

## **Q01 QUALITY MANAGEMENT SYSTEM**

Supplier shall meet at least one of the quality system requirements as listed on the purchase order.

A	AS9100 Aerospace Standard Certified
B	AS9100 Aerospace Standard Compliant
C	AS9120 Aerospace Standard Certified
D	AS9120 Aerospace Standard Compliant
E	ISO9001 Global Standard Certified
F	ISO9001 Global Standard Compliant
G	AC7004 Certified
H	AC7004 Compliant
I	AS9003 Compliant

*Example: If Q01 is listed on the purchase order with ' - A G' along with it, then supplier is expected to be certified to either AS9100 or AC7004.*

Certification must be given by an accredited third-party certification body. Compliance may be determined through assessments or audits performed via on-site visits, phone calls, and/or email correspondence.

In addition to the quality management system requirements, supplier must ensure that its personnel are aware of their contribution to product and service conformity and product safety and aware that ethical behavior is important and expected.

## **Q02 GAGE CALIBRATION SYSTEM**

Supplier's internal calibration program must be compliant with the requirements of one of the following: ANSI Z540-3, ISO17025, or ISO10012 and must be traceable to NIST or equivalent. Supplier's calibration program is subject to review and approval by Flexial at all times.

## **Q03 RIGHT OF ACCESS**

Flexial, its customers, and regulatory authorities reserve the right to review, verify, and participate in supplier's quality assurance systems and associated manufacturing processes, including inspection and testing of any work related to this purchase order, at supplier's premises. This activity, if acted upon, shall be performed in such a manner as to not disrupt normal processing and shall be conducted on a non-interfering basis when possible. Right of access shall also be flowed down to all sub-tier suppliers used to support this purchase order.

## **Q04\* CERTIFICATE OF CONFORMANCE**

Supplier shall submit with each shipment a Certificate of Conformance that shall be dated, bear the signature and title of supplier's authorizing quality representative, and contains the following information at a minimum: 1) PO number, 2) part number, description and revision, 3) quantity being certified, 4) a positive statement of conformance, 5) manufacturer's / supplier's name, 6) serial numbers or lot numbers with lot date code, where applicable, and 7) the specification and revision being certified against.

For special processes (i.e. NDT, plating, welding, heat treat, etc.), supplier shall provide certification that they utilized qualified procedures, personnel and equipment to perform the special process in accordance with the applicable special process specification.

## **Q05 NADCAP SPECIAL PROCESSES**

Supplier shall have Nadcap certification for the special processes for which they are performing in conjunction with the purchase order.

**\* DENOTES THAT DOCUMENTATION IS REQUIRED TO BE SENT WITH OR PRIOR TO DELIVERY OF PROCURED ITEMS.**

## **Q06\* MATERIAL CERTIFICATIONS**

Supplier shall include with each shipment the raw material manufacturer's test report (e.g. mill 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 furnished or used to fabricate products is one of the types below, the certified material test report shall include the following information and data:

A) METALLIC MATERIAL - The material certification shall include data that shows the actual test results obtained from the lot or heat of material versus the values required by the applicable material specification for chemical composition and physical properties.

B) NON-METALLIC MATERIALS - The material certification shall show the specification and revision to which the material conforms, the lot/batch number (if applicable), the date manufactured, and any other technical data (material test results, composition, chemical or physical properties, etc.) as required by the applicable material specification and/or purchase order.

When supplier converts material produced by a raw material manufacturer, supplier shall submit all pre and post conversion chemical and physical test reports. All certifications shall be in the English language and legible. Flexial prefers to receive the material certifications via email ([quality@flexial.com](mailto:quality@flexial.com)) prior to the receipt of the shipment. If hard copies are sent with the shipment instead, they should be adequately stored to prevent damage and be able to be scanned without losing legibility.

