



Composite Structures

# Kaman Composites Connecticut

## Quality Assurance Requirement Purchase Orders

KCC-CQR-0001  
REV 00

Approved By:  
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Quality Manager  
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### NOTICE

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### Revisions

<b>REV</b>	<b>DESCRIPTION</b>	<b>QA</b>	<b>PUR</b>	<b>DATE</b>
00	Initial Release	MKC		12-14-16

**APPLICABILITY:**

The Quality Assurance requirements are applicable to KAMAN COMPOSITES - CONNECTICUT. (KCC) contracts or purchase orders when incorporated by reference to the applicable clause or clauses by code numbers in such contracts or purchase orders. Acceptance of the articles or material specified on this order will be withheld pending receipt of all required data and documentation.

**SIGNIFICANCE:**

These requirements and execution shall be in addition to and not in derogation of other contract or purchase order requirements.

**REFERENCED MILITARY DOCUMENTS:**

Unless specifically stated, all military specifications and standards referenced herein shall be the issue in effect on the date of quotation for this order, unless prior approval has been granted by KCC.

**Q001 Supplier Quality System**

The supplier shall implement and maintain a Quality Management System that conforms, as a minimum, to the requirements of Federal Aviation Part 21, AS9100, ISO 9000, ISO 9001, NADCAP or to the extent imposed by the provisions of applicable drawings, specifications, and purchase orders. Kaman Composites Connecticut (KCC) may agree to less stringent Quality System requirements as befits the type of services or products provided. KCC and its customers reserve the right to audit the supplier for compliance to this requirement. During the performance of such audits, the supplier shall provide reasonable facilities and personnel to effectively conduct the audit.

**Q001A Right of Access**

During performance of this order, Kaman Composites Connecticut, its customer, and any regulatory agencies will be allowed the right of access to the applicable areas of all facilities, at any level of the supply chain, involved in the order and to all applicable records. The supplier shall provide reasonable and knowledgeable personnel to effectively conduct the visit.

**Q001B Supplier Quality Requirements Manual (SQRM)**

Compliance to applicable sections of Kaman's Supplier Quality Requirements Manual (SQRM) is required. The SQRM is located at <http://www.kaman.com/aerospace/aerosystems/air-vehicles-mro/suppliers/>. Any difficulties in accessing the SQRM should be addressed to the Kaman Buyer.

**Q002 Government Surveillance**

During performance on this order, your quality control system and manufacturing processes are subject to review, verification, and analysis by authorized government representatives. Government inspection or release of product prior to shipment is not required unless you are otherwise notified.

**Q002A Government Priority Rating**

Orders having a government priority rating shall be identified and scheduled in accordance with the defense priorities and allocation system (DPAS).

**Q003 Retention of Records**

The supplier shall maintain manufacturing/inspection records for a period of seven (7) years that the item identified in this order have been produced in accordance with applicable instructions, specifications, and drawings. The evidence shall be made available to Kaman Composites Connecticut or it's customer for inspection upon request (ref SQRM).

**Q003A Certification of Compliance**

With each shipment, the supplier shall submit a certification of compliance, from the manufacturer, in accordance with applicable specification for each lot/batch number and Kaman Composites Connecticut purchase order number for traceability. The certification shall be signed by a member of the supplier's quality department and entered on the shipping document or included as a separate document. Articles defined in this purchase order are subject to inspection at Kaman Composites Connecticut and will not be accepted if the supplier fails to ship completed certification with the articles. Kaman Composites Connecticut reserves the right to return non-conforming articles to the supplier at supplier's expense.

**Q003B Raw Material Test Results and Certification of Compliance**

With each shipment, the supplier shall send one copy of each applicable test report, as required by the product specification(s) (as listed on the Purchase Order), to include lot/batch number tested, acceptable parameters, and results obtained. Each test shall be validated by an authorized representative of the supplier's quality department. Certification shall specify the material procured or used to comply with specifications listed on or in Engineering requirements.

**Q003C Castings and Forgings Test Results**

"In addition to chemical composition/physical test reports indicating the chemical composition and actual mechanical properties for each lot submitted, the applicable inspection/test data listed below will be submitted for each lot of castings or forgings as required by specification or contract.--"Certification for magnetic particle inspection, fluorescent penetrant inspection, ultrasonic inspection, pressure test, and grain flow will be submitted with the order. Radiographic inspection results including film for each casting will be supplied."

