
**Non-destructive testing — Qualification
of personnel for limited applications of
non-destructive testing**

*Essais non destructifs — Qualification du personnel pour des
applications limitées en essais non destructifs*

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Contents

Page

| | |
|--|----|
| Foreword..... | iv |
| Introduction | v |
| 1 Scope..... | 1 |
| 2 Normative references | 1 |
| 3 Terms and definitions..... | 2 |
| 4 Responsibilities..... | 4 |
| 4.1 Certification body..... | 4 |
| 4.2 Qualifying body..... | 5 |
| 4.3 Examination centres | 5 |
| 4.4 Employer..... | 5 |
| 5 Domains of competence..... | 6 |
| 6 Vision requirements..... | 6 |
| 7 Eligibility | 6 |
| 7.1 Eligibility for examination..... | 6 |
| 7.2 Eligibility for the award of a certificate of qualification..... | 6 |
| 8 Examinations..... | 7 |
| 8.1 General..... | 7 |
| 8.2 Written examination..... | 7 |
| 8.3 Practical examination..... | 7 |
| 8.4 Conduct of examination..... | 7 |
| 8.5 Grading | 8 |
| 9 Qualification | 8 |
| 9.1 General..... | 8 |
| 9.2 Certificates and wallet cards | 8 |
| 9.3 Validity..... | 8 |
| 10 Renewal..... | 9 |
| 11 Re-qualification | 9 |
| 12 Files | 9 |
| Annex A (informative) Example syllabi and competencies..... | 11 |
| Annex B (informative) Weighting of the practical elements..... | 30 |

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 20807 was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 7, *Personnel qualification*.

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Introduction

Since the effectiveness of any application of non-destructive testing depends upon the capabilities of the persons who perform or who are responsible for the test, a procedure has been developed to provide a means for evaluating and documenting the competence of personnel whose duties require the appropriate theoretical knowledge and practical competence of the non-destructive tests that they perform.

For this reason, ISO/TC 135 developed an International Standard, ISO 9712, to ensure that the certification of competence of NDT personnel could be performed to a consistent and high standard worldwide.

Recognizing, however, that the provisions of ISO 9712 were not necessarily appropriate in some instances, e.g., in limited applications of non-destructive testing, ISO TC135 SC 7 authorized a Working Group (WG 5) to draft proposals which would facilitate the standardization of the qualification of personnel carrying out such limited NDT applications. This document represents the result of the deliberations of ISO/TC 135/SC 7/WG 5.

As a provision outside the scope of ISO 9712 requirements, limited NDT is the practice of a test method for a particular application requiring specific training and experience, i.e., an application which is limited, repetitive or automated. It should be noted that, within ISO 9712, there is provision for a reduction in the duration of training and experience required for eligibility. Annex A serves to provide examples of syllabi for the training and examination of personnel seeking qualification to this International Standard.

The methodology set out in this International Standard may be applied to the qualification of personnel for any limited application of NDT. However, it is not intended that qualification for limited applications be substituted for qualification and certification under ISO 9712.

NOTE Wherever gender-specific words such as "his", "her", "he" or "she" appear in this International Standard the other gender is also applicable.

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Non-destructive testing — Qualification of personnel for limited applications of non-destructive testing

1 Scope

1.1 This International Standard establishes a system for the qualification of personnel who perform NDT applications of a limited, repetitive or automated nature, such as:

- a) eddy current and electromagnetic sorting of materials;
- b) eddy current and electromagnetic testing of tubular products during manufacture;
- c) normal beam ultrasonic testing of plate materials during manufacture;
- d) ultrasonic thickness testing.

These examples are not intended to restrict the range of qualifications which could be covered by this International Standard.

1.2 This standard therefore does not provide for magnetic particle testing (MT) or liquid penetrant testing (PT).

NOTE The arrangements described in ISO 9712 provide sufficient flexibility to allow limited applications of these methods.

1.3 When the need for qualified non-destructive testing (NDT) personnel is defined in product standards, regulations, codes or specifications, and the nature of the testing to be carried out is limited in scope or automated such that the qualification requirements specified in ISO 9712 are considered inappropriate or excessive, it may be satisfied by qualification in accordance with this International Standard.

1.4 This International Standard is not intended to supplant the qualification and certification requirements detailed in sector-specific standards, such as ISO 11484:1994 *Steel tubes for pressure purposes — Qualification and certification of non-destructive testing (NDT) personnel*.

