

Qualification of NDT Personnel

Object of Amendment

Rules for the Survey and Construction of Steel Ships Part M

Reason for Amendment

IACS Unified Requirement (UR) W35 stipulates requirements to be complied with by entities performing non-destructive testing (NDT) for ships and offshore structures to ensure NDT quality. These requirements have already been incorporated into Chapter 7, Part M of the NK Rules for the Survey and Construction of Steel Ships.

IACS UR W35 requires that NDT personnel to be certified in accordance with ISO 9712:2021. Since visual testing (VT) is defined as a type of NDT in the UR, VT is also included in the scope of the certification scheme based on ISO 9712:2021. However, subsequent discussions within IACS on this matter confirmed that VT personnel are not required to meet the qualification and certification requirements for NDT personnel.

As a result, the definition of VT was clarified and requirements allowing VT personnel to be exempted from qualification and certification requirements were introduced. These amendments were adopted as IACS UR W35 (Rev.2).

Accordingly, relevant requirements are amended based on IACS UR W35 (Rev.2).

Outline of Amendment

The main details of this amendment are as follows:

- (1) Adds the definition of VT based on ISO 9712:2021.
- (2) Specifies that VT personnel may be exempted from the qualification and certification requirements for NDT personnel.

Effective Date and Application

Effective date of this amendment is 1 January 2027.

ID:DH26-03

Amended-Original Requirements Comparison Table (Qualification of NDT Personnel)

Amended	Original	Remarks																
RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS Part M WELDING Chapter 7 Non-Destructive Testing Service Suppliers 7.1 General 7.1.2 Definitions	RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS Part M WELDING Chapter 7 Non-Destructive Testing Service Suppliers 7.1 General 7.1.2 Definitions																	
Table M7.1 The definitions of terms <table><tr><td><i>NDT</i></td><td>Non-Destructive Testing The development and application of technical methods to examine materials or components in ways that do not impair their future usefulness and serviceability, in order to measure geometrical characteristics and to detect, locate, measure and evaluate flaws. <i>NDT</i> is also known as non-destructive examination (<i>NDE</i>), non-destructive inspection (<i>NDI</i>) and non-destructive evaluation (<i>NDE</i>). Comprising, but not limited to the following methods and techniques <i>MT</i>, <i>PT</i>, <i>RT</i>, <i>VT</i>, <i>UT</i> and <i>ET</i>.</td></tr><tr><td><i>ANDT</i></td><td>The above definition of <i>NDT</i> applies, however, <i>ANDT</i> includes advanced methods such as <i>RT-D</i>, <i>PAUT</i>, <i>TOFD</i> and <i>AUT</i>.</td></tr><tr><td><i>NDT</i> Service Supplier</td><td>Independent <i>NDT</i> company or <i>NDT</i> department/section that forms a part of a company providing <i>NDT</i> services on new construction of ships and offshore structures, as applicable to the performing <i>NDT</i> on the items as listed in 7.1.1-2.</td></tr><tr><td><i>MT</i></td><td>Magnetic Particle Testing</td></tr><tr><td><i>PT</i></td><td>Penetrant Testing</td></tr><tr><td><i>RT</i></td><td>Radiographic Testing</td></tr><tr><td><i>RT-D</i></td><td>Digital Radiography Testing (A technique within the method <i>RT</i>, e.g. Computed Radiography or Direct Radiography).</td></tr><tr><td><i>UT</i></td><td>Ultrasonic Testing</td></tr></table>			<i>NDT</i>	Non-Destructive Testing The development and application of technical methods to examine materials or components in ways that do not impair their future usefulness and serviceability, in order to measure geometrical characteristics and to detect, locate, measure and evaluate flaws. <i>NDT</i> is also known as non-destructive examination (<i>NDE</i>), non-destructive inspection (<i>NDI</i>) and non-destructive evaluation (<i>NDE</i>). Comprising, but not limited to the following methods and techniques <i>MT</i> , <i>PT</i> , <i>RT</i> , <i>VT</i> , <i>UT</i> and <i>ET</i> .	<i>ANDT</i>	The above definition of <i>NDT</i> applies, however, <i>ANDT</i> includes advanced methods such as <i>RT-D</i> , <i>PAUT</i> , <i>TOFD</i> and <i>AUT</i> .	<i>NDT</i> Service Supplier	Independent <i>NDT</i> company or <i>NDT</i> department/section that forms a part of a company providing <i>NDT</i> services on new construction of ships and offshore structures, as applicable to the performing <i>NDT</i> on the items as listed in 7.1.1-2.	<i>MT</i>	Magnetic Particle Testing	<i>PT</i>	Penetrant Testing	<i>RT</i>	Radiographic Testing	<i>RT-D</i>	Digital Radiography Testing (A technique within the method <i>RT</i> , e.g. Computed Radiography or Direct Radiography).	<i>UT</i>	Ultrasonic Testing
<i>NDT</i>	Non-Destructive Testing The development and application of technical methods to examine materials or components in ways that do not impair their future usefulness and serviceability, in order to measure geometrical characteristics and to detect, locate, measure and evaluate flaws. <i>NDT</i> is also known as non-destructive examination (<i>NDE</i>), non-destructive inspection (<i>NDI</i>) and non-destructive evaluation (<i>NDE</i>). Comprising, but not limited to the following methods and techniques <i>MT</i> , <i>PT</i> , <i>RT</i> , <i>VT</i> , <i>UT</i> and <i>ET</i> .																	
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<i>UT</i>	Ultrasonic Testing																	

