Supplier Flow Down Requirements

This specification is in addition to and in no way limiting, superseding, or abrogating any contractual obligation as required by the applicable procurement document.

Introduction: This document details and establishes the quality system requirements for suppliers who provide products or services to Powder Alloy Corporation. This document will be applicable when referenced in the PAC procurement document or by other written and documented means. Suppliers shall meet all requirements stipulated via the PAC Purchase Order.

The responsibility of the supplier meeting all requirements of the PAC Purchase Order is a requirement regardless if PAC has approved the supplier's system, procedures, work instructions, or have conducted inspection of material/products at the supplier's facilities.

The supplier shall be responsible for reviewing, acknowledging acceptance or by stating in writing any exceptions to the PO, and conforming to all aspects of PAC Purchase Orders including any changes of orders that have been previously sent.

If the supplier does not communicate back to PAC an acknowledgement of acceptance of the purchase order, PAC will consider the purchase order as fully accepted and acknowledged by the supplier.
The supplier shall be given three business days, from the time the purchase order is sent, to acknowledge a PAC Purchase Order.

This specification has been established to provide a means for implementation of and adherence to PAC'S quality policy, for the purpose of

a) customer satisfaction
b) continuous improvement of the processes
c) adherence to industry and customer quality systems
d) flow down of pertinent quality requirements

Should there be a conflict in the quality system requirements of PAC, the order of precedence shall be:

1) Procurement Document or Contractual agreement (excluding this document).
2) Applicable drawing(s).
3) Specification referenced on the applicable blueprint or drawing.
4) This specification document.
5) Any or all specifications that may be referenced in this document.

Note: If there are any conflicting or questionable requirements in the purchase order or procurement document, PAC purchasing or quality department shall be consulted for clarification before the work is started.

TABLE OF CONTENTS

SECTION 1
Title: Subject/Purpose

This document outlines and details the quality requirements to be complied with by the supplier to assure the quality of products delivered to PAC.

When a supplier accepts a contract stipulating that this document applies, this shall mean that the supplier has accepted this document's contents and requirements. Any deviations in the application of the specified requirements shall be the subject of a joint agreement by PAC and the supplier.

SECTION 2
Title: Terminology, Definitions, and Abbreviations

CAR – Corrective Action Request

CERTIFIED SUPPLIER – The initial and periodic qualifications of suppliers who have been subjected to an on-site evaluation of special process facilities, procedures, personnel, and controls and have satisfactorily demonstrated their ability to meet the applicable specification, quality system, and procurement document requirements.

CONTRACT – Agreement between PAC and a supplier defining the conditions for making a purchase or a set of purchases. A purchase contract may specify one or more orders or may simply define the conditions for issuing and accepting future orders. An order is granted to a supplier for the delivery of specified supplies under agreed conditions. An order can be issued under a purchase contract or be independent of any previous agreement. In this document, the term "contract" designates a purchase contract or order.

CRITICAL CHARACTERISTIC – A drawing or specification feature, which, if nonconforming may result in hazardous or unsafe conditions for personnel using, maintaining or depending on the unit of product; or which may prevent or seriously affect the satisfactory operation or functioning of the ultimate end product.

CRITICAL OPERATION – A manufacturing process or process sequence that if changed could affect design intent, e.g. material structure, mechanical, chemical or electrical properties, and can not normally be evaluated without destructive testing. A critical inspection operation is of a nature where even very small changes to setting parameters can give false results or where a high grade of experience is required when used and evaluated such as non-destructive methods.

DEFINITION- The set of documents mentioned in the contract that makes up the product's technical baseline (drawings and associated documents, technical specifications, parts lists, technical documents, specific contractual instructions, etc.).

KEY CHARACTERISTICS – The characteristics of a part or process where variation has a significant influence on product fit, form, function, security, service life, and/or manufacturability.

NQES- Non Quality Event on Supplies

LOT- Set of items having the same technical definition and produced under the same manufacturing/inspection conditions (same production process and/or same manufacturing run, etc.). A unique identifier used to control and identify a definite number of items which have been produced by the same manufacturing cycle and usually

submitted for acceptance at one time or place. Typically lot numbers are heat lot numbers, heat treat lot number, and melt lot numbers which are usually associated with raw material, castings, powder, weld wire, forgings, etc.

MAJOR CHARACTERISTIC- A drawing or specification feature, which if non conforming, may result in operational or functional failure or the item, or may materially reduce the usability, physical or functional interchangeability or durability of the end product for its intended purpose.

MINOR CHARACTERISTIC (No Symbol) – A drawing or specification feature, which if non conforming, does not materially reduce the use ability, physical, or functional interchangeability or durability of the product, or are departures from established standards having no significant bearing on the effective use or operation of the product.

