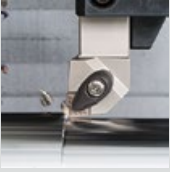


# CONTENTS

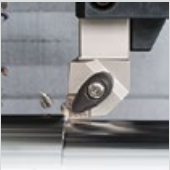
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## General product information

[View](#)

## Added products



### PS, PM

PS and PM chipbreakers are now available on negative inserts for steel turning

[View](#)



TurnLine

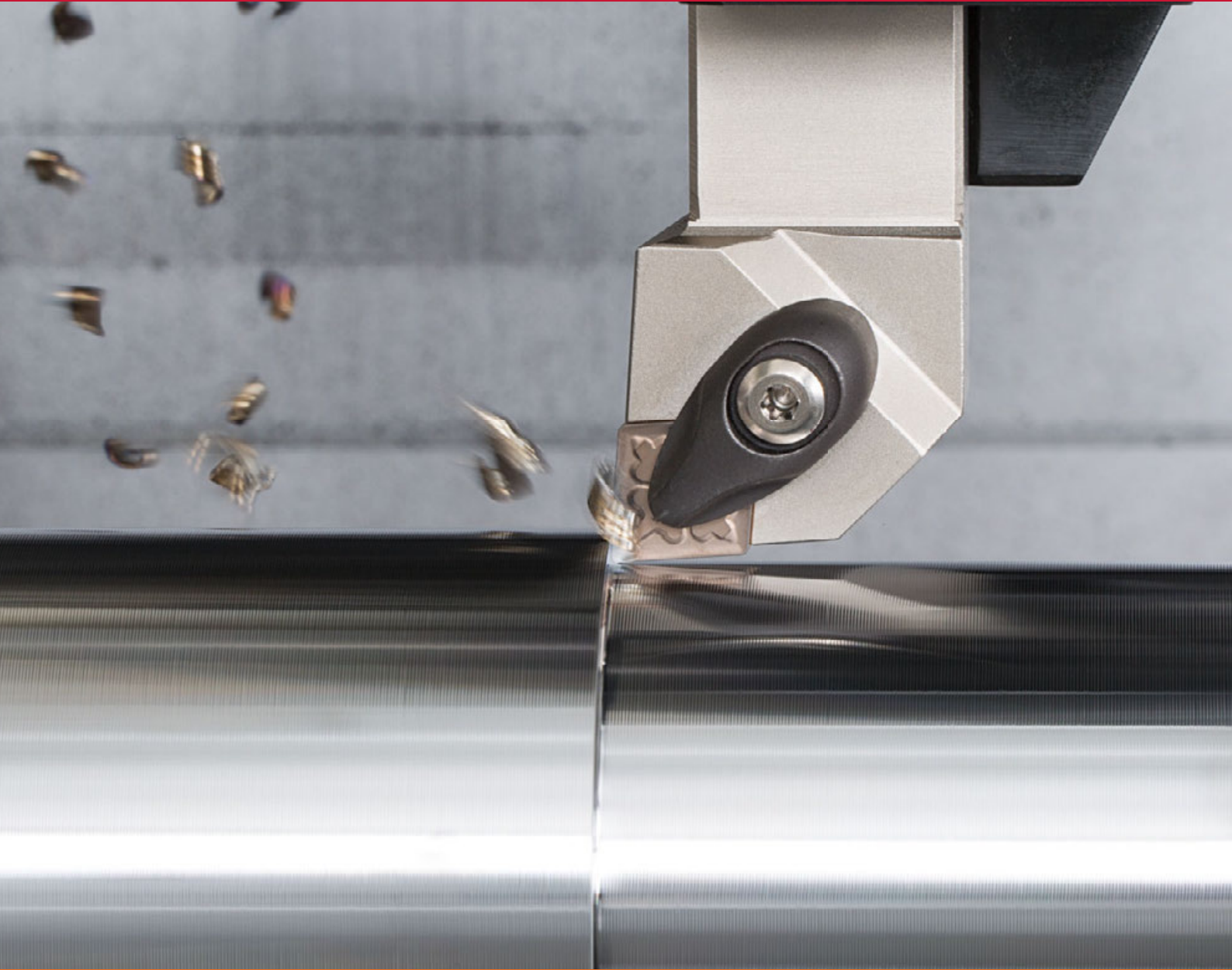
**T9200SERIES**

www.tungaloy.com

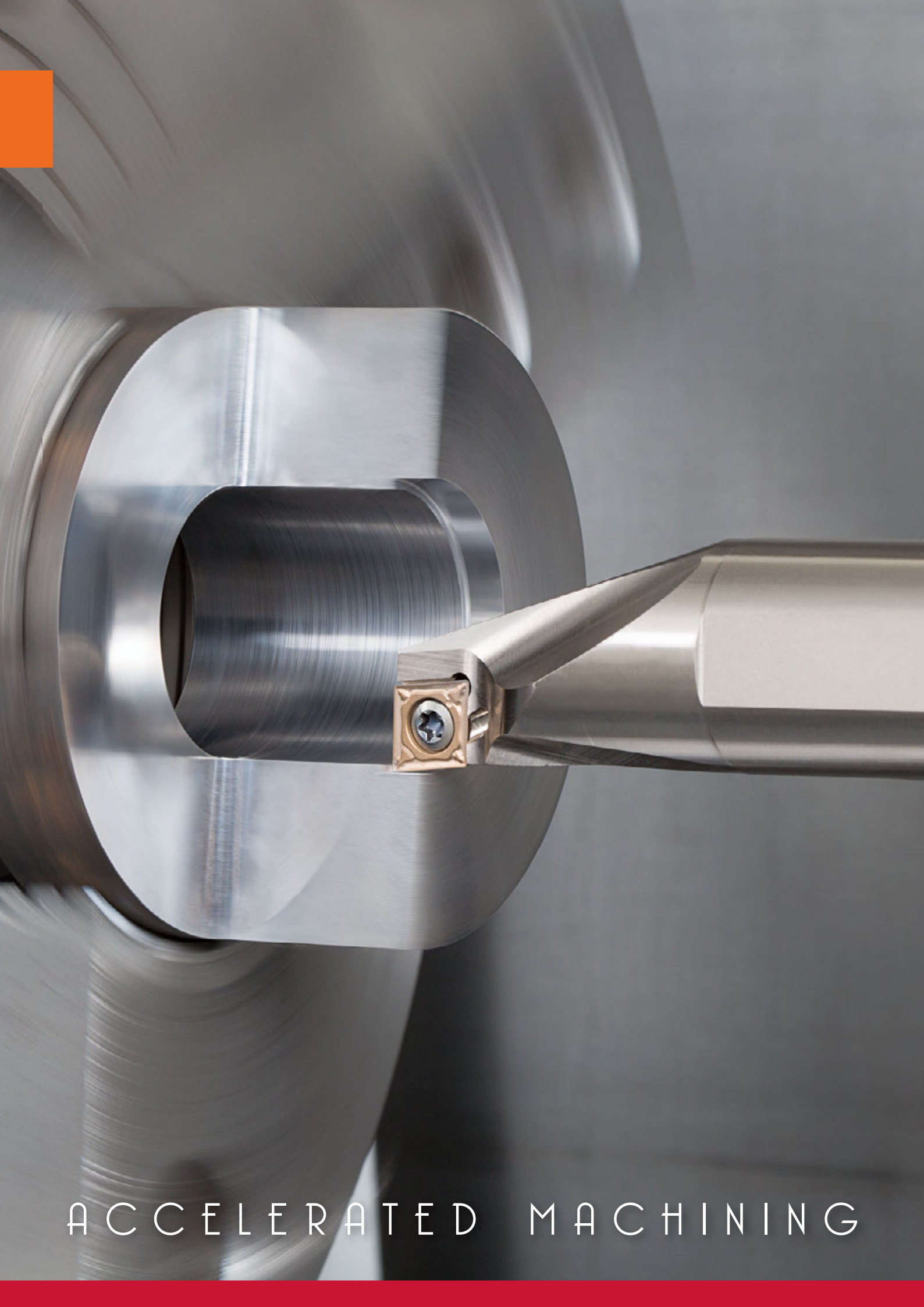
Tungaloy Report No. 513-G



## T9200 series - a new generation of CVD grades for steel turning



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



ACCELERATED MACHINING



TurnLine

# T9200SERIES

TUNGALOY



**New generation of CVD grades.** A complete series for steel turning with outstanding performance, for accelerated machining.

# T9200SERIES

TUNGALOY

The T9200 series now offers T9205 & T9235 and complements the range of Tungaloy New CVD grades generation, for further improve your machining efficiency

## PREMIUMTEC

TUNGALOY

A new surface treatment technology is applied, making T9200 series hard to break

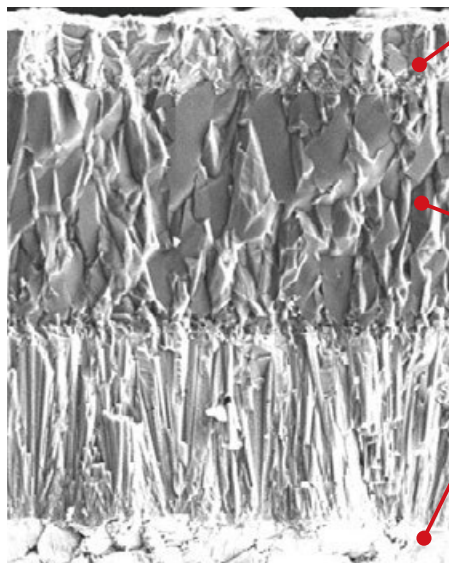
Outermost layer

Ti-layer

Al<sub>2</sub>O<sub>3</sub>

Ti compound

Specially designed substrate



**Hard outer layer.**

A new developed hard coating layer, with a high resistance to flank wear.

**Thick Al<sub>2</sub>O<sub>3</sub> layer** with excellent resistance to high heat and crater wear, especially effective for high-speed machining.

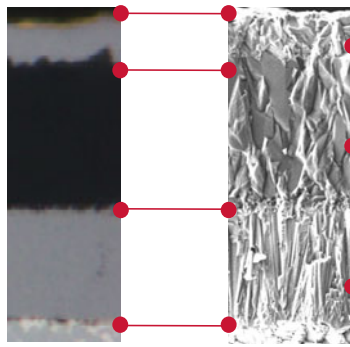
**New cemented carbide substrate.**

Exclusively designed for T9200 series drastically reduces defects in alloys, which greatly improves fracture resistance.

## Excellent Crater Wear Resistance

Al<sub>2</sub>O<sub>3</sub> coating with strengthened wear resistance

### T9200SERIES

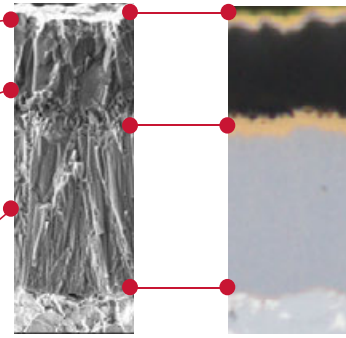


Ti-layer

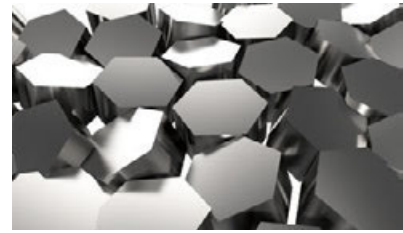
Al<sub>2</sub>O<sub>3</sub>

Ti compound

Existing



Highly homogeneous structure of Al<sub>2</sub>O<sub>3</sub>



Surface image of Al<sub>2</sub>O<sub>3</sub>

## Excellent Flank Wear Resistance

T9200 series Provided Outstanding Flank Wear Resistance!

### T9200SERIES



Long tool life and stable tool life

**Extended tool life**  
**High speed and high feed**  
**Stable machining**

Reduced machine downtime  
Cost reduction  
High productivity

Existing



Increased flank wear leads to small chipping and welding

**Fracture**

## PREMIUMTEC

TUNGALOY

Excellent fracture resistance, due to a New improved surface coating treatment

A unique tough coating treatment technology that prevents cracks in operation and provides stable machining.

### ADVANTAGE of the new technology

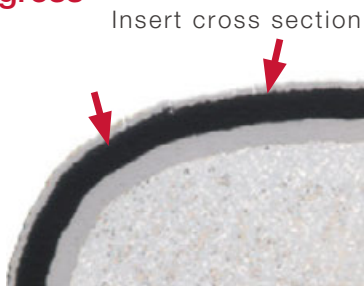
Effect of the new improved surface treatment which prolongs insert's tool life

## T9200SERIES

Vs.

Existing

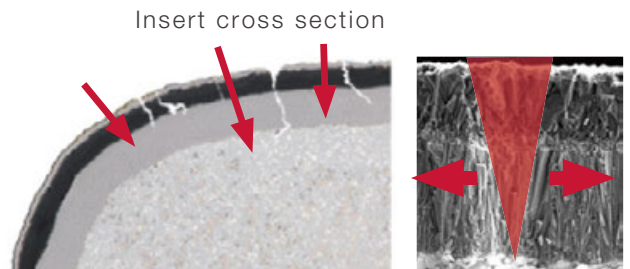
Suppress crack generation and progress



PREMIUMTEC

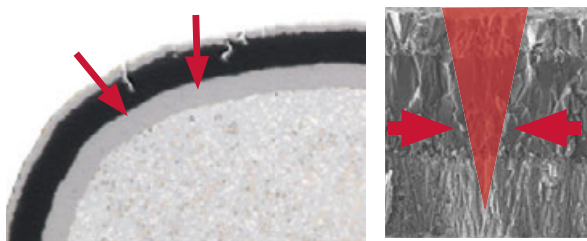
TUNGALOY

Crack occurs in coating files. Crack proceeds



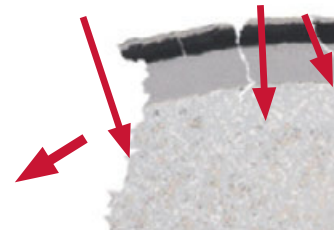
The crack gradually spreads

Suppress crack propagation

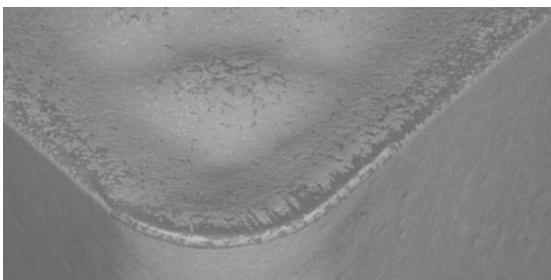


Still using

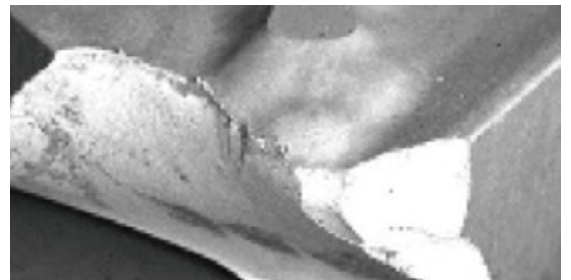
Fracture



Fracture



Results: stable machining!





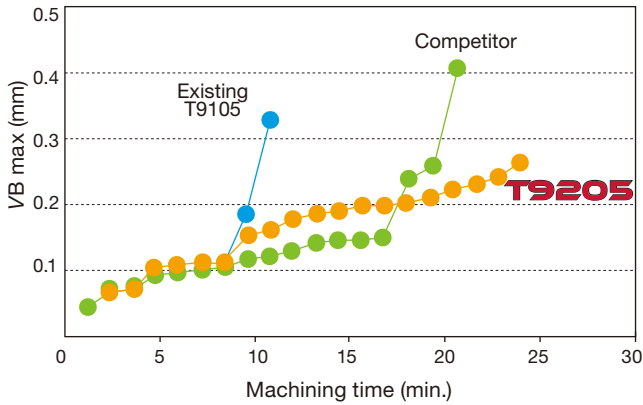
**New**

## T9205

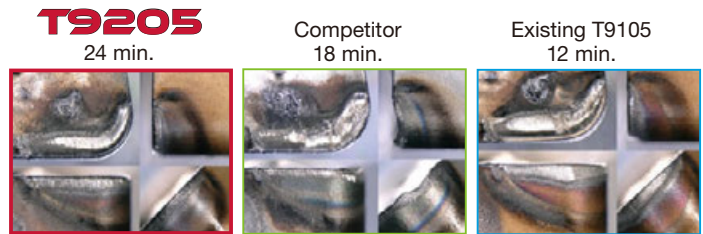
### CUTTING PERFORMANCE

**P** S45C / C45 (245HB)

T9205 provides longer tool life than competitors' grades thanks to its resistance to wear

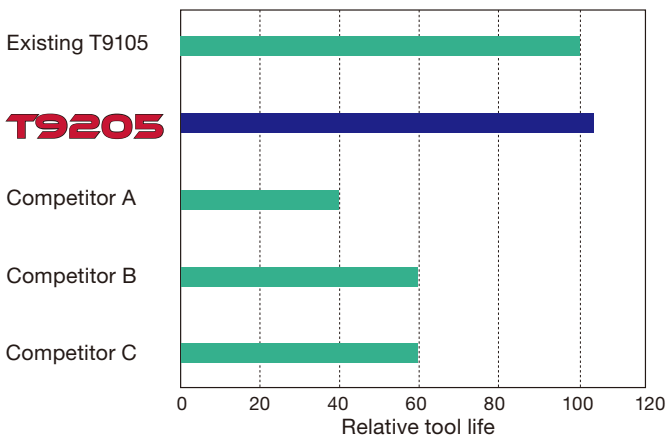


Inserts : CNMG120408-...  
 Cutting speed :  $V_c = 300$  m/min  
 Feed :  $f = 0.25$  mm/rev  
 Depth of cut :  $a_p = 2.0$  mm  
 Applications : Continuous cutting  
 Coolant : Wet



**P** S45C / C45

T9205 provides higher fracture resistance than competitors' grades



Inserts : CNMG120408-...  
 Cutting speed :  $V_c = 150$  m/min  
 Feed :  $f = 0.15$  mm/rev  
 Depth of cut :  $a_p = 2.0$  mm  
 Applications : Interrupted cutting  
 Coolant : Wet

# T9200SERIES

TUNGALOY

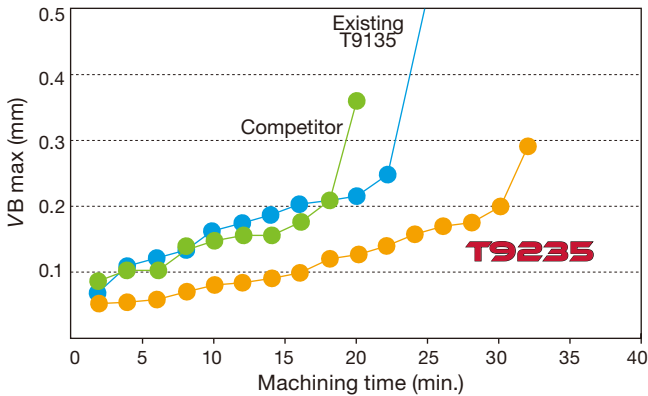
**New**

## T9235

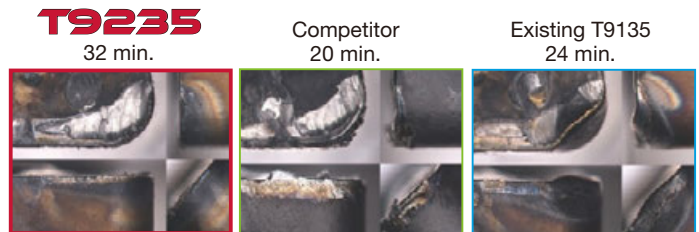
### CUTTING PERFORMANCE

#### **P** S45C / C45 (245HB)

T9235 provided longer tool life with stability over competitors' grades thanks to exceptional wear resistance

