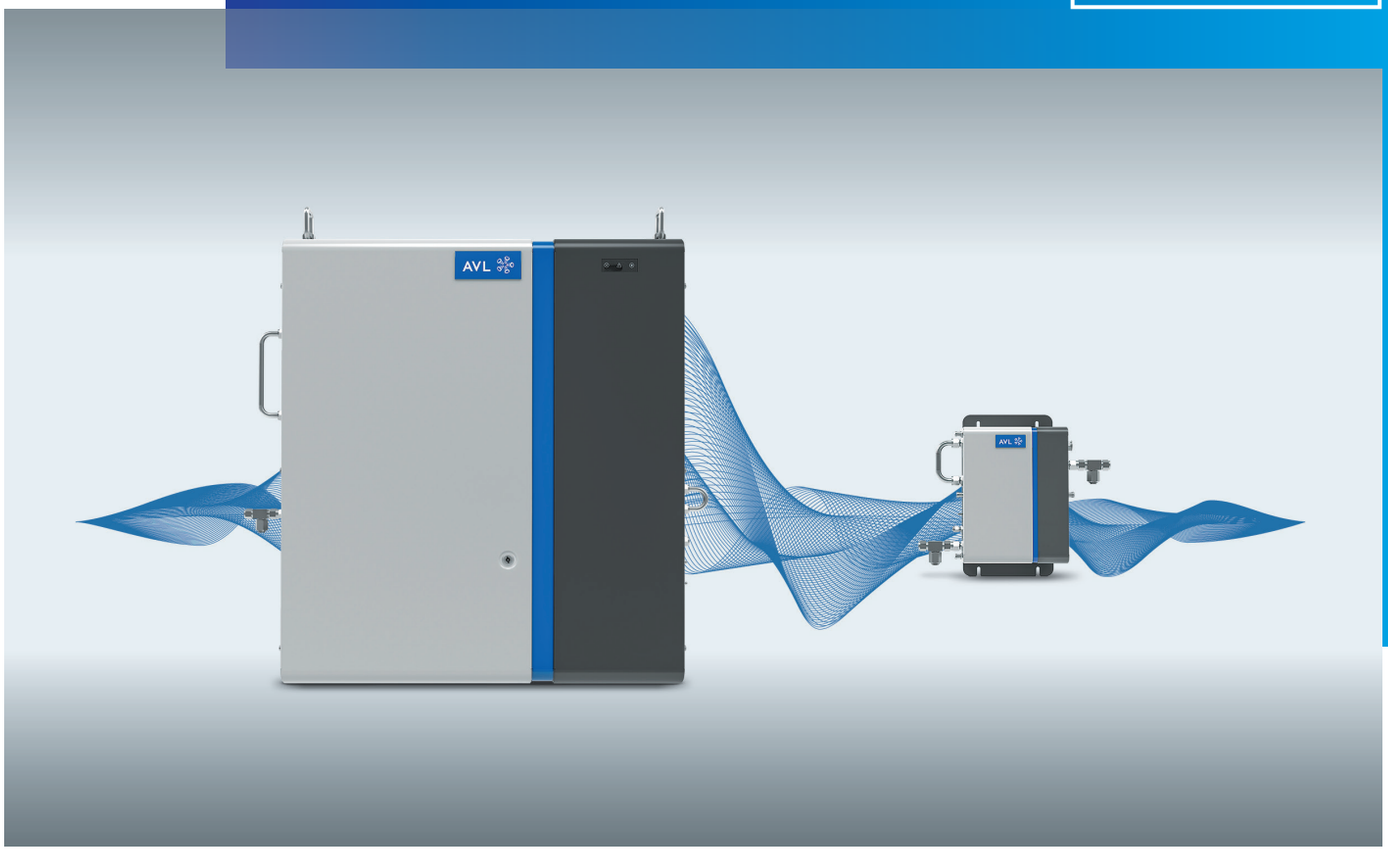


AVL HyTron™

Precision, hydronized!