PURCHASER- The procuring activity of PAC that issues the procurement document.

PURCHASE ORDER- (P.O.) - The formal legal contract between PAC and a supplier that covers and details the purchase of product and services.

QUALITY CONTROL CARD (QC Card) or PAC Specification – Document issued by PAC Quality Control Department that assigns additional quality requirements to the purchase order or procurement contract that must be incorporated and adhered to by the supplier.

RAW MATERIAL- Metallic or non metallic material in its basic form (i.e. sheet, bar, wire, powder, etc.), including forgings used to fabricate end use products.

REPAIRED MATERIAL- Non conforming material that has been subjected to a documented repair process approved by a MRB process.

REWORKED MATERIAL- Material that was non conforming, but has been subject to a documented process that restores all non conforming characteristics to the requirements in the contract, specification, drawing, or other approved product description without changing other characteristics of the item.

SPECIAL PROCESS- Those processes which modify or change the inherent physical, chemical, electrical or metallurgical properties of an item, or non-conventional methods which remove or deposit material on an item during or after fabrication which can not be fully evaluated by nondestructive means, or those used to maintain process control such as non destructive testing. These processes may require a demonstration of operator or equipment capability or proficiency and require special controls for monitoring per specification.

SUPPLIER – Sources (including distributors, warehouse, and supplier participants) other than PAC, which supply material, parts, processes, or services.

RETAILER/DISTRIBUTOR- Supplier that buys and resells products without modifying their conformity

QUALITY DOCUMENTS AND RECORDS – All types of documents and data related to activities described in this specification should be considered as quality documents.

2.1 Referenced Documents

Unless otherwise specified by PAC, and when they are applicable, the documents referred to in this document shall be taken into consideration at their issue in force at the date of the contract.
Document published by the ISO Standard ISO 9000 Quality management systems

Document published by SAE Aerospace– AS9100 Quality Management Systems – Aerospace -Requirements

Standard EN 9100 Model for quality assurance in design, development, production, installation and servicing.
Standard AS/EN 9120 Model for quality assurance applicable to stockist distributors.

SECTION 3
TITLE: Requirements for All Suppliers

3.1 Product Responsibilities of the Supplier
PRODUCTS
The supplier is solely responsible for satisfying all PAC Purchase Order requirements and ensuring that the products supplied, including those materials/parts that it may have to purchase or subcontract at whatever level are in compliance with the technical and quality requirements and any other requirements in the contract. The responsibility remains unchanged regardless if PAC has approved the supplier's system, procedures, work instructions, or have conducted inspection of products at supplier's facilities.

The supplier shall be responsible for obtaining all data and documents that are required or needed to fulfill all requirements and obligations of the PAC purchase order or procurement document.

Any documents provided by PAC to the supplier for recommendation or assistance, are measures intended to help the supplier make the product by allowing it to benefit from PAC's experience.

These measures shall not in any way diminish the supplier's responsibilities in terms of the final quality of the product.

CONFIDENTIALITY
If the supplier considers any manufacturing operations to be confidential, these shall be indicated to PAC before they are implemented and must be the subject of terms defined jointly by the supplier and PAC

COMMUNICATION
All records needed for qualification, processing, manufacturing, verification, and acceptance of the product shall be written in the English language.

3.1.2 Supplier surveillance
SURVEILLANCE BY PAC
PAC reserves the right to survey, or have a third party survey processes in the facilities of the supplier or the supplier's subcontractors, without that diminishing in any way whatsoever the supplier's responsibilities. This oversight may not be used by the supplier as proof of effective quality control and shall not discharge the supplier of its responsibility to supply a product conforming to requirements, and shall not prevent the product from being rejected in the future by PAC reserves the right to distribute the results of the above oversight partly or entirely to the other subsidiaries of PAC.

This surveillance covers:
The supplier's quality system, on PAC initiative and depending on the current purchase contracts,
the resources used in the performance of the contract, the procedures, measures taken to meet the requirements of this document,
the methods (human resources, equipment and processes) implemented to produce the products to check their conformity.

This surveillance may drive PAC to require corrective actions to the supplier (see paragraphs 4.14).

The supplier and its subcontractors, if any, shall give PAC representatives free access to the facilities and documents contributing to the creation, processing and distribution of the product. PAC representatives shall be given every facility to allow them to carry out their mission in its entirety. If the supplier is a stockist or a distributor, this oversight may be carried out on the premises of the suppliers that produced/manufactured the product.

PAC reserves the right to check the conformity of the supplier's record keeping system using traceability audits (searches for records about the products that are the subject of the contract).

PAC reserves the right to arrange periodic meetings with the supplier, the frequency of which shall be defined jointly.

