

SUPPLIER QUALITY ASSURANCE REQUIREMENTS

A. General Requirements applicable to all Purchase Orders (per AS9100D; 8.4.3):

- The processes, products, and services provided include the identification of relevant technical data (e.g., specifications, drawings, process requirements, work instructions);
- The approval of products and services; methods, processes, and equipment; the release of products and services;
- The competence of Supplier's employees, including any required qualification of persons;
- The Supplier's interactions with Coherent Aerospace & Defense;
- Control and monitoring of Supplier's performance to be applied by Coherent Aerospace & Defense;
- The verification or validation activities by Coherent Aerospace & Defense, or its customer(s), intends to perform at Supplier's premises;
- Design and development control;
- Special requirements, critical items, or key characteristics;
- Test, inspection, and verification (including production process verification);
- The use of statistical techniques for product acceptance and related instructions for acceptance by Coherent Aerospace & Defense;
- The need to:
 - Implement a quality management system;
 - Use customer-designated or approved external providers, including process sources (e.g., special processes);
 - Notify Coherent Aerospace & Defense of nonconforming processes, products, or services and obtain approval for their disposition;
 - Prevent the use of counterfeit parts;
 - Notify Coherent Aerospace & Defense of changes to processes, products, or services, including changes of their external providers or location of manufacture, and obtain Coherent Aerospace & Defense's approval;
 - provide test specimens for design approval, inspection/verification, investigation, or auditing;
 - retain documented information, including retention periods and disposition requirements;
- The right of access by Coherent Aerospace & Defense, Coherent Aerospace & Defense customer(s), and regulatory authorities to the applicable areas of facilities and to applicable documented information, at any level of the supply chain;
- Ensuring that persons are aware of:
 - their contribution to product or service conformity;
 - their contribution to product safety;
 - the importance of ethical behavior.

B. SURVEILLANCE

Coherent Aerospace & Defense Quality Assurance representative reserves the right to conduct periodic audits of Supplier's Quality Assurance inspection system, and to witness and/or conduct inspections and tests to assure materials or supplies satisfactorily meet procurement document requirements; review corrective action activities and other records that reflect on hardware or service quality.

C. CHANGES

Supplier shall not accept verbal changes to the specifications, drawings or Purchase Orders Requirements.

D. DISCREPANCIES

Any deviations from established drawing or specifications intended for shipment must be reported to the Coherent Aerospace & Defense Purchasing Agent immediately. No deviations will be considered approved without written confirmation from the Coherent Aerospace & Defense Purchasing Agent. Repairs are not to be undertaken without prior written approval from the Coherent Aerospace & Defense Purchasing Agent. Unless otherwise specified in the Purchase Order, Supplier and/or any of their suppliers/subcontractors do not have authority to process "USE-AS-IS", "REPAIR", "STANDARD REPAIR PROCEDURES (SRPS)" or "NON-SRPS" via their Material Review Board (MRB). These dispositions, as well as deviations and request for waivers, requiring MRB disposition shall be submitted to Coherent Aerospace & Defense for approval. This does not include REWORK or SCRAP. The Supplier and/o any of their suppliers/subcontractors shall utilize its appropriate nonconforming material disposition form and submit it to the Purchasing Agent for Coherent Aerospace & Defense's approval.

E. CORRECTIVE ACTION

Acceptance of the Purchase Order obligates the Supplier to perform, upon request, a corrective action investigation when discrepant material is received at Coherent Aerospace & Defense. A written report shall be furnished, within a stipulated time period, which is specific and conclusive to prevent a recurrence of the discrepancy.

F. DOCUMENTATION

Coherent Aerospace & Defense shall not accept items delivered under the Purchase Order if the Supplier fails to submit certifications or other documentation specified in the Purchase Order.

G. PRESERVATION AND PACKAGING

Unless special packaging requirements are referenced in the Purchase Order, the Supplier shall use best commercial practices for preservation and packaging of articles supplied to Coherent Aerospace & Defense and shall identify each package with the Purchase Order number, date shipped and packing sheet number.

H. COUNTERFEIT PART PREVENTION

A. Definition - "Counterfeit Work" means product that is, or contains, items deliberately misrepresented as having been designed and/or produced under an approved system and/or acceptable method. The term also includes approved product that has reached a design life limit or has been damaged beyond possible repair, but is altered and deliberately misrepresented as acceptable.

