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**Aeronavtika - LOTAR dolgotrajno arhiviranje in iskanje digitalne tehnične dokumentacije o izdelkih, kot so podatki o 3D, CAD in PDM - 100. del: Splošni pojmi za dolgoročno arhiviranje in pridobivanje 3D mehanskih CAD informacij**

Aerospace series - LOTAR LOng-Term Archiving and Retrieval of digital technical product documentation such as 3D, CAD and PDM data - Part 100: Common concepts for long-term archiving and retrieval of 3D mechanical CAD information

Luft- und Raumfahrt - LOTAR Langzeitarchivierung und Bereitstellung digitaler technischer Produktdokumentationen beispielsweise 3D CAD und PDM Daten - Teil 100: Allgemeine Konzepte für die Langzeitarchivierung und Wiederverwendung von 3D CAD Mechanik-Informationen

Série aérospatiale - LOTAR Archivage long terme et récupération des données techniques produits numériques telles que CAD 3D et PDM - Partie 100 : Concepts communs pour l'archivage long terme et la récupération des données CAO mécaniques 3D

**Ta slovenski standard je istoveten z: EN 9300-100:2026**

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**ICS:**

01.110	Tehnična dokumentacija za izdelke	Technical product documentation
35.240.30	Uporabniške rešitve IT v informatiki, dokumentiranju in založništvu	IT applications in information, documentation and publishing
49.020	Letala in vesoljska vozila na splošno	Aircraft and space vehicles in general

**SIST EN 9300-100:2026**

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EUROPEAN STANDARD

EN 9300-100

NORME EUROPÉENNE

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**Aerospace series - LOTAR Long-Term Archiving and Retrieval of digital technical product documentation such as 3D, CAD and PDM data - Part 100: Common concepts for long-term archiving and retrieval of 3D mechanical CAD information**

Série aérospatiale - LOTAR Archivage long terme et récupération des données techniques produits numériques telles que CAD 3D et PDM - Partie 100 : Concepts communs pour l'archivage long terme et la récupération des données CAO mécaniques 3D

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This European Standard was approved by CEN on 16 February 2026.

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## European foreword

This document (EN 9300-100:2026) has been prepared by ASD-STAN.

After enquiries and votes carried out in accordance with the rules of this Association, this document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, 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 October 2026, and conflicting national standards shall be withdrawn at the latest by October 2026.

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

This document supersedes EN 9300-100:2018.

This document includes the following significant technical changes with respect to EN 9300-100:2018:

EN 9300-100 (P1), 07/2018 — Document updated for new generations of CAD methods and tools. The contents in scope of other EN 9300 parts have been removed:

- “Annex B (informative) Overview of the main types of CAD 3D mechanical information”
- “Annex C (informative) Overview of CAD mechanical assembly structure information”.

The annexes of EN 9300-100 provide an understanding of the principles of long-term archiving of CAD information. EN 9300-100 makes no claim that the listed principles are complete, and the Annexes should not be understood as a training lecture.

Annex A sums up the evolution of CAD systems.

Annex B proposes a template for the table of contents for a part of the EN 9300-1XX series.

Annex C sums up the main issues to take into consideration for long term archiving of CAD 3D information.

Annex D provides general information for the definition of a representative sample of test cases to be used in a test plan.

Annex E describes examples of performance indicators used to manage the longevity of CAD archived information.

Annex F gives an overview of maturity of the main components for long term archiving of CAD mechanical information.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of

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North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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## Introduction

This document was prepared jointly by AIA, ASD-STAN, PDES, Inc. and the prostep ivip Association.

The prostep ivip Association is an international non-profit association in Europe. For establishing leadership in IT-based engineering it offers a moderated platform to its nearly 200 members from leading industries, system vendors and research institutions. Its product and process data standardization activities at European and worldwide levels are well known and accepted. The prostep ivip Association sees this document and the related parts as a milestone of product data technology.

