Flex Force Enterprises Inc.
3747 NE Sandy Blvd
Portland, OR 97232
503-770-0700
www.flexforce.us

Flex Force Enterprises Inc.
2250 NW 22nd Ave, Suite 412
Portland, OR 97210
503-770-0700
www.flexforce.us

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1.0 PURPOSE

The purpose of this document is to consolidate and communicate Flex Force's quality and management system expectations and requirements to suppliers of parts and services used in a wide variety of application markets. The document is available to view and download from the Flex Force supplier portal on www.flexforce.us/suppliers.

2.0 CONTENTS, SCOPE & RESPONSIBILITY

This document defines quality and management system requirements applicable when goods and services are procured to Flex Force Enterprises Inc.'s design authority Build-to-Print and Build-to-Specification part numbers.

Unless otherwise explicitly stated in this document, these requirements also apply to Standard Catalog Hardware (COTS), Modified COTS, and Supplier IP.

These requirements do not apply to Flex Force indirect procurement of general supplies.

This document is applicable to all suppliers or partners who supply product related to Flex Force contracts / purchase orders and represents general or basic requirements for Flex Force purchase orders and are modelled upon the structure of ISO9001 and AS9100.

3.0 DEFINITIONS

The following terms used throughout this document are consistent with ISO9000:2015 and AS9100:2016 definitions.

3.1 **Counterfeit Part** – An unauthorized copy, imitation, substitute, or modified part which is knowingly mispresented as a specified genuine part of an original or authorized manufacturer.

3.2 **Critical Items** – Those items having significant effect on the provision and use of the products and services; including safety, performance, form, fit, function, producibility, service life, etc.; that require specific actions to ensure they are adequately managed.

3.3 **Key Characteristics** – An attribute or feature whose variation has a significant effect on product fit, form, function, performance, service life, or producibility, that requires specific actions for the purposes of controlling variation.

3.4 **Product Safety** – The state in which a product can perform to its designed or intended purpose without causing unacceptable risk of harm to persons or damage to property.

3.5 **Special Requirements** – Those requirements identified by the customer, or determined by the organization, which have high risk of not being met, thus requiring their inclusion in the operational risk management process. Factors used in the determination of special requirements include product or process complexity, experience, and product or process maturity.

3.6 **Manufacturing Lot** – Defined as all parts manufactured at the same time from the same materials, or processed together through all operations, unless otherwise specified in the Flex Force drawing.

3.7 **Frozen Process** – An approved and controlled process, commonly associated with critical items, key characteristics and special requirements, where no changes can be made to the method of manufacture and inspection or control of the process without prior formal approval by Flex Force.

3.8 **Standard Catalog Hardware or COTS** – Standard Catalog Hardware is defined as a part or material that conforms to an established industry or national authority published specification, having all characteristics identified by text description, National/Military Standard Drawing, or catalog item.

3.9 **Modified COTS** – COTS parts that have been altered to meet the design requirements of the assembly. The drawing will typically carry the following note or similar: MAKE FROM PART NUMBER _____. Alterations with this category exclude special processing requirements. Modification of special processing requirements for COTS hardware renders them Build-to-Print or Build-to-Specification parts.

3.10 **Supplier IP (Intellectual Property)** – Non- Flex Force design hardware that is neither COTS nor Modified COTS. Flex Force neither owns nor has access to design data. Functional test data is often delivered with the product as usually Flex Force does not possess the inspection/test equipment necessary for validation.

3.11 **Deviation** – A non-conformance or non-compliance with Flex Force requirements as defined on drawings, specifications, SQR-1, supplementary quality clauses, and any other purchase order flow-downs.

3.12 **Escape (or Escapement)** – Nonconformities (deviations from requirements) that were produced, not detected and remedied, and subsequently sent to the customer.

3.13 **Concession** – Written authorization from Flex Force to the supplier to use or release a product which does not conform to the specified requirements. Waiver/concession and product quality escape differ with respect to the point in time when a non-conformance is detected. The need for a waiver/concession is evident before delivery to the customer, while a product quality escape is identified after delivery to the customer.

If Flex Force does not provide a definition for a term in any Flex Force artifacts or flow-downs, then industry standard definitions (https://www.sae.org/iaqg/dictionary/) shall apply.

4.0 ORDER OF PRECEDENCE

The order of precedence for Flex Force purchases is defined in the Flex Force Standard Terms and Conditions of Purchase[1] available to view and download at: https://www.flexforce.us/suppliers.

In case of any conflict between this document and the standard terms and conditions of purchase, the standard terms and conditions of purchase shall take precedence. Suppliers should read this document in conjunction with the standard terms and conditions of purchase.

NOTE 1: Generally, the purchase order cannot change design data, i.e. data on drawings, specifications, standards. If a Flex Force purchase order flow-down contradicts or appears to invalidate design data, the supplier shall request clarification from Flex Force.

5.0 REFERENCES

The following international standards are important references for the structure and content of the requirements stipulated in this document.

