FlatSeal™ HMF20

EFFECTIVE LONG-TERM PERFORMANCE IN HIGH PRESSURE APPLICATIONS

The next generation of fiber-reinforced graphite gaskets, FlatSeal™ HMF20, provides reliable long-term sealing in challenging operating environments.

FlatSeal™ HMF20 combines the high mechanical strength of a conventional fiber gasket with the high temperature and pressure characteristics of graphite gaskets. It demonstrates the following properties:

- Reliable sealing performance in high temperature environments
- Wide-ranging media compatibility
- Ability to withstand high pressures
- Excellent residual stress characteristics

Incorporating a high proportion of graphite content, FlatSeal™ HMF20 as been specially engineered to deliver this unique performance profile.

Applications

- Petrochemical processing
- Chemical processing
- Pipework
- General industrial applications in high temperature environments

Features and benefits

- Excellent long-term performance in high pressure environments
- Wide ranging media compatibility, including oils, greases, acids, alkalis, solvents, refrigerants, water and steam
- Good temperature resistance up to +250 °C / +482 °F
- Anti-stick coating with long service life
- Satisfies leakage limits specified in DIN 3535-6
- Complies to fugitive emissions standards
- Approvals: DVGW, WRAS, HTB DIN 30653, BAM (max. 110 °C / 130 bar), BS7531 (X)
- Graphite morphology optimized to meet TA Luft and VDI 2290 requirements

Ensuring the highest quality every step of the way

Using a multi-step, state-of-the-art production process, HMF FlatSeal™ gaskets are manufactured with the highest quality raw materials. Every batch of material must match precise specifications and is subjected to rigorous inspection to ensure that only approved materials are used in production.

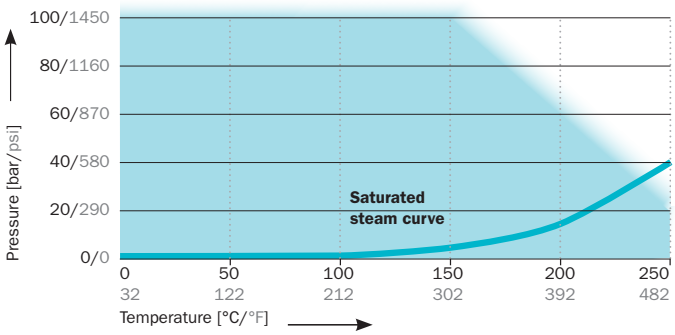
To guarantee consistent high quality at all steps, a process control system monitors and controls the preparation of formulations, their blending operation, and the calendaring process that forms the material sheet from which a FlatSeal™ is formed.

TECHNICAL INFORMATION ABOUT FLATSEAL™ HMF20

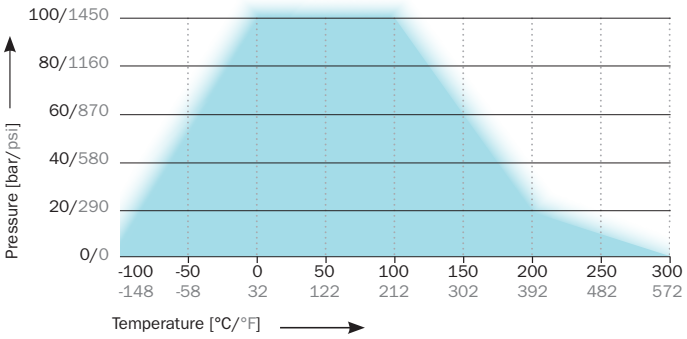
Recommendations for use

The temperature and pressure recommendations in the graphs apply to gaskets 2.0 mm / 0.08 inch thick that are used with raised face flanges. Higher stresses are possible when thinner gaskets are used. The recommendations are based on material characteristics and installation conditions. The information provided should therefore be considered cautious estimates rather than specific operational limits.

Water/water vapor

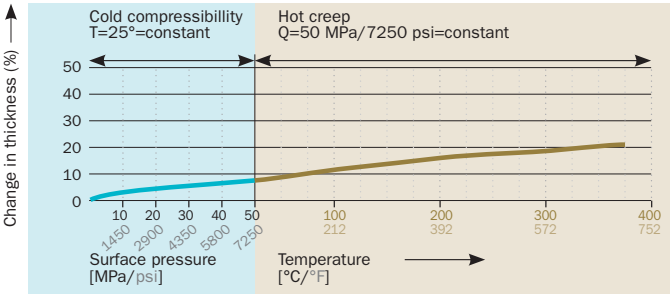


Other Media*



* Other media refers to other media commonly used in gasket applications that is not chemically critical.

Temperature Test
at 50 MPa - sample thickness: 2.0 mm



A precise description of the temperature test can be found in FlatSeal™ Guide 10.

General Data	
Elements	Graphite, aramid fibers and NBR (Nitrile Butadiene Rubber)
Approvals*	DVGW, WRAS, HTB DIN 30653, BAM* (max. 110 °C/130 bar), BS7531 (X)
Color	Royal blue
Anti-stick coating	Both sides to A 310 standard
Thickness in mm	1.0 / 1.5 / 2.0 / 3.0 Further thicknesses are available on request
Thickness tolerance	According to DIN 28091-1

* Details concerning approvals and tests can be found in the Declaration of Compliance which can be requested from your local Customer Solution Center.

Physical Properties Gasket thickness 2.0 mm	Standard	Unity	Modal Value
Density	DIN 28090-2	[g/cm³]	1.74
Tensile strength longitudinal transverse	ASTM F152	 [N/mm²] [N/mm²]	 20 18
Residual stress $\sigma_{dE/16}$ 175°C 300°C	ASTM F 36 J	 [N/mm²] [N/mm²]	 37 30
Compressibility	ASTM F 36 J	[%]	6
Recovery	ASTM F 36 J	[%]	60
Cold compressibility σ_{KSW}	DIN 28090-2	[%]	6
Cold recovery σ_{KRW}	DIN 28090-2	[%]	3
Hot creep $\sigma_{WSW/200}$	DIN 28090-2	[%]	8
Hot recovery $\sigma_{WRW/200}$	DIN 28090-2	[%]	2
Specific leakage rate	DIN 3535-6	[mg/(m*s)]	0.05
Fluid resistance	ASTM F 146		
ASTM IRM 903 Weight change Thickness increase	5h/150°C	 [%] [%]	 8 5
ASTM Fuel B Weight change Thickness increase	5h/23°C	 [%] [%]	 8 5
Leachable chloride content	PV01605	[ppm]	≤ 50

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