

## QUALITY & RELIABILITY TERMS FOR PURCHASE ORDER

The following terms apply as indicated on the face of the Purchase Order. If you cannot meet any applicable term, notify the responsible Perma-Brass, Inc. buyer immediately.

### SOURCE INSPECTION

1. The Government reserves the right to inspect any or all of the materials included in this order at the vendor's plant.
2. Perma-Brass, Inc. reserves the right to inspect any or all of the materials included in this order at the vendor's plant.
3. Government Source Inspection: Government inspection is required prior to shipment from vendor's plant. Upon receipt of this order, promptly notify the Government Representative who normally services the plant so that appropriate planning for Government inspection can be accomplished.

The Government Representative shall be notified forty-eight (48) hours in advance of the time articles or material are ready for inspection or test. The vendor shall furnish the Government Representative with blueprint and specifications necessary for inspection.

4. Perma-Brass, Inc. Source Inspection: All work performed under this order shall be inspected or tested by Perma-Brass, Inc. at the vendor's facility. Prior to shipment, the vendor shall give seventy-two (72) hours advance notice to the Perma-Brass, Inc. buyer that source inspection is needed.
  - a. Right of access by the organization, their customer and regulatory authorities to the applicable areas of all facilities, at any level of the supply chain, involved in the order and to all applicable records.
  - b. Customer Source Inspection: Perma-Brass, Inc.'s customer reserves the right to inspect any or all of the materials included in this order at the vendor's plant.
  - c. FAA Quality System: Quality Control or Inspection System and Manufacturing processes are subject to review, analysis and verification by the Federal Aviation Administration (FAA) Inspectors or designees.

### CERTIFICATIONS

5. General Compliance: By the acceptance of this purchase order, seller agrees that materials and/or finished parts shall be controlled and tested in accordance with and will meet specified purchase order requirements and specifications and the applicable records are on file for two years, and are subject to examination.
6. Perishable Raw Materials: The vendor shall include the material type, condition, lot or batch number, specification, manufacturer, date of manufacture, and shelf life expiration date on all perishable raw material certifications. The vendor shall supply the Hazardous Material Identification System (HMIS) and the Material Safety Data Sheet (MSDS) with the material as required.

7. Specific Compliance: The vendor shall furnish a certificate of compliance signed by an official representative responsible for product assurance for the vendor. Materials, processes, services and/or furnished items supplied in accordance with the instructions, specifications, and/or drawings furnished with the purchase order shall have written certification included with packing slip in the form of a certificate of compliance or test report. Each certificate shall identify the purchase order number, part number, serial number, specification, drawing, lot/item number and/or test report as applicable to the content of the purchase order. Inspection and Test data shall be maintained for two (2) years and are subject to Perma-Brass, Inc. examination. The certificate must state the name of the manufacturer when ordered from a distributor and shall accompany each shipment. Photocopy, email, or facsimile signatures, or inclusion of an unexpected certificate with the material or invoice, shall be treated by the parties as an original signature certificate.
  - a. Certification of Origin: The vendor shall furnish certification of Country of Origin with each shipment.
  - b. Supplier notify the organization of nonconforming product.
  - c. Calibration Certification of Traceability: When providing calibration services to Perma-Brass, Inc., the vendor shall furnish certification stating the traceability to NIST for each item calibrated.
  - d. Specific Compliance (DFARS): The vendor shall furnish a certificate of compliance signed by an official representative responsible for product assurance for the vendor. Materials, processes, services and/or furnished items supplied in accordance with the instructions, specifications, and/or drawings furnished with the purchase order shall have written certification included with the packing slip in the form of a certificate of compliance or test report. Each certificate shall identify the purchase order number, part number, serial number, specification, drawing, lot/item number and/or test report as applicable to the content of the Purchase Order. Inspection and Test Data shall be maintained for two (2) years and are subject to Perma-Brass, Inc. examination. The certificate must state the name of the manufacturer when ordered from a distributor and shall accompany each shipment. By acceptance of this purchase order, seller agrees that materials and/or finished parts conform and meet DFARS 252.225-7008, DFARS 252.225-7009 and DFARS 252.225-7010.
  - e. Specific Compliance (RoHS and WEEE): By acceptance of this purchase order, seller agrees that materials and/or finished parts conform to and meet the requirements set forth in European RoHS and WEEE legislation. Supplier shall indicated their conformance to the specific requirements (RoHS, WEEE, or both) met by material on this purchase order via separate statement included on the Certificate of Compliance indicated in Q&R Term 8.
  - f. Lead Finish: Component lead finishes, which contain Sn (tin) as the majority component, shall require a minimum of 3% Pb (lead).
  - g. Lead-Free Component Finishes: Lead-free component lead finishes, which contain Sn (tin) as the majority component, shall have a maximum of 0.1% Pb (lead) by weight.
8. Material Test Reports: The vendor shall submit a chemical and physical test report with actual test data for the materials shipped under this order.
  - a. Test Data: The vendor shall furnish acceptance test data with parts/materials shipped under this purchase order.

