



## Quality Clauses

This document defines Arrow Science and Technology, LLC Quality Clauses that are available for inclusion on Purchase Orders and Contracts issued by Arrow. It is the responsibility of the Supplier to review all identified quality clauses and ensure compliance with the specified requirements. Clauses are grouped/ordered by procurement relevance, not importance.

### **ASTQ-001 Quality System**

The supplier shall implement and maintain a quality management system that complies with or is equivalent to the current revision of ISO9001. Arrow reserves the right to conduct a survey/audit of the supplier's facilities to determine the adequacy of the supplier's quality management system. Suppliers providing a product or service under this purchase order or contract must ensure personnel awareness of their contribution to product or service conformity, product safety and the importance of ethical behavior. It is preferable that the suppliers meet the requirements of AS9100.

### **ASTQ-002 Flow Down Requirements**

The supplier is responsible for compliance with all applicable quality and technical requirements imposed by Arrow even when the supplier subcontracts part of the work. These responsibilities include:

- Flow down of applicable quality and technical requirements to sub-tier external providers including any key characteristics and requirements from Arrow's customers or regulatory authorities
- Verification that this clause has been properly implemented
- Selection and control of sub-tier external providers to ensure requirements of the purchase order or contract are in conformance
- Assuring traceability of items processed through sub-tier suppliers

### **ASTQ-003 Safety and Health Plan**

Supplier must maintain a Safety and Health Plan that addresses employee and subcontractor's safety and occupational health for work that is completely or partly on the supplier's premises, property owned or controlled by Arrow or the Government and contracted offsite locations.

### **ASTQ-004 FOD Foreign Object Debris/Damage Program**

The supplier shall ensure that Foreign Object Damage (FOD) is controlled with the aim of preventing foreign debris into the product during manufacturing, assembly, testing, handling, and shipment. FOD prevention may include clean room disciplines, proper housekeeping, control of tools and personal items as well as control of in-process scrap, kitting, and the use of parts protective equipment.

### **ASTQ-005 Cleanliness**

Cleanliness levels for hardware shall be identified on engineering drawings, purchase orders, or contracts. Handling specifications for internal movement and shipping of product is deemed necessary to maintain product cleanliness conformance. Cleaning and packaging of product should be performed in a facility that meets or exceeds the conditions of the cleanliness requirement.



**ASTQ-006 Approved Suppliers**

An approved supplier list must be maintained by supplier that includes the method of approval and scope of approval. Suppliers should register with Arrow using the Supplier Registration Form. Appropriate Quality Clauses must be flowed down to all sub-tier suppliers as part of the approval process.

**ASTQ-007 Change Authority**

Supplier shall notify Arrow immediately of issues, anomalies, nonconformances, changes in design, product and/or process, changes of Suppliers, and/or changes of manufacturing facility location. This includes, but is not limited to, fabrication, assembly, testing, facility location or introduction of a new sub-tier Supplier. Arrow reserves the right to approve such changes, anomalies and nonconformances before work can proceed.

**ASTQ-008 Right of Access**

With reasonable notices, Arrow, Arrow's customers, and/or regulatory agencies shall have the right to access the supplier's facility and Quality records during the course of contract or purchase order. This includes all levels of the supply chain.

**ASTQ-009 Surveillance**

Arrow reserves the right to review and monitor the quality system of the supplier, as deemed necessary, to ensure conformance with contractual requirements in any phase of design, processing, fabrication, testing, and inspection of the article(s) being produced. The supplier shall provide all reasonable facilities and assistance for the safety and convenience of such personnel in the performance of their duties. Such representatives shall be allowed full access to witness all operations involved in the fulfillment of this contract. The supplier shall grant the same access to representatives of the buyer's customer, when accompanied by Arrow personnel. The supplier shall secure the same privileges from lower-tier suppliers in the supply chain.

