

# PRESSURE GAUGE INSTRUCTIONS

## ATTENTION•

- **Before installing or upkeeping the gauge, read the following instructions.**
- The installation of the gauge must be done only after checking the characteristics of the gauge with the plant and the process fluid. The parts of the manometers wetted by fluid should be of chemical material suitable for the operating conditions of the fluid itself.
- The installation and upkeeping of the gauge must be done only by qualified personnel

## INSTALLATION

Position case vertical (this is the calibration position, unless otherwise specified). When mounting the gauge on the plant connection, use a wrench prising the proper flats: do not act on the case of the gauge. If pipe connection is straight threaded, fit a proper gasket. For gauges mounted on wall or panel it is necessary that the last part of the pipe connected to the gauge, is flexible enough so not to transmit efforts to the gauge, especially with thermic dilatations. A correct installation should always provide at least a shut-off valve in order to check periodically the zero and to facilitate the substitution in case of up keeping or breaking.

## FUNCTIONING

When there is a shut off valve, close the drain and open slowly the interception valve in order to avoid sudden variations of pressure.

## EXERCISE PRESSURE

Normally the operating pressure should never exceed 75% of range. Pressure gauges can stand without a new calibration, accidental overpressures of 25% of full scale value for ranges to 60 bar and 15% of F.S.V. for ranges over 60 bar. For higher overpressures suitable limit stop devices be shall provided.

With pulsating pressure, the maximum exercise pressure must not exceed half value or the range.

Gauges must not be submitted to a pressure inferior to atmospheric pressure.

Pressure should never be pulsating; otherwise a damper is to be installed on the manometer connection. Damper adjustment shall be made on the site according to verified pressure pulsation. The damper regulation must be done at site.

## VIBRATION

The instruments should not be submitted to mechanical vibrations. A solution is to mount the gauge at wall or a bracket devoid of vibrations, making the connection between the gauge and the equipment by using flexible pipes. If not possible, use a liquid filled gauge. **In case of glycerine filling, although the norm provides, we suggest to cut the compensation cap only under 4 bars and when the cap is placed upwards**

## TEMPERATURE

The process fluid in contact with the sensing element must always be at a temperature between the limits allowed for the selected gauge. **Warning: ambient temperature can be conditioned by internal factors (ex. process) or external (ex. ray of sunshine).** In case the process temperature is higher, use cooling pig tail syphon or repair the pressure gauge by sunshine light.

## DIAPHRAGM PRESSURE GAUGES

In this case the sensing element is a wrinkled diaphragm located between two flanges connected by screws. When the screws are loosened, the gauge goes out of calibration: avoid to tighten or untighten the screws.

**Pay the utmost care not to blow inside the connection with ranges less of 600 mbar in order not to damage the diaphragm.**

## GAUGES WITH ELECTRIC CONTACTS

Before installing the gauges with electric contacts, make sure that the function or the electric contacts is the right one requested by the plant.

The connecting scheme is written in a label put near the electrical connection. Make sure that the values of voltage and current are compatible with what is written in the labels of contacts.

**WARNING: these gauges can not be used as safety accessories according to what written in the 97/23/CE (P.E.D.) directive. The CE mark written in the contact is referred to the conformity of it to the 73/23/CEE and 89/336/CEE directives. The use of these gauges is to be limited only to the process regulating .**

## GAUGES WITH PRESSURE SEALS

The assembly, formed by gauge and seal, must be kept intact because the smallest teak of filling liquid compromises the correct calibration of the gauge. At this purpose we mark in red paint the parts which can not be touched.

In case of remote installation by capillary between gauge and seal, pay attention at a possible difference in height between them. This creates a liquid column which moves the zeros of the gauge. At this purpose You have to act on the pointer by moving back to zero the proper screw, after having stabilized the gauge. For flush diaphragm seals the cleaning of the diaphragm must be done with the utmost care because it is formed by very thin metallic plate.

## CAPSULE GAUGES

The gauges of this type need a special care, because they are quite delicate. They must be equipped with siphon in order to avoid the forming of liquids inside the sensible element, which compromises the accuracy of the gauge.

## DIFFERENTIAL GAUGES

For a correct installation of these gauges, it is advisable to have a 3 valves manifold. In order to avoid high differential pressures, the mounting and the removal of the gauges must happen with the by-pass valve opened.

## CHECK AND UPKEEPING

**Calibration:** it is necessary to check periodically the calibration by using the test gauge at toast on 4 points of the scale. In case the accuracy of the gauge is not acceptable, the gauge must be re-calibrated.

**Irregular movement of the pointer** because of sediments on the mechanism or on the pins of the amplifier movement. In this case extract the pointer from the conical pin by using the proper pointer remover and taking the dial off. Clean the movement and then mount the dial again; give the gauge a known pressure, then fix the pointer on the pin of the movement and take it to the exact settled value by using the zeroing screw.

**Breaking of the window:** unscrew the fixing ring and remove all the pieces inside the case. Put the new window after put the rubber gasket.

## STORAGE

Store the gauges in a closed place with variations of temperatures between -20 and +50 deg C. For the gauges with seal, the minimum temperature of stocking is -10 deg C.

## DEMOLITION

The main components of the gauges are made of stainless steel or brass. Once taken off the window and the gasket and eventually leaned the parts in contact with dangerous fluids, the remaining parts can be wrecked.

