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Supplier Quality Manual

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<b>13</b>	13-09-2018	Change to Para 18 - FAIR requirement. Removal of out of date hyperlinks
<b>14</b>	24-01-19	Clarification on the requirements to ensure full traceability throughout the supply chain – Para 10 New link added to website – Para 1

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## CONTENT

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1. SCOPE .....	3
2. INTRODUCTION .....	3
3. QUALITY SYSTEM .....	4
4. EVALUATION.....	5
5. DELEGATED RESPONSIBILITIES .....	5
6. ACCESS.....	5
7. SUB CONTRACTING / SUPPLIER CONTROL.....	6
8. SPECIAL PROCESS / MATERIAL MANAGEMENT.....	6
9. RAW MATERIAL, SEGREGATION & PRESERVATION OF PRODUCT.....	8
10. TRACEABILITY.....	8
11. PROCUREMENT OF ELECTRONIC COMPONENTS.....	9
12. TOOLING, GAUGING & MEASURING EQUIPMENT CONTROL.....	9
13. NON-CONFORMING PRODUCT .....	10
14. PRODUCTION PERMIT & CONCESSION .....	12
15. OBSOLESCENCE .....	12
16. COUNTERFEIT PARTS .....	12
17. QUALITY PLANS.....	13
18. CHANGE MANAGEMENT& FAIRs .....	13
19. CHANGES IN QMS, FACILITES, MANAGEMENT OR OWNERSHIP .....	14
20. CERTIFICATES & RELEASE .....	15
21. SHELF LIFE / STORAGE SENSITIVE DEVICES .....	16
22. FOREIGN OBJECT DEBRIS/DAMAGE (FOD) PREVENTION .....	16
23. DELIVERY .....	17
24. RECORD RETENTION.....	18
25. IMPORT & EXPORT CONTROL COMPLIANCE .....	18
26. CONTROL OF CUSTOMER AAG PROPERTY .....	19
27. SOFTWARE QUALITY ASSURANCE .....	20
28. REACH & CLP .....	20
29. REPAIR STATION - 145.....	21
30. TRAFFICKING IN PERSONS.....	21

## 1. SCOPE

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This document details the minimum Quality Management Organisation and System requirements expected by Ametek Airtechnology Group Ltd (AAG) of its Suppliers, Sub-Contractors and Stockist Distributors.

The standards defined are mandatory and supplement the quality requirements and conditions of the purchase order.

In the event of conflict between the requirements of this document and the requirements of the purchase order, the purchase order requirement shall prevail unless otherwise agreed with Quality or Purchasing representative in writing.

This document, is available via AAG Purchasing / AAG SQE /

<https://www.ametek-airtechnology.com/>

It must be reviewed periodically for issue changes. These reviews must be recorded.

## 2. INTRODUCTION

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To maximise effectiveness, our policy is to co-operate fully with a restricted number of key suppliers. The aim is to assist and encourage them to achieve high levels of performance in quality, cost and delivery leading to **Strategic Supplier** status.

3 key areas will be monitored.

- Purchase Order Acknowledgments.
- Delivery – On Time Delivery (OTD) – Target, minimum 95%.
- Quality – Strategic suppliers are monitored monthly and measured by escapes / month.

### **Purchase Order Acknowledgments**

Purchase Order Acknowledgments should be returned following your contract review to the Buyer named on the Purchase Order within 2 working days of receipt. These should at a minimum state the Purchase Order number, part number, description, price and confirmed delivery date. If this date

is acceptable, or unchanged from our request, this date will be the date against which performance will be measured unless by written agreement with the Buyer.

### **On Time Delivery (OTD)**

The confirmed delivery date taken from your Purchase Order Acknowledgment is understood to be the date delivered into AAG, not the date of despatch. All goods must be accompanied by the correct paperwork and suitably packaged. Failure to provide this will mean that we are unable to process the receipt and orders will be recorded as late. Details of paperwork and packaging expectations are covered in detail below. No partial deliveries should be made without prior authorisation from the Buyer.

### **Quality**

In the event of a reject, the supplier will be notified.

A charge of £75 will apply to the supplier for the administration of any FRACAS (Failure Reporting and Corrective Action System) / SCAR (Supplier Corrective Action Report) if supplier is proven responsible.

### **Purchase Orders delivered too early**

Purchase Order deliveries can be made up to five calendar days in advance without the Buyers authorisation provided that this does not cross into the month prior to its due date. No deliveries should be made outside of this window without written consent from the Buyer.

During the supplier approval process, the potential supplier must review and agree to the terms of this procedure. Any deviations must be highlighted on the AAG Assessment Form and agreed by AAG before the supplier can be added to Approved Supplier Status.

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## **3. QUALITY SYSTEM**

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Suppliers to AAG must maintain a Quality Management System (QMS) that is compliant as applicable to the current revision of the following:

- Manufacturing: AS 9100 or ISO 9001,
- Special Processors: NADCAP (AC7004) as applicable,
- Materials Testing, Calibration, NDT Laboratories: ISO 1702, NADCAP or equivalent industry standards,
- Distributors: AS 9120
- Software Suppliers: AS 9100 and AS 9006
- Rail welded parts: EN 15085

Exceptions or additions to these requirements must be documented and approved by AAG Quality rep.

Suppliers not meeting the requirements above shall, as a minimum, meet the requirements of this document and may be subject to additional oversight and requirements as specified by AAG.

The Supplier Quality Representative should be directly responsible to a senior executive of the company who is independent of production.

The Supplier shall determine the necessary competence for personnel performing work, inspection and test effecting product quality and also maintain appropriate training and qualification processes in accordance with their QMS.

