



Turning tool

Non-Ferrous Application Series

Tungaloy Report No. 555S2-G

**DX110 grade inserts with NS chipbreaker
now available with 0.1 and 0.2 mm nose radii**



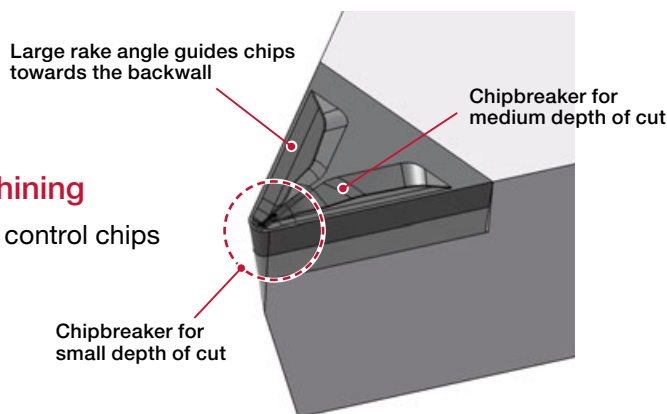
Non-Ferrous Application Series

Laser-processed 3D chipbreaker provides controlled definable chip breakage

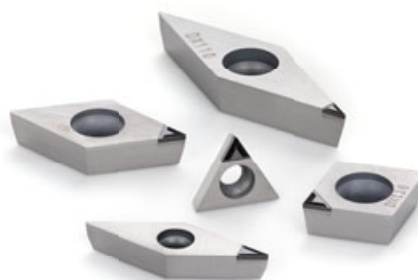
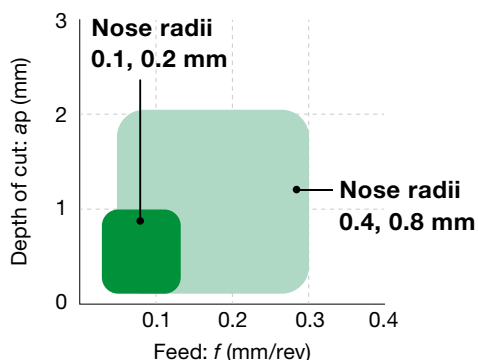
PCD inserts with 3D chipbreaker **NS BREAKER**

No more chip nesting in aluminum alloy machining

- Optimized geometry for small nose radii to effectively control chips
- Excellent chipbreaking in varying depths of cut

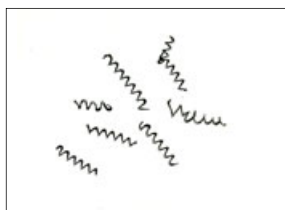


Recommended application ranges for NS chipbreaker

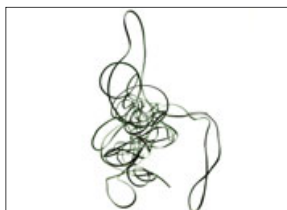


Chip control

DX110 **NS BREAKER**



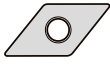
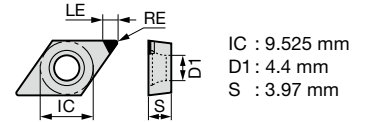
Competitor PCD insert with no chipbreaker



N	Insert	: 1QP-VCGT160402-NS
	Toolholder	: SVJCR2525M16
	Workpiece material	: A6061 / AIMg1SiCu
	Cutting speed	: $V_c = 500$ m/min
	Feed	: $f = 0.08$ mm/rev
	Depth of cut	: $a_p = 0.5$ mm
	Application	: External turning, continuous cut
	Coolant	: Wet

PCD inserts with NS chipbreaker provide excellent chip control.

DCGT11T3



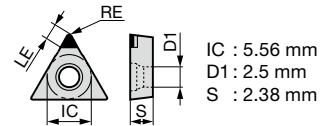
**55° Rhombic
 Positive 7°
 with hole**

		N Non-ferrous			●●									
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Application	Designation	Dimension (mm)		No. of corners	Chipbreaker	DX110														
		RE	LE																	
Finishing	1QP-DCGT11T301-NS	0.1	3.3	1	○	●														
	1QP-DCGT11T302-NS	0.2	3.2	1	○	●														
	1QP-DCGT11T304-NS	0.4	3	1	○	●														
	1QP-DCGT11T308-NS	0.8	3	1	○	●														

