

# EVALUATOR S5-HT

Fuel Cell Testing of SOFC/SOEC Stacks



EMISSIONS



ELECTRIFICATION



CAV



DATA



- Power range up to 10 kW
- Sophisticated testing of stationary CHP and mobile APU applications
- Extended safety features including LEL hydrogen detector and enclosure ventilation
- Fully automated for safe, reliable and unattended operation in hydrogen safe area
- Various top hat furnace designs including automatic compression load

# EVALUATOR S5-HT

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 our sophisticated TestWork software, this system provides full flexibility for your specific application. Offering a huge variety of different fuel inlet gases such as hydrogen, methane or reformat fuels, the S5-HT is ideally suited for stack and system developers performing initial application studies, duty cycle tests as well as performance evaluations.

Multiple options such as back-pressure control, active gas pre-heating or hardware-in-the-loop functions can be added to further expand the capabilities of the Evaluator S5-HT. An unique manifold concept ensures a seamless and air-tight stack adaption making this test station a powerful tool for benchmarking stack modul designs and optimizing production processes.

The integration of several devices from our diagnostic products such as the impedance analyzer allows operators to perform detailed studies of material behavior under real application conditions up to operating temperatures of 1,050 °C.

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)	2.5 x 1.6 x 2.4 (98" x 63" x 94")
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)	Inner 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 True-0-Volt-Mode and additional power supply (SOEC mode) upon request
ACTIVE TEST ITEM TEMPERATURE SETTING	Up to 1,050 °C (1,922 °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, enclosure ventilation
DATA LOGGING	SQL data base

OPTIONS	
Reformer and desulfurizer for CH <sub>4</sub> and biogas operation	
Reformat and biogas simulation	
Cell voltage monitoring (CVM)	
Impedance analysis	
Reversible load operation (electrolysis and fuel cell mode) / grid feedback	
Compression load control	
Automated leakage test	
Furnace atmosphere sampling	
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

HORIBA FuelCon GmbH  
Otto-von-Guericke-Allee 20  
39179 Magdeburg-Barleben  
Germany

T +49 39203 964 400  
F +49 39203 964 409  
sales@horiba-fuelcon.com

[horiba-fuelcon.com](http://horiba-fuelcon.com)



© 2021 HORIBA FuelCon GmbH. All rights reserved. BZM053\_01\_28

**HORIBA**  
Automotive