



# CLAMP SEALS

**Clamp seals** provide fast and secure flange connections in continuously operating equipment. Due to their symmetrical geometry, the clamp connections can be mounted and re-separated very easily. Thanks to dimensions standardized according to DIN 32676, clamp seals are available quickly and economically:

Freudenberg has developed a portfolio of four materials to meet the special demands of the food and pharmaceutical industries. It covers all the requirements of the processing industry while reducing tooling costs.

## Dimensions for conventional clamp seals in accordance with DIN 32676

- Series A (metric) nominal dimensions from DN6 – DN200
- Series B DN/OD 10.2 – DN/OD 219.1
- Series C (imperial) 0.25" – 6"

MATERIAL	COLOR	APPROVALS
70 EPDM 291	Black	<ul style="list-style-type: none"> <li>• FDA 21 CFR 177.2600</li> <li>• EU Reg. 1935/2004</li> <li>• 3-A<sup>®</sup> Sanitary Standards Class II</li> <li>• USP Ch. 87</li> <li>• USP Ch. 88 – Class VI – 121 °C (250 °F)</li> <li>• NSF 51</li> <li>• ADI free</li> </ul>
70 EPDM 253815	White	<ul style="list-style-type: none"> <li>• FDA 21 CFR 177.2600</li> <li>• EU Reg. 1935/2004</li> <li>• 3-A<sup>®</sup> Sanitary Standards Class II</li> <li>• USP Ch. 87</li> <li>• USP Ch. 88 – Class VI – 121 °C (250 °F)</li> <li>• ADI free</li> </ul>
75 Fluoroprene <sup>®</sup> XP 41	Blue	<ul style="list-style-type: none"> <li>• FDA 21 CFR 177.2600</li> <li>• EU Reg. 1935/2004</li> <li>• 3-A<sup>®</sup> Sanitary Standards Class I</li> <li>• USP Ch. 87</li> <li>• USP Ch. 88 – Class VI – 121 °C (250 °F)</li> <li>• NSF 51</li> <li>• ADI free</li> </ul>
70 VMQ 117055	Transparent	<ul style="list-style-type: none"> <li>• FDA 21 CFR 177.2600</li> <li>• EU (VO) 1935/2004</li> <li>• 3-A<sup>®</sup> Sanitary Standards Class I</li> <li>• USP Ch. 87</li> <li>• USP Ch. 88 – Class VI – 121 °C (250 °F)</li> <li>• ADI free</li> </ul>



## CLAMP SEALS

### Characteristics and advantages

#### 70 EPDM 291

Thanks to its resistance to water, water-based systems, water vapor, acids and bases, this black substance is one of the most widespread materials in the food and pharmaceutical industries. EPDM only reaches its limits in greases and oils at elevated temperatures.

To evaluate its effectiveness, Freudenberg has carried out a benchmark study with the materials of two competitors.

After one week of storage in common CIP media (acid and base) at +80 °C (+176 °F), EPDM 291 shows only slight changes in its volume and strength. But competing materials exhibit swelling of more than 10% and a loss of strength of more than 20%.

EPDM 291 also retains its mechanical characteristics after a week of storage in SIP media (peroxide cleaner and water vapor) at +60 °C (+140 °F). The other materials in the comparison show a loss in strength of more than 70%. EPDM 291 is thus the test winner and is even suited to dynamic applications.

#### 70 EPDM 253815

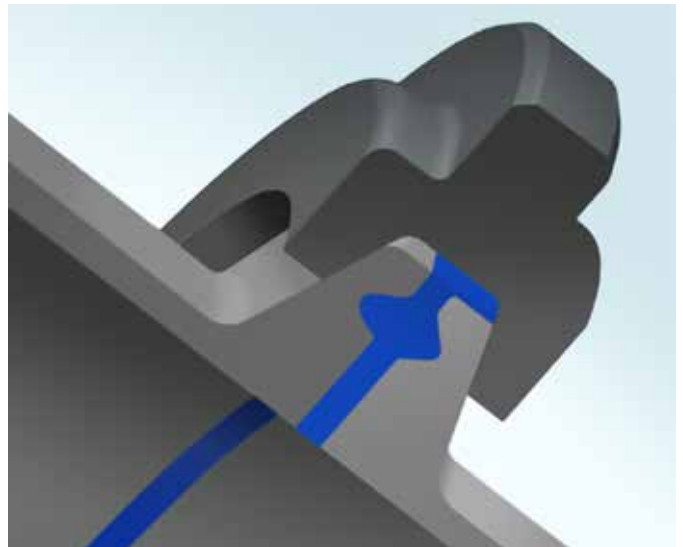
The mineral-filled EPDM exhibits nearly the same sealing characteristics as the black (carbon-black-filled) EPDM and is thus the ideal solution for the hygienically demanding pharmaceutical industry. Furthermore, Freudenberg's white EPDM is distinguished by its extraordinary lifespan.

#### 75 Fluoroprene® XP 41

The blue Fluoroprene® XP combines the advantages of EPDM with those of FKM and is an universal material for the processing industry due to its outstanding stability. Due to the resistance against fatty and aqueous media, it is the only material that permits a "one-compound-per-plant"-strategy. Fluoroprene® XP is additionally the best choice to prevent flavor transfer.

#### 70 VMQ 117055

Silicone rubber is particularly suited to thermally demanding applications in which less aggressive media are used. VMQ 117055 stands out from other materials for its transparency and thus its especially high purity.



The information contained herein is believed to be reliable, but no representation, guarantees or warranties of any kind are made to its accuracy or suitability for any purpose. The information presented herein is based on laboratory testing and does not necessarily indicate end product performance. Full scale testing and end product performance are the responsibility of the user.

[www.fst.com](http://www.fst.com)