

## GDLS-A QUALITY CLAUSES

---

**MATERIAL SUPPLIED TO PURCHASE ORDERS MUST BE IN ACCORDANCE WITH THE QUALITY CLAUSE REQUIREMENTS OUTLINED ON THE PURCHASE ORDER AS FOLLOWS:**

---

**Clauses amended with red text are managed for GDLS-Australia raised Purchase Orders and Contracts.**

**Source Document GDLS QUALITY CLAUSES and GDRS QUALITY PURCHASE REQUIREMENTS**

**Revision change summary 18/02/25**

**These Clauses replace Revision 19.**

Change / Update Clauses: [QP2.3](#)

**Changes are annotated by change bars and revision status or date in Australian format DD/mm/yy.**

**ROBXX Quality Clauses.**

GDRS Quality Purchase Requirements Robotic Systems will be provided as required.

## GDLS-A QUALITY CLAUSES

### Contents

Forward.....	4
EQD2A.1 (16/09/20) GD Source Inspection .....	4
QG3.3 (20/7/09) GDLS Minimum System Requirements.....	4
QG4.3 (07/05/20) Commercial Requirements .....	4
QG5.2 (18/04/00) C = O Sampling Plan.....	4
QG6.0 (21/12/98) Material Review Board .....	4
QG7.1 (22/7/11) Quality System Certification Requirement .....	5
QJ21.2 (10/10/19) Inspection Delegation .....	5
QJ22.0 (21/12/98) Commercial Packing List .....	5
QJ7H.0 (5/10/98) Government GSI.....	5
QJ8.1 (18/1/88) Government Selective Evaluation .....	5
QK9.1 (19/01/99) QAP-Cert (Fill In) .....	5
QK10.2 (18/04/23) Ballistic Steel Identification .....	6
QK11.2 (20/07/09) Test Data .....	6
QK12.1 (07/01/20) Engineering Prototype Sample Approval.....	6
QK14.1 (07/01/20) Engineering Prototype Commercial .....	6
QK16.0 (17/11/04) Key Characteristics .....	6
QK18.0 (5/2/2016) Inspection/Test Data Deliverable .....	6
QK19 (04/21/2021) ASTM A514 Certification to GDLS Material Specification.....	6
QK48.1 (16/10/12) Critical/Complex Components .....	<b>Error! Bookmark not defined.</b>
QL22.7 (2/18/2020) Fasteners .....	7
QL46.0 (10/7/09) CARC & APAS Paint Process Certification.....	7
QL512.2 (7/1/20) 11655194 (or) Mil-Std 2000A .....	7
QL81.0 (1/1/86) Radiographic.....	7
QL82.0 (1/1/86) Magnetic Particle.....	8
QL83.0 (1/1/86) Eddy Current.....	8
QL84.0 (1/1/86) Ultrasonic.....	8
QL85.0 (1/1/86) Liquid-Penetrant .....	8
QL86.0 (13/5/10) Non Destructive Testing (NDT) of formed radii .....	8
QP2.3 (18/2/25) Shelf Life Requirement.....	8
QP5.1 (7/12/06) Serialisation Requirements .....	8
QP8.0 (10/07/09) Sub-contract Requirements .....	8
QP9.0 (10/07/09) Re-work Requirements .....	8
QP42.1 (4/7/16) Compression Set Test Results.....	9
QP43.2 (18/11/13) Traceability – High Strength Screws .....	9
QP44.1 (7/01/20) North American High Strength Fasteners .....	9
QP92.1 (24/02/99) Military Standard Hardware ID .....	9
QP93.0 (1/05/90) Packing Slip Requirement.....	10

## GDLS-A QUALITY CLAUSES

QP95.0 (24/03/15) Item Unique Identification (IUID) per MIL-STD-130.....	10
QP96.0 (27/09/10) Intra-company Sourcing.....	10
QP97.0 (27/09/10) Incomplete Technical Data – long lead sourcing.....	10
QP98 (08/15/2019) Electronic Component Packaging.....	11
QX22.1 (16/10/12) Weldable Appurtenances.....	11
QX23.5 (10/01/14) Ballistic Steel Welding – GDLS Weld Standard.....	12
QX24.0 (10/07/09) Weld Inspection.....	13
QX25.0 (10/07/09) Repair and Overhaul.....	14
QX27.3 (7/01/20) Resistance Spot Welding.....	14
QX57.2 (10/01/14) Brazing and Soldering.....	15
QX118.6 (25/09/17) Commercial Welding .....	15
QY2.9 (29/11/18) FAT-QCS-4.....	16
QY4.2 (15/12/88) Control Inspection .....	16
QY10.2 (7/01/20) FLOWCHART/CONTROL PLAN (FC/CP) .....	16
QY11.1 (7/01/20) First Article Inspection.....	16
QY12.1 (10/26/22) First Piece Inspection (QCS-16).....	17
EQA3 (01/03/17 REV B) Quality System .....	17
EQA4 (26/06/20 REV E) Quality System Approved .....	17
EQA5 (17/06/14) Quality Management System / Quality Program Plan .....	18
EQB3 (17/06/14 REV C) Final Acceptance by the Requester .....	18
EQB9 (26/06/20 REV G) Certificate of Conformance (COC) .....	18
EQB9ND (17/06/14 REV A) Certificate of Conformance (NON-DELIVERABLE) .....	19
EQB10 (17/06/14) Supplier Certification.....	19
EQC1 (17/06/14 REV K) Inspection Report(s) for End Item Assembly.....	20
EQC1ND (17/6/14 REV C) Inspection Report(s) for End Item Assembly (NON-DELIVERABLE).....	20
EQC2 (17/6/14 REV D) First Piece Inspection (FPI) Report for Casting or Forging .....	22
EQC2ND (17/06/14 REV B) First Piece Inspection Report for Casting or Forging (NON-DELIVERABLE) .....	23
EQC4 (26/6/20 Rev G) – First Piece Inspection (FPI) Report.....	24
EQC4ND (17/06/14 REV D) First Piece Inspection Report for End Item Assembly (NON-DELIVERABLE).....	25
EQC5 (26/06/20 REV G) – Electrical/Functional Test.....	26
EQC5ND (17/06/14 REV B) – Functional/Electrical Test (NON-DELIVERABLE) .....	26
EQD1 (6/08/20 REV J) – Acceptance Test Procedure (ATP) & Acceptance Test Report (ATR) .....	27
EQD2 (17/06/14 REV C) – GDLS Source Inspection Required .....	27
EQE2 (26/06/20 REV E) – Automated Test Equipment (ATE) Software Evaluation.....	28
EQE3 (17/06/14 REV C) – Embedded Software Evaluation/Approval by GDLS .....	28
EQF2 (17/06/14 REV C) – Weld Procedures, Weld Samples and Welder Certifications .....	28
EQF3 (26/06/20 REV A) – Weld Inspection & Welder Certifications.....	29
EQJ1 (17/06/14 REV C) – Calibration Certification .....	29
EQJ8.1A – (17/06/14) Government Selective Evaluation .....	29

## GDLS-A QUALITY CLAUSES

EQK3 (26/06/20 REV J) – High Strength Fastener Certification..... 30

### **Forward**

Quality Clauses are meant to supplement and complement the existing Technical Data Package (TDP) provided by GDLS buyers. The Quality Clauses listed hereafter may refer to different part approval terminology (e.g. PPAP, FPI or FAI). For the current part approval processes and instructions, please refer to the latest revision of the Supplier Assurance Manual supplied from GDLS-A/SCM.

### **EQD2A.1 (16/09/20) GD Source Inspection**

General Dynamics Land Systems source inspection/acceptance is required on this order. Source is to be completed prior to **EVERY** shipment of end item on this order. Supplier shall notify the buyer five (5) working days prior to start of acceptance test or inspection to allow for scheduling of a GDLS quality representative to be in attendance. The supplier shall have technical data (e.g. drawing, QAR, specification, certification, etc.) available for use in support of source inspection.

If supplier-developed automated test software is used as a means of functional product acceptance, the test software (not the firmware) must be approved by GDLS Quality Engineering & Test. Supplier instructions and requirements for test software review and validation are defined in GDLS document QCS-5. The test software shall be submitted to GDLS Quality Engineering & Test for review a minimum of 2 weeks prior to the scheduling GDLS source inspection.

### **QG3.3 (20/07/09) GDLS Minimum System Requirements**

Supplier must provide and maintain a Quality System that is acceptable to General Dynamics Land Systems and government. In addition, all measuring and test equipment used to inspect the items delivered against this contract shall be calibrated by the supplier utilising standards whose calibration is certified as being traceable to **National Institute of Standards and Technology (NIST) for North American Suppliers the National Association of Testing Authorities (NATA) Australia or International Accreditation New Zealand (IANZ) New Zealand**. These systems are subject to approval and periodic reviews by GDLS to determine acceptability. GDLS contracted suppliers are responsible to document and control any portion of this contract that is performed by either the contracted supplier or any tertiary supplier. In view of the above contracted suppliers are responsible for extending GDLS contract requirements to any tertiary supplier.

