

Direct Materials Generic Quality Assurance Requirements for Suppliers

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<p>SUMMARY: This document applies to all suppliers selected by AIRBUS DEFENCE AND SPACE and which provide <u>flying</u> direct materials and associated services. It defines, as listed hereafter, standard quality requirements for:</p> <ul style="list-style-type: none"> • Accredited suppliers – § 3; • Non-certified third-party suppliers – § 4 		

CHANGE DETAILS		
Issue / Rev.	Date	Changes / Affected Sections / Superseded Document(s)
1R0	21/01/2008	First issue
2R0	01/04/2014	<ul style="list-style-type: none"> - Inclusion of new version of standards (EN 9100:2009) - Removal of annex: Requirements for Printed Circuit Board Suppliers - Update of the list of Prohibited Materials: § 3.3 - Addition of the IPCA process: § 3.4 - Addition of recommendations for tier-2 suppliers in terms of precautions, corrosion and/or deterioration: § 3.7 - Addition in the non-conformity chapter: General principles, major or minor classification and provisions: § 3.8 - Addition of corrective action request for the supplier when any non-conformity detected at incoming inspection is accepted for use as is: § 3.10 - Addition of a § for the metal-welding process: § 3.12 - Notification for primary packaging (in direct contact with materials): § 3.13 - Extension of the period of records from 10 to 15 years: § 3.14 - Addition of precautions for cleanliness (packaging and at facilities): § 3.17 - Addition of information regarding traceability and identification: § 3.19 - Addition of information for first article inspections: § 3.22 - Addition of MSDS requirements for each new delivery and new data: § 3.25
3R0	02/09/2018	<ul style="list-style-type: none"> - Inclusion of the latest version of EN 9100:2016. - § 1.1 correction of syntax: certified suppliers. - § 1.3 Addition of the applicability matrix. - § 2.1 Syntax modification AD1, AD2 and AD6 – - § 2.2 Addition of RD4 “TN-ADST-1000206235”: subcontractor cleaning and packing of flight parts and assemblies’. - § 2.3.2: Addition of the abbreviation: TRR Test Readiness Review. - § 3.3: Prohibited materials: list updated. - § 3.4: Addition of provisions on monitoring audit and/or

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assessment actions.

- **§ 3.5: Addition of EN 9100 § 8.4.3**
- **§ 3.7: Addition of EN 9100 § 8.4.3.**
- **§ 3.8.1: Addition of disposition and confinement**
Addition of 8D- 5 Whys – addition of risk-prevention actions
- **§ 3.8.2: Classification of major non-conformities updated.**
- **§ 3.9: Correction: AIRBUS DEFENCE AND SPACE instead of**
Astrium Satellites.
- **§ 3.12: Addition in the text of 'AD6'.**
- **§ 3.13: Replacement of PE-LD and PP with SCC1000.**
 - **§ 3.17: Addition of RD4.**
- **§ 3.18: Correction: AIRBUS DEFENCE AND SPACE instead of**
Astrium Satellites.
- **§ 3.19: Addition of § 8.5.2 in the text.**
- **§ 3.25: Correction: REACH 'EC' instead of REACH 'EN'.**
- **§ 3.26: Addition of a § on managing risks relating to**
operational activities.
- **§ 3.27: Addition of a § on preventing infringing parts.**
- **§ 4.1: Addition of Assessment in the text.**

CONTENTS

1.1	SCOPE.....	6
1.2	APPLICABILITY.....	6
1.3	CONFORMITY MATRIX	8
2	REFERENCES.....	9
2.1	APPLICABLE DOCUMENTS.....	9
2.2	REFERENCE DOCUMENTS	9
2.3	CONTRIBUTORS.....	10
2.4	APPROVAL.....	10
2.5	DEFINITIONS AND ABBREVIATIONS	10
2.5.1	<i>Definitions</i>	10
2.5.2	<i>Abbreviations</i>	11
2.5.3	<i>Terminology</i>	12
3	QUALITY ASSURANCE REQUIREMENTS (FOR ALL THIRD-PARTY CERTIFIED SUPPLIERS).....	12
3.1	SCOPE.....	12
3.2	ACCESS.....	12
3.3	PROHIBITED MATERIALS.....	12
3.4	QUALITY ASSURANCE SYSTEM REQUIREMENTS	13
3.5	CONTRACT REVIEW	13
3.6	DOCUMENT CONTROL.....	14
3.7	PURCHASING OF GOODS AND/OR SERVICES FROM LOWER-TIER SUPPLIERS.....	14
3.8	CONTROL OF NON-CONFORMING PRODUCTS	14
3.8.1	<i>General principles</i>	14
3.8.2	<i>Non-conformance classes</i>	15
3.8.3	<i>Disposition of non-conformances</i>	15
3.8.4	<i>Reporting and recording</i>	15
3.8.5	<i>Deviations (pre-production – RFD)</i>	16
3.8.6	<i>Waivers (post-production)</i>	16
3.9	PROCESSING OF NON-CONFORMING PRODUCTS ON RECEIPT AT AIRBUS DEFENCE AND SPACE.....	16
3.10	ACTION REPORT	16
3.11	RELEASE CERTIFICATION PROCEDURE.....	16
3.12	PRODUCT SUBJECT TO A WELDING PROCESS.....	18
3.13	HANDLING, STORAGE, PACKAGING AND DELIVERY/TRANSPORTATION	18
3.14	QUALITY DATA RECORDS	18
3.15	STATISTICAL PROCESSING	19
3.16	CHANGES.....	20
3.17	CLEANLINESS	20
3.18	OUTGASSING AND OFFGASSING	20
3.19	TRACEABILITY & LOT/BATCH REQUIREMENTS	21
3.20	ALERTS.....	21
3.21	AIRBUS DEFENCE AND SPACE SOURCE INSPECTION	21
3.22	FIRST ARTICLE INSPECTION (FAI).....	22
3.23	WORKMANSHIP	22
	<i>Note: New Production</i>	22
3.24	SHELF-LIFE WARRANTY	22
3.25	MATERIAL SAFETY DATA SHEET	23
3.26	MANAGEMENT OF RISKS RELATING TO OPERATIONAL ACTIVITIES	23
3.27	PREVENTION OF INFRINGEMENTS	23
4	ADDITIONAL QUALITY REQUIREMENTS FOR NON-CERTIFIED THIRD-PARTY SUPPLIERS.....	23