**ASTQ-010 Reserved**

**ASTQ-011 GIDEP Participation**

The Supplier shall participate in the Government-Industry Data Exchange Program (GIDEP). Information is available from the GIDEP Operations Center, PO Box 8000, Corona, California 91718-8000. The Supplier shall review all GIDEP ALERTS, GIDEP SAFEALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories to determine if they affect the Supplier's products/services provided. For those that affect any products or services, the Supplier shall take action to eliminate or mitigate any negative effect to an acceptable level. The Supplier shall generate the appropriate failure experience data report(s) (GIDEP ALERT, GIDEP SAFE-ALERT, GIDEP Problem Advisory) whenever failed or nonconforming items, available to other buyers, are discovered during the course of the purchase order.

**ASTQ-012 Digital Data**

Supplier must comply with all Controlled Unclassified Information (CUI) and export requirements when transferring digital data. Supplier must adhere to a control process that provides traceability of digital data including requester and sender.



**ASTQ-013 Correspondence**

All correspondence relating to particular products shall reference the specification(s) and/or drawings (including number and revision) and the purchase order number.

**ASTQ-014 Records Retention**

Supplier is required to retain records for a minimum of 10 years after completion of contract unless otherwise specified. Supplier shall establish a documented procedure to define the controls needed for identification, storage, protection, retrieval, retention, and disposition of records.

The supplier will maintain records necessary to show conformance with all requirements of the purchase order/subcontract. These records include dimensional inspection records, nondestructive testing records, personnel certification documentation, nonconformance reports, process qualification data, and certifications of materials and special processes.

These records shall be identified to associated articles, including heat and lot number of materials, unit or lot serialization and made available to Arrow and/or Government Representatives upon request and shall be retained in a safe, accessible location. The Supplier's records associated with the manufacture of serialized or lot controlled articles will provide for continued traceability of serial numbers or lot number identification through all phases of manufacture, commencing with the raw material and continuing through final acceptance of the end item. Records held for the required retention period (ten years) shall not be destroyed without Arrow's written concurrence.

**ASTQ-015 Discrepancies**

All deviations noted from established drawings must be reported to the buyer immediately. No deviation is considered approved without written confirmation of the fact from Arrow. No action is to be taken until supplier receives written authorization from Arrow.

**ASTQ-016 Human Spaceflight Items**

For use in Human Space Flight; materials, manufacturing, and workmanship of the highest quality standards are essential to astronaut safety. All commercial line items supplied on this purchase order shall be supplied in the 'factory new' condition. If you are able to supply the desired item with a higher quality than that of the items specified or proposed, you are requested to bring this fact to the immediate attention of Arrow.

**ASTQ-017 Supplier Corrective Action**

Arrow may initiate a supplier corrective action investigation request upon notification or receipt of a non-conformance of product. A written report shall be furnished by the supplier within a reasonable time period, which is specific and conclusive to prevent a re-occurrence of the discrepancy. Seller shall maintain a system to prevent re-occurrence and shipment of non-conforming product. Supplier should complete the Arrow Supplier Corrective Action Report (SCAR) to file the failure and corrective action steps.



#### **ASTQ-018 Supplier Product Nonconformance**

Supplier shall notify Arrow of non-conforming product. Nonconforming articles shall be withheld from subsequent manufacturing operations until written authorization for use or shipment is received from Arrow. Unless authorized in writing by Arrow, repairs utilizing any process or equipment not used in the normal manufacturing process for the item/material are strictly prohibited.

Requests to use or deliver nonconforming product will be made to the buyer or the Arrow Project Engineer assigned to the project. The request should include complete details of the discrepancy. An explanation of the root cause and a statement of the corrective action proposed to prevent recurrence will be submitted with the request or within a reasonable time after. Supplier will not ship product until Arrow has provided written authority. Arrow will not accept product without prior written approval.

#### **ASTQ-019 Certificate of Conformance**

A Certificate of Conformance stating that all items supplied meet all purchase order, specifications, and requirements shall accompany all shipments. Certificate of Conformance must be signed by authorized company official, with title. The COC information shall identify:

- Purchase order number
- Part number and revision of the item supplied, as specified on the purchase order
- Serial or lot numbers covered by the certification (as applicable) should be traced back to the manufacturer, if lot numbers are used.
- Total quantity represented within the shipment must be accounted for and identified on the certificate
- A statement that the certified item meets all drawing, specification, and/or purchase order requirements
- Signature of the Quality Assurance Manager or other responsible member of the supplier's company (a typed name with title on a computer generated document is an acceptable substitute for signature)
- The title of the person signing
- The supplier's name and address
- Manufacturer's name and address if different from seller

Material received without a certification is subject to rejection and may be returned to the supplier at the supplier's expense.

