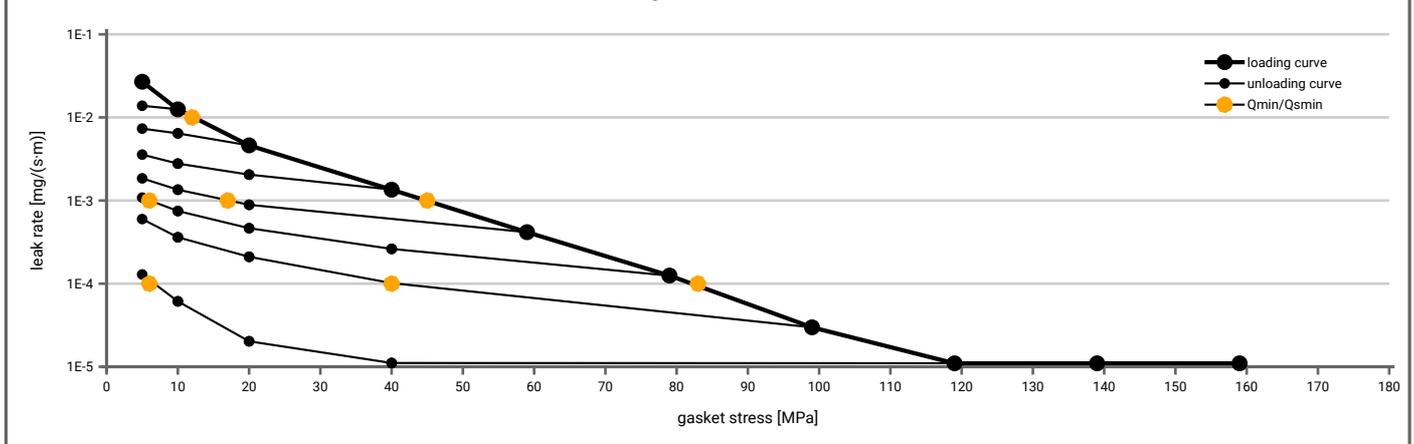| Manufacturer address | KLINGER GmbH, Richard Klinger Str. 37, 65510 Idstein, DE | According to |
|---|---|---|
| Product name | KLINGER® Graphite Laminate SLS150B | **DIN EN 13555** |
| Product dimensions | 92 x 49 x 1.5 mm (DIN EN 1514-1 1997-8) | **2005-2** |

### Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 10 bar (T = 23 ± 2 °C)

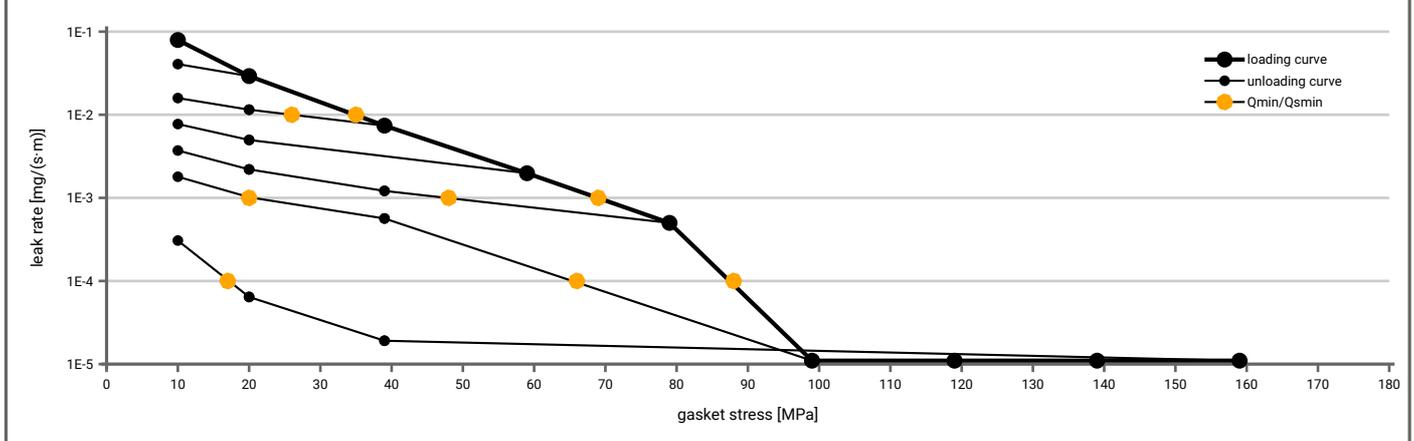| L [mg/(s·m)] | $Q_{min(L)}$ [MPa] | $Q_{smin(L)}$ [MPa] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $Q_A$ = 5 [MPa] | $Q_A$ = 10 [MPa] | $Q_A$ = 20 [MPa] | $Q_A$ = 40 [MPa] | $Q_A$ = 60 [MPa] | $Q_A$ = 80 [MPa] | $Q_A$ = 100 [MPa] | $Q_A$ = 120 [MPa] | $Q_A$ = 140 [MPa] | $Q_A$ = 160 [MPa] |
| 1E-0 | 5 | | 5 | 5 | 5 | 5 | 5 | 5 | | | 5 |
| 1E-1 | 5 | | 5 | 5 | 5 | 5 | 5 | 5 | | | 5 |
| 1E-2 | 12 | | | 5 | 5 | 5 | 5 | 5 | | | 5 |
| 1E-3 | 45 | | | | | 17 | 6 | 5 | | | 5 |
| 1E-4 | 83 | | | | | | | 41 | | | 7 |
| 1E-5 | | | | | | | | | | | |
| 1E-6 | | | | | | | | | | | |
| 1E-7 | | | | | | | | | | | |
| 1E-8 | | | | | | | | | | | |

