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| Instruction:  **QP-125** | Pages:  **5** |
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| Authorized By:  **Quality Assurance Manager** | |



**INSPECTION EQUIPMENT CONTROL, MAINTENANCE, AND CALIBRATION**

1. **Purpose and Scope**

**PURPOSE**

To define the maintenance of inspection, measuring and test equipment in a known state of accuracy as verified by calibration records.

**SCOPE**

This procedure applies to inspection, measuring, and test equipment used to control production processes and accept or reject parts.

1. **Definitions**

**Calibration:** The Process used to maintain instrument accuracy.

**Inspection, Measuring and Test Equipment:** All devices used to inspect, examine, test or gage conformance of a product or process with regard to one or more characteristics or attributes.

**Nonconforming Product:** Product which does not conform to customer requirements or specifications.

**Verification:** Confirmation by examination and provision of objective evidence that specified requirements have been fulfilled.

1. **Process Owners**

**Quality Assurance Manager**

**Process Designees: Operator**

**Quality Assurance Supervisor**

**Machine Shop Supervisor**

**Punch Press Supervisor**

**Machine Repair Supervisor**

**Quality Assurance Lead Person**

**Quality Assurance Technician**

**Shipping Personnel**

**Tool Room Inspector**

1. **Procedures**
2. **Tool Room Inspector**

**Inspects and Logs Gages and Fixtures**

The Tool Room Inspector Inspects and records results of all Inspection fixtures and gages on a Gage Calibration Information Form called GAGECAL. Cal Sheet in the ERP System. After completion, the gage is assigned a unique tool number (T/N), which is inscribed into the gage and given a calibration sticker if approved. (The location is also inscribed onto the surface of the gage by the Q.A. Tech/Inspection Department once received in the Q.A. Department. Currently the gage location is considered the name of the gage. Engineering and the Tool Room still refer to the gage by the T/N). It is then placed by location into the gage crib. The Quality Assurance Lead Person receives notification of all approved gages. If a gage is out of tolerance or not approved, it does not leave the Tool Room until it is in tolerance and approved. If a purchased gage or fixture is found to be out of tolerance or fails calibration it is returned to the manufacturer from which is was purchased for repair or replacement.

1. **Quality Assurance Lead Person**

**Receives Gages and Fixtures from Tool Room**

Information on approved gages is given to the Quality Assurance Lead Person on an “Additions to Gage Crib “Form (GC-100). The Quality Assurance Lead Person adds this information to the ERP System under Inspection Gages.

**Sets a Calibration Schedule**

The Quality Assurance Lead Person shall establish a calibration schedule for all gages and required fixtures based on the date of first calibration. Calibration schedules may be established by the manufacturer’s recommendations, industry standards, or customer specific requirements. This schedule shall be entered into the ERP System under inspection gages. Gages are inspected per schedule, this is based on critical or non-critical product characters (KCC). Calibration shall be kept current on all gages and fixtures. Actual Certification records will be maintained and kept in the Quality Department.

**Establish Calibration Procedures**

A gage calibration procedure has been developed for each gage type and inspection fixture based on manufacturer’s instructions/recommendation or customer specific requirements. This procedure is labeled and located in the QA department. Gages requiring calibration by an outside source will have all requirements stated on the purchase order, specifically calibration acceptance tolerance, number of points, and the range of use values must be below the lowest test points and above the highest test points.

1. **Quality Assurance Technician**

**Calibration Frequency**

At the beginning of each month, a listing of gages due for calibration shall be printed from the ERP System. The list shall be assigned to a “Class A” Q.A. Technician to perform the calibration in accordance with the instructions set forth in the Gage Calibration Book. Calibrations shall be accomplished up to 45 days prior to its due date listed for yearly calibration in the ERP System. If the calibration of a gage is not completed by its due date, that gage will be listed “Inactive” in the ERP System and an email will be sent to the Q.A. Manager, Q.A. Supervisor, Q.A. Leadman, and Q.A. Tech. assigned to the gage calibration. Supervisors from departments affected by the gage’s inactivity will be notified by the ERP System or a Q.A. Technician. Any gage rendered “Inactive shall be immediately pulled and brought to the gage inspection area to be calibrated.