### **QG4.3 (07/05/20) Commercial Requirements**

The products provided shall meet the characteristics of this commercial catalog item, conform to the producer's own drawings, specifications, standards and quality assurance practices and be the same as offered for sale in the commercial market. All part marking requirements on GDLS drawings must be followed. General Dynamics reserves the right to require proof of conformance

### **QG5.2 (18/04/00) C = O Sampling Plan**

Product inspected by a sampling plan for delivery on this purchase order must use an acceptance number zero; i.e. accept on zero defects and reject the lot on one or more defects. AQLs may be used to establish the proper sample size; however the acceptance number is zero.

### **QG6.0 (21/12/98) Material Review Board**

Limited material review board (MRB) approval is granted on this purchase order. This authority is limited to minor non-conformances that only impact internal supplier drawings. MRB is not allowed for any characteristic or performance requirement which impacts/violates the GDLS drawing package. A quarterly report will be provided to GDLS-SQA summarizing MRB activities and the associated corrective action. Government participation is not required for MRB.

## GDLS-A QUALITY CLAUSES

### **QG7.1 (22/7/11) Quality System Certification Requirement**

The supplier must maintain a Quality Management System that is certified to AS9100 or an ISO Quality System Standard such as ISO 9001 or TS16949. The system is subject to approval and/or periodic review by GDLS/Government. GDLS contracted suppliers are responsible to document and control any portion of this contract that is to be performed by them and extend applicable portions of this contract to any tertiary suppliers.

### **QJ21.2 (10/10/19) Inspection Delegation**

The supplier shall conduct all required inspections where qualified to do so by GDLS-A as agreed upon in accordance with supplier instruction contained in the Supplier Assurance Manual. The above shall be accomplished through the use of the GDLS approved delegate only who is responsible for the adequacy and accuracy of said inspection. Failure of GDLS to inspect the goods shall not limit any of GDLS's rights as included under the terms and conditions of this contract to recover damages from seller for supply of defective goods. This program is subject to termination with minimum notice for reasons defined in the Supplier Assurance Manual. All specified documents referenced in the purchase order (i.e. certifications, test reports, etc.) are not to be shipped with the product. These records are to be maintained at the supplier's facility, under delegate control, and are subject to GDLS verification upon request. The records must be retained for a minimum of five (5) years after completion of deliveries and payment thereof under this purchase order. This paragraph takes precedence over remaining quality requirement clauses for data submittals.

### **QJ22.0 (21/12/98) Commercial Packing List**

This is a commercial item procured from a catalog source. The packing list shall state "commercially procured item" boldly in upper case characters on the face of the packing list/shipping document to preclude further inspection by the receiving facility. Failure to mark the packing list as instructed may result in the shipment being inspected and/or rejected at the supplier's expense.

### **QJ7H.0 (5/10/98) Government GSI**

Australian Government Inspection is required prior to shipment from your plant. 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. In the event the representative or office cannot be located, our purchasing agent should be notified immediately.

### **QJ8.1 (18/1/88) Government Selective Evaluation**

During performance on this order, your quality control or inspection system and manufacturing processes may be subject to review, verification and analysis by authorized government representatives. Australian Government release of product prior to shipment is not required unless you are otherwise notified by General Dynamics Land Systems purchase order supplement.

### **QK9.1 (19/01/99) QAP-Cert (Fill In)**

Special quality assurance requirements (QAR, QAP, SQAP, SPEC, etc) apply to the item(s) being procured under this contract. The supplier shall have documented objective evidence on file verifying conformance to specific characteristics referenced in the requirement. The objective evidence shall be made available to GDLS on request within a reasonable amount of time.

## GDLS-A QUALITY CLAUSES

### **QK10.2 (18/04/23) Ballistic Steel Identification**

This item contains ballistic steel material. Ballistic steel material used in this item, must be sourced from a supplier that maintains ballistic steel plate cutting records. These records must identify the ballistic plate and associated mill certification (heat/melt and slab/plate codes), the part numbers and quantities that were cut from the plate, and the date on which the parts were cut.

Suppliers procuring cut ballistic parts for assemblies, must maintain procurement records indicating the part number, quantities, source and date. Sources used and records kept will be reviewed at First Piece Inspection.

### **QK11.2 (20/07/09) Test Data**

Supplier shall have on file for each shipment a copy of the actual chemical test results, physical test results and/or test data as required. These results shall be made available to GDLS on request within a reasonable amount of time.

### **QK12.1 (07/01/20) Engineering Prototype Sample Approval**

Supplier shall confirm Technical Data Package (TDP) compliance according to item specific PS-FRM-3.2.55 form provided by buyer. Supporting compliance data shall be submitted prior to material shipment, to the GDLS-C ED&D PA contact identified on the form. Any deviations to the TDP require ED&D Product Assurance (PA) approval prior to shipment.

### **QK14.1 (07/01/20) Engineering Prototype Commercial**

Items under this Purchase Order do not require GDLS specified quality inspections or documentation submittal. Product shall meet the Technical Data Package (TDP) requirements, and shall be verified according to the supplier's standard quality system requirements. GDLS reserves the right to require proof of such conformance. Any deviations to the TDP require ED&T Product Assurance approval prior to shipment.

### **QK16.0 (17/11/04) Key Characteristics**

Attributes identified as Key Characteristics shall demonstrate a process capability of 1.33 Cpk or be inspected 100%. The supplier shall have documented objective evidence on file which supports the process capability of 1.33 or greater, or the actual inspection and/or test data as verification of conformance to the drawing key characteristics. The objective evidence shall be made available to GDLS on request within a reasonable amount of time.

### **QK18.0 (5/2/2016) Inspection/Test Data Deliverable**

The Supplier shall deliver with each shipment, a copy of all inspection/test data required by item drawings and/or specifications.

### **QK19.0 (04/21/2021) ASTM A514 Certification to GDLS Material Specification**

This PO contains items using ASTM A514 material. If the ASTM A514 material thickness is equal to or greater than 1.25", the following conditions apply:

This material must be compliant to the most current revision of the LS1133576 specification. Suppliers of this contract shall require a valid GDLS ASTM A514 Process Approval Letter in order to perform under this contract which is valid for two (2) years from the approval date. The supplier is responsible for managing the expiry of the GDLS ASTM A514 Process Approval Letter. The supplier shall not subcontract the source of supply for this material; all material must be purchased directly from a mill or distributor approved by GDLS. Approved mills must supply their own material and are not allowed to procure or supply material from any other manufacturer for subsequent sale to General Dynamics. The approved source(s) of supply can be found on the GDLS ASTM A514 Process Approval Letter OR from GDLS buyer.

## GDLS-A QUALITY CLAUSES

Supplier must maintain form# SCM 037 Steel Mill Traceability Report and present it to a GDLS Quality Representative at the time of FAI/FPI or Source Inspection in accordance with Quality Clause QY11, QY12, and EQD2A. GDLS Quality Representative must confirm form# SCM 037 has been updated completely for the parts being inspected and stamped for shipment to GDLS.

All A514 steel greater than or equal to 1.25" thick shall be procured only from GDLS approved manufacturers or distributors. Contact your GDLS Buyer for additional information or to confirm latest revision of LS1133576.

### **QK48.2 (1/7/20) Critical/Complex Components**

GDLS has designated this component as a Critical performance item or complex to manufacture.

Supplier may be subject to and must demonstrate compliance with a specific process audit associated with this component.

GDLS will issue a clause approval letter, which is required for First Article or First Piece Inspection completion and approval. First Article or First Piece Inspection must be completed at the supplier's facility, prior to the acceptance of production material.

### **QL22.7 (18/02/20) Fasteners**

Use of English series (Grade 5, or Grade 8 hexagon or socket head) or Metric Series (Class 8.8, 9.8, 10.9 hexagon head or Class 12.9 socket head) fasteners, within products supplied to General Dynamics Land Systems, must be from a manufacturer approved by GDLS. Fasteners will be plated as specified and results of all required tests shall be maintained on file and available.

Additionally, your receiving inspection criteria shall include a verification of approved logo head markings to a 0.04% AQL sample as outlined in MIL-STD-105, however, acceptance is C=0. Hexagon head cap fasteners must be identified with proper grade symbol markings and shall be marked with the manufacturer's identification head logo. QL31.1 (20/7/09) Functional Test

Supplier shall furnish a certification with each shipment to indicate that the test requirements have been complied with and actual tests results are on file and available upon request. Certification must include signature, date and title of responsible supplier representative and specifically identify the shipment it relates to including serial number if applicable, for instance, by reference to the shipper number.

