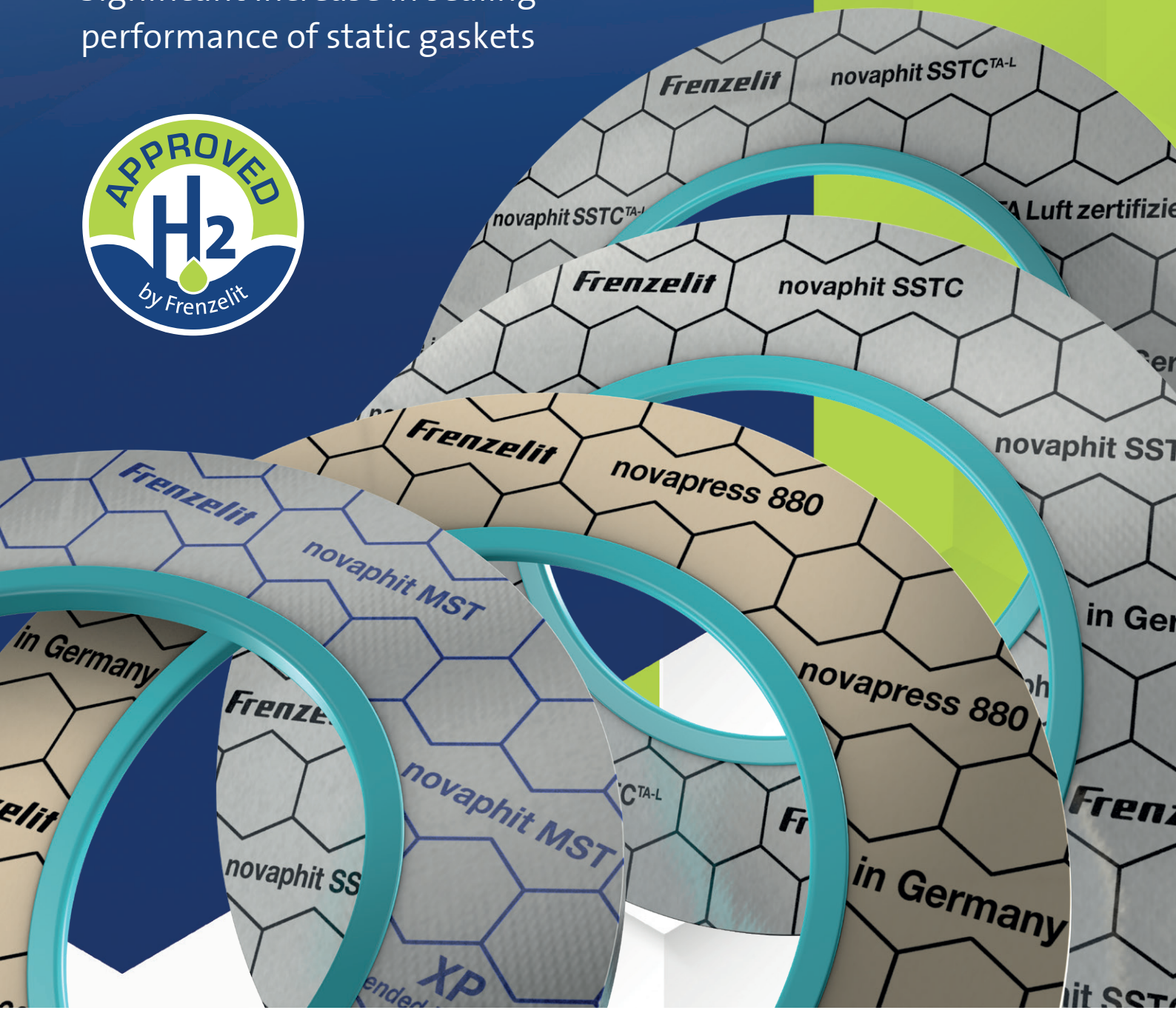
Frenzelit

The NEW Frenzelit inner eyelet technology

Significant increase in sealing performance of static gaskets

APPROVED H_2 by Frenzelit



DICHTUNGEN GASKETS | **ISOLATIONEN** INSULATION | **KOMPENSATOREN** EXPANSION JOINTS

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FRENZELIT'S NEW INNER EYELET TECHNOLOGY
A excellent performance class

Conventional inner eyelet technology is used throughout the chemical and process industry even though it rarely improves the performance of modern gasket materials in terms of their sealing properties, i.e. effectiveness in reducing emissions.

Frenzelit has developed a novel inner eyelet technology that advances gaskets with a metal eyelet to a new performance class and actively contributes to the reduction of emissions.

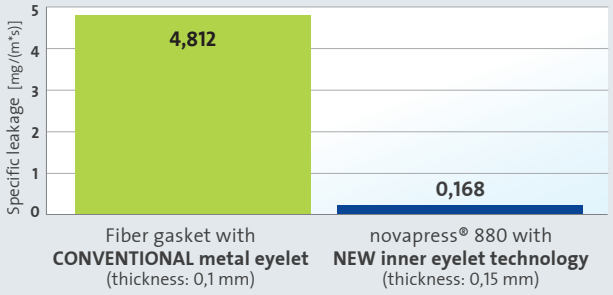
This new technology completely eliminates all of the drawbacks of conventional metal eyelets, such as their inability to adapt to uneven flanges.

