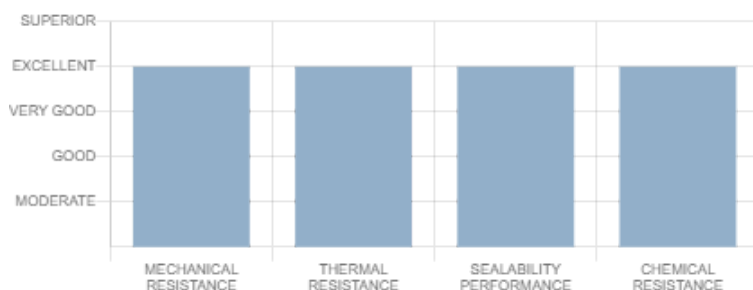




This is a prime heavy-duty and multi-purpose gasket material specifically formulated for thermo-mechanically demanding applications in the chemical industry and steam supply. It is impervious to organic fluids (such as fuels, hydrocarbons, alcohols, mineral oils, lubricants, and refrigerants), salt-rich or alkaline media and inorganic or organic weak acids, and superheated steam and various gases, etc.

PROPERTIES



APPROPRIATE INDUSTRIES & APPLICATIONS

- CHEMICAL INDUSTRY
- HIGH-TEMPERATURE APP.
- PETROCHEMICAL INDUSTRY
- SHIPBUILDING
- GAS SUPPLY
- PAPER & CELLULOSE INDUSTRIES
- POTABLE WATER SUPPLY
- STEAM SUPPLY

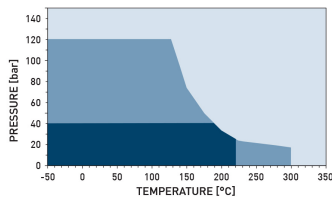
Composition	Carbon fibers, inorganic fillers & NBR binder (carbon steel wire mesh insert on request)		
Color	Black		
Approvals and compliances	BAM (oxygen) DVGW DIN 30653 (5 bars)	BS 7531 Grade X DVGW DIN 3535-6	DNV GL
Sheet dimensions	Size (mm): 1500 x 1500 3000 x 1500 4500 x 1500 Thickness (mm): 0.5 1.0 1.5 2.0 3.0 Other sizes and thicknesses available on request		
Tolerances	Length and width: ±5 % Thickness up to 1.0 mm: ±0.1 mm Thickness above 1.0 mm: ±10 %		
Surface finish	Standard: 4AS. Optional: graphite or PTFE.		

TECHNICAL DATA

Typical values for 2 mm thickness

Density	DIN 28090-2	g/cm ³	1.8
Compressibility	ASTM F36J	%	9
Recovery	ASTM F36J	%	62
Tensile strength	ASTM F152	MPa	12
Residual stress	DIN 52913		
50 MPa, 175°C, 16 h		MPa	37
50 MPa, 300°C, 16 h		MPa	30
Specific leak rate	DIN 3535-6	mg/(s·m)	0.04
Thickness increase	ASTM F146		
Oil IRM 903, 150°C, 5 h		%	2
ASTM Fuel B, 23°C, 5 h		%	4
Compression modulus	DIN 28090-2		
At room temperature: ϵ_{KSW}		%	6.3
At elevated temperature: $\epsilon_{WSW/200^\circ C}$		%	7.6
Creep relaxation	DIN 28090-2		
At room temperature: ϵ_{KRW}		%	3.0
At elevated temperature: $\epsilon_{WRW/200^\circ C}$		%	2.5
Maximum operating conditions			
Peak temperature		°C/°F	400/752
Continuous temperature		°C/°F	300/572
Continuous temperature with steam		°C/°F	280/536
Pressure		bar/psi	120/1740

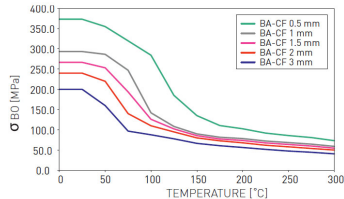
P-T diagram EN 1514-1, Type IBC, PN 40, DIN 28091-2 / 3.8, 2 mm



P-T diagrams indicate the maximum permissible combination of internal pressure and service temperature which can be simultaneously applied to a given gaskets thickness, size and tightness class. Given the wide variety of gasket applications and service conditions, these values should only be regarded as a guidance for the proper gasket assembly. In general, thinner gaskets exhibit better P-T properties.

- General suitability - Under common installation practices and chemical compatibility
- Conditional suitability - Appropriate measures ensure maximum performance for joint design and gasket installation. Technical consultation is recommended
- Limited suitability - Technical consultation is mandatory.

σ_{BO} DIAGRAMS DIN 28090-1



σ_{BO} diagrams represent σ_{BO} values for different gasket material thicknesses. These values indicate the maximum in-service compressive pressures which can be applied on the gasket area involved without destructing or damaging the gasket material.

CHEMICAL RESISTANCE CHART

The recommendations made here are intended as a guideline for the selection of a suitable gasket type. As the function and durability of products are dependent upon a number of factors, the data may not be used to support any warranty claims. If there are specific type-approval regulations, these have to be complied with.

