

## SELECTION

**Pressure Ranges** – Select a gauge with a full scale pressure range of approximately twice the normal operating pressure. The maximum operating pressure should not exceed approximately 75% of the full scale range. Failure to select a gauge range within this criteria may ultimately result in fatigue failure of the Bourdon tube component.

## INSTALLATION

Always use a wrench on the flats of the gauge socket to screw the gauge in place. When a fitting is being screwed to the gauge, hold a wrench on the socket flats instead of twisting against the gauge socket screws which are intended to hold the gauge mechanism in the case.

When gauges are mounted on the wall or panel, make sure they are connected free from piping strains. Also see that the mounting surface is flat, or insert washers under the flange of the gauge case to obtain three-point suspension. Preferably, the last length of piping leading up to the gauge should be flexible tubing. This will ensure that the gauge is free from strain.

Install gauges where they will be free from the effects of mechanical vibrations as this will wear out any gauge quickly. Try to mount the gauge on a wall nearby and connect the gauge to the machine which vibrates badly by means of flexible line assembly.

Protect gauges from frequent pressure pulsations by using liquid-filled or Duragauge Plus® with a throttle screw in the socket of the gauge, needle valves, pulsation dampeners or pressure snubbers.

When any gauge is used for steam pressures, a siphon filled with water must be installed between the gauge and the line. When the system is subject to occasional vacuum, provide a leg of piping which cannot be emptied by the vacuum effect. A drain cock or plug should be installed at the bottom of this leg to enable occasional cleaning out of the sediment. The head effect of this piping leg should be compensated for by resetting the pointer of the gauge.

## OPERATING CONDITIONS

The operating conditions to which a gauge will be subjected must be considered. If the gauge will be subjected to severe vibration or pressure pulsations, liquid filling the gauge may be necessary to obtain normal product life. Other than discoloration of the dial and hardening of the gasketing that will occur as ambient temperatures exceed 150°F, metal case Duragauges (that are not liquid filled) can withstand continuous ambient temperatures as high as 250°F. Liquid filled gauges can withstand 200°F but glycerin fill and acrylic window will tend to yellow. Accuracy will be affected by approximately 1.5% per 100°F. Gauges with welded joints will withstand 750°F (450°F with silver brazed joints) for short times without rupture, although other parts of the gauge will be destroyed and calibration will be lost. For temperature limits on other gauges see the appropriate bulletin.

## PROPER USE

Apply pressure slowly. do not open gauge cock or valve too quickly – this imparts a severe strain on the Bourdon tube which may rupture it, or result in shortened life. When the service itself is subject to sudden pressure applications, use a needle valve or the Ashcroft Gauge Saver.

Avoid overpressure. See that the apparatus is provided with a relief valve and that the range of the gauge is higher than the set pressure of the relief valve.

Sudden pressure release has the same detrimental effect and should be compensated for in the same manner as for the pressure applications mentioned above. On hydraulic presses, Catalog Number 1056 or 1009DH Gauges with slotted link should be specified. See Special Service Bulletin SG-1.

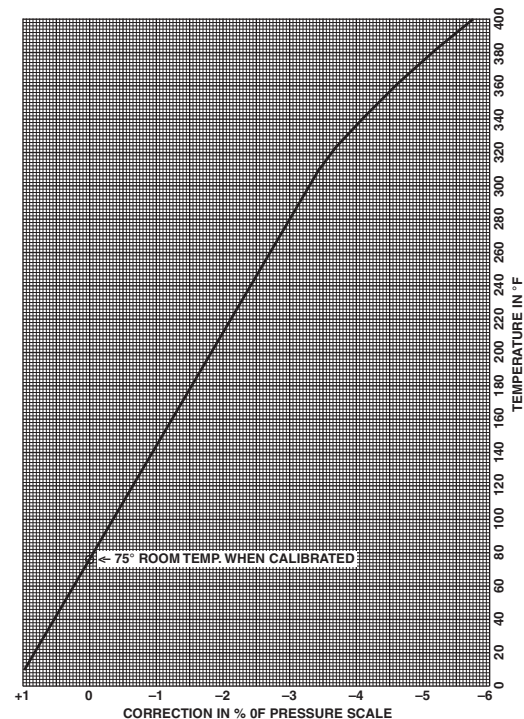
## MAINTENANCE

Replace broken glasses and thus keep dirt out of the working bearings and teeth of the movement mechanism.

