



1. Applicability

In addition to the General Terms of Purchasing and (Sub)-contracting, this document defines restrictions and quality system requirements applicable when goods and services are procured to Bradford Engineering B.V. (trading under the name Bradford Engineering) design authority Build to Print and Build to Specification part numbers.

This requirement does not apply to Standard Catalog Hardware. Standard Catalog Hardware is defined as a part or material that conforms to an established industry or national authority published specification, having all characteristics identified by text description, National/Military Standard Drawing, or catalog item.

2. Order of Precedence

The order of precedence applicable for Bradford Engineering (Client) purchases at a Supplier (Contractor) is defined in the General Terms of Purchasing and (Sub)-contracting. Note that the Purchase order (PO) cannot change design data.

3. Process Restrictions

Unless otherwise explicitly directed by the PO, the following process restrictions apply:

3.1 *Machining Lubricant/Cooling*

With the exception of the Electrical Discharge Machining (EDM) fluid, all solid metals shall be machined using the following lubricants. EDM fluid should not be used on Titanium as stated in Section 3.6:

- CRC Supercut
- Blaser blasocut BC25 MD
- Blaser B-Cool 655
- H02202 EDM FLUID / 95-SE
- AquaTec 1550 van Oelheld
- Castrol Hysol XB

The following lubricants shall be used for machining of mirrors:

- Diamond 80

Documentation of the use of acceptable lubricants shall be provided in the Certificate of Conformance (Section 4.16). This shall be in addition to the standard conformance verifications required per the PO.

In the event a cutting/cooling lubricant that is not present on this list is to be used, this will need to be evaluated and approved on a case by case basis prior to application.



3.2 Glass Beads

Glass beads are prohibited from use in the processing or manufacturing of parts related to all Client PO's except for Standard Catalog Hardware; or Military or Industry specifications or standards unless allowed by specific note on the Client's drawing. Requests for exceptions shall be submitted in writing to the client for each specific part number. Contractors that use glass beads in their normal processing are required to have an effective method of segregation.

3.3 Silicone Lubricants

Silicone Lubricants are prohibited from use in the processing or manufacturing of parts related to all Client's PO's; or Military or Industry specifications or standards unless allowed by specific note on the drawing. Requests for exceptions shall be submitted in writing to the Client for each specific part number. Contractors that use silicone lubricants in their normal processing are required to have an effective method of segregation.

3.4 Elastomeric Compounds

Elastomeric Compounds shall have 75% or greater storage life remaining upon receipt at Client based on MIL-HDBK-695. The Contractor shall identify manufacturers name, compound trade name, batch number, cure date, and specific gravity range and QPL approval status as required by Client print for each lot.

3.5 Electronic Components

Electronic Components shall have a minimum 75% or 2 years storage life remaining upon receipt at Client. (I.e. transistors, integrated circuits, connectors, etc.) Ordered to military specifications - The component manufacturer and lot / date code for each component must be identified on the packing list.

3.6 Electrical Discharge Machining (EDM)

Electrical Discharge Machining (EDM) is not permitted for manufacture of parts related to all Client PO's except for Standard Catalog Hardware or Military or Industry specifications or standards unless allowed by specific note on the Client's drawing. Requests for exceptions shall be submitted in writing to the Client for each specific part number.
EDM is always prohibited for titanium parts.



3.7 Electrostatic Discharge Protection

Devices designated by the drawing as static sensitive, or otherwise applying static sensitive technology, must be properly handled, packaged, and labelled in conformance with IEC-61340-5. Pink-Polyethylene (pink-poly) bags, film, bubble wrap or foam near any ESD-sensitive item or within an ESD protected area shall not be used, as stated in Section 4.20.

3.8 Environmental Issues

The regulation called Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) was entered by the European Union to improve the protection of human health and the environment from the risks that can be posed by chemicals, while enhancing the competitiveness of the EU chemicals industry. REACH also promotes alternative methods for the hazard assessment of substances in order to reduce the number of tests on animals.