Surveillance may include and not be limited to initial surveys to confirm that the supplier has the appropriate capability to supply the required product and to periodic audits of the suppliers system, products, and processes.

The supplier shall assure that access is granted to all records of manufacturing and inspection and other relevant documents as applicable to the product for surveillance visits by PAC or our customers/regulatory agencies.

The supplier shall make their inspection equipment available for use by PAC personnel for verification purposes. Supplier personnel shall also be made available for operation of such inspection equipment as needed and/or required.

SURVEILLANCE BY GOVERNMENT AGENCIES
The Government Agencies and/or FAA shall have the right to access and survey the supplier's facility and products distributed/manufactured by the supplier. They have a right to look at all stages in the product's manufacture on the supplier's premises and of those of its subcontractors.

Government Agencies.
In the case of military equipment, the Civil Aviation Safety Group (G.S.A.C), the FAA, in the case of commercial equipment, where appropriate, the foreign body delegated by one of the above agencies or by the customer of PAC

The supplier and any subcontractors it may employ shall give the mandated representatives of the Government Agencies free access to the facilities and documents contributing to the creation of the product

3.1.3 Acceptance of the Product
The supplier shall assure that the following conform to the contract:
The product and the supporting documents and when applicable any special process that requires certification. Products/materials/parts shall be considered acceptable when the products are received, reviewed and verified by PAC, that all the requirements specified in the purchase order or contract and any associated documents are in conformance with all applicable requirements.

Section 4

TITLE: General Quality System Requirements for all Suppliers

The supplier shall implement a quality system that as a minimum meets the requirements of ISO 9001 or AS9100/AS9120 as and when applicable and fulfills the requirements of this document, together with the specific order requirements. Additionally the supplier's quality system must incorporate and implement procedures, instructions, or programs to address incorporation of additional system requirements that may be imposed by PAC directly or indirectly by PAC's customers.

4.1 Management Responsibility

The supplier shall ensure that management has an overriding responsibility for Quality Assurance.

The supplier shall have a management representative, preferably independent of other functions, with total responsibility for all matters pertaining to quality assurance. Any changes to this nomination, significant change in the supplier's organization or change in premises must be communicated by the supplier to the PAC Quality Control Department.

Duties and responsibilities for personnel who supervise, perform, and verify work that affects the quality of the company's products and services shall be defined in the supplier's quality manual, or equivalent.

All personnel who have an influence on the quality of the work performed shall have the necessary competence and skills.

The supplier shall make sure its employees have the required physical capabilities and professional capacities.

4.2 Quality System

GENERAL

The supplier shall set up a quality system that takes into account the necessity of creating a hierarchy of quality assurance operations according to the functional importance of the items or the corresponding manufacturing conditions, as appropriate.

The quality system shall be documented, normally in the form of a Quality Control Manual. This documentation shall describe the sub-systems utilized to fulfill these system requirements, including exhibits of the various forms, tags, and other control documents. Instructions and procedures shall be dated and maintained current by authorized supplier personnel with a revision history maintained. The system and revisions may be subject to PAC review and subsequent approval/disapproval. The system documentation shall be available for PAC review and shall be forwarded to PAC upon request.

QUALITY ASSURANCE PLAN

If specified in the additional quality documents, the supplier shall maintain a quality assurance plan applicable to the product that is the subject of the contract.

If the resources used to produce the product must be moved to another plant/facility, the supplier shall draw up a quality plan to define and apply the measures necessary to maintain the quality of the product.

4.3. Purchase Order/Contract Review

The supplier shall have established procedures for contract review and the coordination of the associated activities.

The reviews shall ensure that:

The requirements are adequately defined and documented
Any requirements differing from those previously agreed upon are clarified and resolved
The requirements are capable of being met

Contract review shall be documented

Supplier exceptions to a specified PAC purchase order are not permitted without notification to PAC and PAC review and approval. If the supplier wishes to use alternate methods to fulfill the requirements this shall be made in writing to PAC quality or purchasing. The request shall detail the specific requirement and provide a detailed description of the proposed alternate method of satisfying that requirement.

4.4 Design control
If the product requires design activities, irrespective of whether these activities are carried out by the supplier or its subcontractors, the requirements of the ISO9100 standard and when the product is for aerospace end use the AS9100 standard shall apply.

DESIGN REVIEW
PAC reserves the right to participate in design reviews planned and held by the supplier. This section is only applicable for parts/product where the supplier is responsible for the design. Procedures shall be established to control and verify the design of products.

Design input requirements shall be identified and documented. Incomplete, ambiguous or conflicting requirements shall be resolved with those responsible for creating the drawing and applicable requirements.