## **Q07\* TEST REPORTS**

Supplier shall furnish, with each shipment, test reports referencing purchase order number, supplier's name and address and/or independent laboratory's name and address, Flexial part number and revision, part name, serial number (if applicable), test date, and lot number/date code (if not serialized) for all parts being shipped. The reports shall be validated by an authorized supplier's representative. If sample numbers, serial numbers, or lot control numbers are supplied by the Flexial on Flexial-supplied parts, these traceability numbers must be maintained throughout all processing steps, be referenced on any and all inspection and test reports, and be maintained until the parts are returned to Flexial.

## **Q08\* INSPECTION REQUIRED (SAMPLING PROHIBITED)**

Supplier shall include a dimensional inspection report with the shipment of this purchase order. The inspection report shall include all specifications identified on the PO deliverable's drawing, including notes but excluding basic and reference dimensions, and shall record the specification with tolerances, actual measured result, and measurement method with gage ID. Attribute data such as "PASS" or "ACCEPT" are not allowed unless checked by a controlled GO/NOGO type gage such as a thread plug gage. Flexial specifications QP158 and QP159 apply.

Supplier shall inspect each feature on each part (100% inspection), and data for each measurement must be included. In instances where a feature can only be measured through molding or destructive examination, permission must be granted by Flexial prior to shipment to allow sampling on that feature. Supplier may use Flexial form F4-06E or their own equivalent form for the inspection report.

If sample numbers, serial numbers, or lot control numbers are supplied by Flexial on Flexial-supplied parts, these traceability numbers must be maintained throughout all processing steps, be referenced on any and all inspection and test reports, and be maintained until the parts are returned to Flexial. Note: Completion of this requirement does not satisfy the requirement for clause Q10 when required FAI must be documented per SAE AS9102.

## **Q09\* INSPECTION REQUIRED (SAMPLING ALLOWED)**

Supplier shall include a dimensional inspection report with the shipment of this purchase order. The inspection report shall include all specifications identified on the PO deliverable drawing, including notes but excluding basic and reference dimensions, and shall record the specification with tolerances, actual measured result, and measurement method with gage ID. Attribute data such as "PASS" or "ACCEPT" are not allowed unless checked by a controlled GO/NOGO type gage such as a thread plug gage. Flexial specifications QP158 and QP159 apply.

Supplier shall inspect using a sample size determined by ANSI Z1.4 (Level = General II / Type = Normal) with the sample acceptance number reduced to zero (C=0). Characteristics classified as critical, major, and minor shall have assigned AQLs of 0 (100% inspection), 0.65, and 2.5, respectively. Unless critical and/or major characteristics have been identified on the drawing, all dimensions on the PO deliverable drawing shall be considered major.

Critical characteristics are identified by the symbol . Major characteristics are identified by the symbol .

In instances where a feature can only be measured by destructive examination, permission must be granted by Flexial prior to shipment to allow a reduced inspection level on that feature. Supplier may use Flexial form F4-06E or their own equivalent form for the inspection report.

If sampling inspection cannot be incorporated, all parts must be inspected 100%.

If sample numbers, serial numbers, or lot control numbers are supplied by Flexial on Flexial-supplied parts, these traceability numbers must be maintained throughout all processing steps, be referenced on any and all inspection and test reports, and be maintained until the parts are returned to Flexial. Note: Completion of this requirement does not satisfy the requirement for clause Q10 when required FAI must be documented per SAE AS9102.

## **Q10\* FIRST ARTICLE INSPECTION REPORTS**

First Article Inspection (FAI) is required for parts or assemblies stated on this PO that are non-COTS parts and assemblies when the following conditions apply:

- a) This order is the first to Flexial's facility for the part number(s).
- b) This order is the first to Flexial's facility after a revision change.
- c) There has been a break in supplier's production of this part of more than 24 months.

Delta FAIs are acceptable when the FAI is required for a revision change. A copy of the FAI report must accompany the first shipment of parts or assemblies that meet any of the above conditions. The FAI report must contain the SAE AS9102 forms 1 through 3, material certifications, special process certifications (if applicable), acceptance test report (if applicable), a bubbled drawing, photographs of any part marking (if applicable), and photographs of the equipment in its packaging.