Contractors must identify and manage the risks linked to the substances they manufacture and market in the EU. They have to demonstrate to Client how the substance can be safely used, and they must communicate the risk management measures to the users.

The contractor is obliged unsolicited to deliver the Material Safety Data Sheet prior to delivery. Legal requirements, in particular the REACH law in the applicable version must be observed.

- A. Contractor represents and warrants that it shall perform all obligations under this Agreement in compliance with all applicable national, EU, state/provincial and local environmental, health and safety laws and regulations. From time to time, at Client's request, Contractor shall provide certificates to Client in a form and substance acceptable to Client, indicating compliance with the provisions of this article.
- B. Contractor represents and warrants that each chemical substance constituting or contained in Goods is on the list of chemical substances compiled and published by any equivalent lists in any other jurisdictions to which Client informs Contractor or Contractor knows the Goods likely will be shipped to or through. Contractor represents and warrants that each chemical substance constituting or contained in Goods is pre-registered if required, and registered if required, under Regulation (EC) No 1907/2006 ("REACH"), is not restricted under Annex XVII of REACH and if subject to authorization under REACH is authorized for Client's use.
- C. Contractor shall notify Client if it decides not to Preregister or Register substances that will be subject to Preregistration or Registration under REACH and are constituting or contained in Goods at least 12 months before their Registration or Registration deadline. Contractor will monitor the publication by the European Chemicals Agency of the list of substances meeting the criteria for Authorization under REACH (the "candidate list") and immediately notify Client if any of the Goods contain a substance officially proposed for listing on the candidate list. Contractor shall provide Client with the name of the substance as well as with sufficient information to allow Client to safely use the goods or fulfil its own obligations under REACH.



- D. Contractor represents and warrants that none of the Goods contain any:
- 1) RoHS Directive), as amended;
 - 2) chemical restricted under the Montreal Protocol on ozone-depleting substances;
 - 3) substance listed on the candidate list of the REACH legislation (Regulation (EC) No 1907/2006) or restricted under Annex XVII of REACH; or
 - 4) other chemical the use of which is restricted in any other jurisdictions to which Client informs Contractor the Goods are likely to be shipped or the Contractor knows the goods are likely to be shipped to or through; unless Client expressly agrees otherwise in writing and Contractor identifies an applicable exemption from any relevant legal restriction on the inclusion of such chemicals or hazardous materials in the Goods. Contractor represents and warrants that it has established an effective program to ensure that the activities of any sub-tier contracted suppliers it utilizes to provide any goods or services that will be incorporated into the Goods will be conducted in conformance with this article.

4. Quality Requirements

This chapter describes quality requirements that apply, unless otherwise directed by the PO.

4.1 Quality System Requirements

Contractor s must maintain a quality system that, at a minimum, complies with ISO9001 (latest revision). When Contractor compliance and/or certification to AS9100, ISO9001, AS9110, EASA Part 21, EASA Part 145, or FAA FAR 145 is specified by the Client, the Contractor is responsible to notify the Client within 5 working days of any changes in Quality System status, including extensions or reductions in scopes of approval, third party and/or regulatory Quality Approvals that are either gained or withdrawn. The Contractor's loss of certification or failure to notify Client of their loss of certification could result in being disapproved as a Contractor.

4.2 Record Retention

Contractors shall retain Quality Records for minimum of ten (10) years from the date of shipment, unless a longer period is otherwise specified. Quality records include the following but not exhaustive list: Approved Certificates of Conformity, Test Reports, Raw Material Certifications, Special Process Certifications, FAIR's, Route Cards/Travelers, and Calibration Records. This data shall be made available to Client upon request, at no extra charge. Records shall be appropriately identified in accordance with customer, regulatory and company defined requirements. Storage facilities shall provide suitable environments to prevent deterioration or damage and to prevent loss. Records in storage shall be protected from unauthorized access. The nature of the information in the records, as well as its format, dictates the method by which they shall be destroyed. When records contain sensitive information, they shall be disposed by irreversible destruction methods such as shredding, or "erasure"/reformatting for electronic/magnetic media.



