

Your Company Name / Logo	CONTROL VALVE STROKE TEST SOP	Doc no: SOP INST 007	Rev: 0
Department: Instrumentation	Standard operating procedure	Date:	Page: see footer

1. Purpose

To confirm that a control valve follows its signal accurately across the full stroke and fails to the correct position.

2. Scope

Pneumatically actuated control valves with analog or digital positioners.

3. References

- Valve and positioner manuals
- Control valve data sheet (travel, fail action)

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.
- Stroking a valve changes the process: do it only with the process isolated or with operations agreement and bypass in use.
- Keep hands clear of the yoke and stem connector; actuators move with great force.

6. Tools and equipment

- mA source or DCS output in manual
- Ruler or dial gauge for stem travel
- Stopwatch
- HART communicator or positioner software

7. Prerequisites

- Process isolated or bypassed; permit approved.
- Air supply pressure correct and regulator set to the actuator rating.

8. Procedure

8.1 Stroke check (as found)

- 8.1.1 Apply 0, 25, 50, 75, 100 % signal and back down, recording travel at each point.
- 8.1.2 Calculate position error in % of travel.

8.2 Positioner calibration

- 8.2.1 If errors exceed tolerance, run the positioner auto calibration (travel calibration) or adjust zero and span.
- 8.2.2 Repeat the stroke check (as left).

8.3 Stroke time and fail action

- 8.3.1 Time full open and full close strokes.

8.3.2 Remove the air supply (or signal, depending on design) and confirm the valve moves to its fail position.

8.3.3 Check feedback and limit switches in the control system.

8.4 Return to service

8.4.1 Restore air and signal, hand over to operations and close the permit.

9. Acceptance criteria

- Position error within tolerance at all points (typically $\pm 1\%$ of travel).
- Valve moves to the correct fail position.
- Feedback correct in the control system.

10. Records

- Control valve calibration report (free template: instrumentationblog.in/downloads/templates/control-valve-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.