

Appendix A to Exhibit 13 – IAY-G-05 Rev. E – Alenia Aermacchi (Leonardo Aircraft) Quality Management System Requirements for Alenia Aermacchi Suppliers
 QA Review – 4/30/18

NOTE: This review only pertains to items that are related to Quality. EH&S, Legal, Accounting, or Contracts items will need to be reviewed by the applicable department. NOTE: None of the Annexes are included in this document. AAR cannot utilize these documents unless they are provided. Purchasing: Many sections of this document will also need to flow down to the applicable repair center.

Page	Section	Note	Comments
7-10	3.1	Comment	Any referenced documents required will need to be specifically called out.
21	3.2.2.1	Comment	Any updates made to IAY-G-05 E will need to be flowed down to AAR and a new review will be made by quality.
21-23	3.2.2.2	NOTE	The customer has confirmed AAR is an E1 Supplier which requires AS9120 certification. See ** below.
22	3.2.2.2	NOTE	AAR will be sending out product for repair to Crane Aerospace & Electronics in Burbank, CA. This facility at the time of the review (4/30/18) is AS9100 Compliant and meets requirements of an F1 supplier.
24	3.2.2.3	EXCEPTION	AAR may not be able to furnish the customer with "Qualification of other aeronautic Customers" as this information may be proprietary, depending on what is requested.
25-27	3.2.2.4 - 3.2.2.7	Comment	These sections describe supplier management responsibilities for the customer.
28, 32	4.2.1, 5.5.1, 5.5.2	Contracts / Sales	A quality plan may be required; if this is the case, it should be listed in the Program requirements. Contracts / Sales will need to confirm if a Quality Plan is actually needed for this contract.
29	4.2.3	Contracts / Sales	All current revisions are required for documents referenced in a P.O.
30	4.2.3	EXCEPTION	AAR will not include customer issued documents in a Master List. These documents are to be controlled by the customer. AAR Contracts / Sales will ensure AAR has the current copy of any customer documents during the contract review process.
30-31	4.2.4	N/A	The following records do not apply to AAR: FAIR, Design input data, Design Review, Design Validations, Modifications Dossier, Aircraft / Assembly Inspection Report.
30-31	4.2.4	EXCEPTION	AAR retains the following records indefinitely: Traceability, Product Conformity Documents, Product Non-Conformance Reports, Records of Customer- Furnished materials. AAR does not retain calibration of measurement devices indefinitely. Not all "other" records are archived for a minimum of 10 years. AAR Exhibit 100 lists record retention requirements according to AAR's QMS.
33	6.2.1	EXCEPTION	AAR communicates, through various means, customer requirements as necessary to applicable personnel. Formalized training sessions will not be performed.

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System Requirements for Alenia Aermacchi Suppliers

QA Review – 4/30/18

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Page	Section	Note	Comments
34 – 71, 73-76	6.2.2.1, 6.2.2.3 - 6.2.2.5, 6.3.2, 7.1.3, 7.2.2, 7.3, 7.4.1.1- 7.4.1.5, 7.5.1, 7.5.2, 7.5.3, 7.6, 8.2.4.1- 8.2.4.3	N/A	These sections are not applicable to AAR as AAR is an E1 Supplier. However, the following sections must be flowed down to the repair centers: 7.1.3, 7.5.1.C and 8.2.4.3. AAR will need to ensure the repair centers are meeting these sections of the document.
39-40	6.3.1	Contracts / Sales	In the event that AAR has significant changes to its infrastructure / equipment that could affect quality, AAR must notify the customer.
48	7.4.2	Contracts / Sales	These Quality requirements MUST be flowed down to any sub-tier suppliers. AAR will need to flow any exceptions made back to the Customer. AAR will require the customer to specifically define the Class of any Sub-tier suppliers used so AAR can clearly flow down the applicable requirements.
72	7.5.4	EXCEPTION	AAR cannot designate a specific area for AA material. AAR's ERP system does not support printing a dedicated AA BEM number on labels.
74	8.2.2	EXCEPTION	AAR's internal audit personnel are not necessarily trained to EN ISO 19011 guidelines. A reference copy of this document is available to AAR internal auditors.
79	8.2.4.4	Product Line	In order for AAR to provide a "Declaration of Conformity" with each shipment, Product Line will need to confirm the document is available for each part purchased. If not available, the customer will need to be contacted for resolution.
81	8.3.2	QC Comment	In the event that AAR has shipped non-conforming product, AAR would be required to complete Annex 7. This Annex is not included in this document and will need to be obtained from the customer if necessary.
81	8.3.2.2	EXCEPTION	AAR will agree to alert the customer within 24 hours of potential non-conforming delivery to the customer.
83-85	8.3.3.1	QC Comment	This section details the requirements when non-conforming product is found.
85-86	8.3.3.2, 8.3.3.3	Contracts / Sales	These sections detail how to report a non-conformance to the customer.
86-87	8.3.4	Purchasing	Repair centers must adhere to this section.

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Page	Section	Note	Comments
89	9	Comment	These attachments are not a part of this document.
91 -102, 108 - 116	10.1-10.5, 10.8 – 10.12	N/A	Not applicable to AAR
103	10.6.3	Contracts / Sales	If the contract states that AAR is required to complete a Quality Plan, contact Quality. If it is required, AAR will require a copy of "Attachment 1" in order to ensure the requirements of a Quality Plan are met.
105-107	10.7	Purchasing	This section pertains to additional requirements for repair facilities. Ensure this is flowed down to the repair center. Confirmation will be needed from the customer if a QP is required from the repair center(s).

**Notification to AAR QA that AAR is an E1 supplier.

From: Thomas Santacruz
Sent: Wednesday, April 11, 2018 9:26 AM
To: Kelly Frederick <Kelly.Frederick@aarcorp.com>
Cc: Jonathan Kovac <Jonathan.Kovac@aarcorp.com>; Adam Cairo <Adam.Cairo@aarcorp.com>
Subject: RE: Leonardo RFQ

Hi Kelly,

Leonardo confirmed AAR will be categorized as an E1. Let me know if you have any other questions.

Thank you,

Tom Santacruz
 Manager, International Business Development
 O: +1 (314) 966-6146
 M: +1 (314) 537-4221
thomas.santacruz@aarcorp.com



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Courtesy Translation

Title: **QUALITY MANAGEMENT SYSTEM REQUIREMENTS
FOR ALENIA AERMACCHI SUPPLIERS**

SIGNATURES ON ITALIAN VERSION

SUPPLY CHAIN QUALITY ASSURANCE	PROCUREMENT & SUPPLY CHAIN	PROGRAMS & PRODUCTS QUALITY	BOEING PROGRAMS & PRODUCTS QUALITY	COMPANY CERTIFICATION & QMS PROCESSES
F. De Marino	C. Battaglia	M. Bertoluzzo	N. Miani	R. Del Pezzo

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The official and binding version is the Italian language version.
Approval signatures refer to the Italian language version only.*

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MODIFICATION DESCRIPTION

ISSUE	DATE	MODIFIED PAGES	APPROVAL
	31/03/1999	First issue	
	30/10/2002	Quality requirements compliant with EN/AS 9100	
	March 2004	Quality requirements compliant to EN /AS 9100 in conformance to ISO 9001:2000; contents of former External Operative Procedures included	
1	January 2007	<p>The follows para are modified:</p> <p>3.1; 3.2.1.1; 3.2.1.2; 3.2.2.1; 3.2.2.4; 3.2.2.5; 3.2.2.6; 4.1; 4.2; 4.2.1; 4.3; 5.; 5.5.1; 5.5.2; 6.; 6.2.1; 6.2.2; 7.1; 7.2; 7.4; 7.4.1; 7.5; 7.5.1; 7.5.2; 7.5.3; 7.6; 8.; 8.2.4; 8.2.4.1; 8.2.4.2; 8.3.</p> <p>The follows Annex are modified: 2, 8, 11.</p> <p>Add Annex 12 "Statement of Conformity" (e.g. for civil programs)</p>	G. Natale
2	September 2007	<p>Updated Qualification Class "H1: Service of Instrumentation Calibration Suppliers";</p> <p>Application of Special Processes requirements § 6.2.2 and § 7.5.2;</p> <p>Applicability of § 8.3 to Qualification Classes B1, E1, E2;</p> <p>Modified method for transfer the non-conformity document page 84.</p>	G. Natale
3	July 2009	<p>Updated table "Qualification Classes for Alenia Aeronautica Suppliers" following new PAS G 02</p> <p>Paragraph 7.5.1 added requirement " " following new revision of PAS K 07</p> <p>Paragraph 8.3, modified the requirement following new revision of PAS L 01</p>	G. De Nitto

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ISSUE	DATE	MODIFIED PAGES	APPROVAL
Issue D Rev. /	January 2012	<p>Reasons for changes:</p> <ul style="list-style-type: none"> • Merger by incorporation of Alenia Aermacchi and SIA • Change of the Company's logotype and corporate name; • Changes due to the new organizational structure • Updated for compliance to EN9100:2009 • Revised QMS Certification requirements for Classes C1, C2, C3, C4, G1, H3. Deleted Classes E2 and H1 • Detailed the requirements for the first qualification / renewal of personnel in charge for performing Special Processes / Critical Activities • Detailed the procedure to request Alenia Aermacchi NDI III Level service • Detailed the procedure to request training courses administered by Alenia Aermacchi • Detailed the requirements for suppliers performing specialized works at Alenia Aermacchi plants • New procedure for monitoring the suppliers' FAI process • Added supplier FACI check list • Added request for tool list • Detailed procedure to request Alenia Aermacchi Labs' tests activities • Added requirements for manufacturing of structural composite parts • Detailed procedure for suppliers' performance recovery • Detailed procedure to manage the equipment defects • Detailed procedure to request product corrective actions • Deleted the following forms: "Transfer list", "Equipment Label", "Equipment Log Card", FACI form, additional FAI Form 2 (Tooling and Planning Paper). Updated FAI form 3 • Added Appendices with qualification process • Embodied the documents QFRA/06P.191 rev. / and QFRA/08T.256 	See Italian version
Issue D Rev. 1	November 2013	<ul style="list-style-type: none"> • Updated Table 1 "Qualification Classes" in accordance with PAS G 02 • Detailed in par. 4.2.1 the QAP revision requirement • Added par. 6.2.2.5 following ENAC finding n. 13-21G-AUP-99/03 	See Italian version

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ISSUE	DATE	MODIFIED PAGES	APPROVAL
Issue E Rev. /	July 2015	<ul style="list-style-type: none">• Changes due to the new Alenia Aermacchi organizational structure• Described the periodical re-evaluation on suppliers• Defined the new Qualification Class, called H1 "Work package supplies"• Detailed the requirements applicable to tooling management• Embedded docs. QFRA/05T.074 Rev. / (QA reqs for equipment/AGE/COTS/Test bench) and QFRA/02T.375 Rev. / (QA reqs for AGE suppliers)• Described the new "SAP Netweaver tool" for management of Product RNC	See Italian version

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1. OBJECTIVE

This Procedure establishes the requirements for the Quality Management System applicable to Alenia Aermacchi S.p.A. suppliers (hereinafter called AA).

This Procedure sets forth:

- the international reference standard (e.g.: EN/AS 9100) applicable to the supplier's QMS, according to qualification Class (see para 3.2.2.2)



The qualification Classes are assigned by Alenia Aermacchi to its own suppliers according to the supplier typology.

- the additional quality requirements required by Alenia Aermacchi to its own suppliers, as applicable for each qualification Class.

2. APPLICABILITY

This document applies when called for, directly or through specific Program quality documents, in Contracts/Purchase Orders issued by the Alenia Aermacchi Procurement & Supply Chain Department for the supply of aeronautic products.

This procedure is applicable to all business programs, unless specific quality Program requirements apply: in case of conflict between the requirements in this document and those contained in program documents, the latter shall take precedence.

3 REFERENCES – GENERAL**3.1 REFERENCES****3.1.1 International Regulations**

Regulation	Title
EN 9100:2009	Quality Management Systems - Requirements for Aviation, Space and Defense Organizations
AS 9100:2009	
prEN 9110:2012	Aerospace series - Quality Management Systems - Requirements for Aviation Maintenance Organizations
EN 9120:2010	Quality Management Systems - Requirements for Aviation, Space and Defense Distributors
AS 9120:2009	

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Regulation	Title
EN 9102:2006	Aerospace series - Quality systems - First article inspection
AS 9102:2004	Aerospace First Article Inspection Requirement
EN 9103:2005	Aerospace series - Quality management systems - Variation management of key characteristics
EN 9131:2009	Aerospace series - Quality management systems - Nonconformance documentation
EN 9117	Aerospace Series - Delegated Product Release Verification
UNI EN ISO 9001:2008	Quality Management System – Requirements
UNI EN ISO 9000:2005	Quality management systems – Fundamental and vocabulary
ISO/IEC 17011:2004	Conformity assessment -- General requirements for accreditation bodies accrediting conformity assessment bodies
UNI EN ISO 19011:2003	Guidelines for quality and/or environmental management systems auditing
UNI CEI EN ISO/IEC 17025:2005	General requirements for the competence of testing and calibration laboratories
ISO 10007:2003	Quality management systems – Guidelines for configuration management
ISO 10012:2003	Measurement management systems -- Requirements for measurement processes and measuring equipment
NAS 410	NAS Certification & Qualification of Non destructive Test Personnel
UNI EN 4179:2010	Aerospace series. Qualification and approval of personnel for non-destructive testing
ITA-NG-001	Linee guida raccomandate da ITANDTB per la qualifica e l'approvazione del personale addetto all'applicazione dei Controlli Non Distruttivi in accordo alla normativa UNI EN 4179/NAS 410
AWS D17.1:2010	Specification for Fusion Welding for Aerospace Applications
AWS D17.2:2007	Specification for Resistance Welding for Aerospace Applications

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Regulation	Title
MIL-HDBK-2165	Testability Handbook for Systems and Equipment
---	IAQG Supply Chain Management Handbook

3.1.2 Military Regulations

Regulation	Title
AQAP 2110	NATO Quality Assurance Requirements for design, development and production
AQAP 2120	NATO Quality Assurance Requirements for Production
AQAP 2130	NATO Quality Assurance Requirements for inspection and test
AQAP 2210	NATO Supplementary Software Quality Assurance Requirements to AQAP 2110
AER-Q-2110	Requisiti di assicurazione qualità della D.G.A.A concernenti la progettazione, lo sviluppo e la produzione
AER-Q-2120	Requisiti di assicurazione qualità della D.G.A.A concernenti la produzione
AER-Q-130	Requisiti di assicurazione qualità della D.G.C.A.A.S concernenti le verifiche e le prove
AER-Q-2010	Definizione delle sigle, dei vocaboli e delle locuzioni comunemente impiegati nella Normativa della D.G.A.A.

3.1.3 Civil Aviation Authorities regulations

Regulation	Title
EC N. 748/2012 Annex I (Part 21)	laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations.
EC N. 2042/2003 Annex II Part 145	On the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks

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14 CFR Part 145

FAA Repair Stations

3.1.4 Alenia Aermacchi documents

Document	Title
99/NT/0000/N325A/020159	Special Processes – Process/Plant qualification requirements. Special processes personnel qualification requirements
99/NT/0000/N325/100010	Acknowledgement of supplier Nondestructive Inspection personnel
M123-01	Tooling Manual
M123-02	Drawing Tooling Manual
M123-09	Manual for handling and update of Tool Book
QFRA/06P.021	Guide-line for full Sub-contractors that will use I.I.D./R.P.T. released by Alenia Aeronautica to raw materials and standards suppliers
IAE G 04	Hardware/Software Management Requirements for Suppliers

If not specified, the above listed documents are to be intended at the latest Issue/Revision.

3.2 GENERAL

3.2.1 Definitions and Acronyms

3.2.1.1 Definitions

Definitions concerning to the Quality Management System hereafter reported, are taken from International Standards ISO 9000 and EN9100.

In addition:

Aircraft Ground Equipment (AGE)

Equipment needed to provide aircraft ground support and covering all the maintenance tasks to make it operative.

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This category includes equipment used for test, inspection, repair, calibration, assembly, disassembly, handling, transportation, maintenance, overhauling of components and/or aircraft parts.

Airworthiness

Condition of absence of any Design attribute jeopardizing the safety of an aircraft in an established flight envelope.

Alenia Aermacchi Acknowledgement of supplier NDI personnel

Written approval released by the Alenia Aermacchi Responsible Level 3 for the candidate proposed by the Supplier so that he works out as one of the levels of approval/certification per NAS 410 and/or EN 4179 on behalf of Alenia Aermacchi.

Assembly Transfer Report

Document containing information about the completion/configuration/quality status of an assy before shipping the item.

Certificate of Conformance (CoC)

Document formally attesting the full compliance of a product, equipment or service to the specification requirements, contract or applicable regulation. The CoC shall be signed by personnel:

- authorized by the Quality Manager of the supplier and
- accepted by Alenia Aermacchi.

Alenia Aermacchi “Ciclo Misto”

Work card / Planning paper, issued by Alenia Aermacchi, that requires a supplier to perform some work steps, on a recurring basis, due to technological reasons.

Classified document

Document containing information and data subject to secrecy classification under the applicable company/Program procedures.

Critical activities

Manufacturing/production and/or inspection tasks not included in the definition of Special Process but requiring qualified personnel because of their proper peculiarity. Refer to the document 99/NT/0000/N325A/020159 for the list of critical activities requiring qualified personnel and the relevant syllabus.

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Customer Coordinator

The Customer Coordinator is a supplier quality control staff, recognized by Alenia Aermacchi, which within the Incoming Inspection Delegation ensures the product to comply with the applicable requirements.

Dataset

A collection of data in electronic format, accessible by computer system.

Declaration of Design and Performance (DDP)

Document certifying the status of Qualification and Integration of an equipment/AGE.

Defect

Loss of one or more functions performed by the item (aircraft, system, equipment, ...) for some reason. It is divided into:

- Primary, when it is due to the item itself
- secondary, when it is caused by external factors.

Defect Report

Document used to notify the defects detected during receiving, assembly and testing both during development / prototypes activities, and production, overhaul, repair of series aircraft.

Deliverable Software

Embedded or loadable airborne, space borne or ground support software components that are part of an aircraft type design, weapon system, missile or spacecraft.

Design Authority

Authority to design a product and certify its conformance to required physical / functional requirements, including those related to airworthiness and environment towards the Aeronautical Authority (Type Certificate issue).

Design Responsibility

Responsibility to design a product and certify its conformance to required physical / functional requirements.

Design Standard

Document establishing the reference configuration standard of the assy to be transferred.

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Designated Supplier Quality Representative

Alenia Aermacchi Quality Staff which has the authority to release supplier's products in specific circumstances (e.g. Probation).

EASA Form One

Certificate of Approval, headed to National Aviation Authority (e.g. ENAC for Italy), which certifies the conformity or airworthiness of new products/parts/equipment in accordance with the EASA Part 21 Subpart G Regulation, or certifies the release to service after maintenance activities carried out in accordance with EASA Part 145 Regulation.

Engineering Record Card / Log Card

Card listing the data related to design technical specs, qualification status and information on manufacturing of a equipment/AGE. The user shall fill it in to trace the configuration, life, repair/overhaul data back to the equipment/AGE during its whole life cycle.

External Agency

ASNT or organization acknowledged by NANDTB for training and qualification exams of NDI personnel, according to the requirements of UNI EN 4179 and NAS410.

First Article Configuration Inspection

Complete, physical and functional inspection process to verify that the equipment configuration conforms to that defined by the applicable Specification/drawing.

First Article Inspection

Complete, independent, and documented physical and functional inspection process to verify that prescribed production methods have produced an acceptable item as specified by engineering drawings, planning, purchase order, engineering specifications, and/or other applicable design documents.

Incoming Inspection Delegation (DCA)

Delegation issued by Alenia Aermacchi to suppliers of raw materials / standards, from which when authorized it is allowed to purchase materials bypassing the incoming inspection.

Incoming Material Tag (BEM)

Document certifying the entry of a Alenia Aermacchi material/supply. It shows information required for acceptance and is identified by a unique sequential number generated by the Alenia Aermacchi information system. This number provides

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traceability of the product received at Alenia Aermacchi (purchased or provided by the customer) and, where appropriate, delivered to supplier.

Inspection Special Process

All the Special Process used to verify materials and/or aeronautical parts comply with applicable drawings/specification requirements.

Investigation Report

Document reflecting the outcome of an investigation following a defect detected, and identifying the causes and related corrective actions.

Life Item Label

Label showing the life limitations of a component.

Maintainability

The aptitude of a system to be operated under specific conditions, or to be brought back to the specific operating conditions, when maintenance is performed by personnel with appropriate levels of training, resources and using the resources and procedures set forth at any required level of maintenance/repair.

Nadcap

Accreditation Program for Aerospace Companies, managed by PRI, aimed at verifying Special Processes and NDI to comply with Contract requirements.

Obsolescence

Characteristic of a component of an item purchased from a third party which is out of production. The obsolescence may make it impossible for the supplier to produce one or more items in the current configuration. Items that cause these problems are defined obsolete.

