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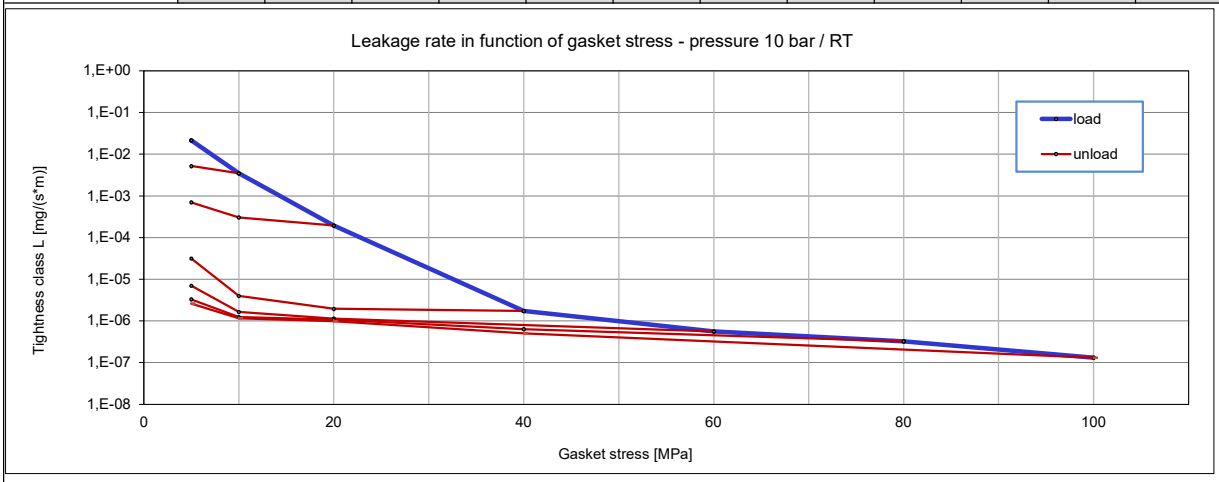
Company	**SPETECH sp. z o.o.**		
Gasket Type	**SPETOBAR® BAS® 380**		
Dimensions [mm]	**92 x 49 x 2 (DN40 PN40)**		
Calculation type EN 1591-1	**a) flat gasket;**	**EN 1514-1**	**IBC**
Notes:	Rev.1 (12-02-2021)		

Factors acc. to EN 13555 to use in calculation standard EN 1591-1:2009/ :2013

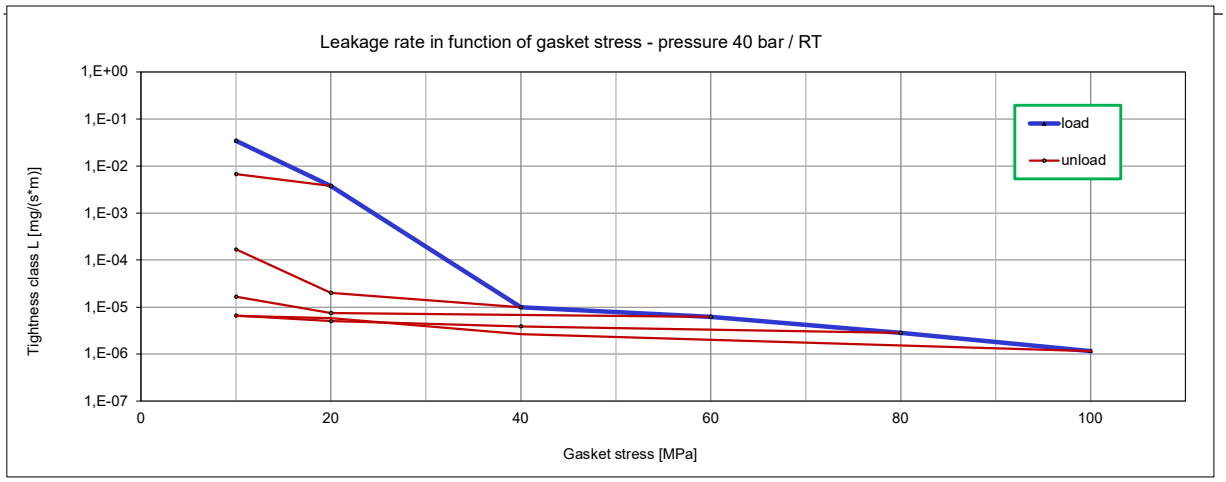
Minimum level of surface pressure required for leakage rate class L on assembly Qmin/L and after off-loading QSmin/L at room temperature (RT)

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]					
10^{-0}	5	5	5	5	5	5	5					
10^{-1}	5	5	5	5	5	5	5					
10^{-2}	7	5	5	5	5	5	5					
10^{-3}	15		5	5	5	5	5					
10^{-4}	23			5	5	5	5					
10^{-5}	33			8	5	5	5					
10^{-6}	50				28	23	20					
10^{-7}												



