

TurnLine

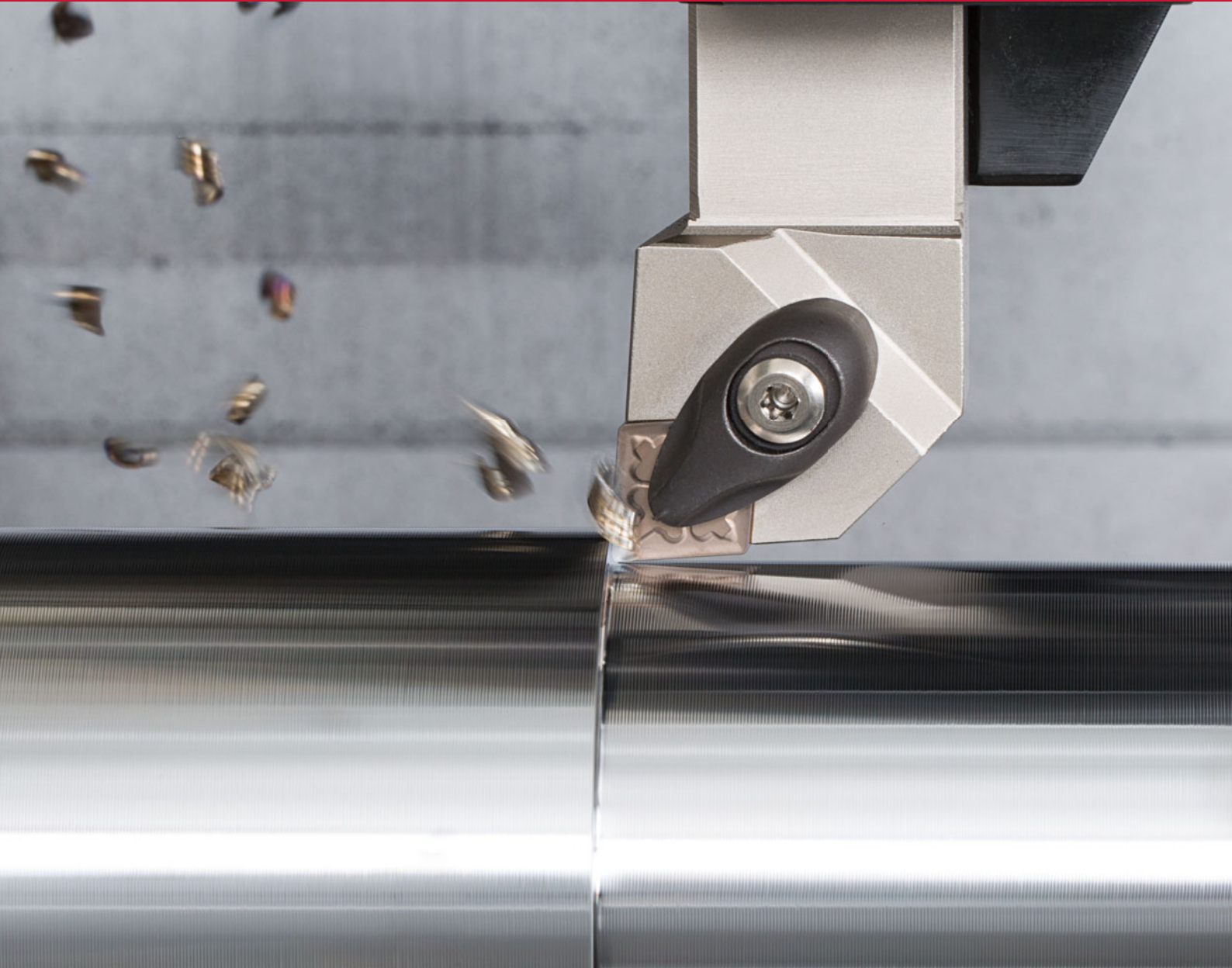
T9200SERIES

www.tungaloy.com

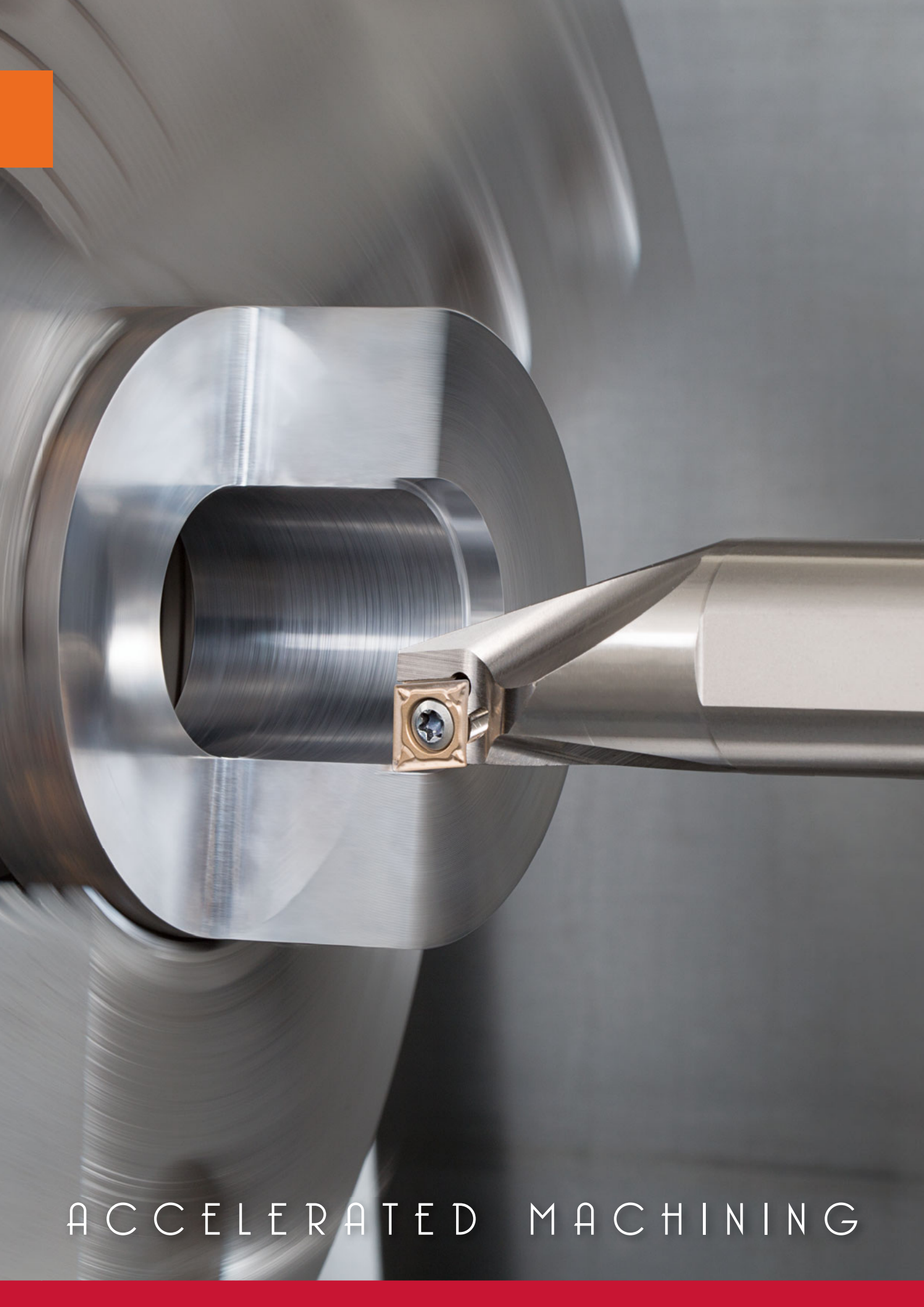
Tungaloy Report No. 513-G



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

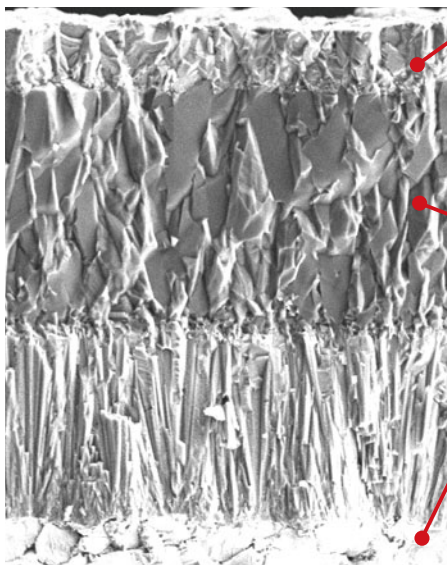
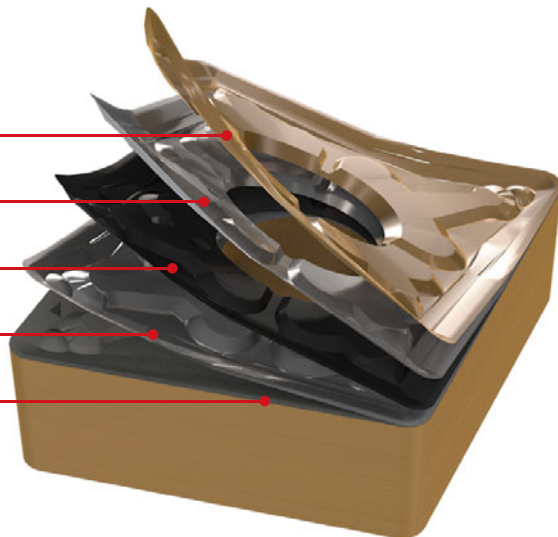
Outermost layer

Ti-layer

Al₂O₃

Ti compound

Specially designed substrate



Hard outer layer.

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

Thick Al₂O₃ layer with excellent resistance to high heat and crater wear, especially effective for high-speed machining.

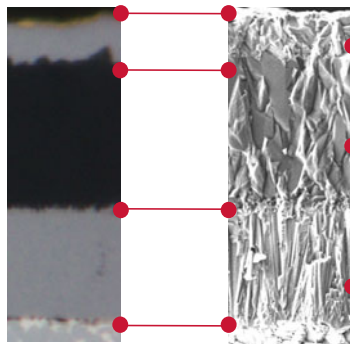
New cemented carbide substrate.

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

Excellent Crater Wear Resistance

Al_2O_3 coating with strengthened wear resistance

T9200SERIES

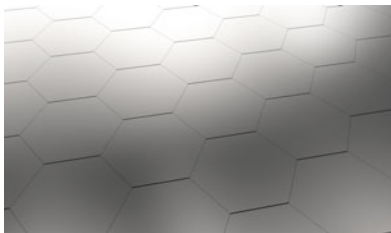
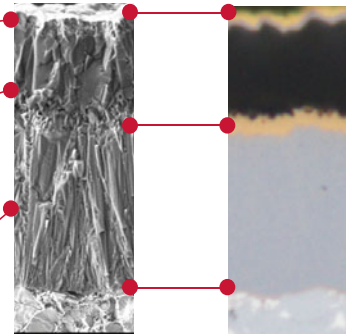


Ti-layer

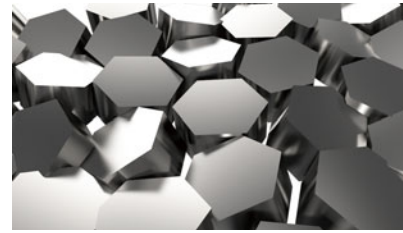
Al_2O_3

Ti compound

Existing



Highly homogeneous structure of Al_2O_3



Surface image of Al_2O_3

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

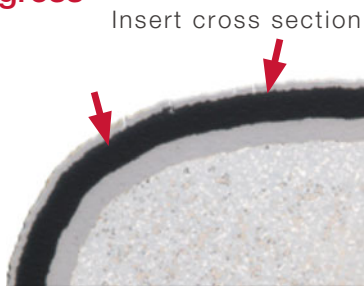
Effect of the new improved surface treatment which prolongs insert's tool life

T9200SERIES

Vs.

Existing

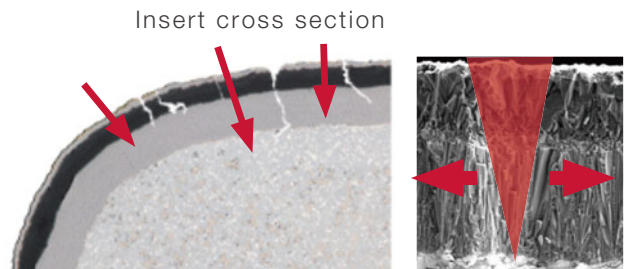
Suppress crack generation and progress



PREMIUMTEC

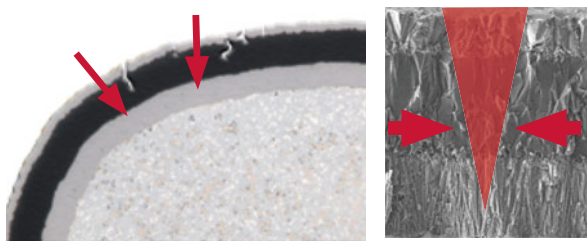
TUNGALOY

Crack occurs in coating files. Crack proceeds



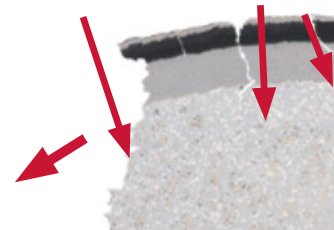
The crack gradually spreads

Suppress crack propagation

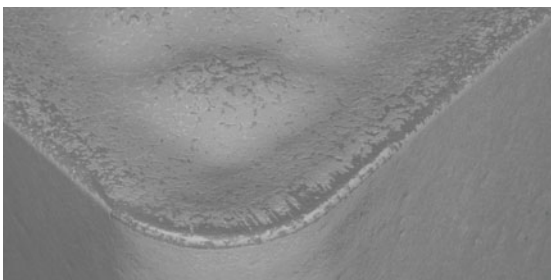


Still using

Fracture



Fracture



Results: stable machining!