Amended-Original Requirements Comparison Table (Qualification of NDT Personnel)

Amended		Original	Remarks
PAUT	Phased Array Ultrasonic Testing, (A type of <i>UT</i> technique in which electronically controls the transmission time of a pulse wave transmitted from a plurality transducer as ultrasonic beam at an arbitrary refraction angle and focal length to detect flaws. A device that can display and record flaw detection results as a two-dimensional image).		UR W35(Rev.2) 1.3 Clarifies the definition of VT.
TOFD	Time of Flight Diffraction (A type of <i>UT</i> technique in which plane flaw detection and dimension measurement are performed by a method using the correlation between interference waves at various probe positions or angles of incidence).		
AUT	Automated Ultrasonic Testing. Technique by which an object is tested by ultrasound using probes operating under mechanical control and where ultrasonic data is collected automatically.		
ET	Electromagnetic Testing, Eddy Current Testing and/or Alternating Current Field Measurements (<i>ACFM</i>), etc.		
VT	Visual Testing. <u>Direct unaided visual tests and visual tests carried out during the application of another <i>NDT</i> method are excluded.</u>		
Industrial sector	Section of industry or technology where specialized <i>NDT</i> practices are used, requiring specific product-related knowledge, skill, equipment and/or training.		
Product sector	A category of component that may be defined by type of manufacturing, fabrication, and/or shape, which may have unique, and/or general manufacturing/fabrication defect characteristics. Product sector examples include (but not limited to): castings, wrought products (forgings), rolled products, extruded products and welds.		
7.2 Requirements for the <i>NDT</i> Service Suppliers		7.2 Requirements for the <i>NDT</i> Service Suppliers	
7.2.2 Requirements for Documents		7.2.2 Requirements for Documents	
The following documents are to be available for the Society upon request:		The following documents are to be available for the Society upon request:	
(1) An outline of <i>NDT</i> Service Supplier’s organization and management structure, including any subsidiaries.		(1) An outline of <i>NDT</i> Service Supplier’s organization and management structure, including any subsidiaries.	
(2) Information on the structure of the <i>NDT</i> Service Supplier’s quality management system.		(2) Information on the structure of the <i>NDT</i> Service Supplier’s quality management system.	
(3) Quality manual and documented procedures covering the requirements given in 7.3		(3) Quality manual and documented procedures covering the requirements given in 7.3	
(4) For companies with in-house certification of		(4) For companies with in-house certification of	

Amended-Original Requirements Comparison Table (Qualification of NDT Personnel)

