

novaflon®

PTFE gaskets for

industrial applications.



GASKETS

TECHNICAL TEXTILES

EXPANSION JOINTS

INSULATION

NEW MATERIALS

 **Frenzelit**

creating  
hightech  
solutions



## At a glance: the benefits of novaflon®

**novaflon® combines decisive advantages over conventionally manufactured PTFE:**

- Excellent media resistance to most lyes and acids throughout the pH range (pH levels 0-14)
- High residual stress
- Resistant to cold flow
- High mechanical resistance
- Wide temperature range from -210 °C to 260 °C
- Unlimited shelf life
- Excellent leakage properties: Meets German fugitive emission regulation TA Luft [leakage rate <math>< 10^{-4}</math> mbar·l/(s·m)]
- Compliance with FDA 177.1550 Perfluorocarbon regulation

## Typical application areas for novaflon®

- All-purpose use in the chemical, petrochemical, pharmaceutical, paper and food industries
- Oils and greases, acids and alkalis, solvents, refrigerants, water, steam
- Compliance with the German fugitive emission regulation TA Luft in these areas:
  - Petrochemicals
  - Chemical industry
  - Pharmaceutical industry
  - Food industry

# The better choice: novaflon® – gaskets made from PTFE

## novaflon® 100

### Modified PTFE with hollow glass microspheres

Thanks to its extremely high compressibility, novaflon® 100 is eminently suitable for use in stress-sensitive flanges, such as glass, ceramic and FRP flanges.

Very good anti-stick properties are an outstanding feature of the all-purpose gasket made from modified PTFE. Downtime is minimised as a result, while machine reliability and availability are increased. Another advantage: novaflon® 100's impressive adaptability enables it to compensate for minor damage or unevenness in the flange surface.

Excellent media resistance makes novaflon® 100 the ideal solution for use in the chemical industry.

## novaflon® 200

### Modified PTFE with barium sulphate

novaflon® 200 has the best chemical resistance to strong alkalis.

High mechanical resistance, high pressure resistance (vacuum to 83 bar) and strongly optimised creep properties are convincing features of the all-purpose flat gasket made from modified PTFE.

The high purity of the gasket material, which is physiologically harmless, makes novaflon® 200 the ideal solution for use in the food and pharmaceutical industry.

## novaflon® 300

### Modified PTFE with silica

novaflon® 300 offers a very good balance between chemical resistance and reduced creep properties. The flat gasket is not affected by concentrated acids either (except for hydrofluorides). The all-purpose gasket made from modified PTFE is therefore the product of choice for process industry applications.

High mechanical resistance at both high pressure (vacuum to 83 bar) and high temperatures makes novaflon® 300 the ideal solution for use in the chemical and petrochemical industry.

## novaflon® 500

### 100 % multi-directional expanded PTFE

novaflon® 500 offers a universal chemical resistance (pH 0-14).

Due to its unique production process novaflon® 500 shows an extremely good resistance to creep and cold flow.

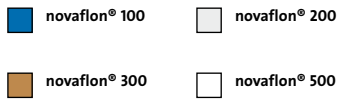
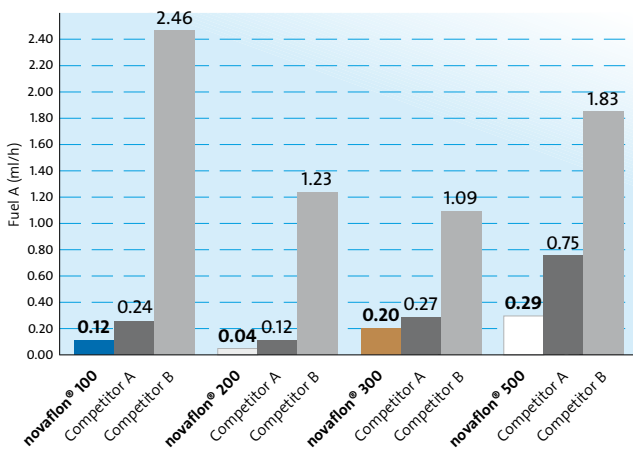
The gasket material compensates low bolt forces as well as flange irregularities and moreover stands out by extremely high pressure resistance (vacuum up to 200 bar).

