

## Measuring Principles Pressure

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We design and manufacture Monoflange's & seals for customers special requirements on request

Unless stated otherwise all Pressure Gauges are calibrated in accordance with EN837-1 to an Accuracy of Class-1.

PDF Format

### Bourdon tube pressure gauges

An elastic (circled) measuring element (Bourdon tube) is soldered or welded into a socket; the free end being firmly closed with an adjusting nut. A change in pressure causes the measuring element into a deflection. This deflection of the free end of the Bourdon tube is proportional to the applied pressure and is transmitted to a rotary geared movement. This movement carries the pointer and indicates the pressure on a dial with 270 o graduation. Bourdon tube gauges are used for the measurement of high pressure up to 1000 bar and vacuum to -1 bar of gases, steam and fluids.

Accuracy is between +/- 0.1% and +/- 2.5% of full scale deflection.

The Bourdon tube can be made of non ferrous metal or stainless steel when measuring aggressive medium.

### Diaphragm pressure gauge

A thin, concentrically corrugated diaphragm is clamped between two flanges. The diaphragm will be loaded with the process pressure on one side and elastically deflects from its normal position. This travel is proportional to the applied pressure and is transmitted to a rotary geared movement by a pushrod. The movement carries the pointer and indicates the pressure on a dial with 270 o graduation. Diaphragm pressure gauges are used for the measurement of pressure up to 25 bar and vacuum to -1 bar of gases, steam and fluids. Accuracy is +/- 1.6% of full scale deflection. The diaphragm can be protected against aggressive medium using foils made of Tantalum, PTFE etc. The connecting part can be protected using suitable material i.e. stainless steel 316, PP, PVC, PVDF etc. Diaphragm pressure gauges with open measuring flange are perfectly suited for high viscous, crystalizing and solid matter containing medium. Diaphragm pressure gauges can be easily supplied with an overload safety.

### Capsule pressure gauge

The capsule consists of two thin, concentrically corrugated diaphragms welded or soldered together. Pressure change in the capsule causes an elastic deformation on both sides of the measuring element. The motion of the measuring element is proportional to the measured pressure. It is transmitted to the pointer by a movement and indicated on a dial with 270 o graduation. Capsule pressure gauges are used for the measurement of low positive or negative values up to 600 mbar.

Accuracy is +/- 1.6% of full scale deflection.

The capsule is made of non ferrous metal or 316 st.st. and used for the measurement of gaseous medium.

### Differential pressure gauge

A pressure chamber will be separated by a thin, concentrically corrugated diaphragm. This diaphragm is under static pressure from both chambers and additionally from one chamber with the measuring pressure. The diaphragm will transmit the pressure difference through a duct bellow on the movement. The movement indicates the positive or negative value on a dial with a 270 o graduation. A bellow on the opposite side compensates the power. Differential pressure gauges are used for the measurement of gaseous medium and fluids; these can be aggressive.

Accuracy is +/- 1.6% of full scale deflection.

### Absolute pressure gauge with diaphragm

This type of gauge is used to measure pressures independent from any changes in ambient atmospheric pressures. A pressure chamber will be separated by a thin, concentrically corrugated diaphragm. The chamber which will not be loaded with the measuring pressure is evacuated to absolute vacuum. This vacuum (= absolute zero-point) is referred as being the reference pressure. The diaphragm will be loaded with the measuring pressure and elastically deflects from its normal position, thus transmitting the pressure through a duct bellow on the movement. Absolute pressure gauges are used for the measurement of gaseous medium and fluids; these can also be aggressive.

Accuracy is +/- 1.6% of full scale deflection.

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