

6 Secrets for Unlocking Value from AS9100 Standards

White Paper

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Executive Summary

Aerospace suppliers must regularly demonstrate their commitment to their customers through compliance with AS9102 (First Article Inspection) and AS9103 (Variation Management of Key Characteristics). Most suppliers have varying approaches for complying with these requirements.



Based on a survey of more than 100 aerospace companies and their approach for addressing the AS9100 standards, a specific pattern emerged that separated the achievers from the rest of the group. The achievers have an attitude and experience in common, and they have discovered secrets that enable them to realize dramatic time and labor savings.

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Aerospace Quality

Few industries require such rigorous and demanding quality as aerospace, in which suppliers must regularly demonstrate their commitment to their customers through compliance with AS9102 (First Article Inspection) and AS9103 (Variation Management of Key Characteristics). More often than not, aerospace customers mandate use of their specific formats for first article inspection (FAI) and statistical process control (SPC), in which content preferences and nuances can differ greatly. In addition, many aerospace prime contractors share their technical data in many different formats. Some provide a part drawing and related specifications in Acrobat PDF format, while others provide a 3D model in one of the CAD formats such as UG, CATIA, or Pro/E.

While the AS9100 standards have led to improved quality and added much-needed consistency at the macro level, prime contractors and OEMs tend to tailor the standards' requirements to meet their specific needs. As a result, suppliers spend countless hours responding to each customer's "standard" in a unique and often replicated process. In some cases, the tailoring is so extensive that the term, "AS9100 standard", is perceived as a contradiction of terms. The effort required to organize all of the technical documents and to prepare detailed lists of characteristic requirements can be daunting. The Standard can be a formidable foe that strains already overwhelmed companies with increased demands on labor and time.

 AEROSPACE STANDARD <small>403 Commonwealth Drive, Warrendale, PA 15096-0001</small>		SAE AS9103 Issued 2001-10
Variation Management of Key Characteristics		
In December (IAQG) will throughout This organization sponsored this standard This Aerospace Standard is The Standard being to specifically Understand Discipline control Control Process	 AEROSPACE STANDARD <small>403 Commonwealth Drive, Warrendale, PA 15096-0001</small>	
	SAE AS9102 Technically equivalent to AS9102-1 (2003) Issued 2003-09 Supersedes AS9012	
Aerospace First Article Inspection Requirement		
FOREWORD		
In December 1988, the Aerospace Industry had established the International Aerospace Quality Group (IAQG) with the purpose of achieving significant improvements in quality and reductions in cost throughout the value stream. This organization, with representation from Aerospace companies in Americas, Asia and Europe and sponsored by SAE, SJAC, and AECMA has agreed to take responsibility for the technical contents of this standard.		
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Industry Survey



Based on a survey of more than 100 aerospace companies and their approach for addressing the AS9100 standard, a specific pattern emerged that separated the achievers from the laggards. The manufacturers, suppliers, and service companies who succeed in the aerospace global market are those who have taken innovative approaches to unlock the value in addressing the AS9100 standards. Here are their secrets:

1. Use a single, common business process to meet your customer's varying AS9102 and AS9103 requirements

One supplier in Dayton, Ohio had three major aerospace customers, each with a different way they wanted to receive the FAI report. One customer wanted the supplier to enter results directly into their web-based screens; a second customer wanted the results entered in an Excel file; meanwhile, the third customer offered a text-file-upload into their proprietary computer system. This supplier had different employees dedicated to setting-up and completing the FAI report for each customer. The supplier Quality Manager commented, "We used to have the customer demands driving how we conducted our internal business processes."

This supplier decided that they needed one approach that could meet the varying customer demands. They adopted a characteristic identification tool that enables them to balloon the drawings and models for all of their customers. By using tools that allow one common process for multiple customers, they eliminated redundancies and reallocated valuable resources. By maximizing tools that provide the "unique" format and focus for a specific customer, they simply select the customer's profile and automatically respond to the unique demands of that customer. This company addresses customer's preferences in a matter of hours, not days. They were then able to reassign personnel to do what they do best, inspect and ship the parts, not manage redundant paperwork.

2. Perform FAI as an approach for ensuring quality, rather than just another report to secure customer approval

One supplier in Phoenix, Arizona was very frank about first article inspections, "The FAI is just another report we have to prepare to get the customer quality engineer to buy-off on our parts. We spend days marking-up a D-sized drawing and entering tons of data without any real benefit to us." This company obviously conducted the FAI as just a costly burden that was necessary to meet customer demands.

The most successful aerospace suppliers recognize the value of "on-going" characteristic accountability and verification and use this information for internal quality improvements. For example, a small aerospace supplier in Cincinnati, Ohio now develops the list of characteristic requirements early in the part production lifecycle. In addition, this company uses the same tool for ballooning characteristics for in-process quality and SPC data. This tool enables this company -- already overwhelmed with orders -- to be pro-active, rather than reactive. The Quality Manager noted, "With this approach, Manufacturing now doesn't have to wait for Quality to do the paperwork; it's done within hours of receiving a completed process from Engineering."

