ORBION
SPACE TECHNOLOGY

Orbion Supplier Quality Manual REV 12

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Verify revision at Orbion Space Technology website prior to use.

NOMENCLATURE & DEFINITIONS

Acronym or Term	Description
Critical Feature	Orbion denotes Critical Features with a square hex symbol on drawings. These features are “Key Characteristics” per AS9100.
Deviation	A planned departure from approved and documented standards, operating procedures, guidelines, or specifications
DFARS	Defense Federal Acquisition Regulation Supplement
FAI	First Article Inspection
FMEA	Failure Mode and Effects Analysis
MSA	Measurement System Analysis
NCP	Nonconforming Product
NDT	Non-Destructive Test
SCAR	Supplier Corrective Action Record
SCD	Source Control Document
SCR	Supplier Change Request
Seller	Approved supplier or Contract Manufacturer of Orbion Space Technology
SPC	Statistical Process Control
EMS	Electronic Manufacturing Services

1 INTRODUCTION

Orbion desires to have healthy, mutually beneficial relationships with all its suppliers. To assist with this goal Orbion has created this document to clearly communicate applicable quality requirements, responsibilities and expectations to all suppliers who are interested in partnering with Orbion and to any outsourced partners or 3rd-party contracted suppliers as well. This manual describes Orbion's expectations for its suppliers so that all purchased materials, parts and services meet Orbion's requirements. Suppliers are responsible for the quality of their products and services and the flow down of applicable requirements to 3rd-party suppliers.

If there are any questions regarding the contents of this document, please reach out to your Orbion contact for clarification.

1.1.1 The convention used in this document is as follows: "shall" indicates a requirement; "should" indicates a recommendation; "may" indicates a permission; "can" indicates a possibility or a capability.

2 SUPPLIER RELATIONSHIP

2.1 SUPPLIER SCORECARD

To assist in maintaining a quality partnership, Orbion will provide constructive feedback to suppliers twice a year minimally in the form of a supplier scorecard. The scorecard is designed to point out areas of strengths and areas that can be improved based on different areas of qualitative and quantitative data accrued.

2.2 SUPPLIER AUDITS

Orbion reserves the right to conduct supplier audits, either on-site or remote, of critical process and quality systems which may impact fit, form, function, or traceability of critical flight components or services. An additional First Article Inspection (FAI) may need to be conducted if significant changes take place at the supplier. See Section 4.1 for FAI requirements and drivers.

3 DRAWING LEVEL DIFFERENTIATION

3.1 RELEASED DRAWINGS

All Flight component drawings shall be released and have a revision number prior to manufacturing. This will show both in the title block and the revision block. Orbion revisions take the form of a letter and a number e.g. A1 or B3. Major revisions, which include model changes, will change the first character of the revision number. The second character of the revision will change for minor revisions, which are typically drawing changes.

3.2 PRE-PRODUCTION OR PRELIMINARY DRAWINGS

Components may be ordered under a Pre-Production or Preliminary drawing by Orbion.

Pre-Production drawings are noted as Pre-Production in the Revision Block. Preliminary drawings are watermarked as preliminary.

3.3 UNRELEASED DRAWINGS

Orbion may share unreleased drawings with suppliers for initial quotation purposes or to receive supplier input for the part. Parts may not be manufactured until a released, pre-production, or preliminary drawing is provided in addition to the purchase order.

4 SUPPLIER RESPONSIBLITIES

4.1 FIRST ARTICLE INSPECTION DRIVERS AND SUBMISSION REQUIREMENTS

4.1.1 A First Article Inspection (FAI) shall be performed on a new part's first production run in accordance with ***AS9102, Aerospace Series - First Article Inspection Requirements***. In some situations, an FAI will need to be completed again. The following are some examples of when an FAI must be performed again:

- A change in the design or drawing revision level of the part.
- A change in manufacturing sources, processes, inspection methods, location, tooling, or materials.
- When required in conjunction with a root cause investigation or corrective action.
- A change in CNC program.

NOTE: *This list is not comprehensive, if a supplier has questions as to whether or not a subsequent FAI is required, please contact Orbion for further information.*

4.1.2 When a supplier provides a quote that requires FAI documentation, the FAI cost must be a separate line item.

4.1.3 FAI Submission Requirements must include the elements described in Table 1 and must be included with the FAI report. Some items will not be applicable for all parts. Contact your Orbion representative if you are unsure if an element is required. All features listed on component specifications, including dimensional notes and requirements, must have a unique characteristic number on the FAI. Reference dimensions may be excluded. FAI report forms should be structured per ***AS9102, Aerospace Series - First Article Inspection Requirements.***

Note: Inspection results of critical features of the remainder of the lot may be included on the FAI submission to prevent the need for a separate inspection report.

