



# ***SANITARY GASKETS***



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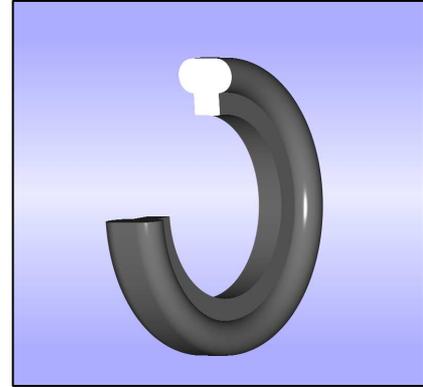
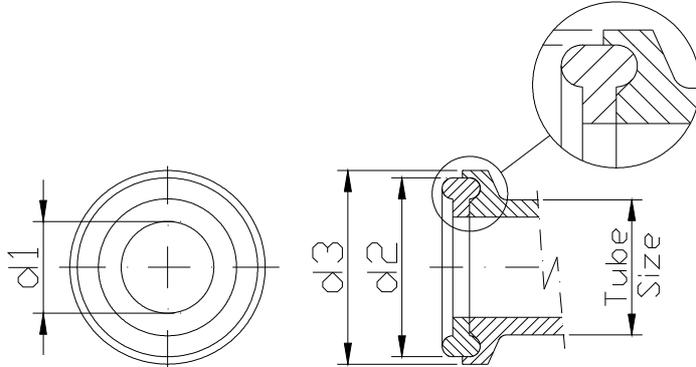
For each material the gasket data sheets show operating temperature ranges and possible applications. This information is based on general material characteristics and we can not be held responsible for the consequences of a failing gasket, due to information of this catalogue.

Consult one of our technical product specialist first for specific application information for our gaskets for the best choice.

Specification subject to change without notice.

## 4.1.2

## Tri-Clamp Gasket Mini



The Heleon group provides Tri-Clamp gaskets in a number of basic designs and a variety of materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics of gasket designs and materials will be furnished upon request.

The "Mini" Tri-Clamp gasket\* is one piece moulded, economical and dependable. Standard available in the US OD and ISO sizes and in a wide range of materials.

\* Also available as blank gasket, in envelope, orifice and screen types.

### Standards:

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

### Figure Number Materials

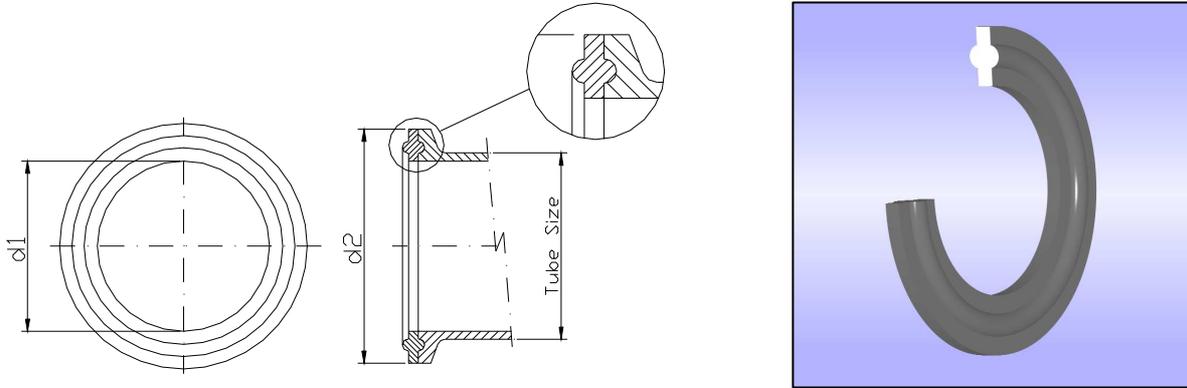
Figure Number	Materials	Temperature Range
42 MP-E	EPDM (Black)	-48°C ... 135°C
42 MP-SFY	Steam Resistant Viton®	-28°C ... 204°C
42 MP-G	Teflon® (PTFE) Solid (White)	-28°C ... 232°C
42 MP-GTS	Tufsteel®	-28°C ... 232°C
42 RX-PX	Clear Silicone (Platinum Cured)	-62°C ... 232°C (steam to 140°C)
42 MP-XR	Red Silicone	-62°C ... 232°C (steam to 140°C)

Standard tube ISO				
Size DN	Tube Size	d1	d2	d3
DN 8	13,5x1,6	10,6	22,0	25,4
DN 10	17,2x1,6	14,2	22,0	25,4

Standard tube US OD				
Size Inch	Tube Size	d1	d2	d3
1/4"	6,35x0,89	5,0	22,0	25,4
3/8"	9,53x1,24	7,1	22,0	25,4
1/2"	12,7x1,65	9,5	22,0	25,4
3/4"	19,05x1,65	15,9	22,0	25,4

**4.1.3**

**Tri-Clamp Gasket Standard**



The Heleon group provides Tri-Clamp gaskets in a number of basic designs and a variety of materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics of gasket designs and materials will be furnished upon request.

Standard\* type gaskets are one piece moulded, economical and dependable. This is the most popular type and available in a wide range of materials.

\* Also available as blank gasket.

**Standards:**

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

**Figure Number Materials**

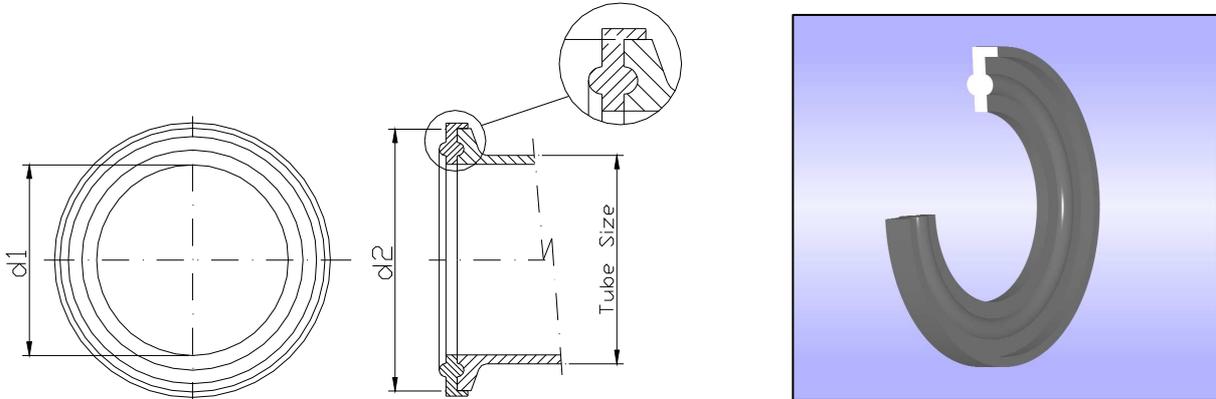
40 MP-E	EPDM (Black)
40 MP-SFY	Steam Resistant Viton®
40 MP-G	Teflon® (PTFE) Solid (White)
40 MP-GTS	Tufsteel®
40 RX-PX	Clear Silicone (Platinum Cured)
42 MP-XR	Red Silicone

