



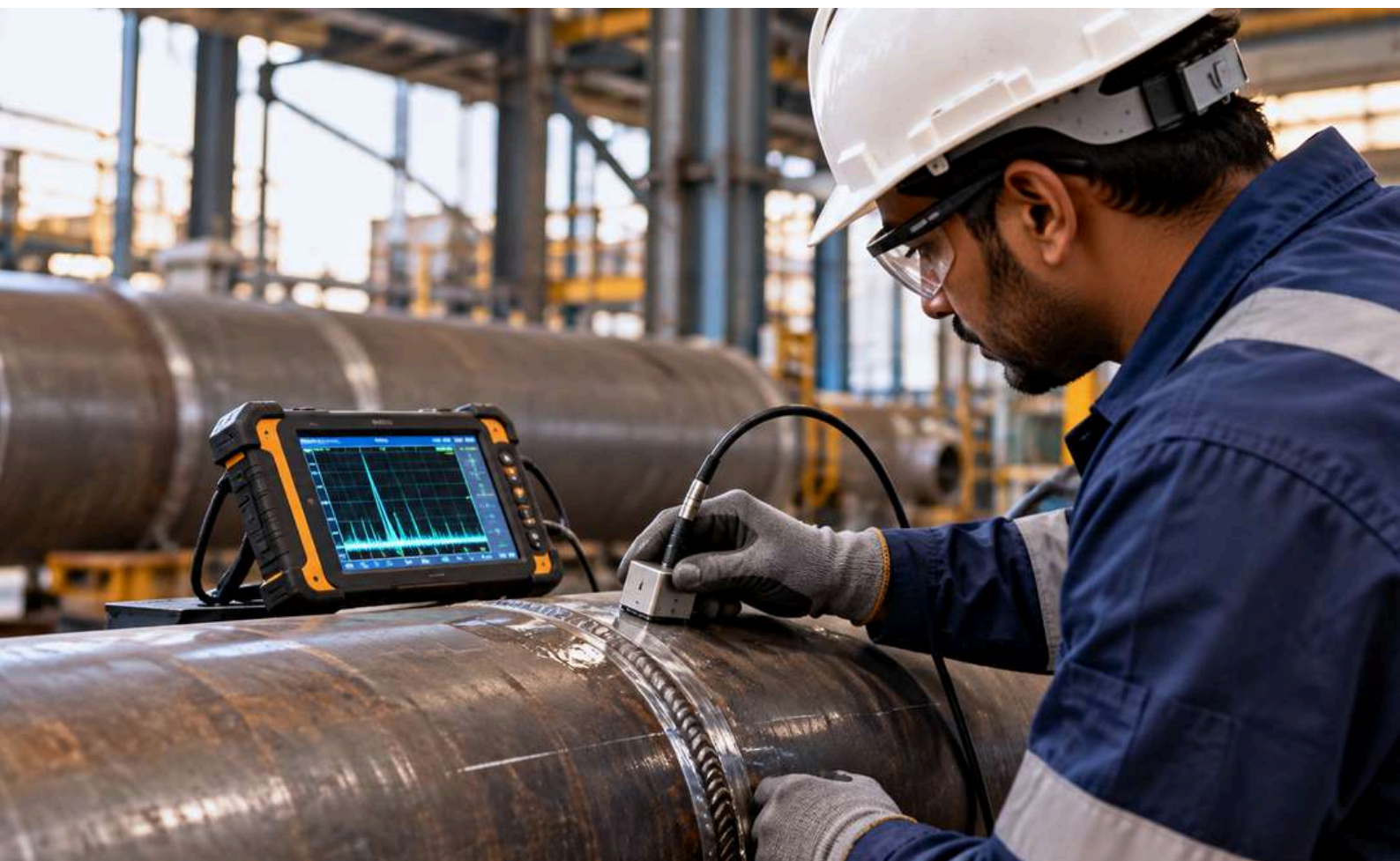
PRVÁ ZVÁRAČSKÁ, a. s.
FIRST WELDING Inc.

ISO 9712:2021

Qualification and Certification of NDT Personnel

**Complete Technical Guide for Industrial Non-
Destructive Testing Personnel**

*Practical Guide to NDT Methods, Certification
Levels, Examination, Eligibility & Certification*



First Welding Certification Pvt Ltd (PRVÁ ZVÁRAČSKÁ, a.s.)
SPVD 2014/29/EU Conformity Assessment
Notified Body No. 2408
pzvar.in

INTRODUCTION, SCOPE AND NDT METHODS

1. What Is ISO 9712?

ISO 9712:2021 – Non-destructive testing – Qualification and certification of NDT personnel specifies requirements for the qualification and third-party certification of personnel performing industrial non-destructive testing (NDT).

ISO 9712:2021 is the fifth edition, published in December 2021, and it replaced ISO 9712:2012. The 2012 edition is withdrawn.

The standard establishes a structured system for demonstrating that NDT personnel have the required:

- Knowledge
- Training
- Industrial experience
- Practical ability
- Examination performance
- Vision capability
- Technical competence

ISO 9712 certification is widely used in industries where NDT results are important for demonstrating the condition and integrity of components, welds, materials and structures.