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personnel scheme; a written practice developed in accordance with a recognised standard or recommended practice (i.e. <i>ASNT's SNT-TC-1A</i>, 2020, <i>ANSI/ASNT CP-189</i>, 2020 or similar). (5) Operational work procedures for each <i>NDT</i> method, including selection of the <i>NDT</i> technique. (6) Training and follow-up programmes for <i>NDT</i> operators including practical training on various ship and offshore products. (7) Written statement issued by the employer, based upon the scope of certification, authorising the operator <u>and supervisor</u> to carry out specified tasks (8) For suppliers who have personnel certification schemes, procedures for <u>the employer to authorise</u> <i>NDT</i> operators. (9) Experience of the <i>NDT</i> Service Supplier in the specific service area. (10) For companies which obtain certification from an accredited certification body; a list of documented training and experience for <i>NDT</i> operators within the relevant <i>NDT</i> service area, including qualifications and third party certification per <i>ISO 9712:2021</i> based certification schemes. (11) Description of equipment used for the <i>NDT</i> services performed by the <i>NDT</i> Service Suppliers. (12) A guide for <i>NDT</i> operators to use equipment mentioned in (11). (13) Record formats for recording results of the <i>NDT</i> service referred to 7.6.1. (14) Information on other activities which may present a conflict of interest. (if applicable) (15) Record of customer claims and corrective actions. (if applicable)	personnel scheme; a written practice developed in accordance with a recognised standard or recommended practice (i.e. <i>ASNT's SNT-TC-1A</i>, 2020, <i>ANSI/ASNT CP-189</i>, 2020 or similar). (5) Operational work procedures for each <i>NDT</i> method, including selection of the <i>NDT</i> technique. (6) Training and follow-up programmes for <i>NDT</i> operators including practical training on various ship and offshore products. (7) Written statement issued by the employer, based upon the scope of certification, authorising the operator to carry out specified tasks (8) For suppliers who have personnel certification schemes, procedures for <u>supervisor's authorisation of</u> <i>NDT</i> operators. (9) Experience of the <i>NDT</i> Service Supplier in the specific service area. (10) For companies which obtain certification from an accredited certification body; a list of documented training and experience for <i>NDT</i> operators within the relevant <i>NDT</i> service area, including qualifications and third party certification per <i>ISO 9712:2021</i> based certification schemes. (11) Description of equipment used for the <i>NDT</i> services performed by the <i>NDT</i> Service Suppliers. (12) A guide for <i>NDT</i> operators to use equipment mentioned in (11). (13) Record formats for recording results of the <i>NDT</i> service referred to 7.6.1. (14) Information on other activities which may present a conflict of interest. (if applicable) (15) Record of customer claims and corrective actions. (if applicable)	UR W35(Rev.2) 2.1 UR W35(Rev.2) 2.1

Amended-Original Requirements Comparison Table (Qualification of NDT Personnel)

Amended	Original	Remarks
(16) Any legal proceedings against the company in the past/currently in the courts of law. (if applicable) 7.3 Quality Requirements 7.3.1 Quality Management System 1 <i>NDT</i> Service Suppliers are to have a documented quality management system, covering at least the following. (1) Work procedures for all tasks and operations, including the various <i>NDT</i> methods and <i>NDT</i> techniques for which the <i>NDT</i> Service Supplier is involved. (2) Preparation, issuance, maintenance and control of documents. (3) Maintenance and calibration of the <i>NDT</i> equipment. (4) Training programs for the <i>NDT</i> operators and the supervisors. (5) Maintenance of records for <i>NDT</i> operators and supervisors training, qualification and certification. (6) Certification of <i>NDT</i> operators (the latest version). <u>(7) Training and competency assessment programs where operators are designated for visual testing.</u> (8) Procedures for testing operator visual acuity. (9) Supervision and verification of operation to ensure compliance with the <i>NDT</i> procedures. (10) Quality management of subsidiaries. (11) Job preparation. (12) Order reference system where each engagement is traceable to when and where the test was carried out as well as who carried it out. (13) Recording and reporting of information, including retention time of records.	(16) Any legal proceedings against the company in the past/currently in the courts of law. (if applicable) 7.3 Quality Requirements 7.3.1 Quality Management System 1 <i>NDT</i> Service Suppliers are to have a documented quality management system, covering at least the following. (1) Work procedures for all tasks and operations, including the various <i>NDT</i> methods and <i>NDT</i> techniques for which the <i>NDT</i> Service Supplier is involved. (2) Preparation, issuance, maintenance and control of documents. (3) Maintenance and calibration of the <i>NDT</i> equipment. (4) Training programs for the <i>NDT</i> operators and the supervisors. (5) Maintenance of records for <i>NDT</i> operators and supervisors training, qualification and certification. (6) Certification of <i>NDT</i> operators (the latest version). (Newly added) <u>(7)</u> Procedures for testing operator visual acuity. (8) Supervision and verification of operation to ensure compliance with the <i>NDT</i> procedures. (9) Quality management of subsidiaries. (10) Job preparation. (11) Order reference system where each engagement is traceable to when and where the test was carried out as well as who carried it out. (12) Recording and reporting of information, including retention time of records.	UR W35(Rev.2) 2.2

