



# RUSSIAN MARITIME REGISTER OF SHIPPING

**CIRCULAR LETTER**

**No. 315-23-1617**

dated 17.08.2021

Re:  
amendments to the Rules for the Classification and Construction of Sea-Going Ships, 2021,  
ND No. 2-020101-138-E

Item(s) of supervision:  
electrical equipment

Entry-into-force date<sup>1</sup>:  
**01.07.2022**

Cancels / amends / adds Circular Letter No. -

dated -

Number of pages: 1 + 6

Appendices:

Appendix 1: information on amendments introduced by the Circular Letter

Appendix 2: text of amendments to Part XI "Electrical Equipment"

Director General

Konstantin G. Palnikov

Text of CL:

We hereby inform that the Rules for the Classification and Construction of Sea-Going Ships shall be amended as specified in the Appendices to the Circular Letter

It is necessary to do the following:

1. Bring the content of the Circular Letter to the notice of the RS surveyors, as well as interested organizations and persons in the area of the RS Branch Offices' activity.
2. Apply the provisions of the Circular Letter during review and approval of the technical documentation on ships (or equipment installed onboard the ships, or products/machinery installed onboard the ships), contracted for construction or conversion on or after 01.07.2022, in the absence of a contract, on ships (or equipment installed onboard the ships, or products/machinery installed onboard the ships), the keels of which are laid or which are at a similar stage of construction on or after 01.07.2022, as well as during review and approval of the technical documentation on ships, the delivery of which is on or after 01.07.2022.

List of the amended and/or introduced paras/chapters/sections:

Part XI: paras 9.7.1, 9.7.2, 9.7.8, 10.1.9, 16.8.1.1, 18.2.2.1, 18.4.1.1, 18.5.1.1, 18.6.1, 18.6.2.1.1, 18.6.2.5, 18.6.4, 19.2.1 and 19.11.1.1.

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<sup>1</sup> Service remarks (*delete as appropriate*): contains / ~~does not contain~~ mandatory international/national requirements / ~~urgent implementation is required~~.

**Information on amendments introduced by the Circular Letter  
(for inclusion in the Revision History to the RS Publication)**

Nos.	Amended paras/chapters/sections	Information on amendments	Number and date of the Circular Letter	Entry-into-force date
1	Para 9.7.1	Requirements for uninterruptible power system (UPS) have been specified considering IACS UR E21 (Rev.1 Feb 2021)	315-23-1617 of 17.08.2021	01.07.2022
2	Para 9.7.2	New para containing requirements for UPS has been introduced considering IACS UR E21 (Rev.1 Feb 2021); existing paras 9.7.2 — 9.7.9 have been renumbered 9.7.3 — 9.7.10, accordingly	315-23-1617 of 17.08.2021	01.07.2022
3	Para 9.7.8 (existing 9.7.7)	Requirements for UPS have been specified considering IACS UR E21 (Rev.1 Feb 2021)	315-23-1617 of 17.08.2021	01.07.2022
4	Para 10.1.9	New para containing requirements for generators and generator systems has been introduced considering IACS UR E17 (Rev.1 Feb 2021)	315-23-1617 of 17.08.2021	01.07.2022
5	Para 16.8.1.1	Requirements for cable devices have been specified considering IACS UR E7 (Rev.5 Feb 2021) and IACS UI SC10 (Rev.3 Feb 2021)	315-23-1617 of 17.08.2021	01.07.2022
6	Para 18.2.2.1	Requirements for shielded enclosures of electrical equipment designed for a voltage in excess of 1000 V have been specified considering IACS UR E11 (Rev.4 Feb 2021)	315-23-1617 of 17.08.2021	01.07.2022

Nos.	Amended paras/chapters/sections	Information on amendments	Number and date of the Circular Letter	Entry-into-force date
7	Para 18.4.1.1	Requirements for transformers designed for a voltage in excess of 1000 V have been specified considering IACS UR E11 (Rev.4 Feb 2021)	315-23-1617 of 17.08.2021	01.07.2022
8	Para 18.5.1.1	Requirements for cables designed for a voltage in excess of 1000 V have been specified considering IACS UR E11 (Rev.4 Feb 2021)	315-23-1617 of 17.08.2021	01.07.2022
9	Chapter 18.6 (paras 18.6.1, 18.6.2.1.1, 18.6.2.5 and 18.6.4)	Throughout the text of the Chapter requirements for switchgear designed for a voltage in excess of 1000 V have been specified considering IACS UR E11 (Rev.4 Feb 2021)	315-23-1617 of 17.08.2021	01.07.2022
10	Para 18.7.1.1	Requirements for installation of electrical equipment designed for a voltage in excess of 1000 V have been specified considering IACS UR E11 (Rev.4 Feb 2021)	315-23-1617 of 17.08.2021	01.07.2022
11	Para 19.2.1	Requirements for electrical equipment in explosion dangerous zones have been specified considering IACS UI SC57 (Rev.2 Feb 2021)	315-23-1617 of 17.08.2021	01.07.2022
12	Para 19.11.1.1	Requirements for electrical equipment of ships intended for the carriage of dangerous goods have been specified considering IACS UI SC79 (Rev.5 Feb 2021)	315-23-1617 of 17.08.2021	01.07.2022

## **RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF SEA-GOING SHIPS, 2021,**

### **ND No. 2-020101-138-E**

#### **PART XI. ELECTRICAL EQUIPMENT**

##### **9 EMERGENCY ELECTRICAL INSTALLATIONS**

1 **Para 9.7.1** is replaced by the following text:

"**9.7.1** Uninterruptible power system (UPS), in addition to the requirements set forth below, shall comply with the requirements of IEC 62040-3:2011 and applicable requirements of national standards."

