



# QM003

## Quality Requirements for Suppliers

## QM003 Contents

<b>1. Foreword</b>	<b>4</b>
<b>2. Scope</b>	<b>4</b>
2.1 Definitions and Terms	4
2.2 Order of Precedence	4
<b>3. Supplier Approval</b>	<b>5</b>
3.1 Supplier Approval Requirements	5
3.1.1 Exceptions	5
3.1.2 Supporting Documentation	5
3.1.3 Special Measures	5
3.2 Special Processes	5
3.3 Site Visits and Supplier Audits	6
3.4 Scope of Approval	6
3.5 Approval updates – Supplier Responsibilities	6
3.6 Right of Access	6
<b>4. Quality Management Requirements</b>	<b>7</b>
4.1 Review of the Requirements for Products and Services	7
4.2 Design and Development Provision	8
4.3 Configuration Management	8
4.4 Process Control and Verification	8
4.5 Control of Externally Provided Processes, Products and Services	9
4.6 Control of Equipment, Tools and Software	9
4.7 Validation of Special Processes	10
4.8 Production Process Verification	10
4.9 Release of Product and Services	10
4.9.1 Supplier Documentation	11
4.9.2 Certificate of Conformance	11
4.9.3 Calibration and Test Certification	12
4.9.4 Late Deliveries / Short Deliveries	12
4.9.5 Completeness of Supplied Documentation	12
4.10 Control of Non Conformance	12
4.10.1 Root Cause Analysis (RCA)	13
4.11 Application for Concession or Production / Deviation Permit	13
4.11.1 Production Permit	13
4.11.2 Concessions/Production Permit	13
<b>5. Record Retention / Destruction Requirement</b>	<b>14</b>
<b>6. Performance Evaluation</b>	<b>14</b>
<b>7. Competence, Training and Awareness</b>	<b>14</b>
<b>8. Identification and Traceability</b>	<b>15</b>
8.1 Serialisation and Part Marking	15
8.2 Traceability to Source/Origin of Raw Material	15

<b>9.</b>	<b>Preservation of Product .....</b>	<b>15</b>
9.1	Workmanship Acceptance Criteria for Surface Engineering .....	15
9.2	Deviation from Design Data .....	15
9.3	Foreign Object Debris (FOD) .....	15
9.4	Moisture Sensitive Level (MSL) .....	16
9.5	Electrostatic Discharge (ESD) .....	16
9.6	Shelf Life.....	16
9.7	Packaging .....	16
<b>10.</b>	<b>Counterfeit Product Prevention and Conflict Minerals .....</b>	<b>16</b>
10.1	Counterfeit Product Prevention.....	16
10.2	Conflict Minerals.....	16
<b>11.</b>	<b>Obsolescence Management .....</b>	<b>16</b>
<b>12.</b>	<b>Business Continuity / Disaster Management.....</b>	<b>17</b>
<b>13.</b>	<b>Chemicals and Hazardous Substances .....</b>	<b>17</b>
13.1	Safety Data Sheets .....	17
13.2	Registration, Evaluation, Authorisation and Restriction of Chemicals (Reach).....	17
13.3	Lead, Asbestos and Radioactive Substances.....	17
<b>14.</b>	<b>Sensitive and LMUK Proprietary Data .....</b>	<b>17</b>
14.1	Sub-Tier Suppliers .....	18
14.2	Disposal of Sensitive and LMUK Proprietary Data .....	18
<b>15.</b>	<b>Munitions.....</b>	<b>18</b>
15.1	Weapons .....	18
15.2	Explosives.....	18
	<b>Appendix 1 – Additional Flow-Down Requirement Selection Flowchart .....</b>	<b>19</b>
	<b>Appendix 2 – Delivery Documentation Requirement Flowchart.....</b>	<b>20</b>
	<b>Appendix 3 – Special Process Document References .....</b>	<b>21</b>
	<b>Appendix 4 – Additional AQAP Guidance notes.....</b>	<b>23</b>
<b>16.</b>	<b>QM003 Document Changes .....</b>	<b>25</b>


## 1. Foreword

Lockheed Martin builds sustainable supplier capacity by partnering with our supply chain to reduce adverse environmental impacts, to promote human rights, health, safety and ethical behaviour, and to enable responsible supplier growth and raise standards.

We define [Sustainable Supply Chain Management \(SSCM\)](#) as “management of our supply base to drive affordability and innovation through social responsibility and environmental stewardship.” The objective of SSCM is to ensure alignment of our supply base’s social, ethical, environmental, safety and health responsibilities with [Lockheed Martin’s sustainability commitments](#). The Lockheed Martin UK Ltd Quality Policy can be obtained upon request.

Our business depends on a reliable, global network of skilled suppliers that provide the materials, parts and services to make our products and deliver them to our customers mission-ready and on time. Goods and services provided by our suppliers have a key impact on the quality of the products, solutions and services we offer our customers. To maintain a high level of quality, we are determined to establish and maintain close and long-lasting relationships with our suppliers.

LMUK Terms and Conditions of trade **shall** apply to all contracts unless otherwise agreed.

Please note  Indicates an item of high importance that is sometimes overlooked by suppliers and causes potential high risk to product conformance.

## 2. Scope

The aim of this document is to formally communicate the Lockheed Martin UK Ltd (LMUK) quality requirements to the supply chain. This document includes hyperlinks and is best read in its electronic form. This document supersedes any previously issued LMUK Quality Requirements for Suppliers QM003 document defining supplier requirements.

### 2.1 Definitions and Terms

In this Quality Requirements for Suppliers QM003 document, the terms "**shall**" and "**must**" mean that the described action is mandatory; "**should**" means that the described action is expected with some flexibility allowed in the method of compliance; and "**may**" means that the described action is permissible or discretionary.

The term “supplier” means vendor, supplier of goods and services, sub-contractor and distributor. Questions concerning this manual **should** be directed to your respective LMUK Buyer or Supplier Quality Engineer (SQE).

### 2.2 Order of Precedence

Any inconsistencies in this document **shall** be resolved in accordance with the following descending order of precedence: (1) the drawing, design data and any approved concession deviation (2) the Purchase Order, release document, as applicable, including any special terms and conditions; (3) any Statement of Work; (4) QM003.

As the world’s leading provider of Global Security Solutions, [Lockheed Martin](#) maintains the highest standards for ethical business practices and performance in every aspect of its business conduct.

## 3. Supplier Approval

### 3.1 Supplier Approval Requirements

The minimum quality requirement for suppliers of goods and services to LMUK **shall** be Quality Management System (QMS) certification to [ISO9001](#) by a [UKAS](#) (or equivalent) accredited certification body. This requirement guarantees the supplier has put in place a consistent QMS able to satisfy our basic needs. Suppliers that provide goods and services that are used in projects for aviation, defence and space applications **should** be certified to [AS9100](#) or equivalent and listed on the [IAQG Online Aerospace Supplier Information System \(OASIS\)](#)

Where appropriate, suppliers **shall** be subject to on-site audit and / or site visit by the LMUK supplier quality engineer and / or supply chain representative. In some instances LMUK will be unable to raise a purchase order until supplier approval has been granted. Scheduled verification audits, site visits and business to business meetings **shall** be supported when required.

