

RULES

FOR TECHNICAL SUPERVISION DURING CONSTRUCTION OF SHIPS AND MANUFACTURE OF MATERIALS AND PRODUCTS FOR SHIPS

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RULE CHANGE NOTICE

ENTERS INTO FORCE:

01.01.2024



St. Petersburg
2023

RULES FOR TECHNICAL SUPERVISION DURING CONSTRUCTION OF SHIPS AND MANUFACTURE OF MATERIALS AND PRODUCTS FOR SHIPS

The present Rule Change Notice to the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships (hereinafter — RCN) has been approved in accordance with the established approval procedure and contains information on amendments and additions, except for editorial amendments. RCN amendments come into force on 1 January 2024.

REVISION HISTORY

PART II. TECHNICAL DOCUMENTATION

Paras/Chapters/Sections	Item(s)/Type(s) of supervision and their particulars	Information on amendments	Remarks/References
Para 12.1.1	Software for ships under construction and in service	Code 22013000 has been deleted as irrelevant to software. Provisions for approval of software relating to code 20300000 has been introduced	
Para 12.1.4	Software for ships under construction and in service	Code 22013000 has been deleted as irrelevant to software	
Chapters 12.2 and 12.3	Software for ships under construction and in service	The form number of the Report on verifications results has been amended, i.e. references to form 6.3.29 have been replaced by references to form 6.3.10	
Chapter 12.4 (new)	Software for ships under construction and in service	New Chapter containing requirements for the use of the software developed by the Register has been introduced	
Chapter 12.5 (new)	Software for ships under construction and in service	New Chapter containing requirements for the electronic record book software has been introduced	
Appendix 1 Item 1.10 of Table 1	Ship operational documentation	The document "Passage plan" has been replaced by the document "Guidelines for organization and realization of standard towing"	

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PART III. TECHNICAL SUPERVISION DURING MANUFACTURE OF MATERIALS

Paras/Chapters/Sections	Item(s)/Type(s) of supervision and their particulars	Information on amendments	Remarks/References
Table 4.5.6	Welding Welders' certification	The table has been aligned with the provisions of ISO 9606-1:2012/Cor 2:2013	
Para 4.6.2	Welding Welders' certification	The list of documents attached to the welders' certification record has been supplemented with the requirements to submit welders' photographs for drawing up the Welder Approval Test Certificate	IACS Unified Requirement (UR) W32 (Rev.1 Sep 2020)
Para 5.4.5 (deleted)	Welding Welding consumables Electrodes and flux-cored wire	Requirements contradicting paras 4.3.1.1, 4.3.6 и 4.5.2, Part XIV "Welding" of the Rules for the Classification and Construction of Sea-Going Ships and para 5.4.1.3 of these Rules have been deleted. Para 5.4.6 is renumbered 5.4.5	IACS Unified Requirement (UR) W17 (Rev.6 Sep 2021)

PART IV. TECHNICAL SUPERVISION DURING MANUFACTURE OF PRODUCTS

Paras/Chapters/Sections	Item(s)/Type(s) of supervision and their particulars	Information on amendments	Remarks/References
Table 10.5.3.2.1	Ships	Misprints have been corrected	

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Paras/Chapters/Sections	Item(s)/Type(s) of supervision and their particulars	Information on amendments	Remarks/References
	Electrical equipment Machinery tests		
Para 10.6.3.2	Ships Electrical equipment Electromagnetic compatibility tests	Name of the emission field strength in supply and input-output circuits has been specified	
Para 10.6.3.3	Ships Electrical equipment Electromagnetic compatibility tests	Name of the emission field strength in supply and input-output circuits has been specified	
Table 10.7.13.1	Bulk carriers, ore carriers, combination carriers, passenger ships carrying 36 persons or more, cargo ships with one or more holds, other than bulk carriers, ore carriers, combination carriers and tankers Cargo spaces Water level alarm system	Additional types of ships that are subject to testing requirements for the cargo holds water level alarm systems have been introduced.	
Appendix 15	Bulk carriers, ore carriers, combination carriers, passenger ships carrying 36 persons or more, cargo ships with one or more holds, other than bulk carriers, ore carriers, combination carriers and tankers Cargo spaces Water level alarm system	Name of the Application has been changed	Alignment with Chapter 7.10 of Part XI "Electrical Equipment" of the RS Rules/C (refer also to IMO Resolution MSC.482(103))
Appendix 15 Para 1	Bulk carriers, ore carriers, combination carriers, passenger ships carrying 36 persons or more, cargo ships with one or more holds,	Requirements for electrical equipment located on open deck and	

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Paras/Chapters/Sections	Item(s)/Type(s) of supervision and their particulars	Information on amendments	Remarks/References
	other than bulk carriers, ore carriers, combination carriers and tankers Cargo spaces Detectors of water level alarm system	in refrigerated cargo spaces have been introduced.	

