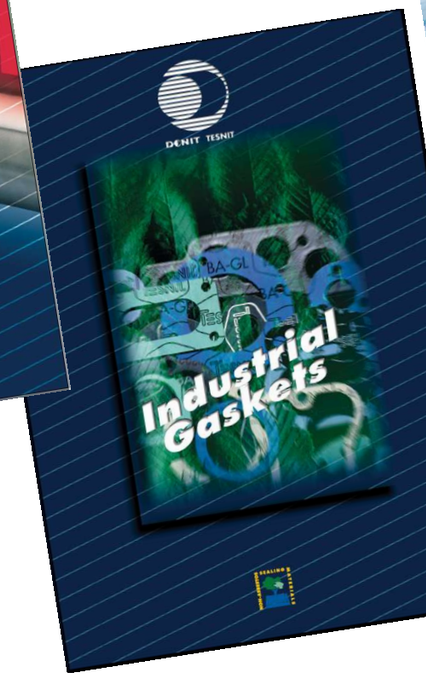
BACF 4000

- *Excellent sealing, thermal and mechanical properties contribute to the reduction of "fugitive emissions"*
- *Free of hazardous fibres*
- *"N-nitrosamines free"*
- *Correspond to DIN 28091-2*

Environment –friendly gasket material with enhanced resistance to steam and strong alkaline media.

DONIT TESNIT



Product range:

- *Compressed gasket materials*
  - *Standard Line*
  - *High Performance Line*
- *Composite sealing materials*
- *Flexible graphite sealing materials*
- *PTFE sealing products*
- *Elastomeric sealing products*
- *High temperature insulation and technical textile*
- *Packings*
- *Fiber-reinforced graphite sealing materials*
- *Gaskets*
  - *non metallic flat gaskets*
  - *metal jacketed gaskets*
  - *spiral wound gaskets*
  - *gaskets for heat exchangers*
  - *grooved gaskets*
  - *corrugated metal gaskets*
  - *PTFE gaskets*

In order to spread the most comprehensive knowlege of our products, our highly skilled group of experts organized in technical-service department can assist you by solving your sealing problem. If you need our help, contact us.

DONIT TESNIT

TÜV CERT ISO 9001

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... on All Continents

TESNIT BACF 4000

Environment – friendly gasket material with enhanced resistance to steam and strong alkaline media.

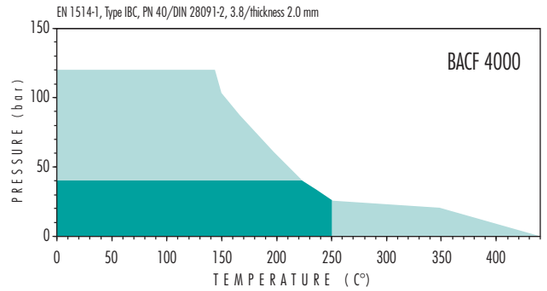
BACF 4000 is a premium-quality-grade gasket material based on a combination of aramide and carbon fibres, specially selected fillers, additives and elastomeric binders. With a careful selection of components the material is free of N– nitrosamines (certified by MRPRA) and without fibres which are hazardous to human health. Additionally, when it is applied at high temperatures, no emission of hazardous degradation products has been detected. Apart from better sealability resulting in an important decrease of fugitive emission levels, the new material has also outstanding creep-relaxation as well as excellent chemical resistance especially in alkaline media. BACF 4000 is in compliance with DIN 28091-2 and BS 7531 Grade X requirements.

APPLICATION

A combination of carbon and aramide fibers together with carefully selected fillers and binders in BACF 4000 is utilized to contribute to the improvement of chemical and thermal stability. BACF 4000 has very high torque retention properties, excellent chemical resistance and sealability, which enables low maintenance costs and high gasket safety. Due to its outstanding chemical properties and steam resistance BACF 4000 is a first-rate choice in sealing strong alkaline media and steam. BACF 4000 meets all demands for application in chemical industry, pulp and paper industry and saturated steam distribution. Special surface treatment provides simple replacement of the gasket after use. BACF 4000 can also be used as a superior material for the sealing of oils, fuels, gases, Freons, and for general application in pipelines, radiators, boilers and many other flanged joints.