Where contractually agreed, Process Control must be established for features on the specifications where Key Characteristics are identified. The relevant data must be made available on each delivery.

Documentation and records necessary to demonstrate compliance with the requirements of the purchase order will be maintained and made available for auditing by our representatives upon request at all reasonable times.

Stockist Distributors shall include the following records as part of their Quality Management System where applicable:

- Manufacturer, distributor, repair station, test and inspection reports.
- Original certificates of Conformity (manufacturer, sub-tier distributor), copies of airworthiness certificates.
- Non-Conformance, concession and corrective action records.
- Lot traceability records.
- Environmental or shelf life condition records.

All documentation must remain legible and readily identifiable. The use of correction fluid on all forms of documents/records is prohibited.

The Supplier Quality Representative must have access to all purchase order requirements, drawings, specifications and other related documentation necessary to fulfil their duties.

The Supplier shall ensure that the working conditions and environment are controlled as appropriate in respect to cleanliness, temperature, humidity, ventilation, lighting, space, noise, air pollution and protection from Electrostatic Discharge (ESD).

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#### **4. EVALUATION**

Approved Suppliers will be continuously monitored to assess their ongoing suitability by measurement of quality, cost and delivery performance and surveillance audits.

Should a Suppliers performance fall below an acceptable standard, the Supplier will be notified and the following steps will be undertaken:

- The Supplier will be removed as a potential supplier on new projects.
- Approval may be suspended or withdrawn if performance is not improved within an agreed time-scale.

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#### **5. DELEGATED RESPONSIBILITIES**

Through the process of approving a Supplier, we may delegate specific responsibilities to defined personnel at the Suppliers facility.

These delegations are personal and may not be transferred to any other persons without the prior approval of AAG Quality Representative.

Requests for additional delegations may be submitted to AAG Quality Representative.

We may also wish to verify at source, but this does not negate the responsibility of the supplier.

We receive build to print contracts from our customers and may delegate specific customer flow downs to the supplier. These requirements will be held within the product specific agreement and it is the supplier's responsibility to adhere to these additional terms and conditions.

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#### **6. ACCESS**

The Supplier will permit reasonable access to his company premises for Quality, Purchasing and Customers if necessary to:

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- discuss the terms and conditions of the Purchase Order with the Quality Representative,
- conduct periodic audits and assessments of products, the approved QMS and supporting facilities,
- source inspections and delegated responsibility assessments, agree corrective action plans following a reported non-conformance.

The Supplier will also allow full and free access to Regulatory Organisations and AAG customers to perform investigations on Products and Parts. Records, Specifications and other related documents must be made available to support these activities. Being a Supplier of International Traffic in Arms Regulations (ITAR) components does not negate this requirement.

The performance of these duties does not relieve the Supplier of his contractual quality obligations and responsibilities.

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## **7. SUB CONTRACTING / SUPPLIER CONTROL**

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The Supplier will not change in part, or as a whole, any product, process or service without our written approval.

We reserve the right to evaluate and audit any 2<sup>nd</sup> tier sub-contractor / supplier. Any such action will not relieve the Supplier of his responsibility to ensure the quality of any product / service obtained.

### **1) Verification of Sub-Tier Purchased Product**

The supplier shall establish a process to verify that sub-tier purchased product meets specified drawing and purchase order requirements. Periodic verification activities may include inspection and audits on the sub-tier facility.

### **2) Validation of Processes**

The supplier shall be responsible for the validation of any processes or Special Processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement. This includes any processes where deficiencies become apparent only after the product is in use or the service has been delivered or that requires destructive testing to validate. Validation demonstrates the ability of these processes to achieve planned results. For all special processes that requires NADCAP accreditation, the Supplier shall retain a certificate of conformance verifying the Special Process was performed by a NADCAP-accredited source with each shipment.

All relevant quality requirements specified in this document must be flowed down to lower tier suppliers.

The Supplier will maintain methods of qualifying and approving suppliers and measuring supplier performance.

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## **8. SPECIAL PROCESS / MATERIAL MANAGEMENT**

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The Supplier shall use NADCAP approved subcontractors to perform Special Processes unless otherwise directed or approved by AAG Quality Representative.

Tier 1 suppliers into AAG have the ability to change their suppliers for special process provided that:

- The applicable process at the new supplier(s) is NADCAP approved.
  - The supplier has a documented change procedure must include a documented full risk and mitigation analysis that protects AAG from delivery and/or quality shortfalls.
  - The tier 1 supplier is still responsible for providing a delta FAIR for the change in supplier / process which should contain a FULL FAIR from the new supplier.
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AAG request all tier1suppliers to maintain a list of all Special Process suppliers used in the manufacture of AAG product.

If a supplier has NADCAP approval for a special process (SP), they may be utilised for the manufacture of SP product. The use of a NADCAP Special Processes does not relieve the Supplier's responsibility for the quality of purchased products and services. Even though the Suppliers have NADCAP approval, the AAG supplier still has the responsibility for a document oversight of that Supplier.

If supplier desires to use a non-accredited Special Processes, the request must be submitted in writing to AAG Quality Representative.

- Non-accredited supplier will be subject to an audit.
- Written authorization of waiver must be obtained from AAG Quality Representative prior to proceeding.
- It is the responsibility of the supplier to ensure sub-tier compliance.

If a non NADCAP approved process is used, then an annual assessment shall be carried and records maintained. The Data Card/Route card shall be authorized by a suitably qualified representative for the applicable specification.

