

## CAD ENTERPRISES, INC.

**SUPPLIER QUALITY REQUIREMENTS**

The requirements of these clauses become an integral part of the Purchase Order (P.O.) to the extent specified therein. Changes, additions, or deletions to the invoked quality clauses must be made by purchase order revision. **The Standard Requirements clause 01 (below) and the requirements apply in their entirety to ALL purchase orders** (see end of this document to locate a copy) unless excluded, modified or superseded by an applicable drawing/specification requirement or another designated quality clause specified in the purchase order. Contact your CAD Enterprises Buyer if a clause appears in a purchase order that no longer appears in this document or is identified as not currently in use.

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**01. STANDARD REQUIREMENTS**

**a) Applicability.** Unless otherwise contractually specified, any documents that are applicable (including those referenced herein) shall be the latest revision released by CAD Enterprises. Suppliers are responsible for ensuring they have the correct revisions. Seller shall flow down all applicable quality requirements, including customer requirements, to their sub-tier sources. The inclusion of a product/process on a Qualified Products List, Approved Supplier List or compliance with the requirements of these clauses does not relieve the Seller of the responsibility for furnishing materials and services which fully comply with applicable drawing and specification requirements.

**b) Quality Management System (AS9100).** The Supplier shall maintain a Quality Management System (QMS) certified to AS9100 by an accredited Certification Body (CB) found on the <https://www.sae.org/oasis> website. For stockists/distributors, calibration suppliers, laboratories, special process suppliers, software suppliers, and Commercial-Off-The-Shelf (COTS) suppliers, alternative QMS requirements to AS9100 are listed in PH-SQRM and is available from your CAD Enterprises Buyer. These preceding QMS requirements are in effect for such supplier types, unless ISO 9001 or other alternative (i.e., clause 02 or 03) is specified in the P.O. or approved in writing by the Buyer.

**c) Buyer/Seller Communications.** All written communications between the Seller and the Buyer shall be in the English language. In cases where the Seller maintains copies in their native language as well as in English and there is a conflict, the English language document shall take precedence.

**d) Inspection/Audit Right Reserved.** All work performed shall be subject to inspection, surveillance, and test by the Buyer, the customer of the Buyer, the U.S. Government, the FAA, and any other applicable regulatory agency at all reasonable times; including the period of performance, and at all places, including the plant or plants of the Seller or that of any sub-tier supplier engaged in the performance of work to fulfill this purchase order. The same parties reserve the right to audit the Seller's and sub-tier supplier records and systems.

**e) Approved Abrasives.** The recommended abrasive materials are silicon carbides, tungsten carbides, boron carbides, and diamond. Abrasives which are NOT permitted include, but are not limited to silicon dioxide (SiO<sub>2</sub>), glass bead or other quartz/silica oxide materials, aluminum oxide, aluminum zirconia, garnet, almandite, and nitrides. Non-permitted abrasives listed herein may be used if specifically allowed per the drawing or when either a minimum of 0.005" of material is subsequently removed by non-abrasive machining methods, or when supplier is given written approval by the Buyer. Contact the Buyer for additional information.

**f) Measurement and Test Equipment (M&TE).** Measurement management systems shall meet the requirements of ISO 10012 for measurement processes and measuring equipment. The scope is to include all such M&TE, including employee-owned gages, as well as gages on loan. Guidelines for the determination of calibration intervals of measuring instruments may be found in document OIML D10 / ILAC-G24 (available at [www.ilac.org](http://www.ilac.org)) which is referenced in ISO 10012. The M&TE accuracy ratio for single purpose measurement equipment is minimally 10:1. The M&TE accuracy ratio for standard measurement equipment is minimally 4:1 (i.e., the collective uncertainty shall not exceed 25% of the acceptable tolerance). If these requirements are unattainable under certain situations, the CAD Enterprises Buyer must be notified. Any exceptions must be supported by data and/or studies to assure effective control of product integrity.

Any use of tooling, checking aids, or error-proofing devices as an inspection method requires calibration/validation and an independent method of verification of accuracy and effectiveness prior to use. Any non-commercial test software requires an independent method of verification of accuracy prior to use.

Unless otherwise specified or approved, single element gaging shall be used to verify thread pitch diameters and minimum material for Class 3 threads.

