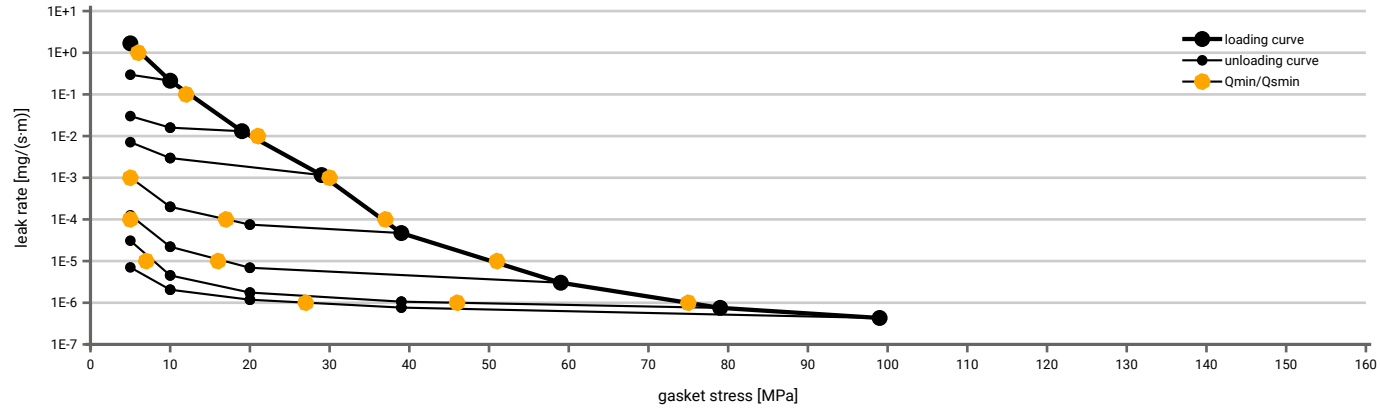
Manufacturer address	KLINGER GmbH, Richard Klinger Str. 37, 65510 Idstein, DE	According to
Product name	KLINGER® Quantum	**DIN EN 13555**
Product dimensions	92 x 49 x 3 mm (DIN EN 1514-1 1997-8)	**2014-7**

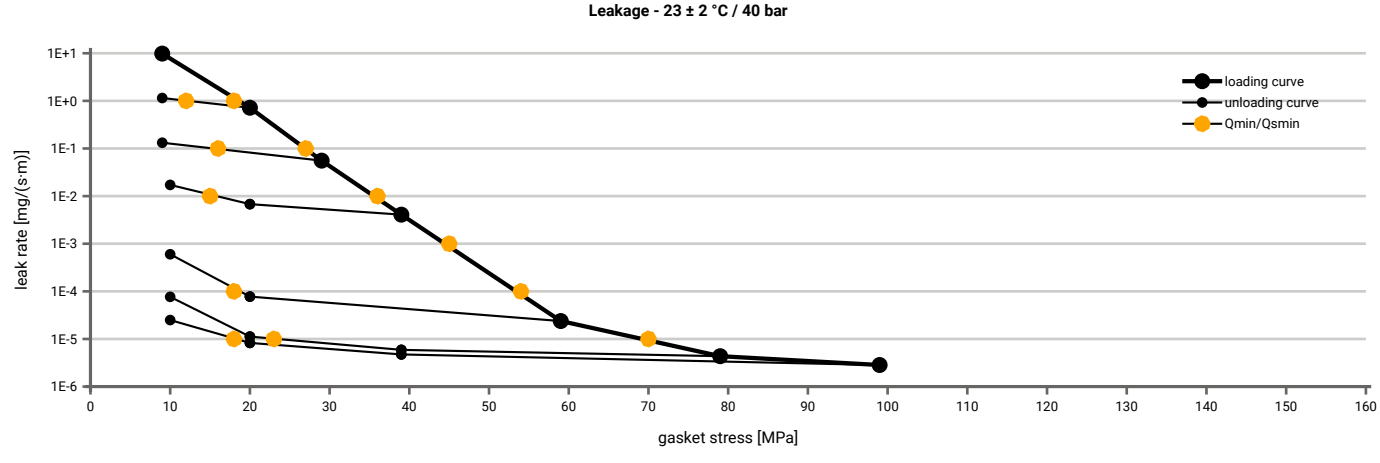
Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 10 bar (T = 23 ± 2 °C)

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 = 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	6		5	5	5	5	5	5	5
1E-1	13			5	5	5	5	5	5
1E-2	21				5	5	5	5	5
1E-3	30					5	5	5	5
1E-4	38					17	6	5	5
1E-5	51						17	8	5
1E-6	76							47	28
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 ± 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	19		13	10	10	10	10	10
1E-1	28			16	10	10	10	10
1E-2	36				16	10	10	10
1E-3	45					10	10	10
1E-4	54					19	10	10
1E-5	70						24	18
1E-6								
1E-7								
1E-8								

