

SLOVENSKI STANDARD
oSIST prEN 9300-007:2023**01-julij-2023****Nadomešča:**
SIST EN 9300-007:2017

Aeronavtika - LOTAR - Dolgoročno arhiviranje in pridobivanje digitalne tehnične dokumentacije o izdelkih, kot so podatki o 3D, CAD in PDM - 007. del: Izrazi in reference

Aerospace series - LOTAR - Long Term Archiving and Retrieval of digital technical product documentation such as 3D, CAD and PDM data - Part 007: Terms and references

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Luft- und Raumfahrt - LOTAR - Langzeit-Archivierung und -Bereitstellung digitaler technischer Produktdokumentationen, wie zum Beispiel von 3D-, CAD- und PDM-Daten - Teil 007: Begriffe und Verweisungen

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Série aérospatiale - LOTAR - Archivage long terme et récupération des données techniques produits numériques telles que CAD 3D et PDM - Partie 007 : Termes and références

Ta slovenski standard je istoveten z: prEN 9300-007**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

oSIST prEN 9300-007:2023**en,fr,de**

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DRAFT
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English Version

Aerospace series - LOTAR - Long Term Archiving and Retrieval of digital technical product documentation such as 3D, CAD and PDM data - Part 007: Terms and references

Série aérospatiale - LOTAR - Archivage long terme et récupération des données techniques produits numériques telles que CAD 3D et PDM - Partie 007 :
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Contents	Page
European foreword	3
Introduction	4
1 Scope	5
2 Normative references	5
3 General terms, definitions and abbreviations	5
3.1 Terms and references	5
3.2 Abbreviations	34
4 Applicability	38
Bibliography	39

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European foreword

This document (prEN 9300-007:2022) has been prepared by the Aerospace and Defence Industries Association of Europe — Standardization (ASD-STAN).

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 9300-007:2017.

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Introduction

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

The AFNeT non-profit association has operated for more than 30 years a multi-sectoral “Think Tank” articulated with a “Do Tank”, with digital transformation projects or standardization projects in many industries. These activities have led to the emergence of a network of recognized and highly skilled actors from the manufacturing industry, IT businesses, and research companies. Its members represent leading industrial companies, SMEs, French governmental agencies, software vendors, universities, and research organisations. AFNeT has conducted voluntary and innovative actions in order to develop competitiveness and innovation in industry by setting up collaboration projects or programs in the industrial sectors (Aerospace & Defence, Automotive, Rail, Shipbuilding, Nuclear, Energy, etc.) to enable the digital thread for the extended enterprise processes such as Product Lifecycle Management, Supply-Chain Management, Manufacturing, Maintenance & Operations, Integrated Logistics Support, and Identification. AFNet promotes the development, testing and usage of a set of coherent international standards for supporting these activities, especially in the PLM and the SCM domains.

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 standard 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 organisations. PDES, Inc. supports this standard 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 standards will be published under two different standards organisations using different prefixes. ASD-STAN will publish the standard under the number EN 9300–xxx. AIA will publish the standard 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 (i.e. for EN 9300 Geometric Dimensioning & Tolerancing will be referenced in ISO 1101 and ISO 16792, and for NAS 9300 the same information will be referenced in ASME Y14.5M and Y 14.41). The document formatting etc., will follow that of the respective editorial rules of ASD-STAN and AIA.

1 Scope

This document defines the common terms, abbreviations and references used through the EN 9300 series of standard parts.

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.

ISO 14721, *Space data and information transfer systems — Open archival information system (OAIS) — Reference model*

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

3 General terms, definitions and abbreviations

3.1 Terms and references

For the purposes of this document, the terms and definitions given in NAS 9300 (all parts) and the following 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/>

The following section provides a list of general terms that occur in the NAS 9300 set of documentation, together with a description of what the terms mean. As the meaning of a term may change with context, this section records the usage of those terms in the context of NAS 9300 and is provided to enable the correct interpretation of the NAS 9300 standard. These descriptions are not otherwise normative.

