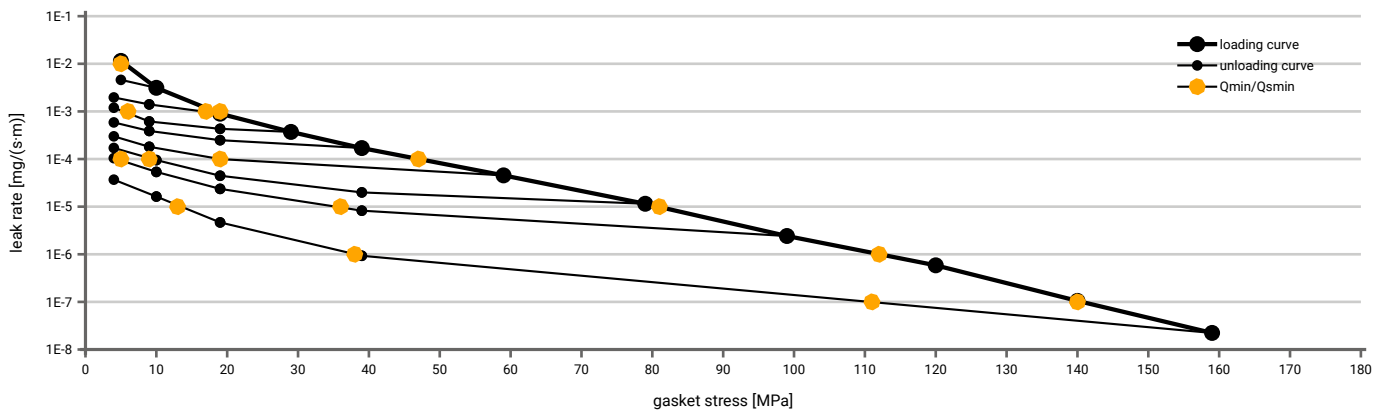
Manufacturer address	SGL Carbon GmbH, Werner-von-Siemens-Straße 16, 86405 Meitingen, DE	According to
Product name	Sigraflex Hochdruck Pro V15011Z3I-P	**DIN EN 13555**
Product dimensions	92 x 49 x 1.5 mm (DIN EN 1514-1 1997-8)	**2014-7**

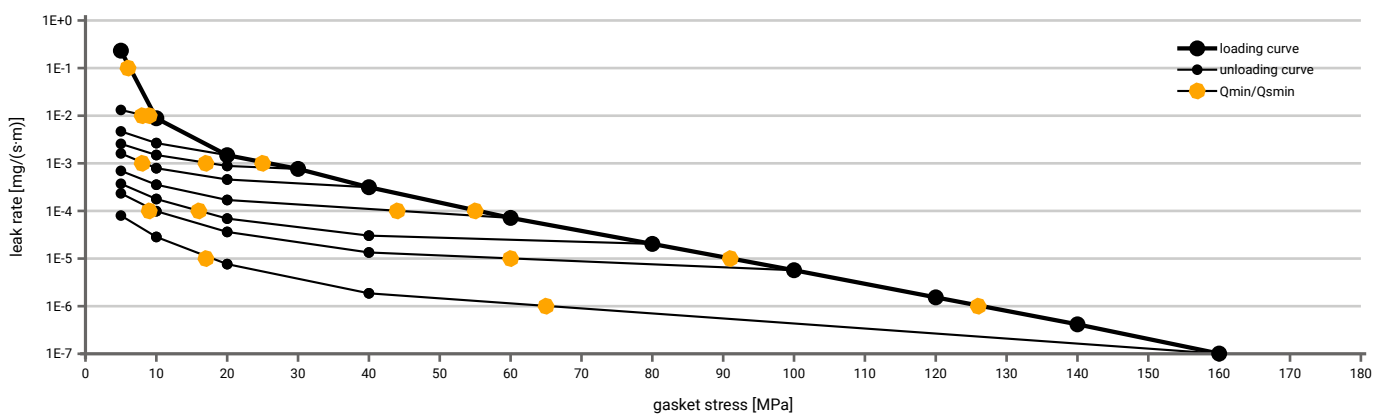
Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 10 bar (T = 23 ± 2 °C)

