# QUALITY AND SAFETY REQUIREMENT MANUAL

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**Introduction**

This Supplier Quality Document is intended to assist our current suppliers and potential new suppliers with the basis for understanding the quality expectations of GMI.

**Purpose**

This Document establishes the minimum quality requirements for all suppliers of production materials, whether the products being furnished are provided by the supplier directly or are purchased from a sub-supplier for the use on GMI products.

**Purchase Order**

Quality requirements (Q1 – Q22 and S1 – S4, as needed) are specific to an item that may not be listed on a drawing or specification. These requirements are utilized to specify any additional quality criteria to GMI's vendors. Not all items will have quality requirements; some items will have the expected quality requirements set forth by their associated drawing and/or specifications.

A review of the item's drawing and/or specification will be performed to determine if additional quality requirements are necessary. If there are additional requirements, the quality requirements will be indicated on the purchase order with the vendor.

The list of possible Quality Requirements is indicated in Section 4 of this document.

**1.0 Management Responsibility**

The supplier shall establish, document and maintain a quality system as a means of ensuring that product conforms to specified requirements. The supplier shall submit the following to GMI as requested:

- Quality Manual
- Certification documentation: ISO, IPC, NDE or any other relevant qualifications.
- Documentation requested by GMI that adequately assess a supplier's quality system.

**2.0 Quality Planning**

When required by GMI, the supplier shall establish and implement a product quality planning process for the new products supplied to GMI.

**2.1 Plans shall be reviewed and updated when any of the following occur**:

- The product is changed
- The processes are changed
- Defects are identified during production

**2.2 Product Part Approval Process Requirements**

When chemical tests are required, the supplier shall submit the test results on the laboratory letterhead, or the normal laboratory report form. The name of the laboratory that performed the tests, the date(s) of the tests, and standards used to run the tests, the lot id number and GMI's part number must be indicated on the report. **Blanket statements of conformance are unacceptable for any test results.**

**2.2.1 Material Test Results**

The supplier shall perform tests for parts and production material when chemical, metallurgical, dimensional, physical, electrical, and reliability requirements are specified by the design record.

**2.2.2 Performance Test Results**

The supplier shall ensure that all tests are completed for all parts or product material when performance or functional requirements are specified by the design record.

**2.2.3 Measurement and Calibration System**

The supplier shall have an appropriate calibration system to monitor and ensure accuracy with their measuring, designing or fabrication equipment.

**2. 2.4 Sample Production Parts**
All sample parts shall be sequentially numbered and 100% inspected. Inspection results with corresponding identification numbers shall accompany parts when shipped to GMI.

**2. 2.5 Customer Product or Part Status**

**Full Approval:** indicates that the part or material meets all GMI specifications and requirements. The supplier is therefore authorized to ship production quantities of the product.

**Interim Approval:** permits shipment of material for production requirements on a limited time or piece quantity basis. (Note: in this situation GMI will notify the supplier, agree upon an action plan, and require the supplier to re-submit the appropriate documentation.)

**Rejected:** means that the submission, the production lot from which it was taken, and accompanying documentation do not meet GMI's requirements. The submission and/or process, as appropriate, shall be corrected to meet customer requirements. A re-submission must be approved before production quantities may be shipped.

**2.2.6 Record Retention**
Product and/or Part records shall be maintained for the length of time that the part or product has final acceptance. The retention time will be driven by the contract. The supplier shall ensure that the appropriate parts are electronically maintained. Records or documents that should be carried forward from the old file to the new file would be material certs, dimensional results, testing results.

## 3.0 Nonconforming Material

3.1. A supplier must immediately notify GMI if it is discovered that the nonconforming material may have been shipped to GMI. Immediate notification should be made by telephone followed by written documentation of the problem, lot size, shipment dates, lot identification and GMI's part number etc.