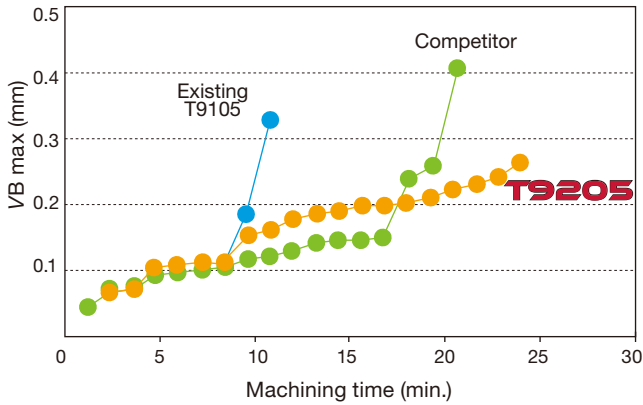
New

T9205

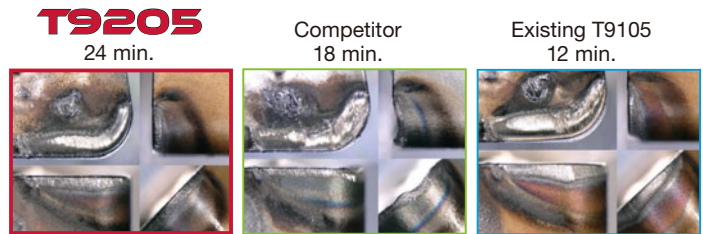
CUTTING PERFORMANCE

P S45C / C45 (245HB)

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

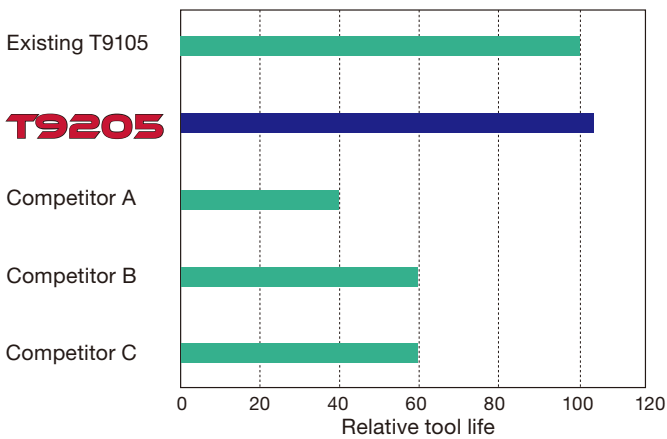


Inserts : CNMG120408-...
 Cutting speed : $V_c = 300$ m/min
 Feed : $f = 0.25$ mm/rev
 Depth of cut : $a_p = 2.0$ mm
 Applications : Continuous cutting
 Coolant : Wet



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

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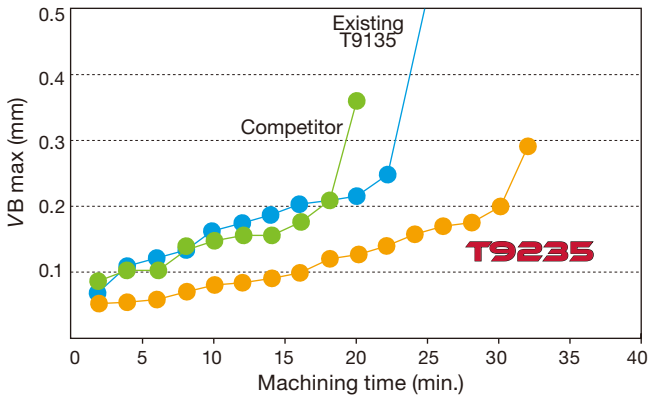
New

T9235

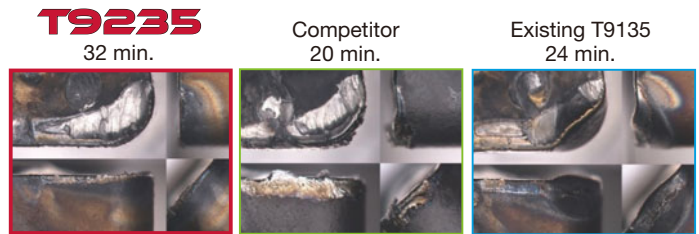
CUTTING PERFORMANCE

P S45C / C45 (245HB)

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

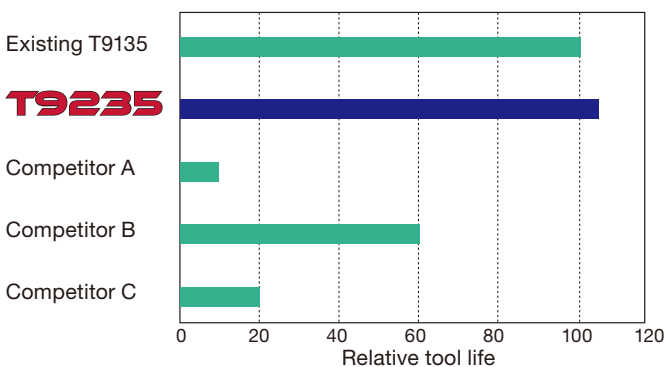


Inserts : CNMG120408-...
 Cutting speed : $V_c = 250$ m/min
 Feed : $f = 0.3$ mm/rev
 Depth of cut : $a_p = 2.0$ mm
 Applications : Continuous cutting
 Coolant : Wet



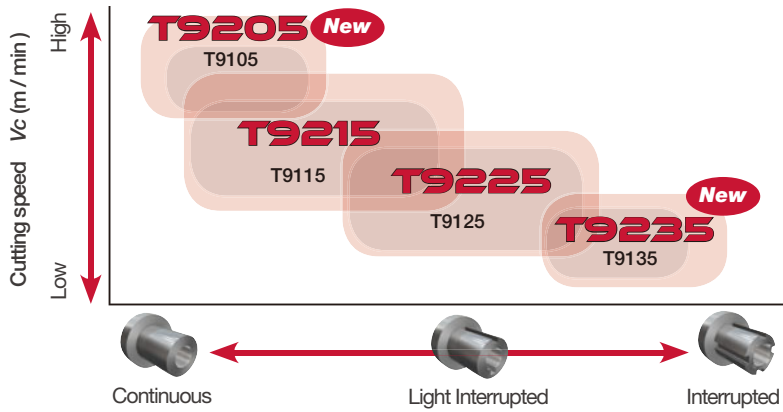
P S45C / C45

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

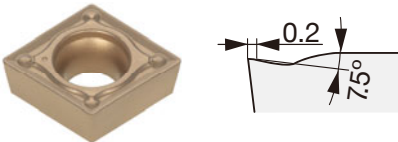
APPLICATION AREA



Application	Grade	Substrate			Coating layer	
		Specific gravity	Hardness (HRA)	T.R.S. (GPa)	Main Composition	Thickness (μm)
P	T9205	14.2	91.5	2.4	Ti compound + Al_2O_3	18
	T9215	14.0	90.5	2.6	Ti compound + Al_2O_3	18
	T9225	13.8	89.8	2.7	Ti compound + Al_2O_3	18
	T9235	13.6	89.0	2.7	Ti compound + Al_2O_3	18

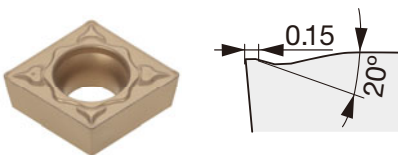
New chipbreaker geometries for steel turning

New TSF



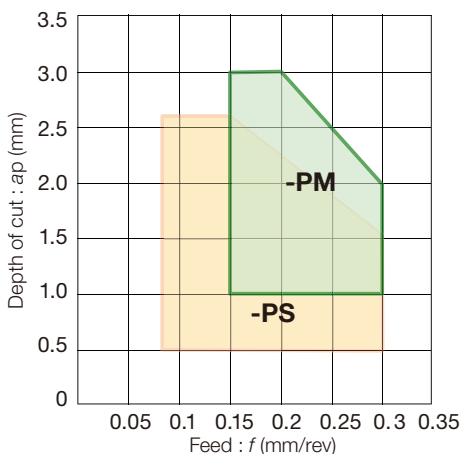
Optimal chipbreaker geometry ensures smooth chip control in a high feed range

New TM

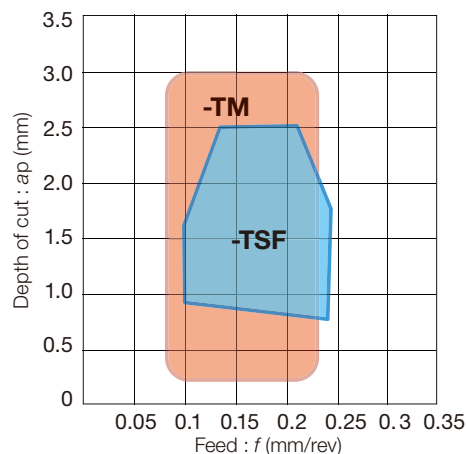


Optimal cutting edge and chipbreaker geometry provides effective chip evacuation at greater depths of cut

First Choice Chipbreakers



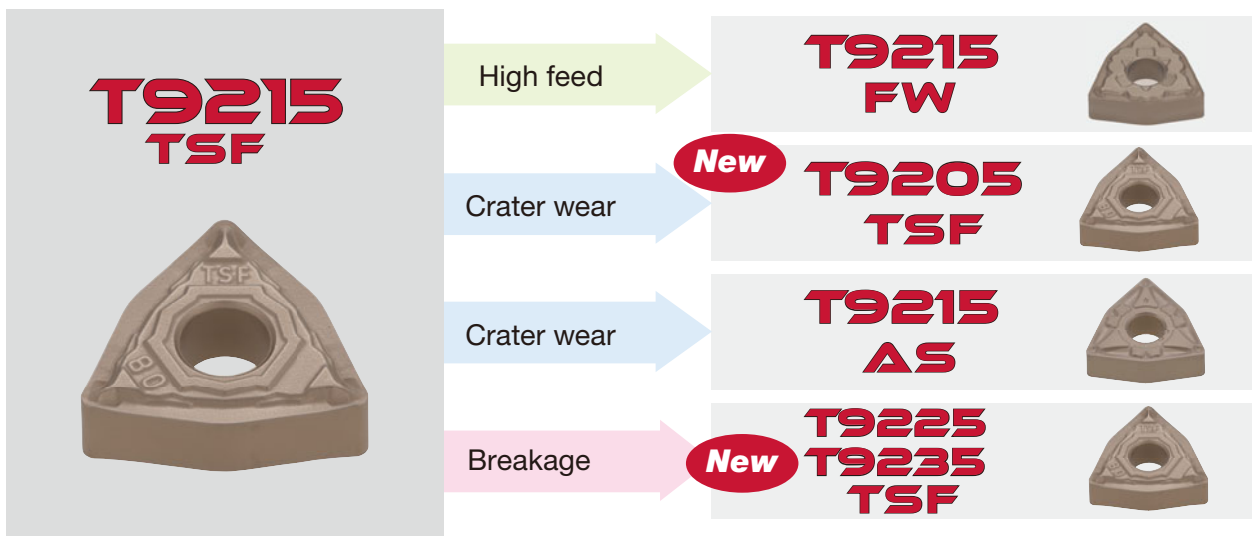
New New chipbreakers (complementary)



