting.
	<b>W</b>				Lead type chipbreaker for finishing.
Finishing	<b>ZF</b>				Suitable for temporary increases in depth of cut such as on flange sections. Excels in chip control and is best for machining lead free steels.
	<b>11</b>				Finishing chipbreaker with exceptional sharpness.
	<b>NS</b>				The finishing chipbreaker has remarkable chip control under low feed and small depth of cut conditions. Suitable for machining near net shape components.
	<b>AFW</b>				Features positive land and excellent chip control. Applicable for small depth of cut and high-feed cutting. Provided with wiping function.
High feed, small depth of cut	<b>AS</b>				Advanced chipbreaker that is suitable for turning at high feeds and small depths of cut. Applicable for the machining of forged components with high productivity.
	<b>ASW</b>				Negative land design contributes to high reliability and edge strength. Applicable for small depth of cut and high-feed cutting. Provided with wiping function.
Boring (Double sided chip-breaker)	<b>CB</b>				Exclusive Chipbreaker for boring operation, reducing machining cost.

## Complementary chipbreakers

Application	Chipbreaker	Shape			Features
Finishing to medium cutting	<b>TQ</b>				Specially designed chipbreaker with high heat-impact resistance suitable for continuous to light interrupted cutting.
	<b>ZM</b>				Superior chip control in profiling and machining rounded forms. Ideally suited for machining lead free steels.
	<b>NM</b>				NM chipbreaker has a well designed protrusion and a strong edge for increased feed rates. It is suitable for highly productive turning of forged steel.
Medium cutting	<b>All-round</b>				Highly reliable chipbreaker for medium cutting under a wide range of conditions from continuous to interrupted cutting.
	<b>Parallel</b>				Handed chipbreaker with excellent chip control allows precise machining at medium cutting condition.
	<b>S</b>				Sharp cutting edge and simply designed chipbreaker offer exceptional chip control and high productivity in medium cutting applications.
	<b>P</b>				Extremely sharp chipbreaker for non-ferrous material machining.

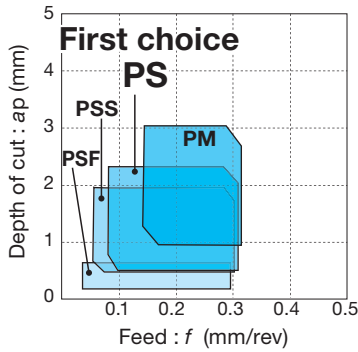
## Standard cutting conditions

Application	Chipbreaker	Grades	Cutting speed Vc (m/min)			Depth of cut ap (mm)	Feed f (mm/rev)	
			Low carbon steels Alloy steels 180HB	Medium carbon steels Alloy steels 240HB	High carbon steels Alloy steels 300HB			
Precision finishing	<b>01</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 0.4	0.03 - 0.15	
	<b>A - D</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 4.0	0.1 - 0.4	
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200			
	<b>W</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.2 - 1.5	0.03 - 0.2	
Finishing	<b>ZF</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.2 - 1.5	0.07 - 0.2	
		<b>New AT9530</b>	150 - 300	80 - 250	80 - 200			
	<b>11</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.2 - 1.5	0.07 - 0.2	
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200			
		<b>NS</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.2 - 1.5	0.07 - 0.25
		<b>AFW</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.5 - 1.5	0.2 - 0.4
	<b>GT9530</b>		150 - 300	80 - 250	80 - 200			
High feed, small depth of cut	<b>AS</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.5 - 2.0	0.2 - 0.6	
	<b>ASW</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.5 - 2.0	0.3 - 0.6	
Boring (Double sided chipbreaker)	<b>CB</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.2 - 2.5	0.1 - 0.25	
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200			
		<b>NS9530</b>	150 - 250	80 - 220	80 - 180			
Finishing to medium cutting	<b>TQ</b>	<b>New AT9530</b>	150 - 300	80 - 250	80 - 200	0.5 - 2.0	0.15 - 0.3	
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200			
	<b>ZM</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.7 - 2.0	0.15 - 0.4	
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200			
	<b>NM</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.5 - 2.0	0.15 - 0.4	
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200			
Medium cutting	<b>All-round</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	1.0 - 3.0	0.2 - 0.4	
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200			
	<b>Parallel</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	1.0 - 4.0	0.2 - 0.4	
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200			
		<b>S</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	1.0 - 4.0	0.2 - 0.4
		<b>P</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.5 - 4.0	0.2 - 0.5



## CHIPBREAKER (FOR POSITIVE TYPE INSERTS)

### Basic chipbreakers



Application	Chip-breaker	Shape			Features
Finishing	<b>PSF</b>				Chipbreaker developed for finishing at low cutting depths. Optimal chip control due to pre-positioned chipbreaker element.
Finishing to light cutting	<b>PSS</b>				3-dimensional chipbreaker designed to have excellent chip control capability and low cutting force in finishing to medium cutting. Low cost, M-class positive insert used for high efficiency boring in a wide range of applications.
Finishing to medium cutting	<b>PS</b>				3-dimensional chipbreaker designed to have excellent chip control capability and low cutting force in finishing to medium cutting. Low cost, M-class positive insert used for high efficiency boring in a wide range of applications.
Medium cutting	<b>PM</b>				Chipbreaker developed for medium cutting. Excellent chip control due to wide, positive chip flow zone.



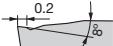

















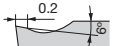






### Standard cutting conditions

Application	Chipbreaker	Grades	Cutting speed Vc (m/min)			Depth of cut ap (mm)	Feed f (mm/rev)
			Low carbon steels Alloy steels 180HB	Medium carbon steels Alloy steels 240HB	High carbon steels Alloy steels 300HB		
Finishing	<b>PSF</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 0.5	0.05 - 0.3
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200		
Finishing to light cutting	<b>PSS</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.5 - 2.0	0.1 - 0.3
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200		
Finishing to medium cutting	<b>PS</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.5 - 2.5	0.1 - 0.3
		<b>New AT9530</b>	150 - 300	80 - 250	80 - 200		
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200		
Medium cutting	<b>PM</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	1.0 - 3.0	0.15 - 0.3
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200		

### Complementary chipbreakers

Application	Chipbreaker	Shape			Features
Precision finishing	<b>01</b>				Ground insert for precision finishing provides accuracy at low cutting conditions.
Finishing	<b>PF</b>				Well-designed chipbreakers with remarkable chip control for wide range of application, from precision finishing to medium cutting.
	<b>W08</b>				
	<b>W10</b>				
	<b>W11</b>				
	<b>W13</b>				
	<b>W15</b>				
	<b>W20</b>				
	<b>with hand</b>				

## Complementary chipbreakers

Application	Chipbreaker	Shape			Features
Finishing to medium cutting	<b>ZF</b>				Suitable for temporary increases in depth of cut such as on flange sections. Excels in chip control and is best for machining of lead free steels.
	<b>ZM</b>				Superior chip control in profiling and machining rounded forms. Ideally suited for machining lead free steels.
	<b>23</b>				Highly reliable chipbreaker with tough cutting edge for finishing to medium cutting.
	<b>SS</b>				Well-designed chipbreaker with low cutting force due to the sharp edge and curved rake face.
	<b>All-round</b>				Optimum chipbreaker with high reliability for interrupted machining.
For external turning on small lathes	<b>J10</b>				Exclusive chipbreaker for Swiss lathe machining allows excellent surface finish and long tool life.
Medium cutting	<b>24</b>				Versatile chipbreaker suitable for medium machining under a wide range of cutting conditions.
Heavy cutting	<b>61</b>				Exclusive chipbreaker for profile turning at high feed rates.
Finishing to medium cutting	-				Tough cutting edge provides high reliability for a wide range of applications from finishing to roughing.

## Standard cutting conditions

Application	Chipbreaker	Grades	Cutting speed Vc (m/min)			Depth of cut ap (mm)	Feed f (mm/rev)
			Low carbon steels Alloy steels 180HB	Medium carbon steels Alloy steels 240HB	High carbon steels Alloy steels 300HB		
Precision finishing	<b>01</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.05 - 0.5	0.03 - 0.15
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200		
Finishing	<b>PF</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 0.5	0.05 - 0.25
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200		
	<b>W08</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 1.0	0.03 - 0.15
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200		
	<b>W10</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 2.0	0.03 - 0.2
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200		
	<b>W11</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 2.0	0.03 - 0.2
		<b>GT9530</b>	150 - 250	80 - 220	80 - 180		
	<b>W13</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 2.0	0.03 - 0.2
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200		
	<b>W15</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 2.0	0.03 - 0.2
		<b>GT9530</b>	150 - 300	80 - 250	80 - 200		
<b>W20</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 2.0	0.03 - 0.2	
	<b>GT9530</b>	150 - 300	80 - 250	80 - 200			
<b>with hand</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	1.0 - 2.0	0.03 - 0.2	
	<b>GT9530</b>	150 - 250	80 - 220	80 - 180			
Finishing to medium cutting	<b>ZF</b>	<b>GT9530</b>	150 - 300	80 - 250	80 - 200	0.3 - 1.5	0.05 - 0.25
	<b>ZM</b>	<b>GT9530</b>	150 - 300	80 - 250	80 - 200	0.5 - 2.0	0.05 - 0.3
	<b>23</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.5 - 2.0	0.1 - 0.3
	<b>SS</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.5 - 2.0	0.1 - 0.3
	<b>All-round</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	1.0 - 2.0	0.05 - 0.2
For external turning on small lathes	<b>J10</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 5.0	0.01 - 0.1
Medium cutting	<b>24</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.5 - 3.0	0.08 - 0.3
Heavy cutting	<b>61</b>	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.2 - 2.0	0.3 - 1.0
Finishing to medium cutting	-	<b>NS9530</b>	150 - 250	80 - 220	80 - 180	0.1 - 2.0	0.05 - 0.3

## TurnLine - Insert

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

Negative type



**Rhombic, 80°  
with hole**

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

Application	Chipbreaker	Designation	Corner radius	Coated cermet		Cermet	
				GT9530	AT9530	NS9530	
Precision finishing		<b>TF</b> CNMG120404-TF	0.4			●	
		CNMG120408-TF	0.8			●	
		<b>O1</b> CNGG090302-01	0.2			●	
		CNGG090304-01	0.4			●	
		CNGG090308-01	0.8			●	
		CNGG120402-01	0.2			●	
		CNGG120404-01	0.4			●	
		CNGG120408-01	0.8			●	
		<b>C</b> CNGG120404R-C	0.4			●	
		CNGG120404L-C	0.4			●	
CNGG120408R-C		0.8			●		
CNGG120408L-C		0.8			●		
Finishing		<b>TSF</b> CNMG090404E-TSF	0.4	● ●		●	
		CNMG090408E-TSF	0.8	● ●		●	
		CNMG120404-TSF	0.4	● ●		●	
		CNMG120408-TSF	0.8	● ●		●	
Finishing (Wiper)		<b>FW</b> CNMG090404E-FW	0.4	●		●	
		CNMG090408E-FW	0.8	●		●	
		CNMG120404-FW	0.4	●		●	
		CNMG120408-FW	0.8	●		●	
		*Wiper insert					
		<b>AFW</b> CNMG120404-AFW	0.4	●		●	
	CNMG120408-AFW	0.8	●				

\* Please contact our sales representative for your inquiries about the program adjustment when using SW/FW for machining of radius shape or taper machining.

