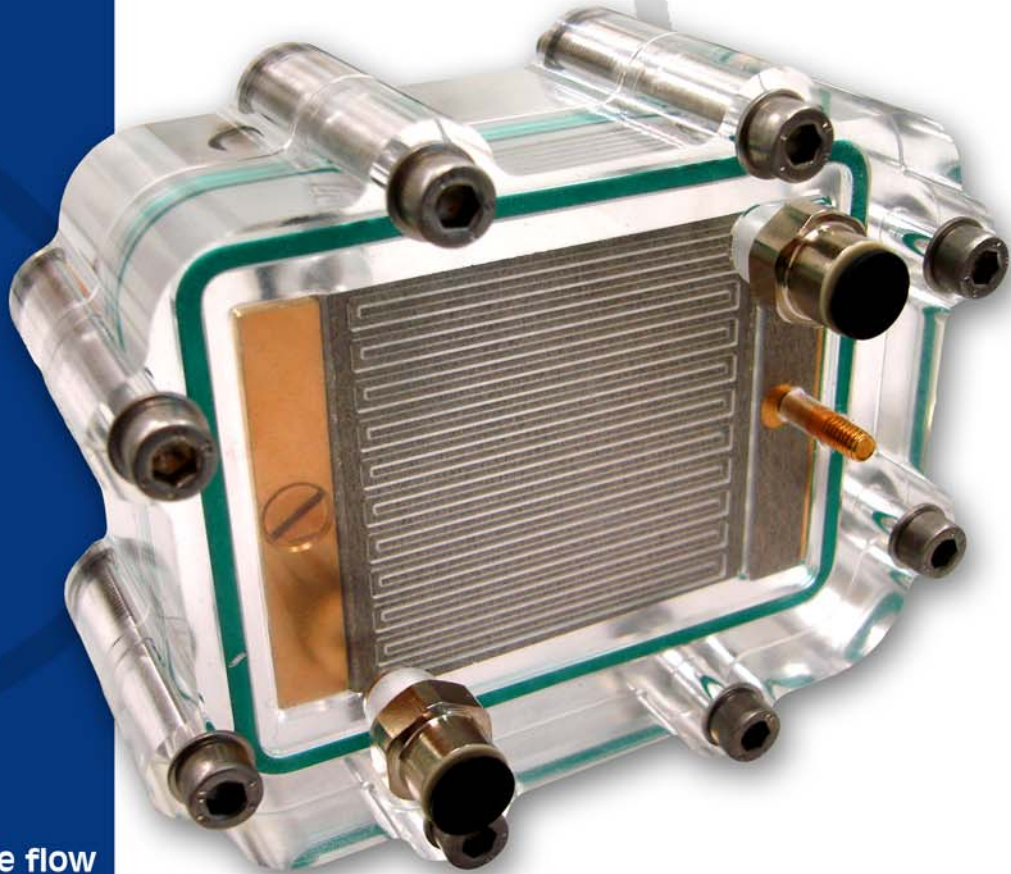




Single cell hardware to get an engineering insight of fuel cell design



Clearly visible flow channels

Water management observation

Robust design

Forced gas flow

Easy and reliable setup

Pragma Industries
Z.A. de Bassilour
665, rue de Bassilour
64210 Bidart - France

Bus. +33 (0)559 512 755
Fax. +33 (0)559 230 798
contact@pragma-industries.com
<http://www.pragma-industries.com>

ClearPak is a 25cm² single cell with see-through design allowing observation of water behavior inside the cell. It gives students an incredible insight of the engineering of fuel cell stacks regarding water management.

Delivering more than 10 amps of electrical current, ClearPak is a real fuel cell with true performances. With ClearPak, engineering students will address the following problems:

- how does water evacuate the cell,
- what is happening when the cell is flooded,
- where are the critical flowfield locations,
- what is the influence of gas flow on performances and water balance,
- what impact has the flowfield design on water management.

With ClearPak, a fuel cell is no longer a "black box". With hands-on operation, the user can observe and appreciate what is actually happening inside the cell during testing. Moreover, the large active surface will deliver realistic polarization curves.

ClearPak is available with various sets of compression plates with different flow field designs. ClearPak uses conventional 5x5cm MEA and GDLs. Electrical current is collected through gold plated copper bars. Mounting and dismounting the cell is an easy operation for students to prepare their testing.

ClearPak is ideally suited for:

- Fuel cells engineering training course
- Fuel cells fundamentals teaching
- Fuel cells design research
- Fuel cells demonstration

ClearPak is compatible with:

- Hydrogen
- Reformate
- Methanol up to 5M

Accessories

- Preparation set (adjustable torque screw driver, T4 allen tip, flat wrench)
- Spare parts (MEA, GDLs, gaskets, gas ports, current collectors)
- Air-breathing cathode compression plate (free air convection for reaction supply)
- Metal hydride H₂ storage tanks

ClearPak is delivered complete with:

- One set of MEA+GDLs
- One set of clear compression plates with selected flow fields
- O-ring gaskets
- Gold plated current collectors
- 6mm OD quick-connect gas ports
- Suitable screws, bolts and washers



Cell active area	25 cm ²
Electrolyte	Nafion 25µm
Electrodes	0,3mg/cm ² Pt @ anode 0,6mg/cm ² Pt @ cathode
Available flow field types	Single serpentine Multiple serpentine Parallel, Interdigitated Air breathing
Maximum current	16 amps
Maximum power	7 watts
Maximum operating temperature	70°C
Maximum operating pressure	2 barg
Gas supply	Forced flow air Forced flow H ₂
Dimensions	110x90x70 mm

