



Hydrogen and Fuel Cell Technology from North-Rhine Westfalia, Germany

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The German State of North-Rhine Westfalia (NRW) has been a pioneer in hydrogen and fuel cell demonstration and commercialization projects in Europe. Since the 1990s more than 60 projects with a total project value of 110 million Euros have been funded with over 60 million Euros. 11 of these projects were supported with 23 million Euros in funding from the European Union. At the NHA Annual Hydrogen Conference & Hydrogen Expo US 2007 on March 19-22 in San Antonio, Texas, the Fuel Cell and Hydrogen Network NRW will showcase its activities in a pavilion with eight individual exhibitors. With 300 members the network is the largest in the field of hydrogen and fuel cells in Europe, if not worldwide. The member organizations represent the whole supply chain from hydrogen production, storage and transport to fuel cell components, systems and applications. The exhibitors at Hydrogen Expo US include:

Gebr. Becker manufactures components for air compression in fuel cells. The compact side channel compressor with multi-finned impeller can be employed in a wide range of environments from mobile to stationary applications. The product range includes compressors from 10-10,000m³/h, each designed as a modular component which can easily be integrated into the system.

Buschjost is an innovative manufacturer of solenoid valves and system solutions and has been in the business for over 50 years. Custom-made materials are used for each job. The valve characteristics are developed for the particular application, with specially matched actuators. The fuel cell valves are made of stainless steel or plastic to enable use in contact

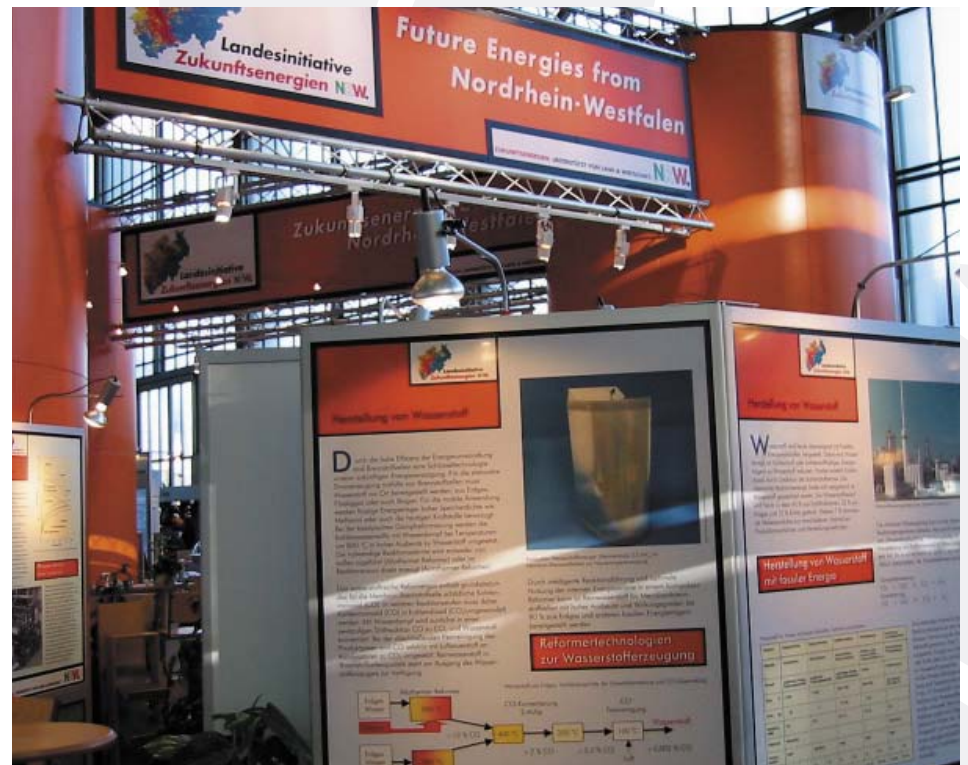
with, for example, demineralised water. Proportional technology is employed for accurate control.

GSR Ventiltechnik is a manufacturer of valve solutions for a wide range of industries with more than 2,000 special constructions. GSR is certified and approved to DIN EN ISO 9001 standard and can provide many certificates by request, like PTB-certificates. The company is also able to supply approvals according to TUV, GL, China Classification Society, F & D Administration USA, Russian shipbuilding registration

HOFER Hochdrucktechnik, a family-owned company founded in 1920, supplied high pressure components for the hydrogen filling stations in Hamburg, Madrid, Munich, Reykjavik and Yokohama and is one of the leading vendors of high pressure compressors for industrial gases. HOFER's experience spans several decades. The company is able to supply high pressure compressors with a final pressure up to 3,000 bar (43,500 psi) for the space industry and for filling stations up to 1,000 bar (14,500 psi).

VOSS Automotive develops hydrogen fuel supply lines with quick connections for mobile fuel cell applications. The VOSS quick connection system 246DS uses special O-ring sealings for the hydrogen application. Fuel supply lines can be produced straight and preformed as requested. Separate service and fill connections can be integrated.

Also exhibiting on the NRW pavilion: **Graebener Maschinentechnik** and **Research Center Julich**.



The Fuel Cell and Hydrogen Network NRW exhibit