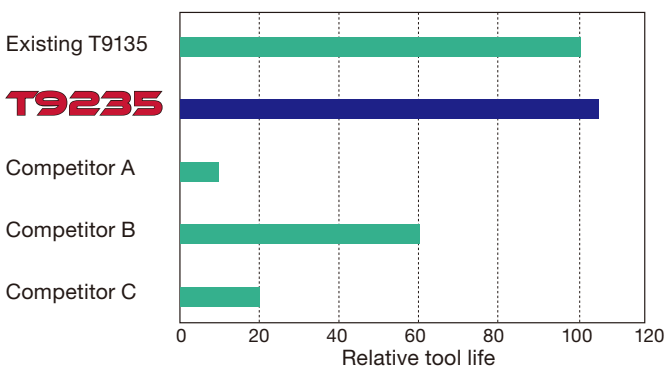


Inserts : CNMG120408-...  
 Cutting speed :  $V_c = 250$  m/min  
 Feed :  $f = 0.3$  mm/rev  
 Depth of cut :  $a_p = 2.0$  mm  
 Applications : Continuous cutting  
 Coolant : Wet



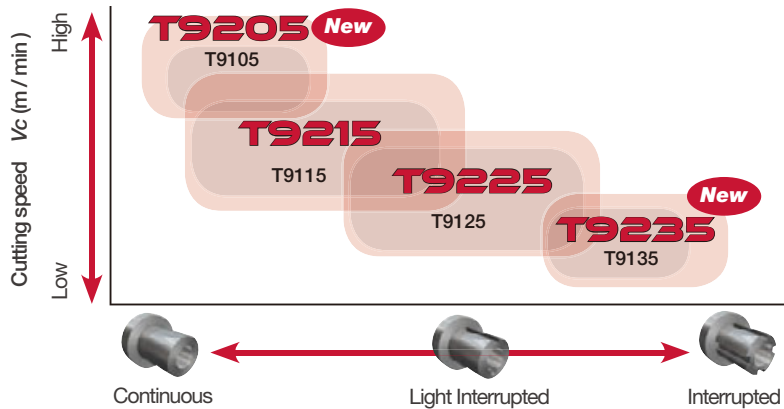
#### **P** S45C / C45

T9235 exhibits better resistance to fracture over competitors' grades



Inserts : CNMG120408-...  
 Cutting speed :  $V_c = 160$  m/min  
 Feed :  $f = 0.20$  mm/rev  
 Depth of cut :  $a_p = 2.5$  mm  
 Applications : Interrupted cutting  
 Coolant : Wet

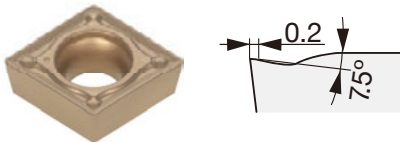
## APPLICATION AREA



Application	Grade	Substrate			Coating layer	
		Specific gravity	Hardness (HRA)	T.R.S. (GPa)	Main Composition	Thickness ( $\mu\text{m}$ )
<b>P</b>	T9205	14.2	91.5	2.4	Ti compound + $\text{Al}_2\text{O}_3$	18
	T9215	14.0	90.5	2.6	Ti compound + $\text{Al}_2\text{O}_3$	18
	T9225	13.8	89.8	2.7	Ti compound + $\text{Al}_2\text{O}_3$	18
	T9235	13.6	89.0	2.7	Ti compound + $\text{Al}_2\text{O}_3$	18

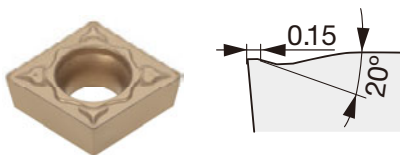
## New chipbreaker geometries for steel turning

### New TSF



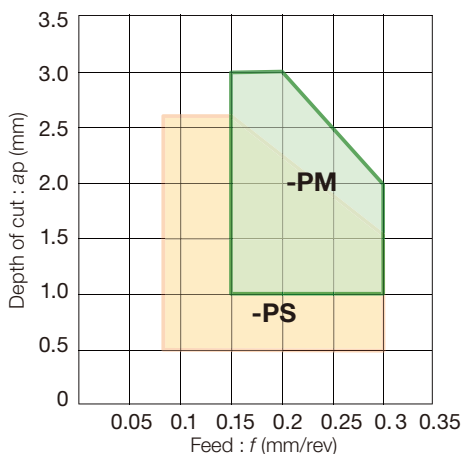
Optimal chipbreaker geometry ensures smooth chip control in a high feed range

### New TM

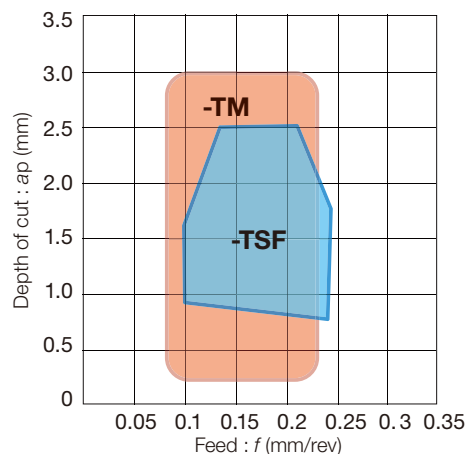


Optimal cutting edge and chipbreaker geometry provides effective chip evacuation at greater depths of cut

### First Choice Chipbreakers



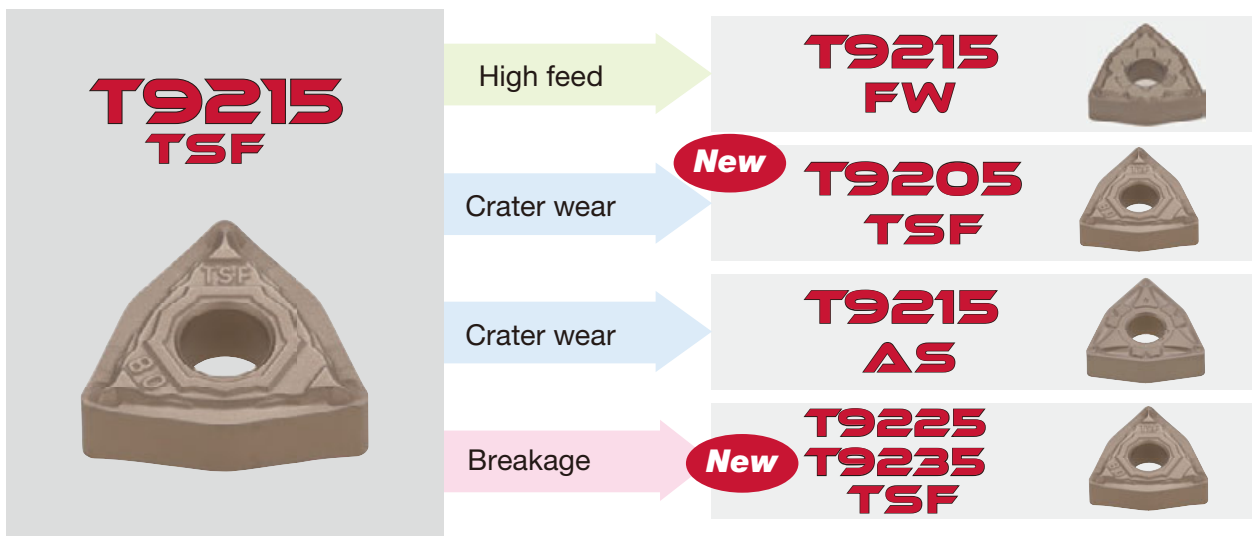
### New New chipbreakers (complementary)



## SELECTION GUIDE NEGATIVE TYPE

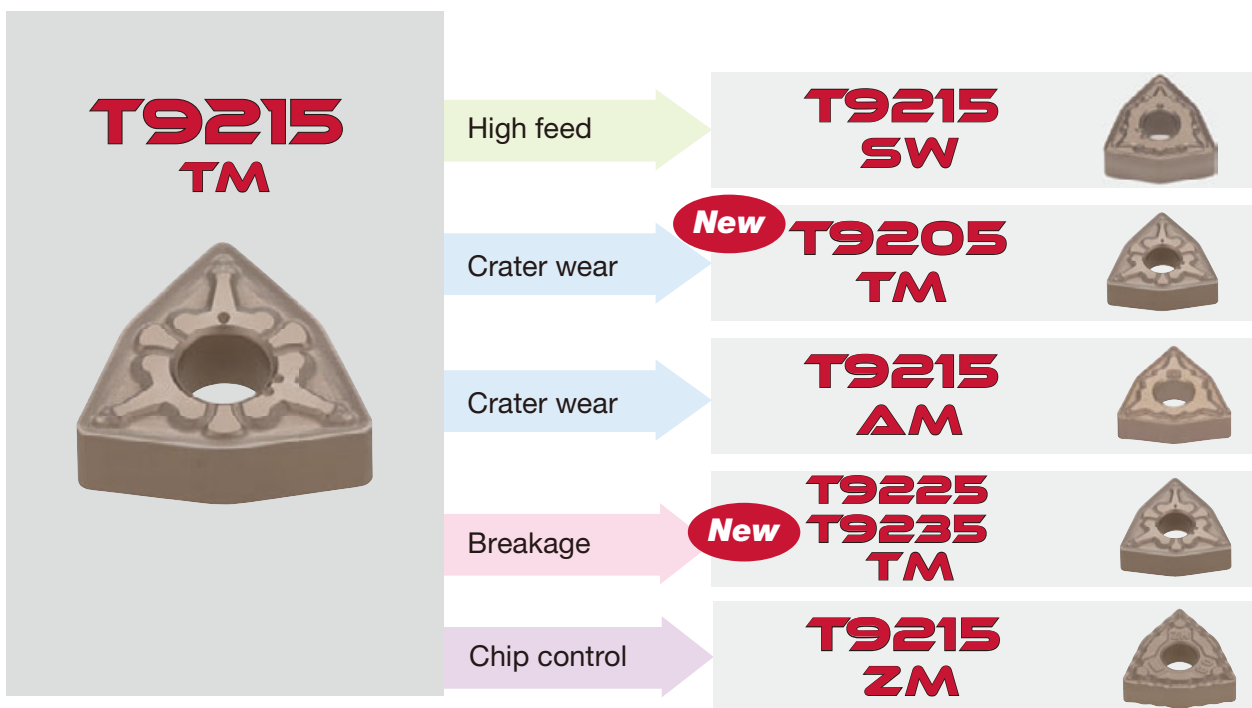
- For finishing ( $a_p = 0.3 - 1.5 \text{ mm}$ )

### The 1st recommendation



- For finish to medium cutting ( $a_p = 1.0 - 4.0 \text{ mm}$ )

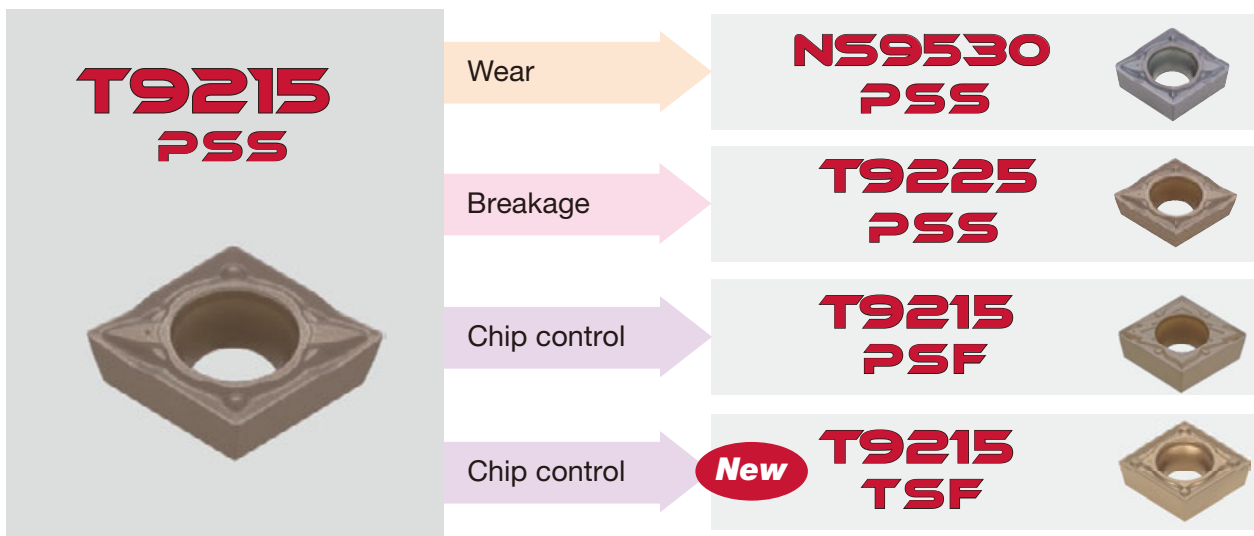
### The 1st recommendation



## POSITIVE TYPE

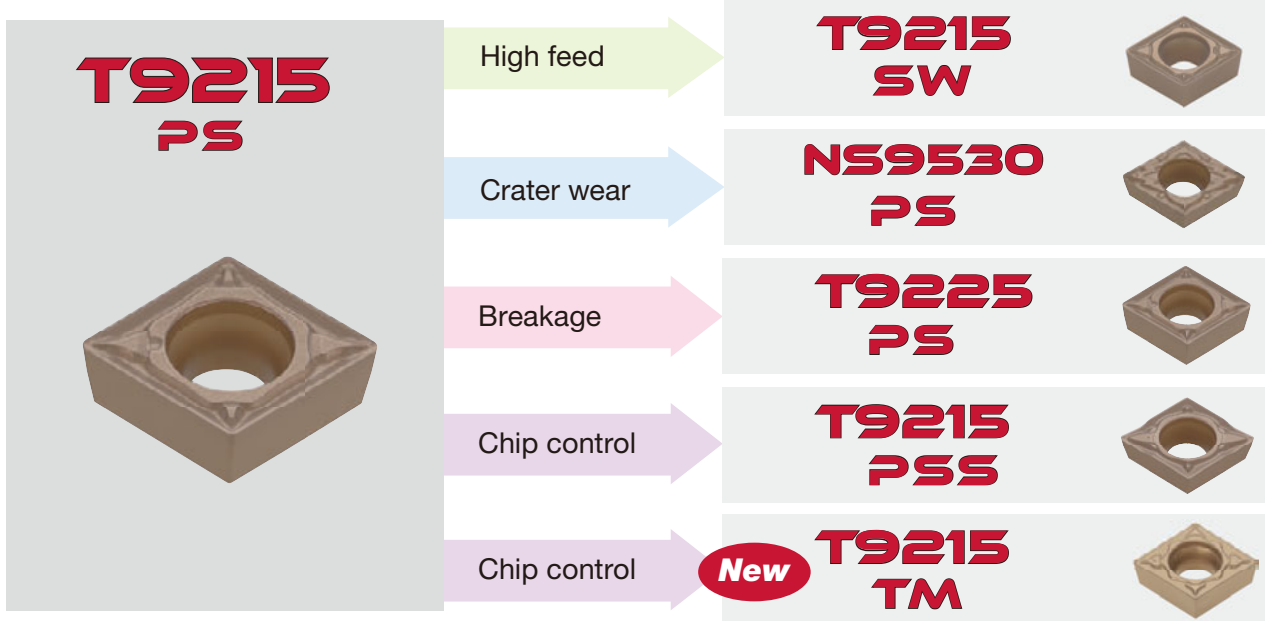
- For finishing ( $a_p = 0.1 - 0.5 \text{ mm}$ )

### The 1st recommendation



- For finishing to medium cutting ( $a_p = 0.5 - 2.5 \text{ mm}$ )

### The 1st recommendation













# T9200SERIES

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## TurnLine - Insert NEGATIVE TYPE

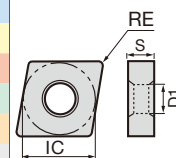
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

### CN



Rhombic, 80°  
with hole

<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	Coated																				RE	IC	S	D1		
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135																		
Medium cutting	38	CNMG120408-38	●																						0.8	12.7	4.76	5.16
Medium to heavy cutting	TH	CNMG120408-TH	●	●	●	●	▲	▲	▲	▲														0.8	12.7	4.76	5.16	
		CNMG120412-TH	●	●	●	●	▲	▲	▲	▲														1.2	12.7	4.76	5.16	
		CNMG120416-TH	●	●	●	●	▲	▲	▲	▲														1.6	12.7	4.76	5.16	
		CNMG160612-TH	●	●	●	●	▲	▲	▲	▲														1.2	15.875	6.35	6.35	
		CNMG160616-TH	●	●	●	●	▲	▲	▲	▲														1.6	15.875	6.35	6.35	
		CNMG190612-TH	●	●	●	●	▲	▲	▲	▲														1.2	19.05	6.35	7.93	
		CNMG190616-TH	●	●	●	●	▲	▲	▲	▲														1.6	19.05	6.35	7.93	
	THS	CNMG120408-THS	●	●	●	●	▲	▲	▲	▲														0.8	12.7	4.76	5.16	
		CNMG120412-THS	●	●	●	●	▲	▲	▲	▲														1.2	12.7	4.76	5.16	
		CNMG120416-THS	●	●	●	●	▲	▲	▲	▲														1.6	12.7	4.76	5.16	
	CNMG160612-THS	●	●	●	●	▲	▲	▲	▲														1.2	15.875	6.35	6.35		
	CNMG160616-THS	●	●	●	●	▲	▲	▲	▲														1.6	15.875	6.35	6.35		
	CNMG190612-THS	●	●	●	●	▲	▲	▲	▲														1.2	19.05	6.35	7.93		
	CNMG190616-THS	●	●	●	●	▲	▲	▲	▲														1.6	19.05	6.35	7.93		
	CNMG190624-THS	●	●	●	●	▲	▲	▲	▲														2.4	19.05	6.35	7.93		
	CNMG250924-THS	●	●	●	●	▲	▲	▲	▲														2.4	25.4	9.52	9.12		
Medium to heavy cutting (Single sided)	57	CNMM120404-57		●			▲		▲														0.4	12.7	4.76	5.16		
		CNMM120408-57	●	●			▲	▲															0.8	12.7	4.76	5.16		
		CNMM120412-57		●			▲	▲															1.2	12.7	4.76	5.16		
		CNMM190612-57		●			▲	▲															1.2	19.05	6.35	5.16		
		CNMM190616-57		●			▲	▲															1.6	19.05	6.35	5.16		

- : Line-up
- : New product
- ▲ : To be discontinued

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

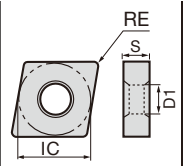
## TurnLine - Insert NEGATIVE TYPE

### CN



Rhombic, 80°  
with hole

Material	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	Coated	RE	IC	S	D1
P Steel	●	◐	◐	✱	◐	◐	◐	✱					
M Stainless	◐	◐	◐	✱	◐	◐	◐	✱					
K Cast iron	◐	◐	◐	◐	◐	◐	◐	◐					
N Non-ferrous													
S Superalloys													
H Hard materials													



