

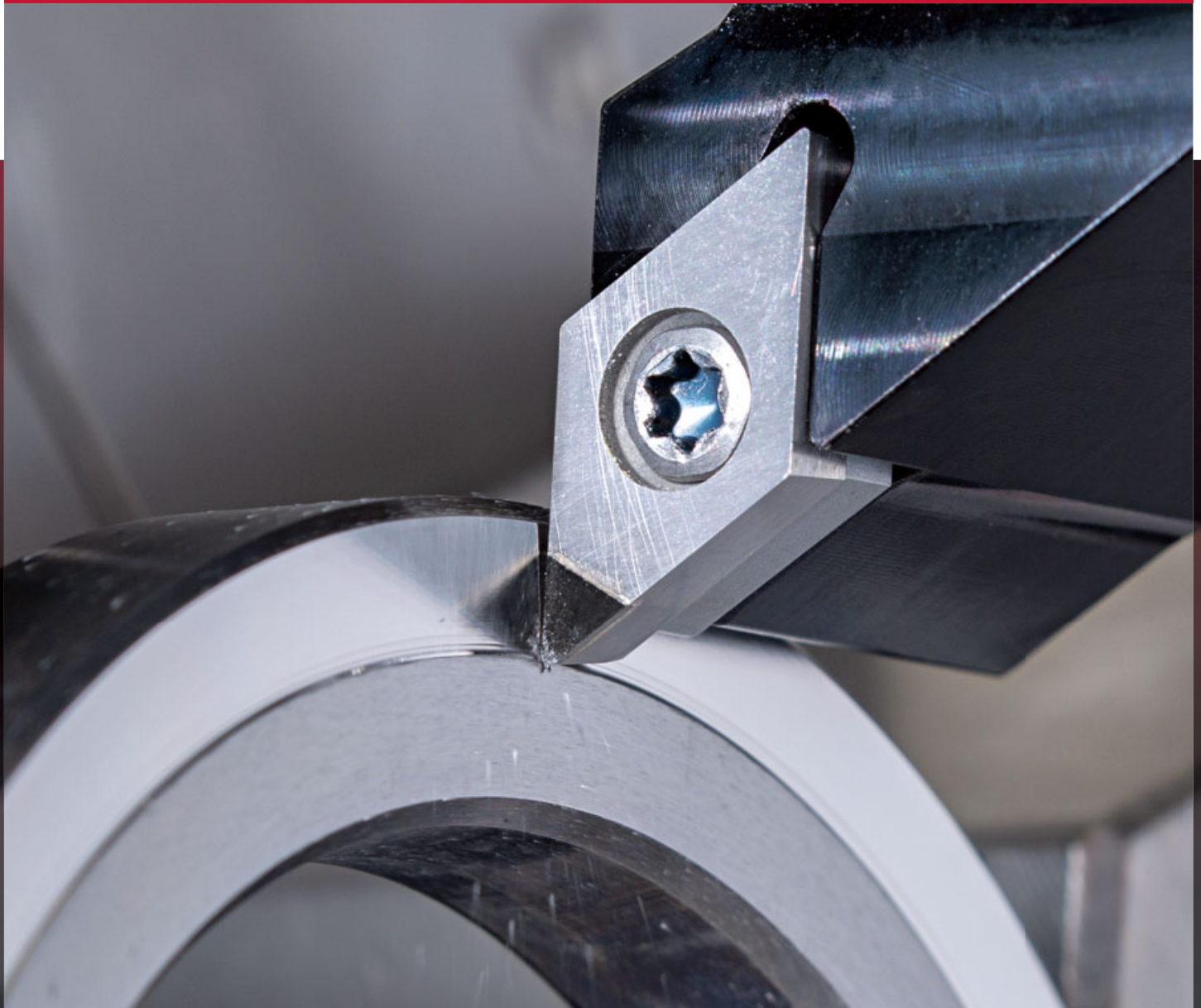


Turning tool

# PCD tools for superhard non-ferrous metals

Tungaloy Report No. 566-G

## Ultra-hard DX200 pure PCD grade for finishing super-hard non-ferrous metals





Also suitable for machining carbon fiber materials  
(FRPs and CFRPs)



