CVD Turning and Milling Tools

Contour Fine Tooling Ltd
4 Wedgwood Court, Wedgwood Way, Stevenage, Hertfordshire, SG1 4QR, United Kingdom
Tel.: +44 (0) 1438 720044
Fax: +44 (0) 1438 705022
info@contour-diamonds.com

Contour Fine Tooling BV
De Vest 1C
5555 Hl, Valkenswaard, The Netherlands
Tel.: +31 (0) 40 2082363
Fax: +31 (0) 40 2082313
info@contour-diamonds.nl

Contour Fine Tooling KK
Koshino 24-11
Hachioji City, Tokyo 192-0361, Japan
Tel.: +81 (0) 42 689-4632
Fax: +81 (0) 42 689-4633
info@contour-diamonds.jp

Contour Fine Tooling Inc
143 Jeffrey Road
Marlborough, New Hampshire, 03455, USA
Tel.: +1 (603) 876-4908
Fax: +1 (603) 876-4991
info@contour-diamonds.us

Contour Fine Tooling
Av. Pedro Bueno, 976
Jd. Jabaquara, 04542-000
São Paulo - SP - Brasil
Tel.: +55 (0) 11 52304797
Fax: +55 (0) 30336399
info@contour-diamonds.com.br
www.contour-diamonds.com
Chemical vapor deposition (CVD) is a chemical process used to produce high-purity, high-performance solid materials.

It can be used to produce a polycrystalline synthetic diamond by creating the circumstances necessary for carbon atoms in a gas to settle on a substrate in crystalline form.

CVD production of diamonds has received a great deal of attention in the materials sciences because it allows many new applications of diamonds that had previously been considered too difficult to make economically.

CVD is generally recommended for machining non-ferrous materials where high abrasion resistance is required. It is very well suited to machine materials such as:

**PROPERTIES**
- 100% pure diamond – no binding phase
- Polycrystalline CVD diamond is grown, not sintered
- About 60% harder than PCD (~90 GPa)
- Better heat conductivity than PCD (2x10³ W/m/°K)
- Very fine crystal structure. At cutting edge < 1µm
- High resistance against chemical wear

**MATERIALS**
- Aluminium
- Copper
- Brass
- Bronze alloys
- Metal matrix composites
- Graphite
- Reinforced plastics
- Carbon fibre-based materials
- Sintered and pre-sintered tungsten carbide
- Plastics and rubber

Surface quality as well as the tool life of CVD will exceed those of PCD. For example on AlSi and Al-bronze alloys the CVD has a 1.5 to 2 times longer tool life than PCD. On graphite it has even a tool life up to 3 times better combined with a better surface quality.

Comparing sharpness of cutting edge, CVD is positioned between PCD and Single Crystal Diamond.

Contour is able to manufacture CVD tools with a new technology, which gives a much sharper cutting edge than the traditional edge preparation. The sharper cutting edge of Contour CVD tools is a distinct advantage over PCD tools and traditional ground on CVD tools.

In CVD diamond nearly any shape of tool can be manufactured. Parabolic forms, multiple radii, multiple profiles, etc.

Contour develops and manufactures CVD turning tools and CVD milling tools.