**Temperature Range**

-48°C	....	135°C
-28°C	....	204°C
-28°C	....	232°C
-28°C	....	232°C
-62°C	....	232°C (steam to 140°C)
-62°C	....	232°C (steam to 140°C)

Standard tube US OD				
Size Inch	Size DN	Tube Size	d1	d2
1"	DN 25	25,4x1,65	23,0	50,5
1 1/2"	DN 40	38,1x1,65	35,5	50,5
2"	DN 50	50,8x1,65	47,5	64,0
2 1/2"	DN 65	63,5x1,65	61,0	77,5
3"	DN 80	76,2x1,65	73,0	91,0
4"	DN 100	101,6x2,11	97,5	119,0
6"	DN 150	152,4x2,77	147,0	167,0

### 4.1.4 Tri-Clamp Gasket Flanged



The Heleon group provides Tri-Clamp gaskets in a number of basic designs and a variety of materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics of gasket designs and materials will be furnished upon request.

Standard type-2\* flanged gaskets are one piece moulded, economical and dependable. The type-2 is supplied with a snap-on lip, so it stays in position on the clamp. Available in a wide range of sizes (US OD, ISO and DIN) and materials.

\* Also available as blank gasket.

#### Standards:

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

#### Figure Number Materials

40 MPF-E	EPDM (Black)
40 MPF-SFY	Steam Resistant Viton®
40 MPF-G	Teflon® (PTFE) Solid (White)
40 RXF-PX	Clear Silicone (Platinum Cured)**
42 MP-XR	Red Silicone**

#### Temperature Range

-48°C	... 135°C
-28°C	... 204°C
-28°C	... 232°C
-62°C	... 232°C (steam to 140°C)
-62°C	... 232°C (steam to 140°C)

\*\* In ISO and DIN not available

Standard tube DIN			
Size DN	Tube Size	d1	d2
DN 10	12,0x1,0	10,2	34,0
DN 15	19,0x1,5	16,2	34,0
DN 20	23,0x1,5	20,2	34,0
DN 25	29,0x1,5	26,2	50,5
DN 32	35,0x1,5	32,2	50,5
DN 40	41,0x1,5	38,2	50,5
DN 50	53,0x1,5	50,2	64,0
DN 65	70,0x2,0	66,2	91,0
DN 80	85,0x2,0	81,2	106,0
DN 100	104,0x2,0	100,2	119,0
DN 125 *	129,0x2,0	125,2	155,0
DN 150 *	154,0x2,0	150,2	183,0
DN 200 *	204,0x2,0	200,2	233,5

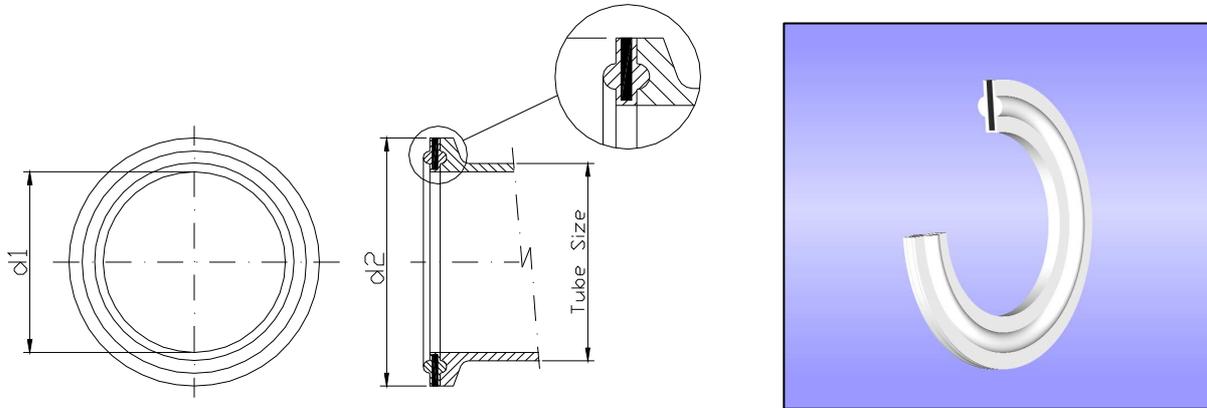
\* Not USP Class VI above DN 100

Standard tube ISO			
Size DN	Tube Size	d1	d2
DN 15	21,3x1,6	18,5	50,5
DN 20	26,9x1,6	24,0	50,5
DN 25	33,7x2,0	30,0	50,5
DN 32	42,4x2,0	38,7	64,0
DN 40	48,3x2,0	44,7	64,0
DN 50	60,3x2,0	56,5	77,5
DN 65	76,1x2,0	72,4	91,0
DN 80	88,9x2,0	85,2	106,0
DN 100	114,3x2,0	110,6	144,5
DN 125 *	139,7x2,3	136,0	155,0
DN 150 *	168,3x2,6	163,4	183,0
DN 200 *	219,1x2,6	214,2	233,5
DN 250 *	273,0x2,6	268,1	287,0
DN 300 *	323,9x2,6	319,0	338,0

\* Not USP Class VI above DN 100

Standard US OD			
Size Inch	Tube Size	d1	d2
1"	25,4x1,65	23,0	50,5
1 1/2"	38,1x1,65	35,5	50,5
2"	50,8x1,65	47,5	64,0
2 1/2"	63,5x1,65	61,0	77,5
3"	76,2x1,65	73,0	91,0
4"	101,6x2,11	97,5	119,0
6"	152,4x2,77	147,0	167,0
8"	203,2x2,77	197,9	217,5
10"	254,0x3,40	247,3	268,5
12"	304,8x3,40	298,1	319,0

### 4.1.5 Tri-Clamp Gasket Envelope



The Heleon group provides Tri-Clamp gaskets in a number of basic designs and a variety of materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics of gasket designs and materials will be furnished upon request.