**Q004 AS9102 First Article Inspection**

The supplier shall include an AS9102 First Article Inspection Report (FAIR) for all first run machined detail parts, fabricated detail parts, fabricated assemblies and their components including hardware

and any purchased product apart of the assembly. Any changes to drawing revision levels, specification changes or changes affecting fit, form or function of product provided by your company will require a delta FAIR. When documenting the FAI, the supplier may use the forms contained within AS9102 or their equivalent, so long as the forms contain all the information required by AS9102. : 100% of drawing characteristics must correspond numerically with a bubble drawing if available or translated from an IGES file onto a paper copy; nominal or actual values with tolerance ranges must be listed; if characteristics are in metric, they must be recorded in metric; applicable drawing flag or general notes must be listed; if parts have been verified to a digital model, a report must accompany the FAI; Rockwell, hardness, and conductivity readings must be recorded. Kaman Composites Connecticut must approve all F.A.I.R. for details prior to assembly. All FAI's are subject to review by Kaman Composites Connecticut and/or its customers and may be rejected if information is incomplete (ref SQRM).

#### **Q004A Dimensional Inspection Reports**

Dimensional Inspection reports shall be prepared and submitted with each part/tool as required. Dimensional Inspection reports shall include part number, date, traceability / serial number, drawing or data set or CATIA revision, Inspection acceptance, and Kaman Composites Connecticut purchase order number as a minimum.

#### **Q004B Inspection Report - Fit and Function**

The supplier shall furnish an inspection report indicating variable data needed to specify fit and function characteristics.

#### **Q004C First Piece Acceptance**

Supplier must perform mandatory first piece acceptance for each line item article on this purchase order prior to producing the remaining balance of the line item.

#### **Q004D Calibration Equipment Requirements**

Calibration shall be performed in accordance with ISO 10012-1, ANSI/NCSL Z540-1, or others as applicable. All calibrations performed shall be traceable to NIST. "Certificate of Calibration" traceable to each item furnished by Kaman Composites Connecticut. Calibration certification is required with your return shipment to Kaman Composites Connecticut.

#### **Q004E Tooling Requirements**

All tools manufactured or reworked shall have a Dimensional Inspection report listing the tool number, drawing & revisions, required dimensions, tolerances, actual measurements, tool weight, and stamped or signed by your quality representative. Additional information used to rework or manufacture tooling such as CATIA data, part models, masters, or splashes shall also be listed on the inspection report. Unless otherwise specified on the purchase order, all tooling shall be made or reworked to one third (1/3rd) the part drawing tolerance. All tooling shall be manufactured or reworked to the customers tooling document requirements and upon request; these documents will

be furnished to you. All tooling received without a complete Dimensional Inspection report will be rejected and returned to the supplier.

#### **Q005A Reporting and Shipping of Nonconforming Goods**

Any departure from drawings, specifications, or other purchase order requirements must be recorded on nonconformance documents and presented to Kaman Composites Connecticut, for disposition prior to shipment from your facility. If a Kaman supplier discovers that discrepant material has been delivered, the supplier must promptly notify Kaman in accordance with contractual requirements.

#### **Q005B Changes in Product and/or Process**

Supplier shall notify Kaman Composites Connecticut of any changes in product and/or process, changes of suppliers, changes of manufacturing facility location and, where required, obtain Kaman Composites Connecticut approval (ref SQRM).

#### **Q005C Sub-Tier Flowdown**

The supplier shall flow down to sub-tier supplier the applicable requirements in the purchasing document, including key characteristics where required (ref SQRM).

#### **Q005D Critical Item Planning**

"The Supplier shall comply with critical item planning acceptance and identification requirements. Articles on this purchase order have been identified through failure mode and effect analysis as critical, Category 1 or 2. Critical categories are defined as follows:--Category 1: Loss of life or vehicle--Category 2: Loss of mission"

#### **Q005E Statistical Process Control**

Statistical Process Control is required on this purchase order for key characteristics/process parameters identified by drawing or specification. The supplier is responsible for implementing a control plan, appropriate process control charts, and submitting this data to the purchaser.

#### **Q005F Traceability of Flight Critical Parts**

The suppliers program shall provide for traceability of critical flight safety parts as identified by Kaman Composites Connecticut. Traceability shall include identification of parts with an assigned serial number and/or heat or melt numbers upon the release of raw materials and retained throughout the manufacturing cycle.

**Q005G Root Cause/Corrective Action**

The supplier shall, on request, on forms designated by Kaman Composites Connecticut, provide statements of corrective action within seven (7) working days on failures of seller's hardware. Corrective action statements, at Kaman Composites Connecticut's option, may require approval signature by Kaman Composites Connecticut's customer and Government Quality representatives. All rejected articles resubmitted by supplier to Kaman Composites Connecticut shall bear adequate identification including reference to Kaman Composites Connecticut's rejection document (ref SQRM).

**Q006A Kaman Source Inspection**

The material or parts supplied under this order is subject to mandatory source inspection at the supplier's facility by Kaman Composites Connecticut's Quality Department prior to shipment. The seller shall notify the applicable Kaman Composites Connecticut purchasing agent when parts are ready for source inspection.

