



STEVEN SEPVEST CORPORATION

CVD Diamond for Tools Data Sheet

We provide high quality low cost CVD Diamond fabricated by DC Arc Plasma Jet for cutting and dressing tools. Due to the extraordinary high concentration of atomic hydrogen produced by the arc discharge, cutting/dressing tool blanks fabricated by DC Arc Plasma Jet usually have a substantially higher thermal conductivity than those by other techniques even at a relatively high growth rate. This is apparently favorable for heavy load high speed cutting/dressing operations.

Our CVD Diamond has very low friction coefficient, high fracture strength and fracture toughness, very high thermal oxidation resistance, in combination with the high thermal conductivity, it is an ideal material for high performance cutting/dressing.

Our CVD Diamond is Polycrystalline, which is orientation independent.

We have the capability to manufacture large size electronics or optical grade polycrystalline CVD diamond, and high purity single crystal CVD diamond. Contact us for details.

Dresser Applications

Our CVD diamond dresser blanks are suitable for all dresser types - single point, multipoint, blade, rotary, roller etc. The choice of the size of dresser is determined by the application and suitable dimensions can be recommended on request.

Our CVD diamond dresser blanks have outstanding thermal properties and very high thermal oxidation resistance. It is ideal for secure mounting when using traditional non-ferrous metal sintering. Alternatively, the CVD diamond dressers can be brazed onto a dresser body using an active braze alloy in a non-oxidizing environment.

Our CVD Diamond has:

- High wear resistance to chipping and fracture
- Uniform wear resistance over the entire length of the dresser
- Performance independent of dressing orientation
- Excellent thermal stability
- Diamond with no binder phase

Cutting Applications

Our CVD diamond cutting tools are widely used for cutting (machining) non-ferrous materials, ceramics, abrasive composites, high silicon-content aluminum alloy, graphite and other difficult machining materials.

Our CVD Diamond has:

- Excellent wear resistance for a longer cutting duration
- Low friction coefficient for reducing the processing machining heat
- Perfect thermal conductivity for decreasing the temperature at the cutting edge
- High fracture strength and toughness for spiccato cutting
- Better dimensional and thermal stability for achieving good cutting quality



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Customization

We can laser cut to any size/shape. Lapping and Polishing are available per your requests.

Properties of CVD Diamond:

Vickers hardness	7000-10000kg/mm ²
Density	3.51g/cm ³
Young's modulus	1000-1100GPa
Thermal conductivity	>1000W/m. K
Chemical stability	insoluble in alkali or acid