Envelope gaskets\* are two piece gaskets. The Teflon Envelope gasket has a Teflon (PTFE) outer jacket with circular slot type section to sandwich a Viton® insert. The Viton® insert reduces "cold flow" and ensures a better sealing. Available in a wide range of sizes (US OD, ISO and DIN).

\* Also available as type-2 (flanged) and as "mini" type for the smaller sizes.

#### Standards:

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

#### Figure Number Materials

A40 MP-GR Teflon® (PTFE) + Viton®

#### Temperature Range

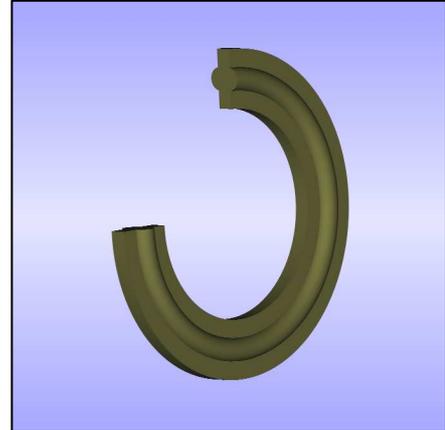
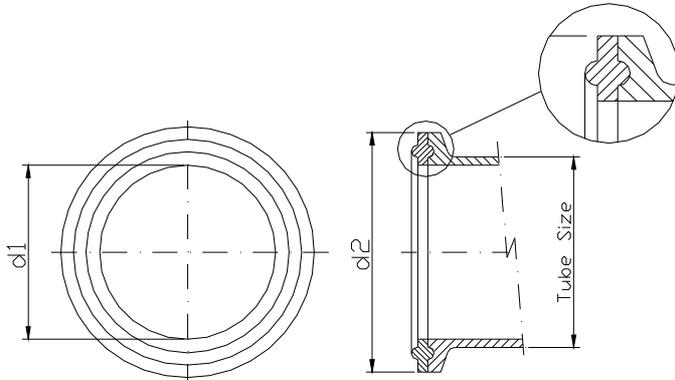
-78°C .... 175°C

Standard tube DIN*			
Size DN	Tube Size	d1	d2
DN 10	12,0x1,0	10,0	34,0
DN 15	19,0x1,5	16,0	34,0
DN 20	23,0x1,5	20,0	34,0
DN 25	29,0x1,5	26,0	50,5
DN 32	35,0x1,5	32,0	50,5
DN 40	41,0x1,5	38,0	50,5
DN 50	53,0x1,5	50,0	64,0
DN 65	70,0x2,0	66,0	91,0
DN 80	85,0x2,0	81,0	106,0
DN 100	104,0x2,0	100,0	119,0

Standard tube ISO*			
Size DN	Tube Size	d1	d2
DN 15	21,3x1,6	18,1	50,5
DN 20	26,9x1,6	24,0	50,5
DN 25	33,7x2,0	30,0	50,5
DN 32	42,4x2,0	38,7	64,0
DN 40	48,3x2,0	44,7	64,0
DN 50	60,3x2,0	56,5	77,5
DN 65	76,1x2,0	72,4	91,0
DN 80	88,9x2,0	85,2	106,0
DN 100	114,3x2,0	110,6	130,0

Standard US OD			
Size Inch	Tube Size	d1	d2
1"	25,4x1,65	23,0	50,5
1 1/2"	38,1x1,65	35,5	50,5
2"	50,8x1,65	47,5	64,0
2 1/2"	63,5x1,65	61,0	77,5
3"	76,2x1,65	73,0	91,0
4"	101,6x2,11	97,5	119,0
6"	152,4x2,77	147,0	167,0
8"	203,2x2,77	197,9	217,5
10"	254,0x3,40	247,3	268,5
12"	304,8x3,40	298,1	319,0

**4.1.6 Tri-Clamp Gasket TUF-Steel®**



The Heleon group provides Tri-Clamp gaskets in a number of basic designs and a variety of materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics of gasket designs and materials will be furnished upon request.

TUF-Steel® gaskets\* is a superior material gaskets. The Teflon/SS316L blend The tough Teflon (PTFE) outside can withstand many chemicals and resists high temperatures. The inner core is flexible, reduces "cold flow" and therefore seals this gasket excellent.

Available in the US OD sizes: 1/2" – 4"

\* Available as "mini" type for the 1/2" & 3/4".

**Standards:**

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

**Figure Number Materials**

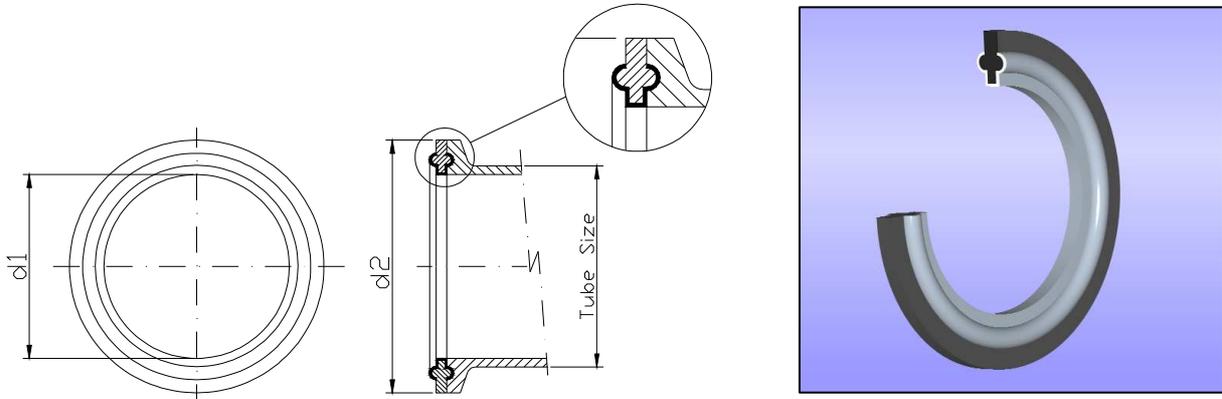
A40 MP-GTS TufSteel® (PTFE/SS316L)

**Temperature Range**

-28°C .... 232°C

Standard tube US OD			
Size Inch	Tube Size	d1	d2
1/2"	12,7x1,65	9,4	25,0
3/4"	19,05x1,65	15,8	25,0
1"	25,4x1,65	23,0	50,5
1 1/2"	38,1x1,65	35,5	50,5
2"	50,8x1,65	47,5	64,0
2 1/2"	63,5x1,65	61,0	77,5
3"	76,2x1,65	73,0	91,0
4"	101,6x2,11	97,4	119,0

**4.1.7 Tri-Clamp Gasket TUF-Flex®**



The Heleon group provides Tri-Clamp gaskets in a number of basic designs and a variety of materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics of gasket designs and materials will be furnished upon request.

