NSF-ISR

AS9100D Transition Guide

Updated November 4, 2016

AS9100 Series Overview

AS9100 Aerospace Management Systems is a widely adopted and standardized quality management system for the aerospace industry. It was introduced in October 1999 by the Society of Automotive Engineers in the Americas and the European Association of Aerospace Industries in Europe. The International Aerospace Quality Group (IAQG) developed the AS9100 document.

AS9100 encompasses ISO 9001, with additional requirements for quality and safety relevant to aerospace, and defines the quality management systems standard for the industry. All major aerospace manufacturers (OEMs) and suppliers worldwide endorse or require certification to AS9100 as a condition of doing business with them.

AS9110 (Aerospace Management System for Maintenance, Repair and Overhaul (MRO) Stations) is based on AS9100 and adds specific requirements that are significant for the maintenance of commercial, private and military aircraft. Certification of an MRO supplier to AS9110 is intended to provide an additional layer of control, but not act as a replacement for regulatory oversight or customer monitoring.

AS9120 (Aerospace Management Systems for Stockist Distributors) is also based on AS9100 and adds specific requirements for organizations that procure parts, materials and assemblies and sell these products in the aerospace industry (e.g. stockist distributors). AS9120 addresses chain of custody, traceability, control and availability of records. The standard is applicable to organizations that resell, distribute and warehouse parts found in aircraft and other aerospace components.

The AS9100 series International Aviation, Space and Defense Quality Model has approximately 105 additional requirements beyond ISO 9001, including:

- Configuration Management
- Risk Management
- Special Requirements
- Critical Items
- On Time Delivery
- Project Management
- Supplier Scope of Approval

Key Benefits of AS9100

The aircraft and aerospace industries have embraced AS9100 as a critical tool for improving quality and on-time delivery within their supply chains. Most of the major aircraft engine manufacturers require AS9100 certification for their suppliers.

Benefits of certification to AS9100 global industry standards include:

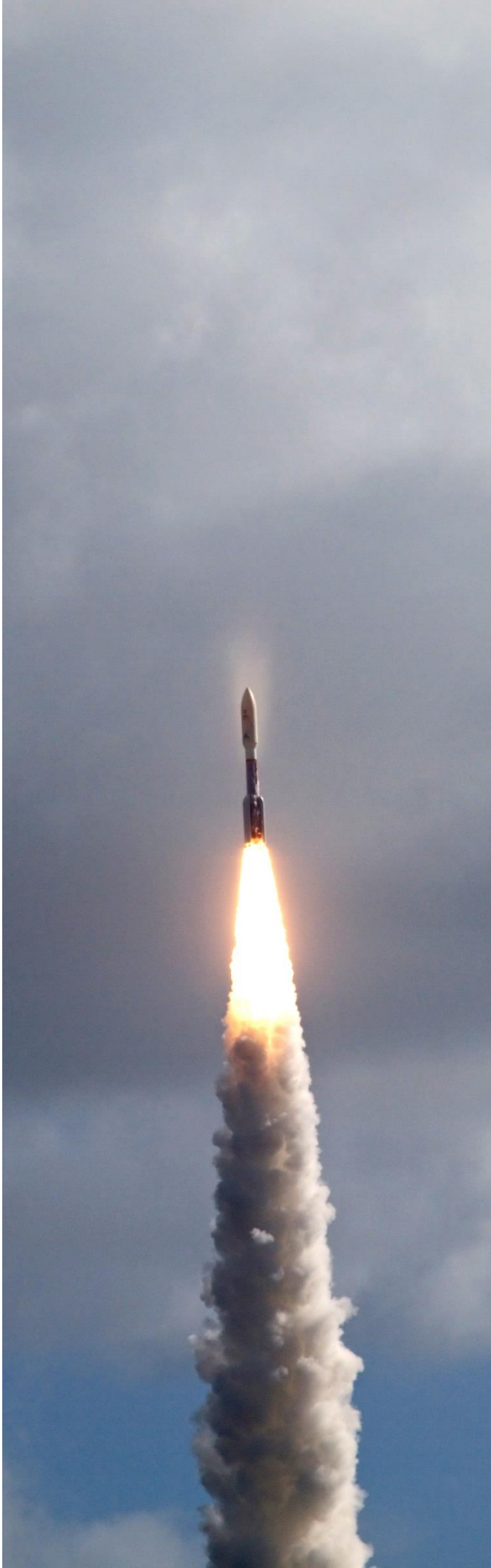
- A qualification to supply major aerospace manufacturers
- Easy integration into existing quality management systems as the AS9100 standard is based on ISO 9001, with additional, industry critical criteria
- Access to the best practices of the aerospace industry for quality and traceability to help reduce operational risk
- Enhanced marketability of your products and services through third-party proof of your commitment to deliver high-quality products and services
- A focus on customer satisfaction: performance objectives must be aligned to customer expectations
- Access to global markets through internationally recognized certification