Table 1: FAI Required Items

FAI Item	Requirements
Process Flow Description (Manufacturing Routing Sheets)	Documents the flow of the part from material receiving to shipping in supplier format
Complete FAI Forms	All FAI forms must be completed and submitted
Measurement System Analysis (If applicable)	Evaluates the feasibility of a measurement system for its intended application
Supporting Conformance Documentation	To include CMM printouts, material or finished part testing, process certifications, etc.
Control Charts (SPC Data) (If applicable)	Control charts showing P_{pk} for all critical dimensional features (Section 4.1.5)
Special Certifications	To include process certifications and operator (e.g. NDT, welding) certifications
Inspection Results	Inspection results for all drawing features on the first article component
Ballooned Drawing	Shows correlation between ballooned drawing and FAI forms

NOTE: If component specification and/or requirements are unclear or the supplier does not have sufficient information to fulfill FAI requirements, please contact your Orbion representative for information or clarification.

4.1.4 Measurement System Analysis (MSA)

Measurement System Analysis is recommended for all measurement equipment used to perform FAI measurements. Orbion reserves the right to require MSA for specific features or dimensions deemed critical to product performance. See the ***Measurement Systems Analysis Reference Manual, AIAG*** for guidance on MSA studies.

4.1.5 Statistical Process Control (SPC)

The supplier may use SPC to ensure compliance to meet Orbion part specifications. If the supplier desires to use reduced sampling and SPC instead of inspecting all parts, they must submit their plan to Orbion and receive documented approval prior to manufacturing.

- The process capability requirement for critical features is Ppk ≥ 1.34 for FAI orders & Cpk ≥ 1.34 for subsequent orders.

NOTE: Nelson's control chart rules should be used by the supplier. When a rule violation is identified, investigation shall be conducted, and the inspection sample size should be increased to 100% inspection until the process is returned to statistical control.

4.1.6 Statistical Sampling for Component Acceptance

Sampling of critical features is permitted on a case-by-case basis and requires documented approval from Orbion.

For sampling of critical features to be considered, the supplier's sampling proposal shall meet the following requirements:

- In all cases, the defect acceptance number is zero (C=0).
- Sampling levels shall be appropriate for the Initial Reliability Requirement (IRR) set by Orbion (reference ***AS9138, Aerospace Series - Quality Management Systems Statistical Product Acceptance Requirements***).
- Orbion reserves the right to alter the sampling level at any time.
- Orbion recommends the use of ***Zero Acceptance Number Sampling Plans***, published by the *American Society for Quality* (ASQ).

Figure 2: Table 1, original c=0 sampling plans from *Zero Acceptance Number Sampling Plans by Nicholas L. Squeglia.*

	Index values (associated AQLs)															
	.010	.015	.025	.040	.065	.10	.15	.25	.40	.65	1.0	1.5	2.5	4.0	6.5	10.0
Lot size	Sample size															
2–8	*	*	*	*	*	*	*	*	*	*	*	*	5	3	2	2
9–15	*	*	*	*	*	*	*	*	*	*	13	8	5	3	2	2
16–25	*	*	*	*	*	*	*	*	*	20	13	8	5	3	3	2
26–50	*	*	*	*	*	*	*	*	32	20	13	8	5	5	5	3
51–90	*	*	*	*	*	*	80	50	32	20	13	8	7	6	5	4
91–150	*	*	*	*	*	125	80	50	32	20	13	12	11	7	6	5
151–280	*	*	*	*	200	125	80	50	32	20	20	19	13	10	7	6
281–500	*	*	*	315	200	125	80	50	48	47	29	21	16	11	9	7
501–1200	*	800	500	315	200	125	80	75	73	47	34	27	19	15	11	8
1201–3200	1250	800	500	315	200	125	120	116	73	53	42	35	23	18	13	9
3201–10,000	1250	800	500	315	200	192	189	116	86	68	50	38	29	22	15	9
10,001–35,000	1250	800	500	315	300	294	189	135	108	77	60	46	35	29	15	9
35,001–150,000	1250	800	500	490	476	294	218	170	123	96	74	56	40	29	15	9
150,001–500,000	1250	800	750	715	476	345	270	200	156	119	90	64	40	29	15	9
500,001 and over	1250	1200	1112	715	556	435	303	244	189	143	102	64	40	29	15	9

*Indicates entire lot must be inspected.
Note: The acceptance number in all cases is zero.

