IA9100

Evolving Expectations

What's new in the latest revision of IA9100 by Ben Tomic

The aerospace industry relies on robust quality management systems (QMS) to ensure product safety, reliability and compliance with stringent regulatory requirements. The IA9100 standard, developed by the International Aerospace Quality Group (IAQG) and planned to be released in 2026, plays a crucial role in harmonizing quality expectations across the aviation, space and defense sectors. As the industry evolves, so must its quality standards. IA9100's latest revision introduces key changes designed to enhance risk management, cyber resilience, supply chain oversight and overall quality culture.

The transition from AS9100 to IA9100 marks a significant milestone in the standardization of aerospace QMSs. IAQG is driving this change to establish a single, globally recognized brand, eliminating regional designations such as "AS" (Americas) and "EN" (Europe). By unifying the standard under the "IA" (international aerospace) prefix, IAQG aims to streamline compliance processes for aerospace organizations operating across multiple regions, ensuring greater consistency, reducing redundancy and facilitating seamless recognition of quality certifications worldwide. This evolution reflects the industry's commitment to harmonized quality expectations, enhanced regulatory alignment and improved efficiency in the global aerospace supply chain.

Evolution of IA9100

The IA9100 series of standards has undergone several revisions since its inception. Initially modeled after ISO 9001, IA9100 has progressively incorporated industry-specific requirements to address complex supply chain dynamics, product safety, counterfeit parts prevention and regulatory compliance. The most recent revision, slated for release in 2026, represents another step forward in aligning aerospace QMSs with modern industry challenges.

Key changes in the new IA9100 revision

The latest revision introduces significant updates across multiple clauses of the standard. These changes address emerging industry concerns and ensure that aerospace organizations are better equipped to manage quality risks. Here is a summary of the most critical updates:

1. **Strengthened leadership commitment to quality culture**

One of the most notable enhancements is the emphasis on leadership's role in fostering a quality-centric organizational culture. The revised standard requires top management to:

- Promote an ethical work environment.
- Align quality goals with corporate policies, vision, mission and values.
- Ensure employees at all levels understand their contribution to quality and safety.

These changes reinforce the idea that quality management is not just a compliance exercise, but also a fundamental component of business success.

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2. **Enhanced risk management and operational controls**

Risk-based thinking has been a core principle of IA9100, but the latest revision expands on this concept by refining operational risk management requirements. Now, organizations must:

- Implement structured risk identification, assessment and mitigation processes.
- Integrate risk considerations into operational planning and change management.
- Address safety hazards more explicitly, ensuring that product safety risks are identified, communicated and mitigated.

3. **Cybersecurity and information security measures**

With the increasing reliance on digital systems, the aerospace industry faces heightened cybersecurity threats. The revised IA9100 introduces new requirements for information security management, including:

- Protection of sensitive data across the supply chain.
- Measures to prevent unauthorized access to QMSs.
- Integration of cybersecurity considerations into overall risk management frameworks.

These updates align with broader industry initiatives to strengthen cyber resilience and protect intellectual property.

4. **Expanded counterfeit parts prevention measures**

The aerospace industry continues to combat counterfeit parts, which pose severe risks to safety and reliability. The latest IA9100 revision makes previously recommended counterfeit prevention practices mandatory. Now, organizations must:

- Implement traceability programs to verify part authenticity.
- Establish monitoring programs for parts obsolescence.
- Use advanced testing methods to detect counterfeit components.
- Segregate, contain and report any suspected counterfeit parts.

By enforcing stricter counterfeit prevention measures, the standard aims to protect aerospace supply chain integrity.

5. **Strengthening supplier and sub-tier supplier controls**

Supply chain complexity has increased significantly in the aerospace sector, necessitating enhanced oversight of external providers. The new IA9100 revision refines requirements for supplier controls by:

- Mandating stricter qualification and monitoring processes for sub-tier suppliers.
- Allowing remote inspection and auditing of external suppliers.
- Requiring suppliers to demonstrate compliance with risk management and cybersecurity requirements.

These changes help mitigate risks associated with outsourcing and ensure that quality expectations are maintained across all tiers of the supply chain.

6. **Integrating advanced product quality planning (APQP)**

The standard now explicitly recognizes APQP as a method for operational planning and control. Organizations are encouraged to adopt APQP principles to:

- Enhance early-stage risk identification in product development.
- Improve communication among engineering, manufacturing and quality teams.
- Strengthen control over design and production processes.

This integration aligns IA9100 with modern aerospace manufacturing best practices, ensuring more robust quality control from concept to delivery.

To remain competitive and compliant, aerospace organizations must take proactive steps to understand and implement these changes.