Reasons for Change

All standards go through a regular update to bring them in line with industry changes and developments in technology. The 9100 series (AS9110, AS9120 and AS9115) is being updated to:

- Incorporate changes to the ISO 9001:2015
- Consider aviation, space and defense stakeholders' needs (Web survey performed in 2013)
- Incorporate clarifications to 9100 series requested by IAQG users since the last revision

The standard will focus on adding clarity and enhancing ease of use, while addressing industry and stakeholder needs.



AS9100 Areas of Focus

- **Product Safety** added in a separate clause and in selected areas
- **Counterfeit Parts Prevention** added in a separate clause and in selected areas
- **Risk** merged current 9100 requirements with the new ISO requirements and emphasis on risks in operational processes
- **Configuration Management** clarified and improved to address stakeholder needs
- **Awareness** reinforced requirements for awareness of individual contribution to quality
- **Human Factors** included as a consideration in nonconformity / corrective action
- **Configuration Management** clarified and improved to address stakeholder needs
- **Product Realization and Planning** clarified and enhanced planning throughout the standard
- **Post-Delivery Support** merged current 9100 requirements with the new ISO requirements
- **Project Management** combined with Operation Planning to address user interpretation issues
- **Design Development and Supplier Management** Gap analysis - ISO text has been added back in a few places to meet the IAQG needs
- **Quality Manual** Note added pointing to the requirements that make up a quality manual or the equivalent
- **Management Representative Requirement** added back in for Management Representative QMS oversight

Once AS9100:2016 Has Been Published…

What Should You Do?

Become Informed

- Become familiar with ISO 9001:2015
- Purchase the AS9100:2016 standard and begin to understand it
- Understand differences between the 2016 version and previous versions

Begin Planning

- Customers have three years from the publication to transition to the new standard

Communicate

- Communicate changes to your team, top management, organization and interested parties
- Questions, needs or suggestions? Contact NSF-ISR at information@nsf-isr.org

Transition Timing for Industry & NSF

Industry Date	NSF Target Date	Task
9/15/2015		ISO 9001:2015 Released
8/1/2016		Release of draft Supplemental Rule (SR003)
9/20/2016		AS9100D Release
10/20/2016		AS9101F Release
11/1/2016		AS9120B Release
11/4/2016		AS9110C Release
11/30/2016		AS9100D, AS9101F Auditor Training Released
12/1/2016	**11/1/2016**	Provide documented information on requirements of transition to all certified clients
12/1/2016	**11/15/2016**	Communicate to AB (through OASIS) dates of readiness to upgrade scope to AS91XX:16
12/3/2016		Next Gen OASIS Phase 1
1/1/2017	**12/1/2016**	Client establish transition commitment date
1/16/2017		AS9110C, AS9120B Auditor Training Released
3/1/2017	**2/15/2017**	Obtain documented evidence of client's commitment to transition to the upgraded version
4/22/2017		Next Gen OASIS Phase 2
6/15/2017	**10/20/2016**	CB Transition to 17021-1 complete
6/15/2017	**2/1/2017**	AS9104-001 accreditation updated to include 2016 version of AQMS standards including the 9101:2016 standard
6/15/2017	**2/1/2017**	Scope of accreditation must include 91XX:2016 criteria (9100, 9110, 9120, 9101)
6/15/2017	**6/1/2017**	All auditors transitioned and authenticated to new standards.
6/15/2017	**6/15/2017**	All audits conducted to new standards (may be exceptions for "special" audits)
9/1/2017		Current OASIS will no longer accept uploads – Must be in Next Gen
9/15/2017	**9/1/2017**	CBs complete and report risk mitigation plan for un-transitioned certified clients
12/1/2017	**11/15/2017**	Conduct risk mitigation plan for any client that has not transitioned
1/1/2017	**12/1/2016**	Client establish transition commitment date
9/15/2018		ISO 9001:2008 and AS Standards (AS9100C, AS9110B and AS9100A) Cancelled
9/15/2018		Transition complete - All non-transitioned certificates expire