TUF-FLEX® gaskets\* are superior two-material gaskets. The Teflon outside is totally bonded to the inner EPDM cushion. The tough Teflon (PTFE) outside can withstand many chemicals and resists high temperatures. The inner core is flexible, reduces "cold flow" and therefore seals this gasket excellent.

Available in the US OD sizes: 1/2" - 4"

\* Available as "mini" type for the 1/2" & 3/4".

**Standards:**

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

**Figure Number Materials**

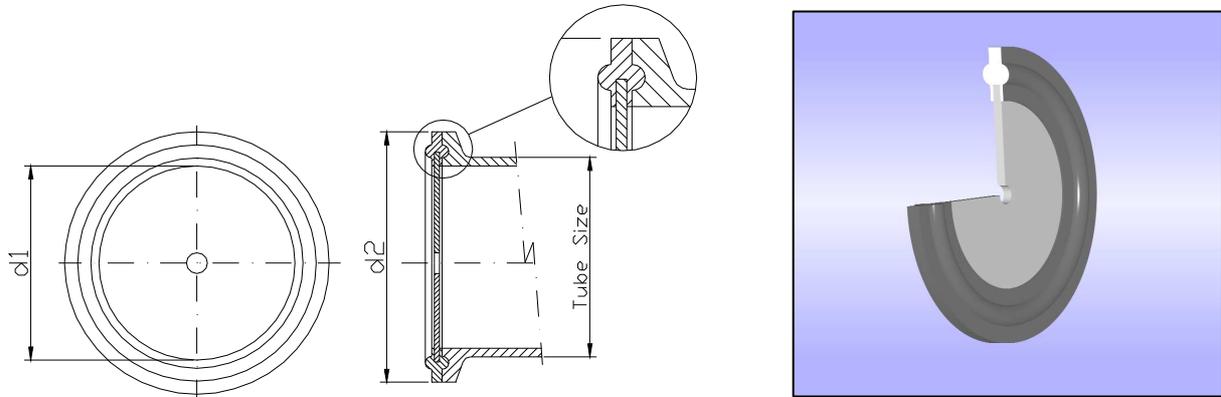
A40 MP-GR-TF Teflon® (PTFE) + EPDM

**Temperature Range**

-28°C .... 145°C

Standard tube US OD			
Size Inch	Tube Size	d1	d2
1/2"	12,7x1,65	9,4	25,0
3/4"	19,05x1,65	15,8	25,0
1"	25,4x1,65	23,0	50,5
1 1/2"	38,1x1,65	35,5	50,5
2"	50,8x1,65	47,5	64,0
2 1/2"	63,5x1,65	61,0	77,5
3"	76,2x1,65	73,0	91,0
4"	101,6x2,11	97,4	119,0

**4.1.8 Tri-Clamp Gasket Orifice Plate**



The Heleon group provides Tri-Clamp gaskets in a number of basic designs and a variety of materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics of gasket designs and materials will be furnished upon request.

Orifice plate gaskets\*\* are moulded gaskets with 316L SS plate\* in centre. The plate is standard bonded, but can be supplied removable. The hole in the centre serves as a flow restrictor. The plate is supplied without a centre hole, unless requested. Every drilled ID is possible. Available in the US OD size only and several gasket materials. Standard centre hole Dimension : Ø 3,18 mm hole diameter (1/8")

\* Also as "mini" type for the small sizes

**Standards:**

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

**Options:**

- Electro-Polished
- With Tab for Identification

**NEW**



1/2" – 4"  
US OD  
only

**"Self Draining"**

**We offer a complete range of eccentric orifice plates. This innovative design assures self drainage and maintains the sanitary conditions in your system.**

**Figure Number Materials**

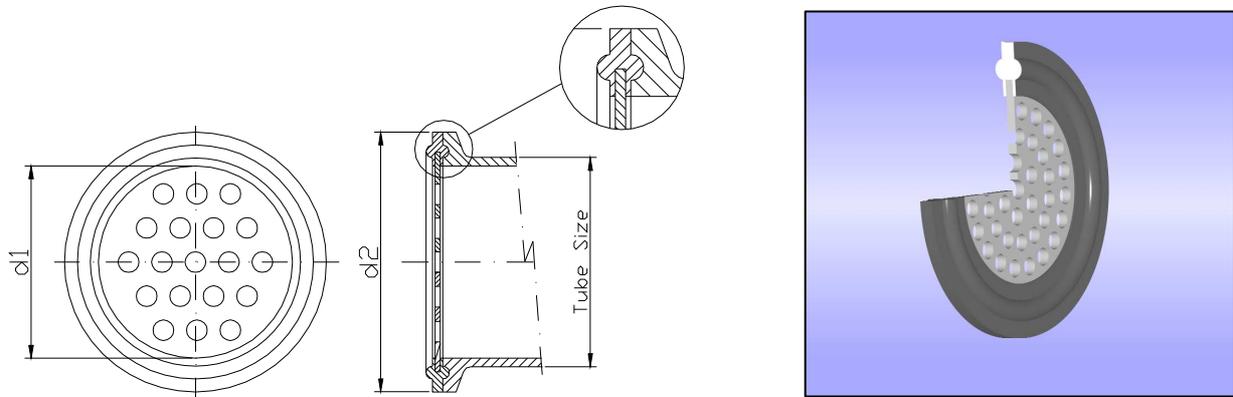
A80 MP-E	EPDM (Black)
A80 MP-SFY	Steam Resistant Viton®
A80 MP-GTS	Tufsteel®
A80 RX-PX	Clear Silicone (Platinum Cured)
A80 MP-XR	Red Silicone

**Temperature Range**

-48°C	... 135°C
-28°C	... 204°C
-28°C	... 232°C
-62°C	... 232°C (steam to 140°C)
-62°C	... 232°C (steam to 140°C)

Standard US OD			
Size Inch	Tube Size	d1	d2
1"	25,4x1,65	23,0	50,5
1 1/2"	38,1x1,65	35,5	50,5
2"	50,8x1,65	47,5	64,0
2 1/2"	63,5x1,65	61,0	77,5
3"	76,2x1,65	73,0	91,0
4"	101,6x2,11	97,5	119,0
6"	152,4x2,77	147,0	167,0

**4.1.9 Tri-Clamp Gasket Perforated Disc**



The Heleon group provides Tri-Clamp gaskets in a number of basic designs and a variety of materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics of gasket designs and materials will be furnished upon request.