- BS/EN/ISO 9001:2015 (Quality Management System Requirements)
- AS/EN/JISQ 9100:2016 (QMS Requirements for Aviation, Space and Defense Organizations)
- AS/EN/SJAC 9110:2016 (QMS Requirements for Aviation Maintenance Organizations)
- AS/EN/JISQ 9120:2016 (QMS Requirements for Aviation, Space and Defense Distributors)
- AS/EN/SJAC 9145:2016 (Requirements for APQP and Production Part Approval Process)
- AS/EN/SJAC 9146:2017 (Foreign Object Damage (FOD) Prevention Program)
- AS/EN/SJAC 9102 (Aerospace First Article Inspection Requirements)
- AS/EN/SJAC 9138 (Quality Management Systems Statistical Product Acceptance Requirements)
- AS13000 (Problem Solving Requirements for Suppliers)
- AS13002 (Requirements for Developing and Qualifying Alternate Inspection Frequency Plans)
- AS13003 (Measurement Systems Analysis Requirements for the Aero Engine Supply Chain)
- AS13004 (Process Failure Mode and Effects Analysis (PFMEA) and Control Plan)
- AS13006 (Process Control Methods)
- ARP5316 (Storage of Elastomer Seals and Seal Assemblies ….)
- ANSI /ESD S20.20 (Protection of Electrical and Electronic Parts, Assemblies and Equipment)
- BS EN 100015-1 (Protection of electrostatic sensitive devices)
- MIL-STD-1686 (Electrostatic Discharge Control Program for Protection of Electrical …)

To access these standards:

www.iso.org/standards.html

www.bsigroup.com

www.ansi.org

quicksearch.dla.mil

www.sae.org/iaqg/publications/standards.htm

www.sae.org/standards/

aesq.sae-itc.com/content/aesq-standards

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GENERAL QUALITY MANAGEMENT SYSTEM REQUIREMENTS

6.0 Quality Management System

6.1 Quality Management System Certification and Approval

The supplier shall:

Establish a documented quality management system (QMS) that addresses Flex Force and applicable statutory / regulatory requirements.

Work only within the scope of their QMS certification and/or the scope of the approval as communicated by the relevant Flex Force operating group or business unit.

Vendor or Supplier QMS requirements:

- ISO9001 or AS/EN/JISQ 9100 compliant processes (minimum, required)
- ISO9001 or AS/EN/JISQ 9100 registered processes (desired)

6.2 Control of Flex Force Documents

Except a) below, this section does not apply to suppliers of COTS, Modified COTS, or Supplier Intellectual Property.

The supplier shall:

a. Comply with the current revision[1] of Flex Force documents / specifications referenced on the product definition or Flex Force purchase order / contract.
b. Take appropriate action when Flex Force document changes cannot be implemented prior to the shipment of the product.
c. Flow down Flex Force documents / specification to sub-tier suppliers (when applicable). Suppliers, including dealers and distributors, are responsible for ensuring that the applicable requirements of the purchase order are imposed on lower tier procurements for raw material, components or process services being used in the manufacture of products or services being provided.
d. Ensure that when Flex Force documents are translated into a supplier's national language, the translation is performed by a competent translator prior to use.

NOTE 1: For all Military, Federal, Industry or Flex Force customer specifications and standards, unless specified on the contract or purchase order, the supplier may use either the latest specification or the specification in effect at the time of the PO. Raw material is excluded as older versions of raw material specifications are backwards compatible. Flex Force reserves the right to request a different revision of any specification, which would be specified on the purchase order.

6.3 Control of Flex Force Records

This section does not apply to suppliers of COTS or Modified COTS.

The supplier shall control records[1] related to Flex Force product in a manner that will allow the recovery of a readable version of any records (including electronic records) by ensuring that:

a. Records are retrievable upon request within 48hrs and provided to Flex Force at no extra charge.
b. Documents / records requiring authorization by and/or submission to Flex Force shall be written in the English language.
c. Records created by and/or retained by sub-tier suppliers are appropriately controlled in accordance with these requirements.
d. Hand-written amendments to records shall be dated and signed in ink with the original information being legible after the change.
e. Records shall be appropriately identified and managed in accordance with customer, regulatory and company defined requirements.
f. Storage, usage and disposal of records is performed in a manner appropriate to their security classification and protected from unauthorized access and fraudulent use[2].
g. Storage facilities shall provide environmental conditions to prevent deterioration or damage and to prevent loss.
h. Retain quality records for minimum of (15) years from the date of shipment, unless a longer period is specified, and consult with Flex Force prior to document disposal or record destruction.

NOTE 1: Records include but are not limited to: Approved Certificates of Conformity, Test Reports, Raw Material Certifications, Special Process Certifications, First Article Inspection Reports (FAIR), Route Cards/Travelers, and Calibration Records.

NOTE 2: The nature of the information in the records, as well as its format, dictates the method by which they shall be destroyed. When records contain sensitive information (such as design detail, proprietary info, ITAR restricted info, etc.), they shall be disposed by irreversible destruction methods such as shredding, or "erasure"/reformatting for electronic/magnetic media.

6.4 Communication with Flex Force

The supplier shall:

a. Notify Flex Force of any significant organization changes, key management changes, certification status changes, or other business risks (8.4).
b. Notify and/or requesting Flex Force approval for work transfers and process changes (9.13).
c. Notify Flex Force of a product quality escape (9.15).
d. Notify and/or requesting Flex Force approval/concession for any deviation from requirements, including various process restrictions (9.3)).
e. Request Flex Force approval for any concession from requirements for manufactured non-conforming hardware (9.16).

7.0 MANAGEMENT RESPONSIBILITY

7.1 Management Commitment

The supplier shall:

a. Provide and maintain the resources required to comply with Flex Force purchase order requirements.
b. Focus on customer satisfaction with an emphasis on defect prevention, on-time delivery, continuous improvement, and ongoing risk management.
c. Establish a quality policy and quality objectives for the organization and ensure that quality planning and management reviews effectively consider how the organization is meeting customer requirements.

7.2 Responsibility, Authority and Communication

This section does not apply to suppliers of COTS or Modified COTS.

