Diaphragm Seals

DF

Summary

Model	Name and feature
DF standard style	Normal threaded connection type
DF1	I–Shape Flange
DF2	Open Flange
DF4	Angle adjustable diaphragm Seals
DF5	Extended type diaphragm Seals
DF6, DF7	Sanitary diaphragm seals
DF8	Welded one–piece type diaphragm Seals
DF10	In Line Diaphragm Seals

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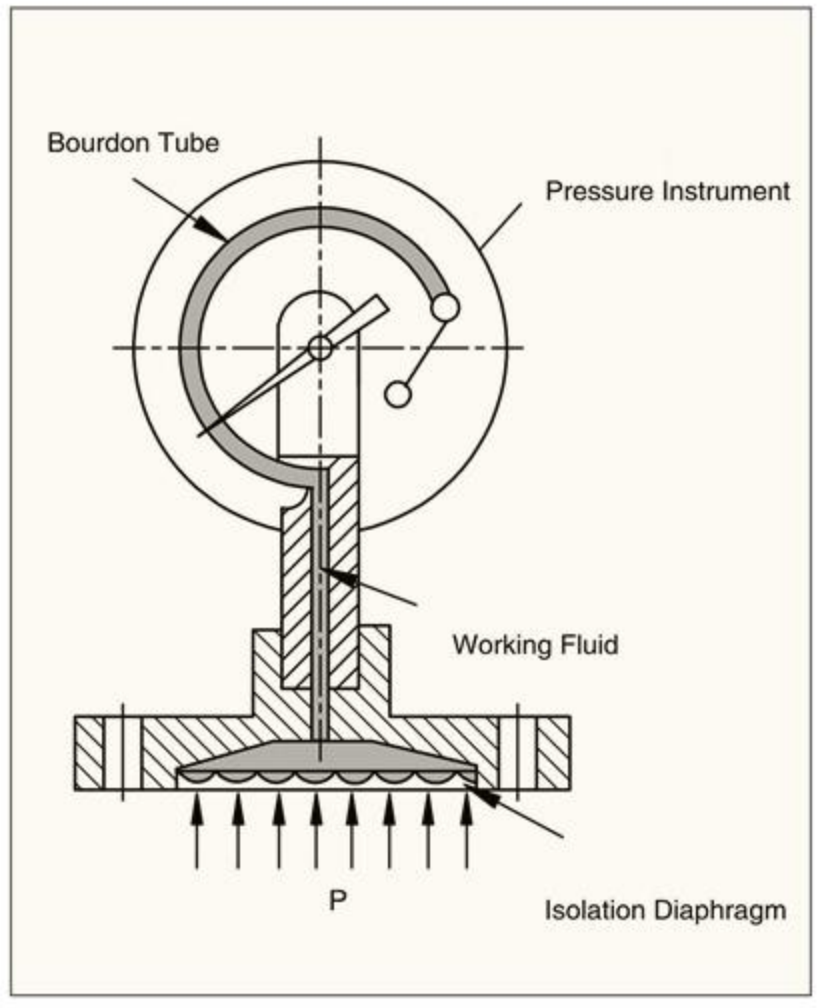
Product Overview

Series diaphragm pressure gauge (chemical seals) is composed of a conventional pressure measuring instrument, a connector and a diaphragm seal.

This combination enables a general purpose pressure gauge to measure media of strong corrosion, high temperature, high viscosity, containing suspended matter or crystallizing. Diaphragm gauges are universally used in petrochemical, alkali, chemical fiber, pharmaceutical, metallurgical, and food industries.



