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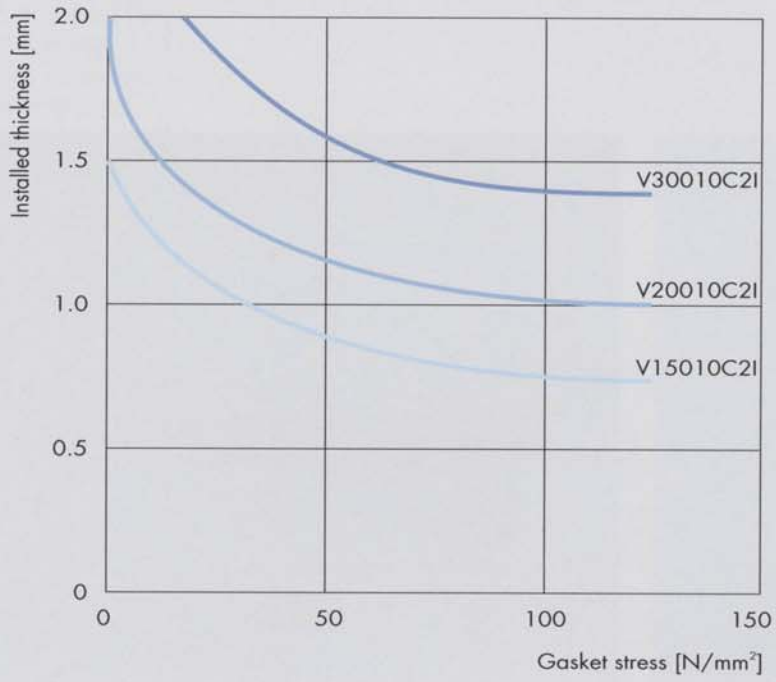
Applications

- For gaskets meeting DIN 2690 in raised face flanges; recommended as one-layer gasket; over 1000 mm diameter as two-layer structure in segments
- Preferred for tongue-and-groove flanges meeting DIN 2691; recommended as one-layer gasket up to 1000 mm diameter; over 1000 mm diameter as two-layer structure in segments
- For high internal pressures up to 100 bar and high gasket stresses up to 140 N/mm²
- For very impermeable and highly stressed, blow-out resistant sealing joints, we recommend a stainless steel eyelet
- For piping with corrosive media and high temperatures; for heat transfer oil and heating facilities; for existing plants, vessels and steam lines; for exhaust manifolds
- For corrosive media thanks to its excellent resistance to chemicals; limits imposed by stainless steel sheet reinforcement

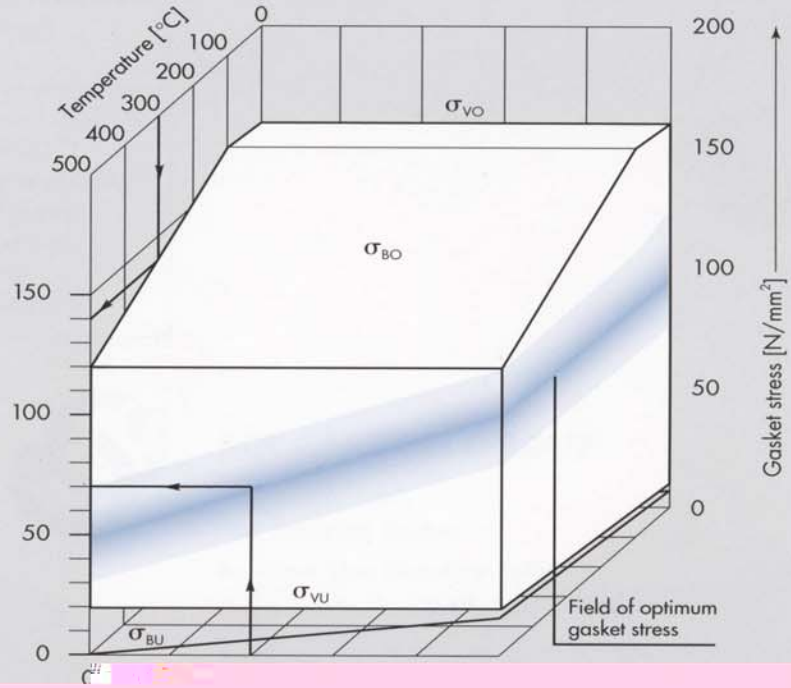
Any existing industrial property rights must be observed.

Installed thickness as a function of gasket stress



For details of the recovery behaviour of gaskets, see brochure ®SIGRAFLEX, Products manufactured from flexible graphite foil.

Recommended field of application for gaskets meeting DIN 2690



The application limits illustrated are conservative recommendations, which can be exceeded under favourable conditions.

