



QUALITY CLAUSES

Purpose and Scope

Unless otherwise specified, specifications referenced herein shall be of the issue in effect on the date of the request of quotation.

Supplier Responsibilities

It is the responsibility of the Supplier to review all quality requirements and to ensure compliance to the requirements specified on the PO. It is the responsibility of the Supplier to contact the Light Composites purchasing agent to resolve any conflicts between identified clauses on the PO and other referenced Light Composites documentation prior to initiating work.

Quality Clauses:

Q001 RAW MATERIAL REPORT AND/OR CERTIFICATE OF CONFORMANCE

The supplier shall provide a Report or Certificate of Conformance (C of C) for the raw material supplied or used in the parts supplied. The C of C shall be from the original raw material supplier and include original supplier, lot number, material specification, tests conducted and any other relevant information needed to identify the raw material. Acceptable

examples include foundry report, mill report, dimension/description, temper/hardness, alloy and condition. The supplier shall maintain the original mill certification and any secondary independent test laboratory certification(s) if any additional process was done after original mill certification for procured metallic material that shall include physical properties, chemical analysis and lot number(s). In addition, material must meet any other contractual requirements as stated in the Purchase Order, and any applicable DFARs such as Specialty Metals. Supplier records shall be retained for a minimum of 10 years after completion of the purchase order or subcontract. Suppliers providing 7075 aluminum should provide a mill cert. These requirements shall be flowed down to any sub-tier suppliers.

Q002 ETHICAL BUSINESS PRINCIPLES - Supplier acknowledges and agrees that our Buyer requires that Supplier maintain a high standard of ethical conduct in all its dealings with the Buyer. Light Composites policy prohibits all employees from accepting gratuities, gifts, entertainment or other favors, as well as from engaging in any activities which create the perception of a conflict of interest, from any current or prospective Supplier. Supplier is encouraged to implement their own written code of conduct and to flow down their principles to the entities that furnish them with goods and services. Light Composites expects its Supplier to maintain effective programs to encourage their employees to make ethical, value-driven choices in their business dealings.

Q003 FOREIGN OBJECT DAMAGE PREVENTION
Supplier shall maintain a Foreign Object Debris/Damage (FOD) prevention program. When applicable, Supplier's FOD

prevention program shall include the review of design and manufacturing processes to identify and eliminate foreign object entrapment areas and paths through which foreign objects can migrate. Supplier shall employ appropriate housekeeping practices to ensure timely removal of residue/debris, if any, generated during manufacturing operations or tasks. Supplier shall determine if sensitive areas that may have a high probability for introduction of foreign objects should have special emphasis controls in place appropriate for the manufacturing environment. By delivering items to LIGHT COMPOSITES, Supplier shall be deemed to have certified to LIGHT COMPOSITES that such items are free from any foreign material that could result in FOD.

QA004 RECORDS RETENTION - DEFINED

Records shall be as defined by ISO9001 and/or AS9100 maintained to provide evidence of conformity to requirements. Records shall remain legible, readily identifiable and retrievable. Supplier records shall be retained for a minimum of 10 years after completion of the purchase order or subcontract. These requirements shall be flowed down to any sub-tier suppliers.

Q005 EQUIPMENT CALIBRATION REQUIREMENTS

Supplier shall maintain a documented calibration system for the calibration and maintenance of tools, jigs, ovens, equipment used in Screening/ESS operations, Inspection and Test equipment. The Supplier's calibration system shall be compliant to industry requirements in accordance with the Supplier's QMS, including without limitation ISO 17025, ISO 10012-1 and ANSI Z540. As the minimum requirements, the Supplier will provide the following:

Identification or serial number of the Light Composites standards or test equipment to which the report pertains.
Relevant condition under which the calibration was performed (temperature, relative humidity, etc.) as required.
Accuracy of the standard under test (expressed in percentage or other suitable terms).

Report number.

Reports for the highest level standards of sources other than National Institute Standards and Technology (NIST) or a Government laboratory must bear a statement that comparison has been made and is traceable to NIST or that the calibration system used is based upon standards equivalent to those of NIST. A NIST test number is one means of substantiating comparison and must be provided with date of issue by NIST to Light Composites via the Supplier.