The supplier shall:

a. Communicate to employees and sub-tier suppliers the impact of their work on product safety and conformity, and the importance of ethical behavior[1].
b. Ensure that within their organization and at subcontractors / sub-tiers, the use of Acceptance Authority Media[2] (AAM) for product release is clearly defined within the Quality Management System.
    i. Suppliers shall maintain compliance to AAM requirements by assessing its process and supply chain as part of its internal audit activities, including but not limited to: application errors, untimely use, misrepresentation, and training deficiencies.
    ii. Communication shall reinforce the importance of ethical behavior in daily activities. The use of AAM must be considered as a personal warranty of compliance and conformity.
    iii. Suppliers shall, upon Flex Force request, be able to demonstrate evidence of communication to their employees and their supply chain.
c. Define the personnel responsible for product quality (across all sites and production shifts) and ensure that they have the following:
    i. Authority to stop production to correct quality problems.
    ii. Organizational freedom and access to top management to resolve quality issues.
d. Establish a procedure, work instruction or equivalent for task / shift handovers and general role changes that ensures that all necessary information is communicated (verbally and in written form) between outgoing and incoming personnel.

NOTE 1: Products and services provided by Flex Force are typically used in mission critical applications where supplier product conformity can have an impact on the safety and well-being of people. Suppliers are required to communicate this to their employees and to their sub-suppliers to ensure the appropriate level of action and control.

NOTE 2: Acceptance Authority Media are the means defined by the organization to document the status of outputs with respect to but not limited to conformity, configuration, monitoring and measurement requirements and identification throughout the product life cycle. Media include inspection stamps, electronic signatures, passwords, wet signatures and any other means identified by the QMS.

Reference: https://www.sae.org/aaqg/audit_information/2017/minn/acceptance_authority.pdf

8.0 RESOURCE MANAGEMENT

8.1 Training and Competence

This section does not apply to suppliers of COTS or Modified COTS.

The supplier shall:

a. Establish a documented procedure for identifying training needs, achievement, and review of competence of all personnel performing work directly or indirectly impacting conformity to product or production process requirements.
b. Create role profiles / accountabilities and provide on-the-job training for personnel performing work directly or indirectly impacting conformity to product or production process requirements, including any new or modified jobs, contract, or agency personnel.
c. Establish a business skills matrix to identify training requirements as well as identifying areas for succession planning and risk management / treatment to maintain continuity of supply.
d. Maintain records of training and competence for the period that the relevant employee remains within the supplier's organization.

8.2 Cleanliness of Workplace

This section does not apply to suppliers of COTS or Modified COTS.

The supplier shall maintain its workplace in a state of order, cleanliness and repair consistent with the product and production process needs[1].

NOTE 1: Tools such as 5S and Visual Management should be used for workplace organization improvement..

8.3 Vision Standards

- *This section does not apply to suppliers of COTS or Modified COTS.*
- *These requirements are applicable to all personnel conducting product verification / inspection that requires unaided visual acuity.*

The supplier shall:

a. Perform eye tests every 2 years for employees performing inspection activities on Flex Force hardware. Corrected visual acuity shall be, at a minimum, Snellen 20/40, Jaeger 1 or equivalent with depth perception.
b. Perform a (one time per person only) color perception test to ensure that personnel are capable of distinguishing and differentiating colors where color perception is required for product verification / inspection activities.
c. Ensure that supplier employees failing eye tests do not perform acceptance of Flex Force hardware.
d. Maintain records for vision standards for the period that the relevant employee remains within the supplier's organization.

8.4 Business Continuity and Risk Management

This section does not apply to suppliers of COTS or Modified COTS.

The supplier shall:

a. Establish business continuity plans that identify, analyze, evaluate and / or mitigate risk related to business continuity that includes (but is not limited to) the following:
   i. Product, facility or individual skill uniqueness.
   ii. Access to alternative production facilities.
   iii. Single points of failure (including sub-tier suppliers) or key process.
   iv. Remote back-up of computer data, access to information systems.
   v. Action plans and timescales for business recovery.
   vi. Contacts, process owners and procedures to follow in the event of an emergency. ➢ A strategy to control, review and communicate plans to all relevant personnel.
b. Inform their Flex Force purchasing contact[1] within five (5) working days regarding the following:
   i. Changes to third party or other party certification status, including lapse, withdrawal, or major audit findings.
   ii. Change of the nominated quality representative.
   iii. Significant change to the quality management system.
   iv. Change in ownership or discontinuation of business activities.
   v. Risks that could impact upon the continuity of the supplier's business / operations.
   vi. Risks with the supply of substances used in the production or physical make-up of products, due to laws and regulations concerning the control or use of such substances that may be published from time to time.
c. Submit risk register and contingency plans to Flex Force upon request.

NOTE 1: Notifications shall be submitted to Flex Force in accordance with the requirements stipulated in 6.4.

