

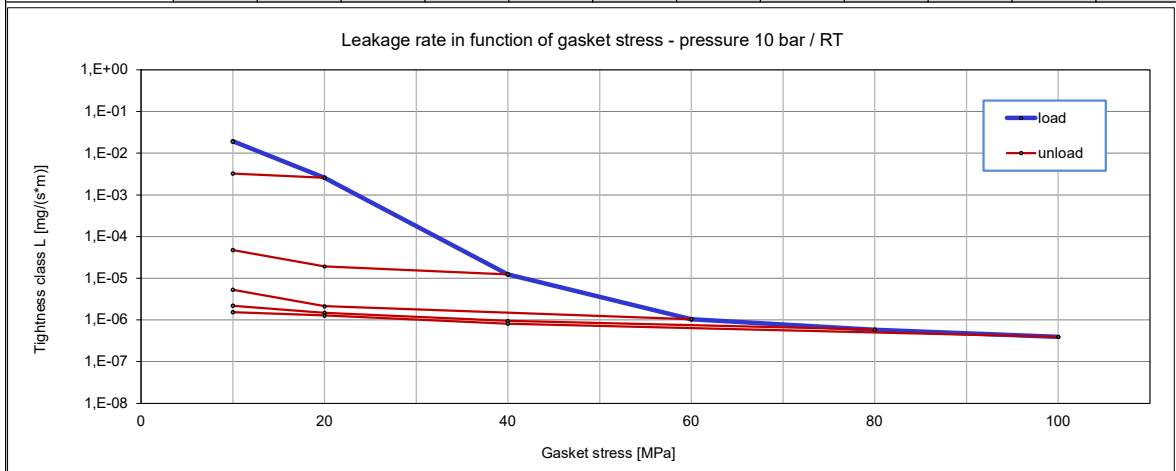
	LABORATORY OF SEALING MATERIALS 43-382 Bielsko-Biala, ul. Szyprów 17 tel. +48 33 8184133 e-mail: lbmu@spetech.com.pl www.laboratory.spetech.eu			  LB - 12402
	Company	SPETECH sp. z o.o.		
Gasket Type	SPETOBAR® BAS® 358			
Dimensions [mm]	92 x 49 x 2 (DN40 PN40)			
Calculation type EN 1591-1	a) flat gasket;	EN 1514-1	IBC	
Notes:	Rev.1 (19-02-2021)			

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

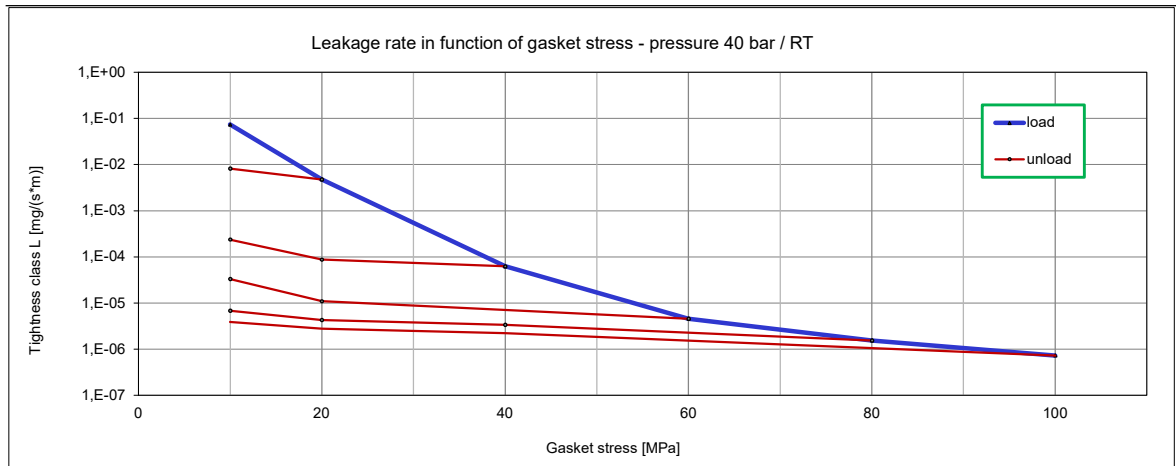
Minimum level of surface pressure required for leakage rate class L on assembly $Q_{min/L}$ and after off-loading $Q_{Smin/L}$ at room temperature (RT)

Internal pressure [bar]		10										
L [mg/(s*m)]	$Q_{min/L}$ [MPa]	$Q_{Smin/L}$ [MPa] for effective gasket stress										
		$Q_A = 20$ [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}	13	10	10	10	10	10						
10^{-3}	24		10	10	10	10						
10^{-4}	32		10	10	10	10						
10^{-5}	42			10	10	10						
10^{-6}	62				37	31						
10^{-7}												



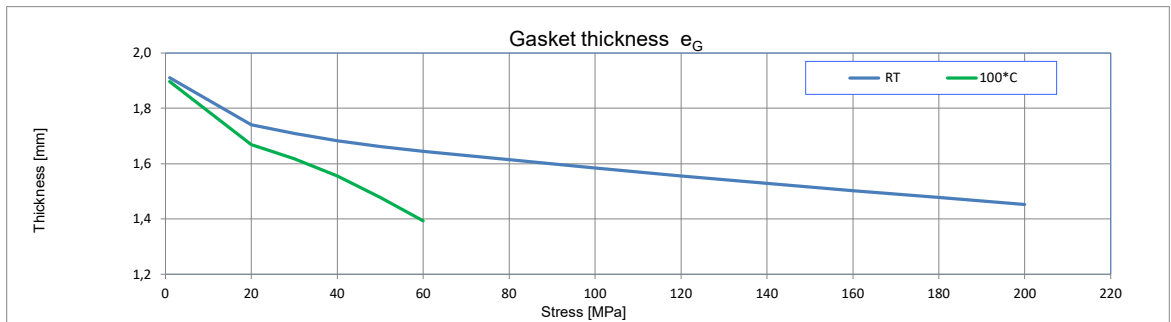
Minimum level of surface pressure required for leakage rate class L on assembly $Q_{min/L}$ and after off-loading $Q_{Smin/L}$ at room temperature (RT)