Manufacturing Off-load

Outsourcing, on a non recurring basis, of some steps on a work card. It is due to logistic/organizational reasons (e.g.: excessive workload, temporary unavailability of machinery/tooling, etc.).

A supply is to be intended as an "Off Load" if it is a "non-routine" activity and also its production/inspection steps are just a portion of the whole AA work order.

Design Off-load

Contracted Design activity, whose responsibility is under the Alenia Aermacchi Engineering.

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OPSP/Supply Specification

Document establishing the technical/quality requirements for parts/assy to be delivered as a supply.

Periodical Special Process Inspections

Inspections performed to ensure over time a level of quality as found during the qualification of a special process.

Perishable product

Product (raw material, standard, off-the-shelf, etc.) having a cure date / due date (as per manufacturer prescription). This product shall be handled according to any storage/handling defined by the Manufacturer.

Product Acceptance Software (PAS)

Software used to inspect and accept parts, assy, tooling and systems.

Production Special Process

All the Special Process used to produce aeronautical parts.

Program Quality requirements

Document that specifies the quality system requirements peculiar for a program / product produced by Alenia Aermacchi (e.g. QFRA).

Qualification of personnel

Act by which the supplier formally certifies the suitability of their staff to conduct a specific task, through a documented assessment of the level of preparation and / or physical abilities.

Qualified Supplier

Supplier included into the Alenia Aermacchi 'Qualified Vendor List", whose supplies will be incorporated into Alenia Aermacchi products.

Reference sample

Representative element of the product for what concerns the characteristics involved in a process.

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Reliability

Attitude of an object to fulfil the tasks required under specified conditions and period of time. The same term means also the degree of probability of success (with presumptive value) or the percentage (retrospectively determined) of success.

Quality Plan (QP)

Document, issued by the supplier e to be submitted to Alenia Aermacchi approval, describing, within a specific company Program, the operative modalities, responsibilities, resources, and tasks sequences having impact on the product/process/service quality.

Airborne Software

Software products installed on aircraft, involved in aircraft missions.

Source Inspection

Inspection on products and process records carried out at the supplier premises in order to verify the product integrity and the compliance to requirements, before shipping/delivery to Alenia Aermacchi.

In this document the above situation occurs when the suppliers' performances shall be improved and are subject to a recovery plan (Level 1 or 2 Escalation). When a Source Inspection is in place, the product can be shipped only after a successful inspection done by AA personnel c/o the supplier site.

Special Process

Production/Inspection process whose outcome cannot be subsequently verified/measured; therefore, any possible defects related to a Process nonconformance can arise only when the product is operative or after the delivery to the Customer.

According to Alenia Aermacchi rules, "Special Process" are all the technological Processes requiring qualification as per the Program rules. For further details, refer to the document 99/NT/0000/N325A/020159.

Special Process Qualification

All the verifications/tests aimed at ensuring that the process (system, parameters, personnel) meets the applicable specification requirements, taking also in account the production rate and the typology of the parts to be processed.

Supply

All the products and / or services offered under a Contract.

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Supply Category

Subject of this document are only supply category requiring qualification, that is aeronautical products.

Syllabus

Alenia Aermacchi document that, for a Special Process or Critical Activity, specifies:

- pre-requirements for personnel qualification
- minimum duration required and topics of the basic classroom
- practical training
- Proficiency assessment criteria
- On the job training (minimum duration and topics)
- Final Test
- Validity of the qualification
- Qualification renewal requirements.

System

It consists of equipment, structures, components intended for the execution of a manufacturing process and/or control.

Testability

Design characteristic to determine the operative status of an element (functioning, not useable) through the diagnostics and identification of a single malfunctioning in a promptly way.

Third Source

Second level supplier used by an Alenia Aermacchi supplier.

Tier 1

Supplier selected as an AA "prime supplier". This supplier is required to manage a certain number of sub-tiers (or "Tier 2"). Tier 1 will be responsible for all the products supplied, including those furnished by its Tiers 2.

Tier 2

Sub-tier of a "Tier 1", for a specific AA program/product.

Tool Book

List of tools owned by AA and used by supplier at its facility.

When the supplier is responsible for industrialization of its supplied product, the Tool Book clearly highlights the critical tools requiring AA approval.

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Training

Methods of personnel education and qualification by means of courses and initiatives in order to give to personnel knowledge and practice needed and to check the effective benefit. This includes activities of personnel information and instruction by means of appropriate meetings and seminars dealing with subjects relating to their own activities.

3.2.1.2 Acronyms

AA	Alenia Aermacchi
AGE	Aerospace Ground Equipment
AP	Approval Phase
AQAP	Allied Quality Assurance Publications
AQSC	Alenia Aermacchi Supply Chain Quality Assurance Dept.
ATL	Automated Tape Laying
ATP	Acceptance Test Procedure
ATR	Acceptance Test Report
ASNT	American Society for Non destructive Testing
BEM	Alenia Aermacchi Incoming Material Tag (Bolla Entrata Materiale)
CAD/CAM	Computer Aided Design/Computer Aided Manufacturing
CoC	Certificate of Conformance
CDR	Critical Design Review
CFR	Code of Federal Regulation
CMS	Coordinate Measurement System
CND/NDT/NDI	Non Destructive Tests/Inspections
COTS	Commercial off the shelf
DCA	Incoming Inspection Delegation
DDP	Declaration of Design and Performance
DQCP	Delegated Quality Control Plan
DSP	Process Specification Deviation
ENAC	Ente Nazionale per l'Aviazione Civile
EASA	European Aviation Safety Agency
FAA	Federal Aviation Administration
FACI	First Article Configuration Inspection
FAIR	FAI Report
FAI	First Article Inspection
FDR	Final Design Review

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FOD	Foreign Object Damage / Debris
FPQ	First Part Qualification
FRACAS	Failure Reporting Analysis and Corrective Action System
HDF	Hot Drape Forming
IAQG	International Aerospace Quality Group
ITANDTB	Italian Aerospace Non Destructive Testing Board
LAT	Accredited Laboratory for Calibration
MDR	Middle Design Review
MOA	Maintenance Organisation Approval
MOE	Maintenance Organisation Exposition
MRR	Material Review Report
NANDTB	National Aerospace NonDestructive Testing Board
NMC	Numerical Machining Control
OdC	Incoming Non Conformance Report
OEM	Original Equipment Manufacturer
OJT	On the Job Training
OPSP	Outside Production Specification Plan
PTTP	Part Tool Thermal Profile
PPV	Pre Production Verification
PRI	Performance Review Institute
QC	Quality Control
QIP	Quality Improvement Plan
QMS	Quality Management System
QP	Quality Plan
QPL	Qualified Product List
QPP	Qualification Program Plan
QTP	Qualification Test Plan
QTR	Qualification Test Report
RAC	Request for Corrective Actions
RDA	Richiesta Disegnazione Attrezzature
RdC	Richiesta di Concessione
RNC	Rapporto di Non Conformità
RPT	Reduced Purchaser Testing
WP	Work package

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3.2.2 General Principles

3.2.2.1 General

In order to meet all the Customer contractual requirements, Alenia Aermacchi shall ensure its own suppliers are able to provide products that conform the applicable requirements and maintain an appropriate Quality Management System.

Alenia Aermacchi qualifies its own suppliers through a documented process, depending on its Class as described in the Appendices of this document.

Furthermore, AA requires its own suppliers to hold **QMS** certifications, released by Bodies accredited in accordance with the ISO 17011 standard (e.g.: EN/AS 9100, ISO 9001) for the applicable supply requested by AA to its own supplier.

In addition, in case of Special Processes, the supplier shall be Nadcap accredited in advance for the applicable commodity (e.g.: Chemical Processes, Heat Treating, NDI, Welding, Composites, etc), including the auxiliary production processes (e.g. hardness and conductivity for heat treatments, painting for chemical processes).



When planning the Nadcap audit, the supplier shall notify the PRI of the AA parts processed.

When, due to peculiar/strategic reasons, AA wants to qualify a supplier not holding the above mentioned certifications, the following elements could be taken in account for the qualification:

- Certificates granted by Civil/Military Authority according to Aviation Regulations (e.g. EASA Part 145, EASA Part 21, 14 CFR Part 145, AQAP / AER-Q)
- Qualifications released by Alenia Aermacchi Customers/Partners
- Objective references concerning past participations of the potential supplier to aeronautical programs.

Anyway, the supplier not holding Third-party Certifications and, for Special Processes, Nadcap Accreditation, shall provide the objective evidence, through a copy of the Contract stipulated with the Certification Body/PRI, of the commitment to achieve the necessary Certification. Specifically, the supplier shall schedule the certification audit within six months starting from the AA Qualification and provide objective evidence of it.



The Certification according to the **EN/AS 9100** Regulation shall be released by a Certification Body listed in the **OASIS** database at the following website: https://www.sae.org/?PORTAL_CODE=IAQG

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AA does not release Special Processes qualification when the for Technical Specifications Holder is not AA, unless the Holder (e.g. Customer, Authority) has explicitly delegated AA.

Quality Management System requirements specified in this document are added (not alternative) to the contractual, applicable law and regulatory requirements.

Program quality requirements define the peculiar quality aspects for each AA programs, for specific kind of supply (e.g. Service Provider; Stockist / Distributors).

Program quality requirements are called out, either directly or indirectly, in the Contracts / Purchase Orders issued by Alenia Aermacchi, related to aeronautic products. Such requirements are the top level quality documentation that Alenia Aermacchi sends to its suppliers.

Military Programs supplies shall be compliant to EN 9100 / ISO 9001, and additionally to the applicable AQAP / AER.Q regulations.

Therefore, according to the supply/service called out in the Contract/Purchase Order, the supplier shall be compliant to:

- the requirements of the reference Regulation applicable to its Class(es)
- additional requirements applicable to its Class(es), described in the chapter 4..8 of this document (whose chapter numbering reflects that of the EN9100)
- Quality Program requirements called out in in Contract/Purchase Order.

This document is sent to suppliers with the applicable contractual documentation.



In the same way, Alenia Aermacchi suppliers shall ensure, through proper clauses in Contracts/Purchase Orders, the flow down of the same requirements to its own sub-tiers.

Note that the Alenia Aermacchi qualification granted to the supplier, the audits and the tests carried out by Alenia Aermacchi, its Customers and Surveillance Bodies, as well as the Third-party certifications does not exempt the supplier from the responsibility to ensure all the contractual requirements are met, and are not sufficient to guarantee the final acceptance of the product.

The supplier shall implement all the actions coming from the changes to this document. Unless otherwise agreed with AA and/or set forth by the Program requirements, the supplier shall acknowledge such changes and introduce them in its own procedures within two months since the issue of this document.

3.2.2.2 Qualification Classes

Alenia Aermacchi releases to each qualified supplier:

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- a) one or more qualification Classes according to the type of activity (e.g.: equipment, Laboratories, Special Processes)
- b) one or more Supply Category, according to the type of product (e.g.: design/manufacturing of avionic equipment, calibration of measurement instruments, welding).

The following table lists the qualification Classes and the relevant international regulation, according to which the supplier QMS shall be certified.

Class Code	Scope of work	QMS Certification to be held*
A1	Supply of equipment (Design and Production)	EN/AS 9100 or, in case of COTS , Certificate released by the Aviation Authority
B1	Production of raw material and standard	EN/AS 9100 (except for supplier included in QPL)
C1	Subcontractors with Design and raw material procurement	
C2	Subcontractors buying raw materials	
C3	Subcontractors receiving raw material by AA	
C4	Subcontractors only for Special Processes	
D1	Tooling and Assembly Jig Suppliers (Design and Manufacturing)	ISO 9001
D2	Aircraft Ground Equipment (Design and Manufacturing)	ISO 9001
E1	Stockist/Distributors of Raw Materials, standards and equipment	EN/AS 9100 or EN/AS 9120
F1	Repairing/Maintenance tasks on components, carried out by the Original Manufacturer	EN 9100
	Repairing/Maintenance tasks on components, carried out according to a license agreement	EN/AS 9110 or EN/AS 9100
	Repairing/Maintenance tasks on aircraft and/or parts/components	

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Class Code	Scope of work	QMS Certification to be held*
G1	Laboratories for tests and/or calibration	LAT Center or equivalent, in case of calibration laboratory or ISO 17025 / Nadcap Accreditation, in case of test laboratory
H1	Work Package Supplies	EN 9100
H2	Off load activities of design (with design authority of Alenia Aermacchi or Customer) / Job Cards preparation / Technical Manuals	EN 9100
H3	"Time & Material" Supplies	ISO 9001
H4	Training courses for specialized personnel	ISO 9001

Table 1

- * The above QMS Certification requirements apply unless otherwise required by the Customer/Programs rules.

Refer to the Appendices of this Document for the detail of the certification required and the qualification process for each Class.

3.2.2.3 Capability and Capacity Assessment

The cognizant Dept. of the Alenia Aermacchi Procurement & Supply Chain Dept. is responsible for conduct the Capability & Capacity Assessment of a potential new supplier or candidate to be assigned a significant work package transferred from another supplier, according to the Supply Category. Such assessment has the purpose to verify if the supplier can meet the technical/quality/organization/ economic/financial/legal requirements applicable to a specific Program/supply. Specifically, the following will be assessed:

- 1) technical/production capacities
- 2) its QMS/Organization, as well as the appropriate Certifications/Qualifications held, granted by accredited Bodies, Civil/Military Authorities and Aeronautical Customers
- 3) the economical/financial solidity and guarantee of continuity in the market

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- 4) the risks related to the choice of the supplier and the risks factors to be taken into account in the Contract.

This assessment will be conducted by the AA Procurement & Supply Chain Dept. with Technical staff, Chief Technical Officer, Quality and any other Company Process Owner.

Upon request of the cognizant Unit of the AA Procurement & Supply Chain Dept., the potential supplier shall send the necessary legal/commercial/technical/quality documentation and, when required (according to the criticality of the supply), make it available for a visit by an Alenia Aermacchi team at the supplier facilities.

The following Table shows the elements of the capacity/capability assessment of a supplier, according to the Qualification Class:

	Qualification Class													
	A1	B1	C1	C2	C3	C4	D1	D2	E1	F1	G1	H1	H2	H3
QMS Certifications	For all Qualification Classes													
Quality Manual	For all Qualification Classes													
Qualification of other aeronautic Customers	For all Qualification Classes													
Questionnaire for potential suppliers	For all Qualification Classes													
Preliminary visit	If required, according to the typology and criticality of the supply													
Evidence of entry in QPL	X ¹													
License by OEM										X ²				
List of potential subtiers involved	For all Qualification Classes													

Table 2



The Table 2 shows the elements related only to supplier quality/certification aspects.

One of the risks related to the choice of a supplier is its supply chain. The supplier shall declare in a preliminary Quality Plan its Supply Chain (subtiers used and correspondent supplies), and ask for the Alenia Aermacchi approval.

¹ Applicable to suppliers of materials/standards as per International Specification / Specification Holder.

² Applicable to repair/maintenance stations operating under license agreement with the Original Manufacturer.

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If the result of the capability/capacity assessment is positive, Alenia Aermacchi will make further commercial analysis in order to evaluate if there are the conditions for proceeding with the qualification process.

3.2.2.4 First qualification process

Alenia Aermacchi established a documented qualification process of its suppliers, by which acknowledges the ability to provide supplies according to the AA requirements.

The Appendices to this Document describe, in detail, the different approval process according to the supplier qualification Class.

Following the successful approval process, the Head of AQSC:

- adds the supplier in AA Approved suppliers List
- except for suppliers belonging to Class B1 and C4 included in a Customer QPL, issues the "Statement of Approval"
- in case of Class G1 suppliers (Test and/or Calibration Laboratories), issues also the Scope of Approval, listing the approved test methods, the reference to the relevant technical specifications and the approved limitations/test conditions.



Approvals issued by AA does not expire, but are subject to the supplier quality performance level. Para 3.2.2.5, 3.2.2.6 and 3.2.2.7 of this Procedure describe how to keep under control such performances. Furthermore, the issue of the "Statement of Approval" is effective since the publication of the Edition E of this document.

3.2.2.5 Audit at suppliers

According to the qualification class, as well as to the criticality of a supply, AA reserves the right to conduct one or more audits at the supplier's premises in order to directly verify the compliance to the applicable AA requirements.

The audit is notified in written, through a communication specifying:

- a) audit scope
- b) reference Regulation/Specification
- c) audit team.

At the end of the audit, the Alenia Aermacchi Audit Team Leader preliminarily communicates to the supplier quality representative the audit results, as well as any possible request for corrective action (**RAC**). Starting from the receipt of the Audit Report and the attached **RAC**, the supplier within ten working days shall send for acceptance to the Alenia Aermacchi Audit Team Leader

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the responses to the **RAC**, that shall contain Immediate Corrective Action, Root Cause, and Corrective Action plan, for each Non Conformance found.

Any delay with respect to what agreed for the **RAC** responses, shall be authorized by the Audit Team Leader.

Upon request, the supplier shall send to the Audit Team Leader periodic visibilities regarding the Corrective actions implementation plan.

Unless otherwise agreed with **AQSC**, the corrective actions shall be implemented within three months starting from the issue of the Audit report; if not, the supplier qualification process is to be considered aborted.

3.2.2.6 Monitoring of suppliers

AA established a process of continuous monitoring of its suppliers, in order to maintain the performance level as uniform as possible, both in terms of quality and on time delivery. The continuous monitoring of suppliers aims also at detecting those conditions that can request either preventive or corrective actions in order to avoid the quality and/or lead time of product supplied to AA Customers could be jeopardized.

Specifically, the following are tools to be used to ensure the qualification conditions are maintained:

- a) Incoming inspections of supplies at the AA plants
- b) specific audits at suppliers, both planned and unscheduled, for example upon request of Customers/Surveillance Authority, or after a supplier QMS significant change (e.g.: transfer/reallocation of production plants, major organization changes), to verify the compliance to applicable requirements;
- c) Indicators system (Vendor Rating) providing the elements to define the monitoring level to implement and the actions to request to suppliers;
- d) Monitoring also by means of product audits, aimed at verifying the Corrective Actions implemented, and the continuous improvement of the Production Process, in order to eliminate the defects found on products at the Alenia Aermacchi receiving inspection, the use at Alenia Aermacchi plants, and/or their operational service;
- e) the implementation of corrective and preventive actions to improve the production process based on the issues reported by manufacturing plants (e.g.: Incoming Non Conformance Reports, RAC on product issue, as described in para 8.5.2 of this document).



Unless otherwise agreed with the Audit Team Leader, the deadlines to be met with respect to response / implementation of corrective actions required are as follows:

- Answer to the RAC within ten working days from the Audit Report issuance
- Implementing Corrective Action within three months from the Audit Report issuance.

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3.2.2.7 Suppliers' re-evaluation

The AA suppliers' approvals are subject to their quality performance level, and are re-evaluated every four years.



The re-evaluation procedure is effective starting from the Edition E of this document.

During the re-evaluation activities, carried out by **AQSC**, the supplier is subject to the following checks:

- Third Party Certifications applicable to the supplier approval, including Nadcap Accreditation (if applicable)
- evaluation of quality documents applicable to the supplier approval (e.g.: Quality Program Plans, Technical Reports)
- trend of Performance Indicators, if applicable
- Alerts/warnings by Customers/End Users.

If the evaluation results are positive, **AQSC** re-validates the supplier approval.

Otherwise, should any non conformances arise, an extra-ordinary surveillance audit will be performed.



In any case, regardless from the re-evaluation results, **AQSC** reserves the right to perform a surveillance audit.

In case the re-evaluation determines a change in the supplier Scope of approval, the "Statement of approval" form will be updated and re-issued, as necessary.

Refer to Appendices 1 ... 12 of this Procedure for further details concerning each supplier qualification Class.

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4. QUALITY MANAGEMENT SYSTEM



NOTE

This chapter establishes the requirements, including the Alenia Aermacchi additional ones, related to the quality management system suppliers and its applicability according to the qualification Class. The numbering of paragraphs and titles repeat those of the EN9100 standard.

4.1 General Requirements

No additional Alenia Aermacchi requirements

4.1.1 Procedures for training services

Additional Alenia Aermacchi requirement applicable to H4 Class suppliers

The provider shall establish, implement and maintain documented procedures describing the assessment, the methods and criteria for examinations, course execution, security issues, data confidentiality.

4.2 Documentation requirements

Requirement applicable to all suppliers' Classes

4.2.1 General Requirements

Alenia Aermacchi additional requirements applicable to suppliers of Class A1 (excluding Suppliers of Commercial Off the Shelf), B1 (with the exception of manufacturers included in QPL), C1, C2, C3, C4, D1, D2 (when required), E1, F1 (when required by the Program requirements), H1, H2, H3

The Supplier shall issue a Quality Plan related to the Contract / Purchase Order to submit for approval to Alenia Aermacchi.

The Supplier shall prepare a Quality Plan for each AA Program, unless otherwise required by AQSC.

