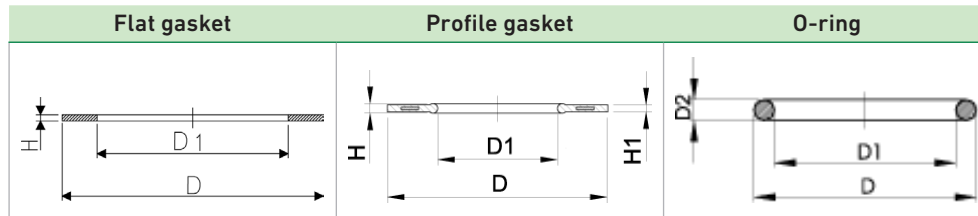


Selection of gaskets for flange connections

When selecting suitable flange seals for thermoplastic piping systems, the following factors must be taken into account:

- Operating conditions
- Sealing forces
- Gasket form
- Dimension
- Material

Type of gasket



In applications with low operating pressures, the customary flat gasket, which is made of 2 to 5 mm thick sheet material (depending on the nominal width), is sufficient. Flange connections with flat gaskets require flanges with sufficient stiffness. All flanges by GF Piping Systems meet these requirements.

For higher operating and testing pressures, profile flange gaskets and O-rings have proven useful. Compared to flat gaskets, profile flange gaskets consist of two parts. One is the crowned flat gasket part, which is reinforced with steel, and the other is the profile gasket part (O-ring, lip seal) on the inner side of the gasket.

Stabilized profile flange gaskets, as well as O-ring gaskets, have the following advantages:

- Reliable seal with low bolt tightening torque
- Usable at higher internal pressures and internal vacuum
- Minor influence of flange or collar surface
- Safe operation when connecting pipe made of different materials

A suitable gasket form can be found by using the table below.

Gasket form	Recommended application limits	Flange or collar design
Flat gasket	$p \leq 10$ bar, above DN200 only ≤ 6 bar T to 40 °C	With sealing grooves
Profile flange gasket	Vacuum $p = 1$ bar to 16 bar T = entire application range	With or without sealing grooves
O-ring	Vacuum $p = 1$ bar to 16 bar T = entire application range	One side with groove

Gasket material

The choice of a gasket material is based on the flow media. Details about the suitability of the gasket material, or specifically its chemical resistance, can be found in the GF Piping Systems resistance tables.

The use of gasket materials with a high degree of hardness, as in steel pipe, is not recommended for thermoplastic piping systems because the flange or the adaptor could become deformed due to the required high sealing forces. Elastomer materials, such as EPDM or FKM, with a Shore-A hardness of up to 75° are preferable.

Gasket dimension

The dimensions of the gaskets are set in the general standards for pipe jointing components. Excessive dimensional deviations in the inside or outside diameter of the gasket compared to the flange adaptor or valve end cause increased mechanical stress of the flange connection, accelerated wear of the inner side of the gasket, as well as deposits inside the pipe.