SELECTION GUIDE NEGATIVE TYPE

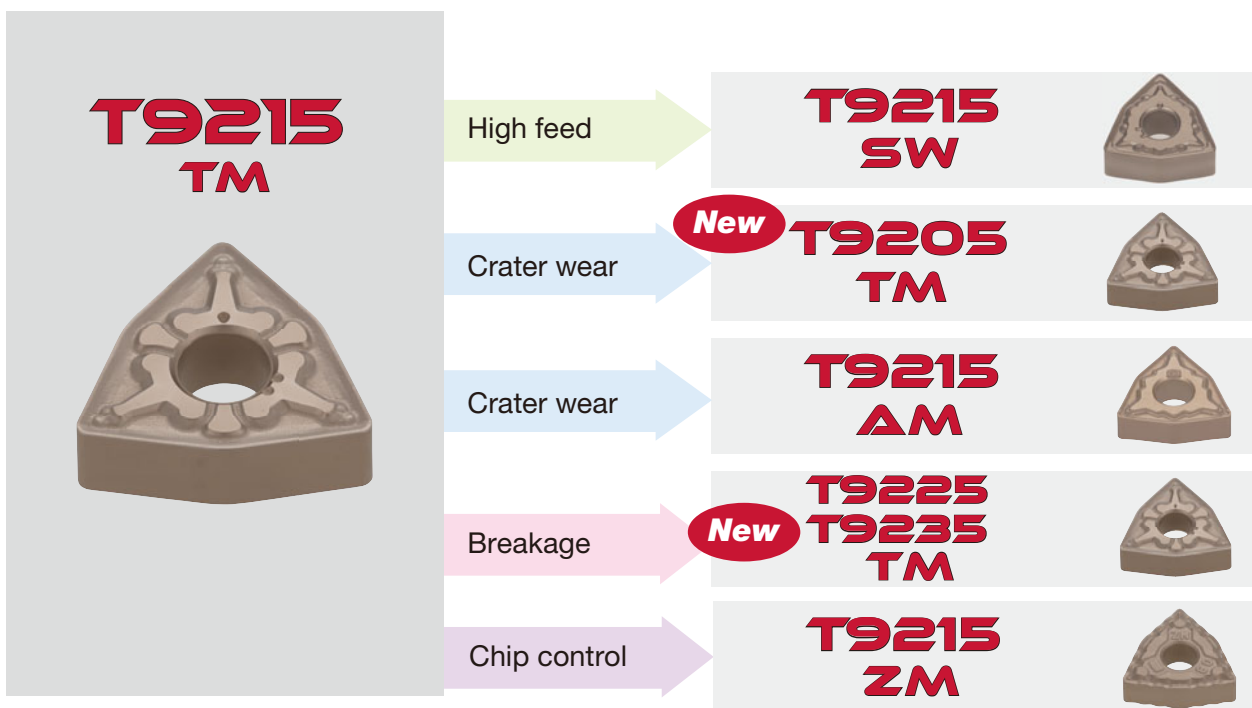
- For finishing ($a_p = 0.3 - 1.5 \text{ mm}$)

The 1st recommendation



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

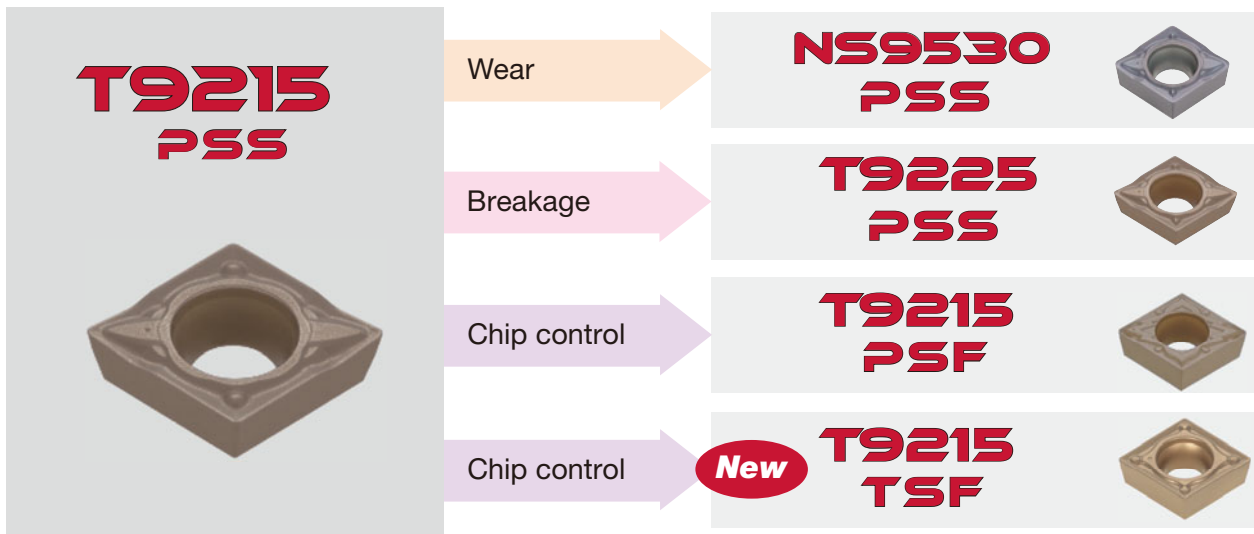
The 1st recommendation



POSITIVE TYPE

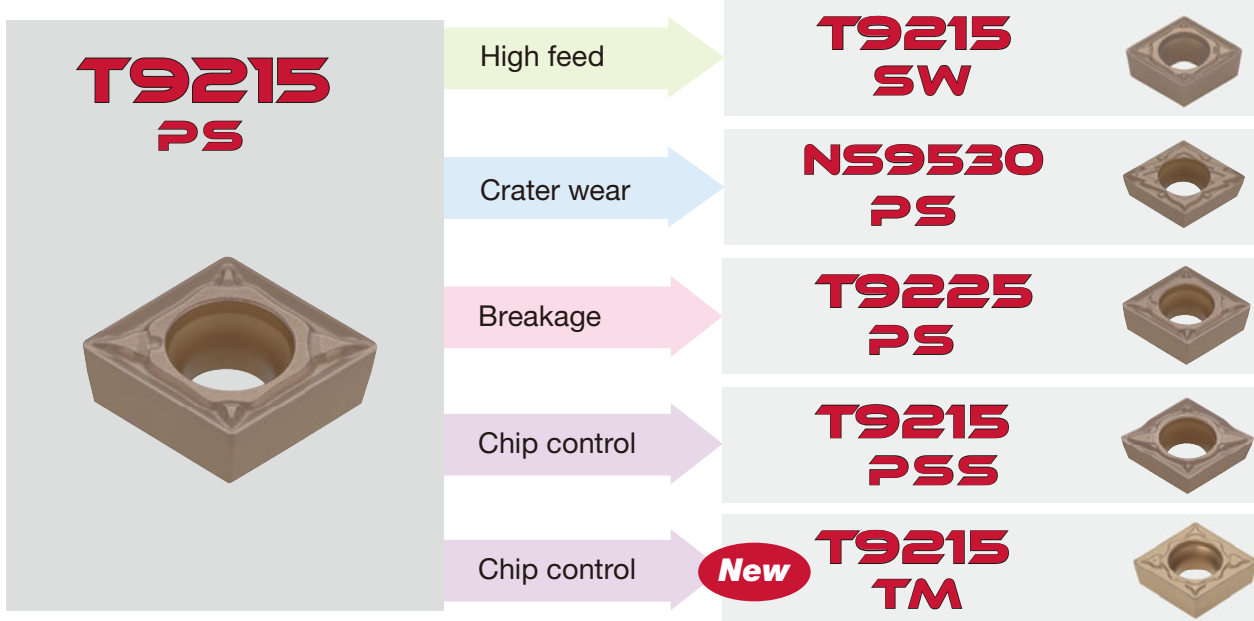
- For finishing ($a_p = 0.1 - 0.5$ mm)

The 1st recommendation



- For finishing to medium cutting ($a_p = 0.5 - 2.5$ mm)

The 1st recommendation



TurnLine - Insert NEGATIVE TYPE

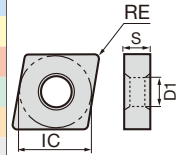
- : Continuous cutting
- : Light interrupted cutting
- ✱ : Heavy interrupted cutting

CN



Rhombic, 80° with hole

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		TSF	CNMG090404E-TSF	●	●			▲	▲												0.4	9.525	4.76	3.81		
			CNMG090408E-TSF	●	●			▲	▲													0.8	9.525	4.76	3.81	
			CNMG120404-TSF	●	●			▲	▲	▲												0.4	12.7	4.76	5.16	
			CNMG120408-TSF	●	●	●		▲	▲	▲	▲											0.8	12.7	4.76	5.16	
			CNMG120412-TSF	●	●			▲	▲													1.2	12.7	4.76	5.16	
Finishing (Wiper)		FW	CNMG090404E-FW	●	●	●		▲	▲	▲											0.4	9.525	4.76	3.81		
			CNMG090408E-FW	●	●	●		▲	▲	▲												0.8	9.525	4.76	3.81	
			CNMG120404-FW		●			▲														0.4	12.7	4.76	5.16	
			CNMG120408-FW	●	●	●		▲	▲	▲												0.8	12.7	4.76	5.16	
			AFW	CNMG120404-AFW		●	●		▲	▲													0.4	12.7	4.76	5.16
		CNMG120408-AFW	●	●	●	●	▲	▲	▲	▲											0.8	12.7	4.76	5.16		
			*Wiper insert																							
Finishing		ZF	CNMG090404E-ZF		●	●		▲	▲												0.4	9.525	4.76	3.81		
			CNMG120404-ZF		●	●		▲	▲													0.4	12.7	4.76	5.16	
			CNMG120408-ZF		●	●	●	▲	▲	▲												0.8	12.7	4.76	5.16	
		TS	CNMG120404-TS		●	●	●		▲	▲	▲											0.4	12.7	4.76	5.16	
			CNMG120408-TS	●	●	●	●	▲	▲	▲	▲											0.8	12.7	4.76	5.16	
			CNMG120412-TS		●	●	●	▲	▲	▲												1.2	12.7	4.76	5.16	
			NS	CNMG120408-NS		●	●		▲	▲													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
- : New product
- ▲ : To be discontinued

T9200SERIES

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

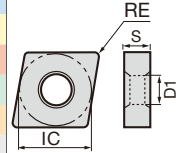
TurnLine - Insert NEGATIVE TYPE

CN



Rhombic, 80° with hole

Material	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											
Finish to Medium cutting	TQ	CNMG120404-TQ	●	●														0.4	12.7	4.76	5.16
		CNMG120408-TQ	●	●														0.8	12.7	4.76	5.16
Medium cutting	TA	CNMG120408-TA	●	●														0.8	12.7	4.76	5.16
		CNMG120412-TA	●	●														1.2	12.7	4.76	5.16
Finish to Medium cutting	NM	CNMG120408-NM	●	●	●	●	▲	▲	▲	▲								0.8	12.7	4.76	5.16
		CNMG120412-NM	●	●	●		▲	▲	▲									1.2	12.7	4.76	5.16
Finish to Medium cutting	ZM	CNMG090408E-ZM	●	●			▲	▲										0.8	9.525	4.76	3.81
		CNMG120408-ZM	●	●	●		▲	▲	▲									0.8	12.7	4.76	5.16
		CNMG120412-ZM	●	●	●		▲	▲	▲									1.2	12.7	4.76	5.16
		CNMG120416-ZM	●	●			▲	▲										1.6	12.7	4.76	5.16
Medium cutting	DM	CNMG120404-DM	●	●			▲	▲										0.4	12.7	4.76	5.16
		CNMG120408-DM	●	●	●	●	▲	▲	▲	▲								0.8	12.7	4.76	5.16
		CNMG120412-DM	●	●	●	●	▲	▲	▲	▲								1.2	12.7	4.76	5.16

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T9200SERIES

TUNGALOY

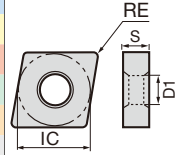
TurnLine - Insert NEGATIVE TYPE

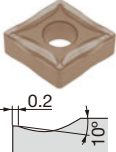
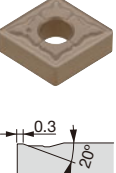
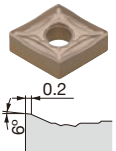
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

CN

Rhombic, 80°
with hole

Material	●	●	●	●	✱	●	●	●	●	✱																
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 cutting		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
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	

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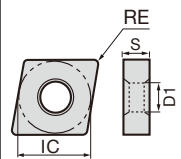
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

CN



Rhombic, 80° with hole

	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																			
Medium cutting		S 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)		TRS 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)		TU 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
		TUS 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		
CNMM250924-TUS		●	●	●																				2.4	25.4	9.52	9.12		
CNMM250932-TUS		●	●																					3.2	25.4	9.52	9.12		
Medium to heavy cutting (Single sided)	65	CNMM120412-65			●																			1.2	12.7	4.76	5.16		

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

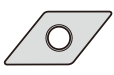
T9200SERIES

TUNGALOY

TurnLine - Insert NEGATIVE TYPE

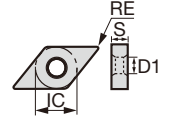
- : Continuous cutting
- : Light interrupted cutting
- ⊛ : Heavy interrupted cutting

DN



Rhombic, 55° with hole

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		TSF 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)		FW 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		ZF 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
	11	DNMG150408-11		●○			▲																						0.8	12.7	4.76	5.16			

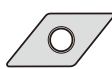
* Please contact our sales representative for your inquiries about the program adjustment when using SW/FW for machining of radius shape or taper machining.

