INDUSTRIEARMATUREN

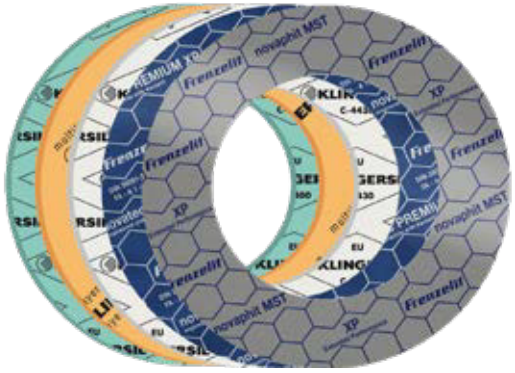
Gaskets

Selection and possible applications

INFO GA

GENERAL DESCRIPTION:

he main function of a gasket is to limit and in the best case prevent unwanted transfer of substances from one room to another. The fluid may be liquid or gaseous, the temperatures range from very low temperatures to up to 1000°C, the pressures range from vacuum to several hundred bar and can be constant or intermittent.



Requirements on the seal with regard to service life and leakage rates can be very different. Below you will find an overview of our common sealing materials, their areas of application and tips for selecting seals.

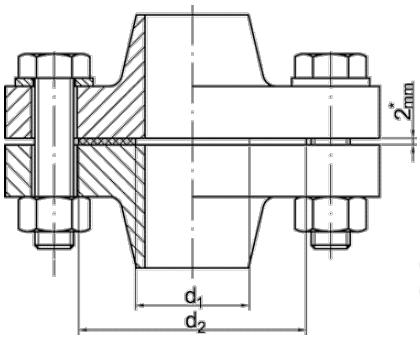
GASKET SELECTION:

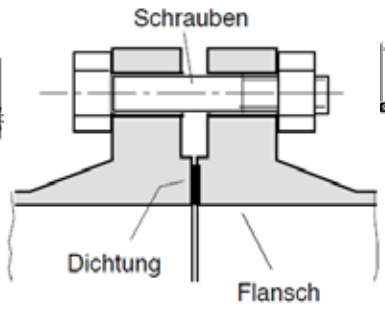
For the basic selection of the suitable gasket, the inner diameter (d1) and the outer diameter (d2) of the gasket are required first. The inner diameter of the gasket (d1) is normally the same as the inner flange diameter (d1) or slightly larger. When selecting the outer diameter of the gasket (d2), it should be chosen in a way that the gasket does not conflict with the bolts. Some flanges already have a raised sealing surface which can be used as a reference. For ISO flanges, DIN EN 1092 and DIN EN 1514 for gaskets can be consulted to help with the selection. For flanges according to ASME B16.5, DIN EN 1759 and DIN EN 12560 can be consulted. The thickness (s) depends on the pressed surface, the tightening torque of the screws and the compressibility of the sealing material. With commercially available flange connections between pipes, one can normally assume a thickness (s) of 2 mm for an aramid fibre gasket, for example. The choice of screws should always be the same as the flange material or of a higher quality.

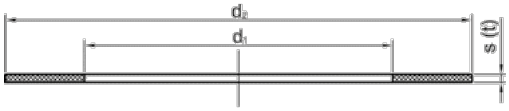
Apart from this, the gasket material should be selected according to the following criteria:

- temperature
- pressure
- media

The tables (material properties) on the following page can be used to select the appropriate gasket material on the basis of the values temperature, pressure and medium.







INSTALLATION:

The sealing surfaces must be free of impurities and damage. Ensure that the installation is free of distortion (axial forces) and tilting (bending forces). Seals and flange connections should never bear the weight of the pipeline.

ADVICE:

Seals and sealing surfaces should be kept technically safe and economically optimal. The material stress and the sealing pressure must remain within the permissible limits.

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MATERIAL PROPERTIES

Technical applicability				
Gasket type	**Temp. (°C)**	**Pressure (bar)**	**Temp. (°F)**	**Pressure (psi)**
Corrosive stress				
PTFE- Gasket	-100..+250	100 (to 195°C) 50 (196°C to 220°C) 10 (221°C to 250°C)	-148..482	1450 (to 195°C) 725 (196°C to 220°C) 145 (221°C to 250°C)
Low stress				
FKM-gasket	-20..200	10/16	-4..392	145/232
FFKM-gasket	-25..325	10/16	-13..617	145/232
EPDM-gasket	-50..130	10/16	-58..266	145/232
NBR-gasket	-30..100	10/16	-22..212	145/232
Silicone-gasket	-60..180	10/16	-76..356	145/232
Moderate stress				
Aramid fibre gasket	-100..175	60	-148..347	870
High stress				
Graphite gasket	-200..500	250	-328..932	3625
Phlogopit mica gasket	-200..1000	5 (to 410°C) 60 (411°C to 900°C) 0 (901°C to 1000°C)	-328..1832	72 (to 410°C) 870 (411°C to 900°C) 0 (901°C to 1000°C)

Physical and Chemical Properties		
Gasket type	**Chemical**	**Physical**
PTFE- Gasket	Almost universally chemical resistant, suitable for food, strong acids, bases	Good temperature resistance at high pressure, almost unlimited ageing resistance
FKM-gasket	Chemicals, acids, bases	High temperature resistance under elastomers, suitable for vacuum, very good ageing stability
FFKM-gasket	Chemicals, acids, bases	Higher temperature resistance under elastomers, suitable for vacuum, very good ageing resistance
EPDM-gasket	acids, bases	Good ageing resistance
NBR-gasket	Oils, fats, fuels	Sufficient ageing resistance
Silicone-gasket	Oils, fats	Average ageing resistance
Aramid-fibre - Gasket	oils, fats, water, moderate acids	Good pressure and temperature resistance
Graphite gasket	universal chemical resistance, acids, alkalis, oils, greases, fuels, refrigerants, solvents, gases	Extremely high pressure and temperature resistance, suitable for vacuum
Phlogopit mica gasket	high chemical resistance	Extremely high temperature resistance at moderate pressure

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