

### Basis

Sealing material, based on graphite and synthetic fibres. Manufactured using a revolutionary process which provides the graphite gaskets with totally new, previously unachievable properties.

### Properties

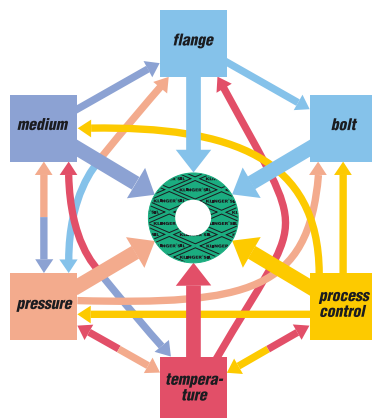
The material impresses with its good handling in combination with its very high level of load bearing capacity and minimal embrittlement at temperatures up to 300°C. These properties offer the gasket a high degree of resistance to damage during fitting and under operation, prevents the loss of bolt load and the formation of cracks at high temperature. The material is suitable for use with steam up to 300°C. In many other areas of application, temperatures of over 500°C are possible.

KLINGERtop-graph-2000 combines the advantages of fibre-reinforced gaskets preferred by the experts with the key features of really flexible graphite.

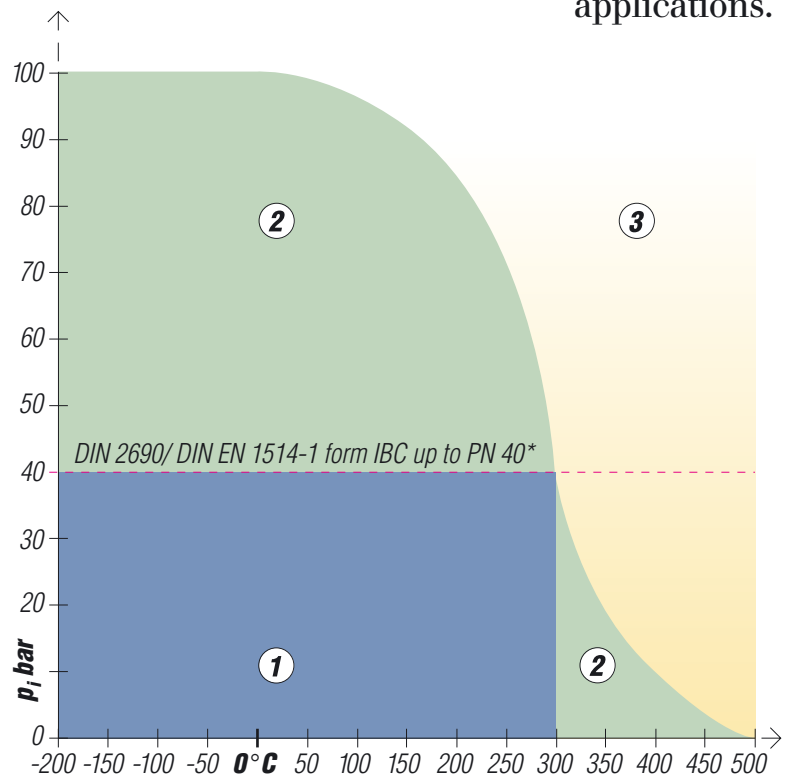
\* Gaskets according to DIN 2690 are only standardised up to PN 40

### 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



The really flexible graphite sealing material with a high degree of inherent stability offers reliability in handling. Thanks to its high load bearing capacity and the low embrittlement, KLINGERtop-graph-2000 is ideally suited for use with steam and other sophisticated applications.



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.

### **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.

### **The dimensions of the standard sheets**

Sizes:

1,000 mm x 1,500 mm

1,500 mm 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



Powerful sealing calculation with  
online help on CD-ROM



### **Typical values for 1.5 mm thickness**

|                                     |                              | <b>KLINGER<sup>top-graph-2000</sup></b> |      |
|-------------------------------------|------------------------------|---|------|
| Compressibility ASTM F 36 J         |                              | %                                       | 10   |
| Recovery ASTM F 36 J                | min                          | %                                       | 60   |
| Stress relaxation DIN 52913         | 50 MPa, 16 h/300°C           | MPa                                     | 32   |
| Klinger cold/hot compression 50 MPa | thickness decrease ambient   | %                                       | 10   |
|                                     | thickness decrease hot 300°C | %                                       | 10   |
| Immersion oil JRM 903: 5h/150°C     | thickness change             | %                                       | 5    |
|                                     | weight change                | %                                       | 10   |
| Immersion fuel B: 5h/23°C           | thickness change             | %                                       | 7    |
|                                     | weight change                | %                                       | 10   |
| Immersion water: 5h/100°C           | thickness change             | %                                       | 5    |
|                                     | weight change                | %                                       | 5    |
| Soluble chloride content            | chlorides (soluble)          | ppm                                     | <50  |
| Tightness according to DIN 3535/6   |                              | ml/min                                  | 0,5  |
| Density                             |                              | g/cm <sup>3</sup>                       | 1,75 |

### **ASME-Code sealing factors**

|                         |          |
|-------------------------|----------|
| tightness 0.1 mg/ s x m | MPa y 25 |
|                         | MPa m 4  |

### **Rings and other finished gaskets**

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

### **Surfaces**

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

### **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**

BAM approval in accordance with UVV 28, oxygen (VGB 62) tested up to 130 bar and 95°C for gaseous oxygen.

KTW-recommended.

Meets the technical requirements of BS 7531:2006 Grade AX.

DIN-DVGW-permit no.

NG-5123AU0381.

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

Subject to technical alterations.  
Issue: December 2007

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