**Special processes include:**

- Chemical Processing (based on AS 7108, AS 7108/1 and AS 71058/2)
- Coatings (based on AS 7109)
- Composites (based on AS 7118)
- Elastomer Seals (based AS 7115)
- Heat Treating (based on AS 7102)
- Materials Testing laboratories (based on AS 7101, AC 7101/1-9, AC 7101/11 and AC 7006)
- Non Destructive Testing (based on AS 7114)
- Sealants (based on AS 7200/1 and AS 7202)
- Electronics
- Welding\* (based on AS 7110 for aerospace and defence and EN 15085 for rails)
- Nonconventional Machining & Surface Enhancement (based on AS 7116 and AS 7117)

The Supplier will maintain records of all “on receipt” inspections including critical measurements / features or drawing key characteristics at goods-in inspection whether a 100% inspection or a sampling plan is followed and Approval Certificates covering materials and supplies.

For specific rail contracts referencing EN 15085:

- Manufacture items must be fully and strictly in accordance with drawings and specifications.
- Manufacturer shall be certified to EN 15085 CL1 or CL2 as applicable to drawing requirements.
- Manufacturer shall have a certified welding coordinator or a sub-contracted welding coordinator of the appropriate level defined by the highest weld performance class identified on the drawing.
- Approved WPS(S) & WPQR(S) as applicable to drawing requirements.
- Welder shall be certified in accordance with EN 9606-1 or -2 relevant to the weld process, material, joints and thickness.
- Welding inspector shall be certified in accordance with drawing requirements.
- All weld joints shall be inspected in accordance with drawing requirements appropriate to the weld performance class.

This requirement should be reflected on the drawing and may be applied on the purchase orders.

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All suppliers undertaking this activity **MUST** be specifically approved for 'Rail Welding' and work according to Quality Plan. All welding process specifications, qualifications and records shall be provided and approved prior to first delivery. The supplier must allow reasonable access to their premises for the purpose of welding audit. This will be conducted in conjunction with the AAG Welding Co-ordinator.

**Material Management:**

Preference will be given to suppliers holding AS 9120 approvals. Stockist Distributors will be responsible for the quality of all products purchased from manufacturers and must define the necessary actions to take when dealing with manufacturers that do not meet the requirements. The Stockist Distributor shall also prevent the purchase of counterfeit/suspect unapproved product.

Suppliers providing soldered assembled PCB must have their operators trained with an approved IPC partner to IPC-A-610 "target" standard when performing soldering inspection.

- IPC-A-610 Class 1 to 'target'
- IPC-A-610 Class 3 to 'target'

Suppliers providing rework process must have their operators trained with an approved IPC partner and follow IPC-7711/21 standard and inspected to IPC-A-610 Class 3 to 'target'.

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**9. RAW MATERIAL, SEGREGATION & PRESERVATION OF PRODUCT**

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The Supplier will provide secure facilities, preferably a bonded area, to ensure that material is not used until inspected or otherwise verified as conforming to specification. A clear distinction is required between material in quarantine and material accepted for use and waiting issue.

Materials will be controlled in such a manner to prevent loss of batch traceability and incorrect issue throughout the supply chain.

Where material is procured or made specifically for orders, positive steps shall be taken to ensure that the designated material and only that material is used on the order.

Materials will be stored and protected in such a manner to prevent damage and deterioration or loss of identification and traceability at all times

The Supplier shall preserve the conformity of product during internal processing and delivery to the intended destination. Preservation shall include, where applicable:

- cleaning,
- prevention, detection and removal of foreign objects,
- special handling for sensitive products,
- marking/labelling including safety warnings,
- shelf life control and stock rotation,
- special handling for hazardous materials.

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**10. TRACEABILITY**

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All raw material obtained by the Supplier to meet an order, and all parts incorporated into assemblies which are subsequently supplied must be **FULLY** traceable to the original source and identifiable to the manufactured item. Should multiple lots of a raw material be required to fulfil an order, then components manufactured from each different lot must be supplied in separate suitable packaging clearly identified and fully traceable back to the raw material certificate. Each separate lot and qty **MUST** then be identified and referenced on the C of C for the shipment.

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Likewise FULL traceability must also be flowed down to any third-party sub-contract operation such as plating, anodising, heat treatment etc.

Failure to comply with the above requirement will result in the lot being rejected.

Traceability must be maintained through all stages of the Suppliers manufacturing process, including the maintenance of inspection and test records.

The Supplier shall maintain the identification of the configuration of the product in order to identify any differences between the actual configuration and the agreed configuration.

For any given product, the supplier must maintain the ability to retrieve a sequential record of its production, including manufacture, assembly, inspection and test.

In the event of certain processes being further sub-contracted, traceability to the 2<sup>nd</sup> stage control, inspection and / or test records must be maintained and retrievable.

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## **11. PROCUREMENT OF ELECTRONIC COMPONENTS**

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Electronic components shall be purchased directly from the manufacturer or it's Franchised Distributors.

In cases where a commercial part is referenced on an AAG drawing, the AAG drawing must be flowed to the supplier of the component and all requirements of the AAG drawing must be met.

Parts from the manufacturer or their Franchised Distributors shall have:

- Original manufacturer warranty.
- Acquisition traceability to the manufacturer via proper packaging, handling, storage and shipping.
- In all instance the Franchised Distributor shall provide a Certificate of Conformity and the OEM certificate. Any deviation from this will require a permit to supply into AAG.

Electronic components that are no longer available via authorized stockists may be procured with prior AAG Quality approval in writing which will be given only after component authenticity has been established as per SAE 5553.

For electronics components traceable COC's back to the OEM is required. However, AAG will consider, under concession, route traceable COC's back to an authorised franchised distributor (this must be demonstrated at the time of request).

