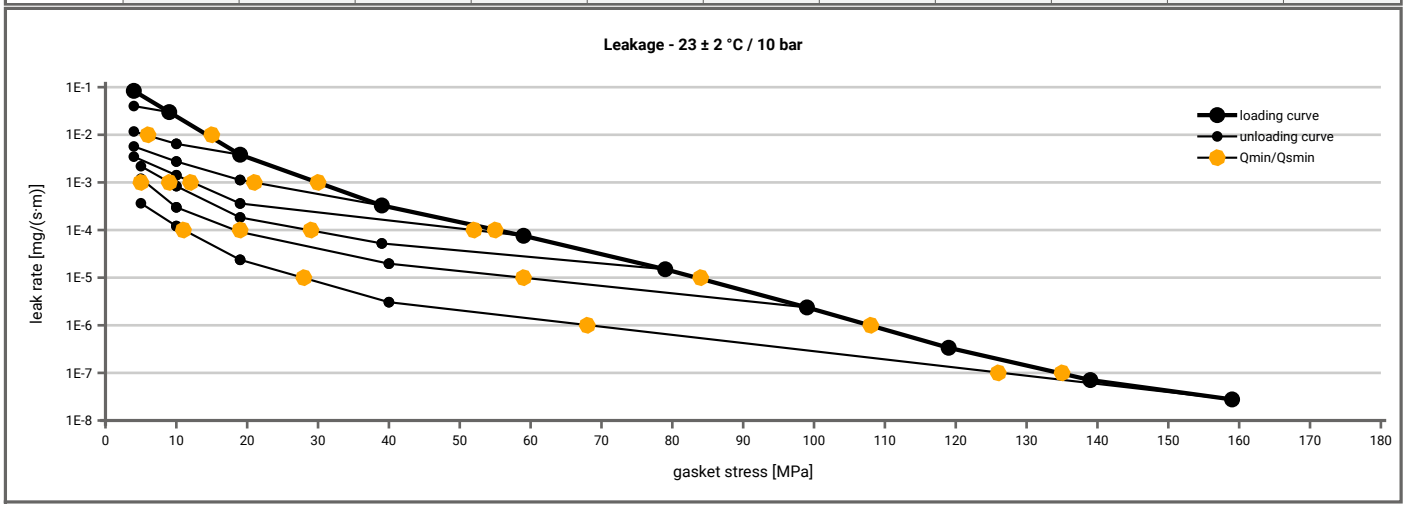
Manufacturer address	KLINGER Kempchen GmbH, Im Waldteich 21, 46147 Oberhausen, DE	According to
Product name	B25A / B27A / B29A - Graphite with/without inner eyelet (1.4541 / 0,5 mm; D = 1,0g/ccm)	**DIN EN 13555**
Product dimensions	69 x 53 x 4.9 mm (DIN EN 1514-6 2004-3)	**2005-2**

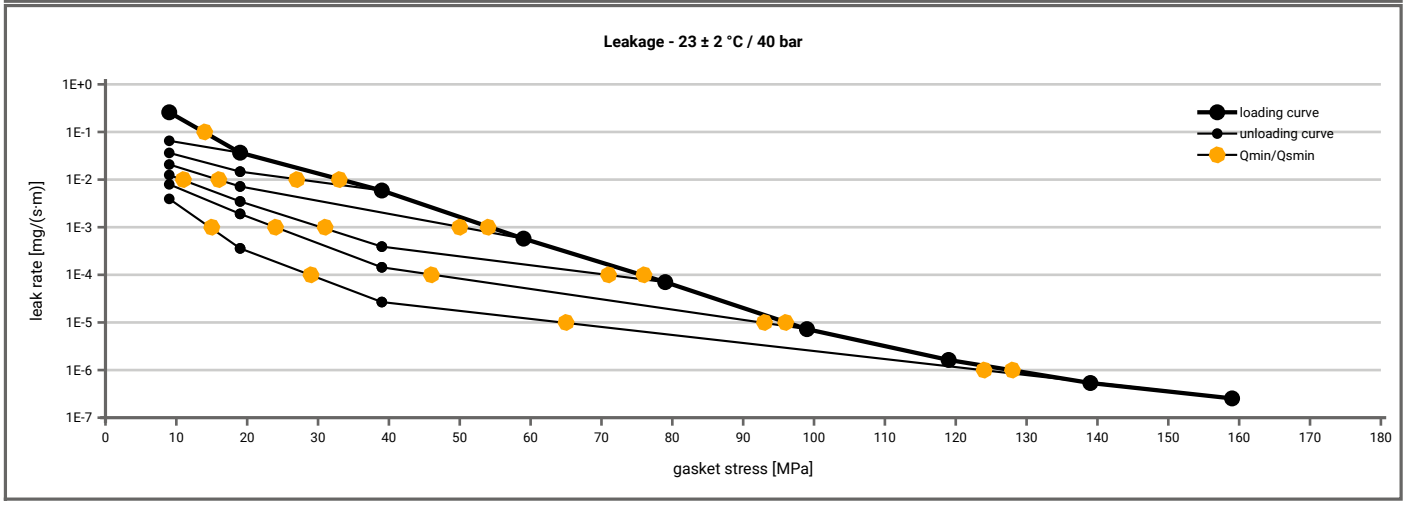
Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 10 bar (T = 23 ± 2 °C)