- : Line-up
- : New product

























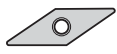




## TurnLine - Insert





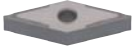

- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

Negative type



Rhombic, 35°  
with hole

	P	M	K	N	S	H
Steel	●◐◐◐					
Stainless		●◐◐◐				
Cast iron	●◐◐◐					
Non-ferrous			●◐◐◐			
Superalloys				●◐◐◐		
Hard materials					●◐◐◐	

Application	Chipbreaker	Designation	Corner radius	Coated cermet		Cermet		
				GT9530	AT9530	NS9530		
Precision finishing	<b>TF</b> 	VNMG160404-TF	0.4			●		
		VNMG160408-TF	0.8			●		
	<b>01</b> 	VNGG160402-01	0.2			●		
		VNGG160404-01	0.4			●		
		VNGG160408-01	0.8			●		
	Finishing	<b>TSF</b> 	VNMG120402E-TSF	0.2	●	●	●	
VNMG120404E-TSF			0.4	●	●	●		
VNMG120408E-TSF			0.8	●	●	●		
VNMG160402-TSF			0.2	●	●	●		
VNMG160404-TSF			0.4	●	●	●		
VNMG160408-TSF			0.8	●	●	●		
<b>ZF</b> 		VNMG160404-ZF	0.4	●	●	●		
		VNMG160408-ZF	0.8	●	●	●		
		<b>11</b> 	VNMG160404-11	0.4			●	
			VNMG160408-11	0.8			●	
			VNMG160412-11	1.2	●		●	
		<b>TS</b> 	VNMG160404-TS	0.4	●	●	●	
VNMG160408-TS	0.8		●	●	●			

- : Line-up
- : New product













































## TurnLine - Insert

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

Positive type



Triangular, 60°  
with hole  
Positive 11°

<b>P</b> Steel	●●●●	●●
<b>M</b> Stainless	●●●●	●●
<b>K</b> Cast iron	●●●●	●●
<b>N</b> Non-ferrous	●●●●	●●
<b>S</b> Superalloys	●●●●	●●
<b>H</b> Hard materials	●●●●	●●

Application	Chipbreaker	Designation	Corner radius	Coated cermet		Cermet	
				GT9530	AT9530	NS9530	
Finishing to light cutting		<b>PSS</b> TPMT090204-PSS	0.4	●		●	
		TPMT090208-PSS	0.8	●		●	
		TPMT110204-PSS	0.4	●		●	
		TPMT110208-PSS	0.8	●		●	
		TPMT130308-PSS	0.8	●		●	
		TPMT16T304-PSS	0.4	●		●	
		TPMT16T308-PSS	0.8	●		●	
Finishing to medium cutting		<b>PS</b> TPMT090202-PS	0.2	●	●	●	
		TPMT090204-PS	0.4	●	●	●	
		TPMT090208-PS	0.8	●	●	●	
		TPMT110202-PS	0.2	●	●	●	
		TPMT110204-PS	0.4	●	●	●	
		TPMT110208-PS	0.8	●	●	●	
		TPMT110304-PS	0.4	●	●	●	
		TPMT110308-PS	0.8	●	●	●	
		TPMT130302-PS	0.2	●	●	●	
		TPMT130304-PS	0.4	●	●	●	
		TPMT130308-PS	0.8	●	●	●	
		TPMT16T304-PS	0.4	●	●	●	
		TPMT16T308-PS	0.8	●	●	●	
		<b>23</b>		TPMT090202-23	0.2		
TPMT090204-23	0.4					●	
TPMT110204-23	0.4					●	
TPMT130304-23	0.4					●	
TPMT130308-23	0.8					●	
TPMT16T304-23	0.4					●	
TPMT16T308-23	0.8					●	

● : Line-up  
 ● : New product





















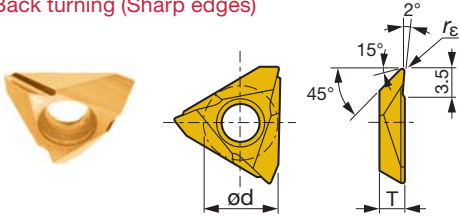


## TurnLine - Insert

**J-SERIES**

### JTB (sharp edge)

Back turning (Sharp edges)



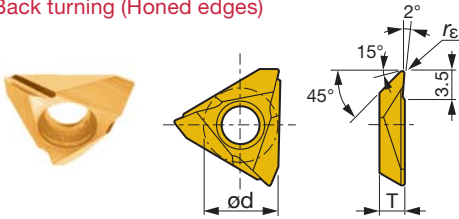
Right hand (R) shown.

Designation	$r_{\epsilon}$	Cermet NS9530		$\phi d$	T	Max. depth of cut
		R	L			
JTBR/L3000F	0.03			9.438	3.18	2.5
JTBR/L3005F	0.05			9.438	3.18	2.5
JTBR/L3010F	0.1	●	●	9.438	3.18	2.5
JTBR/L3015F	0.15			9.438	3.18	2.5

● : Line up

### JTB (with honing)

Back turning (Honed edges)



Right hand (R) shown.

Designation	$r_{\epsilon}$	Coated cermet J9530		$\phi d$	T	Max. depth of cut
		R	L			
JTBR/L3005	0.05	●		9.438	3.18	2.5
JTBR/L3010	0.1	●		9.438	3.18	2.5

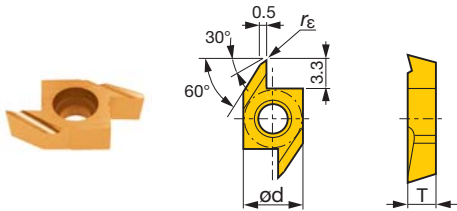
● : Line up

Notes: Right hand holder use right hand insert and left hand holder use left hand insert.

## TurnLine - Insert

#### J10E (sharp edge)

Back turning (Sharp edges)



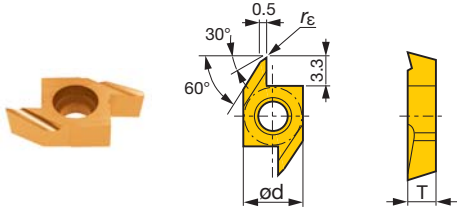
Right hand (R) shown.

Designation	r <sub>e</sub>	Cermet		ød	T	Max. depth of cut
		NS9530				
		R	L			
J10ER/L005BF	0.05	●		6.35	3.18	3
J10ER/L010BF	0.1	●		6.35	3.18	3
J10ER/L015BF	0.15			6.35	3.18	3

● : Line up

#### J10E (with honing)

Back turning (Honed edges)



Right hand (R) shown.

Designation	r <sub>e</sub>	Coated cermet		ød	T	Max. depth of cut
		J9530				
		R	L			
J10ER/L005B	0.05	●		6.35	3.18	3
J10ER/L010B	0.1	●		6.35	3.18	3

● : Line up

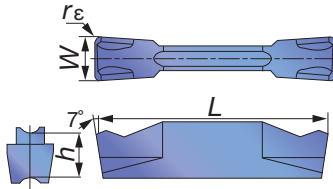
Notes: Right hand holder use right hand insert and left hand holder use left hand insert.



## TurnLine - Inserts for grooving and parting off

### DGM

External grooving and parting off, 2 corner

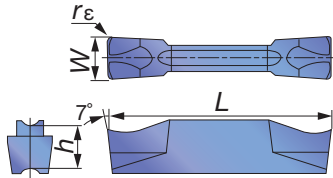


Designation	Insert seat size	W±0.05	rε	Cermet		L	h	θ°
				NS9530				
				R	L			
DGM2-020	2	2	0.2	●		20	5	0
DGM3-020	3	3	0.2	●		20	5	0
DGM4-030	4	4	0.3	●		20	5	0
DGM5-030	5	5	0.3	●		25	5.5	0

● : Line up

### DGS

External grooving and parting off, 2 corner



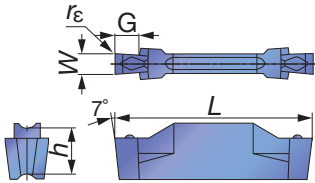
Designation	Insert seat size	W±0.05	rε	Cermet		L	h	θ°
				NS9530				
				R	L			
DGS2-020	2	2	0.2	●		20	5	0
DGS3-020	3	3	0.2	●		20	5	0
DGS4-030	4	4	0.3	●		20	5	0
DGS5-030	5	5	0.3	●		25	5.5	0

● : Line up

Notes: Right hand holder use right hand insert and left hand holder use left hand insert.