Correction factors which must be applied if standard conditions of temperature, gravity, air buoyancy, etc. are not met or differ from those at the place of calibration.

Person(s) performing the test/calibration must be identified by name, stamp (unique number), employee number, or other suitable means.

When repair actions are required, the extent of repair(s) must be documented and provided by the Supplier to Light Composites.

Q006 CERTIFICATE OF CALIBRATION

The Supplier's calibration system shall be compliant to industry requirements in accordance with the Supplier's QMS, including without limitation ISO 17025, ISO 10012-1 and ANSI Z540. The supplier shall provide a Certificate of Calibration with delivery of product stating that the requirements of the purchase order/ subcontract have been fully met and any required chemical/

physical/electrical analysis has been performed. Substantiating evidence/data sheets shall be on file and available upon request. The Supplier shall comply with an approved calibration system. The Certificate of Calibration shall also include the following:

Identification or serial number of the Light Composites standards or test equipment to which the report pertains.

Report Number or other unique identifying number.

The Certificate of Calibration shall be signed and dated by an authorized representative of the company.

Q007 PROHIBITED MATERIALS

Supplies furnished under this contract or purchase order shall not contain any of the following:

Pure Tin: Unalloyed tin or tin plate where tin is greater than 97% pure and the remainder is lead is prohibited. Tin with less than 97% tin and the remainder is lead is acceptable. Reflowed pure tin plating is not acceptable.

Cadmium: Pure Cadmium and high Cadmium alloys ($\geq 15\%$ Cadmium) are prohibited.

Zinc: Pure zinc and high zinc alloys ($\geq 15\%$ Zinc) are prohibited

Mercury: Pure mercury and high mercury alloys ($\geq 15\%$ Mercury) are prohibited.

Selenium: Pure selenium and high selenium alloys ($\geq 15\%$ Selenium) are prohibited

Corrosive solder flux: Active rosin and organic acid fluxes are prohibited on "closed" surfaces such as a wire termination (stranded wire).

Magnesium: Pure magnesium or high magnesium alloys.

Magnesium alloy may be acceptable with a maintained protective coating of Dow 17 or equivalent coating. Trace

amounts of Mg are acceptable in material systems such as Aluminum and Steel alloys.

Polyvinyl Chloride (PVC): No forms of PVC are acceptable.

Potting and foam formulations that is prone to reversion.

Polyurethane or silicone compounds that is prone to reversion.

Silicones that release acetic acid or other corrosive products during the cure process.

Cyanoacrylate bonding as primary adhesives. In-process bonding is acceptable provided an approved adhesive provides the primary bond support.

Graphite as filler for lubricants or grease.

Elastomeric materials that contact hydrazine except for F-E-332 for diaphragms and AF-E-411 for soft valve seats. Materials that have known compatibility by test, usage, or similarity are acceptable.

Silicone greases intended for thermal bonding for end-item design (not test).

Flammable materials that are not packaged to preclude accidental fire.

Honeycomb, metallic or non-metallic, except when perforated or vented.

Radioactive materials.

Silver-plated copper wire with less than 40 micro inches of silver plating.

Polyimide (Kapton) insulated copper/copper alloy wire used in applications where the voltage is greater than 18 volts and where flexure, tight bend radii, physical or chemical damage, or abrasion could crack the insulation.

Teflon (tetrafluoroethylene-TFE) insulated hookup wire when not routed or protected to prevent cold flow.

Fluorinated Ethylene Propylene (FEP) tubing where it provides the sole insulation for a wire conductor and is routed or contacts adjacent metal conductors.

If any of these requirements are not met, please provide the specific material and its percentage as applicable.

Q008 COUNTERFEIT PARTS PREVENTION

Seller shall establish and maintain a Counterfeit Parts Prevention and Control Plan that meets the intent of AS5553 Counterfeit Electronic Parts, Avoidance, Detection, Mitigation, and Disposition.

A. Prohibition - The seller shall ensure that only new and authentic materials are used in product to be delivered to LIGHT COMPOSITES. The seller agrees and shall ensure that Counterfeit Parts are not contained in products delivered through the implementation of policies that include prevention methods to protect against the use of Counterfeit Parts.

