

Detailed description of the ordered item

Part A – Delivery of a universal test stand for characterization of planar solid oxide cells

The ordered item in part A of the public tender is the delivery of a universal test stand for testing of solid oxide cells, having the characteristics:

- Possibility to measure Solid Oxide Fuel Cells (SOFCs) with different dimensions, including round and square cells with dimensions:
 - Round cells with diameters from 10 mm to 50 mm (or larger) with cell thickness in the range 0.5 – 2 mm;
 - Square/rectangular cells with dimensions up to 5 x 5 cm² with cell thickness in the range 0.5 – 2 mm;
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- Equipped with gold wires for electrical connections and with gold, reusable reinforced mesh for current collecting from the oxygen electrode and nickel contact element on the hydrogen side;
- Adjustable cel contacting force in the range 0-100 kg;
- Possibility to seal the electrode compartments and collection of outlet gas for analysis;
- Equipped with ceramic gas distribution system on the oxygen side;
- Possibility to performing cell tests up to high fuel utilization >80%;
- Quick, nondestructive cell exchange;
- Equipped with a steam generator unit for electrolysis operation;
- Equipped with high temperature furnace with maximum temperature >1300 °C with controller and thermocouple;
- Cell measurements possible in the range 500 °C - 900 °C;

The device must have a 24 months guarantee, with the starting date same as the delivery protocol signature date.

The delivery time is 2 months from the date of signature of the purchase agreement.

Part B – Delivery of the power supply

The ordered item in part B of the public tender is a delivery of a programmable power supply with voltage output 0 - 15 V and current output 0 - 100 A (current obtained in the whole voltage window), having the characteristics:

- Power supply with short circuit and overload protection;
- Remote voltage sensing;
- Current regulation in the current control mode – minimal step of 5 mA;
- Voltage regulation in the voltage controlled mode – minimal step of 0.5 mV;
- Output ripple lower than 3 mV rms (BW min. 300 kHz) in the voltage controlled mode and lower than 20 mA rms (BW min. 300 kHz) in the current controlled mode;
- Stability better than 10⁻⁵;
- Equipped with “ethernet” communication protocol;
- Powered by single phase electrical net;
- fitting to rack 19” cabinet;

The device must have a 24 months guarantee, with the starting date same as the delivery protocol signature date.

The delivery time is 2 months from the date of signature of the purchase agreement.