HEGER

radical water treatment

Boron doped

Diamond Electrodes

for "radical" watertreatment and synthesis

www.HegerDiamond.com

We make crystalline diamond

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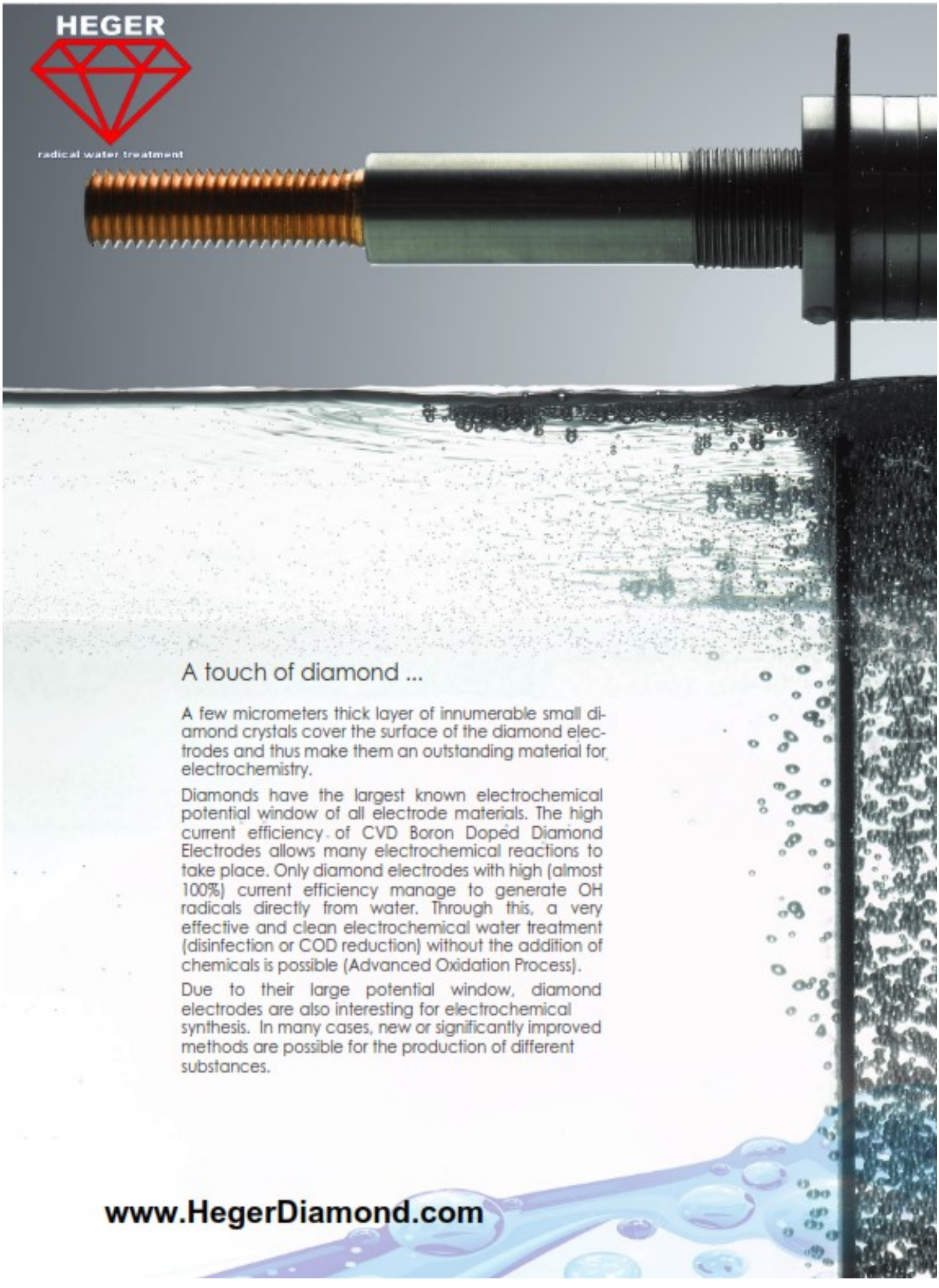
radical water treatment



A touch of diamond ...

A few micrometers thick layer of innumerable small diamond crystals cover the surface of the diamond electrodes and thus make them an outstanding material for electrochemistry.