B. Prohibition - **Supplier shall not deliver products that contain counterfeit items** (such as, but not limited to, software, material, electrical/mechanical parts /assemblies, etc.). SAE AS5553 provides guidance for counterfeit prevention.

C. Prevention - Supplier shall only purchase products to be delivered or parts incorporated in product to Coherent Aerospace & Defense directly from the original component manufacturer (OCM), original equipment manufacturer (OEM), or through an OCM/OEM authorized distributor chain. Product or parts incorporated in product shall not be acquired from independent distributors or brokers unless approved in advance, in writing, by Coherent Aerospace & Defense.

D. Notification - Supplier shall immediately notify Coherent Aerospace & Defense with the pertinent facts if Supplier becomes aware, or suspects, that it has furnished Counterfeit Work. When requested by Coherent Aerospace & Defense, Supplier shall provide OCM/OEM documentation that authenticates traceability of the affected items to the applicable OCM/OEM.

E. Remedies - In the event that product delivered under the Purchase Order constitutes or includes Counterfeit Work, Supplier shall, at its expense, promptly replace such Counterfeit Work with genuine product conforming to the requirements of the Purchase Order. Supplier shall be liable for all costs relating to the removal and replacement of Counterfeit Work, including, without limitation, Coherent Aerospace & Defense's costs of removing Counterfeit Work, of re-installation of replacement product, and of any testing necessitated by the re-installation of product after Counterfeit Work has been exchanged.

I. STANDARDS SPECIFICATION REVISION LEVEL

For any military, industrial, commercial, and/or other national standard that may be referenced within drawings/specifications applicable to the Purchase Order, Supplier shall use the latest revision at time of the Purchase Order unless otherwise indicated. When a military specification and/or other national standard has been cancelled and/or replaced, the approved replacement specification shall be used. Contact the Coherent Aerospace & Defense Purchasing Agent to determine applicable specification and revision if there is any question.

J. FLOW DOWN REQUIREMENTS

This clause mandates that all applicable requirements that are invoked or applied in Coherent Aerospace & Defense purchasing document, including this clause, are flowed down to the Supplier and the Supplier's sub-tier suppliers.

QUALITY ASSURANCE CLAUSES (Q-Notes)

The following clauses become a part of the Purchase Order when specified by number or letter code on the Purchase Order.

1. SUPPLIER INSPECTION/QUALITY SYSTEM

Supplier shall provide and maintain a system that complies with:

- A. Option Deleted
- B. MIL-I-45208A, "Inspection System Requirements"
- C. ISO 9001 or AS9100, "Quality Management System"
- D. Supplier shall maintain an inspection system acceptable to Coherent Aerospace & Defense, subject to inspection and approval at all times by Coherent Aerospace & Defense Quality Assurance.

2. CALIBRATION REQUIREMENTS

The Supplier shall maintain a calibration system in accordance with the intent of ANSI/ASQC M1-1996, Calibration Systems.

- A. The Supplier shall maintain a calibration system in accordance with the requirements of ANSI/NCSL-Z540-1, ISO 10012:2003.
- B. Supplier shall provide a certificate of calibration with each shipment. This document shall include: Standard(s) used for calibration and a statement as to their traceability (NIST).
- C. Test Facility Requirements - Supplier's test facility shall comply with ISO/IEC 17025:2005, General Requirements for Testing and Calibration Laboratories. Third party registration by an accredited registrar is acceptable. Supplier's system will be subject to review and approval by Coherent Aerospace & Defense.

3. INSPECTION DATA SHEETS AND SPECIAL TEST REPORTS

With each shipment the Supplier shall submit inspection reports, data sheets or special test results, as applicable, and as described in A through G below. Data sheets or test results shall be identified with the applicable drawing and/or specification number, revision, Coherent Aerospace & Defense Purchase Order number and the Supplier's lot identification number.

