



Adamant®-RDE

features and description

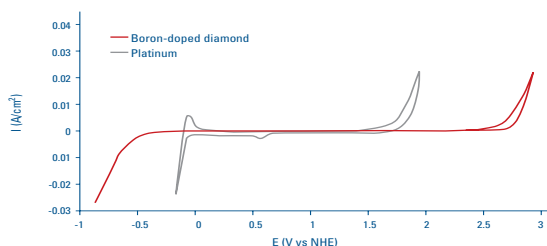
Boron Doped Diamond Rotating Disk Electrode

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

Adamant Technologies offers a rotating disk electrode head, Adamant®-RDE, based on Adamant®-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

Adamant's boron-doped diamond electrodes on silicon substrate exhibit a wide potential window of water stability, low background currents and high stability under strongly oxidizing conditions. These properties permit investigations of previously inaccessible electrochemical processes. That is particularly true for electro-analytical applications and developments for which rotating disk electrodes are often used.



Rotating Disk Electrode features

Adamant®-RDE (rotating disk 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 disk surface. As a result of this motion, the fluid in the adjacent layer has a radial velocity that moves it away from the disk 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.

Adamant®-Electrodes

Typical features

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

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

Adamant®-RDE head

Adamant®-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 PSU 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

Optionally, Adamant®-RDE can be delivered with special Adamant®-Silver Paste to improve ohmic contact between electrode backside and stainless steel contact.

Adamant Technologies SA preserves its right of changing some of the technical specifications of this product.