#### 3.1.1 Exceptions

Requirement exceptions for suppliers that do not meet the minimum quality certification **shall** be authorised on the basis of:

- The supplier is mandated by our customer.
- The supplier is the manufacturer of a single sourced product mandated by our customer.
- The supplier is the only distributor of a product mandated by our customer.
- The supplier provides goods or services that have no direct or indirect effect on the goods and services we provide our customer.

#### 3.1.2 Supporting Documentation

Documents required to complete the supplier approval process are:

- Form [F0189](#) Supplier Quality Assessment and / or F0183 Supplier Assessment Questionnaire
- QMS certification
- Confidentiality or non-disclosure agreement (NDA) if applicable
- Inclusion on a Technical Assistance Agreement (TAA) if applicable

#### 3.1.3 Special Measures

Where the above criteria and exceptions cannot be met, depending on the product, its application, value and criticality, special authorisation may be granted where evidence of compliance can be provided.

This **may** include LMUK audit to a set of alternative basic quality requirements.

## 3.2 Special Processes

Suppliers and supplier sub-contractors providing special processes **shall** have a documented process control schedule (for example: Process Flow Chart, PFMEA, Job card traveller - or similar, Process Control Plan & Inspection Plan) suitable of meeting all requirements prior to the commencement of production. This will include identifying key characteristics in all preparatory treatments, post treatments, processing, significant surfaces, tests and all other processes and treatments. In some

instances depending on the criticality of product the process control plan/schedule **shall** be subject to LMUK approval.

Suppliers and supplier sub-contractors providing special processes **may** be [Nadcap](#) accredited for the special process they provide. Nadcap Welding approval however will require additional scope coverage and as such **must be audited by Lockheed Special Process Supplier Quality Engineer (SQE)**.

### 3.3 Site Visits and Supplier Audits

Where appropriate, suppliers **shall** be subject to on-site audit and / or site visit by the LMUK supplier quality engineer and / or supply chain representative. In some instances LMUK will be unable to raise a purchase order until supplier approval has been granted. Scheduled verification audits, site visits and business to business meetings **shall** be supported when required.

### 3.4 Scope of Approval

Suppliers approved for use will be allocated to the LM Supplier database stating the scope detail on their approval. Suppliers shall not conduct work for LM outside their scope of approval unless authorised by LM Quality department through audit ie special process audits or LM specific approvals.

### 3.5 Approval updates – Supplier Responsibilities



**It is a requirement of the conditions of supply into LMUK that the contractor / supplier fully understands and adheres to the following. It is the supplier's responsibility to ensure:**

- LMUK **shall** be provided up-to-date copies of Quality Management System certification including scope of certification.
- LMUK **shall** be informed by the approved supplier when approval bodies are changed and certificates are re-issued or revoked.
- LMUK **shall** be informed by the approved supplier when certificates scopes are amended which would affect work currently undertaken or scheduled for future delivery. This would also include any change of address.
- LMUK **shall** be informed if due to any circumstance welder's skill base alters ie coded welders certification lapses – in this instance the Special Process Auditor must be informed.

### 3.6 Right of Access

Suppliers and their sub-suppliers **shall** provide to LMUK, their customer, regulatory authorities and the Government Quality Assurance Representative (GQAR):

- The right of access to facilities where parts of the contracted activities are being performed including sub-suppliers premises
- Information pertaining to the fulfilment of requirements in the contract
- Unrestricted opportunity to evaluate supplier compliance with this document
- Unrestricted opportunity to conduct verification of product conformity to contract requirements
- Assistance for evaluation, verification, validation, testing, inspection or release of the product to verify that contract requirements have been accomplished at the supplier's or sub-suppliers premises

- Working area and facilities
- The necessary equipment available for reasonable use for performing verification
- Supplier and/or sub-suppliers personnel for operation of verification equipment as required
- Access to information and communication facilities
- The necessary supplier documentation, to confirm product conformance to specification
- Copies of necessary documents, including those on electronic media
- Confirmation of capacity constraints

## 4. Quality Management Requirements

LMUK are required by AS9100 to apply appropriate controls to their direct and sub tier external providers to ensure that requirements are met (AS9100 para 8.4.1). The sections following detail the minimum controls that the supplier **shall** implement to meet those requirements.

Suppliers **shall** plan, implement, and control the processes needed to meet the requirements for the provision of products and services to LM. Specifically this will be focused on the following:

- Review of the Requirements for Products and Services
- Design and Development provision (inputs, controls and outputs)
- Configuration Management
- Process Control
- Control of Externally provided Processes, Products and Services (importantly):
- Control of Equipment's, Tools and Software
- Validation of Special Process
- Production Process Verification
- Release of Product and Services
- Control of Non Conformance
- Performance Evaluation
- Improvement Activities

### 4.1 Review of the Requirements for Products and Services

The supplier **shall** ensure that they have the ability to meet LM's requirements for products and services – formally known as contract review. This review will cover but not be limited to

- Scope of certified approval against what product or service is being requested
- Technical ability ie can equipment or employee skills meet the requirements of the drawings.
- Capacity constraints
- Statutory and regulatory requirements
- Contract or order requirements differing from those agreed at tender

- Drawing pack ie tolerancing, datum's and geometric tolerancing, material requirements (ensuring the material is available in size and condition stated), special processes, specific drawing notes including adherence to standards quoted within the context, destructive and non-destructive testing requirements ie mechanical, electrical, software etc.
- Design and verification – if undertaking this requirement for LM understand the conditions of the contract as highlighted in para 4.2
- Reference documentation - it is the responsibility of suppliers to obtain, review, work to and maintain current issues of specifications and standards from appropriate sources.
- Additional Resources – when reviewing the process controls required to assure compliance to the documentation pack, should the requirement for fixturing, hard gauging, specialist test equipment, specialised training etc be identified this **must** be communicated to LM. It is not acceptable if risk is identified and no action is undertaken or communicated to LM due to timescales or financial constraints. This will also apply to sub-contractors undertaking work on the product.
- Supplier selection of sub-contractors. LM must be informed if sections of work are to be subcontracted. LM reserve the right to audit that supplier if it is deemed a perceived risk to contractual requirements (see 4.5). Special Processes are covered in section 3.2

## 4.2 Design and Development Provision

If undertaking design and development work for LM the subcontractor is bound by the requirements of ISO9001 as a minimum. If identified by LM the additional requirements of AS9100 for aerospace contracts will be required e.g. provision for obsolescence.

## 4.3 Configuration Management

The supplier **shall** plan, implement and control a process for configuration management to ensure the identification and implementation of changes when required by LM in the supply of products and services. If a change is requested by LM and can be accommodated this **must** be detailed in a change to LM's original purchase order and detailed on all supplier process documentation.

## 4.4 Process Control and Verification

LM require the supplier to demonstrate control through the production process. The supplier **shall** demonstrate confidence that the processes have been carried out as planned and therefore be able to demonstrate the conformity of those products and services. This can be undertaken by the flow of information associated in the following documentation.