7. **Increased emphasis on measurement system analysis (MSA)**

To improve data reliability, the revised IA9100 incorporates an MSA requirement, which ensures that organizations:

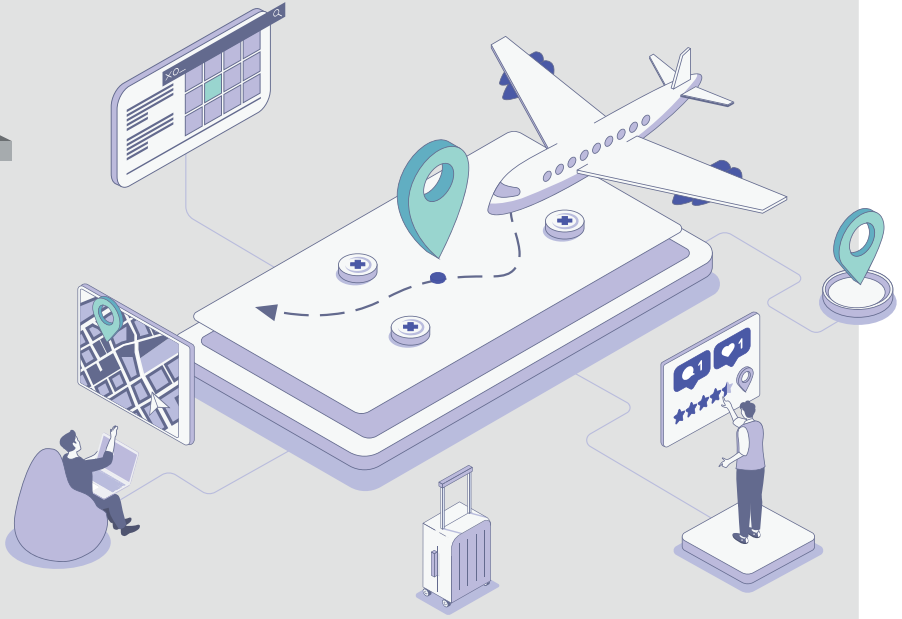
- Identify and mitigate variations in measurement systems.
- Use statistical methods to evaluate measurement accuracy.
- Maintain records of monitoring and measurement equipment.

By enforcing MSA principles, the standard enhances the reliability of quality control processes.

8. **Greater clarity on configuration management**

Configuration management plays a critical role in ensuring that aerospace products conform to design specifications. The latest revision clarifies requirements related to:

- Establishing configuration baselines.
- Managing changes effectively to prevent unintended deviations.



- Documenting configuration management processes.

These updates help organizations maintain control over product variations and changes throughout the life cycle.

9. **Strengthened requirements for internal audits and performance evaluation**

Performance monitoring and internal audits always have been essential aspects of IA9100. The new revision reinforces these areas by:

- Requiring organizations to assess their QMS maturity periodically.
- Shifting key performance indicators from recommended practices to mandatory requirements.
- Ensuring that risk considerations are included explicitly in audit planning.

This enhanced focus on evaluation ensures that organizations proactively identify and address quality gaps.

Implementation timeline and next steps

The IA9100 revision process has been structured to allow organizations sufficient time to prepare for the transition. Key milestones include:

- **2023-2024:** Coordination drafts and stakeholder reviews.
- **2024-2026:** Formal ballot, final revisions and approval process.
- **2026:** Official publication of the revised IA9100 standard.

Organizations are encouraged to start preparing for the transition by reviewing current processes, assessing gaps and engaging with industry working groups.

Embrace change

The upcoming IA9100 revision marks a transformative step in aerospace quality management, addressing a range of emerging industry challenges, including cybersecurity threats, counterfeit parts infiltration, increased supply chain complexity and evolving regulatory expectations. As aerospace systems become more interconnected and technologically advanced, ensuring data security, risk mitigation and supplier reliability has never been more critical.

The revised standard strengthens the foundations of quality management by reinforcing leadership accountability, fostering a culture of quality and ethics, and integrating proactive risk-based approaches across all operational levels.

By incorporating advanced methods such as APQP, enhanced supplier oversight and more stringent counterfeit prevention measures, IA9100 ensures that organizations can anticipate, prevent and respond to quality risks before they affect product performance and safety.

The introduction of MSA, expanded configuration management and more structured performance evaluation metrics provides organizations with the tools needed to maintain precision, traceability and regulatory compliance in an increasingly demanding market.

To remain competitive and compliant, aerospace organizations must take proactive steps to understand and implement these changes. Early adoption of revised processes, investment in employee training, supplier collaboration and enhanced risk management frameworks, as well as engagement with IAQG resources, will be key to ensuring a smooth transition.

Organizations that embrace these improvements not only will achieve compliance with evolving quality requirements, but also strengthen their operational resilience, enhance product reliability and sustain long-term industry leadership in a rapidly evolving aerospace landscape. **QP**

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