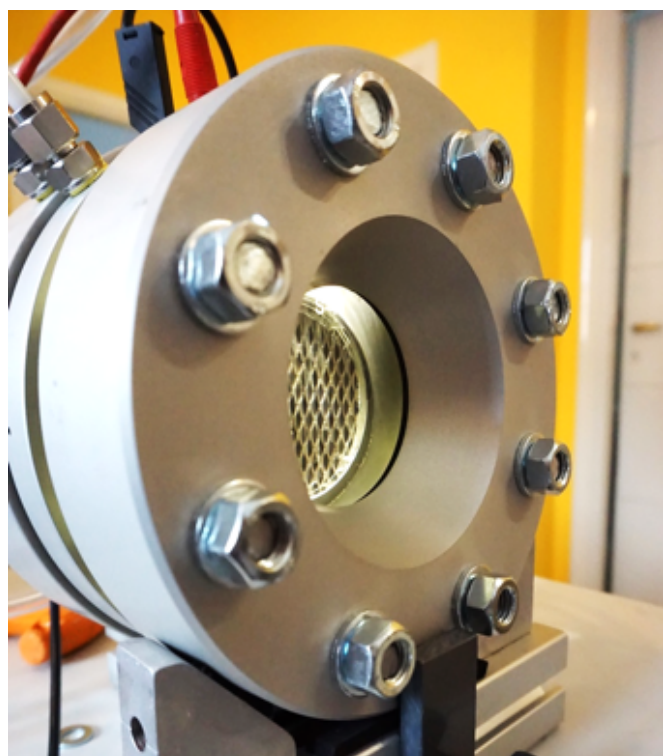
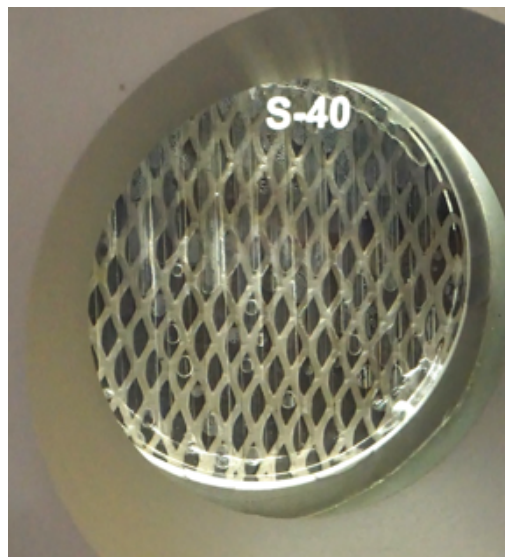


Transparent PEM Electrolyser Test Cell

Features

- ✓ 50 cm² symmetrical electrolyser test cell
- ✓ High pressure High temperature unit
- ✓ Unique glass window for flow studies
- ✓ Unique interchangeable flow-fields inserts
- ✓ Integral heating system
- ✓ Thermocouple monitoring in strategic points
- ✓ Easy to assemble/disassemble
- ✓ Customizable gaskets and thickness of components
- ✓ Low resistance low corrosion Platinized Titanium electrodes
- ✓ Sturdy cell holder for true mechanical stability



The HPEC-50 is the first of a new series of add-on pieces of equipment from Materials Mates Italia to support studies on various methods of energy generation and storage.

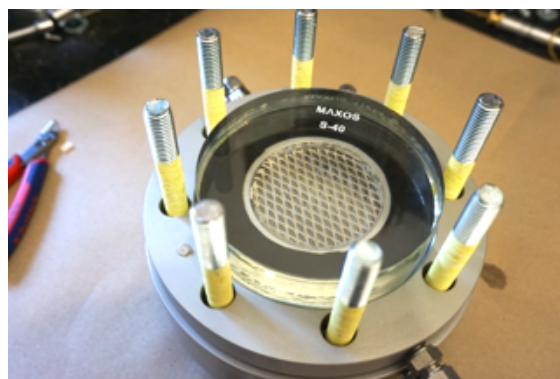
The HPEC-50 is a mid-sized (50 cm²) single element electrolyser cell suitable for both cathodic only, or symmetrical water circulation.

The most important and apparent feature which sets the HPEC-50 apart from the other cells on the market, is its glass-based side, which allows the operator to study the behavior of the structure of the flow-field by direct observation within the chamber without disturbing operations

Another world-first from MMI is the interchangeable transparent flow-field insert, which, together with the standard part shipped with the cell lets the customer explore counter-flow and cross-flow configuration without the need of additional hardware.

Operating pressure up to 30 Bar, and temperatures of 150 °C and up make the HPEC-50 the most advanced unit commercially available today, setting new standards in terms of performances and flexibility.

Materials Mates Italia (MMI) offers complete electrolyzer solutions, from high power impedance spectroscopy to multichannel systems for stacks, including standard and customized cells. MMI also integrates in their systems a series of additional ancillary equipment such as chillers or gas analyzers. They furthermore supply flexible software drivers to manage the equipment from external programs. Please feel free to contact us for a free evaluation of your system requirements.



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Transparent PEM Electrolyser Test Cell

Technical specifications

Physical

- 50 cm² active area (round , 80 mm dia.)
- Fully symmetrical design
- Suitable for cathodic only or both sides water circulation
- Platinized titanium grid contact over carbon paper electrode/gdl
- 235 um carbon felt 0.5% Pt on both sides supplied
- Nafion 115 membrane supplied (100 mm dia. required)
- Tempered, borosilicate glass windows , 40 Bar rated, on front side
- Thick (40 mm) back face plate to optimize thermal homogeneity
- 8 x M12 bolts closing system
- Cell's support to hold firmly in vertical position
- 6 mm center pins to block electrodes' position
- Max cell operating pressure 40 Bar
- Deeply anodized alluminum for ultimate chemical resistance of all liquid exposed surfaces

Thermal

- Cell max operating temperature 180°C (silicone and Viton® seals upon request)
- Temperature readout: thermocouple holes both sides , (multiple points per side upon request)
- Heaters on the cell 1.5 KW overall max power, interchangeable heating elements on back plate

Connections

- 6 mm dual ferrule SS316 fluidic connections
- 8 mm allen wrenches for power connections to 200A
- 4 mm banana receptacles for sensing electrodes
- Back plate and front plate sensors' holes for 1.5 mm thermocouples

Composition (basic kit)

- High pressure cell backplane
- High pressure counterplate
- High pressure cell front windows
- 40 Bar-rated borosilicate glass window
- 8 x M12 trussrods
- 2 x 800 mm platinized titanium flat mesh electrical contacts
- 1 x 70 mm flow channel insert Polycarbonate (borosilicate upon request)
- 1 x 70 mm flow channel insert with 90 degrees turning channels Polycarbonate (borosilicate upon request)
- 4 x 0.5 mm thickness annular seals
- Front and rear gaskets for glass window mounting
- Cell holder
- 200 A cable set 1 mt
- Complimentary working setup (2 x electrodes 0.5% Pt on carbon paper + 1 nafion 115 membrane)

Options

- High temperature gasket kits, borosilicate glass flow fields, customized flow-fields inserts