## PCD tools for superhard non-ferrous metals

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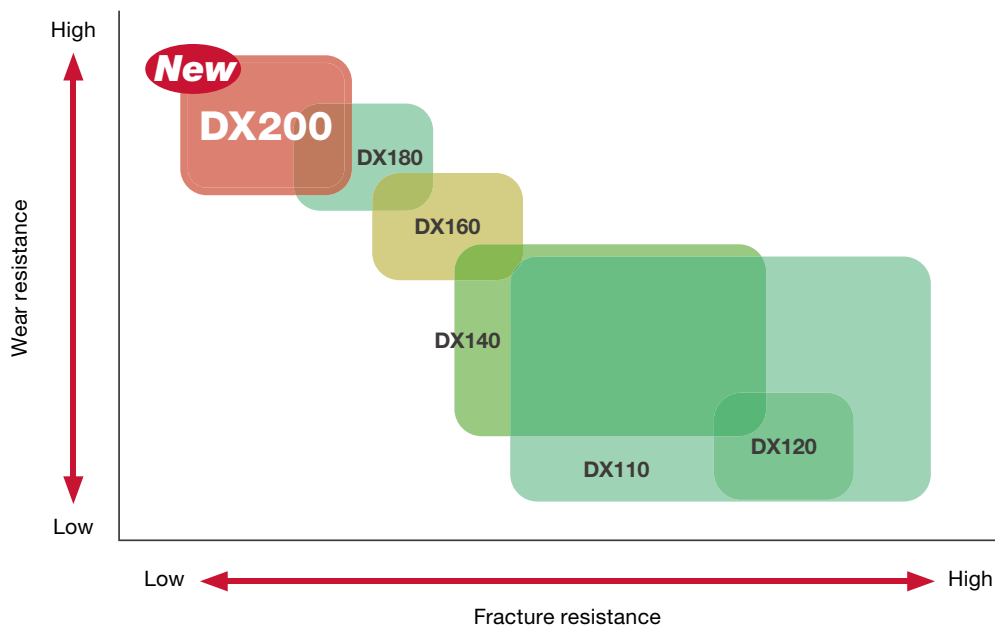


# PCD tools for superhard non-ferrous metals

## DX200 — Ultra hard grade with premium wear resistance

### ■ 100% diamond grade

- **DX200** has the highest hardness of all DX grades, making it ideal for machining tungsten carbide and other superhard non-ferrous metals.
- **DX200** has no catalyst metal such as binder in its structure that would cause contaminations of the machined surfaces. This feature makes the grade suitable for machining sputtering targets for semiconductor industries.



### ■ Sharp cutting edge

**DX200** has a sharp cutting edge that provides excellent surface finish.

Cutting edge shape



**DX200**

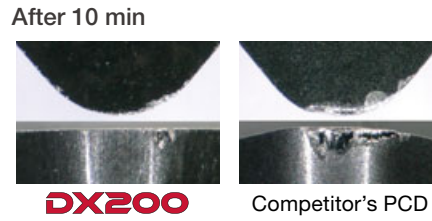
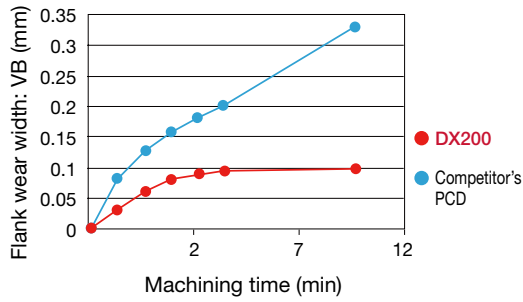