The standard applies to industrial NDT and excludes medical applications.

2. NDT Methods Covered by ISO 9712:2021

ISO 9712:2021 covers certification of personnel in the following NDT methods:

1. Acoustic Emission Testing (AT)
2. Eddy Current Testing (ET)
3. Leak Testing (LT)

1. Magnetic Testing (MT)
2. Penetrant Testing (PT)
3. Radiographic Testing (RT)
4. Strain Gauge Testing (ST)
5. Thermographic Testing (TT)
6. Ultrasonic Testing (UT)
7. Visual Testing (VT)

The standard also permits other NDT methods or techniques where an established certification scheme exists and the method or technique is covered by an applicable international, regional or national standard, or its effectiveness has been demonstrated to the satisfaction of the certification body.

Important Scope Note

Visual Testing under ISO 9712 refers to specified industrial visual testing activities. Direct unaided visual examination and visual examination performed during another NDT method are excluded from the ISO 9712 scope described in the standard.

3. Typical Industrial Applications

ISO 9712-certified NDT personnel can be involved in inspection activities associated with:

- Welding and fabrication
- Pressure equipment
- Pressure vessels
- Piping
- Structural steel
- Railway components
- Automotive components
- Aerospace components
- Oil and gas equipment
- Petrochemical equipment
- Power-generation equipment

- Castings and forgings
- Industrial machinery

The exact application, technique and acceptance criteria are determined by the applicable product standard, specification, code or written instruction.

LEVELS, ELIGIBILITY AND VISION REQUIREMENTS

4. ISO 9712 Certification Levels

ISO 9712 establishes three principal certification levels.

Level 1

A Level 1 NDT personnel is qualified to perform NDT operations according to written instructions and within the scope of the applicable certification.

Typical Level 1 activities can include:

- Setting up equipment
- Performing the examination
- Following approved instructions
- Recording results
- Reporting observations

A Level 1 person generally does not independently select the NDT method or establish the examination procedure.

Level 2

Level 2 NDT personnel has a broader level of competence and may perform and supervise NDT activities within the certified method and sector.

Typical Level 2 responsibilities can include:

- Selecting the applicable technique from an approved procedure
- Setting up and verifying equipment
- Performing examinations

- Interpreting and evaluating indications
- Recording results
- Preparing NDT instructions where permitted
- Supervising Level 1 personnel

The exact authority depends on the employer's authorization and applicable technical requirements.

Level 3

A Level 3 NDT personnel has the highest certification level under ISO 9712.

Level 3 personnel can have responsibilities involving:

- Establishment and validation of NDT procedures
- Selection of appropriate NDT methods
- Interpretation of codes and standards
- Technical supervision
- Evaluation of NDT techniques
- Qualification and approval of NDT procedures
- Technical guidance
- Examination and certification-related functions within the applicable scheme

Certification level does not by itself establish the employer's authorization to perform every possible activity.

5. Eligibility Requirements

ISO 9712 includes requirements relating to:

- Training
- Industrial NDT experience
- Vision
- Examination
- Certification

The required training and industrial experience depend on the NDT method and certification level.

For Level 3, additional requirements apply, including specific experience provisions.

The certification body establishes and verifies the applicable eligibility conditions before examination.

6. Vision Requirements

Vision capability is an important ISO 9712 requirement.

The standard includes requirements for:

Near Vision

Candidates and certificate holders must demonstrate the required near-vision capability according to the applicable examination requirements.

Colour Vision

Colour vision requirements apply where colour differentiation is relevant to the NDT method.

Examples include applications involving:

- Penetrant testing
- Magnetic testing
- Visual testing
- Other methods where colour interpretation is necessary

Vision examinations must be performed according to the requirements of the applicable certification scheme.

The 2021 edition revised requirements relating to visual acuity testing.

EXAMINATION, CERTIFICATION AND RESPONSIBILITIES

7. ISO 9712 Examination System

ISO 9712 establishes examination requirements for demonstrating competence.

Depending on the certification level and method, examinations can include:

General Examination

The general examination evaluates knowledge of the fundamental principles of the selected NDT method.

Typical subjects include:

- NDT principles
- Equipment
- Materials
- Discontinuities
- Examination techniques
- Safety
- Applicable standards
- Basic interpretation principles

Specific Examination

The specific examination evaluates knowledge related to the applicable industrial sector, products, equipment, codes, standards and specifications.

Practical Examination

The practical examination evaluates the candidate's ability to apply the selected NDT method to specimens or defined practical tasks.

Practical competence can include:

- Equipment setup
- Calibration or verification
- Test execution
- Technique selection
- Examination
- Recording
- Interpretation and evaluation where applicable
- Reporting

The detailed examination requirements, duration and grading are established by ISO 9712 and the applicable certification scheme.

8. Certification Decision

Certification is based on the candidate satisfying the applicable requirements for:

- Eligibility
- Training
- Industrial experience
- Vision
- Examination
- Other certification conditions

The certification body makes the certification decision according to its established impartial certification process.

ISO 9712:2021 clarified responsibilities among the certification body, authorized qualification body, examination centre, employer, candidate, certificate holder, examiner and referee.