Perforated disk gaskets\*\* are moulded gaskets with 316L SS perforated plate\* in centre. The plate is standard bonded, but can be supplied removable. It serves as a pre-filter and is available in different hole diameters and open area's. Available in US OD only and several gasket materials.

Standard Perforated Metal Dimensions : Ø 0,84 mm hole diameter (1/30")  
 : 50,2 holes per cm<sup>2</sup>  
 : 28 % open area

\* Optional available as electro polished (EP)

\*\* Also as "mini" type

**Standards:**

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

**Figure Number Materials**

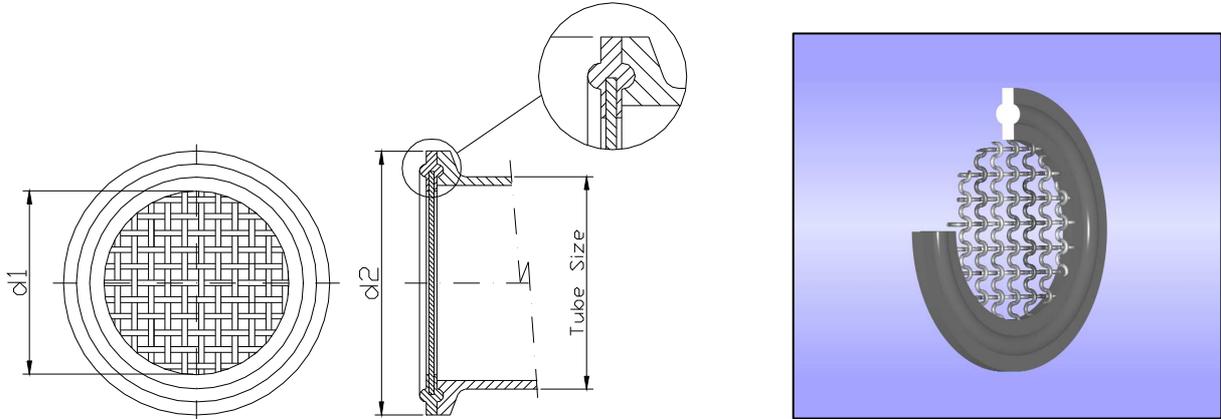
40 MP-EP	EPDM (Black)
40 MP-SFYP	Steam Resistant Viton®
40 MP-GTSP	Tefsteel®
40 RX-PXP	Clear Silicone (Platinum Cured)
40 MP-XRP	Red Silicone

**Temperature Range**

-48°C	....	135°C
-28°C	....	204°C
-28°C	....	232°C
-62°C	....	232°C (steam to 140°C)
-62°C	....	232°C (steam to 140°C)

Standard US OD			
Size Inch	Tube Size	d1	d2
1"	25,4x1,65	23,0	50,5
1 1/2"	38,1x1,65	35,5	50,5
2"	50,8x1,65	47,5	64,0
2 1/2"	63,5x1,65	61,0	77,5
3"	76,2x1,65	73,0	91,0
4"	101,6x2,11	97,5	119,0
6"	152,4x2,77	147,0	167,0

**4.1.10 Tri-Clamp Gasket Wire Mesh**



The Heleon group provides Tri-Clamp gaskets in a number of basic designs and a variety of materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics of gasket designs and materials will be furnished upon request.

Wire Mesh gaskets are moulded gaskets with 316L SS square wire mesh\* in centre. The screen is standard bonded, but can be supplied removable. It serves as a pre-filter and is available in different wire diameters and opening width's. Available in US OD only and several gasket materials.

\* Optional available as electro polished (EP)

Standard Wire Mesh Size (10 Mesh) : Ø 0,64 mm wire diameter (1/40")  
 : 1,91 mm opening width (3/40")  
 : 15,5 openings per cm<sup>2</sup>  
 : 56,8 % open area

**Standards:**

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

**Figure Number Materials**

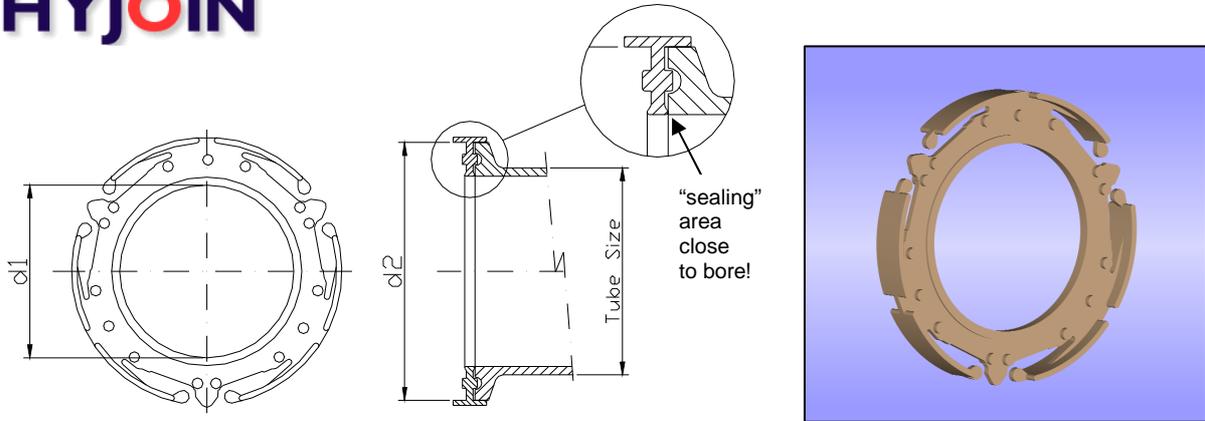
40 MP-ES	EPDM (Black)	-48°C	....	135°C
40 MP-SFYS	Steam Resistant Viton®	-28°C	....	204°C
40 RX-PXS	Clear Silicone (Platinum Cured)	-62°C	....	232°C (steam to 140°C)
40 MP-XRS	Red Silicone	-62°C	....	232°C (steam to 140°C)

**Temperature Range**

Standard US OD			
Size Inch	Tube Size	d1	d2
1"	25,4x1,65	23,0	50,5
1 1/2"	38,1x1,65	35,5	50,5
2"	50,8x1,65	47,5	64,0
2 1/2"	63,5x1,65	61,0	77,5
3"	76,2x1,65	73,0	91,0
4"	101,6x2,11	97,5	119,0
6"	152,4x2,77	147,0	167,0

**4.1.11 Tri-Clamp Gasket Hyjoin®**

**HYJOIN®**



The Heleon group provides Tri-Clamp gaskets in a number of basic designs and a variety of materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics of gasket designs and materials will be furnished upon request.

