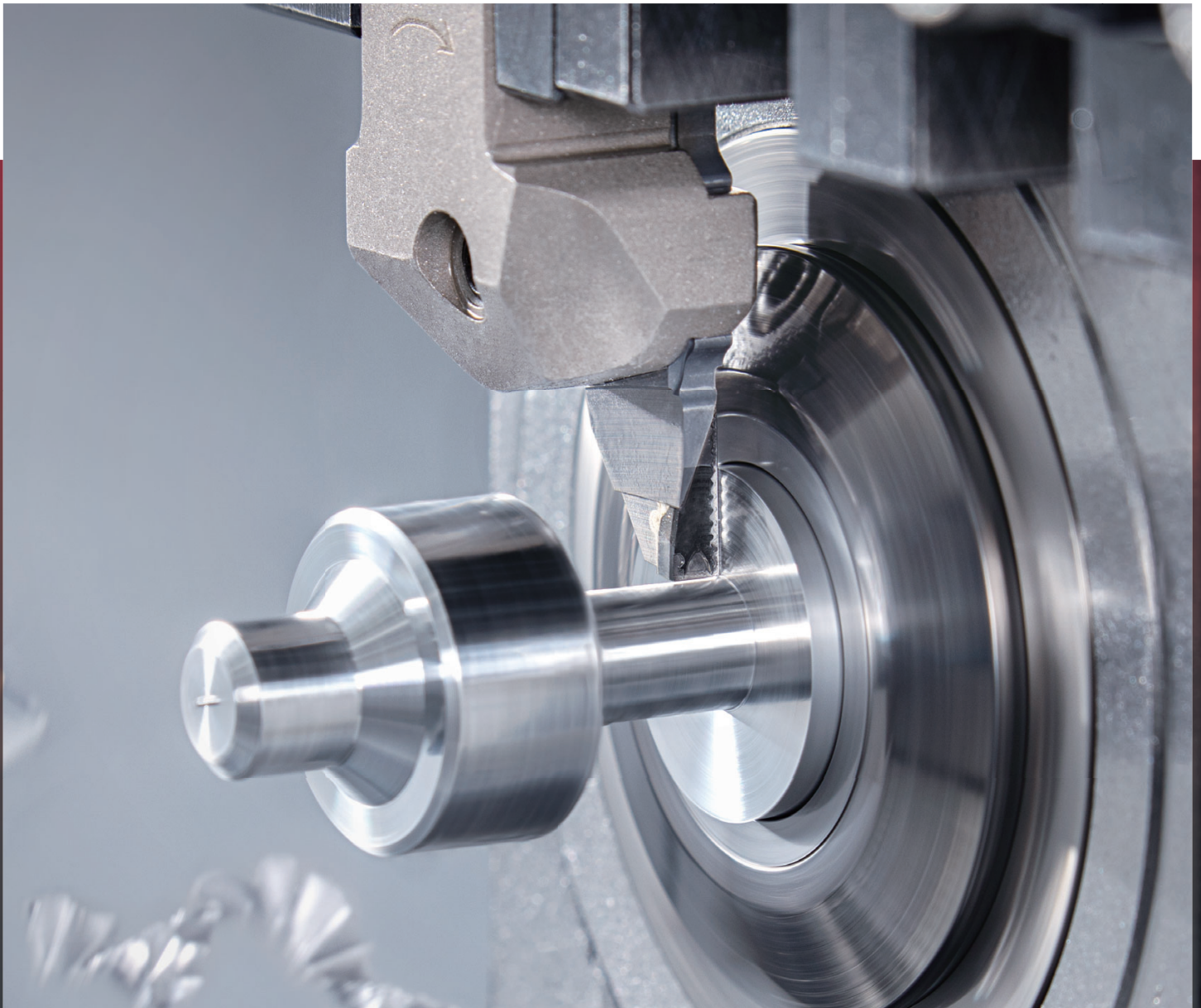


Parting off, Grooving, Threading Tools

DUO^{UST}**JCUT**

Tungaloy Report No. 504S2-G

PCD insert with 3D chipbreaker for machining aluminium parts

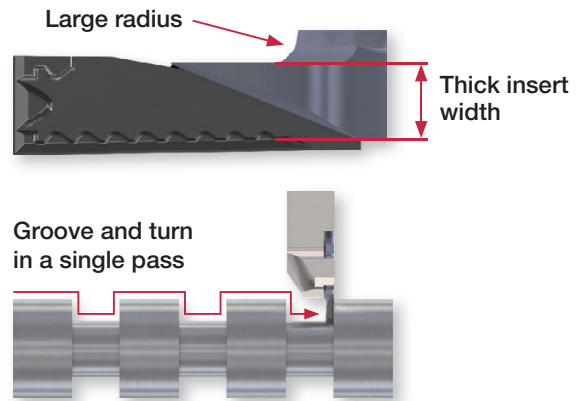




Dramatically improves the machining of aluminium spools for hydraulic valves

Extremely robust tool design

- Secure insert clamping and strong insert design of DuoJust-Cut prevents insert breakage when machining at high rates.
- Side-turning at up to 6 mm d.o.c. is possible.

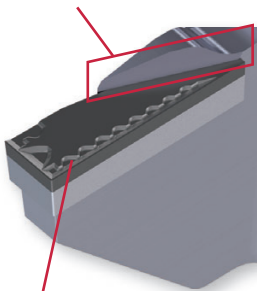


Chip control

- All-round chipbreaker geometry allows effective chip breaking regardless of the insert's depth of cut thanks to its 3D laser-etched style on the rake for small D.O.C and wall style for large D.O.C.

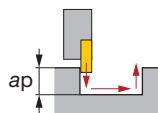
Chip control comparison (side turning)

Wall chipbreaker
For chip control at high D.O.C.



3D chipbreaker
For chip control at low D.O.C.

Insert : JXDX12R20F DX110
 Workpiece material : A6061
 Barstock diameter : $\phi 16$ mm
 Cutting speed : $V_c = 200$ m/min
 Coolant : Oil
 Machine : Swiss lathe



DUOJUST CUT

Depth of cut: a_p (mm)	6				
	5				
	4				
	3				
	2				
	1				
		0.05	0.07	0.1	0.15
Feed: f (mm/rev)					

Competitor

PCD insert with chipbreaker

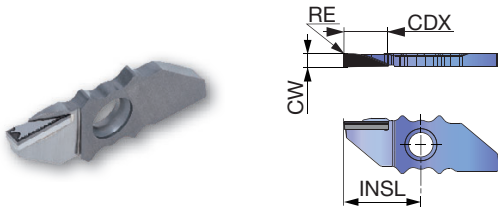
Depth of cut: a_p (mm)	6	Parameters out of the recommendations			
	5	Parameters out of the recommendations			
	4				PCD edge broken
	3				
	2				
	1				