The FAI requires that all features and notes on the design specification be inspected and verified prior to production. Actual measured values shall be recorded as opposed to "PASS" or "ACCEPT" unless feature is controlled by designed tooling such as a thread plug gage.

## **Q11 NONCONFORMING PRODUCT / MATERIAL REVIEW AUTHORITY**

Supplier shall maintain a system for detection, identification, segregation and correction of nonconforming product. If nonconforming product is expected to be produced prior to manufacturing and the cause cannot be corrected, supplier shall request a deviation to the engineering drawings and/or specifications from Flexial. Requests for deviations must be submitted to Flexial on an F1408 Temporary Deviation Request form. Deviations do not impact supplier's performance rating. Deviations cannot be made to existing nonconforming product. Prior to shipment, supplier shall notify Flexial of any nonconforming product found during the manufacturing process. Unless nonconforming product was produced using Flexial supplied material, supplier is authorized to conduct material review and disposition nonconforming products that it has identified to not meet the Flexial provided drawings, listed specifications, purchase order requirements or other contractual obligations using only the following dispositions: a) rework to applicable requirements, b) scrap, or c) return to vendor (RTV) for rework or replacement. Nonconforming product produced using Flexial supplied material shall require Flexial's approval prior to scrap or RTV. Requests to use-as-is or repair must be submitted to Flexial on an F1409 Vendor Material Review Request (VMRR) form. VMRR do impact supplier's performance rating.

*Reworking nonconforming product by removing plating (stripping) and re-plating is prohibited unless Flexial approval has been obtained.*

## **Q12 EYESIGHT REQUIREMENTS**

Supplier shall implement procedures to ensure that eye examinations, including visual acuity and color vision, as applicable, are administered by a medically qualified / trained person to all individuals performing visual inspection and/or other product acceptance activities that require visual acuity. Intervals between testing shall not exceed one year. Individuals shall be tested in at least one eye with either corrected or uncorrected vision. Color perception testing is only required once. Individuals shall be capable of adequately differentiating colors used in the method for which certification is required, the process being performed or inspection activity. Individuals performing non-weld visual inspections shall be compliant with near vision requirements of Snellen 14/18, (20/30), or Jaeger 2. Individuals performing visual inspection on welds shall be compliant with AWS D17.1. Individuals performing NDT shall be complaint with AIA NAS410. Note: Vision tests may be substituted for the options listed above provided the equivalence is verified and documented by a licensed optometrist or ophthalmologist.

## **Q13 NON-DESTRUCTIVE TESTING QUALIFICATION**

Supplier's personnel performing non-destructive testing (liquid penetrant, magnetic particle, eddy current, radiography, etc.) shall be, at a minimum, certified level II in accordance with AIA NAS410.

## **Q14 MATERIAL TRACEABILITY**

Supplier shall identify the products and components in their part lists and ensure their traceability throughout the production process. Supplier must be capable of supplying the following items based on a Flexial purchase order number: the certificates of conformance for material and/or special processes containing traceability data such as lot/batch numbers; the production router, including the revisions for the applicable procedures, duly stamped/signed by the executors; and inspection and test records, including the gage IDs used for product acceptance. The system shall provide for the ready identification of suspect lots when individual items are found to be discrepant.

If sample numbers, serial numbers, or lot control numbers are supplied by Flexial on Flexial-supplied parts, these traceability numbers must be maintained throughout all processing steps, be referenced on any and all inspection and test reports, and maintained until the parts are returned to Flexial.

## **Q15\* LIMITED SHELF LIFE MATERIALS**

Supplier shall have an established process to ensure materials having a limited shelf life be identified and controlled to prevent use of expired items. With each delivery of materials having a limited shelf life, supplier shall provide (a) the cure date or manufacture date, (b) the expiration date or shelf life, (c) lot or batch number, and when applicable, (d) any special handling or storage requirements. Unless otherwise specified on the purchase order, all limited shelf life items delivered to Flexial shall have a minimum of 90% shelf life remaining. Suppliers providing elastomeric seals or assemblies to Flexial should use SAE ARP5316 - *Storage of Elastomer Seals and Seal Assemblies Which Include an Elastomer Element Prior to Hardware Assembly* to address the requirements for data recording procedures, packaging, and storing of elastomeric seals.

