

<b>STN</b>	<b>Letectvo a kozmonautika. Systémy manažérstva kvality. Manažérstvo zmeny kľúčových charakteristík.</b>	<b>STN EN 9103</b>  31 0431
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Aerospace series - Quality management systems - Variation management of key characteristics

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

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English Version

## Aerospace series - Quality management systems - Variation management of key characteristics

Série aérospatiale - Systèmes de management de la qualité  
- Management de la variation des caractéristiques clefs

Luft- und Raumfahrt - Qualitätsmanagementsystems -  
Management der Veränderung der Haupteigenschaften

This European Standard was approved by CEN on 29 November 2014.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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## **Foreword**

This document (EN 9103:2014) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2015, and conflicting national standards shall be withdrawn at the latest by June 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 9103:2005.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## ***Rationale***

This standard was revised to coincide with the updated information presented in the International Aerospace Quality Group (IAQG) 9100-series standards (i.e., 9100:2009, 9110:2009). All other changes made to standard requirements or methods presented herein were editorial in nature.

## ***Foreword***

To assure customer satisfaction, the aviation, space, and defence industry organizations must produce and continually improve safe, reliable products that meet or exceed customer and regulatory authority requirements. The globalization of the industry, and the resulting diversity of regional/national requirements and expectations, has complicated this objective. End-product organizations face the challenge of assuring the quality of, and integrating, product purchased from suppliers throughout the world and at all levels within the supply chain. Industry suppliers and processors face the challenge of delivering product to multiple customers having varying quality expectations and requirements.

The aviation, space, and defence industry established the International Aerospace Quality Group (IAQG) for the purpose of achieving significant improvements in quality and safety, and reductions in cost, throughout the value stream. This organization includes representation from companies in the Americas, Asia/Pacific, and Europe.

This document standardizes requirements for “Key Characteristic” (KC) identification, control, documentation, and approval for the industry. The establishment of common requirements, for use at all levels of the supply-chain by organizations, should result in improved quality and safety, and decreased costs, due to the elimination or reduction of organization-unique requirements and the resultant variation inherent in these multiple expectations.

## INTRODUCTION

### General

This standard establishes variation management requirements for KCs. The standard also specifies general requirements and provides a process to achieve those requirements.

The standard requires a thorough assessment of the applicable production/maintenance process with the primary goals being to control and minimize variation in characteristics generated by the process.

Specifically, the standard requires:

- Understanding process elements that affect KCs.
- Disciplined determination of process KCs using appropriate analysis tools for variation control and reduction to satisfy customer requirements.
- Control and capability assessment to ensure variation is well understood.
- Process Control Documents (PCDs) or equivalent documentation that defines specific control of KCs and manufacturing/maintenance process parameters.

This standard does not:

- Require rejection of any part that conforms to engineering specification.
- Inhibit shipment or use of product during production process capability assessment.

Although the 9103 standard is focused on variation control of KCs for production and maintenance activities, this process can also be used as a model for other characteristics, such as those that affect cost and delivery.

### Application

This standard was created to provide for a uniform process for the identification, control, documentation, and approval of KCs when contractually invoked at any level or as guidance within the aviation, space, and defence industry in the control of Critical Items (CIs). This standard can be invoked as a stand-alone requirement or used in conjunction with 9100-series standards (i.e., 9100, 9110).

## **1 Scope**

This standard is primarily intended to apply to new parts and products, but can also be applied to parts currently in production. The standard shall be applicable to all production processes that influence the variation of KCs, as well as maintenance processes in which KCs are identified. It applies to assemblies and all levels of parts within an assembly, down to the basic materials including castings and forgings, and to organizations that are responsible for producing the design characteristics of the product.

It does not apply to lab-scale, pilot, or pre-production processes. However, particular management of some KCs might be required using other methods than those described in the standard, during these phases of a programme, when required by the customer or deemed appropriate by the organization (e.g., Engineering department requirement).

The variation control process begins with product definition, typically an engineering drawing or specification which identifies KCs, and leads to a variation management program for those KCs. This process may also be used for producer-identified KCs.

Producers and their subcontractors shall be responsible for flow down of the requirements of the applicable revision of this standard to subcontractors, who produce design characteristics, and for ensuring that KCs conform to customer requirements.

### **1.1 Purpose**

This standard is designed to drive the improvement of manufacturing and maintenance processes through adequate planning and effective management of KC variation. The KC focus is intended to improve confidence for part features whose variation has a significant influence on to end-product form, fit, performance, service life, and producibility.

**NOTE** Control of a product or process KC per this standard does not constitute, nor imply, acceptance of the resulting product. If variation management, under this standard, is to be part of an acceptance decision, the requirements must be specified in the applicable product acceptance plan or contract.

### **1.2 Convention**

The following conventions are used in this standard:

- The words "shall", "will", or "must" indicate mandatory requirements.
- The word "should" indicates a requirement with some flexibility allowed in compliance methodology.
- Producers choosing other methods to satisfy a "should" shall be able to show that their approach meets the intent of the requirements of this standard.
- Words "typical", "example", "for reference", "may", or "e.g." indicate suggestions given for guidance only.
- "NOTES" are used for additional clarification.
- Words or phrases with specific meaning pertaining to this document are defined in Clause 3, Terms and Definitions.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

AS 9100, *Quality management systems — Requirements for aviation, space and defence organization*

AS 9102, *Aerospace first article inspection requirement*

AS 9110, *Quality management systems — Requirements for aviation maintenance organization*

ISO 9000:2005, *Quality management systems — Fundamentals and vocabulary*

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