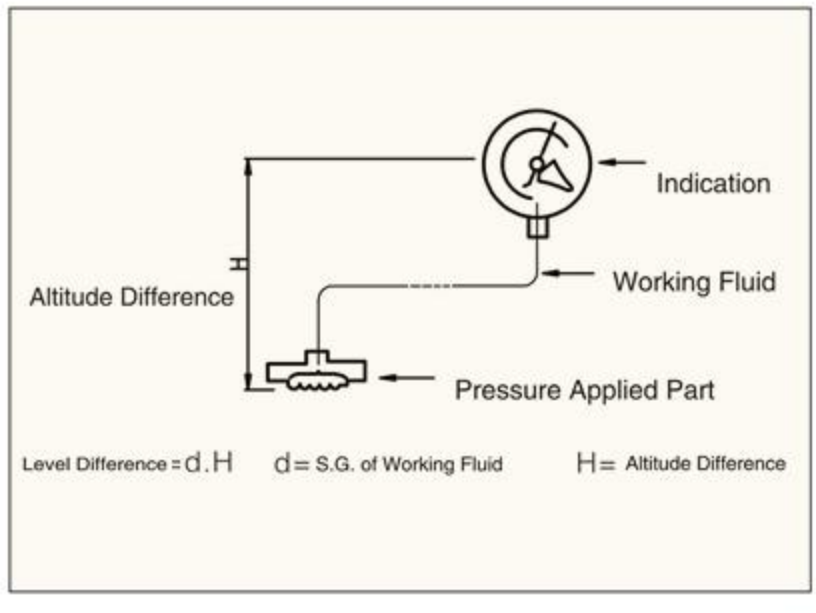
Configuration Principle

This illustration shows the operating principle of the diaphragm pressure gauge. The diaphragm is deflected by the pressure of medium P, and an equivalent pressure P' is generated. With transmitting through working fluid, the pressure P' deflect the elastic element of a pressure measuring instrument which thereafter shows the pressure value.

Level difference of Diaphragm pressure gauge seals liquid

When a diaphragm pressure gauge is mounted with pressure gauge and diaphragm seal at different positions, the effect of level difference should be taken into consideration (especially for a diaphragm gauge with capillary).

As the illustration shows, with a S.G. of the working fluid at approx.1, and a level difference of 1m, the pressure difference is approx.0.1 Bar



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Temperature Influence of diaphragm pressure

The temperature influence of a diaphragm pressure gauge is relative to expansion coefficient of the seals working fluid, rigidity of the diaphragm, and temperature of pressed part. When working temperature deviates from 20 ± 5℃,the indication varies within 0.1%/℃ for rigid system, and within 0.1+0.025L%/℃ (L–length of capillary in m.) for flexible sys tem (remote mounting). Diaphragm pressure gauges are filled with suitable working fluid according to different operating conditions.

Option for Working Fluid				
Name of Working Fluid	Temperature range for Diaphragm equipment	g/cm² Specific Gravity	1/℃ Factor of Expansion	Purpose
Glycerin–Water Solution	–5–100℃	1.27	0.61×10^{-3}	Food
Silicon (low viscidity)	–40–130℃	0.94	1.08×10^{-3}	General
Silicon (high viscidity)	–30–240℃	1.07	0.95×10^{-3}	High Temperature
Fluorocarbon Oil	–30–160℃	1.93	0.75×10^{-3}	Hydrogen, Oxygen, Salts, Acid
Vegetable Oil	–5–100℃	0.93	1.03×10^{-3}	Food

or other special working fluid

Corrosion-Proof properties of diaphragm pressure gauge

Teknopoli Diaphragm Pressure Gauge satisfies customers' requirements of both environmental conditions and flow conditions (corrosive media) based on its significant corrosion–proof properties. Choose various pressure gauges combined with appropriate separator according to environmental conditions. Choose material of diaphragm and housing compatible with corrosive media.

