**Innovations for the Process Industry**

**Freudenberg develops food legislation-compliant seals for an innovative water-hydraulic process valve**

**Weinheim (Germany), September 6, 2022. Applications in the process industry make high demands on all components: They must meet hygienic design specifications, be resistant to process media, and fulfill various conformity requirements worldwide. And of course, this also applies to the seals. That is why the Danish manufacturer Hydract relies on Freudenberg Sealing Technologies’ development expertise in selecting effective sealing solutions for its new hygienic process valve.**

The company based in Holstebro, Denmark, specializes in innovative valve technologies for the liquid processing industry such as brewing. Unlike conventional valves, the company relies on water instead of compressed air to power the valve actuator. Water is non-compressible and thus enables more precise control and improved mixing accuracy. The new hydraulically actuated process valve for a market-leading brewery is also based on this principle.

**High requirements of the beverage industry**

Specially designed to meet the needs of breweries and other hygienic liquid processing requirements, the patented process valve also requires customized sealing solutions. Quite early in the development process it became clear that standard seals could not meet the high requirements in the beverage industry. The valves used in the process industry must be able to meet high standards in terms of hygienic design specifications, receive industry-specific approvals and resist CIP/SIP media. The developers therefore turned to the experts at Freudenberg Sealing Technologies. They have already demonstrated their comprehensive know-how in this field with their product line for hygienic plants in the process industry. The joint development work has resulted in three food-approved seals: the Hygienic Pressure Seal made of Quantum® PTFE F18245 and 85 EPDM 302 in two sizes, a hygienic radial seal made of 85 EPDM 302 and a static seal in which two O-rings made of 85 EPDM 302 are combined to form a sealing element. With a tailored hygienic design, all three seals offer high temperature resistance from +5 °C to +140 °C, pressure resistance from 0 to 10 bar and a long service life. The premium quality materials used have received the relevant approvals and were subjected to the conformity tests according to EG (Reg.) 1935/2004, EU (Reg.) 10/2011, FDA and 3-A® Sanitary Standards.

**Test bench trials and FEM calculations**

This joint development project shows that customized sealing solutions can also be developed in a timely and cost-effective manner: As a basis for further development steps, the team of experts at first tested three of the new hydraulic process valves on Freudenberg’s in-house test bench. This enabled the necessary design adjustments for optimal service life to be identified and minor changes affecting installation and geometry to be implemented directly. The sample seals for the various test bench trials were produced without any need for tools and thus with considerable cost and time benefits. This is made possible by the Freudenberg Xpress® service, which offers machined seals made from original materials and original profiles for prototypes, spare parts or economical small series. Special machining and milling techniques enable individual designs to be realized precisely. In addition, FEM calculations were carried out to obtain meaningful values about the expected service life of the new seals.

**High development expertise pays off**

Three high-performance sealing solutions that are fully functional over a long service life even under the most demanding test conditions have resulted from the close cooperation with the customer. They offer very good resistance to extreme pressures, meet hygienic design standards, and thus have ideal properties for use in the beverage industry. “Thanks to the comprehensive development know-how and materials expertise of Freudenberg Sealing Technologies, we succeeded in obtaining the optimal sealing solutions for our new water-hydraulic process valve in a relatively short period of time,” summarizes Robert Collins, CTO at Hydract A/S. “Currently designed mainly for use in the brewing industry, our valve can also be used in other dairy, food and beverage applications in the future,” adds Mikkel Kornerup, Key Account Manager Global Process Industry at Freudenberg Sealing Technologies.

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**About Freudenberg Sealing Technologies**

Freudenberg Sealing Technologies is a longstanding technology expert and market leader for sophisticated and novel applications in sealing technology and electric mobility solutions worldwide. With its unique materials and technology expertise, the company is a proven supplier for demanding products and applications, as well as a development and service partner to customers in the automotive industries and in general industries. In 2021, Freudenberg Sealing Technologies generated sales of about 2.2 billion euros and employed approximately 13,500 people. More information at [www.fst.com](http://www.fst.com).

The company is part of the global Freudenberg Group which has four business areas: Seals and Vibration Control Technology, Nonwovens and Filtration, Household Products as well as Specialties and Others. In 2021 the Group generated sales of more than 10 billion euros and employed more than 50,000 associates in around 60 countries. More information is available at [www.freudenberg.com](http://www.freudenberg.com).

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