The following is an example of how the supplier can incorporate these activities that will show the flow of information needed to control the process (similar processes and documentation that meet the requirement are acceptable):

- Value Stream Mapping
- Process Flow Diagrams (identifying key characteristics, inspection stages, processes, frozen operations if identified by LM (no changes allowed unless agreed by LM delegate), associated documentation. Examples of layouts can be requested.



- PFMEA – Process Failure Mode Effect Analysis. Critical in analysis of the process flow showing anticipation of risks and actions to nullify those risks to the process
- Control plans – detailing the stages of the process where inspection and our documenting of special process monitors are required
- Inspections plans – identifying by whom (level of trained operators), with what (equipment’s to be used), how (standard operation) and the frequency of how those checks/inspection will be carried out.

Further to this the supplier **shall** demonstrate the eradication of variability in the process (**if required by LM on critical processes**) by the use of process capability measurement, statistical process control and MSA studies i.e. Gauge R&R. When specified by LM these activities should be covered in a Quality Plan agreed with both parties and the requirements flowed down the supply chain if needed. **A Quality Plan will be required when specific controls not covered by ISO9001, AS9100 certification or detailed in QM003 are required by LMUK.**

#### 4.5 Control of Externally Provided Processes, Products and Services

The supplier, as the recipient of the contract, **shall** be responsible for meeting all requirements, including work performed by the supplier's sub-tier suppliers (also known as sub-suppliers or subcontract suppliers).



Where the supplier intends to sub-contract work or service normally undertaken by the supplier, **a written agreement shall be in place between LMUK and the supplier** indicating the reason for the sub-contract and the sub-tier sub-contractor to be used.

When the supplier uses sub-tier sources to perform work on products and/or services for LMUK, the supplier **shall** flow down to its sub-tier sources, all of the applicable technical and quality requirements contained in the LMUK contract. This will:

- ensure that externally provided processes remain within the control of their own quality management system
- define both the controls that it intends to apply to an external supplier and those it intends to apply to the delivered product.



LMUK representatives, customers and/or end users **shall** be allowed access to the sub-supplier’s plant and facilities for the purpose of surveillance and inspection.

#### 4.6 Control of Equipment, Tools and Software

Equipment, tools and software programs used to automate, control, monitor or measure production processes shall be validated prior to release for production and shall be maintained. The supplier shall be responsible for maintaining traceability to national standards whether those items are calibrated internally or externally.

Storage requirements shall be defined for production equipment or tooling in storage including any necessary periodic preservation or condition checks. Items that have an extended replacement period (i.e. mould tools, die sets, software programs) are required be detailed in a risk avoidance document that will detail the suppliers disaster recovery plan in such an event – see section 12.

## 4.7 Validation of Special Processes

A special process is a process that generates outputs that cannot be measured, monitored, or verified non-destructively or cost effectively. Deficiencies cannot be detected until after products are in use.

In order to prevent output deficiencies, special processes must be periodically validated in order to prove that they can generate planned results. Periodic validation is usually performed which will define:

- the criteria for the review and approval of the process
- the maintenance of the approval
- approval of the facilities and equipment
- qualification of persons – see para 7
- specific methods and procedures for implementation and monitoring the processes
- detail the documentation to be retained

## 4.8 Production Process Verification

When indicated on the purchase order the supplier **shall** produce a First Article Inspection report (FAIR) to verify the manufacturing process using a representative item from the first manufacturing run of a new part or assembly. The purpose of the FAIR is to verify that the production processes, production documentation and tooling are capable of producing parts and assemblies that meet requirements. This process **shall** be repeated when changes occur that invalidate the original results (this will include transfer of work to another site, drawing changes, process changes etc.). The FAI requirement, once invoked, **shall** continue to apply even after initial acceptance.



The FAIR will be produced in accordance with AS9102 and **shall** be provided with the delivery of goods. Guidance on how LM require First Articles to be completed is detailed in LM's '**First Article Inspection Guidebook**'. A copy can be supplied by your LM Supplier Quality Engineer. It is strongly advised this is reviewed and its requirements understood. Its content details when a Partial/delta FAI is required but as an aid:



***A Partial/Delta FAI is required to the original when:***

- A change in design potentially affects form, fit or function.
- A change in manufacturing source, process, inspection method, location of manufacturer, tooling, or material potentially affect form, fit or function

The FAIRs **shall** include all certification indicating conformity of materials, special processes, calibration, testing and personnel training qualification where applicable.

## 4.9 Release of Product and Services

Suppliers **shall** supply conforming goods and services on time in full (OTIF) including all required correct documentation and certification where applicable.

Certification refers to any document that states the goods or services meet or conform to specification or purchase order requirements. These include, but are not limited to; Certificate of Conformity, Certificate of Compliance, Certificate of Analysis, Certificate of Attestation and Certificate of Calibration.

The certifying document **shall** be deemed as an authorised contractual guarantee that the goods and services reference on the certificate meet drawing, specifications, technical data and purchase order requirements. **A signed copy or digital signature will be acceptable** but Certificates must be traceable to the certifying quality representative or company official as per ISO9001 requirements.

## 4.9.1 Supplier Documentation

The following data/information **shall** be included on each certification document (normally referred to as a CofC or Release Note)

- Certificate or delivery unique identifier / Certification / Delivery Note number
- Certificate Date
- Purchase order number
- Drawing number and / or part number and revision (as stated on Purchase Order)
- Batch unique identifier (Batch number / Lot number / Date code / Serial number)
- Quantity
- Supplier Name and Address
- Statement that goods and / or services conform to the specified requirements
- Original Manufacturer's name, part number and lot / date code (when applicable)
- Reference to **all concessions/Production permits** applicable
- A First Article Inspection Report on the first delivery when specified on the PO. Subsequent batches need not quote the FAI number (this will be logged by LMUK). Supplier will conform to all the requirements of para 4.8.
- Reference to the Quality Management System release.

Suppliers **shall** ensure the correct documentation is supplied with products and services. This is further illustrated in appendix 1 - Delivery Documentation Requirement Flowchart below.



Additional Delivery Quality Conditions required by NATO & Military contracts will be stated on LM's purchase order. These will define the requirements for traceability and certification above those detailed in QM003 and ISO9001. These will only apply when indicated by the delivery quality condition (Q Code) on the purchase order or other documentation associated with the contract. See appendix 2

Q Code	Description	Flow-Down Requirement in Addition to ISO9001 & QM003
QM003-A	Quality Requirements for NATO Contracts	AQAP 2110 D / 2105 Applies
QM003-B	Quality Requirements for Non-Military Contracts	ISO 10005 / 10007 Applies
QM003-C	Quality Requirements for Business Supplies	No additional requirement

## 4.9.2 Certificate of Conformance



For deliveries that apply quality condition QM003-A & QM003-B (see appendix 1) a certificate of conformity **shall** be supplied with delivered goods or services that meet the above traceability

requirements. Please read section 13 which further expands the requirements for Chemicals and Hazardous Substances

#### 4.9.3 Calibration and Test Certification

In addition, where calibration and test certification are issued to LMUK information **shall** include:

- The calibrated test apparatus / instrument / standard used. These will be traceable to **UKAS** or the national equivalent from sources other than the UK.
- Calibration / test specification used including tolerances and criteria.
- Items outside specified limits will be identified, especially if the item has undergone authorised repair to bring it into specification.

