

Aviation Oxygen Systems

Supplier Quality Requirements Manual SQRM:001

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Introduction

1) Purpose:

This Supplier Quality Requirements Manual (SQRM:001) is issued to specify Shaw Aerox LLC Quality System requirements to our suppliers. Aerox recognizes that communication and understanding of goals and expectations are key elements to a successful operation.

2) Applicability:

This SQRM is applicable to all activities allocated to Suppliers described in Table 1 (See Provisions) in accordance with the Shaw Aerox Contract / Purchase Order and/or any other associated documentation and *shall* be flowed-down to all Sub-tier Suppliers involved in fulfilment of the Contract / Purchase Order.

3) Responsibility:

Suppliers are responsible for complying with the requirements of this Supplier Quality Requirements Manual. Failure to meet the requirements may result in the loss of existing or restriction of future Shaw Aerox LLC business.

NOTE: All documented communications from the Supplier to Shaw Aerox LLC shall be in the English Language.

4) Means of Understanding

- a) In this Supplier Quality Manual, the following verbal forms are used:
- b) Shall indicates a requirement;
- c) Should indicates a recommendation;
- d) May indicates a permission;
- e) *Can* indicates a possibility or a capability.

Quality Management System (QMS) Requirements

Unless otherwise amended by Aerox Quality Assurance, all current and potential Suppliers to Shaw Aerox LLC, here-in referred to as "Buyer" shall be able to demonstrate with objective evidence that they have implemented and maintained an effective Quality Management System (QMS). Registration to AS9100, ISO 9001 or a comparable international standard is a requirement. Registration, or lack of, may impact selection of suppliers during quote evaluations. The effectiveness of the supplier's QMS shall be assessed by Shaw Aerox LLC Quality Assurance. A Supplier Survey shall be completed prior to the issuance of a purchasing agreement and an On Site Audit may be required. Certain suppliers may be considered without registration based on proprietary processes, materials, technologies, etc. on a case by case basis with the approval of quality, purchasing, and engineering. (Note: Approved suppliers to Aerox, prior to 10/15/2014, may be exempt from the registration requirement, although Shaw will expect the supplier to strive toward achieving registration.) When requested, the Supplier shall demonstrate compliance to



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national and/or international standards and regulations for health, safety and environmental impact relative to its business.

5) Supplier Improvement, Retention and Removal:

A Supplier's performance is subject to measurement as necessary to assure confidence in their ability to provide quality products, economically, on-time.

When necessary, supplier performance *shall* be compared to the ratings on Table 1 for determination of follow-up activities. Supplies shall be notified in writing, when their performance is impacting their ratings as a preferred or qualified Supplier.

Quality: The Quality Rating is calculated from a rolling three month PPM. Suppliers *shall* receive a score from 0 to 20 points based on PPM, FAIR submissions, and CAR responses. PPM scoring goals *shall* be established annually by Shaw Aerox LLC and reported to Management.

On-Time Delivery: The On-Time Delivery Rating is calculated from a 3 month rolling average of the PO units delivered and the PO units scheduled for delivery. Suppliers will receive a score from 0 to 20 points based on performance. On-Time is defined as PO Scheduled Delivery Date. The On-Time Rating is calculated as (Total Deliveries) – (Total early + total late) / (Total Deliveries). The On-time Delivery metric is less than or equal to 2 days early, and not to exceed 1 day after the scheduled due date.

Purchasing – 10 points max. The supplier *shall* be given a score from 0 to 2.5 points in each of the following categories:

- i) Total cost performance
- ii) Cost reduction effort
- iii) Engineering support
- iv) Cooperation, service, and support

Suppliers will receive an overall score and be rated as follows:

Supplier Ratings		
Preferred	40.0 – 50.0	
Qualified	30.0 – 39.9	
Probation	0.0 - 29.9	

Suppliers who are rated as probationary for more than 3 consecutive months *shall* be expected to develop a supplier improvement plan. Suppliers who fail to improve and provide products that put end user product safety, reliability, quality and/or delivery at risk shall be removed from the NAVISION Vendors Listing.