PART II. TECHNICAL DOCUMENTATION

12 SOFTWARE

12.1 TYPE APPROVAL OF SOFTWARE

"12.1.1 Software which is capable of performing calculations according to the RS rules and guidelines which results are part of technical documentation in accordance with 3.8, and which is related to codes 20100000, and 20200000, ~~22043000~~ according to ~~the Nomenclature of items of the RS technical supervision~~ the RS Nomenclature (refer to Appendix 1, Part I "General Regulations for Technical Supervision"), shall be approved by the Register as it pertains to the calculations according to the RS rules and guidelines.

Software related to code 20300000 may be approved on a voluntary basis, at the request of the software designer. The software related to code 20300000 is approved regarding the requirements set forth in this Section.

Software developed by the Register and capable of performing calculations according to the RS rules and guidelines shall not be subject to approval."

Para 12.1.4 is replaced by the following text:

"12.1.4 The software related to code 20100000 ~~or 22043000~~ is approved by RHO. The software related to codes 20200000 and 20300000 is approved by the RS Branch Office when duly authorized by ~~and jointly with~~ RHO."

12.2 ONBOARD SOFTWARE FOR STABILITY CALCULATIONS

Para 12.2.2.4 is replaced by the following text:

"12.2.2.4 In case of satisfactory verifications results, the Report (form 6.3.29-10) and Type Approval Certificate for Software (СТОП) (form 6.8.5) are issued."

Para 12.2.3.4 is replaced by the following text:

"12.2.3.4 In case of satisfactory verifications results, the Report (form 6.3.29-10) is issued, the test loading conditions are approved, and the User Manual is agreed."

Para 12.2.3.5 is replaced by the following text:

"12.2.3.5 The satisfactory operation of the software with the onboard computer(s) for stability calculations shall be verified by testing upon installation onboard. The software operation shall be verified in the presence of the RS surveyor in accordance with 12.2.5. The approved test loading conditions, the User Manual and the Report (form 6.3.29-10) shall be available on board."

Para 12.2.4.3 is replaced by the following text:

"12.2.4.3 In case of satisfactory verifications results, the Report (form 6.3.29-10) is issued, the test loading conditions are approved."

Para 12.2.4.4 is replaced by the following text:

"**12.2.4.4** After issuing the Report (form 6.3.29-10), the prompt access to shore-based emergency response service shall be verified in the presence of the RS surveyor in accordance with 12.2.6. Agreement with a shore-based emergency response service undertaking damage stability and residual structural strength calculations, user manual for a system of prompt access to shore-based emergency response service and the Report (form 6.3.29-10) shall be available on board."

Para 12.2.5.1 is replaced by the following text:

"**12.2.5.1** Acceptance tests of the software shall be conducted on board the ship in the presence of the RS surveyor ~~with drawing up the Report on Survey of the Ship (form 6.3.10)~~ or with the relevant entries made in the Survey Checklist (form 6.1.01), as applicable."

Para 12.2.5.2.1 is replaced by the following text:

".1 verification of availability of Report (form 6.3.29-10), approved test loading conditions and User Manual;".

Para 12.2.5.2.2 is replaced by the following text:

".2 verification that the documentation on stability, which is stated in the Report (form 6.3.29-10) has not been updated since the date of issuance of the above Report;".

Para 12.2.6.1 is replaced by the following text:

"**12.2.6.1** Prompt access to shore-based emergency response service shall be verified on board the ship in the presence of the RS surveyor ~~with drawing up the Report on Survey of the Ship (form 6.3.10)~~ or with the relevant entries made in the Survey Checklist (form 6.1.01), as applicable."

