



## ELECTROLYZER STACK TESTING

- Stacks and systems
- Up to 5 MW power range
- Water or alkaline electrolyte (option) supply with recirculation and temperature adjustment
- Level controlled water knock out with automated gas / liquid separation
- Several pressure control modes up to 100 bar
- Fully automated for safe, reliable, unattended operation
- Extended safety features including closed test cabin, LEL hydrogen detector and PLC control
- Integrated electrochemical analysis (option) like EIS or CYV

**HORIBA**FuelCon

### Evaluator ES



## GENERAL FACTS

Maximum gas temperature	100 °C / 212 °F
Back pressure control range	50 bar / 725 psi (standard) optionally up to 100 bar / 1,450 psi
Thermal management	Independent loops and control for anode and cathode recirculation and test item
Exhaust treatment	Powerful gas / liquid separation; exhaust flow metering
Gas Analysis (option)	Hydrogen, oxygen
Data logging	SQL data base

## ELECTRIC SPECIFICATION

Power range	Up to 5 MW with TrueData X-HVT technology
Power supply	Up to 1,000 A / 1,000 V
Electrochemical characterization (option)	TrueData-EIS (impedance analysis) TrueData-CYV (cyclic voltametry)

The HORIBA FuelCon electrolyzer test station of the Evaluator ES line allows automated testing of electrolyzer single cells and short stacks in the range up to 5 MW.

The electric system consists of the powerful TrueData X HVT high voltage technology including outstanding features like IGBT technology with extremely low noise design, safety features for fulfillment of performance level „d“ and data acquisition with highest accuracy and reproducibility.

The operator can simulate with the flexible TestWork software fully automatic several working conditions like stationary operating points, polarization curves or the reproduction of typical intermittent power sources like solar panels or wind energy.

The process part has several fully automated pressurization modes (by nitrogen or other inert gases or by product gases).

Anode and cathode are supplied with pressurized DI water supply with high precision pumps including liquid

## 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

## OPTIONS

Water balance measuring system  
H<sub>2</sub> input line on cathode for TrueData-CYV operation  
Pre-pressurization of cell/stack by high-pressure nitrogen gas input line

flow meter, conductivity and temperature control. The supply can be realized in a recirculation or a direct mode.

The design ensures reliable water flow to the cell keeping pressure and temperature constant during operation. The pressure of the liquid circuits can be adjusted automatically according to the gas pressures to avoid mechanical stress on the electrolyzer stack.

The proprietary water knock out system includes automatic level control to avoid pressure drops and reliable separation of gas and liquid phases.

As an option the anode feed can be switched between DI water or alkaline electrolyte supply.

Further options are electrochemical characterization like impedance spectroscopy or signal cell voltage monitoring up to 700 cells.

Various safety features always ensure safety of the operator and of the test facility.

Please feel free to download the latest information available at [www.horiba-fuelcon.com](http://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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