

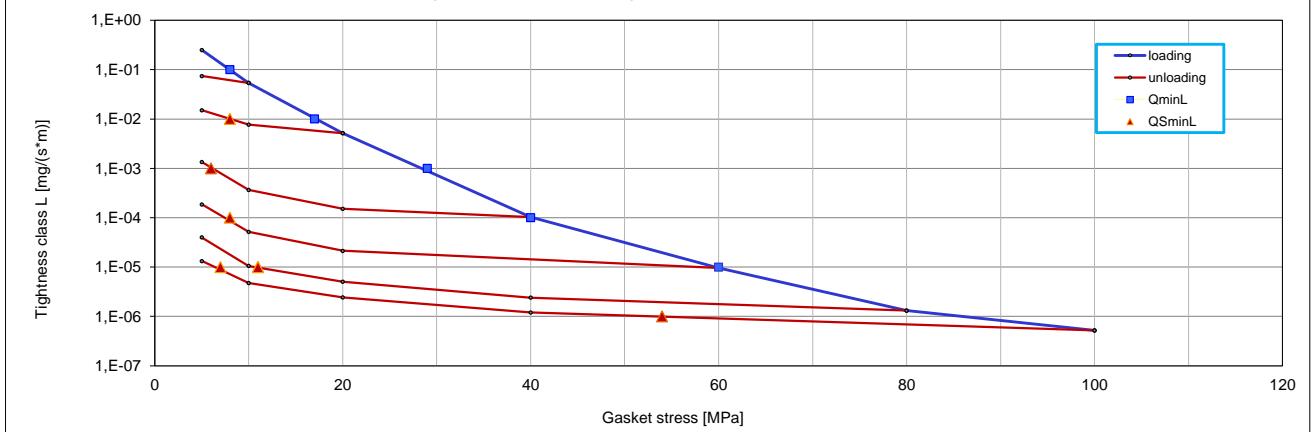
Company	SPETECH sp. z o.o.
Gasket Type	SPETOBAR® BAS® 300
Dimensions [mm]	92 x 49 x 3
Calculation type EN 1591-1	a) flat gasket; EN 1514-1

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 Qmin/L and after off-loading QSmín/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 = 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]			
10 ⁰	5	5	5	5	5	5	5						
10 ⁻¹	8	5	5	5	5	5	5						
10 ⁻²	17		8	5	5	5	5						
10 ⁻³	29			6	5	5	5						
10 ⁻⁴	40				8	5	5						
10 ⁻⁵	60					11	7						
10 ⁻⁶	86						54						
10 ⁻⁷													

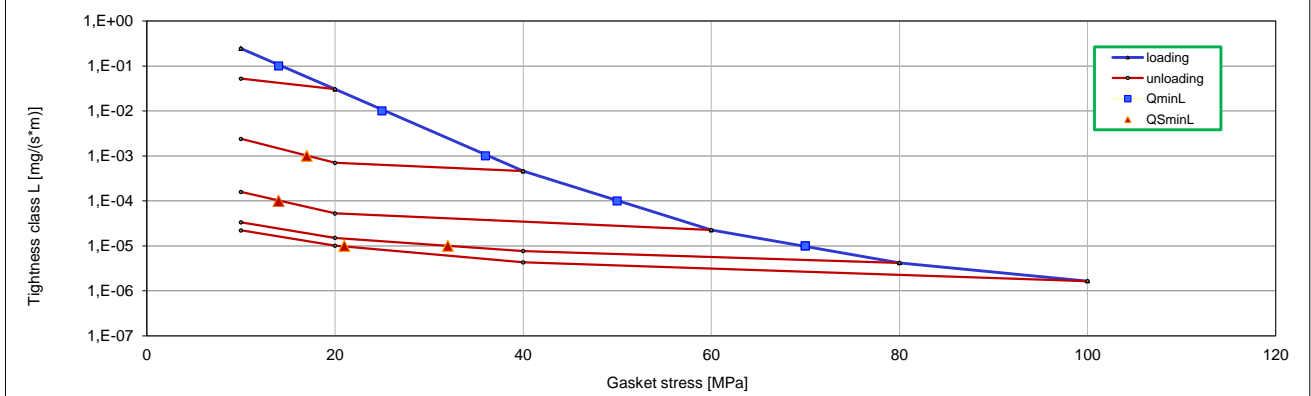
Leakage rate as a function of gasket stress - pressure 10 bar / RT



