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

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by The Japanese Society for Non-Destructive Inspection (JSNDI)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently, **JIS Z 2305:2001** is replaced with this Standard.

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Non-destructive testing—Qualification and certification of NDT personnel

Introduction

This Japanese Industrial Standard has been prepared based on the fourth edition of **ISO 9712** published in 2012 incorporating the parts corresponding to this Standard without any modification of the technical contents; however, the unnecessary parts for this Standard are deleted.

The portions with dotted underlines are the matters not given in the corresponding International Standard. A list of modifications with the explanations is given in Annex JA.

1 Scope

This Standard specifies requirements for principles for the qualification and certification of personnel who carries out the industrial non-destructive testing (hereafter referred to as “NDT”).

The system specified in this Standard can also apply to other NDT methods or to new techniques within an established NDT method, provided a comprehensive scheme of certification exists and the method or technique is covered by international, regional or national standards or the new NDT method or technique has been demonstrated to be effective to the satisfaction of the certification body.

The certification covers proficiency in one or more of the following NDT methods.

- a) Acoustic emission testing
- b) Eddy current testing
- c) Infrared thermographic testing
- d) Leak testing (hydraulic pressure tests are excluded.)
- e) Magnetic testing
- f) Penetrant testing
- g) Radiographic testing
- h) Strain gauge testing
- i) Ultrasonic testing
- j) Visual testing (direct unaided visual tests and visual tests carried out during application of another NDT method are excluded.)

NOTE 1 The term “industrial” implies the exclusion of applications in the field of medicine.

NOTE 2 **CEN/TR 14748**^[4] can be used as guidance.

NOTE 3 This Standard specifies requirements for what are, in effect, third party conformity assessment schemes.

These requirements do not directly apply to conformity assessment by second parties or first parties, but relevant parts of this Standard can be referred to in such arrangements.

NOTE 4 The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 9712:2012 *Non-destructive testing—Qualification and certification of NDT personnel* (MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this Standard. The most recent edition of the standard (including amendments) indicated below shall be applied.

JIS Q 17024 *Conformity assessment—General requirements for bodies operating certification of persons*

NOTE : Corresponding International Standard: ISO/IEC 17024 *Conformity assessment—General requirements for bodies operating certification of persons* (IDT)

3 Terms and definitions

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

3.1 authorized qualification body

body, independent of the employer, authorized by the certification body to prepare and administer qualification examinations

3.2 basic examination

written examination, at Level 3, which demonstrates the candidate's knowledge of the materials science and process technology and types of discontinuities, the specific qualification and certification scheme, and the basic principles of NDT methods as required for Level 2

NOTE 1 For an explanation of the three levels of qualification, see clause 6.

NOTE 2 The qualification and certification scheme is specified in this Standard.

3.3 candidate

individual seeking qualification and certification who gains experience under the supervision of personnel having a qualification acceptable to the certification body

3.4 certificate

document issued by the certification body under specified provisions, indicating that the named person has demonstrated the competence(s) defined on the certificate

NOTE : The provisions are specified in this Standard.

3.5 certification

procedure used by the certification body to confirm that the qualification requirements for the NDT method, level and sector have been fulfilled, leading to the issuing of a certificate

3.6 certification body

body that administers procedures for certification according to specified requirements

NOTE : The “requirements” are specified in this Standard.

3.7 employer

organization for which the candidate works on a regular basis

NOTE : An employer can also be a candidate at the same time.

3.8 examination centre

centre approved by the certification body where qualification examinations are conducted

3.9 examiner

person certified to Level 3 in the NDT method and the product sector or industrial sector for which he or she is authorized by the certification body to conduct, supervise and grade the qualification examination

3.10 general examination

written examination, at Level 1 or Level 2, concerned with the principles of the NDT method

3.11 industrial experience

experience, acceptable to the certification body, gained under qualified supervision, in the application of the NDT method in the sector concerned, needed to acquire the skill and knowledge to fulfil the provisions of qualification

3.12 invigilator

person authorized by the certification body to supervise examinations

3.13 job-specific training

training, provided by the employer (or the agent) to the certificate holder in those aspects of the NDT specific to the employer’s products, NDT equipment, NDT procedures, and applicable codes, standards, specifications and procedures, leading to the award of operating authorizations

3.14 main-method examination

written examination, at Level 3, which demonstrates the candidate’s general and specific knowledge, and the ability to write NDT procedures for the NDT method as applied in the product sector or industrial sector for which certification is sought

3.15 multiple-choice examination question

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

3.16 NDT instruction

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

3.17 NDT method

method applying a physical principle to NDT

Example: Ultrasonic testing.

