

CALIBRATION OF MEASURING TOOLS AND EQUIPMENT (MT&E)

(A) GENERAL:

(A.1) DURING PERFORMANCE OF THIS ORDER, YOUR QUALITY CONTROL SYSTEMS AND CALIBRATION PROCEDURES ARE SUBJECT TO REVIEW, VERIFICATION, ANALYSIS, AND APPROVAL BY TCT.

(A.2) TCT SHALL BE AFFORDED THE RIGHT TO VERIFY AT THE SUPPLIER'S PREMISES ANY INFORMATION RELATING TO THE CALIBRATION OF TOOLS AND EQUIPMENT PERFORMED IN FULFILLMENT OF THIS ORDER.

(A.3) SUPPLIER IS RESPONSIBLE FOR COMPLYING WITH ALL OF THE REQUIREMENTS OF THIS PURCHASE ORDER INCLUDING PROVIDING COMPLETE AND PROPER DOCUMENTATION WITH EACH SHIPMENT. IF THE REQUIRED DOCUMENTATION IS INCOMPLETE OR INCORRECT, THE SUPPLIER'S ACCOUNT MAY BE DEBITED 10% OF THE COST OF THE ASSOCIATED SERVICE PER OCCURRENCE.

(A.4) SUPPLIER IS SUBJECT TO ALL TERMS AND CONDITIONS SPECIFIED ON THE REVERSE SIDE OF THIS PURCHASE ORDER.

(B) QUALITY SYSTEMS:

(B.1) CALIBRATION SHALL BE PERFORMED IN ACCORDANCE TO ISO 17025. MANUFACTURERS OF EQUIPMENT MAY CALIBRATE THEIR SPECIFIC EQUIPMENT ONLY. CALIBRATION OF SPECIALTY GAGES MAY BE CALIBRATED BY VENDORS THAT ARE NOT ISO 17025 WITH THE APPROVAL OF THE QUALITY MANAGER.

(B.2) VENDORS PERFORMING CALIBRATION OF METALLOGRAPHY LAB EQUIPMENT (OPTICAL MICROSCOPE AND/OR ASSOCIATED SOFTWARE, STAGE MICROMETER, HARDNESS TESTER, ETC.) SHALL BE ACCREDITED TO ISO/IEC 17025.

(B.3) SUPPLIER IS RESPONSIBLE FOR FLOWING DOWN AND FOR ENSURING ADHERENCE TO THE REQUIREMENTS OF THIS PURCHASE ORDER BY ALL SUB-TIERS.

(B.4) SUPPLIER WILL RETAIN ALL CALIBRATION RECORDS FOR 6 YEARS, MINIMUM, AND WILL MAKE THESE RECORDS AVAILABLE TO TCT UPON REQUEST WITHIN 24 HOURS.

(B.5) CALIBRATION PERSONNEL SHALL MEET MINIMUM VISION REQUIREMENTS (IN AT LEAST ONE EYE, CORRECTED OR UNCORRECTED) OF SNELLEN 14/18, 20/30, OR JAEGER 2. TESTING INTERVALS SHALL NOT EXCEED ONE YEAR.

(C) CALIBRATION / VERIFICATION REQUIREMENTS:

(C.1) NIST TRACEABILITY IS REQUIRED FOR ALL STANDARDS USED DURING CALIBRATION. IN SUCH CASES WHERE STANDARDS DO NOT EXIST, TRACEABILITY SHALL BE ESTABLISHED TO OTHER INTERNATIONALLY ACCEPTED STANDARDS.

(C.2) THE COLLECTIVE UNCERTAINTY OF THE MEASUREMENT STANDARDS SHALL NOT EXCEED 25% OF THE CERTIFIED ACCURACY OF THE INSTRUMENT.