#### **ASTQ-020 Parts Identification and Traceability**

All items delivered on this purchase order shall be packaged and labeled to be identifiable to associated certification of conformance, including at a minimum: part number, lot number or serial numbers as applicable, and supplier or OEM name.

All items delivered on this purchase order shall be fully traceable all the way back to the raw materials used in fabrication. This includes documentation of all transfers of custody from original raw material to final delivery to Arrow. Documentation for all transfers of custody shall be retained by supplier for a time period as defined in ASTQ-014.



#### **ASTQ-021 Counterfeit Goods**

Supplier must detect and prevent the use of counterfeit, suspect counterfeit, unapproved, or suspect unapproved parts. Supplier should have internal procedures in place to provide suspect parts awareness training relative to identification and reporting of counterfeit parts. Additionally, the supplier should have a process for screening credible sources of counterfeiting information and communicate issues or concerns to their supply base as appropriate. Counterfeit parts must be controlled to prevent reentry into the supply chain. For United States and or Canadian Suppliers, the process must include the screening of the Government Industry Data Exchange Program (GIDEP).

The Supplier should

- immediately report to Arrow any issues regarding suspect counterfeit parts related to its Arrow purchase order or contract,
- respond to any suspect counterfeit inquiries made by Arrow regarding the authenticity of products provided by the supplier,
- take corrective and preventive actions on all suspect counterfeit parts,
- impose applicable contractual requirements with regards to counterfeit parts on all tiers of its supply chain.

Seller shall not furnish to Arrow any goods under this purchase order or contract that are: (i) an unauthorized copy, obsolete part, imitation or substitute of an Original Equipment Manufacturer or Original Component Manufacturer (collectively, "OEM") item; (ii) not traceable to an OEM sufficient to ensure authenticity in OEM design and manufacture; (iii) lacking proper external or internal materials or components required by the OEM or not constructed in accordance with OEM design; (iv) re-worked, re-marked, re-labeled, repaired, refurbished, rebuilt, overhauled, or otherwise modified from OEM design but not disclosed as verified, screened, and cleared through all OEM required quality control processes; or (v) not successfully tested.

#### **ASTQ-022 Specifications**

Unless otherwise noted, the latest specification or engineering standards revision identified by drawing, Purchase Order or Contract apply. Standards Organizations (SAE, AWS, NIST, ASTM, ISO, DoD, etc.).

#### **ASTQ-023 Nonconforming Product Disposition**

Supplier must obtain Arrow written authorization for nonconforming product disposition.

#### **ASTQ-024 Requirements for Conformance**

Neither surveillance, source inspection or test made by Arrow at either supplier's or Arrow's facility including sub-contractor's facility absolve the supplier of the responsibility to furnish products that conform to the requirements of the purchase order or contract.

#### **ASTQ-025 Qualification of Personnel**



The supplier shall employ competent personnel to ensure Arrow requirements are met for approval of product, processes, procedures, and equipment.

**ASTQ-026 Product Acceptance**

The supplier shall follow all requirements stated on the Purchase Order, Contract, Drawing, Data Specifications and Process instructions to ensure product conformity, documentation and records are obtained.

Final acceptance will be based on receiving inspections performed at Arrow facilities. Arrow reserves the right to reject shipments that are found nonconforming.

**ASTQ-027 Limited Life Material**

Limited Life Material shall be clearly labeled with shelf-life information. Supplier shall submit Certificate of Conformance or label the containers with manufacturer's name, type of material, date of manufacture, and shelf life. The supplier shall state in writing the starting date of the shelf life and the expiration date for all limited shelf life items supplied under this purchase order. All product must have 80% of its original shelf life remaining upon receipt unless otherwise stated on the purchase order.

