

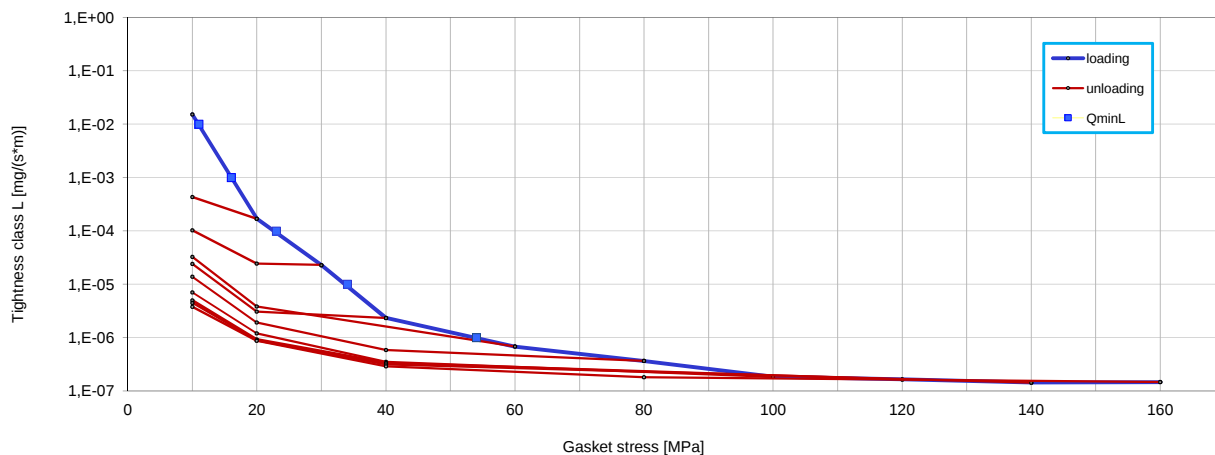
Company	SPETECH sp. z o.o.	
Gasket Type	SPETOSPIR S 316L PTFE	
Dimensions [mm]	75 x 61 x 3,2 mm	
Calculation type EN 1591-1	a) flat gasket;	EN 1514-2

Factors acc. to EN 13555 to use in calculation standard EN 1591-1:2009/ :2013

 Minimum level of surface pressure required for leakage rate class L on assembly $Q_{min/L}$ and after off-loading $Q_{Smin/L}$ at room temperature (RT)

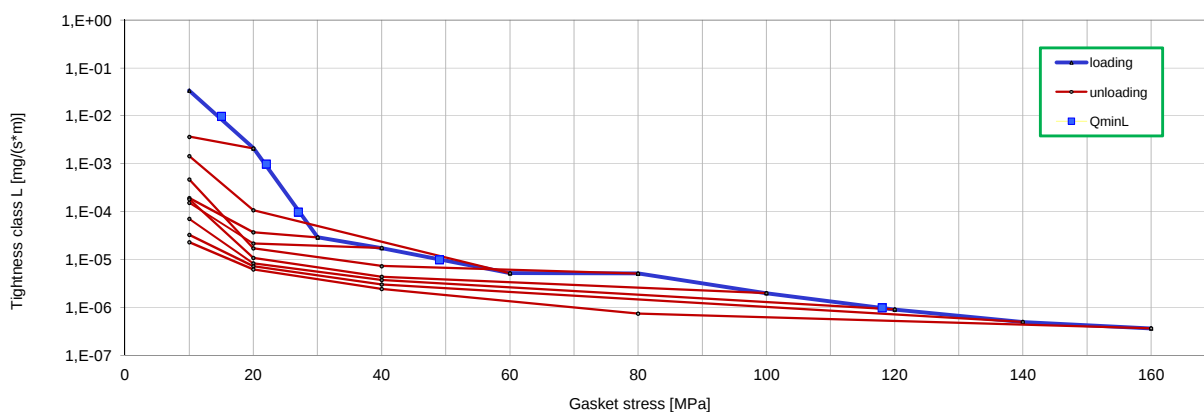
Internal pressure [bar]		10											
L [mg/(s*m)]	$Q_{min/L}$ [MPa]	$Q_{Smin/L}$ [MPa] for effective gasket stress											
		$Q_A = 20$ [MPa]	$Q_A = 30$ [MPa]	$Q_A = 40$ [MPa]	$Q_A = 60$ [MPa]	$Q_A = 80$ [MPa]	$Q_A = 100$ [MPa]	$Q_A = 120$ [MPa]	$Q_A = 140$ [MPa]	$Q_A = 160$ [MPa]	$Q_A = 180$ [MPa]	$Q_A = 200$ [MPa]	
10^0	10	10	10	10	10	10	10	10	10	10			
10^{-1}	10	10	10	10	10	10	10	10	10	10			
10^{-2}	11	10	10	10	10	10	10	10	10	10			
10^{-3}	16	10	10	10	10	10	10	10	10	10			
10^{-4}	23		11	10	10	10	10	10	10	10			
10^{-5}	34			15	16	12	10	10	10	10			
10^{-6}	54				51	31	23	20	19	19			