4.1	SCOPE.....	23
4.2	PROCESS/SCOPE	24
4.2.1	Quality Management System.....	24
4.2.2	Traceability.....	24
4.2.3	Verification of purchased products.....	25
4.2.4	Non-conformity.....	25
4.2.5	Identification and management of changes	25
4.2.6	Lower-tier suppliers.....	25
4.2.7	Prohibited materials	25
4.2.8	Release certification procedure.....	25
4.2.9	First article inspection.....	25
5 ADDITIONAL QUALITY REQUIREMENTS FOR MECHANICAL SUBCONTRACTING SUPPLIERS .. 26		
5.1	SCOPE.....	26
5.2	RELEASE OF PARTS MANUFACTURED FROM SELF-PROCURED MATERIAL.....	26
5.3	LOWER TIERS USED FOR ANY SURFACE TREATMENT	26
6 ADDITIONAL QUALITY REQUIREMENTS FOR STOCKISTS/DISTRIBUTORS..... 27		
6.1	SCOPE.....	27
6.2	TRACEABILITY	27
6.3	SHELF LIFE.....	27
6.4	REWORKING OF RAW MATERIAL	28
7 ADDITIONAL QUALITY REQUIREMENTS FOR PROPRIETARY PART SUPPLIERS		
7.1	SCOPE.....	29
7.2	PROPRIETARY PRODUCTS.....	29
7.3	CONTROLLED ITEMS.....	29
7.4	SHELF LIFE OF NON-MECHANICAL PARTS (ADHESIVES, CHEMICALS, ETC.).....	29
7.5	PYROTECHNIC DEVICES.....	30
8 ADDITIONAL QUALITY REQUIREMENTS FOR SUPPLIERS OF FORMED RAW MATERIALS		
8.1	SCOPE.....	31
8.2	CONTROL OF RAW MATERIALS.....	31
8.3	QUALITY ASSURANCE OF INITIAL DELIVERIES	31
8.4	CONTROL OF PROCESSING	32
9 ADDITIONAL QUALITY REQUIREMENTS FOR TEST CENTRES (MATERIAL & PROCESS TESTS)		
33		
9.1	AIRBUS DEFENCE AND SPACE ACCREDITED TEST CENTRES	33
9.2	NON-AIRBUS DEFENCE AND SPACE ACCREDITED TEST CENTRES	33
9.3	SCOPE.....	33
9.4	MINIMUM QUALITY REQUIREMENTS.....	33
9.4.1	Quality Management System.....	33
9.4.2	Traceability.....	34
9.4.3	Cleanliness and contamination.....	34
9.4.4	Identification and management of changes	34
9.4.5	Release certification procedure.....	34
9.4.6	Handling, storage, transportation, preservation and delivery	34
9.4.7	Safety and security.....	34
9.4.8	Maintenance control.....	34

DOCUMENT SCOPE AND APPLICABILITY

1.1 SCOPE

This document applies to all suppliers selected by AIRBUS DEFENCE AND SPACE and which provide flying direct materials and associated services. It defines, as listed hereafter:

Standard quality requirements for:

- Certified third-party suppliers – § 3;
- Non-certified third-party suppliers – § 4.

Additional Requirements for:

- Mechanical subcontracting suppliers – § 5;
- Stockists/distributors – § 6;
- Proprietary parts suppliers – § 7;
- Formed raw material suppliers – § 8;
- Test centres (material and process tests) – § 9.

Definition of AIRBUS DEFENCE AND SPACE DIRECT MATERIALS:

- ☞ ☐ ☺ Mechanical finished or semi-finished products;
- ☞ ☐ ☺ Machined parts and mechanical subcontracting activities;
- ☞ ☐ ☺ Mechanical product services (special processes (*), coating, etc.);
- ☞ ☐ ☺ Special process: a process where the conformity of the resulting product can only be verified by destroying the product
- ☞ ☐ ☺ Non-mechanical products, e.g. adhesives, chemicals, cables, optics, etc.;
- ☞ ☐ ☺ Raw materials;
- ☞ ☐ ☺ Test centres (material and process tests): inspection, destructive analysis, radiation, outgassing, etc.

1.2 APPLICABILITY

These requirements are applicable to all direct material suppliers, including test centres with whom purchase orders are placed in furtherance of Airbus Defence and Space work, and are mandatory to the extent stated on the applicable purchase order. In the event of any conflict between the requirements of the purchase order and this document, the purchase order shall prevail.

Acceptance of the order/contract constitutes acceptance of these requirements when this document is mentioned as applicable.

Note: requirements associated with product-related services suppliers and test centres for equipment / sub-systems / satellites or EEE (electric, electronic, electromechanical) components are not covered by this document.

Suppliers shall be able to demonstrate that their quality management systems are compliant with the relevant requirements outlined herein. Where no approvals exist, the supplier will be required to demonstrate full compliance with those requirements outlined herein that are relevant to the scope of work, product and deliverables for which the supplier is contracted by AIRBUS DEFENCE AND SPACE (e.g. through a conformity matrix).

Implementation of the applicable requirements shall be communicated via the AIRBUS DEFENCE AND SPACE purchase order. The supplier shall consider all applicable sections to be part of the order acceptance process and shall assess compliance or non-compliance with regard to its own internal quality procedures, those of its suppliers and Airbus Defence and Space requirements.

These requirements will be also used as the baseline to support internal AIRBUS DEFENCE AND SPACE processes for supplier approval/disqualification (e.g. for audits/assessments).

In general, the AIRBUS DEFENCE AND SPACE Procurement Division, and in particular buyers, shall be the only key contacts of a supplier, including for communicating any quality information (e.g. non-conformity, alert, obsolescence, changes, source inspection notification, first article inspection (FAI) notification, etc.).

1.3 CONFORMITY MATRIX

The applicability table below is a guide to help suppliers understand the applicability of the chapters for their activities and areas of expertise.

§ / Title	Direct materials category						
	Certified companies	Non-certified third-party companies	Mechanical subcontractor (machining)	Parts manufacturer	Stockist distributors	Raw materials	Test centres
1.2 APPLICABILITY	X	X	X	X	X	X	X
2 REFERENCE	X	X	X	X	X	X	X
3 QUALITY ASSURANCE REQUIREMENTS (FOR CERTIFIED SUPPLIERS)	X						
4 ADDITIONAL QUALITY REQUIREMENTS FOR NON ISO 9001 AND EN 9100 CERTIFIED SUPPLIERS		X					
5 ADDITIONAL QUALITY REQUIREMENTS FOR MECHANICAL SUBCONTRACTORS			X				
6 ADDITIONAL REQUIREMENTS FOR STOCKISTS/DISTRIBUTORS					X		
7 ADDITIONAL QUALITY REQUIREMENTS FOR PROPRIETARY PARTS SUPPLIERS				X			
8 ADDITIONAL QUALITY REQUIREMENTS FOR FORMED RAW MATERIALS SUPPLIERS						X	
9 ADDITIONAL QUALITY REQUIREMENTS FOR TEST CENTRES (MATERIAL AND PROCESS TESTS)							X

2 REFERENCES

2.1 APPLICABLE DOCUMENTS

The following publications form an integral part of this document, to the extent specified below. Unless one of the below publications is used as a reference, this document shall apply. When reference is made to one of these publications, it must be used to the exclusion of any other.

Applicable documents:

[AD1]	EN 9100:2016 – IAQG 9100:2016 (AS, EN or equivalent) Quality Management System
[AD2]	ISO 9001:2015 – Quality Management System – Requirements
[AD3]	EN 9102 : Quality Systems – First Article Inspection
[AD4]	EN 9120 : Quality Management System Requirements for Distributors and Stockists
[AD5]	ISO 17025 : General requirements for the competence of testing and calibration laboratories
[AD6]	ECSS-Q-ST-70-39C: Welding of metallic materials for flight hardware.

Templates/Forms:

[F 1]	ADS.F.0570.Agreement_Form: Technical Review of Airbus Defence and Space Quality Assurance Requirements
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The current issue of this template and form is available from the Procurement manager.