Para 12.2.6.2.4 is replaced by the following text:

".4 verification of availability of Report (form 6.3.29-10) on ship computer model used by shore-based emergency response service with approved test loading conditions;".

Para 12.2.6.2.5 is replaced by the following text:

".5 verification that Stability Booklet, Damage Stability Booklet and Loading Manual, which are stated in the Report (form 6.3.29-10) have not been updated since the date of issuance of the above Report;".

Para 12.2.6.2.7 is replaced by the following text:

".7 verification that results of test calculations, received from the shore-based emergency response service, comply with test loading conditions attached to the Report (form 6.3.29-10)."

Para 12.2.7.2.1 is replaced by the following text:

".1 verification that the Stability Booklet, Damage Stability Booklet and Loading Manual, which are stated in the Report (form 6.3.29-10) on ship computer model used by shore-based emergency response service, have not been updated since the date of issuance of the above Report;".

12.3 SOFTWARE FOR STRENGTH CALCULATIONS

Para 12.3.2.4 is replaced by the following text:

"12.3.2.4 In case of satisfactory verifications results, the Report (form 6.3.29-10) and Type Approval Certificate for Software (CTOP) (form 6.8.5) are issued."

Para 12.3.3.4 is replaced by the following text:

"12.3.3.4 In case of satisfactory verifications results, the Report (form 6.3.29-10) is issued, the test loading conditions are approved, and the User Manual is agreed.

The satisfactory operation of the software with the onboard computer(s) shall be verified by testing upon installation. The software operation shall be verified in the presence of the RS surveyor in accordance with 12.2.4. The approved test loading conditions, the User Manual and the Report (form 6.3.29-10) shall be available on board."

Para 12.3.4.1 is replaced by the following text:

"12.3.4.1 Acceptance tests of the software shall be conducted on board the ship in the presence of the RS surveyor ~~with drawing up the Report on Survey of the Ship (form 6.3.10) or~~ with the relevant entries made in the Survey Checklist (form 6.1.01), ~~as applicable.~~ From the approved test loading conditions at least one load case (other than light-ship) shall be calculated. Actual loading condition results are not suitable for checking the correct working of the computer."

Para 12.3.4.2.1 is replaced by the following text:

".1 verification of availability of Report (form 6.3.29-10), approved test loading conditions and User Manual;".

Para 12.3.4.2.2 is replaced by the following text:

".2 verification that the Loading Manual, which is stated in the Report (form 6.3.29-10) has not been updated since the date of issuance of the above Report;".

New Chapter 12.4 is introduced reading as follows:

"12.4 SOFTWARE DEVELOPED BY THE REGISTER

12.4.1 Information on the software developed by RS is available on the RS website in the Section "Services/Ships under construction/Software for verification of ship structures" (<https://rs-class.org/en/services/program1/>).

12.4.2 When the RS software is used to verify compliance of hull structures of sea-going ships with the RS Rules, additionally the requirements of 12.4.3 shall be met.

12.4.3 The scope of information included in the project file (file with the extension *.ody) created by the RS software for verification of hull structures of sea-going ships depends on the operational and structural particulars of the ship. When determining the scope of information for the project file, the following shall be considered:

.1 the number of cross-section models for verification of longitudinal strength shall be sufficient to confirm that the requirements for longitudinal strength are met along the entire length of the ship, taking into account the nature of the changes of bending moments and shear forces distributions, changes in the stiffness and in the continuity of structures (openings, discontinuities, etc.), and also taking into account the requirements of 1.4.6.10 of Part II "Hull" of the Rules for the Classification and Construction of Sea-Going Ships;

.2 the number of cross-section models for verification of local strength shall be sufficient to confirm that the adopted scantlings of main structural members (at least the shell plating, plates of internal structures, main transverse and longitudinal framing) comply with the requirements for local strength throughout the length of the ship;

.3 the number of models of watertight transverse bulkheads shall correspond to the number of all watertight transverse bulkheads of the ship design (in case of the same geometry and/or initial design data, such as compartment parameters, etc., it is allowed to reduce the number of bulkhead models in the project file);

.4 the number of grillages for verification of ice strengthenings shall be sufficient to confirm that the adopted scantlings of main structural members of ice strengthenings comply with the applicable requirements in all ice strengthened regions of the ship."

