

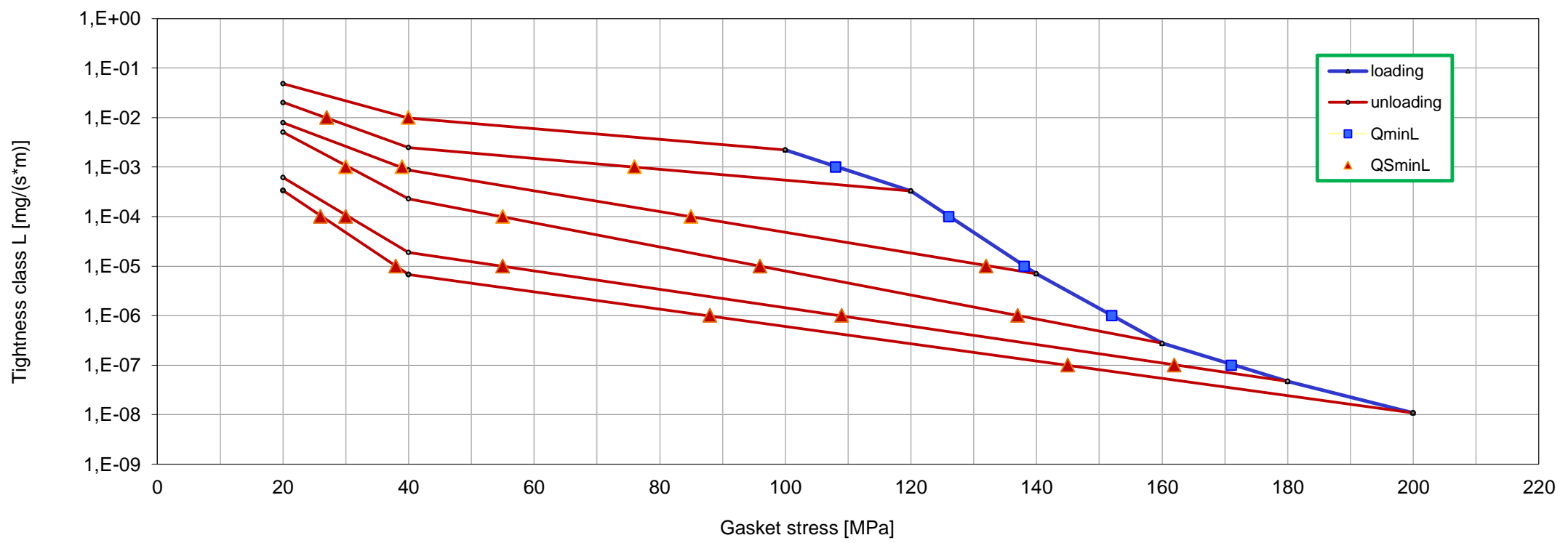
Company	<b>SPETECH sp. z o.o.</b>
Gasket Type	<b>SPETORING® R-BZ 316L silver coated</b>
Dimensions [mm]	<b>92 x 69 x 53 x 3</b>
Calculation type EN 1591-1	<b>b) convex gasket; EN 1514-1</b>

**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]	<b>40</b>											
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]	$Q_A = 180$ [MPa]	$Q_A = 200$ [MPa]
$10^{-0}$	100						20	20	20	20	20	20
$10^{-1}$	100						20	20	20	20	20	20
$10^{-2}$	100						40	27	20	20	20	20
$10^{-3}$	108							76	39	30	20	20
$10^{-4}$	126								85	55	30	26
$10^{-5}$	138								132	96	55	38
$10^{-6}$	152									137	109	88
$10^{-7}$	171										162	145

