

SIGRAFLEX®

Large-Size Flat Gaskets

Depending on the service pressure and the maximum permissible gasket stress, SIGRAFLEX® gaskets with outside diameters of more than 1500 mm can be produced from the following sealing material:

- SIGRAFLEX sealing tapes made from SIGRAFLEX® foil, self-adhesive
- SIGRAFLEX segments with optional metal reinforcement

When selecting a suitable gasket structure, the maximum permissible gasket pressures and the field of applications must be separately taken into consideration.

SIGRAFLEX® sealing tapes made from self-adhesive SIGRAFLEX® foil

- For complicated designs (e.g. heat exchangers), exhaust gas lines in incineration plants, also as an outer layer on smooth, profiled or corrugated stable metal support sheets.
- For low service pressures of up to 25 bar in accordance with DIN 2690 and mean gasket pressures σ_{BO} of up to 60 N/mm².
- For use in highly corrosive media owing to its extremely high chemical resistance.

The sealing tape is available in various grades and dimensions to match the application concerned. High-purity tapes with low chloride content can be supplied for the nuclear power industry and applications where high purity is essential. SIGRAFLEX® tapes can be used for virtually all diameters of over 1,000 mm. Even greater thicknesses can be obtained by applying the tape in successive layers.

Further advantages are ease of assembly and minimum storage. Costs are also reduced as a result of long service lives and substantial reductions in downtimes. SIGRAFLEX® tapes are supplied by all well-known gasket manufacturers.

Assembly instructions

The tape can be used to cover nearly all large sealing faces in sections. The individual pieces are torn, not cut, from the supply in the box. They should overlap on the sealing face by at least 10 mm.

The sealing faces must be dry and free from grease and oil to ensure adhesion of the adhesive film. Any major unevenness in the sealing faces can be compensated for by localized padding.

Procedure

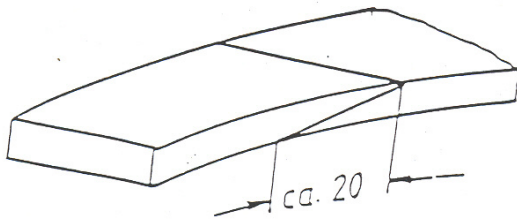
- Apply the sealing tape in the groove or around the outer sealing edge in raised-face flanges. The minimum sealing height should not be less than 2.0 mm (before applying gasket pressure).
- Flanges should be aligned as plane-parallel as possible.
- Flange bolts should be tightened in diagonal order, first to about 50 % of the torque value, in the second stage to about 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.

If the tape is applied in several layers, the maximum permissible gasket assembly pressures must be adjusted accordingly. This is very important in gaskets with a large diameter combined with a narrow face width. The low-chloride adhesive applied in a thickness of a few microns causes only slight settlement of the gasket. The adhesive is used only as an assembly aid.

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SIGRAFLEX® segmented gaskets

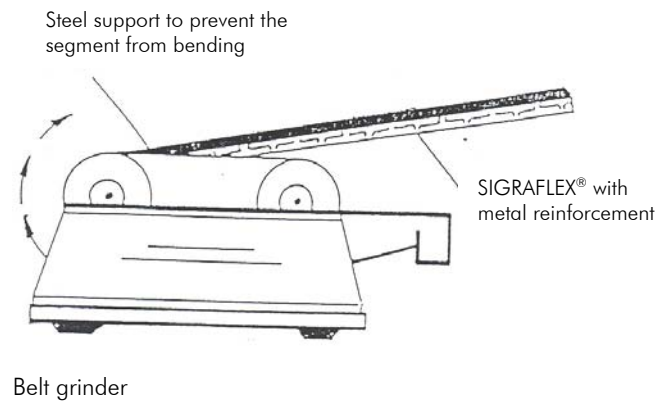
a) without reinforcement:



SIGRAFLEX® gasket segments are made of pure flexible graphite and contain no binders or fillers. Such graphite materials are susceptible to mechanical damage, typically buckling or breaking, so they must be handled with special care. If possible, the individual segments should be assembled directly on the flange sealing face. Segmented gaskets without metal reinforcement and manufactured from SIGRAFLEX® STANDARD can be cut on commercial ring cutting machines with stationary, rotating circular knives. The overlapping ends can be chamfered with a sharp knife or a belt grinder.

b) with metal reinforcement:

Segmented gaskets with stainless sheet steel reinforcement and manufactured from SIGRAFLEX® UNIVERSAL (PRO) or SIGRAFLEX® HOCHDRUCK (PRO) can also be cut with a ring cutting machine (face width more than 10 mm). However, the knives suffer heavy wear during cutting and distortion of very narrow segments is also likely. It is therefore recommended that the segments be cut with a knife punching tool. The overlapping ends of such metal-reinforced SIGRAFLEX gaskets are chamfered with the belt grinder running against the direction of taper.



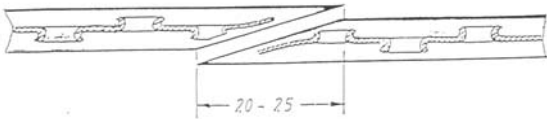
Assembly procedure for SIGRAFLEX® gasket segments

In this paragraph, only the peculiarities of segmented gasket assemblies are explained; for further reference about the assembly procedure please refer to the technical information "Assembly of SIGRAFLEX® flat gasket systems".

To prevent the ready-assembled segmented gaskets or the individual segments from being displaced, a commercial spray adhesive can be used as an assembly aid. The adhesive should be used sparingly, i.e. applied only at a few points, if possible.

- Arrange the SIGRAFLEX® segments on the sealing face in such a way that the chamfered ends overlap. The last segment needs to be adjusted to fit. The segments should overlap by 20 - 25 mm.
- In the metal-reinforced version, the two segments must overlap in such a way that the metal reinforcements are not directly on top of each other but in contact with the chamfered graphite of the adjoining segment (no metal/metal contact).
- Carefully place the cover or top flange in position and secure to prevent displacement. The cover or top flange must be parallel. If possible, the part should not be moved any more after assembly.

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Padding of SIGRAFLEX® gaskets

(e.g. for gasket thickness of 3 mm only required if flanges are 0.5 mm or more out of true)

Any major flange distortion can be easily compensated for with SIGRAFLEX®. This is done by padding the gasket with SIGRAFLEX® segments until a homogeneous, fully performing sealing ring is obtained when bolts are tightened.

Procedure

- Check and mark flange alignment.
- Measure the flange distortion
- To do so, join the flanges together and measure the gap widths with a gauge.
- Record the flange gap widths.

NOTE

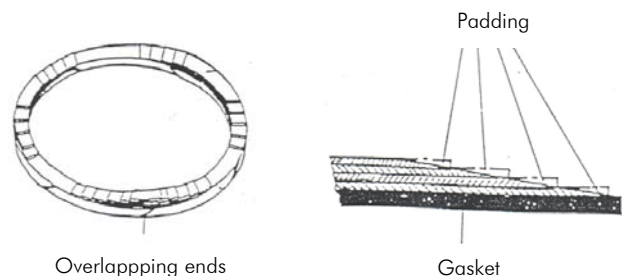
The actual padding height is obtained by multiplying the gap width by a **factor of 1.5**.

Cut the required padding segments to size and bond them directly to the gasket already in situ. Square off the segment ends with a sharp knife, grater, emery cloth or the like.

If too much material is removed accidentally while the segments are being adjusted in situ, this can easily be rectified by adding a suitable segment.

Please note:

The maximum mechanical load-bearing capacity of the segmented gasket, which is already reduced in comparison with a single-part gasket, will be diminished even further by padding.



If a segmented gasket is applied in several layers, care should be taken to ensure that the overlapping ends are staggered.

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04 2012/0 2NÄ Printed in Germany

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