**ASTQ-028 Certificate of Analysis**

Supplier shall provide a Certificate of Analysis, ascertaining that a regulated product has met its product specification, quality, and has not degraded or become contaminated.

A Certification of Analysis is required with shipment. The certification shall include, for each item covered by the certification, the following minimum information:

- Purchase order number
- Part number and revision of the item supplied, as specified on the purchase order
- Serial or lot numbers covered by the certification (as applicable). If Lot numbers are used the total quantity represented within the shipment must be accounted for and identified on the certification.
- A statement that the certified item meets all drawing, specification, and/or purchase order requirements
- Signature of the Quality Assurance Manager or other responsible member of the supplier's company (a typed name with title on a computer generated document is an acceptable substitute for signature)
- The title of the person signing
- The suppliers name and address
- Manufacturers name and address if different from seller
- Results of required analysis per purchase order requirements

Material received without certification is subject to rejection and return to the supplier at the supplier's expense. Test reports or other supporting documents generated from a computer system with a statement of validity without additional signatures will be accepted providing the certificate portion of the data packet is signed or stamped as outlined above.

**ASTQ-029 Safety Data Sheets (SDS)**



Supplier shall provide a safety Data Sheet (SDS) that aligns with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) which meets required 16 section formatting per 29 CFR 1910.1200 Appendix D, covering hazard information required to safely use, handle, store and dispose of chemicals and hazardous materials.

**ASTQ-030 Specification/Commercial Chemical Raw Materials Certificate of Analysis Required**

Material provided under this purchase order shall be supplied and certified to the exact description specified in the purchase order and obtained from a single identifiable manufacturing lot. Markings shall include manufacturer's lot number. Material received without certification is subject to rejection and return to the supplier at the supplier's expense

A Certificate of Analysis shall be included with the shipment and shall include:

- Purchase order number
- Identification of the material supplied, as specified on the purchase order
- Lot number(s) covered by the certification (as applicable)
- A statement that the material shipped meets purchase order requirements
- Data supporting the conformance statement
- Date of manufacture
- Signature of the Quality Assurance Manager or other responsible member of the supplier's company (a typed name with title on a computer generated document is an acceptable substitute for signature)
- The title of the person signing
- The supplier's name and address
- Manufacturer's name and manufacturing site address if different from seller

Note: Test reports or other supporting documents generated from a computer system with a statement of validity without additional signatures will be accepted providing the certificate portion of the data packet is signed or stamped as outlined above.

**ASTQ-031 Specification/Commercial Chemical Raw Materials Certificate of Conformance Required**

Material provided under this purchase order shall be supplied and certified to the exact description specified in the purchase order. Material provided under this purchase order shall be obtained from a single identifiable manufacturing lot. Marking shall include manufacturer's lot number. Material received without certification is subject to rejection and return to the supplier at the supplier's expense.

A Certificate of Conformance shall be included with the shipment and shall include:

- Purchase order number
- Identification of the material supplied, as specified on the purchase order
- Lot number(s) covered by the certification (as applicable)
- A statement that the material shipped meets purchase order requirements
- Date of manufacture



- Signature of the Quality Assurance Manager or other responsible member of the supplier's company (a typed name with title on a computer generated document is an acceptable substitute for signature)
- The title of the person signing
- The supplier's name and address
- Manufacturer's name and manufacturing site address if different from seller

Note: Test reports or other supporting documents generated from a computer system with a statement of validity without additional signatures will be accepted providing the certificate portion of the data packet is signed or stamped as outlined above.

### **ASTQ-032 Certificate of Conformance Raw Materials**

The Supplier will include with each shipment the raw material manufacturer's test report (e.g., mill test report) that states that the lot of material furnished has been tested, inspected, and found to be in compliance with the applicable material specifications. The test report will list the specifications, including revision numbers or letters, to which the material has been tested and/or inspected and the identification of the material lot to which it applies. When the material specification requires quantitative limits for chemical, mechanical, or physical properties, the test report will contain the actual test and/or inspection values obtained from samples of this specific material.