①.Diaphragm Material: AISI 316, AISI316L, Monel (Cu30Ni70), Hastelloy(HC276), Tantalum (Ta), Fluoroplastic (F4)
②.Body Material: 1Cr18Ni9Ti, AISI 316, AISI 316L, Fluoroplastic (F4), Fluoroplastic Coated Stainless Steel
③.Gasket Mateial: Nitrile Rubber, Viton, Silicone Rubber, Fluoroplastic

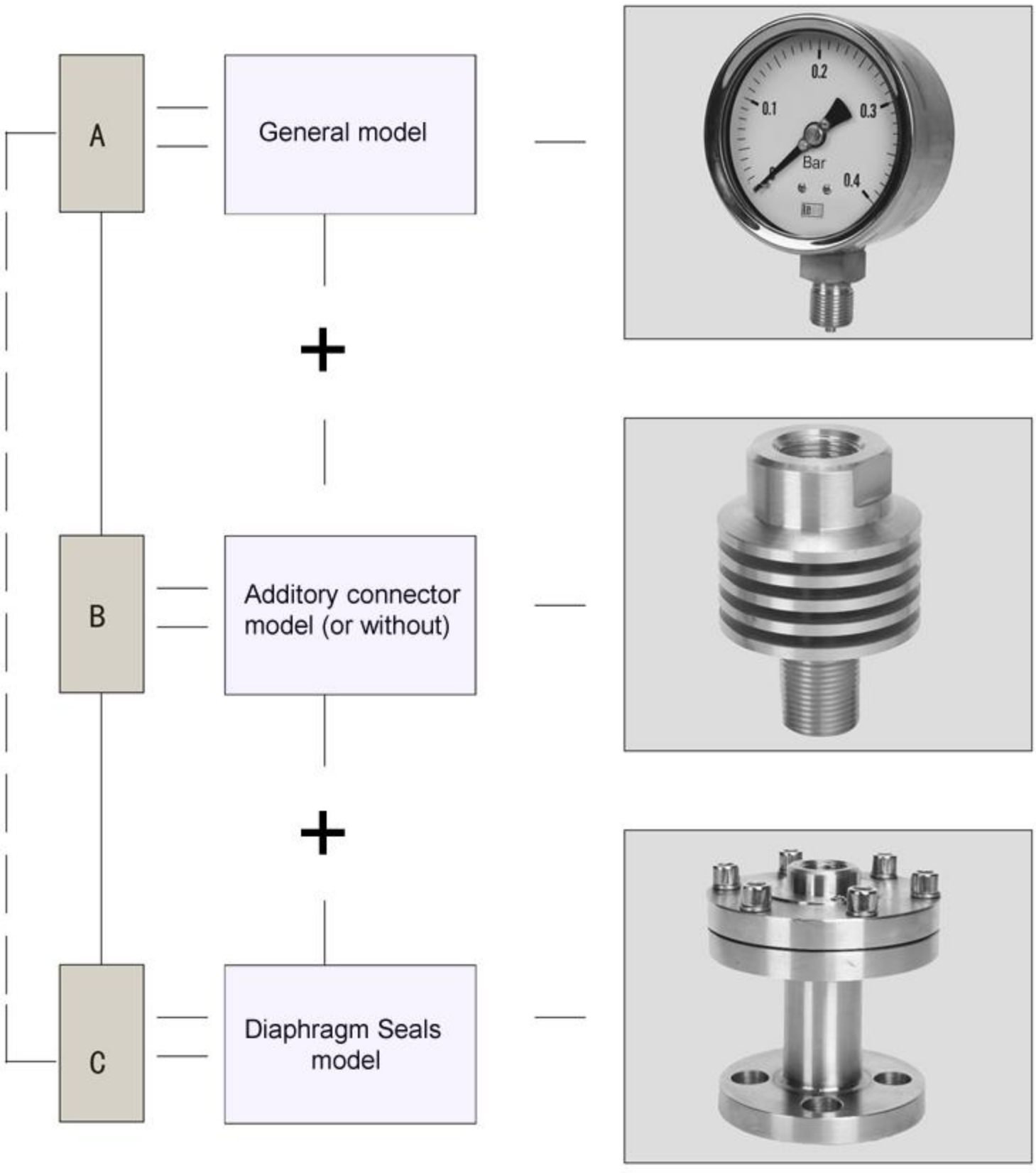
Material selection for diaphragm

Corrosive media	AISI 316L	Tantalum (Ta)	Monel (Ni70Cu30)	Hastelloy (HC)	Ti	Polytetraf Cuoroethylene
Vitriol(H_2so_4)	△	○	V	V	X	V
Nitric acid(HNO_3)	V	○	X	V	V	V
Muriatic acid (HCl)	X	○	X	V	△	V
Phosphoric acid (H_3PO_4)	V	○	V	V	X	V
Acetate (CH_3COOH)	V	○	V	○	○	V
(NaOH)	○	△	○	○	V	V
Pure alkali (Na_2CO_3)	○	○	○	V	V	V
Saleratus ($NaHCO_3$)	○	○	○	○	○	V
Chlorine (Cl)	Dry V Wet x	○	Dry V Wet x	V	Dry x Wet ○	V
Bromine (Br_2)	Dry x Wet △	○	Dry ○ Wet x	○	Dry X Wet x	V
Ammonia (NH_3)	V	x	x	○	○	V
Sea water (30% NaCl)	V	○	○	○	○	V

Remark: ○— best; △— conditional; V— use; x — no using

Note: Standard material is AISI 316L, corrosion–proof materials should be applied in normal temperature. Others please contact us.