		0.05	0.07	0.1	0.15
Feed: f (mm/rev)					

Excellent surface quality

- With submicron-sized diamond grains with very strong bonding, DX110 provides better surface finish and longer tool life than carbide inserts.

INSERTS

JXDX**R-F (PCD insert)



P	Steel								
M	Stainless								
K	Cast iron								
N	Non-ferrous		★						
S	Superalloys								
H	Hard materials								★ : First choice

Designation	HAND	CW±0.025	RE	PCD			CDX	INSL
				DX110				
JXDX12R20F	R	2	< 0.1	●			6	12.5
JXDX12R25F	R	2.5	< 0.1	●			6.5	12.5
JXDX16R25F	R	2.5	< 0.1	●			7	14.5

● : New product
Package quantity = 1 pc.

STANDARD CUTTING CONDITIONS

For aluminium and non-ferrous metal PCD insert

ISO	Workpiece materials	Grade	Operation	Cutting speed Vc (m/min)	Feed f (mm/rev)	Depth of cut ap (mm)
N	Aluminium alloys A5056, A6061, etc.	DX110	Grooving	100 - 300	0.03 - 0.15	-
			Turning	100 - 300	0.03 - 0.15	< 6

PRACTICAL EXAMPLES

Workpiece type		Spool	
Toolholder		JSXXR1212X09	
Insert		JXDX12R20F	
Grade		DX110	
Workpiece material		A6061	
Cutting conditions	Cutting speed: Vc (m/min)	300	
	Feed : f (mm/rev)	0.05	
	Depth of cut : ap (mm)	5	
	Machining	Grooving, Turning (in a single pass)	
	Coolant	Oil	
Results		 DUOJUST CUT	 Competitor PCD insert without chipbreaker
<p>Chip entanglements were common with the competitor's inserts. Featuring 3D laser-etched chipbreaker, DuoJust-Cut PCD insert improved chip control, eliminated chip entanglements.</p>			

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