



BREK MANUFACTURING

**PURCHASE ORDER
QUALITY TERMS AND CONDITIONS
QTC-002 (Rev. A)**

GUIDELINES FOR THE USAGE OF DIGITAL PRODUCT DEFINITION

1. SCOPE

These guidelines are applicable to all suppliers that receive Digital Product Data from Brek Manufacturing. They are a basis for operational procedures that meet the requirements of the AS9100 standard and that of Brek's customers. The supplier is required to meet all of these requirements unless there is a specific function that is not part of the supplier's scope of work.

In addition, direct employees of Brek Manufacturing that are operating from remote sites are subject to these guidelines as they apply to their operations. Computer configuration, security measures, data identification, storage, back-up and data transfer are some examples of items that are not controlled by Brek Manufacturing.

2. NORMATIVE REFERENCE

The following documents form the basis for these guidelines at the time of release:

AS9100 Rev D Para 8.1.2, Configuration Management
Para 8.4.3, Information for External Providers
Para 8.5.3, Property Belonging to Customers or External Providers

Boeing D6-51991

Northrop Grumman SQARSUP-0100

Spirit Aerosystems MAA1-1009-1

3. DOCUMENTED PROCESS

- The supplier is required to provide a documented process that defines the measures taken to assure the integrity of product engineering, configuration management and the traceable identification of all derivative files that are created by the supplier. The process shall be in accordance with the guidelines herein and shall remain in-place through the life of the contract.
- From the point of receipt, the supplier shall also develop a flow diagram which shows the secure storage location, the flow through the production process and the delivery of the end product as it relates to Digital Product Data.
- The supplier shall identify the person(s) who are responsible for the control, maintenance and implementation of the documented process.
- The supplier shall inform Brek Manufacturing of any changes to the documented process within 30 days of the date of release.
- It is suggested that the documented process meets all of the supplier's customer's requirements, and is unique to the supplier's operation.



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4. RIGHT OF ENTRY

In accordance with Brek QTC-001 clause Q01.01, Brek Manufacturing and Brek's up-line customers shall be granted the right of entry in order to survey and audit the supplier's performance to these guidelines.

5. MEDIA SECURITY

The documented process shall contain a full description of the methods that insure the security of DPD. This shall include:

- Access control with restricted permissions and / or password protection.
- Secure storage of the dataset in its original form, supplier created derivative files and (if applicable) delivery datasets.
- Archiving procedures and locations, with restricted access.
- Back-up methods including remote storage and disaster recovery procedures.

6. CONFIGURATION MANAGEMENT AND TRACEABILITY

- Only those datasets which have been received from Brek Manufacturing via the established methods are to be used for product definition.
- Receipt of the data shall be documented and traceable to the original file.
- The supplier is responsible to assure unique identification of the derivative file so that it cannot be confused with the original dataset.
- The supplier shall define the release methods of the data to production and inspection.
- Configuration control to the original filename must be maintained at each derivative of the data and traceability shall be maintained throughout all stages of the production and inspection processes.
- The original authority dataset shall be identified on the shop traveler.

7. INTERNAL QUALITY AUDITS

In accordance with AS9100 Para 8.2.2, the supplier shall conduct an Internal Quality Audit for the review and acceptance of the performance of the documented process. A complete audit shall be conducted at a minimum once per year. Record of the audit shall be retained and made available to Brek Manufacturing upon request.



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8. PROBLEM REPORTING AND CORRECTIVE ACTION

The supplier's QMS shall include Digital Product Data in their Nonconforming Material and Corrective Action processes, in accordance with AS9100 Para 8.3 and 8.5.2, and Brek QTC-001, clauses Q10.01, Q10.02 and Q11.01:

- Any dataset that is found inaccurate or un-useable shall be rejected, documented, and submitted to Brek Purchasing and Brek Quality Assurance for disposition and correction.
- The source dataset, and any supplier derivatives that are nonconforming as a result of the nonconforming dataset, shall be clearly identified as nonconforming and immediately segregated from the production process.
- This requirement includes any product that is determined as nonconforming at any stage of production.
- Statements of Corrective Action, Verification and Follow-up shall be documented accordingly.

9. PROCUREMENT CONTROL

Brek GTC-001 clause 8.0 states:

8.0 SUBCONTRACTING.

Seller agrees that it will not enter into a subcontract for the procurement of the Goods ordered on this Purchase Order in completed or substantially completed form without first securing the written approval of Buyer. Buyer may immediately terminate any subcontract with any Seller, at no cost to the Buyer, should any unauthorized subcontracting occur, as defined in this clause. Such a termination will be considered a Termination for Default as defined herein.