B. Prevention - The seller shall only purchase products, to be delivered or incorporated in an assembly to LIGHT COMPOSITES, directly from the Original Component Manufacturer (OCM) /Original Equipment Manufacturer (OEM), or through an OCM/OEM authorized distributor. The seller shall maintain Original Component/Equipment Manufacturer (OEM) certificates for all Electronic, Electrical and Electromagnetic components and devices including those items in assemblies or subassemblies delivered as part of this purchase order. OCM/OEM Certificates of Conformance shall be available upon request.

C. Notification - In the event seller becomes aware or suspects that it has furnished Counterfeit Parts under this Purchase Order, the seller should promptly disclose such item(s) to the Buyer and replace such item(s) with item(s) acceptable to Buyer at no increase in price, cost or fee.

D. Remedies - In the event that Products delivered under this Purchase Order are, or include, Counterfeit Parts, The seller shall promptly investigate, analyze and report in writing to the buyer. The parties shall agree upon the appropriate course of action.

E. Flow Down - The seller shall flow the requirements of this provision to its sub-tier suppliers at any tier for the performance of this Purchase Order.

Compliance with these requirements are in no way to be interpreted as relieving the seller from their responsibility to assure that Counterfeit Parts are not contained in products delivered. Any deviations from this clause must be approved in advance, in writing, by LIGHT COMPOSITES.

Q009 FAILURE REPORTING ANALYSIS AND CORRECTIVE ACTION SYSTEM (FRACAS) REQUIRED

The Supplier shall establish a Failure Reporting Analysis and Corrective Action System (FRACAS). This system will consist of a closed loop failure reporting system, procedures for the analysis of failures to determine cause, and documentation for recording corrective action taken.

Q010 QUALITY SYSTEM

The supplier shall have a Quality Management System IAW AS9100/AS9120 or equivalent, or a QMS approved by LIGHT COMPOSITES.

Q011 RESERVED FOR FUTURE USE

Q012 NO PURE TIN, BISMUTH OR SAC ALLOYED MATERIALS ALLOWED

No pure tin plating allowed. The use of pure unalloyed tin is prohibited in the construction and surface finish of goods required to be delivered to Buyer under this Purchase Contract. Construction and finish include solders and plating. Tin is considered to be pure if it contains less than 3% alloying elements. The critical concentration of bismuth begins in the range of 3 to 5%, so lead finishes with greater than 3% bismuth are not allowed. BGA's and CCGA's are not allowed with Tin, Silver, Copper (SAC) alloyed Balls.

Q013 LOT CONTROL

Lot control is required which provides traceability to the records for the processes, inspections, and tests used in the manufacture of the items. Lot number/date code is to be identified on outside of intermediate and/or unit packages. When multiple lot/date codes are shipped together, individual lot/date codes are to be segregated (only one date code per reel).

Q014 SUPPLIERS SUB-TIER CONTROL

The Supplier is responsible for insuring all items produced from its subcontractors conform to all requirements of the purchase order. Supplier shall ensure all applicable provisions of this

document are flowed down to its subcontractors, including the use of AS9102 for first article inspection.

Q015 RETENTION OF TEST RECORD

Pass/fail data shall be retained and made available upon request. Quality Group "A" electrical test for each date code used to fill this order shall be retained for 10 years minimum. Data shall be identifiable to the items supplied. Parts tested to LIGHT COMPOSITES specifications shall include the drawing number, revision level and software program number revision level. Supplier shall notify LIGHT COMPOSITES 30 days in advance of shipment, of any changes to LIGHT COMPOSITES drawings effecting the electrical specifications. Parts tested to military specifications shall include the specification drawing Number, revision level plus any amendments.

The above data may be written on the C of C or included as an attached separate Item.

Q016 SOFTWARE CONTROL

If Software is used to control the manufacture, inspection or test of supplied product, the supplier shall maintain a program for the positive control over the configuration status, validation, and program integrity of the software. This shall include, but not be limited to, the control of models, NC programs, test programs, inspection software, and software delivered in product.

Q017 FIRST PIECE ARTICLE FOR TOOLING

When specified on the PO specifically, the first sample produced of each article of tooling, molds, jigs, fixtures, etc., shall be submitted to LIGHT COMPOSITES with a First Article Inspection report (in accordance with AS9102) prior to delivery

of any additional quantities. The samples shall have been fabricated using the parts, material and processes proposed for full PO production. Such manufacture shall have taken place at the same location proposed for full PO production. The samples shall be accompanied by complete data demonstrating performance of the equipment in compliance with the drawing and specification requirements. Production prior to written approval from LIGHT COMPOSITES buyer is at the supplier's risk. LIGHT COMPOSITES approval or conditional approval of such samples shall not relieve the supplier from complying with the requirements of this order.

