

TULMAR
ENGINEERED FOR PROTECTION

TULMAR QUALITY CLAUSES



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QUALITY CLAUSE GROUPINGS [24 Aug 2012]

Gr. A : G1 to G6, Q1, Q3, Q5, Q7, C1, F1, F2, F3, F4, F5, F6, T5, N1, S4, S6, S8

Gr. B : G1 to G6, Q2, Q4, Q6, Q8, C1, T5, N1, N2, S5, S7, S9

Gr. C : G1 to G6, Q6, C1

Gr. D : G1, G7, G8, Q1, Q3, Q9, C2

Gr. E : G1 to G6, Q1, Q3, Q5, Q7, C1, T5, N1, N2, S5, S7, S9

Use of Clause Codes (as found on Purchase Order):

Example:

If you see [GrBT3] on a purchase order, this means that all clauses from Group B and clause T3 are applicable.

GENERAL NOTES

G1 Purchase Order Compliance [05 Dec 2011]

The supplier is responsible for full compliance to all stated Quality Clauses and Purchase Order Specifications. In case of conflict or lack of clarity with respect to contractual terms and requirements, it remains the supplier's duty to contact Tulmar for resolution or clarification of requirements.

G2 Identification of Manufacturer [24 Aug 2012]

A supplier furnishing goods not of its own making shall identify the manufacturer and point of origin of each line item furnished under the Purchase Order. This information shall be included on the Certificate of Conformance and shall be submitted to Tulmar in accordance with G3. The Certificate of Conformance shall originate with the manufacturer and be directly traceable to the goods supplied to a specific Tulmar Purchase Order.

G3 Information Submitted by Supplier [22 Jan 2013]

Where a clause requires specific information to be submitted, unless otherwise specified, the supplier shall submit the specific information to:

- For Tulmar Safety Systems (Hawkesbury, ON, Canada) orders: sqa@tulmar.com quoting the subject, Tulmar Part Number, Tulmar Purchase Order and line item numbers.
- For Tulmar Manufacturing (Ogdensburg, NY, USA) orders: tmsqa@tulmar.com quoting the subject, Tulmar Part Number, Tulmar Purchase Order and line item numbers.

The use of Tulmar approved forms, which are available for download at www.tulmar.com is recommended. Where a supplier form is used, the content of [Tulmar approved forms](#) shall be present on the supplier form.

G4 Limited Life Materials Documentation [22 Jan 2013]

The limited life status of all goods supplied to Tulmar shall be declared. Goods with limited life shall have the expiration dates clearly identified on their packaging and the [Shelf Life Questionnaire](#) shall be submitted as required to Tulmar in accordance with G3. Unless otherwise stated, goods shall be delivered within the first 10% of their life.

G5 Hazardous Material Acknowledgment [28 May 2013]

All goods supplied to Tulmar must not contain or have trace amounts of Hexavalent Chromium. The hazardous material content of all goods supplied to Tulmar shall be declared. Whether goods supplied are free of or contain hazardous materials, the declaration of hazardous material content shall be made in accordance with G3. When the goods supplied to Tulmar contain hazardous material, the MSDS associated with goods reported as hazardous shall be submitted to Tulmar in accordance with G3. [Hazardous Materials Acknowledgement form](#) is available for download at www.tulmar.com.

G6 Identification & Packaging [10 Feb 2012]

Individual good marking shall be as specified by the Technical Data Package. If not otherwise specified, each individual good furnished under the Purchase Order shall be legibly identified with Tulmar part number, drawing number, and revision level by marking on a removable tag, bag or container.

The supplier is responsible to design and provide packaging for products shipped to Tulmar, or on Tulmar's behalf, so as to prevent damage during handling and transit.

Packaging shall be marked with appropriate handling instructions, purchase order number and Tulmar purchasing agent's name and address. Each PO shall be packed separately.

G7 Limited Life Materials Documentation [24 Aug 2012]

Goods with limited life shall have the expiration date clearly identified on their packaging. Unless otherwise stated, goods shall be delivered within the first month or 2% of their life which ever gives the longest remaining life. The life limitation shall also be clearly stated on the accompanying certification.

G8 Hazardous Material Acknowledgement [24 Aug 2012]

Hazardous material shall be shipped and identified in accordance with the applicable regulatory authorities requirements. MSDS associated with goods reported as hazardous shall be available to Tulmar upon request.

QUALITY MANAGEMENT SYSTEMS

Q1 Quality Management System [24 Aug 2012]

The Supplier shall operate a formalized and documented Quality Management System that has been pre-determined as acceptable to Tulmar and its customers.

The Quality Management System is subject to periodic review and approval by Tulmar, its customers or regulatory agencies to determine ongoing acceptability.