**Leakage - 23 ± 2 °C / 10 bar**



### Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 40 bar (T = 23 ± 2 °C)

| L [mg/(s·m)] | $Q_{min(L)}$ [MPa] | $Q_{smin(L)}$ [MPa] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $Q_A$ = 10 [MPa] | $Q_A$ = 20 [MPa] | $Q_A$ = 40 [MPa] | $Q_A$ = 60 [MPa] | $Q_A$ = 80 [MPa] | $Q_A$ = 100 [MPa] | $Q_A$ = 120 [MPa] | $Q_A$ = 140 [MPa] | $Q_A$ = 160 [MPa] |
| 1E-0 | 10 | | 10 | 10 | 10 | 10 | 10 | | | 10 |
| 1E-1 | 10 | | 10 | 10 | 10 | 10 | 10 | | | 10 |
| 1E-2 | 36 | | | 26 | 10 | 10 | 10 | | | 10 |
| 1E-3 | 70 | | | | | 49 | 21 | | | 10 |
| 1E-4 | 88 | | | | | | 66 | | | 17 |
| 1E-5 | | | | | | | | | | |
| 1E-6 | | | | | | | | | | |
| 1E-7 | | | | | | | | | | |
| 1E-8 | | | | | | | | | | |

**Leakage - 23 ± 2 °C / 40 bar**



| Note: the content of darkened cells was not determined respectively is unnecessary | Rev.-No.: **1** | Creation date of this sheet: **2012-03-28** |
|---|---|---|

| Manufacturer address | KLINGER GmbH, Richard Klinger Str. 37, 65510 Idstein, DE | According to |
|---|---|---|
| Product name | KLINGER® Graphite Laminate SLS150B | **DIN EN 13555** |
| Product dimensions | 92 x 49 x 1.5 mm (DIN EN 1514-1 1997-8) | **2005-2** |

**Relaxation ratio P$_{QR}$ for stiffness _C_ = 500 [kN/mm]**

| Gasket stress | 23 ± 2 °C | | Temperature 1 [150 °C] | | Temperature 2 [300 °C] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | P$_{QR}$ | Δe$_{Gc}$ [µm] | P$_{QR}$ | Δe$_{Gc}$ [µm] | P$_{QR}$ | Δe$_{Gc}$ [µm] | P$_{QR}$ | Δe$_{Gc}$ [µm] | P$_{QR}$ | Δe$_{Gc}$ [µm] |
| Stress level 1 [30 MPa] | 0.98 | 6 | 0.94 | 16 | 0.90 | 25 | | | | |
| Stress level 2 [50 MPa] | 0.99 | 4 | 0.97 | 15 | 0.95 | 23 | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**P$_{QR}$ and Δe$_{Gc}$ at maximum gasket stress to be applied Q$_{smax}$**

| P$_{QR}$ at Q$_{smax}$ | 1.00 | 0 | 0.98 | 30 | 0.97 | 45 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Q$_{smax}$ | 200 MPa | | 180 MPa | | 180 MPa | | | | | |

**Sekant unloading modulus of the gasket E$_G$ [MPa] and gasket thickness e$_G$ [mm]**

| Gasket stress [MPa] | 23 ± 2 °C | | Temperature 1 [150 °C] | | Temperature 2 [300 °C] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | E$_G$ [MPa] | e$_G$ [mm] | E$_G$ [MPa] | e$_G$ [mm] | E$_G$ [MPa] | e$_G$ [mm] | E$_G$ [MPa] | e$_G$ [mm] | E$_G$ [MPa] | e$_G$ [mm] |
| 0 | 0 | 1.530 | 0 | 1.530 | 0 | 1.530 | | | | |
| 1 | 0 | 1.500 | 0 | 1.501 | 0 | 1.502 | | | | |
| 20 | 422 | 0.943 | 456 | 0.915 | 512 | 0.900 | | | | |
| 30 | 714 | 0.889 | 710 | 0.873 | 711 | 0.857 | | | | |
| 40 | 1022 | 0.855 | 966 | 0.840 | 981 | 0.826 | | | | |
| 50 | 1395 | 0.834 | 1344 | 0.819 | 1250 | 0.804 | | | | |
| 60 | 1826 | 0.818 | 1897 | 0.803 | 1618 | 0.788 | | | | |
| 80 | 2477 | 0.793 | 2451 | 0.778 | 2442 | 0.764 | | | | |
| 100 | 3199 | 0.774 | 3389 | 0.758 | 3342 | 0.746 | | | | |
| 120 | 3666 | 0.760 | 4317 | 0.744 | 3955 | 0.731 | | | | |
| 140 | 4704 | 0.750 | 5477 | 0.725 | 4528 | 0.720 | | | | |
| 160 | 4697 | 0.740 | 5892 | 0.688 | 5149 | 0.710 | | | | |
| 180 | 5716 | 0.732 | 6818 | 0.594 | 5331 | 0.700 | | | | |
| 200 | 6483 | 0.725 | | | | | | | | |

**Gasket thickness eG**

| Note: the content of darkened cells was not determined respectively is unnecessary | Rev.-No.: **1** | Creation date of this sheet: **2012-03-28** |
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