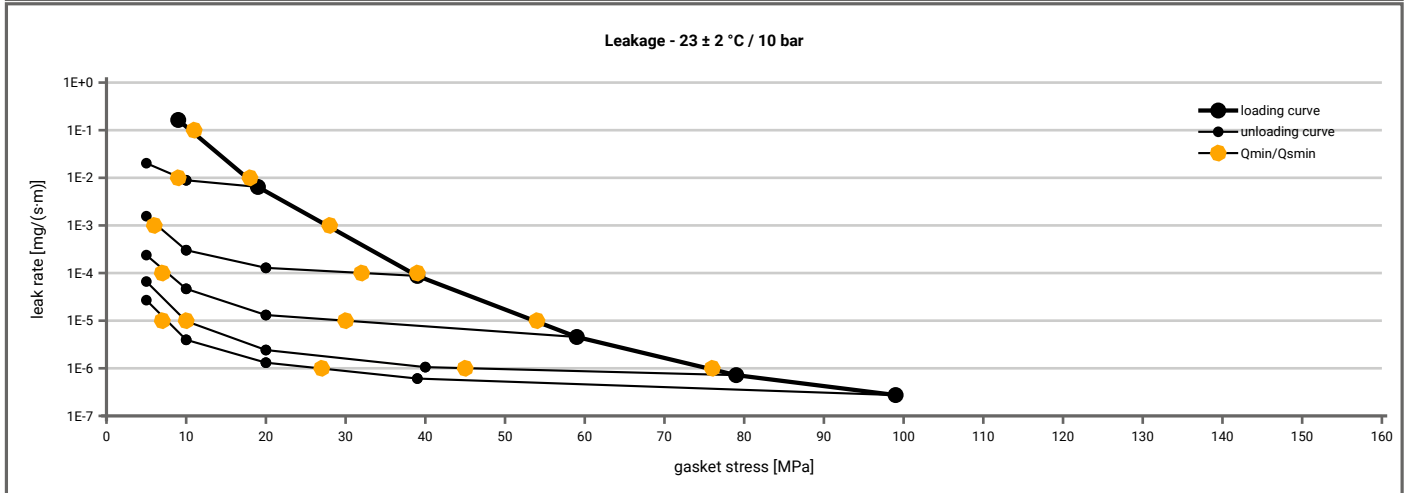


<b>Manufacturer address</b>	KLINGER GmbH, Richard Klinger Str. 37, 65510 Idstein, DE	According to <b>DIN EN 13555</b> <b>2005-2</b>
<b>Product name</b>	KLINGERSIL® C 4500	
<b>Product dimensions</b>	92 x 49 x 2 mm (DIN EN 1514-1 1997-8)	

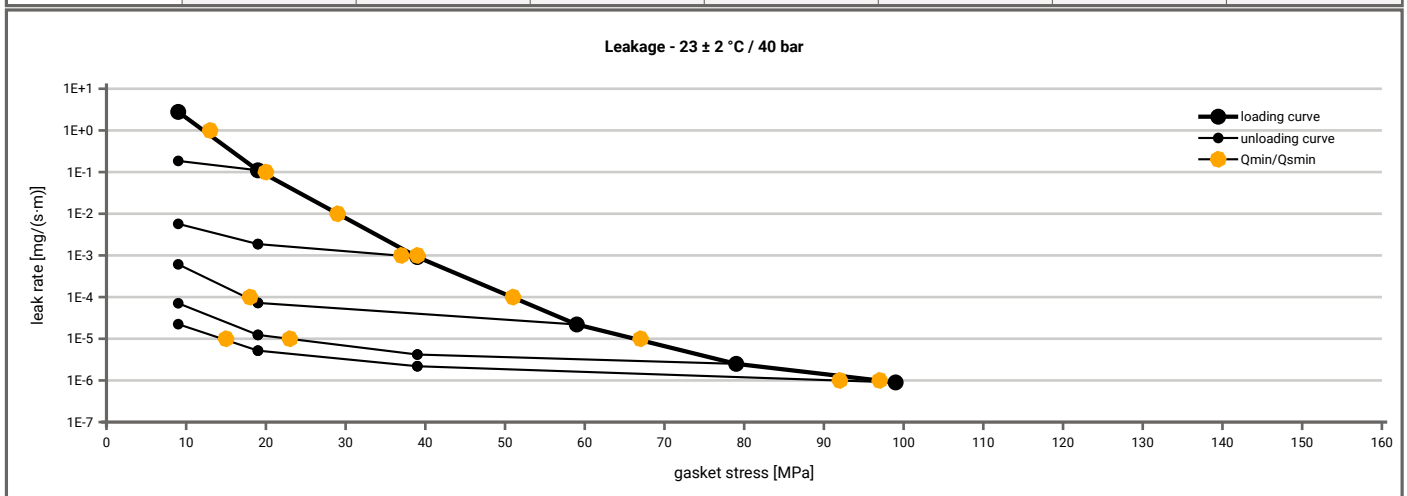
Minimum stress to seal  $Q_{min(L)}$  (at assembly),  $Q_{smin(L)}$  (after off-loading) for  $p = 10$  bar ( $T = 23 \pm 2$  °C)