Zero Acceptance Number Sampling Plans, Sixth Edition
by Nicholas L. Squeglia
American Society for Quality

4.2 SUPPLIER DATA PACKAGE

4.2.1 Supplier Data Package Requirements

A data package is required to be submitted by the supplier with all orders for Orbion parts unless a subsequent FAI is required as detailed in Section 4.1. Differentiation between FAI and subsequent orders are outlined below, and the requirements for each are detailed in Table 2. Specific requirements for a given part may be exempted with a written deviation prior to manufacturing.

4.2.2 Inspection Results Reporting

Depending on the type of order, inspection results reporting requires differing levels of reporting detail. Table 2 below is intended to clarify these and other order submission requirements.

Table 2: Supplier Data Package Items

Item	First Order for Supplier Qualification (FAI)	Specification Revision	Subsequent Orders (No change to revision)
FAI Report See Table 1 for full FAI submission requirements	Full FAI	Partial FAI (Critical features & revised features)	See section 4.1.1 for requirements
Part Print A copy of the correct component drawing and revision used for dimensional inspections	Required	Required	Required
Engineering Change Documents Documents any approved deviations or SCR's	Required	Required	Required
Inspection Results Critical features inspected with reference to Orbion ballooned drawing	All component features on first article & 100% inspection of critical features	Critical & revised features on first article & 100% inspection of all critical features	100% inspection of all critical features
Records of Compliance Any relevant compliance e.g., AS9100, ISO9001, etc.	Required	Required	Required
Material Certifications Certification of material properties	Required	Required	Required
Certificate of Conformance Certifies parts meet the required specifications	Required	Required	Required
Statistical Process Control (If applicable)	P_{pk} for all critical dimensional features	C_{pk} for all critical dimensional features	C_{pk} for all critical dimensional features

Verify revision at Orbion Space Technology website prior to use.

End Item Data Package (EIDP) *If indicated on the Purchase Order (See Appendix A for details)	Required*	Required*	Required*

4.2.3 Prints/Drawings

Orbion supplies a balloon drawing with each flight part to convey critical features that must be included in the dimensional results. All Orbion technical documentation are export controlled per ECCN 9E515.a. All Orbion hardware that is manufactured per our technical documentation is export controlled per ECCN 9A515.x. Orbion suppliers must employ a quality system adequate to ensure acceptable control over product or service conformity.

4.3 REQUIREMENT FLOW DOWN

4.3.1 Suppliers

If supplier uses third-party resources, they must be either customer-designated or approved external providers (approved by supplier) including any process sources. It is Orbion's expectation that third-party resources be managed by the entity receiving Orbion's purchase order.

Supplier is additionally responsible for ensuring the following:

- When incorporating commercial product into a proposed system/assembly, the Supplier shall ensure technical, design and construction requirements are satisfied.
- The traceability for all products during production or special processes (part quantities, split orders, nonconforming product etc.).
- Third-party resources and their employees are fully aware of their overall contribution to product or service conformity, their contribution to product safety, and the importance of ethical behavior.

4.3.2 Sub-Contracted Suppliers

Note: For subcontracted services, the items in 4.3.1 apply along with these additional requirements

Orbion's suppliers shall evaluate their subcontracted suppliers to verify compliance with the requirements of this document and notify Orbion in writing if compliance to requirements cannot be maintained. On a case-by-case basis, a written mitigation plan may be developed outlining what measures the sub-tier supplier is taking to meet these requirements. This mitigation plan must be submitted to and accepted by the supplier, and available to Orbion for review. Non-compliance to these requirements may exclude the sub-tier supplier from participation on specific programs.

- All items procured from its subcontractors conform to all requirements of the Orbion purchase order.
- All applicable provisions of this document are flowed to its subcontractors including copies of the latest process specification revision(s), DFARS requirements or government clauses.

4.3.3 The supplier contracted by Orbion shall communicate all requirements in this manual to the third-party supplier.

4.4 CONTROL AND PREVENTION OF COUNTERFEIT PARTS

Orbion is committed to the control and monitoring required to prevent the use of counterfeit parts at any point within the supply chain.

4.4.1 Counterfeit Part Definition

Counterfeit or **Suspect Counterfeit Parts** are defined as: An unauthorized copy, imitation, substitute, or modified part, which is knowingly misrepresented as a specified genuine part from an original or authorized manufacturer.

Additionally, an **Electronic Counterfeit Part** (AS5553) is defined as: A suspect part that is a copy or substitute without legal right or authority to do so or one whose material, performance, or characteristics are knowingly misrepresented by a supplier in the supply chain.

