



Curtiss-Wright Defense Solutions

SUPPLIER QUALITY COMMUNIQUE

Spring 2017

As a valued partner and supplier to Curtiss-Wright we have adopted a Bi-annual supplier bulletin process to ensure suppliers are kept informed in advance of quality and supply chain focus areas, changes to our supplier quality clauses and terms and conditions. Our Procurement and quality teams at Curtiss-Wright work in partnership to inform our supply and services base whenever we observe trending quality issues that may impact Curtiss-Wright and our customers and to engage with suppliers on issues related to the evolution of Quality Management Standards. We plan to release this information communique twice annually to ensure you are aware of Curtiss Wright areas of concern, trends in SCAR activity in specific commodities and to ensure you are ready for the released changes to AS9100, AS5553 and ISO standards.

Where a particular item is commodity specific we have listed in parentheses (specifics such as ALL-MECH-EEE). All refers to all suppliers, MECH refers to mechanical suppliers, EEE refers to suppliers of OEM or franchised distribution Electronic Components.



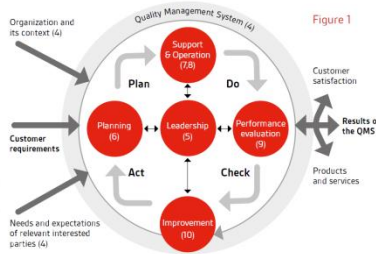
AS9100D/ISO 9001:2015 QMS Changes (ALL)

With the release of AS9100D and the ISO 9001:2015 standards suppliers should be well past the assessment and gaps review process pursuing registration bodies and preparing your plans for audit and certification to the new revisions. Plans for cutover, education and certification in your organizations should be well underway to the new requirements. There have been specific changes at the ISO standards level where quality manuals are defined as not required and or quality representatives may not be specifically required. We wish to emphasize that a key quality responsibility coordination role should remain in your organizations and a **Quality manual structure should be retained.**

IAQG SAE may be solicited via their websites where valuable directives and training material currently exist. Even if your organization does not certify to AS9100 a particular valuable piece of reference material is the **IAQG Supplier handbook.**

KEY CHANGES IN AS9100D and ISO9000 INCLUDE:

- Process approach (PDCA) strengthened explicit with integration of the QMS into organization's business processes.



External Interested parties

AS9100D and ISO9000 introduced a significant change in the management and control of suppliers and sub-tier suppliers. Some of the key areas where both standards actively introduce controls and flow-downs include:

Counterfeit Mitigation: (EEE)

AS5553B -AS6081-AS6171 and ARP 6328

SAE via their suite of AS standards have released the approved revisions to several standards related to counterfeit mitigation. CWDS encourages our suppliers, franchised distributors and Brokerage Test houses concerned with, or are required to mitigate the risk of counterfeits, to adopt methods and or and become certified to AS5553, AS9120 AS6081 or ISO/IEC 17025 which will guide them on methods to avoid and detect counterfeits.

Please familiarize yourself with these revised standards as they are currently flowed down to applicable suppliers via our quality clauses and terms and conditions. An associated standard, AS6081 provides test methodology for independent distributors to comply with an AS5553 manufacturer's requirements thereby creating a dependency in these standards.

AS6171 May have a large Impact! Be prepared!

The AS6171, with potential to be adopted and flowed down by Aerospace customers, will provide detailed risk evaluation instructions for authentication of broker parts. This standard is complex and assumes suppliers know the criticality of their products. The pending standard provides a more detailed instruction on how to test electronic components for authenticity and in particular how to assess risk and select authenticity testing appropriate to the product application.

The ISO/IEC 17025 standard used for accrediting test facilities, who perform the tests prescribed in AS6171. An accreditation confirms that the test lab and their staff have the proper equipment and training to be able to perform specific. It has been discussed that Franchised Broker test Houses may require ISO/17025 certification when AS6171 is released or flowed down.

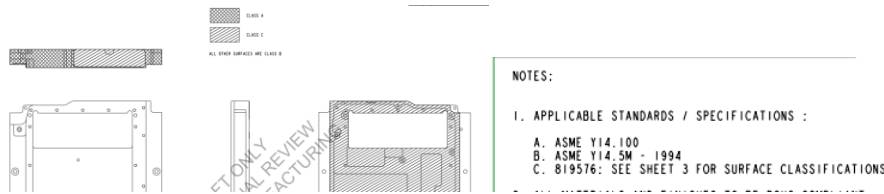
SAE's G19 committees have been working very hard to modify these standards.

Supplier Awareness Curtiss Wright Cosmetic Standards (MECH)

Please consult the CWDS Division for Specific Procedures or Clauses.

CWDS designed procured materials such as thermal frames, ejectors, wedge locks, shims,

In an effort to assist suppliers with regards to cosmetic standards unique to CWDS designed parts, newly revised drawings released by CWDS will now contain a surface cosmetic classification in accordance with CWDS specification 819756. (Class A-B or C) On older legacy drawings the typical surface classification is imbedded in the cosmetic standard referenced on the P.O. Therefore, the suppliers shall consult the cosmetic specification for non-defined drawing surface classifications. Examples of these types of surfaces are included in 819756 and this standard will be revised and released in Q3 2017. Please review the standard upon receipt.



