

**1. Propose**

To provide instruction on Gleason Metrology Systems Michigan (GMSM) Corporation's supplier quality assurance requirements.

**2. Scope**

These requirements apply to all GMSM Corporation Aerospace suppliers.

**3. Responsibilities**

Acceptance of GMSM Corporation's purchase orders constitutes acceptance to the requirements set forth within this work instruction.

**4. Requirements****4.1 Supplier Quality System Requirements**

4.1.1 The supplier shall develop and maintain fundamental Quality Systems that provide for continuous improvement and ensure product or services provided to GMSM Corporation meet all applicable drawing, specification, purchase order and quality requirements. Suppliers shall be compliant to the latest revision of AS9100, ISO9001, ISO17025, Nadcap or any quality system acceptable to GMSM Corporation's customers as appropriate or have an approved audit/survey on file.

4.1.2 In addition to basic Quality System requirements, GMSM Corporation contractually mandates that requirements and procedures defined below are complied with.

**4.2 Documents and Data**

4.2.1 GMSM Corporation supplied blueprints and sketches will be considered uncontrolled. It is the supplier's responsibility to ensure the blueprint revision coincides with the Purchase Order (P.O.).

4.2.2 Whenever a specification or drawing is called out on a P.O., it should be interpreted to mean the latest revision issued at the date of the P.O. issuance, unless otherwise specified on the P.O.

**4.3 GMSM Corporation Surveillance and Access**

4.3.1 GMSM Corporation, its customers, and regulatory agencies, reserve the right to access the supplier's facilities for monitoring and inspecting of products and services supplied to GMSM Corporation.

**4.4 Non-conformances**

4.4.1 Any product not conforming to drawings or specifications found by the suppliers require disposition in advance of shipment to GMSM Corporation. All non-conformances of GMSM Corporation controlled requirements must be submitted to the appropriate facilities' MRB.

4.4.2 The supplier may submit a deviation request through GMSM Corporation's Quality department, via an email or electronic communication. The supplier shall submit the request prior

to performing any rework or repair. Acceptance by GSM Corporation is only for the specified quantity and does not establish any criteria for future shipments.

4.4.3 Any costs incurred due to a nonconformance caused by a supplier may be assessed back to that supplier.

4.4.4 The supplier shall notify GSM Corporation Quality, within 24 hours, upon determining that nonconforming product, or items containing latent defects, have been shipped to GSM Corporation.

4.4.5 Nonconforming material found by GSM Corporation may be reported to the supplier on a Nonconformance Report (NCR).

4.4.6 Material may be classified as Return to Vendor (RTV) via a Return Purchase Order and returned with notification from GSM Corporation Quality department.

4.4.7 Where warranted by the type of nonconformance, a Supplier Corrective Action Request may also be issued. Failure to complete and return the SCAR by the requested due date will affect the supplier's performance rating and may result in GSM Corporation withholding quotation opportunities.

#### **4.5 Record Retention**

4.5.1 Suppliers shall establish procedures to ensure Quality records are, unless otherwise specified, maintained for a minimum of fifteen (15) years after delivery of material and material certification. Quality records are those records which demonstrate conformance to specified requirements and effective operation of the quality system.

4.5.2 Records shall be made available for GSM review upon request.

#### **4.6 Notification of Changes**

4.6.1 The supplier shall notify GSM Corporation Purchasing of changes to product and/or Process definition a minimum of 2 months prior to incorporation, or as required by Purchase Order, drawing, or specification.

4.6.2 Suppliers shall notify GSM Corporation Purchasing of any management changes or certification status changes within 30 days of such change occurring.

#### **4.7 Foreign Object and Debris (FOD)**

4.7.1 Suppliers shall maintain procedures to control FOD (Foreign Objects, Damage) for all products and services delivered to GSM Corporation.

#### **4.8 Counterfeit Parts**

4.8.1 Suppliers shall maintain adequate procedure to control Counterfeit Parts., including (but not limited to) avoidance, detection, mitigation and disposition per the requirements of AS9100D 8.1.4

4.8.2 Suppliers shall notify GSM Corporation Purchasing, within 24 hours, upon determining that counterfeit materials have been shipped or previously shipped to GSM Corporation.

#### **4.9 Requirements Flow Down**

4.9.1 Suppliers shall flow down to sub-tier suppliers all applicable purchase order requirements. This flow down shall include all key characteristics when specified.

#### **4.10 Government, Safety, and Environmental Regulations**

4.10.1 All purchased materials used in part manufacturing shall satisfy current governmental and safety constraints on restricted, toxic and hazardous materials; as well as environmental, electrical and electromagnetic considerations to the country of manufacture and sale.

#### **4.11 Supplier Performance Rating**

4.11.1 GSM Corporation shall monitor Outsource suppliers, Raw Material Suppliers, Tooling Suppliers, and Gaging Suppliers for delivery and quality. The frequency of monitoring suppliers is established by GSM Corporation's management team.

4.11.2 Suppliers are expected to maintain an acceptable on time delivery, quality, and order accuracy as determined by purchase order specification. Intra Corporation will monitor and take appropriate action as necessary.