For alloyed mill products (except castings), certifications for chemistry may indicate compliance within the allowed range. Certifications for physical properties will show actual values.

When the Supplier provides converted material produced by a raw material manufacturer, the Supplier shall submit all pre and post conversion chemical/physical tests reports. All manufacturing and mill material test reports and certifications are required.

All NDE coatings, heat treat, and other processes certifications shall be provided with the converted product.

All raw material should be clearly marked/tagged with material specification and heat number/lot number. As delivered condition must be per specification.

All materials supplied on this order shall be compliant for DFARS 252.225-7008 Restriction on Acquisition of Specialty Metals or DFARS 252.225-7009 Restriction on Acquisition of Certain Articles Containing Specialty Metals.

Each line item on this order shall be delivered as a single lot unless receiving written approval from Arrow for mixed lots prior to shipping.

The lot number of each report must be traceable to material. The test report must include objective evidence of compliance to material's condition and origin. Copies of each test report and certifications must be submitted with each shipment.





**ASTQ-033 Raw Material Identification**

All raw materials, including plate, bar extrusions, sheet, etc., must be identified per the applicable material specification. All raw material should be clearly marked/tagged with material specification and heat number/lot number. As delivered condition must be per specification.

**ASTQ-034 Contamination Control (Titanium)**

Control measures shall be taken to preclude any type of titanium corrosion. Specific actions to be taken include but are not limited to:

- Avoiding contamination by sulfur- or chloride-containing solvents, cadmium-plated components, and mercury.
- Immediate degreasing when fabrication is complete, or when additional work will not be performed for eight (8) or more hours.

**ASTQ-035 Single Date/Lot Code**

Material provided under this purchase order shall be obtained from a single identifiable manufactured lot or written authorization is required before shipping. The lot identifier shall be recorded on all certificates and packages for this Purchase Order. Authorization for shipments with multiple date/lot codes must be pre-coordinated with Arrow. When mixed date/lot codes are authorized, the shipping document shall list individual date/lot codes and quantity. Multiple lot/date codes shall not be co-mingled. Mixed lots that are not distinguishable and include appropriate documentation will be caused for rejection.

**ASTQ-036 Arrow Supplied Property/Material**

Material (product) used on this purchase is being supplied to you by Arrow. It is being supplied directly to you from an Arrow facility or a supplier that has been authorized by Arrow to ship this product to you. If the material is shipped from an Arrow facility, it will be accompanied by a packing list.

Arrow-furnished material will be handled and controlled so as to ensure its proper use in conformance to all requirements. The supplier will not in any way be relieved of the responsibility for compliance to traceability, identification, shelf life, and certification requirements. If the supplied material is damaged, discrepant, expired, or will not fit the manufacturing tooling, the material shall not be used, reworked or repaired without approval of Arrow.

When you make delivery of your product you shall include with the shipment, in addition to the copies of your packing list, quality record sheets, certifications, and other product assurance data required by this order, a copy of the Arrow shipping document/packing list and any certifications supplied to you. The packing list must be printed, all other documentation may be printed or sent digitally.

**ASTQ-037 Approved Processes**

Unless a directed supplier and/or requirement, part or material processing shall be accomplished by NADCAP or Arrow approved process (i.e., anodize, chem etch, paint, welding, NDT) suppliers. Suppliers should register with Arrow using the Supplier Registration Form.



### **ASTQ-038 Special Processes Certification**

Certain special processes are required to comply with this purchase order. Special processes shall be performed only by sources that have been surveyed and qualified/approved, by the Supplier and/or Arrow, to perform those processes. The contractor shall provide to Arrow upon request all documentation showing evidence of special processor qualification and/or certification to perform special manufacturing, assembling, and test processing as required by the contract.

The supplier may elect to use only Arrow approved sources. A special process certification shall be provided with each shipment of item(s) delivered on this contract. Special Process Certifications may be in Supplier format and include the following:

- Arrow's Purchase Order number
- Part number(s)
- Serial and/or lot numbers, of the hardware processed (if applicable)
- Material process specification & revision
- A certification stating the special process was performed per the applicable drawing/specification requirements
- Supplier 's name and address
- When special processor is other than the Supplier, provide a certification of compliance from the special processor stating the special process was performed per the applicable drawing/specification requirements.

