

# Amborite

## DCN450

Element Six announces the availability of Amborite DCN450, an enhanced version of Amborite DBN45. This product has been designed to offer greater consistency in tool manufacture and improved performance in application.

Amborite DCN450 is a low content CBN material with a sub-micron grain size and a titanium nitride (TiN) binder material on a tungsten carbide base. This product retains all the positive characteristics of DBN45 but with improved homogeneity and consistency (Fig. 1).

Whilst maintaining the high hot-hardness and excellent wear resistance of DBN45, Amborite DCN450 is a stronger, tougher material with improved chip resistance, both in tool manufacture and in application. Greater uniformity in the materials microstructure unlocks the full potential of employing a sub-micron CBN grain size - providing for the manufacture of the highest quality cutting edges for the most demanding precision hard machining processes.

### AVAILABILITY

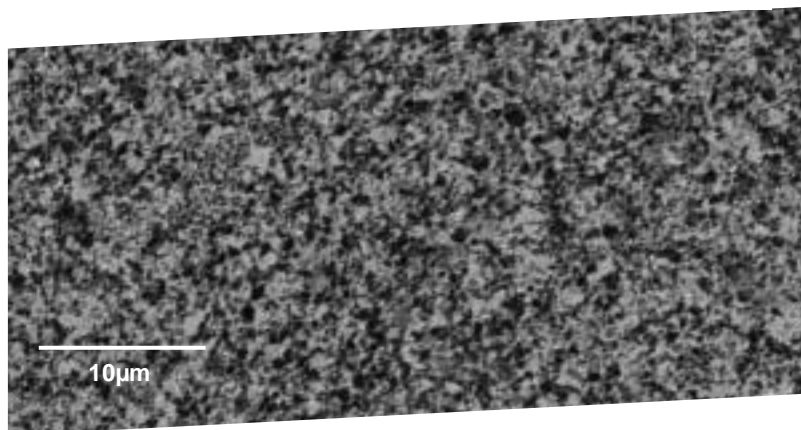
Amborite DCN450 is available, Table 1, with immediate effect in discs of 57mm diameter with several thickness dimensions. A wide range of high quality EDM cut segments can also be supplied. Table 2 illustrates some of the more widely used segment geometries and the associated product nomenclature.

## Advantages

- Suitable for light to moderately interrupted cutting of a wide range of hardened steels up to 65 HRC.
- Improved performance at cutting speeds up to 200 m/min, allowing for higher material removal rates.
- Provides for excellent cutting edge quality and capable of meeting the most exacting workpiece surface roughness requirements.
- High hot-hardness and wear resistance, delivering longer cutting tool life whilst maintaining the tightest workpiece dimensional tolerances.



*High precision interrupted hard turning with DCN450.*



*Fig. 1 Scanning electron micrograph of DCN450.*

## APPLICATIONS CHART

Amorite DCN450 is most suitable for continuous to moderately interrupted hard machining operations on steels with hardness values up to 65 HRC, including case-hardened, induction-hardened, ball-bearing and hot-work and cold-work tool steels.

Optimising the cutting edge geometry through the appropriate selection of edge-chamfer and hone dimensions, offers considerable flexibility in the application of Amorite DCN450.

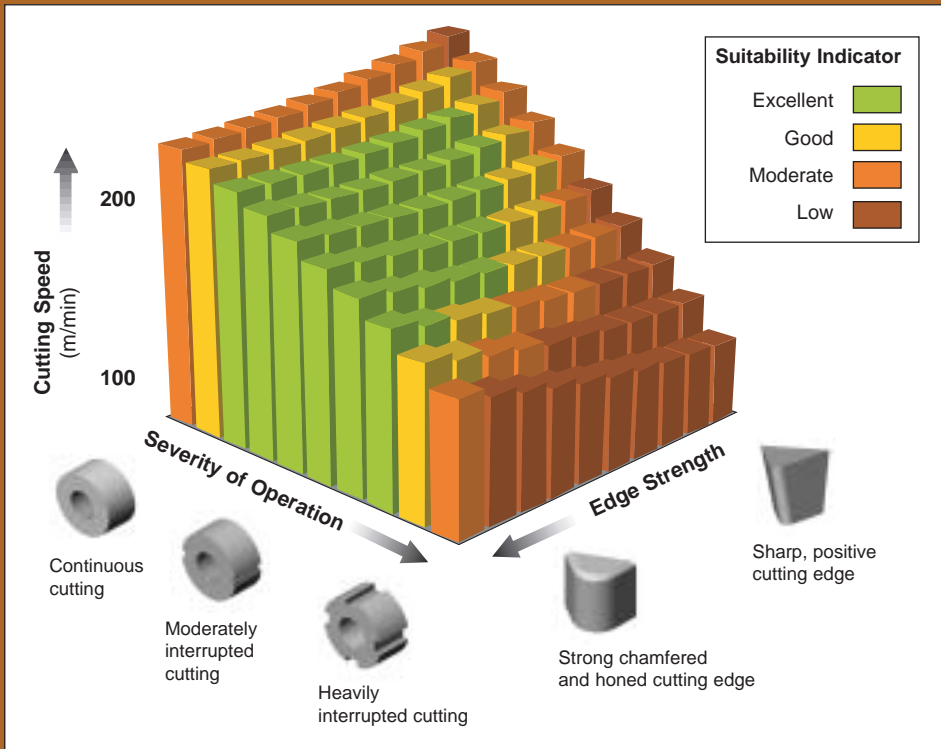
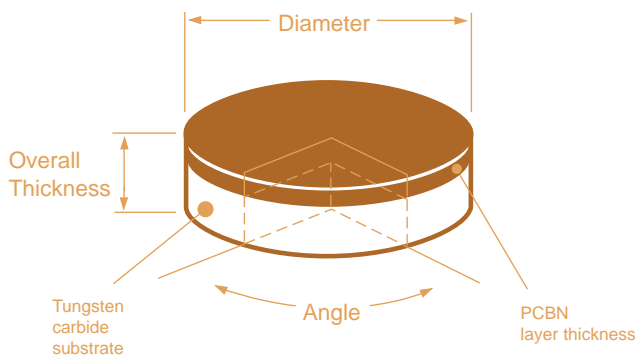


Fig. 2 Optimising the utility of DCN450 through the correct selection of edge geometry.



## AMBORITE DCN450

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

Table 1

DCN450 is available in a wide range of cut pieces. Samples of these are detailed below.

RNMN120400	→	RNMN090300	→	RNMN060300
SNMN120300	→	L8.0-7.0-1.6	→	L5.2-3.0-1.6
TNMN110300	→	T4.2-80-1.6	→	T3.0-55-1.6

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.

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

<b>L</b>	<b>5.2</b>	<b>3.0</b>	<b>1.6</b>
Shape	Dimensions (mm)		Thickness (mm)
<b>T</b>	<b>3.0</b>	<b>55</b>	<b>1.6</b>
Shape	Dimensions (mm)	Angle (°)	Thickness (mm)