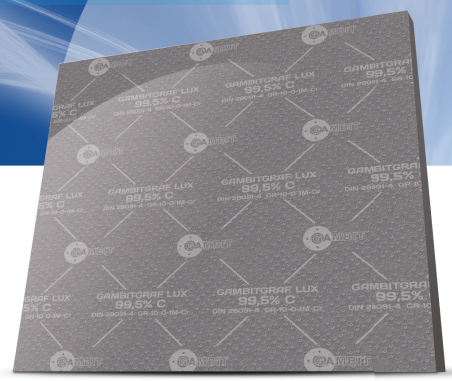
GASKET SHEETS



TECHNICAL SPECIFICATION

Gasket sheet GAMBITGRAF LUX

Material

99.5% pure expanded graphite foil, reinforced with 0.1mm thick AISI 316L perforated metal sheet.
Sulphur content – max. 300 ppm.
Chlorides content – max. 50 ppm.

Designation according to DIN 28091-4: **GR-10-0-1M-Cr**

General properties and applications

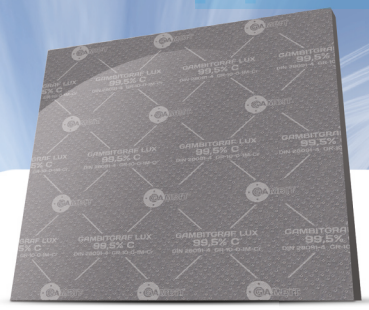
Applied in high temperature and pressure. Recommended to steam, carbohydrates and most of chemical compounds except strong oxidants. Resistant to mechanical and thermal cycles as well as to rapid changes of temperature.

Maximum working conditions

Temperature during continuous operation	**°C**	500
Temperature during continuous operation in steam	**°C**	550
Pressure	**MPa**	12

Dimensions

Standard thickness of a sheet	**mm**	1,0; 1,5; 2,0; 3,0	± 10%
Standard size of a sheet	**mm**	1000x1000 1500x1500	± 20,0

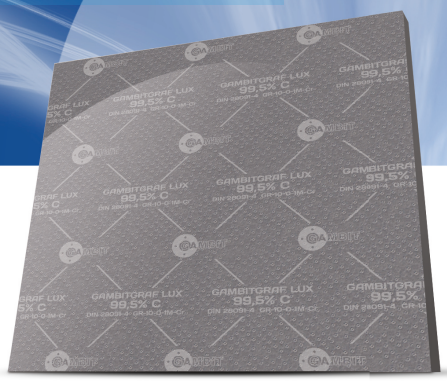


GASKET SHEETS

Physical and chemical properties

Thickness		**mm**	1,5	
Graphite density	± 5%	**g/cm³**	1,0	DIN 28090-2
Tensile strength	min.	**MPa**	20	ASTM F152
Compressibility		**%**	35 - 45	ASTM F36
Elastic recovery		**%**	15 - 20	ASTM F36
Residual stress 16 h/300 °C	min.	**MPa**	38	BS 7531
Residual stress 16 h/300 °C	min.	**MPa**	48	DIN 52913
Ash content	max.	**%**	0,5	DIN 51903
Colour		**graphite**		

(Figures given in the charts refer to 1.5 mm thick gasket sheets)



Test Results of GAMBITGRAF LUX Published on Gasketdata.org

The below tests were run according to EN 13555, the most up-to-date norm in this domain. The results confirm the quality of our products and assist the design of flanges according to norm EN 1591-1+A1:2009/AC:2011.

The tests have been carried out by the Center of Sealing Technologies C S T Center of Sealing Technologies at Münster University of Applied Sciences (FH Münster) and published on www.gasketdata.org together with the datasheets of the world's leading manufacturers of sealing materials.

C S T Center of Sealing Technologies is an independent laboratory focused on the research and development in the field of sealing materials in order to assist both the producers and the users.

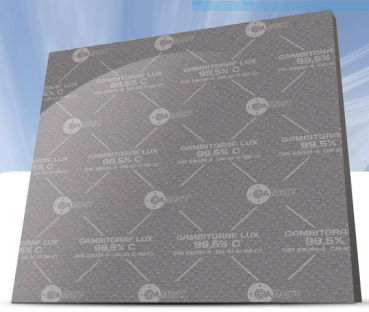
Gasket characteristics acc. EN 13555 (05/2005) required for design calculations acc. EN 1591-1+A1:2009/AC:2011
Sealing element dimensions [mm] 92 x 49 x 2

Relaxation ratio P_{QR} for stiffness C = 500 kN/mm			
Gasket stress, MPa	Ambient temperature	Temperature 1 (300 °C)	Temperature 2 (400 °C)
Stress level 1 (30 MPa)	0,99	0,93	0,92
Stress level 2 (50 MPa)	1,00	0,95	0,95
P_{QR} at Q_{Smax} (220/160/160 MPa)	1,00	0,99	0,98

Maximal applicable gasket stress Q_{Smax}, MPa		
Q_{Smax}, MPa – ambient temperature	Q_{Smax}, MPa – temperature 1 (300 °C)	Q_{Smax}, MPa – temperature 2 (400 °C)
220	160	160

