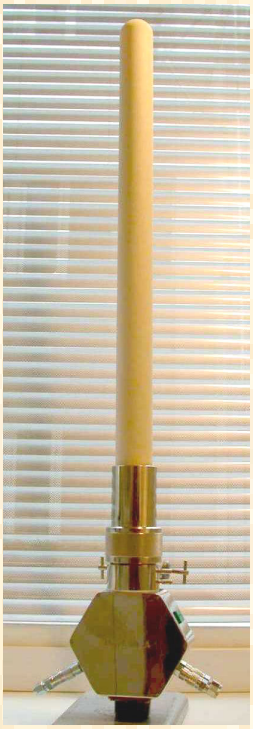
ProboStat™

Conductivity cell for high temperatures and controlled atmospheres



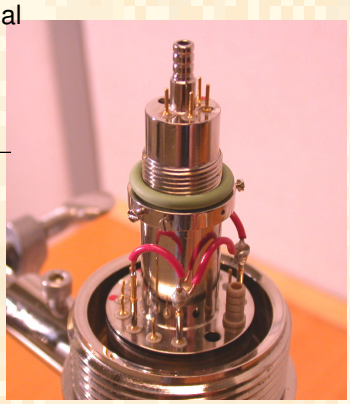
ProboStat™ is a measurement cell and sample holder for electrical, electrochemical, and permeability measurements at high temperatures and under controlled atmospheres. Samples rest on 50 cm long support tubes of alumina or zirconia, inside a closed outer tube of alumina or silica, using disk, van der Pauw, or bar geometries with 2, 3 or 4 electrodes. Gas is fed in single or dual chamber modes directly to or from sample faces and electrodes, allowing measurements under controlled atmospheres, transport number and permeability measurements in gradients, and testing of fuel cell, pump, membrane, and sensor components. Spring-loaded alumina assembly holds sample and electrode contacts in place. 16 electrical feedthroughs allow use of 4 shielded coaxial electrode leads, surface guard, and up to 3 thermocouples (e.g. for Seebeck coefficients) via standard compensation cables. Gas supplies via Swagelok quick-connects. Suitable for >4 cm diameter, 50-80 cm long, preferably vertical tube furnace.

Methods and Properties

- Conductivity vs T, pO_2, pH_2O, etc.
- DC, AC, impedance spectroscopy
- Dielectric properties
- Disk, van der Pauw, bar geometries
- 2, 3, 4 electrodes
- Ionic transport numbers
- Proton transport numbers in oxides
- H/D isotope effects
- Fuel cell components testing
- I-V-characteristics
- Electrode kinetics
- Seebeck coefficients
- Permeability tests, electrochemical pumping, and electrocatalysis with gas analysis (e.g. GC or MS)
- Sensor testing

Standard specifications

- Outer tube diameter: 40 mm
- Length: 50 cm (80 cm overall)
- Single end cell assembly
- Up to 24 mm diameter sample disks
- Up to 40 mm long sample bars
- Sample fixation: spring force via alumina rod assembly
- Atmosphere: oxidizing, inert or reducing, wet or dry, from small overpressure to low vacuum
- Temperature: <1600°C
- 6 BNC electrode lead connections
- 3 standard thermocouple connections
- 4 Swagelok quick-connects for gases
- Standard materials: 99.7% alumina, Pt, Pt10%Rh,Ni-plated brass or SS
- Water cooling (or heating) of cold end base unit possible
- Custom-made solutions to special requirements may be offered



Delivery and pricing

- Delivery time: Less than 8 weeks.

NorECs
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