SUPPLIER QUALITY PROCUREMENT REQUIREMENTS - WARREN

The note code numbers specified on a purchase order must be complied with prior to acceptance of hardware or services by Barnes Aerospace Warren. An explanation of each note code requirement is contained herein. Standard note codes are identified with an "S" and must be adhered to by all subcontractors. Additional to codes will be specified on the purchase order, as applicable. Subcontractor audits may be performed at Barnes Aerospace Warren discretion to verify conformance to the stated quality requirements.

NOTE: Any Barnes Aerospace Warren procedure called out in these requirements can be obtained from your Purchasing Agent.

All certificates of conformance must be signed by the subcontractor's designated quality representative and include their title. Failure to provide certifications may result in quality rating adjustments and/or delay of payment until proper certifications are received and approved.

You are required to report to the Quality or Purchasing organization any events that may affect performance of the purchase order and/or quality performance of product. This includes changes in ratings/certifications, ownership, location or company management.

All suppliers and sub-tier suppliers to Barnes Aerospace Warren (BAEW) who generate any record as a result of satisfying contractual requirements shall ensure that such records are maintained in accordance with AS9100 and AS13100, as applicable. These records shall be maintained indefinitely, unless otherwise specified by contract. Quality records shall be maintained in ink or other permanent form. Documents requested by Barnes Aerospace Warren, its customers, or regulatory entities shall be made available in English.

Supplier personnel performing product verification and inspection activities shall meet the applicable vision examination requirements of AS13100, Section 8.5.1.8, including required examination frequency, visual acuity, color perception, and qualification of personnel administering the examination. Where applicable, personnel performing welding, NDT, or other special-process inspection activities shall meet the vision requirements of the applicable governing industry, customer, or process specification.

The organization shall have a gated process for the control of work transition (i.e.: work transfer or resourcing) within the organization and its supply chain, including manufacturing location changes within the organization or changes in a supplier or a supplier's manufacturing location (i.e.: address change).

The process for the control of work transition shall:

- Ensure BAEW approval is obtained prior to any change implementation.
- Establish timely gates and accountability within the work transition activity to assess and mitigate risks to achieve goals.
- Ensure compliance with BAEW substantiation requirements related to the new work transition product.
- Address the requirements for receipt and containment of first new work transition product.
- Ensure notification to BAEW of first delivery of new transition product.

The organization shall formally request, the engineering substantiation requirements associated with the work transition of any part, part family of product(s) or any associated services, related to any BAEW Production Purchase Order.

This document forms part of QP 4.06.01. Revisions may cause amendments to the Purchase Order at the discretion of Barnes Aerospace Warren.

100-S **REVISIONS OF SPECIFICATIONS.** Subcontractors shall work to the latest revision of all specifications.

103 **MATERIAL SAFETY DATA SHEETS REQUIRED.** Subcontractor/Vendor shall forward Material Safety Data Sheets, as applicable, with, or prior to, shipment to Barnes Aerospace Warren attention: Safety and Training Coordinator.

105-S **QUALITY SYSTEM.** As a minimum, the subcontractor shall maintain a quality system that is compliant to AS13100, ISO 9001:2015 Quality Management System Requirements or AS 9100 Quality Systems Aerospace.

- ✈ Suppliers QMS certification shall be defined by the organization type and comply with Table 2 of AS13100
- ✈ Supplier shall notify Barnes Aerospace of any significant changes to QMS system of business operations.

SUPPLIER QUALITY PROCUREMENT REQUIREMENTS - WARREN

108-S **CONTROL OF RECORDS.** Records shall be established and maintained to provide evidence of conformity to the QPR's, and revision date as stated on the purchase order. Records shall remain legible, readily identifiable, and retrievable. Procedures shall be established to define the control necessary for the storage, protection, retention periods and disposal of records.

109-S REMOVED

110-S **CALIBRATION SYSTEM.** The subcontractor shall maintain a calibration system that meets the requirements of an International or National Measurement Standard

120-S **NONCONFORMING MATERIAL**. Any nonconformance or deviation to the Purchase Order requirements shall be reported per SP 4.13.01.04 Subcontractor Corrective Action Request. See appendix 1 of this document for SCAR process and form. Document to be forwarded to purchasing representative.