3. Use a computer-based tool for organizing the technical data package and for identifying characteristics & requirements

A supplier in Hartford, Connecticut struggled with the time it took to assemble the complete technical data package for a part. The Quality Manager commented, "We want to make sure that we don't miss any critical requirements so we try to organize all of the technical documents that define the part." When a new part shows up, they used to examine the drawing and try to identify all the pertinent specifications. They would then look-up the specs and either print them from PDF files or pull the documents out of the filing cabinets. This was a time-consuming process that took hours to complete. Meanwhile, this supplier has many orders for fabricated parts that involve over 300 characteristics for each part. It would take their quality personnel days just to identify the characteristics and setup the database of requirements.

This pro-active supplier adopted a software tool that enables them to electronically organize the technical data package and automatically identify the part characteristics. This company now creates the technical data package and sets up an FAI and SPC in a matter of minutes. The Quality Manager noted, "The new approach has shortened cycle times to hours from days resulting in labor savings that paid for it the first time we used it."

4. Perform characteristic identification when you receive the RFQ or PO to help clarify requirements

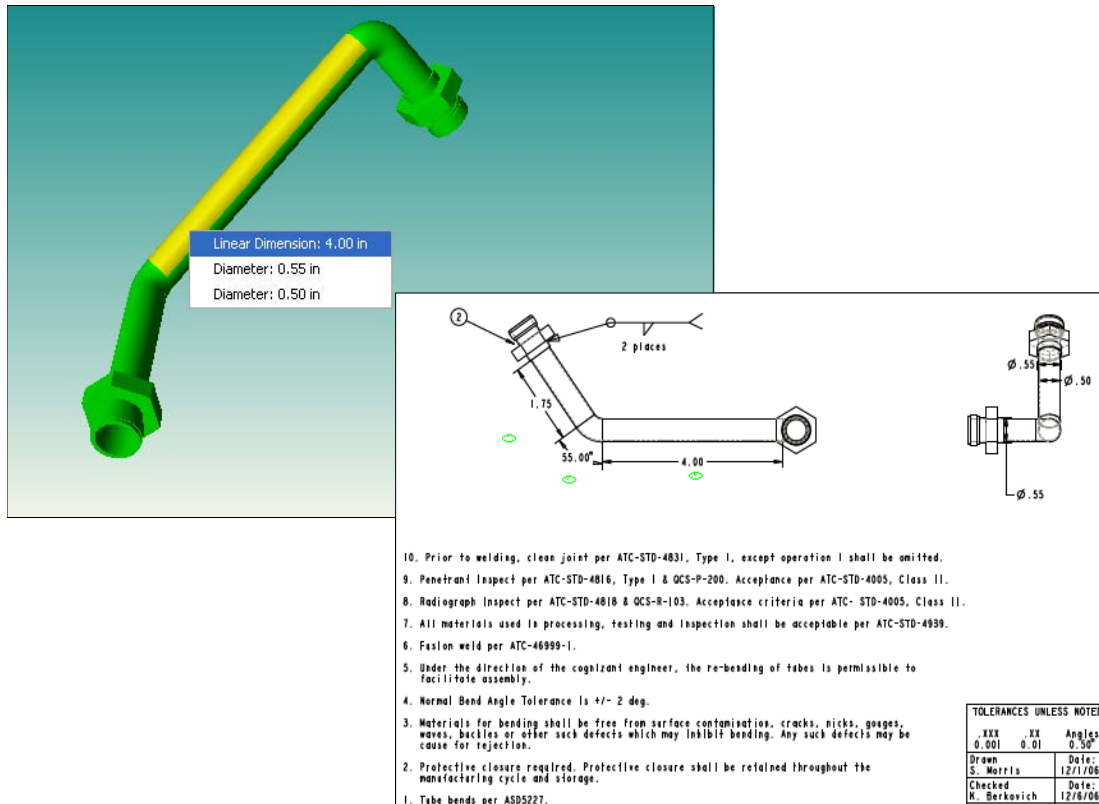
With the computer-based characteristic identification tool, it's very easy to establish the requirements during the early stages of the production lifecycle. The leading aerospace suppliers organize and prioritize the requirements to electronically determine RFQ advantages and PO responses.

A supplier located in the Los Angeles area now captures requirements for up-front quoting, so they can fully understand their customer's requirements, and then they reuse the data -- when they win the job -- for the FAI. They have significantly reduced FAI preparation time, and are happy to report that their FAIs are approved much faster and created in half the time it used to take. The quicker FAI approval process has a hidden benefit: it allows the supplier to be paid sooner for the hardware, significantly enhancing cash flow.