Conventional PCD grade



## Cutting performance

### Wear resistance (Machining of tungsten carbide)



**N**

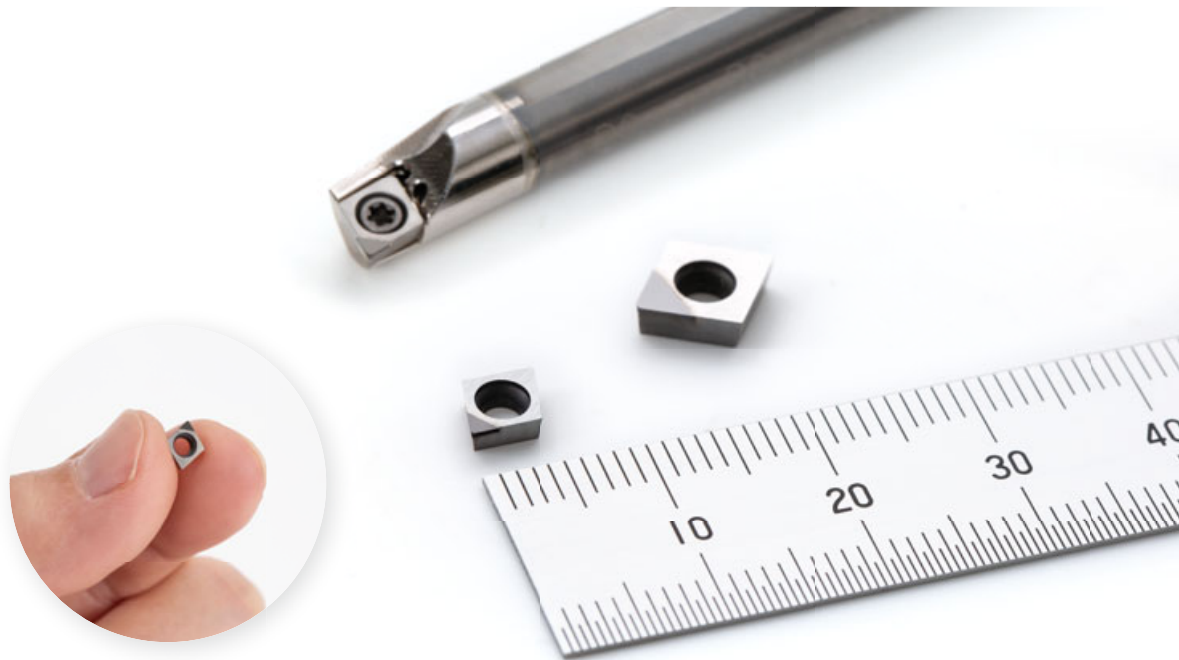
Insert : 1QP-DCGW11T304F  
DX200  
Workpiece material : Tungsten carbide (85HRA)  
Toolholder : SDJCL2525M11  
Cutting speed :  $V_c = 20$  m/min  
Feed :  $f = 0.1$  mm/rev  
Depth of cut :  $a_p = 0.1$  mm  
Coolant : Wet

**DX200 provides better wear resistance than competitor's PCD grade.**

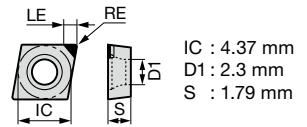
## New inserts for small-diameter bores

Standard DX200 grade inserts for small diameters from 5 mm.

