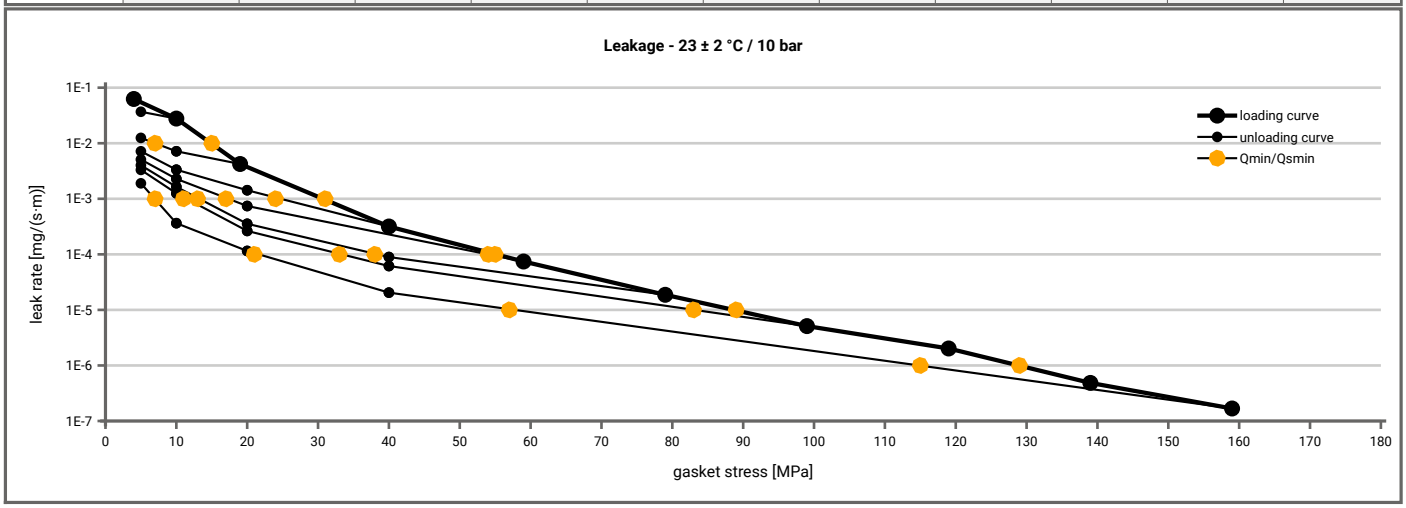
Manufacturer address	KLINGER Kempchen GmbH, Im Waldteich 21, 46147 Oberhausen, DE	According to
Product name	Grooved gasket B7A / B9A / B15A Graphite (1.4541 / 0,5 mm; D = 1,0g/ccm)	**DIN EN 13555**
Product dimensions	69 x 53 x 4.8 mm (DIN EN 1514-6 2004-3)	**2005-2**

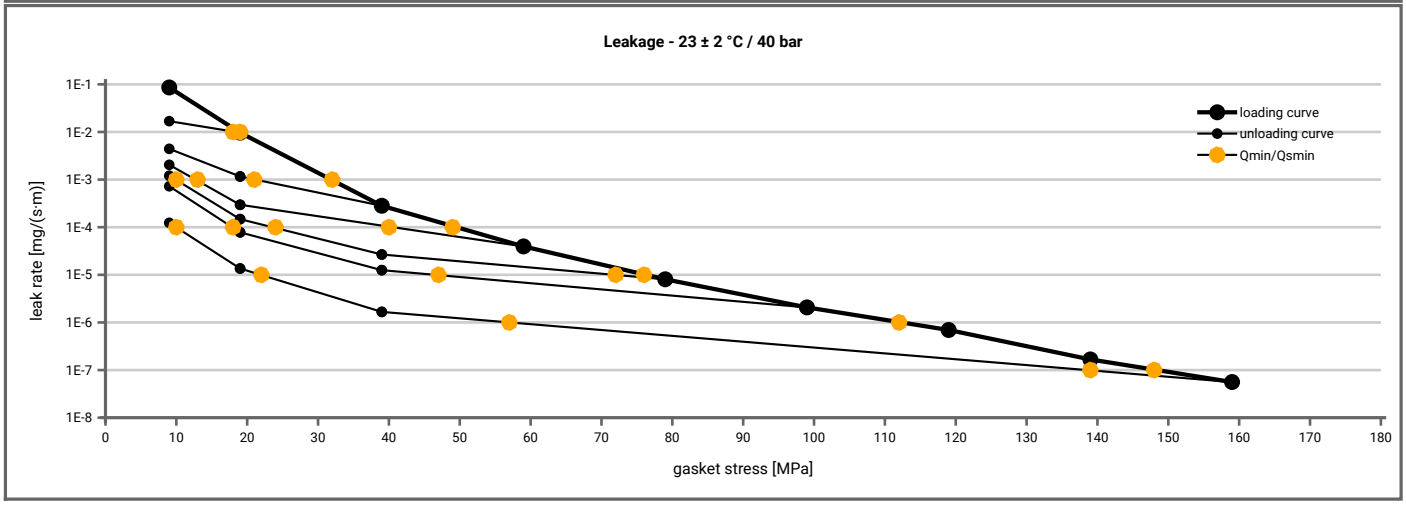
Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 10 bar (T = 23 ± 2 °C)

