

Your Company Name / Logo	PRESSURE GAUGE CALIBRATION SOP	Doc no: SOP INST 005	Rev: 0
Department: Instrumentation	Standard operating procedure	Date:	Page: see footer

1. Purpose

To confirm that pressure gauges indicate within their accuracy class.

2. Scope

Dial pressure and vacuum gauges (EN 837-1 classes 0.6 to 2.5) calibrated in the workshop.

3. References

- EN 837-1 (Bourdon tube pressure gauges)
- Comparator or dead weight tester manual

4. Responsibilities

- Instrument technician: carries out the work and records results.
- Instrument engineer or supervisor: reviews and approves the records.
- Operations: grants the permit, isolates the process and returns the equipment to service.

5. Safety precautions

- Work only under a valid permit to work and follow the site isolation (lockout tagout) procedure.
- Wear the PPE required for the area: safety helmet, glasses, gloves and safety shoes as a minimum.
- In hazardous areas use certified or intrinsically safe test equipment, or obtain a gas free certificate and hot work permit.
- Inform the control room before starting, and before returning the instrument to service.
- Use the correct test medium: oil free (water or air) for oxygen service gauges, never oil.
- Do not exceed the full scale of the gauge by more than its stated overpressure rating.

6. Tools and equipment

- Hydraulic or pneumatic comparator, or dead weight tester
- Reference gauge at least 4 times more accurate
- Adapters, seals and tools for the gauge connection

7. Prerequisites

- Gauge removed under permit, cleaned of process fluid.
- Gauge visually checked: glass, pointer, dial and connection undamaged.

8. Procedure

8.1 Setup

- 8.1.1 Mount the gauge vertically (its normal position) next to the reference.
- 8.1.2 Exercise the gauge to full scale and back to zero three times.

8.2 Test

- 8.2.1 Check the pointer at zero with no pressure applied.
- 8.2.2 Apply 0, 25, 50, 75 and 100 % of full scale upscale, tapping the gauge lightly before reading.
- 8.2.3 Return downscale through the same points without overshooting.
- 8.2.4 Record readings and calculate error and hysteresis in % of span.

8.3 Adjustment

- 8.3.1 If zero is out, reset the pointer (adjustable pointer or micrometer pointer).
- 8.3.2 If span or linearity are out, adjust the movement if the design allows; otherwise replace the gauge.
- 8.3.3 Repeat the test after adjustment.

9. Acceptance criteria

- Error and hysteresis within the accuracy class at every point.
- Pointer returns to zero.

10. Records

- Pressure gauge calibration report (free template: instrumentationblog.in/downloads/templates/pressure-gauge-calibration-report/)

11. Approval

	Prepared by	Reviewed by	Approved by
Name			
Signature			
Date			

This procedure is a generic template. Adapt it to your site permit system, the manufacturer instructions and your quality system before use.