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Interested committees:

Title: Draft BS EN 4179 BS Aerospace series - Qualification and approval of personnel for nondestructive testing.

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

English Version

Aerospace series - Qualification and approval of personnel for nondestructive testing

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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 4179:2025) 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 document is currently submitted to the CEN Enquiry.

This document will supersede EN 4179:2021.

prEN 4179:2025 includes the following significant technical changes with respect to EN 4179:2021:

- updated Table 5 and Table 6 Education Requirements;
- modified Table 7 Vision Requirements and Specification of ISO 18490:2015;
- added Prerequisite Requirements for Basic Level 3 Exam;
- updated Reinstatement of Certifications;
- added Annex D - Credit System for Initial Certification to Level 3.

1 Scope

1.1 Purpose

This document establishes the minimum requirements for the qualification and certification of personnel performing non-destructive 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 who:

- use NDT methods or equipment to test and/or accept materials, products, components, assemblies or sub-assemblies;
- are directly responsible for the technical adequacy of the NDT methods and equipment used;
- operate automatic interpretation or evaluation systems;
- approve NDT procedures or work instructions;
- audit NDT facilities; or
- 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. See Clause 8 regarding applicability to personnel performing specialized inspections using certain direct readout instruments.

Definition Automated equipment refers to machinery and systems designed to perform tasks without human intervention. In a completely automated industrial process, these systems operate independently to execute various functions.

1.2.1 Implementation

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 NAS410 or EN 4179 need not recertify to the requirements of this document until their current certification expires.

1.3 Methods

1.3.1 NDT methods

This document contains detailed requirements for the following NDT methods:

Eddy Current Testing	(ET)
Liquid Penetrant Testing	(PT)
Magnetic Particle Testing	(MT)
Radiographic Testing	(RT)
Shearography Testing	(ST)
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 assembly. Such methods can include, but are not limited to, acoustic emission, neutron radiography, leak testing, and holography.

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 9712, *Non-destructive testing — Qualification and certification of NDT personnel*

ISO 18490:2015, *Non-destructive testing — Evaluation of vision acuity of NDT personnel*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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/>

3.1

automated equipment

machinery, systems, and/or apparatuses designed to perform tasks, partially or fully, without human intervention in the task being performed

3.2

basic examination

examination utilized to verify a Level 3 candidate's knowledge of NDT methods, materials, and manufacturing processes used by the employer at a Level 2 proficiency and NAS410/EN 4179 requirements

3.3**certification**

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

3.4**closed book examination**

examination administered without access to any reference materials

3.5**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

3.6**committee or 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.

3.7**committee projects**

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

3.8**direct observation**

when the observer is able to view the NDT process in a manner that permits uninterrupted, visual and verbal two-way contact with the trainee

3.9**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 analogue display, such as a scale/pointer configuration, or that display go/no-go outputs, and do not require special skills or knowledge to set up the instrument or inspection and do not involve adjusting parameters or signal displays such as gates, delays, gain, or phase to obtain valid measurements

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

3.10**documented**

condition of being recorded in written or electronic form

3.11

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.

3.12

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

3.13

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

3.14

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

3.15

experience

actual performance of an NDT method conducted in the work environment in line with expected duties/training plan 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.

3.16

formal education

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

3.17

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.

3.18

general examination

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

3.19

indication

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

3.20

instructor

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

3.21

interpretation

determination of whether indications are relevant or non-relevant

3.22

LEVEL 3 task

activity for which Level 3 certification is required

EXAMPLE Approval of an NDT Technique Instruction or NDT procedure

3.23

method

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

3.24

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

3.25

non-film radiography

radiographic imaging that does not use a film-based recording medium

EXAMPLE Non-Film radiography includes, but might not be limited to, Computed Radiography, Digital Radiography, Radioscopy, and Computed Tomography.

3.26

on-the-job training

training in the work environment to gain experience in learning instrument set-up, equipment operation, applying the process, and recognition, interpretation and evaluation of indications under appropriate technical guidance

3.27

open book examination

examination administered with access to specific reference material that is provided with or referenced in the examination

3.28

operating approval

written statement issued by the employer, based upon the scope of certification, authorizing the individual to carry out defined tasks

Note 1 to entry: Such authorization can be dependent on the employer having provided job or task-specific training.

3.29

outside agency

independent company or organization outside the employer who provides NDT services to implement the requirements of this document, such as training and examination of NDT personnel

Note 1 to entry: Consultants and self-employed individuals are included in this definition.

3.30

practical examination

examination to demonstrate an individual's ability to conduct an NDT method as used by the employer

Note 1 to entry: Questions and answers need not be written, where observations and results are documented.

3.31

prime contractor

organization having overall responsibility for design, control and delivery of a system, component or product

3.32

procedure

written general "how to" instruction for conducting a given process

Note 1 to entry: Procedures are used to develop work instructions, as defined in 3.38.

3.33

qualification

skills, training, knowledge, examinations, experience and visual capability required for personnel to properly perform to a particular level

3.34

Responsible Level 3

individual certified as a Level 3 designated by the employer with the sole responsibility and authority to ensure that the requirements of this document are met and to act on behalf of the employer

3.35

specific examination

written examination to determine an individual's understanding of operating procedures, codes, standards, product knowledge, test techniques, equipment and specifications for an NDT method as used by the employer

3.36

sub-contractor

organization responsible to the prime contractor for the manufacture or maintenance of aerospace products

EXAMPLE For the purposes of this document, this includes suppliers and processors.

3.37

task

activity for which certification is required

EXAMPLE The approval of an NDT Technique Instruction or NDT procedure.

3.38

technique

category within a method as defined in the written practice by the employer

3.39**test sample**

part or image containing one or more known and documented natural or artificial discontinuities, flaws or conditions used in the practical examination to demonstrate the candidate's proficiency in an NDT method

EXAMPLE Test samples can refer to actual hardware, fabricated test parts, or, when applicable, images of actual hardware such as radiographs.

3.40**work instruction**

document detailing the NDT technique and testing parameters to be used for the inspection of a specific component, group of parts (e.g. "aluminum extrusions" or "steel brackets"), or assembly

Note 1 to entry: These are sometimes referred to in the industry as "technique sheets" or "data cards".

Note 2 to entry: Such work instructions are based on procedures defined in 3.30.

3.41**written**

retrievable electronic or hard copy

3.42**written practice**

document that describes an employer's requirements and methodology for controlling and administering the NDT personnel qualification and certification process

4 General requirements**4.1 Written practice****4.1.1 Qualification and certification**

The employer shall develop and maintain a written practice for the qualification and certification of NDT personnel that meets the requirements of this document. The written practice shall address the procedural details necessary for the employer to implement an NDT qualification and certification program and shall include the details of the NDT qualification and certification process, including:

- the levels of qualification and certification used by the employer;
- personnel duties and responsibilities;
- training and experience requirements;
- certification and recertification requirements;
- records and record keeping requirements;
- requirements for expiration, suspension, revocation and reinstatement of certifications;
- process for annual proficiency review.

The written practice shall be approved by the Responsible Level 3. The written practice shall be available for review by the employer's customer(s) and regulatory agencies.