

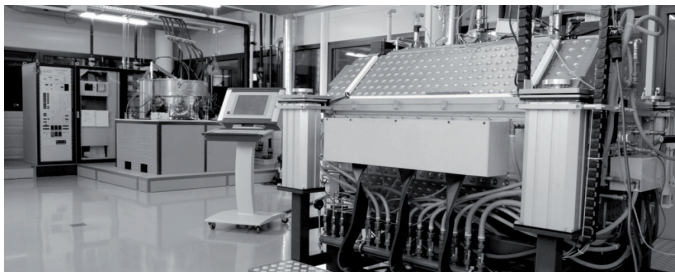
## neoDiam™ Services Features and descriptions

neoDiam™ Coating find their applications in customer's high-tech products.

## HFCVD Diamond Coatings

NeoCoat staff has many years of experience in developing its own large-scale HF-CVD reactors with following specifications:

- Diamond film deposition on a surface up to more than 0.5 m<sup>2</sup>
- Production capacity that allows coating large number of parts (10 to several thousands /week depending on part size).



Thanks to its proprietary specific nanoseeding pretreatment, NeoCoat can provide:

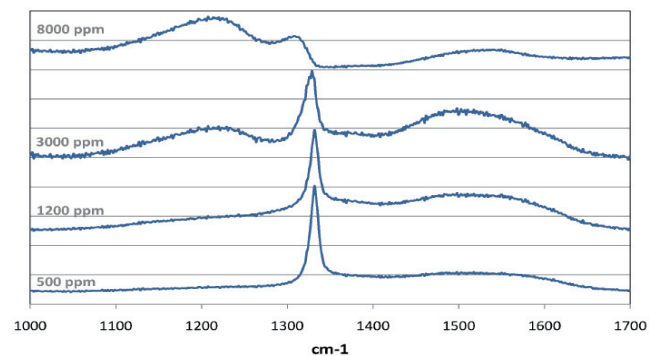
- Very thin Diamond film on steep shapes such as patterned wafers, microsystems or bearings.
- Microcrystalline diamond films with high sp<sup>3</sup> carbon purity and small grain size that induce low roughness and properties close to those of bulk diamond.

To ensure customer's satisfaction with the highest diamond coating quality, NeoCoat has implemented a strong Quality Assurance policy. Coating specifications are systemically controlled through NeoCoat's advanced metrology equipments (Raman spectroscopy, UV-VIS reflectometry, tribometer, etc.).

### Custom neoDiam™ coatings

Silicon based materials	p-Si, n-Si, SiC, Si <sub>3</sub> N <sub>4</sub> , SiO <sub>2</sub> , SOI, etc.
Other substrate materials	Nb, Ta, Ir, W, other refractory metals, carbides, sapphire, ceramics, other upon request
Substrate shape	3D structured, patterned, flat...
Substrate size	Up to 400 mm width, 1200mm long
Film structure	Microcrystalline or Nanocrystalline
Coating thickness	from less than 100 nm up to more than 20 μm
Boron concentration	100 - 10000 ppm
Thickness uniformity (3σ)	+/- 5% (within 100 mm)

### Raman characteristics of BDD coatings as function of boron concentration

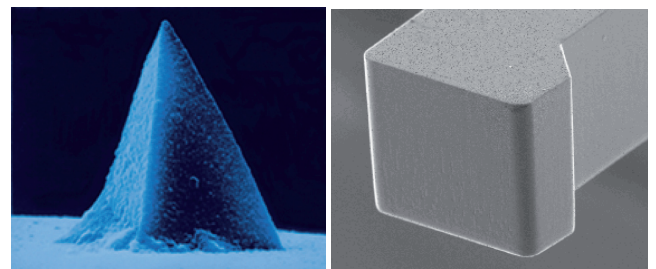


The highest the doping level is the more the sp<sup>3</sup> carbon band is shifted and broadened (mainly due to Fano effect).

### Some typical functional applications of neoDiam™ coatings

#### Microsystems

- Diamond coated AFM tips
- Massive molded AFM tips
- MEMS, DOI, temperature management, etc.



#### Sliding & mechanical parts, tribological improvement

- Diamond coated cutting tool and accessories
- Diamond coated rotary seals
- Micromechanical parts (e.g. watch industry...), etc.

