

Amborite

DCC500

Element Six announces the availability of Amborite DCC500, designed for optimum performance in continuous hard turning at high cutting speeds.

Amborite DCC500 is a low CBN material with an average grain size of $1.5\mu\text{m}$ and a titanium carbide (TiC) binder. The material is available in a tungsten carbide-backed format.

This material has an extremely uniform microstructure, with fine CBN grains evenly distributed throughout the ceramic binder (Fig. 1), providing improved material properties and optimum wear resistance in application.

Increased chip resistance allows for the production of quality cutting edges, which are essential for high precision machining with excellent surface finish as required in industry today. Fig. 2 illustrates the utility of DCC500 in relation to the cutting edge geometry and severity of operation. Fig. 3 outlines how DCC500 complements existing Element Six 'low-content' PCBN grades.

Advantages

- Excellent performance in continuous and light interrupted cutting of a wide range of hardened steels and powder metallurgy steels up to 65HRC.
- Provides excellent tool life at cutting speeds up to 250 m/min.
- Improved homogeneity facilitates high quality cutting edges, capable of precision machining to a sub-micron surface finish.
- An extremely wear resistant material, offering a significant increase in tool life while retaining the integrity and hardness of the cutting edge.



High precision continuous hard turning with DCC500.

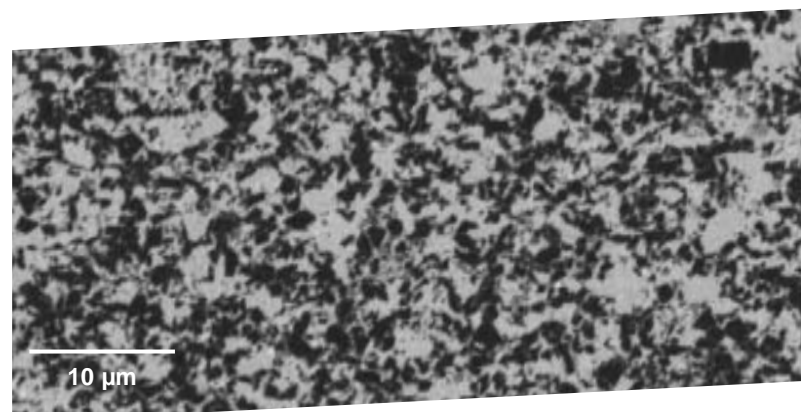


Fig. 1 Scanning electron micrograph of DCC500.

APPLICATIONS CHART

Amborite DCC500 is most suitable for high speed continuous turning operations with cutting speeds up to 250 m/min.

The grade also performs well in light to moderately interrupted turning applications by optimisation of the cutting edge geometry through the appropriate selection of edge-chamfer and hone dimensions.

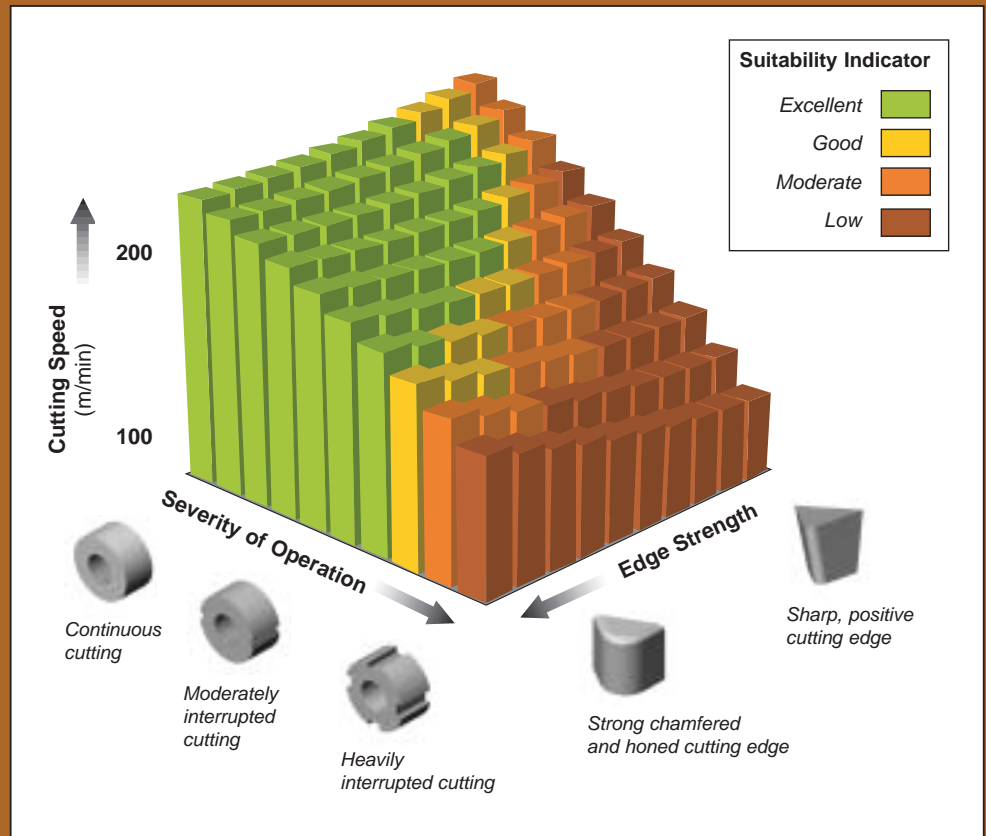


Fig. 2 Optimising the utility of DCC500 through the correct selection of edge geometry.