#### 4.9.4 Late Deliveries / Short Deliveries

If non-delivery, short or late deliveries are anticipated, suppliers shall immediately notify the buyer indicated on the purchase order.

#### 4.9.5 Completeness of Supplied Documentation



Certification documentation supplied to the requirements of any LM purchase order will be rejected and deemed not complete should it transgress any the following:

- Certification supplied with CofC is illegible i.e. faint, blurred or ambiguous
- Certification supplied with concession/production permit whose approval is outstanding
- Incorrect / different material or treatment certificates being referenced or certificates that do not tie up with FAI documentation
- No quality representative authorising release is identified on the CofC.
- Alternative material and or treatments – will be rejected if authorised certification is not attached to the CofC i.e. production permit or concession, Defence Standard reference, Mil Specs alternative and the prior agreement of LMUK.

#### 4.10 Control of Non Conformance

LM will inform the supplier of nonconformities that are highlighted at any stage of LM's process flow including, but not limited to, trials and subsequent service. The supplier **shall** respond to the Supplier Corrective Action Report (**SCAR**) when raised. The SCAR is structured around the 8D process which details the requirement for the following:

- Problem statement
- Containment Action (in production, in stores, in transit, delivered product)
- Root Cause Analysis (see below)
- Corrective Action
- Implement Corrective Action
- Define and Plan Preventative action to **prevent reoccurrence**
- Review of Implementation or actions



SCAR's **shall** be processed to the following timescales by the supplier:

- Supplier has **5 working days** to acknowledge receipt and undertake containment action
- Supplier then has a further **25 calendar days** to respond with a detailed corrective action
- Supplier will submit on or before the agreed verification date, **evidence of the implemented corrective/preventative action**. This evidence will allow the LM Supplier Quality Engineer to close the SCAR.

**Note:** A DRACAS SCAR is a non-conformance which is identified on field trials / in service and must be treated with **high priority**. This will be identified on the SCAR and is subject to the agreed terms and conditions as agreed with LM in all instances.

#### 4.10.1 Root Cause Analysis (RCA)

When nonconformities occur the supplier **must** perform Root Cause Analysis (RCA) and corrective action activities to prevent recurrence of the problem. LM recommend that the suppliers Improvement teams use industry standard root cause analysis tools to aid in identifying these issues i.e. 5 why methodology & Cause and Effect Diagram (Ishikawa or fishbone).

#### 4.11 Application for Concession or Production / Deviation Permit

Suppliers **shall** generate the Concession or Deviation Permit in accordance with LMUK Form F0045, or their own form provided it incorporates the requirements listed in [Def-Stan 05-61 Part 1](#). This must include the proposed corrective action to eliminate the cause and prevent reoccurrence.

##### 4.11.1 Production Permit

Production Permits / Deviations are considered permission to produce an item that deviates from design data. This **may** be because of design anomalies, material availability issues or other unforeseen reasons prior to manufacture. Requirement for a production / deviation permit **should** be identified by the supplier at contract review or production planning.

Completed production / deviation permits **shall** be submitted to the procurement representative indicated on the purchase order. **All Production permits must be referenced on the applicable certificate of conformity** (using the LM approved concession number).

Any production prior to production / deviation permit approval **shall** not occur unless entirely at the suppliers own risk. Products delivered against a LMUK approved production / deviation permit are not considered as nonconforming.

##### 4.11.2 Concessions/Production Permit

It is the policy of LMUK not to accept a product that fails to meet the required standard. In certain circumstances however, concessions/production permit will be considered by LM. This will allow, when approved, the supplier to deliver product against agreed deviations for a set number of product or parts. The concession/production permit must quote the serial numbers or batch affected or, if required, the time span applicable. The concession will NOT be accepted if these conditions are not met.



Completed concession/production permit forms **shall** be submitted to the procurement representative indicated on the purchase order.

Delivery of nonconforming product **shall** not occur unless an approved concession is in place. **All concessions/production permits must be referenced on the applicable certificate of conformity** (using the LM approved number).

## 5. Record Retention / Destruction Requirement

Suppliers **shall** retain records relating to processing, testing, calibration, manufacture, supply, traceability and certification for a minimum of **7 years** unless otherwise stated by contract.

Any loss or potential compromise of any classified material must be reported to LM without delay.

**All OFFICIAL-SENSITIVE** documents must be returned to Lockheed Martin UK Amthill either:

- a. When they are no-longer required as part of the sub-contract; or
- b. At the end of the sub-contract.

Requests to destroy programme-related **OFFICIAL- SENSITIVE** information locally on the sub-contractor's site must be passed to the Lockheed Martin UK, Amthill Programme/Project Manager and Lockheed Martin UK Amthill, Security Office for authorisation in accordance with LM contract conditions

At a minimum, all **OFFICIAL-SENSITIVE** hard copy information must be destroyed using a cross-cut shredder which makes the reconstitution of the material highly unlikely. Unwanted **UK OFFICIAL-SENSITIVE** information/material that cannot be destroyed in such a way shall be returned to the Authority.

## 6. Performance Evaluation


LM requirements for suppliers monitoring, measurement, analysis and evaluation of internal performance is detailed in ISO 9001 para 9. No additional LM requirement is required.

## 7. Competence, Training and Awareness

The supplier **shall** ensure personnel processing orders or performing work affecting conformity to product or service are trained and aware of the relevance and importance of their activities in relation to meeting the requirements of LMUK purchase orders and associated documentation.

The supplier will as a minimum produce a skills matrix which details the training undertaken by the operative in relation to the processes specific to LMUK product. For example:

- Coded welders (refer to LM Special Process Auditor for preferred suppliers of approvals)
- IPC trained operatives in harnessing
- FOD awareness
- Internal procedures relevant to their scope of work on LM product

 The skills matrix **shall** be maintained by supervisory/management level and demonstrate control of those activities. The skills matrix procedure **shall** also detail how risks associated with highly skilled operators are covered i.e. sickness, leave, succession planning etc. and the business decision on how that risk will be covered as well as capacity constraints

It is highly recommended that the free resources provided by the Society of Automotive Engineers (SAE) [International Aerospace Quality Group](#) (IAQG) in the form of the Supply Chain Management Handbook

(SCMH) is utilised to its full potential by all suppliers. This online document contains invaluable training and guidance material on every element of Aviation, Space and Defence (AS&D) requirements including first article inspection, configuration management, quality plans, counterfeit management and contract review.

## 8. Identification and Traceability

Traceability is an important factor in high end and safety critical products and is a basic requirement unless agreed in writing. Suppliers **shall** provide documentation that includes revision / issue nos., batch numbers, lot codes or where relevant date codes and serial numbers of goods provided.