## **Q16 COUNTERFEIT MATERIALS**

Supplier shall have a counterfeit detection process that is similar to and meets the intent of SAE AS6174. Material, as defined by SAE AS6174, refers to raw materials, parts, assemblies, and other procured items (with exception to electronic parts which are covered by SAE AS5553). Companies that procure such material will ensure that it does not receive counterfeit parts into inventory, use them in manufacturing or inadvertently sell them to, or use on Flexial products. Distributors or brokers that supply non-electrical parts (e.g., fasteners, nuts, washers, springs, o-rings, etc.) must have a certification from the (OCM/OEM) original component manufacturer / original equipment manufacturer. Use of non-franchised distributors (NFD) is prohibited unless documented approval is received from Flexial quality assurance (such approvals shall be case-by-case only) prior to shipment of material. These certifications must be available to Flexial upon request. This requirement shall be flowed down to all sub-tier suppliers that provide products to support Flexial programs.

## **Q17 MIXED LOTS PROHIBITED**

All material listed on this purchase order must be produced from one heat lot. Under no circumstances shall different lots be co-mingled with each other. Separate packaging with appropriate labeling for each lot must be maintained at all times.

## **Q18 FOREIGN OBJECT DAMAGE (FOD) PREVENTION**

Supplier shall establish, document and maintain a system that is in compliance with AIA NAS412 to control and eliminate Foreign Object Damage (FOD) and/or contamination during supplier's manufacturing, assembly, test, inspection, and packaging/shipping (e.g. use of FOD causing materials like Styrofoam packing beads) operations. When applicable, supplier's FOD control program shall include controls to preclude FOD or contamination at supplier's sub-tier sources. Supplier's FOD prevention program is subject to review and approval by Flexial at any time.

## **Q19 CONTROL OF SUB-TIER SOURCES**

Supplier is responsible for meeting all requirements of the purchase order whether supplier performs the work or the work is performed by supplier's sub-tier sources. When sub-tier sources are used to perform work on products and/or services scheduled for delivery to Flexial, supplier shall flow down on their purchase order or contract with its sub-tier source all the applicable technical and quality requirements contained on the Flexial purchase order, drawings and specifications.

## **Q20 SUPPLY CHAIN RISK MANAGEMENT PROCESS**

Supplier shall assess its supply chain to determine and reduce risks that could affect the quality or on time delivery of products and services being provided to Flexial. See SAE ARP9134 Supply Chain Risk Management Guideline as a reference.

## **Q21 CONTROL OF WORK TRANSFER**

Supplier shall give Flexial written notice before relocating any production, inspection or processing facilities; or transferring work between different facilities; or, when applicable, prior to initiating any changes in the source of components procured by supplier and designated for use in or for installation on products scheduled for delivery to Flexial; or, when applicable, prior to initiating any changes in the source of special processes that are applied to products scheduled for delivery to Flexial; or making any other changes which may affect product quality, reliability, or integrity during the execution of this purchase order. A change in ownership or a change in the individual designated as the management representative with respect to the quality management system shall be interpreted as a facility change and requires supplier to notify Flexial.

## **Q22 CONFIGURATION MANAGEMENT PROCESS**

Supplier shall have a configuration management procedure in place to effectively handle changes to the product or process. Such changes may be in the form of revised drawings, specifications, tests, inspection or fabrication methods, and they shall be documented and approved by identified personnel acknowledged by supplier's quality system.