### **QL46.0 (10/7/09) CARC & APAS Paint Process Certification**

The Australian Paint Approval Scheme (APAS) process applied to this item requires certification to demonstrate compliance to the Commonwealth of Australia's requirements. Paint certification requirements as outlined in GDLS-A Form 09-130-17 FRM, shall be submitted with FPI/PPAP for GDLS-A approval

The Australian CARC Process Certification (CARC) process applied to this item requires certification to demonstrate compliance to the TDP requirements. Paint certification requirements as outlined in GDLS-A Form 09-130-16 FRM, shall be submitted with FPI/PPAP for GDLS-A approval.

### **QL512.3 (7/1/20) 11655194 (or) Mil-Std 2000A**

Soldering shall be in accordance with either Mil-Std-2000A, TACOM soldering process specification 11655194, ANSI/J-STD-001B or other commercial soldering standards with the contractor's approval.

### **QL81.0 (1/1/86) Radiographic**

Supplier shall control radiographic inspection equipment and personnel, including the certification and qualification to the specification. Records shall be maintained for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be made available upon request.

## GDLS-A QUALITY CLAUSES

### **QL82.0 (1/1/86) Magnetic Particle**

Supplier shall control magnetic particle inspection equipment and personnel, including the certification and qualification to the specification. Records shall be maintained for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be made available upon request.

### **QL83.0 (1/1/86) Eddy Current**

Supplier shall control eddy-current inspection equipment and personnel, including the certification and qualification to the specification. Records shall be maintained for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be available upon request.

### **QL84.0 (1/1/86) Ultrasonic**

Supplier shall control ultrasonic inspection equipment and personnel, including the certification and qualification to the specification. Records shall be maintained for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be made available upon request.

### **QL85.0 (1/1/86) Liquid-Penetrant**

Supplier shall control liquid-penetrant inspection operations including the certification and qualification to the specification. Records shall be maintained for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be made available upon request.

### **QL86.0 (13/5/10) Non Destructive Testing (NDT) of formed radii**

Supplier shall conduct either liquid penetrant inspection (per ASTM E165), or magnetic particle inspection (per ASTM E1444) on the tension side of all formed radii for each item produced. Any indication of a crack shall be cause for rejection. The GDLS buyer shall be notified immediately.

Supplier shall control NDT operations including certification and qualification, as required, to ASTM E165 and/or ASTM E1444. Records shall be maintained for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be made available upon request.

### **QP2.3 (18/02/25) Shelf Life Requirement**

The seller shall identify those items and/or assemblies which have a specific shelf life requirement. At a minimum the GDLS part number, date manufactured, shelf life, and appropriate SDS as applicable will be marked on each individual container. Eighty percent (80%) of the Product(s) shelf life is required upon receipt at GDLS-A as a default unless stated otherwise in the Purchase Order Terms and Conditions.

### **QP5.1 (7/12/06) Serialisation Requirements**

Each unit supplied on this purchase order must be permanently marked with a unique serial number which consists of any combination of numbers and letters. Alpha and numeric letters must be clearly distinguishable (ex. 2 and Z, 1 and I, 0 and O, etc.) The supplier must ensure that serial numbers are not duplicated for previous or future shipments of the same part number. The supplier must submit their planned serial numbering sequence to the buyer for approval prior to serial numbers being applied. The numbering sequence must be approved by the buyer on the initial purchase order and for any subsequent purchase order where the supplier intends to change the sequence of serial numbers.

### **QP8.0 (10/07/09) Sub-contract Requirements**

All Quality Requirements of the Statement of Work (SOW) apply to this purchase order.

### **QP9.0 (10/07/09) Re-work Requirements**

Rework product to new condition and upgrade to the specified revision. Any deviations from the specified design configuration will require prior authorisation.

## GDLS-A QUALITY CLAUSES

### **QP42.1 (7/4/16) Compression Set Test Results**

The supplier shall maintain actual compression set test data for each purchase order shipment to General Dynamics Land Systems per the requirement of the applicable material specification. In addition, the specific compression set test results shall be subject to random audits by GDLS at supplier's facility and shall be presented to GDLS representatives upon request.

### **QP43.2 (18/11/13) Traceability – High Strength Screws**

Grade 5 and Grade 8 English series and Metric series Classes 8.8, 9.8, 10.9, and 12.9 hex head and socket head fasteners shall have documentation confirming the chemical and mechanical properties meet the requirements for heat treated alloy steel as specified in the applicable procurement specification.

Fasteners shall be purchased directly by GDLS or from distributors that purchase directly from manufacturers approved by GDLS. Approved manufacturers must supply fasteners of their own manufacture and are not allowed to procure or supply fasteners from any other manufacturer for subsequent sale to General Dynamics.

Fastener suppliers shall furnish a certification with each shipment that documents the actual material chemistry, core hardness, or tensile strength (per applicable specifications SAE J429, ASTM A354, SAE J1199, ASTM F568M, ASTM A574, ASTM A574M, FF-S-85, or FF-S-86), and finish requirements as specified on the applicable drawing or Purchase Order.

Subsequent lot shipments covered under this purchase order will be accepted with a copy of the original laboratory results provided the fasteners originated from the initial raw material production run.

### **QP44.1 (7/01/20) North American High Strength Fasteners**

All high strength fasteners offered for sale to GDLS-C shall conform to the requirements of Form 4496. Bulk fasteners shall include the Declaration (Form 4496, Appendix A) or Certification (Form 4496, Appendix B) in the First Article or First Piece Inspection submission.

Fasteners offered for sale to GDLS-C within assemblies shall conform to the following sections of Form 4496:

- A) No high strength fasteners are contained within the assembly. The First Article or First Piece Inspection submission shall include a declaration (Form 4496, Appendix A), or
- B) High strength fasteners are contained within the commercial item assembly. The First Article or First Piece Inspection submission shall include a certification (Form 4496, Appendix C) stating that the supplier's quality control system for fasteners meets the intent of Form 4496, section 2.0, or
- C) High strength fasteners are contained within the non-commercial item assembly. The First Article or First Piece Inspection submission shall include a certification (Form 4496, Appendix D) stating that the supplier's quality control system for fasteners meets all the requirements of Form 4496, section 2.0.

### **QP92.1 (24/02/99) Military Standard Hardware ID**

Supplier shall furnish standard hardware to the drawing revision level as indicated in the purchase order and/or technical data/drawing package. If no revision level is specified for technical data/drawing package provided, parts must be supplied to the latest revision level established by design agencies as of the date of this purchase order.

## GDLS-A QUALITY CLAUSES

**QP93.0 (1/05/90) Packing Slip Requirement**

Packing slips must be numbered and depict the following information: Purchase order number, line item number, quantity, part number, drawing number, revision letter and date, ECP number(s), and waiver number(s) if applicable.

**QP95.0 (24/03/15) Item Unique Identification (IUID) per MIL-STD-130**

The supplier shall apply Machine Readable Information (MRI) marking per MILSTD-130 to each item produced. Marking shall include, but not be limited to, manufacturer CAGE code, original part number and serial number (if serialization is required by drawing or specification). The supplier shall demonstrate 2D Data Matrix Symbol readability via a verifiable automatic identification device.

**QP96.0 (27/09/10) Intra-company Sourcing**

This is a GDLS intra-company purchase order. GDLS manufacturing plant Quality System Requirements apply to the material sourced under this purchase order.

**QP97.0 (27/09/10) Incomplete Technical Data – long lead sourcing**

Material cannot be delivered under this purchase order. The technical data package is incomplete. Quality Clause requirements will not be assigned until the technical requirements are fully defined, after which the purchase order will be revised.

## GDLS-A QUALITY CLAUSES

### **QP98.0 (15/08/19) Electronic Component Packaging**

All solder-mountable circuit card components (through-hole and surface mount), including printed wiring boards, shall be packaged per the following specifications:

Surface Mount: All surface mount components shall be packaged in accordance with EIA-481. Irregular configuration or heavy parts that are not readily packaged in tape form may be packaged in carrier waffle trays. Parts in trays shall be aligned similarly with the tray being of a configuration that prevents miss-orientation when handling in a closed state (i.e. a tray designed for that part package configuration). Trays shall be no larger than 35cm L x 25cm W. Parts shall not be supplied in tubes. Any parts supplied on cut tape shall have leader and trailer lengths as specified in EIA-481. Plastic tape is preferred over paper tape. Embossed tape is preferred over punched tape.

Any components requiring larger than 104 mm tape, shall be supplied in a carrier waffle tray per the applicable EIA and JEDEC specifications.

**All components shall have vacuum pick-up features (either integral or installed) to support machine placement.**

Through-hole Components: Through-hole components shall NOT be provided in bulk packaging. Components are to be supplied tape and reel, tube or tray.