4.11.3 Suppliers continually receiving unacceptable rating values will be notified and may be removed from GSM Corporation's Approved Suppliers List. Unacceptable ratings will be determined upon management input.

#### **4.12 Outsource Suppliers**

4.12.1 Outsource Suppliers shall provide a certificate of conformance with each shipment to Intra Corporation, as defined in Quality Clauses section (QC Codes).

4.12.2 Outsource suppliers will be monitored for OTD, and quality.

#### **4.13 Raw Material Suppliers**

4.13.1 Raw Material Suppliers shall provide documentation as defined by Quality Clauses section (QC Codes).

4.13.2 Raw material suppliers will be monitored cost, quality and OTD.

#### **4.14 Tooling Suppliers**

4.14.1 Tooling suppliers will be monitored for OTD and order accuracy.

#### **4.15 Gage Suppliers and Gage Calibration Services**

4.15.1 New gages must be traceable to NIST. Long form certifications must be included with all new gage purchases.

4.15.2 Suppliers that provide dimensional gage calibrations must be ISO17025 certified, unless the supplier is the manufacturer of the gage; other vendors may require other certifications.

4.15.3 Gage suppliers and Gage Calibration service suppliers will be monitored for OTD and order accuracy.

#### 4.16 Inspection Services

4.16.1 Suppliers that provide dimensional inspection services must be ISO17025 certified or equivalent.

4.16.2 Inspection services suppliers will be monitored for OTD and order accuracy.

#### 4.17 Confidentiality

4.17.1 Suppliers will maintain confidentiality regarding customer specific designs, prints and proprietary information. The supplier will request written authorization from GSM Corporation when it is necessary to share such information with other entities.

#### 4.18 Awareness

4.18.1 Supplier shall ensure their employees are aware of:

1. Their contribution to product conformity,
2. Their contribution to product safety, and
3. The importance of ethical behavior

#### 4.19 Ethical Policy

4.19.1 It is expected for suppliers to comply with the Aerospace Industries Association of America (AIA) Global Principles of Ethics in the Aerospace & Defense Industry.

### Quality Clauses

The following quality control clauses apply when specifically noted on the GSM Corporation purchase order:

**Q1- Material Certifications:** A Material certificate shall be provided with each shipment of material. Certificate must be complete, legible, reproducible and authentic. The specification with the latest revision and the name and title of the authorized representative shall appear on the certificate and shall bear the person's signature and the date.

**Q2- Material Certifications: Chemical Test Reports.** Chemical test reports shall be provided with each shipment of material. Certifications must be complete, legible, reproducible and authentic. The specification with the latest revision and the name and title of the authorized representative shall appear on the certification and shall bear the person's signature and the date.

**Q3- Material Certification: Mechanical Test Reports.** Mechanical and Physical Test reports shall be provided with each shipment of material. Certifications must be complete, legible, reproducible and authentic. The specification with the latest revision and the name and title of the authorized representative shall appear on the certification and shall bear the person's signature and the date.

**Q4- Process Certification:** Each process performed shall include a certification with shipment. Certifications must be complete, legible, reproducible and authentic. The specification with the latest revision and the name and title of the authorized representative shall appear on the certification and shall bear the person's signature and the date. Process certifications must contain specific process information as listed on the Purchase Order, Drawings and Specifications used to complete the process such as, **Dates, Times and Temperatures, Plating Thickness, Shot Size and Intensity, Qualification Level of Personnel performing tests (Level II / Level III), Test Results, Part Number and Revision, Serial Numbers** and any other information required to complete the certification.

**Q5- Approved Sources:** Only sources approved by GSM Corporation or GSM Corporation's Customers can be used. Contact the GSM Corporation Buyer regarding any questions or approvals.

**Q6- First Article Inspection:** Upon first initial production or any subsequent change to the product or tooling used to produce the product, the Supplier shall perform and document a comprehensive inspection and test to verify compliance to purchase order and specification requirements. The first article part will be tagged and identified as "F.A.I. Part" for shipment to GSM Corporation.

The Suppliers first article inspection report shall contain the following minimum information:

- a) Part Number,
- b) Part Name,
- c) Drawing Revision,
- d) Supplier Name and Address,
- e) The GSM Corporation Purchase Order,
- f) The GSM Corporation Job and Lot Number,
- g) The Lot Quantity from which the F.A.I. part was selected,
- h) The Inspectors printed name, signature (and stamp if used),
- i) All drawing characteristics with their tolerances,
- j) All actual dimensions measured,
- k) F.A.I. results (Accepted / Rejected),
- l) Serial Number (s) if applicable,
- m) Trace ability to Acceptance Test Procedures (if applicable),
- n) Trace ability to Test Equipment (if applicable), and
- o) All drawing notes and material requirements

**Note:** A CMM report will be accepted when annotations are made to comply with requirements (a) thru (n) herein.

**Note:** The Supplier F.A.I. package will include copies of the F.A.I. Report and all applicable Certifications and Test Reports.

