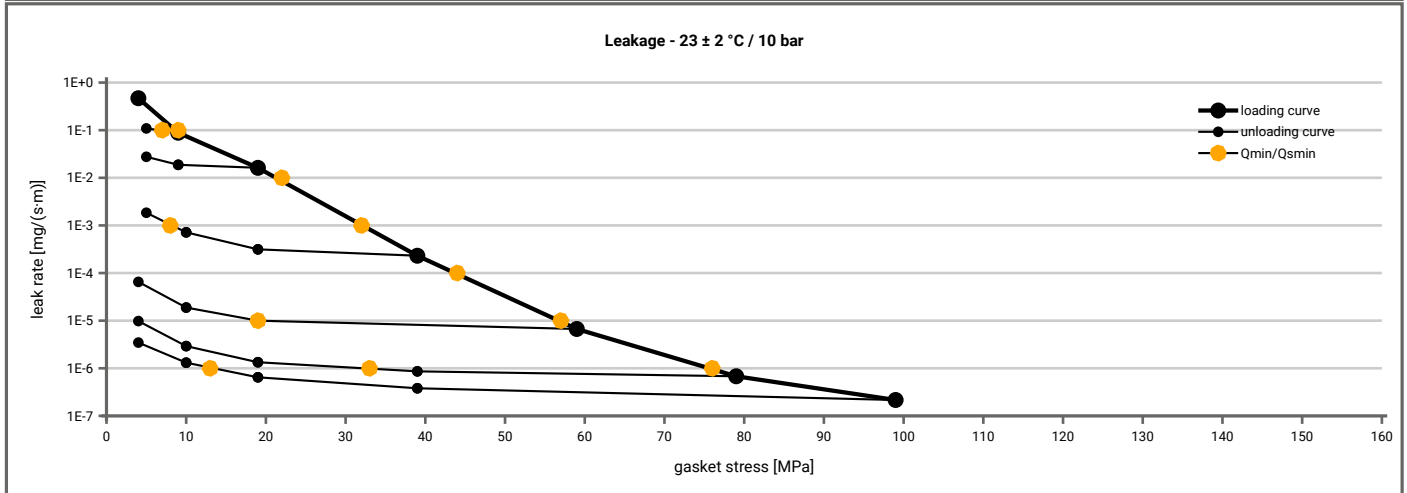
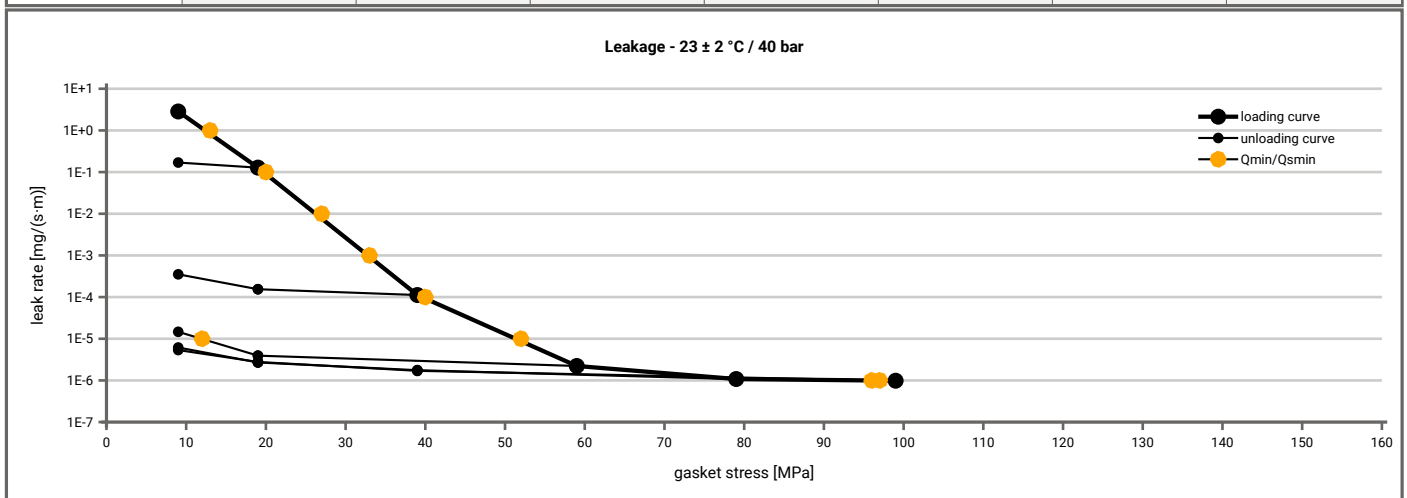


Manufacturer address	KLINGER GmbH, Richard Klinger Str. 37, 65510 Idstein, DE	According to DIN EN 13555 2014-7
Product name	KLINGER® Quantum	
Product dimensions	92 x 49 x 2 mm (DIN EN 1514-1 1997-8)	

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]						
		$Q_A = 5$ [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]
1E-0	5		5	5	5	5	5	5
1E-1	10		7	5	5	5	5	5
1E-2	22				5	5	5	5
1E-3	33				8	5	5	5
1E-4	45					5	5	5
1E-5	57					20	5	5
1E-6	76						33	14
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	10
1E-0	13		10	10	10	10	10	10
1E-1	21			10	10	10	10	10
1E-2	27			10	10	10	10	10
1E-3	34			10	10	10	10	10
1E-4	40				10	10	10	10
1E-5	52				13	10	10	10
1E-6	96							98
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

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 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 [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]	0.93	25	0.83	59	0.82	60	0.72	96		
Stress level 2 [60 MPa]	0.94	33	0.89	58	0.84	81	0.72	144		
P_{QR} and Δe_{Gc} at maximum gasket stress to be applied Q_{smax}										
P_{QR} at Q_{smax}	0.98	39	0.76	288	0.76	206	0.67	225		
Q_{smax}	230 MPa		140 MPa		100 MPa		80 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	1.942	0	1.973	0	1.930	0	1.942		
1	0	1.942	0	1.973	0	1.930	0	1.942		
20	2972	1.803	2119	1.769	4236	1.707	2850	1.733		
30	3106	1.765	2558	1.744	4998	1.698	2732	1.722		
40	3794	1.736	4781	1.724	4558	1.688	2418	1.707		
50	5591	1.713	4649	1.706	6924	1.678	3162	1.697		
60	6665	1.695	7069	1.695	5951	1.670	4983	1.684		
80	7442	1.669	7365	1.661	5154	1.638	4549	1.615		
100	9620	1.650	9164	1.581	6298	1.549				
120	9775	1.634	10067	1.471						
140	9550	1.621	8049	1.349						
160	10862	1.611								
180	14055	1.602								
200	15574	1.593								
220	15264	1.584								
230	13557	1.576								

