



SOFC/SOEC STACK TESTING

- Up to 50 kW power range
- For simulation of all requirements for stationary CHP and mobile APU applications
- Extended safety features including LEL hydrogen detector and cabin ventilation
- Fully automated for safe, reliable and unattended operation
- Various top hat furnace designs
- Automatic compression load
- Excellent reliability by included hardware PLC
- Maximum safety according to latest directives

HORIBAFuelCon

Evaluator S5-HT



GENERAL FACTS

Standard fuel flow range [Nl/min]	1 to 100
Standard air flow range [Nl/min]	5 to 500
Footprint L x W x H, [meter] (inches)	2.1 - 2.4 x 1.2 x 2.2 - 3.2 (83" - 95" x 47" x 87" - 126")
Maximum gas temperature	1,000 °C (1,832 °F)
Gas humidity range	Saturator: Dry (by-pass) to TDP = 95 °C corresponding to 0...85 % steam in humidified gas stream; Steam generator: 0.01 to 600 g/min steam for 0...100 % steam
Top hat furnace [meter] (inches)	Inside dimensions (LxWxH): 400 x 400 x 600 up to 1,200 x 1,200 x 900 (16" x 16" x 24" up to 48" x 48" x 36")
Electronic load	Up to 600 V / 1,000 A / 10 kW
Active test item temperature setting	Up to 1,100 °C (2,012 °F) by top hat furnace
Safety gas purge	Programmable, separate and independent nitrogen / safety gas purge function for anode and cathode
Safety features	4-level alarming system, emergency stop, hydrogen LEL detector, optional CO detector, cabin ventilation Furnace atmosphere sampling
Data logging	SQL data base

The Evaluator S5-HT is tailored to the needs of complex high temperature stack testing and evaluation. The test station contains all necessary features for reversible SOFC and SOEC testing including gas humidification, flow and temperature control, top hat furnace, safety gas purge and electronic load management. Combined with HORIBA FuelCon's sophisticated TestWork software, this system provides full adaptability. Using either hydrogen, methane or reformat fuels, the S5-HT is ideally designed for stack and system developers performing initial application studies, duty cycle tests for stationary and APU applications as well as for performance evaluation.

OPTIONS

Reformer and desulfurizer for NG, CH₄ and biogas operation
Reformate and biogas simulation
Cell voltage monitoring (CVM)
TrueData-EIS (impedance analysis)
Reversible load operation (electrolysis and fuel cell mode) / grid feedback
Compression load control
Automated leakage test
UPS

SAFETY

CE conformity marking according to
EMC directive 2014/30/EC
Low voltage directive 2014/35/EC
ATEX directive 2014/34/EC
General product safety directive 2001/95/EC
Machinery directive 2006/42/EC
Pressure equipment directive 2014/68/EC

Risk assessment
DIN EN ISO 13849
DIN EN ISO 12100

Equipped with various types of electrically heated top hat furnaces and push rod systems to apply controlled compression forces, this test station is ideal for benchmarking stack designs, optimizing production processes and running endurance tests on SOFCs and SOECs.

The integration of several devices from our TrueData line of diagnostic products such as our impedance analyzer allows operators to perform detailed studies of material behavior under real application conditions up to operating temperatures of 1,100 °C.

Please feel free to download the latest information available at www.horiba-fuelcon.com. If you have any questions, please do not hesitate to contact us. We will be happy to support you and discuss your testing requirements!

HORIBA FuelCon reserves the right to make changes at any time without notice.

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