PDES Inc is an international non-profit association in USA. The mission of PDES, Inc. is to accelerate the development and implementation of ISO 10303, enabling enterprise integration and PLM interoperability for member companies. PDES, Inc. gathers members from leading manufacturers, national government agencies, PLM vendors and research organizations. PDES, Inc. supports this document as an industry resource to sustain the interoperability of digital product information, ensuring and maintaining authentic longevity throughout their product lifecycle.

Readers of this document should note that all standards undergo periodic revisions and that any reference made herein to any other standard implies its latest edition, unless otherwise stated.

The documents will be published under two different standards organizations using different prefixes. ASD-STAN will publish the document under the number EN 9300-XXX. AIA will publish the document under the number NAS 9300-xxx. The content in the EN 9300 and NAS 9300 documents will be the same. The differences will be noted in the reference documentation. For example, EN 9300 Geometric Dimensioning and Tolerancing will be referenced in ISO 1101 and ISO 16792, and for NAS 9300 the same information will be referenced in ASME Y 14.5M and ASME Y 14.41. The document formatting, etc., will follow that of the respective editorial rules of ASD-STAN and AIA.

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## EN 9300-100:2026 (E)

# 1 Scope

## 1.1 Introduction

This document specifies common fundamental concepts for long term archiving and retrieval of mechanical CAD information for elementary parts and assemblies. It details the “fundamentals and concepts” of EN 9300-003:2012 in the specific context of long-term archiving of CAD mechanical models.

Mechanical CAD information is divided into assembly structure and geometrical information, both including explicit and implicit geometrical representation, geometric dimensioning and tolerancing with form features.

The EN 9300-1XX series is organized as a sequence of parts, each building on the previous ones in a consistent way, each adding a level of complexity in the CAD data model. This includes the detailing of relationships between the essential information for the different types of CAD information covered by the EN 9300-1XX series.

As technology matures, additional parts will be released in order to support new requirements within the aerospace community.

## 1.2 In Scope

This document specifies:

- the fundamentals and concepts for long-term archiving and retrieval of 3D mechanical CAD information;
- the document structure of the EN 9300-1XX series, and the links between all these parts;
- the qualification methods for long-term preservation of archived mechanical CAD information; more specially, principles for the CAD validation properties and for verification of the quality of the CAD archived file;
- the specifications for the preservation planning of archived CAD information;
- the specific functions for administration and monitoring of CAD archived mechanical models;
- the definition of archive information packages for CAD data.

## 1.3 Out of scope

The following are out of scope for this part:

- long-term archiving of CAD 2D drawings;
- other CAD specialization disciplines, such as electrical harnesses, composite.

# 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 9300 (all parts), *Aerospace series — LOTAR — LOng-Term Archiving and Retrieval of digital technical product documentation such as 3D, CAD and PDM data*

ISO 14721, *Space Data System Practices — Reference model for an open archival information system (OAIS)*

### 3 Terms, definitions and abbreviations

For the purposes of this document, the terms, definitions and abbreviations given in EN 9300-007 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

### 4 Applicability

Refer to applicability of EN 9300-001:2024, Clause 4.

## 5 Fundamentals and concepts for long-term archiving of 3D mechanical CAD information

### 5.1 General

The EN 9300-1XX series is based on the principles that, over the last several decades, there have been major changes between the generations of CAD applications, resulting in change of the underlying representation of the CAD information, and there is a risk of further representational changes. Figure 1 illustrates this.