2.2 REFERENCE DOCUMENTS

The following documents contain useful information relating to the subjects addressed and facilitate the implementation of the principles and processes detailed herein (if no version is indicated, the latest versions shall be used):

[RD1]	ECSS-Q-ST-70-22	Control of limited shelf-life materials
[RD2]	ECSS-Q-ST-20-07	Quality assurance for test centres
[RD3]	ECSS-Q-ST-70-02	Thermal vacuum outgassing test for the screening of space materials
[RD4]	TN-ADST-1000206235	Subcontractor cleaning and packaging of flight parts/assemblies

2.3 CONTRIBUTORS

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2.4 APPROVAL

First name	Last name	Acronym / Function
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2.5 DEFINITIONS AND ABBREVIATIONS

2.5.1 Definitions

Representative of AIRBUS DEFENCE AND SPACE – any person or organisation holding authorisation to act for and on behalf of Airbus as parent company of AIRBUS DEFENCE AND SPACE (or their successors).

Direct Materials Quality Department representing AIRBUS DEFENCE AND SPACE – department of AIRBUS DEFENCE AND SPACE responsible for the quality of goods and services supplied to Airbus Defence and Space.

DIRECT MATERIALS SUPPLIERS:

In this document, the generic term 'SUPPLIER' covers subcontractors that manufacture a product specifically adapted to AIRBUS DEFENCE AND SPACE requirements pursuant to a subcontract. 'Vendors' is a generic term for all subcontractors, distributors and suppliers that provide material to AIRBUS DEFENCE AND SPACE for production or services.

2.5.2 Abbreviations

The following abbreviations are used in this document:

AIR	AIRBUS DEFENCE AND SPACE Investigation Request
APL	Authorised Parts List
CAR	Corrective Action Request
CDR	Critical Design Review
CoC	Certificate of Conformance or Certificate of Conformity
DMQ	Direct Materials Quality
ECM	Electro Chemical Machining
ECSS	European Cooperation for Space Standardization
EDM	Electro Discharge Machining
ESA	European Space Agency
FAI	First Article Inspection
FIFO	First In First Out
IPCA	Improvement Process Control Assessment
ISO	International Standards Organisation
LTA	Long-Term Agreement
MIP	Mandatory Inspection Point
NCR	Non Conformance Report
NDT	Non-Destructive Testing
OEM	Original Equipment Manufacturer
OR	Occurrence Report
PCN	Personal Certification Non-destructive testing
PDR	Preliminary Design Review
QA	Quality Assurance
RFD	Request For Deviation
RFW	Request For Waiver
SPC	Statistical Process Control
TRR	Test Readiness Review
WN	Warning Notice

2.5.3 Terminology

LOT: A lot defines a quantity of batches produced according to the procurement specification/documents. A lot is produced according to its own work order.

BATCH: A batch defines a quantity of items manufactured by a unique industrial process including raw material (i.e. when certain items of the lot are worked/processed in different conditions, these different items constitute a different batch of the lot).

DEVIATION (pre-production): permission to depart from the originally specified **requirements** of a **product** prior to production.

WAIVER (post-production): permission to use or release a **product** that does not conform to specified **requirements**.

ALERT: formal notification to users, informing them of failures or non-conformity of items, whether already released for use or not, which could also be present on other items that have already been delivered.

3 QUALITY ASSURANCE REQUIREMENTS (FOR ALL THIRD-PARTY CERTIFIED SUPPLIERS)

3.1 SCOPE

Suppliers who have earned and maintain certification according to either EN 9100 [AD1] or at least ISO 9001 [AD2] with a recognised accreditation body as appropriate to their business, will be deemed to have a basic quality management system acceptable to Airbus Defence and Space. **The Quality Assurance System conditions contained in this procedure are based on the requirements contained within [AD1] or [AD2], with particular emphasis on and additional references for certain criteria which must be taken into account in the same way as the requirements included in Airbus Defence and Space purchase orders.**

Note: Lower-tier suppliers/subcontractors involved in special processes and which have Nadcap accreditation may be considered preferred partners.

3.2 ACCESS

An AIRBUS DEFENCE AND SPACE representative (accompanied by the customer's representative when required), shall be granted access at all reasonable times to the supplier's premises and to their subcontractors, including lower-tier suppliers, to their quality procedures and/or any internal documents or records relating to the AIRBUS DEFENCE AND SPACE purchase order, for the purpose of evaluating and monitoring the supplier's conformance to the requirements of this document and the AIRBUS DEFENCE AND SPACE purchase order conditions (the terms of the contract).

3.3 PROHIBITED MATERIALS

Parts and components containing the following materials in any form are prohibited, except when formally agreed on a case-by-case basis by Airbus Defence and Space Direct Materials Quality:

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☞ ☐ ☕ Pure zinc and pure cadmium;

☞ ☐ ☕ Mercury

☞ ☐ ☕ Radioactive materials

☞ ☐ ☕ Pure tin (electroplated or fused – defined as a material including at least 97% Sn);

☞ ☐ ☕ Polyvinyl chloride (PVC).

☞ ☐ ☕ Alkyd

☞ ☐ ☕ Polysulphide

☞ ☐ ☕ Cellulose and acetate

☞ ☐ ☕ Polyvinyl acetate (PVAC)

☞ ☐ ☕ Polyvinyl butyral (PVB)

Note: All product deliveries shall be compliant with the REACH regulation: EC 1907/2006

For items with a metallic surface finish, the certificate of conformance shall contain a statement certifying that no pure tin, either hot-dipped or electroplated tin alloys with more than 97% tin, is contained either within the material or on its surface.

Any proposal by the supplier to deviate from this requirement shall be subject to a formal RFD, giving full justification and demonstrating that the risk associated with the material is of an acceptable level (see § 3.8.1).

3.4 QUALITY ASSURANCE SYSTEM REQUIREMENTS

The Quality Assurance System, established in accordance with the requirements of EN 9100 [AD1] or ISO 9001 [AD2], shall be covered by standardised procedures and should be periodically reviewed for effectiveness. Records of the quality reviews shall be kept and made available to an AIRBUS DEFENCE AND SPACE representative on request.

Verification may be conducted through second-party audits or industrial assessment processes carried out by Airbus Defence and Space.

The supplier shall ensure that their Quality and/or Inspection Departments receive or have direct access to copies of AIRBUS DEFENCE AND SPACE purchase orders and specifications/drawings.

Under no circumstances shall verbal instructions from AIRBUS DEFENCE AND SPACE changing any aspect of the purchase order or requirements be accepted, regardless of origin. All changes made must be recorded on the purchase order with the issue status changed Any deviations RFD / RFW must be approved prior to being worked and delivered.

3.5 CONTRACT REVIEW

The supplier shall have a documented system for reviewing purchase orders placed with them and the methods of resolving any anomalies arising from the order.

Upon completion of the contract review, once any queries are resolved, the supplier shall formally accept the AIRBUS DEFENCE AND SPACE purchase order by signing and returning the purchase order acknowledgement to the relevant AIRBUS DEFENCE AND SPACE buyer.

Reminder: it is the responsibility of the supplier to analyse and extract any special requirements, critical elements and key characteristics that must be communicated to lower tiers in accordance with document EN 9100 § 8.4.3 [AD1].

3.6 DOCUMENT CONTROL

The supplier shall maintain a system to record, acknowledge and control the receipt of drawings, specifications, instructions and electronic data with their references and associated outcomes in accordance with document EN 9100 § 7.5.3 [AD1] or ISO 9001 § 7.5.3. [AD2]

3.7 PURCHASING OF GOODS AND/OR SERVICES FROM LOWER-TIER SUPPLIERS

Suppliers purchasing services or goods in support of an AIRBUS DEFENCE AND SPACE purchase order must meet the requirements specified in EN 9100 § 8.4.3 [AD1].