### DGE

External grooving (Ground)



Designation	Insert seat size	W±0.02	rε	Cermet	G	L	h
				NS9530			
DGE100-000	2	1	0	●	2.5	20	5
DGE130-000	2	1.3	0	●	2.5	20	5
DGE160-010	2	1.6	0.1	●	2.5	20	5
DGE185-010	2	1.85	0.1	●	3.5	20	5
DGE215-015	2	2.15	0.15	●	3.5	20	5

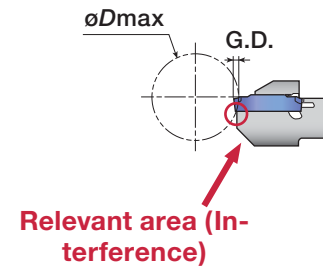
● : Line up

### Caution

øDmax is limited as shown in the picture to the right according to the groove depth, G.D. Please refer to the following table.

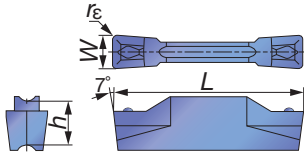
G.D = Groove depth

Designation	Max. groove depth (mm)	øDmax (mm)				
		G.D. = 1	G.D. = 1.5	G.D. = 2	G.D. = 2.5	G.D. = 3
DGE100-000	2	∞	18.6	11.5	-	-
DGE130-000						
DGE160-010						
DGE185-010	3	∞	18.6	11.5	8.8	7
DGE215-015						



## DTE

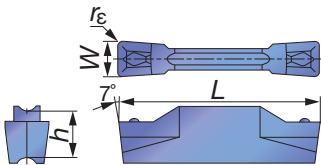
External, grooving and turning



Designation	Insert seat size	W±0.02	r <sub>ε</sub>	Cermet		
				NS9530	L	h
DTE265-015	3	2.65	0.15	●	20	5
DTE300-020	3	3	0.2	●	20	5
DTE300-040	3	3	0.4	●	20	5
DTE315-015	3	3.15	0.15	●	20	5
DTE400-040	4	4	0.4	●	20	5
DTE400-080	4	4	0.8	●	20	5
DTE415-015	4	4.15	0.15	●	20	5
DTE478-055	5	4.78	0.55	●	25	5.5
DTE500-040	5	5	0.4	●	25	5.5
DTE500-080	5	5	0.8	●	25	5.5

● : Line up

External, grooving and turning

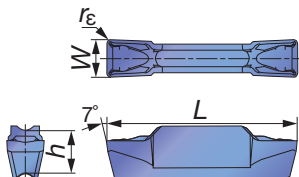


Designation	Insert seat size	W±0.05	r <sub>ε</sub>	Cermet		
				NS9530	L	h
DTE3-040	3	3	0.4	●	20	5
DTE4-040	4	4	0.4	●	20	5

● : Line up

## DTX

External, internal, face grooving and traversing

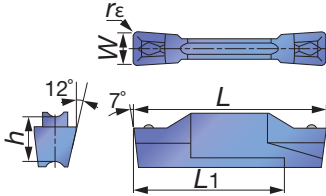


Designation	Insert seat size	W±0.05	r <sub>ε</sub>	Cermet		
				NS9530	L	h
DTX3-030	3	3	0.3	●	20	5
DTX4-040	4	4	0.4	●	20	5
DTX5-040	5	5	0.4	●	25	5.5
DTX6-080	6	6	0.8		25	5.5

● : Line up

### DTF

Face grooving and traversing

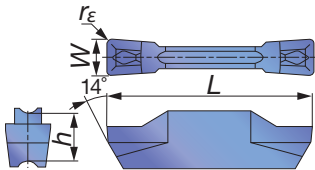


Designation	Insert seat size	W±0.05	r <sub>ε</sub>	Cermet		L	h	L1
				NS9530				
				R	L			
DTF3-040-R/L	3	3	0.4	●	●	20	5	16
DTF4-040-R/L	4	4	0.4	●	●	20	5	16

● : Line up

### DTI

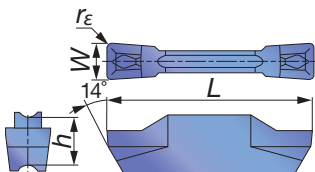
Internal grooving and turning (for high-precision machining)



Designation	Insert seat size	W±0.02	r <sub>ε</sub>	Cermet	L	h
				NS9530		
DTI300-040	3	3	0.4	●	20	5
DTI400-040	4	4	0.4	●	20	5
DTI400-080	4	4	0.8	●	20	5
DTI500-040	5	5	0.4	●	25	5.5
DTI500-080	5	5	0.8	●	25	5.5

● : Line up

Internal grooving and turning



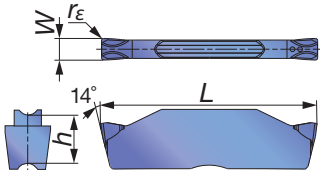
Designation	Insert seat size	W±0.05	r <sub>ε</sub>	Cermet	L	h
				NS9530		
DTI3-040	3	3	0.4	●	20	5
DTI4-040	4	4	0.4	●	20	5

● : Line up

Notes: Right hand holder use right hand insert and left hand holder use left hand insert.

## DGIM

Small diameter internal grooving

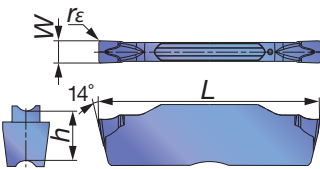


Designation	Insert seat size	$W \pm 0.05$	$r_\epsilon$	Cermet		
				NS9530	L	h
DGIM2-020	2	2	0.2	●	20	5

● : Line up

## DGIS

Small diameter internal grooving

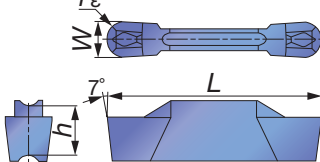


Designation	Insert seat size	$W \pm 0.05$	$r_\epsilon$	Cermet		
				NS9530	L	h
DGIS2-020	2	2	0.2	●	20	5

● : Line up

## DTR

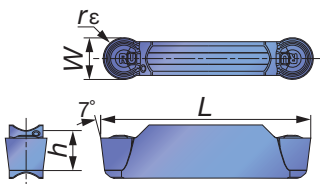
Profiling and undercutting (for high-precision machining)



Designation	Insert seat size	$W \pm 0.02$	$r_\epsilon$	Cermet		
				NS9530	L	h
DTR300-150	3	3	1.5	●	20	5
DTR400-200	4	4	2	●	20	5
DTR478-239	5	4.78	2.39	●	25	5.5
DTR500-250	5	5	2.5	●	25	5.5

● : Line up

Profiling and undercutting

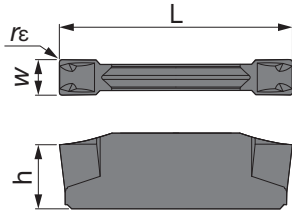


Designation	Insert seat size	$W \pm 0.05$	$r_\epsilon$	Cermet		
				NS9530	L	h
DTR3-150	3	3	1.5	●	20	5
DTR4-200	4	4	2	●	20	5
DTR5-250	5	5	2.5	●	25	5.5

● : Line up

### WGE

For general parting off and grooving

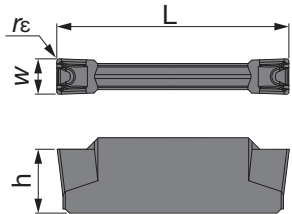


Designation	$W^{+0.1}_0$	$r_\epsilon$	Cermet		$L$	$h$
			NS9530			
WGE20	2	0.2	●		20	4.7
WGE30	3	0.2	●		20	5.5
WGE40	4	0.2	●		25	5.7
WGE50	5	0.2	●		25	5.9

● : Line up

### WGT

Traversing (Grooving and parting off)

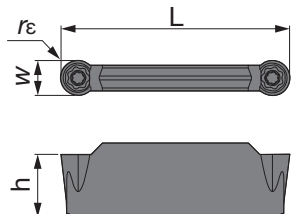


Designation	$W^{+0.1}_0$	$r_\epsilon$	Cermet		$L$	$h$
			NS9530			
WGT30	3	0.4	●		20	5.5
WGT40	4	0.4	●		25	5.7
WGT50	5	0.4	●		25	5.9

● : Line up

### WGR

Profiling (Full radius)

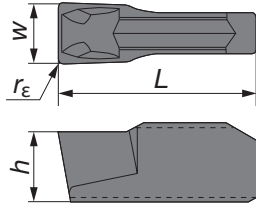


Designation	$W^{+0.1}_0$	$r_\epsilon$	Cermet		$L$	$h$
			NS9530			
WGR30	3	1.5	●		20	5.5
WGR40	4	2	●		25	5.7
WGR50	5	2.5	●		25	5.9

● : Line up

### GE

Grooving and parting off

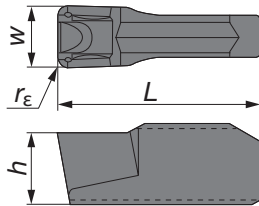


Designation	$W_{\pm 0.1}^{\circ}$	$r_\epsilon$	Cermet	$L$	$h$
			NS9530		
GE20	2	0.2	●	10	3.5
GE30	3	0.2	●	10	3.5
GE40	4	0.2	●	10	4
GE50	5	0.2	●	12	4.5

● : Line up

### GT

Traversing (Grooving and parting off)

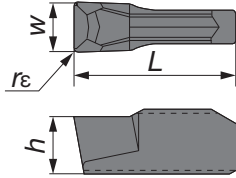


Designation	$W_{\pm 0.1}^{\circ}$	$r_\epsilon$	Cermet	$L$	$h$
			NS9530		
GT30	3	0.4	●	10	3.5
GT40	4	0.4	●	10	4
GT50	5	0.4	●	12	4.5

● : Line up

### GF

Face grooving (Improved chip control)

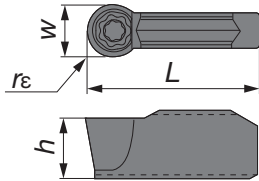


Designation	$W^{+0.1}_0$	$r_\epsilon$	Cermet	$L$	$h$
			NS9530		
GF30	3	0.2	●	10	3.5
GF40	4	0.2	●	10	4
GF50	5	0.2	●	12	4.5

● : Line up

### GR

Profiling (Full radius)



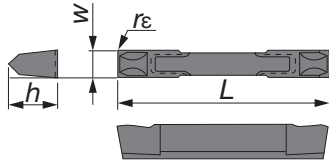
Designation	$W^{+0.1}_0$	$r_\epsilon$	Cermet	$L$	$h$
			NS9530		
GR30	3	1.5	●	10	3.5
GR40	4	2.0	●	10	4
GR50	5	2.5	●	12	4.5

● : Line up



## CGD

### External grooving

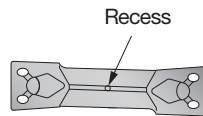
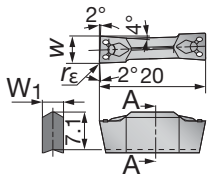


Designation	$w_{\pm 0.025}$	$r_{\epsilon}$	Cermet		L	h
			NS9530			
CGD200	2	0.2	●		20	3.25
CGD300	3	0.2	●		28.6	6.3
CGD400	4	0.2	●		28.6	6.3
CGD500	5	0.2	●		28.6	6.3
CGD600	6	0.2	●		28.6	8.5

● : Line up

## FLEX(R/L)

### External, face and internal grooving



Left hand inserts are identified with a recessed dot.

