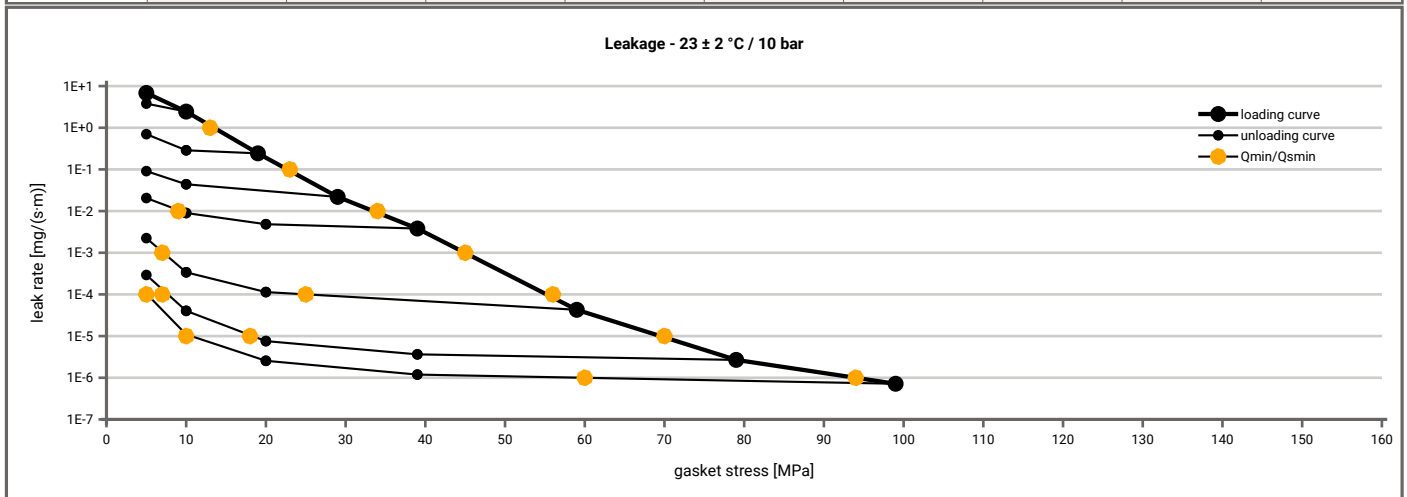
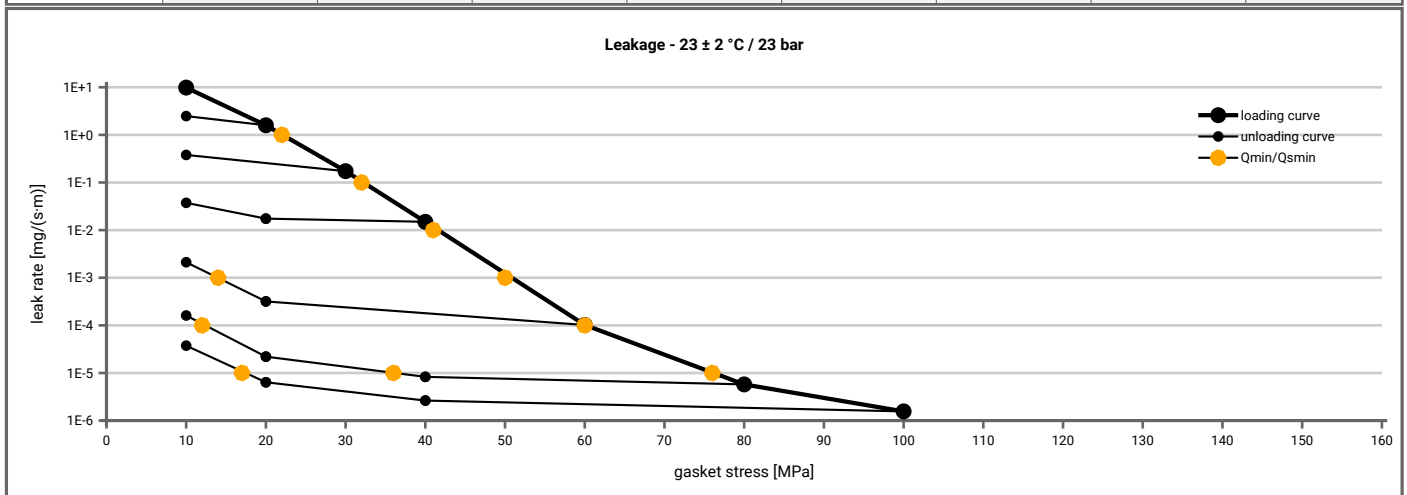