The lower tiers shall ensure that adequate quality control of packaging is performed in compliance with Airbus Defence and Space requirements, when specified in a dedicated procurement specification, so as to achieve correct identification and ensure that subsequent delivery is free from damage, corrosion or other forms of deterioration.

If applicable, the supplier must define packaging, handling and storage conditions appropriate to the end product.

3.8 CONTROL OF NON-CONFORMING PRODUCTS

The product shall be fully compliant with Airbus Defence and Space requirements.

Should there be any deviation from said requirements; the supplier shall notify AIRBUS DEFENCE AND SPACE via a RFD /RFW for approval before delivery.

3.8.1 General principles

The system shall provide for a disciplined approach to the identification and segregation of non-conforming items, the recording, reporting, review, disposition and analysis of causes of non-conformances, and the definition and implementation of remedial and corrective actions.

Special attention shall be paid to

- Remedial actions:
 - Disposition actions (see § 3.8.3)
 - Containment actions: non-spreading of deviations to other products
- Corrective actions:
 - Analysis of root causes to avoid recurrence for other products (e.g. implementation of 8D, 5 Whys, causal diagram, etc.) including human factors;
- Action related to risk prevention, the analysis of risks of non-conformance and lessons learned.

Note: Suppliers are asked to communicate swiftly and efficiently (within 48 hours) with AIRBUS DEFENCE AND SPACE.

3.8.2 Non-conformance classes

Non-conformances shall be classified as major or minor, based on the severity of their consequences, as defined below:

Classification of non-conformances is not based on their consequences for costs and schedule.

Major non-conformances shall be those which may have an impact on the AIRBUS DEFENCE AND SPACE requirements in the following areas:

- Safety of people or products;
- Operational, functional or technical requirements imposed by the contract;
- Reliability, maintainability, availability;
- Service life;
- Functional or dimensional interchangeability;
- Interfaces with hardware or software;
- Change or deviation resulting from an approved qualification or test procedure;
- Material-related specifics that will lead to scrapping

Minor non-conformances are those which by definition cannot be classified as major.

In case of doubt, non-conformances shall be classified as major.

3.8.3 Disposition of non-conformances

A basic disposition for a non-conforming item can be one of the following:

- Scrap: the item is not recoverable by rework or repair, for technical or economic reasons
- Return to supplier: this disposition only applies to non-conforming procured items.
- Use 'as is': the item is found to be usable without eliminating the non-conformance.
- Rework: the item is recoverable to conform completely with all specified requirements. By definition, rework is the re-application of the process as originally planned.
- Repair: the item is recoverable such that it fulfils the intended usage requirements, although it does not conform to the originally specified requirements.
 - Qualified or standard repair procedure: repair procedures which have been approved by AIRBUS DEFENCE AND SPACE in advance for defined applications.
 - Specific repair procedure: repair procedures which are prepared for the specific non-conformance and are approved by Airbus Defence and Space

All repair procedures shall include the checks needed to verify the result of the repair.

3.8.4 Reporting and recording

After verifying that the non-conformance exists, this shall be reported and submitted to AIRBUS DEFENCE AND SPACE for approval.

The description of the non-conformance shall be clear, unambiguous and sufficiently detailed so that it can be understood by personnel not involved in its detection.

The non-conformance reference shall be entered in relevant quality and manufacturing records related to the non-conforming item.

The non-conformance reference, together with key data, shall be entered in the non-conformance records.

3.8.5 Deviations (pre-production – RFD)

Authorisation to deviate from the AIRBUS DEFENCE AND SPACE drawing, specification or purchase order may be granted in advance of manufacture if the deviation is identified at the request for quotation review and notified with the purchase order acknowledgement, by means of a request for deviation (RFD). The RFD/NCR must be sent to the AIRBUS DEFENCE AND SPACE buyer for formal approval at the earliest available opportunity subject to operational constraints, but not exceeding five (5) working days.

When the RFD is approved, the recording requirements and identification of the parts are the same as for an approved waiver.

3.8.6 Waivers(post-production)

Any item which deviates from the requirements of the drawing or purchase order in any respect shall be considered 'non-conforming'. Items shall not be salvaged or reclaimed unless authorised by a request for waiver (RFW) or NCR approved by Airbus Defence and Space Quality Assurance.

Non-conforming parts may be submitted for waiver on a request for waiver application form, or alternatively a non-conformance report, in the supplier's own format, provided that this has been accepted by Airbus Defence and Space Quality Assurance. Applications for the consideration of a waiver/NCR must be sent to the AIRBUS DEFENCE AND SPACE buyer for formal approval at the earliest available opportunity subject to operational constraints, but not exceeding five (5) working days.

When a waiver is approved by Airbus Defence and Space, the non-conforming parts shall be clearly identified with the waiver number, which shall be recorded on release documentation when being delivered to Airbus Defence and Space. A copy of the final approved waiver shall accompany the release documentation.

3.9 PROCESSING OF NON-CONFORMING PRODUCTS ON RECEIPT AT AIRBUS DEFENCE AND SPACE

Any non-conforming product found at AIRBUS DEFENCE AND SPACE must give rise to an occurrence report (NCR/OR) in order to evaluate if acceptable in use as is. In opposite case, the material will be returned to supplier for modification as per AIRBUS DEFENCE &SPACE disposition or for replacement.

3.10 ACTIONREPORT

For rejected products, the supplier shall be required to complete a Corrective Action Report (CAR) when deemed necessary by AIRBUS DEFENCE AND SPACE Direct Material Quality and to forward it to said department within fourteen (14) calendar days, or by another mutually agreed date depending on the complexity of the issue.

For any non-conforming product found at AIRBUS DEFENCE AND SPACE at incoming inspection and accepted for use as is, the supplier shall be required to complete a CAR as indicated above.

3.11 RELEASECERTIFICATIONPROCEDURE

All supplies delivered to AIRBUS DEFENCE AND SPACE shall be accompanied by a certificate of conformity (CoC) with Airbus Defence and Space requirements.

Unless otherwise agreed by Airbus Defence and Space Supplier Quality, a CoC shall comprise the following information:

- State the company name and company registration details (including registered office address and company registration number);
- Contain "Certificate of Conformance" or "Certificate of Conformity";
- Contain a unique number;
- Clearly list the items covered by:
 - identifying the AIRBUS DEFENCE AND SPACE purchase order reference (including line number);
 - providing a description of the items including the AIRBUS DEFENCE AND SPACE part numbers (where applicable);
 - identifying the quantity delivered;
 - quoting any specifications, standards or drawings along with the applicable issue numbers;
 - stating their serial number(s) and the batch to which they belong; in the case of several batches, each batch must be identified separately;
 - stating shelf-life details, if appropriate, and recommended storage conditions;
 - making any additional remarks applicable to the item (e.g. waiver or deviation reference number, FAI number, etc.);
 - stating the reference number of the CoC from any applicable tier-2 suppliers or OEMs with copies supplied;
- Contain a statement certifying that the items conform in all respects to the requirements of the purchase order or contract and, where applicable, certifying conformance with any specifications quoted;
- Contain a statement certifying, for items with a metallic surface finish, that no pure tin, either hot-dipped or electroplated tin alloys with more than 97% tin, is contained within the material or on the surface.
- State any quality-related third-party approvals in support of the delivered product, including registration numbers where applicable.