The Supplier's Quality Management System shall ensure that only goods that comply with the requirements of the Purchase Order and its referenced drawings and specifications can be submitted to Tulmar.

Q2 Quality Inspection System [05 Dec 2011]

The Supplier shall operate an inspection system acceptable to Tulmar.

This inspection system may be subject to periodic audits by Tulmar to determine continued acceptability.

This system shall be able to ensure that only goods that comply with the requirements of the Purchase Order and its referenced drawings and specifications can be submitted to Tulmar.

Q3 Calibration System [05 Dec 2011]

Calibration shall be applied to all measurement and test equipment used to assure that product or critical manufacturing elements meet specifications. Calibration shall be performed in accordance with the requirements of ANSI/NCSL Z540-1 or ANSI/ISO/IEC 17025 & 10013-1 or equivalent, using standards traceable to the National Institute of Standards and Technology (NIST).

Q4 Calibration System [05 Dec 2011]

The calibration of measurement and test equipment used to verify conformance to specifications shall be maintained as per general industry standards and equipment manufacturer's recommendations.

Q5 Quality Records [05 Dec 2011]

The Supplier shall store and maintain Quality Records, which shall be legible, reproducible, and traceable to each specific Purchase Order.

Retention period for Quality Records is (5) years unless otherwise specified. Tulmar, its customers and applicable Regulatory Agencies shall have access to review Quality Records.

Q6 Quality Records [05 Dec 2011]

The Supplier shall store and maintain Quality Records, which shall be legible, reproducible, and traceable to each specific Purchase Order.

Retention period for Quality Records is (1) year unless otherwise specified. Tulmar shall have access to review Quality Records.

Q7 Requirements Flow-Down [03 Feb 2012]

At the earliest opportunity and prior to start of production, the Supplier shall advise Tulmar of any intention to sub-contract any portions of the purchase order contract, for example, but not limited to: Manufacturing, processing, material supply or testing. Tulmar reserves the right to disapprove any sub-contract arrangements.

The Supplier shall ensure transfer of, and compliance with, all requirements of the Purchase Order, Quality Clauses and specifications of the Technical Data Package (TDP), as applicable, to all tiers of sub-supplier.

Q8 Requirements Flow-Down [05 Dec 2011]

The Supplier shall ensure transfer of, and compliance with, all requirements of the Purchase Order, Quality Clauses and specifications of the Technical Data Package (TDP), as applicable, to all tiers of sub-supplier.

Q9 Quality Records [24 Aug 2012]

The Supplier shall store and maintain Quality Records, which shall be legible, reproducible, and traceable to each specific Purchase Order.

Retention period for Quality Records shall be in accordance with the local regulatory authority requirements. Tulmar, its customers and applicable Regulatory Agencies shall have access to review Quality Records.

CERTIFICATION OF COMPLIANCE

C1 Certificate of Compliance (CofC) [24 Aug 2012]

A CofC shall be submitted for each shipment wherein the supplier signs and certifies that all aspects of goods & services furnished are in compliance with Tulmar requirements. Certificates shall also confirm that the supplier has available objective evidence of conformance to all requirements

The CofC submitted to Tulmar shall originate with the manufacturer and be directly traceable to the goods supplied to a specific Tulmar purchase order.

The CofC shall be submitted, in accordance with G3. Each CofC shall provide, as applicable:

- CofC for coatings and surface treatments shall identify to which class, type or grade of specification and revision level the product complies.
- When testing has been specified, copies of actual test results shall be supplied
- Applicable inspection and test methods, relevant standards and/or specifications
- Traceability information such as MRS#, MRA#, etc...
- Shelf life and/or expiry date
- Scope of work performed
- Any other information pertinent to the good supplied

C2 Aviation Certification Requirements [24 Aug 2012]

All goods supplied to Tulmar shall be accompanied by an Authorized Release Certificate. Authorized Release Certificate shall meet applicable requirements of TCCA, FAA and EASA.

FIRST PIECE INSPECTION

F1 First Piece Inspection Requirements [24 Aug 2012]

First Piece Inspection (FPI) shall be utilized to verify conformance to 100% of the Technical Data Package.

The goods (piece) to be inspected shall be randomly selected from the lot, batch or production run associated with the purchase order.

The subject FPI good is to be uniquely identified and in such a way that it neither damages nor changes the part in any way. The identification method shall be stated in the FPI package.

Following a production run and prior to shipment of any goods, the FPI Package, as detailed in clause F3, shall be reviewed for acceptance by the supplier's quality function.

F2 Extended Approval of FPI [03 Feb 2012]

FPI status is to be monitored for integrity and continuity by the supplier's quality function and is considered extended by Tulmar from one purchase order to the next, unless:

- Product configuration changes have occurred,
- Product manufacturing moves to another facility,
- Product manufacturing processes are altered in some way,
- There is more than a (1) year lapse in delivery between subsequent production lots,
- Tulmar has requested Corrective Action on product-related issues,
- Sub-suppliers or their processes are altered in some way.

