

The **Gas- und Wärme-Institut Essen e.V. (GWI)** is a non-profit and independent research institute that shapes the energy topics of the future. With the energy transition, GWI has evolved into a technology-neutral energy institute that is involved in numerous projects at the regional, national, and EU levels, as well as direct collaboration with the industry, within the framework of its application-oriented research and development work.

The main task of the GWI testing laboratory is the testing of gas appliances, gas-fired devices, and fittings. This creates the prerequisites for certification by DVGW CERT GmbH (German Association for Gas and Water) (CE marking, DIN-DVGW mark, DVGW Gas Quality mark). In addition, in cooperation with the VDE Testing and Certification Institute, the VDE mark and the EMC mark for gas appliances are issued for electrical and EMC testing.

The testing laboratory has many years of extensive experience and knowledge in assessing all devices and facilities for gas use, which must comply with the recognized rules of technology according to legal regulations. We also possess additional expertise in assessing various building products and combustion systems. The tests are conducted either at the customer's location or in the GWI testing laboratory, depending on the situation.

The successful operation of the testing laboratory requires that the testing activities are supported by measures for quality assurance. To this end, GWI has established a quality management system that complies with DIN EN ISO/IEC 17025. It encompasses all work processes from order acceptance to documentation of the test results.

#### Accreditations based on DIN EN ISO / IEC 17025

- Accreditation as a testing laboratory for tests in the areas of airborne sound emissions, mechanical-physical tests on components for gas / water installation and supply, elastomers, and hoses / hose assemblies made of elastomeric materials by the German Accreditation Body (DAkkS)
- Recognized entity by DVGW CERT GmbH



THE ISSUANCE OF A CERTIFICATION MARK IS CARRIED OUT BY DESIGNATED BODIES  
SOURCE: DVGW CERT GMBH

## Services in the GWI Test Laboratory

### 1. Type examinations

The GWI testing laboratory conducts type testing according to current DVGW and European regulations within the scope of DAkkS accreditation in accordance with DIN EN ISO/IEC 17025.

Including:

- Testing of gas and oil appliances, appliance assemblies, combined heat and power (CHP) in connection with heat and cold generators
- Testing of pressure equipment, components, and systems in gas/water installation and supply
- Testing of electrical safety of devices and assemblies according to the Low Voltage Directive 2014 / 35 / EU
- Acoustic testing of gas and oil appliances and water fittings
- Flow rate testing / determination of characteristic values



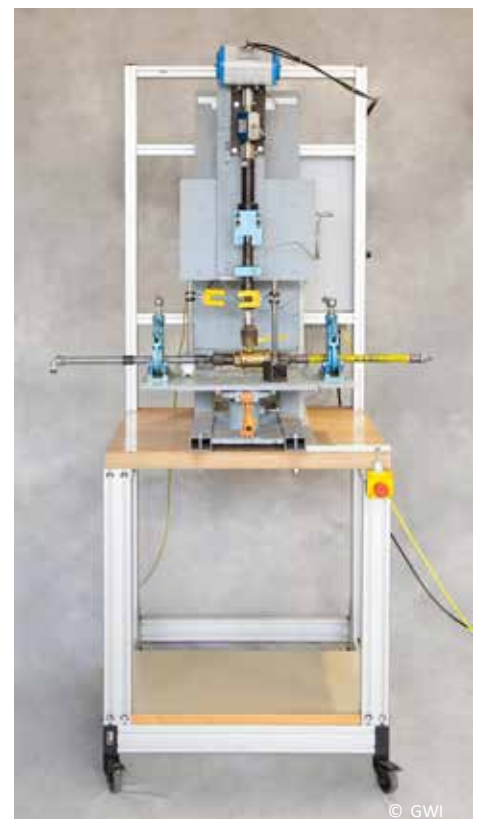
COMPUTER-CONTROLLED TENSILE AND COMPRESSION TESTING MACHINES WITH CAPACITIES OF UP TO 2 / 50 / 250 kN, AND PARTIALLY AUTOMATED COMPRESSION STRENGTH TESTING UP TO 500 kN



TESTING AND TEST BENCHES FOR GAS APPLIANCES / COGENERATION (CHP) SYSTEMS UP TO 20 kW ELECTRICAL



TESTING OF ROAD CAPS MADE OF PE, PA, AND CAST MATERIALS



ENDURANCE TESTING OF FITTINGS IN THE APPLICATION AREAS OF GAS AND DRINKING WATER

## 2. Special tests

- Functional and safety-related testing of individual systems and heat generators for commercial and industrial use
- Commissioning and decommissioning of pressure vessels
- Commissioning and decommissioning of gas mixing systems

## 3. Quality management / assurance

- Control inspections
- Audit of quality management systems (according to ISO 9001 and EU directives) at manufacturers
- Audit of energy management systems according to ISO 50001
- Product and production monitoring

## 4. Expert activities

- Preparation of expert opinions and goal-oriented safety analyses

## 5. Standards development / committee activities

## 6. Hydrogen (H<sub>2</sub>)

- Testing and examination of devices and fittings for natural gas mixtures with up to 20 % hydrogen content (according to ZP 3100.20, „Supplementary tests for gas-fired heating boilers for a hydrogen content of up to 20 % by volume“ and ZP 3505.20, Certification program for supplementary tests for gas burners for a hydrogen content of up to 20 % by volume)
- Testing of components, devices, and CHP systems with up to 100 % H<sub>2</sub> and a combustion capacity of up to 500 kW according to ZP 3100.100 and ZP 4110, „Supplementary tests for fittings for gas-fired fuels for a hydrogen content of up to 100% by volume



GAS STORAGE

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SOURCE: DVGW



## 7. Testing capabilities and measurement technology

- Wind generator for testing exhaust systems
- Gas mixing systems
- Sampling device / calibration device according to DIN EN 521-B2
- Electrical testing device
- Two gas chromatographs
- Exhaust gas analysis
- Gas meter test bench
- Climate chamber -> Cold and heat chamber (ignition and icing tests)
- Chimney testing facility (exhaust pipe) for multiple occupancy
- Acoustic room / measurement technology for acoustic testing
- Determination of leakage rates for internal and external tightness for H<sub>2</sub> and mixtures



WIND GENERATOR WITH WIND SPEEDS UP TO 15 M/S



EXHAUST SYSTEM SPANNING OVER 3 FLOORS



GAS MIXING SYSTEMS UP TO 500 kW RATED CAPACITY WITH NATURAL GAS / GAS MIXTURES



ACOUSTIC TESTING ACCORDING TO DIN EN 15036



TEST BENCH FOR LEAK RATE DETERMINATION

**Gas- und Wärme-Institut Essen e.V. | Hafenstrasse 101 | 45356 Essen | Germany**

**We are looking forward to support you in providing solutions for your challenges – you are welcome to contact us!**



Head of Testing Laboratory | Fuel and Appliance Technology

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