

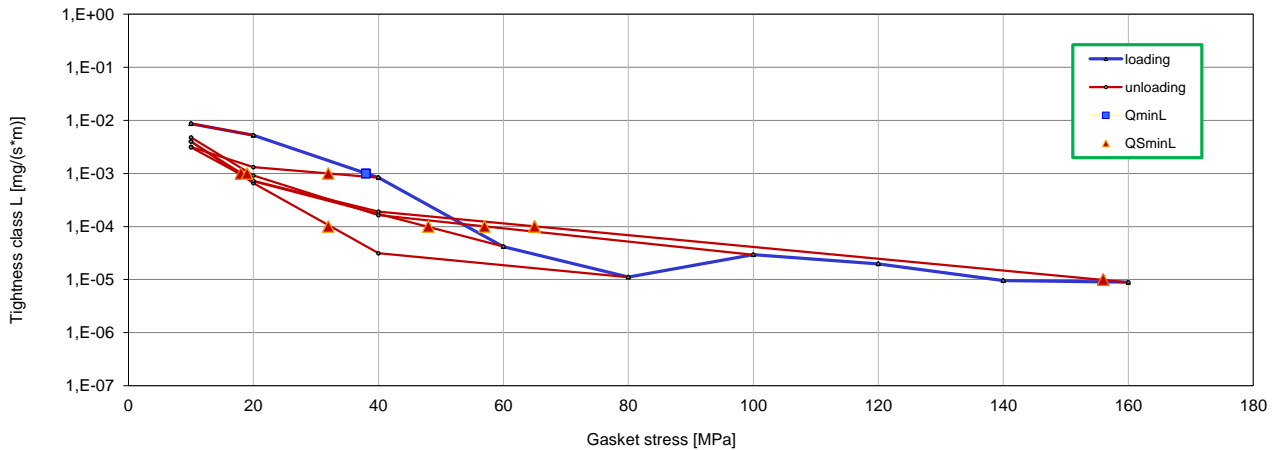
Company	SPETECH sp. z o.o.
Gasket Type	SPETOSPIR® SWZ FGC
Dimensions [mm]	94 x 72 x 56 x 45 x 5
Calculation type EN 1591-1	a) flat gasket; EN 1514-2

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}	38			32	18	18	19			18		
10^{-4}	54				48	32	57			65		
10^{-5}	139									156		
10^{-6}												

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


Parameters at RT

Gasket stress [MPa]	Unloading modulus of elasticity EG [MPa]	Gasket or sealing element thickness eG [mm]	Creep relaxation factor PQR [-]	Gasket thickness change due to creep Δe_{Gc} [mm]	Maximum surface pressure Qsmax [MPa]	Static friction factor μG [-]
1		4,959			200	0,10
20	1628	4,626				
30	2370	4,511				
40	3424	4,439				
50	4445	4,386	0,98	0,003		
60	5186	4,337				
80	5737	4,202				
100	5929	4,046				
120	6057	3,918				
140	6318	3,783				
150			0,97	0,014		
160	6891	3,644				
180	7650	3,538				
200	8502	3,434	0,98	0,013		

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		4,957			200	0,10
20	1792	4,615				
30	2884	4,517				
40	3936	4,454				
50	5142	4,407	0,92	0,013		
60	6052	4,362				
80	7142	4,246				
100	7467	4,088				
120	7809	3,953				
140	8199	3,806				
150			0,91	0,043		
160	8701	3,659				
180	9492	3,552				
200	10496	3,474	0,91	0,058		

Parameters at 400°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		4,967			200	0,10
20	1908	4,611				
30	2926	4,534				
40	3961	4,472				
50	5161	4,422	0,87	0,021		
60	6045	4,372				
80	7398	4,230				
100	7739	4,051				
120	8383	3,914				
140	9147	3,770				
150			0,86	0,068		
160	9765	3,616				
180	10617	3,487				
200	11861	3,406	0,87	0,084		

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	50	300	10000	-	1,6	1,0	-
100	-	280	10000	-	1,6	1,0	-
200	-	250	10000	-	1,6	1,0	-
300	-	220	10000	-	1,6	1,0	-

b _{Gref} [mm]	8,0	e _{Gref} [mm]	5,0
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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]
1,9	4700	32,4

[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 ₀ [N/mm]	k1 [mm]	k ₀ k ₀ [N/mm]
45,0*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-O/19

σ_m [MPa]	σ_r [MPa]	b [1]				
		20oC	100oC	200oC	300oC	400oC
21,4	3,9 \cdot p ₀	1,0	1,1	1,1	1,1	1,1

[omax](#) - see maximal applicable gasket stress Qsmax 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]	> 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	[Ω m]	> 3,72E+02