TECHNICAL SPECIFICATION

Gasket sheet GAMBIT MAGNUM®

Material

GAMBIT MAGNUM gasket sheet is based on KEVLAR®, aramid fibres and fllers/nano-fillers bonded with an HNBR rubber-based binder.

Designation according to DIN 28091-2: **FA-AMZ-0**

General properties and applications

GAMBIT MAGNUM gasket sheet features higher elasticity in higher temperatures and higher resistance media. It is recommended to applications in water, steam, kerosene, fuels, oils, salt solutions, weak acids and bases, natural gas, propane-butane.

Maximum working conditions

Peak temperature	**°C**	420
Temperature under continuous operation	**°C**	370
Temperature under continuous operation with steam	**°C**	260
Pressure	**MPa**	10

Dimensions

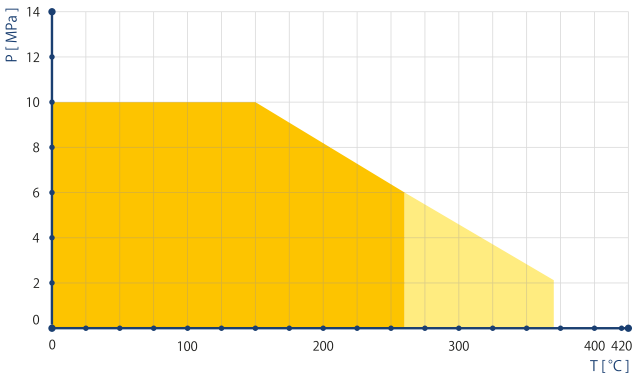
Standard thicknesses of sheets /thicknesses above 5.0 mm are produced by gluing/	**mm**	0,3; 0,5; 0,8 1,0; 1,5; 2,0; 2,5 3,0; 4,0; 5,0; 6,0	± 0,1 ± 10% ± 10%
Standard dimensions of sheets /custom dimensions available within the total range of 1500x3000 mm/	**mm**	1500x1500	± 10,0

Non-standard thicknesses, graphiting of sheet surfaces, and reinforcement with metallic mesh available upon request.

Physical and chemical properties

Density	± 5%	**g/cm³**	1,8	DIN 28090-2
Transverse tensile strength	min.	**MPa**	8	DIN 52910
Compressibility	typical value	**%**	10	ASTM F36
Elastic recovery	min.	**%**	45	ASTM F36
Residual stresses 50 MPa/16 h/300 °C	min.	**MPa**	30	DIN 52913
Residual stresses 50 MPa/16 h/175 °C	min.	**MPa**	32	DIN 52913
INCREASE IN THICKNESS				
Oil IRM 903 150 °C/5 h	max.	**%**	3	ASTM F146
Model fuel B 20 °C/5 h	max.	**%**	5	ASTM F146
Kerosene 20 °C/24 h	max.	**%**	3	ASTM F146
Colour		**orange**		

(Values as detailed in table refer to 2.0 mm thick gasket sheets)



It is not recommended that maximum temperature and pressure are applied simultaneously. Pressure to temperature correlation for sheet thickness 2.0 mm is shown in the diagram.

- There is no requirement for trials.
- Trials should be run if the application involves steam.

Test Results of GAMBIT MAGNUM 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 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 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 (175 °C)	Temperature 2 (300 °C)	Temperature 3 (350 °C)
Stress level 1 (30 MPa)	0,93	0,78	0,72	0,66
Stress level 2 (50 MPa)	0,96	0,88	0,79	0,68
P_{QR} at Q_{Smax} (220/100/80/80 MPa)	0,99	0,76	0,71	0,61

Maximal applicable gasket stress Q_{Smax}, MPa			
Q_{Smax}, MPa – ambient temperature	Q_{Smax}, MPa – temperature 1 (175 °C)	Q_{Smax}, MPa – temperature 2 (300 °C)	Q_{Smax}, MPa – temperature 3 (350 °C)
220	100	80	80