9. Certification Body

The certification body is responsible for operating the personnel certification scheme according to the applicable requirements.

Its responsibilities can include:

- Reviewing applications
- Verifying eligibility
- Controlling examinations
- Appointing qualified examination personnel
- Evaluating examination results
- Making certification decisions
- Issuing certificates
- Maintaining certification records
- Handling renewal and recertification

10. Examination Centre

The examination centre provides the controlled environment, equipment and specimens necessary for examinations.

It should ensure that:

- Examination conditions are controlled
- Equipment is suitable
- Specimens are appropriate
- Examination security is maintained
- Results are properly recorded

11. Candidate

The candidate is responsible for providing accurate information and meeting the applicable eligibility requirements.

The candidate must:

- Submit required documentation
- Meet training requirements
- Meet experience requirements
- Meet vision requirements
- Attend examinations
- Follow examination rules
- Maintain certification requirements after certification

12. Employer

Employer authorization is separate from third-party personnel certification.

An ISO 9712 certificate demonstrates that the person has met the applicable certification requirements. The employer may additionally need to authorize the person for specific NDT tasks based on:

- Job requirements
- Written procedures
- Product standards
- Equipment

- Industrial sector
- Workplace conditions
- Applicable regulations

CERTIFICATE VALIDITY, RENEWAL, RECERTIFICATION AND DOCUMENTATION

13. Maintaining ISO 9712 Certification

Certification is not simply a one-time examination event. Certificate holders must maintain the conditions specified by the certification scheme throughout the certification period.

Important considerations include:

- Continued competence
- Validity of vision examination
- Relevant NDT activity
- Certification renewal
- Recertification
- Employer authorization
- Compliance with certification conditions

ISO 9712:2021 introduced revised requirements concerning renewal, including practical examination and structured-credit approaches within the applicable certification process.

14. Renewal of Certification

Renewal is carried out according to the applicable certification requirements at the end of the initial certification period.

The certificate holder must satisfy the applicable conditions established by the certification body.

The renewal process can involve requirements relating to:

- Continued satisfactory activity
- Vision
- Certification records
- Practical competence

- Structured credits, where applicable

The exact route depends on the certification scheme and applicable method.

15. Recertification

Recertification provides a mechanism for demonstrating continued competence after the applicable certification period.

ISO 9712:2021 includes revised provisions for recertification, including structured-credit arrangements for Level 3 personnel. The certification body evaluates the candidate according to the applicable recertification requirements.

16. Certification Documentation

An ISO 9712 certificate generally identifies information such as:

- Certificate holder
- Certification level
- NDT method
- Industrial sector
- Product sector where applicable
- Certification number
- Issue date
- Validity period
- Certification body
- Applicable standard

Certificate holders should ensure that the certificate information accurately reflects their current qualification.

17. Common ISO 9712 Certification Areas

Requirement	Verification / Status
NDT Method	Selected
Certification Level	Level 1 / 2 / 3
Industrial Sector	Identified
Training	Completed as applicable
Industrial Experience	Verified
Vision	Valid
General Examination	Applicable
Specific Examination	Applicable
Practical Examination	Applicable
Certification Decision	Completed
Certificate	Issued
Employer Authorization	Established
Renewal	Monitored
Recertification	Planned

18. ISO 9712:2021 – Important Changes

ISO 9712:2021 technically revised the previous edition and introduced or revised several areas, including:

- Responsibilities of certification bodies and other parties
- Definitions
- Examiner and referee responsibilities
- Training and industrial experience requirements
- Visual acuity requirements
- Examination requirements
- Certification documentation
- Certification conditions
- Renewal requirements
- Level 3 structured-credit requirements
- Requirements for candidates seeking renewal
- Additional provisions for NDT techniques

These changes distinguish ISO 9712:2021 from the withdrawn ISO 9712:2012 edition.

19. ISO 9712 Certification – Practical Summary

The ISO 9712 certification process can be represented as:

Select NDT Method → Determine Level → Verify Training → Verify Experience → Vision Examination → General/Specific/Practical Examination → Certification Decision → Certificate → Employer Authorization → Renewal/Recertification

ISO 9712 certification provides a structured third-party framework for demonstrating the competence of industrial NDT personnel.

For organizations working with welded products, pressure equipment, structural fabrication, railway components and other engineered products, qualified NDT personnel are an important part of inspection and conformity documentation.

20. Conclusion

ISO 9712:2021 establishes internationally recognized requirements for the qualification and certification of industrial NDT personnel. The standard covers multiple NDT methods and three certification levels, with requirements for training, industrial experience, vision, examination and continued certification.

For candidates and employers, the correct certification route depends on the NDT method, certification level, industrial sector and applicable certification scheme.

The fundamental process is:

Training → Experience → Vision → Examination → Certification →
Authorization → Continued Competence

Manufacturers and inspection organizations should ensure that NDT personnel qualifications correspond to the applicable project, product standard, inspection procedure and regulatory requirements.

Reference: ISO 9712:2021 – Non-destructive testing – Qualification and certification of NDT personnel. ISO identifies this as the current published fifth edition.

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