**New**



## CC



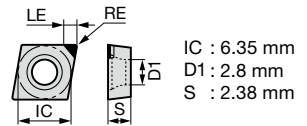
**80°Rhombic Positive 7° with hole**

Application		Dimension (mm)		No. of corners	Chipbreaker	DX200	Material compatibility grid									
		RE	LE													

Application	Designation	Dimension (mm)		No. of corners	Chipbreaker	DX200	Material compatibility grid									
		RE	LE													
Finishing	1QP-CCGW04T102F	0.2	1.7	1		●	Material compatibility grid									
	1QP-CCGW04T104F	0.4	1.6	1		●										

● : New product

## CC



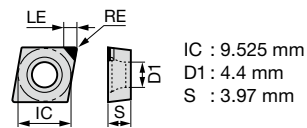
**80°Rhombic Positive 7° with hole**

Application		Dimension (mm)		No. of corners	Chipbreaker	DX200	Material compatibility grid									
		RE	LE													

Application	Designation	Dimension (mm)		No. of corners	Chipbreaker	DX200	Material compatibility grid									
		RE	LE													
Finishing	1QP-CCGW060202F	0.2	3.5	1		●	Material compatibility grid									
	1QP-CCGW060204F	0.4	3	1		●										

● : New product  
● : Line up

## CC



**80°Rhombic Positive 7° with hole**

Application		Dimension (mm)		No. of corners	Chipbreaker	DX200	Material compatibility grid									
		RE	LE													

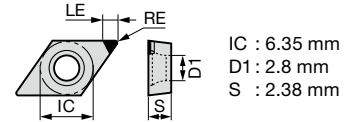
Application	Designation	Dimension (mm)		No. of corners	Chipbreaker	DX200	Material compatibility grid									
		RE	LE													
Finishing	1QP-CCGW09T302F	0.2	3	1		●	Material compatibility grid									
	1QP-CCGW09T304F	0.4	3	1		●										

● : Line up

# DC



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



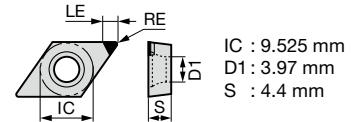
Application	Designation	Dimension (mm)		No. of corners	Chipbreaker	DX200															
		RE	LE																		
Finishing	1QP-DCGW070202F	0.2	3	1		●															
	1QP-DCGW070204F	0.4	3	1		●															

● : Line up

# DC



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



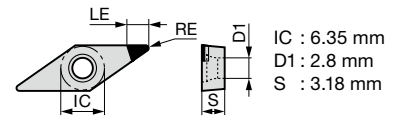
Application	Designation	Dimension (mm)		No. of corners	Chipbreaker	DX200															
		RE	LE																		
Finishing	1QP-DCGW11T302F	0.2	3	1		●															
	1QP-DCGW11T304F	0.4	3	1		●															
	1QP-DCGW11T308F	0.8	4	1		●															

● : New product  
● : Line up

# VC



**35° Rhombic  
Positive 7°  
with hole**



Application	Designation	Dimension (mm)		No. of corners	Chipbreaker	DX200															
		RE	LE																		
Finishing	1QP-VCGW11T302F	0.2	3.4	1		●															

● : New product

## STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Grade	Cutting speed Vc (m/min)	Feed f (mm/rev)	Depth of cut ap (mm)
<b>N</b>	Tungsten carbide (HRA80 - 95)	DX200	5 - 30	0.02 - 0.1	0.02 - 0.2
	FRP	DX200	500 - 1000	0.05 - 0.3	0.1 - 1
	CFRP	DX200	100 - 700	0.05 - 0.3	0.1 - 1
	Carbon	DX200	300 - 500	0.05 - 0.3	0.1 - 1
	Green ceramics	DX200	100 - 200	0.02 - 0.1	0.1 - 1
	Sputtering targets for semiconductor	DX200	10 - 100	0.02 - 0.1	0.02 - 0.2

## PRACTICAL EXAMPLES

<b>Workpiece type</b>		<b>Tungsten carbide rod</b>
<b>Insert</b>		1QP-DCGW11T304F
<b>Grade</b>		DX200
<b>Workpiece material</b>		Tungsten carbide
<b>Cutting conditions</b>	<b>Cutting speed : Vc (m/min)</b>	6
	<b>Feed : f (mm/rev)</b>	0.04
	<b>Depth of cut : ap (mm)</b>	0.1
	<b>Coolant</b>	Wet
	<b>Results</b>	



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