**g) Supplier Deviation Request.** The Supplier may not make any changes or substitutions to any product, process, supplier, manufacturing facility location, or services required by the contract, drawing, specification, standard, or other applicable document without prior written authorization by the Buyer. The Supplier should request approval of a proposed deviation to a product, process, specification or quality requirement related to a purchase order. The Supplier Deviation is to be approved prior to purchase order acceptance and product being produced. For the evaluation of nonconforming material produced, see section below titled, Non-Conforming Material.

**h) Non-Conforming Material.** In addition to the requirements specified, if the Supplier chooses to request a review of nonconforming product, the Supplier shall contact the Buyer in writing for disposition. Non-conforming material reported to the Buyer and submitted for disposition shall be held at the supplier's facility pending disposition. The Supplier is not authorized to disposition nonconforming product as "Use-As-Is" or perform any "repair" of parts unless approved by the Buyer via a signed written statement. When shipping parts after having received a signed statement from CAD Enterprises, the statement shall be referenced on supplier shipping documents and accompany the parts. The supplier shall adequately identify and correlate each part to the applicable item on the Non-Conforming Material document.

**i) Preservation and Protection of Products.** Unless otherwise specified, cleaning methods for formed or machined parts shall include a rinsing practice that uses soft water, de-ionized water or distilled water to avoid calcium/magnesium water spot residuals that may have a negative effect on braze alloy wetting and flow. The use of municipal water, city water or tap water is not permitted as rinse water for CAD Enterprises products unless specifically approved.

Individual part numbers shall be packaged in separate containers, unless they are being delivered as a kit. Packaging shall take into consideration the possible need for parts to be unpacked and repacked with the same packaging material/container. When individual parts are packaged in trays, the packaging shall preclude parts from falling out of the tray. The use of newsprint and glassine paper bags is prohibited. Clean plugs or caps made of plastic (not rubber) and of sufficient flexibility so that cracking will not occur should be used to prevent the ingress of foreign objects and contamination into parts with small inlet holes and orifices. Unless authorized by the Buyer, the following materials shall not be used in direct contact with any part: adhesive tape, PVC film (especially prohibited in contact with titanium alloys), corrugated paper/board, or any other type of fibrous material. Molded foam polystyrene in the form of loose fill material (i.e., 'popcorn') and shredded paper are not acceptable dunnage. The use of staples should be avoided entirely. Staples would be acceptable for the bottoms of external shipping containers in which one or more boxes or bags of parts are shipped. Whenever possible, staples should not seal the top of a box; instead, fiberglass reinforced sealing tape (or equivalent) is preferred. Additionally, staples are not acceptable for any container that is in direct contact with parts. For final containers weighing more than five (5) pounds, double or triple-walled corrugated boxes, board-framed containers, rigid cartons (card or plastic), or wood cases are required.

**j) Certificate of Conformance.** With each delivery of products against a purchase order, the Supplier shall include on the packing list/shipper or on a separate attached document, a written statement titled "Certificate of Conformance" which is worded substantially as follows: "This is to certify that all products or services delivered on this Contract (number) and packing list/shipper (number) are in compliance with all requirements of the Contract. Objective evidence to support this certification will be made available to the Buyer for review upon request." Include: Company Name; Address; Title of Authorized Individual; Signature/Stamp; and Date.

**k) Certification and Test Report Signatures.** All certifications and test reports shall include the title and acceptable signature of the authorizing company official. The following methods are the approved and acceptable methods for applying signatures:

- actual signatures rendered in black/blue ink by the signing official
- controlled facsimiles of actual signatures, i.e., rubber stamps
- controlled machine or computer graphics generated facsimile signatures
- controlled quality or inspection stamps
- controlled electronic signatures

When stamps are used in lieu of signatures, such stamps shall clearly identify the issuing organization and the authorized individual to whom the stamp is assigned. The issue, use and control of such stamps shall be governed by documented procedures in the Supplier's Quality Management System.

**l) Record Retention and Documentation.** Unless otherwise required by the Purchase Order and in addition to the requirements specified here, the supplier shall deliver records requested by CAD Enterprises within 24 hours and have a documented procedure that defines the method for controlling records that are created by and/or retained by the supplier. As a minimum, a Quality Record Bundle shall be maintained consisting of, as applicable: packing list, certificate of conformance, certification of materials and processes, inspection reports, first article, test reports, raw material test certifications, special process certification, routers/travelers/work instructions, shipping memos, and any related non-conformance documents. Records and data entry on records shall be in ink or permanent marking. No erasure or "white-out" permitted. Corrections shall be recorded, dated, and signed by authorized persons with the method used permitting the original entry to be legible (i.e., with a single line struck through). Where used, electronic data storage must be capable of maintaining the data integrity for the total required retention period and have adequate back-up methods.