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## **12. TOOLING, GAUGING & MEASURING EQUIPMENT CONTROL**

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All supplied tooling becomes the responsibility of the Supplier whilst in their possession.

The equipment must be maintained in a reasonable condition and subjected to an appropriate calibration process where applicable.

All supplied tooling must be returned when requested.

All gauging and measuring equipment shall be identified by a unique code number and a record maintained of the initial and subsequent dimensional and operational inspection examination of such equipment.

All equipment shall be subject to an initial calibration check against a National Standard and subsequent checks will be carried out on each item of equipment, the frequency of which shall be based on objective evidence of stability and continuing accuracy.

Records will be compiled for each item, stating the date and result of each check.

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The Supplier shall arrange for measuring equipment which is the personal property of his employees and used on products supplied to be identified and controlled in accordance with these requirements.

Where the calibration status of equipment is not clear, it shall not be used until the calibration has been verified.

The Supplier must ensure that environmental conditions are suitable for all calibrations, inspections, measurements and tests being carried out.

The Supplier must ensure that personnel performing inspection activities whether in-line or at final inspection stage have successfully passed a yearly eye examination, such as E Chart, Snellen Chart, Ishihara colour test.

The Supplier is responsible for monitoring tooling usage based on the guidelines listed below. Once the applicable tool has produced the quantity of pieces listed on the chart below, the Supplier shall prepare a dimensional inspection report. If all dimensions are acceptable the Supplier shall continue production and does not need approval from AAG. However, the resultant dimensional inspection report must be retained at the Supplier's facility. If a problem is found the Supplier shall immediately contact the AAG Buyer regarding the non-conformity and suggested next steps (see also "concession" and "permit" sections).

Additional Inspection reports should be produced during the usage of the tool. As a guideline, the following should be followed.

Type of Tooling	Pieces
Castings (Wood Tooling)	800
Castings (Polymer Resin Tooling)	2,000
Castings (Metal Tooling)	5,000
Castings (Investment)	15,000
Moulded Parts	3,000
Stampings (non-laminations)	25,000
Form cutting Tools	2,500
Lamination Press Tools	50,000

- OE production - After a 2-year break in production a full dimensional report is required.
- AAG Spares only - After a 5 year break in production a full dimensional report is required.

Test Rigs I Equipment: All test rigs I equipment shall be calibrated and validated. The calibration shall be incorporated and administered through the suppliers QMS.

### 13. NON-CONFORMING PRODUCT

The Supplier / Stockist Distributor shall have a system for the control of non-conforming items which must include provision for:

- identification of non-conforming material or parts,
- segregation of such material or parts from acceptable items,
- documentation defining the nature of the defect and what remedial / corrective action has been authorised and undertaken. The document must clearly state the defective parts by number and serial / batch number,
- periodic review of product non-conformity,

- evidence to demonstrate that appropriate action has been taken to prevent recurrence,
- timely reporting (within 24 hours of findings) of delivered non-conforming product that may affect reliability or safety.

### **Supplier Discovery**

When a supplier has any reason to suspect or knows that non-conforming product has been delivered to AAG or AAG's customer, the supplier shall notify AAG Quality Representative immediately. The notification must advise:

- part numbers affected-drawing/specification requirement,
- quantity,
- detailed description of the non-conformance,
- Purchase Order number(s) and line item number(s),
- information required identifying the non-conforming hardware, e.g., serial number, lot number, date of manufacture, etc.,
- shipping date, destination, carrier, bill of lading, or any other information necessary to locate the non-conforming product,
- cause of defect, if known at the time,
- dates when additional information or outcomes of investigations will be available,
- actions taken if sub-contractors or suppliers are involved and their corrective action plans.

Supplier must cease all production activities related to the escape pending further AAG review.

### **AAG Discovery**

AAG will contact the Supplier and issue a FRACAS / SCAR against the parts prior to return. Returns will be systematically tracked and supplier PPM (parts per million defects) will be recorded and monitored.

The Stockist Distributor shall ensure with the manufacturer where necessary that similar supplies are not similarly affected by a non-conformance and shall inform of any non-conformities effecting product already delivered within 24 hours of findings.

The Stockist Distributor is responsible for the withdrawal of products from stock that are suspected as non-compliant.

### **Rework**

No rework shall be permitted on metallurgical or chemically treated parts without written approval from AAG Quality Representative and AAG Engineering. Re tempering of hardened and tempered parts in order to adjust material properties shall be permitted without approval but manufacturing records shall clearly record the operation, its parameters and the resulting properties achieved.

### **Repair**

Repair procedures must be approved by AAG in advance of their use on AAG product. Approval of the repair procedure does not imply final acceptance of the product.

Known defective parts/material should not be sent to AAG without an approved Concession. This approved document shall be shipped with parts.

### **Scrap**

Any product deemed as scrap shall be physically damaged beyond repair prior to removal from a bonded or production area for disposal. If the scrap involves product supplied by AAG, the Supplier

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must notify the AAG Buyer in writing and delay any "scrap action" pending formal instructions from AAG Buyer.

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#### **14. PRODUCTION PERMIT & CONCESSION**

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Our policy is to restrict non-conforming parts and the submission of Production Permits and Concession Applications.

However, where necessary, and in the spirit of working together, requests for permission to deviate from the Purchase Order, drawing or specification requirements in advance of manufacture (Production Permit) and requests to use or release items which do not conform to order, drawing or specification (Concession) are to be made in writing, and authority given by Quality Assurance.