Application	Chipbreaker	Designation	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	RE	IC	S	D1	
Medium cutting		<b>S</b> CNMG120404L-S			●	●			▲	▲	0.4	12.7	4.76	5.16	
		CNMG120404R-S			●	●			▲	▲	0.4	12.7	4.76	5.16	
		CNMG120408L-S			●	●			▲	▲	0.8	12.7	4.76	5.16	
		CNMG120408R-S			●	●			▲	▲	0.8	12.7	4.76	5.16	
Medium to heavy cutting (Single sided)		<b>TRS</b> CNMM120408-TRS	●	●	●			▲	▲	▲	0.8	12.7	4.76	5.16	
		CNMM120412-TRS	●	●	●			▲	▲	▲	1.2	12.7	4.76	5.16	
		CNMM160612-TRS	●	●	●			▲	▲	▲	1.2	15.875	6.35	6.35	
		CNMM160616-TRS	●	●	●			▲	▲	▲	1.6	15.875	6.35	6.35	
		CNMM190616-TRS	●	●	●			▲	▲	▲	1.6	19.05	6.35	7.93	
		CNMM190624-TRS	●	●	●			▲	▲	▲	2.4	19.05	6.35	7.93	
		CNMM250924-TRS	●	●	●			▲	▲	▲	2.4	25.4	9.52	9.12	
Heavy cutting (Single sided)		<b>TU</b> CNMM190612-TU		●	●			▲	▲		1.2	19.05	6.35	7.93	
		CNMM190616-TU		●	●			▲	▲		1.6	19.05	6.35	7.93	
		CNMM190624-TU	●	●	●			▲	▲	▲		2.4	19.05	6.35	7.93
		CNMM250924-TU		●	●			▲	▲			2.4	25.4	9.52	9.12
		<b>TUS</b> CNMM190608-TUS	●	●				▲	▲			0.8	19.05	6.35	7.93
		CNMM190612-TUS	●	●	●			▲	▲	▲		1.2	19.05	6.35	7.93
		CNMM190616-TUS	●	●	●			▲	▲	▲		1.6	19.05	6.35	7.93
		CNMM190624-TUS	●	●	●			▲	▲	▲		2.4	19.05	6.35	7.93
		CNMM190632-TUS	●	●				▲	▲			3.2	19.05	6.35	7.93
		CNMM250916-TUS	●	●	●			▲	▲	▲		1.6	25.4	6.35	9.12
Medium to heavy cutting (Single sided)		CNMM250924-TUS	●	●	●			▲	▲	▲	2.4	25.4	9.52	9.12	
		CNMM250932-TUS	●	●				▲	▲		3.2	25.4	9.52	9.12	
		<b>65</b> CNMM120412-65		●				▲				1.2	12.7	4.76	5.16

- : Line-up
- : New product
- ▲ : To be discontinued

## TurnLine - Insert NEGATIVE TYPE

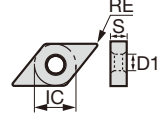
● : Continuous cutting  
 ● (with center) : Light interrupted cutting  
 ✱ : Heavy interrupted cutting

# DN



Rhombic, 55°  
with hole

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



Application	Chipbreaker	Designation	Coated														RE	IC	S	D1																
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135																										
Finishing		<b>TSF</b> DNMG110404E-TSF	●	●					▲	▲																0.4	9.525	4.76	3.81							
		DNMG110408E-TSF	●	●					▲	▲																	0.8	9.525	4.76	3.81						
		DNMG110412E-TSF	●	●					▲	▲																		1.2	9.525	4.76	3.81					
		DNMG150404-TSF	●	●	●	●	▲	▲	▲	▲																			0.4	12.7	4.76	5.16				
		DNMG150408-TSF	●	●	●	●	▲	▲	▲	▲																				0.8	12.7	4.76	5.16			
		DNMG150412-TSF	●	●	●	●	▲	▲	▲	▲																				1.2	12.7	4.76	5.16			
		DNMG150604-TSF		●	●			▲	▲																					0.4	12.7	6.35	5.16			
		DNMG150608-TSF		●	●	●	▲	▲	▲	▲																					0.8	12.7	6.35	5.16		
		DNMG150612-TSF		●	●	●	▲	▲	▲	▲																					1.2	12.7	6.35	5.16		
		Finishing (Wiper)		<b>FW</b> DNMG110404E-FW		●				▲																					0.4	9.525	4.76	3.81		
DNMG110408E-FW				●				▲																						0.8	9.525	4.76	3.81			
DNMG150404-FW				●				▲																						0.4	12.7	4.76	5.16			
DNMG150408-FW				●				▲																							0.8	12.7	4.76	5.16		
DNMG150604-FW				●				▲																							0.4	12.7	6.35	5.16		
DNMG150608-FW				●				▲																							0.8	12.7	6.35	5.16		
		*Wiper insert																																		
Finishing		<b>ZF</b> DNMG110404E-ZF	●	●					▲	▲																				0.4	9.525	4.76	3.81			
		DNMG150404-ZF	●	●	●				▲	▲	▲																				0.4	12.7	4.76	5.16		
		DNMG150408-ZF	●	●	●				▲	▲	▲																					0.8	12.7	4.76	5.16	
		DNMG150412-ZF	●	●	●				▲	▲	▲																					1.2	12.7	4.76	5.16	
		DNMG150604-ZF		●	●				▲	▲																						0.4	12.7	6.35	5.16	
		DNMG150608-ZF		●	●	●			▲	▲	▲																						0.8	12.7	6.35	5.16
		DNMG150612-ZF		●	●				▲	▲																							1.2	12.7	6.35	5.16
<b>11</b>	DNMG150408-11	●						▲																						0.8	12.7	4.76	5.16			

\* 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  
 ● (with center) : New product  
 ▲ : To be discontinued

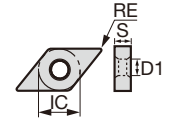
## TurnLine - Insert NEGATIVE TYPE

- : Continuous cutting
- : Light interrupted cutting
- ※ : Heavy interrupted cutting

# DN

Rhombic, 55°  
with hole

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



Application	Chipbreaker	Designation	Coated										RE	IC	S	D1			
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135									
Finishing		<b>TS</b> DNMG150404-TS	●	●●	●●●	●●●●										0.4	12.7	4.76	5.16
		DNMG150408-TS	●●	●●●	●●●●	●●●●●	▲	▲	▲	▲						0.8	12.7	4.76	5.16
		DNMG150412-TS	●●●	●●●●	●●●●●	●●●●●	▲	▲	▲	▲						0.8	12.7	4.76	5.16
		DNMG150608-TS	●●	●●●			▲	▲	▲							0.8	12.7	6.35	5.16
		DNMG150612-TS	●●	●●●			▲	▲								1.2	12.7	6.35	5.16
Finishing to medium cutting (Wiper)		<b>SW</b> DNMG110408E-SW	●					▲							0.8	9.525	4.76	3.81	
		DNMG110412E-SW	●					▲							1.2	9.525	4.76	3.81	
		DNMG150408-SW	●					▲							0.8	12.7	4.76	5.16	
		DNMG150412-SW	●					▲							1.2	12.7	4.76	5.16	
		DNMG150608-SW	●					▲							0.8	12.7	6.35	5.16	
		DNMG150612-SW	●					▲							1.2	12.7	6.35	5.16	
High feed, small depth of cut		*Wiper insert																	
		<b>AS</b> DNMG150404-AS	●		●				▲	▲	▲				0.4	12.7	4.76	5.16	
		DNMG150408-AS	●●	●●	●●●				▲	▲	▲				0.8	12.7	4.76	5.16	
		DNMG150412-AS	●●●	●●●	●●●●				▲	▲	▲				1.2	12.7	4.76	5.16	
		DNMG150604-AS	●						▲						0.4	12.7	6.35	5.16	
		DNMG150608-AS	●	●					▲	▲					0.8	12.7	6.35	5.16	
Boring (Double sided)		<b>CB</b> DNMG110408-CB	●					▲						0.8	9.525	4.76	3.81		
Finishing		<b>NS</b> DNMG150404-NS			●						▲			0.4	12.7	4.76	5.16		
		DNMG150408-NS	●●	●●●	●●●				▲	▲	▲			0.8	12.7	4.76	5.16		
Finishing to medium cutting		<b>AM</b> DNMG150408-AM	●	●					▲	▲				0.8	12.7	4.76	5.16		
		DNMG150412-AM	●●	●●					▲	▲				1.2	12.7	4.76	5.16		
		DNMG150416-AM	●●	●●						▲	▲			1.6	12.7	4.76	5.16		
		DNMG150608-AM	●●	●●						▲	▲			0.8	12.7	6.35	5.16		
		DNMG150612-AM	●●	●●						▲	▲			1.2	12.7	6.35	5.16		
		DNMG150616-AM	●●	●●						▲	▲			1.6	12.7	6.35	5.16		

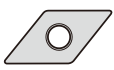
\* Please contact our sales representative for your inquiries about the program adjustment when using SW/FW for machining of radius shape or taper machining.

- : Line-up
- : New product
- ▲ : To be discontinued

## TurnLine - Insert NEGATIVE TYPE

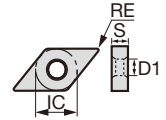
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✳ : Heavy interrupted cutting

### DN



Rhombic, 55°  
with hole

	P	M	K	N	S	H
●	●	●	●	●	●	●
◐	◐	◐	◐	◐	◐	◐
✳	✳	✳	✳	✳	✳	✳



Application	Chipbreaker	Designation	Coated														RE	IC	S	D1				
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135														
Finishing to medium cutting		NM DNMG150408-NM	●	●	●	●	▲	▲	▲											0.8	12.7	4.76	5.16	
		DNMG150412-NM	●	●	●	●	▲	▲	▲												1.2	12.7	4.76	5.16
		TQ DNMG150404-TQ	●	●																	0.4	12.7	4.76	5.16
		DNMG150408-TQ	●	●																		0.8	12.7	4.76
Medium cutting		TM DNMG110404E-TM	●	●			▲	▲												0.4	9.525	4.76	3.81	
		DNMG110408E-TM	●	●			▲	▲													0.8	9.525	4.76	3.81
		DNMG110412E-TM	●	●			▲	▲													1.2	9.525	4.76	3.81
		DNMG110404-TM	●	●	●		▲	▲	▲												0.4	9.525	4.76	3.81
		DNMG110408-TM	●	●	●		▲	▲	▲												0.8	9.525	4.76	3.81
		DNMG150404-TM	●	●	●	▲	▲	▲	▲												0.4	12.7	4.76	5.16
		DNMG150408-TM	●	●	●	▲	▲	▲	▲												0.8	12.7	4.76	5.16
		DNMG150412-TM	●	●	●	▲	▲	▲	▲												1.2	12.7	4.76	5.16
		DNMG150416-TM	●	●			▲	▲													1.6	12.7	4.76	5.16
		DNMG150604-TM	●	●	●	▲	▲	▲	▲												0.4	12.7	6.35	5.16
		DNMG150608-TM	●	●	●	▲	▲	▲	▲												0.8	12.7	6.35	5.16
DNMG150612-TM	●	●	●	▲	▲	▲	▲												1.2	12.7	6.35	5.16		
DNMG150616-TM	●	●	●	▲	▲	▲	▲												1.6	12.7	6.35	5.16		
Finishing to medium cutting		ZM DNMG110408E-ZM	●	●			▲	▲											0.8	9.525	4.76	3.81		
		DNMG150408-ZM	●	●	●		▲	▲	▲											0.8	12.7	4.76	5.16	
		DNMG150412-ZM	●	●	●		▲	▲	▲											1.2	12.7	4.76	5.16	
		DNMG150608-ZM	●	●	●		▲	▲	▲											0.8	12.7	6.35	5.16	
		DNMG150612-ZM	●	●			▲	▲													1.2	12.7	6.35	5.16
Medium cutting		DM DNMG150408-DM	●	●	●		▲	▲	▲										0.8	12.7	4.76	5.16		
		DNMG150412-DM	●	●	●	▲	▲	▲	▲											1.2	12.7	4.76	5.16	
		DNMG150604-DM	●				▲													0.4	12.7	6.35	5.16	
		DNMG150608-DM	●	●	●		▲	▲	▲											0.8	12.7	6.35	5.16	
		DNMG150612-DM	●	●	●	▲	▲	▲	▲											1.2	12.7	6.35	5.16	
		DNMG150616-DM	●				▲													1.6	12.7	6.35	5.16	

- : Line-up
- : New product
- ▲ : To be discontinued



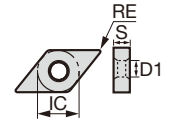
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

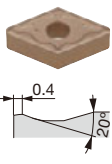
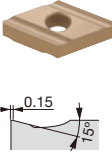
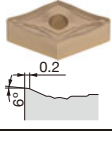
## TurnLine - Insert NEGATIVE TYPE

### DN

 Rhombic, 55° with hole

<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		Coated															
Chipbreaker	Designation	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135					RE	IC	S	D1
<b>THS</b> 	<b>DNMG150408-THS</b>	●	●	●	●	▲	▲	▲						0.8	12.7	4.76	5.16
	<b>DNMG150412-THS</b>	●	●	●	●	▲	▲	▲						1.2	12.7	4.76	5.16
	<b>DNMG150416-THS</b>	●	●			▲	▲							1.6	12.7	4.76	5.16
	<b>DNMG150608-THS</b>	●	●	●		▲	▲	▲						0.8	12.7	6.35	5.16
	<b>DNMG150612-THS</b>	●	●	●		▲	▲	▲						1.2	12.7	6.35	5.16
	<b>DNMG150616-THS</b>	●	●			▲	▲							1.6	12.7	6.35	5.16
<b>S</b> 	<b>DNMG150404L-S</b>		●	●		▲	▲						0.4	12.7	4.76	5.16	
	<b>DNMG150404R-S</b>		●	●		▲	▲						0.4	12.7	4.76	5.16	
	<b>DNMG150408L-S</b>		●	●		▲	▲						0.8	12.7	4.76	5.16	
	<b>DNMG150408R-S</b>		●	●		▲	▲						0.8	12.7	4.76	5.16	
	<b>DNMG150604L-S</b>		●	●		▲	▲						0.4	12.7	6.35	5.16	
	<b>DNMG150604R-S</b>		●	●		▲	▲						0.4	12.7	6.35	5.16	
	<b>DNMG150608L-S</b>		●	●		▲	▲						0.8	12.7	6.35	5.16	
	<b>DNMG150608R-S</b>		●	●		▲	▲						0.8	12.7	6.35	5.16	
<b>57</b> 	<b>DNMM150608-57</b>		●			▲							0.8	12.7	6.35	5.16	
	<b>DNMM150612-57</b>		●			▲							1.2	12.7	6.35	5.16	

- : Line-up
- : New product
- ▲ : To be discontinued



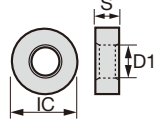
● : Continuous cutting  
 ●● : Light interrupted cutting  
 ●●● : Heavy interrupted cutting

## TurnLine - Insert NEGATIVE TYPE

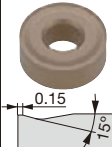
# RN



<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	Coated												RE	IC	S	D1	
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135									
Heavy cutting	<b>61</b>	RNMG090300-61	●●	●●●	●●●	●●●	●●	●●	●●	●●						-	9.525	3.18	3.81
		RNMG120400-61	●●	●●●	●●●	●●	▲	▲	▲	▲						-	12	4.76	5.16
		RNMG150600-61	●●	●●●			▲	▲								-	15.875	6.35	6.43
		RNMG190600-61	●●	●●●	●●		▲	▲	▲							-	19.05	6.35	7.93
		RNMG250900-61	●●	●●			▲	▲								-	25	9.52	9.22



● : Line-up  
 ●● : New product  
 ▲ : To be discontinued







## TurnLine - Insert NEGATIVE TYPE

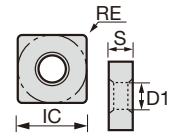
● : Continuous cutting  
●● : Light interrupted cutting  
\* : Heavy interrupted cutting

### SN



**Square, 90°  
with hole**

Material	Continuous (●)	Light Intermittent (●●)	Heavy Intermittent (*)
P Steel	●●	●●	●●
M Stainless	●●	●●	●●
K Cast iron	●●	●●	●●
N Non-ferrous			
S Superalloys			
H Hard materials			



Application	Chipbreaker	Designation	Coated							RE	IC	S	D1
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135			
Medium to heavy cutting (Single sided)		<b>TRS</b> SNMM150612-TRS	●●	●●	●●	●●	▲	▲	▲	1.2	15.875	6.35	6.35
		SNMM150616-TRS	●●	●●	●●	●●	▲	▲	▲	1.6	15.875	6.35	6.35
		SNMM190616-TRS	●●	●●	●●	●●	▲	▲	▲	1.6	19.05	6.35	7.93
		SNMM190624-TRS	●●	●●	●●	●●	▲	▲	▲	2.4	19.05	6.35	7.93
		SNMM250924-TRS	●●	●●	●●	●●	▲	▲	▲	2.4	25.4	9.52	9.12
Heavy cutting (Single sided)		<b>TU</b> SNMM190616-TU				●			▲	1.6	19.05	6.35	7.93
		SNMM190624-TU			●●	●●		▲	▲	2.4	19.05	6.35	7.93
		SNMM250724-TU			●●	●●		▲	▲	2.4	25.4	7.94	9.12
		SNMM250924-TU	●	●			▲	▲		2.4	25.4	9.52	9.12
		<b>TUS</b> SNMM190612-TUS	●●	●●	●●	●●	▲	▲	▲	1.2	19.05	6.35	7.93
Medium to heavy cutting (Single sided)		SNMM190616-TUS	●●	●●	●●	●●	▲	▲	▲	1.6	19.05	6.35	7.93
		SNMM190624-TUS	●●	●●	●●	●●	▲	▲	▲	2.4	19.05	6.35	7.93
		SNMM250724-TUS	●●	●●	●●	●●	▲	▲	▲	2.4	25.4	7.94	9.12
		SNMM250732-TUS	●●	●			▲	▲		3.2	25.4	7.94	9.12
		SNMM250924-TUS	●●	●●	●●	●●	▲	▲	▲	2.4	25.4	9.52	9.12
Medium to heavy cutting (Single sided)		<b>57</b> SNMM120408-57	●●	●●			▲	▲	0.8	12.7	4.76	5.16	
		SNMM150616-57			●●			▲		1.6	15.875	6.35	6.35
		SNMM190612-57			●●			▲		1.2	19.05	6.35	7.93
Medium to heavy cutting (Single sided)		<b>65</b> SNMM190612-65			●●			▲	1.2	19.05	6.35	7.93	
		SNMM310924-65			●●			▲		2.4	31.75	9.52	8.8

● : Line-up  
●● : New product  
▲ : To be discontinued



## TurnLine - Insert NEGATIVE TYPE

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

		P Steel	M Stainless	K Cast iron	N Non-ferrous	S Superalloys	H Hard materials	Coated																											
								T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	RE	IC	S	D1																
Application	Chipbreaker							Coated																											
	Designation							Coated																											
		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135																										
High feed, small depth of cut	<b>AS</b>																																		
	TNMG160404-AS																																		
	TNMG160408-AS TNMG160412-AS																																		
Boring (Double sided)	<b>CB</b>																																		
	TNMG110304-CB TNMG110308-CB																																		
Finishing	<b>NS</b>																																		
	TNMG160404-NS TNMG160408-NS																																		
Medium cutting	<b>TM</b>																																		
	TNMG110304-TM TNMG110308-TM																																		
	TNMG110404E-TM TNMG110408E-TM																																		
	TNMG110412E-TM TNMG160404-TM																																		
	TNMG160408-TM TNMG160412-TM																																		
	TNMG220404-TM TNMG220408-TM																																		
	TNMG220412-TM TNMG220416-TM																																		
	Finishing to medium cutting	<b>AM</b>																																	
		TNMG160408-AM TNMG160412-AM																																	

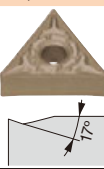
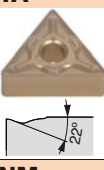
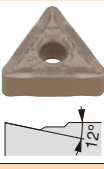
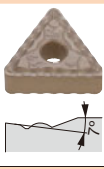
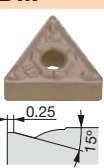
● : Line-up  
 ● : New product  
 ▲ : To be discontinued

# T9200SERIES

TUNGALOY

## TurnLine - Insert NEGATIVE TYPE

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

Application		Coated															
		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	RE	IC	S	D1				
Finishing to medium cutting	<b>TQ</b>	TNMG160404-TQ	●	●	●	●	●							0.4	9.525	4.76	3.81
		TNMG160408-TQ	●	●										0.8	9.525	4.76	3.81
																	
Medium cutting	<b>TA</b>	TNMG160404-TA	●	●										0.4	9.525	4.76	3.81
		TNMG160408-TA	●	●										0.8	9.525	4.76	3.81
			TNMG160412-TA	●	●									1.2	9.525	4.76	3.81
Finishing to medium cutting	<b>NM</b>	TNMG160408-NM		●				▲						0.8	9.525	4.76	3.81
		TNMG160412-NM	●	●			▲	▲						1.2	9.525	4.76	3.81
																	
