

# Notes for the Selection and Installation of Pressure Gauges

## For Your Guidance

These notes have been prepared to assist in the selection and installation of pressure gauges for the purpose of ensuring as far as possible that pressure gauges give satisfactory service on the application for which they are intended and to ensure the highest possible level of safety. For further information, reference should be made to A.S. 1349 1986, on which these Notes are largely based.

### Materials

The most usual wetted parts used in the construction of these gauges are made from brass and bronze and similar non-ferrous materials. Such gauges are suitable for use on air, oil, water and other non-corrosive fluids. For corrosive fluids, alternative materials e.g. Stainless Steel should be specified. For special applications e.g. when the pressure medium may solidify in the tube or may contain solids in suspension, alternative designs or pressure gauges such as a diaphragm or a chemical seal type should be used.

Environmental conditions should be taken into account when considering suitable materials for Case etc. Stainless Steel, weatherproof cases are available for corrosive atmospheres and outdoor application.

### Safety on Steam and Gas Pressure Measurement

For certain steam and gas applications, safety pattern gauges **MUST** be used and these must incorporate a solid baffle between dial and pressure element, a splinter-proof or clear plastic window and blow-out release. Surface mounting gauges with a blow-out release at the back, **MUST** be mounted at least 20mm away from the surface panel by means of distance pieces. For oxygen, safety pattern gauges **MUST** be used, **MUST** be supplied degreased and kept free from oil contamination. (For further details, see Pages 15-16 of A.S. 1349 1986).

For acetylene, safety pattern gauges **MUST** be used. (For further details, see page 16 of A.S. 1349 1986).

For steam and gases other than oxygen and acetylene, gauges of normal construction may be used for pressure ranges up to 2500kPa but blow-out disc should be incorporated. For higher pressures, safety pattern gauge **MUST** be used.

### Jointing

Where parallel threads are used on the shank, the joint **MUST** be made on the flat seating using a washer of suitable material. The joint on the seating washer **MUST** be tightened by means of the hexagon or square provided in the screwed shank and not by grasping the case.

### Maximum Working Pressure

While gauges will withstand a full scale pressure, it is recommended that the working pressure should not exceed 75% of the full scale range for steady pressures and 65% of the full scale range for fluctuating pressures.

### Pulsation

If pressures are expected to pulsate violently, oscillate with high frequency or occur with sudden shock, the manufacturer should be consulted.

### Mechanical Vibration

Gauges should be mounted away from vibration and connected by means of flexible piping. If this is not possible, the manufacturer should be consulted. Where liquid filled gauges are used, a safety release **MUST** be incorporated in the case.

### Temperature

If used on steam or other hot gases or liquids, gauges **MUST** be protected by the use of an effective syphon or other means. A gauge is unduly hot if it cannot be grasped by hand without discomfort. It should be remembered that gauges used on water may burst if exposed to frost.

### Mounting

All gauges should be mounted in a vertical position unless otherwise agreed with the manufacturer.

### Cocks and Valves

In order to allow the gauge to be removed for checking or any other purpose, a gauge-cock or valve should be fitted. These cocks or valves **MUST** be opened or closed slowly to avoid sudden changes of pressure on the gauge. Procedures should be established to ensure the cocks or valves are secured in the open position during normal operation.

### Head Allowance

Where the gauge is used on liquid and is mounted substantially above or below the pressure point, a head allowance may be necessary.



AMBIT INSTRUMENTS Pty. Ltd.



Registered Laboratory

No. 3103