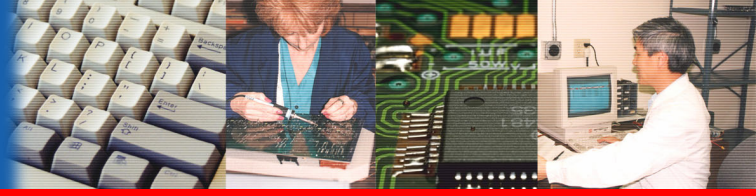
PEMFC-Single



Proton Exchange Membrane Single Fuel Cell Fixtures

Arbin provides single PEM fuel cell fixtures that are designed in-house by experienced fuel cell scientists and engineers working with selected top-quality materials suppliers. These fuel cells are ideal to be used for academic research, educational demonstration, and R&D prototype.

General Features

- High electrical conductivity and temperature resistance with high-quality treated graphite or composite graphite materials.
- Optimized low pressure drop serpentine flow channels for both fuel and oxidant flow fields.
- Gold-plated current collective plates with current and voltage leads.
- Two thermocouple wells for OD 1/16" thermocouples in each anode and cathode flow field plates for small cells (5, 25, and 50-cm^2).
- Up to 16 thermocouple wells available for 100-cm^2 single cell.
- Cartridge heaters for 5, 25, and 50-cm^2 cells and cooling channels available for 50 and 100-cm^2 cells. Excellent average heating on the MEA surface.
- Compression pressure control technology applied to seal MEAs and polar plates to guarantee good contact between them without over-pressing; leading to good performance of the MEAs.
- High performance and reliability membrane electrode assemblies (MEAs) selected for all single cells.
- 100-cm^2 cell fixture can be expanded to form a multi-cell stack.
- Very convenient maintenance for all single cells.
- Strong technical support concerning fuel cell technologies.

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Single PEM Fuel Cell Fixture Specifications

Product Model	PEMFC-C05	PEMFC-C05-REF	PEMFC-C25	PEMFC-C25-REF	PEMFC-C50	PEMFC-C50C	PEMFC-C100C
Description	5 cm^2 cell	5 cm^2 cell with reference electrode	25 cm^2 cell	25 cm^2 cell with reference electrode	50 cm^2 cell	50 cm^2 cell-with cooling channel	100 cm^2 cell with cooling channel
*Performance							
Power density (W/cm^2)	0.7	0.7	0.7	0.7	0.6	0.6	0.5
Effective area (cm^2)	2.3 x 2.3	2.3 x 2.3	5.03 x 5.03	5.03 x 5.03	7.26 x 7.26	7.26 x 7.26	12.5 x 7.91
Physical							
Dimension (H x W x D, cm)	12 x 12 x 7	12 x 12 x 7	12 x 12 x 7	12 x 12 x 7	15 x 15 x 9	15 x 15 x 9	15 x 25 x 10
Weight (kg)	1.5	1.5	1.5	1.5	2	2	4
Flow field	Serpentine channels on treated graphite				Serpentine channels on composite graphite		
Current collector	Gold-plated copper						
Number of TC wells	4	4	4	4	4	4	Up to 16
Reference electrode	N/A	Built-in	N/A	Built-in	N/A	N/A	N/A
Cooling channel	N/A	N/A	N/A	N/A	N/A	Built-in	Built-in
*Operating Conditions							
Service gases	Pure H2: O2/Air (reformate H2 available upon request)						
Pressure	15-30 PSIG						
Maximum pressure	Not defined						
Cartridge heater	30W at 110V, 120W at 220V						
Service methanol	Available upon request						
Storage Environmental							
Temperature	5-60^{o}C						
Humidity	Not defined						
Warranty							
Coverage	90 days unlimited on parts and workmanship (does not cover MEA)						
Connections							
Oxidant	1/8”	1/8”	1/8”	1/8”	1/4”	1/4”	3/8”
Fuel	1/8”	1/8”	1/8”	1/8”	1/4”	1/4”	1/4”
Coolant	N/A	N/A	N/A	N/A	N/A	1/8”	1/4”
Current/voltage leads	Built-in						

*** Depending on MEA used.**