

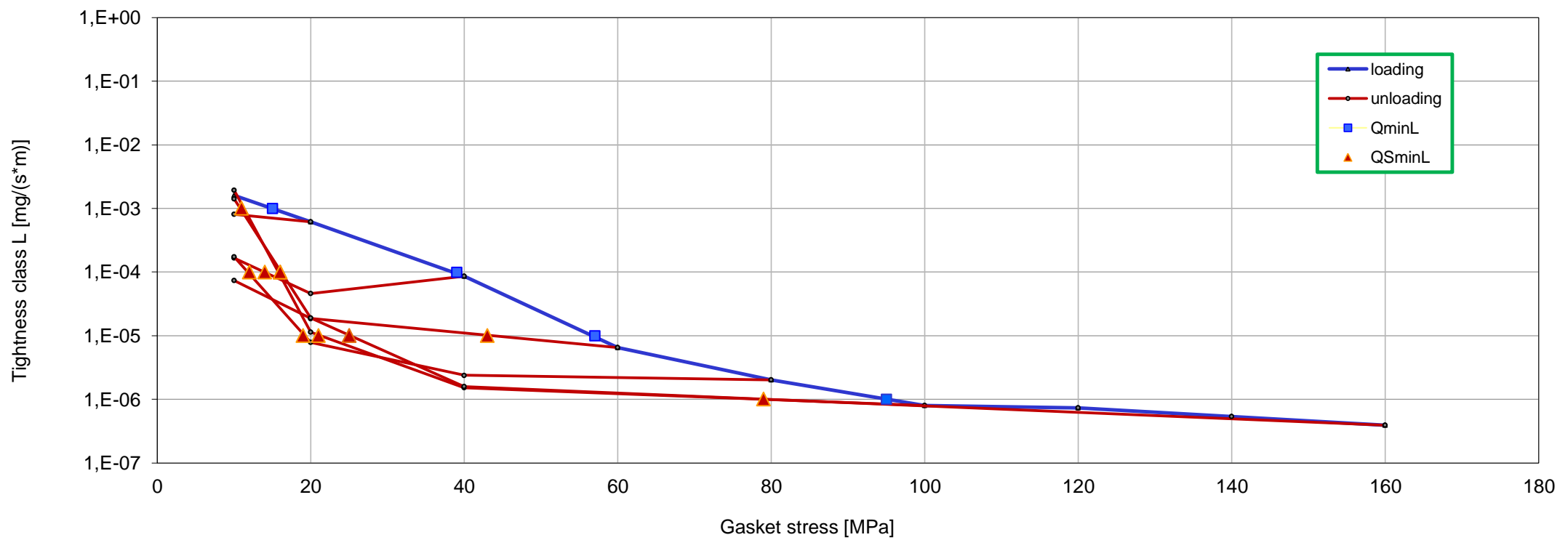
Company	SPETECH sp. z o.o.
Gasket Type	SPETOSPIR® SWZ PTFE
Dimensions [mm]	94 x 72 x 56 x 45 x 5
Calculation type EN 1591-1	a) flat gasket; EN 1514-2

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]	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}	15		10	10	10	10	10				11		
10^{-4}	39				14	10	12				16		
10^{-5}	57					43	19				21		
10^{-6}	95										79		
10^{-7}													

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


Parameters at RT

Gasket stress [MPa]	Unloading modulus of elasticity EG	Gasket or sealing element thickness eG	Creep relaxation factor PQR	Gasket thickness change due to creep Δe_{Gc}	Maximum surface pressure Qsmax	Static friction factor HG
	[MPa]	[mm]	[-]	[mm]	[MPa]	[-]
1		4,959			200	0,05
20	1459	4,494				
30	2414	4,441				
40	3448	4,405				
50	4368	4,376	0,94	0,010		
60	5070	4,349				
80	5795	4,301				
100	5999	4,248				
120	5612	4,110				
140	5389	3,915				
150			0,94	0,029		
160	5546	3,710				
180	5975	3,559				
200	6544	3,452	0,95	0,032		

Parameters at 100°C						
Gasket stress [MPa]	Unloading modulus of elasticity E_G	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		4,918			200	0,05
20	1571	4,476				
30	2674	4,445				
40	3568	4,416				
50	4397	4,391	0,95	0,008		
60	4944	4,369				
80	5473	4,322				
100	5555	4,255				
120	5250	3,996				
140	5001	3,723				
150			0,85	0,072		
160	5426	3,585				
180	5914	3,478				
200	6404	3,386	0,84	0,103		

Parameters at 250°C						
Gasket stress [MPa]	Unloading modulus of elasticity E_G	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		4,972			200	0,05
20	881	4,526				
30	1655	4,504				
40	2276	4,470				
50	2772	4,434	1,00	0,000		
60	3148	4,390				
80	3396	4,259				
100	3581	4,124				
120	3650	3,921				
140	3865	3,742				
150			0,81	0,090		
160	4178	3,599				
180	4674	3,511				
200	5249	3,450	0,83	0,109		

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 _i /P	g _c	c ₁
0...20	20	180	6000	-	1,6	0,9	-
100	-	170	6000	-	1,6	0,8	-
200	-	160	6000	-	1,6	0,7	-
300	-	150	6000	-	1,6	0,6	-
b _{Gref} [mm]		8,0		e _{Gref} [mm]		5,0	

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]
2,5	5100	35,2

Q_{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]	k ₁ [mm]	k ₀ k _θ [N/mm]
50,0*b _D	1,3*b _D	*b _D

Q_{max} - see maximal applicable gasket stress Q_{smax} 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
24,5	5,0*p ₀	1,0	1,1	1,1

Q_{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 [%]
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=100V	[Ω]	NDA
Volume resistance R_v at U=100V	[Ω]	NDA
Surface resistivity ρ_s at U=100V	[Ω]	NDA
Volume resistivity ρ_v at U=100V	[Ωm]	NDA