Diamonds have the largest known electrochemical potential window of all electrode materials. The high current efficiency of CVD Boron Doped Diamond Electrodes allows many electrochemical reactions to take place. Only diamond electrodes with high (almost 100%) current efficiency manage to generate OH radicals directly from water. Through this, a very effective and clean electrochemical water treatment (disinfection or COD reduction) without the addition of chemicals is possible (Advanced Oxidation Process).

Due to their large potential window, diamond electrodes are also interesting for electrochemical synthesis. In many cases, new or significantly improved methods are possible for the production of different substances.

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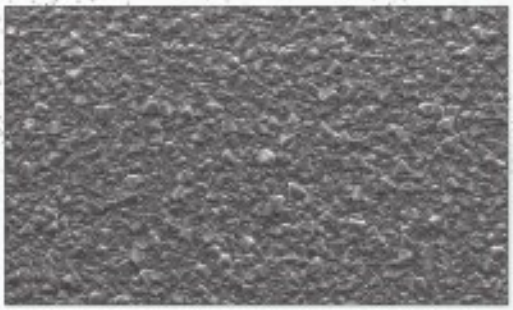
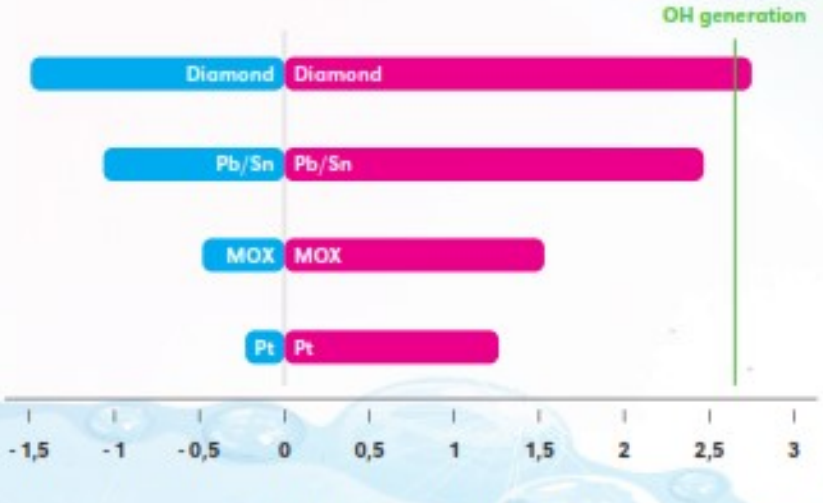


SEM image of a diamond layer

Electrode materials in comparison



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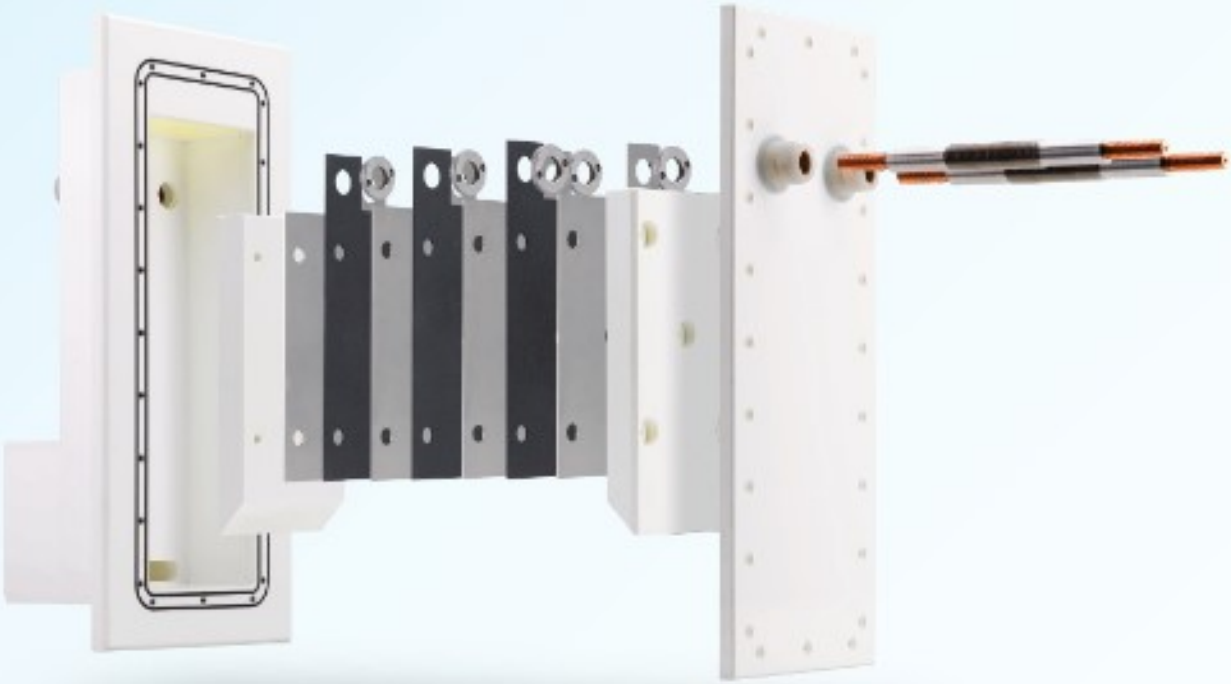