Finishing to medium cutting	<b>ZM</b>	TNMG160404-ZM	●	●	●		▲	▲	▲					0.4	9.525	4.76	3.81
		TNMG160408-ZM	●	●	●		▲	▲	▲					0.8	9.525	4.76	3.81
		TNMG160412-ZM	●	●	●		▲	▲	▲					1.2	9.525	4.76	3.81
			TNMG220412-ZM		●				▲					1.2	12.7	4.76	5.16
Medium cutting	<b>DM</b>	TNMG160408-DM	●	●	●	●	▲	▲	▲	▲				0.8	9.525	4.76	3.81
			TNMG160412-DM	●	●			▲	▲					1.2	9.525	4.76	3.81

- : Line-up
- : New product
- ▲ : To be discontinued





# T9200SERIES

TUNGALOY

## TurnLine - Insert NEGATIVE TYPE

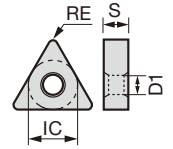
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

### TN



Triangular, 60°  
with hole

	P	M	K	N	S	H
●	●	●	●	●	●	●
◐	◐	◐	◐	◐	◐	◐
✱	✱	✱	✱	✱	✱	✱
▲	▲	▲	▲	▲	▲	▲



Application	Chipbreaker	Designation	Coated														RE	IC	S	D1			
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135													
Medium cutting		<b>S</b> <b>TNMG160404R-S</b>	●	●	●	●	▲	▲	▲										0.4	9.525	4.76	3.81	
		<b>TNMG160404L-S</b>			●	●		▲	▲											0.4	9.525	4.76	3.81
		<b>TNMG160408R-S</b>			●	●		▲	▲											0.8	9.525	4.76	3.81
		<b>TNMG160408L-S</b>			●	●		▲	▲											0.8	9.525	4.76	3.81
		<b>TNMG220404R-S</b>			●	●		▲	▲											0.4	12.7	4.76	5.16
		<b>TNMG220404L-S</b>			●	●		▲	▲											0.4	12.7	4.76	5.16
		<b>TNMG220408R-S</b>			●	●		▲	▲											0.8	12.7	4.76	5.16
		<b>TNMG220408L-S</b>			●	●		▲	▲											0.8	12.7	4.76	5.16
Medium to heavy cutting		<b>TH</b> <b>TNMG220408-TH</b>	●	●	●		▲	▲	▲										0.8	12.7	4.76	5.16	
		<b>TNMG220412-TH</b>	●	●	●		▲	▲	▲										1.2	12.7	4.76	5.16	
		<b>THS</b> <b>TNMG220408-THS</b>	●	●	●		▲	▲	▲											0.8	12.7	4.76	5.16
		<b>TNMG220412-THS</b>	●	●	●		▲	▲	▲											1.2	12.7	4.76	5.16
Medium to heavy cutting (Single sided)		<b>57</b> <b>TNMM160408-57</b>			●			▲											0.8	9.525	4.76	3.81	
		<b>TNMM220408-57</b>			●			▲												0.8	12.7	4.76	5.16
		<b>TNMM220412-57</b>			●			▲												1.2	12.7	4.76	5.16

- : Line-up
- : New product
- ▲ : To be discontinued



# T9200SERIES

TUNGALOY

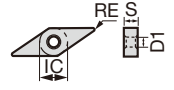
## TurnLine - Insert NEGATIVE TYPE

● : Continuous cutting  
 ● (with dot) : Light interrupted cutting  
 ✱ : Heavy interrupted cutting

### VN

Rhombic, 35°  
with hole

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



Application	Chipbreaker	Designation	Coated																												RE	IC	S	D1					
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135																													
Medium cutting		VNMG160408-DM	●	●	●	●	▲	▲	▲	▲																							0.8	9.525	4.76	3.81			
		VNMG160412-DM	●	●	●		▲	▲	▲																										1.2	9.525	4.76	3.81	
Finishing to medium cutting		VNMG160404-TQ		●	●																														0.4	9.525	4.76	3.81	
		VNMG160408-TQ		●	●																															0.8	9.525	4.76	3.81
Medium cutting		All-round VNMG160404	●	●	●	●	▲	▲	▲	▲																								0.4	9.525	4.76	3.81		
		VNMG160408	●	●	●	●	▲	▲	▲	▲																										0.8	9.525	4.76	3.81
		VNMG160412		●	●						▲	▲																									1.2	9.525	4.76
Medium cutting		33 VNMG160404-33			●						▲																							0.4	9.525	4.76	3.81		
		VNMG160408-33		●	●						▲	▲																								0.8	9.525	4.76	3.81

● : Line-up  
 ● (with dot) : New product  
 ▲ : To be discontinued

## TurnLine - Insert NEGATIVE TYPE

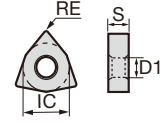
● : Continuous cutting  
 ● : Light interrupted cutting  
 ✱ : Heavy interrupted cutting

# WN



**Trigon, 80°  
with hole**

<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	Coated														RE	IC	S	D1					
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135															
Finishing		<b>TSF</b> WNMG060404E-TSF	●	●					▲	▲											0.4	9.525	4.76	3.81	
		WNMG060408E-TSF	●	●					▲	▲												0.8	9.525	4.76	3.81
		WNMG060412E-TSF	●	●					▲	▲												1.2	9.525	4.76	3.81
		WNMG060404-TSF	●	●					▲	▲												0.4	9.525	4.76	3.81
		WNMG060408-TSF	●	●					▲	▲												0.8	9.525	4.76	3.81
		WNMG080404-TSF	●	●	●				▲	▲	▲											0.4	12.7	4.76	5.16
		WNMG080408-TSF	●	●	●				▲	▲	▲											0.8	12.7	4.76	5.16
		WNMG080412-TSF	●	●	●	▲	▲	▲	▲	▲	▲											1.2	12.7	4.76	5.16
Finishing to medium cutting (Wiper)		<b>FW</b> WNMG060404E-FW	●	●	●				▲	▲	▲										0.4	9.525	4.76	3.81	
		WNMG060408E-FW	●	●	●				▲	▲	▲											0.8	9.525	4.76	3.81
		WNMG080404-FW	●	●					▲	▲												0.4	12.7	4.76	5.16
		WNMG080408-FW	●	●	●				▲	▲	▲											0.8	12.7	4.76	5.16
		*Wiper insert																							
Finishing to medium cutting (Wiper)		<b>AFW</b> WNMG060404-AFW	●	●					▲	▲											0.4	9.525	4.76	3.81	
		WNMG060408-AFW	●	●	●	●	▲	▲	▲	▲												0.8	9.525	4.76	3.81
		WNMG080404-AFW	●	●					▲	▲												0.4	12.7	4.76	5.16
		WNMG080408-AFW	●	●	●	●	▲	▲	▲	▲												0.8	12.7	4.76	5.16
Finishing		<b>ZF</b> WNMG060404E-ZF	●	●					▲	▲											0.4	9.525	4.76	3.81	
		WNMG060404-ZF	●	●					▲	▲												0.4	9.525	4.76	3.81
		WNMG060408-ZF	●	●					▲	▲												0.8	9.525	4.76	3.81
		WNMG080404-ZF	●	●	●				▲	▲	▲											0.4	12.7	4.76	5.16
		WNMG080408-ZF	●	●	●				▲	▲	▲											0.8	12.7	4.76	5.16
		WNMG080412-ZF	●						▲													1.2	12.7	4.76	5.16
Finishing		<b>TS</b> WNMG080404-TS	●	●	●				▲	▲	▲										0.4	12.7	4.76	5.16	
		WNMG080408-TS	●	●	●				▲	▲	▲											0.8	12.7	4.76	5.16
		WNMG080412-TS	●	●	●				▲	▲	▲											1.2	12.7	4.76	5.16

\* 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  
 ▲ : To be discontinued

# T9200SERIES

TUNGALOY

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

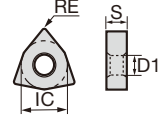
## TurnLine - Insert NEGATIVE TYPE

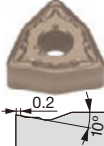
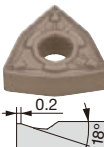




### WN



**Trigon, 80°  
with hole**

<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	Coated																				RE	IC	S	D1					
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135																					
Finishing to medium cutting (Wiper)	 *Wiper insert	WNMG060408E-SW	●	◐	●		▲	▲	▲																						
		WNMG060412E-SW	●	◐	●		▲	▲	▲																						
		WNMG080408-SW	●	◐	●		▲	▲	▲																						
		WNMG080412-SW		◐	●		▲	▲																							
Finishing to medium cutting (ASW)		WNMG060408-ASW	●	◐	●		▲	▲	▲																						
		WNMG060412-ASW	●	◐	●	●	▲	▲	▲	▲																					
		WNMG080408-ASW	●	◐	●	●	▲	▲	▲	▲																					
		WNMG080412-ASW	●	◐	●	●	▲	▲	▲	▲																					
High feed, small depth of cut		WNMG080404-AS	●				▲																								
		WNMG080408-AS	●	◐	●	●	▲	▲	▲	▲																					
		WNMG080412-AS	●	◐	●	●	▲	▲	▲	▲																					
Finishing		WNMG080404-NS		◐	●		▲	▲																							
		WNMG080408-NS		◐	●		▲	▲																							
Boring (Double sided)		WNMG060404-CB				●			▲																						
		WNMG060408-CB				●			▲																						
Medium cutting		WNMG060404E-TM		◐	◐			▲	▲																						
		WNMG060408E-TM		◐	◐			▲	▲																						
		WNMG060412E-TM		◐	◐			▲	▲																						
		WNMG060404-TM		◐	◐	●		▲	▲	▲																					
		WNMG060408-TM	●	◐	●	●	▲	▲	▲	▲																					
		WNMG080404-TM	●	◐	●	●	▲	▲	▲	▲																					
		WNMG080408-TM	●	◐	●	●	▲	▲	▲	▲																					
		WNMG080412-TM	●	◐	●	●	▲	▲	▲	▲																					
WNMG080416-TM	●	◐	●		▲	▲	▲																								

\* 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
- ▲ : To be discontinued

TurnLine - Insert NEGATIVE TYPE

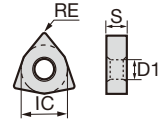
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

**WN**



**Trigon, 80° with hole**

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



Application	Chipbreaker	Designation	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	Coated													RE	IC	S	D1									
Finishing to medium cutting	<b>AM</b> 	WNMG080408-AM	●	●			▲	▲																		0.8	12.7	4.76	5.16							
		WNMG080412-AM	●	●			▲	▲																			1.2	12.7	4.76	5.16						
		WNMG080416-AM	●	●			▲	▲																			1.6	12.7	4.76	5.16						
	<b>TQ</b> 	WNMG080404-TQ	●	●																							0.4	12.7	4.76	5.16						
		WNMG080408-TQ	●	●																							0.8	12.7	4.76	5.16						
	Medium cutting	<b>TA</b> 	WNMG080408-TA	●	●																						0.8	12.7	4.76	5.16						
WNMG080412-TA			●	●																						1.2	12.7	4.76	5.16							
Finishing to medium cutting	<b>NM</b> 	WNMG060412E-NM		●					▲																	1.2	9.525	4.76	3.81							
		WNMG080408-NM	●	●	●		▲	▲	▲																	0.8	12.7	4.76	5.16							
		WNMG080412-NM	●	●	●	●	▲	▲	▲	▲																	1.2	12.7	4.76	5.16						
	<b>ZM</b> 	WNMG060408E-ZM	●	●					▲	▲																	0.8	9.525	4.76	3.81						
		WNMG060408-ZM	●	●	●		▲	▲	▲																		0.8	9.525	4.76	3.81						
		WNMG060412-ZM	●	●	●		▲	▲	▲																		1.2	9.525	4.76	3.81						
Medium cutting	<b>DM</b> 	WNMG080408-DM	●	●	●	●	▲	▲	▲	▲																0.8	12.7	4.76	5.16							
		WNMG080412-DM	●	●	●	●	▲	▲	▲	▲																	1.2	12.7	4.76	5.16						

- : Line-up
- : New product
- ▲ : To be discontinued

# T9200SERIES

TUNGALOY

## TurnLine - Insert NEGATIVE TYPE

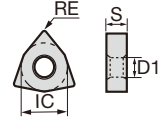
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

### WN



**Trigon, 80°  
with hole**

Material	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	Other
P Steel	●	◐	◐	◐	◐	◐	◐	◐	◐
M Stainless	●	◐	◐	◐	◐	◐	◐	◐	◐
K Cast iron	◐	◐	◐	◐	◐	◐	◐	◐	◐
N Non-ferrous									
S Superalloys									
H Hard materials									



Application	Chipbreaker	Designation	Coated													
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	RE	IC	S	D1		
Medium cutting		<b>All-round</b> WNMG060404	●	●			▲	▲					0.4	9.525	4.76	3.81
		WNMG060408	●	●			▲	▲					0.8	9.525	4.76	3.81
		WNMG080404	●	●	●	▲	▲	▲	▲				0.4	12.7	4.76	5.16
		WNMG080408	●	●	●	▲	▲	▲	▲				0.8	12.7	4.76	5.16
		WNMG080412	●	●	●	▲	▲	▲	▲				1.2	12.7	4.76	5.16
		WNMG080416	●	●	●	▲	▲	▲	▲				1.6	12.7	4.76	5.16
Finishing to medium cutting		<b>27</b> WNMG080408-27			●			▲					0.8	12.7	4.76	5.16
Medium cutting		<b>37</b> WNMG080408-37	●				▲						0.8	12.7	4.76	5.16
Medium to heavy cutting		<b>TH</b> WNMG080408-TH	●	●	●	●	▲	▲	▲	▲			0.8	12.7	4.76	5.16
		WNMG080412-TH	●	●	●	●	▲	▲	▲	▲			1.2	12.7	4.76	5.16
		WNMG080416-TH	●	●	●		▲	▲	▲				1.6	12.7	4.76	5.16
		WNMG100612-TH		●	●		▲	▲					1.2	15.875	6.35	6.35
		WNMG100616-TH		●	●		▲	▲					1.6	15.875	6.35	6.35
Medium to heavy cutting		<b>THS</b> WNMG080408-THS	●	●	●	●	▲	▲	▲	▲			0.8	12.7	4.76	5.16
		WNMG080412-THS	●	●	●	●	▲	▲	▲	▲			1.2	12.7	4.76	5.16
		WNMG080416-THS	●	●			▲	▲					1.6	12.7	4.76	5.16
		WNMG100612-THS		●	●	●	▲	▲	▲				1.2	15.875	6.35	6.35
		WNMG100616-THS		●	●	●	▲	▲	▲				1.6	15.875	6.35	6.35

- : Line-up
- : New product
- ▲ : To be discontinued







## TurnLine - Insert POSITIVE TYPE

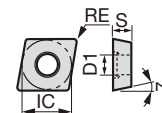
- : Continuous cutting
- (with dot) : Light interrupted cutting
- ⌘ : Heavy interrupted cutting

### CC



Rhombic, 80°  
with hole  
Positive 7°

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



Application	Chipbreaker	Designation	Coated																RE	IC	S	D1		
			T9215	T9225	T9115	T9125	T9135	T9145	T9155	T9165	T9175	T9185	T9195	T9205	T9215	T9225	T9235	T9245						
Finishing to medium cutting (Wiper)		<b>SW</b> CCMT060204-SW	●	●	▲	▲														0.4	6.35	2.38	2.8	
		CCMT060208-SW	●	●	▲	▲															0.8	6.35	2.38	2.8
		CCMT09T304-SW	●	●	▲	▲															0.4	9.525	3.97	4.4
		CCMT09T308-SW	●	●	▲	▲															0.8	9.525	3.97	4.4
		*Wiper insert																						
Finishing to medium cutting		<b>23</b> CCMT060204-23		●		▲														0.4	6.35	2.38	2.8	
		CCMT060208-23		●		▲															0.8	6.35	2.38	2.8
		CCMT09T304-23		●		▲															0.4	9.525	3.97	4.4
		CCMT09T308-23		●		▲															0.8	9.525	3.97	4.4
Medium cutting		<b>24</b> CCMT060202-24		●		▲														0.2	6.35	2.38	2.8	
		CCMT060204-24	●	●	▲	▲															0.8	6.35	2.38	2.8
		CCMT060208-24	●	●	▲	▲															0.8	6.35	2.38	2.8
		CCMT09T302-24		●		▲															0.2	9.525	3.97	4.4
		CCMT09T304-24	●	●	▲	▲															0.4	9.525	3.97	4.4
		CCMT09T308-24	●	●	▲	▲															0.8	9.525	3.97	4.4
		CCMT120408-24	●	●	▲	▲															0.8	12.7	4.76	5.5
Medium cutting		<b>PM</b> CCMT060204-PM	●	●	▲	▲														0.4	6.35	2.38	2.8	
		CCMT060208-PM	●	●	▲	▲															0.8	6.35	2.38	2.8
		CCMT09T304-PM	●	●	▲	▲															0.4	9.525	3.97	4.4
		CCMT09T308-PM	●	●	▲	▲															0.8	9.525	3.97	4.4
		CCMT09T312-PM	●	●	▲	▲															1.2	9.525	3.97	4.4

\* 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
- (with dot) : New product
- ▲ : To be discontinued

# T9200SERIES

TUNGALOY

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

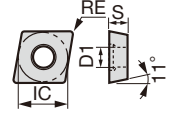
## TurnLine - Insert POSITIVE TYPE

# CP



Rhombic, 80°  
with hole  
Positive 11°

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



Application	Chipbreaker		Coated																	RE	IC	S	D1								
	Designation		T9215	T9225	T9115	T9125																									
Finishing		<b>PSF</b> CPMT060204-PSF	●	●	▲	▲																						0.4	6.35	2.38	2.8
		CPMT080204-PSF	●	●	▲	▲																						0.4	7.94	2.38	3.4
		CPMT090304-PSF	●	●	▲	▲																						0.4	9.525	3.18	4.4
		CPMT09T304-PSF	●	●	▲	▲																						0.4	9.525	3.97	4.4
Finishing to light cutting		<b>PSS</b> CPMT060204-PSS	●	●	▲	▲																						0.4	6.35	2.38	2.8
		CPMT080204-PSS	●	●	▲	▲																						0.4	7.94	2.38	3.4
		CPMT080208-PSS	●	●	▲	▲																						0.8	7.94	2.38	3.4
		CPMT090304-PSS	●	●	▲	▲																						0.4	9.525	3.18	4.4
		CPMT090308-PSS	●	●	▲	▲																						0.8	9.525	3.18	4.4
		CPMT09T304-PSS	●	●	▲	▲																						0.4	9.525	3.97	4.4
		CPMT09T308-PSS	●	●	▲	▲																						0.8	9.525	3.97	4.4

- : Line-up
- : New product
- ▲ : To be discontinued



# T9200SERIES

TUNGALOY

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

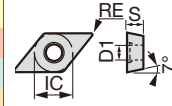
## TurnLine - Insert POSITIVE TYPE

### DC



Rhombic, 55°  
with hole  
Positive 7°

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



Application		Coated													RE	IC	S	D1			
Chipbreaker	Designation	T9215	T9225	T9115	T9125																
Finishing 	PSF DCMT070204-PSF	●	◐	▲	▲												0.4	6.35	2.38	2.8	
	DCMT11T304-PSF	●	◐	▲	▲													0.4	9.525	3.97	4.4
	DCMT11T308-PSF	●	◐	▲	▲													0.8	9.525	3.97	4.4
Finishing to light cutting 	PSS DCMT070204-PSS	●	◐	▲	▲												0.4	6.35	2.38	2.8	
	DCMT070208-PSS	●	◐	▲	▲												0.8	6.35	2.38	2.8	
	DCMT11T304-PSS	●	◐	▲	▲												0.4	9.525	3.97	4.4	
	DCMT11T308-PSS	●	◐	▲	▲												0.8	9.525	3.97	4.4	
	DCMT11T312-PSS	●	◐	▲	▲												1.2	9.525	3.97	4.4	
Finishing to medium cutting 	PS DCMT070202-PS	●	●	▲	▲												0.2	6.35	2.38	2.8	
	DCMT070204-PS	●	●	▲	▲												0.4	6.35	2.38	2.8	
	DCMT070208-PS	●	●	▲	▲												0.8	6.35	2.38	2.8	
	DCMT11T302-PS	●	●	▲	▲												0.2	9.525	3.97	4.4	
	DCMT11T304-PS	●	●	▲	▲												0.4	9.525	3.97	4.4	
	DCMT11T308-PS	●	●	▲	▲												0.8	9.525	3.97	4.4	
	DCMT11T312-PS	●	●	▲	▲												1.2	9.525	3.97	4.4	
	TM DCMT070202-TM	◐	◐														0.2	6.35	2.38	2.8	
	DCMT070204-TM	◐	◐														0.4	6.35	2.38	2.8	
	DCMT070208-TM	◐	◐														0.8	6.35	2.38	2.8	
	DCMT11T304-TM	◐	◐														0.4	9.525	3.97	4.4	
DCMT11T308-TM	◐	◐														0.8	9.525	3.97	4.4		
Finishing to medium cutting 	TSF DCMT070202-TSF	◐	◐													0.2	6.35	2.38	2.8		
	DCMT070204-TSF	◐	◐													0.4	6.35	2.38	2.8		
	DCMT070208-TSF	◐	◐													0.8	6.35	2.38	2.8		
	DCMT11T304-TSF	◐	◐													0.4	9.525	3.97	4.4		
	DCMT11T308-TSF	◐	◐													0.8	9.525	3.97	4.4		

