



TruDi 3-150 is a revolutionary new MW Plasma CVD deposition system for low temperature growth of diamond and graphene based films. This system enables poly crystalline diamond compatible thin film growth over a very broad range of materials for device integration, biocompatible coatings and other advanced applications.

The system specifically enables the separate control of substrate temperature and plasma temperature/density.

The TruDi 3-150 incorporates diffuse, low pressure pulsed plasma technology for high quality diamond film growth at temperatures <450°C with high growth rates and true scalability for large area uniform films in R&D and production processes.

TruDi 3-150 accommodates circular substrates up to 150 mm (6 inches) in diameter which are loaded/unloaded manually. An integrated PLC enables stable long term operation with monitoring of system parameters and safety.

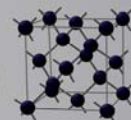
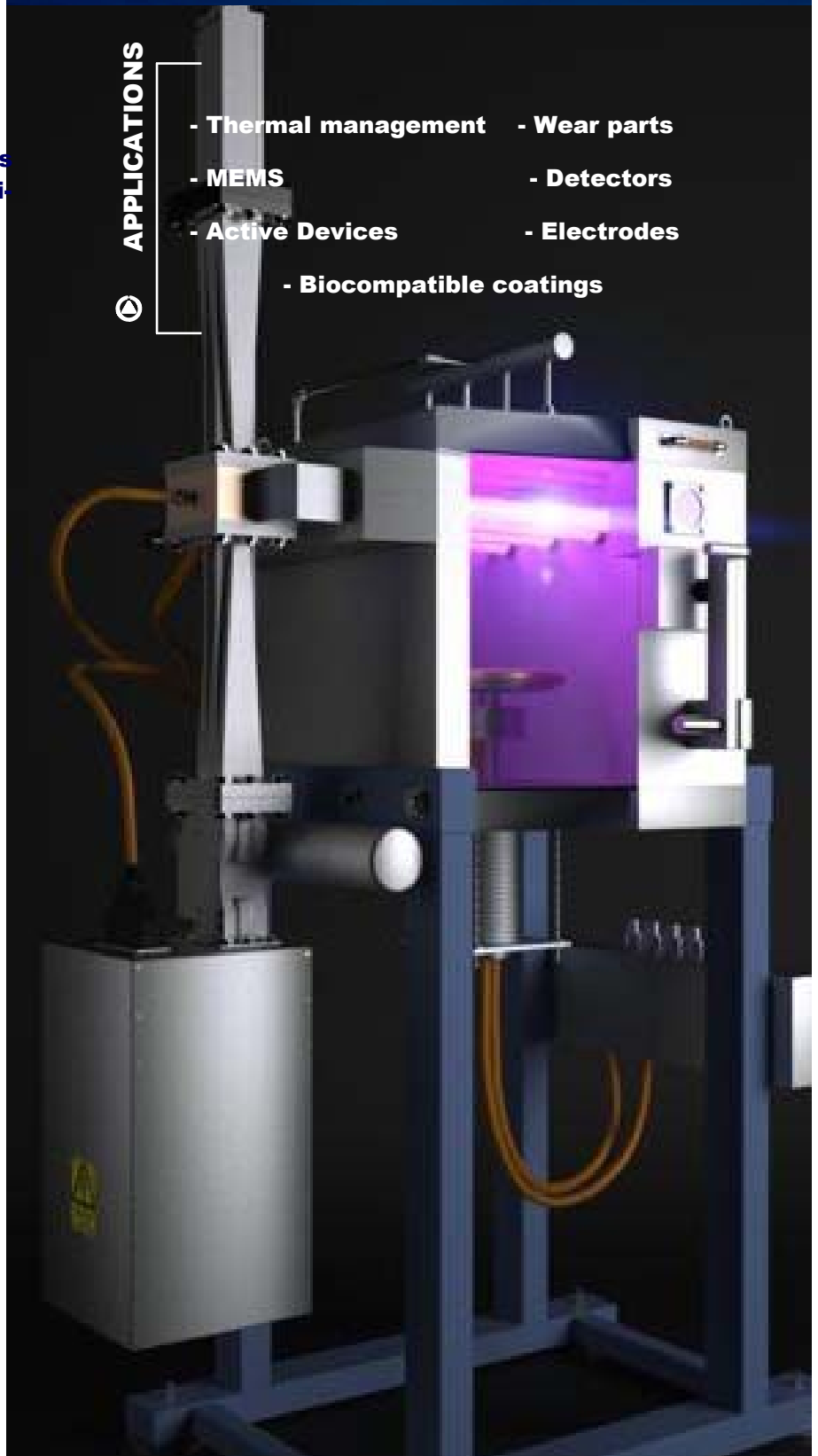