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

TurnLine - Insert NEGATIVE TYPE

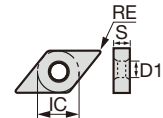
- : Continuous cutting
- ◐ : Light interrupted cutting
- ⊛ : Heavy interrupted cutting

DN



Rhombic, 55°
with hole

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



Application	Chipbreaker	Designation	Coated																											RE	IC	S	D1																																
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135																																																							
Finishing	 70°	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)	 0.2, 70°	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																					
		*Wiper insert																																																															
High feed, small depth of cut	 0.2, 78°	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															
		DNMG150612-AS	●				▲																																									1.2	12.7	6.35	5.16														
Boring (Double sided)	 37°	DNMG110408-CB	●				▲																																								0.8	9.525	4.76	3.81															
Finishing	 6°	DNMG150404-NS				●	▲	▲																																								0.4	12.7	4.76	5.16														
		DNMG150408-NS	●	●	●	●	▲	▲	▲																																									0.8	12.7	4.76	5.16												
Finishing to medium cutting	 0.25, 8°	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

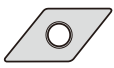
T9200SERIES

TUNGALOY

TurnLine - Insert NEGATIVE TYPE

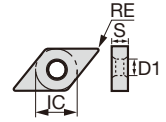
● : Continuous cutting
● : Light interrupted cutting
✱ : Heavy interrupted cutting

DN



Rhombic, 55°
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																																				
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	5.16								
	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

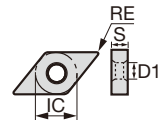
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◐* : Heavy interrupted cutting

TurnLine - Insert NEGATIVE TYPE

DN

Rhombic, 55°
with hole

	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 to medium cutting		27 DNMG150404-27			●																																	
		DNMG150408-27		●	●◐					▲	▲																											
		DNMG150412-27		●	●◐					▲	▲																											
Medium cutting		All-round DNMG110404			●	●				▲	▲																											
		DNMG110408		●	●	●◐	●◐	▲	▲	▲	▲																											
		DNMG150404		●	●	●◐		▲	▲	▲																												
		DNMG150408		●	●	●◐	●◐	▲	▲	▲	▲																											
		DNMG150412		●	●	●◐	●◐	▲	▲	▲	▲																											
		DNMG150416		●	●				▲	▲																												
		DNMG150604		●	●				▲	▲																												
		DNMG150608		●	●	●◐	●◐	▲	▲	▲	▲																											
		DNMG150612		●	●	●◐	●◐	▲	▲	▲	▲																											
		DNMG150616		●	●				▲	▲																												
		38	DNMG150412-38		●					▲																												
		37	DNMG150608-37		●					▲																												
Medium to heavy cutting		TH DNMG150408-TH		●	●	●◐		▲	▲	▲																												
		DNMG150412-TH		●	●	●◐		▲	▲	▲																												
		DNMG150416-TH		●	●			▲	▲																													
		DNMG150608-TH		●	●	●◐		▲	▲	▲																												
		DNMG150612-TH		●	●	●◐		▲	▲	▲																												
		DNMG150616-TH		●	●	●◐		▲	▲	▲																												

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

TurnLine - Insert NEGATIVE TYPE

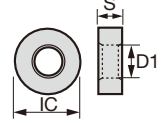
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

RN

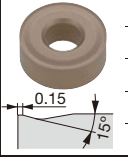


Round,
with hole

Material	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																					
Heavy cutting	61	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

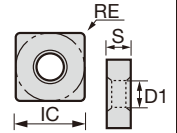
- : Continuous cutting
- c : Light interrupted cutting
- * : Heavy interrupted cutting

SN



Square, 90° with hole

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



Application	Chipbreaker	Designation	Coated																				
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	RE	IC	S	D1									
Medium to heavy cutting (Single sided)	TRS 	SNMM150612-TRS	●	●c	●c*	*c	●	●c	●c*	*c									1.2	15.875	6.35	6.35	
		SNMM150616-TRS	●	●c	●c*	*c	●	●c	●c*	*c										1.6	15.875	6.35	6.35
		SNMM190616-TRS	●	●c	●c*	*c	●	●c	●c*	*c										1.6	19.05	6.35	7.93
		SNMM190624-TRS	●	●c	●c*	*c	●	●c	●c*	*c										2.4	19.05	6.35	7.93
		SNMM250924-TRS	●	●c	●c*	*c	●	●c	●c*	*c										2.4	25.4	9.52	9.12
Heavy cutting (Single sided)	TU 	SNMM190616-TU				●							▲					1.6	19.05	6.35	7.93		
		SNMM190624-TU				●c	●c*	*c					▲	▲					2.4	19.05	6.35	7.93	
		SNMM250724-TU				●c	●c*	*c					▲	▲					2.4	25.4	7.94	9.12	
		SNMM250924-TU	●	●c	●c*	*c				▲	▲								2.4	25.4	9.52	9.12	
	TUS 	SNMM190612-TUS	●	●c	●c*	*c	▲	▲	▲										1.2	19.05	6.35	7.93	
		SNMM190616-TUS	●	●c	●c*	*c	▲	▲	▲											1.6	19.05	6.35	7.93
		SNMM190624-TUS	●	●c	●c*	*c	▲	▲	▲											2.4	19.05	6.35	7.93
		SNMM250724-TUS	●	●c	●c*	*c	▲	▲	▲											2.4	25.4	7.94	9.12
		SNMM250732-TUS	●	●c	●c*	*c	▲	▲												3.2	25.4	7.94	9.12
TUS 	SNMM250924-TUS	●	●c	●c*	*c	▲	▲	▲										2.4	25.4	9.52	9.12		
TUS 	SNMM250932-TUS	●	●c	●c*	*c	▲	▲											3.2	25.4	9.52	9.12		
Medium to heavy cutting (Single sided)	57 	SNMM120408-57	●	●c			▲	▲										0.8	12.7	4.76	5.16		
		SNMM150616-57		●c					▲										1.6	15.875	6.35	6.35	
		SNMM190612-57		●c					▲										1.2	19.05	6.35	7.93	
	65 	SNMM190612-65		●c			▲												1.2	19.05	6.35	7.93	
	SNMM310924-65		●c			▲												2.4	31.75	9.52	8.8		

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

TurnLine - Insert NEGATIVE TYPE

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

TN		Material											Coated	Dimensions															
Triangular, 60° with hole		P	M	K	N	S	H	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Application	Chipbreaker	Designation	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135															RE	IC	S	D1	
High feed, small depth of cut		AS TNMG160404-AS			●	●	▲	▲	▲	▲															0.4	9.525	4.76	3.81	
		TNMG160408-AS	●	●	●	●	▲	▲	▲	▲															0.8	9.525	4.76	3.81	
		TNMG160412-AS	●	●	●		▲	▲	▲																1.2	9.525	4.76	3.81	
Boring (Double sided)		CB TNMG110304-CB	●					▲																	0.4	6.35	3.18	2.26	
		TNMG110308-CB	●					▲																	0.8	6.35	3.18	2.26	
Finishing		NS TNMG160404-NS	●	●				▲	▲																0.4	9.525	4.76	3.81	
		TNMG160408-NS	●	●	●		▲	▲	▲																0.8	9.525	4.76	3.81	
Medium cutting		TM TNMG110304-TM	●	●	●			▲	▲	▲															0.4	6.35	3.18	2.26	
		TNMG110308-TM	●	●	●			▲	▲	▲															0.8	6.35	3.18	2.26	
		TNMG110404E-TM	●	●				▲	▲																0.4	6.35	4.76	2.26	
		TNMG110408E-TM	●	●				▲	▲																0.8	6.35	4.76	2.26	
		TNMG110412E-TM	●	●				▲	▲																1.2	6.35	4.76	2.26	
		TNMG160404-TM	●	●	●			▲	▲	▲															0.4	9.525	4.76	3.81	
		TNMG160408-TM	●	●	●	●		▲	▲	▲	▲															0.8	9.525	4.76	3.81
		TNMG160412-TM	●	●	●	●		▲	▲	▲	▲															1.2	9.525	4.76	3.81
		TNMG220404-TM	●	●				▲	▲																0.4	12.7	4.76	5.16	
		TNMG220408-TM	●	●	●	●		▲	▲	▲	▲															0.8	12.7	4.76	5.16
TNMG220412-TM	●	●	●	●		▲	▲	▲																1.2	12.7	4.76	5.16		
TNMG220416-TM	●	●				▲	▲																1.6	12.7	4.76	5.16			
Finishing to medium cutting		AM TNMG160408-AM	●	●				▲	▲																0.8	9.525	4.76	3.81	
		TNMG160412-AM	●	●				▲	▲																1.2	9.525	4.76	3.81	

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

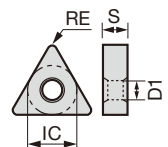
TurnLine - Insert NEGATIVE TYPE

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



Triangular, 60°
with hole

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 to medium cutting	TQ	TNMG160404-TQ	●	●																						0.4	9.525	4.76	3.81
		TNMG160408-TQ	●	●																						0.8	9.525	4.76	3.81
Medium cutting	TA	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	NM	TNMG160408-NM			●				▲																0.8	9.525	4.76	3.81	
		TNMG160412-NM	●	●				▲	▲																1.2	9.525	4.76	3.81	
Finishing to medium cutting	ZM	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	DM	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

TurnLine - Insert NEGATIVE TYPE

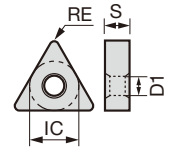
● : Continuous cutting
 ● : Light interrupted cutting
 ✖ : Heavy interrupted cutting

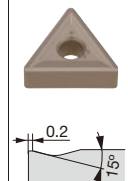
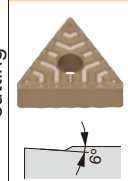
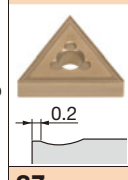
TN



Triangular, 60°
with hole

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	Coated											RE	IC	S	D1																								
Medium cutting		All-round TNMG110304		●	●			▲	▲																		0.4	6.35	3.18	2.26																			
		TNMG110308		●	●				▲	▲																					0.8	6.35	3.18	2.26															
		TNMG160404	●	●●	●●	●	▲	▲	▲	▲																						0.4	9.525	4.76	3.81														
		TNMG160408	●	●●	●●	●	▲	▲	▲	▲																							0.8	9.525	4.76	3.81													
		TNMG160412	●	●●	●●	●	▲	▲	▲	▲																								1.2	9.525	4.76	3.81												
		TNMG160416		●●	●●	●	▲	▲	▲	▲																									1.6	9.525	4.76	3.81											
		TNMG160420		●●	●●	●	▲	▲	▲	▲																										2.0	9.525	4.76	3.81										
		TNMG220408	●	●●	●●	●	▲	▲	▲	▲	▲																										0.8	12.7	4.76	5.16									
		TNMG220412	●	●●	●●	●	▲	▲	▲	▲	▲																											1.2	12.7	4.76	5.16								
		TNMG220416		●●	●●			▲	▲																														1.6	12.7	4.76	5.16							
		TNMG270608				●				▲																													0.8	15.875	6.35	6.35							
		TNMG270612				●				▲																													1.2	15.875	6.35	6.35							
		Finishing to medium cutting		27 TNMG160404-27		●	●			▲	▲																														0.4	9.525	4.76	3.81					
TNMG160408-27				●	●			▲	▲																															0.8	9.525	4.76	3.81						
TNMG160412-27				●	●			▲	▲																																	1.2	9.525	4.76	3.81				
TNMG220404-27						●			▲																																	0.4	12.7	4.76	5.16				
TNMG220408-27						●			▲																																		0.8	12.7	4.76	5.16			
TNMG220412-27						●			▲																																			1.2	12.7	4.76	5.16		
Medium cutting		33 TNMG160416-33			●			▲																																			1.6	9.525	4.76	3.81			
		TNMG220404-33			●			▲																																				0.4	12.7	4.76	5.16		
		TNMG220412-33				●			▲																																				1.2	12.7	4.76	5.16	
		TNMG220416-33				●			▲																																					1.6	12.7	4.76	5.16
		37 TNMG160404-37	●				▲																																						0.4	9.525	4.76	3.81	
TNMG160408-37	●				▲																																							0.8	9.525	4.76	3.81		

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

T9200SERIES

TUNGALOY

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

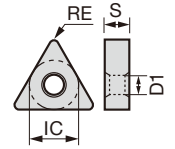
TurnLine - Insert NEGATIVE TYPE

TN



Triangular, 60° with hole

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 cutting 	S	TNMG160404R-S	●	◐	◐	◐		▲	▲	▲													0.4	9.525	4.76	3.81	
		TNMG160404L-S			◐	◐				▲	▲													0.4	9.525	4.76	3.81
		TNMG160408R-S			◐	◐					▲	▲												0.8	9.525	4.76	3.81
		TNMG160408L-S			◐	◐						▲	▲											0.8	9.525	4.76	3.81
		TNMG220404R-S			◐	◐						▲	▲											0.4	12.7	4.76	5.16
		TNMG220404L-S			◐	◐							▲	▲										0.4	12.7	4.76	5.16
		TNMG220408R-S			◐	◐								▲	▲									0.8	12.7	4.76	5.16
		TNMG220408L-S			◐	◐									▲	▲								0.8	12.7	4.76	5.16
Medium to heavy cutting 	TH	TNMG220408-TH	●	◐	◐					▲	▲	▲											0.8	12.7	4.76	5.16	
		TNMG220412-TH	●	◐	◐							▲	▲	▲										1.2	12.7	4.76	5.16
	THS	TNMG220408-THS	●	◐	◐								▲	▲	▲									0.8	12.7	4.76	5.16
		TNMG220412-THS	●	◐	◐									▲	▲	▲									1.2	12.7	4.76
Medium to heavy cutting (Single sided) 	57	TNMM160408-57			◐							▲											0.8	9.525	4.76	3.81	
		TNMM220408-57			◐									▲										0.8	12.7	4.76	5.16
		TNMM220412-57			◐										▲										1.2	12.7	4.76