4.3 Calibration System

Calibration of measuring and test equipment used for product acceptance shall be traceable to established international or national measurement standards (e.g., BSI, UKAS, and NAMAS). Procedures for periodic calibration, certification, maintenance of tools and equipment, and an action plan should measuring and/or test equipment be found to be out of calibration shall be established and followed.

4.4 Inspection System

Contractors shall develop inspection procedures and maintain records of inspection. Records shall include evidence of inspection for all attributes (e.g. AS9102 first article inspection) of products / processes supplied to Client, show the product has been inspected and/or tested during all stages of manufacturing, identify the name of the individual (i.e. with stamps, etc.) who certified the results, and where applicable include the results of the inspections and tests.

The Client must be notified prior to of any changes in product, manufacturing location, or process definition that were not requested by the Client. Notification should describe the change or changes that have been made or are being proposed. Client's Quality department reserves the right to require its approval of the product, manufacturing location or the process change before the Contractor forwards the product. The Contractor is also required to submit a new or delta first article inspection report, if the change(s) affect any of the existing approved first article inspection report characteristics.

4.5 Travelers

Contractors shall maintain a traveller or equivalent control mechanism that directs procedures appropriate for the control of quality and configuration through all stages of production. For Client designed hardware when Client changes P/Ns, dash numbers, or P/N revisions AND there is work in process (WIP) for a given contract, the rework instructions must be submitted to the Client to obtain Client's Engineering department's approval prior to rework.

4.6 Nonconforming Product

Contractors shall ensure that product that does not conform to specified requirements is not shipped to Client. Dispositions of Use As Is, Rework or Repair for products under Client design control shall require written authorization prior to shipment. Contractors are also required to notify the Client within 24 hours of discovering any non-conformance that could potentially affect hardware that has previously been shipped to Client.



4.7 Corrective Action Request (CAR)

For corrective action requested, the Contractor shall:

- 1) consider the details of the recorded non-conformance/corrective action and request clarification if necessary from the initiator of the request;
- 2) complete and respond to both the containment and whole corrective action requirements within the timeframe indicated on the non-conformance notification providing an effective short term and long term corrective action.

4.8 Statistical Techniques

Contractors are responsible for understanding and reducing variation within processes, and are encouraged to use control-charting techniques. When control charting is not performed, sample inspection of all attributes shall be performed to ANSI/ASQ Z1.4 (MIL-STD-105), Level II 1.0 AQL, c = 0, BS6001 Part 1 in the US; ISO 2859-1 in the UK, or an equivalent plan approved by Client. Contractors using sample (incl. Client approved) inspection plans are not relieved from the responsibility for all attributes on the part/assembly.

4.9 Special Processes

When applicable Client will appoint approved special process sub-tier contracted suppliers explicitly on the PO. The use of a Client approved supplier does not relieve the Contractor from responsibility to furnish acceptable supplies.

4.10 Contractor Control

Contractors, including dealers and distributors, are responsible for ensuring that the applicable requirements of this PO are imposed on lower tier procurements for raw material, components or process services being used in the manufacture of products or services being provided.

4.12 Prohibited Sources

Contractors and/or sub-tier contracted suppliers are prohibited from using any source listed below in the production of products to be delivered to Client:

- Material originated from Russia, India and China
- Western Titanium Technologies CO., LTD
- Every company, product, process or material that is registered on the ESA alert list



4.13 Counterfeit Parts Prevention

The Contractor shall have a program in place to prevent the delivery of counterfeit parts and materials to Client. All parts, materials and assemblies (electrical, mechanical, raw material) included in the hardware delivered to Client shall be procured only from a franchised distributor, OEM (Original Equipment Manufacturer) or OCM (Original Component Manufacturer).