| | | |
|----------------------|--|---|
| Manufacturer address | KLINGER GmbH, Richard Klinger Str. 37, 65510 Idstein, DE | According to DIN EN 13555 2014-7 |
| Product name | KLINGERSIL® C4430plus | |
| Product dimensions | 92 x 49 x 3 mm (DIN EN 1514-1 1997-8) | |

| Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for $p = 10$ bar ($T = 23 \pm 2$ °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] | $Q_A = 30$ [MPa] | $Q_A = 40$ [MPa] | $Q_A = 60$ [MPa] | $Q_A = 80$ [MPa] | $Q_A = 100$ [MPa] |
| 1E+1 | 5 | | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 1E-0 | 14 | | | 5 | 5 | 5 | 5 | 5 | 5 |
| 1E-1 | 24 | | | | 5 | 5 | 5 | 5 | 5 |
| 1E-2 | 34 | | | | | 9 | 5 | 5 | 5 |
| 1E-3 | 46 | | | | | | 7 | 5 | 5 |
| 1E-4 | 56 | | | | | | 25 | 8 | 5 |
| 1E-5 | 70 | | | | | | | 18 | 11 |
| 1E-6 | 95 | | | | | | | | 61 |
| 1E-7 | | | | | | | | | |
| 1E-8 | | | | | | | | | |



| Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for $p = 23$ bar ($T = 23 \pm 2$ °C) | | | | | | | | | |
|--|--------------------|---------------------|------------------|------------------|------------------|------------------|------------------|-------------------|----|
| L [mg/(s·m)] | $Q_{min(L)}$ [MPa] | $Q_{smin(L)}$ [MPa] | | | | | | | |
| | | $Q_A = 10$ [MPa] | $Q_A = 20$ [MPa] | $Q_A = 30$ [MPa] | $Q_A = 40$ [MPa] | $Q_A = 60$ [MPa] | $Q_A = 80$ [MPa] | $Q_A = 100$ [MPa] | |
| 1E+1 | 10 | | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 1E-0 | 22 | | | 10 | 10 | 10 | 10 | 10 | 10 |
| 1E-1 | 32 | | | | 10 | 10 | 10 | 10 | 10 |
| 1E-2 | 42 | | | | | 10 | 10 | 10 | 10 |
| 1E-3 | 51 | | | | | 14 | 10 | 10 | 10 |
| 1E-4 | 60 | | | | | | 12 | 10 | 10 |
| 1E-5 | 76 | | | | | | 36 | 17 | |
| 1E-6 | | | | | | | | | |
| 1E-7 | | | | | | | | | |
| 1E-8 | | | | | | | | | |



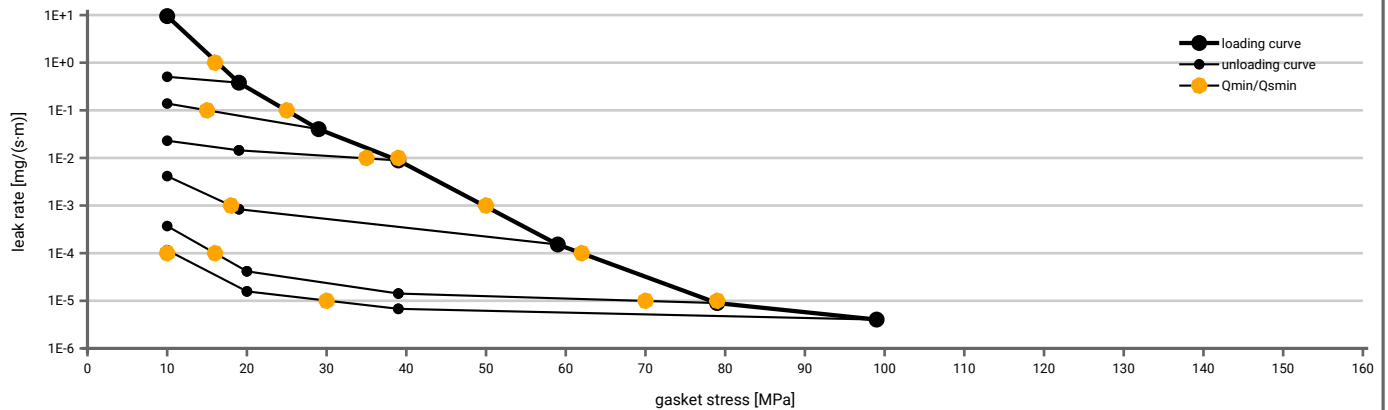
Note: the content of darkened cells was not determined respectively is unnecessary Rev.-No.: 1 Creation date of this sheet: 2016-01-14

| | | |
|----------------------|--|---|
| Manufacturer address | KLINGER GmbH, Richard Klinger Str. 37, 65510 Idstein, DE | According to DIN EN 13555 2014-7 |
| Product name | KLINGERSIL® C4430plus | |
| Product dimensions | 92 x 49 x 3 mm (DIN EN 1514-1 1997-8) | |

