

Sargent Controls & Aerospace Procurement Quality Requirements

* **GENERAL REQUIREMENTS:**

The requirements stated below marked with an * shall apply to all subcontractors of the material(s) and processing services furnished to Sargent Controls & Aerospace (SC&A) Purchase Orders. The Procurement Quality Requirement Clauses (PQRC's) identify requirements which apply only when noted on the individual purchase order. All material supplied or processed shall conform to the latest revision level of the applicable specification, unless the Purchase Order instructs otherwise. The Supplier Quality Assurance Manual (SQAM) is applicable for all purchase orders.

The supplier is responsible for flow down to sub-tier suppliers all applicable requirements in the purchasing documents, including key characteristics where required. Purchase Order requirements shall take precedence over the requirements stated herein, should a conflict occur. Refer any questions regarding requirements or other issues to your SC&A buyer. SC&A must be notified immediately when a change occurs in Quality Manager or in manufacturing location.

The supplier shall maintain the ability to provide evidence of commodity and item level traceability to ensure tracking of the supply chain back to the manufacturer of all <MATERIEL> being delivered per this order. This traceability record shall clearly identify the name and location of all of the supply chain intermediaries from the manufacturer to the direct source of the material for the seller and shall include the manufacturer's commodity or item level identification for the item(s) such as date codes, lot codes, heat codes, serializations, unique item identifiers, or batch identifications.

The supplier shall provide Sargent Aerospace with any requested documentation related to Sargent Aerospace product.

SC&A reserves the right of access, which extends to their customer, and regulatory authorities, to all facilities, at any level of the supply chain, involved in the order and to all applicable records.

Part Preservation and Damage: All parts subject to corrosion or impact shipped to Sargent shall be properly protected to minimize the associated risk of damage and corrosion during processing, storage, and transfer to Sargent. Parts subject to rust and corrosion shall be preserved per requirements. If no preservation requirement exists, protect parts in accordance with the applicable provisions of BMS 3-23, MIL-PRF-16173, MIL-PRF-32033 or MIL-PRF-7870. Some parts require no oil, please review the purchase order requirements for direction or clause 10 call out.

NOTE: Any material provided by KOBE STEEL or its subsidiaries shall not be used by Sargent subcontractors for use on Sargent product.

* **DRAWING CONTROL:**

When design is the responsibility of the Sargent Controls & Aerospace (SC&A) supplier, the supplier shall implement no changes in design, materials, processes or control without prior written approval, via SC&A buyer, from the cognizant SC&A Quality and Design Engineering representatives. The SC&A supplier is further responsible for compliance by their sub-tier subcontractors to the above stipulations.

* **SPECIAL PROCESS REQUIREMENTS:**

Unless approved as a "1A" "XX", or "XV" subcontractor, the following applies: Processes such as, but not limited to, welding, heat treatment, electroplating, and nondestructive testing shall be performed solely by SC&A approved processors. For names of approved sources contact your buyer. Certifications for special processes must accompany each shipment.

* **CERTIFICATIONS AND REPORTS:**

All certifications and reports must bear the following: date, name, title and signature of authorized company representative. References shall be made to purchase order number, line number, part number, revision and quantity.

* **CERTIFICATIONS:**

All certifications shall accompany shipments boxed with the product, preferably in envelope marked "CERTIFICATIONS".

* **SUBCONTRACTOR DISCREPANT MATERIAL REPORT (SDMR):**

An SDMR shall be submitted for authorization to use or ship materials which do not completely conform to all Purchase Order requirements. This includes materials found to be discrepant through receiving and in-process inspection. Submittal of an SDMR does not guarantee approval. SDMR's (Form 2.385) are available from your buyer.

* **WORKMANSHIP:**

The provisions of SC&A Document No. 04-000018 shall apply, as applicable to all fabrication, assembly, or processing performed to a Marine or Aerospace purchase order. The provisions of document KS-073 shall apply, as applicable, to all Kahr Bearing purchase orders.

* **RECORDS:**

Certifications for purchase orders shall be maintained for minimum 7 years by the subcontractors.

* **SUBCONTRACTOR'S INFORMATION:**

Subcontractors requiring information may contact their buyer for assistance or submit an SC&A RFI (Form 2.388) for written response.