These properties predestine novaflon® 500 for the application in the pharmaceutical industry, the food and beverage industry, especially suitable for glass lined flanges and FRP equipment or in reactors in the process industry.



# Technical information about novaflon®

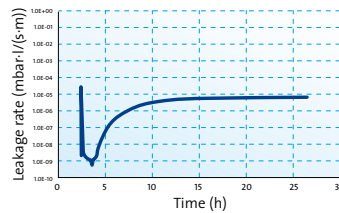
## Leakage measurement – ASTM F 37 A



## novaflon® meets the German fugitive emission regulation TA Luft

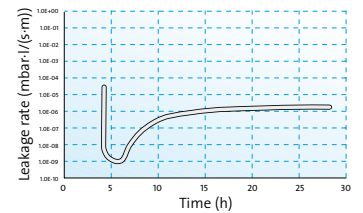
### novaflon® 100

Leakage rate  $\lambda$   $5.8 \cdot 10^{-6}$  mbar-l/(s-m)



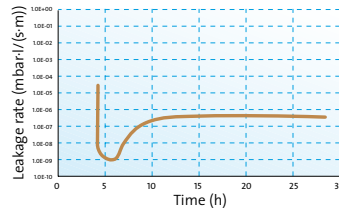
### novaflon® 200

Leakage rate  $\lambda$   $1.7 \cdot 10^{-6}$  mbar-l/(s-m)



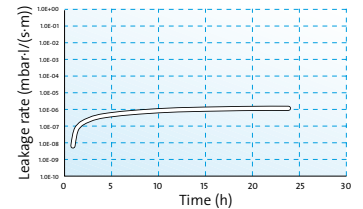
### novaflon® 300

Leakage rate  $\lambda$   $5.4 \cdot 10^{-7}$  mbar-l/(s-m)



### novaflon® 500

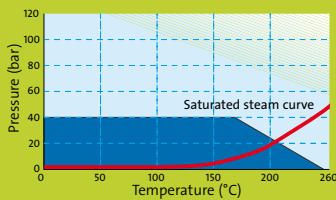
Leakage rate  $\lambda$   $1.2 \cdot 10^{-6}$  mbar-l/(s-m)



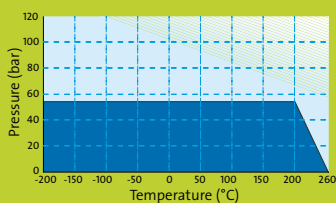
## Recommendations for use according to the pressure and temperature

### novaflon® 100

#### Water/steam

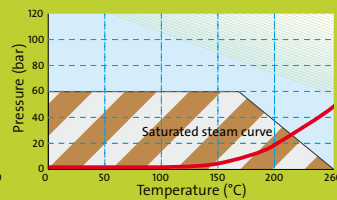


#### Other media\*

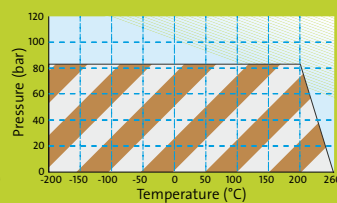


### novaflon® 200/300

#### Water/steam

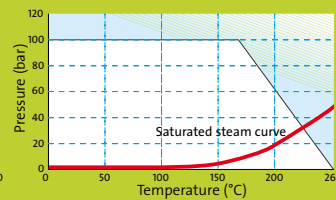


#### Other media\*

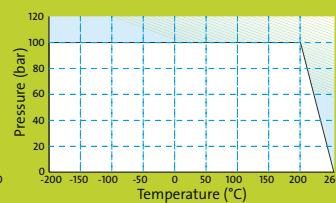


### novaflon® 500

#### Water/steam



#### Other media\*



The temperature and pressure recommendations in the graphs apply to gaskets with a thickness of 2.0 mm and smooth flanges. Higher stresses are possible when thinner gaskets are used!