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

| L [mg/(s·m)] | $Q_{min(L)}$ [MPa] | $Q_{smin(L)}$ [MPa] | | | | | | |
|--------------|--------------------|---------------------|------------------|------------------|------------------|------------------|------------------|-------------------|
| | | $Q_A = 10$ [MPa] | $Q_A = 20$ [MPa] | $Q_A = 30$ [MPa] | $Q_A = 40$ [MPa] | $Q_A = 60$ [MPa] | $Q_A = 80$ [MPa] | $Q_A = 100$ [MPa] |
| 1E+1 | 10 | | 10 | 10 | 10 | 10 | 10 | 10 |
| 1E-0 | 17 | | 10 | 10 | 10 | 10 | 10 | 10 |
| 1E-1 | 26 | | | 15 | 10 | 10 | 10 | 10 |
| 1E-2 | 39 | | | | 35 | 10 | 10 | 10 |
| 1E-3 | 51 | | | | | 19 | 10 | 10 |
| 1E-4 | 63 | | | | | | 16 | 11 |
| 1E-5 | 79 | | | | | | 70 | 31 |
| 1E-6 | | | | | | | | |
| 1E-7 | | | | | | | | |
| 1E-8 | | | | | | | | |

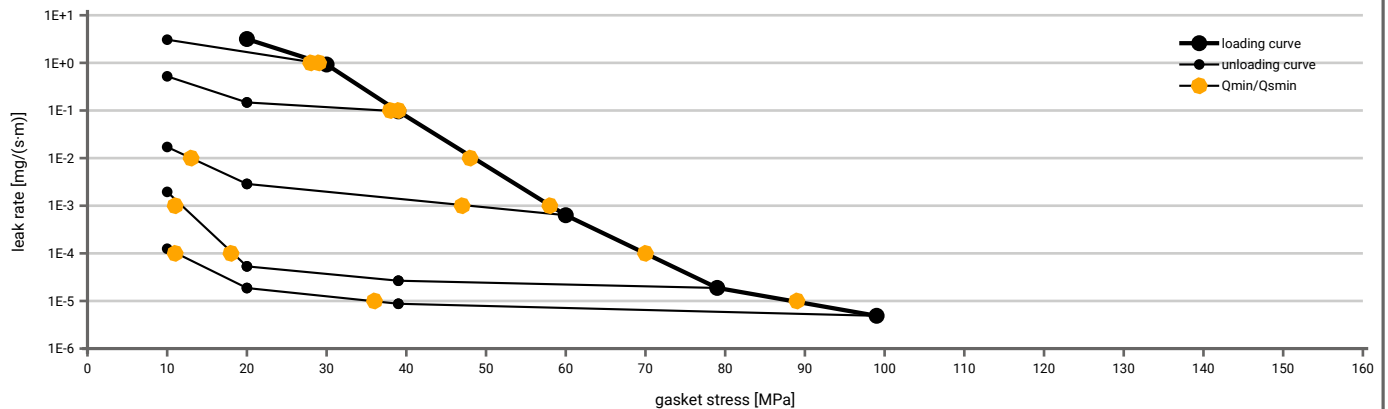
Leakage - 23 ± 2 °C / 40 bar



Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for $p = 63$ bar ($T = 23 \pm 2$ °C)

| L [mg/(s·m)] | $Q_{min(L)}$ [MPa] | $Q_{smin(L)}$ [MPa] | | | | | |
|--------------|--------------------|---------------------|------------------|------------------|------------------|------------------|-------------------|
| | | $Q_A = 20$ [MPa] | $Q_A = 30$ [MPa] | $Q_A = 40$ [MPa] | $Q_A = 60$ [MPa] | $Q_A = 80$ [MPa] | $Q_A = 100$ [MPa] |
| 1E+1 | 20 | | 10 | 10 | 10 | 10 | 10 |
| 1E-0 | 29 | | 29 | 10 | 10 | 10 | 10 |
| 1E-1 | 40 | | | 38 | 10 | 10 | 10 |
| 1E-2 | 49 | | | | 13 | 10 | 10 |
| 1E-3 | 58 | | | | 48 | 12 | 10 |
| 1E-4 | 70 | | | | | 18 | 11 |
| 1E-5 | 89 | | | | | | 36 |
| 1E-6 | | | | | | | |
| 1E-7 | | | | | | | |
| 1E-8 | | | | | | | |