3.1.1

3D annotation

text, notes, flag notes, dimensions, tolerances, or GD&T that is modelled in 3D space with leaders pointing to the solid model features

3.1.2

3D model-based definition/model-based definition

MBD

set of concepts, processes, and tools that allow the creation of an annotated 3D product definition based on a 3D solid model

Note 1 to entry: The MBD dataset includes all Engineering Intent requirements (including process specifications, geometric dimensioning and tolerancing (GD&T), product and manufacturing information (PMI), and other required information). Combined with product lifecycle management (PLM) attributes, a parts list, and general notes, this constitutes an authoritative, single source of master product definition data that does not include or depend upon traditional 2D drawings; the MBD dataset defines complete requirements for a product in its nominal condition as well as permissible limits of variation and other acceptance criteria, providing all the data needed to plan, fabricate, and validate an article of product hardware.

prEN 9300-007:2023 (E)**3.1.3****access**

from the OAIS model, the process of recovering data from the archive

3.1.4**adhesive**

substance used to bind two or more other components together via surface contact

Note 1 to entry: The adhesive can be a film, paste or liquid.

3.1.5**administration**

management of the archive and its daily operation according to OAIS

3.1.6**administrator**

organisation or person responsible for management of the archive and its daily operation

3.1.7**advanced composite structure**

hybrid structure in which composite laminates of materials with high strength and stiffness with a resin matrix (thermoset or thermoplastic) are used in combination with other components (like core, fibre optics, active electronics, passive electronics, metal, ...) in order to create a multi-functional design

3.1.8**allowable**

material strength, strain or load which can be used as a basis for generating a margin of safety from

3.1.9**analysis and simulation models**

single domain, multi-domain, or domain unspecific models which can be used to describe and validate the functional architecture, or estimate the operational performance, control or behaviour of a component, system or product

Note 1 to entry: The models are an assessment of temporal, physics-based, or mathematical properties. The models may support the development or prototyping of production software, code generation and network integration. These specialized models support design optimization, validation and reduce risk. Simulation models use the basis of the analysis to represent the interactions between topologies, systems, subsystems or component designs based on time or other event sequences.

3.1.10**anisotropic**

exhibiting different properties along axes in different directions

3.1.11**application activity model****AAM**

model of activities that defines the context for a particular application protocol

[SOURCE: STEP]

3.1.12**application interpreted model****AIM**

one of the STEP information models, historically used as the basis for implementation

3.1.13**application protocol****AP**

one of the major parts of the standard that provides an implementable data exchange in a particular context

[SOURCE: STEP]

3.1.14**application reference model****ARM**

information model that describes the information requirements and constraints of a specific application context

[SOURCE: STEP]

3.1.15**archival information package****AIP**

information package consisting of the content information and the associated preservation description information (PDI), which is preserved within an OAIS

Note 1 to entry: This is the package actually retained by the archive, containing both the content information and all necessary PDI's.

3.1.16**archival storage**

according to OAIS, process which includes the setting of digital time signatures, generation of additional descriptive information for archive information packages (meta data for the archive) and the physical storage of the data within the archive

3.1.17**archive**

system architecture for the management of historical information, and more specifically any repository conforming to the OAIS standard; in other words, the environment which usually supports at least the key functions of an archiving architecture according to ISO 14721 (OAIS)

Note 1 to entry: This is the preferred sense in the LOTAR documentation.

3.1.18**article**

see “product, part, item and article”

3.1.19**as fabricated**

representation of a part as it is made by the prime or a supplier

prEN 9300-007:2023 (E)**3.1.20****as installed**

representation of a part which shows how the part is deformed from its “as fabricated” configuration when it is installed in an assembly

3.1.21**audit trail**

information collected during the execution of a process that shows what actually occurred

3.1.22**authentication**

ensuring something is what it claims to be

EXAMPLE More specifically in security, ensuring the claims to identity of one party are proven to the satisfaction of another.

3.1.23**autoclave**

sealed containment vessel used to induce a chemical reaction under heat and pressure

3.1.24**automated fibre placement****AFP**

process by which a machine lays multiple courses of narrow tows on a form

3.1.25**automated tape laying or lamination****ATL**

process by which a machine lays a series of single, wide tapes on a form

3.1.26**bag side**

side of a composite part next to the vacuum bag during the cure cycle

Note 1 to entry: Thickness variation is pushed to this side of the laminate and away from the tool side.

3.1.27**band**

grouping of tows that a fibre placement machine puts down on a lay-up surface at any one time.

Note 1 to entry: The width of a band can be made wider or narrower during a single pass by adding or eliminating tows.

Note 2 to entry: See “course” 3.1.49.

3.1.28**bond assembly**

part made up of composites and other components like core, fibre optics, active and passive electronics, other systems and procured details that are bonded together to generate a detailed part

3.1.29**bridging**

condition where plies span a chamfer or radius without generating full contact

Note 1 to entry: Bridging can be reduced with male tooling, larger radius tooling and pressure intensifiers.