### 8.1 Serialisation and Part Marking

Serialisation and part marking identification **shall** be in accordance with the purchase order, design data, drawing or any contractually agreed specification or standard.

### 8.2 Traceability to Source/Origin of Raw Material

Where the delivery quality conditions are QM003-A or QM003-B and any applicable Quality Plan requires demonstration of traceability and design provenance through the supply chain, the supplier **shall** include in any relevant sub-contract the requirement for certification from its sub-tier suppliers. **The supplier shall ensure that full traceability is maintained throughout the sub-tier supply chain and can be provided on LM request.** Material **shall** be identified and traceable to manufacturer's part number, lot number, date code for all electronic and electrical parts, raw material, mechanical machined parts.



## 9. Preservation of Product

The supplier **shall** preserve the product during internal processing, storage and delivery to the intended destination.

### 9.1 Workmanship Acceptance Criteria for Surface Engineering

Unless otherwise stated, the following workmanship acceptance criteria **shall** be used; Supplied product with surface finishes for functional or cosmetic applications **shall** meet the requirements of the drawing (or referenced specification) for surface conditions, uniform in appearance, free from blisters (adhesion), pits, nodules, scratches, stains. This includes but is not limited to electroplated, conversion coated, anodised, painted, mechanically finished and passivated surfaces.

### 9.2 Deviation from Design Data

Deviation from design data **shall** not occur unless an approved deviation permit from LMUK is obtained. See section 4.11.

### 9.3 Foreign Object Debris (FOD)

The supplier **shall** establish a process to detect and prevent Foreign Object Debris. This **should** be in accordance with [NAS412](#) or [AS9146](#). As a minimum the process **shall** include:

- FOD process review
- Training of FOD practices
- Material handling and product protection

- Tool / hardware accountability
- Lost items search and documentation process
- Physical entry control into FOD critical areas
- Inspection for foreign objects prior to closing apertures and compartments during assembly

## 9.4 Moisture Sensitive Level (MSL)

Moisture sensitive components **shall** be packaged in accordance with [IPC/JEDEC J-STD 033](#). The Moisture Sensitivity Level (MSL) **must** be clearly identified on the outer packaging.

## 9.5 Electrostatic Discharge (ESD)

Where appropriate, suppliers **shall** provide adequate protection measures against ESD damage to goods and LMUK property. This **should** be in accordance with [MIL-STD-1686](#) or [ANSI/ESD S20.20](#). Electronic Components **shall** be handled, packaged and supplied in accordance with [BS EN 61340-5-1](#) or as specified in the contract conditions with LM.

## 9.6 Shelf Life

Goods and products containing items with finite shelf life **shall** have the expiry date identified on the product and the delivery documentation. The remaining shelf life **must** be a minimum of 80% of the total shelf life for the material at time of delivery unless otherwise specified.

## 9.7 Packaging

The supplier **shall** adequately plan for packaging designed to prevent product contamination, deterioration, damage or loss. Suppliers **should** provide expendable packaging or returnable containers, where appropriate, of sufficient density and protection from likely damage that could occur. The use of approved industry standard labelling and bar-coding **shall** be in accordance with any contractually agreed packaging specification.

## 10. Counterfeit Product Prevention and Conflict Minerals

### 10.1 Counterfeit Product Prevention

Where appropriate, the supplier **shall** establish and maintain a counterfeit parts / material prevention and control plan using [AS5553](#) and/or [AS6174](#) to ensure that counterfeit work is not delivered. The purpose of the supplier's plan **shall** be to develop a robust process to prevent the delivery of counterfeit commodities and to control commodities identified as counterfeit. Where possible, semi-conductor distributors **should** be certified to [AS6081](#).

### 10.2 Conflict Minerals

Conflict minerals are minerals mined in conditions of armed conflict and human rights abuses, and which are sold or traded by armed groups. Suppliers **shall** be aware of the [OECD Due Diligence Guidance](#). Further information can be found at the [Lockheed Martin Conflict Minerals webpage](#).

## 11. Obsolescence Management

Obsolescence Management is 'the co-ordinated activities to direct and control an organisation with regard to obsolescence'. The suppliers **shall** notify LMUK of any pending obsolescence, the relevant last time buy date and last time ship date at least 6 months prior to the last time buy date.



## 12. Business Continuity / Disaster Management

Suppliers **should** have in place a business continuity plan in accordance with [ISO 22301](#). This includes requirements to plan, establish, implement, operate, monitor, review, maintain and continually improve a documented management system to protect against, reduce the likelihood of occurrence, prepare for, respond to, and recover from disruptive incidents when they arise.

Essentially this is a management plan that ensures no disruption to the supply of goods to LM should the business fall foul of environmental circumstances such as fire, flood, power failure etc. This will include but not be limited to safety stocks of goods, fire protection of tooling/Jigs, safeguarding essential key machinery, off site holding of key software etc.

The extent of application of these requirements depends on the supplier's operating environment and complexity.

## 13. Chemicals and Hazardous Substances

Nothing in this section **shall** reduce or limit any statutory duty or legal obligation of LMUK or the supplier.

### 13.1 Safety Data Sheets

Safety data sheets (SDS) provide information on chemical products that help users of those chemicals to make a risk assessment. They describe the hazards the chemical presents, and give information on handling, storage and emergency measures in case of accident. By law suppliers of chemicals **must** provide an up to date safety data sheet if a substance is classified as dangerous in accordance with the [Classification, Labelling and Packaging \(CLP\) Regulation 1272/2008](#).

If the supplier is required, under, or in connection with the contract, to supply articles or components of articles that, in the course of their use, maintenance, disposal, or in the event of an accident, **may** release hazardous materials or substances, they **shall** provide to LMUK a list of those hazardous materials or substances, and for each hazardous material or substance listed, provide an SDS.

### 13.2 Registration, Evaluation, Authorisation and Restriction of Chemicals (Reach)

[REACH](#) applies to substances manufactured or imported into the EU in quantities of 1 tonne or more per year. Generally, it applies to all individual chemical substances on their own, in preparations or in articles. The supplier **shall** disclose such information to LMUK for the purpose of compliance with the REACH regulation. For more information please contact the Lockheed Martin REACH Program Office at [reach.info@lmco.com](mailto:reach.info@lmco.com)

### 13.3 Lead, Asbestos and Radioactive Substances

Special regulations apply to Lead, Asbestos and radioactive substances. In addition refer to DEFCON 624 for Asbestos. Adequate packaging **must** be provided to prevent exposure of staff to these substances in accordance with the relevant [Health and Safety Executive](#) (HSE) Approved code of practise (ACOP)

## 14. Sensitive and LMUK Proprietary Data

LMUK proprietary and customer technical data **must** only be shared with 3<sup>rd</sup> party suppliers who have:

- Been approved by LMUK and the owner of the technical data.

- Confirmed in writing (e.g., hardcopy letter, email with return address header) that they are authorized to receive such data and they understand the implications of and requirements for handling sensitive and proprietary technical data.