- A. Inspection reports shall cover all physical and dimensional characteristics for the item as called out on the drawing, or in the applicable specification. Supplier shall report the actual dimensions of each part inspected and inspect all parts manufactured. The inspection results shall be traceable by serial number or other identification method to the actual part inspected.
- A1. Inspection reports shall cover all physical and dimensional characteristics for the item as called out on the drawing, or in the applicable specification. Supplier shall report the dimensional range of parts inspected, and inspect all parts manufactured. The inspection results shall be traceable to the lot of parts inspected.
- B. Inspection reports shall list the physical and dimensional characteristics of the items. Sample inspection shall be performed to verify critical dimensional characteristics of the lot of parts are within drawing specification limits. Actual dimensions do not have to be reported except where specific dimensions are requested.
- C. Test reports for special tests such as vibration, shock, rain, sand and dust, pressure, environmental, EMI, ATP and others shall be supplied by the Supplier.
- D. Destructive Testing Analysis (DTA) report is required. Supplier is to permanently identify the parts that have gone through DTA and are no longer suitable for intended use. The tested parts shall be delivered to Coherent Aerospace & Defense.
- E. Interferograms are required with each shipment. Interferograms are to be identifiable to individual parts by serial number.
- F. Mesh coating (grid) Data Sheet is required with each coating run.
- G. Test reports for material properties, such as index of refraction, absorption, modulus of rupture, and others as noted on the Purchase Order, shall be submitted with shipment.

NOTE: Out of tolerance dimensions shall be identified on an inspection report. Supplier shall not deliver parts that are out of tolerance to Coherent Aerospace & Defense without approval from Coherent Aerospace & Defense Quality Assurance Department.

4. GOVERNMENT INSPECTION

Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify the Government Representative who normally services your plant so that the appropriate planning for Government Inspection can be accomplished.

If no Government Representative normally services your plant, contact Coherent Aerospace & Defense Purchasing Agent and/or Quality Assurance Representative immediately. Evidence of Government Inspection must be shown on the shipping documents.

5. USE OF COHERENT AEROSPACE & DEFENSE DRAWINGS

Supplier shall thoroughly check Coherent Aerospace & Defense drawing prior to use in manufacturing of item(s) described therein. Any inaccuracies or incompleteness of the drawing will be reconciled with the Coherent Aerospace & Defense Procurement Representative before proceeding with production.

6. CERTIFICATE OF CONFORMANCE

- A. Supplier shall submit with each shipment a Certificate of Conformance, signed by its Quality Assurance Manager, or authorized designee, stating the product supplied is in full conformance with all physical configuration and functional test specifications; that all raw

material used conforms to applicable specifications. Inspection and test data, physical and chemical analysis, and in-process inspection data are on file at Supplier's plant subject to review by Coherent Aerospace & Defense upon request.

Material or process specifications listed on the Purchase Order must be referenced on the Supplier's Certificate of Compliance. In addition, C of C shall include:

- Purchase Order number
- Part number and revision level
- Quantity, and if applicable, serial number(s)
- Manufacturer's name and, if applicable, manufacturer's part number
- Applicable date code and/or lot number
- Country of origin
- Date

B. A legible copy of Certification of Conformance from original manufacturer of product supplied shall accompany each shipment from the Supplier. C of C shall include:

- Purchase Order number
- Part number and revision level
- Quantity, and if applicable, serial number(s)
- Manufacturer's name and, if applicable, manufacturer's part number
- Applicable date code and/or lot number
- Country of origin
- Date

C. Other certification(s), as specified herein are required.

7. SHELF LIFE DATA

Supplier shall furnish the date of manufacturer, useable shelf life, expiration date of useable shelf life, any special storage conditions, and any safety warnings for each item shipped. Material safety data sheet must be included with each shipment. Items will not be accepted by Coherent Aerospace & Defense where shelf life remaining is less than 75% of total shelf life as calculated by the formula shown below:

Formula for obtaining 75% remaining shelf life of ACS (Age Controlled Substance)

Formula:

$$X\% = (1 - a/b)*100$$

Where b= total months between DOM (Date of Manufacture) and DOE (Date of Expiration)

Where a= total months between DOM (Date of Manufacture) and Receiving

Where X= % of remaining shelf life of the product

Example (assume a=3 months & b=12 months):

$$X\% = (1 - a/b)*100 = (1 - 3/12)*100 = (1 - .25)*100 = .75*100 = 75\% \text{ Remaining Shelf Life}$$

8. TRANSMISSION CURVES/REFLECTANCE CURVES/MELT DATA, RAW MATERIAL

Each shipment must be accompanied by:

- A. Transmission curves
- B. Reflectance curves

Coating transmission or reflectance curves shall be identified with coating run number, and the angle of incidence.