Examples:
Determination of maximum permissible gasket stress under service condition σ_{BO}:

Specified: 300 °C ⟶ 140 N/mm²

Determination of optimum gasket

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Properties

- With perforated stainless steel sheet reinforcement; easy to handle
- Low permeability to gases, impermeable to liquids
- Low diffusion rates, high blow-out resistance and high mechanical strength
- Good scratch resistance, "antistick" treatment
- Can be used from cryogenic temperatures up to about 500 °C depending on required service life, installation and operating conditions:
  - in an inert atmosphere up to approx. 800 °C (limits imposed by metal reinforcement)
  - in steam up to approx. 500 °C for applications in air at more than approx. 400 °C, users should request our advice
- Good resistance to chemicals
- Good shear strength
- Asbestos-free, presents no health hazard
- No ageing or embrittlement, because of absence of binders
- Long-term stability of compressibility and recovery over a wide temperature range
- No measurable cold or warm flow up to maximum permissible compressive stress
- Good resistance to thermal shock

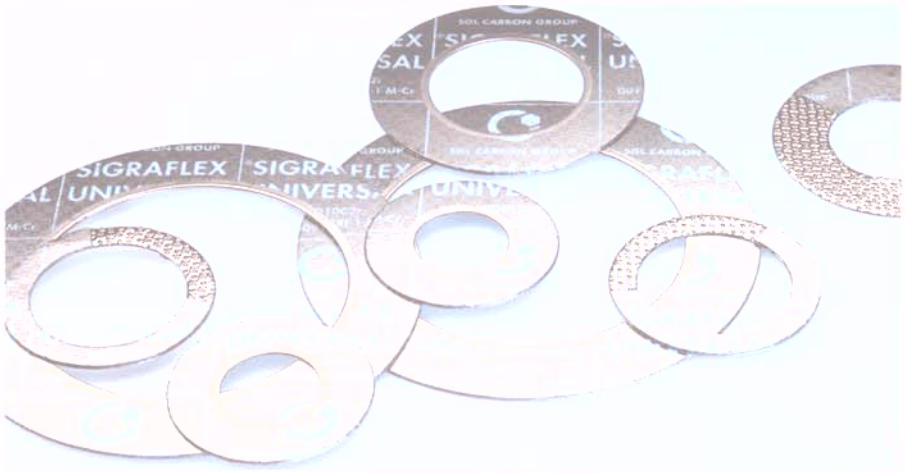
Assembly instructions

Use dry and undamaged gaskets. Moist graphite gaskets must not be fitted unless first dried, eg. on a radiator or in a drying chamber.

The sealing faces must be clean, dry and free from grease. Do not use release agents.

Position the gasket correctly to avoid mechanical stresses during installation. Make sure that the gasket is properly fitted in tongue-and-groove flanges. An assembly aid – eg. a flange spreading device – should be used if necessary.

Flanges should be aligned as plane-parallel as possible. Flange bolts should be tightened in cross-wise order, first to approx. 50 % of the maximum torque value, in the second stage to approx. 80 % and to the full value in the third stage but not before. All bolts must be tightened to the specified value; hence, the torque should be checked **repeatedly**.



Zulassungen

- BAM tests
- DVGW reg. no.
- Fire Safety BS 6755
- Germanischen Lloyd

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Material data

Type of material		V15010C2I	V20010C2I	V30010C2I
Thickness	mm	1.5	2.0	3.0
Bulk density of graphite	g/cm³	1.0		
Ash content ot graphite (DIN 51903)	%	≤ 2.0		
Chloride content	ppm	≤ 50		
DIN material no. of reinforcing sheet		1.4401		
Thickness of reinforcing sheet	mm	0.1		
Number of reinforcing sheets		1	1	2
Gas permeability (DIN 3535)	cm³/min	≤ 0.6	≤ 0.8	≤ 1.0
Stability under compressive stress (DIN 52913), 16 h, 300 °C, initial stress 50 N/mm²	N/mm²	> 48	> 48	> 45
Gasket factors[1] (DIN E 2505), Specimen width b_D=20 mm				
σ_{VU}	N/mm²	30	20	20
m		1.3	1.3	1.3
σ_{VO}	N/mm²	180	160	140
σ_{BO} bei 300 °C	N/mm²	160	140	120
ASTM „m"factor		3.0	2.5	2.5
„y"stress	psi	9000	4000	4000
Deformation factors DIN 28090 T02[1]				
Compressibility ε_{KSW}	%	35 to 45		
Recovery ε_{KRW}	%	4 to 6		
Creep compression at elevated temperatures ε_{WSW}	%		< 4	
Recovery at elevated temperatures ε_{WRW}	%	2 to 4	3 to 5	3 to 5
Young's modulus (DIN 28090)	N/mm²	950		
Kompressibilität ASTM F36A-66	%	30 to 35	30 to 40	
Rückfederung	%	15 to 20	15 to 20	

[1] Definitions:

σ_{VU} = Minimum gasket assembly stress.
The given minimum assembly stresses apply to a sealing criterion as previously used for compressed asbestos fibre seals. To reduce the rate of leakage, we recommend a higher gasket stress (see brochure ®SIGRAFLEX, Products manufactured from flexible graphite foil).

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

σ_{VO} = Maximum permissible gasket stress at RT

σ_{BO} = Maximum permissible gasket stress under service conditions

m = σ_{BU}/p

"m" factor = Similar to m, but defined according to ASTM, hence different value

"y" stress = Minimum gasket stress in psi

ε_{KSW} = Gasket compression under a stress of 35 N/mm²

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

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

ε_{WRW} = Recovery after reduction in 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 of the gasket.