

**Aerospace series - Qualification and approval of
personnel for non-destructive testing**

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 4179:2010 sisaldab Euroopa standardi EN 4179:2009 ingliskeelset teksti.

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This standard is ratified with the order of Estonian Centre for Standardisation dated 28.02.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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English Version

**Aerospace series - Qualification and approval of personnel for
non-destructive testing**

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

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

This European Standard was approved by CEN on 3 October 2009.

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 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 Management Centre has the same status as the official versions.

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Foreword

This document (EN 4179:2009) 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of an identical text or by endorsement, at the latest by May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.

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 4179:2005.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

1.1 Purpose

This European Standard establishes the minimum requirements for the qualification and certification of personnel performing non-destructive testing (NDT), non-destructive inspection (NDI), or non-destructive evaluation (NDE) in the aerospace manufacturing, service, maintenance and overhaul industries. For the purposes of this standard, the term NDT is used and is 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. Certification per EN ISO/IEC 17024 is not required by this standard unless specified by local or regulatory requirements. The term "certification" as defined in 3.1 is used throughout this standard as a substitute for the term "approval". Except when otherwise specified in the written practice, certification in accordance with this standard includes operating approval.

1.2 Applicability

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

This standard 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 standard.

1.3 Implementation

This standard addresses the use of a National Aerospace NDT Board (NANDTB). NANDTBs are only used as specified herein 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 standard until their current certification expires.

1.4 Common methods

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

Penetrant testing	(PT)
Magnetic testing	(MT)
Eddy current testing	(ET)
Ultrasonic testing	(UT)
Radiographic testing	(RT)
Thermographic testing	(TT)
Shearographic testing	(ST)

1.5 Other methods

When invoked by engineering, quality, cognizant engineering organization or prime contractor requirements, this standard 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 assembly. Such methods may

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

2 Normative references

2.1 Standards

The following referenced documents are indispensable for the application 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 473, *Non-destructive testing — Qualification and certification of NDT personnel — General principles*

EN ISO/IEC 17024, *Conformity assessment — General requirements for bodies operating certification of persons (ISO/IEC 17024:2003)*

ISO 9712, *Non-Destructive Testing — Qualification and certification of personnel*

NAS 410, *Certification and Qualification of Non-destructive Test Personnel (current revision)*

2.2 Order of precedence

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.

3 Terms and definitions

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

3.1 certification

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

3.2 closed book examination

examination administered without access to any reference materials

3.3 cognizant engineering organization

engineering or NDT organization of the prime contractor or end user authorized to make NDT-related decisions and give NDT-related approvals

3.4 direct observation

observation where the observer is able to come to the immediate aid of the trainee and remains within a distance that permits uninterrupted, unaided visual and verbal contact with the trainee

3.5 direct readout instrument

instruments that physically display measurements in dimensional or electrical units (e.g. in, mm or % IACS, etc.) 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