The certificate shall be signed by the supplier's Quality Manager or their authorised representatives.

In the case of built-to-print items, the certificate shall contain particulars which will provide traceability of work carried out and of the original source of manufacture. This includes:

- The source of self-procured material, raw materials, lower-tier machining,
- Processing, NDT
- Proprietary and standard parts. Certificates from the supplier's service providers should be readily available for review as required by AIRBUS DEFENCE AND SPACE Direct Material Quality. This may be achieved by a unique job or works number.

3.12 PRODUCT SUBJECT TO A WELDING PROCESS

If a product must be welded, the supplier must refer to the applicable specification (AD6) Fusion Welding of Metals.

3.13 HANDLING, STORAGE, PACKAGING AND DELIVERY/TRANSPORTATION

The supplier shall ensure that adequate quality control of packaging is performed and is compliant with AIRBUS DEFENCE AND SPACE requirements, if specified in a dedicated procurement specification, so as to achieve correct identification and ensure that subsequent deliveries are free from damage, corrosion or other forms of deterioration. Where products have a 'limited shelf life', they shall be marked to indicate the date(s) of manufacture and/or maximum storage length, or the manufacturing time with the validity period. The supplier shall implement provisions to prevent, detect and eradicate foreign bodies in contact with products throughout the production process and through to end packaging for delivery.

Where items with limited shelf life are supplied individually or in kits, no more than 25% of their shelf life shall have expired by the date of delivery to AIRBUS DEFENCE AND SPACE, unless different requirements are identified in the detailed procurement specification/document.

When AIRBUS DEFENCE AND SPACE stock is managed by suppliers, remaining quantity and shelf life shall be communicated regularly.

Any specific storage condition, e.g. low temperature, shall be clearly identified on the external packaging and shall also be applied and guaranteed during transportation.

Each individual package shall be unequivocally identified by a durable and legible external marking indicating the product designation, quantity, batch identification, manufacturer, product conformance report and date of packing.

The only permitted material for primary packaging, i.e. directly in contact with the item(s), is SCC 1000. If the supplier chooses another type of packaging, it must be verified and tested. AIRBUS DEFENCE AND SPACE shall validate the compatibility according to ISO 8 class rules in terms of particulate contamination and molecular contamination.

3.14 QUALITY DATA RECORDS

The supplier shall establish and maintain procedures for identification, collection, indexing, filing, storage, maintenance and disposal of quality records corresponding to Airbus Defence and Space purchase orders in accordance with § 4.2 of [AD1] or [AD2].

Retention times for these records shall be as follows:

- Manufacturing, inspection and test results, raw material test results and constituent analysis reports, records: minimum period of fifteen (15) years unless otherwise specified;
- Records associated with product design and certification: fifteen (15) years minimum.

The supplier shall consult Airbus Defence and Space Direct Material Quality Department if such records cannot be retained as required. In the event of termination of the contract or insolvency, all quality records applicable to the purchase order / contract must be returned to Airbus Defence and Space Direct Material Quality.

3.15 STATISTICAL PROCESSING

If the drawing, purchase order or procurement specifications require statistical processing to demonstrate command of the process, the supplier must submit a written procedure to Airbus Defence and Space Direct Material Quality for approval.

Statistical processing contributing to command of the process may be:

- Selection and verification of key characteristics
- Measuring the capability of the process
- Statistical management of the process
- Experimental design

3.16 CHANGES

The supplier shall implement a configuration system to manage any change including activities of lower-tier suppliers, as defined in § 8.4.3 of document [AD1].

The supplier shall qualify or validated all process that will be considered as a reference status. the following changes are considered major changes to be taken into account:

- a. Design methodology changes
- b. Manufacturing process changes, including the operator (where applicable – if the process is operator-dependant), transfer of work or new machine.
- c. Changes of specifications/properties
- d. Assembly process changes, including the operator (where applicable – if the process is operator-dependant)
- e. Packaging changes
- f. Test facility changes
- g. Change of manufacturing, assembly, testing and qualification location.

Any such changes in comparison to previous orders/deliveries shall be reported to AIRBUS DEFENCE AND SPACE by means of a formal request (RFD/ RFW) and submitted for approval prior to work commencing. AIRBUS DEFENCE AND SPACE may ask for a specific review/audit. If a change implemented by the supplier affects the qualification status, then a new full or partial qualification may be required and shall be undertaken under the supplier's responsibility, depending on the qualification status of the product involved.

The new total or partial qualification plan shall be submitted to AIRBUS DEFENCE AND SPACE for formal approval.

3.17 CLEANLINESS

The risks of chemical or particle pollution generated by parts, materials or processes used shall be identified and reduced in accordance with procurement requirements, when applicable.

All items manufactured shall be cleaned before they are packaged for delivery.

For delivery, the cleanliness of items must be acceptable for entering an ISO 8 clean room without any additional cleaning. To refer RD4

3.18 OUTGASSING AND OFFGASSING

In accordance with outgassing/offgassing constraints related to the space environment, AIRBUS DEFENCE AND SPACE reserves the right to ask the manufacturer/supplier for information or tests. When identified in AIRBUS DEFENCE AND SPACE procurement specifications/documents on products/substances, the manufacturer/supplier shall propose a test plan in accordance with the test methods set forth in document [RD3], unless otherwise agreed.

If necessary, AIRBUS DEFENCE AND SPACE may provide technical support or expertise.

3.19 TRACEABILITY & LOT/BATCH REQUIREMENTS

The supplier shall identify all of the products manufactured as well as their destination (delivery, scrap) in compliance with § 8.5.2 of document EN 9100 [AD1]. This includes associated raw materials and all processes/procedures/reports, even if they are subcontracted or delegated to lower-tier suppliers.

When possible, items delivered according to the procurement specification/document shall be from a single manufactured batch, in terms of material and/or treatment.

For any manufactured product, a sequential record of its production (manufacture, assembly, inspection/verification) must be available.

Note: If a lot is made up of several batches, full sequential traceability must be ensured of all records of production (manufacture, assembly, inspection).

3.20 ALERTS

The supplier shall provide all information to AIRBUS DEFENCE AND SPACE on potential alerts (internal and external) concerning any product supplied under the purchase order.

3.21 AIRBUS DEFENCE AND SPACE SOURCE INSPECTION

When required by AIRBUS DEFENCE AND SPACE, source inspection (MIP) (e.g. visual inspection of parts, review of intermediate assembly, final inspection before delivery) may be carried out by an AIRBUS DEFENCE AND SPACE representative as per the purchase order / contract.

Relevant quality records shall be made available during the inspection (according to the step defined), including, but not limited to:

- AIRBUS DEFENCE AND SPACE purchase order;
- Applicable drawings and specifications;
- Manufacturing traveller/route card;
- Associated further processing release documentation;
- Purchase orders and requirements passed down to lower tier suppliers;
- Results of any tests including specimens and samples;
- The certification of lower-tier suppliers/subcontractors.

Note: AIRBUS DEFENCE AND SPACE source inspection shall not replace any of the supplier's own inspections.

3.22 FIRST ARTICLE INSPECTION (FAI)

The FAI shall be performed to ensure that the manufacturing process is capable of producing parts in series to specification, in accordance with document [AD3]. The FAI shall be applied as follows:

- On the component parts which are representative of the first production run which have not previously been manufactured by the supplier;
- Whenever there is a change to the manufacturing method or process;
- A stoppage in production of the part for more than two years;
- When specifically requested on the purchase order.