New Chapter 12.5 is introduced reading as follows:

"12.5 ELECTRONIC RECORD BOOK SOFTWARE

12.5.1 General.

12.5.1.1 Requirements of this Chapter apply to software for electronic record books of ships.

12.5.1.2 Approved software provides electronic record keeping in addition to hard copy record books. The replacement of hard copy record books with electronic record books is only possible if approved by the Flag Administration or a recognized organization on behalf of the Administration.

12.5.1.3 This Chapter does not address the exchange of information from a ship to a company headquarters or other body.

12.5.2 Definitions.

Audit logging means logs recording user activities, exceptions and information security events, where logs are kept for an agreed period to assist in future investigations and access control monitoring. The time and date for the log shall be Universal Co-ordinated Time (UTC) derived from ship's time.

Company means the owner of the ship or any other organization or person such as the manager or the bareboat charterer, who has assumed the responsibility for the operation

of the ship from the shipowner and who on assuming such responsibility has agreed to take over all the duties and responsibility imposed.

Offline record means a file containing records for a specific period, in a format that allows users to access, read, and print the file regardless of the software with which it was created.

Business continuity plan means a collection of procedures and information that is developed, compiled and maintained in readiness for use in the event of an emergency or disaster.

Portable Document Format (PDF) means a digital form for representing documents that enables users to exchange and view electronic documents easily and reliably, independent of the environment in which they were created and the environment in which they are viewed or printed (ISO 32000).

Backup means to make a duplicate copy of a file, program, etc. as a safeguard against loss or corruption of the original. The specific properties of the backup such as its format, frequency, storage location, retention period, are unique to each business organization and shall be defined in accordance with a business continuity plan.

Role Based Access Control (RBAC) means a control mechanism that provides different access levels to guarantee that individuals and devices can only gain access to and perform operations on network elements, stored information, and information flows for which they are authorized (ISO/IEC 27033-2:2012).

Test-case means an algorithm of actions executed to verify the software operation. A test-case contains test steps (actions) that are performed before the test (preconditions) and during the test, as well as the expected result after the performed actions.

Credentials means data that is transferred to establish the claimed identity of an entity (ISO 7498-2). Examples of credentials include a unique code/password, electronic key, digital certificate, hardware key, biometric data (e.g. fingerprint).

Electronic signature means a data in electronic form which is attached to other data in electronic form (data to be signed) or otherwise associated with such data and which is used to identify the individual signing the data.

12.5.3 Type approval of software.

12.5.3.1 The technical documentation on software submitted for review shall include the following:

- name of the software;
- list of electronic record books;
- the software version;
- User Manual;
- description of test-cases.

12.5.3.2 In case of satisfactory verifications results, the Type Approval Certificate for Software (СТОП) (form 6.8.5) is issued.

12.5.3.3 After the expiry of validity, the Type Approval Certificate for Software (СТОП) is renewed on request of the software developer. The Type Approval Certificate for Software (СТОП) may be renewed based on review of the documentation specified in 12.5.3.1 without testing, provided that:

.1 the software developer confirms that the software remains unchanged, or the changes do not alter the previously declared functionality or other essential parameters of the software operation;

.2 unless otherwise stated in the relevant sections of these Rules.

12.5.4 Onboard verification.

12.5.4.1 The onboard software verification shall include:

.1 verification of availability of the MC document (in accordance with 5.3.3 of Part I "General Regulations for Technical Supervision" of these Rules) issued by the software developer in which the software compliance with the RS requirements is declared;

.2 verification that the version of the software installed on board the ship is the same as that stated in the valid Type Approval Certificate for Software (СТОП).

12.5.4.2 The MC document shall contain the following information:

confirmation of the software compliance with the RS requirements, indicating the name of the RS rules and the year of publication;

version of the software installed on board the ship;

information about the ship (name of the ship and IMO number) on board which the software is installed;

list of electronic record books maintained on board the ship using installed software;

number of the Type Approval Certificate for Software (СТОП);

information on the organization that installed the software on board the ship;

date of software installation.

12.5.5 Requirements for software.

12.5.5.1 The use and format of any electronic record book shall meet the requirements of applicable IMO conventions and resolutions, as well as the requirements of the Flag Administration.

