

PureCut™

elementsix™

DE BEERS GROUP

Precision machining with PcBN

Competitive advantage through innovation

PureCut™ technology from Element Six is the next generation of polycrystalline cubic boron nitride (PcBN), providing tool makers with a step-change in productivity for the machining of hardened steel.

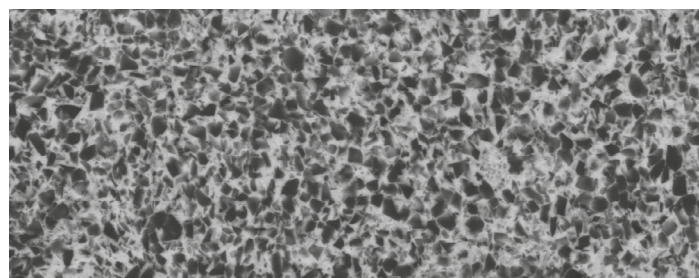
Designed for use in hard turning and finish hard milling at both conventional and elevated machining speeds, PureCut is the PcBN material of choice to extend tool life in machining by up to 50%, compared to industry benchmark grades, with no need to compromise between toughness and crater wear.

The strength and reliability of PureCut enable a wider application space window, with or without coatings.

PureCut™ DIA550

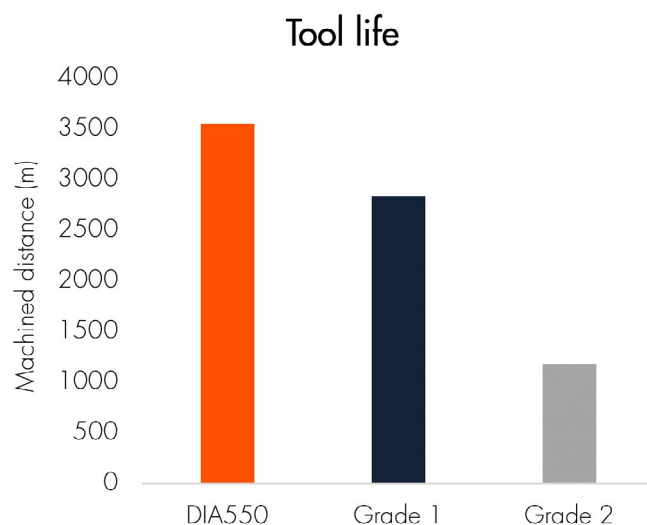
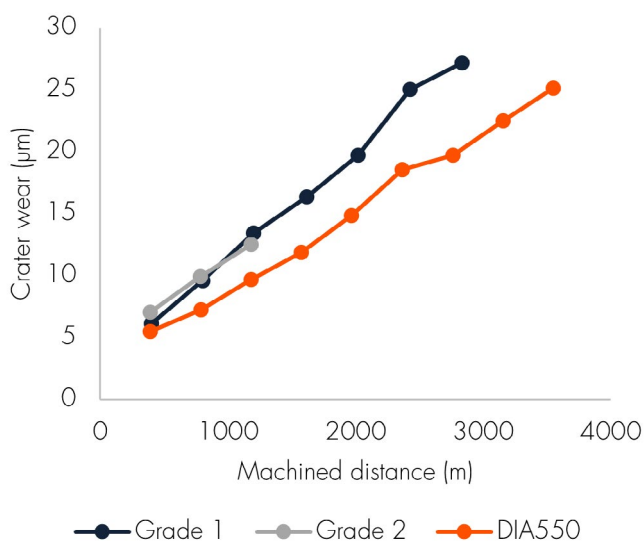
Precision machining with PcBN

For light to moderately interrupted hard turning and finish hard milling in both dry and wet conditions. Suitable for both conventional and elevated machining speeds.



20 µm

Target application: For light to moderately interrupted machining



Grade summary

Grade	CBN content (%)	PcBN format	Binder	CBN size (µm)	Speed (m/min)	DoC (mm)	Feed (mm/rev)	Chamfer angle (°)	Chamfer width (mm)	Hone (µm)	Nose radius (mm)
DIA550	55%	Solid	TiCN	~2 µm	110-250	0.05-0.30	0.05-0.50	15-35	0.05-0.50	15-35	0.40-1.60

Grade properties

	Density (g/cm ³)	Vickers hardness (GPa)	Young's modulus (GPa)	TRS (MPa)	Thermal diffusivity (mm ² /s)	Thermal conductivity (W/mK)
	Physical	Mechanical			Thermal	
DIA550	~4.1	33±2.5	640±20	1090±80	N/A	55±3



Element Six, part of the De Beers Group, designs, develops and produces synthetic diamond and other supermaterials, and operates worldwide with manufacturing facilities in Germany, Ireland, South Africa, UK and the US.

Element Six supermaterial solutions are used in applications such as cutting, grinding, drilling, shearing and polishing, while the extreme properties of synthetic diamond beyond hardness are opening up new applications in a wide array of industries such as optics, power transmission, water treatment, semiconductors and sensors.

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