The supplier may use their own form or request the AAG form from AAG SQE

The Concession Number must be quoted on the release documentation, and where identified, the part marked after the method has been agreed. Failure to observe these requirements will result in rejection.

Supplier must have documented procedures for managing product/process deviation identification and documented procedures for non-conforming material identification, control, disposition, and disposal. Suppliers are not authorized to proceed with a product or process deviation and/or disposition of non-conforming product to AAG unless previously approved by permit.

A further label shall be attached to:

- each individual item or bag
- each shipping carton clearly identifying the permit number.

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#### **15. OBSOLESCENCE**

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If a drawing or associated reference specification calls out a document and/or material that are no longer available, Suppliers are directed to review with AAG Quality / Engineering.

In cases where a commercial part is referenced on a AAG drawing irrespective of the method of reference, the AAG drawing must be flowed to the Supplier of the component and all requirements of the AAG drawing must be met.

Electronic components that are no longer available via authorized stockists, may be procured with prior AAG Quality approval in writing which will be given only after component authenticity has been established as per SAE 5553.

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#### **16. COUNTERFEIT PARTS**

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Suppliers and Brokers must have a counterfeit parts prevention program. The purpose of this program shall be to prevent the delivery of counterfeit parts and control parts identified as counterfeit. Further guidance can be found in SAE AS5553

The Supplier is responsible for notifying AAG of any suspected components used in AAG designs immediately upon discovery, irrespective of whether parts are suspected to be delivered to AAG or not.

Counterfeit parts include the following considerations:

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- Unauthorized copies or substitutes of an original Equipment Manufacturer or Original Component Manufacturer.
- Parts that are not traceable to an OEM, sufficient to ensure authenticity in OEM design & manufacture.
- Parts that do not contain proper external or internal material or components required by the OEM and are not constructed in accordance with the OEM.
- Parts that have been reworked, re-marked re-labelled, repaired, refurbished but are represented as OEM authentic or as new.
- Parts that have not successfully passed all OEM required testing, verification, screening and quality control processes.
- Parts that are procured from the “grey market” shall be subject to this review and shall require additional inspection and testing for every procurement batch. This testing shall be defined by either an approved permit or by an Engineering report and shall be compliant to AS5553.

### Reporting

All occurrences of counterfeit parts shall be documented and reported, as appropriate, through AAG Quality and to external organizations (e.g. law enforcement / Aviation agencies).

AAG Lead (Pb)-Free Soldering.

AAG current policy on accepting component termination finishes shall be to address each request for change on a part by part basis at the generic level (same manufacturer, same part type etc). The use of any Pb-free component finish shall be authorized via the drawing revision.

The Supplier shall maintain full traceability of the use of Pb-free component finishes, including point of embodiment, date codes and finish specification. Finish information should be recorded on the Certificate of Conformity for the component.

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## 17. QUALITY PLANS

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When contractually required to prepare and issue a Quality Plan for the product, the Supplier shall supply such information on the QMS and procedures operating throughout their company, as requested. Confidentiality of commercial processes is however recognised.

Where a Quality Plan document is required from the Supplier, this will be requested in writing and the document must be submitted for approval by AAG Quality Representative within the time period agreed and prior to any commencement of work.

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## 18. CHANGE MANAGEMENT & FAIRs

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The Supplier shall notify for approval all changes to manufacturing processes, change to supply within their own supply chain and changes of raw material source. Requests can be submitted on the Concession/production Permit Application form.

The Stockist Distributor shall ensure with the manufacturer that any changes to Supplies including design changes for catalogue / standard parts are notified.

For parts manufactured against AAG drawing or specification a FAIR complying to AS 9102 is to be delivered with the first off parts along with the supplier's Certificate of Conformance and all raw material, process and component certifications including raw material manufacturer's test report and / or certificate of analysis, consumable material cert's (i.e. solder etc.), component cert's (i.e. resistors, LED's etc.) showing full traceability back to the OEM.

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FAIR's are required in the following circumstances;

- first time a supplier manufactures a component
- In the case where a different distributor OR a “new / existing” supplier buys up stock from an incumbent supplier a FAIR is NOT required as the parts / process will not have changed. However, once the stock from exiting supplier is exhausted and new supplier begins to manufacture a FAIR will be required. The buyer is responsible to enforce / manage this process via the Purchase Order Process – P-PUR-01-00.
- a change in the design / up-issue of the drawing,
- a change in manufacturing process / method,
- a change in any software (i.e. numerical control program) that is used to manufacture the part,
- a lapse in production of two years,
- a natural or man-made occurrence, which may adversely affect the manufacturing process (this includes re-setting of major jigs, machines or tooling that may result in location or datum variations).
- a change in the facilities, procedures, personnel (adequate training / skills must be demonstrated), location / site which may be considered to affect the integrity of the product,
- In case where no FAIR, or where an existing FAIR is not compliant to AS 9102 and is requested by AAG.

All the above may be satisfied by a partial (delta) FAIR, providing that there is already a current full FAIR which complies to AS 9102 including the conditions above. This needs to be checked and verified with the AAG's Quality Representative prior to submission.

Note! When a drawing references a 'Step File' - the supplier shall not only undertake to confirm the dimensions as detailed on the drawing but also need to confirm the data in the Step file. This is typically demonstrated by an accompanies Coordinate Measurement Machine report.

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## **19. CHANGES IN QMS, FACILITIES, MANAGEMENT OR OWNERSHIP**

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Suppliers will immediately notify AAG Buyer in writing of the following changes:

### **Company Name Change Only**

A copy of the certificate from 'Companies House' in the UK or the equivalent for the country of origin shall be supplied to the AAG Quality Manager. In addition, AAG must be supplied with:

- Completed New / Change Supplier Account Form
- Full postal address relating to the name change.
- Full international banking detail on supplier letter head paper. This document should be signed by a business owner, detailing position and dated.

