



Industrie Service

**Choose certainty.  
Add value.**

## Hydrogen and Fuel Cell Systems

A Product Information Sheet by the Steam and Pressure Engineering Business Unit

Increasing reliability and decreasing costs have made fuel cell systems interesting for a host of new applications. Already today, systems of up to 300 kW deliver power and heat safely and reliably to hospitals for example. Current projects enable uninterrupted power supply (UPS), e.g. for telecommunications (1.5 kW – 1 MW). Other applications for camping, lighthouses and building energy systems are about to be realised.

As soon as fuel cells offer the same performance density and ease of use as batteries, they will revolutionise mobile communications by laptop, PDA or mobile phone.

### **Our services**

TÜV SÜD Industrie Service GmbH offers a comprehensive service range in the field of process engineering. As a testing, inspection and certification body, we support manufacturers, system integrators and operators in all questions relating to the safety, quality and cost-effectiveness of their products and installations. Cost-effectively, comprehensively and expertly.

### **Consulting services**

- Addressing national and international

approval, quality and design requirements for systems and components

- Addressing product liability of fuel cell system manufacturers
- Addressing fault tree, risk and reliability analysis preparation
- Addressing the preparation of hazard analyses, safety reports, explosion safety documents, hazard assessments, and servicing and maintenance plans or operating instructions
- Addressing the planning of infrastructural facilities

### **Testing**

- Testing the safety design of fuel cell modules and systems
- Analysing systems e.g. by means of FEM (Finite Element Method) or CFD (Computational Fluid Dynamics)
- Qualification testing of pressure equipment, instrumentation and control equipment in line with national and international standards
- Reviewing safety analyses prepared by manufacturers
- Testing of hydrogen engines, fuel cells, pressure vessels and components on in-house test rigs

## TÜV SÜD Industrie Service GmbH




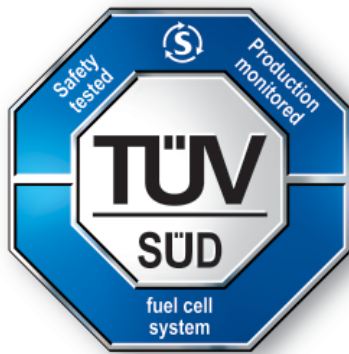
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### Certification

- Fuel cell system certification in line with national and international standards (EN, ISO, IEC, etc) and statutory provisions, e.g.  marking.



### Employee training

- Addressing subjects such as fuel cell
- System design and development, operation and servicing
- Addressing the handling of gases, such as hydrogen, natural and liquefied gas or liquids such as methanol.

### Your benefits

#### Technical expertise

Our experts boast longstanding experience in fuel cell engineering and hydrogen technology. We contribute our comprehensive process engineering know-how in the areas of gas systems, explosion safety, electrical engineering, risk management and reliabil-

ity to a host of projects, to bring safe and sustainable energy systems up to market maturity.

#### Legal certainty

Our experts participate intensively in the drawing up of technical directives and European standards, and are thus highly familiar with statutory requirements and the state of the art. And, as the name TÜV SÜD is widely known and enjoys an excellent reputation, you can rest assured that our reports and certificates will be widely accepted.

#### Building trust

The marketing of your products is facilitated by the TÜV SÜD certification mark, which is recognised by both business and private customers as synonymous with safety and reliability.

#### Saving costs and time

We guide you from the planning stage through design and development to certification of your finished products. You thus benefit from one-stop services which ensure that your products will be realised with maximum efficiency and cost-effectiveness.

Interested in more information about our services? Don't hesitate to contact us; we will be pleased to provide more in-depth information.

**We have representation worldwide – and thus also in your area.**

TÜV SÜD Industrie Service GmbH

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