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6) Abbreviations & Acronyms

AQMS Aerospace Quality Management System

CA Corrective Action

CAR Corrective Action Request

CB Certification Body

CFR Code of Federal Regulation
C of C Certificate of Conformity
COTS Commercial Off the Shelf
DOA Design Organization Approval
D.O.D. Department of Defense

EASA European Aviation Safety Agency

FAA Form

8130-3 Release Certificate FAA Federal Aviation Administration

FAI First Article Inspection

FAIR First Article Inspection Report
GSE Ground Support Equipment

IAQG International Aerospace Quality Group

IAQG-OASIS

International Aerospace Quality Group On line Aerospace

Supplier Information System (www.iaqg-sae.org/oasis)

ICOP Industry Controlled Other Party

ISO International Standardization Organization

NADCAP National Aerospace and Defense Contractors

Accreditation Program

OEM Original Equipment Manufacturer
PMA Parts Manufacturer Approval
POA Production Organization Approval

PO Purchase Order

QMS Quality Management System

QPP Quality Program Plan

SP Special Process

STC Supplemental Type Certificate

TC Type Certificate

TSO Technical Standard Order



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7) <u>Definitions</u>

Article - Raw material, processes, tooling, gauging, equipment, detail parts, sub-assemblies, assemblies, avionics, software, CAD/CAM/CATIA media etc.

Batch Number (Lot) - A unique number allocated to a definite quantity of items produced to the same design at one time, under conditions that are considered uniform.

Buyer - The Aerox entity issuing a Contract or a Purchase Order.

Catalogue Part - A proprietary part specified in the Manufacturer's own publication which contains sufficient technical data for the user to select and confirm that the part/product satisfies the design intent and end user application.

Commercial Off the Shelf (COTS) - A ready-made article available for sale, lease, or license to the general public.

Contract (**Purchase Order**) - A legal agreement, independently of the format (paper or electronic) or the designation (order, contract, delivery order), between the Supplier and the Buyer to provide articles, materials and/or services.

Counterfeit Part - An unauthorized copy, imitation, substitute, or modified part (e.g., material, part, component), which is knowingly misrepresented as a specified genuine part of an original or authorized manufacturer. Examples of a counterfeit part can include, but are not limited to, the false identification of marking or grade, serial number, date code, documentation, or performance characteristics.

Critical Part - An article, the failure of which could have a catastrophic effect upon the aircraft, and for which critical characteristics have been identified which must be controlled to ensure the required level of integrity.

Critical Items - Those items (e.g., functions, parts, software, characteristics, processes) having significant effect on the provision and use of the products and services; including safety, performance, form, fit, function, producibility, service life, etc.; that require specific actions to ensure they are adequately managed. Examples of critical items include safety critical items, fracture critical items, mission critical items, key characteristics, etc.

Designee - A representative of the customer or agency having designated authority over any aspect of contractual performance.

Deviation Request – A request to depart from a drawing, process, or program requirement. A request for deviation is considered a planned event.

Key Characteristic - An attribute or feature whose variation has a significant effect on product fit, form, function, performance, service life, or producibility, that requires specific actions for the



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purpose of controlling variation.

Product - An aircraft, aircraft engine, or propeller.

Product Safety - The state in which a product is able to perform to its designed or intended purpose without causing unacceptable risk of harm to persons or damage to property.

Qualified Part - an article for which the ability to fulfil specified requirements is demonstrated by documentation.

Risk - A probability or threat of damage, injury, liability, loss, or any other negative occurrence that is caused by external or internal vulnerabilities, and that may be avoided through preemptive action.

Risk Management - The identification, analysis, assessment, control, and avoidance, minimization (mitigation), or elimination of unacceptable risks.

Serial Number - a unique number or alpha-numeric code that is one of a series, used to provide identification of an article to enable traceability.

Special Requirements - Those requirements identified by the customer, or determined by the organization, which have high risks of not being met, thus requiring their inclusion in the operational risk management process. Factors used in the determination of special requirements include product or process complexity, past experience, and product or process maturity. Examples of special requirements include performance requirements imposed by the customer the industry's capability, or requirements determined by the organization to be at the limit of technical or process capabilities.

Standard Part - A part manufactured in complete compliance with a Government or an established industry specification. I.e. AN, AS, MS, etc.

Supplier - A company (according to the different types and categories) that receives a Purchase Order/Contract and/or Agreement from Shaw Aerox LLC.

Waiver - A request to waive a drawing, process or performance requirement due to an articles inability to meet those requirements. A waiver is considered an unplanned planned event.



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Quality Assurance Provisions

The following provisions apply to all procured articles:

8. Right of Access

Given reasonable notice, Shaw Aerox LLC, it agents, customers, or regulatory authorities *shall* have the right of access to any supplier involved with contracted articles, included any sub-tier supplier. Such access *shall* be used to verify the Quality Assurance activities being undertaken, meets the requirements of the Aerox contract/order.