**m) Material Safety Data Sheets.** Material Safety Data Sheets shall be included with each shipment of materials or chemicals, where applicable.

**n) Delivery of Suspect Discrepant Product.** In addition to the requirements specified here, should the Supplier discover there is sufficient reason to suspect defective product has been delivered to CAD Enterprises, notification of the known facts shall be made to the Buyer within twenty-four (24) hours of discovery. A formal disclosure letter to the Buyer shall follow within (5) days.

**o) Prevention, Detection & Removal of Foreign Objects (FOD).** The supplier must have a manufacturing/quality procedure and demonstrated practice for the prevention, detection and removal of foreign objects. Unless specified otherwise, products are to be received clean, free of films, oil, and debris both internal and exterior surfaces, including containers that the materials are in direct contact with. Certain parts by nature of their design have blind areas or internal passageways where foreign particles could be trapped. Parts are to be free of burrs, sharp edges (unless specified by drawing) and foreign debris. Debris is defined as residual materials left by the manufacturing process (i.e., metal chips, shavings, tooling remnants, oils, films, etc.) as well as contamination of an unknown kind or source.

**p) Vision Requirements.** Supplier personnel performing the functions described below shall receive eye examinations by trained personnel designated by the organizations Responsible NDT Level 3 (as applicable) or by qualified medical personnel, who can provide an optometric examination in accordance with relevant testing standards.

Visual acuity testing shall be administered annually. All levels are for at least one eye, natural or corrected, near vision:

- o For operators, inspection/test personnel, engineers and others conducting product evaluation and acceptance activities, including in-process checks where such data is used for final product acceptance, Snellen 14/18 or better (20/25 or better, Jaeger No. 2 at 14 inches; Ortho-Rater 8, or equivalent).
- o For visual weld inspection, 20/30 or better and shall be able to read the Jaeger No. 2 eye chart at 16 in., or latest per AWS D17.1.
- o For Non-Destructive Test (NDT) inspection personnel, the ability to read 20/25 Snellen Test Chart at 16 +/- 1 inch distance or latest per NAS 410.

Color perception testing shall be administered at least one time:

- o All types of inspection/NDT personnel shall be able to differentiate among colors used in the methods for which the individual is being qualified.
- o For NDT personnel, testing of color perception shall be administered prior to certification and every five (5) years.

**q) Software Requirements.** In addition to the requirements specified here, non-deliverable software used in the manufacturing, inspection and testing of delivered product, or in the qualification or acceptance of product, shall be controlled by the Supplier. All coding guidelines and approvals required to release or revise the software shall be identified and documented. Objective evidence of software performance (validation and verification) is required prior to implementation of the software for production use. Software modification shall not be made without authorized supplier designee re-approval prior to production use. Software used to verify part-specific quantitative values requires an independent method of validation and correlation of the two sets of results (i.e., layout of CMM automated inspection programs). Proprietary software shall be cataloged and stored in a location that is controlled and restricted to appropriate personnel. Backup and recovery systems shall be established.

**r) Part Marking.** Parts shall be marked in accordance with the engineering drawing or applicable specification. In the event no part marking is specified, the Supplier shall record the part number, part name, date of manufacture (or date code), and control number (i.e., serial number, lot/batch number, heat lot number, work order number) for all delivered articles, and either attach a tag to the parts

or mark the individual bags and/or container, as applicable. Such information must be traceable to supplier's build documents.

**s)PRI / Nadcap Accreditation.** Nadcap is a global aerospace and defense contractor's cooperative to coordinate industry-wide standards for special processes and products. Through the Performance Review Institute (PRI), Nadcap provides independent certification of special manufacturing processes. All aerospace/military suppliers and their sub-tier sources performing chemical processing, coatings, heat treating, materials testing, nondestructive testing, welding, nonconventional machining (e.g., EDM) and surface enhancement shall be Nadcap accredited by PRI, unless specifically waived in writing by the Buyer. Special process suppliers are listed in the CAD Enterprises Approved Supplier List (ASL). CAD Enterprises ASL Suppliers are required to flow down this requirement and use only Nadcap accredited sub-tier suppliers when contracting for special processes.