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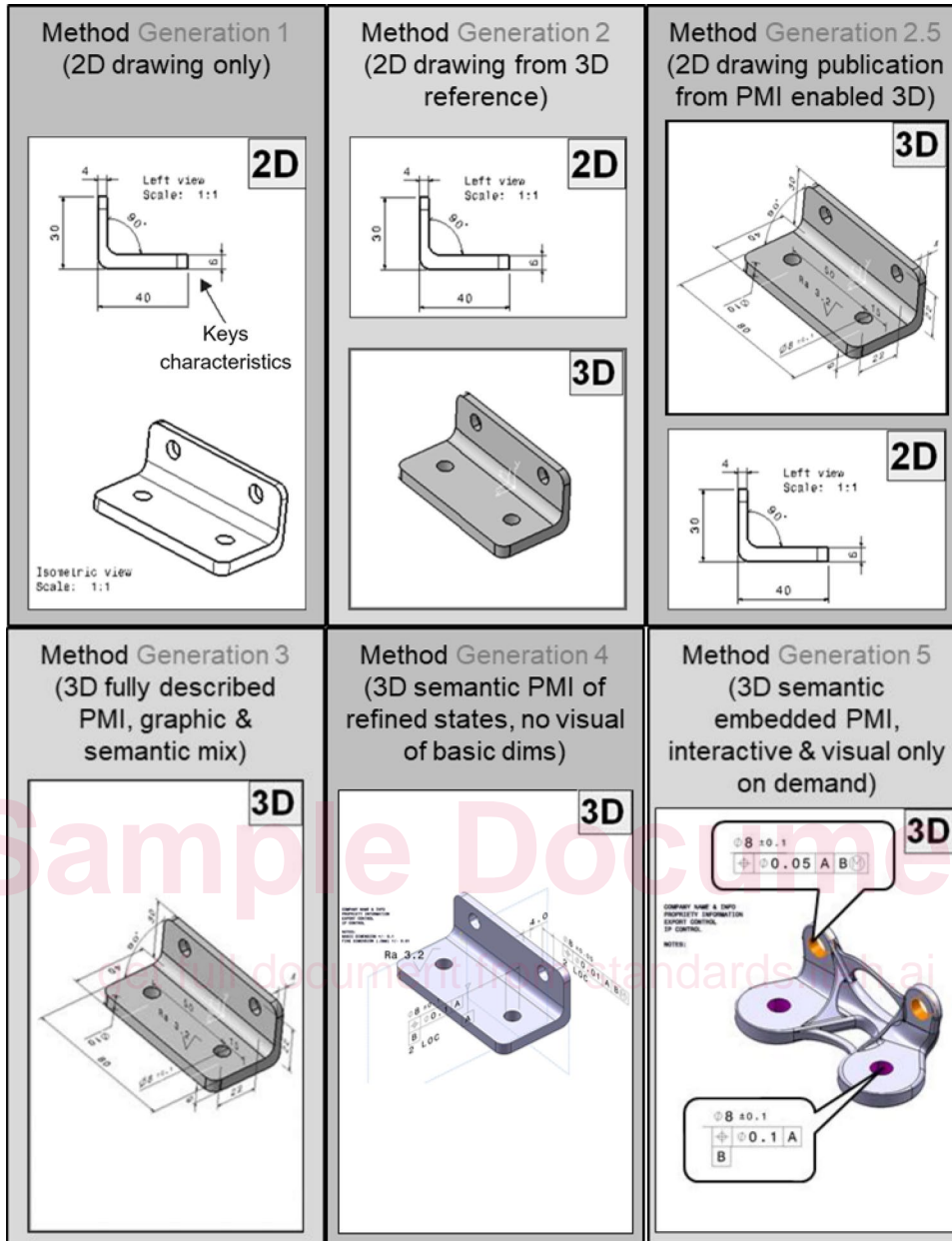


Figure 1 — Illustration of the major generations of CAD systems

NOTE Figure 1 illustrates:

- the first generation of CAD design method allowed the engineer to digitally create a 2D drawing (without a 3D model). The essential information as well as the regulatory authority of the design intent is represented by the 2D drawing;
- the second generation of CAD design method is based primarily on the use of 3D models with the output being both 2D representation (drawings) and a 3D CAD data set to drive CAM/CAI. The regulatory authority of the design intent is represented by the 2D drawing;
- the second generation and half of CAD design method is based on the 3D as principal authoring and the 2D is the published document. The 2D is the document for regulatory authority;
- the third generation of CAD design method is based on the use of parametric and relational design. The 3D model is fully annotated. The essential information as well as the regulatory authority of the design intent are represented by the 3D model;
- the fourth generation of CAD design method is also based on the use of 3D annotated model but only the semantic PMI are explicitly modelled. The basic dimension has to be queried in the model. The essential information as well as the regulatory authority of the design intent is represented by the 3D model;
- the fifth generation of CAD design method is represented by the totally semantic integration. The primary intent is the machine readability. The human-displayed information are totally on demand.