AAG review will determine if new account number is required.

### **Acquisitions, Mergers, Buy Outs & Take Overs etc.**

The purchasing company is required to supply copies of the official documentation confirming the act that has taken place in addition to above information.

In these instances, a New Account shall be allocated including a reference to the old account.

### **Change in location of facilities, processes or manufacturing equipment.**

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Notification must be prior to relocation and with adequate time for hardware, system, and process re-qualification. Change notification must also include full risk and mitigation analysis that protects AAG from delivery and/or quality shortfalls during a transition.

### **Changes in Certifications/Approval**

If a Supplier loses or chooses not to renew their certification / approval, regulatory or Special Process approval, the Supplier must immediately inform the AAG Quality Representative in writing with a clear statement of "why" and planned future actions.

Supplier shall email [mark.wilson@ametek.com](mailto:mark.wilson@ametek.com) within seven (7) days of change.

Failure to notify AAG Quality could result in business suspension or exit.

### **AAG Reporting to Oasis**

AAG reserves the right to report any concerns related to Supplier certification to the Oasis database which may result in additional oversight by the certification body.

AAG reserves the right to review the Oasis database for the Suppliers last audit report.

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## **20. CERTIFICATES & RELEASE**

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The Supplier shall carry out inspection of all products and services before submitting them and will certify that all such products and services conform to the full requirements of the purchase order.

A C of C shall include sufficient information to enable it to be correlated to the supplied parts / items and must accompany product / supplies delivered to AAG.

Where a supplier has authority to issue certification documents under local aviation authority conditions, (e.g. EASA Form One, FAA form 8130-3) such certification is required.

Supplier's use of electronic signatures shall be subject to audit by AAG. The C of C must contain as a minimum the following:

- consignee's name and address,
- unique C of C reference number, clearly identified with certificate date Purchase Order, PO No.,
- Blanket Order No.,
- description and quantity of supplies,
- AAG drawing / part numbers and issue
- material specifications (where there is no drawing),
- identification marks and serial numbers (as appropriate),
- manufacturing lot no. or traceability reference,
- for all raw materials cast and/or batch numbers / date code / lot No., test report reference and, if called for, copies of test results,
- any limitations / Shelf Life Expiry dates.

### **Exceptions / Concessions:**

An authorised copy of the concession / permit should be attached.

A further label shall be attached to each individual item or bag, AND to each shipping carton clearly identifying that these goods are being progressed on Concession xxx.

Certificate of conformance documentation requirements from distributors can be met in one of the following ways:

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- Original manufacturer's certifications shipped with material or parts plus the distributor's certification.
- All supplies and services must be released to M-PUR-00-01 and either ISO9001 or AS9100 (if applicable).

Paperwork must arrive with the goods, be placed inside or attached to the box with the corresponding parts. Multiple part, or batch numbers within each box is acceptable but only if these are segregated, bagged and clearly labelled, and provided that individual order lines are generated on the paperwork.

Paperwork covering multiple boxes is acceptable provided the previous criteria are met and that multiple purchase order numbers for the same parts are packed separately.

Where orders are placed with a distributor but delivered direct by the manufacturer, distributor paperwork will be required in advance of the delivery clearly stating who the delivery will be from, the manufacturer's paperwork must also be cross referenced to the distributor and include the AAG Purchase Order number.

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## **21. SHELF LIFE / STORAGE SENSITIVE DEVICES**

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- The Supplier / Stockist will ensure that if a supply has a limited Shelf Life it would have at least 75% remaining of the manufacturer recommendation.
- Shelf life expiry date shall be clearly displayed on every item being supplied (not just on the container box).
- The Supplier / Stockist is responsible for the calculation of the expiry date based on manufacturing date and storage period according to the classification of the material.
- The latest Safety Data Sheets shall be provided with any updates.
- The delivery notes and C of C shall include expiry date and clearly define storage condition (e.g. temperature ranges, humidity).
- For rubber products, unless otherwise specified, the Shelf Life and storage conditions shall follow the guidelines of ISO 2230 section 6 & 7 (Rubber products – Guidelines for Storage).
- The packaging shall be opaque to prevent the product from degrading.
- The Supplier / Stockist is responsible to inform AAG about every case of non-conformity or concern identified by the OEM, by supplier itself or by other customers (including item recall).

Additional requirements applicable for the Vendor Managed Inventory within AAG facilities:

- The Supplier / Stockist shall maintain all OEM C of C and this shall be available for inspection and recall within 24 hrs at request of Ametek, Ametek customers and / or Regulatory Authorities.
- The retention period of C of C as defined in section 24 of this document.
- The Supplier / Stockist is responsible for controlling all environmental conditions as indicated in the safety data sheet.

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## **22. FOREIGN OBJECT DEBRIS/DAMAGE (FOD) PREVENTION**

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The Supplier must maintain work areas and control tools, parts, and products in a manner sufficient to preclude the risk of FOD incidents.

FOD prevention measures must be implemented / maintained to assure the prevention, detection and removal of foreign objects during design, manufacture, assembly or shipping of an item.

Supplier's FOD prevention measures shall include supplier's periodic self-assessment of its internal FOD prevention, including each respective subcontractor and lower tiers to measure effectiveness

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of compliance to requirements. Supplier's FOD prevention measures shall provide initial and periodic FOD training to Supplier's employees.

Assistance in developing a FOD program can be provided upon request.