- This clause is not meant to include finishing processes (for example: close tolerance finish machining, NDT, shot peening, organic finishing).
- Brek Manufacturing reserves the right to approve the third-tier supplier's DPD security measures during such a request.
- Customer-approved sources for special processing must be used in accordance with Brek QTC-001, clause A-Q21.
- The supplier's release of DPD to a third-tier supplier must be controlled, in accordance with the requirements stated in document.
- The supplier is responsible for the maintenance, change incorporation and observance of security restrictions when DPD is released to a third-tier supplier.
- The Right of Entry shall be extended to Brek Manufacturing and their customers, and shall be flowed-down on the supplier's Purchase Order.

10. DATA EXCHANGE METHODS

The supplier shall maintain their computer systems as compatible with Brek Manufacturing and their customers systems. A description of the hardware, software and the current revision status shall be included in the documented process, as stated in Item #3 of this document. Brek Manufacturing performs data transfer tests at the beginning of the business relationship. Any changes to the tested system must be submitted to the Brek DPD Manager for approval and re-testing, if required.



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11. TRAINING

The supplier shall define the needs for formal training for all DPD operators. The training shall be documented and the records shall be retained. The training shall be maintained current with the incorporation of new software revisions or hardware upgrades.

12. APPROVED INSPECTION SUPPLIER

If the supplier is Boeing DPD approved for CMS inspection (CMM, Laser Tracker, NC Machine), the supplier shall provide Brek Manufacturing with their current DPD approval. If the supplier does not have such approval, the final product(s) shall be submitted to Brek Manufacturing for the inspection. The supplier that submits the finished product for inspection to Brek is not relieved of performing inspection and verification of their production process internally, as stated in AS9100 Para 7.5.1.1. This includes documentation of FAI per AS9102, as stated in Brek QTC-001 clause A-Q33. All records shall be subject to review by Brek Manufacturing upon request.

A Boeing DPD approved supplier shall proceed as follows:

13. INSPECTION MEDIA

When inspection points are created on 3-D DPD Model surfaces, the inspection data must be independently verified to the native model. The supplier shall define the methods of the validation and maintain records of the results. The inspection data:

- Tasks must be performed by DPD approved personnel
- Must be under configuration control
- Must be traceable to the original dataset
- Contain graphics and text in order to describe the inspection requirement

14. CONTROL OF MEASURING EQUIPMENT

In addition to the control of standard shop measuring equipment per Brek QTC-001, clause A-Q29, any CMM, Laser Tracker or numerically controlled machine (Coordinate Measuring System) that are used for product acceptance:

- Must be calibrated regularly. The calibration must be traceable to NIST (or equivalent). The equipment shall also meet the OEM's requirements.
- Application of CMS shall include a written procedure for the usage of each type of equipment. The procedure shall clearly state the following (as applicable):
 1. Purpose / Scope
 2. Calibration
 3. Field Checks
 4. Drift Points / Stability



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5. Temperature Compensation (if used in an uncontrolled environment).
6. Coordinate System Establishment
7. Multiple Station Set-ups
8. Data Collection Parameters
9. Data Analysis
10. Reporting (see below)
11. Record Retention
12. Training (see below)

- Reports shall include a full description of the features used to establish the coordinate system used. The data must indicate a ZERO value on the control features.
- A depiction of the location of the measurement points (a point map) is required.
- All CMS operators (inspectors) must be trained to use the equipment and interpret the results. Records of the training must be maintained by the supplier.

15. MODEL BASED DEFINITION

The supplier is responsible to extract the information needed to perform the inspection of all features of the product described by the 3-D Model. The supplier's QA Department must verify that all the features described by feature control frames, annotation, specification, notes and all other specified requirements are planned for and inspected. Brek Manufacturing provides this data to the supplier via the Purchase Order, the 3-D DPD Model, the Brek Generated Engineering Drawing, the Customer's PL and NL, and the engineering specifications.

16. FIRST ARTICLE INSPECTION

The supplier shall provide a First Article Inspection for the first-produced in accordance with Brek QTC-001, clause A-Q33. The FAI shall be completed per AS9102. It shall contain all measurable features of the part (explicit and implicit), all features on the 2-D drawing, features from the NL and the PL, and features found in the notes. In addition, if Brek has flowed down any requirements on the Purchase Order, these shall be documented within the FAI as well. The FAI is under configuration control. If Brek flows down a change to the part, the supplier is responsible to perform a DELTA FAI that contains the details of all changes and the measured results.

The associated CMM Data shall be included with the FAI. This data shall contain graphics that describe the established coordinate system and a point map.

