

PTFE-ENVELOPED GASKETS

In flange connections where there are high levels of chemical attack, PTFE flat gaskets are used. Due to the cold flow affinity of unfilled PTFE, use is mainly made of PTFE composites and PTFE-enveloped gaskets which have increased resistance to stress relaxation.

Because of their high chemical resistance and outstanding sealing properties, PTFE-enveloped gaskets have proven excellent when used at fluctuating pressures and temperatures ranging from -195 °C to +250 °C. Glass tubes, metal-enveloped glass tubes and glass equipment from laboratory or pilot installations can be connected up as easily as enamelled, coated or lined pipes and equipment in large plants.

PTFE-enveloped gaskets are particularly useful with aggressive chemicals in the chemical industry, due to their high resistant strength. PTFE is also physiologically harmless, and so can be used in the food and pharmaceutical sectors.

Apart from their high resistance to chemicals, PTFE is also extremely anti-adhesive. This non-stick effect means that no material will adhere to the surface of the PTFE.

PTFE-enveloped gaskets consist of a stable gasket insert and a PTFE envelope. Only high-quality, non-porous PTFE is used for the envelope, so as to protect the insert against chemical attack. The PTFE envelopes are open onto the outer or inner diameter, or encase the entire insert, depending on what is required. The envelope is 0.5 mm thick and therefore very stable. Lathed envelopes can be produced with an internal diameter 2 to 4 mm thicker to provide greater diffusion sealing.

For dimensions see the section 3 "Flat gaskets made from Graphite, Fibre, PTFE, Elastomer".





Insert: Soft material flat gaskets

The insert is made of a graphite laminate or fibre sealing material. With a graphite laminate insert, the gasket is also suitable for use with plastic or GRP flanges due to its greater conformity and softness.

- » Profile PF2 with a envelope that can be supplied as a lathed or shaped envelope, depending on the size of the gasket
- » Profile PF3 with a envelope with a reinforced internal diameter.
- » Profile PF18 with a envelope that is punctured without cutting.
- » Profile PF21 with a lathed envelope.

PTFE-enveloped gaskets fulfil the requirements of the TA-Luft having regard to clause 3.3.1.4 of the VDI Guidelines 2440.

Gasket profiles

Profile	Cross-section
PF2	
PF3	
PF18	
PF21	

Gasket limiting values

Profiles		Pf2 to PF21	
Materials		Graphite laminate 2 mm	Fibre sheets 2 mm
Recommended max. roughness of the flange surfaces	μm from to	50 to 100	50 to 100
Surface pressure limits for 20 °C	N/mm^2 σ_v σ_θ	20 σ_v 90 σ_θ	15 σ_v 60 σ_θ
Surface pressure limits for 250 °C	N/mm^2 σ_v σ_θ	25 σ_v 80 σ_θ	- σ_v - σ_θ
Temperature range	°C	-195 to 250	-100 to 150

You can find gasket characteristic values in accordance with EN13555 on our homepage at www.klinger-kempchen.de

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Insert: Corrugated gaskets

Profile PWA2: With a corrugated ring, thin metal sheet layer on both sides and a layer of RivaTherm Super. With the use of a sheet metal insert, the corrugated ring is not filled out with soft material, so that the spring effect of the corrugated carrier is less impeded.

Profile PW4: Here the insert consists of a corrugated ring, with a layer of RivaTherm Super on both sides.

Profile PW5: Like PW4, but with a PTFE envelope reinforced by approx. 2.5 mm on the internal diameter, to improve diffusion sealing.

Profile PW21: Lathed PTFE envelope, reinforced internally with a corrugated ring insert. Up to DN 200, the corrugated ring is concentric at the inner edge.

Profile PW1A-3: Corrugated gasket with parallel concentric centre ring, an abbreviated PTFE envelope and graphite layer on both sides to provide a fire-safe seal.

Insert: Grooved gaskets

PTFE-enveloped gasket with a grooved gasket insert of metal for even sealing surfaces, ceramic or glass is used for higher pressures.

Profile PF7, PF9 and PF15 with an even basic profile, Profile PF27, PF29 and PF25 with a convex basic profile.

The sealing surfaces must be surface-ground for ceramic and glass, so that no stress peaks arise that could cause the material to be destroyed.

Gasket profiles

Profile	Cross-section
PWA2	
PW4	
PW5	
PW21	
PW1A-3	

Gasket profiles

Profile	Cross-section
PF7	
PF9	
PF15	
PF27	
PF29	
PF25	

Gasket limiting values

Profiles	PW4 PW5	PW21
Materials	PTFE, RS 1.4571	PTFE 1.4571
Recommended max. roughness of the flange surfaces	from 25 μm to 50	25
Surface pressure limits for 20 °C	σ_v 25 σ_θ 80	25 80
Surface pressure limits for 250 °C	σ_v 30 σ_θ 60	30 60

Gasket limiting values

Profiles	PF7,PF9 PF15	PF27,PF29 PF25
Materials	PTFE 1.4541	PTFE 1.4541
Recommended max. roughness of the flange surfaces	from 25 μm to 50	25
Surface pressure limits for 20 °C	σ_v 15 σ_θ 500	15 500
Surface pressure limits for 250 °C	σ_v 17 σ_θ 450	17 450

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