



Aerospace Quality Management Systems

Course: AS9100, AS9145 APQP, FAI and Counterfeit Parts



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Introduction:

Aerospace quality management systems training on AS9100, AS9145 APQP, FAI and counterfeit parts is a 5-day course for quality system owners, supplier quality engineers, inspectors and internal auditors at aerospace and defence suppliers and MRO organisations, ending with an AS9100 Gap Closure and Implementation Plan. Suppliers lose customer approvals when first article records are incomplete, key characteristics drift, special processes run unqualified or suspect parts enter stores. Nominees already run quality tasks under ISO 9001 and work through case studies on real records. CoreConcept Training Center delivers this aerospace quality course.

Course Objectives:

- Interpret the AS9100 clauses that go beyond ISO 9001, including product safety, operational risk and critical items, for a supplier or MRO site
- Set up configuration management and key characteristic controls that hold product definition and variation within customer limits
- Plan aerospace product launches through the AS9145 APQP phases and assemble a PPAP approval package
- Complete and review AS9102 first article inspection records and decide when a partial FAI is needed
- Apply AS5553 and AS6174 controls to prevent, detect and dispose of counterfeit parts in purchasing and receiving
- Produce an AS9100 Gap Closure and Implementation Plan for a supplier organisation

Target Audience:

- Quality system staff responsible for maintaining an AS9100, AS9110 or AS9120 system at a supplier, MRO or distributor site
 - Supplier quality engineers responsible for flowing customer requirements down and approving sub-tier parts and processes
 - Inspection and verification staff responsible for first article records, key characteristic checks and product release
 - Internal auditors responsible for assessing process effectiveness against aerospace quality clauses
 - Purchasing and stores staff responsible for authorised sourcing, receiving inspection and quarantine of suspect parts
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Course Outline:

Day 1: AS9100 Foundations and the Aerospace Quality Context

- AS9100 Clause Structure Mapped Against ISO 9001 Requirements
- AS9110 and AS9120 Scope for MRO and Distributors
- Product Safety Clause and Safety-Critical Item Register
- Operational Risk Assessment Across Contract Review and Production
- AS9100 Readiness Checklist for a Current-State Site Review

Day 2: Configuration Management, Key Characteristics and AS9145 APQP

- Configuration Management Plan with Baselines and Change Board
- Key Characteristic Identification and Variation Control Flow-Down
- AS9145 APQP Five Phases and Gate Deliverables
- AS9145 PPAP Approval Package Content and Customer Sign-Off
- Special Requirements and Critical Items Flow-Down to Sub-Tier Suppliers

Day 3: AS9102 First Article Inspection and Special Process Control

- AS9102 Form 1 Part Number Accountability Completion
- AS9102 Form 2 Materials, Special Processes and Functional Tests
- AS9102 Form 3 Ballooned Drawing Characteristic Verification
- Partial FAI Decision Rules After Design or Process Change
- Special Process Qualification for Heat Treating, NDT and Coatings

Day 4: Counterfeit Parts Prevention, Human Factors and Escape Cases

- AS5553 Counterfeit Electronic Parts Avoidance and Mitigation Plan
- AS6174 Counterfeit Materiel Controls for Mechanical and Raw Stock
- Suspect Part Screening with X-Ray, XRF and Decapsulation
- AS6081 Distributor Traceability and Authorised Source Purchasing Records
- Human Factors Root Cause Analysis for Quality Escapes

Day 5: Case Study on AS9100 Gap Closure for a Supplier

- Case Supplier Profile, Contract Flow-Down and Document Set
 - Case Configuration and Key Characteristic Control Review
 - Case First Article Record Audit Against AS9102 Forms
 - Case Counterfeit Risk Assessment of the Purchasing Chain
 - AS9100 Gap Closure and Implementation Plan Completion
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Skills You Will Gain:

- Aerospace Clause Interpretation
- Configuration Control
- Key Characteristic Management
- Aerospace Launch Planning
- First Article Record Review
- Special Process Oversight
- Counterfeit Part Screening
- Quality Escape Investigation

Why Attend This Course:

- Deliver an AS9100 Gap Closure and Implementation Plan for a case supplier to the quality manager and the accountable site manager
- Decide whether a first article record, a PPAP package or a supplier special process can be accepted or must be reworked
- Avoid lost customer approvals, escapes to the aircraft and quarantine costs caused by unqualified processes or suspect parts
- Brief inspectors, buyers and stores staff using the FAI review sheet, flow-down checklist and counterfeit screening steps

Conclusion:

Back at work, the participant hands the AS9100 Gap Closure and Implementation Plan to the quality manager and the accountable site manager. Management uses it to assign owners for configuration, key characteristic, first article, special process and counterfeit prevention controls, and to set the order in which gaps close before the next customer or certification audit. After the first audit or first article cycle run under the plan, the site should review open findings, escapes and supplier approvals and revise the actions that fell short.

Frequently Asked Questions FAQ:

What should participants know before aerospace quality management systems training on AS9100, APQP and FAI?

Participants should already work within an ISO 9001 or aerospace quality system and be able to read engineering drawings and inspection records. Bringing an anonymised first article record, purchase order flow-down or supplier audit finding helps during the case study work.

How does aerospace quality management systems training differ from a general quality engineering course on APQP and PPAP?

This course centres on the aerospace system clauses: product safety, configuration management, key characteristics, AS9102 first article inspection, special process control and counterfeit parts prevention. A general quality engineering course goes deeper into FMEA scoring, gauge studies and sampling plans for any industry.

Why is counterfeit parts prevention part of aerospace quality management systems?

AS9100 includes a clause on preventing counterfeit parts because suspect parts can reach flight hardware through unauthorised sources. AS5553, AS6081 and AS6174 set out avoidance, detection, mitigation and disposition controls for purchasing, receiving and stores.

What do participants take back from aerospace quality management systems training on AS9100 and FAI?

Participants take back an AS9100 Gap Closure and Implementation Plan for a case supplier, plus an AS9102 first article review sheet, a requirements flow-down checklist and counterfeit screening steps they can adapt to their own site.