Design, development, and verification activities shall be planned.
Organizational interfaces between different departments and groups shall be identified.

The supplier is responsible for obtaining needed standards, specifications, and documents not published by PAC

If the supplier proposes standards different from those specified by PAC, the supplier shall demonstrate their equivalence, which must be approved by PAC.

At appropriate stages of the design activity, formal documented reviews of the design results shall be planned and conducted. Participants at each design review shall include representatives from all concerned functions, as well as other specialist's personnel, as required. Records of such reviews shall be documented and filed.

Design output shall be documented and expressed in terms that can be verified and validated. Procedures shall be established for the approval and release of these documents.

Design verification to ensure that the requirements are met shall be performed by the calculation analysis, formal design reviews, qualifications tests, etc.

Design validation shall be performed, after successful design verification, to ensure that product conforms to defined user needs and/or requirements.

Procedures shall be established for the approval and release of all design changes. The need of eventual necessary re-verification shall be considered.

If the supplier wants to use alternate methods to fulfill requirements or alter a previously agreed to and accepted process, a written request shall be made to PAC for review and approval of the desired changes. The request shall identify the specification requirement and provide a detailed description of the current and the proposed method of satisfying the requirement.

4.5 Document and General Data Control
DOCUMENTAND DATA CONTROL
Supplier shall establish and maintain a system for the control of quality documents and records which are used to assure that articles supplied to PAC are processed per purchase order requirements, specification, and drawing requirements.

Supplier shall be responsible for obtaining applicable industry, customer, and government specifications from the respective sources. The supplier shall use the latest released issues of standards, drawings and specifications. Unless otherwise indicated on the PAC Purchase Order, new revisions to specifications shall be fully implemented continuously within a reasonable time period from the issue release date, yet the time period to implement a new revision shall not be longer than six months of the issue date of the document.

The approval and distribution of such documents controlling the quality of products and services shall follow established procedures. It shall be clearly defined which persons are authorized to accept and approve these documents.

The distribution shall be controlled in such a way that the correct issues of the documents are available to all personnel that can have an influence on the quality of products and/or services. Obsolete or non-current documents shall be promptly removed from all points of use, marked as such, and stored in a separate area from current documents.

Changes to documents shall be reviewed and accepted/approved by the same function that performed the original review/acceptance/approval. The receivers of documents shall be notified about the nature of changes in an appropriate way.

The revision history shall be traceable, as well as the effective date of the change.

A master list or equivalent document control procedure shall be established to identify the current revision of documents in order to preclude the use of obsolete documents.

Documents in poor condition or bearing unauthorized comments and annotations are considered to be invalid documents.

CHANGES IN DOCUMENTS AND DATA
When PAC modifies a document specified in the contract, the supplier shall notify PAC when that change has been applied to the product. The supplier shall provide for the identification and recording of any/all changes/revisions that are applicable to the product, applicable prints, specifications, design, and other criteria.

4.6 Purchasing
GENERAL
The supplier shall establish and maintain documented procedures to ensure purchased products conform to specified requirements.

This requirement also applies to products obtained from sources designated by PAC or its customers.

Procurement of products and processes from sources designated by PAC or our customers does not relieve the supplier from the responsibility to ensure that all specified requirements are complied with throughout the supply chain.

EVALUATION OF SUBCONTRACTORS

The supplier shall evaluate and select subcontractors on the basis of their ability to continuously meet subcontract requirements including the quality system and any specific requirements. This evaluation shall be performed prior to a purchase order is issued to a new subcontractor.

The supplier shall make sure that all purchases are made from approved subcontractors, and shall make available to PAC the up-dated list of its approved subcontractors and the corresponding approval files.

If specified in the additional quality documents, the supplier shall select subcontractors approved according to the conditions specified by PAC. If the subcontractor is a distributor, they must be approved by the manufacturer of the product purchased.

The supplier shall establish and document criteria for approval of subcontractors and define the type and extent of control exercised by the supplier over subcontractors.
The authority for the supplier to approve subcontractors can be subject to disapproval by PAC if the supplier doesn't have an effective system for control of subcontractors.

Only approved sources may be used for procurement of material/products or any work related to products ordered by PAC. The supplier shall ensure that customer approved special process sources are used by the supplier and all subcontractors as required by the purchase order or contract.

The supplier shall establish and maintain records of approved subcontractors. The records shall as a minimum identify; a) type and extent of approval, b) commodity, c) validity period, d) what the approval is based on (i.e. audit, mail out survey, etc.), e) the scope of the approval.

The supplier shall periodically survey its subcontractors for compliance with quality system and purchase order requirements. The survey of subcontractors shall be regularly scheduled by the supplier. The suppliers system for control of subcontractors shall also include routines for disapproval of subcontractors.