3.1.30**broad goods**

typically wide prepreg material (fabric or unidirectional) in roll format

3.1.31**business application**

software creating and generating native product models

3.1.32**carbon fibre**

high-strength fibre used in advanced composite designs

3.1.33**caul plate**

secondary tooling on the bag side used to provide a smooth and controlled surface

3.1.34**certification**

process of assessing a process or product against some particular set of criteria

Note 1 to entry: The particular process of certifying an aircraft type as being airworthy.

Note 2 to entry: For more clarity, LOTAR uses the term "type certification" in this context.

3.1.35**character-based presentation**

type of presentation where the conveyed information is stored as characters (letters, numbers, and symbols)

Note 1 to entry: These characters are typically stored in a string variable that can be retrieved and edited in a consuming application.

Note 2 to entry: The appearance of character-based presentation depends on the font being used and may change if the originating system and the consuming application use different fonts.

Note 3 to entry: To ensure no characters are lost from creation to consumption, the alphabet (character encoding) used is defined as well.

EXAMPLE In ASCII, the letter "A" is stored as character code '0x41' (hexadecimal).

Note 4 to entry: Character-based presentation is often supplemented by geometric elements, such as leader lines, curves or terminator symbols.

3.1.36**co-bond**

joining together cured composites and other non-composite components (metal, systems, etc.) to an uncured composite lay-up

3.1.37**co-cured**

simultaneously bonded and curing assemblies of uncured composite details to one another

prEN 9300-007:2023 (E)**3.1.38****composite**

material created from a fibre (or reinforcement) and a matrix material in order to maximize specific properties, in which the constituents do not merge but retain their identities as they act in concert

3.1.39**composite inseparable assembly**

design that contains the geometric definition of all of the composite plies along with the relative location and stacking of any additional components

Note 1 to entry: At a minimum the plies will be defined by geometry, material and an orientation with a related rosette.

Note 2 to entry: There can be core, pre- and co-cured definitions, stitching, pinning, systems, impact strips and other embedded components.

3.1.40**composite materials**

two or more materials that are combined to form a useful engineering material that has properties not found in the constituents which retain their identities in the composite process

3.1.41**composite part**

definition that contains a solid representation of the cured part including holes, cutouts, chamfers surface treatments, and limited area application indicators or LAAs

Note 1 to entry: It uses the typical dimensioning practices with GD&T and PMI and is specified with a non-homogenous material property.

Note 1 to entry: A best practice would be to create it as a separate dataset with a “make from” note referencing the related composite inseparable assembly but not containing any information about the plies, components or materials that make it up.

3.1.42**configuration management**

discipline of managing the information relating to a product design, encompassing change management, configuration identification, the rules relating to the choice and combinations of options, status accounting and audit

Note 1 to entry: This is the preferred sense in the aircraft industry, and in the NAS 9300 documentation.

3.1.43**consumer**

organisation, person, or client system, which interacts with the services offered by the archive to find preserved information of interest and to access that information in detail

Note 1 to entry: In OAIS a consumer is defined as the user of data taken from an archive.

Note 2 to entry: See also “designated community” 3.1.64.

3.1.44**content information**

set of information that is the original target of preservation

Note 1 to entry: In OAIS it is an information object comprised of its content data object and its representation information.

EXAMPLE A single table of numbers representing, and understandable as, temperatures, but excluding the documentation that would explain its history and origin, how it relates to other observations, etc.

3.1.45

context information

information that documents the relationships of the content information to its environment, including why the content information was created and how it relates to other content information objects

3.1.46

core

internal item of a sandwich construction to which the sandwich faces or skins are attached

Note 1 to entry: The material may either be metal or non-metallic.

3.1.47

core model

essential minimum of data which are required to preserve the design intent for a given purpose

3.1.48

core ribbon direction

indicator that shows the direction of maximum shear strength and rigidity along the continuous webs of material

3.1.49

course

head path and all the tows which are laid as a machine's head traverses the path

Note 1 to entry: See "band" 3.1.27.
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3.1.50

cross-linking

irreversible bonding of polymer chains that restricts movements between the chains and results in significant changes to the mechanical properties

3.1.51

crossply

plies definitions in which different layers have orientations that cross each other

EXAMPLE A 0/90 layup.

3.1.52

cure

irreversibly change the properties of the binding resin in a composite layup

3.1.53

cured ply thickness

CPT

thickness of a ply after it has been cured and typically less than the uncured thickness

3.1.54

cyclic redundancy check

method for checking the integrity of a set of digital data