- : Line-up
- ◐ : New product
- ▲ : To be discontinued



# T9200SERIES

TUNGALOY

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

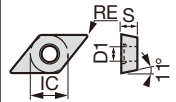
## TurnLine - Insert POSITIVE TYPE

### DP



Rhombic, 55°  
with hole  
Positive 11°

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



Application	Chipbreaker	Designation	Coated										RE	IC	S	D1		
			T9215	T9225	T9115	T9125												
Finishing to medium cutting	<b>PS</b>	DPMT070202-PS	●	●	▲										0.2	6.35	2.38	2.8
		DPMT070204-PS	●	●	▲										0.4	6.35	2.38	2.8
		DPMT070208-PS	●	●	▲										0.8	6.35	2.38	2.8

- : Line-up
- : New product
- ▲ : To be discontinued



## TurnLine - Insert POSITIVE TYPE

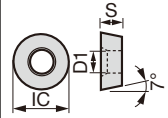
● : Continuous cutting  
 ● : Light interrupted cutting  
 ✱ : Heavy interrupted cutting

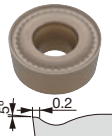

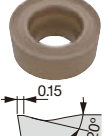


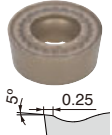
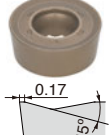
# RC



**Round, with hole  
Positive 7°**

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



Application	Chipbreaker		Coated																RE	IC	S	D1																						
		Designation	T9215	T9225	T9115	T9125																																						
Finishing to medium cutting	<b>RS</b>	RCMT10T3M0-RS	●	●	▲	▲																																						
		RCMT1204M0-RS	●	●	▲	▲																																						
		RCMT1606M0-RS	●	●	▲	▲																																						
		RCMT2006M0-RS		●		▲																																						
		RCMT2507M0-RS		●		▲																																						
																																												
Heavy cutting	<b>61</b>	RCMT0502M0-61	●	●	▲	▲																																						
		RCMT0602M0-61	●	●	▲	▲																																						
		RCMT0803M0-61	●	●	▲	▲																																						
	<b>61</b>	RCMM1003M0-61	●	●	▲	▲																																						
		RCMM1204M0-61	●	●	▲	▲																																						
		RCMM1606M0-61	●	●	▲	▲																																						
		RCMM2006M0-61		●		▲																																						
	RCMM2507M0-61		●		▲																																							
Finishing (Low cutting force)	<b>6RS</b>	RCMT1204M0-6RS	●	●	▲	▲																																						
																																												
Medium cutting	<b>6RM</b>	RCMT1204M0-6RM	●	●	▲	▲																																						
																																												

● : Line-up  
 ● : New product  
 ▲ : To be discontinued

# T9200SERIES

TUNGALOY

## TurnLine - Insert POSITIVE TYPE

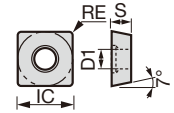
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

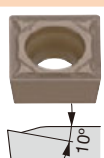

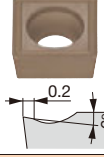
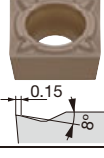
# SC



Square, 90°  
with hole  
Positive 7°

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



Application	Chipbreaker	Designation	Coated																RE	IC	S	D1		
			T9215	T9225	T9115	T9125																		
Finishing to medium cutting		PS SCMT09T304-PS	●	●	▲	▲														0.4	9.525	3.97	4.4	
		SCMT09T308-PS	●	●	▲	▲															0.8	9.525	3.97	4.4
		SCMT120404-PS	●	●	▲	▲															0.4	12.7	4.76	5.5
		SCMT120408-PS	●	●	▲	▲															0.8	12.7	4.76	5.5
Finishing to medium cutting		23 SCMT09T308-23			●	▲														0.8	9.525	3.97	4.4	
		SCMT120408-23			●	▲														0.8	12.7	4.76	5.5	
Medium cutting		24 SCMT070204-24			●	▲														0.4	7.94	2.38	3.4	
		SCMT09T304-24			●	▲														0.4	9.525	3.97	4.4	
		SCMT09T308-24	●	●	▲	▲															0.8	9.525	3.97	4.4
		SCMT120404-24			●	▲															0.4	12.7	4.76	5.5
		SCMT120408-24			●	▲															0.8	12.7	4.76	5.5
Medium cutting		PM SCMT09T304-PM	●	●	▲	▲														0.4	9.525	3.97	4.4	
		SCMT09T308-PM	●	●	▲	▲														0.8	9.525	3.97	4.4	
		SCMT120408-PM	●	●	▲	▲														0.8	12.7	4.76	5.5	
		SCMT120412-PM			●	▲														1.2	12.7	4.76	5.5	

- : Line-up
- : New product
- ▲ : To be discontinued

## TurnLine - Insert POSITIVE TYPE

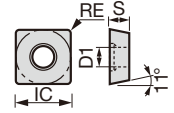
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

### SP



Square, 90°  
with hole  
Positive 11°

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



Application	Chipbreaker	Designation	Coated																RE	IC	S	D1		
			T9215	T9225	T9115	T9125																		
Finishing to medium cutting		PS	SPMT090304-PS	●	●	▲	▲														0.4	9.525	3.18	4.4
		SPMT090308-PS	●	●	▲	▲															0.8	9.525	3.18	4.4
		SPMT120404-PS	●	●	▲	▲															0.4	12.7	4.76	5.5
		SPMT120408-PS	●	●	▲	▲															0.8	12.7	4.76	5.5
Finishing to medium cutting		23	SPMT090304-23			●	▲														0.4	9.525	3.18	4.4
		SPMT090308-23			●	▲															0.8	9.525	3.18	4.4
Medium cutting		24	SPMT090304-24			●	▲														0.4	9.525	3.18	4.4
		SPMT090308-24			●	▲															0.8	9.525	3.18	4.4

- : Line-up
- : New product
- ▲ : To be discontinued

# T9200SERIES

TUNGALOY

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

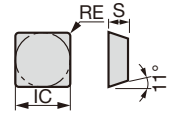
## TurnLine - Insert POSITIVE TYPE

### SP



Square, 90°  
without hole  
Positive 11°

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



Application	Chipbreaker	Designation	Coated										RE	IC	S	D1			
			T9215	T9225	T9115	T9125													
Finishing to medium cutting	23	SPMR090308-23	●	▲												0.8	9.525	3.18	-
		SPMR120304-23	●	▲												0.4	12.7	3.18	-
		SPMR120308-23	●	▲												0.8	12.7	3.18	-

- : Line-up
- : New product
- ▲ : To be discontinued

## TurnLine - Insert POSITIVE TYPE

● : Continuous cutting  
 ● : Light interrupted cutting  
 ✖ : Heavy interrupted cutting

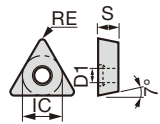
# TC

**Triangular, 60°  
with hole  
Positive 7°**



	P	M	K	N	S	H
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●

	P	M	K	N	S	H	T9215	T9225	T9115	T9125
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●



Application	Chipbreaker		Coated								RE	IC	S	D1		
		Designation	T9215	T9225	T9115	T9125										
Finishing		<b>PSF</b> TCMT090204-PSF	●	●	▲	▲							0.4	5.56	2.38	2.5
		TCMT110204-PSF	●	●	▲	▲							0.4	6.35	2.38	2.8
		TCMT110304-PSF	●	●	▲	▲							0.4	6.35	3.18	2.8
		TCMT16T304-PSF	●	●	▲	▲							0.4	9.525	3.97	4.4
Finishing to light cutting		<b>PSS</b> TCMT090204-PSS	●	●	▲	▲							0.4	5.56	2.38	2.5
		TCMT090208-PSS	●	●	▲	▲							0.8	5.56	2.38	2.5
		TCMT110204-PSS	●	●	▲	▲							0.4	6.35	2.38	2.8
		TCMT110208-PSS	●	●	▲	▲							0.8	6.35	2.38	2.8
		TCMT110304-PSS	●	●	▲	▲							0.4	6.35	3.18	2.8
		TCMT110308-PSS	●	●	▲	▲							0.8	6.35	3.18	2.8
		TCMT16T304-PSS	●	●	▲	▲							0.4	9.525	3.97	4.4
		TCMT16T308-PSS	●	●	▲	▲							0.8	9.525	3.97	4.4
		TCMT16T312-PSS	●	●	▲	▲							1.2	9.525	3.97	4.4
Finishing to medium cutting		<b>PS</b> TCMT110202-PS	●	●	▲	▲							0.2	6.35	2.38	2.8
		TCMT110204-PS	●	●	▲	▲							0.4	6.35	2.38	2.8
		TCMT110208-PS	●	●	▲	▲							0.8	6.35	2.38	2.8
		TCMT110302-PS	●	●	▲	▲							0.2	6.35	3.18	2.8
		TCMT110304-PS	●	●	▲	▲							0.4	6.35	3.18	2.8
		TCMT110308-PS	●	●	▲	▲							0.8	6.35	3.18	2.8
		TCMT16T302-PS	●	●	▲	▲							0.2	9.525	3.97	4.4
		TCMT16T304-PS	●	●	▲	▲							0.4	9.525	3.97	4.4
		TCMT16T308-PS	●	●	▲	▲							0.8	9.525	3.97	4.4
		<b>TM</b> TCMT110204-TM	●	●									0.4	6.35	2.38	2.8
		TCMT110208-TM	●	●									0.8	6.35	2.38	2.8
		TCMT16T304-TM	●	●									0.4	9.525	3.97	4.4
		TCMT16T308-TM	●	●									0.8	9.525	3.97	4.4
			<b>TSF</b> TCMT110204-TSF	●	●									0.4	6.35	2.38
TCMT110208-TSF	●		●									0.8	6.35	2.38	2.8	
TCMT16T304-TSF	●		●									0.4	9.525	3.97	4.4	
TCMT16T308-TSF	●		●									0.8	9.525	3.97	4.4	

● : Line-up  
 ● : New product  
 ▲ : To be discontinued

# T9200SERIES

TUNGALOY

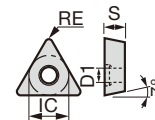
## TurnLine - Insert POSITIVE TYPE

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



Triangular, 60°  
with hole  
Positive 7°

<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	Coated																RE	IC	S	D1	
			T9215	T9225	T9115	T9125																	
Finishing to medium cutting		<b>23</b> TCMT090204-23	●	◐	◑	●													0.4	5.56	2.38	2.5	
		TCMT16T308-23	●	◐	◑	●														0.8	9.525	3.97	4.4
Medium cutting		<b>24</b> TCMT090204-24	●	◐	◑	●	●	▲	▲										0.4	5.56	2.38	2.5	
		TCMT110204-24	●	◐	◑	●	●	▲	▲											0.4	6.35	2.38	2.8
		TCMT110208-24	●	◐	◑	●	●	▲	▲											0.8	6.35	2.38	2.8
		TCMT16T304-24	●	◐	◑	●	●	▲	▲											0.4	9.525	3.97	4.4
		TCMT16T308-24	●	◐	◑	●	●	▲	▲											0.8	9.525	3.97	4.4
		<b>PM</b> TCMT110204-PM	●	◐	◑	●	●	▲	▲											0.4	6.35	2.38	2.8
		TCMT110208-PM	●	◐	◑	●	●	▲	▲											0.8	6.35	2.38	2.8
		TCMT16T304-PM	●	◐	◑	●	●	▲	▲											0.4	9.525	3.97	4.4
TCMT16T308-PM	●	◐	◑	●	●	▲	▲											0.8	9.525	3.97	4.4		
		TCMT16T312-PM	●	◐	◑	●	●	▲	▲									1.2	9.525	3.97	4.4		

- : Line-up
- : New product
- ▲ : To be discontinued


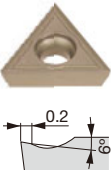
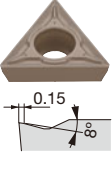


# T9200SERIES

TUNGALOY

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

## TurnLine - Insert POSITIVE TYPE

Application	Chipbreaker	Designation	Coated																RE	IC	S	D1	
			T9215	T9225	T9115	T9125																	
Finishing to medium cutting		<b>23</b> TPMT090204-23	●	●																0.4	5.56	2.38	2.5
		TPMT110204-23	●	●																0.4	6.35	2.38	2.8
		TPMT130304-23	●	●																0.4	7.94	3.18	3.4
		TPMT130308-23	●	●																0.8	7.94	3.18	3.4
		TPMT16T308-23	●	●																0.8	9.525	3.97	3.4
Medium cutting		<b>24</b> TPMT090204-24	●	●															0.4	5.56	2.38	2.5	
		TPMT110204-24	●	●															0.4	6.35	2.38	2.8	
		TPMT130304-24	●	●															0.4	7.94	3.18	3.4	
		TPMT130308-24	●	●															0.8	7.94	3.18	3.4	
		TPMT16T304-24	●	●															0.4	9.525	3.97	4.4	
		TPMT16T308-24	●	●															0.8	9.525	3.97	4.4	
		<b>PM</b> TPMT110204-PM	●	●	▲	▲													0.4	6.35	2.38	2.8	
		TPMT110208-PM	●	●	▲	▲													0.8	6.35	2.38	2.8	
		TPMT110304-PM	●	●	▲	▲													0.4	6.35	3.18	3.4	
		TPMT110308-PM	●	●	▲	▲													0.8	6.35	3.18	3.4	
		TPMT130304-PM	●	●	▲	▲													0.4	7.94	3.18	3.4	
		TPMT130308-PM	●	●	▲	▲													0.8	7.94	3.18	3.4	
		TPMT16T304-PM	●	●	▲	▲													0.4	9.525	3.97	4.4	
		TPMT16T308-PM	●	●	▲	▲													0.8	9.525	3.97	4.4	
TPMT16T312-PM	●	●	▲	▲													1.2	9.525	3.97	4.4			

- : Line-up
- : New product
- ▲ : To be discontinued



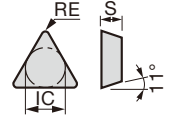
## TurnLine - Insert POSITIVE TYPE

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



**TP**  
**Triangular, 60°**  
**without 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		Coated																			RE	IC	S	D1														
				T9215	T9225	T9115	T9125																																			
Finishing to medium cutting		<b>PS</b>	TPMR110304-PS	●	●	▲	▲																																			
			TPMR110308-PS	●	●		▲																																			
			TPMR160304-PS	●	●	▲	▲																																			
			TPMR160308-PS	●	●	▲	▲																																			
Medium cutting		<b>23</b>	TPMR110304-23	●	●	▲	▲																																			
			TPMR110308-23	●	●		▲																																			
			TPMR160304-23	●	●	▲	▲																																			
			TPMR160308-23	●	●	▲	▲																																			
Medium cutting		<b>24</b>	TPMR110304-24	●	●		▲																																			
			TPMR110308-24	●	●		▲																																			
			TPMR160304-24	●	●	▲	▲																																			
			TPMR160308-24	●	●	▲	▲																																			

- : Line-up
- : New product
- ▲ : To be discontinued



## TurnLine - Insert POSITIVE TYPE

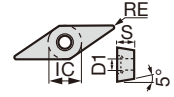
- : Continuous cutting
- ◐ : Light interrupted cutting
- ⊛ : Heavy interrupted cutting

### VB

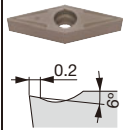
Rhombic, 35°  
with hole  
Positive 5°



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



Application	Chipbreaker	Designation	Coated										RE	IC	S	D1			
			T9215	T9225	T9115	T9125													
Medium cutting	<b>24</b>	<b>VBMT160404-24</b>	●	●	▲	▲										0.4	9.525	4.76	4.4
		VBMT160408-24	●	●	▲	▲										0.8	9.525	4.76	4.4



- : Line-up
- : New product
- ▲ : To be discontinued

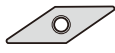
# T9200SERIES

TUNGALOY

## TurnLine - Insert POSITIVE TYPE

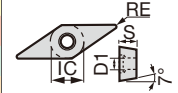
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

# VC



Rhombic, 35°  
with hole  
Positive 7°

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



Application	Chipbreaker	Designation	Coated																																						
			T9215	T9225	T9115	T9125																												RE	IC	S	D1				
Finishing		PSF VCMT080204-PSF	●	●	▲	▲																															0.4	4.76	2.38	2.3	
		VCMT110304-PSF	●	●	▲	▲																															0.4	6.35	3.18	2.8	
		VCMT160404-PSF	●	●	▲	▲																															0.4	9.525	4.76	4.4	
		VCMT160408-PSF	●	●	▲	▲																															0.8	9.525	4.76	4.4	
Finishing to light cutting		PSS VCMT110304-PSS	●	●	▲	▲																														0.4	6.35	3.18	2.8		
		VCMT110308-PSS	●	●	▲	▲																															0.8	6.35	3.18	2.8	
		VCMT160404-PSS	●	●	▲	▲																															0.4	9.525	4.76	4.4	
		VCMT160408-PSS	●	●	▲	▲																																0.8	9.525	4.76	4.4
Finishing to medium cutting		PS VCMT110302-PS	●	●	▲	▲																														0.2	6.35	3.18	2.8		
		VCMT110304-PS	●	●	▲	▲																															0.4	6.35	3.18	2.8	
		VCMT110308-PS	●	●	▲	▲																																0.8	6.35	3.18	2.8
		VCMT160404-PS	●	●	▲	▲																																0.4	9.525	4.76	4.4
		VCMT160408-PS	●	●	▲	▲																																0.8	9.525	4.76	4.4
		TM VCMT160404-TM	●	●																																	0.4	9.525	4.76	4.4	
		VCMT160408-TM	●	●																																	0.8	9.525	4.76	4.4	
			TSF VCMT160404-TSF	●	●																																	0.4	9.525	4.76	4.4
			VCMT160408-TSF	●	●																																		0.8	9.525	4.76
		Medium cutting		24 VCMT160404-24	●	●	▲	▲																														0.4	9.525	4.76	4.4
VCMT160408-24	●			●	▲	▲																															0.8	9.525	4.76	4.4	

- : Line-up
- : New product
- ▲ : To be discontinued

## TurnLine - Insert POSITIVE TYPE

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

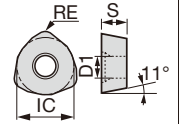
# WP

Trigon, 80°  
with hole  
Positive 11°



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

Material	Coated	Line-up	New product	To be discontinued
Steel	●●●○●○●○			
Stainless	●●			
Cast iron	●●			
Non-ferrous	○●○●○●○●○			
Superalloys	○●○●○●○●○			
Hard materials				



Application	Chipbreaker		Coated											RE	IC	S	D1					
	Designation		T9215	T9225	T9115	T9125																
Heavy cutting	ML	WPMT090725ZPR-ML	●	●○	▲	▲													-	15	7	5.5
		WPMT090725ZPL-ML	●	●○	▲	▲													-	15	7	5.5