1 SUBCONTRACTOR QUALITY CONTROL PROGRAM

The subcontractor shall maintain:

XV. NADCAP or A2LA approved processors.

XX. ISO 9001, AS9100, or approved by major OEM customers.

1A. Quality systems that provide a level of control proportionate with item complexity and contractual requirements and control their suppliers.

1B. Calibration systems that meet or exceed one of the following requirements of ISO 17025 ISO 10012 or ANSI/NCSL Z540 (current revision) and calibration services that are traceable to N.I.S.T. or national standards.

1C. Quality systems that provide a level of control proportionate with item complexity and contractual requirements. Suppliers used by 1C must be controlled on the Sargent ASL.

1D. Specialized quality systems for distributors and other suppliers that are not required to perform in-process inspection.

1S. Special customer flow down requirements

2 FIRST PIECE INSPECTION

The first piece produced shall be submitted to SC&A for Quality approval prior to the production run.

3 GOVERNMENT SOURCE INSPECTION (GSI)

All items covered by this purchase order are required to have inspection at the subcontractor's facility, by a Government Representative. The subcontractor shall furnish, at no cost, a copy of the Purchase Order, and all necessary facilities, equipment, and assistance to accomplish this inspection. Evidence of GSI shall accompany each shipment.

4 SC&A SOURCE INSPECTION

All items covered by this purchase order are required to have inspection at the subcontractor's facility, by an SC&A Quality Representative, prior to shipment. Call your buyer to arrange for inspection.

5 FIRST ARTICLE INSPECTION (FAI) /REPORTS

The subcontractor shall perform a first article inspection. One part shall be inspected when the part is made the first time, when the manufacturing method is changed, or when the print revision is changed. The first article part shall be clearly identified with the words "first article". The first article report shall list all characteristics, including basic dimensions, notes, tolerance limits dimensions, material requirements, and shall remain on file for audit or submittal when called for. First Article Inspection reports are required for all production detail parts and assemblies. FAIs are to be performed according to the latest revision of AS9102. A production part is one of the first group of one or more parts that are the result of a planned process designed to be used for future production of these same parts. This process shall be repeated when changes occur that invalidate the original results. (e.g., engineering changes, manufacturing process changes, tooling changes).

6 CERTIFICATION OF CONFORMANCE (C OF C)

Subcontractor shall submit with each shipment a legible, typed or printed, reproducible certified statement (C of C) that the items listed thereon comply fully with all purchase order requirements. The "C of C" shall bear: authorized company signature with title, date, purchase order number, line item number, supplier's traceability number, part number, revision and quantity. Also, if parts involve a Material Review Report (MRR), subcontractor must specify whether parts were re-worked or replaced. Supplier may choose to use Sample C of C form 5.250/1.

7 FUNCTIONAL TEST REPORTS

The subcontractor shall submit, with each shipment, a report listing actual test results, identifiable to the respective products.

8 MATERIAL CERTIFICATION (NON-METALS, COMMERCIAL, PROPRIETARY)

Material certifications shall be submitted with each shipment. The certification shall bear description of material, trade name, manufacturer's name, specification number (type, grade, etc.) manufacturer's part number, batch and heat or lot number, if applicable.

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9 CHEMICAL AND PHYSICAL MATERIAL TEST REPORT

Chemical and physical material test reports shall be submitted for each shipment and include the following:

- (1) Batch, heat or lot number
- (2) The specification & revision the material was produced to. (Ferrous metals require specific values of composition).
- (3) Chemical and Physical analysis with certification statement must accompany all certifications.

NOTES- Documents must be legible and have no obscurities to any information including chain of custody.

*** In cases where raw material is purchased to be processed further, the processor who brings the material into full compliance will have the mechanical properties tested to ensure compliance to requirements.

10 OIL AND/OR CORROSION COATING OMITTED

Oil or preservation coating will hinder future processing of this part. Do not oil or coat the part for corrosion protection.

11 SPECIAL PROCESSES

Aerospace grade special process requirements apply to this part.