For more details, see:

- Annex A (informative) – The progressions of content within CAD Systems;
- Annex C (informative) – Considerations for long-term preservation of CAD 3D information;
- EN 9300-110;
- EN 9300-115.

Some algorithms within CAD applications used in the aerospace industry are proprietary and are not available to the public. These algorithms represent a competitive advantage to the CAD companies. This results in the fact that aerospace manufacturers cannot guarantee the access to all essential design intents in their native format, over the life of the product.

The EN 9300-100 describes the methods for preserving CAD mechanical essential information over time, recognizing that the mathematical representation may change between creation of the CAD information to its retrieval and hence, after importation, the archived file has to be qualified as acceptable to a level of precision requested by the business function.

## 5.2 CAD essential information: dependencies on the CAD methods used

Manufacturers may use different CAD methods for the definition of 3D components. The definition of a part may be based on:

- 2D drawing only, dimensioned and tolerance;
- 2D drawing with dimensions and tolerances authored in the 2D, derived from a CAD 3D exact model;
- 2D drawing derived from a CAD 3D exact model with dimensions and tolerances authored in the 3D;

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- 3D with GD&T, fully dimensioned and tolerance;
- 3D with GD&T, partially dimensioned and tolerance;
- 3D with GD&T, dimension and tolerance not displayed by default but on demand.

Table 1 sums up the type of CAD information to archive, showing the type of CAD method used.

**Table 1 — Type of CAD essential information to archive, depending on the CAD methods used**

Use cases	Generation 1	Generation 2	Generation 2.5	Generation 3	Generation 4	Generation 5
Certification	Archive 2D	Archive 2D	Archive 2D and 3D	Archive 3D annotated model	Archive 3D annotated model	Archive 3D annotated model
Product liability	Archive 2D	Archive 2D	Archive 2D and 3D	Archive 3D annotated model	Archive 3D annotated model	Archive 3D annotated model
Support in operation	Archive 2D	Archive 2D and 3D	Archive 2D and 3D	Archive 3D annotated model	Archive 3D annotated model	Archive 3D annotated model
Reuse	Archive 2D	Archive 2D and 3D	Archive 2D and 3D	Archive 3D annotated model	Archive 3D annotated model	Archive 3D annotated model

If a company uses method 1 for mechanical design, this company may decide to archive the 3D CAD model to ease the reuse, but it is not mandatory and depends on its internal policy. The requirements for the design method are defined in Table 2.

**Table 2 — Requirement of category “Design method”**

No.	Requirement
DM1	If a company uses the method 2 type of data, the 2D drawing shall be archived for certification and product liability. Optionally, 3D file can extend the archive package for the support and reuse.
DM2	If a company uses the method 2.5 type of data, the 2D drawing shall be archived for certification and product liability.
DM3	If a company uses the method 2.5 and 3D data are required by your company certification policy, the 3D data shall be archived in addition to the 2D drawing.
DM4	If a company uses method 3, 4 or 5 Long Term Archiving and Retrieval of 3D CAD with GD&T models is required.

### 5.3 Dependency of CAD essential information on use case

Following the regular enhancements of CAD applications, designers create new types of CAD information (see Annex A).

This document for long-term archiving and retrieval of CAD information cannot be defined and implemented in the abstract, but it shall be related to specific business requirements (see

EN 9300-002:2018, Clause 6 “Key requirements”) detailed by use cases (see EN 9300-003:2012, Figure 8: “Distinction of business requirements, business cases and use cases”).

These use cases describe precisely the functions to be supported by the preserved information after retrieval. Consequently, they identify the essential information for archive specific to the use case, and the related mechanisms to validate the full process of preservation. This is illustrated by Figure 2 below.

