

# A universal gasket, with good stress relaxation

**Basis**

Aramide fibres, bound with NBR.  
Resistant to hot water, steam, oils,  
hydrocarbons and many other chemi-  
cals.

**Klinger cold/hot compression**

With this test method developed by  
Klinger you can evaluate the cold/hot  
compression of a gasket in cold and  
hot condition.

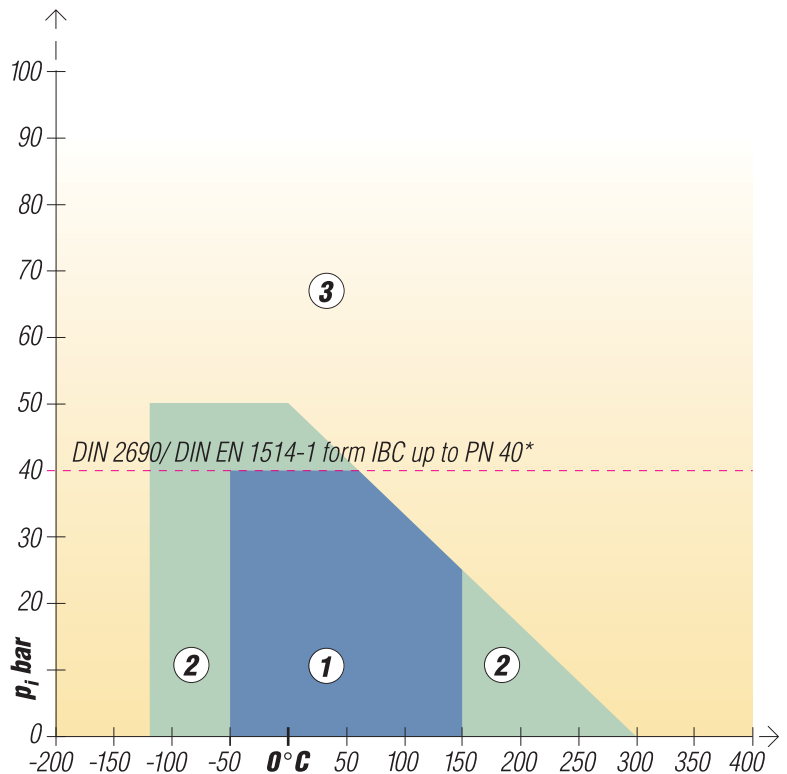
Unlike the method acc. to DIN  
52913 and BS 7531, the surface load  
is kept constant during the complete  
test so that the gasket is exposed to  
much tougher conditions.

The thickness decrease at an  
ambient temperature of 23°C and at  
heating up to 300°C is measured.

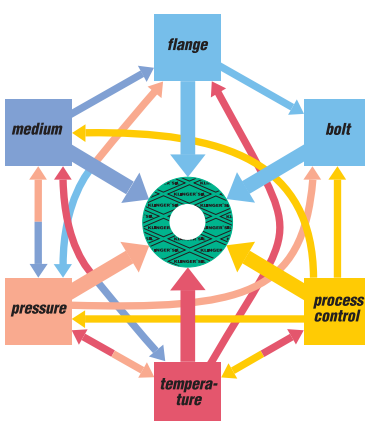
The indicated thickness decrease  
at 300°C refers to the thickness  
obtained after loading at 23°C.

\* Gaskets according to DIN 2690 are only  
standardised up to PN 40

Universal high-pressure gasket for a wide  
range of suitable applications.

**The many and varied demands made on gaskets**

The successful operation of a gasket  
depends upon a multiplicity of factors.  
Many who use static gaskets believe  
that the values quoted for maximum  
admissible temperature and maximum  
operating pressure are inherent  
properties or characteristics of  
gaskets and gasket materials.



Unfortunately, this is not the  
case.

The maximum temperatures and  
pressures at which gaskets may be  
used are influenced by a large  
number of factors.

Therefore a definite statement of  
these values for gasket material is not  
possible.

**So why does Klinger provide pT diagrams?**

For the reasons given the pT diagram  
is not infallible: it serves as a rough  
guide for the end user who often has  
only the operating temperatures and  
pressures to go on.

Additional stresses such as  
greatly fluctuating load may  
significantly affect whether a gasket is  
suitable for the application.

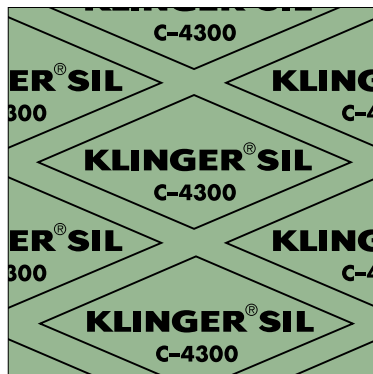
Resistance to media must be  
taken into account in every case.