Examples of counterfeit parts include, but are not limited to:

- Parts which do not contain the proper internal construction consistent with the ordered part
- Parts which have been used, refurbished or reclaimed, but represented as new product
- Parts which have different package style or surface plating/finish than the ordered parts
- Parts which have not successfully completed the Original Component Manufacturer's (OCM)'s full production and test flow but are represented as completed product
- Parts sold as up-screened parts, which have not successfully completed up-screening
- Parts sold with modified labeling or markings intended to misrepresent the part's form, fit, function, or grade

4.4.2 Orbion's Measures to Prevent the Use of Counterfeit Parts

Orbion employs counterfeit monitoring on our products and is equipped with an active account with the GIDEP or Government Industry Data Exchange Program which helps aid in avoiding counterfeit parts and any suppliers with known industry quality issues. Orbion takes all necessary precautionary measures to validate that product received is authentic by:

- Training personnel in counterfeit awareness and prevention practices
- Reviewing certifications for authenticity
- Evaluating suppliers for necessary requirements prior to approval
- Additional screening or inspection practices as relevant

Orbion employs additional tactics to ensure the prevention of the use of Counterfeit Electronic Parts including but not limited to the following:

- Require distributors to be EICA authorized
- Show preference to purchase from SAE AS6496 accredited distributors
- Requires distributors to be AS9100D/ISO9001:2015 registered
- Only utilize parts with AEC or MIL-DTL qualification and require all MIL-DTL components to be delivered with original CoC from the manufacturer.
    - If commercial parts are utilized, Orbion employs SLDC requirements on their procurement

4.4.3 Supplier's Requirements to Prevent the Use of Counterfeit Parts

Suppliers of Orbion are required to employ all reasonable measures to prevent the use of counterfeit parts or materials in their products and processes. Orbion expects that all suspect counterfeit parts or materials are treated as nonconforming and segregated from all other production parts or materials. This includes but is not limited to:

- Items received that appear to be refurbished or reworked but are certified as new parts
- Items with modified labeling or markings that misrepresent the fit, form function or manufacture status of the part/material.
- Items with engraving, printing, etching, or tagging that is worn or illegible

4.4.4 Actions Upon Detection of Counterfeit Parts

If suspect counterfeit material is received by a supplier, Orbion's expectations for the control and prevention of its use in production is as follows:

- Employ successful quarantine of the nonconforming suspect parts from other conforming items
- Maintain a list of suspect counterfeit parts received by date, supplier, and part number
- Destruction of suspect or nonconforming parts if mutually agreed upon, along with evidence of destruction.
- Report the incident to all relevant parties

4.5 PART AND PRODUCT TRACEABILITY

The Supplier shall be responsible for creating and maintaining documentation of product and material traceability throughout all stages of receipt, production, and delivery. Traceability records shall be maintained throughout the life of the product and shall be made available to Orbion upon request. The Supplier shall maintain manufacturing records that indicate traceability of any unit shipped against an Orbion PO including, but not limited to, serial/lot number, manufacturing date, raw material, processing certifications, etc.

Orbion requires that a lot/batch number shall appear on all labels, and where applicable, on each item shipped, per specified PO or engineering requirements. All suppliers shall maintain a lot or batch control and traceability identification system to track all main components, materials, and chemicals to their origin. This traceability system shall also be in effect for any product that has been reworked or repaired.

5 MATERIAL

5.1 DFARS (DEFENSE FEDERAL ACQUISITION REQUIREMENT SUPPLEMENT) COMPLIANCE

In certain cases, customers may impose specific DFARS requirements onto Orbion and its supply base. Depending on the specific conditions contracted, this may affect the material constraints enforced. If not contractually outlined, these requirements will be provided as part of the purchase order process.

6 REPORTING AND MANAGEMENT OF NONCONFORMING MATERIAL

6.1 NONCONFORMING PROCESSES, PRODUCTS OR MATERIALS IDENTIFIED AT SUPPLIER

Suppliers are required to notify Orbion of changes to processes, products or services that have impact on the overall product or service conformity. This includes the detection of nonconforming components identified during measurement evaluation or final inspection at the Supplier.

6.1.1 Supplier nonconformance discovered prior to shipment

When a supplier detects or suspects nonconforming material prior to shipment, Orbion must be contacted within 48 hours of its discovery to determine the impact and approve or disprove of the nonconforming material.

The supplier may request authorization to depart from the item's configuration requirements by summarizing the details of the nonconformance for Orbion's in a **Deviation Request.** Until the request is completed, sent to Orbion and Accepted, suppliers are not authorized to ship the product under review.