Tulmar shall be notified in advance if it is anticipated that any of the above conditions will occur. Otherwise, objective evidence shall be available to demonstrate integrity and continuity.

F3 First Piece Inspection Package [24 Aug 2012]

Specific FPI package requirements are indicated by the clause groupings and may be modified by the Purchase Order. Some clauses may not be applicable in certain cases, for example when there is no painting involved, those clauses cannot apply. Specific requirements may be drawn from clauses F4 to F8 and S3 to S9.

Once completed, the supplier is required to forward, in accordance with G3, the FPI package for subsequent review and approval by Tulmar.

Tulmar requires a minimum of five (5) business days notice for review of the package.

Product may be released for shipment only following FPI package approval by Tulmar.

F4 Inspection Record [24 Aug 2012]

The supplier shall confirm technical data package compliance by inspecting 100% of requirements (functional and physical). Objective results of verification shall be clearly and legibly recorded. The inspector's name and signature and date of inspection shall appear on the record. The record may take the form of marked up drawings or be summarized on an accompanying spreadsheet. The records shall be included in the FPI package.

F5 Tool and Equipment Identification [24 Aug 2012]

A list of the tools and equipment, along with their corresponding serial numbers and calibration due dates, that are used to comply to F4 shall be included in the FPI package.

F6 Certified Material Test Report [24 Aug 2012]

The Certified Material Test Reports (CMTR) from the material suppliers of origin showing evidence of conformance to all material specifications (i.e.: Type, analysis, class, color, etc.) referenced on the purchase order and in the Technical Data Package shall be included in the FPI package.

F7 Trial Fit [24 Aug 2012]

Upon Tulmar verification and acceptance, the subject good of FPI shall be shipped for trial fit. The supplier shall not ship any goods beyond First Piece until approval for production has been received from Tulmar.

F8 Engineering Prototype Approval [24 Aug 2012]

[Deleted, see T7].

INSPECTIONS AND TESTS

T1 Inspection and Test Plan [24 Aug 2012]

Prior to production, the supplier shall submit an Inspection and Test Plan, which may include applicable sequence of manufacturing operations, test methods utilized, frequency of inspection or method of process control, statistical sampling plan, inspection methods and equipment. This plan shall also identify all specifications, standards or documents relevant to each element of the plan.

The Inspection and Test package shall be submitted, in accordance with G3, for approval. Tulmar requires a minimum of five (5) business days notice for review.

T2 Functional Testing [24 Aug 2012]

The supplier shall submit, in accordance with G3, test reports for Tulmar approval with each shipment, and containing as a minimum:

- Tulmar Purchase Order Number,
- Item description,
- Item part and drawing numbers with revision level,
- Number of units tested, test parameters and test results,
- Signature and title of person who performed testing

T3 Test Data Submittal Requirement [07 Feb 2012]

For each shipment, the supplier shall produce and maintain on their premises a copy of actual chemical analysis results, physical test results and/or test data, as required. Tulmar shall have access to review these results.

T4 Test Specimen Acceptance [05 Dec 2011]

The supplier shall submit test specimens of material or products to Tulmar for design approval, inspection or investigation. Acceptance of the test specimens shall not be considered as acceptance of subsequent goods.

T5 C=O Sampling Plan [05 Dec 2011]

Goods inspected under a sampling plan for delivery to a Tulmar purchase order shall use an acceptance number of zero. In other words, homogeneous and continuous production lots (produced without significant changes, i.e.: A single set-up, no changes to material lot, equipment, process parameters or procedure) are accepted if no defects are found within the sample inspected and rejected for the presence of one or more defects. Acceptable Quality Limit (AQL) sampling plans may be used to establish sample size, however, the acceptance number remains zero.

T6 Tulmar Source Inspection [24 Aug 2012]

Source Inspection by Tulmar Quality Representative is required prior to shipment of product from the supplier's facilities. Tulmar shall be notified by email, in accordance with G3, a minimum of one week in advance of the readiness of goods. The supplier shall make available all applicable supporting documentation to the source inspector. Acceptance of goods by source inspection shall not constitute final acceptance by Tulmar.

T7 Engineering Prototype Approval [24 Aug 2012]

The supplier shall confirm Technical Data Package (TDP) compliance according to an item-specific form provided by Tulmar (if not provided, supplier should request). Prior to shipment, supporting compliance data shall be submitted in accordance with G3. Any deviations from the TDP require Tulmar approval prior to shipment.

