

SUPPLIER QUALITY REQUIREMENTS

1.0 PURPOSE AND SCOPE

Harper Engineering has created this Harper Engineering Company Supplier Quality Requirements document to clearly communicate our requirements.

- 1.1. This document defines general and specific quality system requirements for the Harper Engineering Company (HE) supply base.
- 1.2. This document applies to all suppliers/sub-contractors whose products or services are included in Harper Engineering's end items.
- 1.3. This document is intended to explain and supplement, but not replace or nullify any specifications, standards, terms and conditions, purchase order terms, purchase agreements or other contractual agreements.
- 1.4. The requirements outlined in this document are designed to ensure that the supplier's quality practices comply with Federal regulations, industry standards, and Harper Engineering Company practices; specifically:
 - Federal Aviation Administration, Title 14 Code of Federal Regulations
 - The requirements of SAE Aerospace Standard AS9100
 - Best industry practices for aerospace supplier quality management and
 - Harper Engineering Company specific specifications, standards, forms, processes and practices.
- 1.5. All supplies and services received by Harper Engineering shall be subjected to inspection verification after receipt, as necessary to assure conformance to purchase order requirements. Harper Engineering shall not be obliged to perform 100% inspection on non-conforming supplies. **Unless otherwise authorized in writing by Harper Engineering, the Supplier shall furnish Harper Engineering only articles which are in complete compliance with all purchase order requirements.**
- 1.6. ANY DEVIATIONS TO THE REQUIREMENTS OF THIS DOCUMENT MUST BE APPROVED WITH WRITTEN CONSENT BY HARPER ENGINEERING QUALITY ASSURANCE.

2.0 REFERENCES

AS9100	Quality Management Systems - Requirements for Aviation, Space, and Defense Organizations
QSP2700	Control of Documents, Data and Records
QSP4500	Digital Product Definition Manual

SUPPLIER QUALITY REQUIREMENTS

3.0 DEFINITIONS

AS9100: Aerospace Standard- Standard developed by a technical Committee including all elements of ISO9000 with additional requirements needed for the Aerospace Industry.

AS9102: First Article Inspection requirement- three-part form used for all first production parts.

Contract: Purchase Order (PO)

Commercial, off-the-shelf (COTS): This is product which is ready-made and available for sale, lease, or license to the general public.

D1-4426: Boeing approval for Special Processes

DPD: Digital Product Definition- governs control of Boeing product definition datasets and handling of digital data.

FAA: Federal Aviation Administration- Government body tasked with assuring safety of aviation in the USA.

Harper Engineering (HE): This includes Harper Engineering Co. employees, representatives, customers and regulatory agencies including the FAA.

NADCAP: National Aerospace and Defense Contractors Accreditation Program- Independent certification for special processes.

Original Equipment Manufacturer (OEM): An organization that manufactures products or components that are purchased by a company and retailed under the purchasing company's brand name. OEM refers to the company that originally manufactured the product

Supplier: Any subcontractor that include:

- 1) **D – Distributors** (Standards Hardware, COTS and OEM products)
- 2) **F – Finishing & Special Processes** (Special Processes including but not limited to Welding, Heat Treat, Plating, Painting)
- 3) **M – Manufacturers** (Machining, Casting, Molding, Forging, Metal Forming)
- 4) **R – Raw Material Sources** (Wrought Metals, Plastics, Extrusions)
- 5) **S – Support Services & Products** (Prototyping, OEM (Original Equipment Manufacturer), Training Services, COTS (Commercial Off the Shelf) Sources, Catalog Sales, Engineering Defined Sources, Calibration & Test Services, Home Assembly)

D6-51991: Quality Assurance Standard for Digital Product Definition at Boeing Supplier



SUPPLIER QUALITY REQUIREMENTS

4.0 PROCEDURE - SUPPLIER QUALITY REQUIREMENTS

The table below describes and defines those requirements for which Suppliers are responsible. The applicability column defines which Suppliers are affected by the requirement.