Internal pressure [bar]		40										
L [mg/(s*m)]	$Q_{min/L}$ [MPa]	$Q_{Smin/L}$ [MPa] for effective gasket stress										
		$Q_A = 20$ [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}	17	10	10	10	10	10						
10^{-3}	27		10	10	10	10						
10^{-4}	38		19	10	10	10						
10^{-5}	54			24	10	10						
10^{-6}	91					83						
10^{-7}												
10^{-8}												



Temperature		RT						Q _{smax} [MPa]	μ _G [-]
Gasket stress [MPa]	E _G [MPa]	e _G [mm]	C=500 kN/mm		C=1500 kN/mm				
			P _{QR} [-]	Δe _{Gc} [mm]	P _{QR} [-]	Δe _{Gc} [mm]			
1		1,911					200	0,26	
20	1034	1,741							
30	1575	1,708	0,93	0,018					
40	2139	1,683							
50	2721	1,662							
60	3211	1,644	0,96	0,023					
80	3926	1,614							
100	4363	1,584							
120	4723	1,556							
140	5049	1,529							
160	5283	1,503							
180	5458	1,477							
200	5489	1,452	0,97	0,049					

Temperature		100°C						Q _{smax} [MPa]	μ _G [-]
Gasket stress [MPa]	E _G [MPa]	e _G [mm]	C=500 kN/mm		C=1500 kN/mm				
			P _{QR} [-]	Δe _{Gc} [mm]	P _{QR} [-]	Δe _{Gc} [mm]			
1		1,897					60	0,20	
20	1171	1,669							
30	1885	1,618	0,72	0,070					
40	2487	1,555							
50	2889	1,477							
60	3235	1,393	0,63	0,185					



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
	Δe _{Gc}	Gasket thickness change due to creep		

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

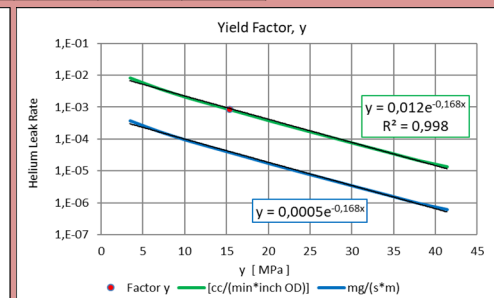
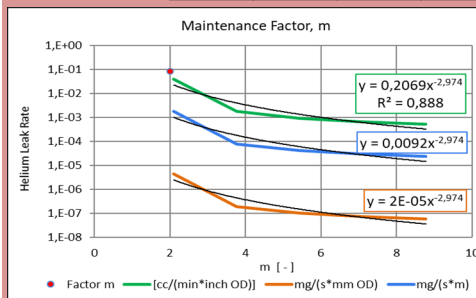
T [°C]	Q _{min} [MPa]	Q _{max, ref} [MPa]	E ₀ [MPa]	K ₁	Q _i /P	g _c	c ₁
20	35	80	500	20	1,6	-	0,05
100	-	70	500	20	1,6	-	-

b_{Gref} [mm] 19,5 e_{Gref} [mm] 1,9

Factors acc. to:

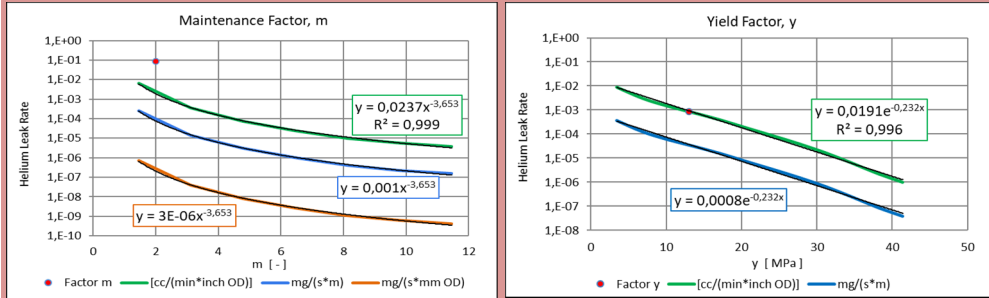
EN 13445-3 : Unfired pressure vessels - Part 3: Design
 EN 13480-3:2002 Metallic industrial piping - Part 3: Design and calculation
 ASME Code s. VIII Boiler & Pressure Vessel Code

Tightness class	ASTM F3149	PVRC Tightness class		EN 13555		
		T3	T4	L0,01	L0,001	
Factor m	[-]	2,0	< 2,0	3,7	< 2,0	2,4
Factor y	[MPa]	15,4			9,7	23,2
	[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	< 1,5	< 1,5
Factor y	[MPa]	13,0		8,0	19,0
	[psi]	1890			



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.

[σ_{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]	$k_0 k_0$ [N/mm]
$15 \cdot b_D$	$1,4 \cdot b_D$	

[σ_{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]			
		20°C	100°C		
20,4	$4 \cdot p_0$	1,0	1,4		

[σ_{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=10V	[Ω]		NDA
Volume resistance R_v at U=10V	[Ω]		NDA
Surface resistivity ρ_s at U=10V	[Ω]		NDA
Volume resistivity ρ_v at U=10V	[Ωm]		NDA