Hyjoin® gaskets are plastic one piece moulded\* gaskets. The outstanding performance of the PEEK material allows one type of seal for almost all pharmaceutical applications. The PEEK material is a tough, smooth and chemically stable plastic, which endures many operation cycles. The special design of Hyjoin® ensures that the seal is made at the edge of the bore. The Hyjoin® gasket is supplied with six snap-on lips, so it stays tightly in position on the flange.

Available in the US OD sizes: 1/2" – 4"

\* The 1/2" mini-type is available machined from solid bar (with stainless steel snap-on ring).

**Standards:**

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

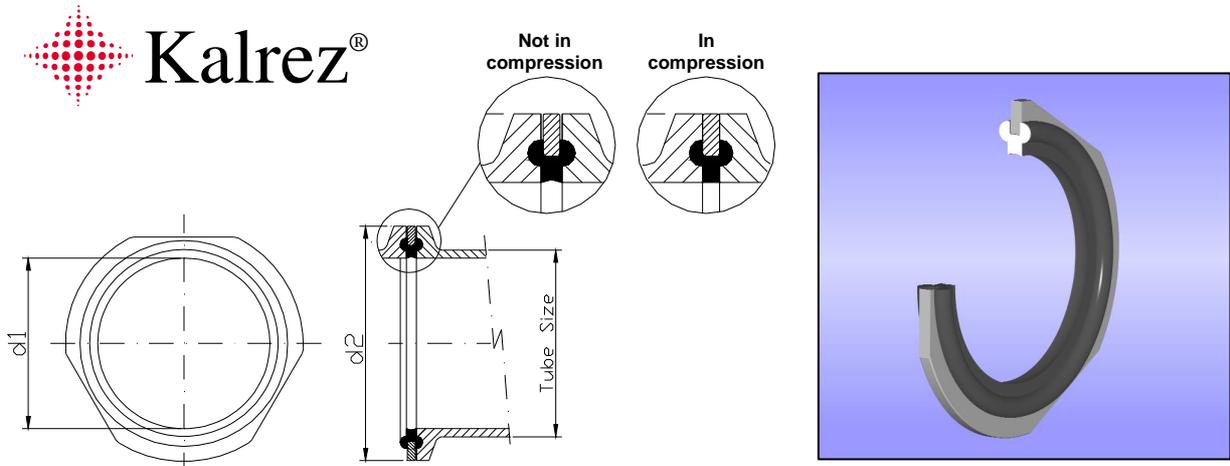
**Figure Number**  
HYJOIN

**Materials**  
PEEK

**Temperature Range**  
-65°C .... 140°C

Standard tube US OD			
Size Inch	Tube Size	d1	d2
1/2"	12,7x1,65	9,4	25,0
3/4"	19,05x1,65	15,8	25,0
1"	25,4x1,65	23,0	50,5
1 1/2"	38,1x1,65	35,5	50,5
2"	50,8x1,65	47,5	64,0
2 1/2"	63,5x1,65	61,0	77,5
3"	76,2x1,65	73,0	91,0
4"	101,6x2,11	97,4	119,0

**4.1.12 Tri-Clamp Gasket Kalrez®**



The Heleon group provides Tri-Clamp gaskets in a number of basic designs and a variety of materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics of gasket designs and materials will be furnished upon request.

Kalrez® gaskets are high performance two piece gaskets. The outstanding performance of the Kalrez® material makes it very useful for high purity pharmaceutical applications. The Kalrez® material has a superior chemical resistance and is very stable up to high temperatures. It endures many thermal sterilisation cycles without leakage or seal degradation.

The material provides the cleanliness of PTFE and the elastic memory of an elastomer (EPDM, Silicone ...). The SS 316L retaining ring assures a controlled compression of the gasket and helps to maintain alignment during assembly. The gasket is designed with a inside concave diameter, which minimizes the intrusion during operation.

Available in the US OD sizes: 1/2" - 4"

**Standards:**

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

**Figure Number Materials**

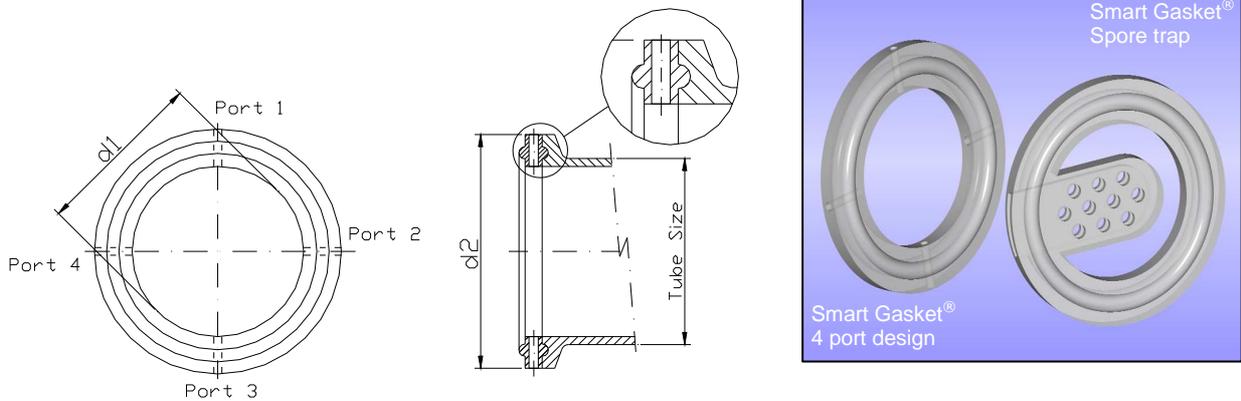
- .. Kalrez® (FFKM) black
- .. Kalrez® (FFKM) white

**Temperature Range**

- 28°C .... 260°C
- 28°C .... 260°C

Size Inch	Tube Size	d1	d2
4"	101,6x2,11	97,4	119,0
3"	76,2x1,65	73,0	91,0
2 1/2"	63,5x1,65	61,0	77,5
2"	50,8x1,65	47,5	64,0
1 1/2"	38,1x1,65	35,5	50,5
1"	25,4x1,65	23,0	50,5
3/4"	19,05x1,65	15,8	25,0
1/2"	12,7x1,65	9,4	25,0

**4.1.13 Tri-Clamp Gasket Smart Gasket®**



The Heleon group provides Tri-Clamp gaskets in a number of basic designs and a variety of materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics of gasket designs and materials will be furnished upon request.