## **Q23 RECORD RETENTION**

Unless otherwise stated on the purchase order, supplier shall maintain all records that provide objective evidence of compliance to the purchase order requirements for a minimum of ten (10) years after the last delivery of products and/or services on the purchase order. These records can include drawings, specifications, work instructions, certifications and test reports and any other records generated in the course of procurement, manufacturing, testing, processing, inspecting, preserving, packaging and shipping products to Flexial. When applicable, this includes records generated by supplier's sub-tier sources. Supplier shall be capable of delivering any records to Flexial within the time period requested. Prior to discarding, transferring to another facility, or destruction of such records, supplier shall notify Flexial in writing and allow Flexial the opportunity to gain possession of such records including records at supplier's sub-tier sources. If supplier is unable to comply with the record retention requirement, all records relating to the procurement, manufacturing, testing, processing, inspecting, preserving, packaging and shipping of product to Flexial must be sent with each shipment.

## **Q24 EXPORT CONTROL COMPLIANCE**

Warning – Information subject to export control laws. Some documents, which include any attachments, drawings, specifications and exhibits hereto, may contain information subject to International Traffic in Arms Regulations (ITAR) or Export Administration Regulations (EAR), therefore all information regarding this program and purchase order may not be exported, released, or disclosed to foreign nationals inside or outside the United States, without first obtaining an export license. Electronic transmission of drawings or technical specifications is not allowed. Violators of ITAR or EAR may be subject to a penalty of ten years imprisonment and a fine of \$1,000,000, under Title 22, U.S.C., Section 2778, Control of Arms Exports and Imports, and Title 50 U.S.C., Appendix 2410, violations. Include this notice with any reproduced portion of any documents. Please sign and return a copy of the Flexial Corporation ITAR Compliance Agreement if you have not already done so. See [www.flexial.com](http://www.flexial.com) for a copy of the Flexial ITAR Compliance Agreement.

## **Q25 DFARS SPECIALTY METALS REQUIRED**

Any specialty raw material obtained for use in fulfilling this purchase order must be in compliance to DFARS 252.225-7008 Restriction on Acquisition of Specialty Metals or DFARS 252.225-7009 Restriction on Acquisition of Certain Articles Containing Specialty Metals.

Specialty metal means:

a) Steel with a maximum alloy content exceeding one or more of the following limits:

Manganese	1.65%
Silicon	0.60%
Copper	0.60%
Aluminum	0.25%
Chromium	0.25%
Cobalt	0.25%
Molybdenum	0.25%
Nickel	0.25%
Niobium (Columbium)	0.25%
Titanium	0.25%
Tungsten	0.25%
Vanadium	0.25%

b) Metal alloys consisting of nickel or iron-nickel alloys that contain a total of alloying metals other than nickel and iron in excess of 10% or cobalt alloys that contain a total of alloying metals other than cobalt and iron in excess of 10%.

c) Titanium or titanium alloys.

d) Zirconium and zirconium alloys.

Any specialty metal delivered under this purchase order shall be melted or produced in the United States, its outlying areas, or in one of the qualifying countries listed here: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, Israel, Italy, Japan, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom of Great Britain and Northern Ireland.

Applicable exceptions can be found in DFARS 225.7003-3 Exceptions.

## **Q26 NONCONVENTIONAL MACHINING PROHIBITED**

Supplier may not use electrical discharge machining (EDM), electrochemical machining (ECM), laser or abrasive water jet cutting or drilling, flame spray coatings, or any other nonconventional manufacturing method or process on products scheduled for delivery to Flexial unless specifically required by the drawing, specification or purchase order.

## **Q27 SOURCE INSPECTION REQUIRED**

Source inspection shall be conducted by Flexial or Flexial's representative at supplier's facility or where designated in this purchase order prior to shipment. Inspection and/or testing shall be performed by the supplier and shall be subject to witness by Flexial representative(s). Supplier shall notify Flexial at least 3 working days in advance of the intent to ship and withhold each shipment pending action by Flexial's quality representative.