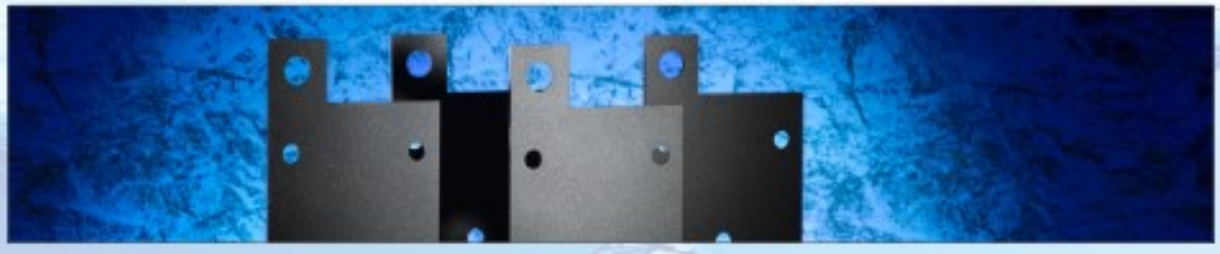
Electrodes

Our diamond electrodes are available in several standard geometries. These plates are excellently suitable in the electrolyzers we offer. In addition, diamond electrodes made of expanded metal or 3D geometry (e.g. rods) can be produced. Water jet cutting or laser welding allow for individual electrode geometries.

Electrolyzers

We offer complete electrolyzers for our standard electrode types. These are compact and easy-to-use systems, that can be easily integrated in your systems. Variants with stainless steel cathodes or reversible-polarity are available. The modular design allows anode surface areas from 116 square inch to 1395 square inch (0.075 m2 to 0.90 m2) per electrolyzer.

Large System Electrolizers are designed and built depending on your Process Requirements



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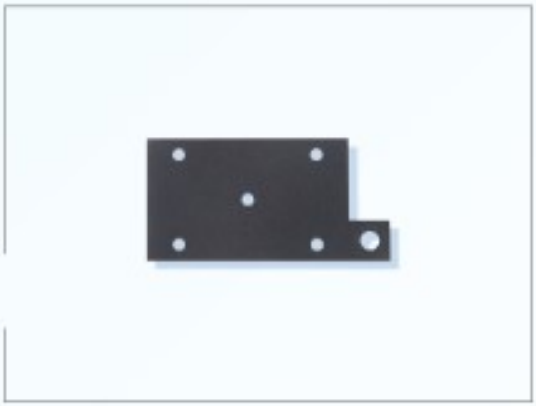


Standard electrode

Type B001-00

Dimensions
(without connector tab):
10" x 6" (250 mm x 150 mm)

Active electrode surface:
116 square inch - 750 cm²

Coating thickness:
≥ 12 µm

Standard electrode

Type BX002-10

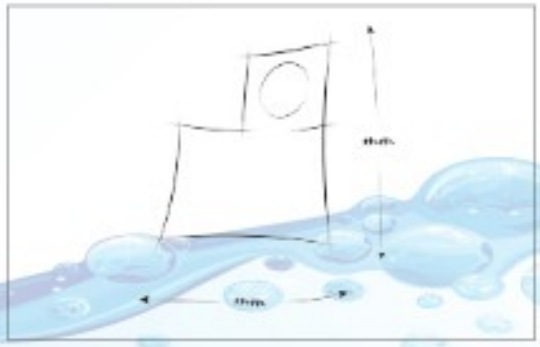
Dimensions
(without connection tab):
20" x 6" (500 mm x 150 mm)

Active electrode surface:
232 square inch -1500 cm²

Coating thickness:
≥ 12 µm

Mesh electrodes

Mesh electrodes of various types with or without welded connection elements



Custom-made electrodes

Custom-made electrodes with various geometries.

Welded electrodes

Exceptionally large electrodes or complex geometries can be produced by welding.