- Nanocrystalline**
- Microcrystalline**
- Homoepitaxial**
- Doped films**
- Hydrogenation**
- Oxidation**
- Graphene**

▶ TruDi 3-150

▶ APPLICATIONS

- Thermal management
- MEMS
- Active Devices
- Wear parts
- Detectors
- Electrodes
- Biocompatible coatings

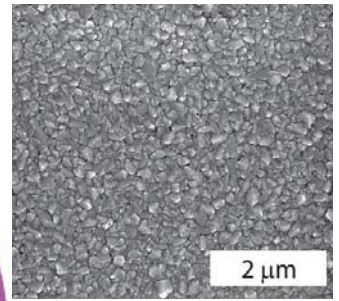


Applications

Low temperature deposition

Low temperature deposition of nanocrystalline diamond (NCD) layers with:

- High sp^3 content
- Over large areas > 6inch
- Wafer bow less than 20 μm



SEM image

Boron doped NCD

- Suitable for electrochemical applications
- Potential window > 3.5 eV
- Large current density
- B doping level > $2 \cdot 10^{21} \text{ cm}^{-3}$
- High sp^3 content

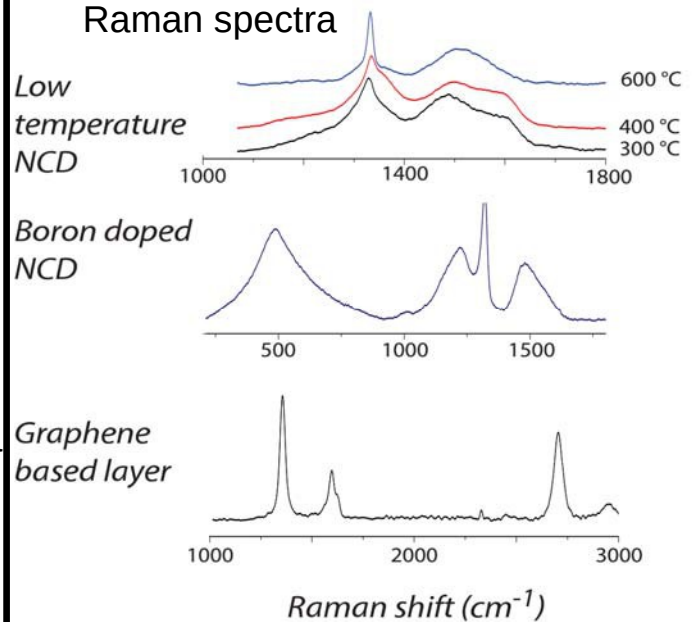
NCD coated 6 inch wafer with Al & Si_3N_4 pattern prepared at temperatures <450°C

Transparent boron doped conductive NCD layers prepared at temperatures < 600°C on glass

Graphene based layer

Growth of transparent (>90%) graphene layers over large areas at low deposition temperatures is enabled due to NCS3-150's unique plasma conditions (combination of low electron energies (1.5eV), high plasma densities (> $10^{11} / \text{cm}^3$) and low power density).

Raman spectra



Technical specification

Substrate table	Active heating and cooling	Microwave power	3 kW average/10 kW peak power
View and diagnostic Ports	2 viewports from above 2 viewports at substrate level 2 inclined viewports to share Common focus on substrate	Typical operating pressure	5 Pa - 300 Pa
		Base pressure	0.8 Pa



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