FUNCTIONAL TEST RESOURCES

Any functional test resources that the supplier plans to use in the operating procedure shall be subject to formal qualification by the supplier before they are implemented. The corresponding file shall be made available to PAC

If specified in the additional quality documents, PAC will pronounce the qualification of certain functional test resources. To do this, PAC shall base its judgment, where necessary, on:

- an examination of the qualification file provided by the supplier,
- a visit to the facilities,
- an examination of the test results,
- calibration/correlation tests that may be carried out at the request of, and as specified by PAC (these tests are intended to make sure the facility is correctly aligned in relation to a reference facility),
- the implementation and effectiveness of any corrective actions that may be requested.

The supplier shall draw up and apply the conditions for maintaining the qualification of the functional test resources.

LABORATORY TEST RESOURCES

The laboratory resources used for any tests specified by PAC shall be qualified before they are used. This qualification covers the tests to be performed

- By the supplier's laboratories,
- By those of its subcontractors.
- By independent laboratories.

If specified in the additional quality documents, PAC shall pronounce the qualification of the supplier or its subcontractors for the laboratory tests. To do this, PAC shall base its judgment, where necessary, on.

-a visit to the facilities

-the performing of crossed-tests between the PAC laboratory and the laboratory responsible for the test

-the implementation and effectiveness of any corrective actions that may be requested.

The supplier shall draw up and apply the conditions for maintaining the qualification of the laboratory test resources.

PURCHASING DATA

Purchasing or procurement documents shall contain data clearly describing the product or service ordered, including: a) Type, class, grade, or other precise identification, b) positive identification such as name and part number, c) quality system requirements, d) required delivery documentation, e) applicable issues of drawings, specifications, process requirements, inspection instructions and other relevant technical data to be applied, f) requirements for approval or qualification of product, procedures, process equipment, and personnel.
The supplier shall make all the applicable requirements of the contract, including the associated documents, known to its subcontractors and make sure they are applied.

The supplier shall review and approve purchasing/procurement documents for adequacy of specified requirements prior to release. Responsible authorities for this review and approval shall be identified.

Note: When the supplier uses subcontractors the applicable requirement this document also applies to the subcontractors. It is the responsibility of the supplier to flow down the requirements of this document to their respective subcontractors.

VERIFICATION OF THE PURCHASED PRODUCT

The supplier shall establish and implement a program for verification of purchased and released product

The supplier shall provide every opportunity for PAC to carry out any quality operation deemed necessary on subcontractors' premises, in liaison with the supplier.

If verification is performed at the subcontractor's premises the supplier shall specify verification arrangements and the method of product release in the purchasing documents.

The supplier shall include provisions for subcontractors to permit PAC or its customers and regulatory agencies the right to enter any of their facilities to determine and verify the quality of the contracted work.

If nonconforming purchased products/parts are discovered, activities shall immediately be initiated to investigate the cause and apply corrective and preventative action.

4.7 Control of PAC Supplied Product
GENERAL
Upon receipt inspect for identification, general condition, completeness, and proper quantity, type, size, or grade. Perform functional testing, where required or necessary, prior to further processing or installation, to ensure conformance to applicable specifications, print, process or purchase order requirements.

If the product is determined to be acceptable, the supplier shall provide for identification, protection, periodic inspections and controls necessary to ensure against damage or deterioration during handling and storage.

Damaged, malfunctioning, or other unacceptable items shall be reported to PAC within a reasonable period of time. Report shall be made to a PAC quality control representative. Details of the concern shall be comprehensive.

For measuring and test equipment, the calibration status shall be maintained and verified periodically.

In the case of products with a use-by date, the supplier shall check that the product's use-by date is compatible with the date on which it will be used by the supplier and, if applicable, with the duration of the validity period requested for the product that is the subject of the contract.

If the product supplied by PAC is subject to a restriction of use, the supplier shall have this restriction reflected in the delivery documentation of the finished product, and paragraph 4.13 shall apply.

4.8 Product Identification and traceability
GENERAL
The supplier shall maintain written procedures for identifying the product using adequate means, from procurement, reception manufacture, to delivery, and installation, as well as during all the production phases.

These procedures shall provide:

•the level of traceability required by the product's definition or by any other contractual documents,
•the level of traceability determined by the supplier

If specified in the additional quality documents, PAC will provide the product individual or lot numbers. If the numbering of the items has been changed by the supplier, the declaration of conformity shall mention the original PAC numbers corresponding to the numbers given by the supplier.