5. Use a common approach for older legacy parts documented with 2D drawings as well as new parts with 3D CAD models

There is a mix of technical data formats that are used in the aerospace industry. For example, some aerospace prime contractors are only sharing dimensionless 3D CAD models with their suppliers for their new commercial programs. Meanwhile, for older legacy parts other customers share the technical data as paper, raster images, or PDF files. It's important to recognize that the

leading companies use tools that operate essentially the same regardless of the format of the drawing or model.

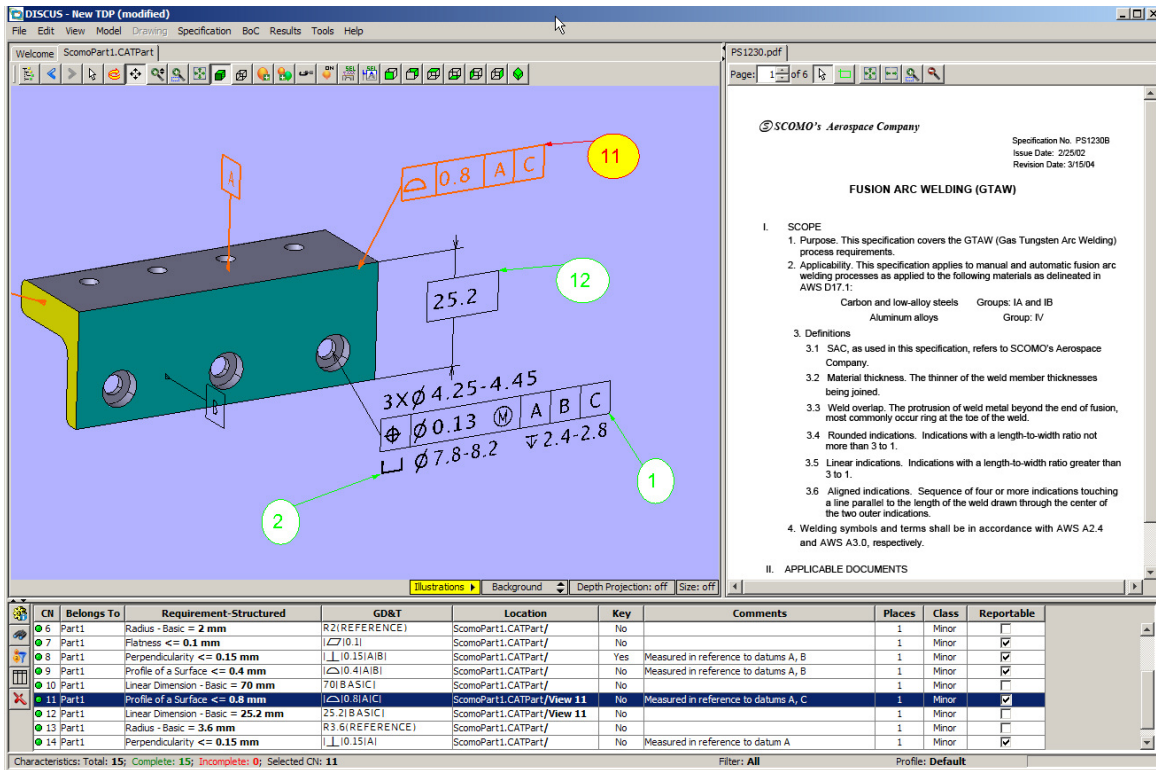


One aerospace company in Tulsa, Oklahoma has taken the lead at using a common, consistent approach for older legacy parts and new parts that require 3D CAD models. The Lead Engineer commented, “For new parts, we used to take screen shots from the expensive CAD system and paste them into PowerPoint... we had a different approach for legacy parts. It was all very time consuming.” No matter the media — paper, raster images, and 3D models — this aerospace company now uses the same tool for various file formats from their customers.

6. Assure your customer that your FAI and SPC processes meet the intent of the AS9100 standards

As one supplier from Franklin, Ohio noted, “This tool takes the potential for human error out of the equation and has checking points to ensure you’re in line with FAI standards.” Successful suppliers and manufacturers use a tool that provides error proofing, correct ballooning practices, revision control and seamless integration with many of the systems used by aerospace primes.

All the cited aerospace companies, from coast to coast, are using a tool for improved organizational performance. With this tool they can clearly, unambiguously, meet their customers' needs and adhere to AS9100 requirements. Most are saving between 60% and 70% of the time they normally took in creating each FAI report.



Conclusion

These companies have an attitude and experience in common -- they have discovered a consistent process that enables them to realize dramatic time and labor savings. By applying software tools such as [DISCUS](#), Renaissance Services has worked with numerous aerospace companies to help upgrade their internal and supply chain quality systems. To learn more about how it can work for you, contact:

1825 Commerce Center Blvd
 Fairborn, Ohio 45324
 937-322-3227
www.ren-services.com