### **Preservation of Product**

All non-treated ferrous material must be preserved by the Supplier using oils, oil paper, grease or any wrapping material that will prevent corrosion. Newspaper, acidic or sulphur based wrapping paper SHALL NOT BE USED.

Electrical Laminations and pole pieces must not be oiled or greased. They shall be wrapped in corrosion resistant paper.

Finished parts (items that will not receive additional plating or painting), must be preserved in a manner that will prevent damage during shipment.

Corrosion preventive compounds must not be used on electrical or electronic parts or assemblies.

The supplier shall preserve the conformity of product during internal processing and delivery to the intended destination. This preservation includes identification, handling, packaging, storage and protection. Preservation includes where applicable and in accordance with product specifications or applicable regulations, provisions for cleaning and prevention and detection of foreign objects.

### **Age / Temperature / Moisture Controlled Material & Electro Static Discharge (ESD)**

When age controlled material is involved the supplier shall identify each material container with the manufacture / cure date (mm/yy) and Shelf Life period. Test reports and/or certifications shall include the expiration date in a month, day, and year format. AAG reserves the right to reject and/or retain any material with less than 75% Shelf Life remaining. This data shall be stipulated on the C of C.

When temperature controlled material is involved the Supplier shall provide material packaging suitable to maintain proper temperature during transportation from their facility to AAG. Supplier shall provide necessary temperature measuring equipment to monitor the material during transportation to assure compliance to the specifications of the Purchase Order / Contract.

When moisture controlled material is involved, the supplier shall store material / components in a humidity controlled environment in the manufacturer's recommended packaging, and if required baked in accordance with manufacturer's instructions.

Packaging for such materials shall be clearly marked as containing temperature / moisture controlled material. AAG reserves the right to reject or retain any material where storage requirements have been exceeded.

Supplier shall ensure that all ESD sensitive materials, devices, or assemblies capable of being degraded, damaged or destroyed by electrical static charge shall be handled in accordance with ANSI/ESD-S-20.20 or AAG standard 981-214-005 (available on request)

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## **23. DELIVERY**

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The Supplier will ensure that all parts are delivered correctly identified, as required by the drawing and the Purchase Order.

Deliveries shall be correctly packaged to prevent damage, deterioration, corrosion and other risks during transportation. For rubber products, unless otherwise specified, packaging and labelling requirements shall follow the guidelines of ISO 2230:2002 section.

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## 24. RECORD RETENTION

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The Supplier will retain all manufacturing, purchasing and quality records associated with the orders for a minimum of 15 years after completion of the order (or at such time that the company ceases to trade).

No records will be disposed of without written authority from AAG Quality Representative. Instructions for disposal may provide for all records to be returned to AAG Quality Representative for archiving with written agreement, in which case the records are to be collated together and fully identifiable to the appropriate Purchase Order.

**NOTE:** Records shall be stored in either hardcopy or softcopy format – the softcopy must be stored in a format that cannot be amended or changed over time, e.g. scanned from hardcopy or 'printed' to a pdf or equivalent industry file format standard.

## 25. IMPORT & EXPORT CONTROL COMPLIANCE

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All deliveries that are subject to ITAR regulations coming in from the United States that require a DSP5 license should have a redacted copy of the license delivered with the goods in order to meet the AAG Compliance rules.

The Suppliers, and their sub-tier suppliers as applicable, shall comply with all export-import control laws and regulations including, but not limited to, the U.S. Export Administration Regulations (EAR) and the U.S. International Traffic in Arms Regulations (ITAR) to the extent applicable to the Supplier and AAG respective activities under the Purchase Order.

All US manufacturers, exporters, and brokers of defence articles, related technical data and defence services as defined on the United States Munitions List (Part 121) of the ITAR are required to register with the Directorate of Defence Trade Controls (DDTC).

<http://www.pmdtc.state.gov/registration/index.html>

All suppliers, regardless of their physical location in the world, who manufacture and / or exports US defence items (hardware and technology), or furnish US defence services for AAG must comply with the International Traffic in Arms Regulations ITAR.

Follow the link below for the ITAR 22 CFR 120-130.

[http://www.pmdtc.state.gov/regulations\\_laws/itar.html](http://www.pmdtc.state.gov/regulations_laws/itar.html)

All suppliers, regardless of their physical location in the world, who manufacture and / or export US controlled commercial/ dual use items for AAG must comply with the US Export Administration Regulations (EAR).

Follow the link below for the requirements of the EAR.

[http://www.bis.doc.gov/licensing/ex\\_Q,ortingbasics.htm](http://www.bis.doc.gov/licensing/ex_Q,ortingbasics.htm)

All Suppliers must ensure that they have observed and obtained all the required government approvals to manufacture and / or export equipment and / or technology used on military / commercial applications, in compliance with ITAR or EAR regulations as applicable. Suppliers must ensure that any applicable authorizations, registrations, or licenses are in place and in force prior to manufacture or export of any item and/or technology. Suppliers have the obligation and responsibility to ensure that applicable authorizations, registrations and/or licenses are maintained with respect, but not limited to, expiration dates, quantity limits and dollar limits.

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In addition to complying with US export / re-export control regulations, suppliers must always comply with their own government and regulatory approvals even though not delineated specifically in this manual.

When the Purchase Order and/or applicable documents does not specify a method of packaging, and preservation it is the supplier's responsibility to assure that product is preserved and packed using methods that will assure that it arrives damage free to AAG.

The method of packaging must:

- prevent damage, deterioration, and ingress or entrapment of packaging materials into cavities or spaces in the hardware,
- permit safe handling,
- assure that all necessary warnings are completely visible,
- assure the shipping address, supplier name, quantity, and part number are visible,
- assure that the packing list, quality documents, and other important information is enclosed inside the package.