- : Line-up
- : New product
- ▲ : To be discontinued

# T9200SERIES

TUNGALOY

## TurnLine - Insert POSITIVE TYPE

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

### YW



Rhombic, 25°  
with hole  
Positive 7°

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



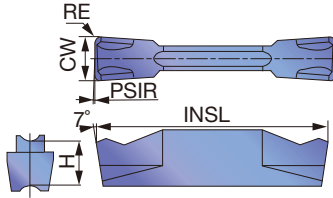
Application	Chipbreaker		Coated																RE	IC	S	D1					
	Designation		T9215	T9225	T9115	T9125																					
Finishing to medium cutting	ZF	YWMT11T202-ZF	●	▲																		0.2	4.679	2.78	2.3		
		YWMT11T204-ZF	●	▲																			0.4	4.679	2.78	2.3	
		YWMT16T302-ZF	●	▲																			0.2	7.018	3.97	2.86	
		YWMT16T304-ZF	●	▲																				0.4	7.018	3.97	2.86
		YWMT16T308-ZF	●	▲																				0.8	7.018	3.97	2.86
		ZM	YWMT11T204-ZM	●	▲																			0.4	4.679	2.78	2.3
		YWMT16T304-ZM	●	▲																				0.4	7.018	3.97	2.86
YWMT16T308-ZM		●	▲																				0.8	7.018	3.97	2.86	

- : Line-up
- : New product
- ▲ : To be discontinued

# TurnLine - Inserts for grooving and parting off

## DGM

External grooving and parting off, 2 corner

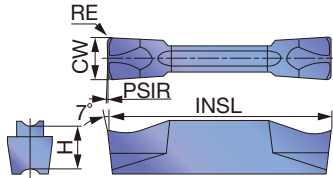


Designation	Insert seat size	CW $\pm$ 0.05	RE	Coated		INSL	H	PSIRR/L
				T9225	T9125			
DGM2-020	2	2	0.2	●	▲	20	5	0
DGM3-020	3	3	0.2	●	▲	20	5	0
DGM4-030	4	4	0.3	●	▲	20	5	0
DGM5-030	5	5	0.3	●	▲	25	5.5	0
DGM6-030	6	6	0.3	●	▲	25	5.5	0
DGM8-040	8	8	0.4	●	▲	30	6.7	0

● : New product  
▲ : To be discontinued

## DGS

External grooving and parting off, 2 corner

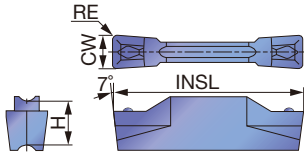


Designation	Insert seat size	CW $\pm$ 0.05	RE	Coated		INSL	H	PSIRR/L
				T9225	T9125			
DGS2-020	2	2	0.2	●	▲	20	5	0
DGS3-020	3	3	0.2	●	▲	20	5	0
DGS4-030	4	4	0.3	●	▲	20	5	0
DGS5-030	5	5	0.3	●	▲	25	5.5	0
DGS6-030	6	6	0.3	●	▲	25	5.5	0

● : New product  
▲ : To be discontinued

## DTE

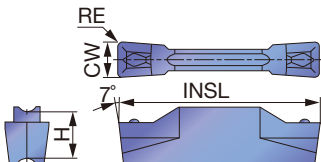
### External, grooving and turning



Designation	Insert seat size	CW $\pm$ 0.02	RE	Coated		INSL	H
				T9225	T9125		
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
DTE515-015	5	5.15	0.15	●	▲	25	5.5
DTE600-080	6	6	0.8	●	▲	25	5.5
DTE600-120	6	6	1.2	●	▲	25	5.5
DTE800-080	8	8	0.8	●	▲	30	6.7
DTE800-120	8	8	1.2	●	▲	30	6.7

● : New product  
▲ : To be discontinued

### External, grooving and turning



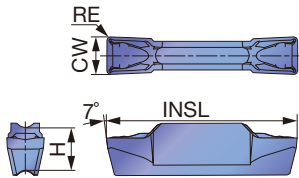
Designation	Insert seat size	CW $\pm$ 0.05	RE	Coated		INSL	H
				T9225	T9125		
DTE3-040	3	3	0.4	●	▲	20	5
DTE4-040	4	4	0.4	●	▲	20	5

● : New product  
▲ : To be discontinued



## DTX

External, internal, face grooving and traversing

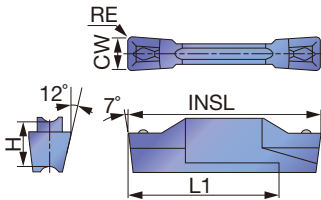


Designation	Insert seat size	CW $\pm$ 0.05	RE	Coated		INSL	H
				T9225	T9125		
DTX3-030	3	3	0.3	●	▲	20	5
DTX4-040	4	4	0.4	●	▲	20	5
DTX5-040	5	5	0.4	●	▲	25	5.5

● : New product  
▲ : To be discontinued

## DTF

Face grooving and traversing

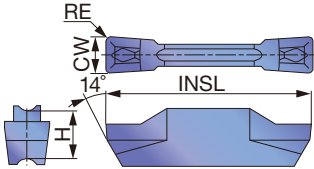


Designation	Insert seat size	CW $\pm$ 0.05	RE	Coated				INSL	H	L1
				T9225		T9125				
				R	L	R	L			
DTF3-040-R/L	3	3	0.4	●	●	▲	▲	20	5	16
DTF4-040-R/L	4	4	0.4	●	●	▲	▲	20	5	16

● : New product  
▲ : To be discontinued

## DTI

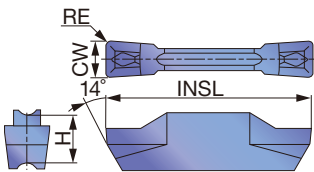
Internal grooving and turning (for high-precision machining)



Designation	Insert seat size	CW $\pm$ 0.02	RE	Coated		INSL	H
				T9225	T9125		
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
DTI600-080	6	6	0.8	●	▲	25	5.5
DTI600-120	6	6	1.2	●	▲	25	5.5
DTI800-080	8	8	0.8	●	▲	30	6.7
DTI800-120	8	8	1.2	●	▲	30	6.7

● : New product  
▲ : To be discontinued

Internal grooving and turning

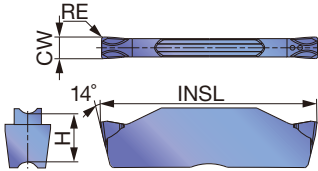


Designation	Insert seat size	CW $\pm$ 0.05	RE	Coated		INSL	H
				T9225	T9125		
DTI3-040	3	3	0.4	●	▲	20	5
DTI4-040	4	4	0.4	●	▲	20	5

● : New product  
▲ : To be discontinued

## DGIM

Small diameter internal grooving

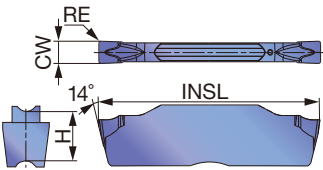


Designation	Insert seat size	CW $\pm$ 0.05	RE	Coated		INSL	H
				T9225	T9125		
DGIM2-020	2	2	0.2	●	▲	20	5

● : New product  
▲ : To be discontinued

## DGIS

Small diameter internal grooving

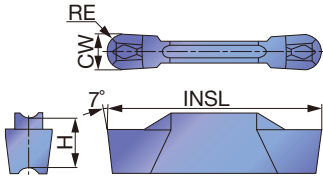


Designation	Insert seat size	W $\pm$ 0.05	RE	Coated		INSL	H
				T9225	T9125		
DGIS2-020	2	2	0.2	●	▲	20	5

● : New product  
▲ : To be discontinued

## DTR

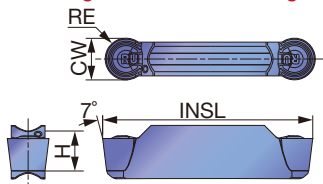
Profiling and undercutting (for high-precision machining)



Designation	Insert seat size	CW $\pm$ 0.02	RE	Coated		INSL	H
				T9225	T9125		
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
DTR600-300	6	6	3	●	▲	25	5.5

● : New product  
▲ : To be discontinued

Profiling and undercutting

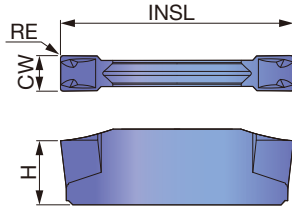


Designation	Insert seat size	CW $\pm$ 0.05	RE	Coated		INSL	H
				T9225	T9125		
DTR3-150	3	3	1.5	●	▲	20	5
DTR4-200	4	4	2	●	▲	20	5
DTR5-250	5	5	2.5	●	▲	25	5.5
DTR6-300	6	6	3	●	▲	25	5.5
DTR8-400	8	8	4	●	▲	30	6.7

● : New product  
▲ : To be discontinued

## WGE

For general parting off and grooving

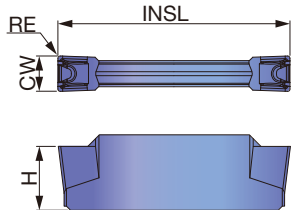


Designation	CW <sup>+0.1</sup> <sub>0</sub>	RE	Coated		INSL	H
			T9225	T9125		
WGE20	2	0.2	●	▲	20	4.7
WGE30	3	0.2	●	▲	20	5.5
WGE40	4	0.2	●	▲	25	5.7
WGE50	5	0.2	●	▲	25	5.9

● : New product  
▲ : To be discontinued

## WGT

Traversing (Grooving and parting off)

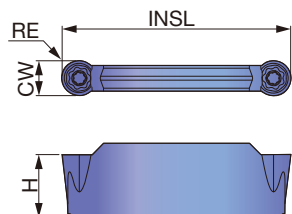


Designation	CW <sup>+0.1</sup> <sub>0</sub>	RE	Coated		INSL	H
			T9225	T9125		
WGT30	3	0.4	●	▲	20	5.5
WGT40	4	0.4	●	▲	25	5.7
WGT50	5	0.4	●	▲	25	5.9

● : New product  
▲ : To be discontinued

## WGR

Profiling (Full radius)

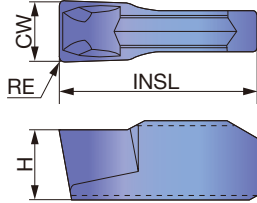


Designation	CW <sup>+0.1</sup> <sub>0</sub>	RE	Coated		INSL	H
			T9225	T9125		
WGR30	3	1.5	●	▲	20	5.5
WGR40	4	2	●	▲	25	5.7

● : New product  
▲ : To be discontinued

## GE

### Grooving and parting off

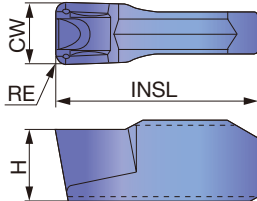


Designation	CW <sup>+0.1</sup> <sub>0</sub>	RE	Coated		INSL	H
			T9225	T9125		
GE30	3	0.2	●	▲	10	3.5
GE40	4	0.2	●	▲	10	4
GE50	5	0.2	●	▲	12	4.5

● : New product  
▲ : To be discontinued

## GT

### Traversing (Grooving and parting off)

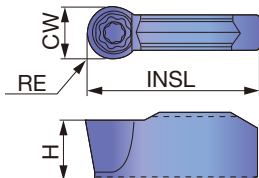


Designation	CW <sup>+0.1</sup> <sub>0</sub>	RE	Coated		INSL	H
			T9225	T9125		
GT50	5	0.4	●	▲	12	4.5

● : New product  
▲ : To be discontinued

## GR

### Profiling (Full radius)

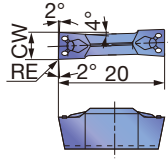


Designation	CW <sup>+0.1</sup> <sub>0</sub>	RE	Coated		INSL	H
			T9225	T9125		
GR40	4	2.0	●	▲	10	4
GR50	5	2.5	●	▲	12	4.5

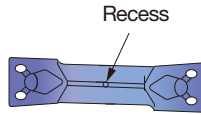
● : New product  
▲ : To be discontinued

## FLEX(R/L)

External, face and internal grooving



Right hand (R) shown.



Left hand inserts are identified with a recessed dot.

Designation	CW $\pm$ 0.05	RE	Coated			
			T9225		T9125	
			R	L	R	L
FLEX50R/L	5	0.4	●	●	▲	▲

● : New product  
▲ : To be discontinued

## Standard cutting conditions

### For Negative Inserts

ISO	Operation	Chipbreaker	Grades	Depth of cut ap (mm)	Feed f (mm/rev)	Cutting speed: Vc (m/min)		
						Low carbon steels, alloy steels	Medium carbon steels, alloy steels	High carbon steels, alloy steels
<b>P</b>	Finishing	TSF	T9205	0.2 - 1.5	0.08 - 0.4	180 - 400	180 - 400	150 - 350
			T9215			150 - 400	150 - 400	120 - 300
			T9225			120 - 300	120 - 300	100 - 250
			T9235			50 - 200	50 - 200	50 - 150
		AS	T9205	0.2 - 1.5	0.08 - 0.4	180 - 400	180 - 400	150 - 350
			T9215			150 - 400	150 - 400	120 - 300
			T9225			120 - 300	120 - 300	100 - 250
			T9235			50 - 200	50 - 200	50 - 150
		FW	T9205	0.2 - 1.5	0.08 - 0.4	180 - 400	180 - 400	150 - 350
			T9215			150 - 400	150 - 400	120 - 300
			T9225			120 - 300	120 - 300	100 - 250
			T9235			50 - 200	50 - 200	50 - 150
	Medium cutting	TM	T9205	1.0 - 5.0	0.2 - 0.5	180 - 400	180 - 400	150 - 350
			T9215			150 - 400	150 - 400	120 - 300
			T9225			120 - 300	120 - 300	100 - 250
			T9235			50 - 200	50 - 200	50 - 150
		AM	T9205	1.5 - 4.5	0.2 - 0.6	180 - 400	180 - 400	150 - 350
			T9215			150 - 400	150 - 400	120 - 300
			T9225			120 - 300	120 - 300	100 - 250
			T9235			50 - 200	50 - 200	50 - 150
SW	T9205	0.5 - 2.0	0.3 - 0.6	180 - 400	180 - 400	150 - 350		
	T9215			150 - 400	150 - 400	120 - 300		
	T9225			120 - 300	120 - 300	100 - 250		
	T9235			50 - 200	50 - 200	50 - 150		
Medium to heavy cutting	TH	T9205	3.0 - 6.0	0.3 - 0.6	180 - 400	180 - 400	150 - 350	
		T9215			150 - 400	150 - 400	120 - 300	
		T9225			120 - 300	120 - 300	100 - 250	
		T9235			50 - 200	50 - 200	50 - 150	
<b>M</b>	Finishing	TSF	T9215	0.2 - 1.5	0.08 - 0.4	Stainless steel		
			T9225			100 - 250		
	Medium cutting	TM	T9215	1.0 - 5.0	0.2 - 0.5	100 - 250		
			T9225					
<b>K</b>	Finishing	TSF	T9215	0.2 - 1.5	0.08 - 0.4	Cast iron		
			T9225			140 - 500		
	Medium cutting	TM	T9215	1.0 - 5.0	0.2 - 0.5	140 - 500		
			T9225					

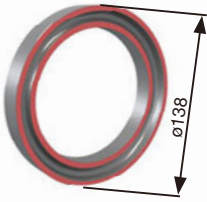
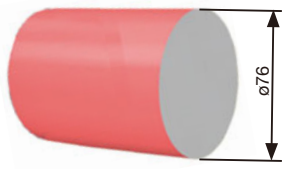
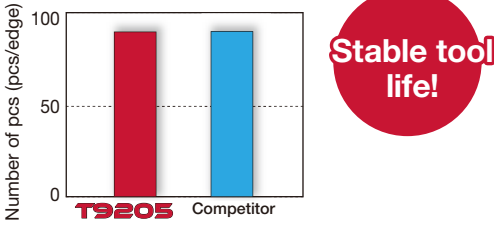
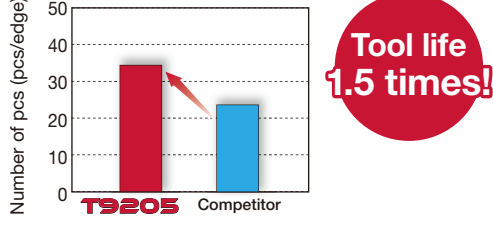
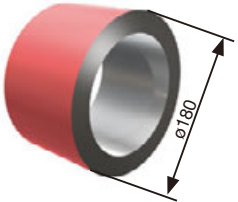
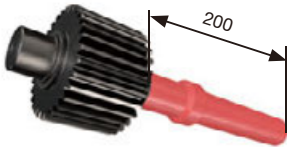
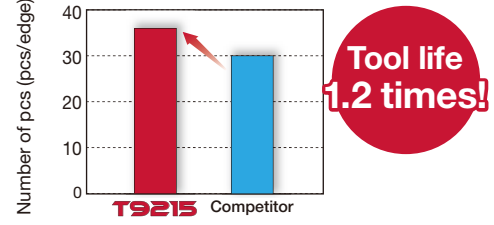
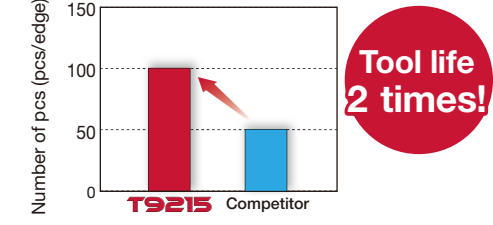


## For Positive Inserts

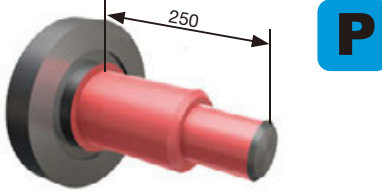
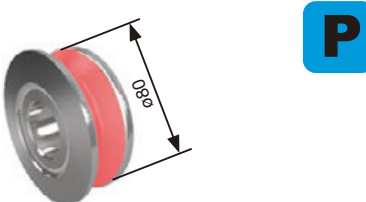
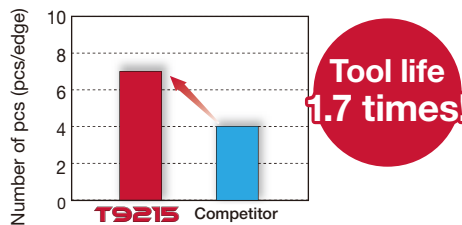
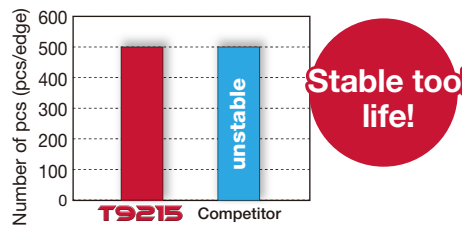