3.18 NDT procedure

document of all essential parameters and precautions to be applied when non-destructively testing products in accordance with standard(s), code(s) or specification(s)

3.19 NDT technique

specific way of utilizing the NDT method

Example: Immersion ultrasonic testing.

3.20 NDT training

process of instruction in theory and practice in the NDT method in which certification is sought, which takes the form of training courses to a syllabus approved by the certification body

NOTE : The syllabus is the outline in which the purpose and content of education and training, texts to be used, bibliographies, evaluation methods, etc. are described.

3.21 operating authorization

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

NOTE : Such authorization can be dependent on the provision of job-specific training.

3.22 practical examination

assessment of practical skills, in which the candidate demonstrates familiarity with, and the ability to carry out, the NDT

3.23 qualification

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

3.24 qualification examination

examination, administered by the certification body or the authorized qualification body, which assesses the general, specific and practical knowledge and the skill of the candidate

3.25 qualified supervision

supervision of candidates gaining experience by NDT personnel certified in the same NDT method under supervision or by non-certified personnel who, in the opinion of

the certification body, possess the knowledge, skill, training, and experience required to properly carry out such supervision

3.26 sector

particular section of industry or technology where specialized NDT practices are used, requiring specific product-related knowledge, skill, equipment or training

NOTE : A sector can be interpreted to mean a product sector (welded products, castings, etc.) or an industry sector (aerospace, in-service testing, etc.) (see Annex A).

3.27 significant interruption

absence or change of activity which prevents the certified individual from practising the duties corresponding to the level in the method and the sector(s) within the certified scope, for either a continuous period in excess of one year or two or more periods for a total time exceeding two years

NOTE : Legal holidays or periods of sickness or courses of less than 30 days are not taken into account when calculating the interruption.

3.28 specific examination

written examination, at Level 1 or Level 2, concerned with the NDT techniques applied in a particular sector(s), including knowledge of the product(s) tested and of codes, standards, specifications, procedures and acceptance criteria

3.29 specification

document stating requirements

3.30 specimen

sample used in practical examinations, possibly including radiographs and data sets, which is representative of products on which the NDT is carried out in the applicable sector

NOTE : A specimen on which the NDT is carried out can include more than one area or volume.

3.31 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 is graded

3.32 supervision

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

3.33 validation

act of demonstrating that a verified procedure works in practice and fulfils its intended function, normally achieved by actual witnessing, demonstration, field or laboratory tests or selected trials

3.34 renewal

procedure for revalidation of a certificate without examination at any time up to five years after success in an initial, supplementary or recertification examination

3.35 recertification

procedure for revalidation of a certificate by examination or by otherwise satisfying the certification body that the published criteria for recertification are satisfied

4 NDT methods and abbreviated terms

For the purposes of this Standard, the abbreviated terms listed in table 1 are used to identify NDT methods.

Table 1 NDT methods and abbreviated terms

NDT method	Abbreviated terms
Acoustic emission testing	AT
Eddy current testing	ET
Infrared thermographic testing	TT
Leak testing	LT
Magnetic testing	MT
Penetrant testing	PT
Radiographic testing	RT
Strain gauge testing	ST
Ultrasonic testing	UT
Visual testing	VT

5 Responsibilities

5.1 General

The certification scheme, which shall be controlled and administered by a certification body (with the assistance, where necessary, of authorized qualification bodies), includes all procedures necessary to demonstrate the qualification of an individual to carry out tasks in a specific NDT method and the product sector or industrial sector, leading to certification of competence.