AS9100D (2016) High Level Milestones

- Current certificates will not be valid after the 3-year transition period
- Existing AS9100 standard series users encouraged to transition early, transitions may occur at any point during cycle
- Must maintain valid current certificate until successfully issued AS9100D (2016) Certificate
    - All organizations must transition by September 15, 2018
    - Audits should be completed no later than June 15, 2018 *(This will allow sufficient time for NCR closure, if needed)*

Transition Updates

How Long Will My Audit Be?

- Durations is required to be increased for all audits, to ensure an effective review of the changes between current standard(s) and new standard(s)
- The amount of increase will depend on factors:
    - The type of audit (Re-certification vs. Surveillance)
    - Client specific risk factors
    - Client specific level of readiness (self-survey)
    - A simple survey (~10-15 questions) will be sent to all clients in November, to gather specific information about each organization. We NEED this information, so please complete the survey.

When Can I Upgrade?

For AS9100, we anticipate readiness by Q1 of 2017 and can facilitate audits to AS9100D or AS9100C.

- Through 15 June 2017, the client organization has the choice of standard used
- After 15 June 2017, all audits must be conducted to the new standard (except "Special Audits", like scope expansion)

For AS9110 and AS9120, readiness will be a little later, based on a delayed release of auditor training. We still anticipate Q1 (late) readiness.

- 15 June 2017 is still a mandated conversion date.

What Will Happen At My Audit?

Through the audit, a review will be conducted of:

- All processes of the organization
- All "deltas" / gaps from the current standard (9001 and 91XX) and the new standard.
- A review of activities for your scope statement (we must verify the capability and capacity for performing all activities described in your scope of registration).

AS9100 Series High-Level Changes

Clause 1 **Scope**	- New process model - Added a plan-do-check-act (PDCA) model - Added "risk-based thinking" - Emphasis on defining the QMS and context of the organization
Clause 2 **Normative References**	- No normative references
Clause 3 **Terms and Definitions**	- ISO 9001 terms and definitions moved to ISO 9000 - Added 9100 "product safety" and "counterfeit product"
Clause 4 **Context of the Organization**	- Quality manual not required; maintained documentation is required - Justified exclusions not limited to realization/operations processes - QMS processes have performance indicators
Clause 5 **Leadership**	- QMS compatible with strategic direction - QMS requirements integrated into business processes - Processes deliver their intended outputs
Clause 6 **Planning for the QMS**	- When planning the QMS, determine the actions needed to address opportunities and risks (preventive) - Increases requirements for planning of changes
Clause 7 **Support**	- Determine organizational knowledge requirements - Awareness of contribution to compliance and product safety
Clause 8 **Operation**	- Planning for product obsolescence - Plan activities needed to assure product safety - Prevention of counterfeit products - Process to validate test reports for raw material used in critical item - Release of products and services
Clause 9 **Performance Evaluation**	- Assess performance of QMS processes - Added Note to evaluate performance indicators on internal audits
Clause 10 **Improvement**	- Evaluate the need for action based on human factors

All ISO management systems standards will now have this common 10-clause structure, called Annex SL structure. The AS QMS requirements take into account new requirements from aviation, space and defense and other QMS standards, incorporates stakeholder feedback and provides a common baseline with ISO 9001 which benefits:

- Suppliers with dual certification requirements
- Sub-tier suppliers who only need ISO 9001

The commonality also enhances both auditor flexibility and reduced training needs.

How NSF-ISR Can Help You With the Transition

NSF-ISR is a leader in management systems registration and can provide the latest information to clients on updates to the standard. We work with clients to ensure they fully understand the requirements and timing of the standard changes. Upon request, we can provide a gap analysis.

Through webinars, email updates, Web content, presentations and white papers, NSF-ISR is here to ensure that customers are equipped with the tools they need for registration. Our knowledgeable auditors are trained and our systems calibrated in preparation for the AS9100 launch.