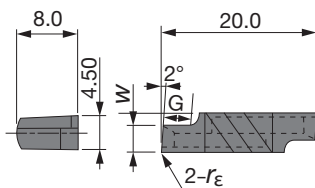
Right hand (R) shown.

Designation	$w_{\pm 0.05}$	$r_{\epsilon}$	Cermet		W1
			NS9530		
FLEX30R/L	3	0.4	●		2.15
FLEX40R/L	4	0.4	●		3.1
FLEX50R/L	5	0.4	●		4

● : Line up

## XGR/L

### External and internal grooving



Right hand (R) shown.

Designation	$W_{\pm 0.05}$	$r_{\epsilon}$	Cermet		G
			NS9530		
			R	L	
XGR/L6310-02	1	0.2	●	●	1.5
XGR/L6315-02	1.5	0.2	●	●	2.3
XGR/L6320-02	2	0.2	●	●	3
XGR/L6325-02	2.5	0.2	●	●	3.8
XGR/L6330-02	3	0.2	●	●	4.5
XGR/L6335-02	3.5	0.2	●	●	5.3
XGR/L6340-02	4	0.2	●	●	6
XGR/L6345-02	4.5	0.2	●	●	6

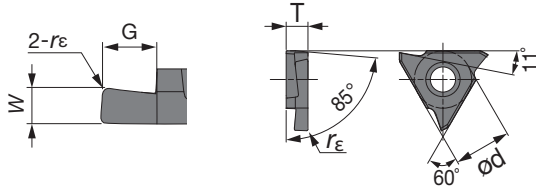
Note;

For internal machining, use right-hand toolholder (GX-\*\*\*\*R) with left-hand insert (XGL\*\*\*\*), and use left-hand toolholder (GX-\*\*\*\*L) with right-hand insert (XGR\*\*\*\*).  
For external machining, use right-hand toolholder (GX-\*\*\*\*RE) with right-hand insert (XGR\*\*\*\*), and use left-hand toolholder (GX-\*\*\*\*LE) with left-hand insert (XGL\*\*\*\*).

● : Line up

## GBR/L32

### External and internal grooving



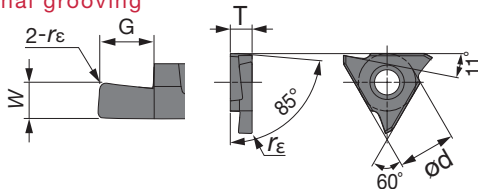
Right hand (R) shown.

Designation	$W_{\pm 0.025}$	$r_{\epsilon}$	Cermet		G	$\phi d$	T
			NS9530				
			R	L			
GBR/L32033	0.33	0.03	●		0.8	9.525	3.18
GBR/L32050	0.5	0.05	●		1.2	9.525	3.18
GBR/L32075	0.75	0.05	●	●	2	9.525	3.18
GBR/L32095	0.95	0.05	●	●	2	9.525	3.18
GBR/L32100	1	0.05	●	●	2	9.525	3.18
GBR/L32125	1.25	0.2	●	●	2	9.525	3.18
GBR/L32145	1.45	0.2	●		2	9.525	3.18
GBR/L32150	1.5	0.2	●		2	9.525	3.18
GBR/L32200	2	0.2	●		2.5	9.525	3.18
GBR/L32250	2.5	0.2	●		2.5	9.525	3.18

● : Line up

## GBR/L43

### External and internal grooving



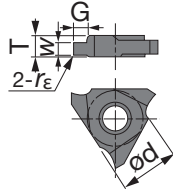
Right hand (R) shown.

Designation	$W_{\pm 0.025}$	$r_{\epsilon}$	Cermet		G	$\phi d$	T
			NS9530				
			R	L			
GBR/L43125	1.25	0.2	●		2	12.7	4.76
GBR/L43145	1.45	0.2	●		2	12.7	4.76
GBR/L43150	1.5	0.2	●	●	3.5	12.7	4.76
GBR/L43175	1.75	0.2	●	●	3.5	12.7	4.76
GBR/L43185	1.85	0.2	●	●	3.5	12.7	4.76
GBR/L43200	2	0.2	●	●	3.5	12.7	4.76
GBR/L43230	2.3	0.2	●	●	3.5	12.7	4.76
GBR/L43250	2.5	0.3	●		5	12.7	4.76
GBR/L43265	2.65	0.3	●		5	12.7	4.76
GBR/L43280	2.8	0.3	●		5	12.7	4.76
GBR/L43300	3	0.3	●		5	12.7	4.76
GBR/L43330	3.3	0.3	●		5	12.7	4.76
GBR/L43350	3.5	0.3	●		5	12.7	4.76
GBR/L43400	4	0.4	●		5	12.7	4.76
GBR/L43430	4.3	0.4	●		5	12.7	4.76
GBR/L43450	4.5	0.4	●		5	12.7	4.76

● : Line up

## GLR/L

### Lock-ring



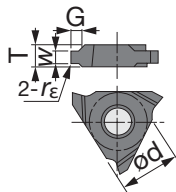
Right hand (R) shown.

Designation	$W_{+0.05}^{+0.1}$	$r\epsilon$	Cermet		G	$\phi d$	T
			NS9530				
			R	L			
GLR/L3115	1.15	0.1	●	●	1.5	9.525	3.18
GLR/L3135	1.35	0.1	●	●	1.5	9.525	3.18
GLR/L3165	1.65	0.1	●	●	2	9.525	3.18
GLR/L3175	1.75	0.1	●	●	2	9.525	3.18
GLR/L3195	1.95	0.1	●	●	2.5	9.525	3.18
GLR/L3220	2.2	0.1	●		3	9.525	3.18
GLR/L3270	2.7	0.1	●		3	9.525	3.18
GLR/L4115	1.15	0.1	●		1.5	12.7	4.76
GLR/L4135	1.35	0.1	●		1.5	12.7	4.76
GLR/L4165	1.65	0.1	●		2	12.7	4.76
GLR/L4175	1.75	0.1	●		2	12.7	4.76
GLR/L4190	1.9	0.1	●		2.5	12.7	4.76
GLR/L4195	1.95	0.1	●		2.5	12.7	4.76
GLR/L4220	2.2	0.1	●		3.5	12.7	4.76
GLR/L4270	2.7	0.1	●		3.5	12.7	4.76
GLR/L4320	3.2	0.1	●		4	12.7	4.76
GLR/L4420	4.2	0.1	●		4	12.7	4.76

● : Line up

## GOR/L

### O-ring



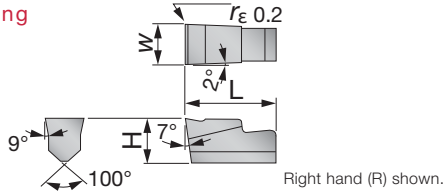
Right hand (R) shown.

Designation	$W_{+0.05}^{+0.1}$	$r\epsilon$	Cermet		G	$\phi d$	T
			NS9530				
			R	L			
GOR/L4190	2.5	0.4	●		1.5	12.7	4.76
GOR/L4240	3.2	0.4	●		2	12.7	4.76
GOR/L4310	4.1	0.7	●		2.5	12.7	4.76

● : Line up

## FGC

Face grooving

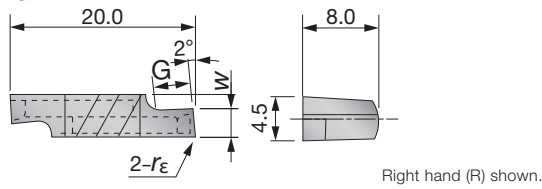


Designation	W±0.1	Cermet		
		NS9530	L	H
FGC3	3	●	10	4.29
FGC4	4	●	10	4.5
FGC5	5	●	12	5.5

● : Line up

## XNR/L

Face grooving

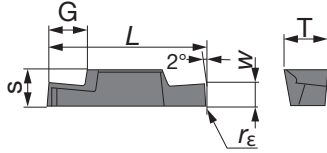


Designation	W±0.05	r <sub>ε</sub>	Cermet		
			NS9530		
			R	L	G
XNR/L6310-02	1	0.2	●	●	1.5
XNR/L6315-02	1.5	0.2	●	●	2.3
XNR/L6320-02	2	0.2	●	●	3
XNR/L6325-02	2.5	0.2	●	●	3.8
XNR/L6330-02	3	0.2	●	●	4.5
XNR/L6335-02	3.5	0.2	●	●	5.3
XNR/L6340-02	4	0.2	●	●	6
XNR/L6345-02	4.5	0.2	●	●	6

● : Line up

## GIR/L

### Internal grooving



Right hand (R) shown.

