SIGRASEAL®

Sealing sheet made from natural graphite with tanged stainless steel sheet reinforcement

SIGRASEAL® is an adhesive-free graphite seal-ing sheet made from flexible graphite foil with perfo-rated 316 (L) stainless steel sheet rein-forcement.

Applications

- Suitable for all common pipework and vessel flange designs
- Recommended for one-piece gaskets up to 1500 mm outside diameter; for diameters over 1500 mm as two-layer structures with segmented sec-tions and staggered joints, for instance
- For high internal pressures of up to 100 bar
- For corrosive media
- Suitable for a broad range of temperatures from –250 °C to approx. 500 °C; for appli-cations at more than 400 °C, users should request our ad-vice
- Gaskets for the chemical, petrochemical and refinery industries
- Steam pipework in power stations and heat-ing facilities
- Existing plants

Properties

- High blow-out resistance and high mechani-cal strength
- Very high fault tolerance during assembly and operation
- Good chemical resistance
- Long-term stability of compressibility and recov-ery, even under fluctuating tempera-tures
- No measurable cold or warm flow character-istics up to maximum permissible gasket stress
- No aging or embrittlement, owing to the absence of adhesives or binders
- Asbestos-free, no associated health risks

Approvals

- BAM oxygen
- DVGW (DIN 3535-6)

Forms supplied

SIGRASEAL® sheets are available in the following dimensions and type designations:

Dimensions [mm]	Types
1500 x 1500 x 1.0	V10010M2
1500 x 1500 x 1.5	V15010M2
1500 x 1500 x 2.0	V20010M2
1500 x 1500 x 3.0	V30010M2

Assembly instructions

For assembly, use dry and undamaged gaskets only. Wet graphite gaskets must not be fitted unless first dried completely. The sealing faces must be clean, dry and free from grease. Do not use release agents!

Position the gasket centrically and avoid me-chanical stresses during assembly. An assembly aid

can be used if necessary. To facilitate as-sembly in difficult positions, the gasket may be fixed by using a commercially available adhe-sive. However, the adhesive should be applied sparingly at a few points only.

Align the flanges as plane-parallel as possible. First hand-tighten the bolts and then tighten the bolts in a crosswise order to about 50 % of the maximum torque value, in the second sta-ge to about 80 % and to the full value in the third stage. All bolts must be tightened to the specified bolt load, so the torque must be checked repeatedly. Our detailed assembly instructions are available on request.

Material data

Material type		V10010M2	V15010M2	V20010M2	V30010M2
Thickness	mm	1.0	1.5	2.0	3.0
Dimensions	m	1.5 x 1.5			
Bulk density of graphite	g/cm³	1.0			
Ash content of graphite (DIN 51903)	%	≤ 2.0			
Total chloride content	ppm	≤ 50			
Reinforcing steel sheet details		Tanged stainless steel sheet			
ASTM material number		316 (L)			
Thickness	mm	0.1			
Number of sheets		1			
Residual stress (DIN 52913) $\sigma_{D\ 16\ h,\ 300\ °C,\ 50\ N/mm^2}$	N/mm²	≥ 45			
Gasket factors (DIN E 2505 / DIN 28090-1) Gasket width b_D = 20 mm					
σ_{VU}	N/mm²	20			
m		1.3			
σ_{VO}	N/mm²	180	160	140	120
$\sigma_{BO\ at\ 300\ °C}$	N/mm²	160	140	120	100
Compression factors (DIN 28090-2)					
Compressibility ε_{KSW}		35 – 45			
Recovery at 20 °C ε_{KRW}		3 – 5			
Hot creep ε_{WSW}		< 4			
Recovery at 300 °C ε_{WRW}		3 – 4			
The gasket factor conversion formulas as per AD Merkblatt B7 are as follows:		$k_0 \cdot K_D = \sigma_{VU} \cdot b_D$ $k_1 = m \cdot b_D$			

Definitions

σ_{VU} Minimum gasket assembly stress
Recommended gasket assembly stress: ≥ 20 N/mm² up to σ_{BO}

σ_{BU} Minimum gasket assembly stress in service, where σ_{BU} is the product of internal pressure p and gasket factor m for test and in service ($\sigma_{BU} = p \cdot m$)

σ_{VO} Maximum permissible gasket stress at 20 °C

$\sigma_{BO;\ 300\ °C}$ Maximum permissible gasket stress in service

m $m = \sigma_{BU} / p_i$

k_0 In mm, factor for gasket assembly stress

k_1 In mm, factor for gasket stress in service

K_D In N/mm², max. gasket stress-bearing capacity under assembly conditions

ε_{KSW} Compression set under a gasket stress of 35 N/mm²

ε_{KRW} Gasket recovery after reduction in gasket stress from 35 N/mm² to 1 N/mm²

ε_{WSW} Gasket creep compression under a gasket stress of 50 N/mm² at 300 °C after 16 h

ε_{WRW} Recovery after reduction in gasket stress from 50 N/mm² to 1 N/mm²

The percentage changes in thickness of ε_{KSW}, ε_{KRW}, ε_{WSW} and ε_{WRW} are relative to the initial thickness.

03 2011/0 2NÄ Printed in Germany

Graphite Specialties | SGL CARBON GmbH
Phone +49 8271 83-2276 | expandedgraphite@sglcarbon.de
www.sigraflex.eu | **www.sglgroup.com**

SGL GROUP
THE CARBON COMPANY