(C.3) UNLESS OTHERWISE APPROVED BY TCT, ALL CALIBRATIONS SHALL BE PERFORMED IN ACCORDANCE WITH TCT INTERNAL CALIBRATION PROCEDURES OR EQUIVALENT AT THREE PLACES MINIMUM (LOW, MEDIUM, AND HIGH) TO COVER THE RANGE OF USE OR 100% OF THE INSTRUMENT RANGE AS STATED ON THE INVENTORY LIST PROVIDED WITH THE M&TE. IN ADDITION, THE FOLLOWING SHALL BE ADHERED TO AS APPLICABLE:

- HEAT TREAT FURNACES, OVENS, AND ASSOCIATED M&TE SHALL BE CALIBRATED AND CERTIFIED TO THE LATEST REVISION OF AMS2750.
- FLUORESCENT PENETRANT INSPECTION EQUIPMENT AND ASSOCIATED M&TE SHALL BE CALIBRATED AND CERTIFIED TO THE LATEST REVISION OF ASTM E1417 AND AC7114/1, AS APPLICABLE.
- X-RAY INSPECTION EQUIPMENT AND ASSOCIATED MT&E SHALL BE CALIBRATED AND CERTIFIED TO THE LATEST REVISION OF ASTM E1742.

(C.4) UNLESS OTHERWISE STATED ON THE INVENTORY LIST PROVIDED WITH THE M&TE, THE ALLOWABLE TOLERANCE WITHIN WHICH THE M&TE IS TO BE CALIBRATED SHALL BE +/- 1 GRADUATION / RESOLUTION.

(C.5) MT&E SHALL BE CHECKED IN THE "AS RECEIVED CONDITION", AND ADJUSTED AND RECHECKED IF FOUND OUT OF TOLERANCE.

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(C.6) AS REQUIRED, CONTACT THE TCT CALIBRATION DEPARTMENT TO OBTAIN AUTHORIZATION FOR ANY NECESSARY REPAIRS.

(C.7) CALIBRATION STICKERS SHALL BE THE SAME APPROXIMATE SIZE AND BE AFFIXED IN THE SAME LOCATION AS THE EXISTING CALIBRATION STICKER (AFTER REMOVING THE EXISTING STICKER), UNLESS OTHERWISE APPROVED BY TCT.

(C.8) THE FREQUENCY OF CALIBRATION SHALL BE AS STATED ON THE INVENTORY LIST PROVIDED WITH THE M&TE, AND SHALL NOT BE EXTENDED OR REDUCED WITHOUT PRIOR WRITTEN APPROVAL BY TCT.

(C.9) ANY M&TE THAT IS RETURNED TO TCT UNCALIBRATED (DUE TO THE SUPPLIER'S INABILITY TO REPAIR THE M&TE OR FOR ANY OTHER REASON AT TCT'S DISCRETION) SHALL BE SUITABLY IDENTIFIED TO INDICATE ITS STATUS.

(D) PACKAGING / SHIPPING REQUIREMENTS:

(D.1) PACKAGING SHALL BE ADEQUATE TO PREVENT DAMAGE AS WELL AS EXCESSIVE SHIFTING DURING TRANSIT.

(D.2) PACKAGING SHALL BE CLEARLY IDENTIFIED WITH THE SUPPLIER NAME AND P.O. NUMBER.

(E) DOCUMENTATION REQUIREMENTS:

(E.1) A PACKING SLIP SHALL BE PROVIDED, INCLUDING THE SUPPLIER'S CONTACT INFORMATION, THE ITEMS BEING SHIPPED (BY GAGE NUMBER, SERIAL NUMBER, ETC.), AND THE P.O. NUMBER.

(E.2) A CALIBRATION REPORT SHALL BE PROVIDED AND SHALL INCLUDE THE FOLLOWING MINIMUM INFORMATION: SUPPLIER'S CONTACT INFORMATION AND ACCREDITATIONS HELD, P.O. NUMBER, MT&E IDENTIFICATION AND DESCRIPTION, CALIBRATION PROCEDURE USED, DATE OF CALIBRATION, EXPIRATION DATE OF CALIBRATION (DUE DATE), STANDARDS USED DURING CALIBRATION (ALONG WITH NIST TRACEABILITY DATA AND EXPIRATION DATE OF CALIBRATION), "AS RECEIVED" AND "ADJUSTED" CALIBRATION RESULTS FOR THE MT&E BEING CALIBRATED, THE ACCURACY TO WHICH THE M&TE HAS BEEN CALIBRATED, ANY OUT OF TOLERANCE CONDITIONS IDENTIFIED AND REPAIRS / ADJUSTMENTS MADE, AND THE NAME/SIGNATURE OF THE PERSON APPROVING THE CALIBRATION REPORT.
[REV. 03/06/17 - ADDED B5; REV. 09/16/10 - REF. C, C4, C8.; REV. 12/04/08 - REF. C3,C4]