

# PTFE-enveloped gaskets

Toll Free Sales & Service (USA & Canada)  
**1-800-217-8677**

PTFE flange gaskets are being more and more frequently used for flanged joints which are subjected to extreme chemical attacks. PTFE composites and PTFE-enveloped gaskets with increased pressure stability are chiefly used because of the cold-flow tendency of filler-free PTFE.

PTFE-enveloped gaskets have proved themselves because of high resistance to chemicals as well as on account of their excellent sealing properties at changing pressures and temperatures of between -195°C up to +250°C. Glass tubes, metal-sheathed glass tubes and glass apparatuses in laboratory systems or pilot plants can be just as easily connected to each other as enamelled, coated or lined tubes and apparatuses in large-scale plants.

PTFE-enveloped gaskets are particularly used in the chemical industry because of their high resistance to aggressive chemicals. Since PTFE is generally recognised as physiologically safe, it is also used in the food and pharmaceuticals field.

In addition to its high chemical resistance, PTFE stands out for its extremely anti-adhesive behaviour. This anti-adhesive effect causes no material to adhere to the surface of PTFE. PTFE-enveloped gaskets consist of a stable gaskets insert and a PTFE envelope. Various inserts such as corrugated steel plate with cord or soft material layers, rubber, RivaTherm-Super and FA\* are covered with a PTFE envelope. Only high-grade, non-porous PTFE is used for the envelope so that the insert is protected against chemical attack. Depending on requirements, the PTFE envelopes are open at the outer or inner diameter or fully envelop the insert. The thickness of the envelope is 0.5 mm and that is the reason for its high stability. Turned envelopes can have a increased thickness from 2 up to 4 mm at the inner diameter so that a greater imperviousness to diffusion is given.

**Profile PF2:** The insert usually consists of RivaTherm-Super, rubber, reinforced rubber-steel or FA\*. This gasket with an insert of RivaTherm-Super or rubber is also suited

for a plastic flange or a glass-fibre-reinforced flange because of its great adaptability and softness. With the surface pressure required for PTFE rubber without a reinforcing insert can more or less be strongly pressed out of the envelope.

**Profile PF3:** Design as PF2 but with an increasing thickness of the envelope at the inner diameter.

Profile		PF2 PF3 PF18	PWA2 PW3	PF27 PF29
Materials		PTFE FA*	PTFE Stahl FA*	PTFE 1.4541
Rec. max. surface roughness of the flange surfaces $\mu\text{m}$	from to	25 50	50 100	25 50
Surface pressure limits for 20 °C $\text{N/mm}^2$	$\sigma_y$ $\sigma_a$	15 60	20 80	15 500
Surface pressure limits for 250 °C $\text{N/mm}^2$	$\sigma_y$ $\sigma_a$	25 45	25 60	17 450

\* FA Fiber sheet according to DIN 28091-2

Profile	Cross section
PF2	
PF3	
PWA2**	
PW3	
PW4**	
PW5**	
PW10	
PW21**	
PF18	
PF19	
PF20	
PF21	
PF22	
PF23	
PF27	
PF29	

\*\* middle-ending corrugated ring only in 1.4571 up to DN 200

**kempOchen**  
*the right choice!*

Gaskets • Packings • Expansion Joints • Rubber and Plastic Parts



**Profile PWA2:** With a corrugated ring, a thin plate layer on both sides and a layer of RivaTherm-Super. As a result of the intermediate plate layer the corrugated ring is not filled out by the soft material so that the spring effect of the corrugated reinforcement is less hindered.

**Profile PW3:** The insert is a corrugated ring with a mineral-fibre cord layer, PTFE cord layer or a rubbercord layer for special applications.

**Profile PW4:** In this case the insert is made up of a corrugated ring with a layer of RivaTherm-Super on both sides or an FA\* layer for up to approx. 150°C.

**Profile PW5:** Like PW4 but with a PTFE envelope that has been enlarged at the inner diameter to approx. 2.5 mm to improve the imperviousness to diffusion.

**Profile PW10:** Like PW3 but with an additional RivaTherm-Super or FA\* layer on both sides.

**Profile PW21:** Turned PTFE envelope, enlarged inside with a corrugated ring insert. Up to DN 200 the corrugated ring has a middle ending flat finish.

The **PF18, PF19 and PF20 profiles** have envelopes which are cutted without chippings and therefore more favourably priced than gaskets according to **profile PF21, PF22 and PF23** with a turned envelope.

**Profile PF25, PF27 and PF29** with a grooved gasket as insert can be used for high pressures with smooth sealing surfaces of metal, ceramics, enamel or glass. The sealing surfaces with ceramics, enamel and glass have to be plane ground so that no punctual stress peaks occur which can result in the destruction of the material.