Note: Approved Deviations are temporary and only apply to parts bounded on the deviation request. For permanent changes, see section **6.3, *Supplier Change Request (SCR).***

The Deviation will be reviewed, and if the product is cleared by Orbion for onsite review. Suppliers shall provide the following information in a deviation request:

Note: Special Contract Manufacturers may document deviation requests in accordance with their quality management system (QMS). Orbion approval is required prior to shipment. In addition, the deviation record shall be provided to Orbion in accordance with ***Appendix* A.**

Deviation Request Requirements:

- Orbion PO and Part Number and Supplier Part Number (if applicable)
- Part Description
- Qty of Parts outside Orbion specification/Qty of part on the PO
- Documented specification (Drawing, Rev, Material Spec)
- Details/Data of the nonconforming features.
- Action plan to address deviation
- Deviation Classification: *See Table 3 below for determination.*
- Deviation Bounding: *See Table 4 below for determination.*
- Impact on order schedule and Orbion provided resources (if applicable).

Table 3: Deviation Classification

Classification	Definition/Situation Details
Type A	The deviation affects the safety or a critical feature a component as identified in the documentation.
Type B	The deviation consists of a departure of the specifications involving effective use of the part, part performance, fit, reliability or survivability.
Type C	The deviation does not involve any critical features, and the deviation does not affect fit, form or function in the assembly.

Table 4: Deviation Bounding

Bounding	Definition/Situation Details
High	50% or more units on order are affected.
Medium	25% - 50% of units on order are affected.
Low	Less than 25% of units on order are affected.

If Orbion cannot determine if the material is fit for production use by the information provided in the Deviation Request, Orbion may authorize the shipment for onsite evaluation before determining the final disposition (Acceptance/Rejection) of the material deviation request. Acceptance of the Deviation Request is at the discretion of Orbion Space Technology. If a Deviation Request is accepted, the expectation is that the Deviation is only applicable to the specific Qty of parts specified on the Deviation Request, and supplier will produce conforming parts for future deliveries. Reworked or repaired material is considered nonconforming unless prior written approval of these processes was granted by Orbion prior to rework or repairs beginning.

6.1.2 Nonconformance discovered after a shipment is made to Orbion

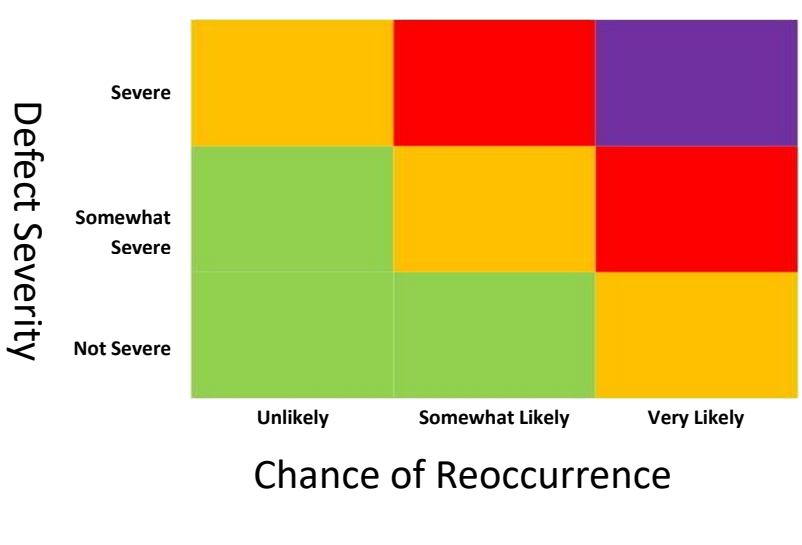
When a supplier detects or suspects nonconforming material after a shipment has been sent to Orbion, it is the responsibility of the supplier to contact Orbion within 24 hours of discovery to aid in containment and segregation of the suspect material.

Suppliers shall follow the same process as in Section 6.1.1 to request a deviation for the nonconforming materials already shipped, and Orbion will Approve/Reject based on internal inspection and dispositioning processes.

6.2 NONCONFORMING PROCESSES, PRODUCTS OR MATERIALS IDENTIFIED AT ORBION

6.2.1 If a nonconforming part is found at Orbion, and the root cause is determined to be supplier caused, then Orbion will require the following actions based on the Risk Level of the nonconformance.

Note: The details of the risk factors will be included in the nonconformance record.



Risk Level	Color Code
Top Level [1]	
High Level [2]	
Mid Level [3]	
Low Level [4]	

Table 5: Nonconformance Risk Levels

Risk Level	Associated Actions
Top Level [1] or High Level [2]	- Supplier Corrective Action Record (SCAR) will be assigned to the supplier portal for response. - Supplier response is required.
Mid Level [3]	- Supplier is notified of the nonconformance.
Low Level [4]	- No action is required.