**Q006B Northrop Grumman Source Inspection**

The material supplied under this order is subject to mandatory source inspection at the supplier's facility by a Northrop Grumman Quality Representative prior to shipment. The seller shall notify Kaman Composites Connecticut's Quality Manager five (5) working days prior to the date on which material will be ready for source inspection.

**Q006C Boeing Source Inspection**

The material supplied under this order is subject to mandatory source inspection at the supplier's facility by a Boeing Quality Representative prior to shipment. Upon receipt of this order, the supplier shall promptly notify the Boeing representative, normally servicing your facility.

**Q006D Government Source Inspection**

Mandatory Government source inspection of material supplied under this order is required prior to shipment from your plant. Upon receipt of this order, promptly notify the government representative, normally servicing your facility.

**Q006E Sikorsky Source Inspection**

The material supplied under this order is subject to mandatory source inspection at the supplier's facility by a Sikorsky Quality Representative prior to shipment. The seller shall notify Kaman Composites Connecticut's Quality Manager five (5) working days prior to the date on which material will be ready for source inspection



## **Q007 Control of Digital Media**

The supplier shall maintain sufficient control of digital media (i.e. CATIA, IGES, etc.) as determined by the requirements listed in the Kaman Composites Connecticut Supplier Digital Product Definition Survey. All product received from supplier shall have identification, revision, and all other information from digital media listed on certification of compliance.

### **Q007A Kaman DPD Approval**

Supplier shall be approved by Kaman Composites Connecticut Supplier Quality Control before receiving Digital Product Definition/Model Based Definition media (ref SQRM 13.0)

### **Q007B Sikorsky DPD Approval**

Supplier shall be a Sikorsky approved supplier before receiving and utilizing Digital Product Definition media. Requirements of ASQR-01 apply to this purchase order.

## **Q008A Test Panel Requirements**

For those items which require, by specification, that a cured panel be fabricated and tested, for mechanical properties such as: tensile strength, compressive strength or flexural strength etc. or flammability properties---the supplier shall provide a duplicate cured panel dimensionally equivalent to the cured panel already prepared and tested at the supplier's facility and include this duplicate panel with the shipment.

## **Q008B Temperature Sensitive Materials**

All shipments of Temperature Sensitive Materials shall include a portable temperature recorder(s) when delivered. Additional portable temperature recorders are required if specified by the applicable specification.

## **Q008C Shelf Life (TATS)**

All Time and Temperature Sensitive Materials that have a manufacturer or specification shelf life of less than 75% remaining when delivered to our receiving dock will not be accepted. If a manufacturer cannot provide material in compliance with this policy, two requirements are mandatory, (1) a pricing concession will be made to Kaman Composites Connecticut for the expired shelf life on the materials offered, and (2) the manufacturer must have written approval by Kaman Composites Connecticut's Purchasing and Quality departments prior to shipping these aged materials. Kaman Composites Connecticut's managers of Finance, Engineering, and Quality must approve any exceptions to this clause.

**Q009 Special Process Requirements**

Special process requirements of the drawing (NDE, NDI, Welding, Heat Treat, X-Ray, Precision Cleaning, Applied Finishes, etc.) are to be performed by Kaman Composites Connecticut's customer specification approved sources only. This includes any sub-tier processors used by you, the supplier, to perform the special process. The Supplier shall list on the packing sheet or certificate of conformance accompanying each shipment the names of the sub-tier processors who performed the processes and a copy of the sub-tier packing sheet and/or certificate of conformance for the processes performed. The supplier shall contact Kaman Composites Connecticut's purchasing agent for any approval questions.

**Q010 AS9100 Approved Source Required**

The Vendor's Quality Management System must have valid Certificate of Registration to the AS9100 specification.

**Q010A Rolls Royce Approved Source Required**

Vendor must be approved by Rolls Royce.

**Q010B Boeing Approved Source Required**

Vendor must be a Boeing approved vendor.

**Q010C Northrop Grumman Approved Source Required**

Vendor must be approved by Northrop Grumman.

**Q010D Bell Helicopter Approved Source Required**

Vendor must be approved by Bell Helicopter.

**Q010E Requirements for Rolls Royce Raw Material (not made to Rolls Royce specification) and Standard Hardware Vendors**

Vendors not required to be Rolls Royce approved but must maintain ISO 9001 (or AS9120 for hardware) certification. Kaman approval also required.

**Q010F Requirements for Material Suppliers Certifying to a Rolls-Royce Specification**

Supplier must hold a current RR9000:SABRe approval and a Rolls-Royce plc approval for the material purchased by Kaman. Material Certs, Test Reports and all supporting documentation for non-conforming material that has been approved for use by Rolls-Royce plc must be supplied with each shipment.