**t) Counterfeit Parts Prevention.** To prevent the inadvertent use of counterfeit parts and materials all fasteners and/or electrical, electronic and electro-mechanical parts delivered and/or used in the manufacture of deliverable products shall be from the Original Component Manufacturer (OCM)/ Original Equipment Manufacturer (OEM) or their franchised dealer or an authorized distributor chain. Parts shall not be used or reclaimed and misrepresented as new. Parts shall not be acquired from independent distributors or brokers unless specifically authorized in writing by the buyer. The supplier shall flow down this requirement to sub-tier suppliers.

***In addition, the following requirements apply whenever these numerical codes are specified in the purchase order:***

## **QUALITY SYSTEM REQUIREMENT**

Note: Certification to AS9100 (or designated alternative according to supplier type) is the requirement per clause 01(b) unless one of the following is specified:

**2. Quality Management System (ISO 9001).** As a minimum, the supplier's quality system shall be certified by an accredited Certification Body (CB) to the requirements of the ISO 9001 standard. Refer to the International Accreditation Forum ([www.iaf.nu](http://www.iaf.nu)) for IAF Members; then, see the Certification Bodies found under each respective Accreditation Bodies' website. For suppliers of aerospace/military products, the remaining supplemental aerospace requirements contained in this document are still in effect.

**3. Quality / Inspection System (Basic).** Supplier shall implement and maintain a sufficiently documented Basic Quality/Inspection System which addresses at minimum, to a level of detail appropriate for the organization, the elements of: management responsibility for quality, contract review, control of purchasing, material control, control of production and service, change management, control of nonconforming product, document control, control of measurement and test equipment, inspection, corrective and preventive action, preparation for delivery and record retention. Initial approval of the supplier's quality/inspection system is required and periodic surveillance may be performed by a CAD Enterprises representative.

## **SOURCE VERIFICATION**

**4. Source Verification at the Supplier.** Inspection by CAD Enterprises at the supplier prior to shipment is required.

**07. Government Source Inspection.** U.S. Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify and furnish a copy to the Government Representative who normally services your plant so that appropriate planning for Government inspection can be accomplished. Otherwise, contact your nearest Defense Contract Management Agency (DCMA) office. In the event a representative or office cannot be located, notify your Buyer immediately.

## CERTIFICATION, INSPECTION & TEST REPORTS

**8. Functional Test Report.** Supplier shall furnish one copy of test results (data sheet) for each functional test performed on items in this order.

**9. Dimensional Inspection Certification.** Submit with each manufactured lot, a certification referencing purchase order no., part number, revision and worded as follows: "Detail Inspection reports covering all dimensions, diameters, contours, surfaces, inspection processes, etc., which due to assembly for finished operations performed by the Supplier, cannot be reinspected by the Buyer, are on file, and copies of such reports will be furnished to the Buyer on demand."

**10. Certificate of Conformance** The Supplier is responsible for the integrity of the certification document that is provided. The Supplier shall provide with each shipment a completed 'Certificate of Conformance.' All raw material specifications noted on the drawing(s) shall be certified individually, along with raw material sources, heat lots, etc. on a 'Certificate of Materials and Processes.' Each special process specification used in the component manufacture and its corresponding approved metallurgical laboratory number (MCL) shall also be listed along with the company performing the special process. Distributors supplying MS, NAS, MIL, etc. type hardware, are required to assure compliance for the material, dimensional, and process specification requirements. In addition, distributors are required to adhere to specialty metals DFARS clause requirements, when specified.

**11. First Article Inspection Report (FAIR) – AS9102.** The Supplier shall prepare and maintain a FAIR in accordance with AS9102 requirements. Each full FAIR (or partial, when applicable) and accompanying documents are to be sent to the Buyer one (1) week prior to the first lot shipment. No product shall be shipped until either the FAIR has been approved by CAD Ent. or the P.O. is revised to authorize advanced shipment. The "bubbling/ballooning" and highlighting of the part drawing features and field notes is performed at the Supplier. The customer option noted in column 14 of Form 3, per AS9102, is to be amended as follows to include Inspection Plan information. Suppliers must:

- Add column 14, titled 'Production Method of Inspection'
- Add column 15, titled 'Capability Study or Cpk Number'
- Add column 16, titled 'AQL'

The following documents, as a minimum, must be submitted for review and approval:

- FAIR (submitted in electronic format, .xls version preferred)
- Legible "bubble/balloon"/highlighted drawing (electronic format)
- Supporting process control documents
- Non-traditional gage drawing/documentation, if applicable.