P-T DIAGRAM

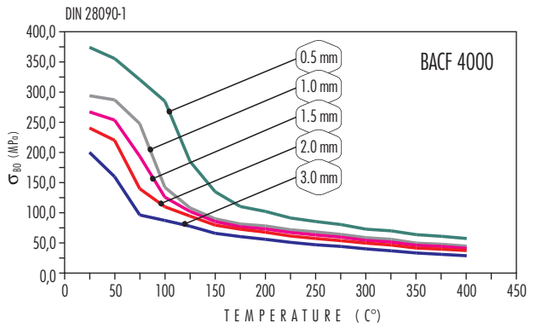
The Pressure - Temperature charts are the most current method of determining the suitability of a gasket material in a known application. Maximum figures for temperature and pressure can be misleading. Max. temperature and max. pressure represent maximum values and should not be used simultaneously. They are given only for guidance, since this max. values depend not only on the type of gasket material but also on the assembly conditions. Use the pressure and temperature graphs to check suitability of chosen gasket material for your application (combination of pressure and temperature).



- General suitability using common installation practices under the condition of chemical compatibility.
- Max. performance is ensured through appropriate measures for joint design and gasket installation. Consultation is recommended.
- Limited application area. Technical consultation is mandatory.

σ_{80} DIAGRAM

This diagram describes characteristic values of gasket materials for static seal for used in flanged applications. Given the wide range of gasket applications, these values should merely be considered as a means of assembling the sealing behaviour of gasket under service condition. σ_{80} shows you maximal allowed surface stress (maximum in service compressive stress) on gasket by operating service temperature for different material thickness.



GASKET CALCULATION PROGRAM

Computer program **DON** *demonstrates a successful tool for proper choice of gasket materials & gaskets and for solving a majority of sealing problems connected to the static sealing area.*

With Top Quality ...

BASIS

Composition	Carbon fibres, NBR
DIN 28091-2	FA-C1- 0
Colour	Greenish blue / Black

DIMENSION OF STANDARD SHEET

Sheet size	1000 mm x 1500 mm
	1500 mm x 1500 mm
	3000 mm x 1500 mm
	4500 mm x 1500 mm
Thickness*	0.5 mm, 0.8 mm, 1.0 mm, 1.5 mm,
	2.0 mm, 3.0 mm
Tolerances	Thickness: < 1.0 mm = ± 0.1 mm
	≥ 1.0 mm = ± 10 %
	Length: ± 50 mm
	Width: ± 50 mm

**Other thicknesses available on request.*

SURFACE

The standard version of BACF 4000 has a non-stick top and bottom layer. Additional surface treatment is in general unnecessary. Special treatment with graphite, silicone or PTFE on one or both sides is available on request.

APPROVALS

DIN-DVGW, HTB, UDT, TARRC/MRPRA, BS 753 Grade X; Applied for: KTW

All information data quoted are based on years of experience in production and operation of sealing elements. However, in view of the wide variety of possible installation and operating conditions one cannot draw final conclusions in all application cases regarding the behaviour in a gasket joint. The data may not, therefore, be used to support any warranty claims. Whenever there is any doubt, our staff will be pleased to assist you in finding the optimum sealing solutions.

TECHNICAL DATA

General information for a thickness of 2 mm

Density	DIN 28090-2	1.5 – 1.7 g/cm³
Compressibility	ASTM F 36/J	6 – 11 %
Recovery	ASTM F 36/J	> 55 %
Tensile strength	DIN 52910	≈ 9 MPa
Stress resistance	DIN 52913	
16h, 300°C, 50 MPa		≈ 30 MPa
16h, 175°C, 50 MPa		≈ 35 MPa
Thickness increase	ASTM F 146	
ASTM Fuel B, 5h, 20°C		≤ 5 %
Oil IRM 903, 5h, 150°C		≤ 5 %
Specific leakage rate	DIN 3535/6	≈ 0.10 mg/(s·m)
Compression modulus:	DIN 28090-2	
• At room temperature: ε_{KSW}		6.5 – 11.3 %
• At elevated temperature: $\varepsilon_{WSW/200°C}$		8.0 – 12.0 %
Percentage creep relaxation:	DIN 28090-2	
• At room temperature: ε_{KRW}		> 3.5 %
• At elevated temperature: $\varepsilon_{WRW/200°C}$		≈ 1.4 %
Recovery R	DIN 28090-2	≈ 0.026 mm
***Max. operating conditions**		
Temperature:		
• Peak		440°C / 824°F
• Continuous		350°C / 662°F
• With steam		280°C / 536°F
Pressure		120 bar / 1740 psi