L [mg/(s·m)]	$Q_{min(L)}$ [MPa]	$Q_{smin(L)}$ [MPa]									
		Q_A = 4.8 [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			6	5	5	5	5			5
1E-3	31				22	13	9	6			5
1E-4	56					53	30	19			11
1E-5	84							59			28
1E-6	108										68
1E-7	135										127
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 = 9.4 [MPa]	Q_A = 19 [MPa]	Q_A = 39 [MPa]	Q_A = 59 [MPa]	Q_A = 79 [MPa]	Q_A = 100 [MPa]	Q_A = 119 [MPa]	Q_A = 139 [MPa]	Q_A = 159 [MPa]
1E-0	9		10	10	10	10	10			10
1E-1	14		10	10	10	10	10			10
1E-2	34			28	16	11	10			10
1E-3	55				51	31	25			15
1E-4	76					71	47			29
1E-5	97						93			65
1E-6	128									124
1E-7										

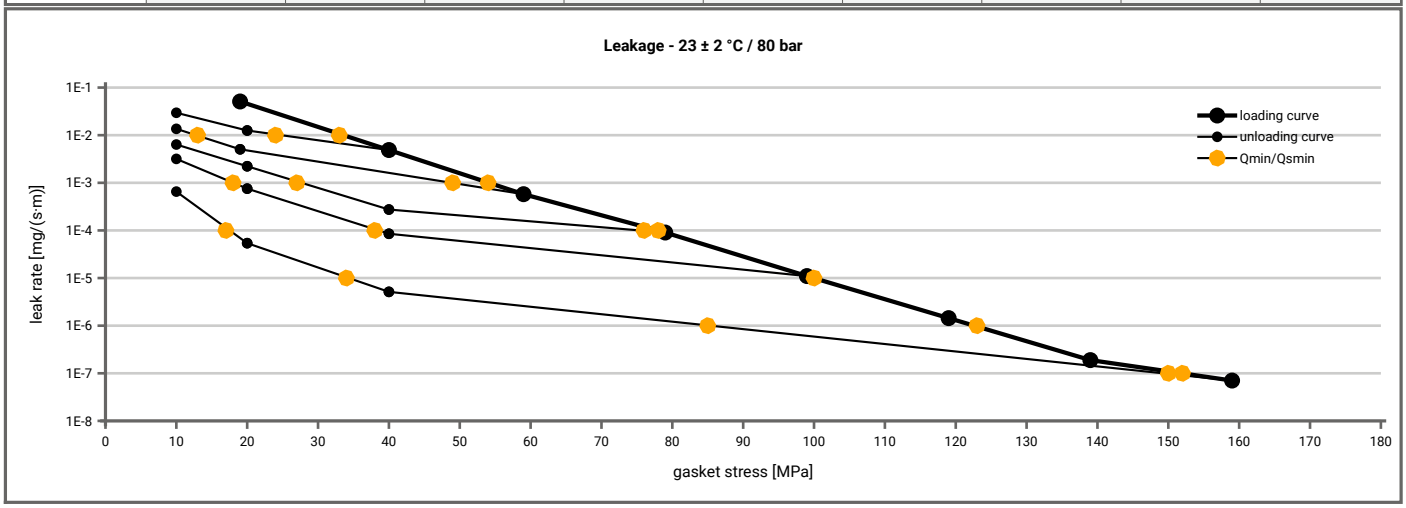


Note: the content of darkened cells was not determined respectively is unnecessary	Rev.-No.: **2**	Creation date of this sheet: **2025-06-16**