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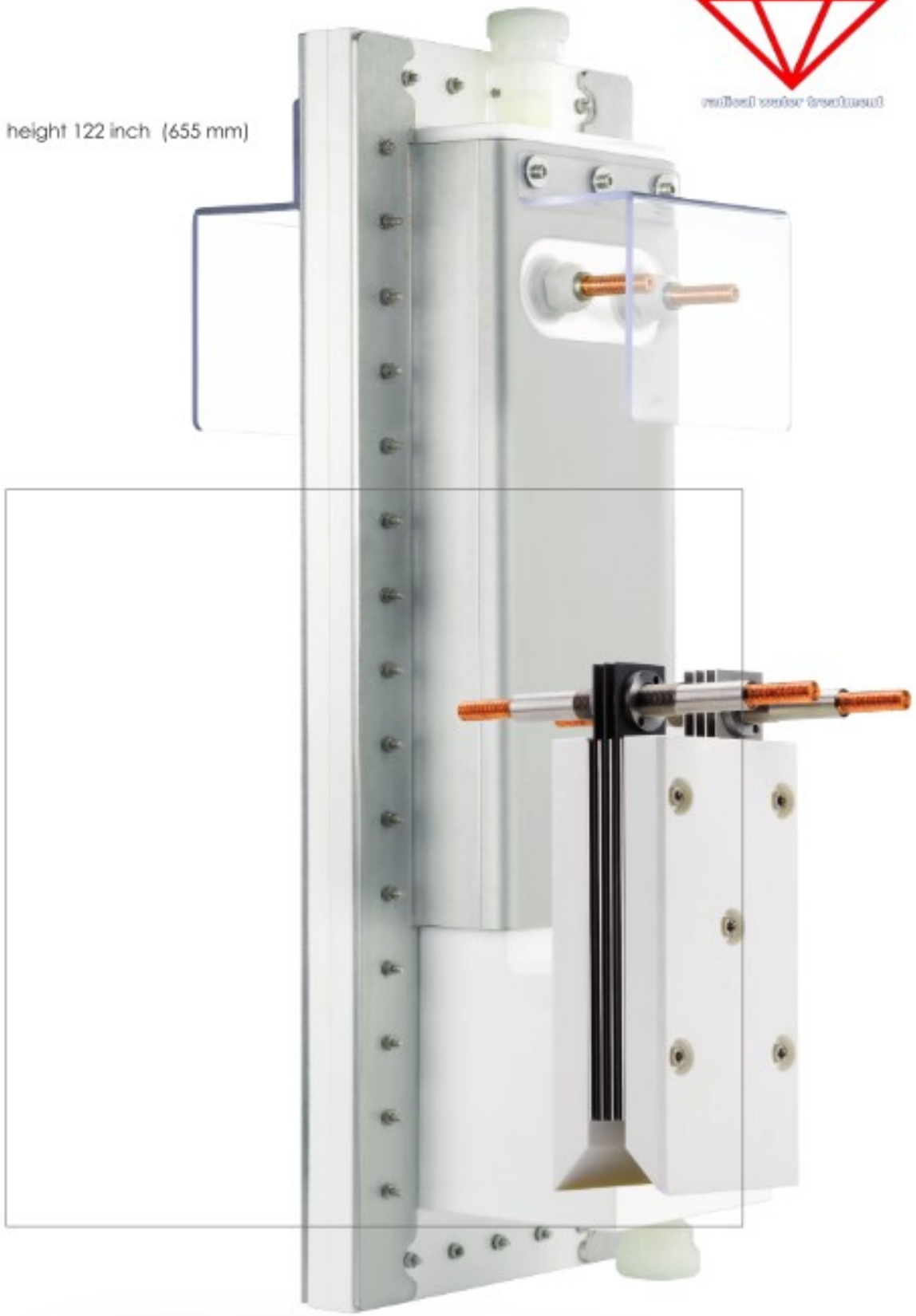
height 122 inch (655 mm)



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Housing reinforcement of stainless steel

Contact of Ti / Cu material

Heger Diamond manufactures complete systems based on your process requirements. Our compact electro-chemical systems are perfect for testing and small industrial applications. They can be easily scaled up by adding individual units. We have the capacity to offer large industrial scale electrolizer plants with all the necessary water treatment options and process engineering necessary to design and build.

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Heger Diamond is a worldwide leading company in the field of CVD diamond coating.
We specialize in high quality diamond coating of mechanical seals / bearings, and the production of long-term stable diamond electrodes.

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