C. Melt data

SUPPLIER RECORDS, RAW MATERIAL

When required by the Purchase Order, Supplier shall:

D. Submit certifications for raw material used in the production of parts supplied to Coherent Aerospace & Defense.

E. Submit copies of actual chemical and physical test reports identifiable with the material submitted.

9. WITNESS SAMPLE/TEST BARS/ SPECIMENS

The Supplier shall submit with each shipment, witness samples, test bars, specimens in accordance with the following and is IN ADDITION to any requirements per the drawing:

A. Optical coatings. Supplier shall submit a minimum of three (3) witness samples per run coated with the item(s) being processed. One (1) sample shall be used for environmental and durability tests, one (1) sample shall be used for reflectance/transmission tests, and one (1) sample shall not be tested. Inspection and test results must be traceable to the samples tested.

B. (Coherent SQC – 25) Test Bars. Supplier shall submit test bars representative of original material. Testing and quantity of test bars required shall be in accordance with the applicable specification, to Coherent Aerospace & Defense's drawing Coherent ET-MCH-017-0X, or as detailed in the Purchase Order. Appropriate inspection/test results are required and must be traceable to the sample tested.

C. Specimens. Specimens representing plating, painting, heat treating, or as specified in the applicable specification or Purchase Order, shall be supplied with each shipment. Appropriate inspection/test results are required and must be traceable to the sample tested.

D. Mesh Resistivity/Gridded Samples. Supplier shall submit as a minimum one (1) mesh resistivity witness sample per run with the part(s) being processed. Gridded witness samples(s), which are provided by Coherent Aerospace & Defense, shall be returned with each shipment.

10. SPECIAL PROCESSES DATA

Supplier and any subcontractor engaged in Special Processes, such as soldering, cleaning, welding, heat treating, plating, anodizing, chemical-film coating, etc., shall have Special Processes approval by Coherent Aerospace & Defense and/or its customer(s).

When required, and as noted on the Purchase Order, special processing shall **ONLY** be performed by suppliers approved for special process by Coherent Aerospace & Defense or its customer(s).

Certificate of Conformance stating batch or lot number, date manufactured, specification or material control number shall be submitted with material.

11. SOURCE INSPECTION

Source Inspection shall be conducted by Coherent Aerospace & Defense at the Supplier's facility or where designated in the Purchase Order prior to shipment. Inspection/test of the items shall be performed by the Supplier and shall be witnessed by Coherent Aerospace & Defense Quality Assurance Representative. Coherent Aerospace & Defense Quality Representative shall elect to do 100% or sample of the units. If sample is elected, the sample will be selected by Coherent Aerospace & Defense Representative. Supplier shall have available

and present upon request, documented evidence of in-process and/or final inspection/test data. Required documentation for shipment must be completed and signed by signed by its Quality Assurance Manager, or authorized designee, and available for Coherent Aerospace & Defense Quality Representative's review.

12. FIRST ARTICLE INSPECTION

Supplier shall perform and document a First Article Inspection (FAI) and test of the article to assure the items conform to all drawings and specification requirements. First article inspections shall be performed in accordance with aerospace standard AS9102.

- FAI performed by Suppliers shall include:
 - A. First article inspection report.
 - B. Documentation of the verification of the engineering against the manufacturing work instructions.
 - C. Documentation of the verification of all process steps performed by the operator.
- Witnessing of acceptance tests will also form a part of the FAI where applicable.
- PARTIAL OR COMPLETE RE-ACCOMPLISHMENT OF FAI:
Changes, as defined in AS9102, paragraph 5.3 or a break in production of one (1) year or more shall require a new FAI.
- FAI RESULTS DOCUMENTATION:
Inspection results shall be documented by recording variable data whenever possible. Attribute data will be recorded only when variable data is not available.