- b. First Article Inspection Report: The vendor shall provide complete test and/or inspection data to all measurements, test reading, material cert., finish cert., procured item cert., etc. as identified on the drawing. The data furnished must be tied to the drawing for readability. This report will be delivered with the first lot of material delivered and will not be required on subsequent purchase orders or deliveries unless otherwise stated. Subsequent FAI report will be required for a change in vendor, or new or additional parts. For revision level change or change to process, only Delta FAI will be required on the affected areas.
  - c. AS9102 (latest rev.) First Article Inspection Report: The same as 9b, but must meet the requirements of AS9102 (latest rev.). If the purchased material is an assembly, the vendor shall also include a separate FAI for each build-to-print component of the assembly.
9. Dimensional Data: Recorded findings on all critical dimensions shall be submitted. Critical dimensions are defined as all dimensions shown on the drawing which are not categorized as reference dimensions.
10. Functional Test Reports: When functional tests are specified by this order or by the design documentation, the actual test results shall be submitted. A copy of the test procedure shall be submitted with the first report on each type of item(s) purchased under this order, unless specified otherwise in design documentation.
11. Reliability Plan: The vendor's Reliability manual or equivalent shall be submitted for review. The review will be for indication of adequate planning to assure general product reliability and for conformance to applicable program specifications.

## **PROGRAMS**

12. Inspection Program: The vendor shall establish, document and maintain a quality system as a means of ensuring that product conforms to specified requirements. This documented system may be used by Perma-Brass, Inc. to audit/assess the vendor's claimed capability and system. The range and detail of the system shall be dependent upon the complexity of the product, the methods used and the skills and training needed by personnel involved in performing the work.
13. Dealer and Distributor Quality Program Requirements: Quality Program provisions stated herein shall govern operating systems of dealers and distributors to assure that materials and parts meet Perma-Brass, Inc. design, quality and related contract requirements.
- a. The supplier shall ensure that materials were manufactured, inspected and tested in accordance with Perma-Brass, Inc. requirements.
  - b. Military or Federal standard materials such as AN, JAN, NAS, etc., shall be obtained from Military and Federal Qualified Products List (QPL), Qualified Manufacturers List (QML) or other referenced sources.
  - c. Supplier Stock control shall assure that material quality is verified and maintained. Items shall be from current production and traceable to the date received. Manufacturing and product identify markings shall be as required by drawings and specification.
  - d. Corrective action by the manufacturer shall be available through the supplier upon request.

- e. Documentation such as inspection records and test reports shall be furnished upon request by Perma-Brass, Inc.
- f. Product Protection shall comply with all specified handling, preservation, packaging and shipping requirements. Product protection practices shall ensure that original quality is maintained. Commercial practices shall not be considered to relieve the supplier of the responsibility to assure delivery of material in acceptable condition.
- g. Manufacturer's name and manufacturer's part number shall be included on the packing slip.

