

*PRESS RELEASE
FOR UK ONLY*

High-performance seals for butterfly valves

In order to ensure that process plants meet hygiene requirements, industry-specific approvals and resistance to CIP/SIP media, Freudenberg Sealing Technologies has developed a new series of high-performance seals for butterfly valves. The seals have been developed in conjunction with French customer Definox, one of the leading manufacturers of first class process valves and stainless steel equipment for high-end applications in sectors such as food, beverage, cosmetics, pharmaceutical and animal feed.

Following rigorous tests, 70 EPDM 291 O-rings have already been delivered to Definox, where they have been successfully deployed and demonstrated. Based on this first success, both companies decided to launch a project for the development of new butterfly seals.

Setting out the objectives

Developing the new seals saw the two companies draw up a list of technical targets, which included simple installation, uncompromising tightness, wear-resistant materials and sealing geometry free of dead space. With the concept finalised, the development team at Freudenberg Sealing Technologies set to work.

As part of an initial phase, Freudenberg performed extensive validation testing of the new valve seal on its in-house test bench. Seals in three reference dimensions were tested in Definox butterfly valves under operating conditions similar to reality. Results from the long-term tests could then be transferred to other seal dimensions.

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Expertise in testing and validation

The advanced test bench at Freudenberg Sealing Technologies is designed as a CIP system featuring multiple containers, thus offering the capability to simulate various cleaning processes with acids, lye and disinfectants. Up to three butterfly valves can be tested simultaneously or successively on test tracks, with temperature, pressure and flow rate recorded digitally. Findings are provided on the material's resistance and functional reliability, thus delivering vital data for selecting the optimum seal geometry.

The co-operative partnership between Freudenberg Sealing Technologies and Definox resulted in an advanced butterfly valve seal offering both design innovation and high levels of wear resistance. This makes it ideal for process sector requirements.

Among the attributes of the new butterfly valve seal is its ability to close with little force. Moreover, when closed, the seal provides high compression to create the sealing function. The seal's geometry is free of dead space to ensure its suitability for use in hygienic applications.

Further benefits include very good pressure resistance, which is maintained during multiple switching operations, and extremely low torque. As a result of these properties, long service life and high reliability are assured, even when operating in challenging conditions.

Material options

Convinced by the performance attributes of the new seal developed by Freudenberg Sealing Technologies, Definox asked the company to start replacing the seals of existing valve types.

As a result of this project, Definox now offers a series of butterfly valves available in three FDA- and EU (Reg.) 1935/2004-compliant materials: 75 EPDM 253356; 75 Fluoroprene® XP 41; and 75 HNBR 254067. 75 Fluoroprene® XP 41 is additionally tested in vitro according to USP chapter 87. The material is also certified to USP Class V chapter 88 at 121 °C, meets 3-A® Sanitary Standards and complies with regulations set out by the BNIC (Bureau National Interprofessionnel du Cognac) in France.

Ultimately, the partnership with Definox has led to the creation of a new high-performance butterfly valve seal that is capable of meeting requirements across a multitude of demanding process industry applications.

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Caption: New high-performance seals for butterfly valves from Freudenberg Sealing Technologies.

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About Freudenberg Sealing Technologies and Dichtomatik

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 2019, Freudenberg Sealing Technologies generated sales of about €2.2 billion and employed approximately 14,000 people. FST rounds off its portfolio with complementary industrial standard solutions from the Dichtomatik product brand. The two-brand-strategy is part of Freudenberg Sealing Technologies' comprehensive service portfolio and guarantees a full leading range of seals and product- related services. More information at www.fst.com

For product inquiries:

Freudenberg Sealing Technologies
Dichtomatik Ltd
Donington House, Riverside Road, Pride Park, Derby, DE24 8HY
tel: 01332 524422
email: fst-food-beverage@dichtomatik.co.uk
web: <https://foodandbeverage.fst.com/en>
www.fst.com

For media inquiries relating to Freudenberg Sealing Technologies:

Freudenberg Sealing Technologies GmbH & Co. KG
Ulrike Reich, Head of Media Relations
tel: +49 (0)6201 80 5713
email: ulrike.reich@fst.com