**Calibration Records**

When calibration variation is observed to exceed the specified tolerance, it shall be noted. NDT Level III shall notify the QA Supervisor of issues exceeding tolerance. QA Supervisor shall then initiate a purchase requisition for repair, replace, or calibration of gage. A review will be done of past use of equipment that was found to exceed tolerance. If it is determined that the condition impacted the acceptance of product, all suspect material shall be quarantined and re-inspected. If it is determined that suspect product has been shipped, the Q.A. Manager shall contact the customer per QP-126 and make appropriate arrangements to correct any issues. The gage or fixture that is out of tolerance will be brought back into tolerance or discarded if it cannot be fixed. Note: if variation is found during setup by an inspector, the same procedure will apply. Actual Certification records on all gages and fixtures shall contain at a minimum, the name of the gage, the serial number (if applicable), the name and location of the calibration source, tolerance and procedure data and information, the condition of the gage as received, the technician who inspected it and the person approving the certification. All gages and fixtures will have a certification sticker with date of calibration, which will serve as a reminder of the yearly calibration due date.

1. **Shipping**

**Packaging**

When gage/ fixtures are returned for repair or replacement to the manufacturer, Shipping Personnel shall package gage/fixture, in such a manner that shall safeguard against any damage during transit.

1. **References**

**5.1 Related Procedure**

Nonconforming Material Control QP-126

**5.2 Reference Documents**

GC-100 Additions to Gage Crib

1. **Records**

New or Modified Gage Calibration Information ENG-016 Retain 5 years Min.

Vendor Calibration Records VEN CAL Retain 7 years Min.

1. **Policy References**

Monitoring and Measuring Resource:

ISO 9001:2015 7.1.5.2

IATF 16949:2016 7.1.5.2.1

1. **Revision History to Procedure QP-125**

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| **Chg. No.** | **Date** | **Rev.** | **Change Description** |
| 1 | 2/13/1998 | 0 | Creation of Document |
| 2 | 1/29/1999 | 1 | Added "Outside calibration sources are preferred to be ISO 9000 certified and/or A2LA accredited. Gages being sent to outside calibration labs shall be packaged utilizing same shipping practices as those used to ship parts" to section 4.3. Added Class 'A' Technician as designated personnel to section 4.4 and 4.5.  Added "Returns to proper crib location and assures that they are stored in a manner that will safeguard them" to section  4.5. Added "Personnel conducting test(s) will have appropriate background and/or experience" to section 4.6. Added "Samples are maintained until all traceability issues have been completed with lot in question" to section 4.7. Changed issuer from SPC Coordinator  to Q.A. Supervisor. |
| 3 | 2/16/2007 | 2 | Changed responsibility from Quality Setup to Toolroom Inspector and totally revised 4.1. Changed 4.3 from "and preferred" to "must" be ISO-9000; changed "A2LA accredited" to "ISO/IEC 17025"; changed 4.6 from Personnel "conducting tests" to Personnel "using gages"; deleted 2nd sentence "verifies that the calibration...." and added last sentence to 4.7. |
| 4 | 4/18/2007 | 3 | Under 4.5, "Installs calibration due sticker" was "Installs calibration due sticker as  applicable." |
| 5 | 9/2/2008 | 4 | Under 4.1, "After ID number is assigned the Tool Inspector will affix a calibration sticker on gage. This applies to new gages as well as repaired gages." |
| 6 | 11/25/2008 | 5 | Major revision to 4.2, 4.3, 4.4, 4.5, and 4.6. Removed 4.7 Added 4.8 Shipping Gages |
| 7 | 9/9/2009 | 6 | Changed in 4.4 "qualified personnel" to "a Q.A. Technician "A" class minimum". |
| 8 | 1/29/2010 | 7 | Added sentences about "Variables gages will be checked... and "Actual  readings...entered in Gage Calibration Program Added sentences about "Variables gages will be checked... and "Actual readings...entered in Gage Calibration Program in computer." in computer." |
| 9 | 1/11/2012 | 8 | Added "on form "New or Modified Gage Calibration Information"... given to the Q.A. Lead person" to #4.1 under Procedures; Added form ENG-016 "New or Modified Gage Calibration Information" to Records. |
| 10 | 1/12/2018 | 9 | Revised for ISO 9001 / IATF 16949 |
| 11 | 11/26/2019 | 10 | Added verbiage to 4.2 last paragraph to better define what needs to be communicated to vendors. (Initiator: Rodney Sigman) |
| 12 | 3/18/2020 | 11 | Updated Section 3 Process Designee’s; also, Section 4.3 Calibration Frequency.  Initiator: Jon Danek) |
| 13 | 12/05/2023 | 12 | Changed Document Type from Instruction to Procedure.  Section 8-Removed “of”, added “History to Procedure.”  Added-Revised Styberg Logo, Revision History Block,  Changed revision number from 12 to 13 to reflect correct change history  Section 4 “oracle” was changed to “ERP System” 6 times Updated gages to be inspected based on critical or non-critical product characters. Updated how to repair, replace or calibrate gages exceeding tolerance. |