Principally where data is identified as sensitive or LMUK Proprietary Data, restrictions apply to the control, handling and monitoring of such data. Only authorised personnel **shall** have access to restricted data and the data **shall** be controlled in such a way as to prevent unauthorized transmission or access.



Suppliers that require Restricted and Official Sensitive Classification data **shall** have a procedure in place for the control, handling and monitoring of such data. LMPI is always handled in accordance with the LM terms and conditions.

Where a supplier is identified on a Technical Assistance Agreement (TAA) or Manufacturing Licence Agreement (MLA), the organisation **must** complete a Non-Disclosure Agreement (NDA) when requested by LMUK and **shall** continue to maintain access controls in accordance with the NDA and any Technology Control Plan (TCP) that LMUK and the organisation enter into. LM reserve the right to issue an NDA where LMN deem sensitive information will be shared with the supplier.

## 14.1 Sub-Tier Suppliers



Sub-tier suppliers and sub-contractors used by the supplier that have access to any sensitive or LMUK proprietary data **must** be authorized with an NDA in place.

## 14.2 Disposal of Sensitive and LMUK Proprietary Data



Hard-copy documentation that is no longer needed **must** be disposed of in shredder bins or confidential material disposal bins. Scrap products and components **shall** be destroyed, rendered unusable and unrecoverable and **specific disposal sanctioned by LMUK Supply Chain**.

## 15. Munitions

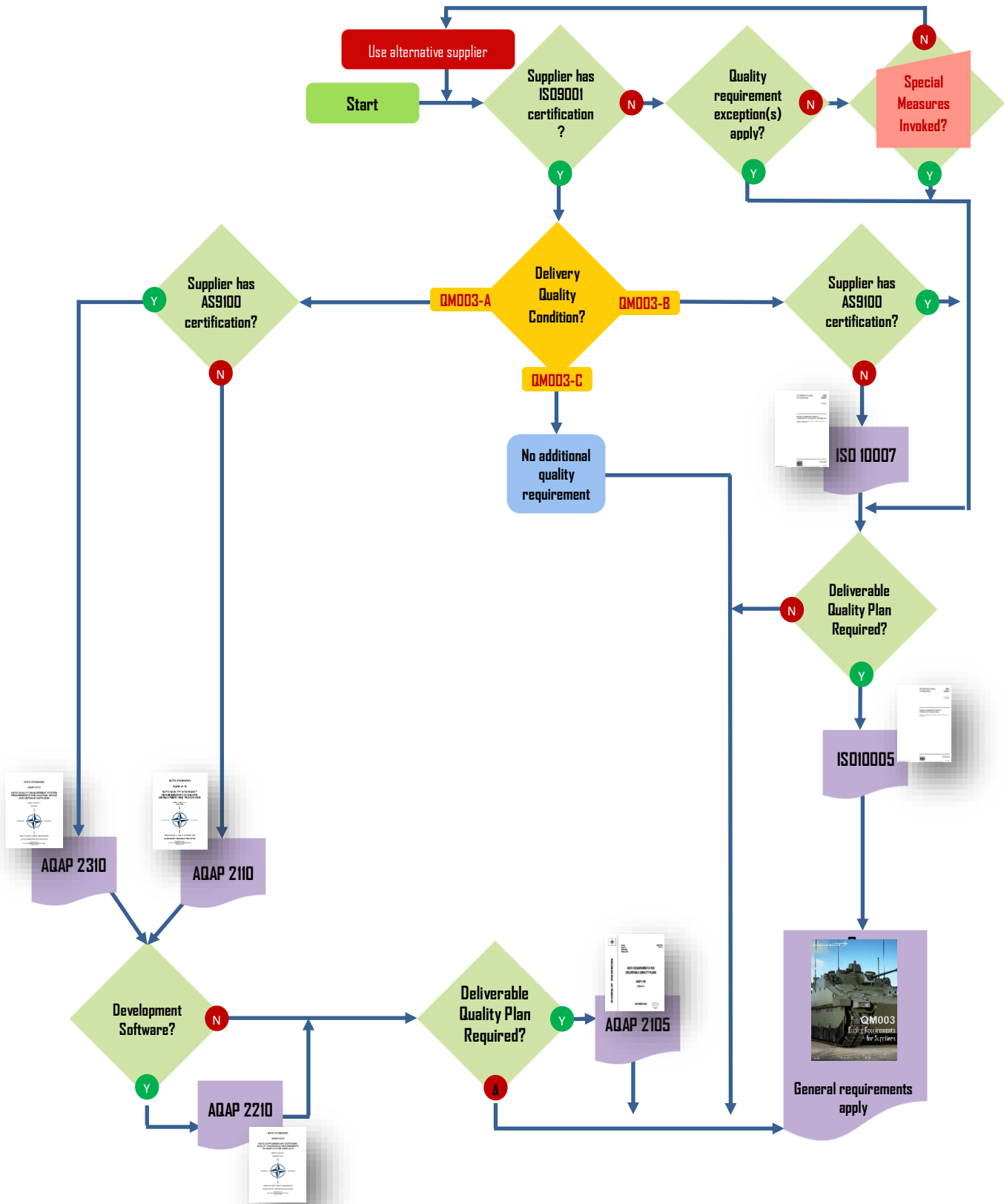
### 15.1 Weapons

Suppliers transporting weapons or weapon component parts **must** hold a current Home Office approval to transport goods controlled under the [Firearms Act 1968, Section 5](#) (as amended). Home Office Guidance can be found [here](#).