Certifications must include the processor's name, address and be signed and dated by a company official. · Each certification must be signed and dated by a company official of the Supplier and/or Processor attesting to the acceptance of the processes performed to the required specification(s). The Supplier shall retain all records associated with the selection and approval of Supplier approved special process providers. Per purchase order or regulatory agency requirements, these records shall be made available to Arrow and/or regulatory agencies upon request. The Supplier shall notify Arrow prior to destruction of records relative to this contract. The Supplier shall insert the substance of this clause, including this sentence, in all lower-tier subcontracts for work performed under this purchase order.

### **ASTQ-039 Heat Treat Certification**

A Certification of Conformance to the applicable heat treat specification is required with shipment. Material received without certification is subject to rejection and return to the supplier at the supplier's expense.

The certification shall contain, as a minimum, the following:

- Purchase order number, part number, revision, and serial or lot number(s) of the part(s) covered by the certification



- Applicable specification including, as applicable: revision, notice, amendment, type, grade, class, method, or other qualifier, as specified on the purchase order; drawing or specification
- Heat treat lot number
- Results of physical property testing demonstrating compliance with specification requirements
- Signature of the Quality Assurance Manager or other responsible member of the supplier's company (a typed name with title on a computer generated document is an acceptable substitute for signature)
- The title of the person signing

Test specimens will be supplied with the delivered parts as required by the specification or purchase order.

#### **ASTQ-040 Surface Preparation and Plating**

A Certification of Conformance to the applicable surface preparation or plating specification is required with shipment. Material received without certification is subject to rejection and return to the supplier at the supplier's expense.

The certification will contain, as a minimum, the following:

- Purchase order number, part number, revision, serial or lot number(s) of the part(s) covered by the certification
- The name of the process (for example: passivation, anodizing, oxide coating, chemical conversion coating, painting, cleaning)
- Applicable specification including, as applicable: revision, notice, amendment, type, grade, class, method, or other qualifier, as specified on the purchase order, drawing or specification
- Lot and shelf life of product used for processing when applicable or as requested
- Signature of the Quality Assurance Manager or other responsible member of the supplier's company (a typed name with title on a computer generated document is an acceptable substitute for signature)
- The title of the person signing

Requirements, if any, for submittal of supporting data, are specified on the face of the purchase order.

#### **ASTQ-041 Space Flight Hardware: Handle With Care**

Supplier shall handle product with care. Do not dent, mar surfaces, scratch edges, use sharp blades. As part of Arrow processes, all parts/surfaces are photographed and logged prior to external material processing.

#### **ASTQ-042 Failure Report**

Arrow will be notified within 24 hours of any material, component, tooling, or other failure during manufacturing or testing. In addition, the supplier will submit to Arrow written failure reports within 72 hours of any failure. Failure reports will identify the failed item by serial number, part number and applicable revision letter.

The supplier will submit a failure analysis and corrective action report to Arrow within 15 days of any failure. The report will include, as a minimum, the mode of failure, cause of failure, corrective action to be initiated, and a



list of other parts affected. Supplier should complete the Arrow Supplier Corrective Action Report (SCAR) to file the failure, root cause, and corrective action steps.

**ASTQ-043      Nondestructive Inspection**

A certificate of inspection must accompany each shipment that lists the nondestructive inspections performed and must include the inspector's signature or stamp on the nondestructive inspection report.

**ASTQ-044      Destructive Analysis**

A specimen of a suitable size and configuration for destructive analysis shall accompany each shipment made against this order. The part shall be of the same material and shall have been processed with the lot it represents through all processes. With written authorization, Arrow will accept supplier's destructive test results and analysis. The destructive analysis report and certificate of conformance will provide the techniques that were used to derive the specimen's performance to ultimate destruction.