Never oil gauge movements or linkages except with high grade instrument oil. Regular oil attracts dirt and becomes gummy, thus causing the gauge to act sluggish and inaccurate.

### HEAT AFFECTS GAUGE ACCURACY

Approximate error or change in calibration of a Bourdon tube type pressure gauge caused by changes in temperature.



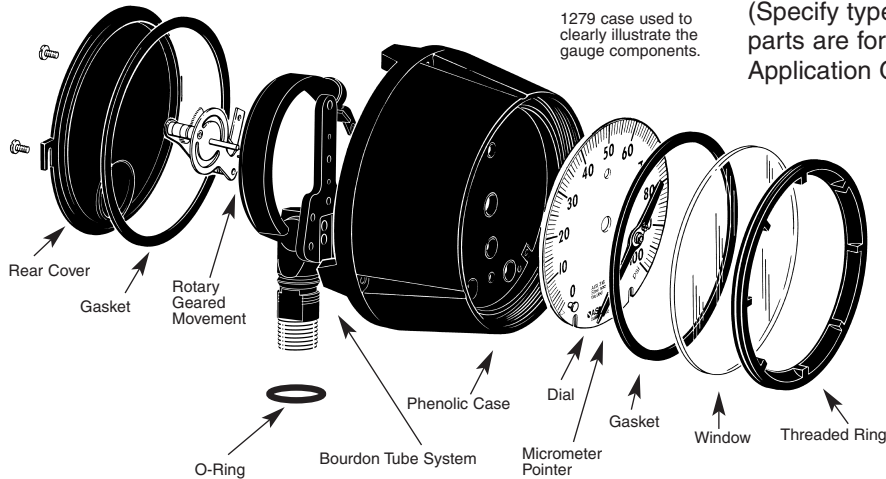
Example: Gauge working at 500 psi pressure at 280°F. temperature would have a -3% correction and would read 3% or 15 psi fast.

# Installation and Maintenance Instructions for ASHCROFT® Pressure Gauges, Gauge Parts and Ring Designs, Engineering Data



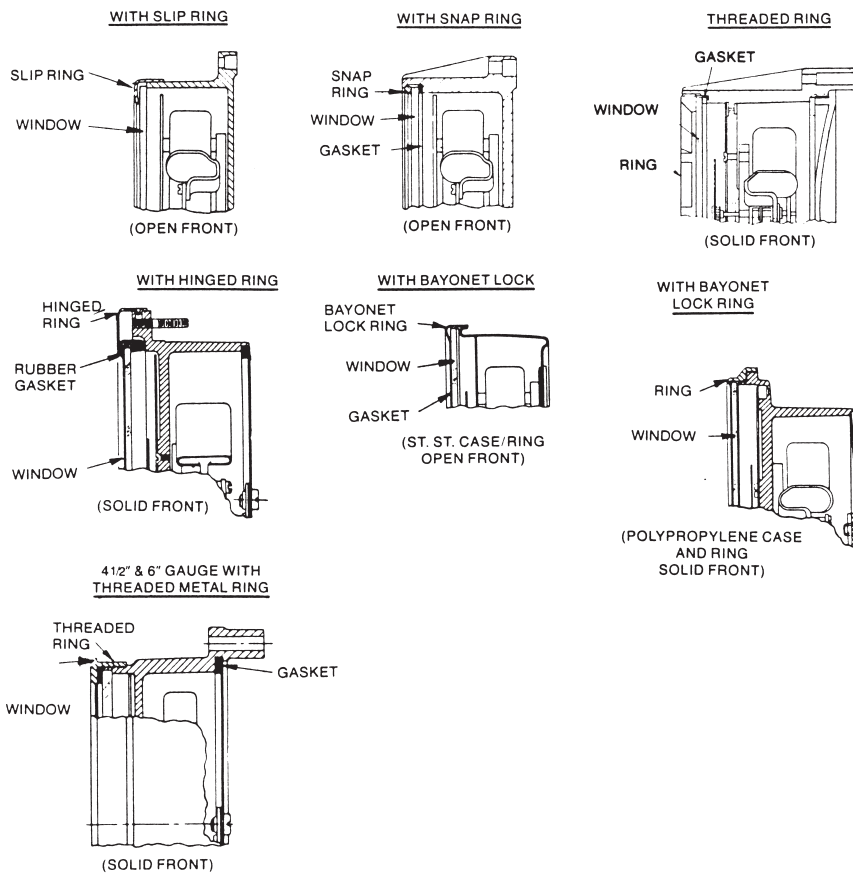
The drawing below shows a typical solid front, lower connection Duragauge with all of the parts designated by their standard names. The use of these names will facilitate the ordering of parts and eliminate any misunderstanding in describing gauge construction.