Certification reports from the processor(s) identifiable to the materials delivered are required for each process or nondestructive test performed. Reports shall include the following:

- (1) Processes performed/ Method/ Type
- (2) Specification/drawing and revision level
- (3) Purchase order number
- (4) Part number
- (5) Compliance to required acceptance criteria
- (6) Ultrasonic scan plans if applicable
- (7) Radiographic x-rays if applicable

Materials processed must be certified in accordance with the applicable specification. Suppliers shall flow down sufficient information to ensure sub tier vendors/processors are able to correctly process all parts. All plating must show baking times or durations, temperatures, and if materials were processed within the proper time period. Heat Treat certification must show final hardness obtained. NDT must certify acceptance criteria. Note: NDT personnel shall be certified level II or above per AIA/NAS NAS410 or NAVSEAT9074-AS-GIB-010/271. Customer requirements may supersede the latest released criteria.

12 MATERIAL/PROCESS SAMPLES

A representative material test sample for all special processes is required with completed parts.

13 UNIQUE HEAT-LOT CONTROL

Only one heat lot of material is to be used in the production of any individual detail. Materials to be segregated by heat-lot, packaged separately, and not commingled.

14 MERCURY-FREE PROCESSING

Goods furnished shall be free from contamination by the presence of mercury. See purchase order notes for further instruction as applicable.

15 ASBESTOS- FREE CERTIFICATION

Goods furnished shall be free from contamination by the presence of asbestos. Compliance with this requirement shall be certified by the subcontractor. Sub tier subcontractors are also required to certify on Level 1 products.

16 STATISTICAL PROCESS CONTROL

A SC&A approved SPC program is required. Control charts are required with each shipment.

17 TRACEABILITY OF SC&A FURNISHED MATERIALS

Only the material furnished may be used to satisfy this order. Material substitution is prohibited. SC&A assigned lot number and serial number when applicable shall be maintained and referenced on all documentation as applicable. Materials drop shipped to suppliers will be verified by certification prior to use.

18 AGE CONTROLLED MATERIALS

Age sensitive materials shall conform to applicable specifications and the following shall be identified on each container:

- a) Manufacturer's name
- b) Batch number
- c) Storage temperature
- d) Compound/spec. number
- e) Date of manufacture
- f) Shelf life requirement

19 MANNED SPACE FLIGHT

Materials, manufacturing and workmanship are to be of the highest standards to insure astronaut safety. If you are not able to supply items of a quality higher than the items specified, please notify your buyer.

20 LEVEL I/SUBSAFE MATERIAL TEST REPORT

A detailed chemical (composition) and physical (mechanical property) test report is required for each heat number of material per EB 2678. This report shall include a full description of the material (name or symbol, specification number and revision, alloy and condition, type, grade, class, form, finish, production method, etc., as applicable), producer's (mill) name, heat number, and actual quantitative results of chemical analysis and physical (mechanical) test to substantiate composition and condition. Certifications to limiting ranges of composition/condition are NOT acceptable. Refer to the applicable DFAR clauses for restrictions on the use of foreign material. EB Spec. 2678 can be found at; http://www.gdeb.com/suppliers/10_quality/

NOTE:

- (1) **When mechanical properties of the material have been altered by heat treatment or metal working processes, the mill test report shall be accompanied by a certification from the heat treatment or metal working facility, containing quantitative results of the mechanical tests performed to prove that the material supplied complies with specification requirements.**
When mechanical properties of the material have been altered, the material and certifications shall be uniquely re-identified with a "new" heat/lot control number. The sole alternative permitted to the mill providing heat treatment or metalworking certifications is a testing laboratory's quantitative test report, identifiable and traceable to material it represents.
- (2) **Transcription of data from the original mill test report, heat treatment or metal working facility certification, and/or testing laboratory test report to a subcontractor's form is prohibited. Test reports/certifications provided will be the originals or true copies thereof, and shall include actual signatures and traceability references.**

21 SUBCONTRACTOR CATALOG/SPECIFICATION

Subcontractor shall submit a copy of the actual catalog pages and/or manufacturer's specification that furnishes all required information applicable to the purchased items.

22 GENERAL ELECTRIC Vendor Substantiation Engineering (VSE) PART

This part falls within the requirements as outlined in G.E.'s P1TF17 "Substantiation Administration Requirements". A copy of the G.E. approved VSE package is required with each shipment.