The FAIR is frozen as approved by the Buyer. Any subsequent changes shall not be implemented until approved by the Buyer.

**12. First Article Inspection Report (FAIR) –CAD Enterprises**  
The supplier shall obtain Buyer approval of a first production article prior to delivery of the first production shipment of each part number.

**13. Tagged First Article.** Identify and tag one (1) part upon which the first article was performed and send to CAD Enterprises with a copy of the required First Article Inspection Report.

**16. Material Test Sample for Heat Treated Parts.** For hardened parts, submit a representative sample of the raw material/finished part, along with the sample test results, with the first shipment of each heat treat lot. All such submitted samples shall be supplied in the same heat treated condition as the parts

**17. Supplier Inspection Report.** A final inspection report, which includes all drawing and/or specification dimensions, as well as functional performance test results (i.e., flow, spray angle, etc.), shall be generated for each lot of hardware product provided against this order. Use of the supplier's own final inspection report is acceptable.

**21. Production Part Approval Process (PPAP).** The supplier shall meet the requirements as specified and deliver the required documents to obtain Production Part Approval prior to shipment of products defined by the purchase order.

**22. Process Records.** Supplier shall furnish the following records applicable to products on this order: Process Control Charts, Furnace Charts and Inspection Results.

**23. Preference for Domestic Specialty Metals.** Compliance to DFAR Supplement 252.225-7014 is required when providing any items containing specialty metals as defined therein. Specialty metals must be melted in the United States, or a qualifying country. Suppliers must flow this requirement down to all sub-tier suppliers. The country of melt must be identified on the certification.

## AGE-CONTROL PRODUCT

**26. Age-Controlled and Limited Shelf-Life Material.** With each delivery of material, parts, or assemblies that have a specified limited shelf-life, the Supplier shall furnish data that shows: (a) the cure or manufacture date (e.g., "1Q99"), (b) expiration date or shelf-life, (c) lot or batch number, and when applicable any special handling or storage requirements. For all shelf-life limited materials or products delivered to CAD Enterprises, the remaining shelf-life shall be a minimum of 75% of the total shelf-life for the material. In addition, for elastomeric material, suppliers must meet the requirements of ARP5316, titled 'Storage of Elastomeric Seals and Seal Assemblies Which Include an Elastomeric Element Prior to Hardware Assembly.' ARP5316 is available from your Buyer/

**29. Verification of Viton Elastomeric Material.** Supplier shall certify 100% verification of Viton material.

## SPECIAL REQUIREMENTS

**30. Supplier-Furnished Material.** Suppliers furnishing raw material shall control their raw material inventory so as to meet the intent of QES Q08-00-4050, titled 'Supplier Material Control and Traceability Requirements' (Available from your Buyer). Supplier purchase orders for raw material shall require a mill certification and other documents as necessary to identify the following: material heat number, type, grade, and class; material specification and current revision; material size and quantity; and all other requirements as may be specified by the CAD Enterprises purchase documents.

Upon receipt of any raw material, Supplier shall compare the chemical, physical and mechanical properties data stated on the mill certification against the material specification requirements and document such comparison. Additionally, the Supplier shall perform an over-check measurement of the chemical composition to verify specification compliance by either using a hand-held material analyzer (e.g., Niton Analyzer) or having such measurement performed by a laboratory meeting one of the following conditions: those listed on the CAD Enterprises Approved Supplier List (ASL); a laboratory accredited by PRI-Nadcap, A2LA or other accreditation body recognized by the International Laboratory Accreditation Cooperation (ILAC) and listed in the Signatories to the ILAC Mutual Recognition Arrangements (MRAs); or an applicable approved CAD Enterprises customer source, e.g., GE (S-400), PW (PWA 300 and PWC MCL Manual), Rolls Royce (SABRe), etc.

For woven wire cloth, where such analyses are not as readily feasible, the supplier shall have an audit method to verify the accuracy of the certifications provided by the mill or distributor. The manufacturer must have evidence on file that the wire used has been tested for compliance in accordance with applicable chemical/physical/mechanical properties and requirements.

