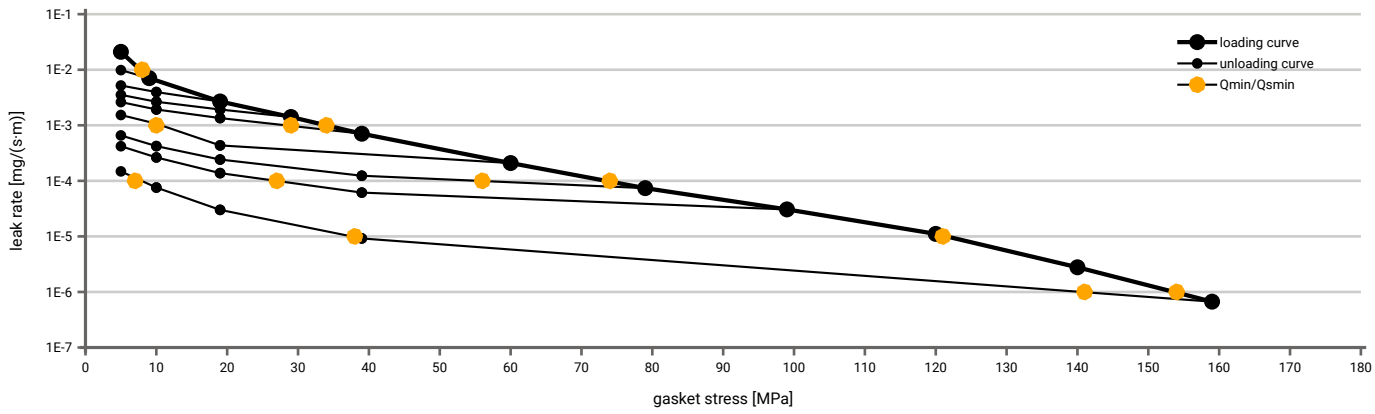
Manufacturer address	SGL Carbon GmbH, Werner-von-Siemens-Straße 16, 86405 Meitingen, DE	According to
Product name	Sigraflex Hochdruck V20011Z3I	**DIN EN 13555**
Product dimensions	92 x 49 x 2 mm (DIN EN 1514-1 1997-8)	**2014-7**

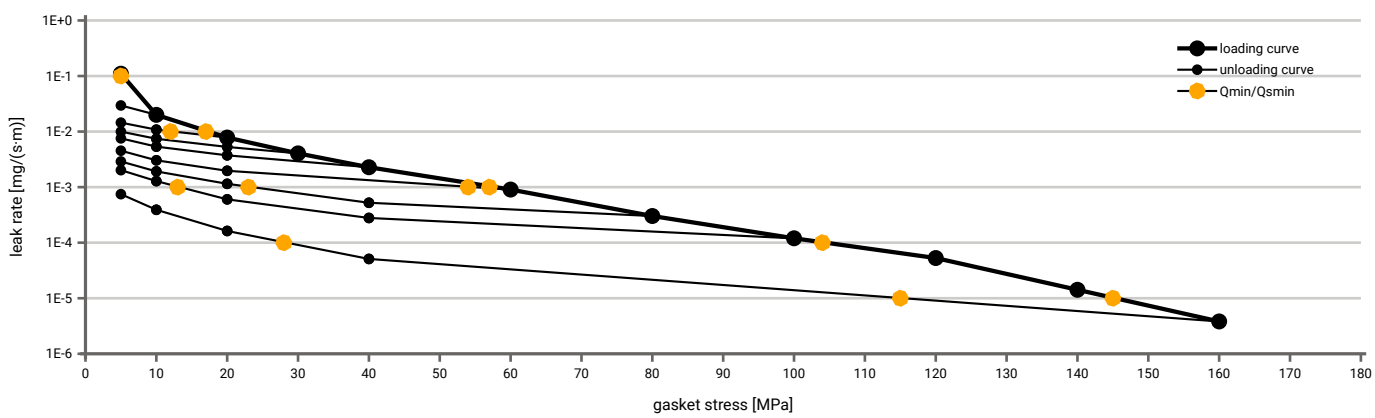
Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 10 bar (T = 23 ± 2 °C)