Heleon Smart Gaskets® are special designed gaskets with one to four access port(s) to the inner bore. These moulded gaskets\* can be installed between standard Tri-Clamp flanges and a special clamp is required to provide access to the port(s). Several accessories are can be used. Available in several materials and only in US OD sizes.

\* Also as "mini" type

**Accessories:**

- Sample / injection tube with valve
- Thermocouple wire (up to 3 mtr.)
- Temperature probe (optional with extension)
- Spore trap device (secures spore test strips)



Some examples of Smart Gasket® accessories

**Standards:**

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

**Figure Number Materials**

CL-TH-...-x SS 304 Smart Gasket® Clamp

**Figure Number Materials**

G-TH-...-E-x	EPDM (Black)	-48°C	....	135°C
G-TH-...-V-x	Steam Resistant Viton®	-28°C	....	204°C
G-TH-...-S-x	Clear Silicone (Platinum Cured)	-62°C	....	232°C (steam to 140°C)

x = Number of ports

4"	101,6x2,11	97,5	119,0
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Standard US OD			
Size Inch	Tube Size	d1	d2
1/2"	12,7x1,65	9,4	25,0
3/4"	19,05x1,65	15,8	25,0
1"	25,4x1,65	23,0	50,5
1 1/2"	38,1x1,65	35,5	50,5
2"	50,8x1,65	47,5	64,0
2 1/2"	63,5x1,65	61,0	77,5
3"	76,2x1,65	73,0	91,0

#### 4.1.14 Special Tri-Clamp Gaskets

The Heleon Group provides a range of special Tri-Clamp Gaskets<sup>®</sup>. This can be gaskets with specific designed features or a non-standard sizes. This page gives a short summary of the possibilities. If more detailed information is necessary, please contact us.

##### Laser Engraved Gaskets:

- Permanent batch and lot traceability.
- Available for: EPDM, Viton<sup>®</sup>, Clear Silicone, PTFE (solid), Tuf-Steel<sup>®</sup>, Tuf-Flex<sup>®</sup>
- For ½" – 4" size.



##### Metal Detectable Gaskets:

- Traceability of possible gasket parts in your flow.
- Available for: EPDM, Viton<sup>®</sup>, Clear Silicone, Tuf-Steel<sup>®</sup>

##### Controlled Compression Gaskets:

- A hard plastic (Ultem<sup>®</sup>) outer ring prevents over-tightening and gasket intrusion into the product flow.
- Also available with tab to identify the gasket and lot numbers.
- Available for: EPDM, Viton<sup>®</sup>, Clear Silicone, PTFE (solid), Tuf-Steel<sup>®</sup>, Tuf-Flex<sup>®</sup>
- For ½" – 3" size.



##### Gauge Guard Gaskets:

- A thin (0,4 / 0.3mm) membrane prevents contamination and/or damage to your pressure gauge.
- Does not affect the accuracy of the instrument.
- Available for: EPDM, Viton<sup>®</sup>, and Clear Silicone
- For ½" – 2" size.



##### Special Size Gaskets:

- Ability to supply non-standard hole and flange diameters.
- Available for: EPDM, Viton<sup>®</sup>, Clear Silicone, PTFE (solid), Tuf-Steel<sup>®</sup>
- For example: EPDM Gasket with 50,5mm flange with a 9,4mm (1/2") hole
- For ½" – 4" sizes and also in ISO and DIN ranges possible.

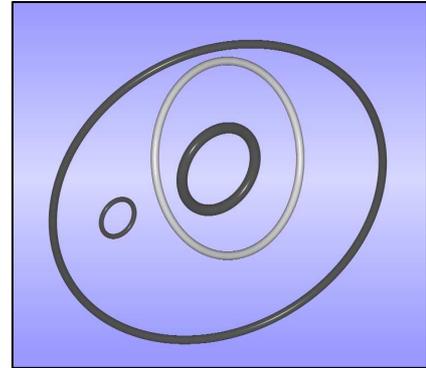
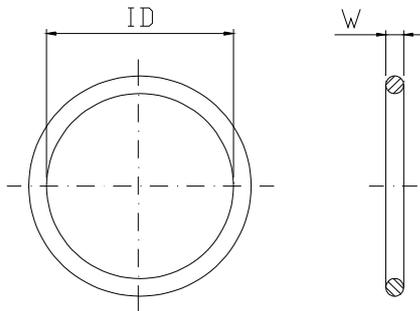
##### Vent- & Vacuum Breaker (V<sup>2</sup>B) Gaskets:

- Uses fine meshed & sintered gasket to vent your tank/vessel instead of expensive vacuum breakers.
- The V<sup>2</sup>B gasket provides unrestricted air flow with ultra-fine filtration to secure the hygienic conditions in your tank.
- Also appropriate for fine particle filtration in product flow.
- Constructed with a SS 316L compression ring
- Available for: EPDM, Viton<sup>®</sup>, and Clear Silicone
- For ½" – 6" size.



##### Standards:

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

**4.1.15**
**Sanitary O-Rings**


The Heleon group also provides a very extensive programme of FDA and USP Class VI pharmaceutical O-Rings.

Available in a variety of sizes and materials that are non-toxic, non-absorbent and resistant to contact media. Information on general service characteristics and materials will be furnished upon request. Heleon Pharmaceutical O-Rings are available in inch and metric sizes.