If it is determined in a specific instance that this is not possible, a notification must be submitted to Client within five (5) working days of this determination. The Contractor is responsible for the flow down of this requirement to its sub-tier contractors and their compliance to it. Further guidance on counterfeit parts avoidance can be found in SAE documents AS5553 (Electronics) and AS6174 (Material).

4.14 Right of Entry

Representatives of Client, Client's customer, and other regulatory authorities shall have access to Contractor's and all other facilities involved in the order, where they shall have access to all procedures, practices, processes, associated documents and records related to quality assurance, quality control, and configuration control. The Contractor shall notify Client in writing to any significant facility or organizational changes such as company name, location, or senior quality management. Any change of location by the Contractor shall require a full first article inspection on these parts. Client reserves the right to determine and verify quality of work, records, and material. Such visits shall not preclude subsequent rejection of product and do not absolve the Contractor of its product integrity responsibilities.

4.15 Traceability & Product Identification

Contractor shall ensure that individual articles and materials and lots thereof are identified and segregated from all other articles, materials, and lots at all times. Records for articles shall indicate the part number, revision level, lot number and if applicable the serial number and associated detailed information. Records for materials shall indicate type, applicable serial numbers, lot numbers, heat numbers, batch, date code, cure date, etc. Material or articles furnished by Client for outside operations must remain identifiable by the Client supplied lot or serial number. This number must be recorded on all applicable Contractor paperwork.

4.16 Certificate of Conformance

The Certificate of Conformance shall be shipped with the product to Client. The Certificate of Conformance is a quality record that shall include Client's part number and drawing revision, Military or Industry specification number, PO number, quantity, date shipped, manufacturer's name and authorized representative signature. In addition, the Contractor shall be able to furnish information on their source(s) of supply that could include items such as serial numbers, lot numbers, heat numbers, batch, date code and cure dates and QPL approval status as applicable.



The Certificate of Conformance shall also include a certifying statement “*manufactured and tested according applicable specifications*”. Inspection Certificates in accordance with EN 10204 are to be provided when requested. Documentation of the use of acceptable lubricants shall be provided in the Certificate of Conformance. This shall be in addition to the standard conformance verifications required per the PO.

4.17 Responsibility for Conformance

Acceptance of product shall not be used as evidence of effective control of quality by the Contractor, and shall not absolve the Contractor of responsibility for acceptable products or preclude subsequent rejection by Client’s customers.

4.18 Industry Specifications and Standards

For all Military and Industry specifications and standards, the Contractor shall comply with the revision in effect at the time the PO is issued. Client reserves the right to request a different revision that would be specified on the PO.

4.19 Training

Contractor shall ensure that all personnel performing activities on Client’s product affecting quality have been suitably trained. Personnel performing assigned tasks must be qualified on the basis of appropriate education, training, and/or experience. The Contractor shall ensure that training records are maintained and available upon request.

4.20 Handling, Packing, & Preservation

It is the responsibility of the Contractor to ensure that the packaging is adequate to protect the components during transportation, handling and storage. Packaging containers shall be appropriate for the size, weight, and fragility of the components being packed.

Pink-Polyethylene (pink-poly) bags, film, bubble wrap or foam near any ESD-sensitive item or within an ESD protected area shall not be used.



4.21 Awareness

Contractor shall ensure that their personnel, or personnel of lower-tier subcontractors and/or suppliers, are aware of:

- their contribution to product/service conformity e.g. individual accountability, understanding requirements, compliance to process, the need to control changes, reporting of non-conformance;
- their contribution to product safety e.g. individual accountability, compliance to process, attention to detail, knowledge of product end usage, potential impact relating to product issues;
- the importance of ethical behavior e.g. code of conduct, management/employee working relationships, fair treatment, employee work recognition, confidential reporting mechanisms, protecting anonymity, no blame culture.