12.5.5.2 The software shall save entries for confirmation by the master/chief engineer (the list of officials performing confirmation of saved entries depends on the type of the record book) only if the entry is complete, i.e. the entered data cannot be saved without filling in the mandatory fields. It is suggested that where possible, technology which can automatically input required data be installed to ensure accuracy. In the case of equipment failure, manual input shall be allowed and the change of the source of data recorded. The automatic data value inputs shall be protected by measures aimed at preventing attempts at manipulation or falsification. The system shall automatically record any attempts to manipulate or falsify any data.

12.5.5.3 For consistent recording of data such as dates and positions, the system shall be developed to display entry fields and request data formats that are as consistent as possible with other electronic reporting required by IMO and/or Administration and other shipboard systems.

12.5.5.4 The software shall have the capability to retain all records made for the minimum period as specified in applicable IMO conventions and resolutions as well as in the requirements of the Administration.

12.5.5.5 The software shall allow for the relevant page, pages or the entirety of the electronic record book to be printed and each printed page physically signed by the master to certify it as a "true copy".

All printed pages shall provide the following details in addition to those required for record books:

the title and full name of the person that entered the record (in addition to the user ID);

any changes that were made to the entries;

the date and time of printing;

the name and version number of the electronic record book from which the true copy was produced; and

page numbering and number of pages to ensure the report is complete.

12.5.5.6 Role based access control (RBAC) shall be implemented. All access shall use a unique personal login identifier and password for each user.

12.5.5.7 Each entry requires electronic signature of the relevant official. As such, the software shall implement audit logging. Audit logging shall record a user identifier against

each entry to uniquely identify the user and who made, provided accessed or amended an entry.

12.5.5.8 Electronic signatures shall meet authentication standards, as adopted by the Administration.

12.5.5.9 Records and entries shall be protected by measures aimed at preventing and detecting attempts at unauthorized deletion, destruction or amendment. After an entry is saved by the user, the information shall be secured against unauthorized or untraceable changes. Any changes made to the entry by the same user or a different user shall be automatically recorded and made visible both when using the software and in any output presentation or printed versions of the electronic record book. The entry shall appear in the list of entries in a format that makes it clear that the entry has been amended. To create transparency of changes to saved or confirmed entries, it is essential that both the original entry and the amendments shall be retained.

12.5.5.10 If an entry requires amendment, the reason and identifier of the user making the amendment, shall be recorded for confirmation by the official. The original entries and all amendments shall be retained and visible.

12.5.5.11 For confirmation of a single or series of saved entries by the master/chief engineer, the additional authentication factor to allow confirmation shall be provided. This additional authentication factor shall be in the form of additional credentials supplied by the master/chief engineer at the time of confirmation.

12.5.5.12 Logging and identification of the entries made, amended or confirmed by time shall be provided.

12.5.5.13 To provide for different stages of the data entry and approval process, a status field for each entry that clearly determines the stage of the entry shall be provided. For example, when an entry has been saved in the system by the user, the entry shall reflect a term such as "pending" or "awaiting confirmation". Once the master/chief engineer has confirmed an entry, a term such as "confirmed" shall be automatically reflected. The text and number of terms are determined by the software developer.

12.5.5.14 If an entry is amended after the master/chief engineer has confirmed it, the automatic return of the entry to "pending" or "re-confirmation" shall be provided notifying the master/chief engineer that the entry requires re-confirmation.

12.5.5.15 To ensure that entries are confirmed in a timely manner, a reminder that confirmation is required shall be provided. Entries not confirmed shall be accompanied by comments advising of the reason for non-confirmation.

12.5.5.16 Depending on the type of the record book, if a recorded entry correlates with a document for services (such as a receipt, proof of payment, etc.), or the endorsement provided during regulatory surveys or inspections (such as endorsement of the Cargo Record Book), the software shall allow these documents/endorsements to be identified or attached to the relevant entry in the system.

Note. The entry may contain a reference to the document, and a hard copy document or endorsement may be made available upon request. Alternatively, electronic copies of documents or endorsements can be attached to the entry in any acceptable format (such as PDF), and the originals retained.

12.5.5.17 Data backup and recovery shall be provided in case of software failure, loss of power supply to the hardware or unavailability of data from the ships' network.

12.5.5.18 Automatic data backup to offline storage (offline records) shall be provided. Backups shall ensure the offline record is updated automatically every time changes are made to entries.