PTFE-enveloped gaskets are designed for:

**Flanges for impeller type mixers of steel, enamelled**

- according to DIN 28 148

**Flanges with raised face<sup>2)</sup>**

- according to DIN 2690 for DIN flanges
- according to ANSI B 16.21 for ANSI B 16.5 flanges
- according to ANSI B 16.21 for ASME B16.47 series A
- according to ANSI B 16.21 for ASME B16.47 series B

**Flanges with tongue and groove<sup>2)</sup>**

- according to DIN 2691<sup>3)</sup>
- according to ANSI B 16.5<sup>3)</sup>

**Flanges with spigot and recess<sup>2)</sup>**

- according to DIN 2692
- according to ANSI B 16.5
- according to ASME B16.47 series B

**For flat face flanges<sup>2)</sup>**

- according to DIN 86071
- according to DIN 86072
- according to ANSI B 16.21 and works standard 132 for ANSI B 16.5 flanges
- according to works standard 142 for ASME B16.47 series A flanges

**Apparatus-flange connections<sup>2)</sup>**

- according to DIN 28040

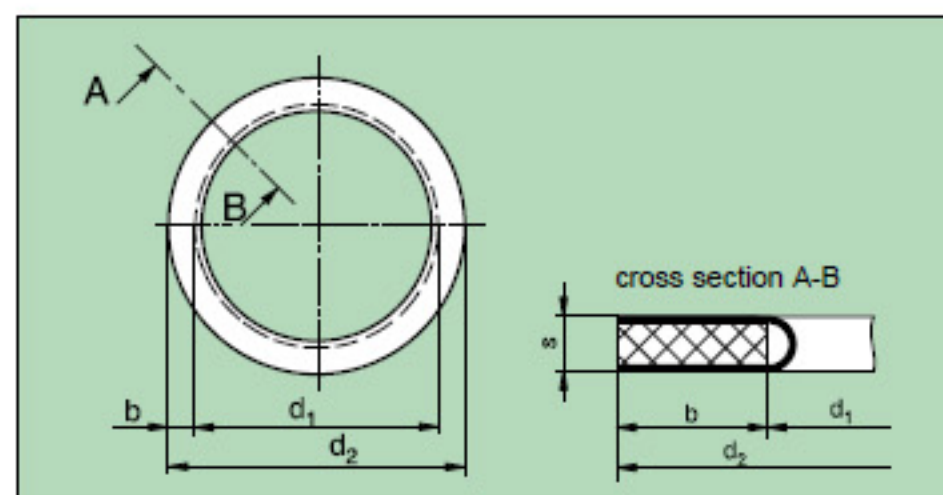
**Flange connections according to DIN 20002, 20003<sup>2)</sup>**

- according to DIN 20006

**Toll Free Sales & Service (USA & Canada)**  
**1-800-217-8677**

kempchen & Co. GmbH  
Alleestr.4 • D-46049 Oberhausen  
Tel.: ++49 208 8482-0 • Fax ++49 208 8482-285  
E-mail: info@kempchen.de  
URL: www.kempchen.de

**PTFE-enveloped gasket for impeller type mixer of steel, enamelled according to DIN 28 148**



Order example for a flat gasket, profile PW4, nominal width 100, of .....1):

**PTFE-enveloped gasket, profile PW4, DN 100, DIN 28 148, 1.4541 / FA\* / PTFE**

\* FA = Fibre sheet according to DIN 28091-2

Form	A				B							
DN	b	d <sub>1</sub>	d <sub>2</sub>	s	b	d <sub>1</sub>	d <sub>2</sub>	s	b	d <sub>1</sub>	d <sub>2</sub>	s
25	-	-	-	-	14,0	42	70	5				
32	-	-	-	-	16,0	50	82	5				
40	-	-	-	-	16,5	59	92	5				
50	16,5	71	104	5	18,0	71	107	5				
65	-	-	-	-	20,5	86	127	5				
80	19,5	101	140	5	20,5	101	142	5				
100	-	-	-	-	18,5	125	162	5				
125	20,0	150	190	5	21,0	150	192	7				
150	19,5	175	214	5	21,5	175	218	7				
200	22,5	225	270	5	24,0	225	273	7				
250	21,5	262	305	5	26,5	275	328	7				
300	21,5	312	355	5	26,5	325	378	10				
400	-	-	-	-	31,5	427	490	10				
500	-	-	-	-	-	-	-	-				
600	-	-	-	-	-	-	-	-				

Form	C			
DN	b	d <sub>1</sub>	d <sub>2</sub>	s
508	25,0	515	565	10
600	25,0	605	655	10
700	32,5	710	775	10
800	32,5	810	875	10
1000	32,5	101	107	10
1200	32,5	121	127	10
1400	37,5	141	148	10
1600	37,5	161	168	10
1800	37,5	181	188	10
2000	37,5	201	208	10

<sup>1)</sup> State material with order

<sup>2)</sup> For the dimensions see our brochure entitled "General dimensional tables for flange gaskets to DIN, ANSI, BS". Please request if and when required.

<sup>3)</sup> For flanges with tongue and groove PTFE-enveloped gaskets are from a sealing point of view not suited and/or only profiles with an angular envelope can be used because of the narrow width of the gasket, depending on the nominal diameter.

**kempchen**  
*the right choice!*