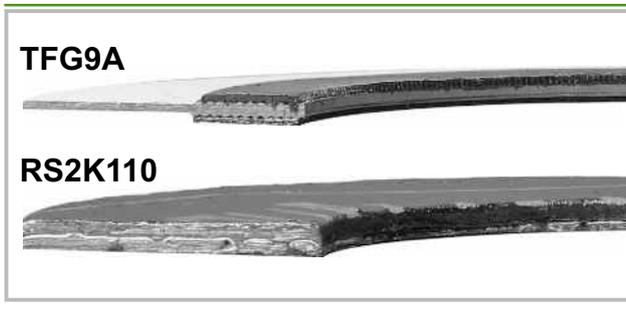


# Top Flat Gasket (TFG)

## A generation of flat gaskets

The requirements for the entire sealing system are high as defined by the VDI Guidelines 2290. We have developed a new type of gasket for leakage requirements  $< 1 \cdot 10^{-2}$  mg/sm. This gasket meets the required tightness class under specific basic conditions.

It was important that the usual thickness does not exceed 2 mm to eliminate any additional complex adjustments to the flange distances to match a new gasket type.



Based on our many years of experience, we devised an innovative type of gasket with a total thickness of 2 mm to solve this problem. This new seal is a metal/soft-material gasket, type designation **TFG9A**. The feature of this gasket consists of a very fine profile with both sides coated with high-purity graphite or a PTFE film.

The high stability of the carrier material made it possible to reduce the effective sealing surface. The reduced sealing surface is supported by a centered medium-sized inner sealing diameter. This results in a 60 percent increase in surface pressure with the same bolt force in contrast to the simple geometry of flat gaskets.

This higher surface pressure allows for a much smaller tightness class and less leaks occur even with weak flanges.

Due to the high stability under pressure of the carrier material, the type **TFG9A** gasket has significantly less relaxation compared to conventional soft material gaskets.

The use of unreinforced PTFE as a layer material is possible because the carrier material (the metal core) prevents relaxation/creep relaxation.

It is also noteworthy that the gasket type **TFG9A** compared to conventional flat gaskets can be used with higher pressures as well due to the stable metal core.

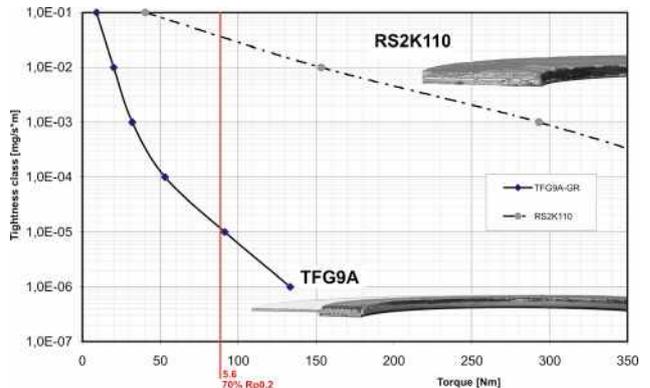
See for yourself with a calculation by the use of our online calculation program Kemproof at <http://kemproof.kempchen.de>. The gasket TFG9A has been listed there for a calculation.

The diagram shows clearly the advantages of the new gasket type from a sealing technology point of view, here in comparison with a graphite perforated sheet gasket. Excellent tightness classes can be achieved already with low torques.

The flat gasket type **TFG9A** shows clear advantages not only in the technical overall assessment of the system but also in the economic evaluation.

The **TFG9A** type of gasket also meets the requirements of VDI 2290 with 5.6 grade bolts across all nominal sizes. Traditional gaskets meet the requirements of VDI 2290, for critical nominal sizes, only with higher grade bolts.

### Required torques to achieve a tightness class at DN 40/ PN 40 - Flange P245GH / 150°C with 5.6 M16 bolts



### Cost savings by not investing in high-strength bolt materials