Model =A+B+C



How to Order

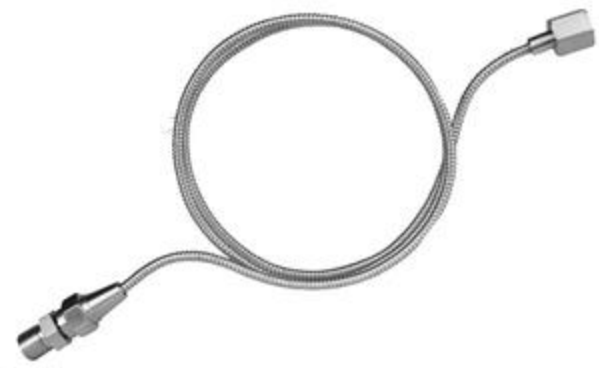
Please specify the following properties when the manometer+accessories+diaphragm seals ordering.

- Manometer model number,
- Additory connector model (or without)
- Diaphragm seals model (or without)

For example: *MN-P-160-(0/100 Bar)-R1/2-1-DFNH*

AG1 Overpressure Protector

AY1 Capillary



AR1 Radiator

AZ1 Damper

AR2 Radiator

AC Special Angle

AR3 High–Temp Radiator

AR4 Siphon

Diaphragm Seals

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Types

DF Standard Type

DF1 I–Shape Flange

DF2 Welded diaphram

DF2 Clamped diaphram

DF4 Angle Adjustable

F4A

F4B

DFA Threaded

DFB Extended type

Diaphragm Seals

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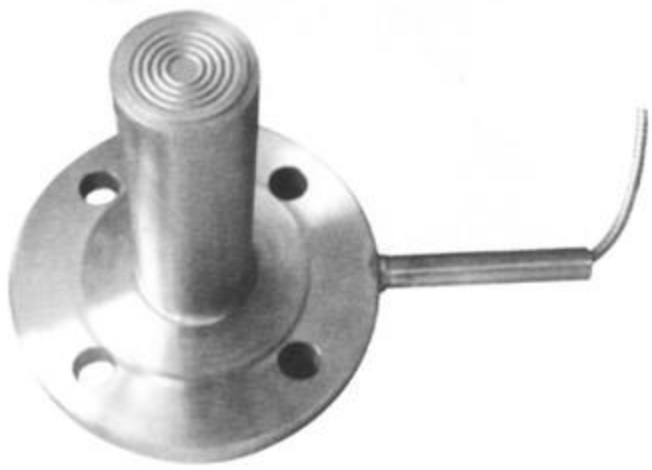
Types

DF5 Extended type



DF6 Clamp Connection

DF7 Threaded Connection (sanitary type)

DF8 Welded one–piece Type

DF10 In line Diaphragm Seals

DF200 Maximum pressure range: 5000psi