Whether you are currently registered and would like to gain efficiency by consolidating your audits, or are looking to newly register, we have the tools and knowledge you need to succeed. NSF-ISR has developed, or is in the process of developing, the following tools for customers looking to register to AS9100. As they are developed, you can find them on our transition website, www.nsf.org/info/iso-updates.

- **Online Readiness Tool**
- **Onsite Informational Sessions**
- **GAP Analysis**
- **Training Sessions**
- **Tailored Transition Plans**
- **Transitional Planning**
- **Webinars**
- **Specialized Sessions**
- **Upgrade Planner**

9100 Correlation matrices

This table provides correlation matrices comparing 9100:2016 to 9100:2009. Please note that Annex A in 9100:2016 states the following:

A.1 Structure and terminology

- *The clause structure (i.e. clause sequence) and some of the terminology of this edition of this International Standard, in comparison with the previous edition (9100:2009), have been changed to improve alignment with other management systems standards.*
- *There is no requirement in this International Standard for its structure and terminology to be applied to the documented information of an organization's quality management system.*
- *The structure of clauses is intended to provide a coherent presentation of requirements, rather than a model for documenting an organization's policies, objectives and processes. The structure and content of documented information related to a quality management system can often be more relevant to its users if it relates to both the processes operated by the organization and information maintained for other purposes.*
- *There is no requirement for the terms used by an organization to be replaced by the terms used in this International Standard to specify quality management system requirements. Organizations can choose to use terms which suit their operations (e.g. using "records", "documentation" or "protocols" rather than "documented information"; or "supplier", "partner" or "vendor" rather than "external provider"). Information on the major differences in terminology between this edition of this International Standard and the previous edition can be found in Table A.1 of 9100:2016.*

9100:2016	9100:2009
4 Context of the organization	**1 Scope**
4.1 Understanding the organization and its context	1.1 General requirements
4.2 Understanding the needs and expectations of interested parties	1.1 General requirements
4.3 Determining the scope of the quality management system	1.2 Application 4.2.2 Quality manual
4.4 Quality management system and its processes	4 Quality management system 4.1 General requirements
5 Leadership	**5 Management responsibility**
5.1 Leadership and commitment	5.1 Management commitment
5.1.1 General	5.1 Management commitment
5.1.2 Customer focus	5.2 Customer focus
5.2 Policy	5.3 Quality policy
5.2.1 Developing the Quality Policy	5.3 Quality policy
5.2.2 Communicating the Quality Policy	5.3 Quality policy
5.3 Organizational roles, responsibilities and authorities	5.5.1 Responsibility and authority 5.5.2 Management representative 5.4.2 Quality management system planning
6 Planning	
6.1 Actions to address risks and opportunities	5.4.2 Quality management system planning 8.5.3 Preventive action
6.2 Quality objectives and planning to achieve them	5.4.1 Quality objectives
6.3 Planning of changes	5.4.2 Quality management system planning

9100:2016	9100:2009
7 Support	**6 Resource management**
7.1 Resources	6 Resource management
7.1.1 General	6.1 Provision of resources
7.1.2 People	6.1 Provision of resources
7.1.3 Infrastructure	6.3 Infrastructure
7.1.4 Environment for the operation of processes	6.4 Work environment
7.1.5 Monitoring and measuring resources	7.6 Control of monitoring and measuring equipment
7.1.5.1 General	7.6 Control of monitoring and measuring equipment
7.1.5.2 Measurement traceability	7.6 Control of monitoring and measuring equipment
7.1.6 Organizational knowledge	
7.2 Competence	6.2.1 General 6.2.2 Competence, training and awareness
7.3 Awareness	6.2.2 Competence, training and awareness
7.4 Communication	5.5.3 Internal communication
7.5 Documented information	4.2 Documentation requirements
7.5.1 General	4.2.1 General
7.5.2 Creating and updating	4.2.3 Control of documents 4.2.4 Control of records
7.5.3 Control of documented Information	4.2.5 Control of documents 4.2.6 Control of records
8 Operation	**7 Product realization**
8.1 Operational planning and control	7.1 Planning of product realization
8.1.1 Operation risk management	7.1.2 Risk Management
8.1.2 Configuration management	7.1.3 Configuration Management
8.1.3 Product safety	7.3.1 Design and development planning
8.1.4 Prevention of counterfeit products	
8.2 Requirements for products and services	7.2 Customer-related processes
8.2.1 Customer communication	7.2.3 Customer communication
8.2.2 Determination of requirements related to products and services	7.2.1 Determination of requirements related to the product
8.2.3 Review of requirements related to products and services	7.2.2 Review of requirements related to the product
8.2.4 Changes to requirements for products and services	7.2.2 Review of requirements related to the product
8.3 Design and development of products and services	7.3.1 Design and development planning
8.3.1 General	7.3.1 Design and development planning
8.3.2 Design and development planning	7.3.1 Design and development planning
8.3.3 Design and development inputs	7.3.2 Design and development inputs
8.3.4 Design and development controls	7.3.4 Design and development review 7.3.5 Design and development verification 7.3.6 Design and development validation
8.3.5 Design and development outputs	7.3.3 Design and development outputs

