

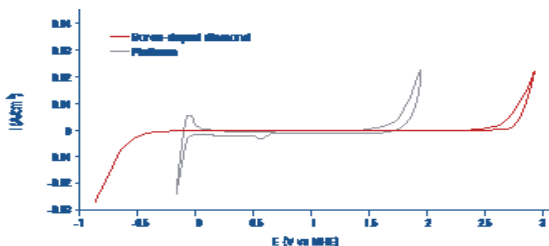
neoCoat®-RDE Features and descriptions

neoCoat®-RDE, a re-usable robust boron-doped diamond rotating disc electrode head, which can be adapted on standard RDE motor for electroanalytical measurement

NeoCoat offers a rotating disc electrode head, neoCoat®-RDE, based on neoCoat® BDD-Electrodes. The electrodes consist of a polycrystalline boron-doped diamond (BDD) coating deposited on a silicon substrate. Such device can be mounted on standard RDE setup.

Doped-Diamond Electrodes

NeoCoat's boron-doped diamond electrodes exhibit a wide potential window of water stability, low background currents and high stability under strongly oxidizing conditions. These properties permit innovative investigations for electro-analytical applications and developments for which rotating disk electrodes are often used.



Rotating Disc Electrode features

neoCoat®-RDE (rotating disc electrode) is designed to be mounted in the shaft of a synchronous controllable-speed motor and rotated with a tuned angular velocity about an axis perpendicular to the plane of the disc surface. As a result of this motion, the fluid in the adjacent layer has a radial velocity that moves it away from the disc centre. This fluid is replenished by a flow perpendicular to the surface. In certain way, the RDE can be viewed as a pump that draws fresh solution up from the bulk. This increased mass transfer leads to a decrease of the diffusion layer thickness.

neoCoat® BDD electrodes

Typical features

- Made of poly-crystalline doped diamond film
- Monopolar electrodes (single-sided BDD)
- Current density: up to 1 A/cm²

Boron-doped-diamond rotating disc electrode



Electrode materials

Substrate	
Material	p-silicon, 100 mΩcm, 1 mm thick, circular
External diameter	8 mm
Electrode surface	50 mm ²
Diamond coating	
Thickness	1 to 3 μm
Resistivity	100 to 150 mΩcm (customized resistivity available upon request)
Dopant	Boron

neoCoat® RDE head

neoCoat®-RDE head is composed of two thread polymer parts screwed together, stainless steel part and a flat seal. This RDE head can be opened so that the diamond electrode can be exchanged.

Materials

- PEEK or PPSU body to have a good chemical resistance
- Stainless steel (316L) current feeding heart with female thread to fit with standard RDE setup (M4 thread)
- Elastomer (FPM) seal

Specifications

Electrode active diameter / area	3.7 mm / 12.4 mm ²
Dimensions	Diameter 12 mm / Length 40 mm
Seal thickness	0.5 or 1.0 mm
Temperature range	5/45°C