NONCONFORMANCES & CORRECTIVE ACTION

N1 Non-Conformances [22 Jan 2013]

Non-conforming goods are to be distinctly identified at the supplier's facilities and segregated for review and disposition. The supplier shall notify Tulmar by email, in accordance with G3 of any non re-workable non-conformances or deviations from the TDP at the earliest opportunity.

Shipment of unauthorized or non-conforming goods is strictly prohibited without written authorization from Tulmar. Such shipments are made at the supplier's risk, and may be returned at full invoice price plus applicable transportation charges.

The supplier is expected to establish and maintain a corrective action system intended to prevent re-occurrence of identified non-conformances.

Should non-conforming shipments occur, Tulmar may, at its option, require a detailed corrective action plan to be submitted and implemented within a specified time-frame.

N2 Change of Product or Process [05 Dec 2011]

The supplier shall not change product configuration, design, manufacturing or assembly process, or manufacturing facility, or source of supply or sub-supplier following receipt and approval of the latest lot of production by Tulmar, without prior written approval from Tulmar.

N3 100% Inspection [24 Aug 2012]

The supplier shall perform 100% inspection of the goods to be delivered, verification to 100% conformance to the Technical Data Package. The supplier shall produce and maintain on their premises a copy of verification result package. Tulmar shall have access to review these results.

SPECIALIZED CLAUSES

S1 Identification Requirements [03 Feb 2012]

[Deleted, see G6].

S2 Serialization Requirements [24 Aug 2012]

A unique/sequential serial number shall be clearly identified as part of the good marking.

Each unit supplied shall be permanently marked with a unique serial number. Alpha and numeric letters shall be clearly distinguishable (ex. 2 and Z, 1 and I, 0 and O, etc.) the supplier shall insure that serial numbers are not duplicated for previous or future shipments of same part number.

The supplier shall submit, in accordance with G3, their planned serial numbering sequence prior to serial numbers being applied. The numbering sequence shall be approved by Tulmar on the initial purchase order and for any subsequent purchase order where the supplier intends to change the sequence of serial numbers.

S3 Special Manufacturing Process [24 Aug 2012]

A special manufacturing process is one whose integrity cannot be ensured by typical inspection methods. Integrity is maintained only by ensuring that materials, process inputs, operating parameters and processing methods replicate a qualified configuration. Examples of special process include, but are not limited to: heat treatment, welding, anodizing etc.

The supplier shall demonstrate control of factors that affect the process so as to provide assurance of compliance. Copies of special process procedures and certifications shall be supplied to Tulmar upon request.

S4 Weld Requirements [24 Aug 2012]

Welded joints are to be qualified, implemented, and inspected in accordance with the Technical Data Package.

When no weld specification is identified, the minimum requirements are governed by AWS D1.1, AWS D1.2, AWS D1.3 or AWS D1.6, as applicable.

A Weld Qualification Data package shall be submitted, in accordance with G3, for approval at least 3 weeks prior to starting production of the welded goods. Production shall not begin until written approval is received from Tulmar.

The Weld Qualification Data package shall contain at a minimum:

- Weld Procedure Specification (WPS).
- Procedure Qualification Record (PQR) including accompanying test results.
- Welder Qualification Records.
- Weld map, detailing which WPS(s) apply to which welded joints.
- Visual inspection criteria & instructions implemented.
- Weld rework instructions implemented.

S5 Weld Requirements [05 Dec 2011]

All welding-related operations shall be performed by welders who hold a valid Canadian Welding Bureau (CWB) certification or equivalent. Weld inspection shall be done by personnel qualified in accordance with AWS/CWB requirements.

S6 CARC Paint Process Requirements [22 Jan 2013]

Goods shall be prepared, painted and certified in accordance with Purchase Order and technical data package requirements. [CARC Process Certification form](#) shall be submitted, in accordance with G3, for each shipment.

S7 Painting, Plating & Coating Requirements [05 Dec 2011]

Goods shall be prepared and coated in accordance with requirements of the Purchase Order, technical data package and coating manufacturer's recommendations. Coatings shall demonstrate even coverage and good adhesion.

S8 Externally Threaded Fasteners [22 Jan 2013]

All externally threaded fasteners offered for sale to Tulmar shall conform to requirements of GDLS Externally Threaded Fasteners form 4496 available for download at <http://www.gdlscanada.com/Default.aspx?tabid=255>, except appendices A, B, C, and D shall be replaced by the [Tulmar Externally Threaded Fasteners form](#). The [Tulmar Externally Threaded Fasteners form](#) shall be submitted in accordance with G3.

S9 Standard Fasteners [16 Feb 2012]

If the goods consist of bulk fasteners or assemblies containing fasteners (e.g.: Bolts, nuts, rivets, collars, etc.), the seller shall maintain manufacturer certifications on file for review. These certifications shall show evidence of fastener quality maintenance as per requirements of the Industrial Fasteners Institute and Fastener Quality Act.