thoenes® BA110

Sealing material with good chemical resistance and suitable for higher mechanical stress.

Basis:	Aramid fibre, NBR
Colour:	Green
Surface coating:	Standard - without non-stick coating On request - graphite, PTFE and non-stick coating
Certifications:	DVGW -DIN 3535-6, WCs/ WRAS
Applications:	Very suitable, economical sealing material for gases, foodstuffs and for the chemical industry, shipbuilding, automotive and engine construction, optimal seal for boiler feed water.

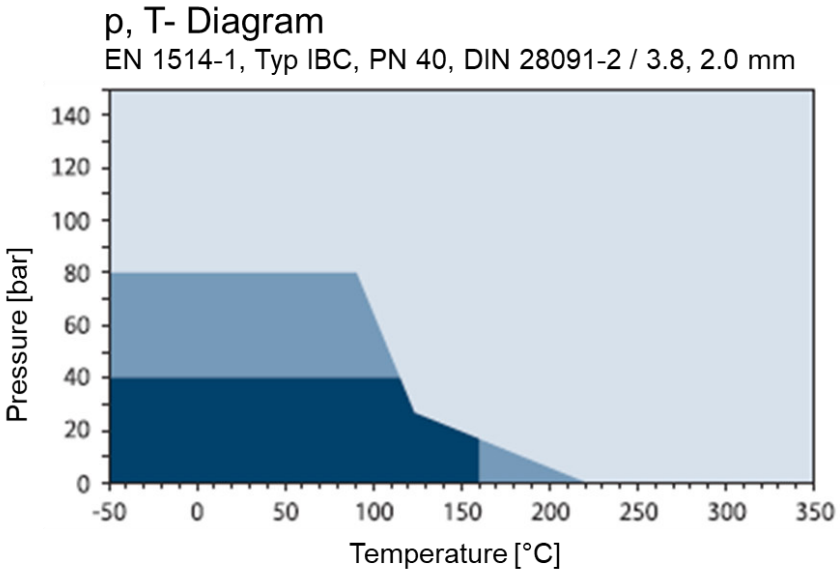
Technical specifications (typical values at 2 mm thickness)

Description	DIN 28091-2		FA-A1-0
Density	DIN 28090-2	g/cm³	1.8
Compressibility	ASTM F 36/J	%	9
Resilience	ASTM F 36/J	%	55
Tensile Strength	DIN 52910	MPa	11
Pressure resistance	DIN 52913		
50 MPa, T= 175°C, 16 h		MPa	25
50 MPa, T= 300°C, 16 h		MPa	/
Media resistance in Oil IRM 903, 5 h, 150 °C	ASTM F 146		
Thickness increase		%	8
Media resistance in ASTM fuel B, 5 h, 23 °C	ASTM F 146		
Thickness increase		%	10
Specific leakage rate	DIN 3535/6	mg/m*s	< 0.07
Max. operating conditions			
Maximum temperature		°C	280
Continuous temperature		°C	220
Continuous temperature at steam		°C	180
Pressure		bar	80
Cold compression value ε_{KSW}	DIN 28090-2	%	8.5
Cold rebound value ε_{KRW}	DIN 28090-2	%	5.1
Warm setting value $\varepsilon_{WSW/200\,°C}$	DIN 28090-2	%	25
Warm rebound value $\varepsilon_{WRW/200°C}$	DIN 28090-2	%	1.2

Dimensions:	Plate sizes *	1500 mm x 1500 mm; 3000 mm x 1500 mm; 4500 mm x 1500 mm
	Thickness *	0.5 mm; 1.0 mm; 1.5 mm; 2.0 mm; 3.0 mm
	Thickness tolerance	< 1mm ± 0.1mm respectively ≥ 1 mm ±10%
	Length tolerance	± 5 %
	Width tolerance	± 5 %

* Different sizes and thicknesses on request

Recommendations for use



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

The indicated temperatures and pressures are peak values and should not be used simultaneously. The information can only serve as a guideline, as these are not only dependent on the sealing material, but also on the installation conditions. Very important influencing factors are: seal thickness, type of medium, flange type and surface stress. Special care should be taken with steam applications. In case of doubt, our experts are always ready to find the optimal sealing solution for the application.