** Temperature and pressure represent maximum values and should not be used simultaneously. They are given only as guidance, since they depend not only on the type of gasket material but also on the assembly conditions. Very important factors are: thickness of material, nature of service medium, type of flange and surface stress. Steam application requires special consideration.*

CHEMICAL RESISTANCE CHART

The recommendations made here are intended to be a guideline for the selection of the suitable gasket quality. Because the function and durability of the products depend upon a number of factors, the data may not be used to support any warranty claims.

- ● Recommended
- ■ Recommendation depends on operating conditions
- ▼ Not recommended

Acetamide ●	Citric acid ●	Isooctane ●	Potassium hydroxide ●
Acetic acid 10% ●	Copper acetate ●	Isopropyl alcohol ●	Potassium iodide ●
Acetic acid 100% ●	Creosote ▼	Kerosene ●	Potassium nitrate ●
Acetic ester ■	Cresol ■	Lead acetate ●	Potassium permanganate ●
Acetone ■	Cyclohexanol ●	Lead arsenate ●	Propane ●
Acetylene ●	Cyclohexanone ■	Magnesium sulphate ●	Pyridine ▼
Adipic acid ●	Decaline ●	Malic acid ●	Salicylic acid ●
Air ●	Dibenzyl ether ▼	Methane ●	Silicone oil ●
Alum ●	Dimethyl formamide ▼	Methanol ●	Soap ●
Aluminium acetate ●	Dowtherm ■	Methyl chloride ■	Sodium aluminate ●
Aluminium chlorate ●	Ethane ●	Methylene dichloride ▼	Sodium bicarbonate ●
Aluminium chloride ●	Ethyl acetate ■	Methyl ethyl ketone ■	Sodium bisulphite ●
Ammonia ●	Ethyl alcohol ●	Milk ●	Sodium carbonate ●
Ammonium bicarbonate ●	Ethyl chloride ■	Mineral oil type ASTM no. 1 ●	Sodium chloride ●
Ammonium chloride ●	Ethylene ●	Naphtha ●	Sodium cyanide ●
Ammonium hydroxide ●	Ethylene glycol ●	Nitric acid 20% ■	Sodium hydroxide ■
Amyl acetate ■	Formic acid 10% ●	Nitric acid 40% ■	Sodium sulphate ●
Aniline ▼	Formic acid 85% ●	Nitric acid 96% ▼	Sodium sulphide ●
Asphalt ●	Formaldehyde ●	Nitrobenzene ▼	Starch ●
Barium chloride ●	Freon 12 ●	Nitrogen ●	Steam ●
Benzene ●	Freon 22 ■	Octane ●	Stearic acid ●
Benzoic acid ●	Fuel oil ●	Oleic acid ●	Sugar ●
Boric acid ●	Gasoline ●	Oleum ▼	Sulphuric acid 20% ■
Borax ●	Glycerine ●	Oxalic acid ■	Sulphuric acid 96% ▼
Butane ●	Heptane ●	Oxygen ●	Tar ●
Butyl alcohol ●	Hydraulic oil (Mineral) ●	Palmitic acid ●	Tartaric acid ●
Butyric acid ●	Hydraulic oil (Phosphate esther type) ■	Pentane ●	Toluene ●
Calcium chloride ●	Hydraulic oil (Glycol based) ●	Perchloroethylene ■	Transformer oil ●
Calcium hydroxide ●	Hydrazine ●	Phenol ▼	Trichlorethylene ■
Carbon disulphide ▼	Hydrochloric acid 20% ■	Phosphoric acid ●	Water ●
Carbon dioxide ●	Hydrochloric acid 36% ▼	Potassium acetate ●	White Spirit ●
Chloroform ■	Hydrofluoric acid 10% ▼	Potassium bicarbonate ●	Xylene ■
Chlorine, dry ●	Hydrofluoric acid 40% ▼	Potassium carbonate ●	
Chlorine, wet ■	Hydrogen ●	Potassium chloride ●	
Chromic acid ■	Isobutane ●	Potassium dichromate ●	

This edition cancels all previous issues. Subject to change without notice.