Manufacturer address	KLINGER Kempchen GmbH, Im Waldteich 21, 46147 Oberhausen, DE	According to **DIN EN 13555 2005-2**
Product name	B25A / B27A / B29A - Graphite with/without inner eyelet (1.4541 / 0,5 mm; D = 1,0g/ccm)	
Product dimensions	69 x 53 x 4.9 mm (DIN EN 1514-6 2004-3)	

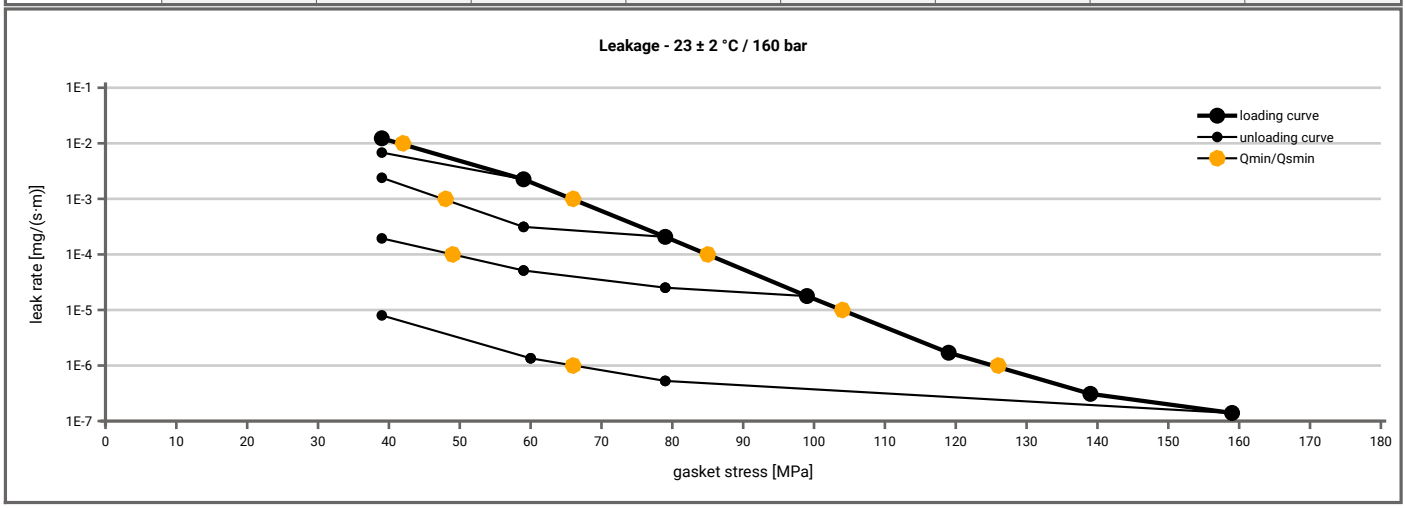
Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 80 bar (T = 23 ± 2 °C)

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	34		25	13	10	10			10
1E-3	55			50	28	18			10
1E-4	79				76	39			18
1E-5	101								34
1E-6	123								86
1E-7	153								150
1E-8									



Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 160 bar (T = 23 ± 2 °C)

L [mg/(s·m)]	$Q_{min(L)}$ [MPa]	$Q_{smin(L)}$ [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	40		40	40	40			40
1E-1	40		40	40	40			40
1E-2	42		40	40	40			40
1E-3	67			48	40			40
1E-4	86				50			40
1E-5	105							40
1E-6	126							66
1E-7								