\*Example for the most common other media. Exact data for specific individual cases are available in the Frenzelit novaDISC programme or contact our application engineering specialists.

### Warranty exclusion

In view of the variety of different installation and operation conditions and application and process engineering options, the information given in this prospectus can only provide approximate guidance. There is as a result no basis for warranty claims.

# Material data

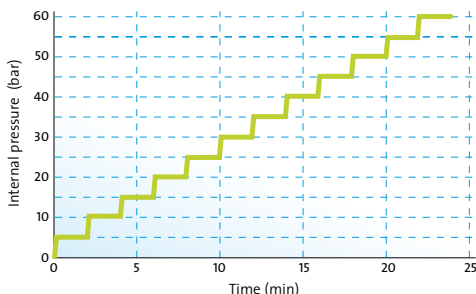
## Blow-out test passed easily

Proof of the blow-out resistance of the gasket system is required in addition to leakage testing. According to the latest version of VDI 2200, the gasket has to be able to withstand 1.5 times nominal pressure at very reduced surface pressure levels. The gasket is fitted in a DIN flange DN40/PN40 at 30 N/mm<sup>2</sup>.

After storage of the flange system at 150 °C for 24 hours, nitrogen is applied gradually at a pressure of up to a maximum of 60 bar. Pressure would drop very rapidly if the gasket failed.

The gasket is then tested at two considerably reduced surface pressure levels. If the test is passed at 10 N/mm<sup>2</sup>, a further reduction is made to 7.5 N/mm<sup>2</sup>. Even in the most critical case of an extremely low surface pressure level of 7.5 N/mm<sup>2</sup> and maximum pressure of 60 bar, novaflon® gaskets demonstrate their impressive blow-out resistance in line with the German fugitive emission regulation TA Luft – without internal edging. We can provide a certificate confirming this on request.

## Blow-out test



## General data

### Approvals and tests

Colour

Tolerances in thickness

### Physical properties

Sample thickness 2.0 mm

Identification

Density

Tensile strength

Residual stress  $\sigma_{dE/16}$   
150°C, 30 N/mm<sup>2</sup>, 16h

Compressibility

Recovery

Cold compressibility  $\epsilon_{KSW}$

Cold recovery  $\epsilon_{KRW}$

Hot creep  $\epsilon_{WSW/150}$

Hot recovery  $\epsilon_{WRW/150}$

Leakage

Specific leakage rate (TA Luft)  
Helium, 1bar, 30 MPA

## Product data

### novaflon® 100/200/300

- Dimensions in mm: 1200 x 1200 (for thickness 1.0 mm)  
1500 x 1500 (from thickness 1.5 mm)
- Thicknesses in mm: 1.0/1.5/2.0/3.0

### novaflon® 500

- Dimensions in mm: 1500 x 1500
- Thicknesses in mm: 0.5 to 9.0

Further dimensions and thicknesses are available on request.



novaflon® 100	novaflon® 200	novaflon® 300	novaflon® 500
FDA, TA Luft, GL (German. Lloyd), EC 1935/2004	FDA, TA Luft, DVGW, BAM, GL (German. Lloyd), EC 1935/2004	FDA, TA Luft, DVGW, BAM, GL (German. Lloyd), EC 1935/2004	FDA, TA Luft, BAM, GL (German. Lloyd), EC 1935/2004
light blue	white	fawn	white
	acc. DIN 28 091-1		