9. Drawing Requirements

The seller *shall* meet all requirements and specifications provided by the buyer's drawing. The seller shall notify the buyer in writing of any requirement that cannot be met. The buyer *shall* provide a tailored purchase order or an approved concession (see paragraph 29. a) when those conditions exist.

10. Purchasing Process

The Supplier *shall* be responsible for all Sub-Tier Suppliers activities. A Product Quality Plan *shall* be provided when required by Shaw Aerox. Shaw Aerox requirements *shall* be flowed-down to, understood and implemented by Sub-tier Suppliers prior to commencing any work. Suppliers, including dealers and distributors, are responsible for ensuring that the applicable requirements of this purchase order are imposed on lower tier procurements for raw material, components or process services being used in the manufacture of products or services being provided.

11. Prohibited Sources

Sellers and sub-tier sellers are prohibited from using any source listed on the US government Excluded Parties List System (EPLS) (ref. https://www.sam.gov) in the production of products to be delivered to Buyer.

- 12. Counterfeit Parts Protection The seller *shall* have a program in place to prevent the delivery of counterfeit parts and materials to Buyer. All parts, materials and assemblies (electrical, mechanical, raw material) included in the hardware delivered to Buyer *shall* be procured only from a franchised distributor, OEM (Original Equipment Manufacturer) or OCM (Original Component Manufacturer). The seller is responsible for the flow down of this requirement to its sub-tier contractors and their compliance to it. Further guidance on counterfeit parts avoidance can be found in SAE documents AS5553 (Electronics) and AS6174 (Material).
- **13. Record Retention** Unless otherwise specified on the Purchase Order, the Seller *shall* retain Quality Records for a minimum of (20) years from the date of shipment. Quality records include, but are not limited to, the following: Approved Certificates of Conformity, Test Reports, Raw Material Certifications, Special Process Certifications, FAIR's, Route Cards/Travelers, and Calibration Records.



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This data *shall* be made available to Buyer upon request, at no extra charge. Records *shall* be appropriately identified in accordance with customer, regulatory and company defined requirements. Storage facilities *shall* provide suitable environments to prevent deterioration or damage and to prevent loss. Records in storage *shall* be protected from unauthorized access. The nature of the information in the records, as well as its format, dictates the method by which records shall be destroyed. When records contain sensitive information, they *shall* be disposed by irreversible destruction methods such as shredding, or erasure/reformatting for electronic/magnetic media.

- **14. Tooling, Gaging and Measuring Equipment Control** Calibration of measuring and test equipment used for product acceptance *shall* be traceable to established international or national measurement standards (e.g., BSI, NIST, UKAS, and NAMAS). Procedures for periodic calibration, certification, maintenance of tools and equipment, and an action plan, should measuring and/or test equipment be found to be out of calibration, *shall* be established and followed.
- 15. Inspection System Sellers *shall* develop inspection procedures and maintain records of inspection. Records *shall* include evidence of inspection for all attributes (e.g. AS9102 first article inspection) of products/processes supplied to Buyer, show the product has been inspected and/or tested during all stages of manufacturing, identify the name of the individual (i.e. with stamps, etc.) who certified the results, and where applicable include the results of the inspections and tests.
- 16. Changes to Process or Location Buyer *shall* be notified prior to any changes in product, manufacturing location, or process definition that were not requested by Buyer. Notification should describe the change or changes that have been made or are being proposed. Buyer reserves the right to require its approval of the product, manufacturing location or the process change before the Seller forwards the product. The seller *may* be required to submit a new or delta first article inspection report, if the change(s) affect any of the existing approved first article inspection report characteristics.
- **17. Training** Sellers *shall* ensure that all personnel performing activities on Buyer product affecting quality have been suitably trained. Personnel performing assigned tasks *should* be qualified on the basis of appropriate education, training, and/or experience. The seller *shall* ensure that training records are maintained and available upon request.
- **18. Process Integrity** Sellers *shall* maintain a control mechanism that directs procedures appropriate for the control of quality and configuration through all stages of production. When stated as a condition of the purchase order, for Buyer designed hardware, when Buyer changes the part number(s), dash number(s), or part number revisions AND there is work in process (WIP) for a given contract, the rework instructions *shall* be submitted to the Buyer to obtain Buyer engineering approval prior to rework.