Neither surveillance, inspection and/or test made by Flexial or its representatives or US Government representatives at either supplier's or Flexial's facility, nor supplier's compliance with all applicable procurement quality requirements, shall relieve supplier of the responsibility to furnish an item that conforms to the requirements of the procurement document.

## **Q28 GOVERNMENT SOURCE INSPECTION REQUIRED**

When Government Source Inspection (GSI) is imposed and unless otherwise directed by the Government QA representative, supplier shall submit procurement documents to the designated Government QA representative for GSI determination prior to procurement release for the following purchase types: 1) purchases for products or services that are either complex or have critical application and which conformance to requirements cannot or should not, for economical reasons, be fully determined on receipt, or 2) purchases requiring direct shipment from supplier to the government agency. However, procurement documentation for products or services for which conformance to requirements may be adequately determined by supplier upon receipt do not require submittal to the Government QA representative prior to release, but shall be available for review. Source inspection performed by and for the convenience of the government agency shall not replace supplier source inspection or relieve supplier of the responsibility for ensuring product quality. In all cases, supplier's GSI representative should be notified.

## **Q29 CONFLICT MINERALS**

Supplier shall provide to Flexial information on the content of products, manufactured or contracted to be manufactured by Supplier for Flexial, that use or contain "conflict minerals" such as wolframite, cassiterite, columbite-tantalite (coltan), gold, and their derivative metals; tantalum, tin, and tungsten. The information shall be used to verify compliance with Section 1502 of the Dodd-Frank Act (the U.S. Conflict Minerals Law) and should include evidence of the origin of the conflict minerals. Supplier shall obtain Flexial's written consent before providing any products to Flexial that include conflict minerals originated from the Democratic Republic of Congo or the nine adjoining conflict countries; Angola, Burundi, Central African Republic, the Republic of the Congo, Rwanda, South Sudan, Tanzania, Uganda, and Zambia. Supplier shall maintain effective accounting procedures, internal controls, and audit procedures necessary to record the country and place of origin of all minerals included in products provided to Flexial, and to verify compliance with this section. Flexial and its customers shall be permitted to audit such records as reasonably necessary to confirm Supplier's compliance with this section. Supplier shall indemnify and hold Flexial harmless for all fines, penalties, expenses, or other losses sustained by Flexial as a result of Supplier's breach of this provision.

## **Q30 MERCURY PROHIBITED**

Mercury or any mercury containing compounds shall not be intentionally added to or allowed to come into direct contact with any item ordered on this purchase order.

## **Q31 CADMIUM PLATING PROHIBITED**

Use of cadmium plating is prohibited.

## **Q32 ASBESTOS**

Any material that contains asbestos must be identified as such on the packing slip and certificate of conformance.

## **Q33 ANTI-DRUG AND ALCOHOL TESTING PLAN**

If based in the United States, supplier shall have a drug and alcohol testing program as required by FAA regulations (49 CFR Part 40). [https://www.transportation.gov/sites/dot.gov/files/docs/PART40\\_20160808.pdf](https://www.transportation.gov/sites/dot.gov/files/docs/PART40_20160808.pdf)





# QUALITY ASSURANCE CLAUSES

## **Q34 CORRECTIVE ACTION**

Suppliers that provide products or services found to be nonconforming through inspection or testing and at the fault of the supplier shall be issued a supplier corrective action request (SCAR) and provided with a copy of the nonconformance report. The corrective action request shall follow the 8D methodology of problem solving. Supplier may use Flexial form F4-13C or their own equivalent form for the corrective action report. Supplier is expected to respond within 7 days with containment actions and shall complete the corrective actions within 30 days.

Suppliers may be granted additional time at the discretion of Flexial's quality department.

Failure to provide an adequate and timely response to the corrective action or repeat occurrences for which the corrective action was supposed to remedy may result in the removal from Flexial's approved supplier list.

**NOTE: Current revisions of this document are maintained only on the Flexial website. Review this document on the website for each purchase order received to ensure you have the latest revision. Go to <http://www.flexial.com> and follow the SUPPLIER links.**

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