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PRESS INFORMATION

Suitable solution for hydrogen applications

Poppe + Potthoff supplies PPH2, a material specially developed for use in hydrogen applications

Alternative drives have long since ceased to be dreams of the future. Fuel cell and hydrogen technology offers a clean alternative to conventional types of drive - in both mobile and stationary applications. To ensure safe storage and efficient transport of the highly volatile gas within the drive system, the components that are in direct contact with the hydrogen must have special resistance.

In conventional systems, these components have so far been made primarily of austenitic stainless steels. However, this has some disadvantages: austenitic stainless steel is very expensive due to its high nickel content, among other things. Since the material has relatively low strengths, the components must be designed with greater wall thicknesses for higher pressure resistance. This increases the weight and the higher material input in turn leads to higher component costs.

To counter these problems, Poppe + Potthoff has developed PPH2, a material specially designed for hydrogen applications. The alloyed carbon steel has high mechanical properties. These are further enhanced by the PPSH annealing treatment developed by Poppe + Potthoff. As a result, components manufactured with PPH2 can be designed with thinner walls than those made of stainless steel, which, in addition to lower weight, also leads to a reduction in material costs and thus represents another clear advantage for customers. Effective protection against corrosion is ensured by a zinc-nickel coating.

PPH2 was designed by Poppe + Potthoff to be particularly suitable for welding processes (for example, for the production of common rails) and to be easy to process. It can therefore be used in familiar manufacturing processes, such as those used in the production of components for diesel engines. In this way, additional costs can be saved, especially since machines and systems do not have to be converted if carbon steel has already been processed before.

The material is particularly suitable for the production of components for H₂ distribution systems (including pipes, rails and valves) and can be used in both mobile and industrial applications. As a competent development partner, Poppe + Potthoff already manufactures components made of PPH2 in various dimensions - always according to the specific requirements of the customers. PPH2 has been tested and approved by external testing laboratories in accordance with DIN EN ISO 11114 and is thus also approved for use in the area of EU Regulation (EC) No.79/2009 for hydrogen applications. The requirements of the EIGA (European Industrial Gases Association) for pipes and transport containers for the transport of hydrogen are also met by the new material.

Poppe + Potthoff has developed a pipe OD6.35ID4 for 700 bar hydrogen applications using the material. This was successfully tested by an independent certified testing institute according to EC79. The interface provided has a metal-sealing ball-cone connection in accordance with ISO 2974.

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Images



Fig. 1, 2: With PPH2, Poppe + Potthoff supplies a material specially developed for use in hydrogen applications, e.g. for the production of lines with 700 bar pressure resistance.

Source: 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 lines, 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

Contact Marketing:

Bastian Drexhage

Poppe + Potthoff GmbH

Marketing & Communication

Phone: +49 5203 9166 276

Mobile: +49 171 621 7009

E-Mail: bastian.drexhage@poppe-potthoff.com

Internet: www.poppe-potthoff.com

Contact PR Agency:

Oliver Frederik Hahr

oha communication

Consulting in International Public Relations

Phone: +49 (0)711 / 50 88 65 82-1

Mobile: +49 (0)176/ 51 22 22 88

E-mail: oliver.hahr@oha-communication.com

Internet: <https://oha-communication.com/client/poppepotthoff/>