

Our performance spectrum

- Development of system components (burner, reformer, BoP-components)
- Catalyst studies
- Mathematic modeling
- Realization of field tests
- Testing and certification of fuel cell heating appliances and system components

Interested?

We are looking forward to promote the future of fuel cell systems together with you as we support you in all gas technological questions in the field of fuel cell micro CHP systems. You can benefit from our long term experience and outstanding knowledge in the operation of such systems as well as the design and development of its components like burners, reformers and heat exchangers.

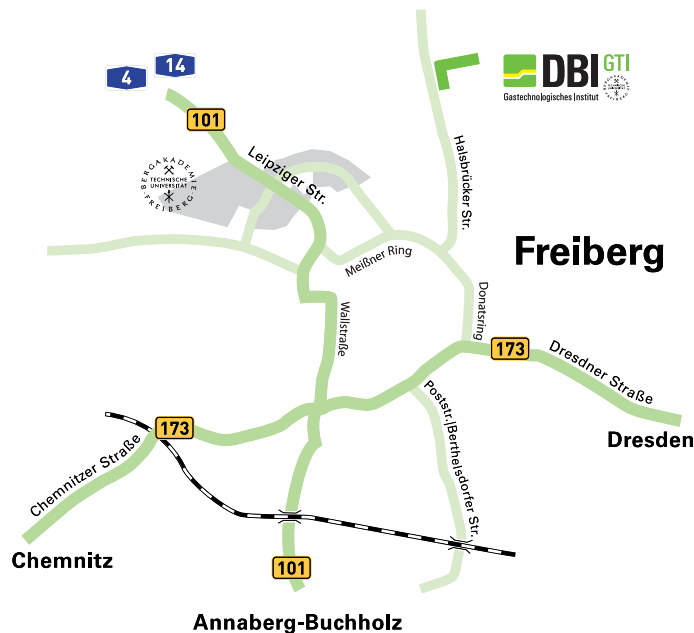
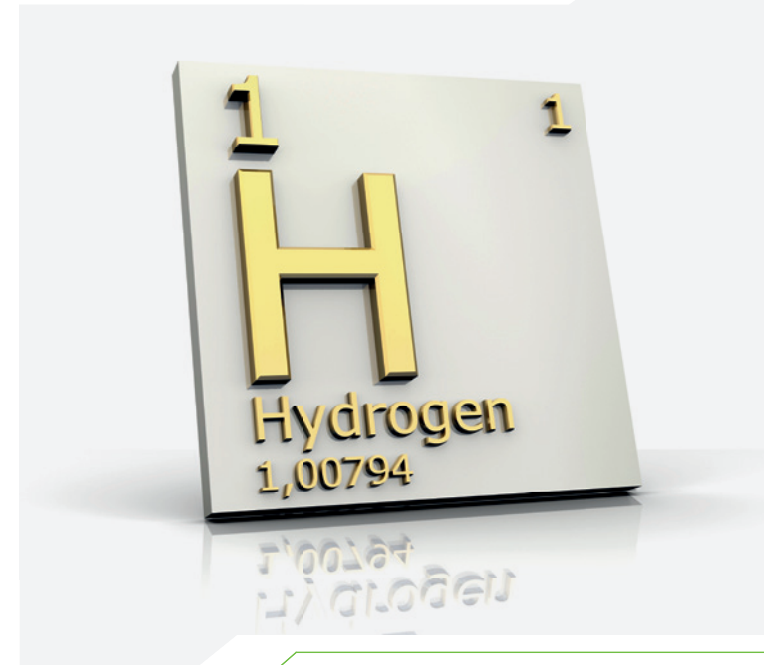
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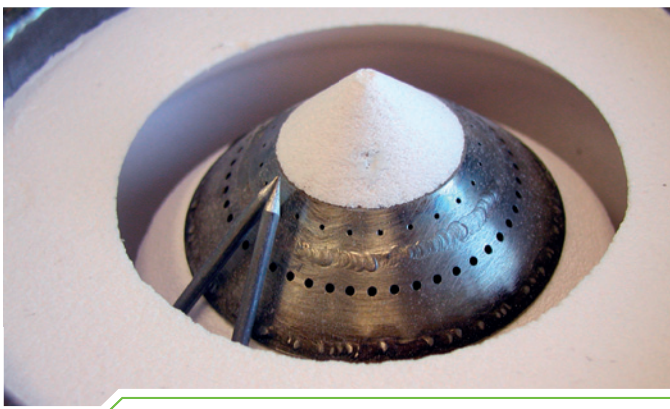


**HYDROGEN AND
FUEL CELLS**
Highly efficient and
decentralized power generation

Fuel Cells

Modern heating appliances using the fuel cell technology represent a highly efficient generation of combined heat and power. This technology allows an almost emission-free operation while having an excellent load change reaction with a very high efficiency even at partial load. As a result these systems play a significant role in implementing the turnaround in energy policy.

Typical fuel cells require hydrogen for operation while on-site usually natural gas, liquefied petroleum gas or even regenerative biogas are available. This conflict is solved by on-site reforming of available fuels to hydrogen.



Multifuel burner

Our Services

Component development

Model based development of system components for internal hydrogen production such as

- Multi fuel burner
- Compact reforming systems (e.g. natural gas, biogas or liquefied petroleum gas)
- High temperature heat exchanger
- Desulphurization devices
- Water processing and condensate recovery

Catalyst Studies

Performance of experimental studies on catalysts in laboratory reactors (up to 1.000°C and 100 bar)

- Catalyst screening e.g. steam reforming, shift reaction, methanation (Sabatier)
- Investigation on reaction kinetics
- Endurance test, analysis of structural changes

Simulation of System Components

Numerical modeling for the simulation of temperature-, flow- and concentration distribution

- Design of efficient and robust reformers
- Optimal operational management
- Sensitivity studies

System development inhouse5000+

Member of the core development team for the field test approved fuel cell heating appliance inhouse5000+.

- Burner development
- Compact reformer
- Balance of plant components
- Gas processing, desulphurization



System inhouse5000+
(PEM FC, fuel: natural gas, reforming: steam reforming, nominal electrical capacity 5 kW, nominal thermal capacity 7.5 kW, overall efficiency 92%)

CHP-System monitoring

Scientific guidance of field tests

- Choice of location and preparation
- Data acquisition, validation, storage and analysis
- Balancing und evaluation of Mini-CHP-plants

Testing and Certification

- Safety related checks
- Testing of fuel cell heating appliances according to Gas Appliances Directive and DIN EN 50465 for certification (DVGW)
- Stress tests of mini CHP systems and system components under temperature-controlled conditions in the range of -30°C and 80°C