When ordering parts – specify as much of the following data as possible: *Size* (Dial Diameter); *Case Material* (Stainless Steel, Polypropylene, Aluminum or Phenol); *Case Type* (Open Front or Solid Front); *Ring Design* (Slip, Internal Threaded, External Threaded, Bayonet, Snap or Hinged); *Connection Location* (Lower or Back); *Connection Size* ( $\frac{1}{4}$ " or  $\frac{1}{2}$ ""); *Bourdon Tube/Socket* (Material Indicated on Dial); *Dial Range* (Specify type number if possible; otherwise, mention whether parts are for Duragauge, General Service Gauge, Special Application Gauge, Receiver Gauge or Test Gauge.)



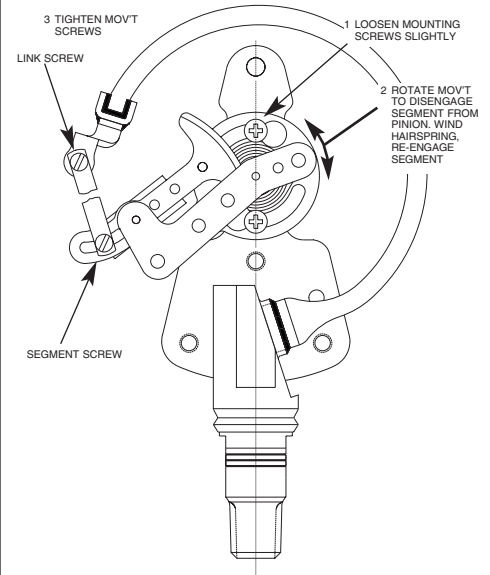
**Note:** The socket, tube and tip assembly is furnished as one integral unit. The movement is supplied complete.

## TYPICAL CONSTRUCTION DETAILS



## CALIBRATION PROCEDURE

### 1. Preliminary Gauge Calibration Setting – (SOLID FRONT GAUGE SHOWN)



### 2. Calibration –

- At zero pressure (or at full vacuum for compound or vacuum gauges), assemble pointer to pinion shaft in the horizontal position.
- Apply pressure equal to full range and adjust the slide in the segment slot until the pointer has rotated 270° (vertical position).
- Reduce pressure to zero and reset pointer, if necessary, to horizontal position. If pointer adjustment was required, repeat step (b) above.
- Apply pressure equal to mid-scale and drive pointer firmly onto pinion.
- Recheck calibration at the lower and upper ends of the scale.

**3. Linearity Adjustment** –Although the procedure outlined above should produce a correctly calibrated gauge, linearity adjustment may be required. If the pointer reads correctly at the bottom of the scale and low at the top of the scale, rotate the movement to increase the angle between the link and the segment. If the pointer reads high, rotate the movement in the opposite direction.