

SOP: Calibration and Maintenance of Inspection Equipment

Purpose: To establish standardized procedures for the calibration and maintenance of inspection equipment. This ensures equipment accuracy, consistency, and reliability for all measurement activities, supporting quality control and compliance with industry standards.

Scope

This SOP applies to all inspection equipment used for quality checks, including measuring devices, gauges, meters, and testing tools within the facility.

Responsibilities

- **Quality Assurance (QA):** Overall oversight of calibration and maintenance process.
- **Calibration Technician:** Conducts routine calibration and maintenance activities.
- **Equipment Users:** Ensure proper use, initial cleaning, and timely reporting of issues.
- **Maintenance Team:** Assists with significant repairs and advanced troubleshooting.

Procedure

1. Calibration

1. Identify equipment requiring calibration per the **Calibration Schedule** (see Table 1).
2. Use reference standards traceable to national/international standards.
3. Document calibration date, method, reference standard, and results in the **Calibration Logbook**.
4. If equipment is out of tolerance, tag as "OUT OF SERVICE," notify supervisor, and arrange for adjustment/repair.
5. Affix updated calibration label on the equipment post-calibration.

2. Routine Maintenance

1. Perform preventative maintenance as per manufacturer's guidelines and maintenance schedule.
2. Inspect equipment for wear, corrosion, or damage during use.
3. Lubricate, tighten, or replace parts as necessary.
4. Record all maintenance activities in the **Equipment Maintenance Log**.

3. Cleaning Protocols

1. Clean equipment after each use with appropriate cleaning agents.
2. Avoid excessive moisture near sensitive components.
3. Store equipment in designated areas to prevent contamination or mechanical damage.

4. Accuracy Verification

1. Conduct accuracy checks using certified reference materials or gauges.
2. Compare measurement readings to defined acceptance criteria.
3. Document verification results as part of periodic audits.

5. Documentation Requirements

- Maintain records of calibration, maintenance, repairs, and accuracy verification.
- Retain records for a minimum of **three years** or per regulatory guidelines.
- Ensure records are signed, dated, and readily accessible for audits.

6. Troubleshooting Common Issues

1. If equipment gives inconsistent or inaccurate readings, check for obvious issues (e.g., dirt, loose parts, expiration of calibration).
2. Consult troubleshooting guide in the user manual or escalate to the maintenance team as needed.
3. Do not use faulty equipment until resolved and recertified.

Table 1: Example Calibration & Maintenance Schedule

Equipment	Calibration Frequency	Maintenance Frequency	Responsible Person
Digital Caliper	Every 6 months	Monthly cleaning; yearly inspection	Calibration Technician
Pressure Gauge	Annually	Quarterly cleaning; semi-annual inspection	Calibration Technician
Surface Plate	Yearly	Monthly cleaning	QA Inspector

References

- Manufacturer's equipment manuals
- ISO 9001:2015 Quality Management Systems
- Internal Calibration and Maintenance Policy

Revision History

Version	Date	Description	Approved By
1.0	2024-06-15	Initial release	QA Manager