Minimum level of surface pressure required for leakage rate class L on assembly Qmin/L and after off-loading QSmin/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 = 20 [MPa]	Q_A = 40 [MPa]	Q_A = 60 [MPa]	Q_A = 80 [MPa]	Q_A = 100 [MPa]						
10^{-0}	10	10	10	10	10	10						
10^{-1}	10	10	10	10	10	10						
10^{-2}	16	10	10	10	10	10						
10^{-3}	24		10	10	10	10						
10^{-4}	32		13	10	10	10						
10^{-5}	40			17	10	10						
10^{-6}												
10^{-7}												

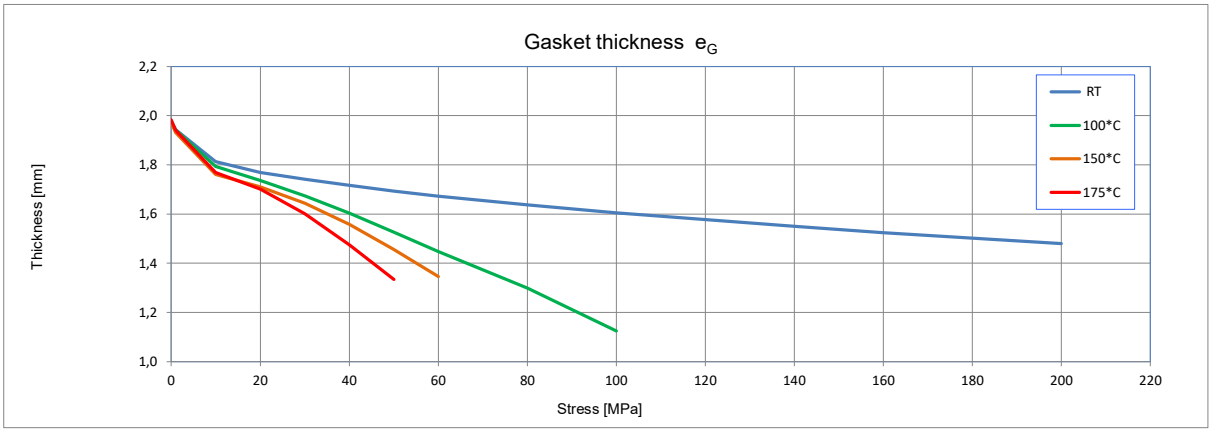


Temperature	RT							
Gasket stress	E_G	eG	C=500 kN/mm		C=1500 kN/mm		Q_{smax}	μ_G
			P_{QR}	Δ_{eGc}	P_{QR}	Δ_{eGc}		
[MPa]	[MPa]	[mm]	[-]	[mm]	[-]	[mm]	[MPa]	[-]
0		1,977						
1		1,943						
10	406	1,812						
20	1028	1,769	0,93	0,011				
30	1793	1,741						
40	2380	1,716	0,96	0,015				
50	2788	1,693						
60	3065	1,672	0,96	0,022			**200**	0,35
80	3533	1,637						
100	3942	1,605	0,96	0,032				
120	4283	1,577						
140	4754	1,550						
160	5159	1,525						
180	5640	1,501						
200	6065	1,479	0,970	0,051				

Temperature	100*C							
Gasket stress	E_G	eG	C=500 kN/mm		C=1500 kN/mm		Q_{smax}	μ_G
			P_{QR}	Δe_{Gc}	P_{QR}	Δe_{Gc}		
[MPa]	[MPa]	[mm]	[-]	[mm]	[-]	[mm]	[MPa]	[-]
0		1,978						
1		1,942						
10	798	1,794						
20	1443	1,736	0,76	0,040				
30	1765	1,674						
40	2024	1,604	0,70	0,101			**100**	0,16
50	2310	1,526						
60	2669	1,448	0,65	0,175				
80	3279	1,299						
100	3888	1,124	0,61	0,320				

Temperature	150*C							
Gasket stress	E_G	e_G	C=500 kN/mm		C=1500 kN/mm		Q_{smax}	μ_G
			P_{QR}	Δe_{Gc}	P_{QR}	Δe_{Gc}		
[MPa]	[MPa]	[mm]	[-]	[mm]	[-]	[mm]	[MPa]	[-]
0		1,973						
1		1,931						
10	1122	1,762						
20	1405	1,710	0,66	0,057				
30	1612	1,644					**60**	0,14
40	1831	1,558	0,60	0,131				
50	2147	1,457						
60	2398	1,346	0,55	0,223				

Temperature	175*C							
Gasket stress	E_G	e_G	C=500 kN/mm		C=1500 kN/mm		Q_{smax}	μ_G
			P_{QR}	Δe_{Gc}	P_{QR}	Δe_{Gc}		
[MPa]	[MPa]	[mm]	[-]	[mm]	[-]	[mm]	[MPa]	[-]
0		1,984						
1		1,941						
10	1027	1,769						
20	1309	1,701	0,62	0,064				
30	1534	1,601					**50**	0,11
40	1734	1,475	0,53	0,156				
50	2053	1,334	0,52	0,201				