L [mg/(s·m)]	$Q_{min(L)}$ [MPa]	$Q_{smin(L)}$ [MPa]					
		$Q_A = 10$ [MPa]	$Q_A = 20$ [MPa]	$Q_A = 40$ [MPa]	$Q_A = 60$ [MPa]	$Q_A = 80$ [MPa]	$Q_A = 100$ [MPa]
1E-0	10		5	5	5	5	5
1E-1	11		5	5	5	5	5
1E-2	19		9	5	5	5	5
1E-3	29			6	5	5	5
1E-4	39			33	8	5	5
1E-5	55				30	10	8
1E-6	76					46	27
1E-7							
1E-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]	$Q_A = 40$ [MPa]	$Q_A = 60$ [MPa]	$Q_A = 80$ [MPa]	$Q_A = 100$ [MPa]
1E+1	10		10	10	10	10	10
1E-0	13		10	10	10	10	10
1E-1	20			10	10	10	10
1E-2	30			10	10	10	10
1E-3	39			37	10	10	10
1E-4	52				18	10	10
1E-5	67					24	15
1E-6	98						92
1E-7							
1E-8							



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

Rev.-No.: 1

Creation date of this sheet: 2012-07-03

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<b>Product name</b>	KLINGERSIL® C 4500	
<b>Product dimensions</b>	92 x 49 x 2 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 [175 °C]		Temperature 3 [200 °C]		Temperature 4 [250 °C]		Temperature 5 [300 °C]	
	$P_{QR}$	$\Delta e_{Gc}$ [µm]	$P_{QR}$	$\Delta e_{Gc}$ [µm]	$P_{QR}$	$\Delta e_{Gc}$ [µm]	$P_{QR}$	$\Delta e_{Gc}$ [µm]	$P_{QR}$	$\Delta e_{Gc}$ [µm]	$P_{QR}$	$\Delta e_{Gc}$ [µm]
Stress level 1 [25 MPa]	0.94	13	0.85	31	0.79	45	0.80	43	0.73	57	0.57	90
Stress level 2 [40 MPa]	0.95	17	0.88	40	0.86	47	0.85	52	0.79	70	0.68	109
$P_{QR}$ and $\Delta e_{Gc}$ at maximum gasket stress to be applied $Q_{smax}$												
$P_{QR}$ at $Q_{smax}$	0.99	17	0.90	176	0.83	294	0.82	302	0.80	344	0.77	386
$Q_{smax}$	200 MPa		200 MPa		200 MPa		200 MPa		200 MPa		200 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 [175 °C]		Temperature 3 [200 °C]		Temperature 4 [250 °C]		Temperature 5 [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]	$E_G$ [MPa]	$e_g$ [mm]
0	0	1.861	0	1.944	0	1.914	0	1.926	0	1.897	0	1.952
1	0	1.861	0	1.944	0	1.914	0	1.926	0	1.897	0	1.952
20	1145	1.729	1290	1.789	1961	1.760	2586	1.765	3541	1.748	2182	1.752
30	1862	1.702	2404	1.773	2805	1.747	3180	1.755	5929	1.739	5601	1.739
40	2984	1.683	2907	1.757	3306	1.736	3222	1.742	5504	1.727	6531	1.727
50	4589	1.669	3389	1.742	3429	1.726	4127	1.732	5288	1.714	6017	1.715
60	5429	1.655	4150	1.730	4164	1.714	5258	1.720	7705	1.701	5469	1.703
80	7618	1.635	5063	1.707	4545	1.688	4196	1.687	5821	1.664	6790	1.687
100	6515	1.616	5731	1.685	4822	1.658	4320	1.650	8054	1.627	7500	1.671
120	6991	1.601	5267	1.660	4439	1.626	4898	1.612	6514	1.590	6892	1.657
140	7515	1.589	5865	1.637	5855	1.599	4826	1.575	6564	1.555	7633	1.645
160	8272	1.579	6856	1.614	5042	1.567	5315	1.540	8061	1.529	8229	1.634
180	7211	1.565	7629	1.595	6279	1.544	5569	1.510	7909	1.504	8374	1.621
200	6552	1.554	7155	1.572	6603	1.519	6756	1.486	7989	1.482	8547	1.611