The purpose of the QP is to define the procedures implemented by the supplier to comply with the requirements of this document and the quality requirements of the Program, as applicable to the qualification class / type of supply.

Attachment 1 contains the recommended format for the QP and the minimum required information. This standard format is applicable to all programs unless specific requirements of Program/Customer requirements contained in the Quality Program Requirements called out by the Contract / Purchase Order. After the QP evaluation some changes can be required according to the type/complexity of the supply.

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The supplier shall express, in a dedicated paragraph, named "Declaration of Commitment", the following sentence: "Except as otherwise described in the relevant paragraphs of this Quality Plan and approved by Alenia Aermacchi, the supplier [Company name] agrees to comply all the quality requirements set forth by the documentation applicable to the work package and described in section 3.1. "

Additionally, the **QP** shall make reference to all the documentation applicable to the assigned work package.

The **QP** shall also contain a list of all the second-level sub-tier suppliers used in activities related to the reference Program.

The Supplier shall manage the **QP** updates and submit them to Alenia Aermacchi for approval.

4.2.2 Quality Manual

No additional Alenia Aermacchi requirements

4.2.3 Control of documents

Requirement applicable to all suppliers' Classes

AA suppliers shall get the technical/quality documentation, as applicable to the Contracts in place, at their latest revision.

Examples of technical/quality documents are (as applicable):

- a) **TSS** (Technical Specification Supply), **OPSP**
- b) Work cards
- c) Technical Notes
- d) Drawings (also datasets)
- e) Technical Specifications (e.g. NTA)
- f) Program Quality Requirements.

In order to get documents at latest revision, as contractually applicable to the assigned work package, supplier shall contact AA Procurement & Supply Chain.

In case supplier needs to access to AA databases on information platform (e.g. EDEX, Team Center) containing technical documents, shall request the relevant authorization to Procurement & Supply Chain.

Suppliers that access to Air Portal Information System are authorized to download from a dedicated directory all the **QMS** documentation (Quality Instructions, Program Quality Requirements); a specific banner on Air Portal shows a warning in case of updates.

The Supplier shall establish a procedure to archive / manage the documents sent by AA, including the documentation made available through AA information system.

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The above procedure shall describe how to promptly communicate to AA Procurement & Supply Chain any issue concerning the documentation received.

Upon request, suppliers shall issue a receipt note.

With reference to documentation issued by Suppliers, a Master List periodically updated is required, reporting a list of applicable documents with the relevant Issue and Revision Index.

4.2.4 Control of Quality Records

Additional Alenia Aermacchi requirement applicable to all suppliers

During the records retention period, documents shall be made available, upon request, to representatives of Alenia Aermacchi, its Customers and Civil/Military Aviation Authorities.

Unless otherwise required Program Quality requirements, the following table shows the minimum record retention requirements, according to the typology of records and A/C TCH:

RECORDS	DURATION (years)	AA TCH	AA NON TCH
FAIR	A/C life +3	A/C life	A/C life
Design input data (technical notes, technical specs., etc)	A/C life +3	A/C life	A/C life
Design Review (PDR, CDR)	A/C life +3	A/C life	A/C life
Design Verifications (test reports)	A/C life +3	A/C life	A/C life
Design Validations and Type Certificates	A/C life +3	A/C life	A/C life
Modifications Dossier	A/C life +3	A/C life	A/C life
Product traceability (e.g.: work orders)	A/C life +3	A/C life	A/C life
Qualification / calibration of measurement devices	Device life + 5	Device life	Device life
Product Conformity documents (e.g.: CoC, EASA Form 1)	A/C life +3	A/C life	A/C life
Product Non Conformance Reports (e.g.: MRR, RdC, Concession / Waiver / Deviation, Non Routine Card)	A/C life +3	A/C life	A/C life

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RECORDS	DURATION (years)	AA TCH	AA NON TCH
Aircraft/Assembly Inspection Report	A/C life +3	A/C life	
Records of Customer-furnished materials.	A/C life +3	A/C life	

Any other record not explicitly listed above but anyway giving objective evidence of compliance to quality requirements and the status of supplier QMS, shall be archived for at least 10 years.

The records to be kept for the whole A/C life can be destroyed only if authorized by Procurement & Supply Chain.

4.2.5 Right of access

Additional Alenia Aermacchi requirement applicable to all Classes

The supplier shall ensure the "right of access" at their premises and those of its suppliers, to Alenia Aermacchi personnel, its Customers and the civil/military Authorities in order to conduct any audits deemed necessary to ensure the QMS and Production/Control Processes will be managed in fully compliance with the product requirements.

These audits will be carried out at any time by Alenia Aermacchi representatives, its customers and the Civil / Military Authorities.

5 MANAGEMENT RESPONSABILITY

Alenia Aermacchi requirement applicable to all Classes

5.1 Management commitment

No additional requirements

5.2 Customer focus

No additional requirements

5.3 Quality policy

No additional requirements

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5.4 Planning*No additional requirements***5.5 Responsibility, authority e communication****5.5.1 Responsibility and authority**

Alenia Aermacchi additional requirements applicable to suppliers of A1 Class (excluding Suppliers of Commercial Off the Shelf), B1 (with the exception of Manufacturers included in QPL), C1, C2, C3, C4, D1, D2, E1, F1 (when required by Program requirements), H1, H2, H3 (if required by Program requirements)

Suppliers shall identify in the Quality Plan for the in subject Contract/Purchase Order the personnel carrying out the interface activity with Alenia Aermacchi.

Furthermore the names of people authorized to release CoCs pertinent to the assigned WP, shall be listed in the **QP**.

5.5.2 Management representative

Alenia Aermacchi additional requirements applicable to suppliers of A1 Class (excluding Suppliers of Commercial Off the Shelf), B1 (with the exception of Manufacturers included in QPL), C1, C2, C3, C4, D1, D2, E1, F1 (when required by Program requirements), H1, H2, H3 (if required by Program requirements)

Supplier shall identify in the Quality Plan for the in subject Contract/Purchase Order its QMS Representative.

5.5.3 Internal communication*No additional requirements***5.6 Management review***Alenia Aermacchi requirement applicable to all Classes***5.6.1 General***No additional requirements***5.6.2 Review inputs***No additional requirements***INTERNAL**

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5.6.3 Review outputs

Alenia Aermacchi requirement applicable to all Classes

Results of the Supplier quality management system review shall be available for AA if required.

6 RESOURCE MANAGEMENT

Alenia Aermacchi requirement applicable to all Classes

6.1 Provision of resources

No additional requirements

6.2 Human Resources

6.2.1 General

Alenia Aermacchi requirement applicable to all suppliers

The supplier shall train its resources, in accordance with the Alenia Aermacchi program requirements.

The supplier shall record each training session using an appropriate form containing the information relevant to the course (eg, course title, syllabus, duration, name / number / signature of participants and trainers, date of the training administration).

Such evidences shall be made available, upon request by AA at the occasion of the audit of Alenia Aermacchi, its Customers, or Aviation Authority for the entire duration of the Contract with Alenia Aermacchi.

6.2.2 Competence, awareness and training

6.2.2.1 Training and Qualification of personnel designed to perform and inspect Special Processes / Critical Activities

Alenia Aermacchi additional requirements applicable to C1; C2; C3; C4 Classes Suppliers performing Manufacture and/or Inspection Special Processes

The personnel which is dedicated to perform a special process or a critical activity represents one of the elements of the process itself and therefore shall be trained/qualified/certified as applicable.

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A. Qualification of operatorsinspectors for Special Processes/Critical Activities

The supplier shall ensure its personnel assigned to Special Processes / Critical Activities performed under Alenia Aermacchi/Alenia Aermacchi Customers technical Specifications, be qualified in accordance with the applicable requirements.

The **99/NT/0000/N325A/020159** document lists the Special Processes/Critical Activities requiring skilled personnel and the code of the relevant syllabus.

Syllabus are available upon request to Procurement & Supply Chain.

In case the supplier personnel is not already qualified, the supplier may request Alenia Aermacchi to include its personnel in the list of participants to the courses and exams periodically organized by Alenia Aermacchi. For details on how to participate in courses provided by Alenia Aermacchi, refer to para 6.2.2.2 of this document.

Alternatively, the supplier may apply to institutions / organizations recognized by Alenia Aermacchi for the course administration.

In case the training activities for achieving the first qualification require the execution of test samples, these shall be tested by an Alenia Aermacchi Laboratory or recognized by Alenia Aermacchi (see also para 7.5.2).

In any case, the training class is only a part of personnel qualification process: all the syllabus requirements shall be met, in order to qualify personnel.

The supplier staff already qualified for the execution of a Special Process/critical activities may act as a trained trainer (can train and qualify the supplier personnel).

Such training shall be performed according to the syllabus applicable to the involved Special Process.



NOTE 1
 When evaluating the need for personnel training, an aspect to be taken into account is the previous work experience in aeronautics field held by the supplier staff. A formal training concerning specific tasks may be not required when it is provided the objective evidence of previous experiences recognized as meeting the content of the training.

The "Grandfather rights" can be invoked in terms of document review, experiences assessment and/or qualifications / certifications granted by other institutions/companies.

The supplier qualification shall be renewed as determined by the applicable syllabus. The trained trainers can administrate the required courses, manage and coordinate examination sessions, conduct any practical tasks aimed at renewing the qualification.

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If the qualification renewal requires the execution of test (eg: qualification for manual TIG welders), the tests required by the applicable Technical Specification can be made by an Alenia Aermacchi Laboratory, and also by:

- the supplier Laboratory, if qualified by Alenia Aermacchi for the technical specification applicable to the inspection tasks
- an independent laboratory, ISO/IEC 17025 accredited or Nadcap certified and/or recognized by Alenia Aermacchi, for the scope of the tests required by the Specification.

At the completion of the first qualification/renewal of its personnel, the supplier shall keep on file the relevant objective evidence and make them available upon request to Alenia Aermacchi and its Customers.

B. Qualification of personnel assigned to NDI

Personnel assigned to NDI shall be certified in accordance with the Alenia Aermacchi requirements. The term "certification" as used in this document shall be considered equivalent to the term "certification" for NAS 410 and ITA-NG-001, and to the term "approval" for UNI EN 4179 and ITA-NG-001.



In order to carry out NDI tasks, the supplier shall employ a NDI Level 3 for the required method(s), qualified by an outside agency and recognized by Alenia Aermacchi according to the 99/NT/0000/N325/100010 "Acknowledgement of supplier Non Destructive Inspection personnel" document.

The supplier without a NDI Level 3 may request the Alenia Aermacchi Procurement & Supply Chain to use an Alenia Aermacchi Level 3, by specifying the applicable technical Specifications; in this case, the supplier will receive from the Alenia Aermacchi Commercial Dept. - Contract Management the relevant Offer. It is necessary to cover the Alenia Aermacchi Level 3 service by means of a specific Contract / Order issued to Alenia Aermacchi and the related letter of appointment of the Alenia Aermacchi Level 3.

The qualification of NDI staff can be administered by the supplier NDI Level 3, provided according to the syllabus that Alenia Aermacchi makes available to suppliers upon request.



If the course is provided by Alenia Aermacchi, the documentation will be retained by the Dept. of the Alenia Aermacchi Responsible Level 3 and upon request will be made available for review at Alenia Aermacchi, to its Customers and the supplier.

The supplier Quality Manager shall manage the NDI certification documentation in accordance with its personnel qualification/certification procedures. Such documentation shall include at least:

- 1) Names of certified personnel
- 2) Level, method and techniques for which the staff has been certified
- 3) Results of exams, including the last exam and the relevant result
- 4) Date and expiration date of the current certification
- 5) History of all the previous NDI certifications

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- 6) History of the course with all the attendees, type of training and dates, duration of the course and instructor's name
- 7) Documented evidences of qualified personnel
- 8) Results of physical examinations
- 9) Evidence of the proficiency in application of the NDI certified method for every 12 months following the certification
- 10) Signature of the person who issued the certification.

This documentation shall be retained for the period of validity of the approval and made available during the Alenia Aermacchi / Customers audits.

6.2.2.2 Request for participation to courses administered by Alenia Aermacchi

Alenia Aermacchi additional requirement applicable to all suppliers

The supplier may request their staff to participate to the courses that AA periodically organizes.
The calendar of AA training courses is distributed to suppliers upon request.

In order to participate to AA training, the supplier shall:

- a) Communicate it to the AA Procurement & Supply Chain, which, after the necessary checks, will give its go ahead to the supplier, in order to activate the commercial process
- b) Contact the AA Commercial Dept. - Contract Management, e submits a RFP, that shall be accompanied by the following documents:
 - Process / Specification / Program
 - Evidence of the status of the qualification process (e.g. first qualification of the process)
 - Personal data and Curriculum vitae of the operator(s) for which the qualification is requested
 - Any certificate concerning the physical suitability of the operator(s) for which the qualification is requested
 - Certificates of previous experience (where applicable).



If the syllabus includes a practical test / OJT, this activity can be carried out at the supplier premises. If the result of this test is subject to any laboratory tests, these may be conducted at AA, or at a laboratory approved by AA.

- c) Consolidate the Purchase Order to AA Commercial Dept, at least seven days before the date of beginning of the course, in order to allow the organization of the activities and the entry permits to AA plants.

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AA Procurement & Supply Chain will communicate to suppliers the training course scheduling. At the end of the course, the supplier will receive from the AA Procurement & Supply Chain the qualification certificate for personnel who passed the examinations. Such certificate shall not constitute an authorization to operate, as this authorization can be only granted by the supplier according to its internal rules approved by AA.

6.2.2.3 Suppliers of specialized works at Alenia Aermacchi sites

Additional Alenia Aermacchi requirement applicable to H1 and H3 Class suppliers

The supplier performing activities having an impact on the product conformity and carrying out production works at the AA plants, shall submit to AA Procurement & Supply Chain and the AA Dept. that has requested such performance, with enough time before the scheduled start date of activity, the Curriculum Vitae of staff who will work at AA. These CV shall contain the following information:

- a) skills of each operator, including activities related to Special Processes
- b) activities performed and start/end period for such activities
- c) training courses taken and qualifications achieved
- d) language skills.

If the Alenia Aermacchi Dept. that has requested the work activities deems the supplier's personnel qualifications not to be satisfactory, the supplier will not be allowed to carry out any work at the Alenia Aermacchi sites, unless a supplemental training is attended. This training will be tailored to the CV presented by the supplier.

In case of personnel qualified for Special Processes / Critical Activities, the supplier shall communicate it to AA as in advance as the scheduled activities need.

When required by the applicable Technical Specifications, individual signing off the AA work cards shall undergo the qualification process, administered by AA as required by the applicable syllabus.

Names of supplier qualified individuals are listed in the AA roster, available on AA website.

With reference to Class H1, suppliers managing the stamps assigned to its own personnel, shall:

- 1) Provide the procedure for managing and release of stamps; this procedure shall be attached to the QP
- 2) Clearly describe in the QP methods to release stamps according to the qualification achieved by its own personnel.

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6.2.2.4 Suppliers providing training for specialized staff

Alenia Aermacchi Additional requirement applicable to H4 Class suppliers

The supplier shall have a documented procedure that defines the requirements for the competence of personnel involved in each aspect of service and for each specific objective.

The supplier shall maintain a list of instructors staff, develop evaluation criteria and at least annually the instructors performance shall be assessed.

The following are the requirements that the instructors for pilots and maintenance personnel shall meet.

1) Instructors for Pilots (theory and practical)

The Instructors of theory for pilots shall have an appropriate technical and operational experience in aviation industry and knowledge of teaching techniques.

To conduct flight training on simulator and/or training systems the instructors shall have appropriate simulators/training aids experience, directly applicable to the training infrastructures in use at Alenia Aermacchi. Additionally, the instructors shall have at least 5 years of experience as military and/or civil instructors/examiners.

The instructor for flight training shall hold at least a valid civilian pilot license, as well as the medical certification attesting the physical fitness for fly.

Regarding the military curriculum, it is also required that the above mentioned instructors have at least 1500 flight hours on fighter aircraft or 3000 flight hours on freighter aircraft.

2) Instructors for aircraft maintenance activities

Instructors for maintenance staff shall meet the following requirements:

- a) Knowledge of training techniques with regard to the preparation of training material, scheduling of classroom, classroom management, teaching aids and use of interim and final tests
- b) documented experience of at least 2 years as an instructor of the subject courses (or similar).
- c) objective evidence concerning maintenance tasks, testing, adjustment and aircraft maintenance.

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6.2.2.5 Acknowledgement of Industrial Engineering Manager

Additional Alenia Aermacchi requirement applicable to C1, C2, C3, C4 Classes suppliers

In the ambit of the AA EASA Part 21 requirements and when required by **AQSC**, in case the supplier is responsible for preparing planning papers, the Supplier Industrial Engineering Manager shall comply with the following requirements:

Industrial Engineering (Industrial Engineering Manager) EASA Part 21-G	
01	Age not under 21
02	At least high school diploma
03	Enough knowledge of the types of products to manufacture
04	Appropriate experience on the specific production branch and relevant fundamentals
05	Knowledge of the company rules / procedures.
06	Knowledge of methods and techniques relevant to Product Conformity Inspections.
07	Knowledge of the Company Procedures and technological processes of the plant
08	Knowledge of the language in which Company Procedures and Design documents are written

The resume / CV of the Industrial Engineering Manager, to be compliant with all the above mentioned, shall be attached to the **QP** for approval.

6.3 INFRASTRUCTURE

Alenia Aermacchi additional requirement applicable to all Classes

6.3.1 Notification to AA in case of changes to infrastructures/equipment

Alenia Aermacchi requirement applicable to all Classes

The supplier shall promptly notify to Alenia Aermacchi any infrastructure/equipment's changes, in comparison to what communicated and reported to the QMS documentation (eg: Manual for

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Quality, QP), that can impact the conformity of the products delivered to Alenia Aermacchi. Such notification shall include the commitment to revise, consequently, the above QMS documentation. If necessary and/or requested by **AQSC**, supplier shall prepare and make available a Transfer Plan, with at least the following data:

- Work Package involved
- Scheduling of transfer activities
- Plan to update Third-Party Certifications
- Special Processes involved, if any
- FAI Plan
- risk analysis.

6.3.2 Accommodations (Rooms / Classrooms / teaching aids)

Alenia Aermacchi additional requirements applicable to Class H4 suppliers

When a training service is provided at the supplier premises, the supplier shall have adequate facilities for the provision of training, such as classrooms, audio-visual and other instructional aids necessary for the provision of service under the contract/order purchase.

6.4 Work Environment

No Alenia Aermacchi additional requirements

7 PRODUCT REALIZATION

Alenia Aermacchi requirement applicable to all Classes

7.1 Planning of product realization

No Alenia Aermacchi additional requirements

7.1.1 Project Management

No Alenia Aermacchi additional requirements

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7.1.2 Risk Management

Alenia Aermacchi requirement applicable to all Classes

Alenia Aermacchi additional requirements

Upon request, the supplier shall make available to Alenia Aermacchi the records relating to the risk management for the Alenia Aermacchi Programs.

The supplier could be involved in activities necessary as a result of a risk analysis by Alenia Aermacchi.

7.1.3 Configuration Management

Alenia Aermacchi requirement applicable to A1; B1; C1; C2; C3; D2, F1, H2 supplier Classes

Alenia Aermacchi additional requirements

When the supplier holds the Design Responsibility on the contracted articles, the supplier shall prepare, as required by the applicable Technical Specification, a Configuration Management Plan to submit for approval to the cognizant AA Chief Technical Office Dept.

7.1.4 Control of work transfers

Alenia Aermacchi requirement applicable to A1; B1; C1; C2; C3; C4; D1; D2, F1, supplier Classes

No Alenia Aermacchi additional requirements

7.2 Customer-related processes

Alenia Aermacchi requirement applicable to all Classes

7.2.1 Determination or requirements related to the product

No Alenia Aermacchi additional requirements

7.2.2 Review of the requirements related to the product

Requirement applicable to all suppliers

Upon AA request, the supplier shall make available all the evidences of the review meetings held to determine design requirements (e.g.: kick off meeting, etc.)

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7.2.3 Customer communication

Alenia Aermacchi additional requirements applicable to all the suppliers

The Supplier shall promptly notify Alenia Aermacchi of any identified risk significantly impacting product quality and delivery schedules as contractually committed, and shall timely plan and implement all necessary actions to remove the causes/mitigate the effects of adverse events as appropriate and/or directed by Alenia Aermacchi, using the program documents, when required.

7.3 Design and Development

Requirement applicable to A1 (only equipment built to AA Technical Spec), C1, D2, H2 (only AGE built to AA Technical Spec) supplier Classes

Design and Development activities shall be performed according to AA Technical Specification and the applicable national/international airworthiness rules.

The supplier shall issue and submit for AA approval a Design Quality Plan, called by the Program QP, which describe how the design and development activities related to supplied item, are managed; this Plan shall include a list of persons authorized to approve the design data.