**ASTQ-045      Certificate of Calibration**

The supplier of calibration services shall provide a certificate of calibration for each item calibrated. The certificate must include the date of calibration, readings when received and after service, calibration due date, model number and serial number of the calibration equipment and a statement that all equipment/standards used are traceable to the National Institute of Standards and Technology (NIST). Calibration must conform to the manufacturer's specifications unless otherwise communicated on the purchase order of contract. Calibration should follow ANSI-Z540-1, ANSI-Z540-3, ANSI/IOS/IEC 17025 or ISO10012.

**ASTQ-046      First Article Inspection**

The supplier shall perform and furnish First Article Inspection per AS9102 on purchased product. First Article Inspection shall take place at Supplier's facility with supplier personnel and resources. One-hundred-percent inspection of all dimensions, including tool-controlled dimensions, drawing notes, material callouts, and specification requirements will be performed on the first part produced. Notify the buyer 5 days in advance of anticipated FAI. Arrow will either send a Quality Control inspector or waive participation.

In the event FAI is waived, the supplier shall forward results to the buyer for concurrence. Shipment may not be made until either 1) concurrence is received, or 2) five working days have passed since receipt of FAI data at buyer's facility.

If any of the below listed changes occur after FAI, notify the buyer so that Arrow may determine if another FAI is required.

- A significant design or process change has been made that affects the original first article. An incremental first article will be performed, which will be applicable only to those characteristics affected by the change.
- A change in facilities or materials utilized to produce the article has taken place.



- New, reworked or revised special tools, gages or equipment, are introduced, when dimensional control of manufactured articles is affected.
- The supplier has not produced the item for a period of 12 months or longer.

**ASTQ-047 Objective Evidence of Dimensional Inspection**

Objective evidence of the inspection report shall accompany each shipment that all goods furnished under this purchase order/contract were dimensionally inspected for compliance with drawings and other purchase order/contract requirements. Inspection evidence shall consist of records of actual readings taken during the inspection of each part, with the dimensions, tolerances, and method.

**ASTQ-048 100% Dimensional Inspection**

The Supplier shall inspect and record all dimensions and other manufacturing features and provide an inspection report with the results. The inspection report shall be provided with the shipped items and discrepant items will not be accepted. Calibrated items used to complete this task shall be listed on the inspection reports.

**ASTQ-049 Packaging and Handling**

All material must be packaged in containers suitable for ground or air transportation and must provide protection from in-transit damage. Failure to comply will result in a rejection of product or parts. Arrow reserves the right to make a disposition on any damaged product to determine whether parts will be returned for credit or deemed usable. If Arrow determines the product or parts are damaged and dispositioned as not usable, we reserve the right to reject the shipment and return it to the supplier at the supplier's cost for reprocessing or sorting of damaged product or parts.

Best commercial practice must be used to prevent damage. As a minimum, the supplier must package all material in a manner that will ensure protection against corrosion, oxidation, deterioration, and physical damage during shipment. A label must be affixed with the Arrow Purchase Order Number, Part Number and Lot Number/Unit Number.

Failure to properly label container could result in payment delay or possible return of delivery.

**ASTQ-050 Government Source Inspection**

Before shipment from the seller's facility, inspection by a government source inspector will be required. Upon receipt of this order, promptly notify the Government representative who normally works with your facility so that appropriate planning for Government inspection can be accomplished. In the event a Government inspector is not available, the Arrow Buyer must be notified immediately. Evidence of government inspection must be included on all shipping documents.

**ASTQ-051 Acceptance Test Plan**

The supplier shall prepare an Acceptance Test Plan (ATP) with written approval from Arrow. Test requirements for acceptance criteria shall be well defined and detailed. The ATP verifies that the system under test validates



the functionality of the delivered product. The ATP shall be developed to the requirements and show traceability to the requirements. Supporting test data must be provided with written and signed Arrow approval.

**ASTQ-052 Government Furnished Property**

Supplier must maintain a Government Property Management Plan that adheres to the provisions of FAR 52.245.1 Government Property.

**ASTQ-053 ITAR Registration**

Supplier must be compliant with International Traffic in Arms Regulation 22C.F.R. 120 et seq. of the Export Administration Act.