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	5		5	5	5	5	5	5	5			5
1E-3	19			17	6	5	5	5	5			5
1E-4	48						20	10	5			5
1E-5	82								36			14
1E-6	112											39
1E-7	141											112
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	6		5	5	5	5	5	5	5			5
1E-2	10		8	5	5	5	5	5	5			5
1E-3	26				18	8	5	5	5			5
1E-4	55						44	16	10			5
1E-5	91								61			18
1E-6	127											66
1E-7												
1E-8												

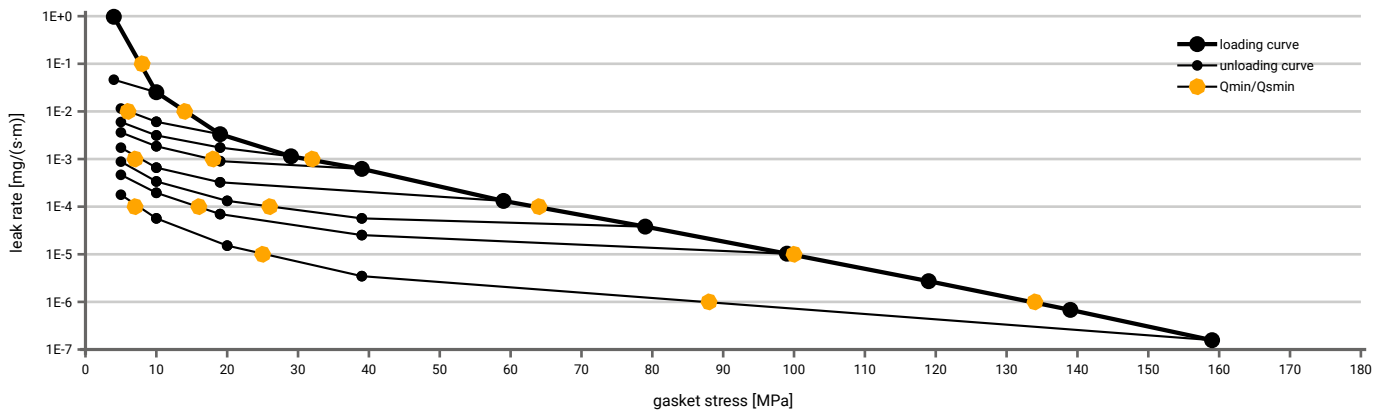


Note: the content of darkened cells was not determined respectively is unnecessary	Rev.-No.: **2**	Creation date of this sheet: **2019-04-09**

Manufacturer address	SGL Carbon GmbH, Werner-von-Siemens-Straße 16, 86405 Meitingen, DE	According to
Product name	Sigraflex Hochdruck Pro V15011Z3I-P	**DIN EN 13555**
Product dimensions	92 x 49 x 1.5 mm (DIN EN 1514-1 1997-8)	**2014-7**

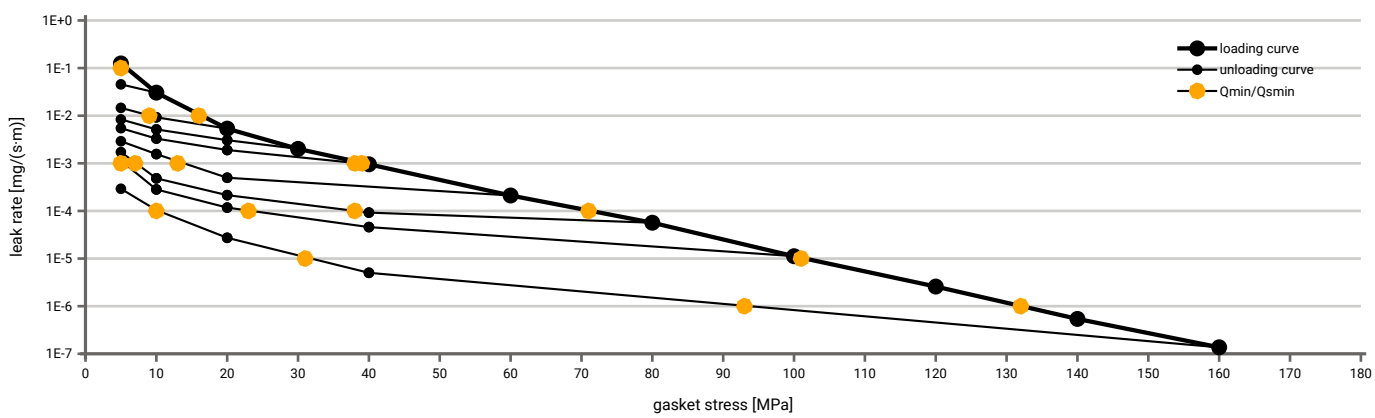
Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{smin(L)}$ (after off-loading) for p = 25 bar (T = 23 ± 2 °C)

