

DEVELOPMENT & PRODUCTION OF FUEL CELLS

FOR THE AUTOMATION OF ASSEMBLY AND LASER PROCESSES
AS WELL AS LEAK TESTING



AUTOMATION FROM ASSEMBLY TO LASER WELDING

Fuel cell systems are the future. This means it is important for the technology to mature from prototype to series production. ZELTWANGER enables this with highly automated solutions that can be flexibly adapted to the production conditions and batch numbers.

FUEL CELL STACKS

In ZELTWANGER systems, the individual core processes required for the manufacture of fuel cell stacks are chained: visual check, precise positioning, stacking, pressing, testing. The modular design of the processing cells allows for each workstation to be individually and scalably adapted to the given conditions.



BIPOLAR PLATES

The manufacture of bipolar plates requires not only forming and stamping processes, but also a highly precise laser welding process and a downstream leak testing process. We develop the suitable laser welding process with our customer at our very own laser applications laboratory. For leak testing, we use proprietary test devices and processes.

COMPONENTS & AUXILIARY UNITS

ZELTWANGER offers the best production solutions for auxiliary units and fuel cell components such as valves or humidifiers. The necessary assembly and test processes are integrated on the basis of freely selectable system architectures and levels of automation.

RELIABLE QUALITY FOR LEAK AND FUNCTIONAL TESTING

Leak and functional testing of fuel cell stacks, their components, and auxiliary units is imperative to the efficiency and durability of the overall system.

Our one-of-a-kind range of test devices, component-specific adaptations, and comprehensive services for analyses, training, and service make ZELTWANGER the perfect partner.

The following are tested, among others

- Fuel cell stacks
- Bipolar plates
- Membrane electrode assembly (MEA)
- Valves
- End plates / media modules
- Humidifier

Depending on the customer requirements, leak testing may be implemented with air or trace gases. Functional tests, such as flow rate or impact pressure tests may also be integrated into the sequence. ZELTWANGER can thus be used for the entire scope of leak and functional testing.

ANALYSES
AND TRAINING

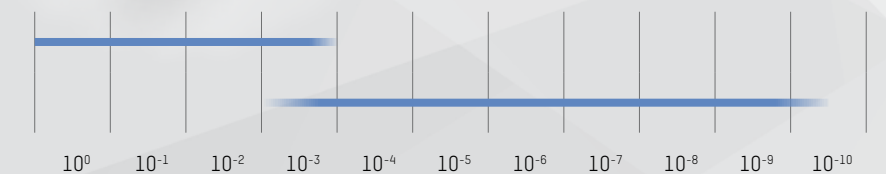
EQUIPMENT
AND SERVICE

ADAPTATIONS
AND AUTOMATION

Leak testing with air

Leak testing with trace gases

Leakage rate in mbarl/s



AUTOMATION AND LEAK TESTING OVERVIEW

AUTOMATION

ZELTWANGER offers intelligent assembly and testing concepts based on standardized processes and architectures. We cover all areas of expertise: analysis, consulting, custom developments, software, and process integration.

Our work focuses on three areas: leak testing systems, assembly and functional testing systems, and the X-CELL. The latter involves a standardized processing cell designed for core processes, such as leak testing, laser welding, laser engraving and handling that can be individually extended.

LEAK TESTING

ZELTWANGER tests leaks systematically. Because successful leak and functional testing requires not only optimal equipment, but a perfectly tuned overall system.

As a leader in technology and innovation for leak testing as well as high-end testing devices, we offer comprehensive solutions for analysis, adaptation, automation, services, and knowledge transfer.



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