**The fields of decision**

① If your operating temperatures  
and pressures fall within this field,  
a technical examination is normally  
unnecessary.

② If your operating temperatures  
and pressures are within this field,  
a technical examination is  
recommended.

③ If your operating temperatures  
and pressures are within this "open"  
field, a technical examination is  
always necessary.



### Important points to be observed

The selection of gaskets requires expertise and know-how since ever greater reliability coupled with the lowest possible leakage rates are demanded of gasket materials.

The exacting demands made on the tightness of gasket materials (e.g. Tightness class  $L_{0,01}$ ) mean that with increasing internal pressure higher surface pressures must be applied to the gasket.

It must be shown that the flange joint will tolerate the demands made on it without being mechanically overloaded. Furthermore, the surface pressure applied to create the seal should never fall below the required minimum value since this will reduce the life of the gasket. Highly stressed, but not overstressed gaskets have a longer life than understressed gaskets.

If the gasket fitted will be subjected to non-static loading, or will suffer stress fluctuations during discontinuous operation, it is advisable to choose a gasket which is not prone to embrittlement with increasing temperature (e.g. KLINGERgraphite laminate or KLINGERtop-chem), especially for steam and/or water applications.

For discontinuous operations in water and/or steam applications, we recommend as a general guide a surface pressure of about 30 MPa. In such cases the gasket should be as thin as is practicable.

For reasons of safety, we advise against the re-use of gaskets.

### Typical values for 2 mm thickness

Compressibility ASTM F 36 J		%	14
Recovery ASTM F 36 J	min	%	50
Stress relaxation DIN 52913	50 MPa, 16 h/300 °C	MPa	20
	50 MPa, 16 h/175 °C	MPa	24
Klinger cold/hot compression, 50 MPa	thickness decrease at 23 °C	%	10
	thickness decrease at 300 °C	%	25
Tightness acc. to DIN 3535/6		ml/min	0.2
Soluble chloride content	chlorides (sol.)	ppm	150
Thickness increase ASTM F 146	oil JRM 903: 5 h/150 °C	%	5
	fuel B: 5 h/23 °C	%	10
Density		g/cm <sup>3</sup>	1.6
Average surface resistance	$R_{0A}$	$\Omega$	$3.6 \times 10^{E10}$
Average specific volume resistance	$\rho_D$	$\Omega$ cm	$1.4 \times 10^{E10}$
Average dielectric strength		kV/mm	24
Average power factor	1 kHz, ca. 3 mm thickness	$\tan \delta$	0.147
Average dielectric coefficient	1 kHz, ca. 3 mm thickness	$\epsilon_r$	9.7
Heat conductivity		W/mK	0.40-0.42

### ASME-Code sealing factors

for gasket thickness 2,0 mm and tightness classes DIN 28090	tightness class 1.0 mg/s x m	MPa	y	11
		MPa	m	1.5
	tightness class 0.1 mg/s x m	MPa	y	15
		MPa	m	3
	tightness class 0.01 mg/s x m	MPa	y	20
		MPa	m	6.5

### Dimensions of the standard sheets

Sizes:

1,000 x 1,500 mm, 1,500 x 2,000 mm

Thicknesses:

0.5 mm, 1.0 mm, 1.5 mm, 2.0 mm, 3.0 mm; other thicknesses on request.

Tolerances:

thickness  $\pm 10\%$ , length  $\pm 50$  mm, width  $\pm 50$  mm

### Rings and other finished gaskets

These gaskets are available in any size and corresponding sheet thicknesses, also flanged and PTFE-enveloped.

### Surfaces

The standard surface finish of the material is such that the surface has an extremely low adhesion.

On request, graphite facings and other surface finishes on one or both sides are also available.

### Function and durability

The performance and life of KLINGER gaskets depend in large measure on proper storage and fitting, factors beyond the manufacturer's control. We can, however, vouch for the excellent quality of our products.

With this in mind, please also observe our installation instructions.

### Tests and approvals.

Approved for gas supply in acc. with DIN 3535/6.

DIN-DVGW approval no.

NG-5123 BM 0396.

SVGW-permit.

KTW recommendation.

Food toleration, Austria.

TÜV Poland.

Germanischer Lloyd.

Subject to technical alterations.

Status: August 2003

### Certified according to DIN EN ISO 9001:2000

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