

INSTALLATION & MAINTENANCE

INSTRUCTIONS FOR PRESSURE GAUGES



The user must ensure that the correct gauge is selected, ensuring that the type of gauge, scale range, connection and materials of construction are suitable for the application. The optimum selection of the scale range is given if the operating pressure falls within the middle third of the dial, as defined in International Standard EN 837.

Installation

Pressure Gauges are supplied with a variety of screwed, flanged and hygienic connections that meet the relevant International Standards. Pressure Gauges can be readily installed by any qualified Instrument Technician following recognised International or Company guidelines.

Taper Threads – BSPT or NPT are tapered threads, which may require sealing material, i.e. P.T.F.E tape or compound to be applied to the thread-form prior to fitting into the process connection.

BSP Threads are bottom sealing threads that may require the use of a sealing washer compatible with the process medium and parent material of the housing. A new unused washer must be fitted on each subsequent re-installation. **Never attempt to seal on the thread.**

Flanged Connections – The user **must** ensure that the correct gasket and bolting materials are selected for the application and fitted in accordance with appropriate standards.

Hygienic – the user must ensure that the correct size and type of sealing ring is fitted onto the process connection before installation. For Triclover (BS4825 / ISO 2825/NF E 29 521) and DIN 11851 connections.

Connection

When connecting gauges, the joint must always be tightened using the hexagonal or flats provided on the gauge body. Do not tighten using the gauge case. Rigid piping should not be used with flush mounting pressure gauges. When a gauge is used for liquids, ensure that the connecting pipe is always full of liquid and loops in which air or vapour can collect are avoided. Gauges for use on air or gas should have the piping rising continuously into the gauge, so that any moisture or condensed liquid will drain away. On initial pressurisation, check for operation and any signs of leakage.

Special Applications

Oxygen gauges are specially manufactured in an “oil-free” environment and must be installed such that no contamination of the process connection occurs. The user must specify that gauges are for oxygen applications and must be manufactured “oxygen clean” and of “safety pattern” design.

Chlorine – dependent upon the nature of the chlorine: dry, wet, gaseous or liquid, etc, then the materials of construction and filling mediums **must** be selected to suit the application. For advice or recommendations, please refer to your engineering department or contact Budenberg Gauges Technical Support Department.

Other Applications such as volatile gases or liquids, steam, acetylene, ammonia and other refrigerants, toxic 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 material will be plotted on the dial face for user reference.

Diaphragm Seal Filling Medium

PFPE (Fomblin): Resistant to Halocarbons, Chlorine Applications
Glycerine/Medicinal Paraffin/Mineral Oil: Food

FDA Approved White Oil: Pharmaceutical
Silicone Oil: General Use

If unsure, contact BGA Pty Ltd for Advice on the suitability of the above fluids.

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 venting 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 operation.

Temperature

Unless otherwise stated, the normal operating temperature of standard Pressure Gauges is between –20 and +90°C. For operating temperatures outside these ranges, consult BGA Pty Ltd. Storage temperatures are to be between –40 and 100°C. Before using the instrument, it should be allowed to acclimatise.

Vibration

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

Pulsation

Fluctuating pressure, pressure shocks or high frequency pressure oscillation will severely reduce the life of the instrument. Contact BGA Pty Ltd for suitable dampening device.

Over Pressure

Budenberg Pressure Gauges are given an overload check during the manufacturing process but we advise that users 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 recalibrated or returned to BGA for an overhaul. Users can undertake minor rectification as follows:

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 and 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 endpiece to either increase or decrease the angle between the quadrant and link rod as necessary. Pointer removal and punch tools are available.

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