6.2.2 Orbion reserves the right to address nonconforming parts or products received onsite using the following dispositions:

Return to Supplier

If components are found to be nonconforming outside of Orbion's required specifications, and screening or rework operations are out of the question due to timeline or the nature of the items in question, Orbion will contact the supplier for a return authorization.

Rework

When identified onsite, nonconforming material will be contained and, if the situation dictates, moved out of Orbion facilities for screening and/or rework. Orbion will make agreements to return parts to the supplier for screening and/or rework at the supplier's expense. Orbion and the supplier must agree on screening/rework methods and will require documented Rework instructions and outcome expectations on the affected items before rework can continue.

Traceable identification of screened/reworked individual parts and packaging is required.

In certain cases, Orbion may request evidence of sorting or rework operations not limited to updated COC, limited FAI, or a copy of the supplier's work instructions documenting the processes used to accept components. The quantity and/or timeframe in which Orbion will accept reworked parts must be agreed upon in advance of any screening or rework.

Acceptable parts are not to be released from screening/rework until Orbion provides approval of any additional documentation/evidence provided. Supplier will be responsible for any costs associated with screening or rework.

Scrap

In cases where screening or rework operations fail to provide intended outcomes or results in further unusable or unserviceable parts, if located onsite, Orbion will proceed with scrapping the nonconforming parts and will contact the supplier for part credit or reimbursement for the nonconforming parts.

Use As Is

Accept the nonconforming material "As Is" with a deviation written and approved by Orbion.

6.3 SUPPLIER CHANGE REQUEST (SCR)

If the supplier determines that the requirements set forth on a print or specification cannot be maintained with reasonable consistency, the supplier may propose a change by submitting a Supplier Change Request (SCR). Contact your Orbion representative to submit a change request. If an SCR is submitted, Orbion must review and provide feedback approving or denying the change prior to supplier implementation. By submitting an SCR, the supplier acknowledges that the entire request may not be approved, and that depending on the scope of the change, qualification of the change may be required prior to implementation into production. Qualification requirements will be dictated in SCR response from Orbion. An outline of the process followed once the SCR is submitted is as follows:

1. Request a review of proposed change

2. Orbion approves or denies the SCR. If the SCR is approved, Orbion dictates qualification activities/requirements.

3. Once the SCR is approved, product provided to the updated requirements may not be shipped until qualification requirements are complete

4. Implement the SCR

7 SUPPLIER QUALITY SPECIFIC TO ELECTRONICS MANUFACTURING SERVICES (EMS)

7.1 EQUIPMENT MAINTENANCE AND OWNERSHIP

7.1.1 Seller covenants that, for so long as this agreement is in effect, all items, tooling, equipment and/or other things owned by Orbion and provided by Orbion in connection with the design or manufacture of Products:

a. will be clearly marked and remain the personal property of Orbion.
b. will be kept free of liens and encumbrances.
c. will be properly maintained, calibrated, and kept in good working condition.
d. will be used exclusively to produce Products pursuant to Orbion's Purchase Orders, unless Orbion grants prior written consent; and
e. will be returned to Orbion within sixty (60) days of the date of expiration or termination of this Agreement for any reason, or within thirty (30) days of Orbion’s request.

7.1.2 Orbion agrees to furnish, or fund all required replacements and upgrades and perform any major repairs required to Property unless replacements or repairs are required as a result of the negligent acts or omissions of Seller. Seller is authorized to perform maintenance on Orbion owned property.

7.1.3 All Orbion-owned equipment and property provided to Seller by Orbion will be in good working condition when delivered to Seller. Orbion warrants that all periodic maintenance has been performed to schedule. Seller will perform an inspection on all Property upon delivery and notify Orbion of any defects or required maintenance or repairs. Orbion must approve maintenance or repair activities prior to supplier performing refurbishment activities that would be considered more than Preventative maintenance. After notification from Seller, the Orbion Purchasing department will determine the terms of funding for any required replacement, maintenance, or repairs.

7.1.4 Foreign Object Debris/Damage (FOD)

To preclude introduction of foreign objects into any deliverable item, Supplier shall practice good housekeeping, and maintain and comply with a documented Foreign Object Debris/Damage (FOD) prevention program. This program shall follow NAS 412 as a guide. Supplier shall employ appropriate housekeeping practices to assure timely and complete removal of all residue/debris generated during manufacturing operations or tasks.

7.2 HANDLING, PACKAGING AND SHIPPING REQUIREMENTS FOR ELECTRONIC COMPONENTS

The electronic components used in Orbion's products are extremely sensitive to moisture, shock and Electro Static Discharge. Orbion entrusts and requires our suppliers to preserve the integrity of these sensitive electronic components (including but not limited to PCBs, FPGA's, Magnetics, and other miscellaneous electrical piece-parts) by packaging and shipping them safely in a way that maintains the original quality and function of the components.

