

# QUALITY ASSURANCE PROVISION #EQ002

## REVISION A

### QAP-EQ002

**March 10, 2003**

#### **1. SCOPE**

This Quality Assurance Provision covers requirements for the quality conformance inspection of parts manufactured for the Defense Logistics Agency, Defense Supply Center Philadelphia (14153). A particular provision hereof shall apply only to the extent that it is not inconsistent with any other specification requirement of this order/contract. In the event of conflict between a particular provision of this document, and other specification requirement of this order/contract, this particular provision shall not apply.

#### **2. SPECIFICATIONS, STANDARDS**

Reference Documents:

American Society of Mechanical Engineers (ASME) B46.1, Surface Texture

ASME Y14.5M, Dimensioning and Tolerancing

ANSI/NCSL Z540.1, "Calibration Laboratories and Measuring and Test Equipment - General Requirements"

National Bureau of Standards Handbook H28, Screw Thread Standards for Federal Services

American Society for Testing Materials (ASTM) Standards

E8 - Test Methods for Tension Testing of Metallic Materials

E10 - Test Methods for Brinell Hardness of Metallic Materials

E18 - Test Methods for Rockwell Hardness and Rockwell Superficial

Hardness of Metallic Materials

International Organization for Standardization (ISO) 8402 "Quality management and quality assurance - Vocabulary"

#### **3. REQUIREMENTS**

A. This paragraph shall be applied where the method of procurement is by part number only, or by part number in accordance with specified Original Equipment Manufacturer (OEM)/Approved Source technical data/drawings.

When the contractor awarded the order/contract is not the OEM, it is that contractor's responsibility to assure the parts are acquired from the OEM or approved/acceptable source, as required by the order/contract. Evidence required can be, but is not limited to:

- (1) Purchase order(s)/Invoice(s) between manufacturer(s), distributor(s), identifying part number, technical data package (TDP)/revision level, if applicable, and quantities.
- (2) OEM or approved/acceptable sources' packing slips identifying part number,

TDP/drawing revision level, if applicable, and quantities.

(3) OEM or approved/acceptable sources' certification identifying part number, TDP/drawing revision level, if applicable, and quantities.

(4) Parts received are packaged in the OEM or approved/acceptable sources' identifiable standard packaging with the part number and TDP/drawing revision level, if applicable, cited on the package.

The contractor shall be responsible for the assurance of type, kind, count, and condition. Preservation, packing, packaging, and marking shall be in accordance with contractual requirements.

B. When the item awarded is described by a drawing which was provided by the government or the technical data is commercially available and complete for manufacture, the contractor is responsible for compliance with all technical requirements. Unless otherwise specified, characteristics shall be assigned in accordance with section 4B below.

(1) Surface Roughness - Machined surfaces of parts specified to a surface roughness value shall be examined in accordance with ANSI B46.1 to determine conformance of surface roughness to a specified value.

(2) Product threads shall be in accordance with FED-STD-H28.

(3) Measurement - Specified dimensional and geometric tolerances shall be measured using only calibrated measuring equipment certified and traceable to National Institute of Standards and Technology (NIST) for accuracy.

(4) Testing shall be in accordance with applicable ASTM Standards.

C. Workmanship - Finished product shall be uniform in quality and condition, be clean, smooth and free from scale, burrs, slivers, sharp edges (unless a technical requirement), ragged or torn edges, and other defects considered detrimental to serviceability of product.

#### **4. QUALITY ASSURANCE PROVISIONS**

A. Sampling for quality conformance inspection shall be in accordance with the latest revision of DSCP QAP-EQ001.

B. The following classification of characteristics shall apply for awards defined by 3B above, unless otherwise specified.

Critical:

01. Diametrical and linear dimensions having a total tolerance of 0.001 inch (0.025 MM) or less.

02. Surface finishes having a 16 rms value or less.

03. Geometric Tolerances having a tolerance of 0.002 inch (0.051 MM) or less.

04. Nondestructive tests - Magnetic particle inspection, Liquid penetrant inspection, Ultrasonic testing, Radiographic testing, etc.