Sekant unloading modulus of the gasket E_G, MPa and gasket thickness e_G, mm								
Gasket stress, MPa	Ambient temperature		Temperature 1 (175 °C)		Temperature 2 (300 °C)		Temperature 3 (350 °C)	
	E_G, MPa	e_G, mm	E_G, MPa	e_G, mm	E_G, MPa	e_G, mm	E_G, MPa	e_G, mm
0	-	2,025	-	2,132	-	2,020	-	2,044
1	-	1,981	-	1,996	-	1,979	-	1,983
20	1873	1,873	4304	1,813	4602	1,793	4491	1,775
30	2355	1,838	4147	1,802	4513	1,784	3573	1,754
40	3011	1,810	3813	1,788	4546	1,773	4993	1,740
50	3698	1,788	4525	1,776	5176	1,764	5151	1,724
60	4410	1,769	4911	1,765	4716	1,752	5837	1,705
80	5777	1,744	5113	1,745	5478	1,734	6589	1,674
100	6733	1,725	5536	1,676	-	-	-	-
120	7320	1,709	-	-	-	-	-	-
140	7795	1,695	-	-	-	-	-	-
160	8371	1,681	-	-	-	-	-	-
180	8595	1,667	-	-	-	-	-	-
200	8875	1,653	-	-	-	-	-	-
220	9124	1,639	-	-	-	-	-	-

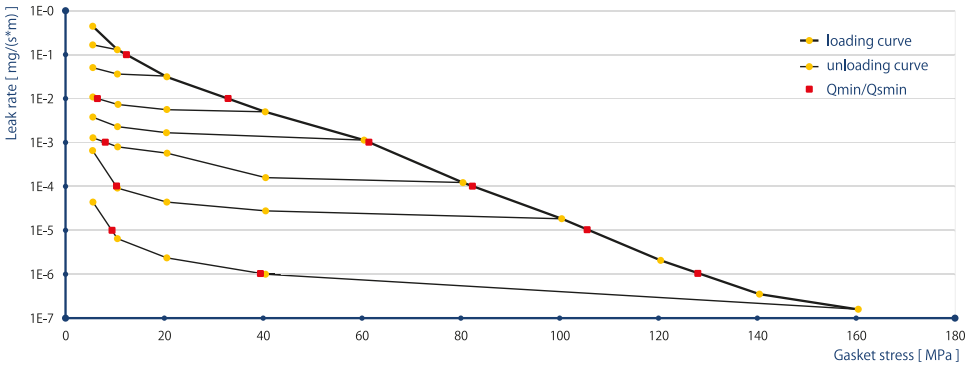
All information in this catalogue is based on years of experience in manufacture and use of the discussed products. Since sealing performance in the joint is subject to multiple factors such as mounting method, system parameters, and sealed medium, technical parameters specified herein are of informative 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}	12	-	5	5	5	5	5	-	-	5
10^{-2}	33	-	-	6	5	5	5	-	-	5
10^{-3}	61	-	-	-	-	8	5	-	-	5
10^{-4}	82	-	-	-	-	-	10	-	-	5
10^{-5}	106	-	-	-	-	-	-	-	-	9
10^{-6}	128	-	-	-	-	-	-	-	-	39

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}	14	-	5	5	5	5	5	-	-	5
10^{-1}	29	-	-	6	5	5	5	-	-	5
10^{-2}	45	-	-	-	8	5	5	-	-	5
10^{-3}	60	-	-	-	55	9	6	-	-	5
10^{-4}	74	-	-	-	-	23	12	-	-	7
10^{-5}	95	-	-	-	-	-	64	-	-	15
10^{-6}	118	-	-	-	-	-	-	-	-	107

Leakage - ambient temperature / inner pressure = 10 bar



Leakage - ambient temperature / inner pressure = 40 bar