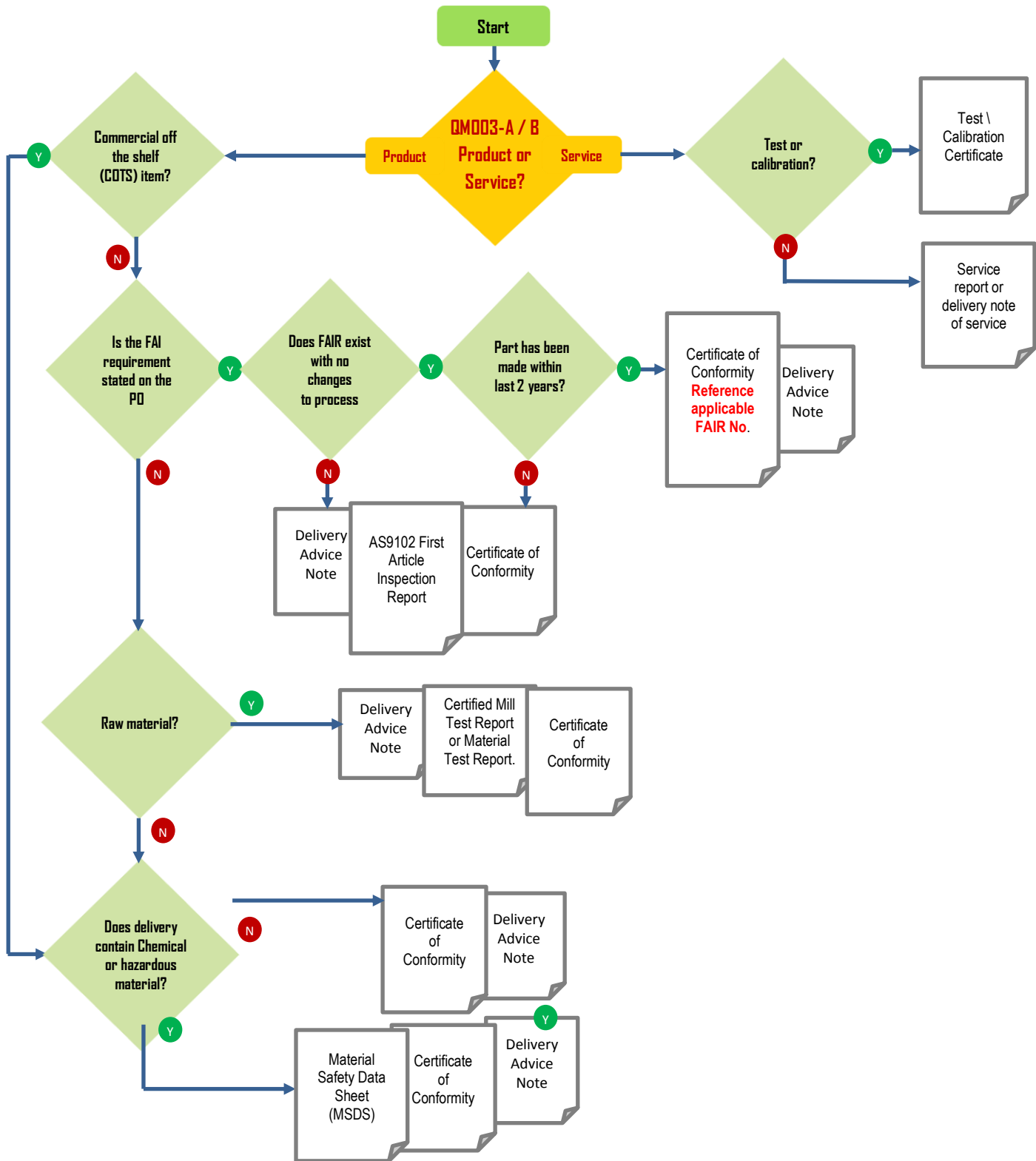
### 15.2 Explosives

For explosive items, the supplier **shall** contact Head of Safety Services at LMUK Ampthill, 3 business days prior to delivery. Release documentation for explosive items **must** include a copy of the National Competent Authority Classification and a Certificate of Correctness signed by the supplier's authorised person. Release documentation **must** include the National Competent Authority Classification Number, United Nations (UN) Number, Hazard Division and Net Explosive Quantity. All packages **must** bear a UN Mark and be classified and labelled in accordance with UK Government [Statutory Instrument 1994 No. 669](#) (The Carriage of Dangerous Goods by Road and Rail [Classification, Packaging and Labelling] Regulations 1994) UK Government [Statutory Instrument 2014 No. 1638](#) (The Explosives Regulations 2014, Health and Safety) **shall** apply to all explosive items. Packaging **shall** be in accordance with DEFCON 130 Packaging for Explosives.

## Appendix 1 – Additional Flow-Down Requirement Selection Flowchart



## Appendix 2 – Delivery Documentation Requirement Flowchart



## Appendix 3 – Special Process Document References

As a guide to the requirements of Special Processes this section will allow suppliers to cross reference the standards associated with production of LMUK designed parts. The following content can then be reviewed against those of the drawing to ensure no errors are apparent.

### **Special Process Standards Chemical Processing - accordance with MIL-STD-186F (MI) / DEF STAN 03-32 / DEF STAN 21-5**

- Cadmium Plating in accordance with AMS Standard AMS-QQ-P-416 or BS EN ISO 2082:2017 & DEF STAN 21-5.
- Anodic Coating in accordance with MIL Standard MIL-A-8625, or BS EN ISO 7599:2018 & DEF STAN 21-5.
- Chromate Conversion (Alocrom 1200) in accordance with MIL Standard MIL-DTL-5541 & DEF STAN 21-5
- Salt Spray Testing (FOG) in accordance with ASTM Standard ASTM-B-117
- Paint and Varnish Coatings in accordance with MIL-STD-186F (MI) or DEF STAN 03-32 & BS 381C & DEF STAN 21-5
- Nickle Plating in accordance with AMS Standard AMS-QQ-N-290 or BS EN ISO 1456 & DEF STAN 21-5.
- Chromium Plating in accordance with AMS Standard AMS-2460 or BS EN ISO 1456 & DEF STAN 21-5
- Coatings, corrosion preventing in accordance with AMS Standard AMS-C-27725
- Lubricant, Solid Film, Heat cured, Corrosion inhibiting NATO Code-S-1738 in accordance with MIL-PRF-46010

### **Special Process Standards NDT - in accordance with Vehicles BS EN ISO 9712 Aerospace (Special Projects) or NAS 410 or BS EN ISO 4179**

- Radiographic Imaging System in accordance with ASTM Standard ASTM-E-746 or BS EN ISO 17636.
- Liquid (Dye) Penetrant Testing in accordance with ASTM Standard ASTM-E-1417 or BS EN ISO 3059
- Ultrasonic Testing in accordance with ASTM Standard ASTM-STD-2154 or BS EN ISO 17640.
- Magnetic Particle Testing in accordance with ASTM Standard ASTM-E-709 or BS EN ISO 17638
- Visual Inspection of Welds in accordance with AWS B5.1 or BS EN ISO 17637
- Macroscopic / Microscopic Section of Welds ASTM E340 or BS EN ISO 17639

### **Special Process Standard Soldering – MIL-STD-186F & IPC J-STD-001GS**

- Soldered Electrical and Electronic Assemblies in accordance with MIL-STD-186F (MI) and IPC Standard J-STD-001GS
- Electronic Assemblies in accordance with IPC standard IPC-A-610
- Cable and Wire Harness Assemblies in accordance with IPC Standard IPC/WHMA-A-620
- ESD Electrostatic Discharge Control in accordance with MIL-STD-1686C, IEC61340-5-1 or ANSI/ESD S20.20-2014
- Counterfeit Avoidance in accordance with SAE standards AS5553 & ASE6081 & DEF STAN 05-135

### **Special Process Standards Heat Treatment - In accordance with MIL-STD-186F (MI) / DEF STAN 03-32 and BS EN ISO 17663**

- Heat Treatment of Wrought Aluminium Alloy parts in accordance with AMS Standard AMS-2770.
- Heat Treatment of Aluminium Alloy castings in accordance with AMS Standard AMS-2771.
- Heat Treatment of Aluminium Alloy Raw Materials in accordance with AMS Standard AMS-2772.
- Heat Treatment of Carbon and Low-Alloy Steel parts in accordance with AMS Standard AMS-2759/1
- Heat Treatment of Steel Parts in accordance with AMS Standard AMS-2759.
- Heat Treatment of Titanium and Titanium Alloys in accordance with AMS Standard AMS-H-81210.