Any Supplier who procures forgings or castings for products scheduled for delivery to CAD Enterprises for Parker GTFSD shall comply with QSI Q06- 00-3100, titled 'Procurement of Forgings/Castings by Machining Suppliers' (Available from your Buyer)

**31. Extended Record Retention – 30 years.** Quality records related to products on this order shall be retained for thirty (30) years.

**32. Pratt & Whitney Special Requirements.** UTC Aerospace Supplier Quality Requirements (document ASQR-01), including Control of Software requirements (document ASQR-07.5) apply to this order.

The Supplier shall implement Process Certification per the requirements contained in Pratt and Whitney document UTCQR-09.1.

As applicable, GTFSD document QES Q10-00-4007, titled 'Radiographic Inspection – Pratt & Whitney Aircraft Only' shall apply to any Supplier or the Supplier's sub-tier product requiring radiography per the Buyer's purchase order requirements.

**33. Extended Record Retention – Indefinite.** Quality records related to products on this order shall be retained indefinitely (i.e., for the life of the program).

**34. Frozen Process Control.** Before parts are shipped, the Supplier process used to manufacture this product or features indicated "FP" on the drawing shall be approved by the Buyer. Once approved, any changes made to the process used to manufacture the product shall be approved prior to implementation.

**35. Procurement of Raw Material per RPS 905.** The requirements of Rolls Royce RPS 905, titled 'Procurement & Control of Raw Material for the Manufacture of Components,' apply to this Order.

**36. Assignment of Body Numbers to Product.** The requirements of QSI Q05-00-3200, titled 'Assignment of Body Numbers to Parker GTFSD Product,' apply to this order.

**37. Thread Inspection (Go/No-Go Gages).** The product applicable to this order is for non-flight application and is not for sale to the US Government; therefore, Class 3 threads may be inspected using go/no-go thread gages.

**38. Material Furnished by Buyer.** Shipping memos shall identify product made from Buyer furnished material by referencing heat number and Buyer's shipping memo number along with all pertinent data listed thereon (such as lot identification). The Supplier shall supply with the first shipment of each material lot a copy of the Buyer's shipper for material supplied.

**39. GE-Aviation Components/Specifications.** Suppliers of this product must conform to the latest revision of General Electric-Aviation (GE-A) Specification S-1000. If needed, contact your CAD Enterprises Buyer to obtain this document. Supplier shall ensure all weld and braze materials used to manufacture product be certified by the material source using a GE-A S-400 approved laboratory. If the material test report received from the material source has not been generated by such lab, independent testing by a GE-A S-400 approved lab shall be performed on each raw material lot as defined by the applicable material specification.

In addition, these following codes apply: **04, 10, 30, 52, 56, 58, 59.**

**40. Material Certification.** With each lot of raw material delivered or used to fabricate products on this purchase order/contract, the Supplier shall furnish a 'Certification/Material Test Report.' When more than one heat/lot of raw material is delivered at the same time, each heat/lot of material shall be identified and provide traceability to its Certification/Material Test Report. In the event that more than one heat/lot of raw material was used to fabricate products, the products produced from each heat/lot shall be identified and/or packaged separately to maintain integrity and to provide traceability to the applicable material Certification/Material Test Report.

Unless otherwise specified, material certifications shall include: material description, name or designation, including, as applicable, size or weight, alloy, type, class, grade or condition; lot, batch or heat number (or if not applicable, date of manufacture); material specification and revision to which the material complies; country of melt; and a certification statement with supplier company name, address, title of authorized individual, and signature/stamp that reads substantially as follows, "This is to certify that all (material) (products) delivered on this Contract (number) and packing list/shipper

(number), (complies with) (were fabricated from material represented by) the attached Certifications/Material Test Reports. Objective evidence to support this certification is available for review upon request."

## INSPECTION REQUIREMENTS

**41. Manufacturing Methods Substantiation.** The Supplier shall provide to the Buyer the necessary documentation to satisfy Source Substantiation requirements of CAD Enterprises customer. The supplier is to provide, at a minimum, a copy of the drawing (if vendor designed product) plus, inspection and test reports, technical plans, NDT/NDI technique sheets and process sheets/routers with significant operations identified. Prior CAD Enterprises approval is required for a change to a significant process or significant process sequence. Vendor substantiation documentation must be submitted and approved by CAD Enterprises whenever there is a lapse in production for a period of 18 months or more.