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]	Q_A = 120 [MPa]	Q_A = 140 [MPa]	Q_A = 160 [MPa]
1E-0	5		5	5	5	5	5	5	5			5
1E-1	5		5	5	5	5	5	5	5			5
1E-2	8		5	5	5	5	5	5	5			5
1E-3	35					29	11	5	5			5
1E-4	74							56	28			8
1E-5	121											38
1E-6	154											141
1E-7												
1E-8												



Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 16 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]	Q_A = 120 [MPa]	Q_A = 140 [MPa]	Q_A = 160 [MPa]
1E-0	5		5	5	5	5	5	5	5			5
1E-1	5		5	5	5	5	5	5	5			5
1E-2	17			12	5	5	5	5	5			5
1E-3	58						55	24	13			5
1E-4	104											28
1E-5	145											115
1E-6												
1E-7												
1E-8												



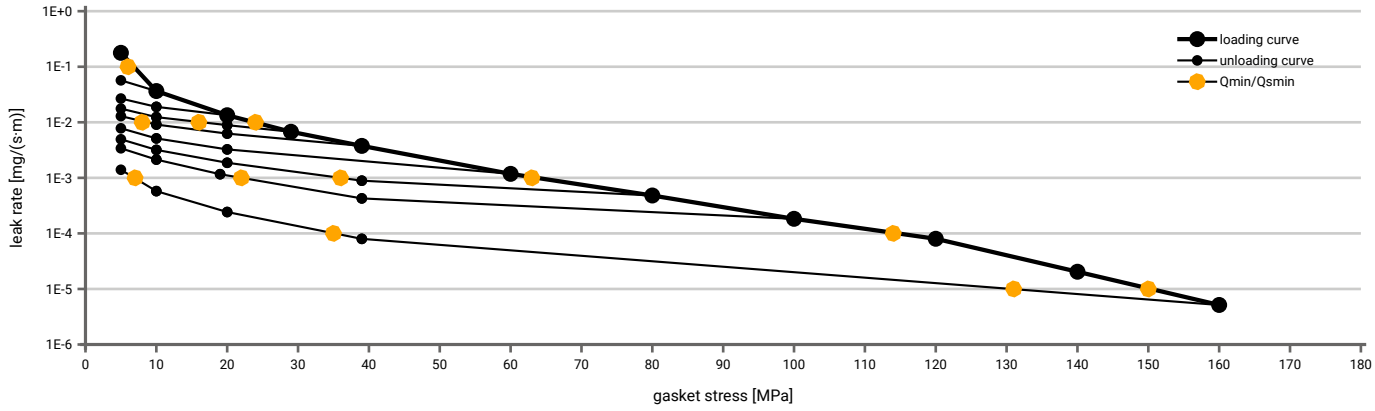
Note: the content of darkened cells was not determined respectively is unnecessary	Rev.-No.: **3**	Creation date of this sheet: **2019-11-15**

Manufacturer address	SGL Carbon GmbH, Werner-von-Siemens-Straße 16, 86405 Meitingen, DE	According to **DIN EN 13555 2014-7**
Product name	Sigraflex Hochdruck V20011Z3I	
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 = 25 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]	Q_A = 120 [MPa]	Q_A = 140 [MPa]	Q_A = 160 [MPa]
1E-0	5		5	5	5	5	5	5	5			5
1E-1	7		5	5	5	5	5	5	5			5
1E-2	24				16	9	5	5	5			5
1E-3	64							37	23			7
1E-4	115											36
1E-5	150											131
1E-6												
1E-7												
1E-8												