**ASTQ-054 Reliability Analysis Data (Failure Rate/MTBF)**

The Seller shall provide calculated and experienced failure rate data for provided equipment/hardware. The Seller will provide the Buyer "industry environment code" that was referenced to calculate the failure rates. The Seller is expected to grant the Buyer representative access to available reliability data for procured equipment. Reliability Data delivery (or plan) is required within 45 days of award.

**ASTQ-055 Reliability Performance Data (Run Time/Cycles)**

The Seller shall provide the Buyer operating time, power on time and/or experienced cycle performance data (as applicable) for provided equipment/hardware. Data delivery is required upon delivery of the hardware.

**ASTQ-056 Reliability Failure Modes Data (FMEA)**

The Seller shall provide the Buyer Failure Mode Effects Analysis for the provided equipment/hardware. The FMEA Data delivery (or plan) is required within 45 days of award.

**ASTQ-057 Reliability Failure Modes Data (FMEA/CIL)**

The Seller shall provide the Buyer Failure Mode Effects Analysis and Critical Item List and Retention Rational for the provided equipment/hardware. The FMEA Data delivery is required upon delivery of the hardware.

**ASTQ-058 Configuration Management System**

The Supplier shall be responsible for controlling/tracking changes to parts and components manufactured to ensure that the end product meets specified design functional and physical characteristic requirements. This includes any part or component manufactured to Arrow's drawings, specifications, or special process, procedures. With each shipment, the Supplier shall submit configuration documents, which define the requirements, designs, build/production and verification for a configuration controlled item. This record shall be signed and dated by a representative of the Supplier's Quality Assurance department, and shall include the following minimum requirements:

- Arrow's Purchase Order number including any change orders
- Line item number

- Part number
- Serial number (traceability as applicable)
- Lot number (traceability as applicable)
- Drawing number
- Revision level (baseline configuration)
- Revision level (as built)
- Engineering order(s) (if applicable)
- Process deviations and waivers (if applicable)

**ASTQ-059 Special Markings**

Supplier to comply with special marking requirements specified by the applicable detail or process specification.

**ASTQ-060 Statement of Work**

Articles defined in this Purchase Order or Contract are subject to additional requirements per a statement of work, which must be met to achieve compliance to contract requirements. Articles will not be accepted by Arrow if the supplier fails to comply with the requirements of the statement of work.

**ASTQ-061 Source Inspection**

Source Inspection shall be conducted by Arrow representative(s) at the Suppliers facilities or where designated in this Purchase Order or contract prior to shipment. Inspection/test and or in-process inspection/test of the product shall be performed by supplier and witnessed by an Arrow representative. The inspection points shall be well defined and reasonable notice to Arrow must be given. Evidence of source inspection must accompany each shipment.

**ASTQ-062 Certification of Conformance for Fasteners**

Fasteners provided under this purchase order shall be supplied and certified to the exact description as specified in the purchase order. For this clause, "Fastener" is defined to include all metallic fastening system hardware, including but not limited to bolts, screws, nuts, nut plates, threaded inserts, rivets, shear pins, set screws, washers, safety wire and cotter pins.

A certificate of conformance for fasteners shall be included with the shipment and include:

- Purchase order number
- Identification of the item supplied, including part number listed on purchase order
- Lot number(s) and quantities covered by the certification
- A statement that the shipped fasteners meet purchase order requirements
- Signature from Quality Assurance or responsible member of supplier's company
- OEM manufacturing certificate of conformance (if different from seller) that references applicable technical specifications
- Date of manufacture



- Material test report for raw material(s) used in fabrication of fastener
- Any test reports provided by OEM (Tensile, locking torque, dimensional inspection, etc.)
- Certifications for any processing of fasteners (Passivation, dry film lubrication, heat treat, etc.)
- Full traceability as defined in ASTQ-020

Fasteners received without certification as laid out above are subject to rejection and return to the supplier at the supplier's expense. Test reports or other supporting documents generated from a computer system with a statement of validity without additional signatures will be accepted providing the certificate portion of the data packet is signed or stamped as outlined above.