● : New
 ● : Line up

TCGT0902



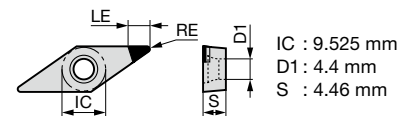
**60° Triangular
 Positive 7°
 with hole**

		N Non-ferrous			●●									
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Application	Designation	Dimension (mm)		No. of corners	Chipbreaker	DX110														
		RE	LE																	
Finishing	1QP-TCGT090202-NS	0.2	3.1	1	○	●														

● : New
 ● : Line up

VBGT1604



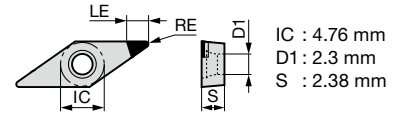
**35° Rhombic
 Positive 5°
 with hole**

		N Non-ferrous			●●									
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Application	Designation	Dimension (mm)		No. of corners	Chipbreaker	DX110														
		RE	LE																	
Finishing	1QP-VBGT160401-NS	0.1	2.8	1	○	●														
	1QP-VBGT160402-NS	0.2	3.4	1	○	●														
	1QP-VBGT160404-NS	0.4	3	1	○	●														
	1QP-VBGT160408-NS	0.8	3	1	○	●														

● : New
 ● : Line up

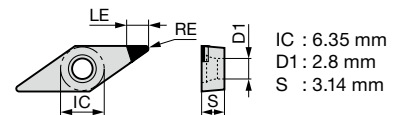
VCGT0802



		Dimension (mm)		No. of corners	Chipbreaker	DX110										
Designation		RE	LE													
Application																
Finishing	1QP-VCGT080202-NS	0.2	3.4	1	○	●										

● : New
 ● : Line up

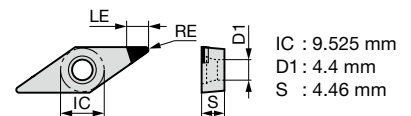
VCGT1103



		Dimension (mm)		No. of corners	Chipbreaker	DX110										
Designation		RE	LE													
Application																
Finishing	1QP-VCGT110302-NS	0.2	3.4	1	○	●										

● : New
 ● : Line up

VCGT1604





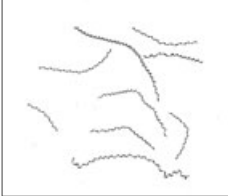



		Dimension (mm)		No. of corners	Chipbreaker	DX110										
Designation		RE	LE													
Application																
Finishing	1QP-VCGT160401-NS	0.1	2.8	1	○	●										
	1QP-VCGT160402-NS	0.2	3.4	1	○	●										
	1QP-VCGT160404-NS	0.4	3	1	○	●										
	1QP-VCGT160408-NS	0.8	3	1	○	●										

● : New
 ● : Line up

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Chipbreaker	Nose radius	Grade	Cutting speed Vc (m/min)	Feed f (mm/rev)	Depth of cut ap (mm)
N	Aluminum alloys (Si ≤ 12%)	NS	0.1, 0.2	DX110	300 - 2500	0.03 - 0.1	0.1 - 1
		NS	0.4, 0.8	DX110	300 - 2500	0.05 - 0.3	0.1 - 2
	Aluminum alloys (Si ≥ 12%)	NS	0.1, 0.2	DX110	300 - 800	0.03 - 0.1	0.1 - 1
		NS	0.4, 0.8	DX110	300 - 800	0.05 - 0.2	0.1 - 2
	Copper and copper alloys	NS	0.1, 0.2	DX110	300 - 1500	0.03 - 0.1	0.1 - 1
		NS	0.4, 0.8	DX110	300 - 1500	0.05 - 0.3	0.1 - 2

PRACTICAL EXAMPLES

Workpiece type		Semi-conductor component	Pipe
Insert		1QP-VBGT160402-NS	1QP-DCGT11T304-NS
Grade		DX110	DX110
		A5056 / AlMg5	A5052S / AlMg2.5
Workpiece material		 N	 N
Cutting conditions	Cutting speed : Vc (m/min)	300	400
	Feed : f (mm/rev)	0.07	0.1
	Depth of cut : ap (mm)	0.2	1
	Coolant	Wet	Wet
Results		 NS BREAKER  Competitor <p>While competitors PCD inserts suffered from chip re-cutting due to the absence of a built-in chipbreaker, DX110 grade inserts with NS chipbreaker delivered excellent surface finishes, eliminating chip re-cutting.</p>	 NS BREAKER  Competitor <p>DX110 with NS chipbreaker eliminated chip entanglement, which was the case with the competitor's PCD insert with no chipbreaker.</p>

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