Supplier's report shall include: Purchase Order Number, Part Number, Revision Level, Part Name, Supplier's Name, Drawing Requirements (including tolerance), method used to obtain results and actual results of each measurement. Part(s) used for the inspection shall be identified when shipped to Coherent Aerospace & Defense as "First Article Inspection Sample". First Article Data shall be accompanied the shipment, Attention: Quality. Engineering – Vendor Control. First article data sheets may be in Supplier's format as long as the format follows the AS9102 standards.

13. IDENTIFICATION AND CONTROL BY SERIAL NUMBERS

Supplier shall identify individual serial numbers, to all items shipped to Coherent Aerospace & Defense and shall appear on the certification. Serial numbers shall be assigned by to Coherent Aerospace & Defense. The method of marking will be specified in the Purchase Order or on a furnished manufacturing drawing. The Supplier shall maintain traceability of each serialized item to raw materials used in its manufacturing processes.

14. IDENTIFICATION AND CONTROL BY LOT

Traceability of items shall be by lot number rather than individual serial number. Supplier shall assign a common lot number to all items in a specific manufactured lot.

15. APPROVED SUPPLIER

Supplier must be approved by Coherent Aerospace & Defense Quality Assurance prior to purchase order or contact award. Supplier must have completed an audit questionnaire or an on-site physical survey by Coherent Aerospace & Defense Quality Assurance Representative. Supplier must be on an approved vendor list prior to release of purchase order.

16. CHANGES TO PRODUCT

Supplier shall make no changes to product under the Purchase Order including any change in design, manufacturing process, materials, or otherwise which may affect form, fit, or function of

the product without prior notification to and approval by the Coherent Aerospace & Defense Procurement Representative. Such notification shall consist of detailed drawings clearly defining such changes and the date such changes are proposed to be effective. Such notification shall not constitute approval of the proposed change nor relieve the Supplier of the obligation to comply with requirements contained in the Purchase Order. If the proposed change is approved, the change approval shall be documented.

17. MOVEMENT OF PRODUCT

Supplier agrees that the manufacturing and/or fabrication of product being delivered under the Purchase Order will not be moved to another production facility without the express written approval of Coherent Aerospace & Defense.

18. DFAR FLOWDOWN REQUIREMENTS:

Pursuant to DFARS 252.225-7014, specialty metals incorporated in articles delivered to Coherent Aerospace & Defense must be: (1) melted in the United States, its possessions or Puerto Rico; (2) melted in a "qualifying country" as defined in DFARS 225.872-1; or (3) incorporated in an article manufactured in a "qualifying country."

19. NAS 412 FLOWDOWN REQUIREMENTS:

Supplier shall comply with NAS412 to prevent Foreign Object Damage (FOD) to manufactured products.

20. RECORDS RETENTION:

Supplier shall generate and maintain records as required by the Purchase Order. All records shall be made available upon request to Coherent Aerospace & Defense or Government Representative. Records shall provide evidence that the required inspections and tests have been performed, including part, component, or system identification, inspection or tests involved, number of items accepted or rejected. The records shall be suitable in format, accuracy, and completeness to permit analysis. Certifications, test reports and records shall be retained **for a minimum of seven years** and shall not be destroyed without specific approval from Coherent Aerospace & Defense.

21. LOCKHEED COMMON PROCESSES REVISION STATUS

When Lockheed Martin specifications beginning with, 799, 79C, 79E, 79M, 79P and 79T, are referenced within drawings/specifications applicable to the Purchase Order, Supplier shall use the latest revision at the time of the Purchase Order unless otherwise stated. If there is any question, then contact the Coherent Aerospace & Defense Purchasing Agent to determine applicable revision.

22. Electronic Assemblies

Electronic assemblies shall be manufactured and inspected in accordance with the requirements of ANSI/J-STD- 001 and IPC-A-610. Product specific requirements related to classification will be specified on the drawing or the Purchase Order.

23. Electrostatic Sensitive Devices

Devices delivered under this Purchase Order are Electrostatic Sensitive. Supplier shall assure that devices delivered are packaged to provide electrostatic protection and are identified as ESD in accordance with applicable specifications.

24. Special Process Suppliers

Coherent Aerospace & Defense approved suppliers shall be used for all special processes called

out in specifications or drawings.

- A. The following special processes shall only be performed by suppliers that have received NadCap® accreditation.