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

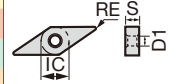
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

TurnLine - Insert NEGATIVE TYPE

VN

Rhombic, 35°
with hole

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		TSAF VNMG120402E-TSF	●	●				▲	▲													0.2	7.15	4.76	3.81	
		VNMG120404E-TSF	●	●					▲	▲													0.4	7.15	4.76	3.81
		VNMG120408E-TSF	●	●						▲	▲												0.8	7.15	4.76	3.81
		VNMG160404-TSF	●	●	●	●	▲	▲	▲	▲													0.4	9.525	4.76	3.81
		VNMG160408-TSF	●	●	●	●	▲	▲	▲	▲													0.8	9.525	4.76	3.81
		VNMG160412-TSF	●	●	●	●	▲	▲	▲	▲													1.2	9.525	4.76	3.81
Finishing		ZFAF VNMG160404-ZF	●	●	●			▲	▲	▲												0.4	9.525	4.76	3.81	
		VNMG160408-ZF	●	●	●				▲	▲	▲											0.8	9.525	4.76	3.81	
		VNMG160412-ZF	●	●	●					▲	▲	▲										1.2	9.525	4.76	3.81	
		TSAF VNMG160404-TS	●	●	●				▲	▲	▲												0.4	9.525	4.76	3.81
		VNMG160408-TS	●	●	●					▲	▲	▲											0.8	9.525	4.76	3.81
		VNMG160412-TS	●	●	●						▲	▲	▲										1.2	9.525	4.76	3.81
Medium cutting		TMAF VNMG120404E-TM	●	●				▲	▲													0.4	7.15	4.76	3.81	
		VNMG120408E-TM	●	●						▲	▲											0.8	7.15	4.76	3.81	
		VNMG160404-TM	●	●	●	●	▲	▲	▲	▲													0.4	9.525	4.76	3.81
		VNMG160408-TM	●	●	●	●	▲	▲	▲	▲													0.8	9.525	4.76	3.81
		VNMG160412-TM	●	●	●	●	▲	▲	▲	▲													1.2	9.525	4.76	3.81
Finishing to medium cutting		ZMAF VNMG160408-ZM	●	●	●			▲	▲	▲												0.8	9.525	4.76	3.81	
		VNMG160412-ZM	●	●	●				▲	▲	▲											1.2	9.525	4.76	3.81	

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

T9200SERIES

TUNGALOY

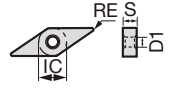
TurnLine - Insert NEGATIVE TYPE

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

VN

Rhombic, 35°
with hole

Material	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	Coated
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	DM	VNMG160408-DM	●	●	●	●	▲	▲	▲	▲	0.8	9.525	4.76	3.81
		VNMG160412-DM	●	●	●		▲	▲	▲		1.2	9.525	4.76	3.81
Finishing to medium cutting	TQ	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	3.81
	33	VNMG160404-33			●				▲		0.4	9.525	4.76	3.81
	VNMG160408-33		●	●		▲	▲			0.8	9.525	4.76	3.81	

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

TurnLine - Insert NEGATIVE TYPE

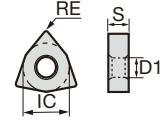
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

WN



**Trigon, 80°
with hole**

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



Application	Chipbreaker	Designation	Coated														RE	IC	S	D1				
			T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135														
Finishing		TSF 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)		FW 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																						
		AFW 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		ZF 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	
		TS 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

TurnLine - Insert NEGATIVE TYPE

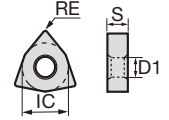
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

WN



Trigon, 80°
with hole

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




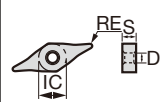
Application	Chipbreaker	Designation	Coated							RE	IC	S	D1		
			T9205	T9215	T9225	T9235	T9105	T9115	T9125					T9135	
Medium cutting		All-round WNMG060404	●	●			▲	▲							
		WNMG060408	●	●			▲	▲							
		WNMG080404	◐	◐	◐	◐	▲	▲	▲	▲					
		WNMG080408	◐	◐	◐	◐	▲	▲	▲	▲					
		WNMG080412	◐	◐	◐	◐	▲	▲	▲	▲					
		WNMG080416	◐	◐	◐	◐	▲	▲	▲	▲					
Finishing to medium cutting		27 WNMG080408-27			◐			▲							
Medium cutting		37 WNMG080408-37		●				▲							
Medium to heavy cutting		TH WNMG080408-TH	◐	◐	◐	◐	▲	▲	▲	▲					
		WNMG080412-TH	◐	◐	◐	◐	▲	▲	▲	▲					
		WNMG080416-TH	◐	◐	◐		▲	▲	▲						
		WNMG100612-TH		●	●			▲	▲						
		WNMG100616-TH		●	●			▲	▲						
Medium to heavy cutting		THS WNMG080408-THS	◐	◐	◐	◐	▲	▲	▲	▲					
		WNMG080412-THS	◐	◐	◐	◐	▲	▲	▲	▲					
		WNMG080416-THS		●	●			▲	▲						
		WNMG100612-THS		●	●	●		▲	▲	▲					
		WNMG100616-THS		●	●	●		▲	▲	▲					

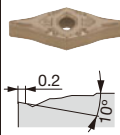

- : Line-up
- ◐ : New product
- ▲ : To be discontinued

TurnLine - Insert NEGATIVE TYPE

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

YN
Rhombic, 25°
with hole

Application	Chipbreaker Designation	Coated														RE	IC	S	D1		
		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135												
Finishing 	ZF YNMG160404-ZF		●	●	●	●	●	●										0.4	9.525	4.76	3.81
	YNMG160408-ZF		●	●	●	●	●	●	▲	▲									0.8	9.525	4.76
Finishing to medium cutting 	ZM YNMG160404-ZM			●	●			▲	▲									0.4	9.525	4.76	3.81
	YNMG160408-ZM			●	●			▲	▲										0.8	9.525	4.76

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

TurnLine - Insert POSITIVE TYPE

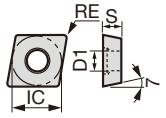
● : Continuous cutting
 ●● : Light interrupted cutting
 ●●● : Heavy interrupted cutting

CC



Rhombic, 80°
with hole
Positive 7°

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



Application	Chipbreaker	Designation	Coated												RE	IC	S	D1			
			T9215	T9225	T9115	T9125															
Finishing to medium cutting (Wiper)		SW 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		23 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		24 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
	PM 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
 ●● : New product
 ▲▲ : To be discontinued

TurnLine - Insert POSITIVE TYPE

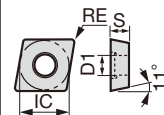
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

CP



Rhombic, 80°
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	●	●	▲	▲														0.2	6.35	2.38	2.8		
		CPMT060202-PS	●	●	▲	▲															0.4	6.35	2.38	2.8	
		CPMT080202-PS	●	●	▲	▲															0.2	7.94	2.38	3.4	
		CPMT080204-PS	●	●	▲	▲															0.4	7.94	2.38	3.4	
		CPMT080208-PS	●	●	▲	▲															0.8	7.94	2.38	3.4	
		CPMT090304-PS	●	●	▲	▲															0.4	9.525	3.18	4.4	
		CPMT090308-PS	●	●	▲	▲															0.8	9.525	3.18	4.4	
		CPMT09T302-PS	●	●	▲	▲															0.2	9.525	3.97	4.4	
		CPMT09T304-PS	●	●	▲	▲															0.4	9.525	3.97	4.4	
		CPMT09T308-PS	●	●	▲	▲															0.8	9.525	3.97	4.4	
		Finishing to medium cutting		TM	●	●																0.4	9.525	3.97	4.4
				CPMT09T304-TM	●	●																	0.8	9.525	3.97
CPMT09T308-TM	●			●																					
Finishing to medium cutting		TSF	●	●																0.4	9.525	3.97	4.4		
		CPMT09T304-TSF	●	●																	0.8	9.525	3.97	4.4	
		CPMT09T308-TSF	●	●																					
Medium cutting		24	●		▲															0.4	7.94	2.38	3.4		
		CPMT080204-24	●		▲																0.8	7.94	2.38	3.4	
		CPMT080208-24	●	●	▲																0.8	7.94	2.38	3.4	
		CPMT090308-24	●	●	▲																0.8	9.525	3.18	4.4	
	CPMT160508-24	●	●	▲																0.8	15.875	5.56	5.5		
		PM	●		▲															0.8	6.35	2.38	2.8		
		CPMT060208-PM	●		▲																0.4	9.525	3.18	4.4	
CPMT090304-PM		●		▲																0.8	9.525	3.18	4.4		

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

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

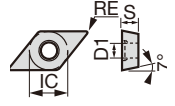
TurnLine - Insert POSITIVE TYPE

DC



Rhombic, 55°
with hole
Positive 7°

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



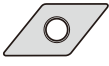
Application	Chipbreaker	Designation	Coated																RE	IC	S	D1			
			T9215	T9225	T9115	T9125																			
Finishing	PSF	DCMT070204-PSF	●	●	▲	▲															0.4	6.35	2.38	2.8	
		DCMT11T304-PSF	●	●	▲	▲																0.4	9.525	3.97	4.4
		DCMT11T308-PSF	●	●	▲	▲																0.8	9.525	3.97	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
		TSF	DCMT070202-TSF	●	●																		0.2	6.35	2.38
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

TurnLine - Insert POSITIVE TYPE

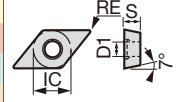
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

DC



Rhombic, 55°
with hole
Positive 7°

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



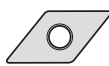
Application	Chipbreaker	Designation	Coated																RE	IC	S	D1								
			T9215	T9225	T9115	T9125																								
Medium cutting		24 DCMT070204-24	●	●	▲	▲																				0.4	6.35	2.38	2.8	
		DCMT070208-24		●		▲																					0.8	6.35	2.38	2.8
		DCMT11T302-24		●		▲																					0.2	9.525	3.97	4.4
		DCMT11T304-24	●	●	▲	▲																					0.4	9.525	3.97	4.4
		DCMT11T308-24	●	●	▲	▲																					0.8	9.525	3.97	4.4
		PM DCMT070204-PM	●	●	▲	▲																					0.4	6.35	2.38	2.8
		DCMT070208-PM	●	●	▲	▲																					0.8	6.35	2.38	2.8
		DCMT11T304-PM	●	●	▲	▲																					0.4	9.525	3.97	4.4
		DCMT11T308-PM	●	●	▲	▲																					0.8	9.525	3.97	4.4
		DCMT11T312-PM		●		▲																					1.2	9.525	3.97	4.4

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

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

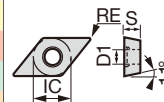
TurnLine - Insert POSITIVE TYPE

DP

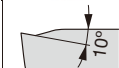


Rhombic, 55°
with hole
Positive 11°

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	DPMT070202-PS	●		▲																																		
		DPMT070204-PS	●		▲																																		
		DPMT070208-PS	●		▲																																		



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

TurnLine - Insert POSITIVE TYPE

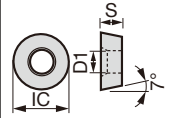
- : Continuous cutting
- : Light interrupted cutting
- ✱ : Heavy interrupted cutting

RC



Round,
with hole
Positive 7°

P	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		RS	RCMT10T3M0-RS	●	●	▲	▲																											-	10	3.97	4.4			
			RCMT1204M0-RS	●	●	▲	▲																												-	12	4.76	4.4		
			RCMT1606M0-RS	●	●	▲	▲																													-	16	6.35	5.5	
			RCMT2006M0-RS		●		▲																													-	20	6.35	6.5	
			RCMT2507M0-RS		●		▲																													-	25	7.94	7.6	
Heavy cutting		61	RCMT0502M0-61	●	●	▲	▲																												-	5	2.38	2.5		
			RCMT0602M0-61	●	●	▲	▲																													-	6	2.38	2.8	
			RCMT0803M0-61	●	●	▲	▲																														-	8	3.18	3.4
			61	RCMM1003M0-61	●	●	▲	▲																													-	10	3.18	3.6
			61	RCMM1204M0-61	●	●	▲	▲																													-	12	4.76	4.2
Finishing (Low cutting force)		6RS	RCMT1204M0-6RS	●	●	▲	▲																												-	12	4.76	5.16		
		6RM	RCMT1204M0-6RM	●	●	▲	▲																													-	12	4.76	5.16	
Medium cutting																																								

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

T9200SERIES

TUNGALOY

TurnLine - Insert POSITIVE TYPE

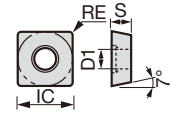
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting








SC



Square, 90°
with hole
Positive 7°

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



Application		Coated																RE	IC	S	D1		
Application	Chipbreaker Designation	T9215	T9225	T9115	T9125																		
		Finishing to medium cutting	PS SCMT09T304-PS	●	●	▲	▲															0.4	9.525
 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
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
	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

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

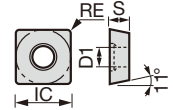
TurnLine - Insert POSITIVE TYPE

SP



Square, 90°
with hole
Positive 11°

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



Application		Coated																						RE	IC	S	D1				
Application	Chipbreaker Designation	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
	23 SPMT090304-23	●																										0.4	9.525	3.18	4.4
Finishing to medium cutting	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
Medium cutting																															

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

T9200SERIES

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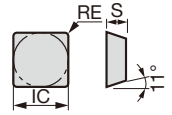
TurnLine - Insert POSITIVE TYPE


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

SP

Square, 90°
without hole
Positive 11°

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		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

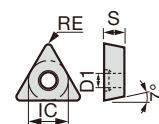
- : Continuous cutting
- ◐ : Light interrupted cutting
- ⌘ : Heavy interrupted cutting

TC



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

P 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	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 	PSS	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 	PS	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
Finishing to medium cutting 	TM	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
Finishing to medium cutting 	TSF	TCMT110204-TSF	●	●			0.4	6.35	2.38	2.8
		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

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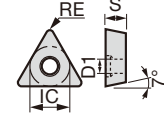
● : Continuous cutting
 ● : Light interrupted cutting
 ✖ : Heavy interrupted cutting

TurnLine - Insert POSITIVE TYPE



TC
 Triangular, 60°
 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		23 TCMT090204-23	●	●	▲																					0.4	5.56	2.38	2.5		
		TCMT16T308-23	●		▲																						0.8	9.525	3.97	4.4	
Medium cutting		24 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	
		PM 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

TurnLine - Insert POSITIVE TYPE

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

Application		Chipbreaker	Designation	Coated																RE	IC	S	D1			
				T9215	T9225	T9115	T9125																			
Finishing		PSF	TPMT090204-PSF	●	●	▲	▲														0.4	5.56	2.38	2.5		
			TPMT110204-PSF	●	●	▲	▲															0.4	6.35	2.38	2.8	
			TPMT110304-PSF	●	●	▲	▲															0.4	6.35	3.18	2.8	
			TPMT130304-PSF	●	●	▲	▲															0.4	7.94	3.18	3.4	
			TPMT16T304-PSF	●	●	▲	▲															0.4	9.525	3.97	4.4	
Finishing to light cutting		PSS	TPMT090204-PSS	●	●	▲	▲														0.4	5.56	2.38	2.5		
			TPMT090208-PSS	●	●	▲	▲															0.8	5.56	2.38	2.5	
			TPMT110204-PSS	●	●	▲	▲															0.4	6.35	2.38	2.8	
			TPMT110208-PSS	●	●	▲	▲															0.8	6.35	2.38	2.8	
			TPMT110304-PSS	●	●	▲	▲															0.4	6.35	3.18	3.4	
			TPMT110308-PSS	●	●	▲	▲															0.8	6.35	3.18	3.4	
			TPMT130304-PSS	●	●	▲	▲															0.4	7.94	3.18	3.4	
			TPMT130308-PSS	●	●	▲	▲															0.8	7.94	3.18	3.4	
			TPMT16T304-PSS	●	●	▲	▲															0.4	9.525	3.97	4.4	
Finishing to medium cutting		PS	TPMT090202-PS	●	●	▲	▲														0.2	5.56	2.38	2.5		
			TPMT090204-PS	●	●	▲	▲															0.4	5.56	2.38	2.5	
			TPMT090208-PS	●	●	▲	▲															0.8	5.56	2.38	2.5	
			TPMT110202-PS	●	●	▲	▲															0.2	6.35	2.38	2.8	
			TPMT110204-PS	●	●	▲	▲															0.4	6.35	2.38	2.8	
			TPMT110208-PS	●	●	▲	▲															0.8	6.35	2.38	2.8	
			TPMT110304-PS	●	●	▲	▲															0.4	6.35	3.18	3.4	
			TPMT110308-PS	●	●	▲	▲															0.8	6.35	3.18	3.4	
			TPMT130302-PS	●	●	▲	▲															0.2	7.94	3.18	3.4	
			TPMT130304-PS	●	●	▲	▲															0.4	7.94	3.18	3.4	
			TPMT130308-PS	●	●	▲	▲															0.8	7.94	3.18	3.4	
			TPMT16T304-PS	●	●	▲	▲															0.4	9.525	3.97	4.4	
			TPMT16T308-PS	●	●	▲	▲															0.8	9.525	3.97	4.4	
			Finishing to medium cutting		TM	TPMT110204-TM	●	●															0.4	6.35	2.38	2.8
						TPMT110208-TM	●	●																0.8	6.35	2.38
TPMT110304-TM	●	●																			0.4	6.35	3.18	3.4		
TPMT110308-TM	●	●																			0.8	6.35	3.18	3.4		
TPMT16T304-TM	●	●																			0.4	9.525	3.97	4.4		
TPMT16T308-TM	●	●																			0.8	9.525	3.97	4.4		
Finishing to medium cutting		TSF	TPMT110204-TSF	●	●															0.4	6.35	2.38	2.8			
			TPMT110208-TSF	●	●																0.8	6.35	2.38	2.8		
			TPMT110304-TSF	●	●																0.4	6.35	3.18	3.4		
			TPMT110308-TSF	●	●																0.8	6.35	3.18	3.4		
			TPMT16T304-TSF	●	●																0.4	9.525	3.97	4.4		
			TPMT16T308-TSF	●	●																0.8	9.525	3.97	4.4		

T9200SERIES

TUNGALOY

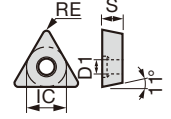
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

TurnLine - Insert POSITIVE TYPE



Triangular, 60°
with hole
Positive 11°

	P	M	K	N	S	H	Coated																
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		23 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		24 TPMT090204-24	●	●	▲											0.4	5.56	2.38
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	
PM 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

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

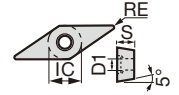
TurnLine - Insert POSITIVE TYPE

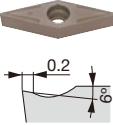
VB



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		24 VBMT160404-24	●	●	▲	▲												0.4	9.525	4.76	4.4
		VBMT160408-24	●	●	▲	▲													0.8	9.525	4.76

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

TurnLine - Insert POSITIVE TYPE

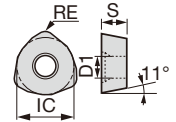
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

WP



Trigon, 80°
with hole
Positive 11°

	P	M	K	N	S	H
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

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

T9200SERIES

TUNGALOY

- : Continuous cutting
- : Light interrupted cutting
- ✶ : Heavy interrupted cutting

TurnLine - Insert POSITIVE TYPE

YW

Rhombic, 25°
with hole
Positive 7°



Material	Chipbreaker	T9215	T9225	T9115	T9125																	
P Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M Stainless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N Non-ferrous																						
S Superalloys																						
H Hard materials																						



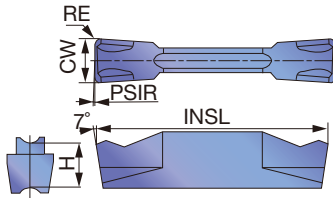
Application		Chipbreaker	Designation	Coated																RE	IC	S	D1												
				T9215	T9225	T9115	T9125																												
Finishing to medium cutting	ZF		YWMT11T202-ZF	●	▲																		0.2	4.679	2.78	2.3									
			YWMT11T204-ZF	●	▲																		0.4	4.679	2.78	2.3									
			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

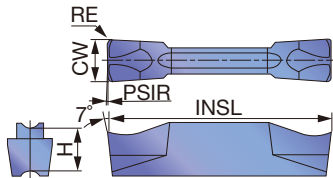


Designation	Insert seat size	CW \pm 0.05	RE	Coated		INSL	H	PSIRR/L
				T9225	T9125			
DGM2-020	2	2	0.2	●	▲	20	5	0
DGM3-020	3	3	0.2	●	▲	20	5	0
DGM4-030	4	4	0.3	●	▲	20	5	0
DGM5-030	5	5	0.3	●	▲	25	5.5	0
DGM6-030	6	6	0.3	●	▲	25	5.5	0
DGM8-040	8	8	0.4	●	▲	30	6.7	0

● : New product
▲ : To be discontinued

DGS

External grooving and parting off, 2 corner

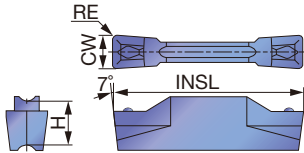


Designation	Insert seat size	CW \pm 0.05	RE	Coated		INSL	H	PSIRR/L
				T9225	T9125			
DGS2-020	2	2	0.2	●	▲	20	5	0
DGS3-020	3	3	0.2	●	▲	20	5	0
DGS4-030	4	4	0.3	●	▲	20	5	0
DGS5-030	5	5	0.3	●	▲	25	5.5	0
DGS6-030	6	6	0.3	●	▲	25	5.5	0

● : New product
▲ : To be discontinued

DTE

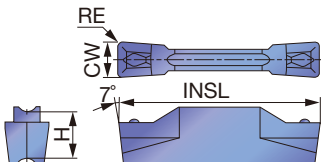
External, grooving and turning



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

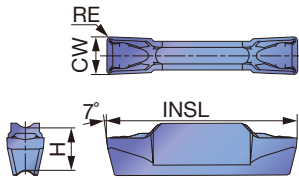


Designation	Insert seat size	CW \pm 0.05	RE	Coated		INSL	H
				T9225	T9125		
DTE3-040	3	3	0.4	●	▲	20	5
DTE4-040	4	4	0.4	●	▲	20	5

● : New product
▲ : To be discontinued

DTX

External, internal, face grooving and traversing

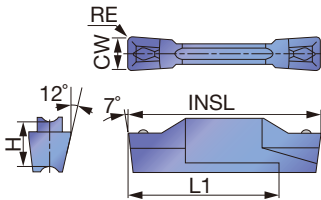


Designation	Insert seat size	CW \pm 0.05	RE	Coated		INSL	H
				T9225	T9125		
DTX3-030	3	3	0.3	●	▲	20	5
DTX4-040	4	4	0.4	●	▲	20	5
DTX5-040	5	5	0.4	●	▲	25	5.5

● : New product
▲ : To be discontinued

DTF

Face grooving and traversing

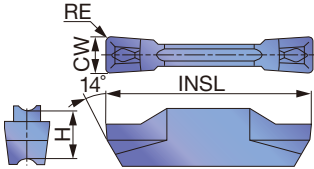


Designation	Insert seat size	CW \pm 0.05	RE	Coated				INSL	H	L1
				T9225		T9125				
				R	L	R	L			
DTF3-040-R/L	3	3	0.4	●	●	▲	▲	20	5	16
DTF4-040-R/L	4	4	0.4	●	●	▲	▲	20	5	16

● : New product
▲ : To be discontinued

DTI

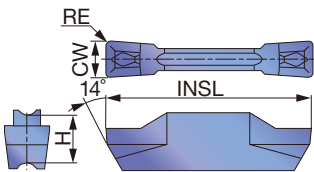
Internal grooving and turning (for high-precision machining)



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

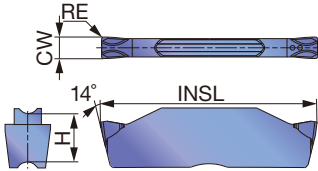


Designation	Insert seat size	CW \pm 0.05	RE	Coated		INSL	H
				T9225	T9125		
DTI3-040	3	3	0.4	●	▲	20	5
DTI4-040	4	4	0.4	●	▲	20	5

● : New product
▲ : To be discontinued

DGIM

Small diameter internal grooving

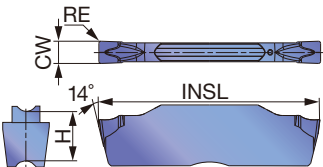


Designation	Insert seat size	CW \pm 0.05	RE	Coated		INSL	H
				T9225	T9125		
DGIM2-020	2	2	0.2	●	▲	20	5

● : New product
▲ : To be discontinued

DGIS

Small diameter internal grooving

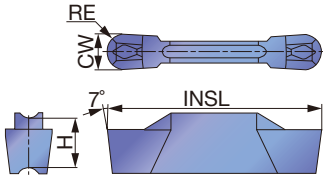


Designation	Insert seat size	W \pm 0.05	RE	Coated		INSL	H
				T9225	T9125		
DGIS2-020	2	2	0.2	●	▲	20	5

● : New product
▲ : To be discontinued

DTR

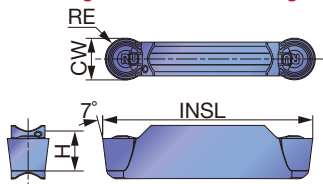
Profiling and undercutting (for high-precision machining)