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	15			7	5	5	5	5			5
1E-3	31				25	17	13	12			7
1E-4	56					55	38	33			22
1E-5	89							84			58
1E-6	130										115
1E-7											



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 = 9 [MPa]	Q_A = 19 [MPa]	Q_A = 39 [MPa]	Q_A = 59 [MPa]	Q_A = 79 [MPa]	Q_A = 99 [MPa]	Q_A = 119 [MPa]	Q_A = 139 [MPa]	Q_A = 160 [MPa]
1E-0	9		9	10	10	10	10			10
1E-1	9		9	10	10	10	10			10
1E-2	19		19	10	10	10	10			10
1E-3	32			21	13	10	10			10
1E-4	50				41	24	18			11
1E-5	77					72	47			22
1E-6	113									58
1E-7	149									139
1E-8										

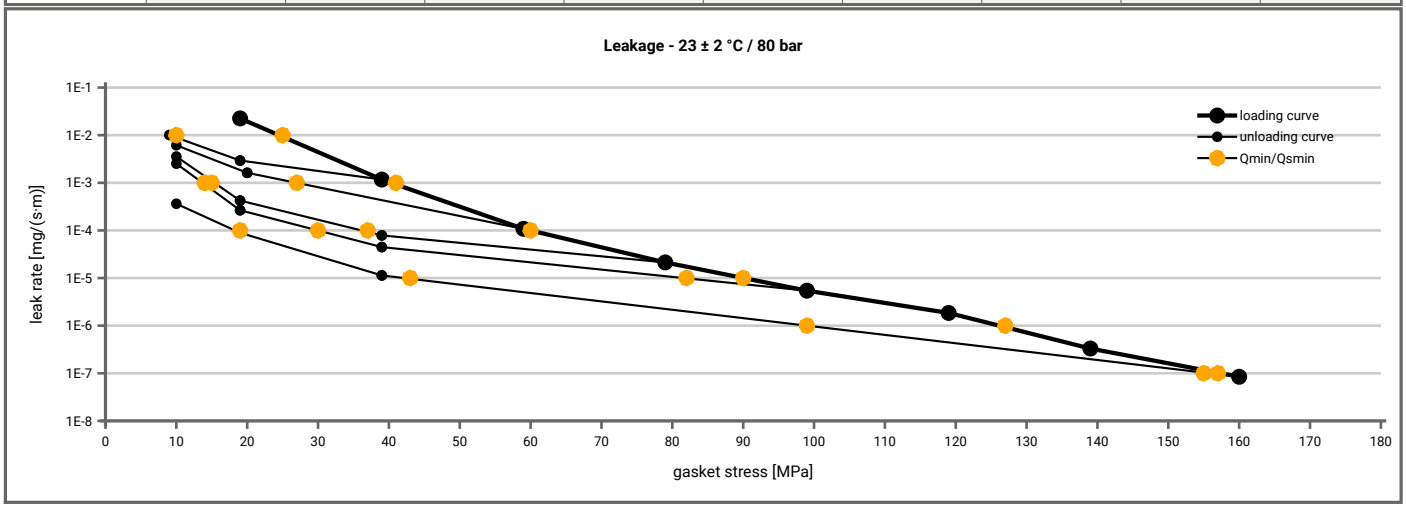


Note: the content of darkened cells was not determined respectively is unnecessary	Rev.-No.: **2**	Creation date of this sheet: **2025-06-13**

Manufacturer address	KLINGER Kempchen GmbH, Im Waldteich 21, 46147 Oberhausen, DE	According to **DIN EN 13555 2005-2**
Product name	Grooved gasket B7A / B9A / B15A Graphite (1.4541 / 0,5 mm; D = 1,0g/ccm)	
Product dimensions	69 x 53 x 4.8 mm (DIN EN 1514-6 2004-3)	

Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 80 bar (T = 23 ± 2 °C)

L [mg/(s·m)]	$Q_{min(L)}$ [MPa]	$Q_{smin(L)}$ [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	20		10	10	10	10			10
1E-1	20		10	10	10	10			10
1E-2	25		10	10	10	10			10
1E-3	41			27	16	14			10
1E-4	61				37	31			19
1E-5	91					83			43
1E-6	127								99
1E-7	158								156
1E-8									