In case of deliverable software, the Quality Plan shall contain the details of the activities developed during the software life cycle according to its criticality, for example:

- Definition of the development cycle;
- Planning of design reviews;
- Procedures for verification and validation of software;
- Validation of tools for the final acceptance;
- Validation of benches, rigs, simulators used for the qualification of the software;
- List of main documents to be delivered along with the software.

The external test laboratories shall be either accredited to ISO/IEC 17025 or Nadcap certified and/or recognized by Alenia Aermacchi within the scope required for the tests by the applicable Specification.

7.3.1 First Article Configuration Inspection (FACI)

Alenia Aermacchi additional requirement applies to suppliers of A1, D2 supplier Class

When required by the applicable Technical Specification, the supplier shall submit any First Article to a **FACI**, that is a functional and physical examination aimed at demonstrating its configuration to conform with the applicable design data.

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New equipment (new P/N) shall be submitted to **FACI**, unless a waiver authorized in written by AA through the technical/quality documents called out by the Contract and applicable to a specific equipment.

a) How to implementing a FACI

The following is a list of activities (as a minimum) to be carried out during a **FACI**:

1) Preliminary FACI activities

The following shall be available:

- LRU / LRI disassembled as a module or equivalent;
- Approved drawings (assy, components, sections, part list);
- Manufacturing / assembly layout (Production Inspection Report).

2) FACI Check-List

- Identification of the unit subject to FACI (P/N and S/N);
- Identification and marking (tag, label, etc.);
- Cross-check between the assy/HW-SW component drawings as per the Standard Build Configuration (as built) and the Design Standard Configuration;
- Dimensional checks of critical features;
- Production Process: verification of work cards;
- Assessment and acceptance by Alenia Aermacchi of the Waiver/Deviation of the unit under FACI (if applicable);
- Verify the obsolescence of components;
- Procedure of installation and assembly of components (focused on FOD prevention)
- Evidence of Certificates of Conformity of the Components provided by sub-tiers (if applicable)
- Verification of Qualification Program Plan accepted by Alenia Aermacchi
- Verification of Qualification Test Procedures accepted by Alenia Aermacchi
- Verification of Acceptance Test Procedures accepted by Alenia Aermacchi
- Report of pre-qualification acceptance tests accepted by Alenia Aermacchi.
- Documentation of Special Test Equipment To-type for the equipment qualification
- Check out of the test equipment, to verify if it properly works.

In order to record all the above, the supplier can use any **FACI** Report format.

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b) When a FACI is to be repeated

The FACI shall be repeated in case of equipment design changes that impact Fit, Form and Function.

c) FACI Planning and supervision by Alenia Aermacchi

Refer to para 7.5.1.1 of this document about FACI planning and supervision by AA (the same FAI procedure applies).

A copy of **FACI** report (in digital format) shall be sent to AA Suppliers' Quality.

7.3.2 Technical Qualification of equipment / AGE

Requirements applicable to A1, D2 supplier Classes

The qualification of equipment/**AGE** shall be conducted in accordance with the requirements of technical specifications and the applicable national/international airworthiness regulations.

All documentation required by the Contract/Technical Specification, specifically the **FACI** Report, the Qualification Test Plan (including the list of the minimum tests for Permit to Fly), Procedures for Qualification Tests, Theoretical Analysis, Acceptance Test Plan (**ATP**), etc.., shall be submitted to the AA for approval according to criteria and deadlines agreed with AA Chief Technical Officer.

The Quality Instruction IAE G 04 "Hardware/Software Management Requirements for Suppliers" defines the requirements applicable to Aircraft System (a collection of interconnected Airborne Equipment), to airborne HW/SW or incorporated in **AGE**/simulators, or in any case used to support activities such as design, configuration and maintenance of A/C SW.

When required by the applicable civil/military regulations, the above documents shall be approved by the Certification/Surveillance Body or Customer. In these cases, the Certification Body can conduct a Surveillance during the tests.

The supplier shall notify to Alenia Aermacchi the test execution at least 15 days in advance, to allow any possible participation by Alenia Aermacchi. During the tests, the supplier is required to ensure free access and maximum support to Alenia Aermacchi and the Certification Body/Customer.

Before the delivery to AA, the supplier shall perform the acceptance tests (**ATP**) of each unit built to demonstrate the product compliance to the design and ensure its suitability for the intended use. AA reserves the right to conduct, at its discretion, additional tests to verify the conformity of the product.

At the successful conclusion of the product qualification, the supplier shall issue a Final **DDP** to submit for approval to AA.

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AA, being responsible towards the civil/military Authority for the qualification/integration of the product (equipment) on the aircraft, can request the support of the supplier when necessary.

For equipment/**AGE** not yet qualified but used in the AA production line, the supplier shall provide the following data:

- a) Evidence of minimum qualifications to be performed before use in production line
- b) Fulfilment of the acceptance tests.

For equipment/**AGE** that have not completed the qualification process but shall be used on the aircraft, before the delivery to AA the supplier shall provide evidence of:

- c) compliance with the minimum requirements for a permit to fly (preliminary qualification)
- d) Limitations for safe use on the aircraft (airworthiness, in case of equipment).

For these equipment/**AGE** a **P-DDP** (preliminary **DDP**) shall be issued, with the following data:

- elements and technical data required in paragraphs c) and d)
- any possible limitations in use and restrictions with respect to the Specification data. In this latter case, such restrictions shall be declared through a Concession and submitted to AA Chief Technical Officer Dept for approval.

In case of new supplier (involved for the first time in an AA Program), new premises and/or production process, or configuration changes, the equipment/**AGE** (full or partial) re-qualification is required, according to the applicable Technical Specification.

At the end of the re-qualification a revision/amendment of the pertinent **DDP** shall be issued.

7.3.3 Control of design and development changes

Requirements applicable to A1, C1, D1, H2 supplier Classes

After delivery of the product to the Customer, during the whole validity of the contract, each configuration change, necessary to correct/eliminate defects, shall be agreed and approved by Aermacchi before being incorporated into the product.

For this purpose, the supplier shall issue a configuration control procedure (possibly included in the Configuration Management Plan, in the case of equipment) to be submitted for approval to Alenia Aermacchi.

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7.4 Purchasing

Requirements applicable to all Classes

7.4.1 Purchasing process

7.4.1.1 Off-load of design and development activities

Requirements applicable to A1, C1, D1, D2, H2 supplier Classes

The supplier can off-load design/development activities to its sub-tier provided that:

- a) The supplier's QMS procedures for design off-load have been approved by Alenia Aermacchi. Specifically, the supplier shall list in the QP (to be approved by Alenia Aermacchi) all the sub-tiers used and their relevant scope of work
- b) The sub-tier has been evaluated and approved by the supplier, and the procedures for approval and documentation have been submitted for approval to Alenia Aermacchi
- c) The technical/quality requirements have been flowed down by the supplier to the sub-tier through specific provisions of the Contract/Purchase Order to the sub-tier
- d) The activities are controlled by the supplier Engineering Dept., which remains directly in charge towards Alenia Aermacchi
- e) The sub-tier accepts to receive audits by Alenia Aermacchi, its Customers and Aviation Authorities
- f) The sub-tier cannot sub-contract in whole or in part the design/development activities.

7.4.1.2 Off-load of design and development activities

Requirements applicable to C2 supplier Classes

The supplier can off-load design/development activities to its sub-tier provided that:

- a) The sub-tier has been evaluated and approved by AA
- b) The supplier shall list in the QP (to be approved by AA) all the sub-tiers used and their relevant scope of work
- c) The technical/quality requirements have been flowed down by the supplier to the sub-tier through specific provisions of the Contract/Purchase Order to the sub-tier
- d) The activities are controlled by the supplier AA Chief Technical Officer Dept.
- f) The sub-tier cannot sub-contract in whole or in part the design/development activities.

In any case, the design outputs shall be submitted for approval to AA Chief Technical Officer Dept..

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7.4.1.3 Off-load of Manufacturing of parts/assemblies*Requirements applicable to A1; B1; C1; C2; C3; D1 supplier Classes*

The supplier off-loading manufacturing activities of AA parts/assemblies:

- a) remains directly responsible for the conformity of the product delivered to AA to the requirements specified in the applicable Contracts/Orders
- b) shall state in Orders/Contracts to their sub-tiers, at a minimum, the same technical and quality requirements defined in the Orders/Contracts in place between the supplier and AA
- c) shall state in the QP (to be approved by AA) the composition of its Supply Chain (all sub-tier and their scope of work).
- d) shall provide objective evidence about the capability to verify, through competent and properly trained personnel, the compliance of subcontracted items with the applicable requirements;
- e) Testing activities can be subcontracted only to sub-tiers qualified by AA or AA Customers for the applicable Technical Specification.
- f) Special Processes activities can only be subcontracted to Sources qualified by the Technical Specification Process Owner.
- g) The Work Card shall clearly indicate what activities are off-loaded; Work Cards shall also report the shipping/receiving inspection steps against the shipping/receiving to/from the sub-tier.

In case of AA suppliers selected as "Prime Suppliers (Tier1)", refer to the document QFRA/14P.114 "Quality requirements for "Prime Suppliers" (Tier1) and "Sub-tiers" (Tier2)".

7.4.1.4 Off-load of tooling design/manufacturing*Alenia Aermacchi additional requirements applicable to C1, C2, C3, D1 supplier Classes*

In addition to the requirements in para 7.4.1.1 and 7.4.1.3 (with the exception of bullet f), the supplier that subcontracts design and or manufacturing of tools shall comply with requirements set forth in par. 7.5.1.3 of this document.

7.4.1.5 Purchasing of auxiliary materials*Alenia Aermacchi additional requirements applicable to H1,H3 supplier Classes*

When required by the Supply Technical Specification, if supplier purchases auxiliary materials (not related to any technical Spec), the Program QP shall detail how the supplier manages the purchasing process in compliance with AA requirements.

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7.4.1.6 Right of access

The supplier shall ensure the "Right of Access" to Alenia Aermacchi / Alenia Aermacchi Customer / Aviation Authorities at its plants.

7.4.2 Purchasing information

Requirements applicable to all Classes

Supplier shall formally flow down the AA requirements to its own sub-tiers by adding specific clauses called out by the applicable contractual documents (e.g.: Purchase Order, Master Contract, etc.).

7.4.3 Verification of purchased product

No Alenia Aermacchi additional requirements

7.5 Production and service provision

Requirements applicable to all Classes

7.5.1 Control of production and service provision

Guide line AS 9103 concerning key characteristics modification management is applicable.

A) Perishable materials

Alenia Aermacchi additional requirements applicable to B1, E1 supplier Classes

Supplier may not deliver perishable materials exceeding 1/3 of their life, as declared on the technical data sheet, starting from the production date punched on the packaging.

B) Transfer of assemblies

Alenia Aermacchi additional requirements applicable to providers of C1, C2, C3 supplier Classes

In case of assemblies (e.g. serialized assemblies, or critical), the supplier shall fill in (unless otherwise required by program requirements) the "Assembly Transfer Report" (Attachment 2), which shall contain all the data regarding the configuration of the assembly at the time of shipment, and emphasizes any deviations from the as-designed.

If one of the following issues, related to the assembly, occurs:

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- a) Test not performed and/or partially executed
- b) Configuration (changes partially and/or totally non-embodied)
- c) Open Non conformances (without technical disposition by cognizant Technical Unit) regardless of its category
- d) Missing Parts
- e) Activities not performed
- f) Parts not installed

the supplier shall formally request the shipping authorization to Quality Control of the Plant receiving the product, copy to AA Procurement & Supply Chain and Suppliers' Quality Depts.



The above points of contact may vary according to specific rules of the program, as reported in the applicable QFRA.

Copy of the AA shipping authorization shall be attached to the Assembly Transfer Report

Two copies of the Assembly Transfer Report shall be sent to AA, the first one accompanying the assembly, the second one sent out to AA Quality Dept. of the plant receiving the assembly.

C) Repair activities on aircraft components according to EASA Part 145

Alenia Aermacchi additional requirements applicable to A1, F1 supplier Classes

Repair activities related to the assemblies/parts listed in the EASA Part 145 LOA of Alenia Aermacchi shall be managed by the Alenia Aermacchi EASA Part 145 approved organization, as described in the MOE.

A specific "Quality Requirement" for the repair activity is included in the relevant Purchase Order/Contract.

D) Manufacturing Off-load

Alenia Aermacchi additional requirements applicable to C1,C2,C3, C4 supplier Classes

In the event it is necessary to carry out some steps coming from an Alenia Aermacchi work card specific purchase orders (dedicated to Off-Load) will be issued, in order to define the steps to be performed and stamped off by the supplier personnel.

The qualified supplier receives AA Work Orders, that describe, through red lines, the part of activities to be performed.

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The supplier shall issue a work order making reference to the AA Work Order number for traceability purposes.

Once completed the off-load production/inspection steps, the supplier shall issue a CoC in which the reference both to supplier Work Order number and AA Work Order number are to be written.

The supplier shall send the Coc with products and the original AA Work Order attached.

The supplier shall archive, according to the applicable requirements, its own Work Order and make it available upon request to the AA plant.

In case of assemblies and/or parts already installed on the aircraft, if the assy has been transferred to AA with a "Assembly Transfer Report", the supplier is required to stamp in the Report all the steps carried out, including change and update the Certificate of compliance in accordance with the work performed.

7.5.1.1 Verification of the Production Process

First Article Inspection

Alenia Aermacchi additional requirements applicable to A1, B1 (only manufacturers of Alenia Aermacchi / Customer build-to-print parts), C1, C2, C3 supplier Classes

a) General

The **FAI** is the tool to verify the adequacy of the production/assembly process, of the main tools used and of inspections performed. **FAI** is conducted and/or repeated under the same conditions established for the series production in order to ascertain compliance with the technical documentation / qualitative applicable.

The **FAI** is meant as the evidence showing that the entire production process put in place is appropriate to ensure the repeatability of the results obtained in accordance with drawings/specifications.

The supplier Quality control is in charge for performing the **FAI** on the first series item manufactured and, as required by applicable standard, any partial **FAI**, in order to provide objective evidence that the product meets all applicable design requirements and that, during the production stages, these requirements have been properly incorporated, taken into account, verified and recorded.

b) Applicability

The FAI shall be performed in accordance with the requirements of this document on assemblies, subassemblies and detail parts of the first series produced. It should not be executed instead on

- a) Assemblies / Parts called out in Standard Catalogues (eg: Standard Catalogue Hardware)
- b) Deliverable Software
- c) Prototypes or parts produced by processes other than that used for normal production.

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c) Forms and execution FAI

The international standard EN / AS 9102 contains:

- 1) Definitions of terms used
- 2) aspects to be taken into account during the activities of FAI
- 3) cases in which it is required a "partial" FAI or "full" FAI (eg.: design changes impacting Fit-Form-Function, change/lapse in production process, etc.)
- 4) the management of non-conformities found during the FAI
- 5) the forms to be used and instructions for completion.

The supplier Quality Control shall record the FAI activities using the forms, taken from EN / AS 9102, attached to this document, namely:

- 6) Form 1: Part Number Accountability
- 7) Form 2: Product Accountability - Raw Material, Specifications and Special Process (es), Functional Testing
- 8) Form 3: Characteristic Accountability, Verification and Compatibility Evaluation.

Possible different / additional forms will be required according to the applicable Program rules.

d) Main aspects to be addressed in a FAI

In addition to the requirements of EN/AS 9102

- 1) the work card related to a FAI, shall be written "FAI required"
- 2) the inspections tasks of all the features called out in the drawing shall be recorded. Specifically, if the item is subject to the interchangeability requirement, it is necessary to determine compliance with this requirement through the use of tooling/test bench, as required by Supply Technical Specifications.
- 3) Verify that materials used to manufacture the part be compliant to the applicable drawing/specification requirements, also in case of AA furnished material.
- 4) any special process shall be emphasized on the work card and followed by an inspection phase with detailed instructions on measurable features (measured and required). The evidence of the qualification status of special process shall be provided. Qualified staff assigned to specific operational steps identified in the work card shall be verified.
- 5) verify that the FAIs on parts of an assy have been successfully performed. The relevant FAIRs shall be properly filled in, completed with all the necessary data and properly stored.
- 6) the tooling used for the production and/or inspection of parts shall be referenced in the work card, indicating the identification code and the revision/issue level; their suitability for manufacturing and/or inspection of product according to design requirements shall be

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verified and documented during the execution of the FAI before the final release to production.

- 7) A accurate inspection shall be performed on all equipment / tools to ensure proper use and status (specifically: identification, calibration status, user instructions)
- 8) The measurement instruments used for testing features and called out by the work card shall be traceable, adequate for the use, in calibration status. Only measurement instruments managed by the supplier QMS can be used
- 9) The work card / work order shall make reference to the Part number and be validated by the supplier Quality Control. The work orders shall be duly filled in and the sequence of phases shall be verified (there shall be the proper sign off and dates on the sequential line items).
- 10) All the machineries used during the production process, and in particular for high-accuracy machines (eg reamers) influencing the quality of product, shall have a guarantee of its functionality by the Dept. responsible for managing them. Particular care shall also be given to further verification of certain characteristics of the machinery, such as accuracy, wear, suitability before their use.



NOTE

The FAI is not complete until the supplier closes all nonconformances affecting the part and implements corrective actions. The supplier shall re-do a FAI for those affected characteristics and shall record the results.

e) Planning and supervision of FAI by Alenia Aermacchi

The supplier Quality Control is fully responsible for the execution of the FAI.

Unless otherwise specified by the Program requirements, the supplier shall prepare a FAI/Partial FAI plan to be submitted to

- 1) AA Suppliers' Quality, or
- 2) AA Supply Chain Quality Assurance, only in case of first qualification or its extension.

The FAI plan shall be sent to Alenia Aermacchi, for any witness, at least fifteen days prior to the date of FAI execution by the supplier. Alenia Aermacchi reserves the right to conduct a FAI audit at the supplier plant, to verify that the supplier has met all requirements applicable to the FAI implementation.

The supplier has the responsibility to issue and send to Alenia Aermacchi Suppliers' Quality an updated FAI Plan related to the specific Program/Customer.

The decision, by Alenia Aermacchi, to conduct a FAI audit is connected to the criticality / complexity of the product and the need to supervise the various technologies (eg, sheet metal, machined parts), or specific program requirements required by the relevant QFRA. This decision will be formally notified to the supplier by Alenia Aermacchi Quality.

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Unless otherwise required by Customer requirements, it is not required the approval signature by Alenia Aermacchi on the FAI Form 1. If deemed necessary, Alenia Aermacchi will conduct a product audit at supplier's plant to verify the repeatability/reproducibility of the manufacturing process related to the first article.

f) FAI recordkeeping

A FAI report copy shall be attached to the first article shipped, while the original report shall be filed by the supplier according to the para 4.2.4 of this document. A digital copy of the FAI report shall be sent upon request to the cognizant Alenia Aermacchi Quality Unit, and when available filed on Air Portal System.

7.5.1.2 Control of production process changes

No Alenia Aermacchi additional requirements

7.5.1.3 Control of production equipment, tools and Numerical Control (N.C.) machine programs

Alenia Aermacchi additional requirements applicable to C1; C2; C3, D1 Suppliers Classes

A) Design and manufacturing of tools

Alenia Aermacchi additional requirements applicable to D1 Suppliers Classes

Main steps of the design and manufacturing of tools are as follows:

- Design Approval and drawing issuance
- Approval of First Tool Inspection Plan
- Recurring Inspection Plan
- Approval, by AA Tooling Dept., of the Users/Maintenance Manual of the tool
- Inspection, by AA Quality Dept., of the tool at the supplier site

After the above, at AA plant the tool acceptance and the relevant validation following successful **FAI** are performed by AA. The supplier can be required to support AA as necessary.

The selected supplier shall submit to AA for approval, a plan taking in account design, manufacturing and inspection of the tool, including intermediate steps along with the AA Dept. In charge for the Technical Supply Specification, both for tool design and manufacturing.

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The supplier in charge for design and manufacturing is fully responsible for the design and no responsibility can be ascribed to AA concerning design mistakes jeopardizing the tool functionality.

AA is responsible for tool design only when the supplier is requested to manufacture the tool according to AA design.

The following paragraphs describe the above listed steps.

A1) Design Approval and drawing issuance

Following the assignment of WP, the supplier shall submit to AA the Plan with design, manufacturing and inspection of tool. Such plan shall include the tool design review, to jointly perform with AA.

Specifically, the following are the checks on the working progress related to tool design:

- 1) Preliminary Design Review (PDR - 25% Review Requirements): First step of tool design, where Tool concept is defined.
- 2) Middle Design Review (MDR - 50% Review Requirements): Second step of tool design where 3D model and materials selection are defined.
- 3) Final Design Review (FDR - 90% Review Requirements): Third step of tool design where 2D is defined and all blueprints are available.
- 4) Approval Phase (AP - 100% Review Requirements): Last step of tool design where 2D and 3D model, as well as Inspection Instructions are completed, therefore technical data meet the final configuration of tool.