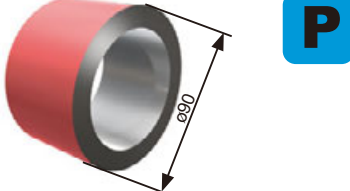
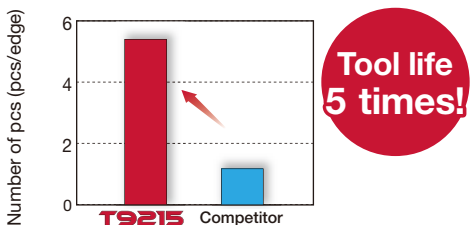
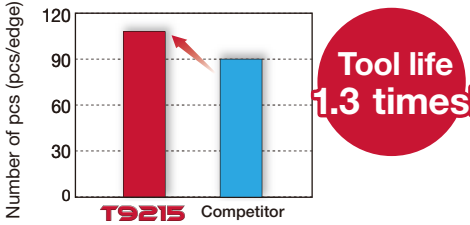
ISO	Operation	Chipbreaker	Grades	Depth of cut ap (mm)	Feed f (mm/rev)	Cutting speed: Vc (m/min)		
						Low carbon steels, alloy steels	Medium carbon steels, alloy steels	High carbon steels, alloy steels
<b>P</b>	Finishing	PSF	T9215	0.1 - 0.5	0.05 - 0.3	120 - 350	100 - 350	80 - 250
			T9225			100 - 300	80 - 300	80 - 250
	Medium	TSF	T9215	0.5 - 2.5	0.1 - 0.25	120 - 350	100-350	80-250
			T9225			100 - 300	80 - 300	80 - 250
		TM	T9215	0.25 - 3.0	0.06 - 0.26	120 - 350	100 - 350	80 - 250
			T9225			100 - 300	80 - 300	80 - 250
	Medium cutting	PS	T9215	0.5 - 2.5	0.08 - 0.3	120 - 300	100 - 300	80 - 250
			T9225			100 - 300	80 - 250	80 - 200
	Medium to heavy cutting	SW	T9215	0.5 - 2	0.15 - 0.4	150 - 350	150 - 350	120 - 300
			T9225			100 - 300	100 - 300	80 - 250
	PM	T9215	1.0 - 3.0	0.15 - 0.3	120 - 300	100 - 300	80 - 200	
		T9225			100 - 300	80 - 300	80 - 200	
						<b>Stainless steel</b>		
<b>M</b>	Finishing	PSF	T9215	0.1 - 0.5	0.05 - 0.3	50 - 200		
			T9225					
	Medium	PS	T9215	0.5 - 2.5	0.08 - 0.3	50 - 200		
			T9225					
						<b>Cast iron</b>		
<b>K</b>	Finishing	PSF	T9215	0.1 - 0.5	0.05 - 0.3	100 - 350		
			T9225					
	Medium	PS	T9215	0.5 - 2.5	0.08 - 0.3	100 - 350		
			T9225					



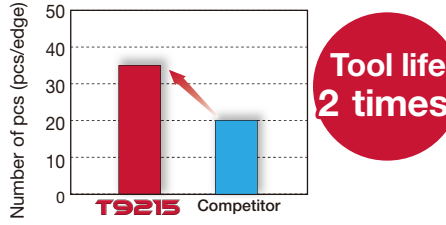
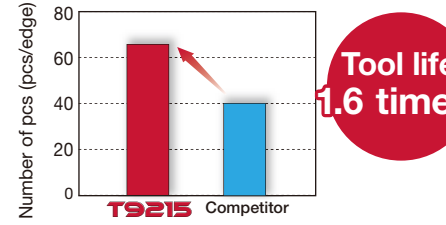
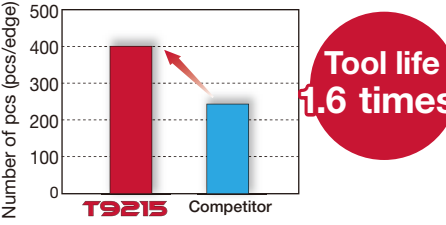
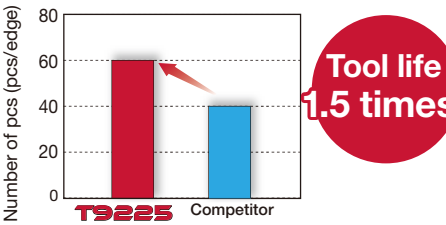
## PRACTICAL EXAMPLES

Workpiece type	Automotive part	Machine parts
Insert	DNMG150412-DM	CNMG120408-TM
Grade	<b>T9205</b>	<b>T9205</b>
Workpiece material	S45C / C45	Alloy steel
Workpiece material	 <b>P</b>	 <b>P</b>
Cutting conditions	Cutting speed: $V_c$ (m/min)	250
	Feed : $f$ (mm/rev)	0.3
	Depth of cut : $a_p$ (mm)	1.0
	Coolant	Wet
Results	 <p>Number of pcs (pcs/edge)</p> <p><b>T9205</b> Competitor</p> <p>Stable tool life!</p> <p>Premature insert failures and fractures induced by excessive crater wear development were issues with the conventional grade. T9205 eliminated these issues, providing stability.</p>	 <p>Number of pcs (pcs/edge)</p> <p><b>T9205</b> Competitor</p> <p>Tool life 1.5 times!</p> <p>T9205 allowed a higher feed rate to be applied, improving tool life by 1.5x over conventional grade.</p>
	Workpiece type	Carrier
Insert	WNMG080408-SW	CNMG120408-AM
Grade	<b>T9215</b>	<b>T9215</b>
Workpiece material	S45C / C45	Alloy steel
Workpiece material	 <b>P</b>	 <b>P</b>
Cutting conditions	Cutting speed: $V_c$ (m/min)	300
	Feed : $f$ (mm/rev)	0.4
	Depth of cut : $a_p$ (mm)	1.0
	Coolant	Wet
Results	 <p>Number of pcs (pcs/edge)</p> <p><b>T9215</b> Competitor</p> <p>Tool life 1.2 times!</p> <p>Combination of T9215 and the latest Wiper series provides a stabler and longer tool life (about 1.2x) compared to the current product.</p>	 <p>Number of pcs (pcs/edge)</p> <p><b>T9215</b> Competitor</p> <p>Tool life 2 times!</p> <p>T9215 is superior in wear resistance and fracture resistance, providing twice the stable long life as the current product!</p>

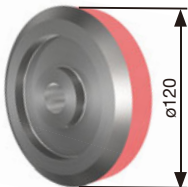
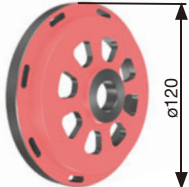
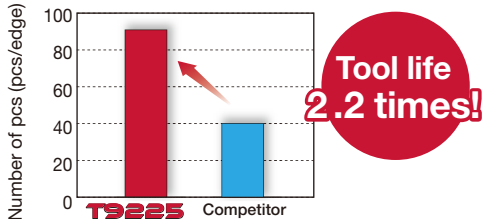
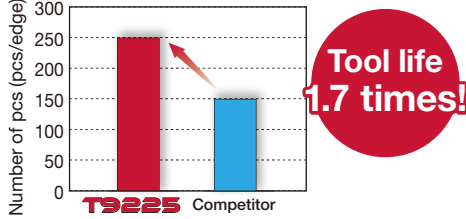
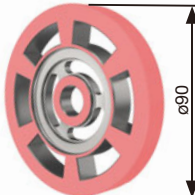
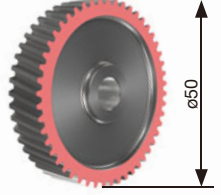
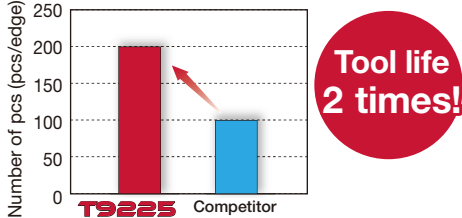
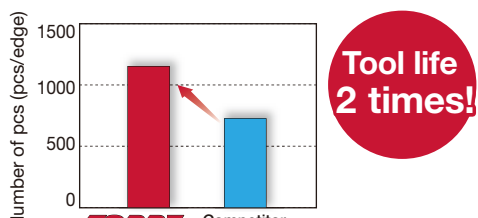
## PRACTICAL EXAMPLES

Workpiece type	Shaft	Bearing part
Insert	CNMG120408-TM	DNMG150408-AM
Grade	<b>T9215</b>	<b>T9215</b>
Workpiece material	SCM440 / 42CrMo4	SUJ2 / B1
		
Cutting conditions	Cutting speed: $V_c$ (m/min)	250
	Feed : $f$ (mm/rev)	0.3
	Depth of cut : $a_p$ (mm)	3.5
	Coolant	Wet
Results	 <p><b>Tool life 1.7 times!</b></p> <p>T9215 has excellent balance between wear resistance and chipping resistance, achieving a stable long life of about 1.7 times that of the current product!</p>	 <p><b>Stable tool life!</b></p> <p>T9215 decreases the occurrence of sudden breakage and achieves stable processing!</p>
	Workpiece type	Shaft
Insert	DNMG150412-TM	DNMG150608-TM
Grade	<b>T9215</b>	<b>T9215</b>
Workpiece material	SCM440 / 42CrMo4	SM490 / E355D
		
Cutting conditions	Cutting speed: $V_c$ (m/min)	140
	Feed : $f$ (mm/rev)	0.38
	Depth of cut : $a_p$ (mm)	4mm x 6 pass
	Coolant	Wet
Results	 <p><b>Tool life 5 times!</b></p> <p>T9215 demonstrates exceptional wear resistance, combined with the optimization of the tool path, achieves a stable long life of about 5 times that of the current product!</p>	 <p><b>Tool life 1.3 times!</b></p> <p>With exceptional wear resistance and optimization of processing conditions, T9215 achieves about 1.3 times longer tool life than the current product! In addition, we succeeded in greatly shortening machining time!</p>

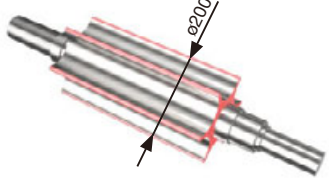
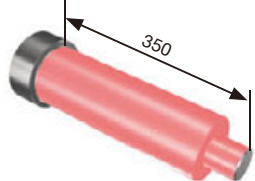
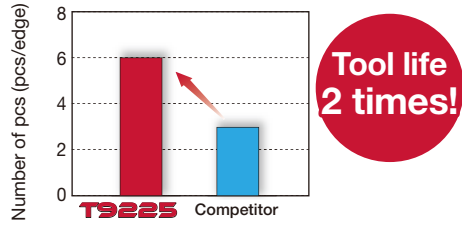
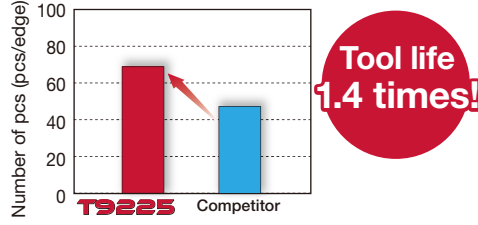
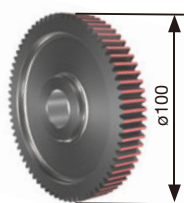

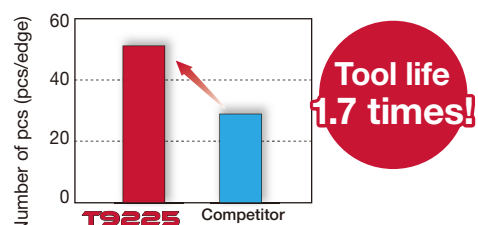
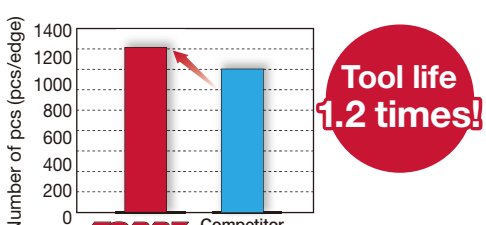
## PRACTICAL EXAMPLES

Workpiece type		Automotive part	Automotive part
Insert		WNMG080408-AM	WNMG080408-AM
Grade		<b>T9215</b>	<b>T9215</b>
Workpiece material		S55C / C55	S55C / C55
Cutting conditions			
Cutting speed: $V_c$ (m/min)		300	300
Feed : $f$ (mm/rev)		0.25	0.3
Depth of cut : $a_p$ (mm)		1.5	1.0
Coolant		Wet	Wet
Results		 <p>Our newest grade, T9215, has outstanding wear resistance and extended tool life by 2.0 times.</p>	 <p>Our newest grade, T9215, has outstanding wear resistance and extended tool life by 1.6 times.</p>
Workpiece type		Machine parts	Machine parts
Insert		CCMT060204-PS	CPMT090308-PS
Grade		<b>T9215</b>	<b>T9225</b>
Workpiece material		SCM415	S20C
Cutting conditions			
Cutting speed: $V_c$ (m/min)		150	100
Feed : $f$ (mm/rev)		0.2	0.2
Depth of cut : $a_p$ (mm)		1.5	1.0
Coolant		Wet	Wet
Results		 <p>Our newest grade, T9215, has outstanding wear resistance and extended tool life by 1.6 times.</p>	 <p>T9225 provided better wear and fracture resistance and stability over the competitor, improving tool life by 1.5 times.</p>

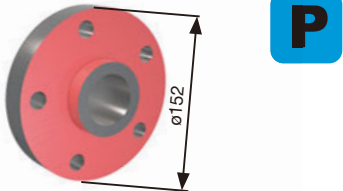
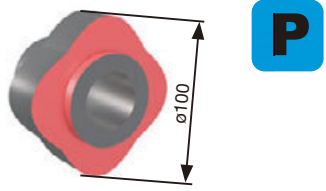
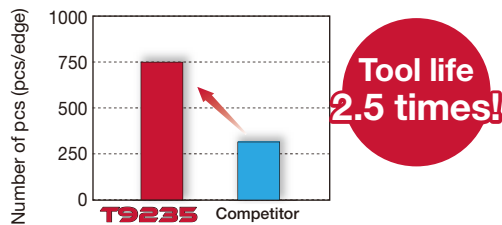
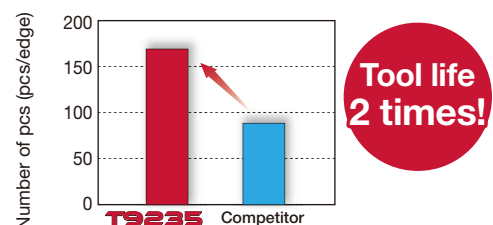
## PRACTICAL EXAMPLES

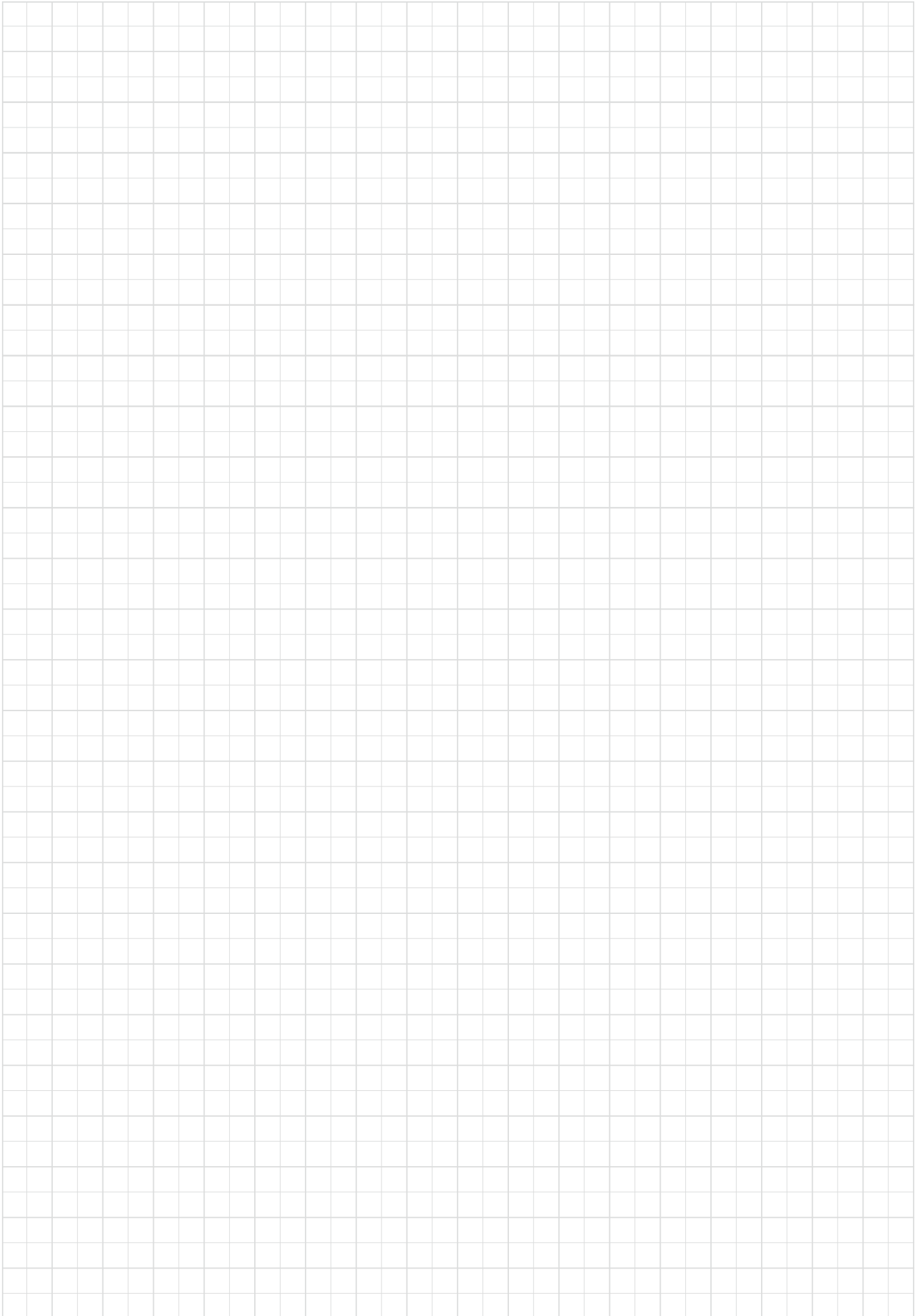
Workpiece type		Pulley parts	Clutch parts
Insert		WNMG080408-TM	WNMG080412-TM
Grade		<b>T9225</b>	<b>T9225</b>
Workpiece material		SCM415	SCM420
		 <b>P</b>	 <b>P</b>
Cutting conditions	Cutting speed: $V_c$ (m/min)	210	220
	Feed : $f$ (mm/rev)	0.25	0.3
	Depth of cut : $a_p$ (mm)	1.5	1.0
	Coolant	Wet	Wet
Results		 <p><b>Tool life 2.2 times!</b></p>	 <p><b>Tool life 1.7 times!</b></p>
		T9225 provided better wear and fracture resistance and stability over the competitor, improving tool life by 2.2 times.	T9225 improved tool life by 1.7 times and provided stability over that of the competitor's thanks to its superior fracture toughness.
Workpiece type		Rotor parts	Ring gear parts
Insert		WNMG080412-TM	WNMG080408-TM
Grade		<b>T9225</b>	<b>T9225</b>
Workpiece material		S10C	SCr420
		 <b>P</b>	 <b>P</b>
Cutting conditions	Cutting speed: $V_c$ (m/min)	400	280
	Feed : $f$ (mm/rev)	0.45	0.25
	Depth of cut : $a_p$ (mm)	1.5	1.0
	Coolant	Wet	Wet
Results		 <p><b>Tool life 2 times!</b></p>	 <p><b>Tool life 2 times!</b></p>
		T9225 provided outstanding stability over the competitor due to its superior fracture toughness, doubling tool life.	T9225 provided better wear and fracture resistance and stability over the competitor, doubling tool life.