3.2. If nonconforming material is discovered at GMI. GMI reserves the right to reject the entire lot or make other disposition. GMI Quality or Purchasing department will notify the supplier directly if corrective action and/or a failure analysis report (FAR) is required. Upon notification, the supplier must provide a written containment and replacement plan to the GMI Quality department within 24 hours. Containment may include full replacement of all suspect material, 100% inspection of all products at or enroute to GMI, as well as product in process at supplier's facility or subcontractor. In addition, a clear point with the first known conforming parts must be communicated to GMI. To protect production schedules of GMI and their customers, GMI reserves the right to initiate 100% inspection at their facility. All expenses incurred may be billed to supplier responsible for defective component(s).

Suppliers are expected to take ownership of the corrective action process, lead root-cause investigations, and report to GMI on a timely basis. Within 14 calendar days of notification, suppliers are expected to complete the actions of the corrective action process, including evidence to support root cause conclusion. In all cases, the supplier shall 100% inspect material until corrective action(s) have been agreed with GMI and implemented.

**3.3 Disposition of Nonconforming Material**
Nonconforming material found at GMI facility is subject to several possible disposition's dependent on the nature of the nonconformance and supplier input. Supplier shall be responsible if the nonconformance has been determined to be their issue.

- Supplier to rework and or sort at GMI facility at the supplier's expense.
- Scrap at GMI facility at supplier's expense.
- Return to supplier at supplier's expense.
- Use with a GMI approved deviation.

### 4.0 Quality Requirements (Q-Blurbs)

**Q1** GMI Subcontractors shall have a documented Quality System compliant to ISO 9000, ANSI/ASQ Q9000, AAR M1003 or system approved by GMI. Documents describing the Quality program and a Certificate of Registration must be submitted to and be approved by GMI within 10 days of the Contract Purchase Order award. Site visits, including System Audits may be performed at any time.

**Q2** The Subcontractor shall submit a Certificate of Compliance with the **initial shipment** stating that the items shipped meet all requirements of the applicable drawings and specification listed in the specification section of this purchase order.

**Q3** The Subcontractor shall submit a Certificate of Compliance with **each shipment** stating that the items shipped meet all requirements of the applicable drawings and specification listed in the specification section of this purchase order.

**Q4** Subcontractors shall submit a test plan to GMI for review and approval. Once approved, all changes must be approved by GMI.

**Q5** A First Article Inspection shall be performed on the first production unit of each item. Seller shall notify GMI Purchasing, in writing, two weeks prior to unit completion date. The First Article Inspection Plan and Test Procedures shall be submitted at least 60 days prior to the unit completion date. GMI shall notify seller seven days prior to unit completion date if GMI will exercise or waive the requirement for inspection. First Article Inspection must be approved by GMI prior to full production runs. The Subcontractor shall provide the following for the performance of the First Article Inspection:

- First Article Inspection Plan (including Inspection and/or Test Procedures.)
- Subcontractors/Supplier Inspection and Test Records (including mill certs and plating type)
- Approved Drawings used by the Subcontractor to manufacture, inspect, and/or test the material presented.
- Personnel and equipment to demonstrate product acceptance activities.

**Q5b** A First Article Inspection (FAI) shall be performed on the first production unit of each item. Subcontractor/Supplier shall notify GMI Purchasing, in writing, 1 week prior to unit completion date. First unit to be inspected at GMI. First Article Inspection must be approved by GMI prior to full production runs. The Subcontractor shall provide the following for the performance of the First Article Inspection:

- First Article Inspection Plan (including Inspection and/or Test Procedures.)
- Subcontractors/Supplier Inspection and Test Records (including mill certs and plating type)
- Approved Drawings used by the Subcontractor to manufacture, inspect, and/or test the material presented.

**Q6** The approved First Article unit shall be retained at the manufacturer's facility as a standard and shall be the last unit shipped, unless specified otherwise.

**Q7** Records verifying inspection and/or test results must accompany all shipments.

**Q8** Heat treatment graphs for shipped items must accompany each shipment.

**Q9** Certified Mill Test Reports of Chemical and Physical Properties shall accompany all lot/heat runs for materials supplied against this purchase order.