STANDARD metal eyelet

NEW inner eyelet technology

Inner eyelet technology is deeply rooted in many industries and is often required by standards and specifications for historical reasons. The objective was to advance the established technology to greatly improve the performance capabilities of gaskets with inner eyelets. This innovative step is based on a novel eyelet that is coated with an elastomer layer. The coating's flexibility allows for perfect adaptability to the flange and eliminates all of the problems associated with metal-to-metal contact. Flange unevenness is smoothed out and leakage pathways are effectively blocked. The new inner eyelet technology uses a fluorinated elastomer as the coating material. In addition to adaptability, this gives it enhanced chemical resistance (e.g. against oxidizing substances or strong acids such as nitric acid) compared to standard inner eyelet materials. This new technology can be combined with various Frenzelit gasket materials to achieve a significant reduction of leakage rates – even in modified flanges with defined imperfections.

Test in real-world application:



Leakage tests in modified flange with groove (60 µm) to simulate real-world applications (30 MPa, 40 bar N_2)

An industry breakthrough

There have not been any major developments in inner eyelet technology in recent years. Therefore, Frenzelit's new inner eyelet technology represents a quantum leap in sealing performance. All Frenzelit gasket products are designed to reduce emissions and ultimately improve tightness and longevity of sealing systems. The extraordinary properties of Frenzelit's new inner eyelet technology open up completely new technical solutions and areas of application for gaskets with a metal eyelet.

Future applications with hydrogen

The new inner eyelet technology is of interest for more than just applications in the chemical and process industry; it is also viable for applications with hydrogen, which is currently gaining relevance in many areas (hydrogen production, hydrogen in natural gas grids). The molecule's small size makes sealing hydrogen one of the most challenging tasks. It is possible to achieve significantly improved tightness classes with the new inner eyelet technology while also ensuring excellent resistance to hydrogen. This means gaskets equipped with the technology will be very interesting for all kinds of future applications with hydrogen.

HOW IT WORKS

Possible leakage pathways in STANDARD metal eyelets and the mode of operation of the NEW Frenzelit inner eyelet technology by blocking the leakage paths.

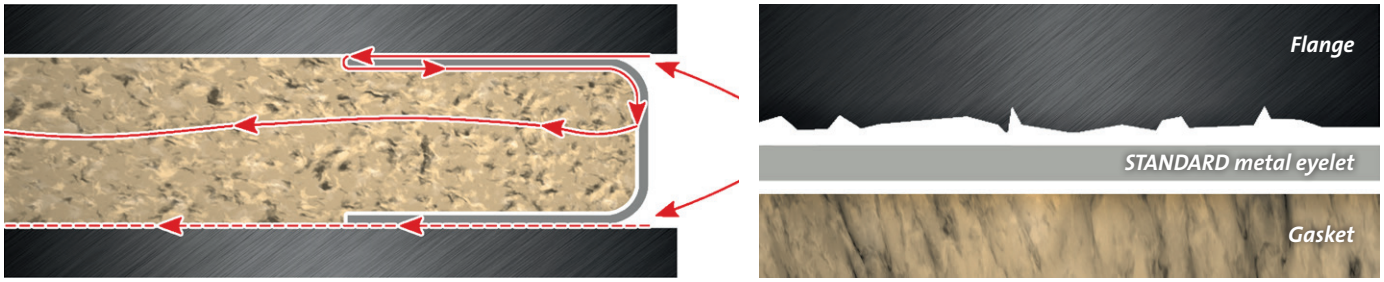


Figure 1: STANDARD metal eyelet** (1.4571; 0.15 or 0.1 mm): Poor compensation for flange unevenness → **LEAKAGE IS POSSIBLE