A PROVEN TEST ENVIRONMENT FOR H_2 TECHNOLOGY

During fuel cell system testing or development, an accurate, reliable and measurable supply of hydrogen is vital. With components resistant to hydrogen embrittlement, any delivery system must provide the fuel gas at the correct pressure and prevent emissions that could contaminate the stack catalyst.

To ensure safety, if the unit under test is undergoing modifications or repairs, the supply line can be purged with an inert gas such as nitrogen. This allows the lab manager to focus on testing and development activities, confident that safe operation is guaranteed.

Next to its basic functionality, HyTron offers precise hydrogen mass flow measurement for fuel efficiency analysis.

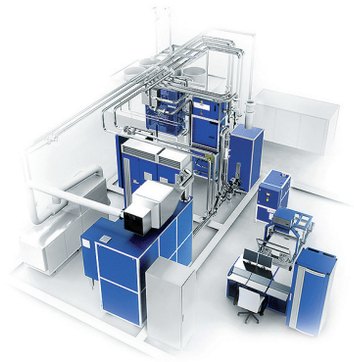
USER BENEFIT

- A new level of certainty in testing thanks to AVL's built in fuel cell and flow application know-how
- Patented flow sensing method and state-of-the-art sensors for highest data quality
- High level of safety through TÜV certification and convenience because of a smart, embedded solution

Designed with the user in mind, HyTron has a plug-and-play functionality with a workflow that guides the user with feedback for safe and optimal operation. It meets the highest automotive standards and ensures that the very best data quality is achieved.

AVL HyTron™

AVL Fuel Cell Testing



AVL Fuel Cell System Testbed

PRECISE FLOW MEASUREMENT

A high-quality and robust flow measurement requires stable and reproducible conditions of the media. This is especially true for compressible media like hydrogen. Therefore, a dedicated 2-stage pressure regulation concept has been developed. This ensures precise H_2 flow measurement during transient and stationary testing for fuel efficiency or certification tasks.

To cope with the problem of having unsatisfying accuracy at low flow when using only one sensor, the patented "sensor fusing" was introduced. It allows to use two flow sensors working as one, resulting in a higher effective turndown ratio.

APPLICATION

The HyTron is designed to be used in the development and validation stage of the FCEV (Fuel Cell Electric Vehicle) development process. The application ranges from the Fuel Cell System over the Fuel Cell Powertrain up to the Fuel Cell Chassis Dyno testbed.

THE SYSTEM

The HyTron comes with two modules: the Main Module and the UUT Module, which is situated directly at the Fuel Cell System and withstands the harsh conditions in a climatic chamber for environmental testing while providing the set points for the pressure control. It is fully controlled from the Main Module.

TECHNICAL DATA

Operating range	
Light duty	0 … 15 kg/h
Heavy duty	0 … 30 kg/h (on request)
Measurement uncertainty	
Hydrogen mass flow	≤ 0.5 % (acc. DIN 1319)*
Zero point stability (depending on sensor config.)	0.001 … 0.02 kg/h
Interfaces	Ethernet (AK-Protocol), CAN
Media	
Fuel gas	Hydrogen
Inert gas	Nitrogen
Control air	Class 3.4.2
Operating pressure	
Fuel gas	5 … 25 bar rel.
Inert gas	2 … 10 bar rel.
Control air	6 … 10 bar rel.
Ambient conditions	
Main Module	+5 … 50 °C
UUT Module	–40 … 85 °C
Power supply	100 … 240 VAC, 1 phase
Power consumption	~ 400 VA, typical 0.8 A
Dimensions (W × H × D)	
Main Module	1,100 × 1,120 × 230 mm
UUT Module	455 × 410 × 205 mm
Protection class	IP54

* The specified measurement uncertainty is achieved by ensuring the optimal operating conditions described in the product guide.

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FIND OUT MORE

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