7.2.1 Packaging and Shipping

Orbion WILL NOT accept components in Loose or Bulk Form. All items must be in trays, reels or tubes etc. applicable to the original form in which the specific item originated.

All individual component packages must be sufficiently closed and sealed, extra precaution taken for high value components (additional tape or wrapping if possible), to ensure the components do not move from intended locations when shipped.

If multiple items of varying form are shipped together, items must be isolated with proper separation and protection to avoid heavier items from damaging lighter or more sensitive items during shipment. Physically sensitive parts including but not limited to FPGAs, must be sealed and mechanically secured to prevent shifting in packaging and such that fragile leads are protected and preserved in their original form.

NOTE: Magnetic components are particularly shock sensitive, additional care must be taken to ensure magnetic items are handled appropriately and packaged with additional shock protection and extra precaution is taken to preserve shock-susceptible elements. If components are dropped or unintended shock is applied to the modules, it must be communicated to Orbion immediately.

7.2.2 Moisture sensitivity

Electronic components are extremely sensitive to the effects of moisture and humidity, extra care must be taking during packaging to ensure components are protected from unintended moisture being introduced during shipment.

- PCBs and individual loose components must be shipped double bagged, with an internal sealed (ESD safe if required) bag and an additional external bag that contains sufficient desiccant and humidity markers to alert Orbion if additional processing is required in the event of unwanted humidity exposure.
- PCBs must be mechanically secured such that the surface finish is not compromised during shipment and nitrogen purged packaging is preferred but not required.

7.2.3 Electrostatic Discharge (ESD)

Items requiring ESD protection must follow all other requirements with the addition of ESD safe bags and packaging, properly marked as ESD safe where applicable. Items should aim to follow protection requirements of the ***ANSI ESD S20.20, ESD Association Standard for the Development of an Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies, and Equipment (Excluding Electrically Initiated Explosive Devices).***

Note: The protections of ***ANSI ESD S20.20*** may be a requirement as specified on part drawings or purchase orders.

8 RECORDS RETENTION AND CONTROL

8.1.1 Supplier shall retain all required records as objective evidence of conformance to Purchase Order requirements, including seller's records and certifications of the inspection and tests performed during procurement, manufacturing, testing, processing, inspecting, preserving, packaging and shipping product(s) on the purchase order.

8.1.2 Orbion requires the right to access, as directed by Orbion, our customer and/or regulatory bodies, the applicable areas of facilities and to applicable documented information at any level of the supply chain. Supplier shall make documented information or records available to Orbion upon request within 3 business days and at no additional cost.

8.1.3 The supplier shall maintain a documented procedure for record creation, change (handwritten or other), completion, and control of records in accordance with the applicable QMS standard (i.e. AS9100). The supplier must also be capable of maintaining data integrity for the retention period.

NOTE: *Electronic records have the same requirements, control, and retention as paper records.*

8.2 RETENTION

8.2.1 Unless otherwise stated in the PO, records shall be retained for a period of not less than six (6) years, or in accordance with FAR 4.7, whichever is longer. The supplier must impose this requirement on their sub-tier suppliers. Records shall include, but not be limited to:

- Component assembly and test procedures or plans
- Assembly/manufacturing records/travelers
- Evidence of inspection to assure adherence to applicable drawings or specifications and revisions
- First Article Inspection reports
- Records to indicate control of special tooling and special test equipment
- Test data records of all qualification and acceptance tests performed
- Certification of personnel as required by specification and/or contract
- Raw material and process certifications
- Discrepancy/material review reports
- "As-built" bills of material for each component
- Part and material procurement information to maintain traceability

9 SUPPLIER CODE OF CONDUCT

Suppliers shall ensure operations are being performed in a manner that is appropriate, as it applies to their ethical, legal, environmental, and social responsibilities. Below is a listing of the basic requirements:

9.1.1 Compliance with Local Laws and Regulations

Suppliers must adhere to the laws and regulations in the locality in which they reside. This includes all local, state, and federal laws/regulations in the country of origin.

9.1.2 Compliance with Environmental, Health, and Safety Laws

The Supplier must maintain and operate its manufacturing/production facilities and processes in accordance with local, state, and federal laws/regulations in the country of origin.

At no time shall any Orbion person be exposed to hazardous materials or unsafe conditions as a result of Supplier shipments to a Orbion location, or while visiting a Supplier's location. For items with inherent hazards, safety notices must be clearly visible. As applicable, documented safety handling and protection information must be provided.

