

HPECS series

Electrolyser Test Cell Hardware

Features

- ✓ symmetrical electrolyser test cell system 5 or 25 cm² element area
- ✓ Suitable for PEM, AEM, ALKALINE depending on supplied parts
- ✓ 1 to 20 elements stack
- ✓ Up to 2 kW applied power
- ✓ High pressure High temperature unit:
30 BAR 100 °C
- ✓ Different flow-fields available
- ✓ Thermocouple monitoring
- ✓ Easy to assemble/disassemble
- ✓ Simple to customize



The HPECS series is a family of lab scale electrolyser cells and part of the ancillary line from Materials Mates Italia to support studies on various energy generation and storage studies.

The HPECS can be configured in two single element areas of 5 and 25 cm² and ordered as single element or stack assembly up to 20 cells, ranging from 20 to 2000 W of applied power @ 2A/cm². The unit is operating at pressure up to 30 Bar, and temperatures to 100 °C and extremely easy to customize in terms of electrodes, flow fields, porous media.

The cell can be supplied mounted with the MEA of choice or as an hardware kit.

Materials Mates Italia (MMI) offers complete solutions for the study of electrolysers in all their aspects, from high power impedance spectroscopy to multichannel systems for stacks, including standard and customized cells. MMI integrates in their systems a series of additional ancillary equipment such as chillers or gas analyzers. They furthermore supply flexible 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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Electrolyser Test Cell Hardware

Technical specifications

Physical

- 5 or 25 cm² active area (square , 50 x 50 mm)
- Only 60 x 80 mm membrane extension
- Fully symmetrical design
- Suitable for anodic only or both sides water circulation
- Suitable for PEM, AEM or ALKALINE operations
- SS316L main pressure standing parts
- Electrodes in SS316L, with gold flash or not or platinized titanium
- Grid , expanded metal or metal foam gas passage zone, or zero gap with flow field.
- Teflon and PEEK plastic insulating parts
- Choice of elastomers for gaskets
- 8 x M8 bolts closing system
- center pins with multiple positions
- Max cell operating pressure 40 Bar
- Max temperature achievable 120 °C depending on gaskets
- Supplied as complete and sealed (30 bar operation) or hardware kit (5-6 bar operating point.
- High performance (30 + bar) kit under NDA

Options available

- **Low voltage heater** (200 W , suitable for both single cell or stack equalizing) with digital temperature controller . including heater cables and thermocouple , heater elements (2) in series
- **Low voltage heater COM** (200 W , suitable for both single cell or stack equalizing) with digital temperature controller and RS 485 interface. including heater cables and thermocouple , heater elements (2) in series

Ordering information

HPECS-XX-YY-ZZ

XX : 05 (5 cm²) or 25 (25 cm²)

YY : number of cells (01 to 20)

(NOTE: the sides and plates of the single cell (val 01)differs from the ones for the stack, order at least 02 if you want to expand as a stack later)

ZZ options:

HH : low voltage heater

HC : low voltage with digital interface