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

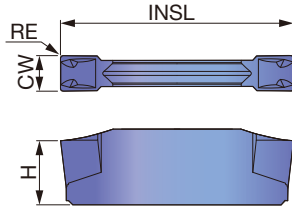


Designation	Insert seat size	CW \pm 0.05	RE	Coated		INSL	H
				T9225	T9125		
DTR3-150	3	3	1.5	●	▲	20	5
DTR4-200	4	4	2	●	▲	20	5
DTR5-250	5	5	2.5	●	▲	25	5.5
DTR6-300	6	6	3	●	▲	25	5.5
DTR8-400	8	8	4	●	▲	30	6.7

● : New product
▲ : To be discontinued

WGE

For general parting off and grooving

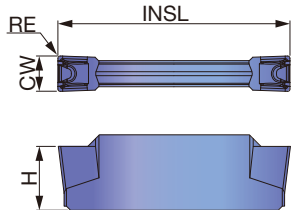


Designation	CW ^{+0.1} ₀	RE	Coated		INSL	H
			T9225	T9125		
WGE20	2	0.2	●	▲	20	4.7
WGE30	3	0.2	●	▲	20	5.5
WGE40	4	0.2	●	▲	25	5.7
WGE50	5	0.2	●	▲	25	5.9

● : New product
▲ : To be discontinued

WGT

Traversing (Grooving and parting off)

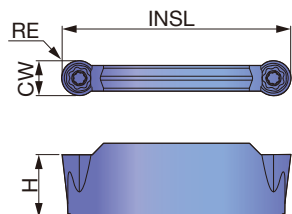


Designation	CW ^{+0.1} ₀	RE	Coated		INSL	H
			T9225	T9125		
WGT30	3	0.4	●	▲	20	5.5
WGT40	4	0.4	●	▲	25	5.7
WGT50	5	0.4	●	▲	25	5.9

● : New product
▲ : To be discontinued

WGR

Profiling (Full radius)

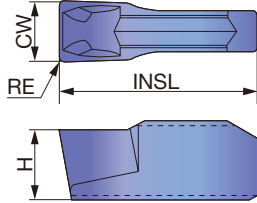


Designation	CW ^{+0.1} ₀	RE	Coated		INSL	H
			T9225	T9125		
WGR30	3	1.5	●	▲	20	5.5
WGR40	4	2	●	▲	25	5.7

● : New product
▲ : To be discontinued

GE

Grooving and parting off

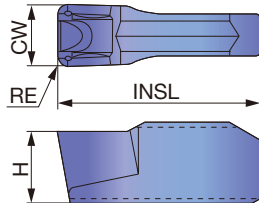


Designation	CW ^{+0.1} ₀	RE	Coated		INSL	H
			T9225	T9125		
GE30	3	0.2	●	▲	10	3.5
GE40	4	0.2	●	▲	10	4
GE50	5	0.2	●	▲	12	4.5

● : New product
▲ : To be discontinued

GT

Traversing (Grooving and parting off)

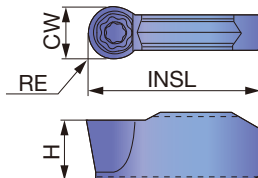


Designation	CW ^{+0.1} ₀	RE	Coated		INSL	H
			T9225	T9125		
GT50	5	0.4	●	▲	12	4.5

● : New product
▲ : To be discontinued

GR

Profiling (Full radius)

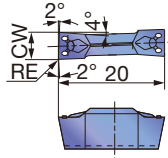


Designation	CW ^{+0.1} ₀	RE	Coated		INSL	H
			T9225	T9125		
GR40	4	2.0	●	▲	10	4
GR50	5	2.5	●	▲	12	4.5

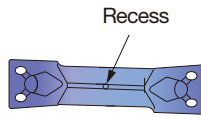
● : New product
▲ : To be discontinued

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

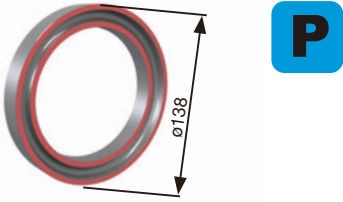
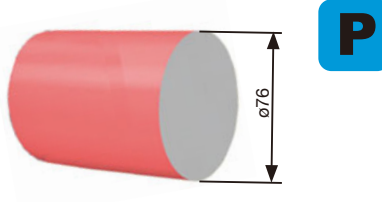
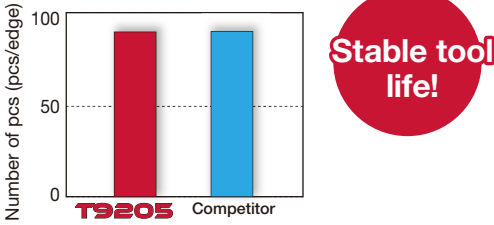
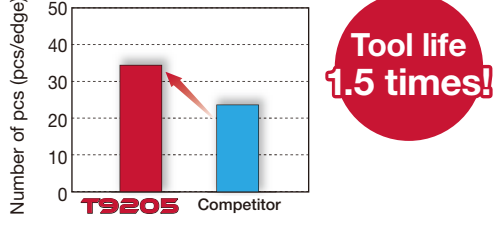
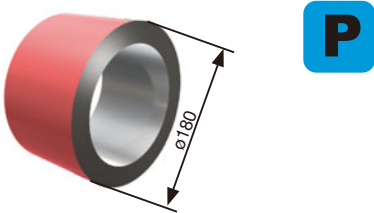
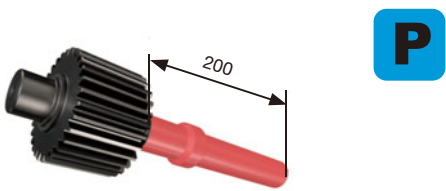
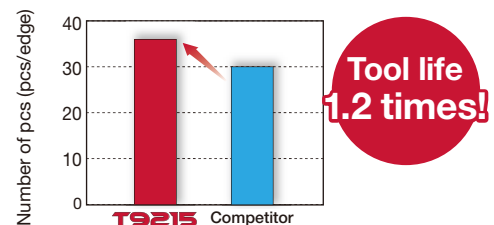
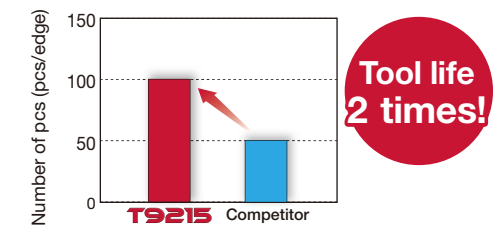
ISO	Operation	Chipbreaker	Grades	Depth of cut ap (mm)	Feed f (mm/rev)	Cutting speed: Vc (m/min)					
						Low carbon steels, alloy steels	Medium carbon steels, alloy steels	High carbon steels, alloy steels			
P	Finishing	TSF	T9205	0.2 - 1.5	0.08 - 0.4	180 - 400	180 - 400	150 - 350			
			T9215			150 - 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
		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				
M	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								
K	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

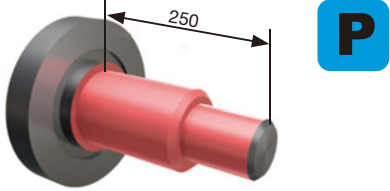
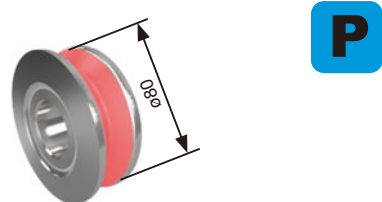
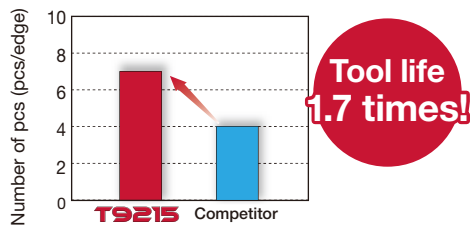
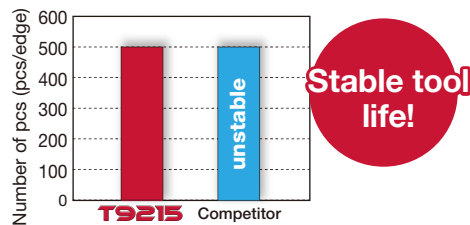
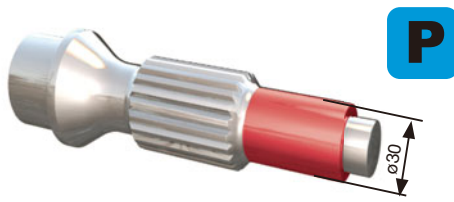
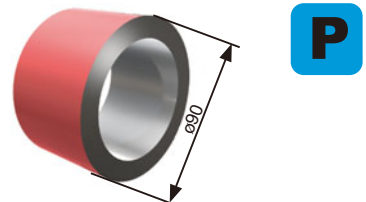
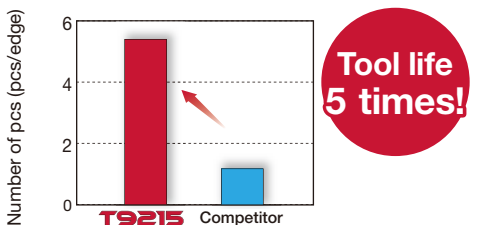
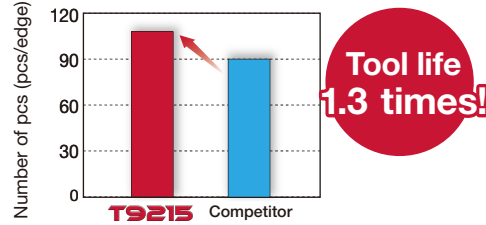
ISO	Operation	Chipbreaker	Grades	Depth of cut ap (mm)	Feed f (mm/rev)	Cutting speed: Vc (m/min)		
						Low carbon steels, alloy steels	Medium carbon steels, alloy steels	High carbon steels, alloy steels
P	Finishing	PSF	T9215	0.1 - 0.5	0.05 - 0.3	120 - 350	100 - 350	80 - 250
			T9225			100 - 300	80 - 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	
						Stainless steel		
M	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					
						Cast iron		
K	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					



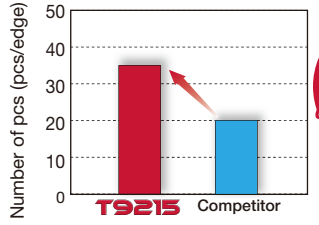
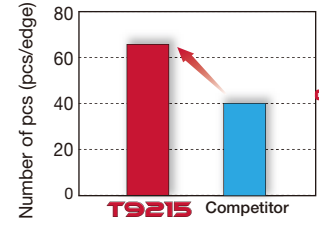
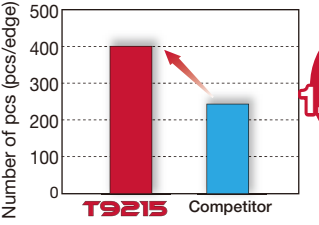
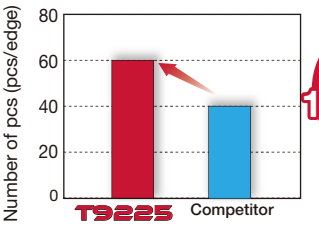
PRACTICAL EXAMPLES

Workpiece type	Automotive part	Machine parts
Insert	DNMG150412-DM	CNMG120408-TM
Grade	T9205	T9205
Workpiece material	S45C / C45	Alloy steel
Workpiece material		
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>T9205 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>T9205 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	T9215	T9215
Workpiece material	S45C / C45	Alloy steel
Workpiece material		
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>T9215 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>T9215 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>

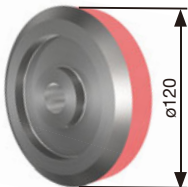
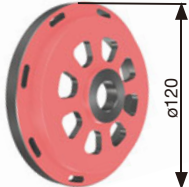
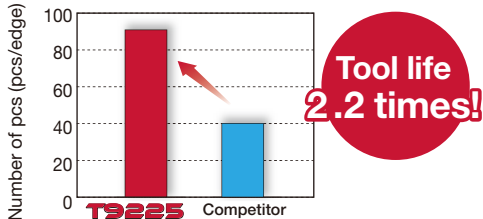
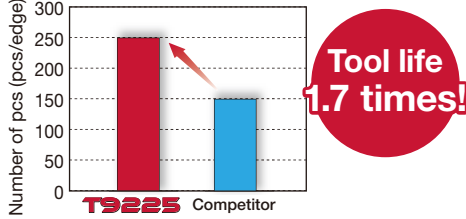
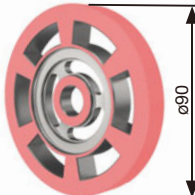
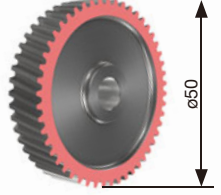
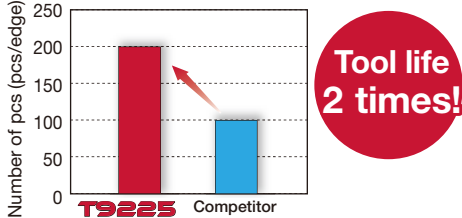
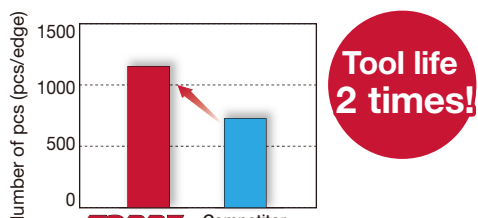
PRACTICAL EXAMPLES

