

neoCoat®-electrodes

Features and descriptions

Boron-doped-diamond (BDD) electrodes on metal substrates

NeoCoat® BDD-Electrodes have various shapes and sizes and can also be tailored to specific customer needs.

NeoCoat SA offers different types of BDD/Metal Electrodes. The electrodes consist of a polycrystalline boron-doped diamond (BDD) coating deposited on a metallic substrate (niobium, tantalum, tungsten). BDD/Me electrodes of NeoCoat are suitable either for waste water treatment or water disinfection.

Doped-Diamond Electrodes

NeoCoat has developed a large range of boron doped diamond (BDD) electrodes on metal substrates. In NeoCoat's facility high quality diamond coatings are deposited on large-scale HFCVD reactors.

To ensure customer's satisfaction with the highest quality diamond coatings, NeoCoat has implemented a strong Quality Assurance policy for guarantying customer satisfaction.

Electrode specifications are systemically controlled through NeoCoat's advanced metrology equipments (Raman spectroscopy, UV-VIS reflectometry, etc.).

NeoCoat is able to offer a wide variety of electrode shapes and sizes based on plates, grids, meshes, rods, cylinders...

Standard neoCoat® BDD/Me Electrodes

Standard BDD coating characteristics:

- Film thickness = 5 µm
- Boron concentration = 2500 ppm
- Resistivity = 15 mΩ.cm

Examples of standard available shapes, sizes and substrates:

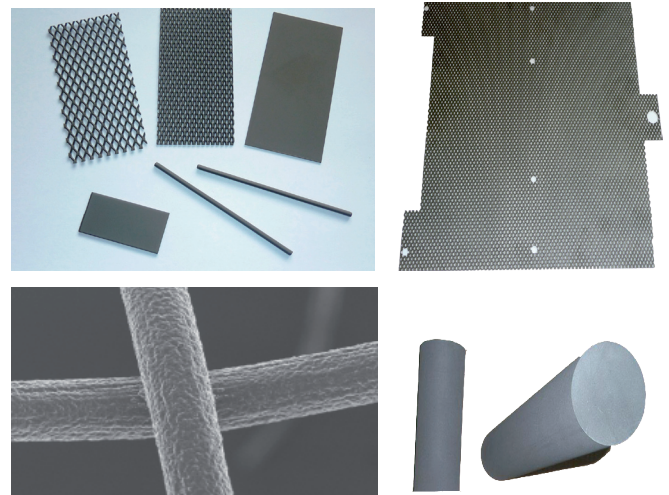
Substrates	Thickness (mm)	Shape / size (mm)	Coated side
Nb	1	mesh / 50 x 100	Bipolar (both)
Nb	1	mesh / 100 x 100	Bipolar (both)
Nb (or Ta)	1	rectangle / 25 x 50	Bipolar (both)
Nb (or Ta)	1	rectangle / 50 x 100	Bipolar (both)
Nb (or Ta)	2	square / 100 x 100	Bipolar (both)

Custom neoCoat® BDD/Me electrodes

Available features (upon request)

Substrate	niobium, tantalum, tungsten
Electrode shape	disc, square, rod, grid, mesh, custom
External size	customer-specific up to 400 x 1200 mm
Substrate thickness	0.5 - 100 mm (standard 1 - 2 mm)
BDD thickness	from 3 µm to several tens of µm
Boron concentration	500 - 10000 ppm
BDD resistivity (mΩ.cm)	1 - 100
Thickness uniformity (3σ)	+/- 5% (within 100 mm)
Current density	up to 500 mA/cm ²
Operating conditions	anode / cathode / bipolar electrodes
Resistance / stability	stable in harsh media (strong acids, bases, alcohols, oils, complexing agents, aromatics, etc.), high temperatures, heterogeneous media, etc.

Examples of BDD/Me electrodes



NeoCoat®-Electrodes are also available on silicon substrates and silicon derivatives (for details see NeoCoat BDD/Si Electrode specification sheet).