9100:2016	9100:2009
8.3.6 Design and development changes	7.3.7 Control of design and development changes
8.4 Control of externally provided processes, products and services	7.4.1 Purchasing process
8.4.1 General	7.4.1 Purchasing process
8.4.2 Type and extent of control	7.4.1 Purchasing process 7.4.3 Verification of purchased product
8.4.2.1 Verification of externally provided products and services	7.4.3 Verification of purchased product
8.4.3 Information for external providers	7.4.2 Purchasing information
	7.4.3 Verification of purchased product
8.5 Production and service provision	7.5 Production and service provision
8.5.1 Control of production and service provision	7.5.1 Control of production and service provision 7.5.2 Validation of processes for production and service provision
8.5.1.1 Control of production equipment, tools and software programs	*7.5.1.3 Control of Production Equipment, Tools and Software Programs*
8.5.1.2 Validation and control of special processes	*7.5.1.4 Validation and control of special processes*
8.5.1.3 Production process verification	*7.5.1.1 Production process verification*
8.5.2 Identification and traceability	7.5.3 Identification and traceability
8.5.3 Property belonging to customers or external providers	7.5.4 Customer property
8.5.4 Preservation	7.5.5 Preservation of product
8.5.5 Post-delivery activities	7.5.1 Control of production and service provision *7.5.1.4 Post-delivery support*
8.5.6 Control of changes	7.3.7 Control of Design and Development Changes
8.6 Release of products and services	7.4.3 Verification of purchased product 8.2.4 Monitoring and measurement of product
8.7 Control of nonconforming outputs	8.3 Control of nonconforming product
9 Performance evaluation	**8 Measurement, analysis and improvement**
9.1 Monitoring, measurement, analysis and evaluation	8 Measurement, analysis and improvement
9.1.1 General	8.1 General 8.2.3 Monitoring and Measurement Processes
9.1.2 Customer satisfaction	8.2.1 Customer satisfaction
9.1.3 Analysis and evaluation	8.4 Analysis of data
9.2 Internal audit	8.2.2 Internal audit
9.3 Management review	5.6 Management review
9.3.1 General	5.6.1 General
9.3.2 Management review input	5.6.2 Review input
9.3.3 Management review output	5.6.3 Review output
10 Improvement	
10.1 General	8.5.1 Continual improvement
10.2 Nonconformity and corrective action	8.3 Control of nonconforming product 8.5.2 Corrective action
10.3 Continual Improvement	8.5.1 Continual improvement 8.5.3 Preventive action

Transition "Rules" to Remember

- ✓ Every site must be audited for the transition.
- ✓ An audit must be conducted, at every site, every calendar year.
- ✓ Organizations must remain in conformance to the current standard until the certificate is transitioned (e.g. don't eliminate the "preventive action" procedure until it has transitioned).
- ✓ Current certificates show expiry of 14 Sept 2018, even if they are valid for longer, based on 3 year cycle. They will be extended to the full 3 years after the upgrade audit.
- ✓ As an example, company certified Dec 2016 to AS9100C. Certificate shows expiry of 14 Sept 2018. Upon upgrading in Dec 2017, their new certificate will expire in Dec 2019.

We hope that this guide is helpful as your organization transitions to the new AS9100 series.

Whether you are currently registered and would like to gain efficiency by consolidating your audits, or are looking to newly register, we have the tools and knowledge you need to succeed. NSF-ISR is a leader in management systems registrations and can provide the latest information to clients on updates to the standard. We work with clients to ensure they fully understand the requirements and timing of the standard changes.

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