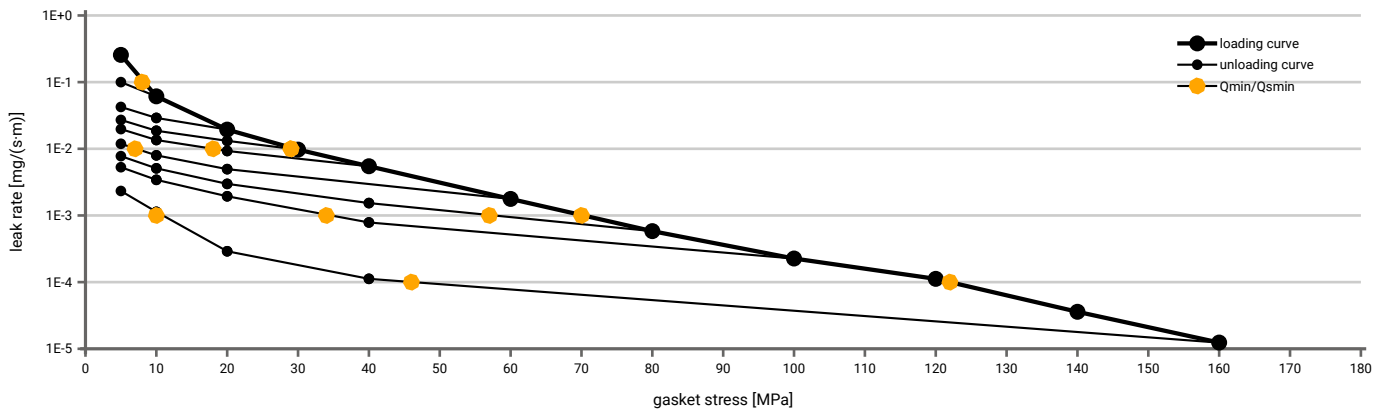
Leakage - 23 ± 2 °C / 25 bar



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 = 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]	Q_A = 120 [MPa]	Q_A = 140 [MPa]	Q_A = 160 [MPa]
1E-0	5		5	5	5	5	5	5	5			5
1E-1	8		5	5	5	5	5	5	5			5
1E-2	30				29	18	7	5	5			5
1E-3	70							58	35			11
1E-4	122											46
1E-5												
1E-6												
1E-7												
1E-8												

Leakage - 23 ± 2 °C / 40 bar

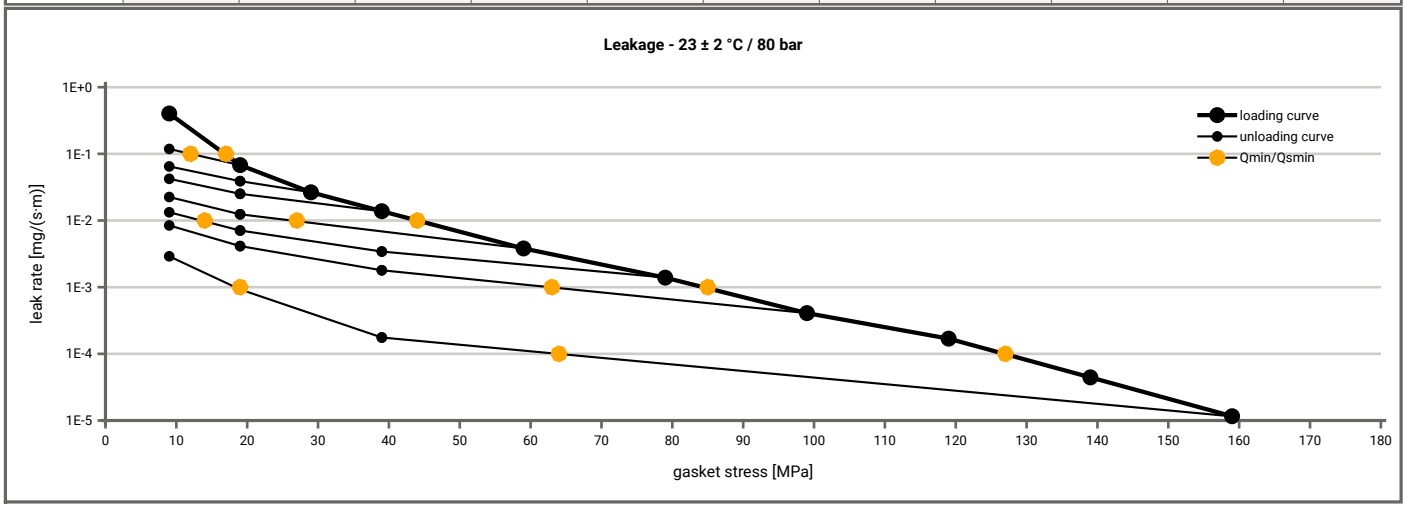


Note: the content of darkened cells was not determined respectively is unnecessary	Rev.-No.: **3**	Creation date of this sheet: **2019-11-15**