Sekant unloading modulus of the gasket E_G, MPa and gasket thickness e_G, mm						
Gasket stress, MPa	Ambient temperature		Temperature 1 (300 °C)		Temperature 2 (400 °C)	
	E_G, MPa	e_G, mm	E_G, MPa	e_G, mm	E_G, MPa	e_G, mm
0	-	2,201	-	2,201	-	2,215
1	-	2,037	-	2,043	-	2,042
20	526	1,259	574	1,226	552	1,207
30	828	1,178	810	1,159	772	1,141
40	1159	1,132	1103	1,113	1041	1,096
50	1488	1,100	1412	1,081	1433	1,065
60	1847	1,076	1721	1,057	1700	1,041
80	2602	1,042	2312	1,021	2347	1,006
100	3346	1,018	3036	0,996	2854	0,980
120	4028	0,999	3582	0,976	3342	0,961
140	4786	0,985	4193	0,959	4049	0,943
160	5520	0,972	4760	0,944	4592	0,928
180	6201	0,961	-	-	-	-
200	9490	0,954	-	-	-	-
220	14811	0,934	-	-	-	-

All information in this catalogue is based on years of experience in manufacture and use of the discussed products. Since sealing performance in the joint is subject to multiple factors such as mounting method, system parameters, and sealed medium, technical parameters specified herein are of informative nature only and cannot be used as grounds for any claims; any special uses of products are subject to consulting with the manufacturer.

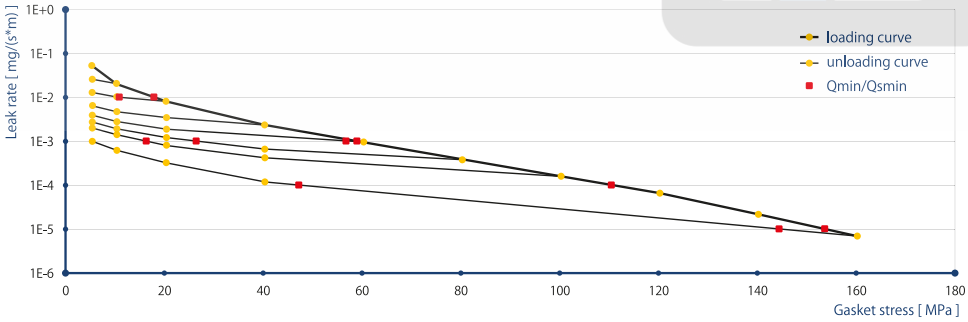


GASKET SHEETS

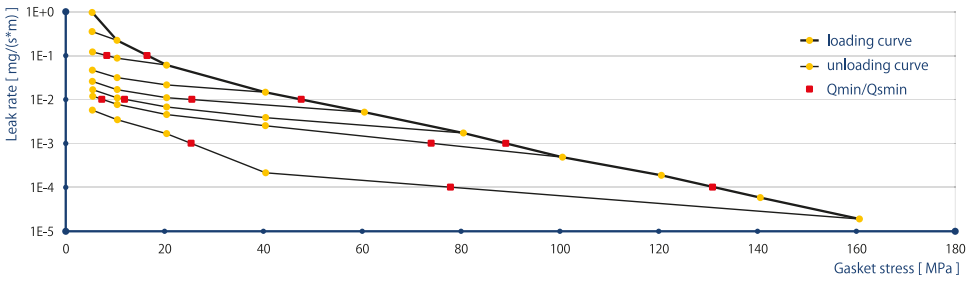
Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{Smin(L)}$ (after off-loading) for inner pressure 10 bar										
Tightness class	$Q_{min(L)}$	$Q_{Smin(L)}$, MPa								
mg/(s x m)	MPa	Q_A 10MPa	Q_A 20 MPa	Q_A 40 MPa	Q_A 60 MPa	Q_A 80 MPa	Q_A 100 MPa	Q_A 120 MPa	Q_A 140 MPa	Q_A 160 MPa
10^{0}	5	5	5	5	5	5	5	-	-	5
10^{-1}	5	5	5	5	5	5	5	-	-	5
10^{-2}	18	-	11	5	5	5	5	-	-	5
10^{-3}	59	-	-	-	57	27	16	-	-	5
10^{-4}	111	-	-	-	-	-	-	-	-	47
10^{-5}	154	-	-	-	-	-	-	-	-	144

Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{Smin(L)}$ (after off-loading) for inner pressure 40 bar										
Tightness class	$Q_{min(L)}$	$Q_{Smin(L)}$, MPa								
mg/(s x m)	MPa	Q_A 10MPa	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}	5	5	5	5	5	5	5	-	-	5
10^{-1}	16	-	8	5	5	5	5	-	-	5
10^{-2}	48	-	-	-	26	12	7	-	-	5
10^{-3}	89	-	-	-	-	-	74	-	-	25
10^{-4}	131	-	-	-	-	-	-	-	-	78

Leakage - ambient temperature / inner pressure = 10 bar



Leakage - ambient temperature / inner pressure = 40 bar



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