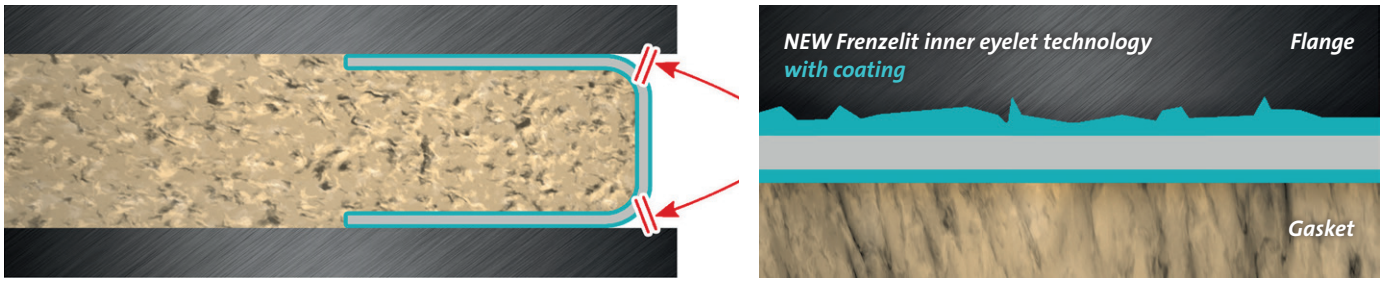
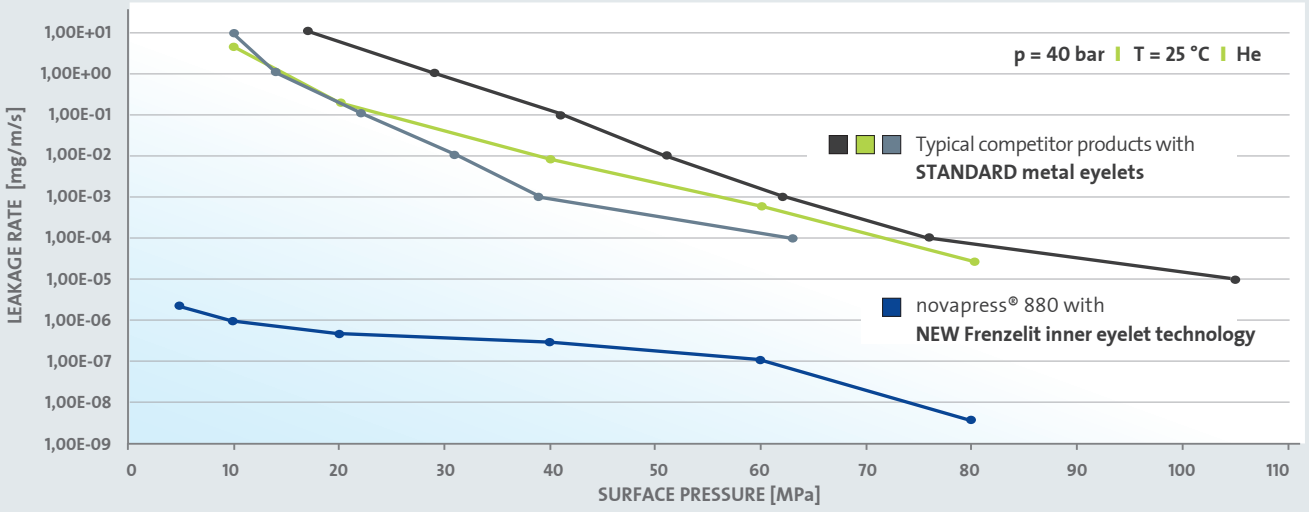


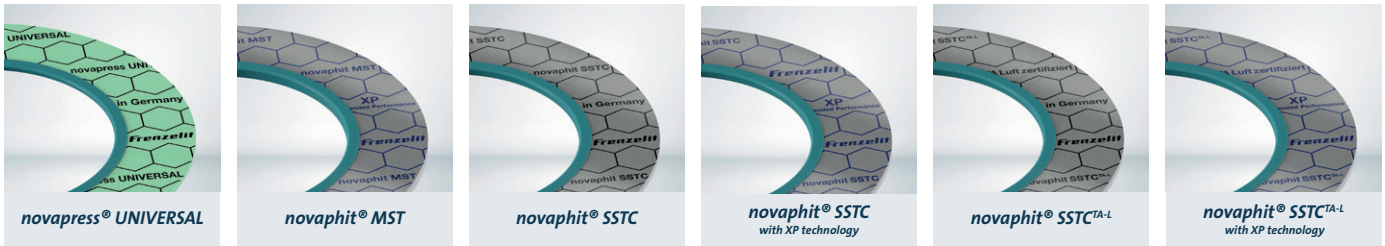
Figure 2: NEW Frenzelit inner eyelet technology:** Good adaptability to flange unevenness thanks to special coating → **LEAKAGE IS BLOCKED

Leakage curves of fiber gaskets with inner eyelets, 92 x 49 x 2 mm



novapress® 880 featuring Frenzelit's NEW inner eyelet technology (blue) vs. conventional competitor products with STANDARD metal eyelets. Excellent results have been achieved in all laboratory tests.

Other Frenzelit gasket materials available in addition to novapress® 880:



OUR RESPONSIBILITY
to people and the environment.

As a company with a rich tradition, we care about long-term success and the satisfaction of our customers. Quality is always a top priority for us – as is our commitment to the environment, society and our employees.

We also pride ourselves on always considering our customers' present and future needs, something that is apparent in our application consulting, training seminars and installation services. A development partnership with us is an excellent opportunity for you to optimize products that are already a success – and a great way to get your new developments to the market even faster. We help you modify products or support you in implementing innovative material concepts – and create real added value for you.

TÜV SÜD ISO 9001 TÜV SÜD ISO 14001 TÜV SÜD ISO 50001

GASKET MATERIALS

- **novapress®** *approx. -100 to 200 °C*
- **novatec®** *approx. -100 to 250 °C*
- **novaflon®** *approx. -200 to 260 °C*
- **novaphit®** *approx. -200 to 550 °C*
- **novamica®** *approx. -200 to 1000 °C*

INSULATION MATERIALS

- **isoplan®** *approx. -100 to 1100 °C*

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