Leakage rate as a function of gasket stress - pressure 10 bar / RT

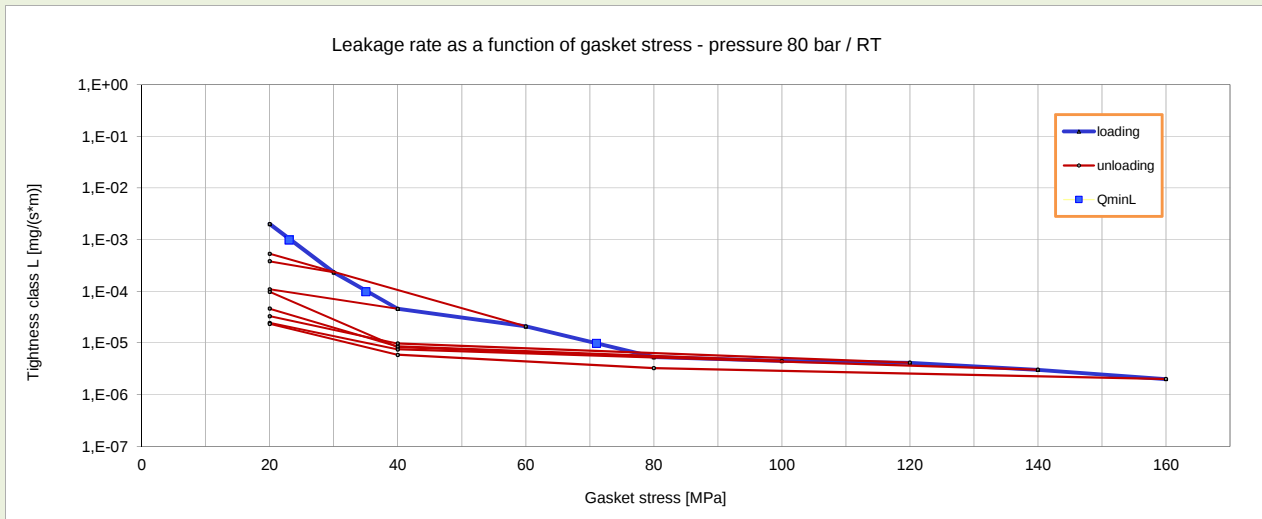

 Minimum level of surface pressure required for leakage rate class L on assembly $Q_{min/L}$ and after off-loading $Q_{Smin/L}$ at room temperature (RT)

Internal pressure [bar]		40											
L [mg/(s*m)]	$Q_{min/L}$ [MPa]	$Q_{Smin/L}$ [MPa] for effective gasket stress											
		$Q_A = 20$ [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]	$Q_A = 180$ [MPa]	$Q_A = 200$ [MPa]	
10^0	10	10	10	10	10	10	10	10	10	10			
10^{-1}	10	10	10	10	10	10	10	10	10	10			
10^{-2}	15	10	10	10	10	10	10	10	10	10			
10^{-3}	22		10	10	10	10	10	10	10	10			
10^{-4}	27		14	12	21	15	12	10	10	10			
10^{-5}	49				52	33	21	19	18	17			
10^{-6}	118							115	101	70			

Leakage rate as a function of gasket stress - pressure 40 bar / RT



Minimum level of surface pressure required for leakage rate class L on assembly Q _{min} /L and after off-loading Q _{Smin} /L at room temperature (RT)												
Internal pressure [bar]	80											
L [mg/(s*m)]	Q _{min} /L [MPa]	Q _{Smin} /L [MPa] for effective gasket stress										
		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]	Q _A = 180 [MPa]	Q _A = 200 [MPa]
10 ⁻⁰	20		20	20	20	20	20	20	20	20		
10 ⁻¹	20		20	20	20	20	20	20	20	20		
10 ⁻²	20		20	20	20	20	20	20	20	20		
10 ⁻³	23		20	20	20	20	20	20	20	20		
10 ⁻⁴	35			22	41	20	20	20	20	20		
10 ⁻⁵	71					39	38	40	36	32		
10 ⁻⁶												



Parameters at RT						
Gasket stress [MPa]	Unloading modulus of elasticity EG	Gasket or sealing element thickness e _G	Creep relaxation factor P _{QR}	Gasket thickness change due to creep Δe _{Gc}	Maximum surface pressure Q _{smax}	Static friction factor μ _G
	[MPa]	[mm]	[-]	[mm]	[MPa]	[-]
0		3,494			500	0,05
1		3,467				
10	1656	3,364				
20	3370	3,320				
30	4589	3,296				
40	5273	3,264				
50	3494	2,947	0,87	0,019		
60	5227	2,877				
80	7936	2,805				
100	9256	2,758	0,95	0,016		
120	10165	2,725				
140	10590	2,696				
160	10891	2,670				
180	11095	2,645				
200	11335	2,622	0,98	0,015		
220	11660	2,602				
240	11800	2,584				
260	12059	2,569				
280	12358	2,555				
300	12690	2,541				
320	13080	2,529				
340	13345	2,518				
360	13742	2,508				
380	14071	2,498				
400	14453	2,488				
420	14778	2,479				
440	15152	2,471				
460	15488	2,463				
480	15799	2,455				
500	16033	2,448	0,99	0,017		

