

# KLINGER MLX GRAPHITE LAMINATE



## DESCRIPTION

KLINGER MLX is a multilayer graphite laminate with impregnated graphite layers and smooth stainless steel inserts. It has excellent leakage performance and excellent mechanical stability. It is suitable for high internal pressures, high surface pressures and gaskets with narrow cross-sections. It has a durable, anti-stick surface.



| ITEM              |           | DATA  |
|-------------------|-----------|---|
| Basic composition |           | Layers of impregnated graphite and stainless steel inserts bonded together without adhesive |
| Sheet size        |           | 1500 x 1500 mm  |
| Colour            |           | Grey  |
| Thickness         |           | 1.5 mm, 2.0 mm, 3.0 mm  |
| Certificates      |           | DIN-DVGW, Oxygen Test Report, API 6FB, HOBT, DNV GL   |
| Tolerances        | Thickness | ± 5%  |
|                   | Width     | ± 5 mm  |
|                   | Length    | ± 5 mm  |
| Industries        |           | General industry, Chemical, Oil & Gas, Energy, Pulp & Paper, Marine                         |

## 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                      | A          | A        | A                              | A         | A                  | A       | A      | A     | A     | B              | B              |

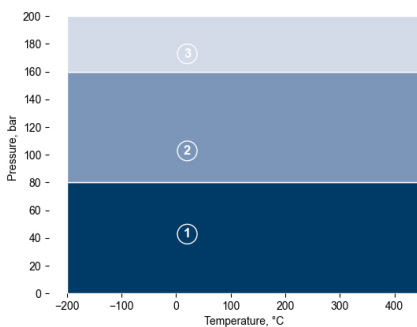
All information is based on years of experience in production and operation of sealing elements. However, in view of the wide variety of possible installation and operating conditions one cannot draw final conclusions in all application cases regarding the behaviour in gasket joints. The data may not, therefore, be used to support any warranty claims. This edition cancels all previous issues. Subject to change without notice.

## TECHNICAL DATA

Typical values for a thickness of 2.0 mm

|  |                   |       |              |
|--|-------------------|-------|--------------|
| <b>PURITY OF GRAPHITE</b>  | DIN 51903         | %     | ≥ 99.85      |
| <b>OXIDATION RATE</b>  | DIN 28090-2       | %/h   | ≤ 4          |
| <b>MAX. CONTINUOUS OPERATING TEMPERATURE</b>   |                   | °C    | 450          |
| <b>CHLORIDE CONTENT OF GRAPHITE LAYER</b>  | EN 15408          | ppm   | ≤ 20         |
| <b>FLUORIDE CONTENT OF GRAPHITE LAYER</b>  | EN 15408          | ppm   | ≤ 20         |
| <b>SULPHUR CONTENT OF GRAPHITE LAYER</b>   | EN 15408          | ppm   | ≤ 200        |
| <b>REINFORCEMENT</b>   | Smooth metal      |       | AISI 316 (L) |
|  | Thickness         | mm    | 0.05         |
|  | Number of inserts |       | 3            |
| <b>COMPRESSIBILITY</b>   | ASTM F36A         | %     | 30 - 45      |
| <b>RECOVERY</b>  | ASTM F36A         | %     | 10 - 25      |
| <b>MAXIMUM GASKET STRESS <math>Q_{Smax}</math> AT RT</b>                                     | EN 13555          | MPa   | > 220        |
| <b>MAXIMUM GASKET STRESS <math>Q_{Smax}</math> AT 300°C</b>                                  | EN 13555          | MPa   | 220          |
| <b>MINIMUM REQUIRED GASKET STRESS IN ASSEMBLY <math>Q_{min(0.1)}</math> AT RT AND 40 BAR</b> | EN 13555          | MPa   | 15           |
| <b>DENSITY OF THE GRAPHITE LAYER</b>   | DIN 28090-2       | g/cm3 | 1.0          |
| <b>COLD COMPRESSIBILITY</b>  | DIN 28090-2       | %     | 30 - 45      |
| <b>COLD RECOVERY</b>   | DIN 28090-2       | %     | 3 - 6        |
| <b>HOT CREEP</b>   | DIN 28090-2       | %     | 0.5 - 3      |
| <b>HOT RECOVERY</b>  | DIN 28090-2       | %     | 2 - 4        |

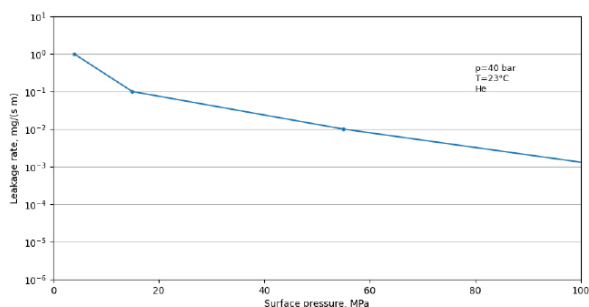
## P-T DIAGRAM



### Area of the P-T diagram

In area one, the gasket material is normally a suitable subject to chemical compatibility. In area two, the gasket material may be suitable but a technical evaluation is recommended. In area three, do not install the gasket without a technical evaluation. Always confirm the chemical resistance of the gasket to the media.

## TIGHTNESS PERFORMANCE



### Tightness performance of graphite

The graph shows the required stress at assembly to seal a certain tightness class. The determination of the graph is based on the 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.