Legend: + Recommended ○ Recommendation depends on operating conditions, - Not recommended

Acetamide	+	Calcium chloride	+	Freon-12 (R-12)	+	Motor oil	+	Sodium bisulfite	+
Acetic acid 10%	+	Calcium hydroxide	+	Freon-134a (R-134a)	+	Naphtha	+	Sodium carbonate	+
Acetic acid 100% (Glacial)	○	Carbon dioxide (gas)	+	Freon-22 (R-22)	○	Nitric acid 10%	+	Sodium chloride	+
Acetone	○	Carbon monoxide (gas)	+	Fruit juices	+	Nitric acid 65%	-	Sodium cyanide	+
Acetonitrile	-	Cellosolve	○	Fuel oil	+	Nitrobenzene	-	Sodium hydroxide	○
Acetylene (gas)	+	Chlorine (gas)	-	Gasoline	+	Nitrogen (Gas)	+	Sodium hypochlorite (Bleach)	○
Acid chlorides	-	Chlorine (in water)	+	Gelatin	+	Nitrous gases (NOx)	○	Sodium silicate (Water glass)	+
Acrylic acid	○	Chlorobenzene	○	Glycerine (Glycerol)	+	Octane	+	Sodium sulfate	+
Acrylonitrile	-	Chloroform	-	Glycols	+	Oils (Essential)	+	Sodium sulfide	+
Adipic acid	+	Chloroprene	○	Helium (gas)	+	Oils (Vegetable)	+	Starch	+
Air (gas)	+	Chlorosilanes	-	Heptane	+	Oleic acid	+	Steam	+
Alcohols	+	Chromic acid	-	Hydraulic oil (Glycol based)	+	Oleum (Sulfuric acid, fuming)	-	Stearic acid	+
Aldehydes	○	Citric acid	○	Hydraulic oil (Mineral)	+	Oxalic acid	○	Styrene	○
Alum	+	Copper acetate	+	Hydraulic oil (Phosphate ester-based)	○	Oxygen (gas)	-	Sugars	+
Aluminium acetate	+	Copper sulfate	+	Hydrazine	-	Palmitic acid	+	Sulfur	○
Aluminium chlorate	○	Cresote	+	Hydrocarbons	+	Paraffin oil	+	Sulfur dioxide (Gas)	○
Aluminium chloride	○	Cresols (Cresylic acid)	-	Hydrochloric acid 10%	○	Pentane	+	Sulfuric acid 20%	-
Aluminium sulfate	○	Cyclohexane	+	Hydrochloric acid 37%	-	Perchloroethylene	-	Sulfuric acid 98%	-
Amines	-	Cyclohexanol	+	Hydrofluoric acid 10%	-	Petroleum (Crude oil)	+	Sulfuryl chloride	-
Ammonia (Gas)	○	Cyclohexanone	○	Hydrofluoric acid 48%	-	Phenol (Carbolic acid)	-	Tar	+
Ammonium bicarbonate	+	Decalin	+	Hydrogen (gas)	+	Phosphoric acid, 40%	○	Tartaric acid	○
Ammonium chloride	+	Dextrin	+	Iron sulfate	+	Phosphoric acid, 85%	-	Tetrahydrofuran (THF)	-
Ammonium hydroxide	+	Dibenzyl ether	○	Isobutane (Gas)	+	Phthalic acid	+	Titanium tetrachloride	-
Amyl acetate	○	Dibutyl phthalate	○	Isooctane	+	Potassium acetate	+	Toluene	+
Anhydrides	○	Dimethylacetamide (DMA)	○	Isoprene	+	Potassium bicarbonate	+	2,4-Toluenediisocyanate	○
Aniline	-	Dimethylformamide (DMF)	○	Isopropyl alcohol (Isopropanol)	+	Potassium carbonate	+	Transformer oil (Mineral type)	+
Anisole	○	Dioxane	-	Kerosene	+	Potassium chloride	+	Trichloroethylene	-
Argon (gas)	+	Diphenyl (Dowtherm A)	+	Ketones	○	Potassium cyanide	○	Vinegar	+
Asphalt	+	Esters	○	Lactic acid	○	Potassium dichromate	○	Vinyl chloride (gas)	-
Barium chloride	+	Ethane (Gas)	+	Lead acetate	+	Potassium hydroxide	○	Vinylidene chloride	-
Benzaldehyde	-	Ethers	○	Lead arsenate	+	Potassium iodide	+	Water	+
Benzene	+	Ethyl acetate	○	Magnesium sulfate	+	Potassium nitrate	+	White spirits	+
Benzoic acid	○	Ethyl alcohol (Ethanol)	+	Maleic acid	○	Potassium permanganate	○	Xylenes	+
Bio-diesel	+	Ethyl cellulose	+	Malic acid	○	Propane (gas)	+	Xylenol	-
Bio-ethanol	+	Ethyl chloride (gas)	-	Methane (Gas)	+	Propylene (gas)	+	Zinc sulfate	+
Black liquor	○	Ethylene (gas)	+	Methyl alcohol (Methanol)	+	Pyridine	-		
Borax	+	Ethylene glycol	+	Methyl chloride (Gas)	○	Salicylic acid	○		
Boric acid	+	Formaldehyde (Formalin)	○	Methylene dichloride	○	Seawater/brine	+		
Butadiene (gas)	+	Formamide	○	Methyl ethyl ketone (MEK)	○	Silicones (oil/grease)	+		
Butane (gas)	+	Formic acid 10%	+	N-Methyl-pyrrolidone (NMP)	+	Soaps	+		
Butyl alcohol (Butanol)	+	Formic acid 85%	+	Milk	+	Sodium aluminate	+		
Butyric acid	+	Formic acid 100%	-	Mineral oil type ASTM 1	+	Sodium bicarbonate	+		

All information and data quoted are based upon decades of experience in the production and operation of sealing elements. This data may not be used to support any warranty claims. With its publication this latest edition supersedes all previous issues and is subject to change without further notice.