The FAI of a component part must check that 100% of the features and parameters are compliant with those contained in the drawings and related specifications.

AIRBUS DEFENCE AND SPACE shall be informed five working days in advance of the FAI presentation, and reserves the right to attend the FAI with its customers. At the FAI, features or details of parts may be re-checked.

The component parts on which the FAI was conducted shall be supplied to AIRBUS DEFENCE AND SPACE as follows:

- Identified with a suitable label;
- Supplied with certificates of conformity for the raw materials and any lower-tier processes;
- With tabulated results of the dimensional analysis, test results and other features in relation to the actual drawings/specification, compiled in an FAI inspection report, or in a report in the supplier's own format.

3.23 WORKMANSHIP

All products shall be free from burrs, tool marks, scale, and other surface defects and contaminants or electro discharge if applicable.

They shall be handled and packaged in such a way as to prevent mechanical damage and contamination (e.g. from PVC or fibres) during storage and transportation.

- All items from the same batch shall be packed in unit packaging.
- No protective lubricants or substances shall be applied unless otherwise specified in the AIRBUS DEFENCE AND SPACE specification document.

Note: New Production

All products delivered shall be new. No reworking shall be carried out without the prior written authorisation of AIRBUS DEFENCE AND SPACE.

3.24 SHELF-LIFE WARRANTY

All goods supplied shall be new and unused. Surplus, reworked, reclaimed or remanufactured goods shall not be supplied without the prior approval of AIRBUS DEFENCE AND SPACE Direct Material Quality for each individual item or batch of items.

3.25 MATERIAL SAFETY DATA SHEET

For chemical products, the Material Safety Data Sheet must be supplied at least for the first delivery. Upon each update, a new MSDS is required for the first subsequent delivery. Each update applied to the MSDS must be explicitly shown. The MSDS will be written in the language of the consignee country and be compliant with the European REACH directive (EC) No. 1907/2006 Annex II.

3.26 MANAGEMENT OF RISKS RELATING TO OPERATIONAL ACTIVITIES

The supplier shall plan, implement and manage a process for addressing the risks of failing to meet requirements applicable to operational activities, in a manner appropriate to the supplier and the products and services, as defined in document EN 9100 § 8.1.1 [AD1].

3.27 PREVENTION OF INFRINGEMENTS

The supplier shall plan, implement and manage processes that are appropriate to the supplier and the product, to prevent use of infringing or suspected infringing parts and their inclusion in the product(s) delivered to the customer, in accordance with document EN 9100 § 8.1.4 [AD1].

Note: If the supplier detects an infringement, it shall immediately inform AIRBUS DEFENCE AND SPACE of the order in question, the relevant lots/batches and the affected serial numbers. Similarly, if AIRBUS DEFENCE AND SPACE detects an infringement, the supplier shall be immediately notified and shall initiate an internal investigation and report on the findings of this investigation to AIRBUS DEFENCE AND SPACE.

4 ADDITIONAL QUALITY REQUIREMENTS FOR NON-CERTIFIED THIRD-PARTY SUPPLIERS

4.1 SCOPE

The following requirements are applicable to any supplier whose quality management system is not certified according to EN 9100 [AD1], ISO 9001 [AD2], but which, after an Airbus Defence and Space

preliminary investigation, is considered able to provide the required service. Approval, based on the minimum requirements shown below, will be awarded to the supplier after an audit and/or assessment by AIRBUS DEFENCE AND SPACE.

This approval may be extended to include other controls as and when considered necessary including the additional requirements identified in § 5 to 8.

Note: these paragraphs do not concern stockists/distributors that are not EN 9120 certified.

4.2 PROCESS/SCOPE

During the audit, in addition to the quality management system review based on the EN 9100 template, the processes/scope relating to supplies requested by AIRBUS DEFENCE AND SPACE shall be reviewed, in order to determine:

- Manufacturer/supplier capabilities;
- Facilities and expertise;
- Skills and state of the art;
- Production monitoring.

4.2.1 Quality Management System

The supplier's organisation shall set up, document, implement and maintain a quality management system to cover as a minimum:

- Document control;
- Management of customer requirements and orders;
- Verification of skills for personnel performing work affecting product quality;
- Product design and development;
- Purchasing procedures;
- Production processes;
- The control process: monitoring and measures to provide evidence of conformity.

4.2.2 Traceability

- See § 3.19

4.2.3 Verification of purchased products

The supplier's organisation shall set up and implement the inspection and other activities for ensuring that purchased products meet specified purchase requirements. Evidence of the quality of the product supplied (e.g. accompanying documentation, certificate of conformity, etc.) must be verified. And to see §3.27

4.2.4 Non-conformity

- See § 3.8, 3.9 and 3.10.

4.2.5 Identification and management of changes

- See § 3.16

4.2.6 Lower-tier suppliers

The supplier's organisation shall establish and demonstrate that all requirements defined in this specification are effectively passed down to any lower tiers involved in the production of the products procured under the Airbus Defence and Space purchase order.

Direct Material suppliers shall evaluate and select lower tiers based on their ability to supply/manufacture/process in accordance with Airbus Defence and Space stated requirements. Selection criteria shall be defined, and records of the results and of any actions taken shall be presented to AIRBUS DEFENCE AND SPACE during the audit.

AIRBUS DEFENCE AND SPACE reserves the right to audit any lower tiers involved in the supply of products/services procured under the Airbus Defence and Space purchase order.

4.2.7 Prohibited materials

- See § 3.3

4.2.8 Release certification procedure

- See § 3.11

4.2.9 First article inspection

- See § 3.22

5 ADDITIONAL QUALITY REQUIREMENTS FOR MECHANICAL SUBCONTRACTING SUPPLIERS

5.1 SCOPE

A mechanical subcontractor is defined as a supplier who provides a service, manufacturing component parts, sub-assemblies or unit assemblies, including processing and testing, within its own facility or at an approved lower-tier source, as per test plans/specifications supplied by Airbus Defence and Space, as the design authority or on behalf of a design authority.

5.2 RELEASE OF PARTS MANUFACTURED FROM SELF-PROCURED MATERIAL

In addition to the requirements identified in § 5.1, the supplier's certificate of conformity shall:

- Specify the source of material and the NDT if applicable;
- Include a copy of the material's certificate of conformity;
- Provide confirmation of the raw material heat treatment.

Notes:

- a) Where material has been procured in different heat treatment conditions to those of the final supply, full heat treatment history shall be provided, including ageing details. Split batches must not be grouped together if they were split before final heat treatment.
- b) AIRBUS DEFENCE AND SPACE reserves the right to request and approve any NDT procedure.

The supplier shall ensure that where required, the following information is marked on all parts at the location and according to the method specified on the drawing:

- Part reference and version;
- Traceability number (all parts shall be identifiable; this concerns both the raw materials used and the manufacturing history of the part);
- Any other identification required by the drawing.

5.3 LOWER TIERS USED FOR ANY SURFACE TREATMENT

A mechanical subcontracting supplier, who intends to offer or respond to requests for surface treatment services subcontracted to a lower-tier supplier, shall provide:

- The qualification report that will be approved systematically per AIRBUS DEFENCE & SPACE
- Associated ISO 9001 / EN 9100 certificates and scopes of approval;
- References for the processes and procedures / associated standards requested and/or agreed;
- Proof of capability/skill/background.