Printed Wiring Boards: When the Technical Data Package (TDP) includes a Panel drawing, the PWB's will be supplied as panels per that drawing. The Panel drawing and "read me" text (.txt) note must be included in the inspection criteria and measurement data presented for Quality acceptance. Panelized boards shall not be broken out. X-outs in panelized boards shall have no more than (1) X-out board per panel. X-out boards shall not be allowed on 2-board, and 3-board panels. All X-out panels shall be organized such that similar X-out configurations are packaged together. All PWBs shall be dry-packaged in accordance with J-STD-033 and not exceed 3 inches in height per package.

NOTE: In addition to these requirements, any subordinate requirements (e.g., ESD, Moisture Sensitive) shall also apply as required by the component.

### **QX22.1 (16/10/12) Weldable Appurtenances**

Item shall be free of mill scale, rust and oil free.

Only water-soluble coolants, tapping fluids, etc. should be used during processing. It is required that these process fluids leave a rust-inhibiting residue when the fluid dries. If hydrocarbon coolants, tapping fluids, etc. are used, they must be followed by a post-cleaning step. The post cleaning step must consist of a hot alkaline cleaner that is based on fatty acids or amines.

Packaging must be accomplished in such a way that rusting will be minimized. Examples are sealed plastic bags in boxes, or wax-lined boxes.

## GDLS-A QUALITY CLAUSES

### **QX23.5 (10/01/14) Ballistic Steel Welding – GDLS Weld Standard**

Only suppliers approved to perform ballistic welding by **GDLS-A** are permitted to weld ballistic assemblies in accordance with this clause. Approved suppliers must undergo an annual audit, performed by GDLS-A Quality Assurance and Engineering, to maintain certification status. Weld joints within this assembly are to be qualified, implemented, and inspected in accordance with the current version of the GDLS-C weld manual 10703626.

Drawings which do not reference 10703626 must be reviewed/approved by GDLS-C weld engineering prior to welding armour steel. For weld joints which do not contain armour steel, refer to Quality Clause QX118 or consult **GDLS-A's Supplier Quality Assurance for direction.**

Only welders with a current GDLS-C D-0040 weld certification may weld this part.

Weld inspectors responsible for acceptance or rejection of material and workmanship must be trained and certified in accordance with the GDLS-C Weld Inspection Training Program. Each GDLS-C weld inspector certificate is valid for a 5 year period.

GDLS-C approval letter(s) are required for first piece inspection acceptance and approval(s). Supplier shall have an approval letter for each specific part number or applicable down component, at the time of first piece inspection in accordance with Quality Clause QY11. The supplier shall submit a weld Certification/Warrant for each first new part produced to the address listed below. GDLS-C will respond with a weld approval letter for inclusion in the FPI.

Heat Affected Zone Criteria (HAZ): The rework or addition of any ballistic weld joint outside of the print specified location is not permitted; the supplier shall consult GDLS for MRB approval prior to any such rework. Rework examples include but are not limited to: mislocated / translated appurtenances or welds, stray welds, arc strikes, and additional welds not mandated by the TDP.

### **QX23.6 (1/7/20) Ballistic Steel Welding – GDLS-Canada Weld Standard**

Only suppliers approved to perform ballistic welding by GDLS-C are permitted to weld ballistic assemblies in accordance with this clause. Approved suppliers must undergo an annual audit, performed by GDLS-C Quality Engineering, to maintain certification status. Weld joints within this assembly are to be qualified, implemented, and inspected in accordance with the current version of the GDLS- C Weld Manual 10703626.

Drawings which do not reference 10703626 must be reviewed/approved by GDLS-C Engineering prior to welding armour steel. For weld joints which do not contain armour steel, refer to Quality Clause QX118 or consult the GDLS-C contact at [ppap.fpi@gdls.com](mailto:ppap.fpi@gdls.com).

Only welders with a current GDLS-C D-0040 Weld Certification may weld this material.

Weld inspectors responsible for acceptance or rejection of material and workmanship must be trained and certified in accordance with the GDLS-C Weld Inspection Training Program. Each GDLS-C weld inspector certificate is valid for a 5 year period.

These weld inspectors shall also hold current certification to one of the following options:

- (1) Certification as an AWS Certified Welding Inspector (CWI) in conformance with the provisions of AWS QC1, *Standard for AWS Certification of Welding Inspectors*, or
- (2) Qualification by the Canadian Welding Bureau (CWB) in conformance with the requirements of the Canadian Standard Association (CSA) Standard W178.2, *Certification of Welding Inspectors*, with the exception that a Level I weld inspector must work under the supervision of a Level II or III weld inspector whom is also certified in accordance with the GDLS-C Weld Inspection Training Program.

## GDLS-A QUALITY CLAUSES

GDLS-C or GDLS-JSMC approval letter(s) are required for First Article or First Piece Inspection (FAI or FPI) acceptance and approval(s). Supplier shall have an approval letter for each specific part number or applicable down component, at the time of FAI/FPI in accordance with Quality Clause QY11/QY12. The Supplier shall submit a weld Certification/Warrant for each first new part produced to the address listed below. GDLS-C or GDLS-JSMC will respond with a Weld Approval Letter for inclusion in the FAI/FPI.

Heat Affected Zone Criteria (HAZ): The rework or addition of any ballistic weld joint outside of the print specified location is not permitted; the supplier shall consult GDLS for MRB approval prior to any such rework. Rework examples include but are not limited to: miss-located / translated appurtenances or welds, stray welds, arc strikes, and additional welds not mandated by the TDP.

### **QX24.0 (10/07/09) Weld Inspection**

- 1) All welds on items in this contract shall be visually inspected by Certified AWS or CWB Welding Inspectors. Weld inspectors shall:
  - i. Hold current or previous certification as an AWS Certified Welding Inspector (CWI) **or equivalent** in conformance with the provisions of AWS QC1 (Standard and Guide for Qualification of Welding Inspectors).
  - or
  - ii. Hold current or previous certification by the Canadian Welding Bureau (CWB) **or equivalent** in conformance with the requirements of the Canadian Standard Association (CSA) Standard W178.2 (Certification of Welding Inspectors).

Inspection shall be conducted in accordance with the governing weld specification identified in the TDP. When no weld specification is identified the requirements shall be governed by AWS D1.1 for steel, AWS D1.2 for aluminum, or AWS D1.6 for stainless steel. Copies of inspector certifications shall be provided for FPI review; verification inspection reports shall be retained by the contractor and made available upon request.

### **2) Weld Inspection NDT Quality Control Plan:**

Supplier shall develop an NDT Quality Control Plan to be submitted with FPI. Welds on items shall be verified by Liquid Penetrant Testing. Penetrant testing shall be conducted in accordance with ASTM E 165 (Standard Test Method for Liquid Penetrant Examination) and ASTM E 1417 (Standard Practice for Liquid Penetrant Testing). Personnel performing penetrant testing shall be qualified in conformance to SNT-TC-1A, Mil-Std-410, NAS410, or ANSI/ASNT CP-189, and be certified to NDT Level II. Personnel performing penetrant inspection need not be certified under AWS QC1 or CSA W178.2. Copies of personnel certifications shall be provided for FPI review; penetrant testing reports shall be retained by the contractor and made available upon request.

**Magnetic Particle Testing may be conducted in lieu of penetrant testing, subject to GDLS approval.** Magnetic particle inspection shall be conducted in accordance with ASTM E 1444 (Standard Practice for Magnetic Particle Examination).

## GDLS-A QUALITY CLAUSES

### **QX25.0 (10/07/09) Repair and Overhaul**

This clause applies to customer owned material for Repair Only. Upon completion of repair, the supplier shall return the item, together with:

- A) a report indicating work performed to bring material to usable condition.
- B) a Certificate Of Conformance indicating compliance to specification(s) and completion of repaired item functional testing to original test procedure(s).
- C) appropriate test results and/or measurements supporting requirement (b) above shall be submitted with the shipment, unless otherwise specified.

Shipments must include the documentation required by this clause.

### **QX27.3 (07/01/20) Resistance Spot Welding**

Resistance spot weld joints within this assembly are to be qualified, implemented, and inspected in accordance with the Technical Data Package (TDP). When there is no weld specification identified the supplier shall contact the buyer for direction.

When AWS C1.1 applies, the procedure certification test report for each machine used in production shall contain at least two Metallographic tests per AWS C1.1, Clause 4.9. Weld quality evaluation criteria shall be per AWS D8.7, Clause 5. Results shall be recorded within the resistance welding data sheet (Figure 34 of AWS C1.1) and signed/dated by the manufacturer.

A weld qualification data package consisting of the following elements shall be maintained by the supplier. Minimum data package requirements shall be furnished to the appropriate client address listed below, at least two (2) weeks in advance of production welding. Any changes to resistance welding data sheet(s) parameters require resubmission.

Supplier shall have an approval letter for each specific part number, and shall be presented at the time of First Article or First Piece Inspection. Approval letter(s) are required for First Article or First Piece Inspection approval(s).

The resistance spot weld data package shall contain at a minimum:

1. Weld Map, detailing which data sheet(s) apply to each weld joint.
2. Resistance Welding Data Sheet(s).
3. Procedure Certification Test Report(s).
4. Machine Qualification Test Report(s), as applicable to TDP.