23 NONDESTRUCTIVE TESTING (NDT) REQUIREMENTS (CRITICAL ITEMS)

All nondestructive testing shall be performed in accordance with an SC&A approved procedure. The subcontractor's facility, test personnel, and NDT procedure(s) shall be approved by SC&A prior to performing required tests. A copy of the approved procedures is to be kept on file at SC&A at all times. The subcontractors are responsible to insure that any revisions to these procedures be forwarded to SC&A for acceptance prior to performing any testing to the new revision. Each shipment of materials must be accompanied by a certified test report for each NDT performed. The reports shall specify the test(s) performed, the specification, specification revision, test method(s) used, approved test procedure number and revision, and the acceptance criteria utilized (document reference shall suffice). Operators performing NDT shall be properly qualified and certified. Their certifications shall include:

- (1) **Part number, heat, and purchase order number identification of the material to which the certificate belongs.**
- (2) **The name (typed or printed), organizational title and signature of the authorized representative of the company.**

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26 BRAZING/WELDING APPROVALS

The procedure used and a representative sample (actual joint configuration) shall be submitted for approval prior to production. To accomplish this, Suppliers shall follow PQR Clause 27 "PROCESS DOCUMENTATION APPROVAL" and utilize the Frozen Process Control Plan (FPCP) procedures & forms. The braze/weld "representative sample" is considered as part of the FPCP package and is shipped with completed FPCP paperwork to the attention of your buyer for processing.

27 PROCESS DOCUMENTATION APPROVAL

Work routing, procedures and process sheets for subcontractor and sub-tier subcontractors shall be submitted for review and approval prior to production. This document shall be considered frozen. Modifications must be re-submitted for approval.

28 TOOL/ FIXTURE DOCUMENTATION

Subcontractor shall submit a drawing, sketch or photograph for all tooling used in the manufacture of this product.

29 TOOL PROOFING AND DOCUMENTATION

Subcontractor shall document the first piece inspection generated using the furnished tooling. Documentation shall accompany shipment.

30 SC&A's CUSTOMER APPROVED SOURCES

SC&A's customer requires all processes be performed by their approved sources. The purchase order will state the customer whose approved sources must be used and provide information on how to find the listing of approved sources. Contact your buyer if you do not have a listing of approved sources. Certifications will list SC&A customer's specifications.

31 DIMENSIONAL INSPECTION REPORTS

A Dimensional inspection report is required to ANSI/ASQC Z 1.4; AQL 1.0 for all characteristics of .005 or less drawing tolerance.

32 ELONGATION REQUIREMENTS

Fasteners shall have an elongation of 12% minimum in 4 diameters in accordance with FF-S-86. One copy of a certification of elongation values is to accompany each shipment on this order. The certification shall be signed and dated by the supplier's authorized representative. Certification shall be attached to the packing list. Where more than one container or package is included in the shipment, the certification shall be attached securely to or placed in one container or package and clearly identified on the outside. When fasteners are too short for elongation testing, specimens may be prepared from parent bar stock or on a longer length screw from the same lot. Fasteners too short for testing are defined by FF-S-86E (4), paragraph 4.3.1.2 or, ASTM F606-02, paragraph 3.6.

33 HYDROGEN EMBRITTLEMENT TEST REPORT

Hydrogen embrittlement test report is required. Report must comply with AMS-QQ-P-416. Fasteners shall pass the stress durability test in accordance with MIL-STD-1312-5, using the external load method. Sufficient external load shall be applied to the fastener to develop an induced load of 75-80% of the minimum tensile strength specified for a duration of not less than 72 hours (Mil Std 7838 Bolts require the same load, however the duration period is reduced to 24 hours of test time). Sampling shall be per FF-S-86 REV. E (1) para. 4.2.3. Fasteners selected for test shall not be submitted for acceptance. Test reports shall be identifiable to the materials submitted and shall include Batch /Heat and Lot Number.

34 TENSILE COUPONS

Representative samples of materials used to produce hardware, in the final heat-treated condition, must accompany each shipment. Samples shall be in accordance with ASTM-E-8 unless otherwise specified.