Furthermore, the supplier shall submit for approval to the AA cognizant technical Dept. a drawing / instructions completed with Inspection methods (Inspection Instructions) and applicable tolerances (Key Points Drawing), showing the key technical features needed to inspect the tool from a dimensional/functional point of view.

A drawing approval is based on the following checks:

- a) Conformance of drawing to the requirements defined by Technical Supply Specification
- b) Compliance to the requirements defined by the tool design manual (M123-01).

The supplier shall revise the drawings according to the AA comments, if any.

The revised drawings are then re-submitted to the AA Technical Dept. being in charge for drawing approval, that verifies all the comments have been taken in account and incorporated.

In any case, the supplier shall always provide the tool drawings during the design working process (**PDR, MDR, FDR** and **AP**) in digital format through the AA information systems.

AA can require at any time to examine the design working process and ask for modifications.

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A2) Approval of First Tool Inspection Plan

First Tool Inspection Plan takes in account the Inspection Instructions, makes explicit their results and shows the inspection points, the drawing tolerances, the inspection methods, the media of inspection used, the required documentation to be attached, and all the activities needed to verify the tool to conform tool design, Technical Supply Specification and any other applicable specification.

The supplier issues the First Tool Inspection Plan and, according to what planned and agreed, sends it for approval to AA plant Quality.

The Inspection Plan is reviewed, at least, to check

- 1) All the critical dimensions/features required by tool design as per Inspection Instructions and approved by the AA Technical Dept., are included in the Inspection Plan
- 2) methods and media of inspections are defined for each characteristic
- 3) Set up in the Plan specific blocks in which measured values for each characteristic are recorded and compared with required values, including the applicable tolerance range.
- 4) any heat treating Certificate shall be integral part of the Plan (e.g.: stress relief chart for welded structures, etc.);
- 5) all material used shall comply with the mandatory regulation regarding health and safety protection.
- 6) Documentation such as facility certification, functional test reports, materials certs, ... etc shall be attached.

A3) Recurring Inspection Plan

The Recurring Inspection Plan takes in account the Recurring Inspection Instructions and makes explicit their results, according to a defined time frame, in order to verify both technical and functional tool characteristics.

In case of simple tools, if specified by the Technical Supply Specification, an Inspection Sheet can be used in lieu of the Inspection Plan. The Inspection Sheet is a brief document to be used for minor tools.

The Inspection Plan shall specify, at least, the type of inspection required according to the following classification of recurring inspections:

- A Type Inspection: Visual inspection, to ascertain wear status, functionality, configuration, and traceability without using any drawings and/or measurement instruments
- B Type Inspection: dimensional Inspection by means of common media of inspection, master tools, mylars. This check requires a previous type A inspection.
- C Type-Inspection: Inspection of correct jigs coordination to check points. It is carried out using Coordinate Measurement System (theodolite, laser tracker, etc.). This check requires previous A and B Type inspections.

The recurring Inspection Plan shall include:

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- latest revision of the tool drawing
- Level/plumb requirements
- visual inspection for damage or wear
- environment temperature during inspection
- Coordination gage
- Digital measurement features (optical tooling points, indexes, I/R check features, etc.)
- Tolerances used for recurring inspection
- Before and after survey scale bar measurements (for laser tracker controlled tooling)
- list of non conformances/out of tolerance
- report of measurements done after rework, if any.

The frequency of recurring inspection is established by the designer based on:

- function of the tool
- design of the tool
- type of use and work environment
- available tooling history files
- frequency of use

The frequency of the inspections shall be indicated in the recurring Inspection Plan.

The supplier is responsible for issuance of recurring tool Inspection Plan and submitting it to AA Plant Quality for approval.

Modalities for approval of recurring tool Inspection Plan are the same as the first Inspection Plan.

A4) Tooling Users' Manual

In addition to drawings, tooling inspection plans and technical documentation required by the Technical Supply Specification, the supplier shall provide the Tooling Users' Manual (including Tooling Maintenance), to be approved by AA Engineering.

A5) Tooling Inspection at supplier premises (pre acceptance)

Once completed the tooling manufacturing, the supplier shall inspect the tooling according to the First Inspection Plan / Inspection document approved by AA.

Following the successful result of the inspection, the supplier shall issue an Inspection Report validated by its own quality inspector.

If necessary, the cognizant AA technician reserves the right to visit the supplier to witness the inspection.

The supplier shall make available for evaluation the following documents:

- Tooling drawing, previously approved by AA Engineering;
- Inspection Plans / Inspection Card approved by AA Plant Quality

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- Inspection Report filled in according the Inspection Plan.



For assembly jigs, Inspection Report and Inspection Plan shall be filled in after the transportation and positioning at the AA plant, after the final checks.

- Tooling Users' Manual
- Certificate of Conformance.

The transportation of tooling shall be authorized by AA.

A6) Tooling acceptance at AA

Following the tooling shipping authorization and, if any, assembly phase at AA, AA Plant / Tooling Quality formally accept the tooling.

In case of complex tooling (assembly jigs, etc.) the supplier shall perform the inspections required by the first inspection instructions after positioning of tool. Any required reworks shall be followed by further inspections.

The completion of the supplier activities are formalized by the tool validation following the successful AA FAI result.

A7) Tooling Validation

Tooling is validated by AA Plant / Tooling Quality after closure of FAI without Follow-up concerning tooling, or after closure of any Follow-up concerning tooling.

Tooling validation following the positive FAI result certifies the tooling is adequate to produce conforming parts/assemblies.

The supplier shall support the FAI activities performed at AA concerning any possible tooling installation (only for what the supplier is concerned).

B) Tooling used at supplier's plant

Alenia Aermacchi additional requirements applicable to C1, C2, C3 Suppliers Classes

B1) Tools designed and manufactured by supplier

The following bullets establish the requirements to manage tools designed and manufactured by supplier to produce a work package. The supplier shall

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- Define the tooling applicable to the work package through the completion of the AA Tool Book, according to the AA format. The Tool Book shall include all the data required by the M123-09 Manual. The Tool Book is a supply output and therefore is to be updated according to the M123-09 requirements and sent to AA Industrial Engineering / Production Engineering through AA information systems. In any case, any Tooling revisions shall be reflected by the Tool Book update and transmission to AA.

Note: The AA Tooling technicians notify the supplier which tool, among those listed in the Tool Book, shall undergo the survey process, as critical or having an impact on critical items.

- Design and drafting in accordance with M123-01 and M123-03 Manuals.
- Submit design drawings for approval to AA Tooling Technicians

Note 1: Approval is required only for critical tooling, as outlined in the Tool Book. For not critical Tooling, no evidence is needed to continue the tool design/manufacturing activities.

Note 2: The AA Tooling technicians reserve the rights to review at any time the design working progress and propose any changes.

- Submit to the cognizant AA Quality dept. for approval the First / Recurring Inspection Plan related only to critical tooling, as per Tool Book.

Note: The design activities are to consider completed after the supplier has provided AA Engineering Dept. with the drawings (in digital format) and 3D models of the whole tooling (not only the critical ones) through the information systems in accordance with the current procedures / Technical Supply Specification.

- Submit critical tooling for acceptance and validation to AA Quality Dept.

Note: No approval by AA Tooling technicians is required for Tooling User Manual and Maintenance Manual. The supplier Technical Dept, shall prepare such Manuals and make them available upon request during audits.

- Verify the continuous efficiency of the tooling used to manufacture AA products, in order to ensure repeatability of the production process.
- Perform recurring inspections according to an Inspection Plan prepared by the supplier and, only in case of critical tools, approved by AA.
- Keep records of the inspections through the Tool Book
- Make available to upon request the measurement reports.
- Identify tools through specific labels as per the M123-01 document.

B2) Requirements for tooling operative handling

Recurring Inspection shall be performed within 10 working days after the due date indicated on the inspection label in order to permit a work in progress to be completed.

It is required to perform the recurring inspection before the start of a job being scheduled to exceed the due date + 10 days.

The postponement of recurring inspection is allowed as an extra-ordinary case and provided that:

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- authorizations to postpone shall be clearly attached to the tool
- only one tool inspection postponement is permitted, for a maximum of three months
- in case of recurring inspection postponed, the due date shall not be altered.

B3) Non recurrent inspections

"Non recurrent" inspections are defined those to carry out in the following cases:

- Modification of tool design
- Tool damaged (ascertained or suspected)
- Tool relocation (for fixed tools)
- re-activation of tooling

B4) Tooling in free of charge leasing at supplier plant

The supplier is responsible to perform recurring inspections on AA-property tooling located at supplier's site and used to manufacture products provided to AA.

Recurring Inspections shall be performed according to the Recurring Inspection Plan.

The supplier shall notify AA of any non conforming tooling; any tooling non conformance shall be corrected in order to get the tool efficient.

The supplier shall keep and provide inspection records upon request to AA Plant/Tooling Quality.

The supplier shall request in written to AA Plant/Tooling Quality the authorization to postpone the recurring inspection (max 3 months).

The authorizations to postpone, duly signed off, shall be attached to the tooling. It is not allowed to release more than one postponement.

B5) Tooling-related documentation

For each tool, the supplier shall keep in accordance with para 4.2.4 the following records:

- Tooling drawing and, if applicable, AA Engineering approval evidence
- Inspection Plan / Inspection Sheet and, if applicable, AA Plant Quality approval evidence
- Inspection Report filled in according to the Inspection Plan
- Tooling Users' Manual
- Certificate of Conformance of tooling.

7.5.1.4 Post-Delivery support

No Alenia Aermacchi additional requirements

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7.5.2 Validation of processes for production and service provision

7.5.2.1 First qualification of a Special process

Alenia Aermacchi additional requirements applicable to C1; C2; C3; C4 Suppliers Class performing Special Processes for Manufacturing and/or Inspection

Manufacturing and Inspection Special Processes are defined as processes where the resulting output cannot be verified by subsequent monitoring or measurement and, as a consequence, deficiencies become apparent only after the product is in use or has been delivered, as stated by the para 7.5.2 of the EN9100:2009.

According to Alenia Aermacchi rules, Special Processes are also all the technological processes for which the Program rules requires the qualification as per the document **99/NT/0000/N325/A/020159 "Special Processes – Processes qualification requirements. Skill required to personnel assigned to Special Processes"**.

A Special Process can require:

- qualification of Plants / equipment and personnel
- only Plants / equipment qualified
- only personnel qualified.

In case of first qualification of a Special Process, supplier is responsible for:

- a) identifying, through analysis of the Alenia Aermacchi technical documentation applicable to the program (eg, drawings, P/L, OPSP), which special processes / critical activities are applicable to its work package and
- b) verifying whether the applicable processes require qualification process/plant and/or personnel
- c) if a Special process needs to be approved, asking Alenia Aermacchi Procurement & Supply Chain to start the qualification process in accordance with Technical Specification applicable to the Program
- d) if the staff needs to be qualified, complying with personnel requirements as per para 6.2.2.1 of this document.



If the supplier does not have, for a specific method, a NDI Level 3 acknowledged by Alenia Aermacchi, the supplier shall activate the process of NDI Level 3 acknowledgement, as described in para 6.2.2.1.B.

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- e) upon request by **AQSC**, providing the Qualification Plan, including the following milestones:
- 1) personnel qualification (if needed)
 - 2) specimens fabrication (if required by the applicable Technical Specification) and execution of the pre-qualification conformity tests
 - 3) Technical Report preparation
 - 4) AA qualification audit.

The qualification of a Special Process is managed by **AQSC**, with the support of the Chief Technical Officer Dept., Alenia Aermacchi Laboratories and, if necessary, all other cognizant Depts.

The Technical Report shall be filled in according to the attachment 4 of this document. Specifically, the pre-qualification documents (planning papers, CoC of raw materials, test reports of specimens).

The above tests can be carried out by the supplier captive Laboratory, if available. If not available, unless otherwise authorized by **AQSC**, the supplier shall use an AA Laboratory, or a Laboratory/Organization approved/acknowledged by AA for the applicable tests.

If the supplier decides to use AA Laboratories, a formal request for quotation shall be sent to AA Commercial Dept., by specifying:

- applicable technical specification,
- number of specimens,
- kind of tests to perform
- AA Laboratory selected to perform such tests.

These tests, and their relevant reports (to be attached to the Technical Report to be submitted to AA), conducted on the specimens during the pre-qualification, are intended to provide objective evidence to AA about the compliance with applicable specification and therefore they constitute the pre-requisite prior to the AA audit. For the qualification purposes, unless otherwise specified by **AQSC**, only the test reports (on specimen processed during the job audit) issued by the AA Laboratory are taken into account in order to grant the qualification.

The AA qualification audit will be conducted as follows:

- Verification of compliance to the applicable technical requirements of the Specification
- job audit for witness of fabrication of a double set of the specimens required by the technical specification.

The qualification process develops as planned and described above, and is to consider concluded once the following goals are achieved:

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- Approval of the Technical Report by AA
- Closure of any possible corrective actions arisen as a result of the qualification audit
- Test Reports (if applicable), issued by the AA Laboratory, showing conformity of specimens to the technical specifications.

In case of Special Processes for which Alenia Aermacchi is not the Technical Design Holder nor is delegated, the qualification will be conducted in the same manner described above, in order to ensure that the supplier complies with the Specification requirements. In case of positive result, the supplier shall undergo to a formal qualification process by the Technical Holder / AA Customer, in accordance with its rules. Results are formalized through their peculiar quality documents.

In case of NDT approval, the supplier shall send NDT procedures approved by a NDT Level 3 acknowledged by AA.



The Cover of NDT procedures shall show:
1. Issue / revision level of procedure
2. Name, ID code and signature of the NDI Level 3 acknowledged by AA
3. Date of approval.

In the event the supplier means to request the AA Level 3 support, shall communicate it to AA, as reported in para 6.2.2.1B.

NDT procedures shall be resubmitted to a NDT Level 3 acknowledged by AA at each update. In any case, during Alenia Aermacchi audit it will be verified that the NDT procedures in use have been approved by a NDT Level 3 acknowledged by AA.

7.5.2.2 Manufacturing of structural composite parts: Qualification of Equipment/Processes/parts

Additional requirements applicable to providers of Alenia Aermacchi C1, C2, C3, C4 Supplier Classes that manufacture of structural composite parts

1 - General

The manufacturing of the structural composite parts is composed by a series of qualification activities.

The main activity concerns the manufacture and preliminary qualification of autoclave manufacturing process of composite (Processor Qualification).

This activity is governed by the applicable technical specifications and/or the program rules.

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Moreover, if the specifications require the need to qualify also the equipment (**ATL**, **HDF**, ply cutter, etc.), the supplier shall send a specific request to **AQSC**.

Following the processor qualification and equipment qualification (Autoclave, **HDF**, ply cutter, etc.), if required by drawings/technical specifications and/or Program rules, it is necessary to qualify the composite parts.

In this qualification (Part Qualification) first of all Alenia Aermacchi Engineering - Airframe identifies the "Families parts", in order to aggregate into groups the P/N to be qualified, defined by similarity of materials, geometry, cure cycles in autoclave, etc.. Each Family part is associated to a representative part number.

The Part Qualification consists, at most, of four steps, each conducted on the P/N representative of the Family part identified:

1. Part Tool Thermal Profile (**PTTP**)
2. Pre-Production Verification (**PPV**)
3. First Part Qualification (**FPQ**)
4. Approval work cards.

2 - Part Tool Thermal Profile

The **PTTP** is an activity aimed at:

- Demonstrating that, during the cure cycle in autoclave, heating and cooling rates, and the cure temperatures of the part are maintained within the specification requirements
- Identifying the correct positioning of leading and lagging thermocouples on the tool and/or extra-trim of the part in order to ensure that has been treated in accordance with the applicable specification.

Such activities shall be conducted in accordance with applicable specifications and/or following the instructions of the Qualification Team (**AQSC** and Chief Technical Officer).

The supplier shall prepare a **PTTP** Plan for each representative part of a Family part.

The **PTTP** plan shall be approved by the Qualification Team.

The supplier shall conduct the **PTTP** activities according to the approved Plan and agree with the Qualification Team the planning of this activity, for any possible witness.

Subsequently, the supplier shall prepare the **PTTP** report, which shall be approved by the Qualification Team.

Each time the lamination tool is modified and/or the part is subject to change that can affect the part thermal profile, a new **PTTP** shall be provided.

3 - Pre-Production Verification

The purpose of **PPV** is to verify that the manufacturing procedures, inspection procedures and techniques for inspection are in accordance with the requirements of the design and

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specifications. The **PPV** is also designed to verify that the production method is stable and repetitive and ready for series production. The **PPV** analyses the manufacturing process through both destructive and nondestructive tests (**NDT**, lab tests, etc.).

The following is a typical flow for the **PPV** activities:

- The supplier shall provide evidence of the positive result of the Processor Qualification and, if required, of the equipment qualification (see par. 7.5.2.2-1), and the positive results of the **PTTP** (see par. 7.5.2.2-2)
- The supplier shall be qualified for non-destructive testing (ultrasonic, X-Ray, etc..), and all other process specification that may impact the conformity of the **PPV** part (e.g. qualification of Flamespray , etc.).
- The supplier shall prepare a **PPV** plan with schedule attached according to the technical requirements and/or as recommended by the Qualification Team
- The Qualification Team shall approve the **PPV** plan
- The supplier shall provide evidence that all materials/tools/equipment are available and ready for the manufacture of the **PPV** part
- At discretion of the Qualification Team a witness during the manufacturing can be requested
- The supplier manufactures the **PPV** part and performs all the tests required by the **PPV** plan
- The supplier prepares the **PPV** report and submit it for approval to Qualification Team
- The Qualification Team approves the **PPV** Report.

If the **PPV** results are not successful, the supplier shall identify the appropriate corrective actions (to be submitted to the Qualification Team) before repeating the **PPV** activities. The **PPV** report shall be prepared and attached to the new **PPV** plan as evidence of corrective actions identified and implemented.

A new **PPV** plan shall be submitted to the Qualification Team any time there are changes in terms of materials, tools, facilities, production process, equipment, new P/N added or any change in production process that may affect the conformity of the parts to technical/quality requirements. According to the changes identified, the Qualification team will evaluate the need for performing a new **PPV** or not.

The need for manufacture a new **PPV** part can be due (but not limited) to:

- Change of drawing affecting Fit/Form/Function
- Changes to the manufacturing process or equipment
- Change of the processor
- Change of Tool
- Change of aeronautic materials.

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4 - First Part Qualification

The purpose of the **FPQ** is to verify on the first production part that the manufacturing / inspection procedures and inspection techniques are appropriate to produce parts compliant with the design/technical specifications.

The **FPQ's** success demonstrates that the supplier is able to manufacture and inspect the parts according to technical requirements and quality standards.

The typical flow of the **FPQ** activity is as follows:

- The supplier shall provide to the Qualification team the evidence of Processor qualifications, equipment qualification, **NDT**, approval of the **PTTP** report and, if applicable, the **PPV** reports.
- The supplier shall prepare a plan **FPQ** with schedule attached according to the technical requirements and/or as recommended by the Qualification Team
- The Qualification Team shall approve the **FPQ** plan
- The supplier shall provide evidence that all materials / tools / equipment are available and ready for the manufacture of the **FPQ** part. In addition, there shall be evidence that the work order embodies all the comments made by Qualification Team during the previous qualification phases.
- At discretion of the Qualification Team a witness during the manufacturing can be requested
- The supplier manufactures and inspects the **FPQ** part.
- The supplier prepares the **FPQ** report and submit it for approval to the Qualification Team
- The Qualification Team approves the **FPQ** Report.

In case the supplier means to manufacture parts included in the same family of **FPQ** before the **FPQ** report has been approved by the Qualification Team, the supplier shall specify it in the **FPQ** plan, by clearly specifying that those parts were produced according to applicable drawings and specifications process and that the parts were produced using the same process documented in the **FPQ** report that will be submitted to the Qualification Team.

If the **FPQ** result are not successful, the supplier shall identify the appropriate corrective actions (to be submitted to the Qualification Team) before repeating the **FPQ** activities. However the **FPQ** report shall be prepared and attached to the new **FPQ** report as evidence of corrective actions identified and implemented.

A new **FPQ** plan shall be submitted to the Qualification Team when there are changes in terms of materials, tools, facilities, production process, equipment, new P/N added or any change in production process that may affect the compliance to the technical/quality requirements.

According to the changes identified, the Qualification team will evaluate the need for performing a new **FPQ** or not.

The need for manufacture a new **FPQ** part can be due (but not limited) to:

- Change of drawing affecting Fit/Form/Function
- Changes to the manufacturing process or equipment

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- Change of the processor
- Change of Tool
- Change of aeronautic materials.

5 - Approval of Work Cycles

Once all the activities of "Composite Part Qualification" were completed and comments made by Qualification Team to work orders during the qualification period have been implemented, the Qualification Team approves the supplier work orders. These work orders shall identify all the critical operations (that may impact the conformity of the part) as Controlled Operations.

Any change in Controlled Operations requires additional approval by the Qualification Team.

Unlike the activities of **PTTP**, **PPV** and **FPQ**, that are conducted on the P/N representative of each Family part, the work order of each part number shall be approved.