125-S **TRACEABILITY.** Traceability shall be maintained from receipt of raw material through finished product. Records and material must be identified by lot number, material type, specification and applicable revision identifier or date of issue, heat number, serial number, etc., as required to maintain traceability. Records shall be maintained on file subject to examination by Barnes Aerospace Warren.

130-S **FIRST ARTICLE INSPECTION (FAI).** FAI applies to the first delivery for this part number/revision level unless otherwise defined in the Purchase Order. The subcontractor shall furnish first article sample(s) produced using the material, tooling, processes and planning to be used for subsequent deliveries. The first article shall be tagged and identified as a first article sample. The FAI Report shall be sent to Barnes Aerospace Quality Representative and approved prior to shipment. The FAI report shall reflect actual readings and show compliance to the drawing, related specifications and in compliance with AS 9102. When first article acceptance testing is applicable, prior notification must be given to Barnes Aerospace Warren Procurement Quality in time to give Barnes Aerospace Warren the option to witness the test.

131-S Production Part Approval Process **(PPAP) Documentation -** Provide PPAP documentation as required in accordance with AS13100 and associated reference manuals (RM13003, RM13006, RM13102, RM13145)

- Process Flow Diagram
- MSA
- PFMEA
- Control Plan
- FAIR

135-S **SAMPLING.** Barnes Aerospace Warren reserves the right to approve or disapprove sampling plans and/or process controls used for product acceptance. Submittal of such plans and controls must be approved by Barnes Aerospace Warren Quality Assurance prior to use.

140 **MATERIAL CERTIFICATIONS.** A material certification shall be provided with the shipment stating the specification number of the material being supplied as it appears on the purchase order, revision letter, purchase order number, lot code or heat number, serial numbers if applicable, shelf life if applicable, and date of shipment. Actual test results as required by the specifications, such as mechanical test data, chemical properties, hardness, etc., shall accompany the certification. This certification must be signed by an authorized agent of the subcontractor including the agent's title.

145-S **BARNES AEROSPACE WARREN SUPPLIED MATERIAL.** When material is supplied by Barnes Aerospace Warren for processing, a certification shall be provided with the shipment stating the material type (i.e. AMS 5662, MSRR 7035), the material heat/lot number and the quantity received as it appears on the Purchase Order. Material substitutions are prohibited without written approval by Barnes Aerospace Warren.

SUPPLIER QUALITY PROCUREMENT REQUIREMENTS - WARREN

150 **P&W MCL/LCS REQUIRED (LCS Suppliers)**. For LCS listed Raw Material Suppliers, Detail Finished Parts and Assemblies Subcontractors, and Process Subcontractors only. Supplier/Subcontractor to control parts/materials in accordance with P&W MCL Manual Section F-17. **Part certification must state**: "Parts/materials have been controlled to P&W requirements for LCS per P&W-MCL Manual Section F-17"

151 **P&W MCL/LCS REQUIRED (Non-LCS Suppliers)**. For Non-LCS Detail Finished Parts and Assemblies Subcontractors only and when Source Qualification is required for contracted processes. Supplier/Subcontractor to control processes in accordance with P&W MCL Manual Section F-22 and any other applicable F Sections. **Part certification must state:** "Processes have been controlled and performed per P&W MCL Manual Sections F-22 and (add any other applicable F sections for processing being carried out)"

155 For Casting or Impression Die Forgings per P&WC specification CPW 121, "the forgings (or castings) shall be produced with the current P&WC approved pattern equipment, process and x-ray technique".

160 For parts subject to ESA/PSAR or ESA/SOR per P&WC specification CPW 135, "parts shall be produced to the current P&WC approved process". C of C must contain ESA Process Approval number and revision per SQOP 01-07.

161 For raw material and detail parts requiring NDT inspection (other than X-Ray), "parts must be audited under P&WC Non-Destructive Test Control at Source (NDTCS)" per AC-40.