PERFORMANCE

Amborite DCC500 is a high performance complement to DBC50 for hard machining applications.

The use of the most modern manufacturing processes in the production of DCC500 makes this grade suitable for use at higher cutting speeds and in more severe cutting operations.

AVAILABILITY

Amborite DCC500 is available in discs of 57 mm diameter with several thickness dimensions. A wide range of high quality EDM cut segments can also be supplied.

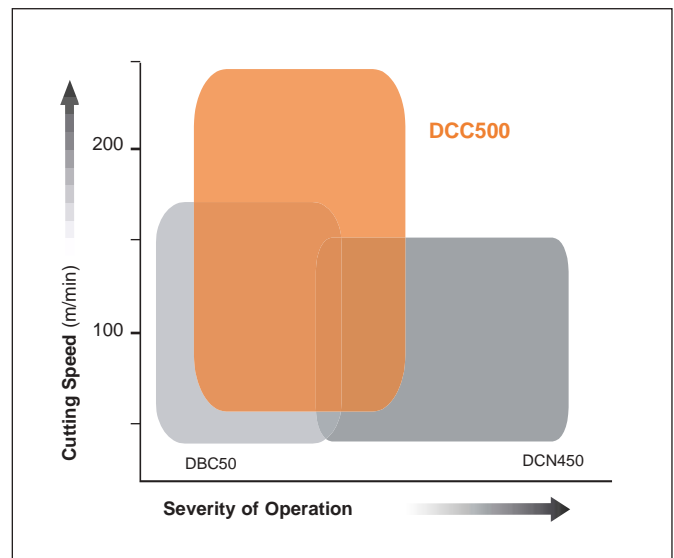
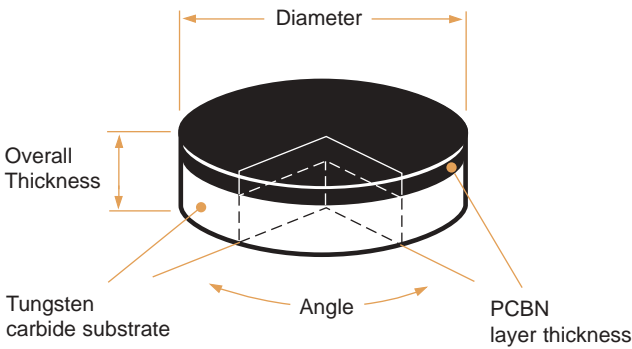


Fig. 3 DCC500 - A high performance complement to existing Element Six 'low-content' PCBN materials.



Product availability

Non-standard products (i.e. those not conforming to any listed specifications) may be supplied on request.

AMBORITE DCC500

Element Six Product No.	R571-36008	R572-36008	R573-36008	R574-36008
Diameter (mm)	57	57	57	57
Thickness (mm)	1.6	2.4	3.2	4.8
PCBN layer thickness (mm)	0.65 - 0.85	0.65 - 0.85	0.65 - 0.85	0.65 - 0.85

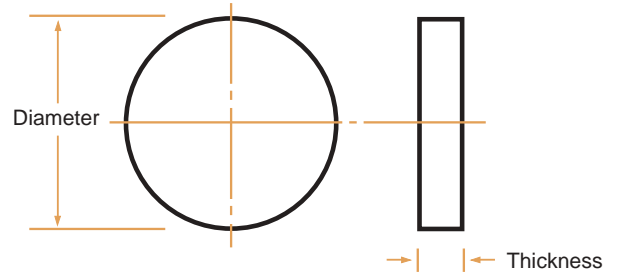


Table 1

DCC500 is available in a wide range of cut pieces. The table below illustrates some of the more widely used segment geometries and the associated product nomenclature and ordering codes.

RNMN120400	→	RNMN090300	→	RNMN060300
SNMN120300	→	L8.0-7.0-1.6	→	L5.2-3.0-1.6
TNMN110300	→	T3.8-60	→	T7.0-55-1.6

The following product description has been devised to aid customers when placing orders for cut segments.

L	5.2	3.0	1.6
↑	↑	↑	↑
Shape	Dimensions (mm)		Thickness (mm)

T	3.8	60	1.6
↑	↑	↑	↑
Shape	Dimensions (mm)	Angle (°)	Thickness (mm)

Ordering code consists of:

- A prefix which indicates the grade.
- A description of the geometry of the cut-product; i.e. the nomenclature system described above.
- A suffix indicating the approximate grain size (*specific to each grade of Amborite*).

Examples of ordering codes:

Discs	DCC500 R571-36008 002	DCC500 R572-36008 002
ISO full-top blanks	DCC RNMN120400 002	DCC500 SNMN120300 002
Cut segments	DCC500 L5.5-3.0-1.6 002	DCC500 T3.8-60-1.6 002

Table 2 Examples of nomenclatures for full top blanks suitable for grinding to ISO standard indexable inserts. (grinding allowance of 0.5 mm on insert inscribed circle.)

Examples of nomenclatures for cut segments.

Ordering codes; format and examples.