Major:

101. Diametrical and linear dimensions having a total tolerance greater than 0.001 inch (0.025 MM) up to and including 0.005 inch (0.1270 MM).

102. Surface finishes having specified rms values over 16 but less than or equal to 63.

103. Geometric Tolerance having a tolerance greater than 0.002 inch (0.051 MM) and equal to or less than 0.008 inch (0.2032 MM).

104. Threads specified to Class 3 tolerances.

Minor:

201. Diametrical and linear dimensions having a total tolerance in excess of 0.005 inch (0.1270 MM).

202. Surface finishes specified to rms values in excess of 63.

C. Visual and dimensional characteristics which are found to be nonconforming with the requirements of the applicable drawing and the requirements of this provision shall be considered nonconformances.

D. Chemical Test Lot - For chemical analysis a test lot shall consist of one heat or melt of material regardless of product sizes/shapes produced.

E. Mechanical Test Lot - For mechanical testing, when heat treatment is a technical requirement, a lot shall consist of:

(1) One size/shape of "as received" material from a "Chemical Test Lot", or

(2) Each heat treat batch or continuous furnace run of end items from a "Chemical Test Lot".

F. Material Certification - Written certification shall state that the material used conforms to the specification requirements and test reports are on file. Contractor may present the material manufacturer's certificate of test for each heat or melt of material used in the manufacture of inspection lot product. The certificate shall show that the test results are in accordance with specification requirement and shall be entered into the inspection record. When a Certificate of Quality Compliance (COQC) is a requirement, the material certification:

(1) Shall be signed by an authorized company officer or contractor representative responsible for Quality Assurance.

(2) Shall include actual test/inspection results.

(3) Shall include documentation for all required processes.

G. Metallic Products: Products produced from "as received" material, material, purchased in accordance with technical requirements of the contract/order, including products to be heat treated during the manufacturing cycle shall require certificates (test report results) or mill source certification and shall be verified by the contractor for conformance with the requirements of the applicable material specification, including conformance with the properties for the type, grade, class, condition ordered. Inconclusive certification will require verification testing in accordance with the applicable specification and shall be performed on the chemical test lot and mechanical test lot of any particular material received, and test report shall form part of the contract inspection records.

(1) Heat Treated Parts: Those articles which during the manufacturing cycle have been heat treated as may be required by drawing to obtain desired mechanical properties must be tensile and/or hardness tested as applicable to assure conformance to the drawing requirements.

(2) When necessary due to product size, tensile test coupons may be taken from the same material from which the part is made. Test coupons shall be the same thickness as the maximum section of the part being heat treated and shall be subjected to the same heating and cooling cycles performed in the heat treatment of the parts.

H. Non-metallic Products: Test certificates from the raw material producer or source certification shall be examined by the contractor for conformance to the applicable material application. The certification received from the material producer/supplier may be the sole basis for acceptance when the certificate establishes that the material meets the requirements of the applicable specifications. If the certificate is not complete, additional testing must be performed or data obtained to establish that material meets the requirements of the applicable specifications.

I. Surface Finishes and Treatments/Metallic Coatings:

(1) Plating, Surface Finishes and Treatments: Samples shall be selected, examined and tested in accordance with requirements of the applicable finish specification cited within technical documents of the contract with the acceptance/ rejection criteria of the specification applying. In lieu of specific testing inspection criteria, contractor may furnish the plating vendor's certification with inspection results attached as objective quality evidence of surface finish conformance with specified requirements.

(2) When hydrogen embrittlement relief treatment is required, contractor shall include on the certification a statement that product was so treated by baking at the temperature and time required.

J. Examination for Preparation for Delivery - Examination of the preparation for delivery shall be performed to determine conformance with contractual requirements.