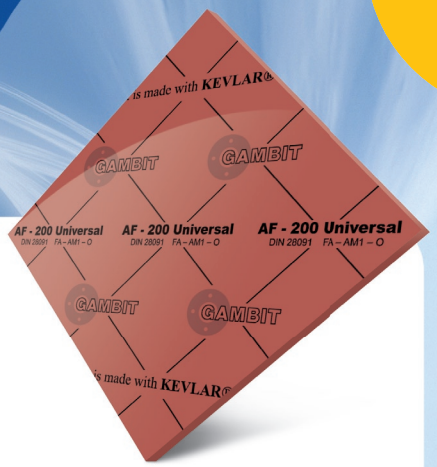
GASKET SHEETS



TECHNICAL SPECIFICATION

Gasket sheet Gambit AF-200 UNIVERSAL

Material

Gasket sheet **GAMBIT AF-200** Universal is based on Kevlar® aramide fibres, mineral fibres, and fillers bound with NBR rubber-based binder.

Designation according to DIN 28091-2: **FA-AM1-O**

Kevlar® is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.

General properties and applications

Versatile, oil resistant sheet designed for applications with the majority of media under medium temperatures and pressures. Environmentally friendly sheet type, free from N-nitrosamines.

Admissions / Certificates

DVGW
Germanischer Lloyd
INIG
KTW

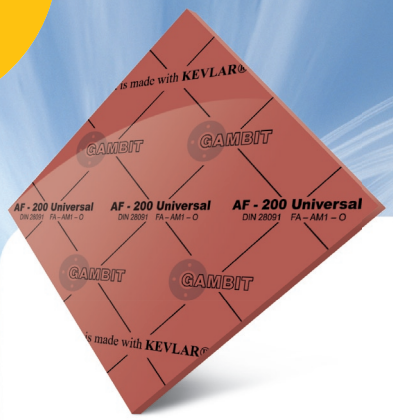
Maximum working conditions

Tetmperatura chwilowa	**°C**	300
Temperature under continuous operation	**°C**	220
Temperature under continuous operation with steam	**°C**	180
Pressure	**MPa**	6

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.



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Physical and chemical properties

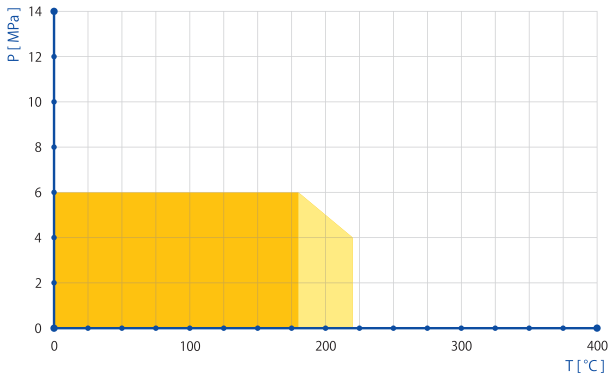
Density	± 5%	**g/cm³**	2,0	DIN 28090-2
Transverse tensile strength	min.	**MPa**	7	DIN 52910
Compressibility	typical value	**%**	10	ASTM F36
Elastic recovery	min.	**%**	55	ASTM F36
Residual stresses 50 MPa/16 h/300 °C/	min.	**MPa**	22	DIN 52913
Residual stresses 50 MPa/16 h/175 °C/	min.	**MPa**	28	DIN 52913
INCREASE IN THICKNESS				
Oil IRM 903 150 °C/5 h	max.	**%**	5	ASTM F146
Model fuel B 20 °C/5 h	max.	**%**	5	ASTM F146
Colour		**red**		

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

Calculation coefficients

Coefficients DT – UC – 90/WO-0/19								
σ_m			σ_r			b		
1 mm	2 mm	3 mm	1 mm	2 mm	3 mm	20 °C	200 °C	300 °C
40 MPa	21 MPa	12 MPa	6,4 p_0	5 p_0	4,1 p_0	1,1	1,8	3,0

Coefficients ASME			
Tightness class	Thickness	m	y
L0,1	2 mm	4,0	3,5 MPa
L1,0	2 mm	1,7	1,1 MPa



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.

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.

Test Results of Gambit AF–200 UNIVERSAL 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 results have been approved by Center of Sealing Technologies (CST) at Münster University of Applied Sciences (MUAS) and published on www.gasketdata.org together with the datasheets of the world's leading manufacturers of sealing materials.