The following elements shall be provided upon request:

5. Visual inspection criteria/instructions in place.
6. Weld re-work instructions in place.

The weld qualification data package shall be submitted to GDLS-A.

## GDLS-A QUALITY CLAUSES

### **QX57.2 (10/01/14) Brazing and Soldering**

Brazed and soldered joints within this assembly are to be qualified, implemented and inspected in accordance with the Technical Data Package (TDP) brazing/soldering specification (Eg. AWS C3.4, C3.5, C3.11). When conforming to an AWS specification, qualification shall be in accordance with AWS B2.2/B2.3. When there is no brazing/soldering specification defined in the TDP, the manufacturer or contractor shall contact the buyer for direction.

The manufacturer or contractor shall develop and maintain a qualification data package in accordance with the relevant brazing/soldering specification. The data package shall be provided to the client address listed below at least two (2) weeks in advance of production brazing/soldering. The qualification data package submitted shall contain at a minimum:

1. Brazing/Soldering Procedure Specification(s) (BPS, SPS).
2. Brazing/Soldering Procedure Qualification Record(s) (BPQR, SPQR).
3. Brazing/Soldering Performance Qualification Record(s).
4. Braze/Solder map, detailing which BPS/SPS is applied to each joint.

GDLS-C approval letter(s) are required for first piece inspection acceptance and approval(s). Manufacturer or contractor shall have an approval letter for each specific part number or applicable down component, at the time of first piece inspection in accordance with Quality Clause QY11.

The brazing/soldering qualification data package shall be submitted to the **GDLS-A SQA**.

### **QX118.6 (25/09/17) Commercial Welding**

Weld joints within this assembly are to be qualified, implemented, and inspected in accordance with the Technical Data Package (TDP) (Eg., AWS, CSA). When there is no weld specification identified in the TDP, the requirements shall be governed by AWS D1.1/D1.3 for steel, AWS D1.2 for aluminum, or AWS D1.6 for stainless steel as applicable.

If a weld joint contains Armour Steel and the drawing is approved by GDLS-C weld engineering, refer to Quality Clause QX23 or consult the **GDLS-A SQA** contact.

The supplier shall develop and maintain a weld qualification data package in accordance with the relevant weld specification. The data package shall be provided to the client address listed below at least two (2) weeks in advance of production welding. The weld qualification data package submitted shall contain at a minimum:

1. Weld Procedure Specification (WPS).
2. Procedure Qualification Record (PQR) with accompanying test results.
3. Welder Qualification Records.
4. Weld map, detailing which WPS(s) apply to each weld joint.

The following elements shall be provided upon request:

5. Visual inspection criteria/instructions in place.
6. Weld rework instructions in place.

GDLS approval letter(s) are required for first piece inspection acceptance and approval(s). Supplier shall have an approval letter for each specific part number or applicable down component, at the time of first piece inspection in accordance with Quality Clause QY11/QY12. Weld approval letters are considered valid from either of the issuing authorities (below) and are valid for (3) years from the approval date. The supplier is responsible for managing the expiry of the weld approval letters.

The weld qualification data package shall be submitted to the **GDLS-A SQA** Contact.

## GDLS-A QUALITY CLAUSES

### **QY2.9 (29/11/18) FAT-QCS-4**

The supplier shall obtain First Article Approval (FAA) for this assembly or it's subcomponents when a line item is included on this Purchase Order that requires the delivery of the final test report. The absence of this line item indicates that no FAA has been contracted or is required for this Purchase Order and a previous approval satisfies the Technical Data Package (TDP) requirements for FAA. First Article Approval will be granted upon successful completion of a First Article Inspection (FAI) and a First Article Test (FAT). Shipments under this Purchase Order prior to FAA are not allowed. FAI and FAT shall be conducted in accordance with the requirements of the TDP drawing, QAR/QAP, production function/fabrication specification and/or military specification and this Purchase Order. Additional supplier instructions for FAI are contained within GDLS Supplier Instruction QCS 83-4 and for FAT within QCS-4. Test sample selection shall be accomplished under the supervision of the Government. Government notification is required to allow test monitoring prior to test start (reference QCS-4, Section 4.2.1). Within 30 days of receiving the FAA requirement notification by activation of the FAA Purchase Order line item you must notify the GDLS Buyer of the test facility name, location, contact, phone number and purchase order/work authorization number.

### **QY4.2 (15/12/88) Control Inspection**

Control inspection required on a lot-by-lot basis for dimension and/or performance characteristics imposed per specific requirements of (\_\_\_\_\_). Frequency of inspection or test, inspection method and inspection results shall be documented and supplied with each hardware shipment to GDLS receiving plant.

### **QY10.2 (7/01/20) FLOWCHART/CONTROL PLAN (FC/CP)**

Prior to First Article or First Piece Inspection (FAI or FPI) a Process Flow Chart/Control Plan (FC/CP) is to be developed. A suggested sample format can be found in the PQA3000 or the supplier may use an existing format. This document is to be attached and submitted with the FAI/FPI request form (please refer to PQA3000). The request for FAI/FPI will not be processed without this document being completed. The FC/CP must provide a logical representation of the manufacturing process flow and process control points. This document can be used as an aid for work station development, identifying process control points, defining the methods being used at these control points, and must include all key product characteristics such as KPC/QARs/QAPs and all out sourcing identification.

A walk through of the manufacturing process to include a review of the FC/CP and work instructions should be anticipated as a means to validate process requirements. The FC/CP will be used as part of the Process/Product Validation at FAI/FPI and on future GDLS audits.

### **QY11.1 (7/01/20) First Article Inspection**

The following First Article Inspection (FAI) requirements are applicable unless otherwise specified in the purchase order. Supplier shall perform FAI on one of the first five pieces to be delivered and on each part number within an assembly as listed on the Parts List from the drawing. FAI shall be performed utilizing GDLS Form QCS-16 through QCS-16-3 available at [www.gdls.com](http://www.gdls.com). The First Article Inspection Report (FAIR) shall include objective evidence of compliance with all drawing requirements.

Upon completion of the supplier's inspection, the supplier shall notify the Buyer and/or cognizant GDLS SQA representative. Five (5) working days' notice shall be required for scheduling verification via [www.gdls.com](http://www.gdls.com) (reference PQA3000 for instructions). Always reference the online document for

## GDLS-A QUALITY CLAUSES

current requirements. Reference FAI Guide for conditions that require FAI. This guide is available at [www.gdls.com](http://www.gdls.com).

If supplier-developed automated test software is used as a means of functional product acceptance, the test software (not the firmware) must be approved by GDLS Quality Engineering & Test. Supplier instructions and requirements for test software review and validation are defined in GDLS document QCS-5. The test software shall be submitted to GDLS Quality Engineering & Test for review a minimum of 2 weeks prior to the scheduled FAI.

**GDLS-A Quality Assurance** SQA must be notified if any of the above conditions cannot be met. Objective evidence must be maintained demonstrating the above.

### **QY12.1 (26/10/22) First Piece Inspection (QCS-16)**

A First Piece Inspection (FPI) is required as part of this purchase order. Supplier shall perform FPI on one of the first five pieces to be delivered and on each part number within an assembly as listed on the Parts List from the drawing. Objective evidence of compliance with all PO and drawing requirements shall be available and verified by GDLS.

FPI shall be performed utilizing the GDLS QCS-16 Coversheet, and if applicable the QCS-16-2 NC Summary. Both forms are available at [www.gdls.com](http://www.gdls.com). Five working (5) days' notice shall be required for scheduling verification via [www.gdls.com](http://www.gdls.com) (reference PQA3000 for instructions).

If supplier-developed automated test software is used as a means of functional product acceptance, the test software (not the firmware) must be approved by GDLS Quality Engineering & Test. Supplier instructions and requirements for test software review and validation are defined in GDLS document QCS-5. The test software shall be submitted to GDLS Quality Engineering & Test for review a minimum of 2 weeks prior to the scheduled FPI. Upon completion of the inspection, the supplier shall notify the buyer and/or cognizant GDLS-A SQA representative.

### **EQA3 (01/03/17 REV B) Quality System**

The suppliers internal Quality System is acceptable for this item. The supplier is not required to have prior approval of their Quality System by General Dynamics Land Systems.

### **EQA4 (26/06/20 REV E) Quality System Approved**

Requirement Description:

The supplier shall use a Quality System that is approved by General Dynamics Land Systems (GDLS) Engineering Quality Assurance for the goods/services to be provided.

Quality System Requirements:

1. If the supplier is third party registered to AS9100, ISO 9001, or TS16949, the supplier shall provide their current registration certificate to GDLS. If the supplier is not currently third party registered, GDLS Quality Assurance will perform a pre/post award assessment to evaluate the supplier's Quality System.
2. All measuring and test equipment used for final product acceptance shall be calibrated with certifications traceable to the NIST, NATA and INZ.