12.5.5.19 The offline records shall be:

.1 developed using cryptography so that unauthorized access to the information is not possible, and so that once the data has been saved it is in a read-only format with no amendments able to be made to the record (unless done so by a user with the appropriate level of authorization through electronic record book software);

.2 in a format that allows data to be copied to a local (removable) storage peripheral device or local/remote network storage;

.3 maintained in a format that ensures the longevity and integrity of the record for the period established by the requirements of applicable IMO conventions and resolutions, as well as the requirements of the Administration; and

.4 in a format that allows output presentation and printing of the record.

12.5.5.20 The offline records require electronic signature of the master/chief engineer.

The properties of the electronic signature need to appear on the offline record, including the title; full name of the signer; and date and time of signing. It is recommended that the offline records be presented in PDF; however, an alternative format may be used. Alternative formats shall allow the exchange and view of electronic documents independent of the environment in which they were created and the environment in which they are viewed or printed, in a simple way and with fidelity. Alternative formats shall ensure that the possibility of a falsification is excluded.

12.5.5.21 Hardware used to maintain electronic record books shall be fed by uninterruptible power supplies to ensure continuous operation of the hardware in the absence of main supply.

12.5.5.22 At all times, the software shall provide the ability for users to view information about the current version of the software.

12.5.6 Updates to the software.

12.5.6.1 As the forms and list of electronic record books may change following the amendments to the requirements of applicable IMO conventions and resolutions, as well as the requirements of the Administration, the approved software shall be appropriately updated to ensure relevant amendments are taken into account. Any updates shall not cause loss of existing records, nor make them unreadable, and the software shall present all records in the form specified by the requirements of applicable IMO conventions and resolutions, as well as the requirements of the Administration. Updates to the software shall be completed prior to the entry into force of the relevant amendments.

12.5.6.2 In case of a software update that does not affect the functionality of the software (for example, changing the user interface, eliminating errors not related to the functionality of the software, etc.), re-approval of the software is not required."

APPENDIX 1

Item 1.10 of Table 1 is replaced by the following text:

"

1.10	<u>Passage plan</u> <u>Guidelines for</u> <u>organization and</u> <u>realization of</u> <u>standard towing</u>	+	–	Approved	Sect. 8, Part II "Carrying out Classification Surveys of Ships" of the Guidelines on Technical Supervision of Ships in Service
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PART III. TECHNICAL SUPERVISION DURING MANUFACTURE OF MATERIALS

4 WELDING. REGULATIONS FOR WELDERS' CERTIFICATION

4.5 RANGE OF APPROVAL BASED ON TEST RESULTS

Table 4.5.6 is replaced by the following text:

"Table 4.5.6

Range of approval of the Welder Approval Test Certificates for types of welding consumables¹

Welding process	Welding consumables Type of electrode covering used for tests ²		Range of approval as per test results			
			A, RA, RB, RC, RR, R	B	C	
111	A, RA, RB, RC, RR, R		x	—	—	
	B		x	x	—	
	C		—	—	x	
—	Filler material types used for tests		Solid wire, rod (S)	Type of electrode core		
				(M)	(B)	(R, P, V, W, Y, Z)
131 135 136 141	Solid wire, rod (S)		x	x	—	—
133 138	Type of electrode core	(M)	x	x	—	—
136		(B)	—	—	x	x
114 132		(R, P, V, W, Y, Z)	—	—	—	x

¹ Symbols of welding consumable types comply with 4.3.2.3.
² Type of welding consumables used in approval tests for root run welding without backing with reverse root formation (B) is a type of welding consumables qualified by the approval for root run welding in production.
Symbols:
"x" — indicates those welding consumables (electrode covering, electrode core) for which the welder is qualified.
"—" — indicates those welding consumables (electrode covering, electrode core) for which the welder is not qualified.

4.6 DRAWING-UP, VALIDITY AND PROLONGATION OF WELDER APPROVAL TEST CERTIFICATE

Para 4.6.2 is replaced by the following text:

"4.6.2 The following shall be attached to the record:

the copy of the certificate of welder's qualification and the reference of a manufacturer's personnel department (in the initial qualification) or the copy of the welder's certificate in other types of certification;

the copy of an educational establishment document on welder's special training;

the copies of certificates for base metal and welding consumables;

reports, conclusions and other documents on the results of quality control for welded joint test pieces;

3 x 4 cm matte photographs of certified welders.