Note: Nadcap accreditations shall be considered a plus.

6 ADDITIONAL QUALITY REQUIREMENTS FOR STOCKISTS/DISTRIBUTORS

6.1 SCOPE

Stockist/distributor: an organisation carrying out the purchase, storage, splitting and sale of products without affecting product conformance.

- Raw materials (metal or non-metallic)
- Standard parts complying with national/international standards
- Proprietary parts as selling agent for a manufacturer

The original raw materials shall be obtained only from accredited sources.

Stockists/distributors must have earned and maintained EN 9120 certification [AD4], issued by a recognised accreditation body present in the OASIS database.

The stockist/distributors are not authorized to transform physically or chemically or mechanically... all products (e.g. cutting process) without AIRBUS DEFENCE AND SPACE .

Stockists/distributors are not authorised to subcontract any surface treatment to lower tiers without AIRBUS DEFENCE AND SPACE's formal authorisation based on:

- The complete list of approved lower-tier suppliers;
- The related ISO 9001/EN 9100 certificates and the scope of approval;
- References for processes and procedures / associated standards requested and/or agreed;
- Proof of capability/skill/background (note: Nadcap accreditations shall be considered a plus).

6.2 TRACEABILITY

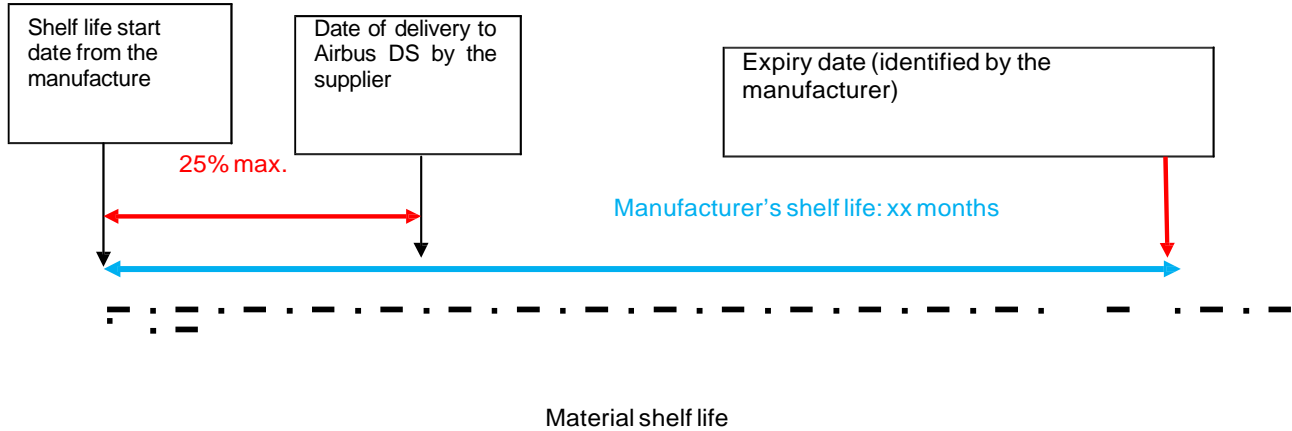
Documents ensuring traceability of the batch/lot, the supplier/manufacturer and the product reference shall be available and delivered with a copy of the CoC and test/control certificates. All standard parts delivered to AIRBUS DEFENCE AND SPACE shall be accompanied with the stockist/distributor's certificate of conformity, which must make direct reference to the original source of manufacture and provide unbroken traceability by virtue of a batch number or equivalent.

AIRBUS DEFENCE AND SPACE shall, on request, have access to all documentation relating to the original sources of manufacture and reserves the right to audit those sources by appointment.

6.3 SHELF LIFE

Manufacturers of non-metallic raw materials shall indicate any applicable shelf life and expiry date limitations on their certificate of conformity, and on all containers and/or packaging.

The following figure illustrates the delivery time requirements applicable to the supplier and the shelf-life requirements applicable to the manufacturer:



Requested durations shall be specified, where applicable, in procurement specifications/documents.

Products with a limited shelf life shall be supplied individually or in kits. Suppliers shall ensure that there is at least seventy-five percent (75%) of the applicable shelf life remaining upon arrival at AIRBUS DEFENCE AND SPACE. Extension of shelf life (re-life) is not authorised except compliant to (RD1).

6.4 REWORKING OF RAW MATERIAL

No reworking that may affect the finished item shall be carried out without the prior written authorisation approval via RFD / RFW of Airbus Defence and Space Direct Material Quality.

7 ADDITIONAL QUALITY REQUIREMENTS FOR PROPRIETARY PART SUPPLIERS

7.1 SCOPE

A manufacturer of proprietary products is a supplier whose products are of its own design to a set specification and performance.

A supplier of controlled items is a supplier whose specification is defined according to varying degrees by both the manufacturer's own design documents and by technical specifications issued by Airbus Defence and Space. A controlled item must be supplied in accordance with the supplier's description, the part number and the specification defined by Airbus Defence and Space.

7.2 PROPRIETARY PRODUCTS

Should the manufacturer of a proprietary product wish to change the design or performance defined by the specifications, and the change would affect the requirements of the Airbus Defence and Space purchase order / contract, the proposed change must be submitted to AIRBUS DEFENCE AND SPACE for approval.

7.3 CONTROLLED ITEMS

Controlled items must be designed and manufactured in accordance with AIRBUS DEFENCE AND SPACE procurement specifications and purchase orders.

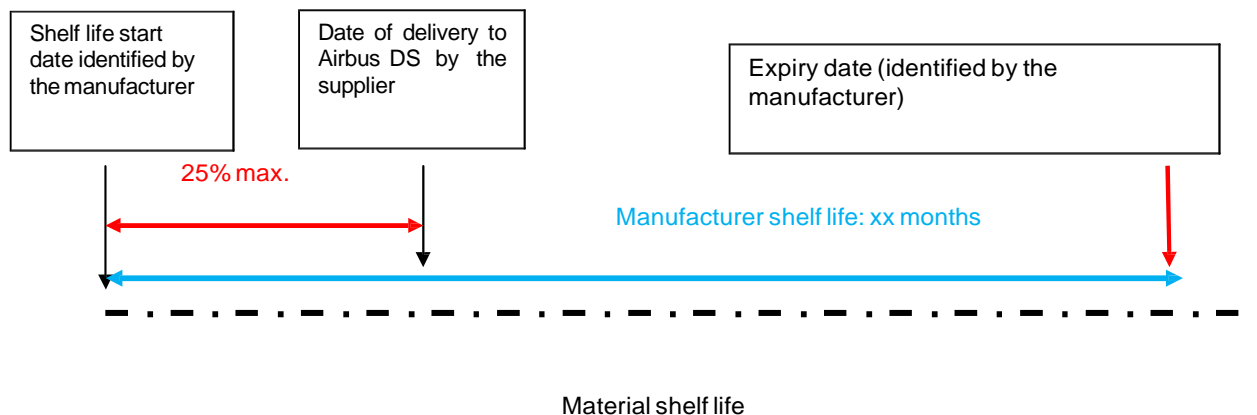
When requested by AIRBUS DEFENCE AND SPACE, the manufacturer of controlled items shall provide results of its own in-house inspection and testing.