Description:					
	E_G	Modulus of elasticity	Q_{smax}	Maximum surface pressure
	e_G	Gasket or sealing element thickness	μ_G	Static friction factor
	P_{QR}	Creep relaxation factor	C	Stiffness
	Δ_{eGc}	Gasket thickness change due to creep		

Factors acc. to EN 13555 to use in calculation standard EN 1591-1:2001

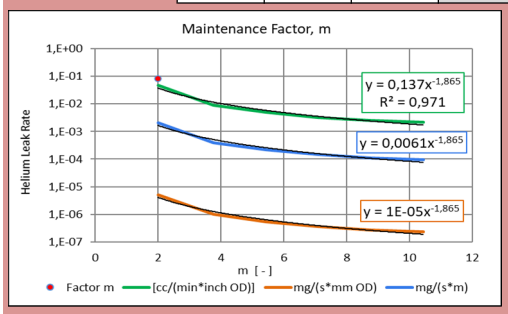
T [°C]	Q_{min} [MPa]	$Q_{max,\ ref}$ [MPa]	E_0 [MPa]	K_1	Q_f/P	g_c	c_1
20	35	80	500	20	1,6	-	0,05
100	-	70	500	20	1,6	-	

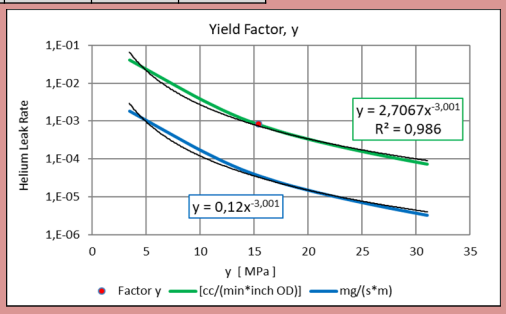
bGref [mm]	19,5	eGref [mm]	2,0

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

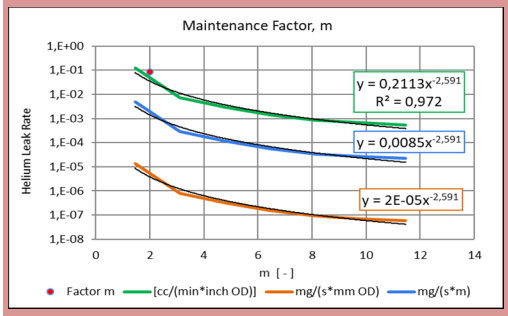
Tightness class		ASTM F3149	PVRC Tightness class		EN 13555	
			T3	T4	L0,01	L0,001
Factor m	[-]	2,0	< 2,0	12,5	< 2,0	2,9
Factor y	[MPa]	15,4			11,8	22,6
	[psi]	2230				

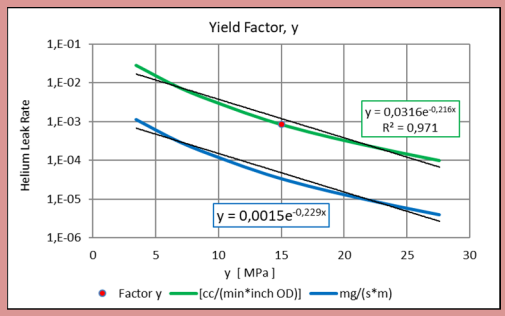




NOTE: Maintenance values [m] less than 2.0 are typically not used in ASME designs except for elastomeric gaskets (Classification D2000).
Gasket dimensions acc. to EN 1514-1 DN40 PN40
The given coefficient values are read from the test curves, not from the trend line.

Tightness class		ASTM F3149	PVRC Tightness Class		EN 13555	
			T3	T4	L0,01	L0,001
Factor m	[-]	2,0	<1,5	5,9	<1,5	2,4
Factor y	[MPa]	15,0			10,7	21,6
	[psi]	2180				





NOTE: Maintenance values [m] less than 2.0 are typically not used in ASME designs except for elastomeric gaskets (Classification D2000).
Gasket dimensions acc. to EN 12560-1 NPS 4 Class 300
The given coefficient values are read from the test curves, not from the trend line.

σmax - see maximal applicable gasket stress Qsmax acc. EN 1591-1:2009/:2013

Factors acc. to:

AD 2000-Merkblatt B7 August 2007

k_0k_D [N/mm]	k1 [mm]	k_0k9 [N/mm]
15,0*bD	1,4*bD	*bD

σmax - see maximal applicable gasket stress Qsmax acc. EN 1591-1:2009/:2013

Factors acc. to:

WUDT-UC-WO-O/19

σ_m [MPa]	σ_r [MPa]	b [1]				
		20°C	100°C	200°C		
20,4	4,0*p0	1,0	1,4	1,8		

σmax - 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 [%]
19	71

Factors acc. to:

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

Temperature [°C]	Creep Relaxation [%]
20	12
100	78
200	98

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]		6,68E+09
Volume resistance R_v at U=100V	[Ω]		4,88E+09
Surface resistivity ρ_s at U=100V	[Ω]		6,77E+10
Volume resistivity ρ_v at U=100V	[Ωm]		3,63E+09