9.0 OPERATIONAL MANAGEMENT

9.1 Critical Items; Assurance of Product Safety and Integrity

The supplier shall:

a. Ensure personnel are aware of critical items incorporated into a Flex Force product and the potential consequences of delivering product that does not conform to requirements.
b. Specify, as applicable, any critical items during purchasing / subcontracting, product design and development, and production design and development, including any key characteristics, and specific actions to be taken for these items.
c. Abide by the following key process restrictions/requirements, which apply unless otherwise directed by the drawing or Flex Force purchase order:
   i. **Glass Beads** are prohibited from use in processing or manufacturing of parts related to Flex Force Purchase Orders unless allowed by a specific note on the Flex Force drawing. Requests for exemption/deviation shall be submitted to Flex Force for approval (A4.16)

for each specific part number. Suppliers using glass beads in their normal processing are required to have an effective method of segregation to prevent contamination of Flex Force hardware.

ii. **Life-limited items** such as adhesives, compounds and elastomerics, shall have 75% or greater storage life remaining upon receipt at Flex Force. The supplier shall identify on the shipped paperwork the manufacturers name, compound trade name, batch number, cure date, expiry date, specific gravity range and QPL approval status, as applicable, by Flex Force print for each lot received.

iii. **Electronic Components** (i.e. transistors, integrated circuits, connectors, etc.) ordered to military specifications must have the component manufacturer and lot / date code for each component identified on the shipping paperwork.

iv. **Electrical Discharge Machining** (EDM) is not permitted for manufacture of parts related to all Flex Force purchase orders unless allowed by specific note on the Flex Force drawing, or via an explicit written authorization subsequent to a formal approval by Flex Force Engineering. The approved data card will then constitute a frozen process, and any proposed changes must also be approved. Requests for exemption/deviation of this requirement shall be submitted to Flex Force for each specific part number/feature.

v. **Electrostatic Discharge Protection** - Devices designated by the drawing as static sensitive, or otherwise applying static sensitive technology, must be properly handled, packaged, and labeled in conformance with ANSI /ESD S20.20 (http://www.ansi.org), BS EN 100015-1 (http://www.bsigroup.com) or MIL-STD-1686 (http://quicksearch.dla.mil).

d. Assume full responsibility for conformance of all product shipped to Flex Force[1].

NOTE 1: Acceptance by Flex Force of supplier product shall not be used as evidence of effective control of quality by the supplier and shall not absolve the supplier of responsibility to furnish acceptable products or preclude subsequent rejection by Flex Force customers.

9.2 Counterfeit Parts Prevention

This section does not apply to suppliers of castings and forgings.

The supplier shall:

a. Establish a program in place to prevent the delivery of counterfeit parts and materials to Flex Force. All parts, materials and assemblies (electrical, mechanical, raw material) included in the hardware delivered to Flex Force shall be procured directly from the Original Component Manufacturer (OCM) / Original Equipment Manufacturer (OEMs), or from the OCM/OEM authorized-distributor[1]. If it is determined in a specific instance that this is not possible, a deviation/concession request (9.16) shall be submitted to Flex Force within (5) working days of this determination.
b. Communicate (flow down) this requirement to subcontractors / sub-tier suppliers and assure their compliance to it.

NOTE 1: Further guidance on counterfeit parts avoidance can be found in SAE documents AS5553 (Electronics) and AS6174 (Material) (http://www.sae.org).

9.3 Contract Review

The supplier shall:

a. Conduct contract and purchase order reviews for all purchase orders, by personnel having the relevant knowledge and experience.
b. Ensure the capability, capacity and resources are available to meet all Flex Force requirements.
c. Review the requirements of drawings, specifications, this document, packaging requirements, general terms and conditions, and all other flowdowns referenced on the Flex Force purchase order[1] [2].
d. Retain documented information on the result of the reviews and notify the Flex Force purchasing contact of any instances where Flex Force requirements cannot be met prior to production[2] [3].

NOTE 1: Suppliers on Vendor Schedule Purchase Orders (indicated on the Flex Force PO) shall follow a formal documented method to ensure they are working to the latest version of all flow-downs and that they remain in compliance with Flex Force requirements. Part number mismatches are communicated to suppliers via a vendor schedule report. For non-vendor schedule POs (discrete POs) suppliers are required to work to the latest revision of all flow-downs (refer to 6.2). Suppliers with Long Term Agreements (LTAs) shall also review compliance to requirements for discrete and vendor schedule POs.

NOTE 2: All requests for clarification, waiver or change of any Flex Force requirement shall be submitted in writing to Flex Force, and suppliers must not commence manufacturing of parts for Flex Force orders until the supplier has received a response from Flex Force.

NOTE 3: Suppliers may accept purchase orders but shall not produce parts based on "red-line" drawings unless authorized by Flex Force executive management. Suppliers must contact their Flex Force buyer for assistance for any questions or conflicts.

9.4 Purchasing / Sub-Contracting

- *This section does not apply to suppliers of COTS or Modified COTS[1].*
- *Supplier IP is also exempted, except b) applies when Flex Force defines the processing requirements.*

The supplier shall:

a. Only purchase from / subcontract to a Flex Force approved source, unless purchasing the following:
    i. Conventional machining[2] operations (excluding final product verification/release).
    ii. Castings or forgings.
    iii. Conventional rough machining on castings and forgings.

iv. Raw material from a material stockist / distributor[3].
v. Purchased standard catalog hardware (COTS).
vi. Customer specified special processing (see b) below).
vii. Products or services from a Flex Force end-customer directed source.