4.9 Process Control
GENERAL
Process or manufacturing control shall be controlled by means of documented work instructions which include: a) definition of the manufacturing sequence, b) definition of production methods and processes, c) criteria for determination of the quality of the end product produced, d) suitable or appropriate production equipment, e) definition of any environment controls that are necessary.

The quality requirements shall be defined in written specifications or by registered and approved inspection standards.

Necessary inspection operations shall be planned for production operations that have a direct influence on the final quality of the product.

A system shall be established to control all Critical Operations which are part of production or inspection or those operations that require special protection (welding, brazing, heat treatment, plating, penetrant testing, radiographic testing, etc.)

The supplier shall ensure that equipment, tools, and fixtures are subject to periodic and preventative maintenance and inspections to assure of product conformance.

Key characteristics:
Critical (+) characteristics, major (-) characteristics and significant (KEY) characteristics will be identified on the PAC purchase order or on the applicable blueprint or drawing. These characteristics shall be clearly identified and documented on all manufacturing and inspection documents.

If specified or required in the additional quality documents, the supplier shall get the industrial process formally approved. The industrial substantiation file or the qualification file shall be certified by the supplier and shall be submitted to PAC for acceptance. This does not relieve the supplier from selecting and monitoring characteristics that are important to the control of the supplier's process.

The software programs used by the supplier to fulfill the contract shall meet any additional specified requirements. The supplier shall maintain a documented procedure/instruction for control of any software used in the manufacture of products purchased by PAC

RECORDS AND FILES
The supplier shall keep all records that are applicable to the contract/purchase order available for inspection by PAC.

All entries in product documentation shall be made using a permanent method. No erasures are permitted unless approved by PAC. Corrections shall be made by drawing a line over the error and then entering the correct information adjacent to the erroneous data. Each correction shall be initialed and dated by the person making the entry.

SPECIAL PROCESSES
If specified in the additional quality documents, the supplier shall submit the qualification programs for those processes it has classified as "special" and any changes to PAC for approval.

If specified in the quality documents, PAC shall pronounce the qualification of the supplier or of its subcontractors for these processes (with any restrictions). To do this, PAC shall base its judgment, where necessary, on;

- an examination of the qualification file submitted by the supplier,
- a visit to the facilities,
- an examination of the results on representative test pieces or specimens or first articles,
- the implementation and effectiveness of any corrective actions that may be requested.

The supplier has the responsibility to acquire and maintain approval for special processes and to assure that all suppliers and subcontractors have the approvals required for any applicable special processes.

PAC reserves the right to audit and review special processes at the supplier and their subcontractors facilities. The review may be subject to disapproval of the process by PAC. If disapproval occurs, the supplier shall be required to initiate a preventative and corrective action plan and submit the plan to PAC for review and approval.

4.10 Inspection and Testing
GENERAL
The supplier shall inform PAC of any delegation of inspection or test operations it may have to perform.

If specified in the contract, the verifications necessary for the key check points (operations after which certain checks become difficult if not impossible) shall be carried out under the control of an authority defined by PAC the only entity authorized to permit the starting of subsequent operations.

RECEIVING INSPECTION AND TESTING
All incoming products shall be withheld from use until it has been confirmed that all specified requirements have been met. The type and extent or inspection at receiving shall be monitored and by documented instructions. The corresponding reports shall include all the results, with figures, of the requested tests and inspections.

If specified in the additional quality documents, a copy of the records shall be supplied to PAC

IN-PROCESS INSPECTION AND TESTING
In-process inspection and testing of products shall be performed in accordance with documented instructions.

Qualified personnel shall carry out inspection details. The results shall be documented in such a way that the data may be used for final acceptance of the product.

The inspection extent shall be related to the capability of the production process and to the established process control.

FINAL INSPECTION
Final inspection shall be carried out in accordance with documented instructions. It shall verify that all specified requirements are met and that all documentation is correct.

FIRST ARTICLE INSPECTION
When required and appropriate for the product, a first-article inspection shall be carried out and the results formally recorded by the supplier in accordance with the PAC additional quality document requirements or systems.

PROOF OF CONFORMITY
The supplier shall provide PAC with each shipment a certificate of test results per the applicable specification and when necessary or specified a certificate of conformance that states the product conformance to our contractual requirements.

4.11 Control of inspection, measuring, and test equipment
GENERAL
The requirements of this section apply to the supplier and any manufacturing resources used by the supplier as inspection resources.

All the technical data relating to inspection, measuring, and test equipment shall be kept available for inspection by PAC.

The supplier's measurement and test equipment shall meet the requirements of the latest revision of ISO 10012-1, ISO17025 or ANSI/NCSL Z540 as applicable or any OEM standard as required by contract.

The planning of the production shall include identification of the measurements to be made and the selection of equipment with regard to the accuracy required to determine conformance of the product.