Designation	W±0.05	rε	Cermet		S	T	L	G
			NS9530					
			R	L				
GIR/L5210-02	1	0.2	●	●	3.5	4.4	15	1.5
GIR/L5215-02	1.5	0.2	●	●	3.5	4.4	15	2.3
GIR/L5220-02	2	0.2	●	●	3.5	4.4	15	3
GIR/L5225-02	2.5	0.2	●		3.5	4.4	15	3
GIR/L5230-02	3	0.2	●		3.5	4.4	15	3
GIR/L6310-02	1	0.2	●		5.5	6.4	24	1.5
GIR/L6315-02	1.5	0.2	●	●	5.5	6.4	24	2.3
GIR/L6320-02	2	0.2	●	●	5.5	6.4	24	3
GIR/L6325-02	2.5	0.2	●	●	5.5	6.4	24	3.8
GIR/L6330-02	3	0.2	●	●	5.5	6.4	24	4.5
GIR/L6335-02	3.5	0.2	●	●	5.5	6.4	24	5.3
GIR/L6340-02	4.0	0.2	●	●	5.5	6.4	24	5.3
GIR/L6345-02	4.5	0.2	●		5.5	6.4	24	5.3
GIR/L6350-02	5	0.2	●		5.5	6.4	24	5.3

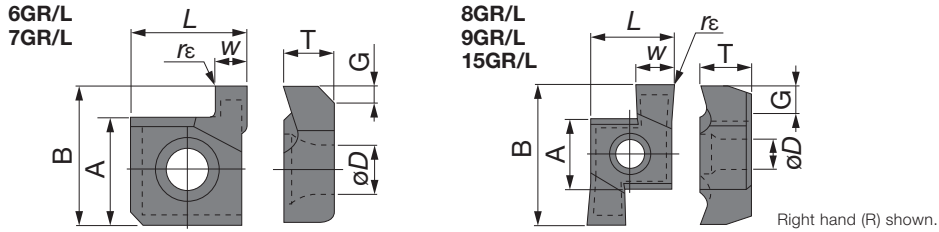
Note:

When using a right or left hand insert, the right hand insert is used with right hand toolholder and the left hand insert is used with left hand toolholder.

● : Line up

## \*\*GR/L

### Internal grooving



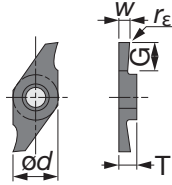
Designation	W±0.025	r <sub>ε</sub>	Cermet		A	B	T	øD	L	G
			NS9530							
			R	L						
6GR/L100	1	0.2	●		4.76	6.44	2.34	2.3	5.56	1.5
6GR/L150	1.5	0.2	●		4.76	6.44	2.34	2.3	5.56	1.5
6GR/L200	2	0.2	●		4.76	6.44	2.34	2.3	5.56	1.5
7GR/L100	1	0.2	●		5.56	7.36	3.08	2.58	5.56	1.5
7GR/L150	1.5	0.2	●		5.56	7.36	3.08	2.58	5.56	1.5
7GR/L200	2	0.2	●		5.56	7.36	3.08	2.58	5.56	1.5
8GR/L150	1.5	0.2	●		5.56	10.16	3.87	2.58	6.15	2
8GR/L200	2	0.2	●		5.56	10.16	3.87	2.58	6.15	2
8GR/L250	2.5	0.2	●		5.56	10.16	3.87	2.58	6.15	2
8GR/L300	3	0.2	●		5.56	10.16	3.87	2.58	6.15	2
9GR/L150	1.5	0.2	●	●	6.35	12.95	4.66	2.86	7.74	2
9GR/L200	2	0.2	●	●	6.35	12.95	4.66	2.86	7.74	3
9GR/L250	2.5	0.2	●	●	6.35	12.95	4.66	2.86	7.74	3
9GR/L300	3	0.2	●	●	6.35	12.95	4.66	2.86	7.74	3
9GR/L350	3.5	0.2	●	●	6.35	12.95	4.66	2.86	7.74	3
15GR/L200	2	0.2	●		9.2	20.8	5.1	4.8	10.8	3
15GR/L250	2.5	0.2	●		9.2	20.8	5.1	4.8	10.8	3
15GR/L300	3	0.2	●		9.2	20.8	5.1	4.8	10.8	3
15GR/L350	3.5	0.2	●		9.2	20.8	5.1	4.8	10.8	3
15GR/L400	4	0.2	●		9.2	20.8	5.1	4.8	10.8	4

Note:  
When using a right or left hand insert, the right hand insert is used with right hand toolholder and the left hand insert is used with left hand toolholder.

● : Line up

## JVG (sharp edge)

Grooving (Sharp edges)



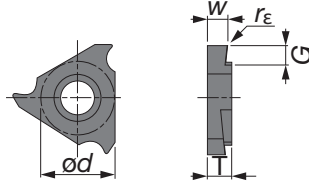
Right hand (R) shown.

Designation	$W_0^{+0.05}$	$r_\epsilon$	Cermet		$\varnothing d$	T	G
			NS9530				
			R	L			
JVGR/L033F	0.33	0			7.94	3.18	0.7
JVGR/L050F	0.5	0			7.94	3.18	1.1
JVGR/L075F	0.75	0			7.94	3.18	1.9
JVGR/L095F	0.95	0			7.94	3.18	1.9
JVGR/L100F	1	0	●	●	7.94	3.18	5.5
JVGR/L125F	1.25	0			7.94	3.18	5
JVGR/L150F	1.5	0	●	●	7.94	3.18	5.5
JVGR/L200F	2	0	●		7.94	3.18	5.5

● : Line up

## JTG (sharp edge)

### Grooving (Sharp edges)



Right hand (R) shown.

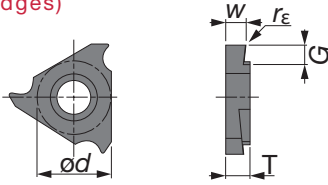
Designation	$W_{0.05}^{\circ}$	$r_\epsilon$	Cermet		$\phi d$	T	G
			NS9530				
			R	L			
JTGR/L3033F	0.33	0.03			9.525	3.18	0.7
JTGR/L3033F-005	0.33	0.05			9.525	3.18	0.7
JTGR/L3043F	0.43	0.03			9.525	3.18	1.1
JTGR/L3050F	0.5	0.03	●		9.525	3.18	1.1
JTGR/L3050F-005	0.5	0.05			9.525	3.18	1.1
JTGR/L3065F	0.65	0.03			9.525	3.18	1.9
JTGR/L3065F-010	0.65	0.1			9.525	3.18	1.9
JTGR/L3075F	0.75	0.03	●	●	9.525	3.18	1.9
JTGR/L3075F-010	0.75	0.1			9.525	3.18	1.9
JTGR/L3080F	0.8	0.03			9.525	3.18	1.9
JTGR/L3080F-010	0.8	0.1			9.525	3.18	1.9
JTGR/L3085F	0.85	0.03			9.525	3.18	1.9
JTGR/L3095F	0.95	0.03	●		9.525	3.18	1.9
JTGR/L3095F-010	0.95	0.1			9.525	3.18	1.9
JTGR/L3100F	1	0.05	●		9.525	3.18	2.1
JTGR/L3100F-010	1	0.1			9.525	3.18	2.1
JTGR/L3110F	1.1	0.05			9.525	3.18	2.1
JTGR/L3120F	1.2	0.05			9.525	3.18	2.1
JTGR/L3120F-010	1.2	0.1			9.525	3.18	2.1
JTGR/L3125F	1.25	0.05	●		9.525	3.18	2.1
JTGR/L3125F-010	1.25	0.1			9.525	3.18	2.1
JTGR/L3130F	1.3	0.05			9.525	3.18	2.1
JTGR/L3140F	1.4	0.05			9.525	3.18	2.1
JTGR/L3140F-010	1.4	0.1			9.525	3.18	2.1
JTGR/L3145F	1.45	0.05	●		9.525	3.18	2.1
JTGR/L3145F-010	1.45	0.1			9.525	3.18	2.1
JTGR/L3150F	1.5	0.05	●		9.525	3.18	2.1
JTGR/L3150F-010	1.5	0.1			9.525	3.18	2.1
JTGR/L3175F	1.75	0.05	●	●	9.525	3.18	2.1
JTGR/L3175F-010	1.75	0.1			9.525	3.18	2.1
JTGR/L3180F	1.8	0.05			9.525	3.18	2.1
JTGR/L3200F	2	0.05	●		9.525	3.18	2.6
JTGR/L3200F-010	2	0.1			9.525	3.18	2.6
JTGR/L3225F	2.25	0.05			9.525	3.18	2.6
JTGR/L3250F	2.5	0.05	●		9.525	3.18	2.6
JTGR/L3250F-010	2.5	0.1			9.525	3.18	2.6
JTGR/L3275F	2.75	0.05			9.525	3.18	2.6
JTGR/L3300F	3	0.05			9.525	3.18	2.6
JTGR/L3300F-010	3	0.1			9.525	3.18	2.6

● : Line up



## JTG (Honed edges)

### Grooving (Honed edges)



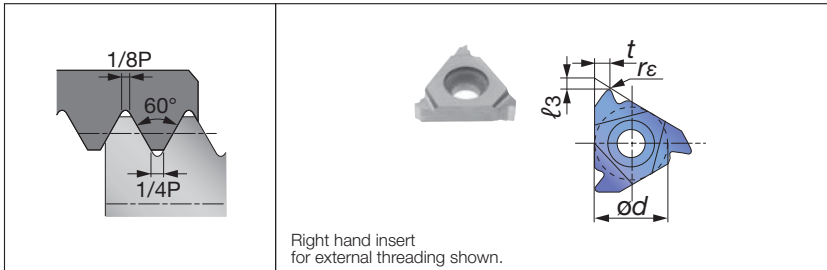
Right hand (R) shown.

