Standard Operating Procedure (SOP)

Inspection Tool and Equipment Calibration Procedures

This SOP details the **inspection tool and equipment calibration procedures**, covering the steps for regular inspection, calibration scheduling, calibration standards, documentation requirements, calibration equipment maintenance, and corrective actions for non-compliance. The procedure ensures accuracy, reliability, and compliance of measurement tools and equipment used in quality control and production processes, thereby maintaining operational efficiency and product quality.

1. Purpose

To ensure that all inspection tools and equipment used in the organization are properly calibrated and inspected on a regular basis to maintain accuracy and reliability, and to comply with relevant standards and regulations.

2. Scope

This procedure applies to all inspection tools and measuring equipment used for quality control and production processes.

3. Responsibilities

- **Quality Manager**: Oversees the implementation and ensures compliance with calibration requirements.
- **Technicians/Inspectors**: Responsible for performing inspections, calibrations, and maintenance as specified.
- **Document Control**: Maintains and archives calibration records and certificates.

4. Definitions

- **Calibration**: The process of configuring an instrument to provide a result for a sample within an acceptable range.
- **Reference Standard**: A material or device with a known value or composition used to calibrate equipment.
- **Non-conformance**: Any condition indicating the equipment is not performing within specified limits.

5. Procedure

1. **Inspection of Tools and Equipment**
    - Visually inspect tools and equipment for signs of wear, damage, or malfunction prior to use.
    - Report any abnormalities to the Quality Manager immediately.

2. **Calibration Scheduling**
    - Develop and maintain a calibration schedule for all equipment based on manufacturer recommendations, regulatory standards, and past performance.
    - Clearly label each piece of equipment with the calibration due date.

3. **Calibration Standards**
    - Use only certified reference standards that are traceable to national or international standards.
    - Ensure all calibration activities comply with ISO/IEC 17025 or relevant industry standards.

4. **Calibration Process**
    - Perform calibration according to the manufacturer's guidelines and internal procedures.
    - Record measurement data and compare with allowable tolerances.
    - Adjust equipment as required to bring within acceptable limits.

5. **Documentation Requirements**
    - Document all inspection and calibration activities in the Calibration Log (see sample format below).
    - Archive calibration certificates and related records for audit and traceability.

6. **Calibration Equipment Maintenance**
    - Maintain calibration instruments in good working condition and store in a clean, safe environment.
    - Carry out preventive maintenance as per manufacturer guidelines.

7. **Corrective Actions for Non-Compliance**
    - Tag and remove from service any equipment found to be out of calibration until corrective action is complete.
    - Investigate the impact of out-of-tolerance equipment on previously inspected products.

- Record all corrective actions taken and notify management as necessary.

6. Records and Documentation

Record Type	Responsible	Retention Period
Calibration Log	Quality Technician	3 years
Calibration Certificates	Document Control	3 years
Non-Conformance Report	Quality Manager	3 years

7. Attachments/References

- Calibration Log Template
- ISO/IEC 17025 Standard
- Manufacturer manuals and calibration instructions

8. Calibration Log Sample Format

Equipment ID	Description	Serial Number	Date Calibrated	Next Due Date	Technician	Status
EQ-001	Vernier Caliper	VC123456	2024-03-15	2025-03-15	John Doe	Pass
EQ-002	Micrometer	MC654321	2024-03-16	2025-03-16	Jane Smith	Pass

Reviewed and Approved by: _____ *Date:* _____