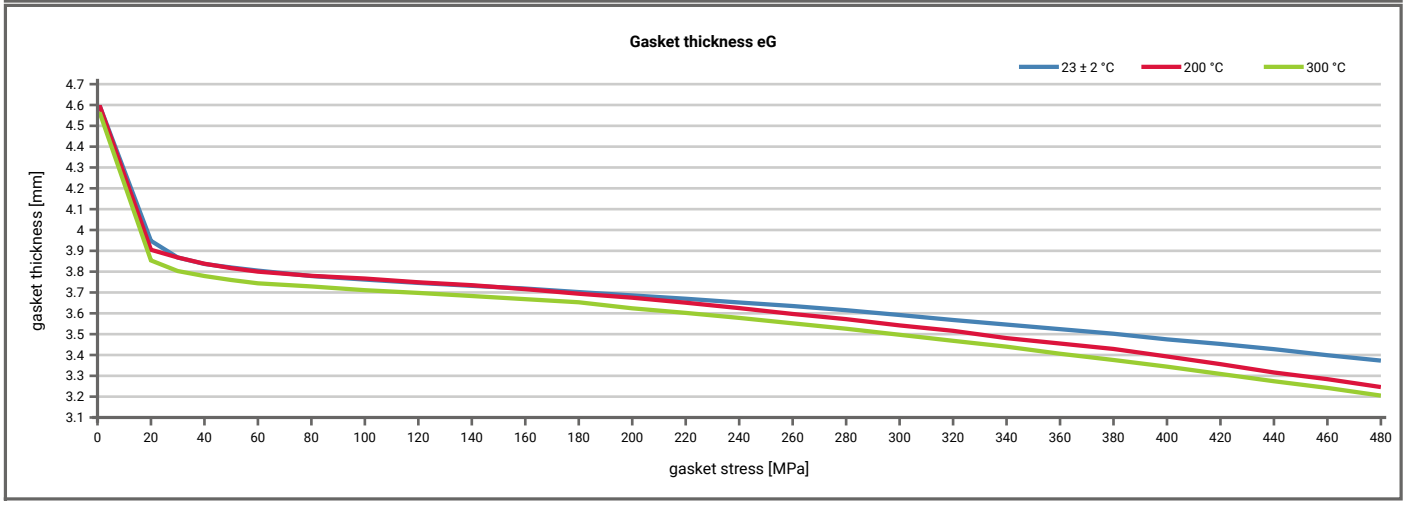


Note: the content of darkened cells was not determined respectively is unnecessary	Rev.-No.: **2**	Creation date of this sheet: **2025-06-13**

Manufacturer address	KLINGER Kempchen GmbH, Im Waldteich 21, 46147 Oberhausen, DE	According to **DIN EN 13555 2005-2**
Product name	Grooved gasket B7A / B9A / B15A Graphite (1.4541 / 0,5 mm; D = 1,0g/ccm)	
Product dimensions	69 x 53 x 4.8 mm (DIN EN 1514-6 2004-3)	

Relaxation ratio P_{QR} for stiffness C = 500 [kN/mm]										
Gasket stress	**23 ± 2 °C**		**Temperature 1 [200 °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 [50 MPa]	0.98	4	0.81	30	0.91	14				
Stress level 2 [90 MPa]	0.99	3	0.99	4	0.84	46				
P_{QR} and Δe_{Gc} at maximum gasket stress to be applied (Q_{smax})										
P_{QR} at Q_{smax}	0.99	15	0.95	74	0.94	88				
Q_{smax}	480 MPa		480 MPa		480 MPa					

Sekant unloading modulus of the gasket E_G [MPa] and gasket thickness e_G [mm]										
Gasket stress [MPa]	**23 ± 2 °C**		**Temperature 1 [200 °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	4.590	0	4.590	0	4.557				
1	0	4.590	0	4.590	0	4.557				
20	2953	3.948	2038	3.905	1738	3.854				
30	3391	3.868	3583	3.868	3258	3.803				
40	4886	3.837	5725	3.838	6029	3.779				
50	6967	3.820	6469	3.817	6378	3.760				
60	8671	3.805	7746	3.800	7160	3.744				
80	8764	3.779	9820	3.780	11041	3.729				
100	10132	3.762	13752	3.767	9842	3.711				
120	11388	3.746	11489	3.749	10984	3.698				
140	12052	3.732	12236	3.735	13372	3.683				
160	15263	3.719	12395	3.716	16543	3.668				
180	14819	3.702	13248	3.694	17982	3.653				
200	14991	3.686	16410	3.675	12889	3.624				
220	17937	3.670	15927	3.651	17490	3.602				
240	17722	3.652	15776	3.625	18291	3.578				
260	19002	3.635	14811	3.597	17200	3.552				
280	19357	3.615	16778	3.572	16932	3.526				
300	17809	3.592	16302	3.542	15605	3.497				
320	17527	3.568	17679	3.516	17608	3.468				
340	19876	3.546	16467	3.481	19769	3.440				
360	20060	3.524	18640	3.455	17226	3.406				
380	20662	3.502	22775	3.429	17734	3.376				
400	18344	3.475	18925	3.393	18535	3.344				
420	19573	3.453	19208	3.356	17377	3.309				
440	22384	3.428	16402	3.316	18796	3.274				
460	18620	3.399	19192	3.284	19311	3.242				
480	18468	3.373	20796	3.246	19553	3.205				



Note: the content of darkened cells was not determined respectively is unnecessary	Rev.-No.: **2**	Creation date of this sheet: **2025-06-13**