



### QMS-FCS -Test Benches for Fuel Cell Systems

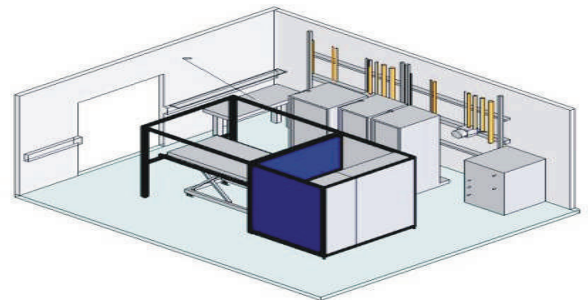
A fuel cell itself supplies no electrical power. Only in combination with suitable peripheral components e.g. compressors, pumps, valves, tank systems and a control system the fuel cell can be operated. This unit is called fuel cell system.

With this test benches fuel cell systems specification tests, system optimizations and cyclic endurance tests can be performed. They are individually adapted to your test requirements. The interfaces of the fuel cell system (media, electrical connection, signal exchange...) will realistically be mapped according to its later environment. In addition all relevant sensors and actuators will be recorded. The integration of the fuel cell system control devices into the test bench control takes place by CAN-Bus and digital signal exchange. To ensure safe operation the test bench will be the "master" of the alarm processing and safety equipment.

We will be happy to consult you. Just let us know what your requests are and we will provide you with a noncommittal offer.

The test benches for fuel cell systems optionally can be extended with:

- Intake air conditioning (pressure, humidity and temperature)
- Simulation of the system operation conditions (of -40 °C to +60 °C)
- Interface for HIL simulation with MATLAB / SIMULINK
- On-line - gas analytics for analysis of exhaust gases (PH, H2 -, CO -, CO2 -, N2 -, CO2 concentration)
- Connection box for freely provable sensors by the operator
- Binding of the testing equipment to your data base
- Further CAN or Profibus interfaces



### QMS-R - Test benches for reformation systems

These test benches for reformation units can be implemented for liquid and gaseous fuels. The test benches for reformation systems are available for the following applications:

- Evaporator (electrical -, catalytic and hot gas - heated)
- Reformer (natural gas, propane, diesel and methanol, other fuels on request)
- Gas cleanup (selective oxidation, membrane, pressure swing adsorption)
- Burner (flame, catalytically)
- Reformation systems (interconnecting from evaporator, reformer, gas cleanup, fuel cell simulation and burner)
- Gas analysis with online - analytics (FID, IR, TCD) and gas Chromatograph

Feel free to make use of our expertise! Let us know what your requests are and we will be happy to provide you with a noncommittal offer.

