



SLOVENSKI STANDARD
oSIST prEN 4179:2021
01-maj-2021

Aeronavtika - Usposobljenost in odobritev osebja za neporušitveno preskušanje

Aerospace series - Qualification and approval of personnel for nondestructive testing

Luft- und Raumfahrt - Qualifizierung und Zulassung des Personals für zerstörungsfreie Prüfungen

Série aérospatiale - Qualification et agrément du personnel pour les essais non destructifs

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Ta slovenski standard je istoveten z: prEN 4179

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ICS:

03.100.30	Vodenje ljudi	Management of human resources
19.100	Neporušitveno preskušanje	Non-destructive testing
49.020	Letala in vesoljska vozila na splošno	Aircraft and space vehicles in general

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en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

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March 2021

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Will supersede EN 4179:2017

English Version

Aerospace series - Qualification and approval of personnel for nondestructive testing

Série aérospatiale - Qualification et agrément du
personnel pour les essais non destructifs

Luft- und Raumfahrt - Qualifizierung und Zulassung
des Personals für zerstörungsfreie Prüfungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ASD-STAN.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 4179:2021) 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 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 document is currently submitted to the CEN Enquiry.

This document will supersede EN 4179:2017.

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Introduction

In the event of a conflict between the text of this document and the references cited herein, the requirements of this document take precedence. Nothing in this document supersedes applicable laws and regulations unless a specific exemption has been obtained.

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1 Scope

1.1 Purpose

This document establishes the minimum requirements for the qualification and certification of personnel performing nondestructive testing (NDT), nondestructive inspection (NDI), or nondestructive evaluation (NDE) in the aerospace manufacturing, service, maintenance and overhaul industries. For the purposes of this document, the term NDT will be used and will be considered equivalent to NDI and NDE.

In Europe, the term “approval” is used to denote a written statement by an employer that an individual has met specific requirements and has operating approval. The term “certification” as defined in 3.2 is used throughout this document as a substitute for the term “approval”. Except when otherwise specified in the written practice, certification in accordance with this document includes operating approval.

1.2 Applicability

This document applies to personnel using NDT methods to test and/or accept materials, products, components, assemblies or sub-assemblies. This document also applies to personnel: directly responsible for the technical adequacy of the NDT methods used, who approve NDT procedures and/or work instructions, who audit NDT facilities, or who provide technical NDT support or training.

This document does not apply to individuals who only have administrative or supervisory authority over NDT personnel or to research personnel developing NDT technology for subsequent implementation and approval by a certified Level 3. Personnel performing specialized inspections using certain direct readout instruments as determined by a Level 3 certified in the method, do not require qualification or certification to this document.

1.2.1 Implementation

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This document addresses the use of a National Aerospace NDT Board (NANDTB). NANDTBs are only used as specified per Annex C and it is not mandatory to have such a board for compliance with this document. Personnel certified to previous revisions of NAS 410 or EN 4179 need not recertify to the requirements of this document until their current certification expires.

1.3 Methods

1.3.1 Common methods

This document contains detailed requirements for the following common NDT methods:

Eddy Current Testing	(ET)
Liquid Penetrant Testing	(PT)
Magnetic Particle Testing	(MT)
Radiographic Testing	(RT)
Thermographic Testing	(IRT)
Ultrasonic Testing	(UT)

1.3.2 Other methods

When invoked by engineering, quality, cognizant engineering organization or prime contractor requirements, this document applies to other current and emerging NDT methods used to determine the acceptability or suitability for intended service of a material, part, component, sub-assembly or

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assembly. Such methods can include, but are not limited to, acoustic emission, neutron radiography, leak testing, holography, and shearography. The requirements for personnel training, experience, and examination for these other methods are established in accordance with 6.4 and are documented by the employer.

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 18490, *Non-destructive testing — Evaluation of vision acuity of NDT personnel*¹

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

3.1**basic examination**

examination utilized to verify a Level 3 candidate's knowledge of NDT methods used by the employer at a Level 2 proficiency

3.2**certification**

written statement by an employer that an individual has met the applicable requirements of this document

3.3**closed book examination**

examination administered without access to any reference materials

3.4**cognizant engineering organization**

engineering or NDT organization of the prime contractor, OEM (Original Equipment Manufacturer), or end user authorized to make NDT-related decisions and give NDT-related approvals

3.5**committee meetings****panel meetings**

meetings, conferences, symposia, seminars, trade association meetings, panels, etc. organized or sponsored by a regional, national or international NDT organization or technical society

Note 1 to entry: Foreign or international meetings qualify if the sponsor(s) are national or international.

¹ Published by: ISO International Organization for Standardization <http://www.iso.ch/>

3.6**committee projects**

specific identifiable official activities of regional or national technical societies, committees or work groups

EXAMPLE round robins or individual studies, preparation of guidelines, appendices, specifications, recommended practices, procedures, codes or standards, etc.

Note 1 to entry: Documentation may include memos or reports, drafts of committee output documents, or official written comments submitted by the candidate on such documents.

3.7**direct observation**

observer's viewing of the NDT process in a manner that permits uninterrupted, visual and verbal two-way contact with the trainee

3.8**direct readout instrument**

instruments that physically display measurements in dimensional or electrical units (e.g. inches, millimetres or % IACS) either as digital readout or an analog display, such as a scale/pointer configuration, and do not require special skills or knowledge to set up the instrument and do not involve adjusting signal displays such as gates, delays, gain, or phase to obtain measurements

EXAMPLE Common direct readout instruments include basic ultrasonic thickness gauges without an oscilloscope display, and eddy current coating thickness gauges.

3.9**documented**

condition of being recorded in written or electronic form

3.10**employer**

organization employing or contracting the services of one or more individuals who perform NDT

Note 1 to entry: Self-employed individuals are included in this definition

3.11**evaluation**

review following interpretation of the indications noted during an NDT inspection to determine whether the indications meet specified acceptance criteria or to determine the significance of the indication

3.12**examination**

formal, controlled, documented testing conducted in accordance with a documented written practice to verify a candidate's visual capability, skill or knowledge of an NDT method

3.13**examiner**

Level 3 certified to this document and designated by the Responsible Level 3 to administer all or part of the qualification process in the NDT method(s) in which the Examiner is certified

prEN 4179:2021 (E)**3.14****experience**

actual performance of an NDT method conducted in the work environment resulting in the acquisition of knowledge and skill

Note 1 to entry: This does not include formal classroom training but may include laboratory and on-the-job training as defined by the employer's written practice.

3.15**formal education**

engineering or science studies at a technical school, college, or university

3.16**formal training**

organized and documented program of learning activities designed to impart the knowledge and skills necessary to be qualified to this document

Note 1 to entry: Formal training may be a mix of classroom, practical and programmed self-instruction as approved by the Responsible Level 3 or Examiner.

3.17**general examination**

written examination addressing the basic principles and theory of an NDT method

3.18**indication**

response or evidence of a condition resulting from an NDT inspection that requires interpretation

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3.19**instructor**

individual designated or approved by the Responsible Level 3 or Examiner to provide training for NDT personnel

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3.20**interpretation**

determination of whether indications are relevant or non-relevant

3.21**method**

1 (one) of the disciplines of nondestructive testing (e.g. ultrasonic, radiography, etc.) within which different techniques may exist

3.22**National Aerospace NDT Board****NANDTB**

independent aerospace organization representing a nation's aerospace industry that is chartered by the participating prime contractors and recognized by the nation's regulatory agencies to provide or support NDT qualification and/or examination services in accordance with Annex C of this document