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	8		5	5	5	5	5	5	5			5
1E-2	15			6	5	5	5	5	5			5
1E-3	32					19	8	5	5			5
1E-4	64							27	16			8
1E-5	100											26
1E-6	134											88
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 = 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	6		5	5	5	5	5	5	5			5
1E-2	16			9	5	5	5	5	5			5
1E-3	39					39	14	7	5			5
1E-4	71							38	23			10
1E-5	102											32
1E-6	132											94
1E-7												
1E-8												

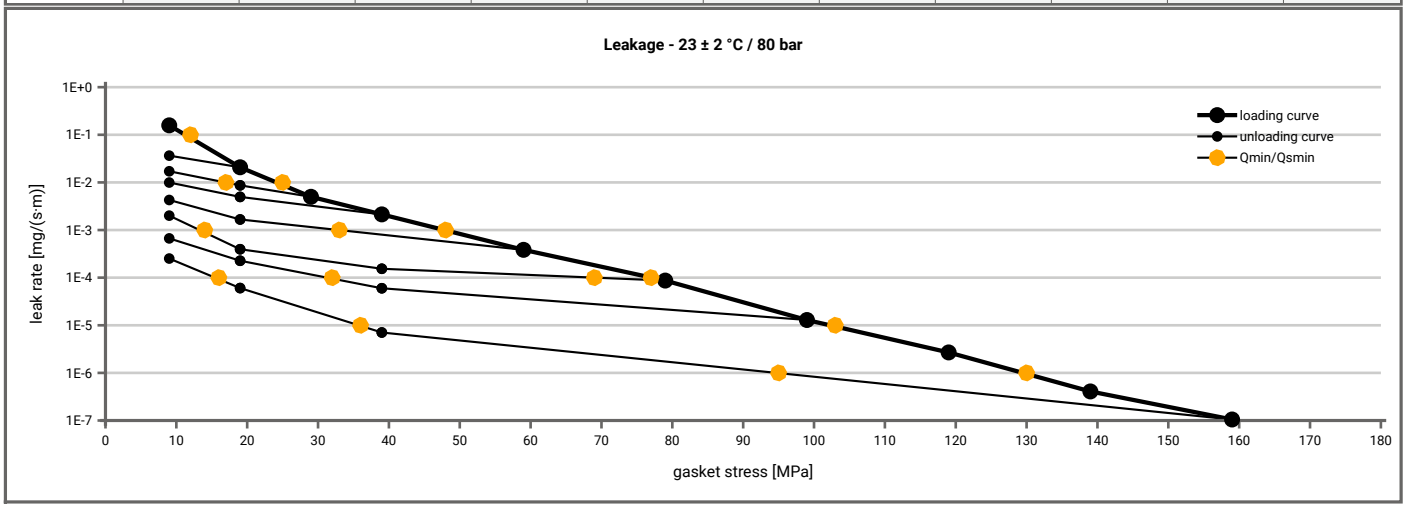


Note: the content of darkened cells was not determined respectively is unnecessary	Rev.-No.: **2**	Creation date of this sheet: **2019-04-09**

Manufacturer address	SGL Carbon GmbH, Werner-von-Siemens-Straße 16, 86405 Meitingen, DE	According to
Product name	Sigraflex Hochdruck Pro V15011Z3I-P	**DIN EN 13555**
Product dimensions	92 x 49 x 1.5 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	12		10	10	10	10	10	10			10
1E-2	25			18	10	10	10	10			10
1E-3	49					34	14	10			10
1E-4	78						70	32			16
1E-5	103										37
1E-6	130										96
1E-7											
1E-8											