Requirement	Applicability	Comments
a. The Supplier shall allow an on-site audit of their Quality Control System by either HE personnel and/or HE customers and regulatory authorities.	All Suppliers	Advance notice will be given before an audit is conducted.
b. The supplier shall conduct a review of all the purchase order requirements to ensure their product or service conforms to those requirements.	All Suppliers	The supplier may be asked to present evidence of review during an audit.
c. The supplier’s Quality Management System shall address the requirements contained in this document.	All Suppliers	Upon request, supplier may be asked to provide Harper Engineering with a copy of your Quality Manual.
d. Quality related documentation and certifications shall be retained and available to HE for a minimum of ten (10) years unless otherwise stated in the contract.	All Suppliers	The supplier may be asked to present such records during an audit. If the Supplier is not able to maintain records for this duration, forwarding a copy of inspection records, test reports, certifications with shipped product meets this requirement.
e. All suppliers are responsible for ensuring they have the latest revision of Harper Engineering drawings and specifications. The latest revisions of the Harper Eng. drawings/specifications will be stated on the HE Purchase Orders. It is the responsibility of the suppliers to obtain any additional documents, standards or specifications called out on those drawings.	All Suppliers	<ul style="list-style-type: none"> • Documents will be available to appropriate personnel as required. • Obsolete documents will be removed from use to preclude unintended use. • Supplier may be asked during an audit, to show methods to ensure that the latest applicable drawing, specifications, digital data and purchase order requirements are used for fabrication, inspection, verification and testing.
f. The supplier shall notify Harper Engineering of any substitutions/changes in their product and/or process definition. Harper Engineering reserves the right to determine which changes affect fit, form or function.	All Suppliers	Any and all changes must be approved by Harper Engineering prior to shipment.
g. Supplier shall notify Harper Engineering in the event of changes in the following production processes: <ul style="list-style-type: none"> ➤ Manufacturing relocation ➤ Changes in personnel (CEO, Plant Director, Quality Director, etc.) or ownership ➤ Major changes/revisions to the Quality Manual/System 	All Suppliers	Supplier should First Article any product after major changes.

SUPPLIER QUALITY REQUIREMENTS

<p>h. In absence of specific packaging requirements on the drawing or purchase order, the supplier shall provide packaging that protects the component from mechanical and environmental damage during transport and storage.</p>	<p>All Suppliers</p>	<p>-None-</p>
<p>i. Nonconforming and suspected nonconforming material shall be segregated and clearly marked as such within the Supplier’s facility.</p>	<p>All Suppliers</p>	<p>When the Supplier identifies a nonconformance to requirements, the Supplier has the option to submit an Advance Rejection to Harper Eng. for disposition, prior to shipment of product. Advanced Rejection is to include, P/N, Lot#, Quantity, PO#, Drawing Revisions, a detailed description of Non-conformity, and actions taken to correct the issue and prevent future recurrence.</p>
<p>j. Within 24 hours of discovery, the Supplier shall notify Harper Engineering in writing on nonconforming or suspected nonconforming materials shipped to Harper Engineering Company.</p>	<p>All Suppliers</p>	<p>The Supplier shall take prompt action to correct conditions which have resulted or could result in the submission to Harper Engineering of products which do not conform to drawing, specification and/or purchase order requirements.</p>
<p>k. Any corrective action request issued by Harper Engineering shall be completed by the Supplier in a timely manner.</p>	<p>All Suppliers</p>	<p>The response shall be in writing detailing root cause, correction and verification activities to prevent further occurrence.</p>
<p>l. The Supplier shall submit a Certificate of Conformance (C of C) with each product shipment. C of C is to include, P/N, Lot #, Quantity Shipped, PO # and Drawing Revisions. C of C is to be signed by an authorized supplier representative.</p>	<p>All Suppliers</p>	<p>Before shipment to HE, Suppliers shall have a system to verify all proper documentation and certification is included. C of C is to state that in compliance with all PO requirements.</p>
<p>m. Suppliers of products manufactured to HE designs shall review their manufacturing capability, special controls, work instructions, test equipment, fixtures, tooling, and the skills required to assure they have the ability to produce products that conform to HE design.</p>	<p>All Suppliers, except Distributors</p>	<p>The supplier may be asked to present evidence of review during an audit.</p>
<p>n. The Supplier shall flow down all the applicable quality requirements stated in HE purchase orders to any sub-tier suppliers selected by the Supplier.</p>	<p>All Suppliers, except Distributors</p>	<p>Suppliers shall have a system to approve and disapprove suppliers based on their ability to meet Harper Engineering contractual requirements.</p>
<p>o. Supplier procured parts, materials and processing to be used on Harper Engineering end items shall be subjected to a receiving inspection to assure conformance to applicable drawings, specifications and requirements of the Harper Engineering purchase order.</p>	<p>All Suppliers, except Distributors</p>	<p>Acceptance requirements shall include test reports, certifications, or inspection verification of physical and chemical properties of raw materials traceability to the source.</p>