	Test standard	Unit	Value*	Value*	Value*	Value*
Identification	DIN 28 091-3		TF - G - O	TF - M - O	TF - M - O	TF - O - O
Density	DIN 28 090-2	[g/cm <sup>3</sup> ]	1.70	2.90	2.10	0.90
Tensile strength	DIN 52 910	[N/mm <sup>2</sup> ]	16	18	17	26
Residual stress $\sigma_{dE/16}$ 150°C, 30 N/mm <sup>2</sup> , 16h	DIN 52 913	[N/mm <sup>2</sup> ]	12	14	16	18
Compressibility	ASTM F 36 J	[%]	25	3	5	50
Recovery	ASTM F 36 J	[%]	40	45	45	10
Cold compressibility $\epsilon_{KSW}$	DIN 28 090-2	[%]	20	3	3	40
Cold recovery $\epsilon_{KRW}$	DIN 28 090-2	[%]	4	1	1	3
Hot creep $\epsilon_{WSW/150}$	DIN 28 090-2	[%]	45	40	20	15
Hot recovery $\epsilon_{WRW/150}$	DIN 28 090-2	[%]	6	4	3	2
Leakage	DIN 3535-6	[mg/(m·s)]	≤ 0.015	≤ 0.015	≤ 0.015	≤ 0.015
Specific leakage rate (TA Luft) Helium, 1bar, 30 MPA	VDI 2440/TA Luft	[mbar·l/(m·s)]	5.8·10 <sup>-6</sup>	1.7·10 <sup>-6</sup>	5.4·10 <sup>-7</sup>	1.2·10 <sup>-6</sup>

\* Modal value (typical value)



## novaflon® XXL

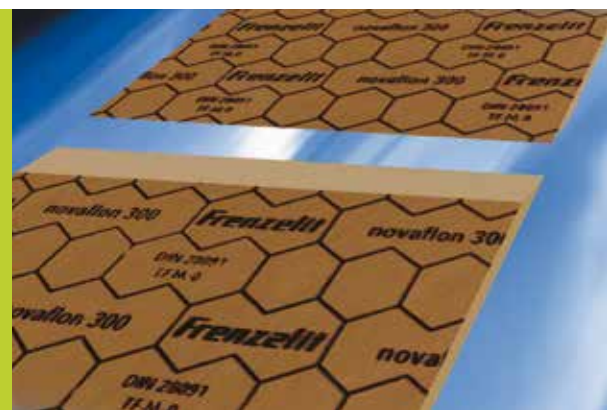
Large novaflon® gaskets can be supplied with scarfed edges and welded in one piece. Ideal for large gasket dimensions in use with corrosive media, for example in heat exchanger applications.

- Optimised leakage properties compared with PTFE dovetail joints
- Uncritical handling
- Less installation work
- Shorter downtime

Do you have any questions about your application?

The gasket information service will help you:

[gaskets@frenzelit.de](mailto:gaskets@frenzelit.de)



# Good for people and the environment.

From research and development to our manufacturing operations and use of the product by the customer: quality assurance and a responsible approach to resources and the environment are a firm commitment we observe in everything we do throughout the life cycle of all products.

The Frenzelit gasket division has obtained certification that the company complies with the requirements of ISO 9001 and ISO 14001. This means complete transparency in all areas and therefore provides a high degree of security – for the benefit of our employees, the environment and our customers.

## IPPC directive and TA Luft

Since October 2002 plant operators have had to observe the drastically tightened threshold values on diffuse emissions – that's what the revised German fugitive emission regulation TA Luft requires which have thus been adjusted to the new European regulation (Council Directive 96/61/EC) as well as to new environmental and technical standards. All novaflo® products observe the strict leakage criteria of the German fugitive emission regulation TA Luft comfortably.

## Quality management

ISO 9001

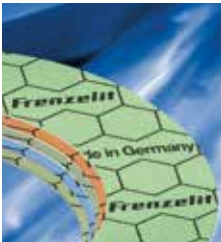
## Environmental management

ISO 14001

## Gasket materials of Frenzelit:

### novapress®

Compressed fibre gaskets



### novaform®

Special compressed fibre gaskets, metal, dispenser or silk screen gaskets



### novatec®

Fibre-reinforced graphite gaskets



### novaphit®

Graphite gaskets from expanded pure graphite / reinforced with stainless steel inserts



### novaflo®

PTFE gaskets



### novaMICA®

High-temperature gaskets made from phlogopite mica with an expanded stainless steel metal insert



### isoplan®

High-temperature gaskets and insulation material



### novaplan®

Facing material for cylinder head gaskets, head shield papers



GASKETS

TECHNICAL TEXTILES

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INSULATION

NEW MATERIALS

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 **Frenzelit**

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