## **CONTROLS**

- 14. **Workmanship:** All items on this order shall be fabricated, processed and finished in such a manner as to be uniform in quality and appearance and free of defects and Foreign Object Debris/Damage (FOD).
- 15. **Casting Identification:** All castings shall be identified by a permanent part number and configuration or by a method that will give complete traceability of chemical, physical analysis and heat treat. The identification shall remain legible after machining or surface finish.
  - a. **Castings:** Physical and chemical test data of raw materials used in the fabrication of articles furnished on this purchase order, denoting the applicable heat treat number, batch number or date of manufacture of materials, are to be supplied with each shipment.
- 16. **Process Control:** The vendor shall maintain control and approval of all manufacturing and inspection processes used in the performance of this order. The vendor shall maintain objective evidence of process qualification in accordance with applicable specifications.
- 17. **Configuration Control:** The vendor agrees not to make any changes in his part at any time in the future which would affect physical or functional interchangeability, reliability, or repair and maintenance operations unless his part number identification is changed.
- 18. **Calibration Control:** The vendor shall control the calibration of all measuring and testing devices against certified standards traceable to the National Institute of Standards and Technology. Perma-Brass, Inc. will specify 26a, 26b or 26c below when one method is specifically required. When not specified, 26b is the default. The vendor shall furnish "Before calibration data" if an instrument is found to be out of tolerance.
  - a. Mil-STD-45662A or Latest Revision
  - b. ANSI / NCSLZ540-1 1994 or Latest Revision
  - c. ISO 10012-1: 1992 or Latest Revision
- 19. **Packaging:** Preservation, packaging, packing unitization and marking for supplies and equipment shall be in accordance with the revision of ASTM D3951, in effect at the time of shipment. In addition to the marking requirements of ASTM D3951, unit, intermediate and shipping container markings shall include seller's part number and any other standard part number ("AN", "MS", etc.) assigned to the item(s). Materials are to be shipped in containers in keeping with good commercial practices to preclude any damage being incurred during shipping and storage at buyer's plant.

Shipping containers shall bear the Perma-Brass, Inc. purchase order number as part of the required markings. Packaging materials shall not have a deleterious effect on the item coatings or finishes. Solderability of solderable contacts, leads and terminations must be preserved. If the vendor considers the supplied parts to be moisture sensitive, then the appropriately labeled barrier bags shall be heat sealed with sufficient space remaining to allow opening and resealing one additional time.

- a. Inactivated:
- b. Electrostatic Protection Required: For MIL-PRF-55342 resistors, package parts per manufacturer's standards with the following qualifiers:
  - i. Unit container:
    1. If specified resistance tolerance is 1% or greater, MIL-PRF-81705 Type III or equivalent barrier material that is electrostatic protective will be used, but Type I may be substituted.
    2. If specified resistance tolerance is tighter than 1%, MIL-PRF-81705 Type I or equivalent barrier material that is electrostatic and electro-magnetic protective will be used.
  - ii. Commercial Packaging per ASTM D3951: Mark per paragraph 3.1.5.2 of MIL-R-39032. Manufacturer's special containers may be used for specific components. The first material/container that comes in contact with the piece parts must meet the ESD packaging requirements as specified above.
- c. Specific Packaging: The vendor shall package components per ESD S541. Packaging materials in intimate contact with devices shall be dissipative.
  - i. DIPS: Components shall be packaged in DIP tubes (carrier sticks), clear colored, polarity oriented in one direction.
  - ii. Axial: All axial-leaded components shall be packaged on reels with an inside tape spacing of 52.4mm (2.063") and a standard component pitch of 5mm (0.197"), with an optional component pitch of 10mm (0.394").
  - iii. Radial: All radial components shall be packaged on reels. The hold-down tape, WO, shall be configured as either on 5/8" wide tape or two 1/4" wide tapes. Tape should touch leads on both sides of sprocket holes.
  - iv. SMT Components: All components will be packaged on reels or precision molded/machined matrix trays or waffle packs.
  - v. NOTE
    1. BGAs: 10mm or less must be on tape and reel.
    2. QFP: 48 pins or less must be on tape and reel.
- d. Carrier Stick Packaging: All components shall be packaged in carrier sticks with polarity oriented in one direction.