b. Only purchase from approved source for special processing[4].
   i. When processing requirements are defined by Flex Force (e.g. ASTM E1417) or by Flex Force's end-customer (e.g. BAC 5728), processors must be approved for the process specification by Flex Force (for Flex Force defined requirements) or by the end-customer (for customer defined requirements). The use of a Flex Force or end-customer approved sub-tier does not relieve the supplier from responsibility to furnish acceptable products.
   ii. When Flex Force's customer's specifications are called out in the drawings (e.g. BAC spec, Lockheed spec, etc.), supplier shall use processors that are currently approved/certified by the end-customer for the process specification and, in that case, the processor need not also be Flex Force approved.
   iii. Suppliers shall establish and follow a formal documented process to verify, during contract review and prior to processing the parts, that either they or their chosen sub-tier are an approved processor for the Flex Force or end customer specification. When requested by Flex Force, suppliers must be able to furnish objective evidence (e.g. internal production records, certifications from sub-tiers) that the process has been followed, and that parts have been processed by approved suppliers according to defined process specifications.
c. Ensure that all purchasing information / documentation:
   i. Accurately specifies the supplier's requirements and Flex Force's requirements, including the requirements of this document, and is flowed down to subcontractors / sub-tier suppliers.
   ii. Specifies the supporting documentation to be provided with the purchased product on receipt that states the product meets specified purchase requirements.
d. Ensure that final product verification of contracted parts before shipment to Flex Force is not delegated to sub-tiers unless formally approved by a Flex Force quality representative.
e. Maintain records of purchasing / subcontracting.

NOTE 1: Allowable alterations within the Modified COTS category exclude special processes. If special processing requirements for COTS parts are modified, they are deemed Build-to-Print or Build-to Specification parts.

NOTE 2: Conventional machining operations involve direct contact between tool and workpiece (e.g. turning, milling, grinding etc.), whereas unconventional machining does not (e.g. EDM, ECM).

NOTE 3: Traceability to the raw material manufacturer is required.

NOTE 4: The following are considered special processing, as a minimum: Heat treatment, Plating operations, Chemical processing, Chemical cleaning, Nondestructive Testing, Welding/Brazing, Shot Peening, Ion Vapor Deposition (IVD), High Velocity Oxygen Fuel (HVOF), other specialty coatings.

Suppliers need not be Flex Force approved for in-process stress relief when parts are subsequently heat treated to a final condition. The supplier must adequately control pyrometry and select temperatures and cycle durations that will not be detrimental to fit, form, or function.

Suppliers of nameplates using photosensitized aluminum material are deemed compliant with MIL-A8625 Anodic Coatings for Aluminum and Aluminum Alloys and are therefore exempt from the requirement to use a Flex Force approved processor to comply with this specification.

9.5 Receipt Inspection / Verification of Purchased Product

The supplier shall:

a. Have a receipt inspection process to verify that purchased product meets the supplier's requirements, which shall include Flex Force's requirements.
b. Ensure that required documentation has been provided with the purchased product that states the product meets specified purchase requirements (9.14).
c. Maintain records of receipt inspection and supporting documentation per the requirements of 6.3.

9.6 Subcontractor / Sub-tier Supplier Monitoring

This section does not apply to suppliers of COTS or Modified COTS.

The supplier shall:

a. Monitor subcontractor / sub-tier supplier performance through the following indicators:
    i. Delivered product quality.
    ii. Customer disruptions / customer returns.
    iii. Delivery schedule performance.
b. Conduct load and capacity reviews with key subcontractors / sub-tier suppliers annually or following significant load increases.
c. Take appropriate corrective action with poorly performing subcontractors / sub-tier suppliers.
d. Maintain records of subcontractor / sub-tier supplier monitoring.

9.7 Manufacturing Process Control

This section does not apply to suppliers of COTS or Modified COTS.

The supplier shall:

a. Maintain a traveler, router, process flow sheet or equivalent control mechanism that directs procedures for the control of quality and configuration through all stages of production.
b. Develop inspection procedures and control plans, and maintain records of inspection that include evidence of inspection for all features (e.g. first article inspection, acceptance test data) of products / processes supplied to Flex Force, showing the product has been inspected and/or tested during all stages of manufacturing, identifying the name of the individual (i.e. with stamps, etc.) who certified the results, and where applicable include the results of the inspections and tests.

c. Ensure that 100% of all features on all parts produced are in accordance with the Flex Force requirements. This shall be accomplished by the following minimum requirements:
    i. Understand and reduce variation within processes, by using SPC and control-charting techniques and/or appropriate inspection[1]. Suppliers using sample (incl. Flex Force approved) inspection plans remain responsible for all attributes on the part/assembly.
    ii. In-process inspection shall occur throughout processing of a manufacturing lot.
    iii. The method of inspection shall be suitable and capable[2] for each type of feature or inspection being performed. For example, measurement instruments should have 10 times the resolution of the tolerance being measured.
    iv. Parts shall be 100% visually inspected for loose or hanging burrs, machining chips, handling damage, and FOD (Foreign Object Debris) prior to shipment.
    v. Suppliers shall buy thread/spline gauges from commercial manufacturers (commensurate to the tolerance of the part) and shall not use internally manufactured gauges.
d. Ensure that calibration of measuring and test equipment used for product acceptance is performed and is traceable to established international or national measurement standards (e.g., BSI, NIST, UKAS, etc.). Procedures for periodic calibration, certification, maintenance of tools and equipment, and an action plan, should measuring and/or test equipment be found to be out of calibration, shall be established and followed. The action plan shall contain, as a minimum, item identification (model, manufacturer, and serial number), found condition (including span/range and accuracy), date condition found, date of previous calibration, notification details, and any other pertinent measurement details.
e. Parts that have been subjected to machining processes, and selected other build-to-print parts, must meet the workmanship standards and requirements defined by Flex Force [3].
    i. In general, parts shall have consistent appearance with respect to color, texture, machine marks, etc. unless allowed by the drawing, specification, workmanship/visual standard. Parts shall also be free of random marks, blemishes or touch-ups unless allowed by the specification, drawing, workmanship/visual standard.
    ii. Questions regarding specific appearance concerns should be submitted to the Flex Force buyer (9.16) before manufacture with the appropriate detail (problem description, pictures, cause, recommended actions, etc.).
f. Establish a visual management process / system that will provide feedback to everyone involved in the process regarding current status, the flow of work, priority and the performance of the process, facilitating timely problem diagnosis and effective intervention.