7.5.2.3 Activities required to maintaining the qualification conditions

Alenia Aermacchi additional requirements applicable to C1; C2; C3; C4 Suppliers Classes performing Special Processes for Manufacturing and/or Inspection

1. Periodic Inspection

In order to assure ongoing quality level, appropriate periodic checks shall be carried out and documented by the Supplier, according to the applicable technical specifications.

2. Maintenance of plant and/or equipment

An essential element to assure the quality level of process, is that the Supplier shall establish an appropriate scheduled maintenance of the plant and/or equipment used, in accordance with its documented defined operations and expiring date that shall reflect applicable specification requirements.

Where the specification does not require repetition of tests, qualification may be renewed if there is compliance with the following requirements:

- documented continuity in performance of the special process, with relevant objective evidences;
- demonstration of ongoing adequate quality level;
- documented personnel qualification validity (at least 6 months of operative continuity per year). Operative continuity of qualified personnel, with performance level keeping, shall be formally issued by the Supplier, on an annual basis and available to AA upon request.
- Approved control procedures, regarding the Special Process for inspection (NDT), according to the last issue of applicable specification

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- Evidence of Nadcap certification for the commodity in use

If required by the process technical specification, it is also needed to show the positive results of periodical tests.

These tests may be performed by Supplier laboratory or laboratories qualified/recognized by AA; in both cases, the utilized laboratory shall be agreed with AA.

Alternatively, the supplier can subcontract these tests to the AA Laboratories, according to the same modalities previously described.

7.5.2.4 Revocation of qualification of a Special Process

Alenia Aermacchi additional requirements applicable to C1; C2; C3; C4 Suppliers Classes performing Special Processes for Manufacturing and/or Inspection

Qualification is revoked in the following cases:

- Decommissioning of the plant/process;
- Lapse in production more than one year, excepted if otherwise specified in the technical specification
- Significant changes in plant/equipment, e.g.: displacements, changes, major maintenance, change/adding of primary equipment (e.g. new furnaces, new tools for **US** Inspection), replacement/modification of the main material process (e.g. replacement of **NDT** magnetic particles);
- major changes to the applicable specifications;
- serious ongoing quality level decline of the process performance
- need for extraordinary revision of the systems.
- Any limitations of customers Specification requiring periodic re-qualification of the special process.

In order to re-qualify a special process, the supplier shall send to **AQSC**:

- 1) Qualification Plan, containing the schedule of actions aimed at requalification, as required by applicable Technical Specification
- 2) Technical Report updated
- 3) Any other evidence requested by **AQSC** (eg, records of personnel training).

Depending on the type of process it can be required to make samples and conduct an audit at the supplier.

A Special Process, whose qualification has lapsed, may be used only after obtaining a new qualification.

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7.5.2.5 Special Processes qualification for a third source used for fabrication

Alenia Aermacchi additional requirements applicable to C1; C2; C3; C4 Suppliers Classes performing Special Processes for Manufacturing and/or Inspection

Alenia Aermacchi is solely responsibility to qualify special processes which AA is the Technical Holder for.

If the Supplier means to subcontract a special process to a not AA approved processor, AA shall have the responsibility to approve such supplier.

7.5.2.6 Process Specification Deviations

Alenia Aermacchi additional requirements applicable to C1; C2; C3; C4 Suppliers Classes performing Special Processes for Manufacturing and/or Inspection

The Supplier can request for a Process Specification Deviation (**DSP**) if it is unable to fully satisfy a requirement from the applicable Process Specification (e.g. Process Parameter, Material, Tests, etc.)

In order to request a **DSP**, the Supplier shall use the form in Annex 5.

Specifically, the field "Description" shall be filled in with all the details which the supplier requests the authorization for, according to the applicable Specification.

This form, duly compiled, shall be sent to **AQSC** and copy to Procurement & Supply Chain Dept..

The **DSP** form is evaluated by AA Chief Technical Officer, that is in charge for approve it.

As for deviations to a Customer Specification, the Supplier shall ask **AQSC** for the specific form to use. AA Chief Technical Officer checks the request and, if deemed acceptable, AA will contact the Customer for the relevant approval.

7.5.2.7 Product industrialization performed by Supplier

Alenia Aermacchi additional requirements applicable to C1; C2; C3; D1; H2; Supplier Classes performing the industrialization of a product

1. General

The industrialization of an aeronautic product consists of:

1. Preparation of Work orders / Inspection plans
2. Design activities of manufacturing/assembly/inspection tooling
3. Tooling manufacturing and inspection.

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The positive results of **FAI** activities will validate the product and the whole industrialization process.

2. Requirements for work/inspection documents

Work/inspection documents shall comply with following requirements:

Work card header

On all the pages

- 1) Supplier Company name and logo
- 2) Part/assy P/N
- 3) Work Order sequential number
- 4) page number

On the first page

- 5) date and Issue of work order
- 6) Description of part / assembly
- 7) applicable Program
- 8) Run Date of the work order
- 9) Quantity
- 10) applicable technical documents (drawings, datasets, BOM, etc..) and related revision levels
- 11) Name of personnel assigned to prepare and check the Work Order

In case of FAI

- 12) Add the Disclaimer "FAI Required", if applicable

Material

For Manufacturing Work Orders:

- 13) Description
- 14) Code
- 15) Technical Specification called out by the drawing (including material condition and NDI, if applicable)
- 16) Stock Size
- 17) Traceability to batch (through AA BEM number in case of material AA-furnished material)

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For Assembly Work Orders

- 18) Bill of Materials
- 19) Traceability to the batch

Tooling

- 20) Code of tools used and their revision levels

Manufacturing/Inspection steps

- 21) Numbering and description of each work/inspection step
- 22) Internal Depts / subcontractor involved
- 23) reference, when necessary, to the measurement instruments used, recording in a proper room their serial numbers and expiration date.
- 24) Record the key characteristics for trend (applicable only to Processes subject to statistical control)
- 25) interchangeability/Replaceability requirements, if required by design data
- 26) any requirements for handling, preservation and shipment of the product
- 27) Inspection points, intermediate and final, for the product compliance, with reference to the Control Plan (if any)
- 28) Operator stamp off (with ID and signature, or stamp) and date of completion of the step.



In the event one or more steps of work order is outsourced to a sub-tier, it is required to add:

- "ARTICLE SHIPPED TO _____ COMPANY".
- "ARTICLE RECEIVED FROM _____ COMPANY"

including the relevant inspection steps prior to shipment and upon receipt.

Special Processes

- 29) Reference to the applicable Process Specifications and their revision levels
- 30) reference to Process Instruction(s)
- 31) Fields for recording the parameters and measured values, as required by applicable Technical Specification
- 32) requirement for personnel qualification, with reference to the relevant specification
- 33) In case of heat treatments, the relevant graph shall be attached to the work order, guaranteeing the traceability of the furnace lot.

Marking

- 34) Marking requirements as required by applicable technical specifications / program rules.
Note: Refer to par. 7.5.3 of this document for requirements concerning parts marking.

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Non Conformances

- 35) Work cards shall contain adequate room to record the Non Conformance issued to a specific Work Order.

7.5.2.8 Requirements for Supplier using CAD/CAM systems

Alenia Aermacchi additional requirements applicable to C1, C2, C3, D1, H2 Suppliers Classes using CAD/CAM systems

Supplier shall control HW/SW systems used in the **CAD/CAM** process

Supplier shall implement procedures to ensure, according to the applicable technical requirements:

1. identification, monitoring, check and recording of **CAD/CAM** systems
2. data exchange, check/acceptance of data provided by Alenia Aermacchi / Customer
3. validation of data extracted, for inspection, from the authority data and their independence from the dataset used for manufacturing
4. periodic check of HW, SW, data sources and application programs
5. integrity and security of **CAD/CAM** data
6. inspection, calibration and maintenance of inspection/test equipment (eg: Plotter, **NMC** for the coordinates measurement, etc.).
7. prevent the involuntary use of non-conforming datasets, graphs, models, etc..
8. Training of personnel managing **CAD/CAM** data.

Additional requirements applicable to Program/customer will be described in the applicable **QFRA**.

7.5.3 Identification and traceability

Additional requirements applicable to Alenia Aermacchi supplier Classes B1, C1, C2, C3, C4, D1, D2

The supplier shall ensure all materials, equipment, components, parts and assemblies to be identified, in order to ensure traceability during all work phases and in accordance with applicable technical and quality requirements (drawings, technical specifications, program requirements, etc.).

Unless otherwise specified in the technical/quality requirements, the identifications shall comply with the applicable documentation:

In addition to the requirements in drawings/Program Specifications, all parts or assemblies shall be identified with the following data:

- Company name of supplier that released the part

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- drawing number with revision level
- material and condition (for detail parts)
- work order and date
- stamp of certified welder (for welded parts)
- the release stamp
- serial number (for serialized parts)
- aircraft number (if applicable)
- If any, number of the product nonconformity document issued (e.g, MRR n., RFW/RFD n., Concession n., etc.).

7.5.3.1 Equipment label and Log Card

Alenia Aermacchi additional requirement applicable to A1 and D2 Suppliers Classes furnishing equipment/AGE built according to an AA Technical Specification.

When required by the Technical Specification / Program Requirements applicable to the supply of equipment / **AGE**, the supplier shall attach to them:

- Identification Label
- Life Item Label, as applicable
- Engineering Record Card / Log Card

When required by the technical specification, called out by the Contract/Purchase Order, the Supplier shall provide also the Log Book and Log Card.

The relevant format and completion instructions are defined by the Technical Specification/requirements applicable to the Program.

7.5.4 Customer property

Alenia Aermacchi additional requirement applicable to the Suppliers receiving AA-furnished materials

The material received from Alenia Aermacchi or its customers shall be:

- 1) properly received and stored in a specific area, dedicated to AA / AA Customer
- 2) identified with proper label showing the Alenia Aermacchi BEM number.
- 3) with attached a CoC and, in case of perishable material, the records needed to duly manage this kind of material (e.g.: Test Report, Material Sheet, etc.).

Furthermore, should a part be rejected, the supplier shall return the raw material back to AA.

7.5.5 Preservation of product

No Alenia Aermacchi additional requirements

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7.6 Control of monitoring and measuring services

Alenia Aermacchi additional requirements applicable to all the Suppliers Classes

7.6.1 Requirements for the use of Coordinate Measuring Systems

Additional requirements applicable to Alenia Aermacchi Classes C1, C2, C3, D1, for suppliers using CMS

Supplier shall establish and implement procedures to ensure the definition and control of accuracy, reproducibility of CMS systems.

Management of the coordinate measuring systems such as Laser Tracker System and related datasets, shall be ensured in accordance with documented procedures.

The documentation related to:

- a) How the use of measurement instruments
- b) PAS Procedure (Product Acceptance Software) with an inspection report to validate the measurement software used on CMMs
- c) Inspection plans

shall be submitted to Alenia Aermacchi for acceptance.

The supplier shall provide evidence of the training of its personnel using specific measuring instruments, including information tools used for data analysis and storage.

Any possible program requirements are defined in QFRA.

7.6.2 Measuring devices management

Additional requirements applicable to Alenia Aermacchi H1 Classes

When set forth by the Supply Specification, the supplier in charge for managing measurement devices, shall detail in the Program **QP** the applicable procedures in compliance with AA requirements.

8 MEASUREMENT, ANALYSIS AND IMPROVEMENT

Alenia Aermacchi additional requirements applicable to all the Suppliers Classes

8.1 General

No Alenia Aermacchi additional requirements

8.2 Monitoring and Measurement

No Alenia Aermacchi additional requirements

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8.2.1 Customer satisfaction

No Alenia Aermacchi additional requirements

8.2.2 Internal Audit

Alenia Aermacchi Additional requirements applicable all suppliers

Personnel assigned to perform Internal Audit shall be trained according to the UNI EN ISO 19011 guidelines.

8.2.3 Monitoring and measurement of processes

No Alenia Aermacchi additional requirements

8.2.4 Monitoring and measurement of product**8.2.4.1 Use of AA Suppliers having the Incoming Inspection Delegation**

Alenia Aermacchi additional requirement applicable to C1; C2; C3; C4 Suppliers Class using Alenia Aermacchi Suppliers having the Incoming Inspection Delegation

Case 1 – Alenia Aermacchi Authorization to a supplier to use an Alenia Aermacchi raw materials Supplier having the Incoming Inspection Delegation (IID) issued by Alenia Aermacchi.

In case AA authorizes the supplier to purchase raw materials according to the IID requirements, the following shall be met:

1. Purchase Orders have to indicate the amount of material and the contract clauses concerning the IID between AA and the raw material provider.
2. Supplier and material provider shall comply with the Delegated Quality Control Plan (DQCP), approved by Alenia Aermacchi.
3. the Alenia Aermacchi approved Customer's Coordinator list (with relevant stamps) shall be available to the supplier.
4. supplier shall be informed about material technical specifications.
5. The material provider shall be monitored through the "Quality Rating". At least the minimum value of the "Quality Rating" (already defined with Alenia Aermacchi) shall be achieved during the supply by the provider; the Quality rating results data shall be submitted to the Alenia Aermacchi attention.
6. The supplier shall issue an internal procedure for the IID management and submit it to Alenia Aermacchi for approval. The minimum content of the procedure will be as follows:

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- Duties and responsibilities of the raw material Provider Customer Coordinator,
- Rules for supplier personnel training on IID use,
- Quality Rating requirements,
- DQCP(s),
- Additional IID requirements (contract between supplier and raw material provider),
- Double check requests according to the DQCP.



The raw materials provider shall already be authorized by Alenia Aermacchi to operate according to the requirements of DCA.

If the supplier is in compliance with the previous requirements, it can be authorized by Alenia Aermacchi to activate the IID with the raw materials Providers.

Planned and/or unplanned audits could be performed by Alenia Aermacchi in order to verify the activities related to the above authorization.

Case 2 – Alenia Aermacchi authorization to suppliers to purchase standards from an Alenia Aermacchi Service Provider

The supplier shall meet the requirements set forth by the AA document **QFRA/06P.061**.

8.2.4.2 Use of AA Suppliers in RPT status (Reduced Purchase Test)

Alenia Aermacchi additional requirement applicable to C1; C2; C3; C4 Suppliers Class using Alenia Aermacchi Suppliers in RPT status

In case either the Customer or AA material specifications allow to reduce incoming Lab Tests by the purchaser, the **RPT** can be activated. All the remaining incoming inspection activities (Test Report verification, **CoC**, visual Inspection, etc.) shall be performed for each incoming.

In case an AA supplier uses **RPT**, this activity shall be described in the **QP**, to be submitted to AA approval. In case a **RPT** is activated, the Lab Tests shall be done every six months.

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8.2.4.3 Material provided by Alenia Aermacchi pending incoming inspection acceptance

Alenia Aermacchi additional requirement applicable to Class C1; C2; C3 Supplier which receive from Alenia Aermacchi material pending incoming inspection acceptance.

If inspections/incoming tests on AA-provided materials has are not completed (pending incoming inspection acceptance), AA informs the supplier by a letter.

After that, when laboratory test results concerning previous tests will be available, AA informs the supplier using a dedicated form.

If test are positive, the supplier shall:

1. File the shipping document;
2. Certify and release the product (manufactured with the above material) with the shipping documents making reference to Laboratory Test results and the Alenia Aermacchi communication.

In case of non conforming materials, the supplier shall:

3. Identify all the material and promptly return it back to AA Dept involved
4. Immediately stop the manufacturing activities related to the non conforming material;
5. Inform AA about the items already manufactured, to achieve a possible commercial agreement.

8.2.4.3 Certificate of the supply

Alenia Aermacchi additional requirement applicable to Class A1, B1, C1, C2, C3, C4, D1, D2, F1, H2 Suppliers

1. Certificate of Conformity

1a. General

Upon completion of the supply realization process, the supplier shall certify, through a formal CoC, the compliance of product/service to what required by the Contract/Purchase Order, including the applicable technical/quality requirements.

The CoC to the Purchase Order requirements is an assumption of liability by the supplier towards AA.

Therefore, the personnel issuing such certificates shall be formally identified and declared by the supplier in the QP related to AA supply.

The CoC shall be duly compiled in terms of correctness, completeness and clarity of the data reported therein.

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A CoC incorrectly filled in can cause the rejection of the related supply.

The supplier shall establish, kept updated and make available to Alenia Aermacchi a log in which CoC and supply are clearly linked.

The supplier can use its own CoC form, provided the following requirements are met.

1b. Contents of Certificate of Compliance

The CoC shall contain the following data:

- supplier logo
- Name and address of recipient of the supply (clearly indicate the Alenia Aermacchi Plant)
- Number of certificate
- number of Contract / Purchase Order issued by Alenia Aermacchi
- Number of Purchase Order amendment issued by Alenia Aermacchi Alenia Aermacchi (if applicable)
- Line items of the supply, listing:
 - P / N and revision level, and, if applicable, mod. status
 - Description
 - Quantities deliberated
 - Reference to the Alenia Aermacchi technical/quality documents and their revision level (if applicable)
 - Last step performed on the work order (if applicable)
- Lot number and, where applicable, serial number and effectiveness
- Number of the supplier delivery document
- List of any Non Conformities Reports (**MRR**, concessions/waivers) approved by AA. Moreover, these documents shall be attached to the **CoC**.
- Reference to pending **DDP**, if any.
- Reference to the Assembly Transfer Report (if applicable)
- List of any missing parts and/or activities not performed (only in case of parts and/or simple assy not requiring an Assembly Transfer Report)
- Date of **CoC** issuance
- Signature of the person authorized by the supplier, as per the applicable **QP**
- Full name and role of the person authorized to sign the **CoC**
- Declaration of conformity of the delivery supply to the AA technical/quality documents at the latest applicable revision level (see in attachment 6 an example of a **CoC** applicable to Civil Programs).

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In case of Special Processes, the supplier shall add the reference to the applicable Technical Specification and its revision level.

1c. CoC issuance

C.of C. shall be issued in two copies plus the original as follows:

- 1) The original enclosed to shipping document
- 2) A copy, when applicable, in the product packing
- 3) A copy filed at the Supplier.

2. Certificate of approval EASA FORM ONE issue

Alenia Aermacchi additional requirement applicable to suppliers issuing EASA FORM ONE

The issuance of this certificate is permitted only if Supplier has an approval according to EASA Part 21 Subpart G (Production Organization Approval - P.O.A.), and the List of Authorized Operation (L.O.A.) includes the product supplied to Alenia Aermacchi.

This is possible when a specific commercial agreement between Alenia Aermacchi and Supplier exists, and a specific procedure has been agreed with Airworthiness Authority.

When the above requirements are satisfied, a EASA Form One shall be issued by Supplier Certifying Staff, in accordance with Production Organization Exposition (P.O.E.), and the Supplier Quality Plan, approved by Alenia Aermacchi.

3. Assembly Transfer Report

Alenia Aermacchi additional requirement applicable to C1; C2; C3 Suppliers Classes in case of product deviations.

The Assembly Transfer Report (see also par. 7.5.1 B), and all the documents therein called out (Not conformance Reports, Modifications, Authorizations, etc..), Is an integral part of the declaration of conformity and, as such, shall be attached to the Certificate of Conformity or, if required, EASA Form One, which should refer to the ID number of the relevant Assembly Transfer Report.

In case of missing parts / open MRRs, shipping shall be authorized by AA Quality Dept. of the Plant receiving the parts.

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8.2.4.4 Evidence of Compliance - Declaration of Conformity

Alenia Aermacchi additional requirements applicable to E1 Suppliers Class

Declaration of Conformity to the original Source

The Stockist / Broker shall ensure the traceability to the original producer certification documents. Therefore this supplier shall

- 1) issue its own Declaration of Conformity as required by Alenia Aermacchi additional requirement applicable to all suppliers
- 2) attach the Certificate of Compliance issued by the Original Manufacturer and the documentation required by the technical specification of the material / product / equipment.

8.3 Control of non-conforming product

Alenia Aermacchi additional requirement applicable to all Suppliers

8.3.1 Suppliers' Performance Recovery process

AA has defined extraordinary measures to activate for those suppliers whose performance has serious negative effects on both the production flow and the satisfaction of AA and its Customers.

The AA Escalation System has two levels depending on the issues criticality arisen.

8.3.1.1 Level 1 Escalation

Level 1 Escalation occurs when incoming inspections and/or warnings from shop floor put in evidence significant and recurring technical/quality issues on delivered product.

In this case, the supplier shall share and submit to AA a **QIP** to be filled in according to the para 8.3.1.3 below.

Furthermore, a Source Inspection could be necessary.

The Points of Contact for this escalation level is the Head of AA Suppliers Quality Dept. and the Supplier Quality manager.

8.3.1.2 Escalation Level 2 - Probation

It is the highest escalation level, and occurs when:

- the supplier causes significant recurring issues on the AA industrial process, due to missing and/or delayed deliveries

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- the supplier provides non conforming products (Quality Escapement) with serious and recurring technical/quality problems that need expansive and significant engineering analysis to identify technical provisions for repair/acceptance or scrap of product
- the supplier performance generates significant alerts/complaints by AA Customers.