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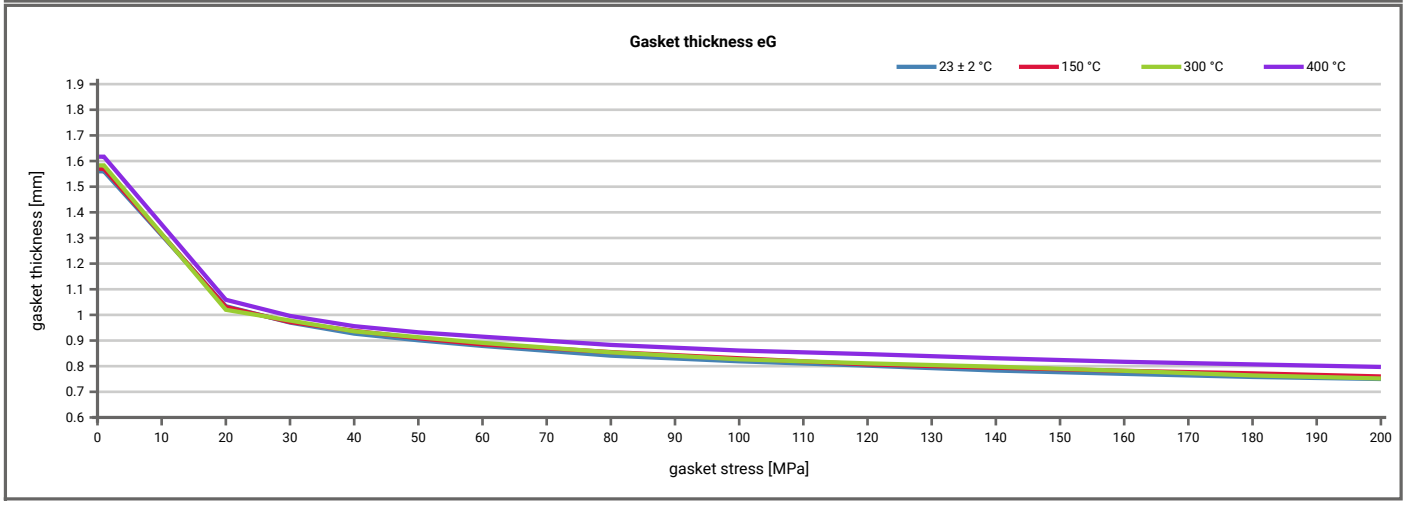
Manufacturer address	SGL Carbon GmbH, Werner-von-Siemens-Straße 16, 86405 Meitingen, DE	According to **DIN EN 13555 2014-7**
Product name	Sigraflex Hochdruck Pro V15011Z3I-P	
Product dimensions	92 x 49 x 1.5 mm (DIN EN 1514-1 1997-8)	

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]	0.97	8	0.93	19	0.94	15	0.91	23		
Stress level 2 [50 MPa]	0.98	8	0.96	19	0.95	23	0.94	27		
P_{QR} and Δe_{Gc} at maximum gasket stress to be applied Q_{smax}										
P_{QR} at Q_{smax}	1.00	8	0.99	17	0.99	17	0.98	34		
Q_{smax}	200 MPa		200 MPa		200 MPa		200 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	1.560	0	1.570	0	1.583	0	1.617		
1	0	1.560	0	1.570	0	1.583	0	1.617		
20	310	1.034	448	1.031	366	1.020	374	1.059		
30	593	0.970	645	0.972	618	0.978	613	0.996		
40	755	0.927	889	0.938	734	0.936	742	0.956		
50	1106	0.901	1015	0.909	1198	0.913	1160	0.932		
60	1349	0.879	1158	0.885	1312	0.891	1821	0.915		
80	1477	0.841	1929	0.855	1399	0.854	1970	0.883		
100	2233	0.819	2001	0.831	1805	0.827	2638	0.861		
120	2914	0.802	1877	0.807	2270	0.811	3739	0.847		
140	2365	0.783	2302	0.794	2853	0.798	4028	0.831		
160	2433	0.770	2737	0.782	2662	0.782	3733	0.817		
180	2786	0.758	3265	0.772	2197	0.764	4498	0.807		
200	3265	0.750	3007	0.760	2201	0.752	6299	0.797		



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