## GDLS-A QUALITY CLAUSES

### **EQA5 (17/06/14) Quality Management System / Quality Program Plan**

GDLS-A requires that the supplier shall have an active Quality Management System (QMS) that satisfies the requirements of ISO 9001. The supplier shall submit a copy of their Program Quality Plan (PQP) to:  
GDLS-A Supplier Quality Assurance  
C/O GDLS-A Buyer or Subcontract Administrator Identified On This Purchase Order

GDLS-A Quality Assurance will review the QPP for adequacy and retain it on file for the duration of the subcontract or purchase order. This QPP will be utilised as a record of the supplier's quality system and processes to develop and produce the products (and related services) provided to GDLS-A. The QPP will also be utilised by GDLS-A to determine the scope of quality system pre/post-award survey(s), reviews/audits and oversight required. Any revisions made to the QPP by the supplier during the subcontract or purchase order period of performance shall be forwarded to GDLS-A QA.

### **EQB3 (17/06/14 REV C) Final Acceptance by the Requester**

Final acceptance of this line item will be made by the requester upon satisfactory use.

### **EQB9 (26/06/20 REV G) Certificate of Conformance (COC)**

Requirement Description:

The supplier shall furnish a COC with each shipment attesting that the goods/services meet all of the Technical Data Package requirements.

COC Requirements:

1. Signature, date and title of the responsible Quality representative or equivalent shall be included.
2. Data supporting the COC shall be kept on file and made available upon request.

Delivery Requirements:

1. The COC shall be uploaded for each shipment to the Purchase Order Line item within iSupplier. Navigate to [www.GDLS.com](http://www.GDLS.com) > Suppliers > iSupplier.
2. If the requirement is specified as non-deliverable (i.e., EQB9-ND) the COC shall be kept on file and made available upon request.

Non-conformance Requirements:

1. All non-conformances shall be dispositioned by GDLS prior to delivery.
2. All non-conformances shall be addressed on the GDLS Supplier Quality Material Report (SQMR). Navigate to [www.GDLS.com](http://www.GDLS.com) > Suppliers > Quality > SQMR Form.
3. The dispositioned SQMR shall be included with the COC.

## GDLS-A QUALITY CLAUSES

### **EQB9ND (17/06/14 REV A) Certificate of Conformance (NON-DELIVERABLE)**

The supplier shall generate a Certificate of Conformance (COC) with each shipment attesting that the goods/services meet all of the technical data package requirements. The COC must include signature, date and title of a responsible Quality Representative. This COC and supporting data shall be kept on file at the supplier's facility and made available to GDLS-A QA upon request.

Prior to delivery of any hardware which contains nonconformance(s) to the referenced specification(s) or GDLS Technical Data Package, the exceptions to conformance shall be delineated on the Supplier's Quality Material Report with completion and submittal instructions, is located at the end of this form in the appendix.

Exceptions to conformance require GDLS-A Quality Assurance approval prior to shipment. Upon disposition and approval by GDLS-A, the supplier will be notified and provided a unique disposition number. This number shall be noted on the supplier's COC.

### **EQB10 (17/06/14) Supplier Certification**

The supplier, by acceptance of and subsequent delivery on this order, certifies that the item meets the minimum requirements of the technical data package.

General Dynamics Land Systems (GDLS) reserves the right to require proof of such conformance.

### **EQB11 (26/06/20 REV A) Material Test Report (MTR)**

Requirement Description:

The supplier shall furnish a Material Test Report (MTR) from the material manufacturer attesting that the material(s) meet all of the Technical Data Package requirements.

MTR Requirements:

1. The MTR shall include the name of the manufacturer, material specification, and size.
2. Chemical composition analysis and mechanical properties test results shall be included.
3. Material heat lot number shall be included.

Delivery Requirements:

1. The MTR shall be uploaded for each shipment to the Purchase Order Line item within iSupplier. Navigate to [www.GDLS.com](http://www.GDLS.com) > Suppliers > iSupplier.
2. If the requirement is specified as non-deliverable (i.e., EQB11-ND) the MTR shall be kept on file and made available upon request.

Non-conformance Requirements:

- 1 All non-conformances shall be dispositioned by GDLS prior to delivery.
- 2 All non-conformances shall be addressed on the GDLS Supplier Quality Material Report (SQMR). Navigate to [www.GDLS.com](http://www.GDLS.com) > Suppliers > Quality > SQMR Form.

## GDLS-A QUALITY CLAUSES

### **EQC1 (17/06/14 REV K) Inspection Report(s) for End Item Assembly**

General Dynamics Land Systems (GDLS) requires the supplier of this item to inspect the item, as well as to document and deliver the inspection results. A complete verification is required to confirm the article being inspected complies with the requirements identified in engineering drawing(s), computer model(s), specification(s), and purchase order as well as any other applicable design requirement(s).

The supplier shall perform the inspection in accordance with SAE Aerospace Standard AS9102 Form 3 and Instructions or equivalent. At a minimum, the supplier shall use an inspection sampling plan in accordance with the following table:

<b>Lot Size</b>	<b>Sample Size</b>
1	1
2-15	2
16-25	3
26-90	5
91-150	8

### **EQC1ND (17/6/14 REV C) Inspection Report(s) for End Item Assembly (NON-DELIVERABLE)**

GDLS-A requires the supplier of this item to inspect the item and maintain the inspection results on file at the suppliers facility. A complete verification is required to confirm the article being inspected complies with the requirements identified in engineering drawing(s), computer model(s), specification(s), and purchase order as well as any other applicable design requirement(s).

The supplier shall perform the inspection in accordance with SAE Aerospace Standard AS9102 Form 3 and Instructions or equivalent. At a minimum, the supplier shall use an inspection sampling plan in accordance with the following table:

<b>Lot Size</b>	<b>Sample Size</b>
1	1
2-15	2
16-25	3
26-90	5
91-150	8

Product inspected by a sampling plan for delivery on this purchase order must use an acceptance number zero; i.e., accept on zero defects and reject the lot on one or more defects.

The inspection report(s) must address and include the following:

- 100% of the characteristics
- 100% of the drawing notes
- All data for GD&T calculations (i.e., X, Y coordinates for true position etc)
- Inspection reports for sub-assemblies, parts, details when included in the end item drawing or computer model
- All welding symbols
- Inspection report form(s), annotated/ballooned drawing and all supporting documentation (i.e., certifications, test reports, etc).

Signature, date, and title of the responsible inspection or quality assurance representative

## GDLS-A QUALITY CLAUSES

The inspection report is not complete until all nonconformances to the referenced specification(s) or GDLS Technical Data Package (TDP) affecting the part has been dispositioned by GDLS-A prior to delivery of any hardware. All exceptions to conformance shall be delineated on a Supplier Quality Material Report with completion and submittal instructions can be found at the end of this form in the appendix.

The completed Inspection report package shall be maintained at the supplier facility and shall be made available to GDLS-A upon request.

Exceptions to conformance require GDLS-A Engineering and / or Quality Assurance approval prior to shipment. Upon disposition and approval by GDLS-A, the supplier will be notified which shall be noted on the supplier's inspection report and/or Certification of Conformance.

**Additional information to generate the inspection report:**

- Recorded dimensional data is not required for fastener type items used in assembly unless otherwise specified in the order.
- Data from coordinate measuring equipment is intended for internal use at the supplier and shall not supplant the inspection report. All data will be transferred and organized on the inspection form.

## GDLS-A QUALITY CLAUSES

### **EQC2 (17/6/14 REV D) First Piece Inspection (FPI) Report for Casting or Forging**

General Dynamics Land Systems (GDLS) requires the supplier of this item to perform a complete First Piece Inspection (FPI) for casting/forging dimensions for each lot produced, as well as to document and deliver the inspection results. A complete verification is required to confirm that the article being inspected complies with the requirements identified in engineering drawings, computer models, specifications, and purchase order as well as any other applicable design requirement(s).

The supplier shall perform FPI in accordance with SAE Aerospace Standard AS9102 Form 3 and Instructions or equivalent. The inspection report(s) must address and include the following:

- 100% of the characteristics
- 100% of the drawing notes
- All data for GD&T calculations (i.e., X, Y coordinates for true position etc.)
- Signature, date, and title of the responsible inspection or quality assurance representative

The FPI report package shall include the FPI form, annotated / ballooned drawing, and all supporting documentation (i.e., certifications, test reports, etc). All Inspection reports shall accompany each shipment for acceptance at GDLS.

The inspection report is not complete until all nonconformances to the referenced specification(s) or GDLS Technical Data Package (TDP) affecting the part has been dispositioned by GDLS prior to delivery of any hardware. All exceptions to conformance shall be delineated on the Supplier's Quality Material Report with completion and submittal instructions, is located at the end of this form in the appendix.

The completed Inspection report package shall be delivered with each shipment to GDLS for acceptance.