Trending Quality SCARS/Quality Escapes (ALL)

This year we have seen repetitive failures from our suppliers in the following categories:

FAI and first off Validation Errors:

Particular Examples pertain the Special Process Supplier Controls for Anodic Coatings and Nickel Plating:

Failure Mode:

Anodic Coatings/ Nickel-plating defects rejected by CWDS resulting from poor contract review and failure to flow down audit and verify requirements to the sub tier special process vendor from CWDS requirements.

As a result of the above occurrences CWDS may be flowing down a requirement to include supporting lab test results to the C of C for a plating, painting and chemical film or Anodic coating (First Article Submissions) and we expect to request periodic provision of these reports for active P.O's. Your CWDS buyer will communicate additional.

We have encountered defective material that has escaped to CWDS due to First Article Inspection failure modes and first off defects that have escaped supplier quality systems.

The High Risk Opportunity for Defect and quality escape prevention and detection: (ALL)

A failure that has been frequently detected by CWDS or noted in supplier SCAR responses occurs when supplier's internal process encounters a change opportunity. In any industry sector this is one of the most risk prevalent areas for quality defects to occur and for escapes to customer (CWDS) to take place and remain undetected.

CWDS encourages a practice of Golden Sample verification during these change scenarios, often a secondary shift supervisor or lead hand could verify or peer verify that the operator or technician has generated an acceptable part.

When applicable by QC clauses please consult the SAE/IAQG website supplier Portal for AS9102 access and training materials for FAI completion if applicable to your product.

- Incorrect or missing FAI certificates from sub-tiers.
- Errors on FAI forms (AS9102 format incorrect).
- Incorrect paint specification applied and missed by CWDS prime supplier on an FAI.
- Plating anomalies incorrect thickness.
- Anodizing errors attributable to sub-tier special process suppliers.
- **A more detailed sub-tier supplier FAI review and audit is warranted at your suppliers.**

8D Root Cause Analysis/ Containment ineffective or restricted: (ALL)

In one case CWDS experienced a product recall that was originally contained at a suppliers operation. The containment was not broad enough and escaped to CWDS. In fact, CWDS found the defect first.

In many cases suppliers have restricted their containment to the part identified as defective and has failed to expand containment to all products or the defective root cause affects all products they build.

Special Process:

Special process where features or elements cannot be verified require particular attention to detail. Consult the

AS9100 Supply Chain Management Handbook through the IAQG website for guidance.

Incorrect application of sealants: (MECH)

We have seen parts where Loctite required in the suppliers design was absent or incorrectly applied. Several of these are hidden features provided by the supplier if defective could result in a direct escape to CWDS customers. CWDS strongly suggest that hidden attributes such as Loctite should be cross-validated by an inspector or peer and documentation of this cross validation should be retained by the supplier.

FOD Controls: (ALL)

Suppliers are required to ensure our parts are free from FOD (Foreign Object Debris). Suggested guidance for a FOD control system includes NAS standard 412 FOD. Several examples indicate FOD such as machining chips were not removed from drilled and tapped holes.

Another FOD example involved a plastic blasting media used on the parts ordered by CWDS. This media became entrapped in the threaded holes preventing assembly.

Supplier and sub supplier defectives and process control failure modes:(ALL)

We have detected failures where the stated conformity of a sub-tier supplier to our prime supplier failed to control a process element and or feature. Examples include plating and anodizing controls.

Documentation errors:(ALL)

Incomplete, incorrect, or missing C of C are increasing. CWDS provides direction through Quality Clauses and Suppliers documents. Access to these clauses as listed to on CWDS Purchase order:

<https://www.curtisswrightds.com/company/customer-supplier-information/>

If your product is conforming but the C of C is incorrect, the product is non-conforming.

WHAT SHOULD CWDS SUPPLIERS BE DOING NOW?

- Review Purchase Orders, Quality Clauses and General Terms and conditions to P.O.
 - Contract Terms conditions and Quality Clauses can be obtained on the CWDS supplier portal.
 - Ensure employees who prepare the C of C are knowledgeable of the requirements based on the commodity.
 - Analyze your final inspection process/procedure/checklists and confirm that it includes review of the C of C.
 - Where applicable audit your F.A.I methodology and re-train staff to train using the IAQG supplier Handbook.
 - Consider adopting a structured 8D root cause and corrective action system, review containment strategies.
 - Audit special process suppliers on site and verify process controls are acceptable and are documented.
 - Review your contractual flow down to suppliers.
 - If distributing EEE parts refresh your AS5553 knowledge.
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If you have questions regarding this Supplier Communique, please contact your CWDS buyer and or the officers noted below. Our suppliers are critical to our success. Openly communicating expectations and working together to meet expectations is pivotal to our ongoing relationships.

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