20. Traceability: All items furnished on this order shall have documentation on file for at least three (3) years after delivery to permit traceability from the delivered item back through its manufacture and inspection to the procurement records on its constituent parts and materials. These records shall be sufficient to prove conformance to all applicable specifications and drawings and shall provide means for identifying all like items. Certifications of Compliance must state lot number(s) and/or date code(s) or other methods of traceability previously approved by Perma-Brass, Inc. Quality &

Reliability. The C of C must state the name of manufacturer when ordered by a distributor. The vendor shall separate and label parts by manufacturer part number, lot/date code and quantity of each lot/date code, when more than one lot/date code is shipped under this purchase order. When parts are supplied on reels only one lot/date code is acceptable per reel.

- a. Specific Traceability: The vendor shall supply one lot/date code per part number for each delivery schedule under this order.
- b. Date Control: The manufacturing date code for solderable parts or components coming in original OEM packaging shall be within thirty-six months of date of delivery. Those components having date codes more than thirty-six months prior to the date of delivery must be accompanied by evidence indicating completion of acceptable solderability tests.

The manufacturing date codes for solderable parts or components coming from Independent Distributors or Brokers are as follows:

- i. Solderable parts or components having date codes within thirty-six months of date of delivery and are not packaged in original OEM packaging shall be accompanied by evidence indicating completion of acceptable solderability tests.
  - ii. Solderable parts or components having date codes seventy-two months or greater prior to date of delivery shall also be accompanied by evidence indicating completion of acceptable electrical tests.
- c. Device Traceability: The vendor shall supply devices from only one diffusion run per part number for each delivery schedule under this order. The vendor shall furnish a Certificate of Compliance stating the diffusion run number.
  - d. UID (Unique Identification): UID marking required per DFARS 252.211-7003 and MIL Standard 130L or subsequent.
21. Raw Material Identification: All raw material supplied on this order must be identified with the applicable specification, type, condition, and manufacturer of materials.
- a. Supplied Data: Physical and chemical test data of raw materials used in the fabrication of articles on this purchase order, denoting the manufacturer of materials and order number, are to be supplied with each shipment.
  - b. Retained Data: Physical and chemical test data of raw materials used in the fabrication of articles on this purchase order, denoting the manufacturer of materials and order number, shall be retained on file by the supplier for a period of three (3) years.
22. X-Ray Inspection: All material shall be subjected to X-ray inspection. The x-ray number shall be marked on the material when so required by specifications. X-ray photographs identifying part and position shall be submitted to Perma-Brass, Inc.
23. Lot Control: Lot identification number shall be supplied with material. Inspection records/data traceable to the lot identification shall be available on request.
24. ESD: The vendor shall maintain a control program for Electrostatic Discharge Sensitive (ESDS) devices. The establishment and implementation of the ESD program shall meet the requirements of

MIL-STD-1686/ESD S20.20. Electrostatic Discharge Sensitive (ESDS) devices shall be packaged and marked per the requirements of MIL-STD-1686 (existing contracts)/ESD S20.20.

25. Solderability: The military specification materials supplied under this order shall meet the solderability requirements of MIL-STD-883, method 2003 for microelectronics, MIL-STD-750, method 2026 for semiconductors or MIL-STD-202, method 208 for all other solderable parts and components. The commercial specification components and wire supplied under this order shall meet the requirements of ANSI/J-STD-002 or equivalent and the printed wiring boards shall meet the requirements of ANSI/J-STD-003 or equivalent. Material supplied under this order shall be accompanied by evidence indicating completion of acceptable solderability tests.
26. Radiation Harness: The vendor agrees not to make any configuration changes or process changes and agrees not to initiate production of devices purchased under this purchase order prior to receipt of Perma-Brass, Inc. approval for devices procured as radiation hardened. The vendor agrees to provide all information concerning configuration and process changes required for Perma-Brass, Inc. approval. In the event testing is deemed a prerequisite by Perma-Brass, Inc. for approval, the vendor agrees to provide results of qualification tests and certification in accordance with MIL-STD-883 or MIL-STD-750, as applicable to the level(s) required.
27. Group I Purchases: This purchase order flows-down to the supplier the requirements for Group I purchases in accordance with MIL-STD-1535.
28. Performance Temperature Range: All components furnished under this purchase order shall operate over the temperature range of -55 degrees C to +105 degrees C.
29. UL Certification: The vendor shall furnish a certificate of compliance stating the name of the UL approved manufacturer of the product.
30. International Standards: The vendor shall be certified to one of the following International Standards (these standards represent distinct forms of quality system requirements suitable for the purpose of a supplier demonstrating its capability and for the assessment of that claimed capability by external parties). Perma-Brass, Inc. will specify 43a or 43b below as required or as appropriate.
  - I. ISO 9001, Quality System: Model for quality assurance in design, development, and production.
  - II. Inactivated:
  - III. Inactivated:
  - IV. AS9100, Quality System: Model for quality assurance in design, development, and production.
31. ESD Protective Packaging Materials: Material furnished shall be physically marked with the following:
  - The appropriate ESD S8.1 ESD protective symbol per paragraph 8.2.1, ESD S541-2003 or subsequent.

