

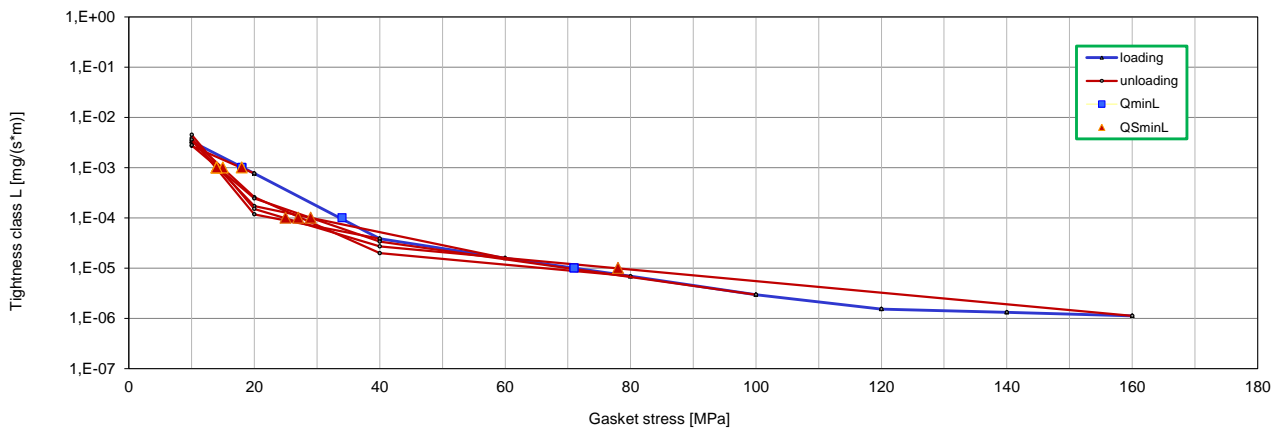
Company	SPETECH sp. z o.o.
Gasket Type	SPETOMET [®] MWK [®] 60 FGC
Dimensions [mm]	92 x 69 x 53 x 4
Calculation type EN 1591-1	a) flat gasket; EN 1514-6

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]		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		
10 ⁻¹	10		10	10	10	10	10			10		
10 ⁻²	10		10	10	10	10	10			10		
10 ⁻³	18		18	14	14	15	14			14		
10 ⁻⁴	34			23	29	27	29			25		
10 ⁻⁵	71					66	70			78		
10 ⁻⁶												
10 ⁻⁷												

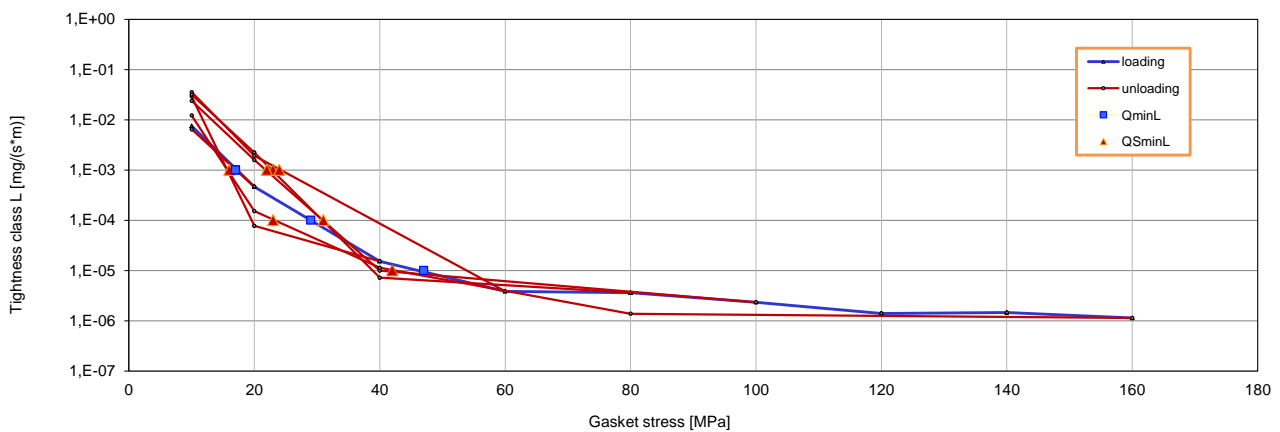
Leakage rate as a function of gasket stress - pressure 40 bar / RT