Exceptions to conformance require GDLS-A Engineering and /or Quality Assurance approval prior to shipment. Upon disposition and approval by GDLS-A, the supplier will be notified which shall be noted on the supplier's Inspection/Test report and/or Certification of Conformance.

### **Additional information to generate the FPI report:**

- Data supporting the inspection (i.e.; nondestructive inspection/testing results, material certifications, etc.) shall be included in the FPI package, except that any required x-rays shall be kept on file and made available upon request.
- Data from coordinate measuring equipment is intended for internal use at the supplier and shall not be submitted as a FPI report. All data will be transferred and organised on the required inspection form.

## GDLS-A QUALITY CLAUSES

### **EQC2ND (17/06/14 REV B) First Piece Inspection Report for Casting or Forging (NON-DELIVERABLE)**

General Dynamics Land Systems (GDLS) requires the supplier of this item to perform a complete First Piece Inspection (FPI) for casting/forging dimensions for each lot produced, and maintain the inspection results on file at the suppliers facility. A complete verification is required to confirm that the article being inspected complies with the requirements identified in engineering drawings, computer models, specifications, and purchase order as well as any other applicable design requirement(s).

The supplier shall perform FPI in accordance with SAE Aerospace Standard AS9102 Form 3 and Instructions or equivalent. The inspection report(s) must address and include the following:

- 100% of the characteristics
- 100% of the drawing notes

All data for GD&T calculations (i.e., X, Y coordinates for true position etc.) Signature, date, and title of the responsible inspection or quality assurance representative.

The FPI report package shall include the FPI form, annotated / ballooned drawing, and all supporting documentation (i.e., certifications, test reports, etc).

The inspection report is not complete until all nonconformances to the referenced specification(s) or GDLS Technical Data Package (TDP) affecting the part have been dispositioned by GDLS prior to delivery of any hardware. All exceptions to conformance shall be delineated on the Supplier's Quality Material Report with completion and submittal instructions, is located at the end of this form in the appendix.

The completed Inspection report package shall be maintained at the supplier facility and shall be made available to GDLS-A upon request.

Exceptions to conformance require GDLS Engineering and / or Quality Assurance approval prior to shipment. Upon disposition and approval by GDLS-A, the supplier will be notified and shall be noted on the supplier's Inspection/Test report and/or Certification of Conformance.

#### **Additional information to generate the FPI report:**

- Data supporting the inspection (i.e.; nondestructive inspection/testing results, material certifications, etc.) shall be included in the FPI package, except that any required x-rays shall be kept on file and made available upon request.
- Data from coordinate measuring equipment is intended for internal use at the supplier and shall not be submitted as a FPI report. All data will be transferred and organised on the required inspection form.

## GDLS-A QUALITY CLAUSES

### **EQC4 (26/6/20 Rev G) – First Piece Inspection (FPI) Report**

#### Requirement Description:

A complete verification is required to confirm the hardware being inspected per lot complies with the Technical Data Package requirements identified in the Purchase Order.

#### FPI Report Requirements:

1. The FPI form shall be IAW SAE Aerospace Standard AS9102 Form 3 or equivalent.
2. Annotated/ballooned drawing shall be included.
3. All drawing notes shall be included.
4. Weld sizes and visual inspection of all welds shall be reported.
5. All GD&T characteristics including basic dimensions shall be included.
6. Supporting documentation (i.e., certifications for materials, special processes, etc.) shall be included.
7. FPI report(s) shall be included for all sub-assemblies and details.
8. Signature, date and title of the responsible Quality representative or equivalent shall be included.

#### Delivery Requirements:

1. The FPI shall be uploaded for the first shipment to the Purchase Order Line Item within iSupplier. Navigate to [www.GDLS.com](http://www.GDLS.com) > Suppliers > iSupplier.
2. If the requirement is specified as non-deliverable (i.e., EQC4-ND) the FPI report package shall be kept on file and made available upon request.

#### Non-conformance Requirements:

1. All nonconformance(s) shall be dispositioned by GDLS prior to delivery.
2. All nonconformance(s) shall be addressed on the GDLS Supplier Quality Material Report (SQMR). Navigate to [www.GDLS.com](http://www.GDLS.com) > Suppliers > Quality > SQMR Form.
3. The dispositioned SQMR shall be included with the FPI report.

#### Additional Information:

Dimensional data and certifications are not required for fasteners unless otherwise specified. Data from Coordinate Measuring Machines (CMM) are not a substitute for the FPI report. Casting and forging x-rays shall be kept on file and made available upon request.

## GDLS-A QUALITY CLAUSES

### **EQC4ND (17/06/14 REV D) First Piece Inspection Report for End Item Assembly (NON-DELIVERABLE)**

GDLS-A requires the supplier of this item to perform a complete First Piece Inspection (FPI) and maintain these results on file at the supplier's facility. A complete verification is required to confirm the article being inspected complies with the requirements identified in engineering drawings, computer models, specifications, and purchase order as well as any other applicable design requirement(s). The supplier shall perform FPI in accordance with SAE Aerospace Standard AS9102 Form 3 and Instructions or equivalent. This inspection report must address and include the following:

- 100% of the characteristics
- 100% of the drawing notes
- All data for GD&T calculations (i.e., X, Y coordinates for true position, etc.)
- First Piece Inspection reports for sub-assemblies, parts, details when included on the end item drawing or computer model
- All welding symbols
- First Piece Inspection form, annotated / ballooned drawing, and all supporting documentation (i.e., certifications, test reports, etc).
- Signature, date, and title of the responsible inspection or quality assurance representative

The First Piece Inspection is not complete until all nonconformances to the referenced specification(s) or GDLS Technical Data Package (TDP) affecting the part have been dispositioned by GDLS prior to delivery of any hardware. All exceptions to conformance shall be delineated on the Supplier's Quality Material Report with completion and submittal instructions can be found at the end of this form in the appendix. The FPI report package shall be delivered to GDLS-A, and shall accompany each shipment for acceptance at GDLS-A.

Exceptions to conformance require GDLS Engineering and /or Quality Assurance approval prior to shipment. Upon disposition and approval by GDLS-A, the supplier will be notified which shall be noted on the supplier's First Piece Inspection report and/or Certification of Conformance.

#### **Additional information to generate the FPI report:**

- Recorded dimensional data is not required for fastener type items used in assembly unless otherwise specified in the order.
- Data from coordinate measuring equipment is intended for internal use at the supplier and shall not be submitted as a FPI. All data will be transferred and organized on the required inspection form.

## GDLS-A QUALITY CLAUSES

### **EQC5 (26/06/20 REV G) – Electrical/Functional Test**

#### Requirement Description:

The supplier shall perform electrical and/or functional testing and furnish a copy of the results for each end item delivered.

#### Test Report Requirements:

1. The test data in supplier format shall address all characteristics required by the Technical Data Package and if required traceable by serial number.
2. Actual values are required except for those characteristics typically inspected with pass/fail criteria.
3. Signature, date and title of the responsible Quality representative or equivalent shall be included.

#### Delivery Requirements:

1. The test data shall be uploaded for each shipment to the Purchase Order Line Item within iSupplier. Navigate to [www.GDLS.com](http://www.GDLS.com) > Suppliers > iSupplier.
2. If the requirement is specified as non-deliverable (i.e., EQC5-ND) the test data shall be kept on file and made available upon request.

#### Non-conformance Requirements:

1. All non-conformances shall be dispositioned by GDLS prior to delivery.
2. All non-conformances shall be addressed on the GDLS Supplier Quality Material Report (SQMR). Navigate to [www.GDLS.com](http://www.GDLS.com) > Suppliers > Quality > SQMR Form.
3. The dispositioned SQMR shall be included with the test data.

### **EQC5ND (17/06/14 REV B) – Functional/Electrical Test (NON-DELIVERABLE)**

General Dynamics Land Systems (GDLS) requires the supplier to perform functional or electrical testing for each end item delivered to GDLS and requires the supplier to maintain the inspection results on file at the suppliers facility.

The test data/report shall address all functional characteristics required by the GDLS technical data package. Actual values (versus "pass/fail" data) are required, except for those characteristics typically inspected with pass/fail equipment. All data/reports must include signature, date, and title of the supplier's responsible Quality Representative.

All Inspection reports shall be maintained at the supplier facility and shall be made available to GDLS-A upon request.

Prior to delivery of any hardware which contains nonconformance(s) to the referenced specification(s) or GDLS Technical Data Package, the exceptions to conformance shall be delineated on the Supplier's Quality Material Report with completion and submittal instructions, is located at the end of this form in the appendix.

Exceptions to conformance require GDLS Engineering and / or Quality Assurance approval prior to shipment. Upon disposition and approval by GDLS-A, the supplier will be notified and shall be noted on the supplier's Inspection/Test report and/or Certification of Conformance.