Stated reliability goals, accuracy ratios and significant out of tolerance condition criteria must be established.

Significant out of tolerance conditions are defined by PAC as (M&TE) out-of-tolerance condition exceeding 25% of the product tolerance. These conditions require documented review of impact on quality and notification to PAC.

CONTROL PROCEDURES
Any items of equipment rejected shall be isolated and suitably labeled.

4.12 Inspection and test status
GENERAL
The inspection and test status of products shall be identified in a suitable way to clearly indicate the conformance or nonconformance of requirements with regard to the inspection and tests performed.

When required by PAC, final inspection of a product shall be reflected by an inspection stamp, to be affixed next to the item's identification (on the product, on a label, etc.). If actual parts are stamped the stamp and ink used must be harmless to the part, and offer sufficient adhesion and wear resistance to assure traceability.

INSPECTION STAMPS
The list of the inspection stamps used by the supplier and its subcontractors and the list of the individuals authorized to sign release documents shall be kept available for review by PAC

Withdrawn stamps must not be re-used within twelve months.

4.13 Control of nonconforming material
REVIEW AND DISPOSITION OF NONCONFORMING PRODUCT
Written procedures shall be established to preclude products that do not conform to specified requirements to be used or delivered. The procedures shall include identification, segregation, documentation, evaluation and disposition of the nonconforming products. All functions concerned shall be notified in order that the corrective action can be promptly initiated.

A product subject to a request being examined or refused by PAC cannot be delivered by the supplier without the prior written agreement of PAC. A nonconformance report that details the full details of all departures from specified requirements shall be completed and forwarded to PAC Quality Control Department for review and ultimate disposition as to whether the product can be accepted. Additionally a statement of the cause of the non conformance and preventative action to correct any recurrence.
Products that have been rejected or are subject to restrictions of use (concession with restriction or special disposal) or before the approval of any element of quality assurance, and sent to PAC at the company's request or with its agreement, shall be:
-separated from the other products, clearly identified, the subject of a separate delivery with separate supporting documents, in order to avoid any confusion and any error in subsequent assignment during reception at PAC. In this case, the delivery note and the declaration of conformity shall bear the statement "REJECTED" or "RESTRICTION OF USE" in large red letters.

4.14 Corrective and preventative actions
GENERAL

Procedure shall be established in order to –

- systematically analyze processed, work operations, instructions, records, etc. to detect and eliminate potential causes of nonconforming products
- investigate the cause of nonconforming products and implement preventative and corrective actions necessary to eliminate recurrence
- verify that implemented preventative and corrective actions have been proven effective.

Records of the corrective and preventive actions taken shall be kept available for review.
The PAC claims sent to the supplier (CAR) shall be handled by the supplier in accordance with the PAC additional quality documents.

4.15 Handling, storage, packaging, preservation and delivery

HANDLING

Handling methods that prevent damage and deterioration shall be used.

STORAGE

Storage areas and stock areas shall be secured and kept in a condition to prevent damage or deterioration of products pending use or delivery.

PACKAGING

Items shall be packaged by the supplier to a standard, which provides protection against damage, deterioration, corrosion and other risks or elements during transportation to PAC.
Where a specific packaging requirement is not detailed in the Purchase Order, the Supplier shall establish procedures for suitably controlling preservation, packaging, and shipping and shall apply these procedures internally and to any subsequent subcontractors that the supplier may utilize.
Hazardous materials shall be packaged in accordance with US government regulations.

DELIVERY

The product and its supporting documents shall be provided with protection until they are delivered to their destination.

It shall be possible to access the supporting documents without breaking into the product's packaging.
Each homogeneous batch of the product shall be accompanied by the following documents:
a packing list, certifications that detail the chemical and physical property testing results of the product and a certificate of conformance. The product certification of certificate of conformance shall include the following information as a minimum:

- PAC Purchase order number
- Date of the delivery
- Raw material certifications to the applicable specification used to produce the part
- The quantity by lot for each delivery
- Part or assembly number and applicable revision letter
- Heat, lot, batch, or other identifying number. For lot numbers that are generated by the supplier, the lot number must be traceable back to the original raw material heat number and each part identified and segregated as such.
- Heat treat cycle as required or necessary
- Conformity declaration with a signature and date of an authorized person of the supplier's quality control organization.
- The reference of the PAC claims document (CAR), if it is a re-delivery after a return to the supplier
- The references of any pre-release prior to completion of process, inspection or testing of the product
- a copy of any approved concessions' for all cases of restriction of use or special disposal, on prior request from PAC in other cases,

- a copy of the PAC delivery agreement when applicable

Note: the contract or the definition may, as the case may be, call for:
- an airworthiness certificate,
- an equipment registration sheet,
- an individual inspection sheet,
- an acceptance test report,
- a routing log.