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 = 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		
10 ⁻¹	10		10	10	10	10	10			10		
10 ⁻²	10		10	10	10	15	15			13		
10 ⁻³	17		17	16	24	23	22			16		
10 ⁻⁴	29			20	39	31	31			23		
10 ⁻⁵	47				54	39	40			42		
10 ⁻⁶												

Leakage rate as a function of gasket stress - pressure 80 bar / RT



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]	[-]
1		3,918			500	0,10
20	4233	3,081				
30	8775	3,057				
40	12679	3,046				
50	15879	3,037	0,98	0,003		
60	17727	3,031				
80	20010	3,018				
100	22201	3,006				
120	23978	2,992				
140	25246	2,978				
150			0,99	0,003		
160	26211	2,962				
180	26910	2,945				
200	27624	2,926				
220	28274	2,905				
240	28194	2,883				
260	28279	2,859				
280	28874	2,836				
300	28461	2,813	0,99	0,008		
320	28403	2,791				
340	28953	2,770				
360	28582	2,750				
380	29014	2,731				
400	28854	2,712				
420	28321	2,693				
440	28307	2,674				
460	28822	2,657				
480	28443	2,638				
500	28749	2,620				

Parameters at 200°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]	[-]
1		3,937			400	0,10
20	4116	3,087				
30	9393	3,080				
40	12308	3,070				
50	14776	3,061	0,88	0,018		
60	16721	3,052				
80	19723	3,034				
100	21959	3,015				
120	24369	2,996				
140	26085	2,976				
150			0,94	0,027		
160	27283	2,952				
180	28021	2,925				
200	28603	2,896	0,93	0,041		
220	28722	2,866				
240	28768	2,838				
260	28713	2,812				
280	28591	2,787				
300	28710	2,763				
320	28936	2,742				
340	28786	2,720				
360	28979	2,699				
380	28797	2,677				
400	29086	2,656				

Parameters at 400°C						
Gasket stress [MPa]	Unloading modulus of elasticity EG [MPa]	Gasket or sealing element thickness e_G [mm]	Creep relaxation factor P_{QR} [-]	Gasket thickness change due to creep Δe_{Gc} [mm]	Maximum surface pressure Q_{Smax} [MPa]	Static friction factor μ_G [-]
1		3,942			300	0,10
20	3407	3,090				
30	8558	3,085				
40	11270	3,076				
50	13572	3,067	0,87	0,020		
60	15473	3,059				
80	18512	3,042				
100	21147	3,024				
120	23166	3,003				
140	24599	2,978				
150			0,92	0,036		
160	25543	2,948				
180	26376	2,920				
200	26508	2,888	0,91	0,057		
220	26822	2,857				
240	27138	2,828				
260	27124	2,802				
280	27325	2,777				
300	27445	2,754				

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	15	500	16000	-	1,3	1,0	
100		490	16000	-	1,3	1,0	
200		450	16000	-	1,3	1,0	
300		420	16000	-	1,3	1,0	
bGref [mm]		8,0		eGref [mm]		4,0	

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]
2,8	2400	16,5

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

Factors acc. to:

AD 2000-Merkblatt B7 August 2007

$k_0 k_D$ [N/mm]	k1 [mm]	$k_0 k_0$ [N/mm]
$15,0 \cdot b_D$	$1,1 \cdot b_D$	

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

Factors acc. to:

WUDT-UC-WO-0/19

σ_n [MPa]	σ_r [MPa]	b [1]				
		20°C	100°C	200°C	300°C	400°C
16,5	$5,5 \cdot p_0$	1,0	1,1	1,1	1,1	1,1

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

Factors acc. to:

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

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

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]	> 1,00E+03
Volume resistance R_v at U=10V	[Ω]	> 1,00E+03
Surface resistivity ρ_s at U=10V	[Ω]	> 1,01E+04
Volume resistivity ρ_v at U=10V	[Ωm]	> 3,72E+02