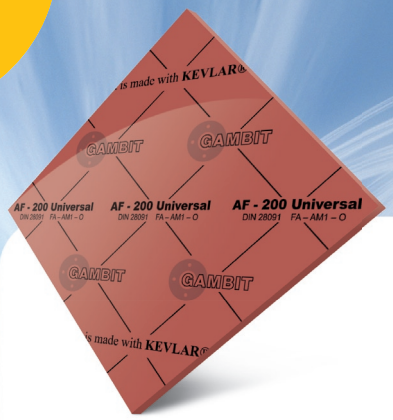
CST is an independent laboratory focused on the research and development in the field of sealing materials in order to assist both the producers and the users.

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)
Stress level 1 (30 MPa)	0,96	0,84	0,54
Stress level 2 (50 MPa)	0,97	0,78	0,57
P_{QR} at Q_{Smax} (220/60/60 MPa)	0,98	0,76	0,53

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)
220	60	60

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)	
	E_G, MPa	e_G, mm	E_G, MPa	e_G, mm	E_G, MPa	e_G, mm
0	-	-	-	-	-	-
1	-	2,134	-	2,027	-	2,036
20	1534	2,008	2314	1,880	5157	1,866
30	2547	1,982	2622	1,862	3929	1,848
40	3542	1,961	2839	1,836	3882	1,829
50	4325	1,942	3032	1,802	3981	1,806
60	4909	1,924	3252	1,761	4472	1,778
80	5837	1,891	-	-	-	-
100	6465	1,860	-	-	-	-
120	6887	1,832	-	-	-	-
140	7219	1,807	-	-	-	-
160	7401	1,783	-	-	-	-
180	7715	1,761	-	-	-	-
200	7989	1,741	-	-	-	-
220	8217	1,722	-	-	-	-



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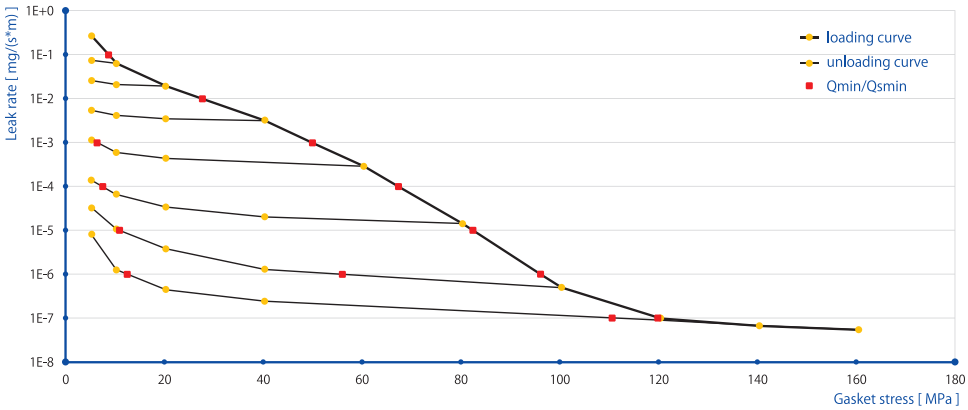
Minimum stress to seal $Q_{min(L)}$ (at assembly), $Q_{Smin(L)}$ (after off-loading) for inner pressure 10 bar										
Tightness class	$Q_{min(L)}$	$Q_{Smin(L)}$, MPa								
mg/(s x m)	MPa	Q_A 10MPa	Q_A 20 MPa	Q_A 40 MPa	Q_A 60 MPa	Q_A 80 MPa	Q_A 100 MPa	Q_A 120 MPa	Q_A 140 MPa	Q_A 160 MPa
10^{0}	5	5	5	5	5	5	5	-	-	5
10^{-1}	9	5	5	5	5	5	5	-	-	5
10^{-2}	28	-	-	5	5	5	5	-	-	5
10^{-3}	50	-	-	-	6	5	5	-	-	5
10^{-4}	67	-	-	-	-	7	5	-	-	5
10^{-5}	82	-	-	-	-	-	11	-	-	5
10^{-6}	96	-	-	-	-	-	56	-	-	12
10^{-7}	120	-	-	-	-	-	-	-	-	111

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}	18	-	10	5	5	5	5	-	-	5
10^{-1}	34	-	-	10	5	5	5	-	-	5
10^{-2}	52	-	-	-	12	6	5	-	-	5
10^{-3}	66	-	-	-	-	11	8	-	-	7
10^{-4}	76	-	-	-	-	33	13	-	-	9
10^{-5}	90	-	-	-	-	-	34	-	-	17
10^{-6}	116	-	-	-	-	-	-	-	-	75

Leakage - ambient temperature / inner pressure = 10 bar



Leakage - ambient temperature / inner pressure = 40 bar