1.5 The requirements detailed herein apply only to NDT personnel qualified for specific applications, and no direct attempt should be made to equate this to the NDT levels defined in ISO 9712. However, it is recommended that qualified personnel defined in this International Standard be supervised by an appropriately certified NDT level 2 or 3 person as defined in ISO 9712:1999.

2 Normative references

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.

ISO 9712:1999, *Non-destructive testing — Qualification and certification of personnel*

ISO/IEC 17024, *Conformity assessment — General requirements for bodies operating certification of persons*

3 Terms and definitions

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

3.1 candidate
individual seeking qualification and who gains experience under the supervision of suitably qualified personnel

3.2 certificate
document issued by the certification body under the provisions of this International Standard indicating that the named person has demonstrated the competence(s) defined on the certificate

3.3 certification body
body that administers procedures for qualification to the requirements of this International Standard

3.4 employer
organization for which the candidate works on a regular basis

3.5 examination centre
centre approved by the certification body, where qualification examinations are carried out

NOTE An examination centre may be situated at an employer's premises

3.6 examination invigilator
person authorized by the certification body to supervise examinations

3.7 examination, practical
examination of practical skills, in which the candidate demonstrates familiarity with, and the ability to operate the test equipment

3.8 examination question, multiple choice
wording of a question giving rise to four potential replies, only one of which is correct, the remaining three being incorrect or incomplete

3.9 examination question, short answer
written question that requires the candidate to respond using one or more sentences, or to provide a mathematical solution showing all calculations

NOTE A short answer examination question may provide some guidance on the matters to be included in the candidate's response.

3.10 examination, written
examination concerned with the principles of an NDT method and with the candidate's knowledge of procedures, codes, standards and specifications

3.11 examiner
person certified at level 3 in accordance with the provisions of ISO 9712 for the method and sector he is to examine, and authorized by the certification body to conduct, supervise and grade NDT qualification examinations

3.12**experience**

period during which the candidate carried out, under supervision, the NDT application for which qualification is sought

3.13**NDT application**

specific non-destructive test applied to a defined product or range of products

NOTE An NDT application will normally be restricted to the use of only one NDT method but may involve the use of more than one NDT technique.

3.14**NDT instruction**

written description of the precise steps to be followed in testing to an established standard, code, specification or NDT procedure

3.15**NDT method**

discipline applying a physical principle in non-destructive testing (e.g., ultrasonic testing)

3.16**NDT operator**

individual qualified in accordance with this International Standard

3.17**NDT procedure**

written description of all essential parameters and precautions to be observed when applying an NDT technique to a specific test, following an established standard, code or specification

NOTE An NDT procedure can involve the application of more than one NDT method or technique.

3.18**NDT technique**

specific way of utilizing an NDT method (e.g., immersion ultrasonic testing)

3.19**NDT training**

process of instruction in theory and practice in the NDT application for which qualification is sought, which takes the form of training courses covering an approved syllabus

3.20**operating authorization**

written statement issued by the employer authorizing the individual to carry out the NDT application(s) detailed on the certificate of qualification

3.21**qualification**

demonstration of physical attributes, knowledge, skill, training and experience required to properly perform NDT tasks

3.22**qualifying body**

competent organization approved by the certification body to prepare and administer examinations aimed at qualifying NDT personnel

3.23

significant interruption

absence or a change of activity that prevents the qualified individual from practicing the duties corresponding to the level in the method and the sector(s) within the certified scope, for a) a continuous period in excess of 365 days or b) two or more periods for a total time exceeding two years

NOTE Legal holidays, periods of sickness or courses of less than thirty days are not taken into account when calculating the interruption.

3.24

specimen

sample used in practical examinations which should be representative of products typically tested in the NDT application for which qualification is sought and may include more than one area or volume to be tested

NOTE Samples should contain discontinuities typical of those found in the products concerned.

3.25

specimen master report

model answer, indicating the optimum result for a practical examination given a defined set of conditions (equipment type, settings, technique, specimen, etc.), against which the candidate's test report will be graded

3.26

supervision

act of directing the application of NDT performed by other NDT personnel, which includes the control of actions involved in the preparation of the test, performance of the test and reporting of the results

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4 Responsibilities

4.1 Certification body

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4.1.1 The certification body shall conform to the requirements of ISO/IEC 17024.