Designation	$W_{\pm 0.05}^{+0.05}$	$r_{\epsilon}$	J9530		$\varnothing d$	T	G
			R	L			
JTGR/L3100	1	0.05	●		9.525	3.18	2.1
JTGR/L3125	1.25	0.05	●		9.525	3.18	2.1
JTGR/L3150	1.5	0.05	●		9.525	3.18	2.1
JTGR/L3200	2	0.05	●		9.525	3.18	2.6

● : Line up



## Unified



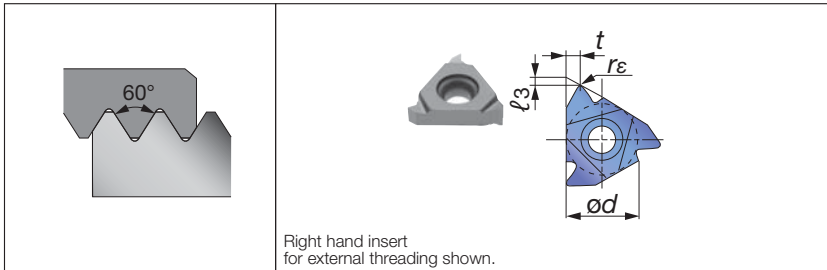
### Applicable toolholders

Insert size	External	Internal
16	CER/L**16... B-SER/L**16 B-CER/L**16 BC-SER/L**16	TSNR/L**16 SNR/L**16... TCNR/L**16... CNR/L**16...

### Full-profile insert with chipbreaker

Insert size	Pitch	TPI	Hand of cut	External insert						Internal insert								
				Designation	Grade	ød	t	ℓ <sub>3</sub>	r <sub>ε</sub>	Designation	Grade	ød	t	ℓ <sub>3</sub>	r <sub>ε</sub>			
					Cermet NS9530						Cermet NS9530							
16	-	24	R	<b>16ER24UN-M</b>	●	9.525	0.9	0.7	0.13									
16	-	20	R	<b>16ER20UN-M</b>	●	9.525	0.9	0.7	0.16	<b>16IR20UN-M</b>	●	9.525	0.9	0.7	0.09			
16	-	18	R	<b>16ER18UN-M</b>	●	9.525	0.9	0.7	0.18	<b>16IR18UN-M</b>	●	9.525	0.9	0.7	0.1			
16	-	16	R	<b>16ER16UN-M</b>	●	9.525	0.9	0.7	0.2	<b>16IR16UN-M</b>	●	9.525	0.9	0.7	0.11			
16	-	14	R	<b>16ER14UN-M</b>	●	9.525	1.6	1.2	0.23	<b>16IR14UN-M</b>	●	9.525	1.6	1.2	0.13			
16	-	12	R	<b>16ER12UN-M</b>	●	9.525	1.6	1.2	0.27	<b>16IR12UN-M</b>	●	9.525	1.6	1.2	0.15			
16	-	8	R	<b>16ER8UN-M</b>	●	9.525	1.6	1.2	0.4	<b>16IR8UN-M</b>	●	9.525	1.6	1.2	0.22			

## 60° thread angle



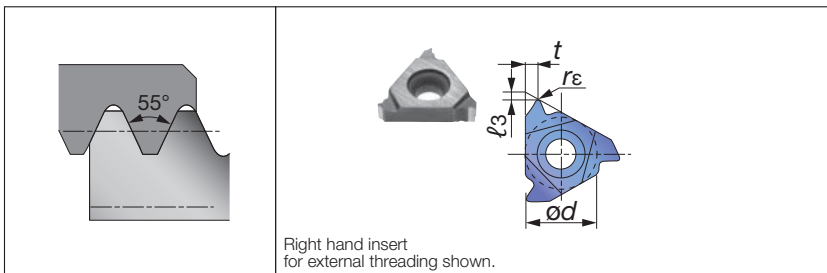
### Applicable toolholders

Insert size	External	Internal
11		SNR/L**11...
16	CER/L**16... B-SER/L**16 B-CER/L**16 BC-SER/L**16	TSNR/L**16 SNR/L**16... TCNR/L**16... CNR/L**16...

### Partial-profile insert with chipbreaker

Insert size	Pitch	TPI	Hand of cut	External insert						Internal insert					
				Designation	Grade	ød	t	ℓ <sub>3</sub>	r <sub>ε</sub>	Designation	Grade	ød	t	ℓ <sub>3</sub>	r <sub>ε</sub>
					Cermet						Cermet				
		NS9530													
11	0.5~1.5	48~16	R		●	9.525	0.9	0.7	0.06	11IRA60-M	●	6.35	0.9	0.7	0.04
16	0.5~1.5	48~16	R	16ERA60-M	●	9.525	0.9	0.7	0.06	16IRA60-M	●	9.525	0.9	0.7	0.04
16	0.5~3	48~8	R	16ERAG60-M	●	9.525	1.6	1.2	0.06	16IRAG60-M	●	9.525	1.6	1.2	0.04
16	1.75~3	14~8	R	16ERG60-M	●	9.525	1.6	1.2	0.22	16IRG60-M	●	9.525	1.6	1.2	0.14

## Whitworth



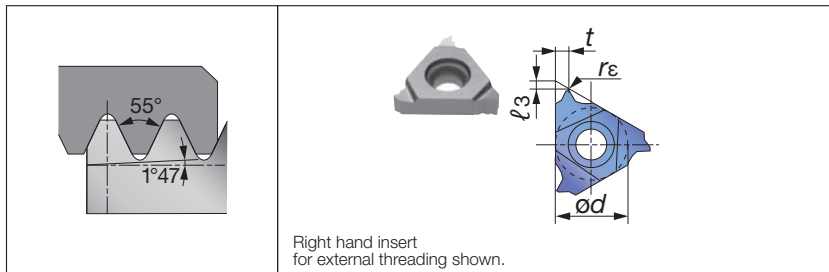
### Applicable toolholders

Insert size	External	Internal
16	CER/L**16... B-SER/L**16 B-CER/L**16 BC-SER/L**16	TSNR/L**16 SNR/L**16... TCNR/L**16... CNR/L**16...

### Full-profile insert with chipbreaker

Insert size	Pitch	TPI	Hand of cut	External insert						Internal insert					
				Designation	Grade	ød	t	ℓ <sub>3</sub>	r <sub>ε</sub>	Designation	Grade	ød	t	ℓ <sub>3</sub>	r <sub>ε</sub>
					Cermet						Cermet				
		NS9530													
16	(1.337)	19	R	16ER19W-M	●	9.525	0.9	0.7	0.17	16IR19W-M	●	9.525	0.9	0.7	0.17
16	(1.814)	14	R	16ER14W-M	●	9.525	1.6	1.2	0.23	16IR14W-M	●	9.525	1.6	1.2	0.23
16	(2.309)	11	R	16ER11W-M	●	9.525	1.6	1.2	0.29	16IR11W-M	●	9.525	1.6	1.2	0.29

## PT



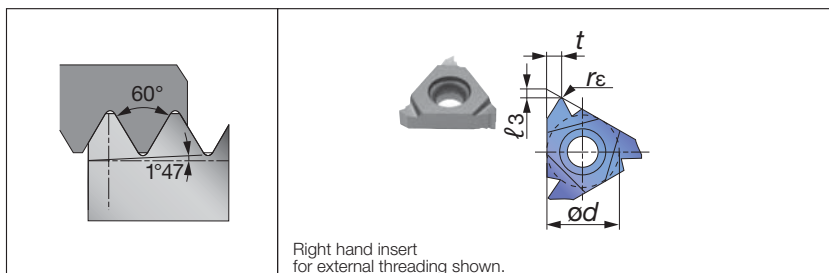
### Applicable toolholders

Insert size	External	Internal
16	CER/L**16... B-SER/L**16 B-CER/L**16 BC-SER/L**16	TSNR/L**16 SNR/L**16... TCNR/L**16... CNR/L**16...

### Full-profile insert with chipbreaker

Insert size	Pitch	TPI	Hand of cut	External insert						Internal insert					
				Designation	Grade	ød	t	l <sub>3</sub>	r <sub>ε</sub>	Designation	Grade	ød	t	l <sub>3</sub>	r <sub>ε</sub>
					Cermet						NS9530				
16	(1.337)	19	R	16ER19PT-M	●	9.525	0.9	0.7	0.18	16IR19PT-M	●	9.525	0.9	0.7	0.18
16	(1.814)	14	R	16ER14PT-M	●	9.525	1.6	1.2	0.25	16IR14PT-M	●	9.525	1.6	1.2	0.25
16	(2.309)	11	R	16ER11PT-M	●	9.525	1.6	1.2	0.32	16IR11PT-M	●	9.525	1.6	1.2	0.32

## NPT



### Applicable toolholders

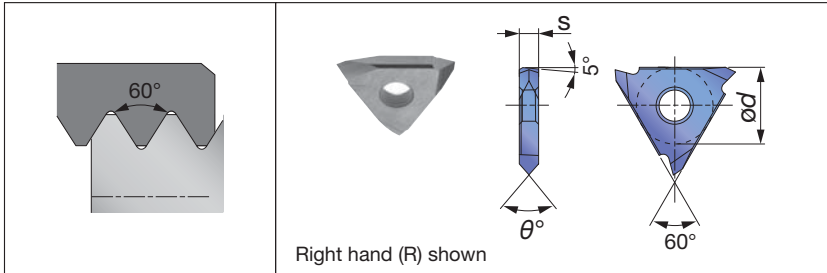
Insert size	External	Internal
16	CER/L**16... B-SER/L**16 B-CER/L**16 BC-SER/L**16	TSNR/L**16 SNR/L**16... TCNR/L**16... CNR/L**16...

