

# INSTALLATION, MAINTENANCE & SAFETY INSTRUCTIONS FOR PRESSURE GAUGES

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## Storage:

Gauges should be stored in a clean, dry condition within the temperature range of – 40o - + 70 oC.

## Installation:

Gauge selection – The user must ensure that the correct gauge has been selected for the job. This includes, range, mounting and material construction.

If required, an isolating valve is to be fitted, for the removal of maintenance.

## Pressure Connections:

The pressure connection must be leak-tight.

## Pressure Gauges with parallel threads:

Must be sealed using a sealing washer on the sealing face.

## Pressure Gauges with taper threads:

The pressure seal can be made with a jointing material (which is compatible with the process) applied to the male thread before assembly

## Flanged Connections:

Should be fitted in accordance with the recommendations from the relevant standards.

## Flush Diaphragms: (Hygienic)

Ensure that the correct seal material & size is fitted, and that the diaphragm is not interfered with.

## Fitting:

**Direct:** mounting gauges should be tightened by means of a spanner of the correct size, applied to the flats on the shank of the gauge.

**Surface:** mounting or **Flush** mounting gauges the tightening of connection should be opposed by a spanner fitted to the flats of the shank of the gauge to prevent damaging of the gauge, its calibration or its mounting points.

**DO NOT TIGHTEN BY GRASPING THE CASE OF THE GAUGE, AS THIS MAY CAUSE DAMAGE.**

When first applying pressure the leak tightness of the connection should be checked. All gauges shall be mounted vertically within +/-5% unless the dial marking allows otherwise.

## Safety Provisions:

If the gauge has a flow-out device or a full safety pattern blow out back, ensure there is a minimum of 20mm distance from any obstacle.

Do not use any gauge on a special gas unless it has been manufactured especially for this purpose. These gauges will have the gas marked on them.

## Special Applications:

**Oxygen Gauges. :** Only gauges with an oxygen de-greased label, and the dial marked “oxygen” with the “oil can” symbol can be used for this gas, and must be of the full safety pattern (s3) design.

**Acetylene Gauges:** Only use gauges of full safety pattern, st/st construction, marked acetylene may be used.

**Chlorine:** dependent upon the nature of the chlorine dry wet gaseous or liquids etc. then the materials of construction and filling mediums MUST be selected to suit the application. For advice or recommendation refer to your engineering department or contact your gauge supplier.

**Other:** Applications such as volatile gases or liquids, steam acetylene, ammonia and other refrigerants, gases or liquids, slurries etc. may require special construction or materials. This must be considered and clearly specified at the time of procurement.

## Materials:

With the exception of brass or bronze, the wetted part materials will be plotted on the dial face for user reference.

## Diaphragm Seal Fitting Medium:

**PFPE** (Fomblin) resistant to chlorine.

## FDA, HI & H2 Approved white oil:

Food and pharmaceutical

**Silicone Oil:** General Use.

## Gauge Removal:

Prior to removal ensure any isolation device to the instrument is closed. Under no circumstances should attempts be made to remove a pressurised instrument without fully ventilating the system. Process medium remaining in the pressure element may be hazardous or toxic. This must be considered when removing or handling a gauge which has been in use.

## Vibration:

Exposure of the instrument to vibration should be avoided if at all possible by remote mounting away from the cause. Alternative, specify the use of a viscous damped movement or glycerine filled case. Glycerine filling is not to be used for Oxygen/nitrogen applications.

**Pulsation:**

Fluctuating pressure, pressure shocks or high frequency pressure oscillation will severely reduce the life of the instrument. Contract your supplier for a suitable damping device.

**Over Pressure:**

An overload check is given during the manufacturing process but users are advised that they should never apply a greater pressure than the maximum dial graduation to a standard pressure Gauge. When overloads are required, gauges can be manufactured to withstand these, or a gauge protection device can be provided. Any Gauge, which has been subjected to overload must be inspected for damage and calibration accuracy before being used again. It should be replaced if there is any doubt about its condition.

**Maintenance:**

Instruments should be regularly tested against an approved standard. If the readings are inaccurate they should be either re-calibrated or returned to the supplier for overhaul.

Users can undertake minor rectifications as below:

If the error is constant over the scale range, remove the bezel and adjust the pointer.

If the error is either increasing or decreasing incrementally over the scale range, remove the pointer dial and adjust the movement quadrant slide screw inwards to increase the range and outwards to decrease the range.

If the error is non-linear an adjustment is required to the end piece to either increase or decrease the angle between the quadrant and link rod as necessary. Pointer removal and punch tools are available on request.

If a gauge frequently or prematurely requires attention or adjustment, then it should be inspected for internal wear or damage and replaced if necessary. In this instance the application specification should be re-considered.

**Pressure Gauges with Electric Contacts.**

When this type of gauge is being used, an automatic pressure shut off valve must be used in case of an electric failure.