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36 (ESD) ELECTRO SENSITIVE DISCHARGE ITEMS

Items to be ESD protected and labeled as ESD sensitive. Certification indicating all items supplied were handled only at certified ESD workstations is required with each shipment.

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39 DOMESTIC MATERIALS

Any specialty metals incorporated in articles delivered under this contract shall be certified by the supplier to be melted in the United States, its possessions, Puerto Rico, or Defense Federal Acquisition Regulation Supplement (DFAR) qualifying country per DFAR 225.872. Specialty metals means:

- (1) Steel with a maximum alloy content exceeding one or more of the following limits: manganese 1.65%, silicon 0.60%, or copper 0.60%.
- (2) Steel containing more than 0.25 percent of any of the following elements: aluminum, chromium, cobalt, columbium, molybdenum, nickel, titanium, tungsten or vanadium.
- (3) Metal alloys consisting of nickel, iron-nickel, and cobalt base alloys containing a total of other alloying metals (except iron) in excess of 10 percent.
- (4) Titanium and titanium alloys.
- (5) Zirconium and zirconium base alloys.

40 NADCAP APPROVED SOURCES

NADCAP approved sources are required for all processes listed on the purchase order. Accredited Suppliers of special processes and products are listed on the NADCAP Qualified Manufacturers' List (QML). The QML is publicly available online at www.eAuditNet.com

41 KEY CHARACTERISTICS

When applicable, Key Characteristics are specified on the purchase order or the drawing. Data on Key Characteristics shall be collected by the Supplier and shipped to SC&A with each shipment. When necessary, this clause must be flowed down to sub-tier vendor/processor.

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45 FAA ANTI-DRUG AND ALCOHOL MISUSE PREVENTION CERTIFICATION

This requirement must be flowed down to all sub-tier suppliers. Suppliers performing work on this order are required to submit a certification indicating your company has an FAA certified anti-drug and alcohol misuse testing program or, your company has been added to Sargent Controls and Aerospace drug and alcohol testing Program. Note: submittal required with first order or when program certification has changed.

46 FAA 8130-3 TAG

FAA form 8130-3 Return to Service tag required with shipment. 8130-3 tag(s) shall include the following information: SC&A purchase order number, line item, part number (both SC&A and SC&A's customer, when listed on the purchase order). The 8130-3 tag box 12 shall also include reference information for technical data used to achieve the work performed.

47 NN-801

During the performance of this contract, Unclassified Naval Nuclear Propulsion Information (U-NNPI) may be developed or used. Appropriate safeguards must be implemented to prevent release of U-NNPI in any form by supplier or any sub-tier suppliers. These safeguards shall ensure that access to U-NNPI is limited to those governmental and supplier parties (including sub-tier suppliers), that have an established Need-To-Know (NTK), and then only under conditions which assure that the information is properly protected. Access by Foreign Nationals or representatives of foreign interests is not permitted. In addition, any and all issuances of releases of such information beyond such necessary parties, whether or not ordered through an administrative or judicial tribunal, shall be brought to the attention of SC&A.

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49 MERCURY-FREE CERTIFICATION

Goods furnished shall be free from contamination by the presence of mercury. Compliance with this requirement shall be certified by the subcontractor that accepts purchase order.

Mercury shall not be included in or come in direct contact with any products furnished under this order. The products furnished under this order include all ingredients in such products (e.g., newly formulated coating)

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and all materials of construction in such product, including sub-component materials (e.g., batteries, circuit boards), applied coatings, applied primers, lubricants, adhesives, and any other consumables that remain on the delivered product. A hazardous material constituent that is an impurity, i.e., a trace amount that is not an ingredient and does not contribute to the function or usefulness of the product, is excluded from these requirements.

The seller may use "readily available information" to determine whether the product furnished under this order includes or has come in direct contact with Mercury. "Readily Available Information" sources include:

1. Actual knowledge or process knowledge
2. SDS
3. Technical Data Sheets
4. Manufacturing Data

Unless otherwise specified in this order, chemical analysis, testing, monitoring, or certification is not required to determine whether the product includes or has come in direct contact with Mercury. At Sargent Request, the seller's "readily available information" shall be made available to the buyer's technical authority.

See purchase order notes for further instruction as applicable.