Workpiece type	Shaft	Bearing part
Insert	CNMG120408-TM	DNMG150408-AM
Grade	T9215	T9215
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>Tool life 1.7 times!</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>Stable tool life!</p> <p>T9215 decreases the occurrence of sudden breakage and achieves stable processing!</p>
	Workpiece type	Shaft
Insert	DNMG150412-TM	DNMG150608-TM
Grade	T9215	T9215
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>Tool life 5 times!</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>Tool life 1.3 times!</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>

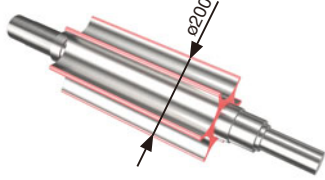
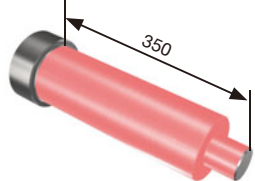
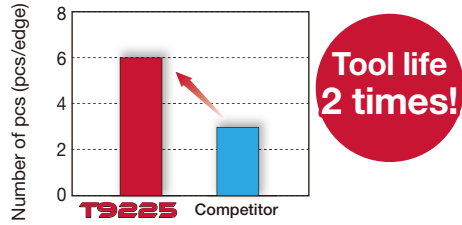
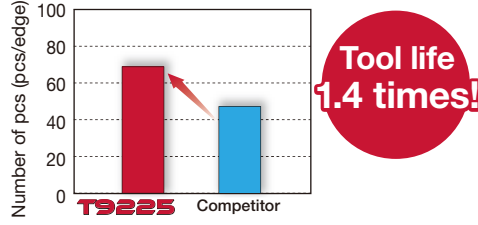
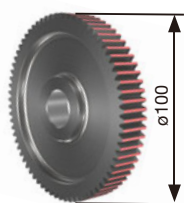

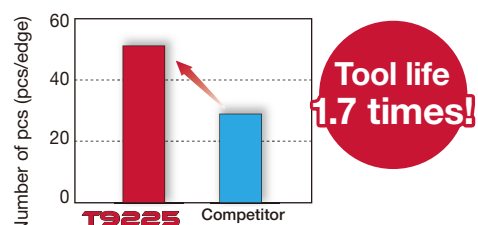
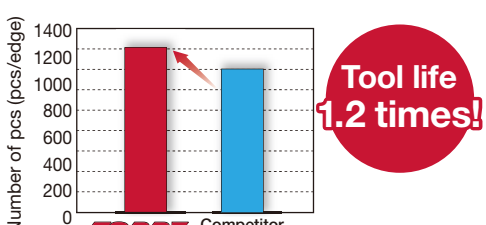
PRACTICAL EXAMPLES

Workpiece type		Automotive part	Automotive part
Insert		WNMG080408-AM	WNMG080408-AM
Grade		T9215	T9215
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>Number of pcs (pcs/edge)</p> <p>Tool life 2 times!</p> <p>Our newest grade, T9215, has outstanding wear resistance and extended tool life by 2.0 times.</p>	 <p>Number of pcs (pcs/edge)</p> <p>Tool life 1.6 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		T9215	T9225
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>Number of pcs (pcs/edge)</p> <p>Tool life 1.6 times!</p> <p>Our newest grade, T9215, has outstanding wear resistance and extended tool life by 1.6 times.</p>	 <p>Number of pcs (pcs/edge)</p> <p>Tool life 1.5 times!</p> <p>T9225 provided better wear and fracture resistance and stability over the competitor, improving tool life by 1.5 times.</p>

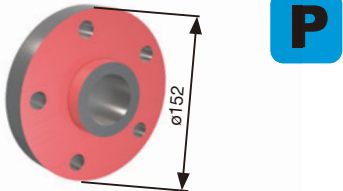
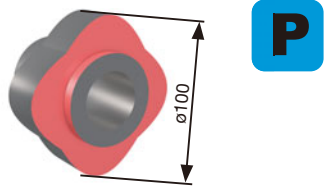
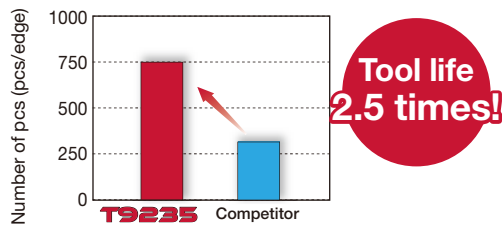
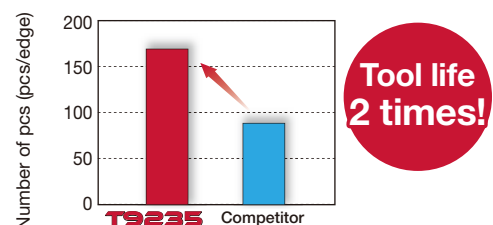
PRACTICAL EXAMPLES

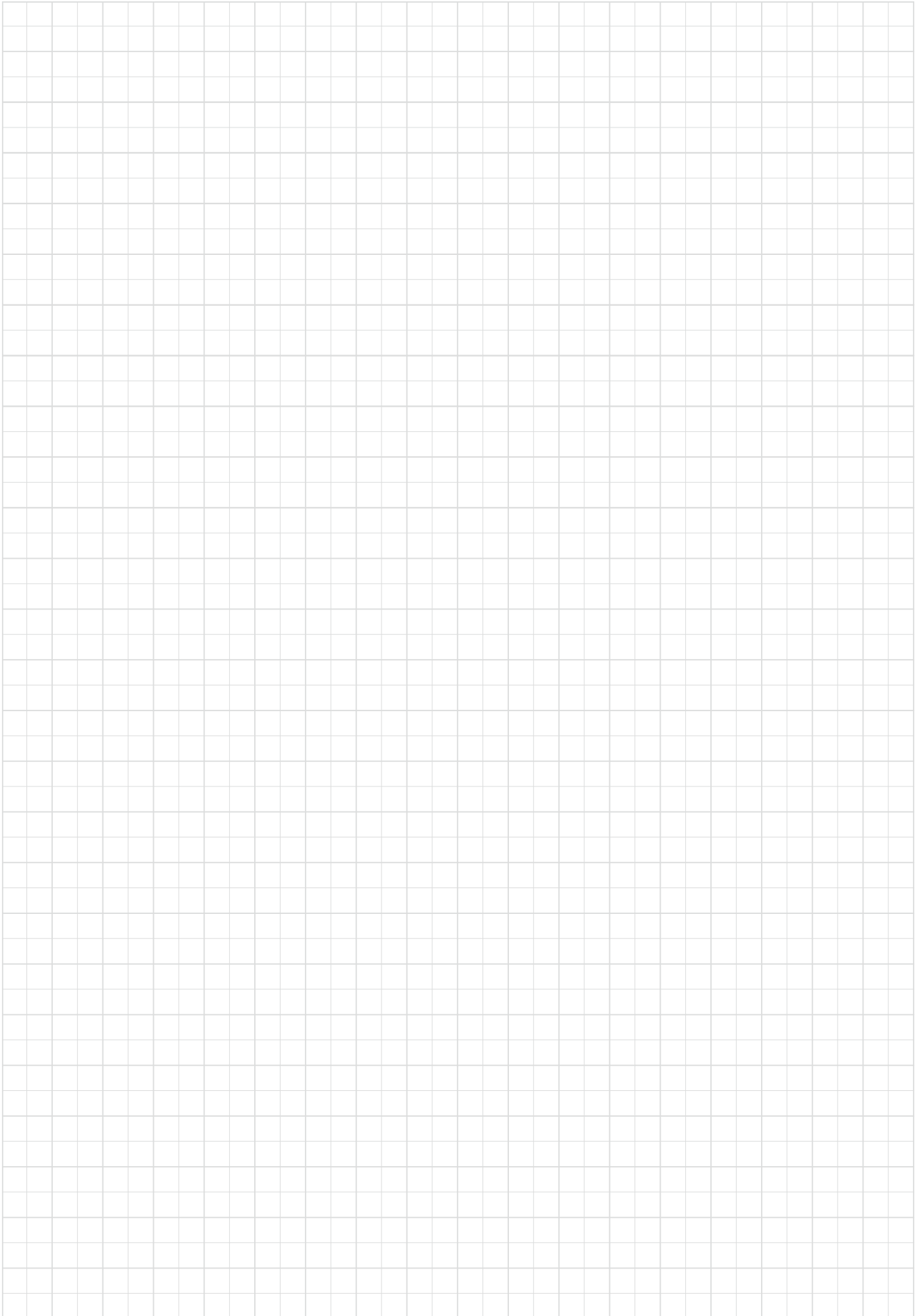
Workpiece type		Pulley parts	Clutch parts	
Insert		WNMG080408-TM	WNMG080412-TM	
Grade		T9225	T9225	
Workpiece material		SCM415  P	SCM420  P	
Cutting conditions	Cutting speed: V_c (m/min)	210	220	
	Feed : f (mm/rev)	0.25	0.3	
	Depth of cut : a_p (mm)	1.5	1.0	
	Coolant	Wet	Wet	
Results	 <p>Tool life 2.2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

PRACTICAL EXAMPLES

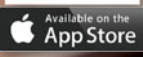
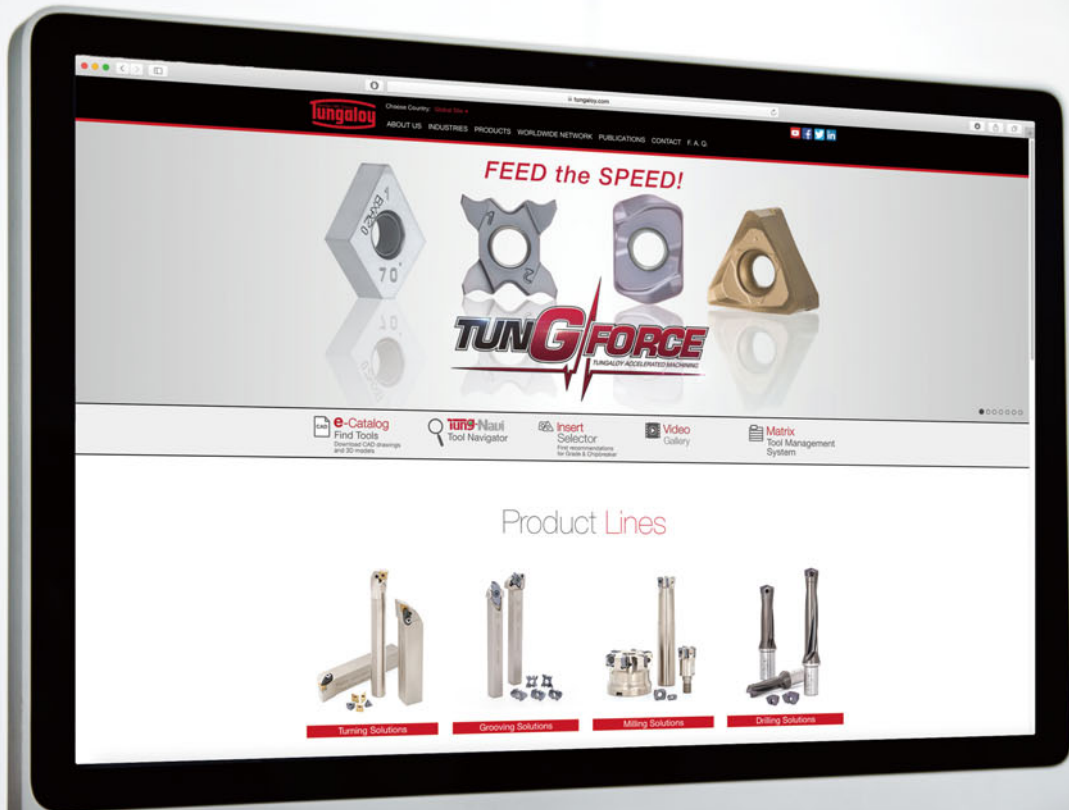
Workpiece type		Machine parts	Shaft parts
Insert		CNMG120408-TM	DNMG150408-AM
Grade		T9225	T9225
		S35C	SCM440
Workpiece material		 P	 P
Cutting conditions	Cutting speed: V_c (m/min)	150	180
	Feed : f (mm/rev)	0.25 - 0.4	0.3
	Depth of cut : a_p (mm)	0.5 - 1.5	1.0
	Coolant	Wet	Wet
Results		 <p>Tool life 2 times!</p> <p>T9225 doubled tool life and provided stability over the competitor during heavy interrupted cutting thanks to its superior fracture toughness.</p>	 <p>Tool life 1.4 times!</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		T9225	T9225
		SCM415	SCr420H
Workpiece material		 P	 P
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>Tool life 1.7 times!</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>Tool life 1.2 times!</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		T9235	T9235
		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>Tool life 2.5 times!</p> <p>T9235 extended tool life by 2.5 times, while also providing improved tool life stability.</p>	 <p>Tool life 2 times!</p> <p>T9235 doubled tool life, in addition to enhanced tool stability.</p>



Check our site and our App to get more info!



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