MIL-DTL-5541 Chemical Conversion Coatings
MIL-A-8625 Anodic Coatings
ASTM A967 Passivation
ASTM A 380 Cleaning, Descaling, Passivation of SS
AMS-QQ-P-35 Passivation
AMS 2700 Passivation of CRES

25. Acceptance Test Procedures

Supplier shall prepare separate detailed test procedures encompassing tests required for acceptance. Each item of hardware, or part thereof, which requires acceptance testing, shall be covered by an Acceptance Test Procedure. Acceptance Test Procedures require Coherent Aerospace & Defense approval prior to the delivery of the first unit of hardware. Subsequent changes are subject to Coherent Aerospace & Defense approval prior to incorporation.

Where these tests are performed utilizing equipment controlled by computer software or firmware, the software or firmware associated with, or affecting, those tests require Coherent Aerospace & Defense approval at the same time(s) as the Acceptance Test Procedure.

26. Contamination Control

Articles ordered under this Purchase Order shall be cleaned by Supplier to the level specified on the procurement drawing or specification. Cleaning and/or testing of the articles shall be performed in facilities with procedures and equipment approved by Coherent Aerospace & Defense. Each article shall be identified with a "Cleaning Status Certification and Identification Label." The label shall document the cleanliness level and be attached in a prominent location.

27. Ozone Depleting Substances

Class 1 ODSs as defined by the US EPA shall not be used in the design, test, manufacture, integration and assembly, handling, transportation, or other operations associated with flight hardware.

Use of Class II ODSs shall be either eliminated or minimized.

Supplier and its subcontractors and manufacturers should abide by the Clean Air Act Amendments Title VI established ODS production phase-out schedules.

28. Restriction of Hazardous Substances (RoHS) Directive

The RoHS Directive restricts the use of the following six substances:

1. Lead (Pb)
2. Cadmium (Cd)
3. Mercury (Hg)
4. Hexavalent chromium (Hex-Cr),
5. Polybrominated biphenyls (PBB)
6. Polybrominated diphenyl ethers (PBDE).

Parts delivered under this category require certification with each shipment that the parts meet the directive.

The maximum permitted concentrations of all substances, **except** for cadmium, are 0.1% or 1000 ppm by weight of homogenous material. Cadmium concentrations are limited to 0.01% or 100 ppm by weight of homogeneous material.

Unless otherwise specified in Coherent Aerospace & Defense procurement documents, the latest RoHS directive shall be the governing document.

29. **Certified Fasteners**

All certifications supplied with each shipment shall be legible from each raw material, manufacture and test facility. The certifications will include the following information:

1. Name and address of the Supplier facility.
2. Part number, applicable lot numbers, applicable specifications, and revision levels.
3. Raw material data:
 - a. Material specification.
 - b. Alloy class, type, or grade.
 - c. Raw material, heat, lot, or melt number.
 - d. Name of raw material producer.
4. As required testing/treatments to specifications:
 - a. Chemical analysis report.
 - b. Mechanical/physical properties test report.
 - c. Metallurgical examination report, e.g. microstructure and/or macrostructure.
 - d. NDT test results: dye penetrant, magnetic particle, torque, etc.
 - e. As required special processes certifications: e.g. plating, anodizing, passivation, chemical films etc.

If Supplier is not the manufacturer, Supplier's name and the Purchase Order number will be referenced on the manufacturer's certification.

Packaging shall be done in a manner to prevent damage, corrosion, and contamination to threads during shipment.

On steels harder than RC 33, plating shall be applied by a process that is not embrittling to the steel. Substitutions of raw stock types are **NOT** permitted when controlled by specifications. All fasteners shall be manufactured/tested with qualified materials, people, processes, and equipment.

30. **DPAS PRIORITY RATING 15 CFR 700**

This is a rated order certified for national defense, emergency preparedness, and energy program use, and the Contractor shall follow all the requirements of the Defense Priorities and Allocations System Regulations (15 CFR 700). Supplier hereby agrees that, if so identified, this Purchase Order is a "rated order" certified for national defense use, and Supplier shall follow all the requirements of the Defense Priorities and Allocation System Regulation (15 C.F.R. Part 700) as amended.