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- 19. Traceability & Product Identification Seller *shall* ensure that individual articles and materials and lots thereof are identified and segregated from all other articles, materials, and lots at all times. Records for articles *shall* indicate the part number, revision level, lot number and if applicable the serial number and associated detailed information. Records for materials *shall* indicate type, applicable serial numbers, lot numbers, heat numbers, batch, date code, cure date and any other pertinent information. Material or articles furnished by Buyer for outside operations *shall* remain identifiable by the Buyer's supplied lot or serial number.
- **20. Certificate of Conformance** The seller *shall* provide to Buyer, for each shipment, at time of delivery a statement of conformance with the following information on the body of the certificate;
 - a) a statement to assure compliance with the provisions of the Buyer's Purchase Order.
 - b) the Part Number.
 - c) the quantity of items shipped.
 - d) the applicable drawing number and the referenced revision level of the drawing (if specified).
 - e) The applicable Military, Federal, or Industry specification number
 - f) a signature, date and title of the seller's designee, responsible for assuring product conformance.
 - g) all serial numbers and lot numbers shall appear on or referenced by the Certificate of Conformance.

In addition, the seller *shall* be able to furnish information on their source(s) of supply that could include items such as serial numbers, lot numbers, heat numbers, batch, date code and cure dates and QPL approval status as applicable.

- **21.** Inspection Reports/Test Reports/Material Certifications When required on the body of the Purchase Order, the seller *shall* provide to Buyer copies of First Article, final inspection reports, acceptance test reports, and/or raw material certifications and process certifications with Product delivery.
 - a) **First Article Inspection** For articles that are required to meet Aerox design and/or specification control drawings, First Article Inspection (FAI) *shall* be performed in the following instances:
 - i) New product received from a Supplier.
 - ii) Existing product received from a new Supplier or Supplier for which there is no history of having produced the product.
 - iii) Drawing revision level change.
 - iv) Change(s) in manufacturing process or location.
 - b) First Article Inspection (FAI) shall be recorded on AS Form(s) 9102 or equivalent.
 - c) Unless otherwise agreed upon in writing, completed 9102s (FAIRs) *shall* be submitted to Shaw Aerox LLC Quality Assurance for approval prior to article delivery.
 - d) A FAI representative article *shall* be selected and inspected as follows;
 - i) All dimensional drawing features *shall* be measured and recorded.
 - ii) Each drawing note *shall* be verified and the means of verification annotated.
 - iii) All processes shall be assured via process certifications.
 - iv) All material requirements shall be assured via material certifications.
 - v) Process & Material Certifications shall be attached to the FAIR.

 Note: AS Form 9102 1, 2, and 3 may be downloaded at http://aerox.com/.



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- **22. Certifications** The seller *shall* maintain on file all original material, raw material, process certifications and inspection/test reports for all items provided in the performance of this Purchase Order. These certifications or their copies *shall* be made available to Buyer upon request.
- 23. Reference to EN 10204, Metallic products Types of Inspection documents
 - a) Articles submitted where document compliance with EN 10204, Para 2.2 is required, shall accompany each lot of items with a Certificate of Compliance from the seller stating that all required material certifications, process certifications, and inspection/test reports are on file and shall be made available for review upon request.
 - b) Articles submitted where document compliance with EN 10204, Para 3.1 is required, shall accompany each lot of items with a Certificate of Compliance from the seller as well as all raw material certifications, process certifications, and inspection/test reports. These certifications and reports shall include a documented reference (via stamp or legible handwriting) to the Aerox Part Number, Aerox Purchase Order Number and Supplier Job Number on the body of each certificate and report.
- **24. Industry Specifications and Standards** For all Military, Federal, and Industry specifications and standards, the seller *shall* comply with the revision in effect at the time the Buyer purchase order is issued. Buyer reserves the right to request a different revision that would be specified on the purchase order.
- **25. Responsibility for Conformance** Acceptance of product *shall* not be used as evidence of effective control of quality by the seller, and *shall* not absolve the seller of responsibility for acceptable products or preclude subsequent rejection by Buyer customers.
- **26. Source Inspection** At the discretion of Shaw Aerox LLC, the items covered by the purchase order *may* be subject to Aerox Source Inspection and/or tests prior to shipment from Supplier's plant.
- **27. Age Dated Material** The seller *shall* provide the cure date and shelf life expiration date for all elastomers and chemical compounds subject to age deterioration. No elastomeric materials *shall* be received or accepted where the date of manufacture exceeds one (1) year from the cure date at the time of receipt at Shaw Aerox unless specifically authorized in writing by Purchasing.
- 28. Non-Conforming Articles Sellers *shall* assure all articles that do not, or may not conform to specified requirements are not shipped to the Buyer without proper concession. Dispositions of Use As Is or Repair for products under Buyer design control requires a written authorization prior to shipment. Sellers *shall* notify Buyer within 24 hours of discovering any nonconformance that could potentially affect hardware that has previously been shipped to Buyer.
- **29. Seller Request for Concession** Sellers *shall* use Form 00817, Concession/Production Permit (CPP) for a review and approval of nonconforming material, change to drawings or specifications, or clarification of requirements. Non-conforming material shall not be shipped to Buyer without an approved Concession/Permit. In addition, all nonconforming products shipped to Buyer:



