

Your Company Name / Logo	INSTRUMENT TUBING LEAK TEST SOP	Doc no: SOP COM 003	Rev: 0
Department: Instrumentation	Standard operating procedure	Date:	Page: see footer

1. Purpose

To prove that instrument tubing, fittings and valves are leak tight before commissioning.

2. Scope

Impulse lines and instrument tubing from the root valve to the instrument manifold.

3. References

- Piping and tubing test specification of the project
- Hook up drawings
- Tube fitting manufacturer instructions

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.
- Isolate the instrument from the test: test pressure can exceed its overpressure limit.
- Pneumatic tests store energy: use the lowest pressure allowed by the specification, barricade the area and never stand in front of fittings.

6. Tools and equipment

- Hydrostatic test pump or regulated gas supply
- Calibrated test gauge (range about 1.5 to 2 times the test pressure)
- Leak detection fluid (for pneumatic tests)
- Blanking plugs and caps

7. Prerequisites

- Tubing complete and supported; fittings made up to the manufacturer gap check.
- Test pressure and hold time taken from the project specification.

8. Procedure

8.1 Preparation

- 8.1.1 Close the manifold block valves or disconnect the instrument and cap the tubing.
- 8.1.2 Connect the test pump and test gauge at the highest practical point for venting.

8.2 Test

- 8.2.1 Fill with water (hydrostatic) and vent air, or pressurise with gas in steps (pneumatic).
- 8.2.2 Raise to the specified test pressure and isolate the pump.
- 8.2.3 Hold for the specified time (commonly 10 to 30 minutes) and record the start and end pressure.
- 8.2.4 Check every joint with leak detection fluid for pneumatic tests, or by inspection for hydrostatic tests.

8.3 Completion

- 8.3.1 Depressurise slowly, drain water from lines that must be dry, and reconnect the instrument.
- 8.3.2 Record the result and raise punch items for any leak.

9. Acceptance criteria

- No pressure drop over the hold time (allowing for temperature effects).
- No visible leaks or bubbles at any joint.

10. Records

- Instrument installation checklist (free template: instrumentationblog.in/downloads/templates/instrument-installation-checklist/)
- Punch list (free template: instrumentationblog.in/downloads/templates/punch-list-template/)

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.