- The appropriate material classification per paragraph 8.2.2, ESD S541-2003 or subsequent.
  - The date/lot code providing traceability for each lot of material supplied per paragraph 8.2.3, ESD S541-2003 or subsequent.
- a. ESD Protective Packaging Materials: All materials shall be tested and certified as meeting one or more of the following requirements as applicable to the protective property of the material being supplied:
- i. Conductive planar materials shall be tested in accordance with ESD STM11.11-2001 or subsequent. Quality control data shall include test data recorded for each lot of material tested as required by ESD STM11.11-2001, paragraph 11.0.
  - ii. Static shielding bags shall be tested in accordance with ESD STM11.31-2001. Quality control data shall include test data recorded for each lot of material tested as required by ESD STM11.31-2001, paragraph 8.
  - iii. Static dissipative planar materials shall be tested in accordance with ESD STM11.11-2001. Quality control data shall include test data recorded for each lot of material tested as required by ESD STM11.11-2001, paragraph 11.0.
  - iv. Low charging materials shall be tested for triboelectric charge accumulation per Appendix D, ESD ADV11.2-1995 or subsequent using typical static sensitive components and circuit card assemblies for all simulated handling conditions. Maximum acceptable accumulated charge shall be an absolute value of 100 volts or less. Low charging wrapping materials shall be tested in the same manner as bags and pouches and may be formed into bags or pouches to facilitate testing, as required. Quality control data shall include test data recorded for each lot of material tested as required by paragraph 7.5, ESD ADV11.2-1995 or subsequent.
32. Cadmium Warning Label: Seller shall label shipping and storage containers that contain cadmium, cadmium compounds, or cadmium containing materials or articles as required by 29CFR1910.1027. At a minimum, the warning label shall include the following information:
- Danger
  - Contains cadmium
  - Cancer hazard
  - Avoid creating dust
  - Can cause lung and kidney disease
33. Supplier Corrective Action: Supplier shall furnish appropriate corrective action upon request. If adequate response is not received within 30 days, the supplier will be placed in the Restricted category.
34. Broker Purchase with Traceability Requirement: For buys made from Brokers, Independent Distributors, or Non-Franchised Distributors, supplier shall provide records of unbroken traceability to the original component manufacturer. These records may be in the form of copies of purchase orders, receipts, invoices, or shippers. These records shall accompany the material at the time of



shipment. Supplier shall provide Certificate of Test from a test facility indicating that the parts meet all DC and AC electrical characteristics as stated on the manufacturer's data sheet. Supplier shall provide Certificate of Test indicating that the parts have been examined and pass scratch, solvent resistance, and other tests as necessary to ensure they have not been sanded, top-coated, re-marked or altered in any way or by any means.

35. Broker Purchases allowed with prior customer approval: Purchases from brokers or independent distributors may only be placed with prior written approval from the customer or by purchase order, statement of work or contract.

36. Broker Purchases are not allowed: Purchases from brokers or independent distributors are not allowed on this purchase order.

37. Ensuring that persons are aware of:

- Their contribution to product or service conformity;
- Their contribution to product safety;
- The importance of ethical behavior.