Manufacturer address	SGL Carbon GmbH, Werner-von-Siemens-Straße 16, 86405 Meitingen, DE	According to
Product name	Sigraflex Hochdruck V20011Z3I	**DIN EN 13555**
Product dimensions	92 x 49 x 2 mm (DIN EN 1514-1 1997-8)	**2014-7**

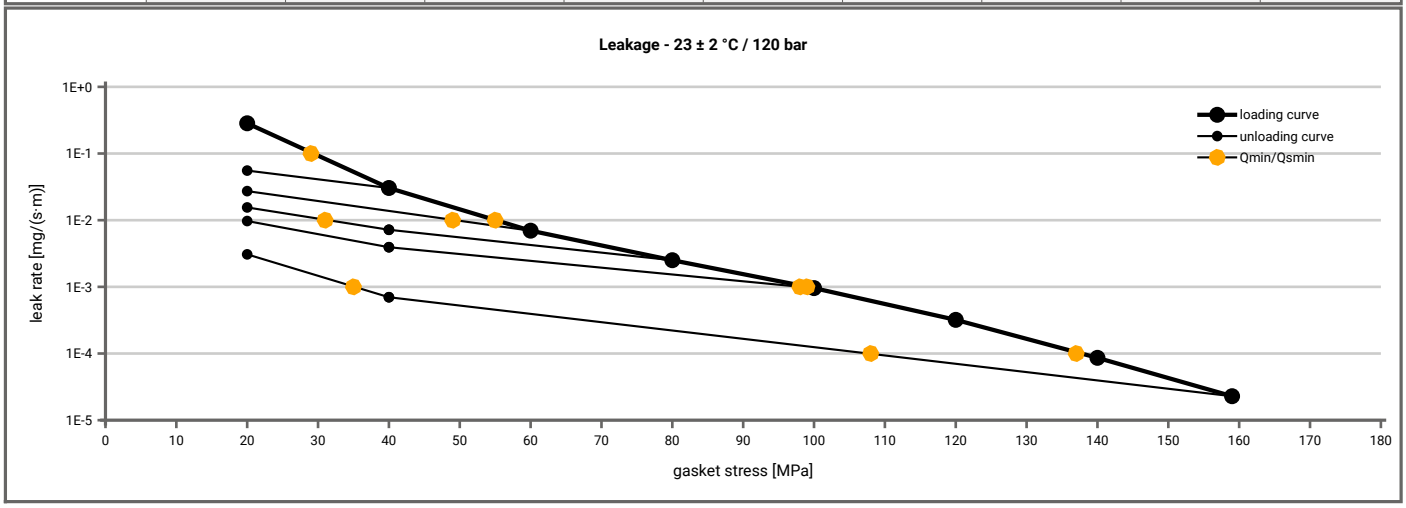
Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 80 bar (T = 23 ± 2 °C)

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]	Q_A = 120 [MPa]	Q_A = 140 [MPa]	Q_A = 160 [MPa]
1E-0	10		10	10	10	10	10	10			10
1E-1	18		13	10	10	10	10	10			10
1E-2	45					27	14	10			10
1E-3	85							63			19
1E-4	128										65
1E-5											
1E-6											
1E-7											
1E-8											



Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 120 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		20	20	20	20			20
1E-1	29		20	20	20	20			20
1E-2	55			49	31	20			20
1E-3	99					98			35
1E-4	138								108
1E-5									
1E-6									
1E-7									
1E-8									