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4.1.2 A certification body

- a) shall accept ultimate responsibility for qualification as specified in this International Standard;
- b) shall administer the procedures and operations for qualification in accordance with a documented procedure meeting the minimum requirements of this International Standard;
- c) may delegate, under its direct responsibility, the detailed administration of the qualification procedure to other organizations which will act as qualifying bodies; the certification body shall publish its requirements for the approval of qualifying bodies. Where the qualifying body is also the employer, the certification body shall require additional controls to preserve impartiality;
- d) shall authorize appropriately trained and qualified examiners to set, conduct and grade the examinations described in this International Standard;
- e) shall approve, either directly or through a qualifying body, properly staffed and equipped examination centres;
- f) shall, having reviewed the evidence of qualification, make and record its decision to authorize the issue of a certificate of qualification;
- g) shall ensure that appropriate records are maintained and issue, or delegate the issuing of, certificates of qualification;

- h) shall ensure that a databank of relevant examination questions is maintained;
 - 1) for each multiple choice question this databank shall indicate the correct answer;
 - 2) for other questions this databank shall include a model answer.

NOTE It is desirable that answers include a reference that validates the answer to the examination question.

4.2 Qualifying body

The qualifying body, where established, shall be authorized by the certification body to

- a) apply a documented quality procedure;
- b) establish and monitor examination centres with adequate qualified staff, premises and equipment to ensure satisfactory qualification examinations for the NDT applications concerned;
- c) prepare and supervise qualification examinations;
- d) if required by the certification body, create and maintain a collection of relevant examination materials, including specimens, questions and answers;
- e) use only those examination questions and practical specimens approved by the certification body for examinations;
- f) maintain qualification records as required by the certification body.

4.3 Examination centres

Examination centres shall [ISO 20807:2004](https://standards.iteh.ai/catalog/standards/sist/5074e29d-d037-414d-be68-8d3863ee2c14/iso-20807-2004)

- a) comply with the requirements of the certification body,
- b) have test specimens, approved by the certification body, of difficulty comparable to those existant at other centres;
- c) under no circumstances use test specimens for training purposes.

4.4 Employer

The employer shall

- a) introduce the candidate to the certification body or qualifying body (if the candidate is self-employed, or presents himself alone, he shall assume all responsibilities described for the employer);
- b) confirm the validity of the personal information provided, including the declaration of satisfactory vision, education, training and experience needed to establish the eligibility of the candidate;
- c) be fully responsible for all that concerns the authorization to operate and the validity of the results of NDT operations;
- d) ensure that NDT operators holding certificates of qualification issued conforming to this International Standard undergo an annual test of visual acuity.

5 Domains of competence

NDT operators qualified in accordance with this International Standard may, within the scope and limitations of the qualification concerned

- a) set up and verify equipment settings;
- b) perform the tests in accordance with NDT instructions produced by appropriately qualified personnel such as those certified Level 2 or Level 3 in accordance with ISO 9712:1999;
- c) record, classify, interpret and evaluate the test results in accordance with written criteria;
- d) organize and report test results.

6 Vision requirements

6.1 The candidate shall provide documented evidence of satisfactory vision in accordance with the following requirements:

- a) near-vision acuity shall permit reading a minimum of Times Roman N4,5 or equivalent letters (Times New Roman of 4,5 points where 11 point = 1/72 inch or 0,352 8 mm) at not less than 30 cm with one or both eyes, either corrected or uncorrected;
- b) colour vision shall be sufficient that the candidate can distinguish contrast between the colours used in the NDT method concerned as specified by the employer.

6.2 Subsequent to qualification, the tests of visual acuity shall be carried out annually and be verified by the employer.

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7 Eligibility

7.1 Eligibility for examination

To be eligible for examination, the candidate shall provide evidence acceptable to the qualifying body or to the certification body, of completion of a course of NDT training appropriate to the scope of qualification sought.

NOTE 1 Training providers should issue documentary proof of completion of training.

NOTE 2 Information in Annex A may be used as guidance for the development of training and education syllabi, and duration of training.

7.2 Eligibility for the award of a certificate of qualification

7.2.1 The candidate shall have satisfactorily completed an appropriate written and practical examination.

7.2.2 The candidate shall have gained experience as required by the certification body, taking into account the guidance provided in A.1 to A.4.

7.2.3 The candidate shall provide documentary evidence of satisfactory vision in accordance with Clause 6.