**42. Inspection Plan.** The Supplier shall submit an Inspection Plan, and accompanying documents to the Buyer one (1) week prior to the first lot shipment. No product shall be shipped until the Inspection Plan has been approved or the P.O. is revised to authorize advanced shipment. The "bubble" and highlighting of part drawing features and field notes is performed at the supplier. The following documents, as a minimum, must be submitted for review and approval:

- o Inspection Plan -- submitted in electronic format, if possible
- o Legible "bubble" / highlighted drawing
- o Supporting process control documents
- o Non-traditional gage drawing/documentation, if applicable.

The inspection plan is frozen as approved by the Buyer. Any changes to the approved inspection plan shall not be implemented until Buyer approval of an updated inspection plan.

**45. Pratt & Whitney Laboratory Control Requirement.** Certification to PWA 300 and PWC MCL Manual, section F17, 'Materials, Parts and Assemblies Subject to Laboratory Control at Source (LCS),' and section F22, 'Chemical & Metallurgical Processing, is required for such services performed.

**46. Sampling Inspection of Photo-Chemically Machined Parts.** The requirements of Parker Q20-00-4003 apply to this order.

**47. Inspection Frequency.** The requirements of Parker QES Q20-00- 4001, and the associated column for SQR code 47 under Table 1, depict the inspection plan frequency applicable for products on this order. The inspection plan is frozen as approved by the Buyer via the FAIR approval. Any subsequent changes to the approved inspection plan shall not be implemented until Buyer approval of an updated FAIR.

**48. Inspection Frequency.** The requirements of Parker QES Q20-00- 4001, and the associated column for SQR code 48 under Table 1, depict the inspection plan frequency applicable for products on this order. The inspection plan is frozen as approved by the Buyer via the FAIR approval. Any subsequent changes to the approved inspection plan shall not be implemented until Buyer approval of an updated FAIR.

**49. Independent Hardness Verification.** Suppliers performing heat treating shall report on their certification both the required and the actual hardness values as obtained from a representative (homogeneous) sample for each lot. Additionally, the heat treat supplier shall obtain and report a second hardness verification as performed and documented by an independent (third-party) qualified agent.

**50. FAA Certification.** The supplier shall submit a completed FAA Form 8130-3, executed in accordance with the requirements of FAA Order 8130.21, for all work performed.

**51. FAA-PMA Certification.** Replacement or modification parts shall be manufactured and certified in accordance with U.S. 14 CFR, Part 21.303. The parts shall be marked in accordance with U.S. 14 CFR, Part 45.15 and submitted to CAD Enterprises with FAA Form 8130-3 executed in accordance with FAA Order 8130.21.

**52. Radiographic Inspection.** Parker QES Q10-00-4001, titled 'Radiographic Inspection' or QES Q10-00-4006, titled 'Computed Radiography' shall apply to any Supplier or the Supplier's sub-tier product requiring radiography per the Buyer's requirements. The Supplier and/or any Supplier's sub-tier radiographic system and each technique shall be approved by the Buyer prior to the acceptance of Supplier's product. All approved radiographic Suppliers can be found listed in the Parker Aerospace Approved Process Supplier List. Engineering specification ES6-794, titled 'Standard Practice for Radiographic Inspection' shall be used as the default replacement specification for MIL-STD-453, titled 'Radiographic Inspection.' Use of ASTM specification E1742, titled 'Standard Practice for Radiographic Examination' as an independent replacement for MILSTD-453 is not acceptable.

**54. FAA Anti-Drug and Alcohol Misuse Prevention.** All Supplier employees (including Supplier's sub-tier employees) performing component maintenance (repair or overhaul) or inspection services of products scheduled for delivery to CAD Enterprises shall be included and part of a FAA approved 'Anti-Drug and Alcohol Misuse Prevention Program.' The requirement applies both to pre-employment and random testing of current employees in accordance with the requirements of U.S. 14 CFR, Part 120. Evidence of compliance to this requirement shall be made available to CAD Enterprises upon request. Except, this anti-drug and alcohol requirement does not apply to employees performing functions outside the United States territory and persons contracted to perform functions for an employer who is located outside the United States territory.