162 For raw material and detail parts requiring X-Ray inspection, "parts must be audited under P&WC radiography Audit Control at Source (RACS)" per AC-36

163 Parts must be released by P&WC Delegated Quality Control Representative (DQCR) per SQOP 09-01

165 For weld wire. Perform and certify (C of C)

- Weldability per ARP 1876 and/or PWC F-53
- Wipe Test per PWC F-53
- Alloy Verification per ARP 4926 and/or PWC F-53
- Packaging and Marking per AMS 2814
- For Cut Lengths-weight of wire, pounds per envelope not to exceed 2lb.
- Identification per AMS 2816
- For Spooled Wire- the outer face of each flange shall be marked with a label per spec

170 **P&W MCL/SQL REQUIRED, THERMAL COATINGS.** For Non-LCS Subcontractors only (Subcontractor is still required to be Source Qualified for processing when required by P&W Specification). Subcontractor to control processes in accordance with P&W MCL Manual F-22, F-23, F-17, and F-57. **Part certification must state:** "Process carried out in accordance with MCL Manual Section F-22, F-23, F-17, and F-57"

175 **P&W MCL/SQL REQUIRED, HEAT TREAT.** For Non-LCS Subcontractors only (Subcontractor is still required to be Source Qualified for processing when required by P&W Specification). Subcontractor to control processes in accordance with P&W MCL Manual F-22, F-23, F-40. **Part certification must state:** "Process carried out in accordance with MCL Manual Section F-22, F-23, F-40"

180 **P&W MCL/SQL REQUIRED, FINISHING BY NON-CONVENTIONAL METAL REMOVAL.** For Non-LCS Subcontractors only (Subcontractor is still required to be Source Qualified for processing when required by P&W Specification). Subcontractor to control processes in accordance with P&W MCL Manual F-22, F-23, F-43. **Part certification must state:** "Process carried out in accordance with MCL Manual Section F-22, F-23, F-43"

185-S **RIGHT OF ENTRY.** Barnes Aerospace Warren, our customers and regulatory agencies, have the right of entry to your facility, when necessary, to determine and verify the quality of contracted work, records and material. Risk analysis and mitigation plan shall be conducted between supplier and Barnes Aerospace to deal with any restrictions to right of access to suppliers' facility.

SUPPLIER QUALITY PROCUREMENT REQUIREMENTS - WARREN

190 **LIFE-LIMITED COMPONENT.** This Purchase Order contains life-limited components. The subcontractor shall mark the life information on each container per its respective specification. If life data marking requirements are not covered by specifications, the subcontractor shall mark each container with date of manufacture and expiration date. Upon receipt by Barnes Aerospace Warren, the remaining useful life must be at least 80% of the total life limit.

195-S **CERTIFICATION OF CONFORMANCE.** A certificate of conformance is required stating, "All blueprint and/or specification requirements have been met" and that "inspection records, material certifications and/or special process records (when applicable), are on file and available for review." ***For Make Complete orders all special process codes that are required on blueprint must have a specific pass or fail acknowledgement on the Certificate of Conformance.*** An authorized agent of the subcontractor's quality organization, including the agent's title, must sign this certification. This certificate must also contain the Purchase Order number, line item number, release number**,** part number, revision level, serial, factory or temporary serial numbers if assigned, raw material heat code, quantity shipped and reference to any nonconformance documents. A subcontractor's packing slip containing the above information is acceptable. (See attached example)

200 **INSPECTION/LAYOUT REPORT.** An inspection layout report, identifying the characteristics produced on the purchased part(s) with the applicable inspection results, is required with the shipment. The report is to be signed, or stamped, and traceable to the person performing the inspection. Failure to send inspection/layout report may result in delayed payment and/or quality rating adjustments.

205 **BARNES AND/OR CUSTOMER SOURCE INSPECTION REQUIRED.** Prior to shipment of materials, parts or services, Barnes Aerospace Warren, Manufacturing Services Manager must be notified to schedule Quality Assurance for source inspection and initial acceptance of the shipment. Acceptance does not imply that the shipment will not be rejected upon receiving inspection at Barnes should a deviation be found.

230 **DROP SHIPMENT REQUIREMENTS TO RAW MATERIAL SUBCONTRACTOR.** On the date of shipment, forward the following documents via fax to (586) 772-2913 Attention: Purchasing Department

1) Signed Bill of Lading as proof of shipment
2) Packing slip, which must reference this purchase order number to consignee as, stated above
3) Material mill certifications

Any delay forwarding this information will delay payment of your invoice and a rating adjustment.

