

Introduction

These operating instructions refer to installation, commissioning, servicing and adjustment. Statutory regulations, valid standards, additional technical details in the relevant data sheet, details of the type plate and any additional certificates are to be observed along with these operating instructions.



Safety instructions

- Installation, operation and maintenance of the instrument may be executed by authorized personnel, only, using suitable equipment.
- Warning: If the instrument is used incorrectly it is possible that serious injuries or damage can occur.
- Pressure gauges that are mechanically defective can cause injuries or give rise to process faults. Suitable precautions should be taken to avoid this.
- Separate regulations apply to service with hazardous media such as oxygen, acetylene, combustible substances, toxic substances and to service in refrigeration plant, compressors and the like.
- Prior to the disassembly of the pressure gauge the impulse ducts between the pressure gauge and the process have to be locked and relieved from pressure.
- The standard nominal pressure rating and the permissible operating temperature of the gasket should be observed for all process connections.
- De-installed pressure gauges can contain dangerous media residues. Adequate safety precautions must be taken when de-installing or transporting these instruments.

Transportation and storage

Store and transport pressure gauges under dry, clean condition and, where possible, in their original packaging.
Permissible storage temperature: -40°C to +70°C, with case filling -20...+60 °C. Avoid shock and vibrations.

Mounting and operation

- Before mounting the instrument ensure that pressure range, overpressure resistance, media compatibility, thermostability and pressure port are suitable for the process at hand.
- Safety pattern gauges per EN 837-1 S1 and S3 must be mounted so that the blow-out device can be freely pushed off to the rear. Appropriate wall cut-outs are to be provided for wall-mounted devices.
- Pressure gauges are designed for self-supporting installation arrangements. An additional measuring instrument support should be fitted if the measuring line is not stable enough.
- Where possible, pressure gauges should be connected to the pressure measurement point by using an intermediate shut-off valve.
- Vibrations and pulsating measured media can significantly affect the service life of measuring elements. The following counter measures are common: vibration: liquid damping. Pulsating measured medium: Upstream connection of a flow restrictor and liquid damping.
- For steam measurements, siphons must be connected upstream of the device. Care should be taken during commissioning that enough condensate is available to prevent steam entering into the device.
- Measuring devices for water or steam pressure are to be mounted so that they are protected against frost. If this is not possible, diaphragm seals are to be connected in series with the devices. The same applies to media which, because they are aggressive or may cause blockage, should not enter the measuring element.
- If the measured media contain solids which could cause build-up of deposits in the devices, suitable filters together with the necessary controls should be connected in line.
- Instruments that should not have any oil or grease residues in the pressure element assembly are marked with the graphic symbol "oil can" on the scale. Pressure gauges for oxygen operation are marked on scale with the graphic symbol "oil can" and with the word "oxygen". See recommendations of EN 837-2 for selection and installation.
- Pressure gauges are calibrated for vertical mounting. Any other mounting position is indicated by the position mark on the dial face.

- Not the housing, but the flange neck provided for this purpose is to be used for tightening and loosening. Open measuring flanges should not be distorted by excessively tightening the flange bolts, in order to avoid zero-point errors.
- Gaskets must be chosen that are suited to the process connection and resistant to the measured medium. Seal cylindrical screw threads by fitting a sealing washer to the front face of the gasket. Seal taper screw threads by screwing tight; typically a gasket material is applied to the male thread. Make sure that the set of gaskets you use are correct and in perfect condition when mounting the instrument; non-matching gaskets can cause faults.
- After mounting, the casing on pressure gauges with liquid filling and a nominal range ≤ 10 bar is to be aerated through the prescribed fitting device (atmospheric pressure compensation, see figure).



Before placing in operation move red air valve to limit stop !

- The instrument requires no maintenance.

Instructions for the operation with diaphragm seal

- To avoid soiling and damage remove protective cap or wrapping in front of the separating diaphragm before mounting.
- Do not touch the flush mounted separating diaphragm, as there is a danger of deformation at measuring ranges to 10 bar / 150 psi. Instrument zero point and measuring characteristics could also be affected
- Measuring instrument and diaphragm seal are a closed system and should not be separated.
- Avoid overtightening the process screw joints as this can result in zero displacements at the pressure gauge (fixing error).
- When using systems with capillary for vacuum measurements always mount the pressure gauge underneath the diaphragm seal. The instruments are set at the factory with pressure gauge and diaphragm seal at the same height. Correct any differences in height between diaphragm seal and pressure gauge arising from conditions on site on the pressure gauge when placing the instrument into operation (see zero-point correction).
- Be sure to install and securely fasten the capillary to avoid vibrations. Roll up overlengths with a minimum radius of 20-25 cm.
- Process and ambient temperatures can cause zero displacements at the pressure gauge with some system designs. We can supply you with an error analysis if necessary.

Zero-point correction

Small measuring errors or deviations cause by difference in level between pressure gauge and point of measurement can be corrected on measuring devices with micro control position pointers, by turning the adjusting screw on the pointer hub. Similarly, displacement of the zero point caused by use and long service life can be checked from time to time and corrected if necessary.

CE marking

The CE marking on the instruments certifies compliance with valid EU directives for bringing products to market within the European Union. The following directives are met: EG, PED 97/23/EC, ATEX 94/9/EG.
PED: Pressure gauges are pressure accessories in line with the Pressure Equipment Directive. The CE marking is granted after classification in the relevant categories. Unmarked instruments satisfy the Pressure Equipment Directive and are manufactured in accordance with "sound engineering practice"

Applied standards (among others)

- EN 837-1 Bourdon tube pressure gauges. Dimensions, metrology, requirements and testings
- EN 837-2 Selection and installation recommendations for pressure gauges
- EN 837-3 Diaphragm and capsule pressure gauges. Dimensions, metrology, requirements and testings

 FURTHER INFORMATION REQUIRED ? HOTLINE +49 (0) 4408 804-444

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