## GDLS-A QUALITY CLAUSES

### **EQD1 (6/08/20 REV J) – Acceptance Test Procedure (ATP) & Acceptance Test Report (ATR)**

#### Requirement Description:

The supplier shall develop and submit an ATP for approval prior to the final testing of hardware. A completed ATR shall be provided with each end item delivered.

#### ATP Requirements:

1. The ATP shall have a unique document number and shall be revision controlled.
2. Each test shall be cross referenced to the performance characteristic in the applicable specification or Technical Data Package (TDP).
3. Each performance characteristic shall be addressed with a detailed test method.
4. The test data recording format shall be identified (test data sheets are preferred). Actual values are required except for those characteristics typically inspected with pass/fail criteria.
5. A list of test equipment required to execute the ATP shall be included.
6. Diagrams or photographs of the test setup shall be included in the ATP.
7. Signature, date and title of responsible Quality representative or equivalent shall be included.

The ATP shall be submitted for approval 30 days prior to the first scheduled acceptance test. For approval, submit the test procedure to:

GDLS-A Quality Assurance  
C/O GDLS-A PPAP Inbox

GDLS-A will provide ATP approval in writing. GDLS approval of supplier's test procedure does not relieve the supplier from meeting all requirements of the specifications, drawing and other technical data. GDLS-A written ATP approval shall be kept on file by the supplier.

GDLS requires the supplier to submit an Acceptance Test Report (ATR)/Data Sheet(s) when functional/performance acceptance testing is completed on the end item deliverable hardware. Calibration dates for test equipment used during ATP shall also be provided with the submittal.

### **EQD2 (17/06/14 REV C) – GDLS Source Inspection Required**

General Dynamics Land Systems (GDLS) source inspection/acceptance is required on this order. The supplier's responsible Quality Assurance Representative shall notify GDLS five (5) working days prior to start of final acceptance test or inspection to allow for scheduling of a GDLS-A Quality Representative to be in attendance. The method of notification shall be the GDLS-A Source Inspection Form.

The supplier shall have technical data (e.g. drawings, specifications, certifications, procedures, etc.) available for use in support of source acceptance.

Unless otherwise arranged with GDLS-A Engineering and / or Quality Assurance acceptance testing shall be performed/validated by the supplier prior to GDLS-A notification.

Exceptions to conformance identified prior to source inspection/acceptance shall be delineated on the Supplier's Quality Material Report with completion and submittal instructions, is located at the end of this form in the appendix.

Exceptions to conformance require GDLS-A approval prior to shipment.

## GDLS-A QUALITY CLAUSES

### **EQE2 (26/06/20 REV E) – Automated Test Equipment (ATE) Software Evaluation**

#### Requirement Description:

The supplier shall submit any ATE Software utilized as a means of functional product acceptance for approval prior to final acceptance testing of hardware.

#### ATE Software Requirements:

The ATE Software shall be revision controlled. Revision control procedures are subject to GDLS audit.

#### Delivery Requirements:

1. The ATE Software shall be submitted for approval a minimum of 30 days prior to final acceptance testing of hardware to the following:

GDLS Engineering Quality Assurance (EQA)

c/o the GDLS Buyer identified on the Purchase Order

2. Any revisions to the ATE Software shall be submitted for approval prior to additional testing.

3. EQA written approval of the ATE Software shall be maintained on file by the supplier.

#### Additional Information:

The GDLS evaluation of ATE may include either a line by line review of the source code (or equivalent) or demonstration of the software operation by the supplier.

### **EQE3 (17/06/14 REV C) – Embedded Software Evaluation/Approval by GDLS**

Embedded software required for the operation of supplied products shall be evaluated and approved by GDLS-A. This evaluation may consist of:

1. Line by line review of the source code (or equivalent).
2. Demonstration of the software operation by the supplier.

Both methods of evaluation shall be solely at the discretion of GDLS-A.

All software approved by GDLS-A will be version controlled by the supplier. The plans/procedures for control are subject to approval and subsequent audit by GDLS-A. All subsequent changes to the software are subject to approval by GDLS-A. Supplier shall notify GDLS-A two (2) weeks prior to product delivery for evaluation of new or revised software. Notification point of contact is the GDLS buyer identified on this purchase order.

### **EQF2 (17/06/14 REV C) – Weld Procedures, Weld Samples and Welder Certifications**

GDLS-A requires Weld Procedure Specifications (WPS) and weld sample(s) shall be furnished to the GDLS Division at the address listed below, at least two (2) weeks in advance of welding. WPS and weld samples are to be used for producing parts against this purchase order and shall be prepared using the guidelines contained in specifications AWS

- D1.1/D1.1M, AWS D1.2/D1.2M, AWS
- D1.3/D1.3M, AWS D1.6/D1.6M or the applicable specification.

GDLS WPS approval shall be for a period of three years, provided the parts that have not been affected by design changes or drawing revisions during this period. Following approval of the WPS, the weld sample(s) will be returned to the supplier and shall be retained for a period of no less than seven years.

Welder Certifications shall be in accordance with the guidelines contained in specifications AWS D1.1/D1.1M, AWS D1.2/D1.2M, AWS D1.3/D1.3M or AWS D1.6/D1.6M or applicable specification. All welding shall be traceable to the certified individual, with records maintained for no less than seven years and made available upon request.

When non-destructive testing (NDT) of welds is specified on the drawing or model, all inspection and/or testing shall be performed by an inspector certified to the applicable NDT specification(s).

## GDLS-A QUALITY CLAUSES

### **EQF3 (26/06/20 REV A) – Weld Inspection & Welder Certifications**

#### Requirement Description:

The supplier shall perform a visual weld inspection and ensure Individual Welder Certification are IAW the applicable weld specifications.

#### Visual Weld Inspection Requirements:

1. All welds shall be visually inspected and be free of cracks, overlap and undercut IAW the applicable specification in the Technical Data Package (TDP).
2. All welds shall be measured with suitable gages and documented in the First Piece Inspection (FPI) report per EQC4.
3. Visual inspection shall be aided by strong light, magnifiers or other equipment as the supplier deems suitable.

#### Welder Certification Requirements:

1. Individual Welder Certifications shall be IAW the applicable specification in the TDP.
2. All welding shall be traceable to the certified individuals performing the work.
3. Weld records shall be maintained in supplier format and made available upon request.

#### Non-Destructive Test (NDT) Requirements:

1. Any NDT shall be conducted after visual inspection is complete.
2. NDT is required when specified by the TDP or may be conducted at the manufacturer's discretion.
3. NDT inspection shall be conducted utilizing liquid penetrant per ASTM E1417/E1417M or magnetic particle per ASTM E1444/E1444M with no cracks permissible.
4. Personnel performing NDT other than visual inspection shall be a certified:
  - a. CWI Level II inspector or
  - b. CWI Level I inspector working under the supervision of a Level II inspector.
5. Personnel performing NDT shall be qualified and certified IAW ASNT Personnel Qualification SNT-TC-1A ANSI/ASNT-CP-189 or NAS 410 for military purposes, or as specified in the contract or Purchase Order.

### **EQJ1 (17/06/14 REV C) – Calibration Certification**

The supplier shall furnish a certificate attesting that the calibration of each item of measuring and/or test equipment being delivered on this order is traceable to the National Institute of Standards and Technology (NIST) **for North American Suppliers the National Association of Testing Authorities (NATA) Australia or International Accreditation New Zealand (IANZ) New Zealand.**

If requested on the purchase order, the supplier shall furnish service and calibration manuals for each model of the measuring and/or test equipment being delivered.

### **EQJ8.1A – (17/06/14) Government Selective Evaluation**

During performance on this order, your Quality Control or Inspection System and manufacturing processes may be subject to review, verification and analysis by authorised government representatives. Government release of product prior to shipment is not required unless you are otherwise notified by GDLS-A Purchase Order supplement.

## GDLS-A QUALITY CLAUSES

### **EQK3 (26/06/20 REV J) – High Strength Fastener Certification**

#### Requirement Description:

The supplier shall ensure high strength fasteners are compliant to the Technical Data Package (TDP) for American Grade 5 (BC), Grade 8 (BD) or Metric Classes 8.8, 9.8, 10.9, 12.9 hex head and socket head fasteners, and procured from a manufacturer approved by GDLS.

#### High Strength Fastener Requirements:

1. The fasteners shall be traceable to a recognized manufacturing source (as identified by the bolt head logo) that is on the approved GDLS “Process to Supplier List”. Contact the GDLS buyer identified on the Purchase Order to obtain the list of approved manufacturers.
2. The material certification shall document the actual material chemistry, core hardness or tensile strength and plating conformance.

GDLS-A Engineering and / or Quality Assurance or the GDLS-A buyer identified on the purchase order can be contacted to obtain the list of approved manufacturers.

The fastener supplier shall furnish certifications with the shipment which documents the actual material chemistry, core hardness or tensile strength and plating requirements as specified and as applicable.