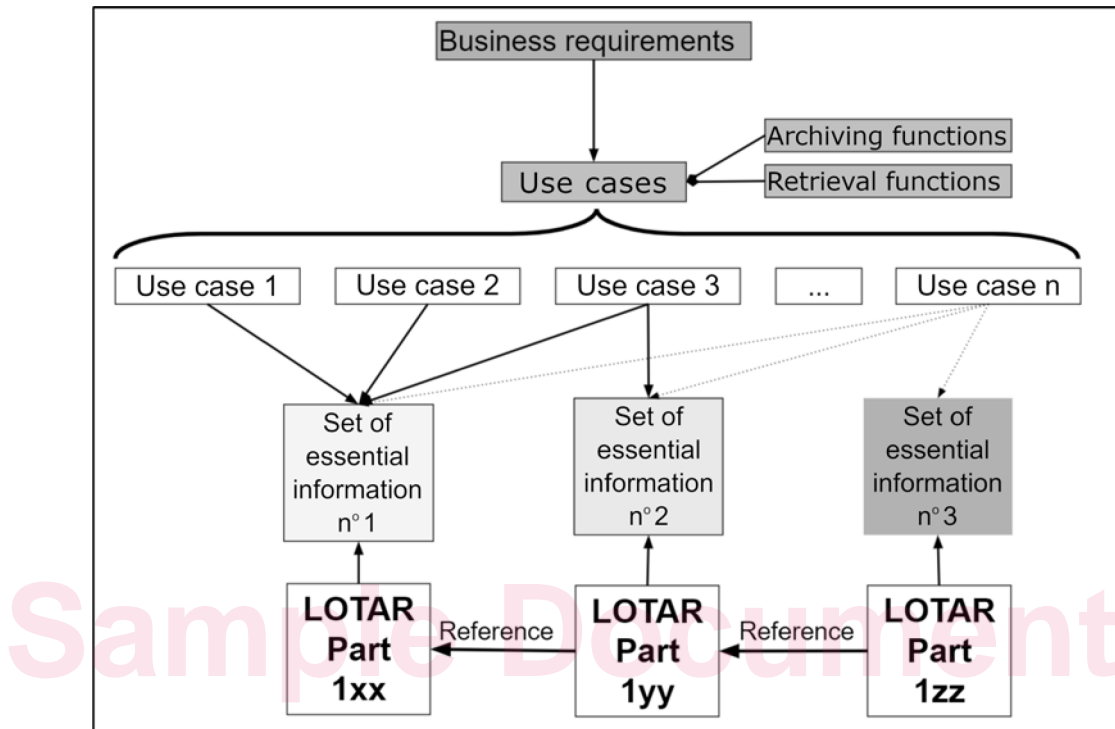


Figure 2 — Links between use cases, essential information and EN 9300-1XX parts

In this example, the part 1XX describes specifications for long-term archiving of a set of essential information n° 1, allowing to support retrieval for use cases 1 and 2. Then, the part 1YY describes specifications for long-term archiving of a set of essential information n° 2, including the set of essential information n° 1, then supporting additional use cases 3 and 4. The figure also points out that both the functions to be supported after retrieval and the associated levels of quality depend of the policy of risk management of the aerospace manufacturer (see 5.5).

#### 5.4 Use cases shared by different aerospace communities

Aerospace manufacturers share some common requirements, such as certification and product liability; these result in common use cases for retrieval. However, there are also strong differences in products and processes between aerospace manufacturers, depending on:

- the type of product (satellites, large civil airframe manufacturer, engines, etc.);
- the type of customers (civil, defence);
- the related processes of support.

As a result, the aerospace community does not share a single set of use case. Some use cases are common only to a particular community of aerospace manufacturers, which may share the same legal constraints or business needs. Use cases specific to a company are not described; these may be related to a particular process, or part of a competitive advantage. Figure 3 illustrates the families of use case.