Parameters at 100°C						
Gasket stress [MPa]	Unloading modulus of elasticity EG	Gasket or sealing element thickness e _G	Creep relaxation factor P _{QR}	Gasket thickness change due to creep Δe _{Gc}	Maximum surface pressure Q _{smax}	Static friction factor μ _G
	[MPa]	[mm]	[-]	[mm]	[MPa]	[-]
0		3,493			500	0,05
1		3,468				
10	1927	3,346				
20	3303	3,308				
30	4281	3,279				
40	3176	3,011				
50	4689	2,893	0,73	0,039		
60	6113	2,847				
80	7349	2,786				
100	7980	2,752	0,92	0,024		
120	8265	2,724				
140	8365	2,694				
160	8542	2,664				
180	8829	2,638				
200	9104	2,613	0,95	0,028		
220	9302	2,592				
240	9596	2,573				
260	9876	2,554				
280	10203	2,538				
300	10491	2,523				
320	10801	2,510				
340	11216	2,497				
360	11404	2,486				
380	11689	2,475				
400	11952	2,465				
420	12135	2,453				
440	12336	2,442				
460	12593	2,431				
480	12790	2,420				
500	12916	2,409	0,94	0,086		

Parameters at 250°C						
Gasket stress [MPa]	Unloading modulus of elasticity EG	Gasket or sealing element thickness e _G	Creep relaxation factor P _{QR}	Gasket thickness change due to creep Δe _{Gc}	Maximum surface pressure Q _{smax}	Static friction factor μ _G
	[MPa]	[mm]	[-]	[mm]	[MPa]	[-]
0		3,492			400	0,05
1		3,472				
10	1401	3,344				
20	2977	3,313				
30	4048	3,269				
40	3313	3,018				
50	4241	2,946	0,58	0,061		
60	4948	2,905				
80	5626	2,858				
100	5939	2,821	0,95	0,015		
120	6161	2,790				
140	6491	2,754				
160	6723	2,728				
180	6993	2,700				
200	7244	2,677	0,97	0,016		
220	7479	2,656				
240	7828	2,634				
260	8136	2,612				
280	8338	2,588				
300	8610	2,569				
320	8881	2,551				
340	9258	2,529				
360	9537	2,502				
380	9856	2,479				
400	10078	2,462	0,93	0,081		

Factors acc. to EN 13555 to use in calculation standard EN 1591-1:2001

T [°C]	Q _{min} [MPa]	Q _{max, ref} [MPa]	E ₀ [MPa]	K ₁	Q/P	g _c	c ₁
0...20	20	110	6000	0	1,6	0,9	0,0
100	-	110	6000	0	1,6	0,8	-
200	-	100	6000	0	1,6	0,8	-
300	-	90	6000	0	1,6	0,6	-
bGref [mm]	7,0			eGref [mm]	3,5		

Factors acc. to:

EN 13445-3 : Unfired pressure vessels - Part 3: Design
 EN 13480-3:2002 Metallic industrial piping - Part 3: Design and calculation
 ASME Code s. VIII Boiler & Pressure Vessel Code

m	y [psi]	y [MPa]
2,5	5100	35,2

[q_{max} - see maximal applicable gasket stress O_{smax} acc. EN 1591-1:2009/2013](#)

Factors acc. to:

AD 2000-Merkblatt B7 August 2007

k ₀ k _D [N/mm]	k ₁ [mm]	k ₀ k _Ø [N/mm]
50*b _D	1,3*b _D	*b _D

[q_{max} - see maximal applicable gasket stress O_{smax} acc. EN 1591-1:2009/2013](#)

Factors acc. to:

WUDT-UC-WO-O/19

σ _m [MPa]	σ _r [MPa]	b [1]				
		20°C	100°C	200°C	300°C	400°C
24,5	5,0*p ₀	1,0	1,1	1,1		

[q_{max} - see maximal applicable gasket stress O_{smax} acc. EN 1591-1:2009/2013](#)

Factors acc. to:

ASTM F36-2003 Standard Test Method for Compressibility and Recovery of Gasket Materials
 Procedure J

Compressibility [%]	Recovery [%]
NDA	NDA

Factors acc. to:

ASTM F38-00 Standard Test Methods for Creep Relaxation of a Gasket Material (Method B)

Temperature [°C]	Creep Relaxation [%]
20	NDA
100	NDA
200	NDA

Factors acc. to:

EN 61340-2-3 Electrostatics - Part 2-3: Methods of test for determining the resistance and resistivity of solid planar materials used to avoid electrostatic charge accumulation

Surface resistance R _s at U=10V	[Ω]	NDA
Volume resistance R _v at U=10V	[Ω]	NDA
Surface resistivity ρ _s at U=10V	[Ω]	NDA
Volume resistivity ρ _v at U=10V	[Ωm]	NDA