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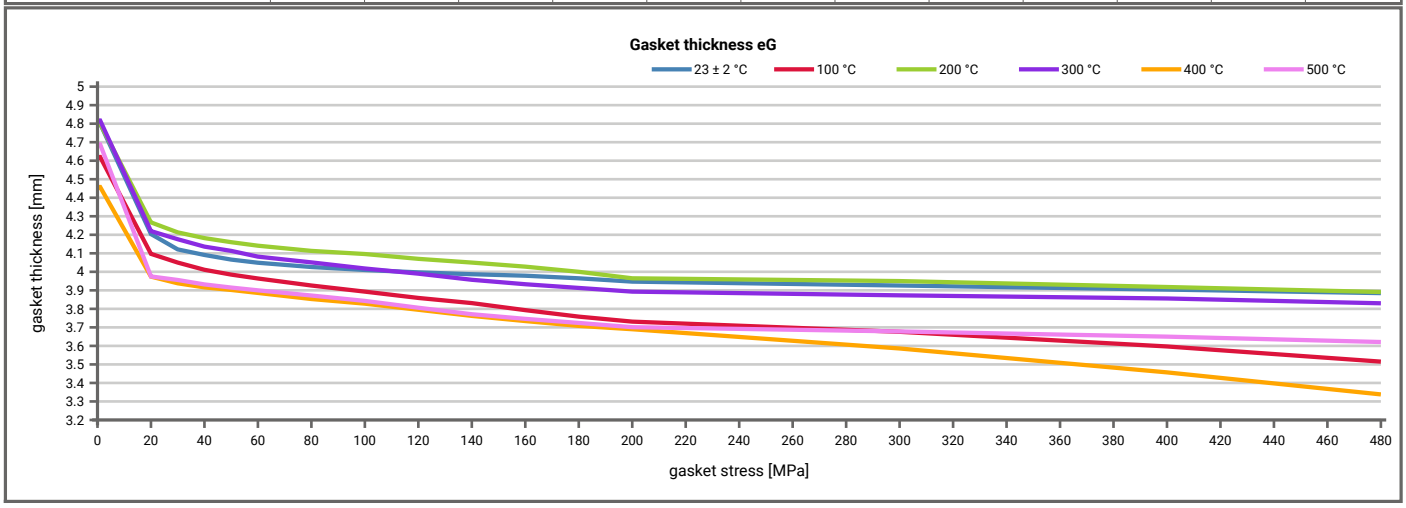
Manufacturer address	KLINGER Kempchen GmbH, Im Waldteich 21, 46147 Oberhausen, DE	According to **DIN EN 13555 2005-2**
Product name	B25A / B27A / B29A - Graphite with/without inner eyelet (1.4541 / 0,5 mm; D = 1,0g/ccm)	
Product dimensions	69 x 53 x 4.9 mm (DIN EN 1514-6 2004-3)	

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]		Temperature 4 [400 °C]		Temperature 5 [500 °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]	P_{QR}	Δe_{Gc} [µm]
Stress level 1 [50 MPa]	0.98	3	0.88	18	0.85	23	0.98	4	0.51	76	0.60	62
Stress level 2 [180 MPa]	0.87	72	0.90	55	0.87	72	0.87	72	0.94	36	0.84	91
P_{QR} and Δe_{Gc} at maximum gasket stress to be applied (Q_{smax})												
P_{QR} at Q_{smax}	0.99	15	0.97	44	0.94	88	0.94	88	0.93	110	0.90	155
Q_{smax}	480 MPa		480 MPa		480 MPa		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 [100 °C]		Temperature 2 [200 °C]		Temperature 3 [300 °C]		Temperature 4 [400 °C]		Temperature 5 [500 °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	4.800	0	4.620	0	4.800	0	4.817	0	4.458	0	4.688
1	0	4.800	0	4.620	0	4.800	0	4.817	0	4.458	0	4.688
20	3891	4.204	5507	4.097	2193	4.267	2175	4.220	3901	3.974	4016	3.975
30	3230	4.121	7193	4.050	4100	4.213	3711	4.176	6758	3.938	5377	3.956
40	5119	4.091	5842	4.011	5491	4.182	5754	4.136	6390	3.916	6762	3.932
50	6558	4.066	7983	3.985	6150	4.160	6497	4.113	7647	3.902	7579	3.915
60	7575	4.049	9490	3.964	5728	4.141	9068	4.082	7045	3.886	8353	3.900
80	8639	4.026	10753	3.926	10512	4.113	10687	4.051	6885	3.853	9805	3.872
100	10892	4.010	11595	3.893	13100	4.096	9957	4.018	12645	3.828	11414	3.843
120	10958	3.997	13484	3.859	11029	4.070	12061	3.990	11353	3.795	11153	3.806
140	13913	3.987	12748	3.831	12119	4.050	13223	3.957	13251	3.762	11731	3.771
160	13773	3.979	12801	3.793	13538	4.028	14400	3.933	14077	3.734	13525	3.746
180	12919	3.965	18491	3.758	15268	4.000	19335	3.913	13554	3.708	15028	3.724
200	13609	3.947	19971	3.731	14791	3.965	14938	3.893	17704	3.690	14024	3.701
300	20710	3.926	25845	3.676	25326	3.950	16109	3.873	21100	3.586	17068	3.678
400	18965	3.904	27676	3.597	20681	3.918	18878	3.856	22064	3.457	18145	3.650
480	18733	3.885	28366	3.515	19537	3.891	18779	3.830	23463	3.338	18425	3.621



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