9.1.3 Product Safety

In all instances where a product is manufactured to a new design, for a new system, or for a new application, it is important that Supplier and Orbion allocate responsibility for assuring that all performance, endurance, maintenance, safety and warning requirements are met. It is preferred that this allocation of responsibility be in writing.

9.1.4 Non-Discrimination

Suppliers shall not discriminate against race, color, sex, religion, age, physical disability, political affiliation, or other defining characteristics as prohibited by local, state, and federal laws/regulations in the country of origin.

9.1.5 Labor

- Child Labor – Suppliers shall employ workers of minimum legal age in accordance with local, state, and federal laws/regulations in the country of origin. Child labor laws must be followed.
- Forced/Indentured Labor – Suppliers shall not practice the use of forced or indentured labor.
- Work Hours/Days – Suppliers shall not exceed the daily and weekly working hours as permitted by local, state, and federal laws/regulations in the country of origin.
- Wages and Benefits – Suppliers shall compensate workers in accordance with local, state, and federal laws/regulations in the country of origin. This includes minimum legal wage, overtime wages, and benefits (required by law).

9.1.6 Ethics

Evidence of corruption, bribes, improper advantage, or any other form of illegal practice by the Supplier or associated operations will terminate all relations with Orbion. Suppliers will conduct their business in a manner that meets the 'Code of Business and Ethics' policy of Orbion Space Technology.

9.1.7 Code of Conduct and Policy Enforcement

This policy applies to Suppliers and their sub-tier sources. It is the responsibility of the Supplier to verify and monitor compliance of this code at their operations and sub-tier source operations.

9.1.8 Confidentiality

The Supplier shall ensure the confidentiality of Orbion-contracted products and projects under development, and related product information, as well as intellectual property shared as a result of the working relationship.

10 DOCUMENT REVISION HISTORY

Rev #	Date	Changes
-	2020/10/01	Initial release.
A	2021/01/11	Addition of additional requirements; Section 9-11.
1.0	2021/06/04	Updating sections 3, 4 and 8 to current business practices.
2.0	2021/07/09	Updates to section 7.
3.0	2021/08/02	Updates to Section 4 (FAI/SFQP requirements and Counterfeit Part prevention) and Section 6 (Non-conforming material reporting and management).
4.0	2022/01/21	Updates made to Sections 4.1.3, 4.2.1, Table 2: SFQP Items, the addition of subsection 4.5, additions to section 4.4 regarding the control of counterfeit parts and changes to Section 6.1 and 6.2
5.0	2023/01/09	Removed Section 3.3 (drawing levels), addition of Section 7.2 for electronic component shipping and handling.
6	2023/10/12	Document advanced to next major revision in preparation for import into eQMS system.
7	2024/03/05	Revised document references to current Orbion Standard. Updated title page. Removed revision table.
8	2024/08/19	Updated footer note. 4.1 Change Gage R&R section to recommended instead of required. 4.1.5 Updated CpK requirements more aligned to our current sampling requirements. 4.1.6 Addition of Sampling recommendations for suppliers wanting to deviate from our inspection requirements. Reference tables for critical and non-critical dimensions added. 4.3 Better structured the Third-Party Supplier flow-down section to clearly address supplier requirements for flow down communication
9	2024/11/05	6.1 updated to reflect new deviation procedure. 6.2 updated to reflect changes to SCAR process and NCM updates.
10	2025/04/28	Revising risk nomenclature and requirements in Table 5. Added Appendix A.
11	2025/10/01	Added section 3.2 Revised section 3.3. Removed SFQP information and time requirement from section 4.1.1 Referenced standard in section 4.1.3 Revised table 1 in line with revised section 4.1.5

Verify revision at Orbion Space Technology website prior to use.

		Changed Gage R&R to MSA and referenced standard in section 4.1.4. Revised section 4.1.5. Rewrite of section 4.1.6. Fixed formatting in section 4.3. Rewrite of section 4.2. Added note for special contract manufacturers in section 6.1.1. Added figures in section 6.2.1. Revised Table 5. Added note and reference to standard in section 7.2.3.
12	2025/10/06	Document moved to next revision for upload to Orbion website. Added revision table to document. Revised footer.

APPENDIX A. SPECIAL CONTRACT MANUFACTURER REQUIREMENTS

THIS APPENDIX ONLY APPLIES IF INDICATED ON THE PURCHASE ORDER.

Special contract manufacturers are required to submit an End Item Data Package (EIDP) for all serial numbers when indicated on the purchase order.

End Item Data Package Requirements:

- As-built bill of materials
- Unit history
    - Test history (with Pass/Fail results indicated)
    - Route steps
    - Rework history
    - Deviations to drawing, inspection, or test requirements