9.8 Control of Reworked Product

This section does not apply to suppliers of COTS or Modified COTS.

The supplier shall:

a. Only rework product in accordance with controls specified within the process specifications on the product definition or to an agreed rework procedure authorized by Flex Force.

i. For Flex Force designed hardware when Flex Force changes P/Ns, dash numbers, or P/N revisions AND there is work in process (WIP) for a given contract, the rework instructions must be submitted in writing to the Flex Force purchasing contact to obtain Flex Force Engineering approval prior to rework.

b. Ensure that instructions for rework, including reverification / inspection requirements are accessible to and utilized by the appropriate personnel.
c. Maintain records of reworked product per the requirements of 6.3.

9.9 Foreign Object Debris

The supplier shall:

a. Maintain a Foreign Object Debris/Damage (FOD) control program.
b. Shall use appropriate tools/techniques to manage part-level FOD risk throughout the manufacturing process, documenting risks and associated mitigation actions in a part-level risk register, PFMEA or Control Plan.
c. Ensure that all incidents of actual or potential FOD are reported, investigated, and corrected.

NOTE 1: Flex Force reserves the right to require use of PFMEA and Control Plans to identify and mitigate FOD risk. Flex Force also reserves the right to require suppliers to undertake appropriate containment actions pending implementation of robust preventative and control actions.

9.10 Storage, Identification and Traceability

The supplier shall:

a. Provide secure storage facilities for product, equipment, tools, and material. Ensure the conditions of storage prevent deterioration and damage of stored items. Assess the condition of product in stock at appropriate planned intervals to detect deterioration.
b. Ensure that individual articles and materials and lots thereof are always identified and segregated from all other articles, materials, and lots. Ensure segregation of serviceable product, equipment, tools and material from unserviceable product, equipment, tools, and material.
c. Records for articles shall indicate the part number, revision level, lot number and if applicable the serial number and associated detailed information.
d. Records for materials shall indicate type, applicable serial numbers, manufacturing lot numbers, heat numbers, batch, date code, cure date, etc.
e. Material or articles furnished by Flex Force for outside operations must remain identifiable by the Flex Force supplied lot or serial number. This number must be recorded on all applicable supplier paperwork.

9.11 Preventive Maintenance

This section does not apply to suppliers of COTS or Modified COTS.

The supplier shall identify key process equipment and provide resources for machine / equipment maintenance and develop an effective planned total preventative maintenance system that includes the following:

a. Planned maintenance activities
b. Packaging and preservation of equipment, tooling, and gauging.
c. Availability of replacement parts for key production equipment.
d. Documenting, evaluating, and improving maintenance objectives.
e. Identification and control of all safety-critical plant and equipment.
f. Loss to available capacity related to planned maintenance activities.

9.12 Part Preservation, Packaging and Delivery

The supplier shall, unless otherwise stipulated on the purchase order:

a. Comply with the freight, preservation, and packaging guidelines stipulated by on the PO.
b. Ensure that the packaging and preservation is adequate to protect the products during transportation, handling, and storage. In general, packaging containers shall be appropriate for the size, weight, and fragility of the products being packed, and shall ensure there is no metal-to-metal contact of finished features.
c. Ensure that preservation methods (e.g. oils) will allow storage without degradation/corrosion for a minimum of 12 months from the date of receipt.
d. Not use preservatives that congeal over time and/or are difficult to clean.
e. Use part separation dividers or unitized packing to prevent part to part contact or packaging damage.
f. Ensure that different manufacturing lots of the same part number are not mixed within a package. Each manufacturing lot shall be clearly identified and segregated in separate packages[1].
g. Ensure that packaging labels contain the following information: date of shipment, purchase order number, part number and quantity in both numerical and barcode 3 of 9 format.
h. Label fragile packages as such.
i. Clearly mark the shelf life/expiration date on the packaging and the shipping paperwork for material with shelf life requirements.
j. Ensure that all chemicals are accompanied by a relevant Safety Data Sheet (SDS) (formerly called Material Safety Data Sheet (MSDS)) with each shipment.
k. Communicate with Flex Force, as necessary, to establish other appearance, packaging and preservation techniques required.

NOTE 1: Individual lot packages may be combined in a single outer container if each inner container is clearly labeled with the lot information and the lots are individually listed on a shipping list as separate line items.

9.13 Control of Work Transfers & Process Changes

Control of Work Transfers & Process Changes is applicable to suppliers planning the temporary or permanent transfer of work, or change to the manufacturing process, and is used to control and verify that the product conforms to requirements during and after the following types of transfers/changes:

- *From the supplier's facility to another facility.*
- *Outsourcing from or insourcing to the supplier's facility.*
- *From one subcontractor / sub-tier supplier to another subcontractor / sub-tier supplier[1].*
- *Within the supplier's facility that could influence the continuity of supply of product.*
- *Any change in either the product design or the associated manufacturing process that could impact critical items.*

Control of Work Transfers & Process Changes is not applicable to.