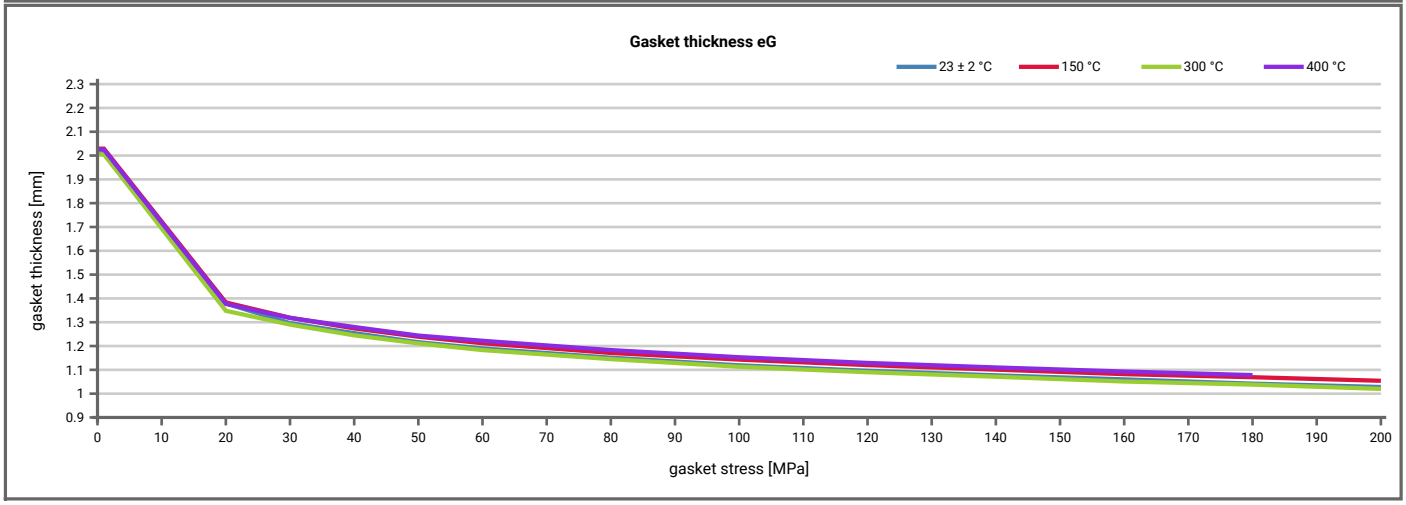


Note: the content of darkened cells was not determined respectively is unnecessary	Rev.-No.: **3**	Creation date of this sheet: **2019-11-15**

Manufacturer address	SGL Carbon GmbH, Werner-von-Siemens-Straße 16, 86405 Meitingen, DE	According to **DIN EN 13555 2014-7**
Product name	Sigraflex Hochdruck V20011Z3I	
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 [150 °C]**		**Temperature 2 [300 °C]**		**Temperature 3 [400 °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 [30 MPa]	0.98	6	0.96	11	0.93	18	0.88	30		
Stress level 2 [50 MPa]	0.98	8	0.98	10	0.96	19	0.94	25		
P_{QR} and Δe_{Gc} at maximum gasket stress to be applied (Q_{smax})										
P_{QR} at Q_{smax}	1.00	0	1.00	8	0.99	17	0.98	30		
Q_{smax}	200 MPa		200 MPa		200 MPa		180 MPa			

Sekant unloading modulus of the gasket E_G [MPa] and gasket thickness e_G [mm]										
Gasket stress [MPa]	**23 ± 2 °C**		**Temperature 1 [150 °C]**		**Temperature 2 [300 °C]**		**Temperature 3 [400 °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	2.008	0	2.029	0	2.005	0	2.025		
1	0	2.008	0	2.029	0	2.005	0	2.025		
20	370	1.379	399	1.383	454	1.348	624	1.377		
30	548	1.296	644	1.319	722	1.290	636	1.318		
40	881	1.254	907	1.274	997	1.245	1153	1.280		
50	1005	1.216	1085	1.239	1262	1.211	1154	1.244		
60	1359	1.190	1401	1.212	1447	1.183	1892	1.222		
80	1996	1.151	1805	1.171	2119	1.145	2238	1.183		
100	1970	1.119	2231	1.143	2057	1.113	2545	1.153		
120	2455	1.096	2578	1.120	2461	1.090	3077	1.129		
140	2927	1.077	2828	1.101	2788	1.071	3864	1.110		
160	3031	1.060	2734	1.082	3135	1.051	4468	1.093		
180	2958	1.042	3301	1.069	3400	1.038	5239	1.078		
200	3161	1.028	3480	1.054	3273	1.020				



Note: the content of darkened cells was not determined respectively is unnecessary	Rev.-No.: **3**	Creation date of this sheet: **2019-11-15**