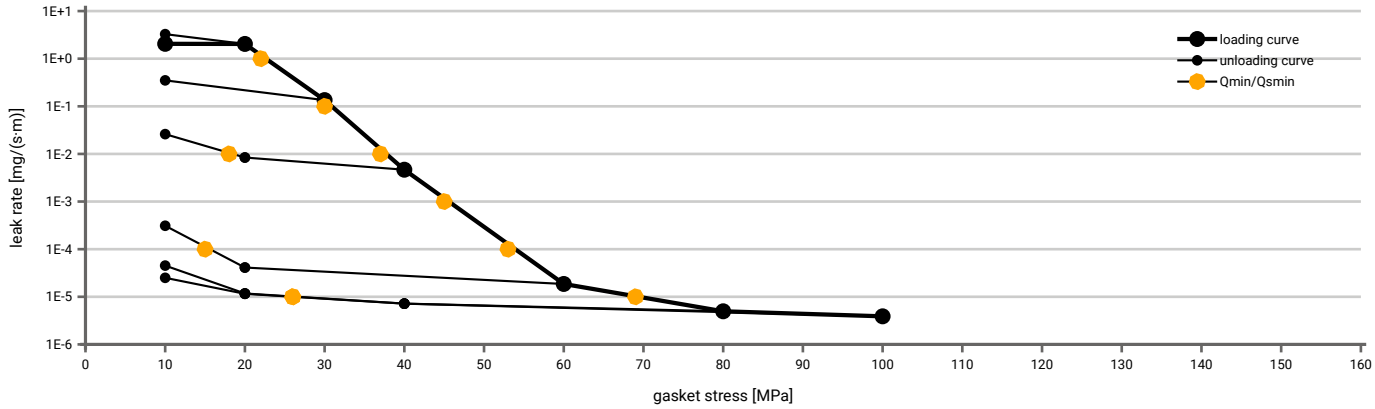


Note: the content of darkened cells was not determined respectively is unnecessary	Rev.-No.: **1**	Creation date of this sheet: **2016-01-14**

Manufacturer address	KLINGER GmbH, Richard Klinger Str. 37, 65510 Idstein, DE	According to **DIN EN 13555 2014-7**
Product name	KLINGER® Quantum	
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 = 63 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 = 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	23			10	10	10	10	10
1E-1	31				10	10	10	10
1E-2	38				18	10	10	10
1E-3	46					10	10	10
1E-4	54					16	10	10
1E-5	69						27	26
1E-6								
1E-7								
1E-8								

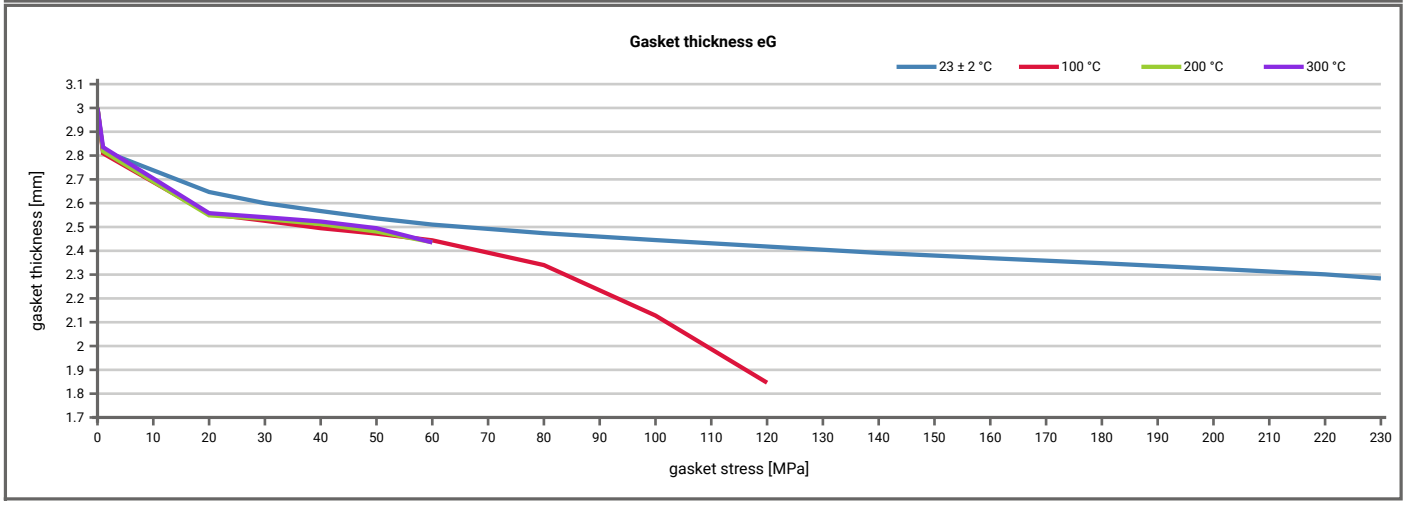


Note: the content of darkened cells was not determined respectively is unnecessary	Rev.-No.: **1**	Creation date of this sheet: **2016-01-14**

Manufacturer address	KLINGER GmbH, Richard Klinger Str. 37, 65510 Idstein, DE	According to **DIN EN 13555 2014-7**
Product name	KLINGER® Quantum	
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 [40 MPa]	0.90	35	0.77	77	0.70	102	0.58	141		
Stress level 2 [60 MPa]	0.93	35	0.80	103	0.72	144	0.61	196		
P_{QR} and Δe_{Gc} at maximum gasket stress to be applied Q_{smax}										
P_{QR} at Q_{smax}	0.98	48	0.73	272	0.72	144	0.61	196		
Q_{smax}	230 MPa		120 MPa		60 MPa		60 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	2.820	0	2.809	0	2.818	0	2.835		
20	1680	2.647	1907	2.555	7720	2.549	6034	2.558		
30	2173	2.600	2707	2.526	5930	2.534	3935	2.541		
40	3593	2.567	2799	2.495	4423	2.512	4123	2.523		
50	3409	2.536	4288	2.472	4424	2.481	4148	2.495		
60	4217	2.510	4683	2.444	4488	2.436	4827	2.435		
80	5297	2.474	5404	2.340						
100	6863	2.445	6881	2.128						
120	7459	2.418	6533	1.846						
140	7035	2.391								
160	8216	2.369								
180	10218	2.348								
200	9904	2.325								
220	9500	2.301								
230	9397	2.284								



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