- *Suppliers of deliverable software, COTS or Modified COTS.*
- *A source that holds a current valid First Article Inspection Report (FAIR) for the product. ➢ Raw material purchased from a distributor.*

The supplier shall:

a. Establish a documented procedure for the control of work transfers & process changes to plan, control and verify the conformity to specified requirements before, during and after the change. The procedure shall contain (but not be limited to):
   i. Formal notification to Flex Force before any change commences[2].
   ii. Risk assessment and mitigation.
   iii. Transfer /change plan.
   iv. Demonstration of capacity and process capability at the new area to protect customer delivery and quality.
   v. Demonstration that generation of buffer stocks are built into load and capacity plans to protect customer delivery.
b. Complete and submit the necessary forms and qualifying information, including First Article Inspection Report (FAIR) to their Flex Force purchasing contact.
c. Proceed with the work transfer or process change only when a response has been received from their Flex Force purchasing contact and compliance with the stipulated requirements has been achieved.
d. Ensure that delivery performance is protected prior to any work transfer or process change.
e. Maintain records of work transfers and process changes per the requirements of 6.3.

NOTE 1: Examples of sub-tier supplier changes that require notification to Flex Force include; changing supplier of castings/forgings, changing supplier of special processes defined by Flex Force or Flex Force's end customer, changing supplier of make-to-print sub-components that impact form, fit, function of the assembled unit, or changing supplier that could negatively impact delivery or cause capacity constraints.

NOTE 2: Notifications shall be submitted to Flex Force in accordance with the requirements stipulated in 6.4. Supplier shall not make any change in materials or design details which would affect the goods or any component parts thereof regarding 1) part number identification, 2) physical or functional

interchangeability, or 3) repair and overhaul procedures and processes and material changes which affect these procedures without written approval of Flex Force buyer. If such approval is granted, all part numbers and the originals of all drawings and data shall be revised accordingly.

9.14 Release of Products and Services

Release documentation may include the following:

- *Certificate of Compliance (CofC).*
- *First Article Inspection Report (FAIR).*
- *Production Part Approval Process (PPAP) documentation (Section B).*

The supplier shall:

a. Provide separate release documentation with each delivery to Flex Force.
b. Ensure that release documentation meets the following: ➢ Is written in the English language.
   i. Refers to a single purchase order / delivery.
   ii. Is legible and protected from damage / deterioration.
   iii. Is attached to the outside of secondary packaging (where appropriate)
c. The CofC submitted to Flex Force shall contain the following information as a minimum: Unique traceable document number; Flex Force part number and drawing revision; Military, Federal or Industry specification number and revision; Purchase Order number and line item; Quantity of product; Serial numbers (if applicable); work order number (if applicable); date shipped; supplier name; authorized acceptance authority stamp or signature; compliance statement[1]
   i. For parts returned by Flex Force to the supplier, the CofC for the reshipment must contain the debit memo number, a summary of work performed or statement that part was replaced.
d. Provide additional release documentation (when applicable)
   ii. First Articles and First Article Inspection Reports (FAI, FAIR) [2].
   iii. Production Part Approval Process documentation[3].
   iv. Deviation number.
   v. Concession number.
   vi. Raw Material traceability certifications, testing and inspection results[4].
   vii. In addition, when requested the supplier shall furnish information on source(s) of supply that could include serial numbers, lot numbers, heat numbers, batch, date code and cure dates and Qualified Products List approval status as applicable.
e. Maintain records of release documentation per the requirements of 6.3.

NOTE 1: The CofC shall include confirmation of compliance to all PO requirements including drawings, specifications, and this document.

NOTE 2: First Articles and First Article Inspection Reports (AS9102) are required when called out by the Flex Force PO.

NOTE 3: The following requirements apply to suppliers of raw material, castings and forgings.

Suppliers of Flex Force build-to-print products, excluding castings and forgings, must certify compliance to DFARS 225.1 and 225.7002 (Buyer American Act and Berry Amendment).

9.15 Control of Non-Conforming Product

The supplier shall:

a. Establish a method of detection and feedback of product nonconformances and process noncompliance.
b. Contain nonconformances by segregating (or identifying and controlling) the product or process to prevent unintended use or delivery. Only product that conforms to specified requirements shall be shipped to Flex Force[1].
c. Take necessary actions (within 48 hours) to contain the effect of the nonconformance on other process or products, i.e. work-in-progress, stores stock, shipping areas, in transit, sub-tier / subcontract activities, similar products, products already dispatched and delivered to Flex Force.
d. Immediately notify[2] their Flex Force purchasing contact and their Flex Force quality representative of any delivered nonconforming product, and continually pursue an acknowledgement from Flex Force that the notification has been received. Flex Force Stop shipment of product when notified of nonconformance by Flex Force until appropriate containment and corrective action has been completed (10.3).
e. Clearly and permanently mark (or establish alternative controls to prevent use) product dispositioned for scrap until physically rendered unusable.
f. Take appropriate corrective action (10.3).
g. Maintain records related to the control of non-conforming product per the requirements of 6.3.

NOTE 1: Dispositions of Use-As-Is or Repair for products under Flex Force design control shall require written authorization prior to shipment (9.16). Flex Force does not grant Material Review Board (MRB) Authority to suppliers. Any reworked parts shall be re-inspected and/or tested prior to shipment to Flex Force. As stated in 9.3, suppliers shall not accept purchase orders for parts to be made to "red-line" drawings or unreleased specifications and such parts are not permitted to be shipped to Flex Force.

NOTE 2: Notifications shall be submitted to Flex Force in accordance with the requirements stipulated in 6.4. Suppliers are required to notify Flex Force within 24 hours of discovering any nonconformance that exists or is suspected of existing on hardware that has previously been shipped to Flex Force. This notification shall include the following information at a minimum:

a. Affected Part number(s), process(es) and name(s).
b. Description of the nonconforming condition and the affected requirement.
c. Quantities, dates, purchase orders, and destination of delivered shipments.
d. Lots, batch numbers, serial numbers or date codes as applicable of the affected lot.