235 **REMOVED**

240 **REQUIREMENTS FOR PROCESS SUBCONTRACTORS RECEIVING/SHIPPING DROP SHIPPED MATERIALS.** On the date of shipment, forward via. Fax to (586) 772-2913.

When Received:
1) Signed Bill of Lading as proof of the receipt of shipment
2) Packing slip, certificate of conformance and inspection reports, as applicable

When Shipping:
1) Barnes Purchase order number as stated on raw material subcontractors packing slip
2) Subcontractor's raw material packing slip number.
3) Quantity of shipment and heat code of material processed

245 **CERTIFICATION OF CONFORMANCE Test/Load Thermocouple Sensor Wire-Type K (Expendable/Nonexpendable Thermocouple Wire).** A certification of conformance is required stating:

1) Conformance to:
   a. ***An International or National Measurement Standard***
   b. AMS 2750

SUPPLIER QUALITY PROCUREMENT REQUIREMENTS - WARREN

2) Date of Calibration
3) The source of the calibration data
4) Nominal test temperature
5) Actual test temperature readings
6) Calibration technique per ASTM E 207 or ASTM E 220
7) Correction factor or each calibration temperature traceable to NIST
8) Calibrate both ends 150-2265°F at no more than 250° form one test temperature to the next

246 **CERTIFICATION OF CONFORMANCE for System (Control) Thermocouple Sensors-type (S)- Vacuum Furnace or Type (K)-Dispatch Oven. A certification of conformance is required stating:**

1) Conformance to:
   a. ***An International or National Measurement Standard***
   b. AMS 2750
2) Date of Calibration
3) The source of the calibration data
4) Nominal test temperature
5) Actual test temperature readings
6) Calibration technique per ASTM E 207 or ASTM E 220
7) Correction factor or each calibration temperature traceable to NIST
8) Type (S) Calibrate both ends 900-2300°F at no more than 250°F from one test temperature to the next
9) Type (K) Calibrate both ends 150-500°F at no more than 250°F from one test temperature to the next

250 CERTIFICATION OF CONFORMANCE (PENETRANT MATERIAL TESTING). A certificate of conformance is required stating:

1) Conformance to:
   a. ***An International or National Measurement Standard***
   b. AMS 2644 for new batch of FP-3W (ZL-67) penetrant or for D-1 (ZP-4B) developer.
   c. ASTM E 1417 when used penetrant is tested. ASTM D95, or Karl Fischer Method Annex A1 and ASTM E 1135 (PWC QC-15) except 90-110% brightness required for test methods.
2) Traceability to the NIST No. and date of test
3) Actual findings

255 CERTIFICATION OF CONFORMANCE (CALIBRATION AND/OR INSPECTION). A certificate of conformance is required stating:

1) Conformance to:
   An International or National Measurement Standard
2) Certified and traceable to the NIST No. and date of test
3) Actual findings
4) AMS 2750 if for pyrometry**.**

260 SYSTEM "FAA". Subcontractor's Quality Assurance System shall meet the requirements of Federal Aviation Administration (FAA) Federal Aviation Regulation (FAR) Part 21, as applicable. In addition, shall have an Antidrug and Alcohol Misuse Prevention Program in compliance with requirements of 14CFR Part 121 Appendices I and J and 49CFR Part 40.

265 DELEGATED INSPECTION AUTHORITY. Subcontractor is delegated inspection authority in accordance with FAR Part 21, paragraph 21.143 (b).

270 ON-SITE EVALUATION. Subcontractor is subject to FAA on-site evaluation of compliance with applicable requirements.

SUPPLIER QUALITY PROCUREMENT REQUIREMENTS - WARREN

271 **P&W LCS/MCL EVALUATION.** For raw material providers not listed in MCL appendix 36, consent must be granted by P&W MCL via submission of Form MCLM670 and an on-site audit of the Non-LCS supplier is required to be conducted within 6 months of MCL consent.

275 **FAA INSPECTION REQUIRED.** FAA conformity inspection is required prior to shipment from your plant. FAA Form 8130-3 must accompany the inspection articles. **Note*:*** A release statement on C of C is acceptable for subcontractors performing partial processes.

