

# KLINGERSIL® C-4324

## Universal gasket material for general applications

### Basis

Gasket material bound with NBR, based on a combination of synthetic high-tech fibres. Resistant to water, oils, hydrocarbons and many other chemicals.

### Klinger Hot and Cold Compression Test Method

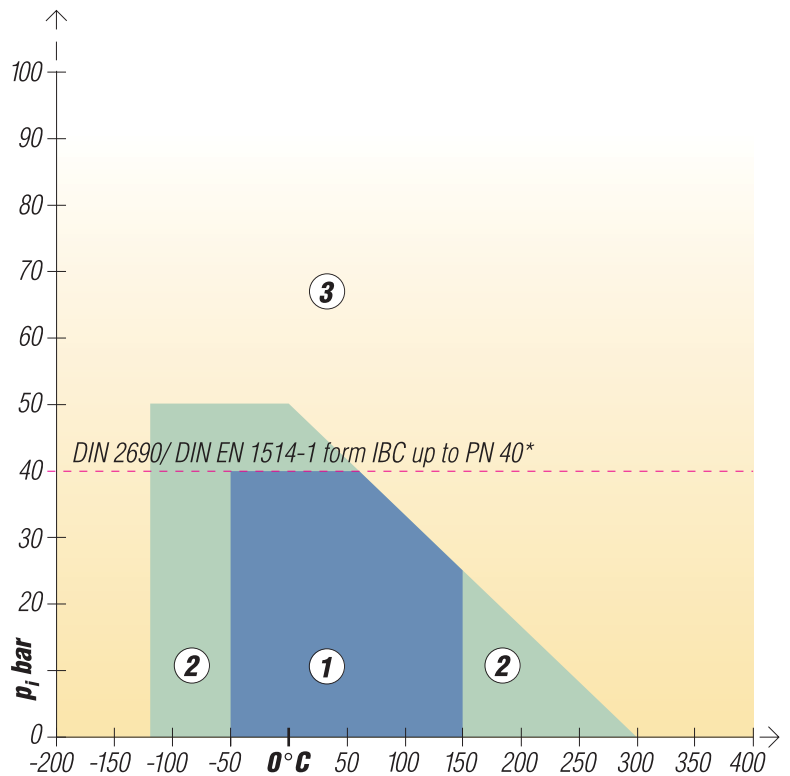
The Klinger Hot Compression Test was developed by Klinger as a method to test the load bearing capabilities of gasket materials under hot and cold conditions.

In contrast to the BS 7531 and DIN 52913 tests, the Klinger Compression test maintains a constant gasket stress throughout the entire test. This subjects the gasket to more severe conditions.

The thickness decrease is measured at an ambient temperature of 23°C after applying the gasket load. This simulates assembly.

Temperatures up to 300°C are then applied and the additional thickness decrease is measured. This simulates the first start up phase.

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

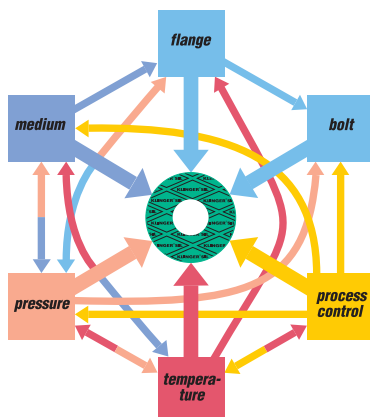


\*Gaskets according to DIN 2690 are only standardised up to PN 40 and gasket thickness 2 mm.

### The many, varied demands placed on gaskets

A common perception is that the suitability of a gasket for any given application depends upon the maximum temperature and pressure conditions. This is not the case.

Maximum temperature and pressure values alone can not define a material's suitability for an application.



These limits are dependent upon a multiplicity of factors as shown in the diagram below.

It is always advisable to consider these factors when selecting a material for a given application.

### Selecting gaskets with pT diagrams

The Klinger pT diagram provides guidelines for determining the suitability of a particular gasket material for a specific application based on the operating temperature and pressure only.

Additional stresses such as fluctuating load may significantly affect the suitability of a gasket in the application and must be considered separately. Always refer to the chemical resistance of the gasket to the fluid.

### Areas of Application

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



### Typical values

Compressibility ASTM F 36 J		%	10
Recovery ASTM F 36 J	min	%	55
Stress relaxation DIN 52913	50 MPa, 16 h/300°C	MPa	20
Stress relaxation BS 7531		MPa	23
Klinger Hot Compression 50 MPa	thickness decrease at 23°C	%	10
	thickness decrease at 300°C	%	25
Tightness acc. DIN 3535/6		mg/s x m	< 0.1
Thickness increase ASTM F 146	oil JRM 903: 5 h/150°C	%	0-5
	fuel B: 5 h/23°C	%	0-10
Density		g/cm³	1.85

### Important points to be observed

With heightened awareness of safety and environmental issues, reducing leaks from flanged assemblies has become a major priority for industry. It is therefore important for companies who use gaskets to choose the correct material for the job and install and maintain it correctly to ensure optimum performance.

A flanged joint will remain tight as long as the surface pressure in service is higher than the minimum surface pressure required to achieve the necessary levels of tightness but is lower than the maximum permissible surface pressure. But increasingly high demands on the tightness requirements for flanged joints (e.g. Tightness class L 0.1 in accordance with DIN 28090) necessitate the application of high loads on the gasket material in order to meet these stringent requirements.

If the gasket is to be subjected to non-static loading and stress fluctuations due to temperature and pressure cycling, it is advisable to select a gasket material which is less prone to embrittlement with increasing

temperatures (e.g. KLINGERgraphite laminate, KLINGERtop-chem or KLINGERtop-sil).

In cyclic loading conditions we recommend a minimum surface stress of 30 MPa and that the gasket should be as thin as is practicable.

For safety reasons never re-use gaskets.

### Dimensions of the standard sheets

Sizes:  
1000 x 1500 mm, 2000 x 1500 mm.  
Thicknesses:  
0.5 mm, 1.0 mm, 1.5 mm, 2.0 mm;  
other thicknesses and sizes on request.

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

### Surfaces

KLINGERSIL® gasket materials are generally furnished with surfaces of low adhesion. On request, graphite facings and other surface finishes on one or both sides are also available.

### Function and durability

The performance and service 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

DVGW approval no. NG-5123BL0244, SVGW-permit, KTW recommendation, WRC approval.

Subject to technical alterations.  
Status: February 2004

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

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