**56. Fluorescent Penetrant Inspection.** Parker QES Q10-00-4014, titled 'Fluorescent Penetrant Inspection Requirements,' shall apply to any Supplier or Supplier's sub-tier product requiring fluorescent penetrant inspection (FPI) per the Buyer's requirements. The Supplier or any Supplier's sub-tier fluorescent penetrant system shall be approved by the Buyer prior to the acceptance of Supplier's product. All approved FPI Suppliers can be found in the CAD Enterprises Approved Supplier List.

## PRODUCT & PROCESS REQUIREMENTS

**57. Prototype Hardware Quality Requirements.** Document PD3000, Supplier Prototype Hardware Quality Requirements, is invoked on this purchase order. Refer to PD3000 for all quality requirements. PD1000, including SQR Code 1, does *not* apply.

**58. Heat Treating and Brazing.** Parker QES Q09-00-4002, titled 'Heat Treating and Brazing – Processing and Controls' shall apply to any product or services where the Supplier or the Supplier's sub-tier performs brazing and/or heat treating per the Buyer's requirements.

**59. Special Process Requirements.** Special process control parameters and approval requirements are required as defined in the following Parker documents:

- ES6-26 – 'Special Process Requirements'
- Q09-00-4020 – 'Qualification of Welding Equipment due to Change'
- Q09-00-4021 – 'Qualification of Process Equipment due to Change'

When submitting initial packages for "Prime Special Process" approval, all "Supporting Special Process" packages should be

included with the submitted package. "Change Request" submittals for "Supporting Special Process" which are already approved shall only include the special process that is being changed. Thus, the entire "Prime Special Process" package is not necessary. Identification is required on the submittal is for a Supporting Special Process.

Special Processes may only be performed when those processes are specifically allowed by the drawing and/or purchase order. Special Processes and Non-Destructive Testing may only be performed by a Supplier listed in the CAD Enterprises Approved Supplier List (ASL).

For lot control, when special processes (such as heat treatments, hard coating, etc.) are performed on a portion of the original lot, each individual process application to that segment of the lot shall require a unique traceable lot identifier for the subdivided lot. Special process lots shall be controlled by batches and each batch shall have an individual batch/run number.

**60. Date of Manufacture.** The Supplier shall provide traceability to a manufacturing lot by identifying the date of manufacture, lot number or equivalent for each item in the order by stamped impression, attached tag, or other suitable equivalent or as specified on the drawing or applicable CAD Enterprises specification.

**61. Electro-Static Discharge (ESD) Control.** For the protection of all electrical and electronic parts, assemblies and equipment which are Electro-Static Discharge (ESD) and/or Electro-Magnetic Force (EMF) sensitive, such products must be processed and packaged in accordance with MIL-STD-1686, 'Electrostatic Discharge Control Program' or ANSI/ESD S20.20, 'Electrostatic Discharge Control Program.'

**62. Elastomeric Test Data.** Suppliers of assemblies containing seals, gaskets and "O" rings shall retain, on file, objective evidence that all required batch/lot conformance testing per the applicable specification has been performed. Test data shall be made available to the Buyer upon request.

**63. Inspection/Test Data Requirement.** Test data and inspection plan measurements of the product shall be taken, documented, and copies submitted with each shipment against this order.

**64. Product Performance/Test Equipment.** If the Supplier owns or operates test equipment used in the acceptance of Parker GTFSD product performance attributes (e.g. flow, spray angle, etc.), the requirements of QES Q11-00-4015, titled 'Accuracy, Calibration and Maintenance of Test Stand Equipment Requirements for Parker GTFSD Suppliers,' are applicable.

**70. Packaging and Shipping of Sensitive Products.** Packaging shall take into consideration the possible need for parts to be unpacked and re-packed. Only handle parts with latex gloves to prevent fingerprints or other contamination. Pack individual sheets in a new, clean plastic bag closed sufficiently to prevent contamination but shall be easily opened without risk of damage to parts. Thin lint-free paperboard interleaves shall be placed between each individually wrapped sheet. Paper, cardboard or any other type of fibrous material shall not come in direct contact with the parts. Stacks of individually wrapped sheets and interleaves shall be packaged in an appropriately-sized reusable 4-mil corrugated plastic shipping envelope or hard case container to prevent the parts from shifting or bending during transit. Lint-free foam may be used as filler, if necessary. Intermediate suppliers may reuse the original packaging only if it is sufficient to fully protect the parts shipment.