Leakage - 23 ± 2 °C / 63 bar



Note: the content of darkened cells was not determined respectively is unnecessary

Rev.-No.: 1

Creation date of this sheet: 2016-01-14

| | | |
|-----------------------------|--|---|
| Manufacturer address | KLINGER GmbH, Richard Klinger Str. 37, 65510 Idstein, DE | According to DIN EN 13555 2014-7 |
| Product name | KLINGERSIL® C4430plus | |
| Product dimensions | 92 x 49 x 3 mm (DIN EN 1514-1 1997-8) | |

| Relaxation ratio P_{QR} for stiffness $C = 500$ [kN/mm] | | | | | | | | | | |
|--|-----------|----------------------|------------------------|----------------------|------------------------|----------------------|------------------------|----------------------|----------|----------------------|
| Gasket stress | 23 ± 2 °C | | Temperature 1 [100 °C] | | Temperature 2 [200 °C] | | Temperature 3 [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] | 0.91 | 24 | 0.70 | 76 | 0.64 | 92 | 0.46 | 137 | | |
| Stress level 2 [50 MPa] | 0.93 | 29 | 0.79 | 90 | 0.73 | 113 | 0.55 | 189 | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| P_{QR} and Δe_{Gc} at maximum gasket stress to be applied Q_{smax} | | | | | | | | | | |
| P_{QR} at Q_{smax} | 0.99 | 29 | 0.84 | 309 | 0.75 | 483 | 0.68 | 618 | | |
| Q_{smax} | 230 MPa | | 230 MPa | | 230 MPa | | 230 MPa | | | |

| Sekant unloading modulus of the gasket E_G [MPa] and gasket thickness e_G [mm] | | | | | | | | | | |
|--|-------------|------------|------------------------|------------|------------------------|------------|------------------------|------------|-------------|------------|
| Gasket stress [MPa] | 23 ± 2 °C | | Temperature 1 [100 °C] | | Temperature 2 [200 °C] | | Temperature 3 [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 | 3.000 | 0 | 3.000 | 0 | 3.000 | 0 | 3.000 | | |
| 1 | 0 | 2.811 | 0 | 2.971 | 0 | 2.973 | 0 | 2.957 | | |
| 20 | 996 | 2.637 | 1225 | 2.680 | 1721 | 2.665 | 4079 | 2.606 | | |
| 30 | 1606 | 2.592 | 1600 | 2.632 | 2085 | 2.639 | 5789 | 2.587 | | |
| 40 | 1927 | 2.549 | 2356 | 2.591 | 2381 | 2.612 | 5718 | 2.567 | | |
| 50 | 2829 | 2.518 | 2393 | 2.552 | 3137 | 2.592 | 5522 | 2.547 | | |
| 60 | 3021 | 2.487 | 3676 | 2.527 | 3665 | 2.571 | 5817 | 2.529 | | |
| 80 | 4228 | 2.446 | 4606 | 2.478 | 4921 | 2.534 | 9099 | 2.509 | | |
| 100 | 5312 | 2.413 | 5488 | 2.423 | 4626 | 2.483 | 6217 | 2.482 | | |
| 120 | 6712 | 2.390 | 6208 | 2.363 | 5142 | 2.418 | 6294 | 2.458 | | |
| 140 | 7924 | 2.369 | 6421 | 2.295 | 5683 | 2.337 | 8284 | 2.441 | | |
| 160 | 8114 | 2.349 | 7915 | 2.224 | 5513 | 2.243 | 9139 | 2.423 | | |
| 180 | 8467 | 2.332 | 7112 | 2.146 | 6017 | 2.151 | 9598 | 2.407 | | |
| 200 | 8759 | 2.316 | 7059 | 2.071 | 5925 | 2.063 | 9159 | 2.389 | | |
| 220 | 9362 | 2.300 | 7538 | 2.007 | 6418 | 1.991 | 9413 | 2.372 | | |
| 230 | 9280 | 2.288 | 7656 | 1.972 | 6419 | 1.953 | 9531 | 2.362 | | |