Minimum level of surface pressure required for leakage rate class L on assembly Qmin/L and after off-loading QSmín/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 = 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]			
10 ⁰	10		10	10	10	10	10						
10 ⁻¹	14		10	10	10	10	10						
10 ⁻²	25			10	10	10	10						
10 ⁻³	36			17	10	10	10						
10 ⁻⁴	50				14	10	10						
10 ⁻⁵	70					32	21						
10 ⁻⁶													
10 ⁻⁷													

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



Parameters at RT

Gasket stress [MPa]	Unloading modulus of elasticity	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
	EG					
	[MPa]	[mm]	[-]	[mm]	[MPa]	[-]
1		2,819			200	0,25
20	899	2,631				
30	1474	2,598	0,94	0,014		
40	1976	2,559				
50	2511	2,526	0,95	0,022		
60	3045	2,499				
80	4012	2,456				
100	4816	2,421	0,97	0,028		
120	5454	2,389				
140	6011	2,359				
160	6555	2,330				
180	6906	2,300				
200	6885	2,270	0,96	0,060		

Parameters at 100°C

Gasket stress [MPa]	Unloading modulus of elasticity	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
	EG					
	[MPa]	[mm]	[-]	[mm]	[MPa]	[-]
1		2,834			140	0,25
20	1156	2,657				
30	1655	2,614	0,81	0,050		
40	2157	2,569				
50	2586	2,526	0,79	0,089		
60	2963	2,483				
80	3573	2,385				
100	4158	2,265	0,76	0,204		
120	4688	2,133				
140	5254	2,006	0,72	0,330		
160						
180						
200						

Parameters at 150°C

Gasket stress [MPa]	Unloading modulus of elasticity	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
	EG					
	[MPa]	[mm]	[-]	[mm]	[MPa]	[-]
1		2,836			100	0,25
20	1456	2,646				
30	1810	2,605	0,73	0,069		
40	2160	2,557				
50	2504	2,506	0,70	0,126		
60	2817	2,449				
80	3343	2,284				
100	3897	2,078	0,64	0,309		
120						
140						
160						
180						
200						

Parameters at 200°C

Gasket stress [MPa]	Unloading modulus of elasticity	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
	EG					
	[MPa]	[mm]	[-]	[mm]	[MPa]	[-]
1		2,810			60	0,25
20	1402	2,591				
30	1855	2,544	0,64	0,092		
40	2166	2,484				
50	2449	2,413	0,64	0,151		
60	2758	2,327	0,61	0,200		
80						
100						
120						
140						
160						
180						
200						

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	35	80	500	20	1,6	-	0,05
100	-	70	500	20	1,6	-	-
200	-	60	500	20	1,6	-	-
bGref [mm]		19,5		eGref [mm]		3,0	

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]
2,0	3600	24,8

[Q_{max} - see maximal applicable gasket stress Q_{max} 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 _δ [N/mm]
18*b _D	1,4*b _D	*b _D

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

Factors acc. to:

WUDT-UC-WO-0/19

σ _m [MPa]	σ _r [MPa]	b [1]		
		20°C	100°C	200°C
25,5	4,0*p ₀	1,0	1,4	1,8

[Q_{max} - see maximal applicable gasket stress Q_{max} 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 [%]
7	68

Factors acc. to:

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

Temperature [°C]	Creep Relaxation [%]
20	22
100	69
200	94

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=100V	[Ω]	1,40E+10
Volume resistance R _v at U=100V	[Ω]	2,13E+09
Surface resistivity ρ _s at U=100V	[Ω]	1,42E+11
Volume resistivity ρ _v at U=100V	[Ωm]	1,06E+09