The contract may ask for the stamp of the Government Agency's representative on certain documents.

All product delivered shall be correctly identified.

4.16. Control of quality records
GENERAL
Procedures shall be established for identification, collection, indexing, filing, and disposition of quality records pertaining to products/parts purchased from the supplier by PAC .
The supplier shall archive their own traceability documents and those of its subcontractors.

Quality documents shall be made immediately available to PAC upon request.

Quality records shall be legible and demonstrate evidence that the required quality has been achieved.
The quality records shall be stored and maintained in a manner that allows for ready access and retrieval. The environment of the storage areas shall be such as to prevent damage to or loss of the records.

If the documents certifying the conformity of the product are lost or cannot be accessed, PAC shall be notified immediately. PAC reserves the rights to require that the supplier use all feasible means and resources to recover required documentation. If documentation can not be retrieved then testing or other verification methods to prove conformance of the product must be performed and the expense of such testing and verification shall be the responsibility of the supplier.

The supplier shall retain records of all material/product, parts, and services purchased for use or fulfillment of PAC purchase orders. Those records shall be available for review and inspection by PAC representatives.
Retention times of quality records shall be established and documented by a procedure.

Minimum retention period requirements
The supplier shall retain manufacturing, inspection documentation (including software) and any such record or documentation relating to the purchased product from PAC All documentation shall be maintained in a manner that satisfies traceability requirements for the applicable product.
Retention of records shall be as follows;
- Serialized rotating parts such as discs, spools, spacers, shafts, seals torque rings etc. used in low and high pressure rotating assemblies including connecting shafts – Must be maintained indefinitely.
- Serialized static parts 40 years
- Non serialized articles/products 10 years

Any and all entries made on any documents pertaining to the fulfillment of the PAC purchase order must be made be using a permanent method such as a blue or black ink ballpoint pen. No erasures are permitted for errors or amendments. Instead draw a line through the error and then enter the correct information adjacent to the incorrect entry. Each correction shall be initialed and dated by the person the person making or correcting the entry.

Quality documents that are maintained by electronic means must be controlled under a documented backup procedure.

If the suppliers operations cease to exist all product and quality related documents and records that have not exceeded the retention periods shall be forwarded to PAC purchasing along with, as applicable, any approved inspection standards utilized for comparison inspection.

4.17 Internal quality audits
GENERAL
The supplier shall perform internal audits that cover all aspects of this document and their quality system.
A documented procedure that details the audit criteria and an audit schedule shall be maintained.
The supplier's internal quality audits shall also cover the products accepted by its inspection personnel.
The results of audits shall be documented and brought to the attention of the personnel having responsibility in the area audited. The management personnel responsible for the area shall take necessary actions to correct the deficiencies found by the audit and verify the results of follow up actions taken to correct the deficiencies.
The supplier shall keep the program of internal audits and the corresponding results available for review by PAC.
Audits shall be carried out by personnel that are independent of the function being audited

4.18 Training
GENERAL
Procedures shall be established to identify the education and training needs and to ensure that the associates have the competence necessary to perform the work in a manner that will achieve the desired and needed quality.

Persons performing critical production and inspection operations shall be qualified. The qualification shall be based on appropriate education training and experience. It shall include formal examination and certification when required.

NDT operators and welders must be certified to the requirements of any applicable referenced specification that is pertinent to the part.

In the case of special processes for which a formal qualification of the operators is specified (non-destructive testing, welding, assembly, etc.), the methods used to award that qualification must be accepted by PAC
PAC reserves the right to review the supplier training system to ascertain, if the required conditions for the initial training, skills maintenance, and the qualification of the supplier's personnel are effectively in place and applied.

4.19 Servicing
GENERAL

Products that, after their reception by PAC, cause an incident during use, have to be replaced prematurely or do not work correctly shall be subjected to examination under the responsibility of the quality department of PAC.
PAC reserves the right to ask the supplier to make a review or examination, in which case the methods used shall confidential between the supplier, PAC and, where appropriate, the Government Agencies, to;

- determine, after reviewing of data, the causes of the incident
- take necessary actions to eliminate the defect in the items being supplied/produced
- maintain the delivered product in service
- define the methods for applying the warranty claims

4.20. Statistical Techniques

GENERAL

When necessary, required, or specified by PAC the supplier shall implement and maintain a software quality assurance program. Procedures and instructions for software use shall be established.

Software used by the supplier to generate, control, inspect, or record product characteristics shall be developed, tested and approved according to written procedures. Performed testing shall be documented. Procedures and instructions for software configuration control back up and traceability shall be documented.