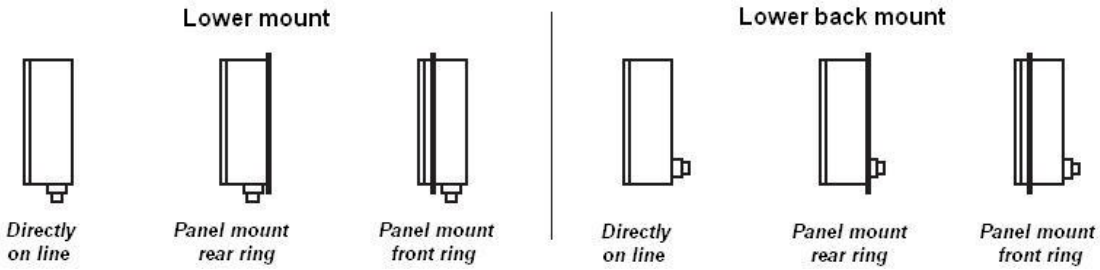
Pressure GAUGES

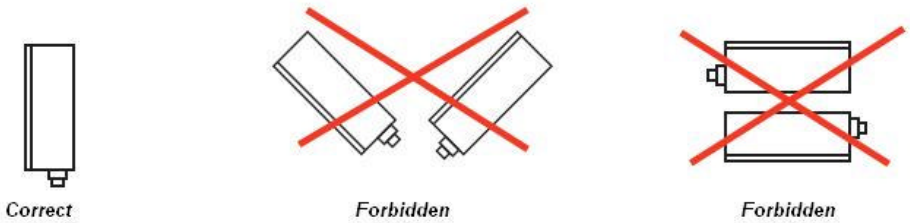
Instructions Manual

Before any start up of a pressure gauge or/and pressure gauge guard, it is necessary to verify the correspondence of the complete system with operating conditions in order to remediate to future troubles:
- Pressure and temperature ranges, possible excess of each parameter, excessive velocity of changes
- Chemical compatibility of materials,
- Incidence of existing vibrations.

MOUNTING

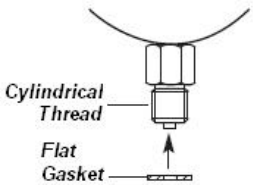


FITTING

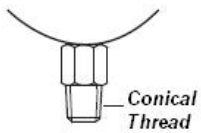


CONNECTIONS

- Cylindrical thread:
Sealing is safe with a flat gasket (EN 837-1) or specific rings to choose against fluid quality and its pressure vs. temperature.



- Conical thread:
Sealing is safe, adding a sealant as PTFE tape for instance (EN 837-1) or specific one to choose against fluid quality and its pressure vs. temperature.



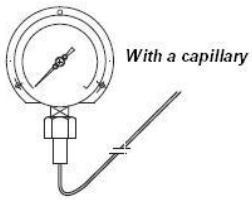
- Flanges:
Follow the safety recommendations according to the flange standard.

FITTING ON THE PROCESS LINE

Never apply any stress on the case of the instrument: only use a wrench and apply it on the wrench flat of the gauge connection.
When pressurizing the pipe, open slowly the valve to avoid anyhammer effect: verify the tight of the system.
If the gauge is provided with a blow up disk (at the rear of the case): it may not be at less than 20mm of any obstacle.

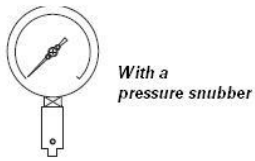
SHOCKS

The pressure gauge may not suffer shocks; in case of existing risks when operating, the gauge case should be remote mounted through the use of a capillary connection and fitted in a safer place.



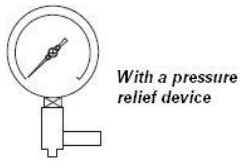
VIBRATIONS

The pressure gauge may not suffer mechanical vibrations; in case of existing vibration transmitted through the pipe, use the best solution:
- Low energy and occasional vibrations: a filled case pressure gauge will afford the vibrations
- High energy or continuous vibrations: the gauge case should be remote mounted through the use of a capillary connection and fitted in a free vibration place.



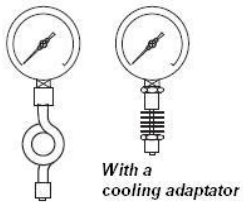
BEATING PRESSURE

Typically, with a beating pressure, the pointer is permanently vibrating; at least the movement will be damaged and its time life shortened. It is necessary to install a pressure gauge snubber. The purpose of the snubber is to dampen the oscillations and thus provide a steady reading and protection for the gauge.



OVER RANGE PRESSURE

An over range pressure will shorten the time life of the pressure gauge, as well as with repetitive excess of pressure below the higher limit of pressure. It is better to choose a gauge which the higher limit of pressure is above the accidental over range pressure estimated. Most of the time it is necessary and useful to install a protection device against overpressure events, such as a pressure relief valve or as a rupture disk.

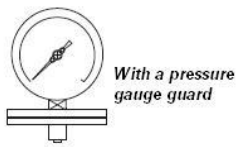


TEMPERATURE

Ambient temperature: It is difficult to safely protect a pressure gauge from an excessive ambient temperature. A good solution: the gauge case should be remote mounted through the use of a capillary connection and fitted in a cooler place.
For high grade accuracy gauges (Class 0.6), it is necessary to use a temperature correction on readings as soon as the ambient temperature is different from the Calibration Temperature i.e. 20°C +/- 2°C, otherwise specified.

Fluid temperature: The pressure gauge will be protected from an excessive temperature (or condensing temperature for gases) by fitting a siphon or cooling device.
Verify that the fluid inside the gauge would not crystallized or frozen.

For extraordinary operating conditions a guard may be fitted to insulate the gauge from the fluid. The choice of material and filling liquid for the guard depends of the process conditions.



FREE OF CONTAMINATING SUBSTANCE , CERTIFICATES

For some applications the non existing contaminating substance certification is necessary for all wetted part of components (commonly for oxygen, no lubricant could remain in the gauge, hydrocarbon fluids etc.).
The end-user has the responsibility to verify the device and the certificate before to fit the devices.

START UP

As for all hydraulic system, the pressure has to be gradually increased not to have overpressure effects and gaps in temperature.
Therefore it is necessary to open slowly the valves.

MAINTENANCE

Safety of the complete plant depends of good state of all components including the pressure gauges.
If a doubt exists on the reliability of a gauge indication it is convenient to replace the pressure gauge meanwhile it is sent back to the supplier for calibration.

Calibration tests must be done regularly: by trained persons.

Guards: The diaphragm may be clean regularly on its process side (at least each 6 months); the pressure gauge must not be dismounted from the guard.