Q018 LOT CODE UNIFORMITY

All parts ordered shall be of one lot and date code.

Q019 FIRST ARTICLE INSPECT DATA REQUIRED

When specified on the PO specifically, a sample from the first production run of each configuration will be fully inspected for dimensions, characteristics, and notes listed on the drawing or specification as required by AS9102 to verify that the production processes, documentation, and tooling are capable of consistently producing parts and assemblies that meet requirements. All AS9102 forms shall be completed, using the format defined therein. It is preferred that data be typed. Any Non-Conformance will be detailed on a Supplier Variation Request (SVR) for LIGHT COMPOSITES approval, prior to shipment. Any SVR number(s) will be placed in the NC column defined in AS9102, Form 3. The First Article piece shall be tagged or identified and submitted to MIE along with a serialized inspection data sheet(s). Special Process validations, Material Certifications, or other data as required (Certificate of Compliance, Specialty Metals, etc.), shall be part of the PPVR/

FAIR package. Evidence of passing any applicable functional test requirement, preferably with recorded variable data, shall be attached. For any change in configuration or production process, a partial FAIR may be submitted for those specific changes when a full FAIR is on file. A new FAIR is not required on subsequent shipments of the same revision unless there has been a break in manufacturing of greater than 24 calendar months. The supplier shall notify LIGHT COMPOSITES in advance of any changes in manufacturing locations or processes.

Note; if product has been manufactured by the supplier prior to August 2013 with a PPVR/FAIR submitted that was accepted by Light Composites even though not in AS9102 format, the supplier may continue to ship product under the existing FAIR as long as there has not been a break in production of greater than 24 months or a change in the production process. Any new or partial FAIR's will be submitted using the AS9102 format.

The following optional fields in the AS9102 FAIR Form 1 are considered mandatory: 11, 12, 21, 22, 23, and 24. All 'Conditionally Required' (CR) fields on FAI Report Forms 2 and 3 shall be completed. In addition, any FAI report form generated shall not contain open fields. To ensure each field of the FAI has been assessed, the supplier shall mark all open or unused fields "N/A". Data may be required to be sent to the Company Procurement Representative via SharePoint, or equivalent, depending on Security/ITAR restrictions. If Material Certifications or Special Processes are considered proprietary, a certificate of conformance will be attached to the FAI indicating that product conforms to the requirements of the Purchase Order. Data shall be available for review at the

supplier's facility, upon request. Records shall be retained for a minimum of 10 years after completion of the purchase order or subcontract. Prior to completion of the AS9102 forms, the user shall ensure the current version of AS9102 is used.

Q020 PACKING & PACKAGING REQUIREMENTS

The items on this order shall be packed, packaged and preserved in such a manner as to assure adequate protection from deterioration and physical damage due to material handling or shipment. The material shall arrive at LIGHT COMPOSITES free of nicks, dents, gouges, scratches and undue oxidation. Parts subject to oxidation shall be packaged with a suitable preservation or an oxidation inhibiting paper such as non-rust paper. Springs shall be packaged to preclude entanglement. When required by the purchase order and/or referenced documents, the supplier shall pack and package supplies to specific packing and packaging specifications.

Q021 SHELF LIFE MATERIAL - REQUIRE 80% USEFUL LIFE REMAINING

If material is adversely affected by time, the container and/or certification shall be marked with the expiration date and the recommended storage conditions. Information supplied shall be in accordance with any military/LIGHT COMPOSITES specification referenced on the drawing or on the purchase order. Do not deliver material with less than 80% of the useful shelf life remaining.

Q022 PROCESS CONTROLS

The supplier is expected to institute sufficient process controls to result in consistently meeting the quality requirements for the specific product being ordered. LIGHT COMPOSITES shall

have the right to perform process control audits. A process control audit checklist shall be provided to the supplier in advance.