7.4 SHELF LIFE OF NON-MECHANICAL PARTS (ADHESIVES, CHEMICALS, ETC.)

Any applicable shelf life and expiry date limitations must be indicated on the certificate of conformity, and on all containers and/or packaging.

Requested durations shall be specified, where applicable, in procurement specifications/documents.

The following figure illustrates the delivery time requirements applicable to the supplier and the shelf life requirements applicable to the manufacturer:



Products with a limited shelf life shall be supplied individually or in kits. Suppliers shall ensure that there is at least seventy-five percent (75%) of the applicable shelf life remaining upon arrival at AIRBUS DEFENCE AND SPACE. Extension of shelf life (re-certification) is not authorised.

7.5 PYROTECHNIC DEVICES

Identification and marking

- Pyrotechnic devices shall be delivered with colour coding for visual identification of the nature of the item according to document ST/SG/AC 10/1: Recommendation on the Transport of Dangerous Goods.
- All elements used in the subsystem shall fulfil the traceability requirements.
- The marking on the elements shall not be removable by the action of solvents or the environmental conditions.

Transportation

Transportation of pyrotechnic devices shall comply with the rules defined in document ST/SG/AC 10/1: Recommendation on the Transport of Dangerous Goods.

Shelf life

Manufacturers of pyrotechnic devices shall indicate any applicable shelf life and expiry date limitations on their certificate of conformity, and on all containers and/or packaging.

Storage

Manufacturers of pyrotechnic devices shall indicate any applicable storage requirements on their certificate of conformity, and on all containers and/or packaging.

8 ADDITIONAL QUALITY REQUIREMENTS FOR SUPPLIERS OF FORMED RAW MATERIALS

8.1 SCOPE

A supplier of formed raw materials is defined as:

- A forge, producing forgings and stampings from basic forging stock;
- A foundry, producing castings or cast bars from basic raw materials;
- A mill, producing ingots, rolled, forged or extruded sections.

8.2 CONTROL OF RAW MATERIALS

The original raw materials shall be obtained from accredited sources only.

All material obtained by the supplier for re-working, e.g. billets for forging, shall be accompanied by documentation defining the material specification and providing analyses of chemical and mechanical properties.

AIRBUS DEFENCE AND SPACE reserves the right to request and approve any NDT procedure.

8.3 QUALITY ASSURANCE OF INITIAL DELIVERIES

First Article Inspection (FAI) shall be performed to ensure that the manufacturing process is capable of producing parts in series to specification, in accordance with document [AD3]. The FAI shall be applied as follows:

- On the first batch of component parts, which have not previously been manufactured by the supplier;
- Whenever there is a change to the manufacturing method or process;
- When specifically requested on the purchase order.

The FAI of a component part must check that 100% of the features and parameters contained in the drawings and related specifications are compliant. The component parts on which the FAI was conducted shall be supplied to AIRBUS DEFENCE AND SPACE as follows:

- Identified with a suitable label;
- Supplied with certificates of conformity for the raw materials and any lower-tier processes;
- With tabulated results of the dimensional analysis, test results and other features with reference to the actual drawings/specification, compiled in an FAI inspection report, or in a report in the supplier's own format.

AIRBUS DEFENCE AND SPACE Direct Materials Quality reserves the right to attend the FAI with its customers. At this FAI, features or details of parts may be re-checked. In this case, advance notification shall be given.

8.4 CONTROL OF PROCESSING

Where AIRBUS DEFENCE AND SPACE specifications exist for heat treatment, NDT and metallurgic functions, only facilities approved by AIRBUS DEFENCE AND SPACE for that particular process shall be used.

Nadcap accreditation shall be considered a plus, if this complies with Airbus Defence and Space requirements.

Weld repair of castings and forgings is not permitted.

9 ADDITIONAL QUALITY REQUIREMENTS FOR TEST CENTRES (MATERIAL & PROCESS TESTS)

9.1 AIRBUS DEFENCE AND SPACE ACCREDITED TEST CENTRES

AIRBUS DEFENCE AND SPACE approval will be granted to test centres holding ISO 17025 [AD5] certification for a specified service linked to Direct Material products only (material & process tests).

9.2 NON-AIRBUS DEFENCE AND SPACE ACCREDITED TEST CENTRES

The following requirements are applicable to a test centre which is not certified to ISO 17025 [AD5], but is considered capable of providing the required service after preliminary investigation. Approval, based on the minimum requirements shown below, will only be awarded to the supplier after an audit by Airbus Defence and Space based on document ECSS Q 20-07 [RD2].

9.3 SCOPE

During the audit, in addition to the quality management system review, processes/scopes relating to supplies requested by AIRBUS DEFENCE AND SPACE shall be reviewed in order to determine:

- ☞ ☐ ⊕ Supplier capabilities;
- ☞ ☐ ⊕ Facilities and expertise;
- ☞ ☐ ⊕ Skills and state of the art;
- ☞ ☐ ⊕ Test process control & performance.

9.4 MINIMUM QUALITY REQUIREMENTS

9.4.1 Quality Management System

The supplier's organisation shall set up, document, implement and manage a quality management system sufficient to cover:

- Document control;
- Management of customer requirements and orders;
- Verification of skills for personnel performing work affecting product quality;
- Infrastructure and the work environment;
- Test procedures;
- Safety and security procedures;
- Calibration and maintenance control.

9.4.2 Traceability

The supplier shall identify all the customer-supplied items and shall perform continued configuration control at all stages of work.

9.4.3 Cleanliness and contamination

The test centre shall implement a plan for cleanliness control of the facility that sets out measures for achieving, measuring and maintaining the required cleanliness levels throughout the testing, handling and storage of the test equipment and its ground support equipment (GSE) at the test site in compliance with § 6.3.3 of document ECSS Q 20-07 [RD2].

9.4.4 Identification and management of changes

The supplier shall implement a configuration system to manage any change, e.g. tool, test equipment, test programme, etc. Such changes shall be reported to AIRBUS DEFENCE AND SPACE via a formal request. AIRBUS DEFENCE AND SPACE may ask for a specific review/audit. If a supplier implements a change that affects the qualification status, then a new full or partial qualification may be required and shall be undertaken under the responsibility of the supplier, depending on the qualification status of the product involved.

9.4.5 Release certification procedure

As a minimum, test centres shall ensure that all tests are adequately and suitably documented in the test report delivered in compliance with § 7.5.1 of document ECSS Q 20-07 [RD2].

9.4.6 Handling, storage, transportation, preservation and delivery

The test centre shall implement and maintain documented engineering and quality-assurance procedures, in agreement with the customer, which cover the safe handling, storage, transportation, preservation and delivery to the test centre of the test specimens and associated test equipment, while maintaining the required environmental conditions and taking into consideration all safety and security aspects in compliance with § 7.5.5 of document ECSS Q 20-07 [RD2].

9.4.7 Safety and security

The test centre, in cooperation with safety assurance, shall define and implement a safety programme to ensure the safety of all personnel as well as the customer, the test specimens and the test facilities.

The test centre shall define and implement a system for security and access control to restricted areas, such as clean rooms, and all areas where test specimens or hazardous items are stored, handled or tested.

9.4.8 Maintenance control

The test centre shall prepare a maintenance plan for buildings, test facilities, test equipment and related software. The plan shall include the type and the extent of activities, the necessary resources and the schedule of dates of performance.

Records of the performance of the maintenance activities shall be kept for at least 15 years, unless otherwise requested by AIRBUS DEFENCE AND SPACE.