

# KLINGER QUANTUM



## DESCRIPTION

Characterized by a high-quality fiber and filler compound bonded in an HNBR matrix, this unique gasket material offers greatest flexibility at high temperatures with FDA conformity.

KLINGER® Quantum is the preferred choice for use with oils, water, steam, gases, salt solutions, fuels, alcohols, moderate organic and inorganic acids, hydrocarbons, lubricants as well as refrigerants.

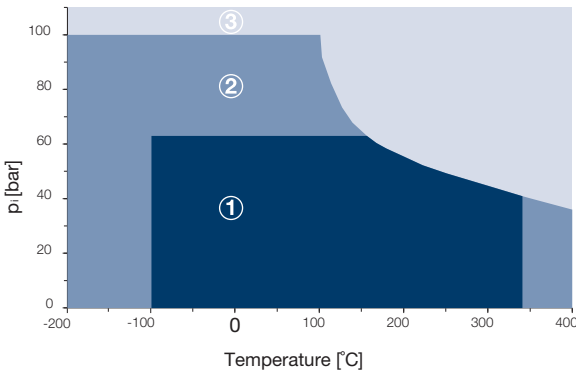


ITEM		DATA
Basic composition		High-quality fiber and filler compound bonded in a high-temperature resistant HNBR-Matrix.
Sheet size		2000 x 1500 mm
Colour		White
Thickness		0.8 mm, 1.0 mm, 1.5 mm, 2.0 mm, 3.0 mm
Certificates		Oxygen-tested, DIN-DVGW, TA-Luft (Clean air), Fire-Safe acc. to DIN EN ISO 10497, FDA conformity
Tolerances	Thickness	According to DIN 28091-1
	Width	± 50 mm
	Length	± 50 mm
Industries		General industry, Chemical, Oil & Gas, Energy, Infrastructure, Pulp & Paper, Marine, Automotive, Food & Beverage, Pharma

## TECHNICAL DATA Typical values for a thickness of 2.0 mm

<b>STRESS RELAXATION DIN 52913</b>	50 MPa, 16 h/175°C	MPa	32
	50 MPa, 16 h/300°C	MPa	30
<b>KLINGER COLD/HOT COMPRESSION 50 MPA</b>	thickness decrease at 23°C	%	10
	thickness decrease at 300/400°C	%	14/20
<b>TIGHTNESS</b>	DIN 28090-2	mg/(s x m)	0.02
<b>SPECIFIC LEAKRATE</b>	VDI 2440	mbar x l/(s x m)	4.4E-08
<b>THICKNESS INCREASE AFTER FLUID IMMERSION ASTM F 146</b>	Oil IRM 903: 5h/150°C	%	3
	Fuel B: 5h/23°C	%	5
<b>COMPRESSIBILITY</b>	ASTM F36J	%	10
<b>RECOVERY</b>	ASTM F36J	%	50
<b>DENSITY</b>		g/cm <sup>3</sup>	1.7
<b>AVERAGE SURFACE RESISTANCE</b>	ρ <sub>O</sub>	Ω	7.7x10E12
<b>AVERAGE SPECIFIC VOLUME RESISTANCE</b>	ρ <sub>D</sub>	Ω cm	4.7x10E12
<b>AVERAGE DIELECTRIC STRENGTH</b>	Ed	kV/mm	18.5
<b>AVERAGE POWER FACTOR</b>	50 Hz	tan δ	0.064
<b>AVERAGE DIELECTRIC COEFFICIENT</b>	50 Hz	ε <sub>r</sub>	6.8
<b>THERMAL CONDUCTIVITY</b>	λ	W/mK	0.44
<b>CLASSIFICATION ACC. TO BS 7531:2006</b>	Grade AX		
<b>ASME-CODE SEALING FACTORS</b>	tightness class 0.1mg/s x m	MPa	y 15
			m 2.5

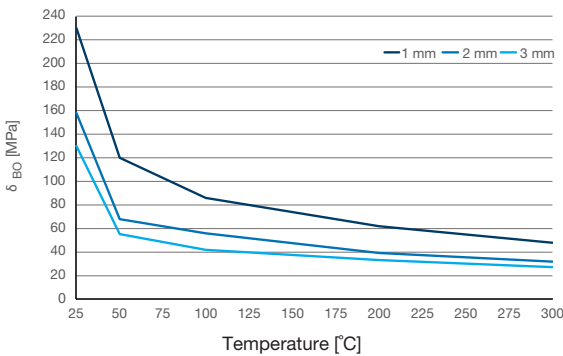
## P-T DIAGRAM- THICKNESS 2.0 MM



### The area of the P-T diagram

1. In area one, the gasket material is normally a suitable subject to chemical compatibility.
  2. In area two, the gasket material may be suitable but a technical evaluation is recommended.
  3. In area three, do not install the gasket without technical evaluation.
- Always refer to the gasket's chemical resistance to the media.

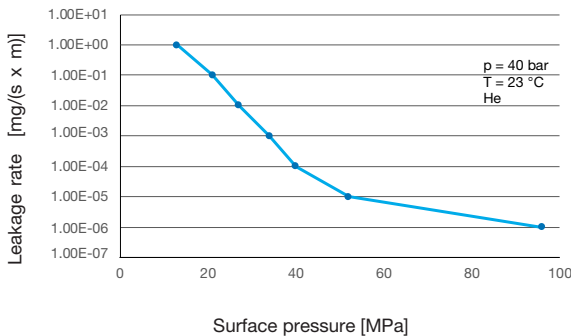
## SIGMA BO



### Maximum surface pressure in operating conditions of Sigma BO

This diagram shows the maximum surface pressure in MPa with which the sealing material may be loaded, depending on the operating temperature. The characteristic curves apply to the specified sealing thicknesses. In contrast to  $Q_{smax}$  according to EN 13555, the surface pressures specified here are based on a maximum permissible reduction in thickness.

## TIGHTNESS PERFORMANCE



### The tightness performance graph

The graph shows the required stress at assembly to seal a certain tightness class. The determination of the graph is based on EN13555 test procedure which applies 40 bar Helium at room temperature. The sloping curve indicates the ability of the gasket to increase tightness with raising gasket stress.

## CHEMICAL RESISTANCE CHART

Simplified overview of the chemical resistance depending on the most important groups of raw materials:

**A:** small or no attack **B:** weak to moderate attack **C:** strong attack

Paraffinic hydrocarbon	Motor fuel	Aromates	Chlorinated hydrocarbon fluids	Motor oil	Mineral lubricants	Alcohol	Ketone	Ester	Water	Acid (diluted)	Base (diluted)
A	B	C	C	A	B	A	C	C	A	A	A

All information is 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 gasket joints. The data may not, therefore, be used to support any warranty claims. This edition cancels all previous issues. Subject to change without notice.