Note. One record in the form of a table for a group of welders including all the information and data specified in Appendix 3 may be drawn up."

**5 WELDING CONSUMABLES. QUALITY REQUIREMENTS FOR MANUFACTURE,
TESTING AND APPROVAL PROCEDURE**

**5.4 PROCEDURE FOR INSPECTION AND TESTING OF WELDING CONSUMABLES
DURING THEIR APPROVAL**

Para 5.4.5 is deleted. Existing para **5.4.6** is renumbered 5.4.5.

PART IV. TECHNICAL SUPERVISION DURING MANUFACTURE OF PRODUCTS

10 ELECTRICAL EQUIPMENT

10.5 TESTS OF EQUIPMENT FOR COMPLIANCE WITH OPERATIONAL CONDITIONS ONBOARD A SHIP

Table 10.5.3.2.1 is replaced by the following:

"Table 10.5.3.2.1

Method 2 – according to IEC 60068-2-6, Test F_c (before 1 July 2022) and according to IEC 60068-2-6:2007, Test F_c (on and after 1 July 2022)

Frequency range, in Hz	Amplitude, in mm	Frequency of pass, in Hz	Acceleration g
for usual type of equipment			
$2_{-0}^{+3} - 100$	$\pm 1,0$	13,2	$\pm 0,7$
for equipment subject to increased vibration			
$2_{-0}^{+3} - 100$	$\pm 1,6$	25,0	$\pm 4,0$
Notes: 1. The test duration at each resonance frequency is at least 90 min. Where a number of resonance frequencies are detected close to each other, test duration shall be 120 min with continuous frequency variation within the detected range.			
2. The test duration in case of no resonance condition is 90 min at 30 Hz in each plane.			

10.6 ELECTRICAL EQUIPMENT

Paras 10.6.3.2 and 10.6.3.3 are replaced by the following text:

"10.6.3.2 The following tolerable levels of radiated electromagnetic emission are set for the equipment installed on the open deck and navigation bridge.

An electromagnetic field at a distance of 3 m in the following frequency ranges shall be:

150 to 300 kHz – 80 to 52 dB $\mu\text{V/m}$;

300 kHz to 30 MHz – 52 to 34 dB $\mu\text{V/m}$;

30 MHz to 2000 MHz – 54 dB $\mu\text{V/m}$, but 24 dB $\mu\text{V/m}$ for the frequency range 156 to 165 MHz.

The ~~voltage of emission~~ emission field strength in supply and input-output circuits measured with use of the artificial mains network requested for according to CISPR 16 before 1 July 2022, and requested for according to CISPR 16-2-3:2016 Db on and after 1 July 2022, in the following frequency ranges shall be:

10 to 150 kHz – 96 to 50 dB $\mu\text{V/m}$;

150 to 350 kHz – 60 to 50 dB $\mu\text{V/m}$;

350 kHz to 30 MHz – 50 dB $\mu\text{V/m}$.

10.6.3.3 The following tolerable levels of radiated electromagnetic emission are set for the equipment installed in the machinery and other enclosed spaces of a ship.

An electromagnetic field at a distance of 3 m in the following frequency ranges shall be:

150 kHz to 30 MHz – 80 to 50 dB $\mu\text{V/m}$;

30 to 100 MHz – 60 to 54 dB $\mu\text{V/m}$;

100 to 2000 MHz – 54 dB $\mu\text{V/m}$, but 24 dB $\mu\text{V/m}$ for the frequency range 156 to 165 MHz.

The ~~voltage of emission~~ emission field strength in supply and input-output circuits measured with use of the artificial mains network according to CISPR 16-2, requested for before 1 July 2022, and according to CISPR 16-2-3:2016, requested for on and after 1 July 2022, in the following frequency ranges shall be:

10 to 150 kHz – 120 to 69 dB $\mu\text{V/m}$;

Table 10.7.13.1 is replaced by the following:

"Table 10.7.13.1

Apparatus and devices	Inspection and checks	Measurement of insulation resistance	Test of insulation strength	Tests for compliance with operational conditions onboard a ship	Heat test	Operational test	Other and special checks	Check for permissible levels of industrial radio interference voltages	Tests for immunity to electromagnetic emission
Electric engine telegraphs	+	+	+	+	+	+	+	+	+
Sensors and indicators of a rudder angle and CPP blades position	+	+	+	+	+	+	+	—	+
General alarm system – devices and contactors of visual and audible alarms	+	+	+	+	+ ¹	+	+	+	+
Switchboards and telephone sets	+	+	+	+	—	+	+	+	+
Devices of a fire detection system and of a warning alarm of fireextinguishing medium release	+	+	+	+	+ ²	+	+	+ ²	+
Devices of a system warning about starting a local application fire extinguishing system	+	+	+	+	+ ³	+	—	+ ³	+
Devices of a high bilge water level alarm system	+	+	+	+	+	+	+	+	+
Devices of a system for emergency call of engineers and of a personnel alarm	+	+	+	+	+	+	+	+	+
Devices of an alarm system on presence of people inside refrigerated holds	+	+	+	+	+	+	+	+	+
Devices of a system for control of side ports, fire and watertight doors position	+	+	+	+	+	+	+	+	+
Devices of an external/internal video surveillance system	+	+	+	+	+	+	+	+	+
Devices of an alarm system on rise of explosive gases concentration	+	+	+	+	+	+	+	+	+
Devices of a cargo hold water level alarm system of bulk carriers and dry cargo ships	+	+	+	+ ⁴	+	+ ⁵	+ ⁶	+	+
Devices of a high and high-high cargo level alarm system	+	+	+	+	+	+	—	+	+

Symbols, refer to [Table 10.7.5.1](#).

¹ Contactors are not subject to testing.
² Detectots of an automatic fire detection system and manual fire alarms are not subject to testing.
³ Detectors are not subject to testing.
⁴ In respect of protective enclosure testing – refer to Appendix 15 "Requirements for testing of a cargo hold water level alarm system of bulk carriers, ore carriers, combination carriers, passenger ships with 36 people or more on board, and single hold cargo ships with one or more holds other than bulk carriers, ore carriers, combination carriers and tankers".

Apparatus and devices	Inspection and checks	Measurement of insulation resistance	Test of insulation strength	Tests for compliance with operational conditions onboard a ship	Heat test	Operational test	Other and special checks	Check for permissible levels of industrial radio interference voltages	Tests for immunity to electromagnetic emission
	⁵ Functionality tests shall be carried out in accordance with IMO Resolution MSC.188(79) "Performance standards for water level detectors on bulk carriers, <u>ore carriers, combination carriers, passenger ships with 36 people or more on board, and single hold cargo ships with one or more holds other than bulk carriers, ore carriers, combination carriers and tankers</u> ".								
	⁶ Refer to Appendix 15 "Requirements for testing of a cargo hold water level alarm system of bulk carriers, <u>ore carriers, combination carriers, passenger ships with 36 people or more on board, and single hold cargo ships with one or more holds other than bulk carriers, ore carriers, combination carriers and tankers</u> ".								

Appendix 15. The Name of the Appendix is replaced by the following text:

"APPENDIX 15

REQUIREMENTS FOR TESTING OF A CARGO HOLD WATER LEVEL ALARM SYSTEM OF BULK CARRIERS, ORE CARRIERS, COMBINATION CARRIERS, PASSENGER SHIPS WITH 36 PEOPLE OR MORE ON BOARD, AND SINGLE-HOLD CARGO SHIPS WITH ONE OR MORE HOLDS OTHER THAN BULK CARRIERS, ORE CARRIERS, COMBINATION CARRIERS AND TANKERS".

Para 1 is replaced by the following text:

".1 A protective enclosure of bodies of detectors and other elements fitted in cargo holds, ballast tanks and dry spaces shall meet the IP68 requirements in accordance with IEC 60529:2011. Protection of the enclosures of electrical equipment located on the deck above ballast and cargo spaces shall satisfy the requirements of IP56 in accordance with IEC 60529:2011. Equipment which shall be used in refrigerated cargo spaces shall satisfy the requirements of a national/international standard covering the relevant service temperatures."

Russian Maritime Register of Shipping

**Rule Change Notice
to the Rules for Technical Supervision during Construction of Ships
and Manufacture of Materials and Products for Ships**

Endorsed: 23-245162

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