### **Special Process Standards Welding – In accordance with Vehicles to DEF STAN 03-34 Steel & DEF STAN 08-39 Aluminium, Aerospace (Special Projects) to BS EN ISO 24394**

- Welder Qualification in accordance with Euro Standard BS.EN.ISO 9606-1 Steels & BS EN ISO 9606-2 Aluminium

- Welder Procedures in accordance with Euro Standard BS.EN.ISO 15614-1 Steels & BS EN ISO 15614-2 Aluminium
- Welding Fusion-welded joints in Steel, Nickel, Titanium and their Alloys – Quality levels for imperfections in accordance with BS EN ISO 5817.
- Welding – Arc-welded joints in Aluminium/Alloys – Quality levels for imperfections in accordance with BS EN ISO 10042

## Appendix 4 – Additional AQAP Guidance notes

### [AQAP 2110 EDITION D Quality Requirements for Design, Development and Production](#) (ref QM003-A – Quality Requirements for NATO Contracts)

Allied Quality Assurance Publications (AQAP) are standards for quality assurance systems that have been developed by the North Atlantic Treaty Organization (NATO). [AQAP 2110](#) Quality Assurance Requirements for Design, Development and Production defines requirements, which, if applied appropriately, provide confidence in the supplier's capability to deliver products that conform to LMUK contract requirements.

The common ISO 9001 baseline inherently makes AS9100 and AQAP 2110 appear almost identical. It is acceptable for a supplier to offer a QMS that complies with the provisions of AS9100 as a satisfactory response to the QMS requirements of AQAP 2110, under two conditions:

- The supplier formally states that, “All AS9100 requirements applicable to the organization are applicable to this contract”;
- The supplier formally states that, “No exclusions to AS9100 taken by the organization **shall** in any way diminish, alter, or relieve the AQAP 2110 requirements of this contract”.

These formal statements **should** be made in the Deliverable Quality Plan (DQP). See **BS EN 9137** or **ARP9137** Guidance for the Application of AQAP 2110 within a Quality Management System for further information.

### [AQAP 2120 Quality Requirements for Production](#) **AQAP 2110 Edition D supersedes AQAP 2120 Edition 3.**

### [AQAP 2130 Quality Requirements for Inspection and Test](#) **AQAP 2110 Edition D supersedes AQAP 2130 Edition 3.**

### [AQAP 2210 Supplementary Software Quality Assurance Requirements](#) (as per QM003-A – Quality Requirements for NATO Contracts)

AQAP 2210 is intended for use with AQAP 2110 as a software specific and project oriented supplement, and defines the requirements for the Software Quality Management Activities as related to the Project to be documented in a Software Project Quality Plan. These activities are based on the supplier's software quality system. The publication also requires the evaluation of the software quality management activities to ensure their effectiveness.

### [AQAP 2105 Deliverable Quality Plan](#) (as per QM003-A – Quality Requirements for NATO Contracts)

Where required suppliers **shall** submit a Deliverable Quality Plan (DQP) in accordance with [AQAP 2105](#) which describes the framework in which the contract will be accomplished and is subject to approval by LMUK quality department.

The quality plan is considered as the key document which **shall** define all relevant standards and procedures to ensure that work is completed successfully to the required level of quality. The supplier **must** ensure that their own personnel are aware of the existence, purpose and content of the quality plan. Form [F0389](#) Deliverable Quality Plan template **may** be used to meet this requirement.

### [AQAP 2131 Quality Requirements for Final Inspection](#) **AQAP 2131 does not apply within the scope of this document.**

## AQAP 2310 Quality Requirements for Aviation, Space and Defence Suppliers

AQAP 2310 is invoked when suppliers hold AS9100 (or equivalent) certification where AQAP 2110 does not apply.

### QUALITY PLAN (ISO 10005)

(as per QM003-B – Quality Requirements for NATO Contracts)

Where required suppliers **shall** submit a (Deliverable) Quality Plan (DQP) in accordance with AQAP standards or as detailed with the contractual requirements which describes the framework in which the contract will be accomplished and is subject to approval by LMUK quality department.

The quality plan is considered as the key document which **shall** define all relevant standards, procedures and specific customer requirements to ensure conformance to requirements

The supplier **must** ensure that their own personnel are aware of the existence, purpose and content of the quality plan. Form [F0389](#) Deliverable Quality Plan template **may** be used to meet this requirement.

### ISO 10007 CONFIGURATION MANAGEMENT PLAN

(as per QM003-B – Quality Requirements for NATO Contracts)

Where required suppliers **shall** prepare and operate a Configuration Management Plan, which describes the application of configuration management to the contract in accordance with AQAP standards or as detailed with the contractual requirements.



## 16. QM003 Document Changes

Date	Iss	Clause(s)	Changes	Change by
22 June 2016	2	All	Complete re-write of Quality Requirements for Suppliers	Konrad Burgoyne
13/03/2017	3	1.2	Order of Precedence added	Konrad Burgoyne
		4.7	Delivery Quality Condition descriptions changed	
		All	ISO 9001:2008 References removed	
		5	Figure 1 Additional Flow-Down Requirement Selection Flowchart amended in line with AQAP 2110 Edition D	
		5.1,5.2,5.3 & 5.6	AQAP 2110 Edition D (2016) supersedes AQAP 2110 Ed 3, 2120 and 2130	
		10.1	Part marking as per purchase order, design data or drawing added	
		10.2	The supplier shall ensure that full traceability is maintained and can be provided on request throughout the sub-tier supply chain added	
		11	Certificates must be traceable to the certifying quality representative or company official on request added	
		11.1	Reference to raw material certification where applicable and name of authorised certifying quality representative or company official removed	
		13.2	Deviation from design data generalised	
		13.6	Shelf life requirement increase to 80% unless otherwise specified	
		14.2	Lockheed Martin conflict minerals policy hyperlink added	
18.1	Figure 2 Delivery Documentation Requirement Flowchart added			
19	Requests for deviation permit or application for concession amended in line with current process			
31/10/2017	4	All	Restructure of Document to align with ISO 9001 and AS9100 requirements	Craig White
05/01/2018	5	3.6	Addition of Regulatory Authority to 'right of access'	Craig White
30/05/2018	6	4.9.1	Change to C of C requirements (FAI)	Craig White
		4.11.2	Addition of Production Permit term	Craig White
		Appendix 2	First Article Requirement clarification on flowchart	Craig White
03/07/2018	7	Appendix 3	New section added to Appendix 3 to include Special Process Document References & update to Appendix 2	Craig White

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# Quality Matters



**Start Right – Keep Right – Finish Right**

QM003 Quality Requirements for Suppliers Issue 6 is a non-classified Lockheed Martin UK Ampthill Ltd publication.

It is permissible to distribute copies of this publication to sub-contractors, suppliers and the sub-tier supply chain.

This document supersedes QM003 Issue 5 and: -

- QM003-A Quality Requirements for Suppliers (UK Military Contracts)
- QM003-B Quality Requirements for Suppliers (Non-UK Military Contracts)
- QM003-C Quality Requirements for Suppliers (Business Supplies)

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**QM003**  
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