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PRESS INFORMATION

Innovative solutions for hydrogen supply

H₂ tank valves by Poppe + Potthoff successfully complete required tests as part of the certification according to R134

A reliable flow of hydrogen (H₂) is essential in high-pressure storage applications such as in a commercial vehicle or filling station, for short refueling times. With its TOPAQ hydrogen supply system, the German family-owned company Poppe + Potthoff (P+P) offers a modular system solution that enables a safe and efficient hydrogen flow from the tank to the fuel cell or hydrogen engine. Part of this system solution are the tank valves developed by P+P, which have now successfully completed the required tests according to test standard R134.01 with several extension tests according to HGV3.1.

The On Tank Valve (OTV) can be fitted to individual tank cylinders. Several tanks can be filled in parallel via a distribution rail (Parallel Charging Unit (PCU) or also known as a manifold). Depending on the system design, refueling can take place at 350 bar or 700 bar. The innovative flow routing of the hydrogen through the OTV, together with flow rates that achieve Kv values > 0.28 during refueling, enable short refueling times. The optimized H₂ inflow into the tank also prevents hotspots inside the tank cylinders.

Short refueling times during operation and rapid degassing in the event of a fire

During development, the OTV was optimized to weigh less than 1400 g with a diameter of 160 mm, including a solenoid valve. The built-in solenoid valve is 'normally closed' so that the tanks are closed pressure-tight when no electrical current is present. The cable outlets are bundled on one side, which makes installation and positioning easy. The modular design allows easy integration of various functionalities according to customer requirements. The OTV has a central connection for filling and emptying, as well as an optional connection for a pressure sensor, for example.

The Thermal Pressure Relief Device (TPRD) enables rapid, spatially targeted degassing in the event of a fire and prevents the uncontrolled leakage of hydrogen from the tanks. The component can be installed in different valve variants via a standardized interface: installed in an OTV, as an End Plug and as a Remote TPRD. While the OTV is located at the front and the End Plug TPRD at the rear end of the tank cylinder, the Remote TPRD is attached to the side of the tanks. This permanently ensures that if the activation temperature is exceeded, the TPRDs are triggered, and the tank system is emptied safely.

Reliable and efficient hydrogen supply thanks to TOPAQ system solution

Going beyond the product level, P+P offers a solution at system level with TOPAQ. The company uses its material, development and production expertise to develop and manufacture all TOPAQ core components independently. In addition to tank valves, this includes H₂ lines, distribution rails, High Pressure Regulation Units (HPRU) and rails for H₂ injection systems on the H₂ engine. The validated P+P interfaces allow up to 25 assembly repetitions without leaks. Thanks to its modularity, TOPAQ enables application-optimized system architectures for use in mobile and industrial applications.

(3213 characters incl. spaces, 513 words)

Images:

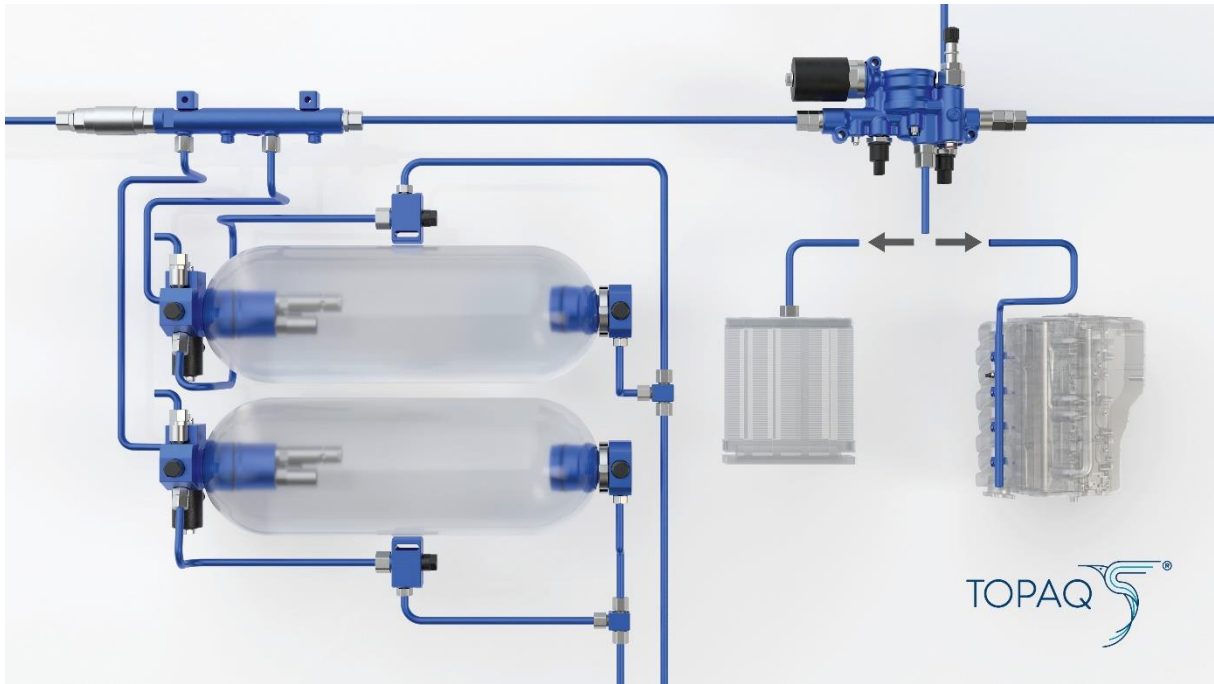


Fig. 1: The modular design of the TOPAQ system solution allows application-optimized system architectures to reliably supply fuel cells or combustion engines with hydrogen. Image: Poppe + Potthoff



Fig. 2: On Tank Valves (OTVs) from Poppe + Potthoff enable short refueling times for mobile and stationary applications. Fig. 3: End Plug Thermal Pressure Relief Devices (TPRDs) are attached to the rear end of the tanks. Fig. 4: Remote TPRDs are located on the side of the tanks or can be attached elsewhere within the system if required. Images: Poppe + Potthoff

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Poppe + Potthoff

The Poppe + Potthoff Group, with its headquarters and technology center in Werther (Westphalia, Germany), has more than 1,600 employees and long-term partners in over 50 countries. Founded in 1928, the company today has 18 plants and sales offices in 9 countries. Each location has its own area of expertise, all of them focusing on the requirements of each individual customer, for whom they contribute to sustainable and environmentally friendly technologies and drive the digitalization of processes.

Poppe + Potthoff is a partner of globally active companies in various technically demanding industries such as the automotive industry, mechanical engineering, marine and aerospace. The product portfolio includes common rails, precision steel tubes, high-pressure pipes, precision components, precision and industrial couplings and specially developed test systems. With innovative hydrogen supply systems and components for electric vehicles, Poppe + Potthoff is contributing to an emission-free future for mobility and industry. www.poppe-potthoff.com

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