5.2 Certification body

5.2.1 The certification body shall fulfil the requirements of **JIS Q 17024**.

5.2.2 The certification body:

- shall initiate, promote, maintain and administer the certification scheme according to **JIS Q 17024** and this Standard;
- shall publish specifications for training courses that include the syllabi which embody the content of recognized documents;

NOTE : As an example of the syllabi which embody the content of recognized documents, **ISO/TR 25107**^[2] is issued.

- c) may delegate, under its direct responsibility, the detailed administration of qualification to authorized qualification bodies, to which it shall issue specifications and/or procedures covering facilities, personnel, calibration and control of NDT equipment, examination materials, specimens, conduct of examinations, examination grading, records, etc.;
- d) shall conduct an initial audit and subsequent periodic surveillance audits of the authorized qualification body(ies) to ensure their conformity to the specifications;
- e) shall monitor, in accordance with a documented procedure, all delegated functions;
- f) shall approve properly staffed and equipped examination centres which it shall monitor on a periodic basis;
- g) shall establish an appropriate system for the maintenance of records, which shall be retained for at least one certification cycle (10 years);
- h) shall be responsible for the issue of all certificates;
- i) shall be responsible for the definition of sectors (see Annex A);
- j) shall be responsible for ensuring the security of all examination materials (specimens, master reports of specimens, question banks, examination papers, etc.) and shall ensure that specimens are not in use for training purposes;
- k) shall require all candidates and certificate holders to give a signed or stamped undertaking to abide by a code of ethics which it shall develop for the purpose and publish.

5.3 Authorized qualification body

5.3.1 Where established, the authorized qualification body shall:

- a) work under the control of and apply the specifications issued by the certification body;
- b) be independent of any single predominant interest;
- c) ensure that it is impartial with respect to each candidate seeking qualification, bringing to the attention of the certification body any actual or potential threat to its impartiality;
- d) apply a documented quality management system approved by the certification body;
- e) have the resources and expertise necessary to establish, monitor and control examinations centres, including examinations and the calibration and control of the equipment;
- f) prepare, supervise and administer examinations under the responsibility of an examiner authorized by the certification body;
- g) maintain appropriate qualification and examination records according to the requirements of the certification body.

5.3.2 If there are no authorized qualification bodies, the certification body shall fulfil the requirements of the authorized qualification body.

5.4 Examination centre

5.4.1 The examination centre shall:

- a) work under the control of the certification body or authorized qualification body;
- b) apply a documented quality procedure approved by the certification body;
- c) have the resources needed to administer examinations, including the calibration and control of equipment;
- d) have adequate qualified staff, premises and equipment to ensure satisfactory qualification examinations for the levels, NDT methods, and sectors concerned;
- e) prepare and conduct examinations under the responsibility of an examiner authorized by the certification body, using only those examination questionnaires and specimens established or approved by the certification body for that purpose;
- f) use only specimens prepared or approved by the certification body or qualification body for the practical examinations conducted at that centre (when more than one examination centre exists, each shall have examination specimens of comparable test difficulty containing similar discontinuities of NDT) — under no circumstances shall specimens be used for training purposes;
- g) maintain appropriate qualification and examination records according to the requirements of the certification body.

5.4.2 An examination centre can be situated at an employer's premises. In this case, the certification body shall require additional controls to preserve impartiality and the examinations shall be conducted only in the presence of, and under the control of, an authorized representative of the certification body.

5.5 Employer

5.5.1 The employer shall introduce the candidate to the certification body or the authorized qualification body and document the validity of the personal information provided. This information shall include the declaration of education, training and experience and visual acuity needed to determine the eligibility of the candidate. If the candidate is unemployed or self-employed, the declaration of education, training and experience shall be attested to by at least one independent party acceptable to the certification body.

5.5.2 Neither the employer nor his/her staff shall be directly involved in the qualification examination.

5.5.3 In respect of certified personnel under their control, the employer shall be responsible for:

- a) all that concerns the authorization to operate, i.e. providing job-specific training (if necessary);