### Full-profile insert with chipbreaker

Insert size	Pitch	TPI	Hand of cut	External insert						Internal insert					
				Designation	Grade	ød	t	l <sub>3</sub>	r <sub>ε</sub>	Designation	Grade	ød	t	l <sub>3</sub>	r <sub>ε</sub>
					Cermet						NS9530				
16	(1.411)	18	R	16ER18NPT-M	●	9.525	0.9	0.7	0.07	16IR18NPT-M	●	9.525	0.9	0.7	0.07
16	(1.814)	14	R	16ER14NPT-M	●	9.525	1.6	1.2	0.08	16IR14NPT-M	●	9.525	1.6	1.2	0.08
16	(2.209)	11.5	R	16ER115NPT-M	●	9.525	1.6	1.2	0.09	16IR115NPT-M	●	9.525	1.6	1.2	0.09

## TT-type Insert

### 60° thread angle

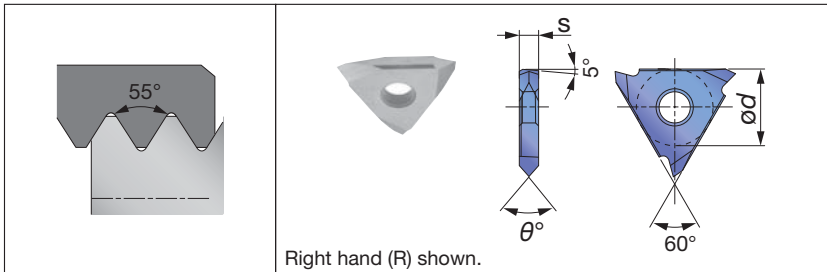


#### Partial-profile insert for external and internal threads

Pitch	TPI	Hand of cut	Designation	Grade	$\phi d$	s	$\theta^\circ$	Applicable toolholders
				Cermet				
				NS9530				
$\leq 3$	$\geq 8$	R	TTR42M-005	●	12.7	3.2	60	TT-****RE/LI
$\leq 3$	$\geq 8$	L	TTL42M-005	●	12.7	3.2	60	TT-****LE/RI

## TT-type Insert

### 55° thread angle

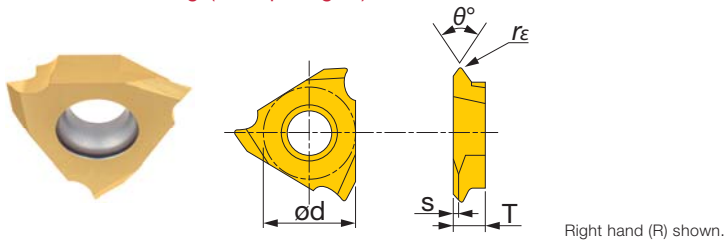


#### Partial-profile insert for external and internal threads

Pitch	TPI	Hand of cut	Designation	Grade	$\phi d$	s	$\theta^\circ$	Applicable toolholders
				Cermet				
				NS9530				
$\leq 3$	$\geq 8$	R	TTR42W-005	●	12.7	3.2	55	TT-****RE/LI
$\leq 3$	$\geq 8$	L	TTL42W-005	●	12.7	3.2	55	TT-****LE/RI

## JTT (sharp edge)

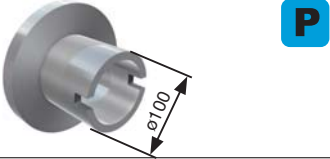
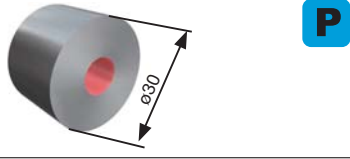
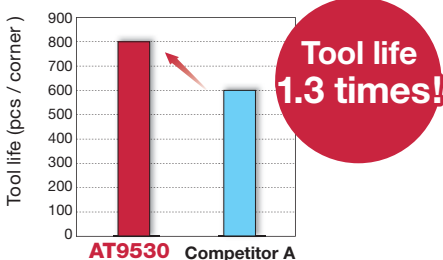
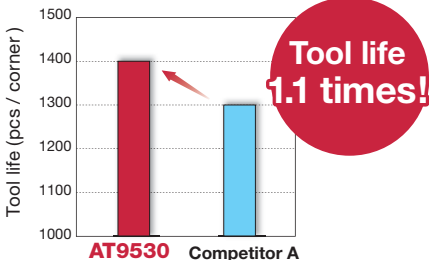
External threading (Sharp edges)



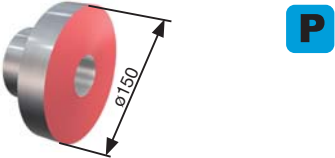
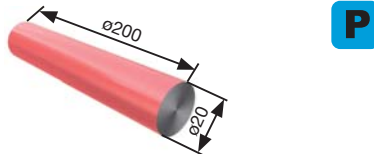
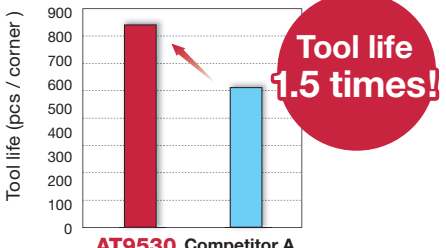
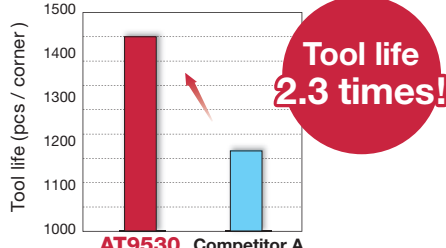
Designation	$r_\epsilon$	Cermet	$\theta^\circ$	$\varnothing d$	T	s
		NS9530				
JTTR/L3005F	0.05	●	60	9.525	3.18	0.9
JTTR/L3010F	0.1	●	60	9.525	3.18	0.9

Machinable pitch range: 0.5 to 1 mm. ● : Line up

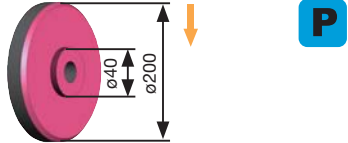
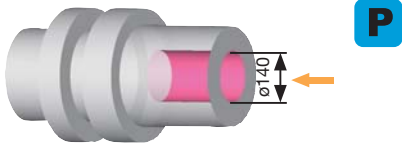
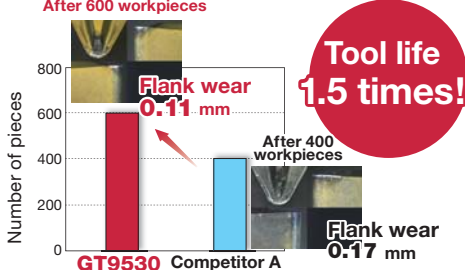
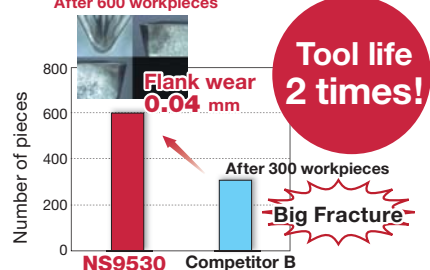
## PRACTICAL EXAMPLES

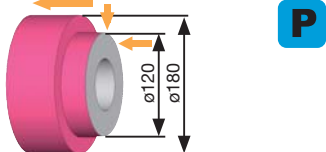
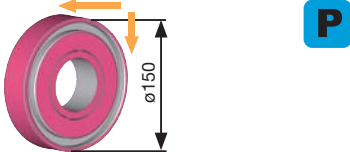
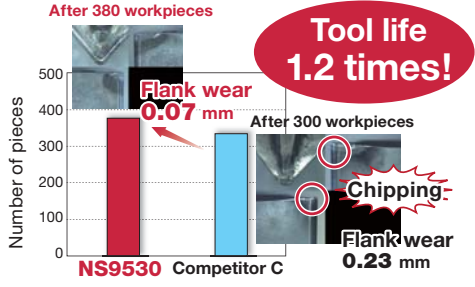
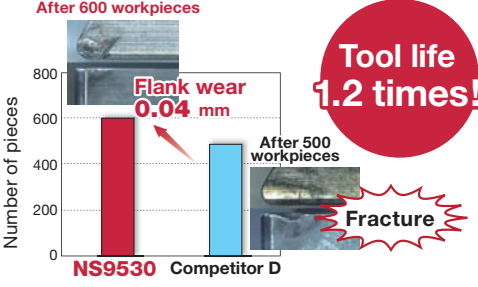
Workpiece type		Hub parts	Shaft parts
Insert		VNMG160404-TSF	CCMT060204-PS
Grade		AT9530	AT9530
Workpiece material		S45C Carbon steel	SCr415 (16MnCr5)
			
Cutting conditions	Cutting speed : $V_c$ (m/min)	280	100
	Feed : $f$ (mm/rev)	0.3	0.1
	Depth of cut : $a_p$ (mm)	0.1	0.4
	Machining	External turning (Continuous cutting)	Internal turning (Continuous cutting)
	Coolant	Wet	Wet
Results		 <p><b>AT9530</b> Competitor A</p> <p>AT9530 extended the tool life 7x over the competitor's, significantly increasing productivity and machining stability, thanks to the grade's improved resistance to wear and fracture.</p>	 <p><b>AT9530</b> Competitor A</p> <p>AT9530 exhibited outstanding wear resistance during an alloy steel machining, extending the tool life by 10% over the competitor's grade. The grade's high fracture toughness serves to minimize unpredicted insert fracture, providing stability during machining.</p>



Workpiece type		Rotor parts	Shaft parts
Insert		VNMG160402-TSF	TNMG160408
Grade		AT9530	AT9530
Workpiece material		Sintered material	SCr415 (16MnCr5)
			
Cutting conditions	Cutting speed : $V_c$ (m/min)	220	101
	Feed : $f$ (mm/rev)	0.07	0.22
	Depth of cut : $a_p$ (mm)	0.5	0.4
	Machining	Face turning (Continuous cutting)	External turning (Continuous cutting)
	Coolant	Wet	Wet
Results		 <p><b>AT9530</b> Competitor A</p> <p>AT9530 provided consistent surface finish quality from the start of machining throughout the life of the insert. The grade also provided outstanding wear resistance during machining powder metal, improving the tool life by 50% over the competitor's grade.</p>	 <p><b>AT9530</b> Competitor A</p> <p>AT9530 provided consistent surface finish quality from the start of machining throughout the life of the insert. AT9530 also provided outstanding wear resistance during machining alloy steel, more than doubling the tool life over the competitor's grade.</p>