The beginning of the Probation status is formally notified to supplier by the cognizant AA Depts. The supplier shall share and submit to AA for approval a **QIP** to be filled in according to the para 8.3.1.3 below.

A supplier in Probation status is not authorized to release its own products; therefore during the whole Probation period, the supplier shall produce / inspect under the direct control of AA (Source inspection).

**NOTE**

The product release, made by AA personnel, does not relieve the supplier from performing its final inspection and issuance of its Certificate of Compliance, which still remains the objective means by which of the supplier accountability in meeting technical/quality contract requirements.

The Points of Contact for this escalation level are the Head of **AQSC** and the supplier Quality Manager.

**NOTE**

For the entire duration of probation, the supplier is not permitted to participate in tenders for any supplies, both for the program subject to Probation and any other program.

8.3.1.3 Quality Improvement Plan

In case of Level 1 or 2 Escalation, the supplier shall prepare a **QIP** to submit to AA for approval.

The **QIP** shall define:

- how to close all the issues that caused the Escalation,
- the Defect Reduction Plan,
- the Escalation exit conditions in terms of product defects reduction rates and closure/verification of effectiveness of Corrective Actions required.

In addition to the above, in case of Level 2 Escalation, the following aspects shall be addressed:

- Quality Management System
- Manufacturing processes and control
- Product
- management of sub-tiers, if any.

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Each of these aspects shall address (and describe the relevant improvement actions to implement):

- Staff (resources, roles and training), with the clear indication of the company contact person
- Investments (if any)
- supplier documentation to be issued / updated
- Metrics, indicators and monitoring; product, specifically, indicators for waivers, non-conformity reports, AA Incoming Nonconformance Reports shall be issued.

The **QIP** shall include a schedule for each corrective action, and shall be defined a planned implementation date, consistent with the expectations/needs of AA.

In any case, the **QIP** shall be implemented and completed within maximum three months.



Any update to the **QIP** shall be agreed and approved by AA.

8.3.2 Notification of suspected or detected non-conformities on products delivered to Alenia Aermacchi - "Alert"

8.3.2.1 General

When a supplier either suspects or verified that a product, already delivered to AA is affected by non conformities, supplier shall promptly provide a communication to AA according to the modalities described below.

The Supplier shall issue an internal procedure in order to define responsibilities and internal operative modalities.

8.3.2.2 First notification of defect

As soon as the supplier is aware or suspects that non conforming products, already delivered to AA, escaped, it shall send a preliminary informative report, within 12 hours from the discovering or the arising of a suspect. This in order to allow Alenia Aermacchi to identify all the suspected parts and to start the proper actions.

This report shall be sent utilizing the first section of the "Alert" form (Annex 7), signed by the Supplier Quality Manager and addressed to the following Alenia Aermacchi Departments:

1. Procurement & Supply Chain,
2. Products & Programs Quality

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3. Quality Control of the Plant receiving the parts.

This preliminary informative report shall contain the following data:

- Identification Number of the report and date
- P/N and Name
- Quantity
- S/N (if applicable)
- Batch number (if applicable)
- Program (if applicable)
- Alenia Aermacchi purchase order
- Delivery date to Alenia Aermacchi
- Number of transport document
- Alenia Aermacchi Plant where products have been delivered
- Number of the CoC issued
- Detailed description of the defect which could affect the supplied products (sketches and attachments are recommended)
- Quality Manager signature and date
- Alert identification number.

The Supplier shall assign a sequential number to the "Alert" form.

All the "Alerts" issued shall be recorded on a Register which reports, at least, the following items:

- "Alert" number and date
- P/N of the involved parts
- Denomination
- Quantity
- Description of the defect detected.

8.3.2.3 Completion of the Alert form

After the first notification, the Supplier shall carry out the investigations deemed necessary on parts not yet shipped, shall segregate them and start all the actions to manage the non conformities.

Once completed the investigation and the above actions on all defected parts at its site, the supplier shall provide, within 3 working days, the information about the defects detected, and fill in the 2nd part of the "Alert" form, signed by the Quality Manager.

The supplier will provide the following data which can be reported on attached paper (identified) and called out in the relative box of the "Alert" form:

- Actions made on non conforming parts

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- Non conformities reports issued
- Description of the non conformity root cause
- Description of the corrective actions implemented to correct the root cause of the non conformity
- Possible instructions and/or recommendations
- effectiveness of the corrective actions (attach any implementation plan, including the effectiveness verification)
- Signature of the Quality Manager and date.

Anyway the Supplier shall provide any information in order to detail the defect found, with relative documentation enclosed.

8.3.3 Non conforming material management for outside production activity

Alenia Aermacchi additional requirements applicable to A1; B1; C1; C2; C3; C4; D2, E1 Suppliers Classes

8.3.3.1 General requirements

Once a non conformity is detected, the supplier shall:

- Submit to AA the Product Non Conformance Management Report (Product **RNC**) according to the applicable Program contractual requirements
- Clearly identify the non conforming material, with its defects put in evidence and, if possible, segregate it in order to avoid the accidental/unauthorized use.
- Write down the reference to the Non Conformance Report in the Work Order relevant to the affected item.

The applicable language for filling the Product **RNC** shall be in accordance with the Contractual requirements applicable to the Program.

The Product **RNC** shall be clearly illustrated by a detailed description of the defect, with indicative dimensional measurements and unambiguously understandable through sketches or drawing excerpts.

Furthermore the Statement of Condition" (Is – Should be) shall be clearly defined.

Dimensions on the Product **RNC** shall be expressed in the same measurement units as in the drawing.

A Product **RNC** shall report the P/N linked to the PO (e.g. assy) and, if data entry is possible, the P/N affected by the NC (e.g. detail), by specifying the relevant quantity of items having the same defect. The univocal link between non conforming part and a single PO shall be ensured.

Further completion requirements, if available, are defined by the Contract / Program requirements.

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Therefore one product RNC cannot address:

- parts/assemblies produced against different AA Purchase Orders (including the item line)
- parts/assemblies having several P/Ns
- parts/assemblies having the same P/N, but different types of defects (e.g. defect codes).

unless otherwise required by the program quality requirements, the supplier has no authority to define technical provisions to solve a non conformance. Such provisions shall come from AA cognizant technical Dept. .

When the AA cognizant technical Dept., according to the Program rules, decides to turn a Non Conformity into Concession, the AA cognizant Quality Dept. re-classifies the Product **RNC** in the specific Program document.

A Concession, duly signed and authorized, is attached to the Product **RNC** and sent out to the supplier for the required actions.

Once received the AA dispositioned Product **RNC**, the supplier shall perform what required in it, by generating a specific work order, and sign off the Product **RNC**.

According to the applicable specifications, the supplier shall mark the parts by putting the AA Product **RNC** reference or, when applicable, the Concession n. reference. Also, the above references shall be written down on the work cards and accompanying documents (e.g. **CoC**).

The Product **RNC** shall be attached to the parts, as an evidence of the Non conformance closure. Being a deviation from drawing requirements, the Product **RNC** shall be clearly quoted in the **CoC** of parts and, when applicable, in the Assembly Transfer Report.

In case:

- the supplier is not able to perform the repair at its own facilities, or
- AA technical disposition requires activities on the non conforming part/assembly to be performed during subsequent assembling activities, at AA plant or at another Supplier plant or
- it is necessary to send out a part affected by a product **NRC** not yet closed

the supplier shall declare in the **CoC** such product **RNC** as open and attached the relevant product **RNC**.



Shipping of parts with open **RNC** shall always be authorized by the Quality Dept. of the AA plant receiving the parts.

Specifically, in case of details / simple assemblies, the supplier shall:

- fill in only the Section P "Not performed jobs List " in the Assembly Transfer Report (Attachment 2 of this document)

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- submit it for approval to Quality Dept. of AA Plant receiving the part, copy to Suppliers Quality AA and Procurement & Supply Chain.

The Supplier shall also agree with AA if either AA or the Supplier will be in charge for the repair at AA in terms of personnel, job card and Non Conformity closure performed by Alenia Aermacchi or the supplier.

The supplier shall prepare, for each by program, a summary visibility matrix regarding the status of the product **RNCs** issued.

Once the treatment for Non conformance is put in place, the supplier shall archive and retain the product **RNCs** in accordance with the para 4.2.4 of this document.

The following paragraphs describe the peculiarities related to Management of Product **RNC**, depending on the supplier is authorized or not to use the **MRR/WD** management SW.

8.3.3.2 Supplier authorized to use the MRR/WD management SW

The supplier transmits to AA the product **RNC** by getting access (through token) to the web portal <https://eportal.aleniaaermacchi.it/>

Through this website, the authorized supplier shall write **PO** number and **PO** position, so a new product **RNC** form is created directly through the system.

In Tasks 10 and 20 the authorized supplier can describe the non conformance and its cause with the relevant disposition, and thus the product **RNC** is generated in the AA system.

The Attachment 8 shows the format of product **RNC**, as displayed in the system. The relevant completion instructions refer only to boxes to be filled by supplier.

The product **RNC** is numbered through a **SAP** document number created by the system (box 1). The Box 31 shall contain the supplier code (this box is automatically filled in by the system) and the temporary, created by the supplier. For traceability purposes, the supplier shall ensure through a dedicated register the link between the temporary number and the product **RNC** official number assigned by AA.

Afterwards, the technical disposition for the non conformity is put in task 40 (AA Liaison Engineering responsibility) and task 50 (cognizant AA Quality Dept.).

After task 50 the product **RNC** is sent to the supplier, through system, directly to task 80 for the closing of the non conformance.

The supplier shall certify through electronic signature the following boxes:

box 41: QC inspector, certifying the NC is open

box 44: Manufacturing, certifying cause and treatment to remove causes

box 52: QC inspector, certifying that repairs were inspected.

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in case repairs/reworks are performed by AA, the supplier shall close the product **RNC** covering a repair order to AA and/or any other company performing the repair.

Closure of product **RNC**, by the supplier, occurs in task 80 (box 52), except for the cases of "Resubmit" and "Concession/waiver and any time the cognizant Quality Dept. in task 50 starts the closure flow in task 90.

8.3.3.3 Supplier not authorized to use the MRR/WD management SW

The product **RNC** shall be sent out to AA, cognizant Dept. as required by the applicable Program quality rules.

The attachment 8 is the product **RNC** form and the relevant completion instructions for supplier. Program Quality documents can require different forms or additional ones.

The product **RNC** shall be numbered by the supplier through a temporary sequential number. Such number shall be revised only after the cognizant Technical Dept. releases the technical disposition.

The AA Dept. receiving the product **RNC** checks the data in the document and asks for further filling by the supplier.

The AA technical Dept. gives the technical disposition and AA Suppliers' Quality AA transmits to the supplier the product **RNC**, formally numbered. For traceability purposes, the supplier shall ensure through a dedicated register the link between the temporary number and the product **RNC** official number assigned by AA.

After the product **RNC** is closed, the supplier shall send to the AA Plant the parts along with hardcopy of the product **RNC**, duly signed off.

The supplier shall certify through electronic signature the following boxes:

box 41: QC inspector, certifying the NC is open

box 44: Manufacturing, certifying cause and treatment to remove causes

box 52: QC inspector, certifying that repairs were inspected.

8.3.4 Non Conformance Management of AGE/equipment

Alenia Aermacchi additional requirement applicable to A1, D2, F1 suppliers Classes

In parallel with the process of "Incoming Inspections", in cases of defects found by AA or its Partners during receiving, assembly, testing, ground/flight test of equipment delivered by the supplier, AA activates the process of "Defect and Investigation Reporting".

Upon receipt of Defect Report issued by AA:

1. the supplier shall provide an answer to each Defect Report issued by AA. The supplier shall activate a FRACAS process to analyse the root causes.

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2. if required by AA, the supplier shall conduct an investigation and notify their results to AA through the forms required by program rules. Upon AA request, the supplier shall call a Failure Review Board with AA personnel or its Customers. The supplier shall prepare a minute meeting for this Board, to submit to AA for approval.
3. AA or its Customers can request deeper investigations (including specific tests, etc.) coming from several Defect Report or similar documents issued by Customers.

8.4 Data analysis

Requirement applicable to all suppliers' classes

No Alenia Aermacchi additional requirement

8.5 Improvement

Requirement applicable to all suppliers' classes

No Alenia Aermacchi additional requirement

8.5.1 Continuous improvement

No Alenia Aermacchi additional requirement

8.5.2 Corrective actions

Requirement applicable to all suppliers' classes

After repetitive/significant non conformances, or after an alert by AA Customers or Incoming Non Conformance Report by the AA Plant receiving products made by a supplier, AA Suppliers Quality Dept. issues / transmits a "Request for Corrective Action" (RAC) (Attachment 9).

Non Conformances are critical if

- The defect on a part/material is found at least three times
- The part is critical for the shop floor
- The rework of the part is very expansive.

furthermore AA Suppliers Quality Dept . reserves the right to issue a **RAC** directly to the supplier depending on its documented performances.

The supplier shall fill in the **RAC**, by specifying:

- Treatment (mitigation of the issue on the parts in progress or stored)
- Root Cause analysis of the issue
- Root Cause Corrective action

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- Follow up of the issue through a "Line Check" to be conducted for 5 batches after the issue, using the form in attachment 10, duly compiled and signed off, to be sent to AA Suppliers' Quality Dept., along with the related Certificates of Conformity, for 5 consecutive batches.

The response to the **RAC** shall be provided to AA Suppliers' Quality Dept. within 10 working days from its issuance and the required actions shall be implemented within 3 months.

8.5.3 Preventive actions

No Alenia Aermacchi additional requirement

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9 List of Attachments

	Form	Instructions	
		Pages	Pages
Attachment 1:	Supplier Quality Plan	14	-
Attachment 2:	Assembly Transfer Report	23	4
Attachment 3:	First Article Inspection Form 1-2-3	3	3
Attachment 4:	Technical Report	12	-
Attachment 5:	“Process Specification Deviation” form	1	-
Attachment 6:	Certificate of Conformity (e.g. for commercial programs)	1	-
Attachment 7:	“Alert” form	1	-
Attachment 8:	Product RNC (Material Review Report - Request for Waiver/Deviation)	1	1
Attachment 9:	Request for Corrective Action (RAC)	1	-
Attachment 10:	Corrective action implementation form	1	-

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10 Appendices

The following Appendices (1 to 12) describe, in detail, the qualification process applicable to Alenia Aermacchi suppliers, depending on their Qualification Class.

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10.1 APPENDIX 1 - CLASS A1**Manufacturers of equipment****10.1.1 General**

This category includes suppliers providing equipment:

- designed and manufactured according to specification of AA / Customer / Partner
- Commercial off the shelf (COTS).

Examples of products are, but not limited to:

- Landing gear
- Fuel System
- Hydraulic system
- Conditioning system
- Oxygen System
- Flight control system
- Propulsion system
- Electrical System
- System navigation / communication
- Weapon system
- Pneumatic system
- Interiors
- Flight Controls
- Mission systems
- Cabin glass.

10.1.2 Preliminary assessment

Elements of the preliminary assessment are shown in Table. 2 of this document.

10.1.3 Evaluation and qualification of supplier**10.1.3.1 Suppliers of equipment designed and constructed according to a technical specification**

Alenia Aermacchi A1 Class Supplier of equipment designed and manufactured according to a technical specification shall hold a current **EN/AS9100** Certificate issued by an accredited Certification Body.

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Moreover, the supplier is required to prepare a QP that describes the design, development and production activities in accordance with quality requirements. The supplier may be required to implement any necessary comments to the document before the approval of the QP.

Depending on the criticality of equipment, it may be conducted a qualification audit at the supplier plant. In this case, the supplier will be notified in advance.

The following conditions are mandatory for the supplier qualification:

- 1) valid **EN/AS 9100** Certificate issued by a Certification Body accredited according to the ICOP scheme
- 2) Certificate issued by the Aviation Authority (when required by the program rules)
- 3) Approval of the QP
- 4) Closure of Corrective Actions arisen during audit (when applicable)
- 5) FACI and DDP approval.

10.1.3.2 Suppliers of COTS

The A1 Class supplier, which provides catalog equipment is intended qualified if the supplier holds

- a valid **EN/AS9100** Certificate issued by an accredited Certification Body
- or
- a Certificate released by the competent Aviation Authority, as applicable to the supply.

10.1.4 Qualification of equipment designed and manufactured according to a technical specification

In accordance with the requirements contained in the Equipment Technical Specification, the supplier shall prepare and submit for approval to Alenia Aermacchi to documentation required (**FACI, QPP, QTP, QTR, ATP, ATR, Preliminary DDP, Final DDP**) in order to get the product qualification.

The supplier may be required to implement the necessary corrections until the final approval.

10.1.5 Suppliers' re-evaluation

According to para 3.2.2.7 of this document, the elements to re-evaluate a supplier are as follows:

- verification the supplier keeps holding the **AS/EN9100** Certification, released by an accredited Certification Body or, in case of Commercial Off-the-shelf, the Certificate released by the cognizant Aviation Authority
- update of Quality Plan, that shall reflect the current supply and business with AA
- Performance Indicators trend
- Reporting by Customers/End Users.

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Should the verifications outline significant deviations from the AA requirements, AA can decide to conduct a quality audit at the supplier premises, as an additional evaluation element.

Anyway, regardless from the results of supplier's re-evaluation, **AQSC** reserves the right to conduct a surveillance quality audit.

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10.2 APPENDIX 2 - CLASS B1**Manufacturers of raw materials and standards****10.2.1 General**

This qualification class includes suppliers qualified for manufacturing and sale of:

- a) raw materials, semi-finished products, chemical products, such as:
 - Metallic materials
 - Chemical products
 - Metal rolled / extruded / drawn
 - Forged and molded
 - Castings
 - Fibers for composite materials
 - Tires
 - Sealants
 - Paints
 - Self-adhesive products
 - grease and oils.
- b) standard parts
 - for which the supplier holds the Design Authority
 - Regulated by technical specifications of
 1. Program
 2. Alenia Aermacchi
 3. national
 4. International.
- c) non-standard, not covered by a Technical Specification but related to the types listed below:
 - Fasteners (bolts, screws, nuts, special parts, nut-plates, barrel nuts, washers, rivets, ...)
 - Bearings, joints, bushings
 - Parts for hydraulic systems (pipes, terminals, flanges, gaskets, etc..)
 - Parts for electrical system (cables, wires, connectors, adapters, switches, relays, etc..)
 - Standard parts for other systems
 - Cables and wires.

10.2.2 Preliminary assessment

Elements of the preliminary assessment are shown in Table. 2 of this document.

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10.2.3 Evaluation and qualification of the supplier

Except for suppliers included in a **QPL**, Alenia Aermacchi B1 Class Suppliers shall hold a current EN/AS9100 Certificate issued by an accredited Certification Body.

Except for suppliers included in **QPL** and depending on the complexity of the supply, the supplier may be required to prepare a Quality Plan, to be evaluated by **AQSC** with the support of the impacted functions, describing the production activities as required by the applicable quality requirements.

Depending on the criticality of equipment, it may be conducted a qualification audit at the supplier plant. In this case, the supplier will be notified in advance.

The following conditions are mandatory for the supplier qualification:

- 1) valid **EN/AS 9100** Certificate
- 2) Approval of the QP (when required)
- 3) QPL evidence (when applicable)
- 4) Closure of Corrective Actions arisen during audit (when applicable)
- 5) Closure of the qualification product (only in case of materials / standards according to Alenia Aermacchi specification).

10.2.4 Qualification of Product

For products manufactured according to International Specification / Customer, as well as suppliers included in a **QPL**, Alenia Aermacchi does not repeat any product qualification activity.

Products manufactured according to an Alenia Aermacchi specification shall pass the qualification tests required by the applicable Specification.

10.2.5 Suppliers' re-evaluation

According to para 3.2.2.7 of this document, the elements to re-evaluate a supplier are as follows:

- verification the supplier keeps holding the **AS/EN9100** Certification, released by an accredited Certification Body
- verification the supplier keeps holding a Third Party Certification (e.g. POA for suppliers working in EASA Programs)
- except for suppliers included in a **QPL**, update of Quality Plan, if required, that shall reflect the current supply and business with AA
- when applicable, verification the supplier keeps being listed in **QPL** (Qualified Product List) for the product / technical Specification related to the supply
- Verification on the management of DCA/RPT, if applicable
- Reporting by Customers/End Users.

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Should the verifications outline significant deviations from the AA requirements, AA can decide to conduct a quality audit at the supplier premises, as an additional evaluation element.

Anyway, regardless from the results of supplier's re-evaluation, AQSC reserves the right to conduct a surveillance quality audit.

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10.3 APPENDIX 3 - CLASS C1, C2, C3, C4**Subcontractors****10.3.1 General**

C1, C2, C3, C4 Qualification Classes includes the suppliers qualified for

- design activities (C1)
- manufacturing of parts and assemblies (C1, C2, C3 classes)
- Special processes (C1, C2, C3, C4 classes).