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- a) *Shall* be clearly identified as non-conforming product and packaged separately from the acceptable product.
- b) Shall be accompanied by a copy of the approved CPP.
- c) The applicable CPP number *shall* be clearly listed on the packing slip and Certificate of Conformance.

Note: Form 00817 may be downloaded at http://aerox.com/

- **30. Corrective Action** For Corrective Action requested, the seller *shall*:
 - a) consider the details of the recorded non-conformance/corrective action and request clarification if necessary from the initiator of the request:
 - i) complete and respond to both the containment and whole corrective action requirements within the timeframe indicated on the non-conformance notification.
 - ii) provide an effective short term corrective action
 - iii) provide a plan for continuous improvement.
- **31. Statistical Techniques** Sellers are responsible for understanding and reducing variation within processes, and are encouraged to use control-charting techniques. When control charting is not performed, sample inspection of all attributes shall be performed to ANSI/ASQ Z1.4 (MIL-STD-105), Level II 1.0 AQL, c = 0, BS6001 Part 1 in the US; ISO 2859-1 in the UK, or an equivalent plan approved by Buyer. Sellers using sample (including Buyer approved) inspection plans are not relieved from the responsibility for all attributes on the part/assembly.
- **32. Special Processes** Upon request, special process suppliers *shall* provide special processes approval/qualification documents in accordance with the regulatory standards that the process has been certificated. (i.e. ASTM, MIL, etc)
 - a) After validating a special process, a Certificate of Analysis (C of A) for the special process characteristics *shall* accompany the Inspection / Test data, and/or FAI documentation submitted to the Buyer.
 - b) All Certificates of Analysis shall be from a testing laboratory that has been certified to ISO 17025 (General Requirements for the Competence of Testing and Calibration Laboratories) by an accredited 3rd party certification body. The C of A (Certificate of Analysis) must contain the following information:
 - i) Title: Certificate of Analysis
 - ii) Name/Address/Phone Number of the testing facility / laboratory
 - iii) Laboratory accreditation information including registration number and expiration date
 - iv) Name/Address/Phone Number of the manufacturer
 - v) Product ID and description
 - vi) Description of testing performed
 - vii) Test references/specifications
 - viii) Test Results
 - ix) Acceptance criteria
 - x) Names and signature of personnel performing the testing
 - xi) Name and signature of person approving the test and associated results
 - xii) Date testing was performed



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- **33. Identification, Handling, Labeling, Cleaning, Packaging, & Preservation** Unless otherwise specified on the drawing or Purchase Order, the seller *shall* assure that the identification and packaging is adequate to protect the components during transportation, handling and storage. Packaging containers shall be appropriate for the size, weight, and fragility of the components being packed. Articles shall be received clean and free of damage as to allow for immediate repackaging and storage.
- **34.** Federal Aviation Administration (FAA) Documentation Where the Civil repair/overhaul contract is for Part 145 release, the Supplier *shall* have Part 145 approval with the correct scope to include the product, as defined by the applicable Controlled Capability List. The seller *shall* provide to Buyer an Air Worthiness Tag (8130-3) to accompany the referenced items shipped on this Purchase Order. When requested, a copy of the 8130-3(s) or Direct Ship certification(s) shall be provided with the article to substantiate the approved origin of all replacement parts.



Bonita Springs, FL 34135

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Revision History

ISSUE	DESCRIPTION	DATE	APPROVAL
Orig	Initial submittal	8/10/2017	AJD/GAR

Acknowledgement

I acknowledge receipt of Shaw Aerox LLC Supplier Quality Manual and undertake, unless agreed in writing, to meet all the requirements of its contents in the execution of existing and future orders issued by Shaw Aerox LLC.

Name:	_ Title:			
Company Name:				
Signature:	Date:			
Please return this acknowledgement to:				
PURCHASING				
Shaw Aerox LLC				
25190 Bernwood Dr.				