SUPPLIER QUALITY REQUIREMENTS

p. The supplier will develop work instructions to clearly describe all operations which affect conformance to HE designs.	All Suppliers, except Distributors	The supplier may be asked to present evidence during an audit.
q. The Supplier shall provide and maintain tooling, gages and other precision measuring and test equipment to the extent necessary to ensure that supplies and services conform to the technical requirements and will not compromise the quality of HE end items.	All suppliers except Distributors	Tools shall be calibrated/validated in accordance with established intervals using HE accepted standards or methods that are traceable to the National Institute of Standards and Technology (N.I.S.T.). Records shall be kept of calibration activities.
r. Suppliers who are Distributors shall maintain a quality system sufficient to ensure items from original manufacturer meet all purchase order, drawing, specification and quality requirements.	Distributors only	-None-
s. Suppliers of commercially developed and manufactured catalog type items that are available for general purchase, are responsible for ensuring their products conform to drawings, specifications or applicable industry standards.	Distributors only	-None-
t. Harper Engineering owned tooling stored at the supplier's facilities must be given periodic tooling inspection and verification as required verifying their continued accuracy.	All Manufacturers	Records shall be kept of verification activities.
u. All products that are manufactured to Harper Engineering designs requirements shall be submitted with all special processing and raw material test report/certification with each shipment.	All Manufacturers	Certification must show acquisition and full traceability throughout the Suppliers system.
v. Harper Engineering furnished material and tooling shall be identified, separated and stored in the appropriate area. All material drop-shipped at the Supplier's facility, shall have Harper Engineering acceptance before production can begin on said shipment. Tooling shall be identified with a minimum of the following information: 1) Tool Number and 2) "Property of Harper Engineering".	All Manufacturers	Harper Engineering must be notified immediately if condition of material or tooling is damaged or is not capable of producing to its intended purpose.
w. Suppliers will have a system to define the appropriate operators and sequences to produce the product/service to HE requirements.	All Manufacturers	-None-