**Q7- Final Inspection:** Each shipment of product or articles shall include a copy of the Suppliers Final Inspection Report.

The Suppliers final inspection report shall contain the following minimum information:

- a) Part Number,
- b) Part Name,
- c) Drawing Revision,
- d) Supplier Name and Address,
- e) The GSM Corporation Purchase Order,
- f) The GSM Corporation Job and Lot Number,
- g) The lot quantity / qty. inspected / qty. accepted / qty. rejected,
- h) The inspectors printed name, signature (and stamp if used),
- i) All drawing characteristics with their tolerances,
- j) All actual dimensions measured,
- k) Final Inspection results (Accepted / Rejected),
- l) Serial Number (s) if applicable,
- m) Trace ability to Acceptance Test Procedures (if applicable),
- n) Trace ability to Test Equipment (if applicable), and
- o) All drawing notes and material requirements

**Note:** A CMM report will be accepted when annotations are made to comply with requirements (a) thru (n) herein.

**Note:** The Supplier Final Inspection package will include copies of the Final Inspection Report and all applicable Certifications and Test Reports.

**Q8- First Article Verification:** An GSM Corporation Quality Representative shall witness the performance of the first article at the Suppliers facility. Contact your GSM Corporation Buyer 48 hours in advance to schedule the required support. The Supplier may have already completed the F.A.I. and repeat the inspections and test as requested during performance of this requirement. Inspection by the GSM Corporation Quality Representative does not constitute final acceptance of product.

**Q9- GSM Corporation Source Inspection:** GSM Corporation source inspection is required prior to shipment of product from your facility. The Supplier will provide reasonable support including necessary equipment and personnel to complete the source inspection activity. Contact your GSM Corporation Buyer 48 hours in advance to schedule the required support. Evidence of GSM Corporation Source Inspection will appear on the supplier's shipping documents. Inspection by the GSM Corporation Quality Representative does not constitute final acceptance of product.

**Q10- Government Source Inspection:** Government inspection is required prior to shipment from your plant.

- a) Upon receipt of this order, promptly notify the Government Representative who normally services your plant so that appropriate planning for Government inspection can be accomplished.
- b) On receipt of this order, promptly furnish a copy to the Government Representative who normally services your plant or, if none, to the nearest Army, Navy, or defense Supply Agency inspection office. In the event the Government Representative or office cannot be located, contact your GSM Corporation Buyer.
- c) GSM Corporation Source Inspection is required on product or articles being submitted to the Government in compliance with the GSM Corporation purchase order. Contact the GSM Corporation Buyer 48 hours in advance to arrange the required support.

**Q11- Quality Assurance System Requirements:** The supplier shall document and maintain Quality Systems to ensure product or services conformance to GSM Corporation that meet all applicable drawing, specification, purchase order, and quality requirements. Suppliers shall be compliant to the latest revision of AS9100, ISO9001, ISO17025, Nadcap or any quality system acceptable to GSM Corporation's customers as appropriate or have an approved audit/survey on file.

**Q12- Gear Inspection:** The supplier shall prepare gear inspection charts to meet the following criteria:

- a) 100% Total Composite Error – Tooth-to-Tooth Action.
- b) 100% Lead Tooth Error.
- c) 100% Profile Tooth Error.
- d) 100% K Chart (When applicable).

**Note:** Each part will be tagged with a serial number correlating to the numbered charts created by the supplier. Each chart will indicate the increment of measurement for the inspection performed. Original charts shall be provided and must be legible and reproducible.

**Q13- Gear Inspection:** The supplier shall prepare gear inspection charts to meet the following criteria:

- a) Sample Total Composite Error – Tooth-to-Tooth Action.

- b) Sample Lead Tooth Error.
- c) Sample Profile Tooth Error.
- d) Sample K Chart (When applicable).

Note: Each part will be tagged with a serial number correlating to the numbered charts created by the supplier. Each chart will indicate the increment of measurement for the inspection performed. Original charts shall be provided and must be legible and reproducible.

Sample requirements by lot size:

- 1) Lot Size of 1 –13 = 100% Composite, 5 charts lead & profile.
- 2) Lot Size of 14 – 100 = 1 chart for every 7 parts produced.
- 3) Lot Size 101 and above = Sample per ANSI Z1.4-1993 Level II AQL 1.0, except reject number will be zero.

**Q14- Statistical Process Control:** The supplier shall provide control charts as specified within GSM Corporation purchase order or planning instructions. Supplier shall provide in-process data when requested to verify control charts submitted. Contact your Buyer for GSM Corporation Quality Engineering assistance if required.

<b>Revision History</b>				
<b>Date</b>	<b>Revision</b>	<b>Description</b>	<b>Approved</b>	<b>Date</b>
10/11/2018	Original		D. Kruszewski	10/11/18
1/24/2019	A	Added 4.20 Awareness	D. Kruszewski	1/24/19
9/23/2021	B	Added Quality Clauses QC Codes	T. Boulware	9/23/2021
12/15/2025	C	Change name and logo to Gleason	T. Boulware	12/15/2025