

Technical Information

For hygienic sealing in and at the product area

Freudenberg's Hygienic USIT®, especially developed for the requirements of the process industry, establishes completely new standards of purity. The metal washer with elastomer bead seals reliably, statically and free of dead space.

Numerous plant and equipment manufacturers in the food and pharmaceutical industries still use conventional metallic washers for screw connections in or at the product area.

These washers are not EHEDG compliant. There is a risk that product residues accumulate under the screw head. The Hygienic USIT® developed for this application reliably prevents the formation of microfilms and corrosion.

It seals safely and consists exclusively of approved and tested materials.

The elastomer bead is available in three different EPDM variants.

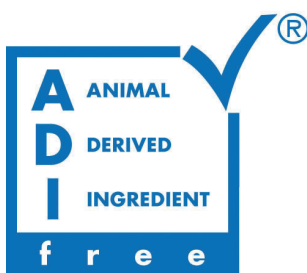
They are all suitable for areas coming into contact with the product in the food and pharmaceutical industry.

The black EPDM 291 is considered a classic compound in the process industry.

In the pharmaceutical industry, the white EPDM 253815 is particularly sought after.

For applications with fatty media, aggressive media or very high temperatures, we also offer the fluorinated material Fluoroprene® XP 45.

Material	Colour	Conformity/Approvals	Temperature range	Others
70 EPDM 291	black	- FDA 21 CFR 177.2600 - 3-A® SANITARY STANDARDS CLASS II - EU (VO) 1935/2004 AND 2023/2006 - USP CH. 87 AND CH. 88 – CLASS VI – 121 °C (250 °F) - NSF 51	-40 °C to +150 °C.	- ADI free
70 EPDM 253815	white	- FDA 21 CFR 177.2600 - 3-A® Sanitary Standards Class II - EU (VO) 1935/2004 and 2023/2006 - USP Ch. 87 and Ch. 88 – Class VI – 121 °C (250 °F)	-40 °C to +150 °C.	- ADI free
75 FLUOROPRENE® XP 45	blue	- FDA 21 CFR 177.2600 - EU (VO) 1935/2004 AND 2023/2006	-15 °C to +200°C.	- ADI free



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Screw connection according to Hygienic DESIGN

The Hygienic USIT® is an evolution of the conventional standard Usit ring. It ensures the reliable hygienic sealing of a screw head. In addition, it allows easy cleaning in the CIP (Cleaning in Place), WIP (Washing in Place) or SIP (Sterilization in Place) process without dismantling of the equipment. Thanks to a cooperation with the company NovoNox, Usit rings including hygienic screws and cap nuts can be purchased. These special screw heads have been developed on the basis of DIN EN 1665 for product contact areas or aseptic insulators.

This combination prevents the medium from being able to get under the screw head. The risk of contamination and the formation of microfilms are thus excluded.

Thanks to a special manufacturing process, NOVOnox hygienic obtains a surface roughness of up to Ra 0.8 microns. As a result, recesses and sharp burr formations on the collar can be prevented.

In addition, screws and cap nuts with collar are polished to a high gloss. To fasten them consistently in accordance with Hygienic DESIGN, NovoNox has developed box nuts and associated protective inserts. They do not damage the screw when tightening.

For screw connections outside the product area, standard hexagon bolts with flange according to DIN EN 1665 are suitable. However, they do not meet the Hygienic DESIGN requirements regarding optimum cleanability. They are therefore not suitable for use in product contact areas.

The bond is available in the dimensions M4, M5, M6, M8, M10, M12 and M16. In addition there are M3 screws and cap nuts that are compatible with M4 washers.

Values to the customer

- Cavity-free solution
- Prevents microbial contamination
- Replaces inflexible welding solution
- Clearances/approvals for food and pharmaceutical industry
- No tooling costs for standard parts
- Cleaning with the CIP, SIP, WIP, COP, OPC and WOP processes