The following are examples of activities performed by this qualification classes suppliers:

- 1) design of parts
- 2) integrated supply of materials / processes / services
- 3) assembly parts (rivets, special fasteners installation, assembly mechanical parts, sealing, etc.)
- 4) machining operations, (also CNC)
- 5) metal sheet (forming, milling, bonding, etc..)
- 6) processing of composite materials
- 7) performing special processes of manufacture or inspection
- 8) tests and final inspections by issuing a release certificate.

NOTE: The C1 Class Supplier shall be able to demonstrate at any moment its manufacturing activity is based upon data approved by AA Engineering. Therefore all the design data shall be approved by AA Engineering prior to their use for production.

10.3.2 Preliminary assessment

Elements of the preliminary assessment are shown in Table 2 of this document.

10.3.3 Evaluation and qualification of the supplier

Alenia Aermacchi C1, C2, C3, C4 Class Suppliers shall hold a current **EN/AS9100** Certificate issued by an accredited Certification Body.

Moreover, in case of performing Special Processes of manufacture/Inspection the Nadcap certification for the required process commodity (eg, chemical processes, heat treatments, **NDI**, welding, composites, etc..) is mandatory. In case the supplier is not Nadcap accredited, the supplier shall provide the evidence that the accreditation audit was scheduled within six months from the AA approval.

In addition to the above evidences, the C1, C2, C3 Class suppliers:

CLASS C1, C2, C3, C4 - Subcontractors

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- shall prepare a QP for the work package assigned in accordance with quality requirements. The supplier is required to implement any comments coming from the Alenia Aermacchi evaluation, before the approval of the document.
Note: The QP shall indicate the composition of its Supply Chain (sub-tiers and scope of work).
- are assessed through an audit in order to verify compliance to the Alenia Aermacchi requirements (System, Program and, if applicable, of Process requirements).

The qualification process for Special Processes is described in detail in Sec. 7.5.2.1 of this document.

The following conditions are mandatory for the supplier qualification:

- 1) valid **EN/AS 9100** Certificate
- 2) where applicable, **Nadcap** certification for the commodity to be qualified, or evidence of the commitment undertaken with the **PRI** to achieve the **Nadcap** Accreditation.
- 3) Certification by the Aviation Authority, when required by program rules.
- 4) Approval of the QP
- 5) where applicable, approval of the Technical Report and issuance of test report by the Alenia Aermacchi Laboratory, which certifies the compliance of the specimens to the Technical Specification requirements
- 6) Closure of Corrective Actions arisen during audit
- 7) Implementation of the First Article Inspection (except for the Class C4).

10.3.4 Suppliers' re-evaluation

According to para 3.2.2.7 of this document, the elements to re-evaluate a supplier are as follows:

- verification the supplier keeps holding the **AS/EN9100** Certification, released by an accredited Certification Body
- update of Quality Plan, that shall reflect the current supply and business with AA (applicable only to C1, C2, C3)
- when applicable, verification the supplier keeps holding a Third Party Certification (e.g. POA for suppliers working in EASA Programs)
- Performance Indicators trend
- verification the supplier keeps holding the **Nadcap** Certifications as applicable to the AA work package
- verification the supplier keeps holding the approval for Customers specification (including any audit reports and surveys performed by other Customers/Partners for similar supplies).
- Reporting by Customers/End Users.

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Should the verifications outline significant deviations from the AA requirements, AA can decide to conduct a quality audit at the supplier premises, as an additional evaluation element.

In case of Special Processes related to AA technical Specification, if needed, the AA team can request to repeat all the first qualification tests and the subsequent revision of the Technical Report.

Anyway, regardless from the results of supplier's re-evaluation, **AQSC** reserves the right to conduct a surveillance quality audit.

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10.4 APPENDIX 4 - CLASS D1**Design and manufacture of tools / assembly jigs****10.4.1 General**

Suppliers qualified for design and manufacture of tools / assembly jigs:

- 1) sheet metal bending equipment
- 2) molding equipment
- 3) mechanical processing equipment
- 4) drilling equipment
- 5) equipment for bonding processes
- 6) assembly jigs.

10.4.2 Preliminary assessment

Elements of the preliminary assessment are shown in Table. 2 of this document.

10.4.3 Evaluation and qualification of the supplier

Alenia Aermacchi D1 Class Suppliers shall hold a current **ISO 9001** Certificate issued by an accredited Certification Body.

The supplier will be required to

- prepare a QP related to the Contract / Purchase Order, to be submitted to AQSC for approval.
During the evaluation phase of the QP, the supplier may be required to implement some comments before the approval of the document.
- Carry out an audit at the supplier premises.

The following conditions are mandatory for the supplier qualification:

- 1) valid **ISO 9001** Certificate
- 2) Approval of the QP
- 3) Closure of any Corrective Actions arisen during audit.

10.4.4 Suppliers' re-evaluation

According to para 3.2.2.7 of this document, the elements to re-evaluate a supplier are as follows:

- verification the supplier keeps holding the **ISO 9001** Certification, released by an accredited Certification Body
- update of Quality Plan, when applicable, that shall reflect the current supply and business with AA

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- Reporting by Customers/End Users.

Should the verifications outline significant deviations from the AA requirements, AA can decide to conduct a quality audit at the supplier premises, as an additional evaluation element.

Anyway, regardless from the results of supplier's re-evaluation, **AQSC** reserves the right to conduct a surveillance quality audit.

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10.5 APPENDIX 5 - CLASS D2

Design and manufacturing of Aircraft Ground Equipment

10.5.1 General

Suppliers qualified for design and manufacturing of Aircraft Ground Equipment (AGE).

The definition of "AGE" includes all the equipment required for ground support of aircraft during the service and covering all levels of maintenance done to make it in service. This includes also tools used to test, inspect, repair, calibrate, measure, assemble, disassemble, handle, transport, maintain, overhaul of equipment and/or parts of an aircraft.

10.5.2 Preliminary assessment

Elements of the preliminary assessment are shown in Table. 2 of this document.

10.5.3 Evaluation and qualification of the supplier

Alenia Aermacchi D2 Class Suppliers shall hold a current **ISO 9001** Certificate issued by an accredited Certification Body.

As required by program rules, the supplier shall develop a Quality Plan in accordance with the program quality requirements.

This Quality Plan is reviewed by AQSC, with the support of the involved Depts.. During the evaluation phase of the QP, the supplier may be required to implement some comments before the approval of the document.

Depending on the criticality of equipment, it may be conducted a qualification audit at the supplier plant. In this case, the supplier will be notified in advance.

The following conditions are mandatory for the supplier qualification:

- 1) valid **ISO 9001** Certificate
- 2) Approval of the QP (if required)
- 3) Closure of any Corrective Actions arisen during audit.

10.5.4 Suppliers' re-evaluation

The re-evaluation of this Class is the same as described in Appendix 4 – Class D1.

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10.6 APPENDIX 6 - CLASS E1

Stockists/ Distributors of raw materials, standards, and equipment

10.6.1 General

Suppliers qualified for the activities of purchasing, storage, sale of

- 1) Raw Materials
- 2) Chemicals
- 3) Standards
- 4) Equipment.

10.6.2 Preliminary assessment

Elements of the preliminary assessment are shown in Table. 2 of this document.

10.6.3 Evaluation and qualification of the supplier

Alenia Aermacchi E1 Class Suppliers shall hold a current **EN/AS9120** or **EN/AS9100** Certificate issued by an accredited Certification Body.

The supplier shall prepare a QP related to the Contract / Purchase Order, to be submitted to AQSC for approval. During the evaluation phase of the QP, the supplier may be required to implement some comments before the approval of the document.

Depending on the criticality of supply, it may be conducted a qualification audit at the supplier plant. In this case, the supplier will be notified in advance.

The following conditions are mandatory for the supplier qualification:

- 1) valid **EN / AS 9120** or **EN/AS9100** Certificate
- 2) Approval of the QP
- 3) Closure of any Corrective Actions arisen during audit.

10.6.4 Suppliers' re-evaluation

According to para 3.2.2.7 of this document, the elements to re-evaluate a supplier are as follows:

- verification the supplier keeps holding the **EN/AS 9120** or **EN/AS 9100** Certification, released by an accredited Certification Body
- update of Quality Plan, when applicable, that shall reflect the current supply and business with AA
- Reporting by Customers/End Users.

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Should the verifications outline significant deviations from the AA requirements, AA can decide to conduct a quality audit at the supplier premises, as an additional evaluation element.

Anyway, regardless from the results of supplier's re-evaluation, **AQSC** reserves the right to conduct a surveillance quality audit.

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10.7 APPENDIX 7 - CLASS F1

Repair / maintenance activities

10.7.1 General

Qualified suppliers for

- 1) Activities of repair/maintenance of component for which the supplier hold the Design Authority or under a license agreement with the Manufacturer
- 2) maintenance of aircraft or its parts (eg, machining operations on parts removed by the aircraft, manufacture of repair parts, maintenance/repair fuel tanks, cleaning tasks, Special Processes such as heat treatment, plating processes, NDI, welding, painting).

10.7.2 Repair/maintenance of a component performed by the Original Manufacturer

The Supplier shall hold a current **EN / AS 9100** Certificate issued by a Certification Body accredited according to the ICOP scheme.

10.7.3 Repair / component maintenance performed by licensed maintenance

10.7.3.1 Preliminary assessment

Elements of the preliminary assessment are shown in Table. 2 of this document.

10.7.3.2 Evaluation and qualification of the supplier

The Supplier shall hold

- a current **EN/AS 9110** or **EN/AS9100** Certificate released by an accredited Certification Body,
- the License Agreement released by the equipment Type Certificate Holder
- Aviation Authority Certification, under the Program Regulatory.

When required by the program rules the supplier shall prepare a **QP** in accordance with the program quality requirements. During the evaluation phase of the **QP**, the supplier may be required to implement some comments before the approval of the document.

Depending on the criticality of supply, it may be conducted a qualification audit at the supplier plant. In this case, the supplier will be notified in advance.

The following conditions are mandatory for the supplier qualification:

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- 1) a valid **EN/AS 9110** or **EN/AS 9100** Certificate
- 2) Certificate issued by the Aviation Authority (when applicable)
- 3) license issued by the equipment TC Holder
- 4) Approval of the **QP**
- 3) Closure of any Corrective Actions arisen during audit.

10.7.4 Maintenance of aircraft and / or its parts

10.7.4.1 Preliminary assessment

Elements of the preliminary assessment are shown in Table. 2 of this document.

10.7.4.2 Evaluation and qualification of the supplier

The supplier shall hold

- current **EN/AS9110** or **EN/AS9100** Certificate issued by an accredited Certification Body
- Aviation Authority Certification, when applicable.

When required by the program rules the supplier shall prepare a **QP** in accordance with the program quality requirements. During the evaluation phase of the **QP**, the supplier may be required to implement some comments before the approval of the document.

Depending on the criticality of supply, it may be conducted a qualification audit at the supplier plant. In this case, the supplier will be notified in advance.

The following conditions are mandatory for the supplier qualification:

- 1) valid **EN/AS 9110** or **EN/AS 9100** Certificate
- 2) Certificate issued by the Aviation Authority (when applicable)
- 3) Closure of any Corrective Actions arisen during audit.
- 4) Approval of the **QP**.

10.7.5 Suppliers' re-evaluation

According to para 3.2.2.7 of this document, the elements to re-evaluate a supplier are as follows:

- verification the supplier keeps holding the **AS/EN9100** or **AS/EN9110** Certification, released by an accredited Certification Body
- update of Quality Plan, when applicable, that shall reflect the current supply and business with AA
- verification the supplier keeps holding the License Agreement released by the equipment Type Certificate Holder (applicable only to Organizations performing Repair/Maintenance on component under a License Agreement)

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- when applicable, verification the supplier keeps holding a Third Party Certification (e.g. MOA for suppliers working in EASA Programs)
- Reporting by Customers/End Users.

Should the verifications outline significant deviations from the AA requirements, AA can decide to conduct a quality audit at the supplier premises, as an additional evaluation element.

Anyway, regardless from the results of supplier's re-evaluation, **AQSC** reserves the right to conduct a surveillance quality audit.

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10.8 APPENDIX 8 - CLASS G1

Testing and/or calibration Laboratory

10.8.1 General

This Appendix applies to the suppliers performing the following activities:

- 1) testing and analysis in support of design activities;
- 2) testing and analysis on materials/products.

performed by Independent Laboratories, that is not captive.

Activities can be:

- a) metallurgical / metallographic tests
- b) mechanical tests
- c) chemical tests
- d) fatigue tests
- e) static or dynamic tests on aeronautical structures
- f) tests on aerostructures
- g) testis on equipment
- h) calibration of measuring instruments.

This Appendix does not apply to suppliers performing test and/or calibration within the inspections (both on product and process) of a Special Process for which the supplier is qualified by Alenia Aermacchi or the holder of the Technical Specification. The captive Laboratories are qualified by Alenia Aermacchi as a result of the Special Process qualification and, therefore, according to the qualification process described in C1 ... C4 qualification classes.

10.8.2 Preliminary assessment

Elements of the preliminary assessment are shown in Table. 2 of this document.

10.8.3 Evaluation and qualification of the supplier

Prerequisite for the qualification of G1 suppliers Class is:

- Accreditation as "**LAT**" Centre or equivalent, in case of calibration laboratory
- or
- ISO/IEC 17025 Accreditation or Nadcap Accreditation, in case of testing laboratory.

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Depending on the criticality of the supply, it may be conducted a qualification audit at the supplier plant. In this case, the supplier will be notified in advance.

The following conditions are mandatory for the supplier qualification:

- Current QMS certificate
- Closure of any corrective actions resulting from audit.

In addition to the "Statement of Approval", AA releases also a "Scope of Approval" listing the approved test methods, the reference to the applicable Technical specifications and the relevant limitations/test conditions.

10.8.4 Suppliers' re-evaluation

According to para 3.2.2.7 of this document, the elements to re-evaluate a supplier are as follows:

- verification the supplier keeps holding the Accreditation as "LAT" Centre or equivalent, in case of calibration laboratory
- verification the supplier keeps holding the **ISO/IEC 17025** Accreditation or Nadcap certification, in case of testing laboratory
- Reporting by Customers/End Users.

Should the verifications outline significant deviations from the AA requirements, AA can decide to conduct a quality audit at the supplier premises, as an additional evaluation element.

Anyway, regardless from the results of supplier's re-evaluation, **AQSC** reserves the right to conduct a surveillance quality audit.

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10.9 APPENDIX 9 - CLASS H1**Work package supplies**

This Qualification Class includes the suppliers working inside AA plants for specific work package supplies and according to the applicable Supply Technical Specification.

These suppliers manage a whole activity (e.g. painting shop), but their **QMS** operates under the AA one.

Thus AA is solely responsible for issuing and managing of work orders and Process Instructions, training/qualification of personnel, etc.

10.9.1 Preliminary assessment

Elements of the preliminary assessment are shown in Table. 2 of this document.

10.9.2 Evaluation and qualification of the supplier

Prerequisite for the qualification of H1 suppliers Class is to hold a current **EN/AS9100** Certificate issued by an accredited Certification Body.

When required by the Program rules, the supplier shall prepare a **QP** in compliance with the Program quality requirements and the applicable Supply Technical Specification.

Depending on the criticality of the supply, it may be conducted a qualification audit at the supplier plant.

The following conditions are mandatory for the supplier qualification:

- Current QMS certificate
- Approval of **QP**
- Closure of any corrective actions resulting from audit.

10.9.3 Suppliers' re-evaluation

According to para 3.2.2.7 of this document, the elements to re-evaluate a supplier are as follows:

- Verification the supplier keeps holding the **AS/EN9100** Certification, released by an accredited Certification Body
- update of Quality Plan, that shall reflect the current supply and business with AA
- Reporting by Customers/End Users.

Should the verifications outline significant deviations from the AA requirements, AA can decide to conduct a quality audit at the supplier premises, as an additional evaluation element.

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In case of Special Processes related to AA technical Specification, if needed, the AA team can request to repeat all the first qualification tests and the subsequent revision of the Technical Report.

Anyway, regardless from the results of supplier's re-evaluation, **AQSC** reserves the right to conduct a surveillance quality audit.

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10.10 Appendix 10 - CLASS H2**Activities of Design Off-load (with Alenia Aermacchi Design Authority or Customer's Alenia Aermacchi) / Industrialization / Technical Manuals****10.10.1 General**

Suppliers for:

1. design activities (design authority held by Alenia Aermacchi or Customer)
2. preparation of work/inspection cards
3. preparation of NC Programs
4. preparation of technical publications.

10.10.2 Preliminary Assessment

Elements of the preliminary assessment are shown in Table. 2 of this document.

10.10.3 Suppliers of off-load design

Supplier of activities related to design off-load:

- develop a **QP** in accordance with quality requirements;
- are assessed through an audit following the execution of the first work package assigned to the supplier.

The following conditions are mandatory for the supplier qualification:

- 1) valid **EN/AS 9100** Certificate issued by an accredited Certification Body
- 2) positive evaluation of the first work package by System Monitoring, **AQSC** and the Depts. involved to the supply
- 3) Approval of the **QP** related to the work package
- 4) Closure of major/critical Corrective Actions arisen during audit

10.10.4 Suppliers of processing cycles and control / processing numerical control programs / technical publications

The qualification of these suppliers is released against the **ISO 9001** Certification issued by an accredited Certification Body.

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10.10.5 Suppliers' re-evaluation

According to para 3.2.2.7 of this document, the elements to re-evaluate a supplier are as follows:

- verification the supplier keeps holding the **AS/EN9100** Certification, released by an accredited Certification Body
- update of Quality Plan, when applicable, that shall reflect the current supply and business with AA
- Reporting by Customers/End Users.

Should the verifications outline significant deviations from the AA requirements, AA can decide to conduct a quality audit at the supplier premises, as an additional evaluation element.

Anyway, regardless from the results of supplier's re-evaluation, **AQSC** reserves the right to conduct a surveillance quality audit.

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10.11 Appendix 11 - CLASS H3**Time & Material Supplies**

Suppliers providing collaboration/consulting services for production/support activities performed inside AA plants.

10.11.1 Preliminary Assessment

Elements of the preliminary assessment are shown in Table. 2 of this document.

10.11.2 Evaluation and qualification of the supplier

AA H3 Class Supplier shall hold a current **ISO 9001** Certificate issued by an accredited Certification Body.

The supplier's personnel shall undergo to the conformity verification performed by the AA plant requesting the service/product. Specifically it is verified the supplies comply with the applicable requirements, both in terms of qualification (skill, experience, training) and knowledge of AA rules regarding work safety normative (e.g.: prevention rules, specific operating instructions) and company security (e.g.: access authorization, release of badges).

When required by program rules, the supplier shall develop a **QP** in accordance with the program quality requirements.

Depending on the criticality of supply, it may be conducted a qualification audit at the supplier plant. In this case, the supplier will be notified in advance.

The following conditions are mandatory for the supplier qualification:

- 1) valid **ISO 9001** Certificate
- 2) Approval of the QP (if required by Program rules)
- 3) Closure of any Corrective Actions arisen during audit (if required).

10.11.3 Suppliers' re-evaluation

According to para 3.2.2.7 of this document, the elements to re-evaluate a supplier are as follows:

- verification the supplier keeps holding the **ISO 9001** Certification, released by an accredited Certification Body
- update of Quality Plan, when required by Program rules
- Reporting by Customers/End Users.

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Should the verifications outline significant deviations from the AA requirements, AA can decide to conduct a quality audit at the supplier premises, as an additional evaluation element.

Anyway, regardless from the results of supplier's re-evaluation, **AQSC** reserves the right to conduct a surveillance quality audit.

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10.12 Appendix 12 - CLASS H4

Training for specialized personnel

Suppliers for training activities for aviation roles: aircrew training, groundcrew trainer.

10.12.1 General

Suppliers belonging to this Class perform specific aviation training, such as pilot training (Aircrew trainers) and training of maintenance technicians (groundcrew trainer).

10.12.2 Preliminary Assessment

Elements of the preliminary assessment are shown in Table. 2 of this document.

10.12.3 Evaluation and qualification of the supplier

Alenia Aermacchi H4 Class Suppliers shall hold a current **ISO 9001** Certificate issued by an accredited Certification Body.

Depending on the criticality of supply, it may be conducted a qualification audit at the supplier plant. In this case, the supplier will be notified in advance.

The following conditions are mandatory for the supplier qualification:

- 1) valid **ISO 9001** Certificate
- 2) Closure of any Corrective Actions arisen during audit (if required).

10.12.4 Suppliers' re-evaluation

According to para 3.2.2.7 of this document, the elements to re-evaluate a supplier are as follows:

- verification the supplier keeps holding the **ISO 9001** Certification, released by an accredited Certification Body
- Reporting by Customers/End Users.

Should the verifications outline significant deviations from the AA requirements, AA can decide to conduct a quality audit at the supplier premises, as an additional evaluation element.

Anyway, regardless from the results of supplier's re-evaluation, **AQSC** reserves the right to conduct a surveillance quality audit.