



Innovative technology for water treatment without chemistry

DiaCell® – a compact and modular concept for effective water treatment – to restore and protect domestic and industrial water quality

Adamant Technologies has developed the electrochemical module DiaCell®, based on Adamant®-Electrodes. The electrodes consist of a boron-doped diamond (BDD) coating deposit on a silicon plate. Depending on their configuration, such devices allow direct electrolysis for different kinds of water treatment applications.

Adamant®-Electrodes

Typical features

- Current density: up to 1 A/cm²
- Monopolar electrodes (single-sided BDD)
- Bipolar electrodes (double-sided BDD)

Materials

Substrate	
Material	p-silicon, 100 mΩcm, 2 mm thick
External diameter	100 mm
Electrode surface	70 cm ²
Diamond coating	
Thickness	1 to 3 μm
Resistivity	100 to 150 mΩcm
Dopant	Boron

Modular electrochemical cell DiaCell® type 100

Materials

- Two electrode holders for the cathode, respectively the anode, made of polypropylene with a total diameter of 200 mm and one fluid inlet, respectively outlet
- Two adaptable aluminum current feeding electrodes allow precise device mounting and adjustment
- Adamant®-Electrodes are connected with the current feeding electrode using a Adamant®-specific paste
- Elastomer (FPM) gaskets

Connections

- Two polypropylene fittings (male–female) for rigid tube mounting (20 mm) by screwing
- Two electrical connections: 4mm²

Configuration

- 1 to 4 compartments (max. 3 bipolar BDD/Si electrodes)
- 1 to 10 mm gap between electrodes, depending on needs

Specifications

Pressure	Up to 6 bar in aqueous solutions
Flow rate [min/max]	150/400 l/h per compartment (1 mm gap) 700/1000 l/h per compartment (10 mm gap)
Pressure drop 18°C [min/max]	0.3 / 1 bar
Temperature range [min/max]	5 / 45°C
Prefiltration (recommended)	50 μm

Optional power supply DiaCell-PS

Main AC voltage	230 V ± 10%, 50 Hz or 120V, 60 Hz
Output DC voltage	up to 48 V
Output DC current	3 A – 10 A – 20 A – 30 A
Polarity reversal frequency	1 to 90 minutes

Applications

Generation of oxidants for disinfection

- Swimming pool and potable water
- Legionella inactivation: cooling tower, hot water

Destruction of organics for wastewater treatment

- Industrial effluents
- Organic matter oxidation, COD removal
- Inorganic matter oxidation: cyanides, hypophosphites, chrome bath regeneration

Synthesis

- Persulfate generation
- Organic synthesis

All DiaCell® systems are delivered with premounted electrodes, ready for connection and use.

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