SUPPLIER QUALITY REQUIREMENTS

<p>x. Suppliers will at appropriate points in production, have a method of inspection/validation of first piece, in-process and/or final inspection before release to further processing or delivery.</p>	<p>All Manufacturers</p>	<p>The Supplier is required to maintain adequate records of all inspection, test and other quality control activities and shall be available for review by Harper Engineering and/or our customers.</p>
<p>y. All products manufactured to HE drawings shall have a First Article Inspection per AS9102 and shall be available upon request.</p>	<p>All Manufacturers</p>	<p>-None-</p>
<p>z. The Supplier shall maintain a system for identifying the inspection status of supplies.</p>	<p>All Manufacturers</p>	<p>Identification may be accomplished by means of stamps, tags, routing cards or other control devices.</p>
<p>aa. If the supplied product is life-limited, the supplier is required to furnish either the expiration date, or the material cure date.</p>	<p>All life-limited suppliers.</p>	<p>Life-limited materials shall have at least 50% of the shelf life remaining upon receipt at HE receiving dock.</p>
<p>bb. Product subject to special processing must be accompanied by certification documents. The documents shall specify the Process Specification and Revision, with a statement of the Suppliers conformance to the requirements of that process.</p>	<p>All Processors</p>	<p>All Special processing shall be accomplished by Boeing D1-4426, NADCAP or Harper Engineering Approved facilities.</p>
<p>cc. Suppliers of raw materials shall provide raw material certifications with each shipment.</p>	<p>Raw Materials suppliers</p>	<p>-None-</p>
<p>dd. The Supplier shall be aware of their contribution to product/service conformity e.g. individual accountability, understanding requirements, compliance to process, the need to control changes, reporting of nonconformance.</p>	<p>All Suppliers</p>	<p>-None-</p>
<p>ee. The Supplier shall be aware of their contribution to product safety e.g. individual accountability, compliance to process, attention to detail, knowledge of product end usage, potential impact relating to product issues.</p>	<p>All Suppliers</p>	<p>-None-</p>
<p>ff. The Supplier shall be aware of the importance of ethical behavior e.g. code of conduct, management/employee working relationships, fair treatment, employee work recognition, confidential reporting mechanisms, protecting anonymity and no blame culture.</p>	<p>All Suppliers</p>	<p>-None-</p>

SUPPLIER QUALITY REQUIREMENTS

<p>gg. The Supplier shall plan, implement, and control processes, appropriate to the organization and the product, for the prevention of counterfeit or suspect part use and their inclusion in product(s) delivered to Harper Engineering.</p>	<p>All Suppliers</p>	<p>-None-</p>
<p>hh. The supplier shall plan, implement, and control the processes needed to meet the requirements for the provision of products and services for the prevention, detection, and removal of foreign objects.</p>	<p>All Suppliers</p>	<p>-None-</p>
<p>ii. The supplier shall notify Harper Engineering immediately when knowledge is obtained that any supplied item to be provided is obsolete, is marked for impending obsolescence, or has an established end of production date.</p>	<p>All Suppliers</p>	<p>-None-</p>
<p>jj. Boeing D6-51991 DPD procedures (applicable sections only) must be followed when flowed down by Harper Engineering.</p>	<p>Manufacturers and Finishing & Special Processing</p>	<p>Ref: QSP4500</p>

SUPPLIER QUALITY REQUIREMENTS

5.0 RECORDS

Records shall be maintained in accordance with [QSP2700](#).

6.0 RESPONSIBILITIES

Title	Responsibility
Purchasing Manager	<ul style="list-style-type: none"> • The co-maintenance of this document. • Issuance of Supplier Corrective Actions.
Quality Assurance Manager	<ul style="list-style-type: none"> • The co-maintenance of this document. • Authorized to approve or delegate in writing authority to approve deviations to the requirements of this document. • Authorized to approve or delegate in writing authority to approve supplier substitutions/changes in their product and/or process definition. • Approval of Supplier Corrective Actions.

7.0 APPROVALS

Title	Approval
Purchasing Manager	Signature on File _____ T. Egbert
Quality Assurance Manager	Signature on File _____ J. Brown

8.0 REVISION HISTORY (SEE ARCHIVE FOR PRIOR)

Revision	Changes	Date	By
H	Updated formatting and renamed to reflect new HE Document Numbering System Renumbered Sections & Added Section 2.0/4.0/6.0/7.0 Added Supplier Requirements dd/ee/ff in adherence to AS9100D.	4/11/18	J. Brown
J	Added Supplier Requirement gg in adherence to AS9100D.	4/24/18	J. Brown
K	Revised section 'v' and added section 'hh'. Updated Approvals	12/11/19	T. Commare
L	Updated References, updated section Y, added Obsolescence Management, section ii and updated responsibilities/approvals.	3/19/21	T. Commare
M	DPD references added to Section 3.0 and to requirement jj.	10/31/23	C. Johnson