Amended-Original Requirements Comparison Table (Qualification of NDT Personnel)

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(14) Code of conduct for the <i>NDT</i> Service Supplier's activities, especially <i>NDT</i> related activities. (15) Periodic review of work process procedures. (16) Corrective and preventive action. (17) Feedback and continuous improvement. (18) Internal audits. (19) Provisions of accessibility to required codes, standards and procedures to assist <i>NDT</i> operators. 2 A documented quality system complying with <i>ISO/IEC</i> 17020:2012 and including the above information mentioned in -1 would be considered acceptable. The <i>NDT</i> Service Supplier may satisfy the requirements of Type A or Type B or Type C inspection body, as described in <i>ISO/IEC</i> 17020:2012. In all cases, production staff is not allowed to inspect their own work in the case of Type C inspection body. 7.3.2 Qualification and Certification of NDT Personnel 1 The <i>NDT</i> Service Supplier is responsible for the qualification and preferably 3rd party certification of its supervisors and operators to a recognised certification scheme based on <i>ISO</i> 9712:2021 or <i>JIS Z</i> 2305. <u>However, VT personnel may be exempted from the formal qualification/certification requirements specified in 7.3.2. In such cases, the VT personnel are to undergo internal or external training and competency assessment, and the records are to be documented within the quality management system, in accordance with 7.3.1.</u>	(13) Code of conduct for the <i>NDT</i> Service Supplier's activities, especially <i>NDT</i> related activities. (14) Periodic review of work process procedures. (15) Corrective and preventive action. (16) Feedback and continuous improvement. (17) Internal audits. (18) Provisions of accessibility to required codes, standards and procedures to assist <i>NDT</i> operators. 2 A documented quality system complying with <u>the most recent version of</u> <i>ISO/IEC</i> 17020:2012 and including the above information mentioned in -1 would be considered acceptable. The <i>NDT</i> Service Supplier may satisfy the requirements of Type A or Type B or Type C inspection body, as described in <i>ISO/IEC</i> 17020:2012. In all cases, production staff is not allowed to inspect their own work in the case of Type C inspection body. 7.3.2 Qualification and Certification of NDT Personnel 1 The <i>NDT</i> Service Supplier is responsible for the qualification and preferably 3rd party certification of its supervisors and operators to a recognised certification scheme based on <i>ISO</i> 9712:2021 or <i>JIS Z</i> 2305.	UR W35(Rev.2) 2.2 UR W35(Rev.2) 2.3 Specifies that VT personnel may be exempted from qualification and certification requirements.

Amended-Original Requirements Comparison Table (Qualification of NDT Personnel)

Amended	Original	Remarks
7.5 Work instructions and procedures etc. 7.5.1 Work instructions and procedures 1 The <i>NDT</i> Service Suppliers are to produce written procedures for the <i>NDT</i> being applied. These procedures are to be written, verified <u>and</u> approved by the <i>NDT</i> Service Supplier's Level 3 supervisor (either internal, or external, as described in 7.3.3).	7.5 Work instructions and procedures etc. 7.5.1 Work instructions and procedures 1 The <i>NDT</i> Service Suppliers are to produce written procedures for the <i>NDT</i> being applied. These procedures are to be written, verified <u>or</u> approved by the <i>NDT</i> Service Supplier's Level 3 supervisor (either internal, or external, as described in 7.3.3).	UR W35(Rev.2) 2.7
EFFECTIVE DATE AND APPLICATION		
1. The effective date of the amendments is 1 January 2027.		