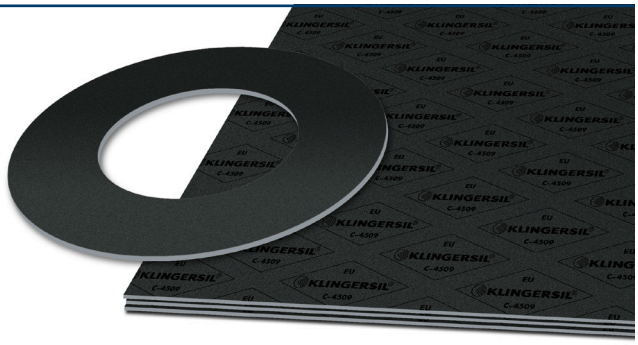
KLINGERSIL® C-4509

KLINGER India

KLINGERSIL® C-4509 - premium high-pressure gasket able to withstand very high thermal and mechanical stresses.

Carbon fibers, special high temperature-resistant additives and an NBR bonding make up this special high-pressure high-pressure gasket. Its expanded metal reinforcement makes it capable of withstanding the highest thermal and mechanical stresses and high bolt loads. This gasket material is the first choice for the chemical industry, where it is mainly used in tandem with alkaline media and steam. The basic material KLINGERSIL® C-4500 is a Fire-Safe grade.



Basis composition	Carbon fibers and special high temperature-resistant additives bonded with NBR.
Color	Black
Certificates	DNV GL approval

Sheet size	1000 x 1500 mm, 2000 x 1500 mm
Thickness	1.0 mm, 1.5 mm

Tolerances

Thickness according to DIN 28091-1
Length: ± 50 mm
Width: ± 50 mm

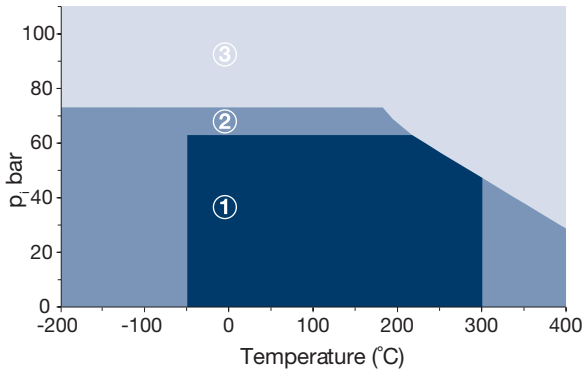
Industry

General industry / Chemical / Oil & Gas / Energy / Pulp & Paper / Marine / Automotive

TECHNICAL DATA - Typical values for a thickness of 1.5 mm

Compressibility	ASTM F 36 J	%	10
Recovery	ASTM F 36 J	%	62
Stress relaxation DIN 52913	50 MPa, 16 h/300°C	MPa	43
Stress relaxation BS 7531	40 MPa, 16 h/300°C	MPa	41
KLINGER cold/hot compression	thickness decrease at 23°C	%	8
50 MPa	thickness decrease at 300°C	%	6
Thickness increase after fluid	oil IRM 903: 5 h/150°C	%	3
immersion ASTM F 146	fuel B: 5 h/23°C	%	5
Density		g/cm³	2.0
ASME-Code sealing factors			
for gasket thickness 1.5 mm	tightness class 0.1mg/s x m	MPa	y 30
			m 4.0

P-T diagram - thickness 1.5 mm



The area of the P-T diagram

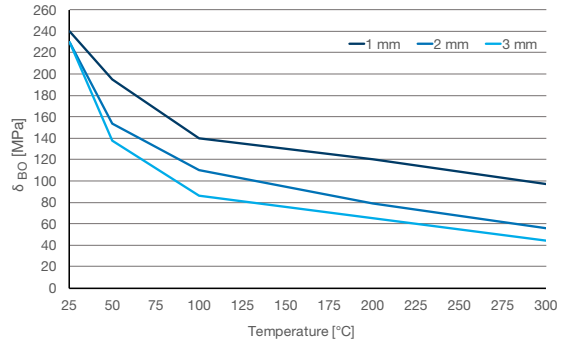
① In area one, the gasket material is normally suitable subject to chemical compatibility.

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 a technical evaluation.

Always refer to the chemical resistance of the gasket to the media.

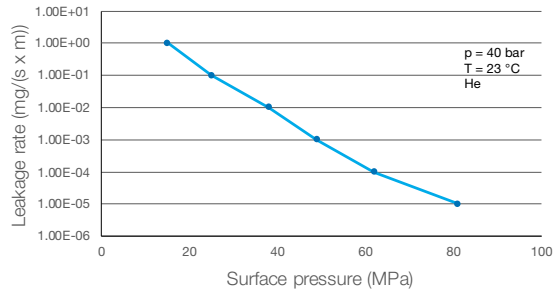
Sigma BO



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 Qsmax 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 assembling to seal a certain tightness class. The determination of the graph is based on EN13555 test procedure which applies 40bar 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:

KLINGERSIL® C-4509 — **A**: small or no attack — **B**: weak till 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**

For more information on chemical resistance please visit www.klinger.in

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

Certified acc. to DIN EN ISO 9001:2015 Subject to technical alterations.
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