280 **PROCESS APPROVAL REQUIREMENTS.** This Purchase Order contains a process specification that requires approval per Procedure QP 4.09.01.13. Work shall not proceed until approval is granted by Barnes Quality Assurance.

285-S **SUBCONTRACTORS USING SUB-TIERS.** Barnes Aerospace Warren Quality Assurance must be notified in writing when any change occurs to the Subcontractor or its sub-tiers manufacturing location, ownership or a major change in product/process. Approval must be granted by Barnes Aerospace Warren prior to proceeding.

The subcontractor must provide to Barnes Purchasing, evidence that the requirements of this purchase order have been flowed down to all sub-tier(s), including key characteristics when applicable.

290 **ROLLS ROYCE REQUIREMENTS**. Subcontractors and their sub-tiers shall meet the requirements of RRES90000-SABRe.

291 **GE REQUIREMENTS.** Subcontractors shall be compliant to S-1000

295 **RTX DIVISION REQUIREMENTS**

1) All subcontractors and their sub-tiers shall meet the requirements of ASQR-01, Aerospace Supplier Quality Requirements
2) All raw material subcontractors shall meet the requirements of SQOP 09-03, Vendor Supplied Material Program (PWC only)
3) All subcontractors shall meet the requirements of SQOP 01-01, Supplier Quality Operating Procedure (PWC only)

300 **REMOVED**

310 **MATERIAL TESTING.** A sample of the material in its finished condition must be supplied with the shipment:
1) With the first shipment
2) Once each year thereafter, for each alloy group.

Material and Special Process test results shall reflect all requirements of the drawing and/or specification and conform to drawing and/or specification limits. Documented evidence of this conformity including listing of each material element or test result in the applicable test report.

The applicable test report shall be signed by a cognizant test laboratory person, clearly confirming which of the following is correct:

- ✈ All tests and inspections have been performed and results meet the drawing and/or specification requirements, or;
- ✈ All tests and inspection have been performed and the results meet all the drawing and/or specification requirements, except _____, which does not meet requirements, or;
- ✈ All tests and inspections have been performed and the results meet all drawing and/or specification requirements, except test(s)_____, which was not performed in accordance with the drawing and/or specification requirements.

NOTE: Barnes Receiving Personnel – sample to be forwarded to the Metallurgical Laboratory with a copy of the pack slip/C of C.

SUPPLIER QUALITY PROCUREMENT REQUIREMENTS - WARREN

315 **BARNES INTERNAL USE ONLY**. All materials or details purchased to be consumed in Overhaul and Repair with a part number suffix of OHD or OVH must be released to service with an 8130 by Barnes authorized personnel before bonding.

320-S **HANDLING, STORAGE, PACKAGING, PRESERVATION & DELIVERY.**

Material Handling. Parts/Materials shall be protected in all phases of processing to eliminate handling damage. Once raw materials begin their process into parts, metal-to-metal contact is prohibited. Care and use of protective devices shall be considered.

Cleanliness. Ensure all parts/materials shipped to Barnes are free from foreign material, debris and contaminates on all surfaces, particularly internal machined and cored passages and crevices, which may result in potential FOD. Part openings shall be always controlled during processing to prevent introduction of foreign objects.
Supplier Shall have a FOD prevention program that meets the requirements of AS9146

Storage. Storage facilities shall be provided as necessary to isolate and protect Barnes materials pending use or shipment. Condition of material in stock shall be assessed for degradation periodically.

Preservation. When preservation of parts/materials is a requirement of the drawing/MOS, fluids used shall be checked regularly for contaminates and maintained free from contaminates through the use of filtering or replacement of the fluid.

Packaging. Packaging methods shall take into consideration the weight, physical configuration and method of transportation to preclude damage to parts. Aerospace standard practices such as ATA Spec 300 can be used as a reference when developing methods. Ensure packing materials do not induce contamination to parts and assemblies. Prohibited packing materials includes, but is not limited to, newspaper print, loose material small enough to block or become embedded into internal cavities, holes and crevices and glue bearing materials.