9.16 Deviations and Concessions

The supplier shall:

a. Ensure that written authorization has been granted by Flex Force prior to the shipment of product which does not conform to specified requirements[1].

b. Ensure the concession number is included in the release documentation submitted with product shipment to Flex Force (9.14). This number must be clearly listed on the packing slip, Certificate of Conformance and FAIR if applicable.
c. Ensure that nonconforming product shipped to Flex Force is clearly identified as non-conforming product and packaged separately from the acceptable product.
d. Take appropriate corrective action (10.3).
e. Maintain records of deviation permits / concessions per the requirements of 6.3.

NOTE 1: Requests for deviation or concession should be submitted to Flex Force in accordance with the requirements stipulated in 6.4.

Requests for deviations from requirements should be generated and submitted to Flex Force during contract review and prior to acceptance of the purchase order and manufacture of parts (refer 9.3).

Requests for concessions for non-compliant hardware are required for all/any non-conforming parts, including parts which already have Flex Force approval on a prior delivery. As a rule, suppliers may not ship nonconforming product to Flex Force without approval.

10.0 MEASUREMENT, ANALYSIS & IMPROVEMENT

10.1 Quality and Delivery Performance

The supplier shall:

a. Monitor quality and delivery performance using key performance indicators[1] and ensure that quality and delivery performance targets are achieved.
b. Take appropriate corrective action (10.3) when quality or delivery performance is not or will not be achieved.
c. Inform the Flex Force purchasing contact immediately when delivery schedules are not or will not be achieved and submit a recovery plan (within 24hrs) to the Flex Force purchasing contact.
d. Use a cross-functional team to develop a continual improvement policy and plans to meet Flex Force performance expectations[2].
e. Monitor the implementation of improvement plans and evaluate the effectiveness of results.

NOTE 1: Where Flex Force has provided the supplier with a 'scorecard' the supplier will use the scorecard as a key performance indicator.

NOTE 2: Flex Force performance requirements may be continually refined relative to evolving industry and customer expectations. Flex Force will apply supplier maturity assessment and supplier development tools such as IAQG SSCA as necessary to develop, recover and improve performance to meet expectations.

10.2 Audit Process

This section does not apply to suppliers of COTS or Modified COTS.

The supplier shall:

a. Establish a periodic audit program (product and process audits) that includes internal production and subcontract services, to verify compliance to planned arrangements related to Flex Force contracts. The audit program shall be prioritized based on product and process risk.
b. Audit products at appropriate stages of production using a product that has been selected at random from the current production process to determine the following:
    i. Production method provides a record to demonstrate that all operations are complete.
    ii. Verification / inspection records demonstrate that all operations are appropriately verified.
    iii. Dimensional acceptability to product definition.
    iv. Visual acceptability to product definition.
    v. Functional performance test to product definition (where applicable).
c. Audit each manufacturing process to determine if the resource and controls used to transform inputs into outputs are effective and comply with requirements.
d. Have internal auditors who are appropriately trained and competent (8.1) to perform audits.
e. Establish specific checklists to be used for each audit.
f. Increase audit frequencies when internal / external nonconformances or customer (Flex Force) complaints occur.
g. Take immediate action when an audit result identifies a product nonconformance (10.3).
h. Take appropriate corrective action (10.3) within 90 days or prior to shipment of product to Flex Force.
i. Maintain records of internal audits per the requirements of 6.3.

10.3 Corrective Action

The supplier shall:

a. Perform structured problem-solving activities to establish the root cause(s) of nonconformances.
b. Take appropriate corrective action(s) to eliminate the cause of nonconformances and prevent recurrence.
c. Verify that a permanent fix has prevented any further nonconformances.
d. Flow down corrective action requirements to subcontractors / sub-tier suppliers (when applicable).
e. Take corrective action whenever a concession request has been submitted to Flex Force.
f. Take corrective action whenever a Supplier Deviation Notice has been identified to the supplier by Flex Force.
g. Take and submit details of corrective actions whenever a formal corrective action response is requested by Flex Force [1] [2].
h. Review and update the Process Failure Mode and Effects Analysis (PFMEA) and Control Plan (or equivalent risk management tools) whenever the corrective action has been identified[3].
i. Maintain records of corrective actions per the requirements of 6.3.

NOTE 1: Requests for formal corrective actions are issued by Flex Force (refer 6.4). Suppliers should submit their corrective action response in writing to Flex Force.

NOTE 2: Suppliers must respond promptly and effectively to corrective actions issued by Flex Force.

Corrective Action responses must address the following robustly:

- *Containment (within 48hrs) – action to contain the problem and prevent further escapes. Perform initial 'look across'.*
- *Root cause (process) – define why the escape happened (drill down to process failure).*
- *Root cause (detection) – define why the problem escaped detection.*
- *Corrective action – immediate actions taken or planned to correct the root cause(s) of the specific escape.*
- *Preventative action – actions taken or planned to prevent problem reoccurrence at the systemic level. Perform a 'look across' to other similar parts or processes.*

NOTE 3: Repeated failure to promptly and effectively contain non-conformances and address underlying root-causes may result in escalation, including but not limited to:

- *Flex Force or 3rd party source inspection and audits of supplier's products and processes.*
- *Participation by the supplier in Flex Force's supplier improvement and recovery processes.*
- *Suspension, disapproval, and removal from the Flex Force Approved Suppliers List (ASL).*