Q023 RECORDED SUPPLIER DATA

When specified on the PO specifically, the supplier is to provide data with each shipment in accordance with the following requirements. The supplier is required to notify and receive written authorization from LIGHT COMPOSITES, if deviations from the following criteria are desired, i.e. sampling, etc.

The supplier will perform and record the results of mechanical and/or electrical test in accordance with the final acceptance criteria as specified in the applicable specification/drawing, unless otherwise specified in the purchase order.

When final acceptance is not defined in the controlling documents, the supplier will perform and record results of the mechanical and/or electrical tests that are considered part of the supplier's acceptance criteria.

Variable data shall be utilized for 100% of the end item acceptance parameters within a specification or drawing or that are considered part of the supplier's acceptance criteria.

Attribute data shall only be utilized for appropriate notes and to identify the condition (i.e. form feed, illumination, etc.)

When specified in the purchase order, use of critical control characteristics as part of an approved VRP / SPC Control Plan may be substituted for the 100% variable/attributes data VRP / SPC Control should be compliant to AS9103.

Recorded data shall be traceable to 100% of the parts inspected/tested. Traceability may be controlled through part serialization, tagging, or identification of individual unit

packaging unless otherwise specified in the purchase order or specification/drawing.

100% of the lot shall be inspected and / or tested unless otherwise stated in the purchase order or specification/drawing. When sampling is authorized, it shall be in accordance with ANSI/ASQ Z1.4 (C=0) or other statistically based plan, with specific lot size, AQL, and sample size identified on each data sheet.

All AS9100 orders must meet the Authority Acceptance Media per AS9100 sections 7.5.1 and 7.5.3

Note: If lot screen and burn-in summary test data are required, the seller shall include one copy of the data with each shipment and the summary shall include the conditions of test, quantity tested and quantity rejected at each test or screen. Note: Group A test data is equivalent to Lot Screen and Burn-in Summary data.

Q024 SOURCE INSPECTION

When specified on the PO specifically, the products or services specified on this purchase order/subcontract require Customer Source Inspection prior to shipment from the supplier's facility. Supplier shall notify the buyer at least five (5) days in advance of inspection and/or acceptance testing. Final acceptance of deliverable items shall be at LIGHT COMPOSITES. In order to facilitate the performance of source inspection, the seller shall furnish the necessary facilities and equipment, supply data, and perform tests as required by applicable drawings, specifications, and inspection instructions. Source inspection may be witnessed by LIGHT COMPOSITES customers or government representatives.

Q025 RIGHT TO ACCESS BY LIGHT COMPOSITES, GOVERNMENT/CUSTOMER/REGULATORY AUTHORITIES
All material covered by this purchase order is subject to surveillance inspection by LIGHT COMPOSITES, GOVERNMENT, CUSTOMER, REGULATORY AUTHORITIES. This requirement may include surveillance of the product or the supplier's Quality System, procedures and facilities. The supplier shall provide access to all facilities and equipment, supply data and perform test as required by the applicable drawings, specifications and inspection instructions under the surveillance of LIGHT COMPOSITES Quality Assurance Representative, GOVERNMENT/CUSTOMER and REGULATORY AUTHORITIES, as requested. The surveillance inspection will be requested in advance in writing by LIGHT COMPOSITES.

Q026 NON-CONFORMING MATERIAL
Unless specifically authorized, in writing by LIGHT COMPOSITES, you are not authorized to make use-as-is and repair dispositions of non-conforming material. Should you discover non-conforming material that you feel would be in LIGHT COMPOSITES's interest to accept, you should contact the buyer for instructions.

Q027 MRB AUTHORITY
The supplier is not authorized to conduct independent MRB activity. Discrepant conditions requiring MRB disposition for repair and use as is shall be documented on a Supplier Request for Deviation form and submitted to LIGHT COMPOSITES's Quality department through the applicable buyer for LIGHT COMPOSITES's disposition and approval. The supplier shall place non-conforming material in bond, pending

disposition and notification by the buyer of the MRB action to be taken.

Q028 DODD FRANK CONFLICT MATERIAL
LIGHT COMPOSITES requires all products supplied on this purchase order to be in compliance with and, as such, Seller warrants that no product supplied on this order contains any "conflict minerals" as stipulated in Dodd-Frank Bill that are mined in Democratic Republic of Congo or adjoining countries.