BA 110

thoenes

Chemical resistance chart

Legend

- ☑ Resistant
- ☑ Resistance/ recommendation depends on operation conditions
- ☑ Not resistant

Substance				Substance				Substance			
Acetamide	☑	☐	☐	Dioxane	☐	☐	☑	Oleic acid	☑	☐	☐
Acetic acid, 10 %	☑	☐	☐	Diphyl (Dowtherm A)	☑	☐	☐	Oleum (Sulfuric acid, fuming)	☐	☐	☑
Acetic acid, 100 % (Glacial)	☐	☐	☑	Esters	☐	☑	☐	Oxalic acid	☐	☑	☐
Acetone	☐	☑	☐	Ethane (gas)	☑	☐	☐	Oxygen (gas)	☐	☐	☑
Acetonitrile	☐	☐	☑	Ethers	☐	☑	☐	Palmitic acid	☑	☐	☐
Acetylene (gas)	☑	☐	☐	Ethyl acetate	☐	☑	☐	Paraffin oil	☑	☐	☐
Acid chlorides	☐	☐	☑	Ethyl alcohol (Ethanol)	☑	☐	☐	Pentane	☑	☐	☐
Acrylic acid	☐	☑	☐	Ethyl cellulose	☐	☑	☐	Perchloroethylene	☐	☐	☑
Acrylonitrile	☐	☐	☑	Ethyl chloride (gas)	☐	☐	☑	Petroleum (Crude oil)	☑	☐	☐
Adipic acid	☑	☐	☐	Ethylene (gas)	☑	☐	☐	Phenol (Carbolic acid)	☐	☐	☑
Air (gas)	☑	☐	☐	Ethylene glycol	☑	☐	☐	Phosphoric acid, 40 %	☐	☑	☐
Aldehydes	☐	☑	☐	Formaldehyde (Formalin)	☐	☑	☐	Phosphoric acid, 85 %	☐	☐	☑
Alum	☑	☐	☐	Formamide	☐	☑	☐	Phthalic acid	☑	☐	☐
Aluminium acetat	☑	☐	☐	Formic acid, 10 %	☑	☐	☐	Potassium acetate	☑	☐	☐
Aluminium chlorate	☐	☑	☐	Formic acid, 85 %	☐	☑	☐	Potassium bicarbonate	☑	☐	☐
Aluminium chloride	☐	☑	☐	Formic acid, 100 %	☐	☐	☑	Potassium carbonate	☑	☐	☐
Aluminium sulfate	☐	☑	☐	Freon-12 (R-12)	☑	☐	☐	Potassium chloride	☑	☐	☐
Amines	☐	☐	☑	Freon-134a (R-134a)	☑	☐	☐	Potassium cyanide	☑	☐	☐
Ammonia (gas)	☐	☑	☐	Freon-22 (R-22)	☐	☑	☐	Potassium dichromate	☐	☑	☐
Ammonium bicarbonate	☑	☐	☐	Fruit juices	☑	☐	☐	Potassium hydroxide	☐	☑	☐
Ammonium chloride	☑	☐	☐	Fuel oil	☑	☐	☐	Potassium iodide	☑	☐	☐
Ammonium hydroxide	☑	☐	☐	Gasoline	☑	☐	☐	Potassium nitrate	☑	☐	☐
Amyl acetate	☐	☑	☐	Gelatin	☑	☐	☐	Potassium permanganate	☐	☑	☐
Anhydrides	☐	☑	☐	Glycerine (Glycerol)	☑	☐	☐	Propane (gas)	☑	☐	☐
Aniline	☐	☐	☑	Glycols	☑	☐	☐	Propylene (gas)	☑	☐	☐
Anisole	☐	☑	☐	Helium (gas)	☑	☐	☐	Pyridine	☐	☐	☑
Argon (gas)	☑	☐	☐	Heptane	☑	☐	☐	Salicylic acid	☐	☑	☐
Asphalt	☑	☐	☐	Hydraulic oil (Glycol based)	☑	☐	☐	Seawater/ brine	☑	☐	☐
Barium chloride	☑	☐	☐	Hydraulic oil (Mineral type)	☑	☐	☐	Silicones (oil/ greases)	☑	☐	☐
Benzaldehyde	☐	☐	☑	Hydraulic oil (Phosphate ester based)	☐	☑	☐	Soaps	☑	☐	☐
Benzene	☑	☐	☐	Hydrazine	☐	☐	☑	Sodium aluminate	☑	☐	☐
Benzoic acid	☐	☑	☐	Hydrochloric acid, 10 %	☐	☑	☐	Sodium bicabonate	☑	☐	☐
Bio-diesel	☑	☐	☐	Hydrochloric acid, 37 %	☐	☐	☑	Sodium bisulfite	☑	☐	☐
Bio-ethanol	☑	☐	☐	Hydrofluoric acid, 10 %	☐	☐	☑	Sodium carbonate	☑	☐	☐