## PRACTICAL EXAMPLES

Workpiece type		Machine parts	Shaft parts
Insert		CNMG120408-TM	DNMG150408-AM
Grade		<b>T9225</b>	<b>T9225</b>
		S35C	SCM440
Workpiece material		 <b>P</b>	 <b>P</b>
Cutting conditions	Cutting speed: $V_c$ (m/min)	150	180
	Feed : $f$ (mm/rev)	0.25 - 0.4	0.3
	Depth of cut : $a_p$ (mm)	0.5 - 1.5	1.0
	Coolant	Wet	Wet
Results		 <p><b>Tool life 2 times!</b></p> <p>T9225 doubled tool life and provided stability over the competitor during heavy interrupted cutting thanks to its superior fracture toughness.</p>	 <p><b>Tool life 1.4 times!</b></p> <p>T9225 provided better wear and fracture resistance over the competitor, improving tool life by 1.4 times.</p>
Workpiece type		Gear parts	Automotive parts
Insert		VNMG160408-TM	CCMT09T304-PS
Grade		<b>T9225</b>	<b>T9225</b>
		SCM415	SCr420H
Workpiece material		 <b>P</b>	 <b>P</b>
Cutting conditions	Cutting speed: $V_c$ (m/min)	300	150
	Feed : $f$ (mm/rev)	0.3	0.2 - 0.3
	Depth of cut : $a_p$ (mm)	1.5	1 - 2.5
	Coolant	Wet	Wet
Results		 <p><b>Tool life 1.7 times!</b></p> <p>T9225 improved tool life by 1.7 times and provided stability over the competitor's thanks to its superior fracture toughness.</p>	 <p><b>Tool life 1.2 times!</b></p> <p>T9225 provided better stability with improved wear and fracture resistance over the competitor, improving tool life by 1.2 times.</p>

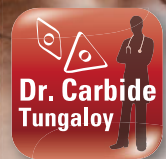
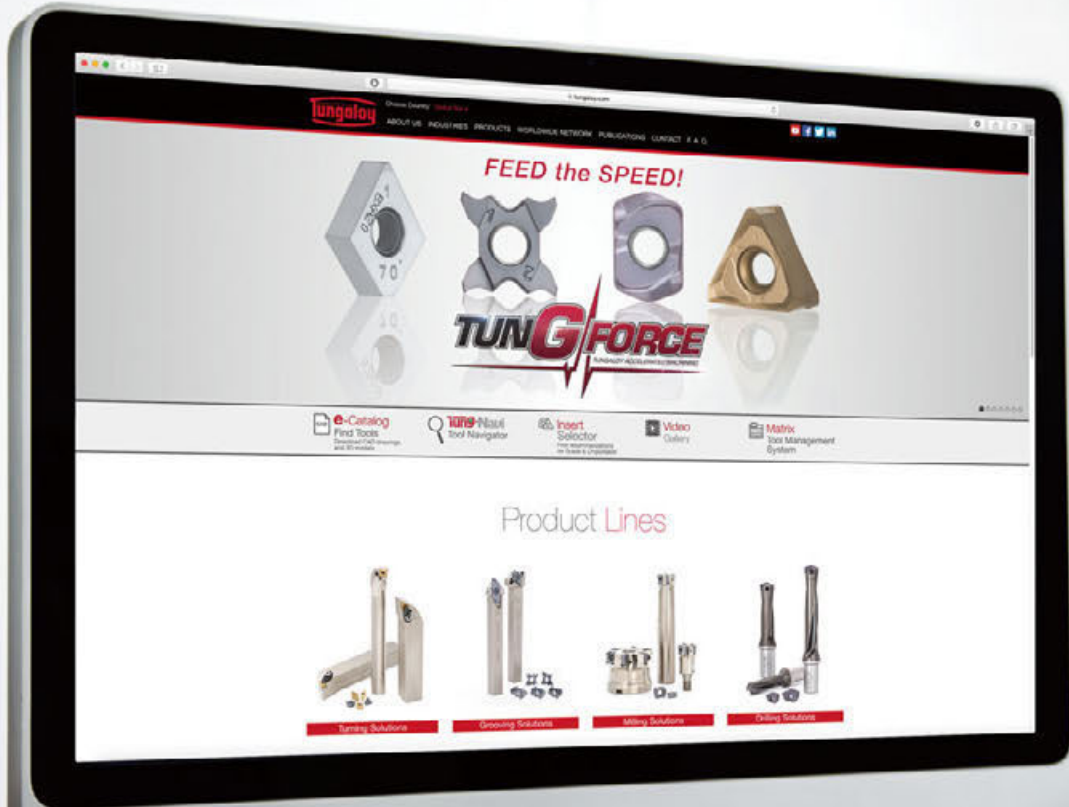
## PRACTICAL EXAMPLES

Workpiece type		Hub part	Automotive part
Insert		DNMG150412-TSF	DNMG150412-DM
Grade		<b>T9235</b>	<b>T9235</b>
		S53C / C53	S53C / C53
Workpiece material			
Cutting conditions	Cutting speed: $V_c$ (m/min)	220	220
	Feed : $f$ (mm/rev)	0.4	0.4
	Depth of cut : $a_p$ (mm)	0.5	1.0
	Coolant	Wet	Wet
Results		 <p><b>Tool life 2.5 times!</b></p> <p>T9235 extended tool life by 2.5 times, while also providing improved tool life stability.</p>	 <p><b>Tool life 2 times!</b></p> <p>T9235 doubled tool life, in addition to enhanced tool stability.</p>





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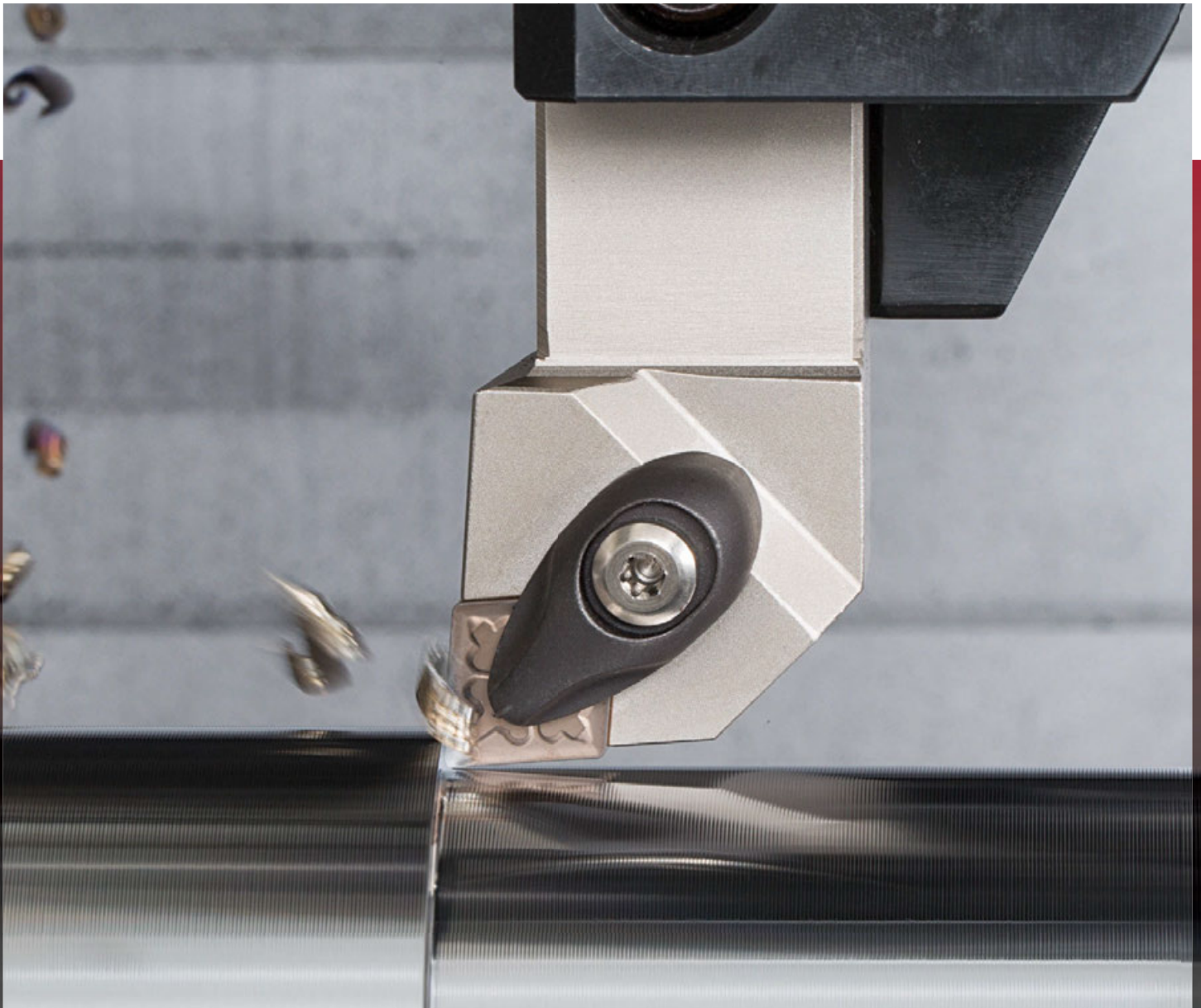




# T9200 SERIES

Tungaloy Report No. 513S1-G

**PS and PM chipbreakers are now available** on negative inserts for steel turning



# T9200 SERIES



For more information

The T9200 series now offers new chipbreaker geometries **PS** and **PM** for steel turning

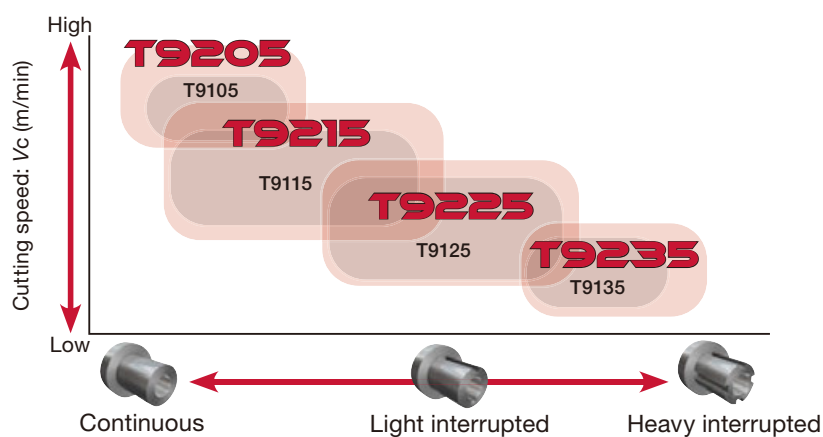
## PREMIUMTEC

A new surface treatment technology is applied, making T9200 series hard to break

- Outermost layer
- Ti-layer
- Al<sub>2</sub>O<sub>3</sub>
- Ti compound
- Specially designed substrate



### APPLICATION AREA

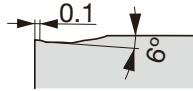


Application	Grade	Substrate			Coating layer	
		Specific gravity	Hardness (HRA)	T.R.S. (GPa)	Main composition	Thickness (µm)
<b>P</b>	T9205	14.2	91.5	2.4	Ti compound + Al <sub>2</sub> O <sub>3</sub>	18
	T9215	14	90.5	2.6	Ti compound + Al <sub>2</sub> O <sub>3</sub>	18
	T9225	13.8	89.8	2.7	Ti compound + Al <sub>2</sub> O <sub>3</sub>	18
	T9235	13.6	89	2.7	Ti compound + Al <sub>2</sub> O <sub>3</sub>	18

## ■ New chipbreaker geometries for steel turning

New

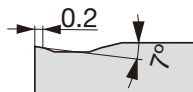
PS



Unique geometry to provide better crater wear resistance and chip control during turning at light cutting depths.

New

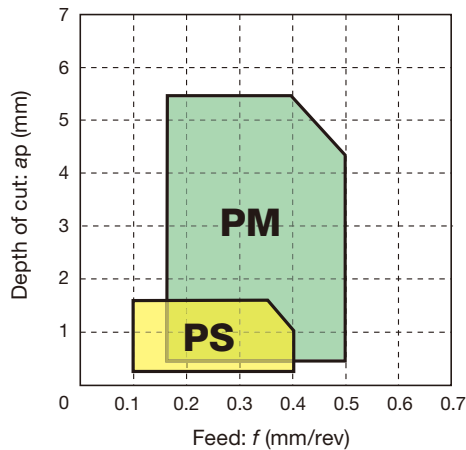
PM



Versatile geometry with optimized cutting edge design to provide superior chip control in wide range of applications.

New

### Chipbreakers (complementary)



## ■ STANDARD CUTTING CONDITIONS

ISO	Operation	Chipbreaker	Grade	Depth of cut $a_p$ (mm)	Feed $f$ (mm/rev)	Cutting speed: $V_c$ (m/min)		
						Low carbon steels, alloy steels	Medium carbon steels, alloy steels	High carbon steels, alloy steels
P	Finishing	New PS	T9215	0.3 - 1.5	0.1 - 0.4	150 - 400	150 - 400	120 - 300
		T9225	0.3 - 1.5	0.1 - 0.4	120 - 300	120 - 300	100 - 250	
	Medium cutting	New PM	T9215	0.5 - 5.5	0.15 - 0.5	150 - 400	150 - 400	120 - 300
		T9225	0.5 - 5.5	0.15 - 0.5	120 - 300	120 - 300	100 - 250	

# T9200 SERIES

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

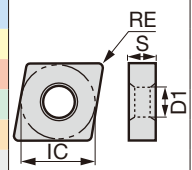
## Insert NEGATIVE TYPE

# CN



Rhombic, 80° with hole

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



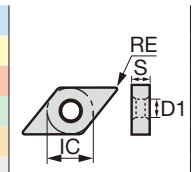
Application	Chipbreaker	Designation	Coated		Dimension (mm)									
			T9215	T9225	RE	IC	S	D1						
Finishing		PS CNMG120404-PS	●●					0.4	12.7	4.76	5.16			
		CNMG120408-PS	●●						0.8	12.7	4.76	5.16		
		CNMG120412-PS	●●							1.2	12.7	4.76	5.16	
Medium cutting		PM CNMG120404-PM	●●							0.4	12.7	4.76	5.16	
		CNMG120408-PM	●●							0.8	12.7	4.76	5.16	
		CNMG120412-PM	●●								1.2	12.7	4.76	5.16
		CNMG120416-PM	●●								1.6	12.7	4.76	5.16

# DN



Rhombic, 55° with hole

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



Application	Chipbreaker	Designation	Coated		Dimension (mm)										
			T9215	T9225	RE	IC	S	D1							
Finishing		PS DNMG150404-PS	●●							0.4	12.7	4.76	5.16		
		DNMG150408-PS	●●								0.8	12.7	4.76	5.16	
		DNMG150412-PS	●●									1.2	12.7	4.76	5.16
		DNMG150604-PS	●●									0.4	12.7	6.35	5.16
		DNMG150608-PS	●●									0.8	12.7	6.35	5.16
		DNMG150612-PS	●●										1.2	12.7	6.35
Medium cutting		PM DNMG150404-PM	●●								0.4	12.7	4.76	5.16	
		DNMG150408-PM	●●								0.8	12.7	4.76	5.16	
		DNMG150412-PM	●●									1.2	12.7	4.76	5.16
		DNMG150604-PM	●●									0.4	12.7	6.35	5.16
		DNMG150608-PM	●●									0.8	12.7	6.35	5.16
		DNMG150612-PM	●●										1.2	12.7	6.35
	DNMG150616-PM	●●									1.6	12.7	6.35	5.16	

● : New



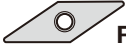


# T9200 SERIES

## Insert NEGATIVE TYPE

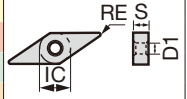
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

### VN



**Rhombic, 35°  
with hole**

<b>P</b> Steel	● ● ✱																					
<b>M</b> Stainless	● ●																					
<b>K</b> Cast iron	● ●																					
<b>N</b> Non-ferrous																						
<b>S</b> Superalloy																						
<b>H</b> Hard material																						



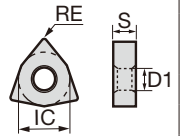
Application	Chipbreaker	Designation	Coated		Dimension (mm)			
			T9215	T9225	RE	IC	S	D1
Finishing	 0.1	<b>PS</b> VNMG160404-PS	● ●		0.4	9.525	4.76	3.81
		VNMG160408-PS	● ●		0.8	9.525	4.76	3.81
Medium cutting	 0.2	<b>PM</b> VNMG160408-PM	● ●		0.8	9.525	4.76	3.81
		VNMG160412-PM	● ●		1.2	9.525	4.76	3.81

### WN



**Trigon, 80°  
with hole**

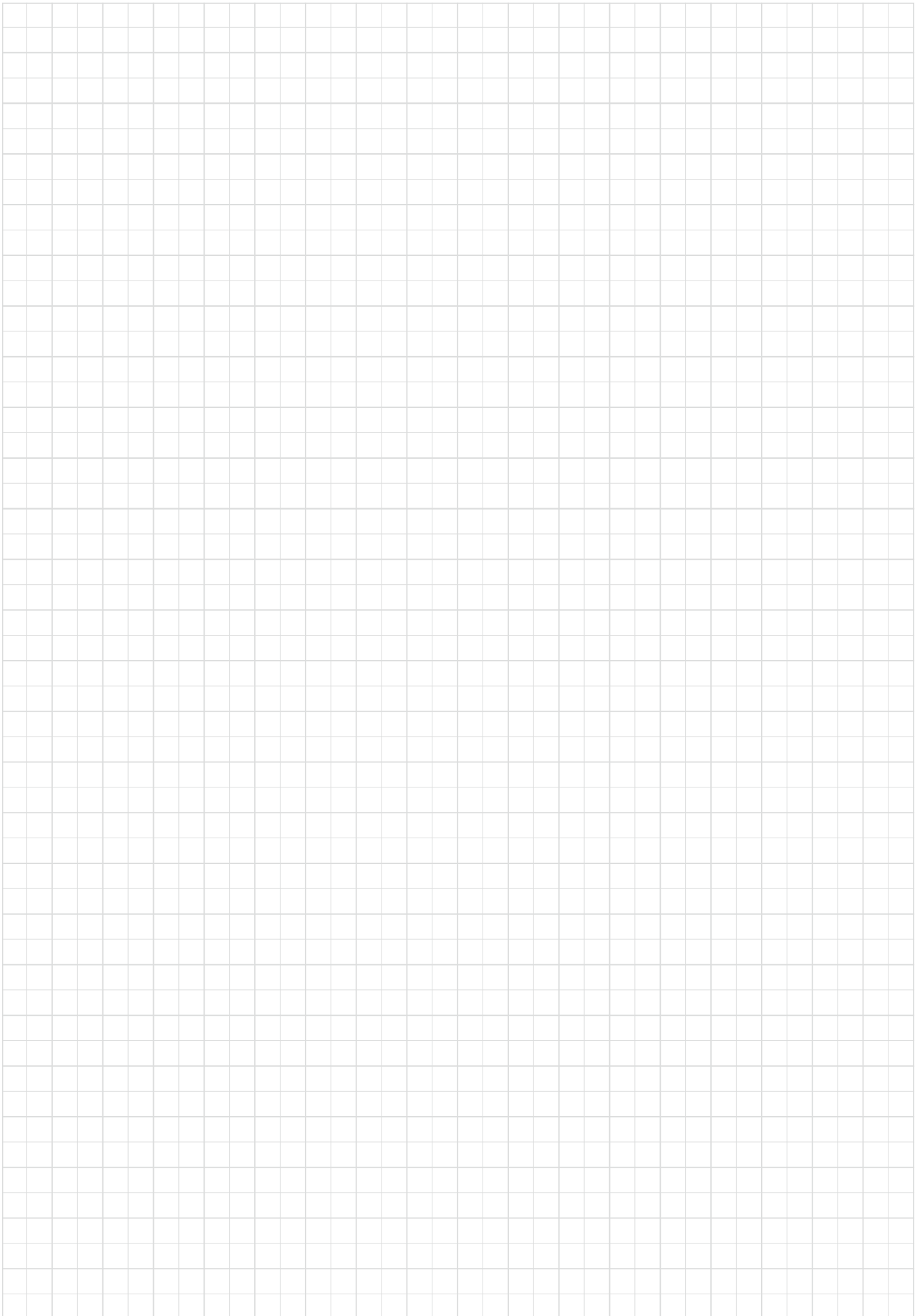
<b>P</b> Steel	● ● ✱																					
<b>M</b> Stainless	● ●																					
<b>K</b> Cast iron	● ●																					
<b>N</b> Non-ferrous																						
<b>S</b> Superalloy																						
<b>H</b> Hard material																						



Application	Chipbreaker	Designation	Coated		Dimension (mm)			
			T9215	T9225	RE	IC	S	D1
Finishing	 0.1	<b>PS</b> WNMG080404-PS	● ●		0.4	12.7	4.76	5.16
		WNMG080408-PS	● ●		0.8	12.7	4.76	5.16
		WNMG080412-PS	● ●		1.2	12.7	4.76	5.16
Medium cutting	 0.2	<b>PM</b> WNMG080408-PM	● ●		0.8	12.7	4.76	5.16
		WNMG080412-PM	● ●		1.2	12.7	4.76	5.16
		WNMG080416-PM	● ●		1.6	12.7	4.76	5.16

● : New

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