325-S **PROHIBITED MATERIALS**. Delivered hardware shall not contain the materials listed in Table 1, nor shall they require the use of these materials for operation, maintenance, storage, transportation or service of the hardware per EPA guidelines. Go to the EPA website for a current listing of these materials and any limited used materials.

330 **CERTIFICATIONS OF CONFORMANCE** for Test/Load Thermocouple Sensors Wire-type (J)-(Expendable/Nonexpendable Thermocouple Wire). A certification of conformance is required stating:

1) Conformance to:
   a. ***An International or National Measurement Standard***
   b. AMS 2750
2) Date of Calibration
3) The source of the calibration data
4) Nominal test temperature
5) Actual test temperature readings
6) Calibration technique per ASTM E 207 or ASTM E 220
7) Correction factor or each calibration temperature traceable to NIST
8) Calibrate both ends 150-600°F at no more than 250°F from one test temperature to the next

335-S **COUNTERFEIT PART PREVENTION:** Supplier shall have a counterfeit part prevention program in accordance with AS6174 or AS5553. Counterfeit parts found must be reported to Barnes Aerospace purchasing department within 3 working days of it being confirmed.

340-S **VERIFICATION OF PURCHASED PRODUCT:**

- ✈ Were Barnes Aerospace delegates release activities to supplier, use of customer defined delegated product release verification shall only be further delegated if has been formally approved by the customer.
- ✈ Where Barnes Aerospace delegated product release, delegated qualification shall require supplier to train delegated in accordance with AS13001 requirements.

SUPPLIER QUALITY PROCUREMENT REQUIREMENTS - WARREN

TABLE 1
PROHIBITED MATERIALS

- Arsenic & Compounds
- Asbestos (including fibrous silicates such as actinolite, amosite, anthophylite, chrysolite, crocidolite, and tremolite)
- Benzene (except in fuel)
- Beryllium & Alloys (>2%)
- Chlorinated solvents including the following:
  - Dichloromethane (methylene chloride)
  - Tetrachloroethylene (perchloroethylene)
  - 1,1,1-trichloroethane (methyl chloroform)
  - Trichloroethylene
  - Trichloromethane (chloroform)
- Class I Ozone Depleting Substances (including CFCs with suffixes 11 to 13, 111 to 115, 211 to 217 and 500 to 502; Halons 1011, 1202, 1211, 1301 and 2402)
- Ethyl Alcohol (as a hand wipe)
- Ethylene Glycol Ether Compounds (except in inks)
- Hydrazine
- Mercury & Compounds
- Methanol (as a hand wipe)
- Polychlorinated Biphenyls (PCBs)
- Radioactive Materials, including Thorium/Thoriated (TD) Nickel (excluding welding rods)

Appendix 1
SCAR Reporting Form

SUPPLIER QUALITY PROCUREMENT REQUIREMENTS - WARREN

SUBCONTRACTOR CORRECTIVE ACTION REQUEST
(NOTIFICATION)

SUBCONTRACTOR NAME:	DATE:	C/A CONTROL NUMBER (SUPPLIER MAY USE)	
	CUSTOMER NAME: *Barnes Aerospace Warren* 25250 Easy Street TELEPHONE (586)772-2588 Warren, MI 48089 FAX (586)447-2543		
PART NUMBER	PART NAME	QTY RECVD (If Applicable):	QTY REJD
JOB NUMBER(S)	SERIAL NUMBER(S)	PURCHASE ORDER NUMBER	
QUALITY CONTACT (NAME AND TITLE)	E-MAIL ADDRESS	PHONE NUMBER:	
LIST DRAWING OR MOS NONCONFORANCE REPORTED FROM	MOS NUMBER (If Applicable):	DRAWING NUMBER & ZONE (If Applicable):	
DESCRIPTION OF NONCONFORMANCE			
ROOT CAUSE:			
CONTAINMENT ACTIONS:			
CORRECTIVE / PREVENTATIVE ACITONS:			

Note: Subcontractor will be notified with in 24 hours once submitted SCAR has been inputted into the supplier Portal automatically from the MQ-1 online manager.
All Subcontractor are to review portal for customer disposition and to input there name and corrective action after notification from the online manager.

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Revised: 2/19/2025