

Company Name: _____

Maintenance Forms & Logs

Date: _____

Log ID: _____

Version: 1.0

CNC Machine Spindle Runout & Axis Calibration Master Log

1.0 Form Objective & Asset Scope

This master log is designed to document and track spindle runout and axis calibration measurements for CNC machining centers. Regular verification of spindle concentricity and axis positioning accuracy is critical to maintaining part quality, tool life, and machine reliability. This log serves as a baseline reference for trend analysis and early detection of bearing wear, thermal growth, or mechanical misalignment.

Scope includes all CNC mills, lathes, and multi-axis machining centers within the facility. Each machine must have a dedicated log that is updated after every calibration event or at intervals defined by the OEM or reliability program.

2.0 Administrative & Asset Details

Date: _____

Technician Name: _____

Machine ID / Asset Tag: _____

Machine Make & Model: _____

Spindle Serial Number: _____

Hour Meter Reading (Total Spindle Hours): _____

Calibration Instrument Used (e.g., dial indicator, laser interferometer): _____

Instrument Calibration Due Date: _____

3.0 Inspection / Parameter Checklist

- ☐ Pass ☐ Fail - Verify spindle taper is clean and free of debris or burrs before mounting indicator.
- ☐ Pass ☐ Fail - Measure radial runout at spindle nose (TIR) using a dial indicator at 0° and 180° positions.
- ☐ Pass ☐ Fail - Record radial runout value (TIR) in microns or thousandths of an inch.
- ☐ Pass ☐ Fail - Measure axial runout (end play) of spindle with indicator against a test bar or face.
- ☐ Pass ☐ Fail - Record axial runout value (TIR) in microns or thousandths of an inch.
- ☐ Pass ☐ Fail - Check X-axis positioning accuracy over full travel using laser interferometer or ballbar.
- ☐ Pass ☐ Fail - Record X-axis deviation (max error) in microns or thousandths of an inch.
- ☐ Pass ☐ Fail - Check Y-axis positioning accuracy over full travel.
- ☐ Pass ☐ Fail - Record Y-axis deviation (max error) in microns or thousandths of an inch.
- ☐ Pass ☐ Fail - Check Z-axis positioning accuracy over full travel.

☐ Pass ☐ Fail - Record Z-axis deviation (max error) in microns or thousandths of an inch.

☐ Pass ☐ Fail - Verify spindle orientation (M19) repeatability within OEM tolerance.

4.0 Deficiencies & Work Order Generation

Issue Description (e.g., excessive radial runout, axis drift): _____

Measured Value vs. OEM Tolerance: _____

Parts Required (e.g., spindle bearings, ballscrew, encoder): _____

Recommended Corrective Action: _____

Work Order Number Generated: _____

Priority Level (Critical / High / Medium / Low): _____

5.0 Sign-off & Return to Operations

Maintenance Technician Signature: _____ Date: _____

Reliability Manager Review: _____ Date: _____

Production Supervisor Acknowledgment: _____ Date: _____

Date Machine Returned to Service: _____ Date: _____

Regulatory Disclaimer: This maintenance log is a generic template. The end-user assumes all liability for validating all inspection parameters, PM frequencies, and tolerances against specific OEM machinery manuals before active shop floor deployment.