Black liquor	☐	☑	☐	Hydrofuoric acid, 48 %	☐	☐	☑	Sodium chloride	☑	☐	☐
Borax	☑	☐	☐	Hydrogen (gas)	☑	☐	☐	Sodium cyanide	☑	☐	☐
Boric acid	☑	☐	☐	Iron sulfate	☑	☐	☐	Sodium hydroxide	☐	☑	☐
Butadiene (gas)	☑	☐	☐	Isobutane (gas)	☑	☐	☐	Sodium hypochlorite (Bleach)	☐	☑	☐
Butane (gas)	☑	☐	☐	Isooctane	☑	☐	☐	Sodium silicate (Water glass)	☑	☐	☐
Butyl alcohol (Butanol)	☑	☐	☐	Isoprene	☑	☐	☐	Sodium sulfate	☑	☐	☐
Butyric acid	☑	☐	☐	Isopropyl alcohol (Isopropanol)	☑	☐	☐	Sodium sulfide	☑	☐	☐
Calcium chloride	☑	☐	☐	Kerosene	☑	☐	☐	Starch	☑	☐	☐
Calcium hydroxide	☑	☐	☐	Ketones	☐	☑	☐	Steam	☑	☐	☐
Carbon dioxide (gas)	☑	☐	☐	Lactid acid	☐	☑	☐	Stearic acid	☑	☐	☐
Carbon monoxide (gas)	☑	☐	☐	Lead acetate	☑	☐	☐	Styrene	☐	☑	☐
Cellosolve	☐	☑	☐	Lead arsenate	☑	☐	☐	Sugars	☑	☐	☐
Chlorine (gas)	☐	☐	☑	Magnesium sulfate	☑	☐	☐	Sulfur	☐	☑	☐
Chlorine (in water)	☑	☐	☐	Maleic acid	☐	☑	☐	Sulfur dioxide (gas)	☐	☑	☐
Chlorobenzene	☐	☑	☐	Malic acid	☐	☑	☐	Sulfuric acid, 20 %	☐	☐	☑
Chloroform	☐	☐	☑	Methane (gas)	☑	☐	☐	Sulfuric acid, 98 %	☐	☐	☑
Chloroprene	☐	☑	☐	Methyl alcohol (Methanol)	☑	☐	☐	Sulfuryl chloride	☐	☐	☑
Chlorosilanes	☐	☐	☑	Methyl chloride (gas)	☐	☑	☐	Tar	☑	☐	☐
Chromic acid	☐	☐	☑	Methylene dichloride	☐	☑	☐	Tartaric acid	☐	☑	☐
Citric acid	☐	☑	☐	Methyl ethyl ketone (MEK)	☐	☑	☐	Tetrahydrofuran (THF)	☐	☐	☑
Copper acetate	☑	☐	☐	N-Methyl-pyrrolidone (NMP)	☐	☑	☐	Titanium tertachloride	☐	☐	☑
Copper sulfate	☑	☐	☐	Milk	☑	☐	☐	Toluene	☑	☐	☐
Creosote	☐	☑	☐	Mineral oil (ASTM no. 1)	☑	☐	☐	2,4-Toluenediisocyanate	☐	☑	☐
Cresols (Cresylic acid)	☐	☐	☑	Motor oil	☑	☐	☐	Transformer oil (Mineral type)	☑	☐	☐
Cyclohexane	☑	☐	☐	Naphtha	☑	☐	☐	Trichloroethylene	☐	☐	☑
Cyclohexanol	☑	☐	☐	Nitric acid, 10 %	☐	☐	☑	Vinegar	☑	☐	☐
Cyclohexanone	☐	☑	☐	Nitric acid, 65 %	☐	☐	☑	Vinyl chloride (gas)	☐	☐	☑
Decalin	☑	☐	☐	Nitrobenzene	☐	☐	☑	Vinylidene chloride	☐	☐	☑
Dextrin	☑	☐	☐	Nitrogen (gas)	☑	☐	☐	Water	☑	☐	☐
Dibenzyl ether	☐	☑	☐	Nitrous gases (NO_x)	☐	☑	☐	White spirits	☑	☐	☐
Dibutyl phthalate	☐	☑	☐	Octane	☑	☐	☐	Xylenes	☑	☐	☐
Dimethylacetamide (DMA)	☐	☑	☐	Oils (Essential)	☑	☐	☐	Xylenol	☐	☐	☑
Dimethylformamide (DMF)	☐	☑	☐	Oils (Vegetable)	☑	☐	☐	Zinc sulfate	☑	☐	☐

The recommendations made here serve only as a guideline for the selection of a suitable gasket. Since the function and durability of a gasket depends on a large number of factors, the information provided cannot be used to substantiate warranty claims. If there are special approval regulations, these must be observed.