## PRACTICAL EXAMPLES

Workpiece type		Automotive parts	Automotive parts
Insert		DNMG150408-TSF	TPMT110304-PS
Grade		GT9530	NS9530
Workpiece material		SPCH	SCM415
			
Cutting conditions	Cutting speed : $V_c$ (m/min)	225	125
	Feed : $f$ (mm/rev)	0.25	0.15
	Depth of cut : $a_p$ (mm)	0.3	1.0
	Machining	Face turning (Continuous cutting)	Internal turning (Continuous cutting)
	Coolant	Wet	Wet
Results		<p>After 600 workpieces</p>  <p>Flank wear 0.11 mm</p> <p>Flank wear 0.17 mm</p> <p>Tool life 1.5 times!</p> <p>GT9530 Competitor A</p> <p>After 400 workpieces</p> <p>GT9530 had no issues with surface finish or dimensional precision. Specifically, GT9530 solved the problem of streaking on the work materials, which still remains with alternate products. GT9530 provided 1.5 times longer tool life than competitor products.</p>	<p>After 600 workpieces</p>  <p>Flank wear 0.04 mm</p> <p>Flank wear 0.17 mm</p> <p>Tool life 2 times!</p> <p>NS9530 Competitor B</p> <p>After 300 workpieces</p> <p>Big Fracture</p> <p>No unexpected fractures occurred when using NS9530. Meanwhile, large fractures can be seen in the above picture on the edge of the current item. The tough and smooth top layer offered stable machining and achieved 2 times longer tool life !</p>

Workpiece type		Machine parts	Machine parts
Insert		CNMG120404-TS	TNGG160404R-C
Grade		NS9530	NS9530
Workpiece material		SCr440	SNCM
			
Cutting conditions	Cutting speed : $V_c$ (m/min)	230	290
	Feed : $f$ (mm/rev)	0.15 - 0.2	0.1 - 0.2
	Depth of cut : $ap$ (mm)	0.3 - 0.5	1.0
	Machining	External and face turning (Continuous cutting)	External and face turning (Continuous cutting)
	Coolant	Wet	Wet
Results		 <p>After 380 workpieces Flank wear 0.07 mm After 300 workpieces Chipping Flank wear 0.23 mm <b>NS9530</b> Competitor C</p> <p>While chipping occurred as shown in pictures, NS9530 demonstrated better chipping resistance than competitor. Moreover, NS9530 delivered 20% longer tool life than the competitor items.</p>	 <p>After 600 workpieces Flank wear 0.04 mm After 500 workpieces Fracture <b>NS9530</b> Competitor D</p> <p>NS9530 showed excellent fracture and chipping resistance due to PremiumTec. NS9530 provides 1.2 times longer tool life than the competitor grade.</p>

## Tungaloy Corporation (Head office)

11-1 Yoshima-Kogyodanchi  
Iwaki-city, Fukushima, 970-1144 Japan  
Phone: +81-246-36-8501  
Fax: +81-246-36-8542  
www.tungaloy.co.jp

## Tungaloy America, Inc.

3726 N Ventura Drive  
Arlington Heights, IL 60004, U.S.A.  
Phone: +1-888-554-8394  
Fax: +1-888-554-8392  
www.tungaloyamerica.com

## Tungaloy Canada

432 Elgin St. Unit 3  
Brantford, Ontario N3S 7P7, Canada  
Phone: +1-519-758-5779  
Fax: +1-519-758-5791  
www.tungaloy.co.jp/ca

## Tungaloy de Mexico S.A.

C Los Arellano 113,  
Parque Industrial Siglo XXI  
Aguascalientes, AGS, Mexico 20290  
Phone: +52-449-929-5410  
Fax: +52-449-929-5411  
www.tungaloy.co.jp/mx

## Tungaloy do Brasil Ltda.

Avd. Independencia N4158 Residencial Flora  
13280-000 Vinhedo, São Paulo, Brasil  
Phone: +55-19-38262757  
Fax: +55-19-38262757  
www.tungaloy.com/br

## Tungaloy Germany GmbH

An der Alten Ziegelei 1  
D-40789 Monheim, Germany  
Phone: +49-2173-90420-0  
Fax: +49-2173-90420-19  
www.tungaloy.de

## Tungaloy France S.A.S.

ZA Courtaboef - Le Rio  
1 rue de la Terre de feu  
F-91952 Courtaboef Cedex, France  
Phone: +33-1-6486-4300  
Fax: +33-1-6907-7817  
www.tungaloy.fr

## Tungaloy Italia S.r.l.

Via E. Andolfato 10  
I-20126 Milano, Italy  
Phone: +39-02-252012-1  
Fax: +39-02-252012-65  
www.tungaloy.it

## Tungaloy Czech s.r.o.

Turanka 115  
CZ-627 00 Brno, Czech Republic  
Phone: +420-532 123 391  
Fax: +420-532 123 392  
www.tungaloy.cz

## Tungaloy Ibérica S.L.

C/Miquel Servet, 43B, Nau 7  
Pol. Ind. Bufalvent  
ES-08243 Manresa (BCN), Spain  
Phone: +34 93 113 1360  
Fax: +34 93 876 2798  
www.tungaloy.es

## Tungaloy Scandinavia AB

Bultgatan 38  
442 40 Kungälv, Sweden  
Phone: +46-462119200  
www.tungaloy.se

## Tungaloy Rus, LLC

115432, Russian Federation, Moscow,  
Andropova avenue., h.18, bld.7, flt. 11,  
office 3.  
Phone: +7-499-683-01-80/81  
www.tungaloy.co.jp/ru

## Tungaloy East LLC

620075, Russian Federation, Sverdlovsk  
Region, Ekaterinburg, Mamina-Sibiryaka str.,  
bldg. 101, room 202  
Phone: +7-343-286-48-23/24  
Fax: +7-912-284-91-69  
www.tungaloy.co.jp/ru

## Tungaloy Polska Sp. z o.o.

ul. Genewska 24  
03-963 Warszawa, Poland  
Phone: +48-22-617-0890  
Fax: +48-22-617-0890  
www.tungaloy.co.jp/pl

## Tungaloy U.K. Ltd

The Technology Centre,  
Wolverhampton Science Park  
Glaisher Drive, Wolverhampton  
West Midlands WV10 9RU, UK  
Phone: +44 121 4000 231  
Fax: +44 121 270 9694  
www.tungaloy.co.jp/uk  
salesinfo@tungaloyuk.co.uk

## Tungaloy Hungary Kft

Erzsébet királyné útja 125  
H-1142 Budapest, Hungary  
Phone: +36 1 781-6846  
Fax: +36 1 781-6866  
www.tungaloy.co.jp/hu  
info@tungaloytools.hu

## Tungaloy Turkey

Dudullu, OSB 4. Cad No:4  
34776 Umraniye Istanbul, TURKEY  
Phone: +90 216 540 04 67  
Fax: +90 216 540 04 87  
www.tungaloy.com.tr  
info@tungaloy.com.tr

## Tungaloy Benelux b.v.

Tjalk 70  
NL-2411 NZ Bodegraven, Netherlands  
Phone: +31 172 630 420  
Fax: +31 172 630 429  
www.tungaloy-benelux.com

## Tungaloy Croatia

Josipa Kozarca 4  
10432 Bregana, Croatia  
Phone: +385 1 3326 604  
Fax: +385 1 3327 683  
www.tungaloy.hr

## Tungaloy Cutting Tool (Shanghai) Co., Ltd.

Rm No 401 No.88 Zhabei  
Jiangchang No.3 Rd  
Shanghai 200436, China  
Phone: +86-21-3632-1880  
Fax: +86-21-3621-1918  
www.tungaloy.co.jp/tots

## Tungaloy Cutting Tool (Thailand) Co., Ltd.

Interlink tower 4th Fl.  
1858/5-7 Bangna-Trad Road  
km.5 Bangna, Bangna, Bangkok 10260  
Thailand  
Phone: +66-2-751-5711  
Fax: +66-2-751-5715  
www.tungaloy.co.th

## Tungaloy Singapore (Pte.), Ltd.

62 Ubi Road 1, #06-11 Oxley BizHub 2  
Singapore 408734  
Phone: +65-6391-1833  
Fax: +65-6299-4557  
www.tungaloy.co.jp/tspl

## Tungaloy Vietnam

LE 04-38, Lexington Residence  
67 Mai Chi Tho, Dist. 2,  
Ho Chi Minh City, Vietnam  
Phone: +84-8-37406660  
Fax: +84-8-37406662  
www.tungaloy.co.jp/tspl

## Tungaloy India Pvt. Ltd.

Indiabulls Finance Centre,  
Unit # 902-A, 9th Floor,  
Tower 1, Senapati Bapat Marg,  
Elphinstone Road (West),  
Mumbai -400013, India  
Phone: +91-22-6124-8804  
Fax: +91-22-6124-8899  
www.tungaloy.co.jp/in

## Tungaloy Korea Co., Ltd

#1312, Byucksan Digital Valley 5-cha  
Beotkot-ro 244, Geumcheon-gu  
153-788 Seoul, Korea  
Phone: +82-2-2621-6161  
Fax: +82-2-6393-8952  
www.tungaloy.co.jp/kr

## Tungaloy Malaysia Sdn Bhd

50 K-2, Kelana Mall, Jalan SS6/14  
Kelana Jaya, 47301  
Petaling Jaya, Selangor Darul Ehsan  
Malaysia  
Phone: +603-7805-3222  
Fax: +603-7804-8563  
www.tungaloy.co.jp/my

## Tungaloy Australia Pty Ltd

PO Box 2232, Rowville,  
Victoria 3178, Australia  
Phone: +61-3-9755-8147  
Fax: +61-3-9755-6070  
www.tungaloy.com.au

## PT. Tungaloy Indonesia

Kompleks Grand Wisata Block AA-10 No.3-5  
Cibitung  
Bekasi 17510, Indonesia  
Phone: +62-21-8261-5808  
Fax: +62-21-8261-5809  
www.tungaloy.co.jp/id



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