**Standards:**

- USP Class VI approved
- 3A Sanitary standard
- FDA compliant

**Sizing:**

The O-Ring sizes are always determined by *Inner Diameter x Cross section: ID x W*

**Available Materials**

- EPDM
- Steam Resistant Viton®
- Teflon® (PTFE) Solid (White)
- Clear Silicone (Platinum Cured)
- Kalrez® (FFKM)

**Temperature Range**

- 48°C .... 135°C
- 28°C .... 204°C
- 28°C .... 232°C
- 62°C .... 232°C (steam to 140°C)
- 28°C .... 260°C

#### 4.1.16 Material Selection Guide

In this chapter are the general characteristics of the different gasket materials given. It concerns the gasket compounds mentioned in this catalogue. It also includes some suggestions for the possible application. The basic gasket material can be determined by several properties of the gasket, these are mentioned as well.

##### **Buna-N** (NBR or Nitrile)

- Temperature range: -39°C .... 105°C
- Marking: one red dot ●
- Hardness: 70° Shore A
- Color: Black or White

Most common material for the food, dairy sanitary services. Has an good resistance to compression set, tear and abrasion. Has a good milk alkali and acid resistance and is good with vegetable oils. It's not a fully FDA compliant material and it doesn't pass the USP Class VI tests and therefore almost not used in pharmaceutical and bio-systems.

##### **EPDM** peroxide cured (Ethylene propylene rubber)

- Temperature range: -48°C .... 135°C
- Marking: three green dots ●●●
- Hardness: 71° Shore A
- Colour: Black or White

EPDM is excellent for hot water and low pressure steam services (2,1 Barg) up to 135°C. Has a good resistance to ozone, sunlight or weather and de-ionized water. And can be used with mild acids, alkalis and alcohols. It's often used in less critical pharmaceutical systems and is also preferred for cleaning and passivation procedures (sacrificial), because it's the most economical gasket.

##### **Viton®** peroxide cured (Fluoro elastomer or FKM)

- Temperature range: -28°C .... 204°C
- Marking: yellow & white dot ●○
- Hardness: 74° Shore A
- Colour: Black or White

This material has excellent mechanical, chemical and heat resistance. Has a good resistance to hot fatty and oil products. And can be used with hard vacuum services because of it's high molecular weight and low gas permeability. Viton® should not be used for permanent steam applications.

##### **Silicone** Peroxide Cured

- Temperature range: -62°C .... 232°C
- Marking: pink dot ●
- Hardness: 75° Shore A
- Colour: Milk-white, white or red

This material is very popular because of its clean characteristics. The high resistance to chemicals and temperature (dry heat only) makes it popular in various industries. Silicone can't be used for permanent steam applications (high abrasive). Because of the peroxide curing process, the material can leach some residues to the product and therefore is not advised for vulnerable products.

##### **Silicone** Platinum Cured

- Temperature range: -62°C .... 232°C
- Marking: no dot
- Hardness: 75° Shore A
- Colour: Clear transparent

This material is known for its high purity and non-leaching characteristics. The high resistance to chemicals and temperature (dry heat only) makes it popular in the pharmaceutical industry. Silicone can't be used for permanent steam applications.

It's a common product where a very high purity is desired and it is often used in bio-systems (fermentors & filtration) where vulnerable celcultures are produced. The platinum cured silicone leaves no odor to the product and it's slightly more expensive.

### **PTFE** (Solid Teflon®)

- Temperature range: -28°C .... 232°C
- Marking: no dot
- Hardness: 90° Shore A
- Colour: White (virgin PTFE)

Very high resistance to chemicals en has a high operating temperature range. PTFE leaves no extractable to the product and can be in service for a long time. It's a common used material in permanent clean steam services, although the "cold flow" of the material is a problem with large temperature variations. High fastening torques are required to prevent leakage and high pressure clamps are recommended.

### **TUF-STEEL**® (Teflon® sintered with Stainless Steel)

- Temperature range: -28°C .... 232°C
- Marking: no dot
- Hardness: 90° Shore A
- Colour: Bronze

This new compound has the same resistance to chemicals and temperatures as solid PTFE. It also leaves no extractable to the product and can be in service for a longer time, because the "cold flow" is far less than solid PTFE. It's a better alternative in permanent clean steam systems. The fastening torque is lower and less leakage will occur.

### **PTFE Envelope**® (Teflon® with Viton filler)

- Temperature range: -78°C .... 175°C
- Marking (on Viton): yellow & white dot ●○
- Hardness: 90° Shore A
- Colour: White+Black filler

This two material product has the same resistance to chemicals as solid PTFE. It also leaves no extractable to the product and can be in service for a longer time, because the "cold flow" is reduced by the Viton® filler. It's a better choice than solid PTFE gaskets and withstands the same temperatures. It performs good in permanent clean steam systems. The fastening torque is less than with PTFE and leakage will not occur very fast.

### **TUF-FLEX**® (Teflon® bonded to EPDM)

- Temperature range: -28°C .... 145°C
- Marking: no dot
- Hardness: 85° Shore A
- Colour: Blue/Grey+Black

This new product has the same resistance to chemicals as solid PTFE. It also leaves no extractable to the product and can be in service for a longer time, because the "cold flow" is not an issue any more. It's a good alternative for the PTFE envelope type gaskets in the lower temperature range. Performs well in permanent steam systems ( $\leq 3,2$  Barg) The fastening torque is as an elastomer and the sealing is perfect, leakage will not occur.

### **HYJOIN**® (PEEK)

- Temperature range: -65°C .... 140°C
- Marking: no dot
- Hardness: Not Applicable\*
- Colour: Brown/Grey

Hyjoin® is a special type within the range of Tri-Clamp gaskets. It's moulded of a tough high performance engineering plastic (PEEK) and withstands high temperatures and most chemicals. The special design of Hyjoin® ensures that the sealing is made at the bore and therefore no second contamination can occur in between the flanges. Hyjoin® performs well in permanent steam systems ( $\leq 2,6$  Barg), high pressure clamps are recommended.

- The Hyjoin design has a line seal

**KALREZ®** (FFKM with Stainless Steel Ring)

- Temperature range: -28°C .... 260°C
- Marking: no dot
- Hardness: 73° Shore A
- Colour: Black or White+SS ring

Kalrez® is a new developed compound with the elastic memory of an elastomer and with the cleanliness and resistance of PTFE. It has a very high temperature range and there will be no leakage after many thermal cycles. The SS outer ring assure controlled compression and aligns the gasket. The design at the bore of the gasket is concave and prevents gasket intrusion during operation. The Kalrez® material is a superior material which lasts longer and performs better than other gaskets. It's the most expensive gasket.