

# Syndite

## CTM302

Element Six announces the availability of a new grade of Syndite polycrystalline diamond (PCD), namely CTM302.

This product extends the range of Syndite products to include a product with a unique combination of wear resistance, chip resistance and the ability to generate high quality workpiece surface finishes. Syndite CTM302 is available with immediate effect in 74mm diameter disc format, EDM cut segments and Enhanced Cut segments.

### MICROSTRUCTURE & PROPERTIES

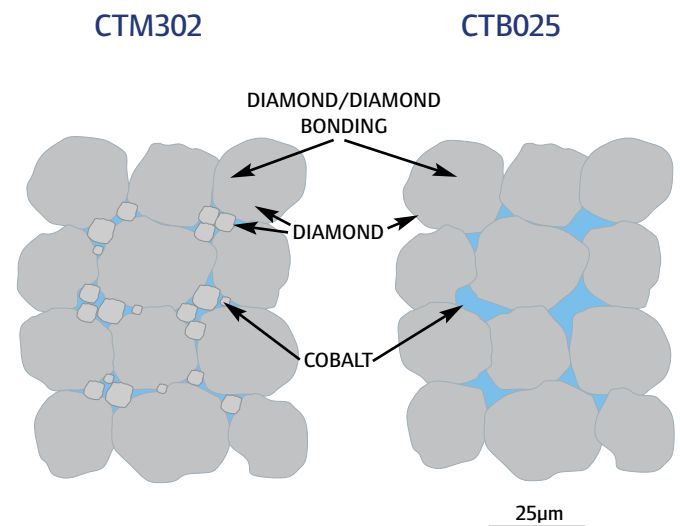
CTM contains a proprietary mix of micron diamond particle sizes between 30 and 2 $\mu$ m. A combination of this mix and carefully controlled sintering conditions increases the diamond packing density, which increases wear resistance (*fig.1*). The improved packing density in turn results in a higher degree of contiguity between diamond grains, thereby enhancing the chip resistance of the material (*fig.2*). An added advantage of the increased packing density is the quality of the ground edge which is superior to a normal coarse grained PCD. Filling the areas between coarse diamond grains with finer diamond yields a continuous as opposed to a rougher more irregular cutting edge.

### TOOL FABRICATION

CTM can be EDM cut and edge prepared by mechanical and spark erosion methods in a similar way to other Syndite coarse grades. However, some minor adjustments may be necessary to optimise existing processes.

## Advantages

- Increased packing density of diamond particles over CTB025 and carefully controlled sintering conditions result in improved *wear and chip resistance*.
- Optimisation of microstructure and hence mechanical properties also result in a more *continuous ground cutting edge*, enhancing workpiece surface finish.
- All-round improvements are seen in *turning, milling and workpiece surface finish*.



CTM302	CTB025
Improved packing density	Good packing density
More diamond-diamond bonding	Good packing bonds
Excellent wear resistance	Good wear resistance
Excellent chip resistance	Good chip resistance

fig.1

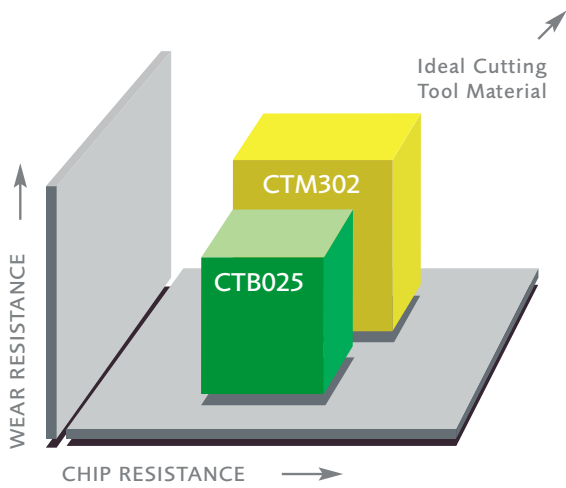


fig.2





## PERFORMANCE

CTM should be used in applications where:

- Improved wear resistance is required (turning).
- Improved chip resistance is required (milling).
- Improved workpiece surface finish is required (turning and milling).










## AVAILABILITY

CTM302 is available as detailed below. Cut pieces are available in a wide range of standard and non-standard sizes.

Syndite CTM302						
Product Nomenclature	Type	Shape	Dimensions (mm) diameter x thickness	Angle (°)	Layer Thickness	Grade
 CTM R741-36005/302	CTM	R	74 x 1.6	360	0.5	302
 CTM R742-36005/302	CTM	R	74 x 2	360	0.5	302
 CTM R741-36005PL/302	CTM	R	74 x 1.6	360	0.5	302
 CTM R742-36005PL/302	CTM	R	74 x 2	360	0.5	302

PL - Polished

CTM302 is available in a wide range of standard and non-standard cut pieces. Samples of these are detailed below.

 T123-60	←	 T71-90	→	 T31-90
 L13133	←	 L871	→	 L431
 R133-360	←	 R93-360	→	 R63-360