**Q10** All welding must be performed to applicable AWS or ASME Codes by certified welders to qualified procedures. All qualification and certification records must be maintained and available for review.

**Q11** All Brazing shall conform to applicable AWS Codes

**Q12** Source inspection of a product at the Subcontractor's facility by a GMI representative is required prior to shipment. Approval of items inspected authorizes shipment only and, in no way relieves the Subcontractor from guaranteeing conformance to the specified requirements. The Subcontractor shall give GMI five (5) working days' notice of item availability for source inspection.

**Q13** All records of inspections and or tests in support of material supplied under this purchase order shall be maintained by the Subcontractor for a period of five (5) years from the date of final product shipment. At that time, the GMI buyer is to be notified for disposition of said records. Should GMI request records or a portion thereof at any time during the contract performance or the five-year period, the Subcontractor shall retrieve and deliver them within 5 working days of the request.

**Q14** Subcontractor shall have a documented traceability system for mechanical/electronic parts and supplies.

**Q15** Subcontractor shall be required to establish and implement a program for the handling of Electrostatic-Discharge Sensitive Devices (ESDS) which complies with ANSI/EIA 625-1994.

**Q16** Certification of shelf-life and storage control requirements shall be provided.

**Q17** Part identification inclusive of revision level shall be marked on each component for each supplied line item.

**Q18** Major components shall be identified by serial number unique to the component. Such identification shall require permanent application.

**Q19** Subcontractors shall submit an Inspection Plan to the buyer for review and approval. Once approved, all changes must be approved by GMI.

**Q20** GMI suppliers shall answer the evaluation questionnaire that may be sent by GMI. GMI may also perform an evaluation of the supplier's Quality Manual that must be in place.

**Q21** All non-destructive evaluations shall be in accordance with ASNT-TC-1A, or documented procedures approved by GMI. All qualification and certification records shall be maintained and be available for review.

**Q22** Supplier shall provide one sample of each part / assembly for approval to GMI before shipment of full production runs.

**5.0** The following SAFETY blurbs will be used for purchased items that have safety requirements:

**S1** All critical fasteners shall either: (1) be manufactured, tested, and distributed in accordance with ASME FAP-1-1990, Quality Assurance Program for Fastener Manufacturers and Distributors, including the requirements of ASME accreditation; or (2) have a representative sample of each production lot of fasteners tested for conformance to purchase specifications by an independent laboratory accredited by the American Association of Laboratory Accreditation (AALA) or approved equal. A production lot is defined as one size of fastener, from one manufacturer, produced during one continuous production run. Fasteners not meeting this definition of production lot shall be treated as separate lots. Tests conducted shall confirm that fastener material meets specified chemistry and strength requirements. The supplier shall obtain certified test results from the testing laboratory and hold the documents for a period of not less than the termination of the warranty period. All critical fasteners that are plated or chemically cleaned shall have certifications showing freedom from hydrogen embrittlement. If non-standard, structural, or safety related fasteners are plated by other than the O.E.M., a representative sample of these fasteners shall be tested for hydrogen embrittlement following ASTM F519 procedures. An ASTM F606 wedge test sample may be used in place of the F519 standard samples. Test loads shall be a minimum of 80 percent of yield strength or proof load and held for a minimum of 168 hours. Any failures shall reject the entire lot. Tests conducted shall confirm fastener material meets specified chemistry and strength requirements. All critical fasteners that are plated or chemically cleaned shall have certifications showing freedom from hydrogen embrittlement. The Supplier shall obtain certified test results from the testing laboratory and copy to GMI with each different lot.

**S2** Material Safety Data Sheets required for handling and application of product as required by OSHA regulation shall be provided.

**S3** Smoke and Flame Test results from an independent test lab are required as specified for all combustible material.

**S4** Toxicity test results from an independent test lab are required as specified.

**6.0 Agreement and Acknowledgement**

I agree and certify that I have read the GMI Supplier Quality Requirements document and will comply with the requirements within the documentation.

_____
(Company Name)

_____/_____
(Print Name) (Title)

_____/_____
(Signature) (Date)