All electrical connectors must be covered with a tight fitting cap. Connectors for ESD equipment shall be covered with a black ESD rated cap.

AAG Airtechnology is a manufacturer of electronic components and as such needs to minimize the potential damaging effects of static electricity. As such the following packaging instructions need to be adhered to:

### **Bags**

- all electrostatic-sensitive devices (ESD) should be packed in accordance with BS EN 61340-5-1:2007,
- static sensitive parts should be placed in anti-static bags,
- all other parts supplied in bags should use non static generating (pink) bags.

ESD precautions shall be employed for packaging and labelling of boards and other applicable devices. All items in unit, intermediate and shipping containers shall be clearly marked as ESD Sensitive or in accordance with MIL-STD- 1686.

Shipments consisting of multiple containers shall be identified as follows:

- e.g. 1 of 5, 2 of 5, 3 of 5 etc.

Multiple part deliveries in one box should be identified on the outside of the box with their separate labels to allow separate booking in of parts.

### **Packing List Documents must include:**

- P.O. number
- Part Number
- Revision
- Quantity
- Description
- Date
- Concession/Permit Notation

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## **26. CONTROL OF CUSTOMER AAG PROPERTY**

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### **Customer Property:**

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All Suppliers in possession of AAG-owned property or end customer property (e.g. military owned) shall have a documented process for controlling customer property. The Supplier shall exercise care with customer property while it is under the organization's control or being used. If any customer property is lost, damaged or otherwise found to be unsuitable for use, this shall be reported to AAG Quality Representative and records maintained.

AAG or AAG customer property shall be used only as required in the completion of AAG orders.

#### **Control of AAG Owned or Funded Tooling:**

The Supplier will maintain an active tooling management plan which specifies tool life, maintenance intervals and need for repeating first articles at appropriate intervals. This is to ensure tooling does not wear and so produce non-conforming parts. This tooling management plan shall be reviewed by AAG auditors as necessary. It is required that key "wear" features are monitored and periodically inspected. The recommended method is on-going Statistical Process Controls (SPC).

The Supplier shall be responsible for monitoring tooling usage.

The Supplier shall prepare a dimensional inspection report if there is a 2 year break in production.

If all dimensions are acceptable the Supplier shall continue production with no need for approval from AAG and the resultant dimensional inspection report must be retained at the supplier's facility. If a problem is found the supplier shall immediately contact the AAG Buyer regarding the non-conformity and agree the next step.

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## **27. SOFTWARE QUALITY ASSURANCE**

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Suppliers that load AAG provided software and/or firmware or IGES files are required to verify and control the software as appropriate. The Supplier shall have documented procedures that provide for the application of manufacturing controls and quality assurance procedures for verifying, loading, and controlling the software / firmware.

When Suppliers utilise a third party to load software and / or firmware, they shall flow down these applicable requirements and ensure the applicable agreements are in place with those sub-tier suppliers to protect AAG proprietary information.

Suppliers utilising software for the manufacture /quality control of product (e.g. CNC programs) shall control software in accordance with the principles outlines in ISO / IEC 27001. Any system employed must ensure:

- the integrity of the electronic storage system utilised,
- security of access to the data,
- appropriate authorisation levels for individual users,
- suitable back up and "restore" capabilities.

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## **28. REACH & CLP**

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All Suppliers must ensure that they meet requirements of REACH and CLP regulation.

REACH is the Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals. It came into force on 1 June 2007.

CLP stands for the Regulation (EC) No 1272/2008 on the Classification, Labelling and Packaging of substances and mixtures amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. CLP introduces the United Nations globally harmonized

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system (UN GHS) for classification and labelling of chemicals into Europe. CLP entered into force on 20th January 2009.

European Chemicals Agency (ECHA) website:

<http://echa.europa.eu/regulations>

AAG gathers information on substances present in finished parts (called 'Articles' in REACH) that are supplied to us. This allows us to fulfil our obligations with regards to this legislation, which legally obligates manufacturers and importers into Europe to provide a declaration if any Substance of Very High Concern (SVHC) contains more than 0.1% by weight in any Article.

Suppliers providing to AAG chemical substances and mixtures are required to deliver updated Safety Data Sheet in accordance with regulatory requirements.

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### **29. REPAIR STATION - 145**

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All repair stations shall as a minimum have either CAA, EASA, FAA or CAAC approval for the activities being conducted.

All repair stations shall be subject to periodic inspection and auditing by AAG.

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### **30. TRAFFICKING IN PERSONS**

Supplier shall notify its employees and agents of the U.S. Government's policy prohibiting trafficking in persons as well as those resulting actions that may be taken against employees or agents for violations of this policy.

Supplier will inform AAG, and applicable Government officials, of any credible information received from any source alleging an employee, subcontractor, subcontractor employee, or agent has engaged in conduct that violates the policy in 52.222-50(b), along with the actions taken against said employee, subcontractor, subcontractor employee or agent.

Supplier, shall implement and maintain a compliance plan, covering the performance period of the U.S. Government contract / subcontract, awarded by AAG, for any portion that is: (i) for supplies (other than commercially available off-the-shelf items as defined in Paragraph (1) of FAR 2.101) acquired overseas, or services performed overseas, and (ii) has an estimated value exceeding \$500,000.

Contracts / subcontracts awarded by AAG, shall have implemented a compliance plan to prevent any prohibited activities defined in 52.222-50(b) and to monitor, detect and terminate the contract with a subcontractor engaging in prohibited activities defined in 52.222-50(b).

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