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	Creep relaxation factor	Gasket thickness change due to creep	Maximum surface pressure $Q_{smax}$ [MPa]	Static friction factor $\mu_G$ [-]
	$E_G$ [MPa]	$e_G$ [mm]	$P_{QR}$ [-]	$\Delta e_{Gc}$ [mm]		
1		2,791			300	--
20	7478	2,660				
30	11626	2,653				
40	14390	2,646				
50	16380	2,638				
60	18019	2,628				
80	21031	2,605				
100	23317	2,583	0,99	0,003		
120	24937	2,561				
140	26411	2,541				
150			0,99	0,005		
160	27693	2,520				
180	28706	2,500				
200	29092	2,479				
220	29629	2,458				
240	30736	2,438				
260	31497	2,418				
280	32337	2,398				
300	33178	2,379	0,99	0,009		

Parameters at 300°C						
Gasket stress [MPa]	Unloading modulus of elasticity	Gasket or sealing element thickness	Creep relaxation factor	Gasket thickness change due to creep	Maximum surface pressure	Static friction factor
	$E_G$	$e_G$	$P_{QR}$	$\Delta e_{Gc}$	$Q_{smax}$	$\mu_G$
	[MPa]	[mm]	[-]	[mm]	[MPa]	[-]
1		2,836			300	--
20	5281	2,701				
30	10364	2,693				
40	12982	2,682				
50	15601	2,670				
60	16990	2,656				
80	18579	2,630				
100	20559	2,605	0,93	0,021		
120	22877	2,581				
140	24263	2,557				
150			0,93	0,032		
160	25491	2,534				
180	26570	2,511				
200	27981	2,488				
220	28354	2,466				
240	29303	2,445				
260	29507	2,424				
280	30750	2,403				
300	31466	2,383	0,94	0,055		

Parameters at 600°C						
Gasket stress [MPa]	Unloading modulus of elasticity	Gasket or sealing element thickness	Creep relaxation factor	Gasket thickness change due to creep	Maximum surface pressure	Static friction factor
	$E_G$	$e_G$	$P_{QR}$	$\Delta e_{Gc}$	$Q_{smax}$	$\mu_G$
	[MPa]	[mm]	[-]	[mm]	[MPa]	[-]
1		2,825			200	--
20	3389	2,692				
30	9107	2,686				
40	11077	2,671				
50	12070	2,653				
60	13772	2,636				
80	15917	2,605				
100	17535	2,574	0,85	0,046		
120	18906	2,545				
140	20184	2,514				
150			0,84	0,074		
160	21147	2,483				
180	22465	2,453				
200	23395	2,423	0,86	0,086		

**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	250	550	200000	0	2,0	1,0	0,00
100	--	525	195000	0	2,0	1,0	--
200	--	495	188000	0	2,0	1,0	--
300	--	460	180000	0	2,0	1,0	--
400	--	425	170000	0	2,0	0,9	--
500	--	370	160000	0	2,0	0,8	--
600	--	300	150000	0	2,0	0,7	--

$b_{Gref}$ [mm]	--	$e_{Gref}$ [mm]	--
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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]
2,0	2,07	300

[gmax - see maximal applicable gasket stress Qsmax acc. EN 1591-1:2009/2013](#)

**Factors acc. to:**

AD 2000-Merkblatt B7 August 2007

$k_0 k_D$ [N/mm]	$k_1$ [mm]	$k_0 k_\vartheta$ [N/mm]
$*b_D$	$*b_D$	$*b_D$

[gmax - see maximal applicable gasket stress Qsmax acc. EN 1591-1:2009/2013](#)

**Factors acc. to:**

WUDT-UC-WO-O/19

$\sigma_m$ [MPa]	$\sigma_r$ [MPa]	b [1]						
		20oC	100oC	200oC	300oC	400oC	500oC	600oC
126,5	11*p <sub>0</sub>	1,0	1,0	1,0	1,0	1,0	1,0	1,0

[σ<sub>max</sub> - see maximal applicable gasket stress Q<sub>smax</sub> 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 [%]
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**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 <sub>s</sub> at U=10V	[Ω]	--
Volume resistance R <sub>v</sub> at U=10V	[Ω]	--
Surface resistivity ρ <sub>s</sub> at U=10V	[Ω]	--
Volume resistivity ρ <sub>v</sub> at U=10V	[Ωm]	--