

SOP Template: Tool and Fixture Setup Protocols

This SOP details the **tool and fixture setup protocols** to ensure accurate, safe, and efficient preparation of tools and fixtures before production. It covers standardized procedures for selection, installation, calibration, inspection, and maintenance of tools and fixtures, aiming to minimize setup errors, reduce downtime, and maintain quality control throughout the manufacturing process.

1. Purpose

To define consistent procedures for setting up tools and fixtures to ensure operational readiness, accuracy, safety, and quality in production.

2. Scope

This SOP applies to all personnel responsible for the setup, operation, calibration, and maintenance of tools and fixtures on the manufacturing floor.

3. Responsibilities

- **Setup Technicians:** Select, install, and calibrate tools and fixtures as per procedures.
- **Supervisors:** Verify setup compliance and overall readiness.
- **Maintenance Personnel:** Perform scheduled maintenance and corrective actions as required.

4. Definitions

| Term | Definition |
|-------------|---|
| Tool | Any device used to carry out a particular function in production (e.g., drill, milling cutter). |
| Fixture | Support or work-holding device that ensures accurate positioning, alignment, and support of workpieces. |
| Calibration | The process of verifying and adjusting tool/fixture accuracy within specified tolerances. |

5. Procedure

1. **Preparation**
 - Review work orders and setup sheets.
 - Ensure all necessary tools and fixtures are available and meet specifications.
2. **Selection**
 - Verify correct tool and fixture selection as per job requirement.
 - Cross-check tool/fixture identification numbers with setup documentation.
3. **Inspection**
 - Inspect tools and fixtures for wear, damage, contamination, or missing parts.
 - Document and quarantine any nonconforming items; notify supervisor.
4. **Installation**
 - Install tools and fixtures according to machine manuals and torque specifications.
 - Ensure all locking mechanisms are properly engaged.
5. **Calibration**
 - Calibrate tools and fixtures using approved gauges or devices.
 - Record calibration results in the setup log.
6. **Verification**
 - Supervisor or qualified technician reviews and signs off on setup completion.
7. **Start-Up**
 - Perform a test run with first-off inspection before proceeding with full production.

6. Maintenance

- Perform preventive and corrective maintenance per maintenance schedule.
- Document maintenance activities and update maintenance records.
- Replace tools and fixtures reaching the end of service life.

7. Documentation

- Maintain records of tool/fixture selection, installation, calibration, inspection, and maintenance.
- Store documentation per quality management system requirements.

8. Safety

- Follow all PPE requirements during setup procedures.
- Ensure all energy sources are locked out/tagged out (LOTO) before servicing.
- Report all unsafe conditions immediately.

9. References

- Equipment operation manuals
- Work instructions and setup sheets
- Quality and safety policies

10. Revision History

| Revision | Date | Description | Author |
|----------|------------|-----------------|----------|
| 1.0 | 2024-06-15 | Initial version | QMS Team |