2 **New para 9.7.2** is introduced reading as follows:

"**9.7.2** UPS shall be so designed as to comply with the applicable requirements of IEC 62040\_1:2017, IEC 62040-2:2016, IEC 62040-3:2011, IEC 62040-4:2013 and/or IEC 62040-5-3:2016."

3 **Paras 9.7.2 — 9.7.10** are renumbered **9.7.3 — 9.7.11** accordingly.

4 **Para 9.7.8 (existing para 9.7.7)** is replaced by the following text:

"**9.7.8** UPS utilising sealed batteries may be located in any space other than the accommodation space, provided sufficient ventilation is ensured in compliance with the applicable requirements of IEC 62040-1:2017 and IEC 62040-3:2011."

##### **10 ELECTRICAL MACHINES**

5 **New para 10.1.9** is introduced reading as follows:

"**10.1.9** Generators and generator systems, having the ship's propulsion machinery as their prime mover but not forming part of the ship's main source of electrical power may be used whilst the ship is at sea to supply electrical services required for normal operational and habitable conditions provided that:

.1 there are sufficient and adequately rated additional generators fitted, which constitute the main source of electrical power required by SOLAS, meeting the requirements of Sect. 3.

.2 constituting the main source of electrical power required by 3.1.3 and also upon the frequency variations exceeding  $\pm 10$  % of the limits specified below.

.3 within the declared operating range of the generators and/or generator systems the specified limits for the voltage variations and the frequency variations in 2.1.3.1 can be met; the total harmonic distortion does not exceed 5 %, for single harmonic — 3 %.

.4 the short circuit current of the generator and/or generator system is sufficient to trip the generator/generator system circuit-breaker taking into account the selectivity of the protective devices for the distribution system.

.5 where considered appropriate, load shedding arrangements are fitted to meet the requirements of 3.1.3.

.6 on ships having remote control of the ship's propulsion machinery from the navigating bridge means are provided, or procedures be in place, so as to ensure that supplies to essential services are maintained during manoeuvring conditions in order to avoid a blackout situation."

## 16 CABLES AND WIRES

6 **Para 16.8.1.1** is replaced by the following text:

"**16.8.1.1** Use shall be made of flame-retarding or non-combustible cables and conductors with copper cores manufactured and tested in compliance with this Part of the Rules, national standards, as well as with the relevant requirements of IEC 60092-350:2020, 60092-352:2005, 60092-353:2016, 60092-354:2020, 60092-360:2014, 60092-370:2019, 60092-376:2017. Cables shall be tested for flame-retarding properties in compliance with the requirements of IEC: 60332-1-2:2004+AMD:2015 and 60332-3-22:2018.

Cables manufactured and tested in compliance with the standards other than those specified above shall be accepted provided they are in compliance with international or national standards and are of an equivalent or higher safety level than those.

Use of flexible or optical fibre cables used for special purposes may be allowed provided they are manufactured and tested according to the approved standards.

In this case, IEC 60331-23 for data transfer cables and IEC 60331-25 for optical fibre cables may be used.

As far as the fire resistance testing of cables is concerned, use shall be made of IEC 60331-1 for cables with outside diameter more than 20 mm and IEC 60331-21 or 60331-2 for other cables."

## 18 ADDITIONAL REQUIREMENTS FOR ELECTRICAL EQUIPMENT DESIGNED FOR A VOLTAGE IN EXCESS OF 1000 V UP TO 15 KV

7 **Para 18.2.2.1** is replaced by the following text:

"**18.2.2.1** General requirements.

Each part of electrical equipment shall have shielded enclosures corresponding to its location and effecting environmental conditions. The requirements of IEC 60092-201:2019 may be considered as minimum."

8 **Para 18.4.1.1** is replaced by the following text:

"**18.4.1.1** Dry-type transformers shall meet the requirements of IEC 60076-11:2018.

Dry-transformers in use shall have earthed screens between high and low voltage windings.

Liquid-cooled transformers shall meet the requirements of applicable parts of IEC 60076.

Oil-immersed transformers shall, as a minimum, be provided with the following alarms and protections:

"minimum liquid level" — alarm and automatic trip or load reduction;

"maximum liquid temperature" — alarm and automatic trip or load reduction;

"high gas pressure in enclosure" — automatic trip."

9 **Para 18.5.1.1** is replaced by the following text:

"**18.5.1.1** Cables shall be constructed in accordance with the requirements of IEC 60092-353:2016 and 60092-354:2020 or other equivalent standards."

10 **Para 18.6.1** is replaced by the following text:

**"18.6.1 General.**

Switchgear and controlgear assemblies shall be constructed according to IEC 62271-200:2011 and the following additional requirements."

11 **Para 18.6.2.1.1** is replaced by the following text:

"**18.6.2.1.1** Switchgear shall be of the metal-enclosed type in accordance with the requirements of IEC 62271-200:2011, or of the insulation-enclosed type in accordance with the requirements of IEC 62271-201:2014, or in accordance with the requirements of national standards."

12 **Para 18.6.2.5** is replaced by the following text:

**"18.6.2.5 Internal arc classification (IAC).**

Switchgears and controlgear assemblies shall be classified according to internal arc classification.

Where switchgear is accessible by authorized personnel only Accessibility Type A is sufficient. Accessibility Type B is required if accessible by non-authorized personnel (refer to IEC-62271-200:2011, Annex AA; AA2.2).

Installation and arrangement of the switchgear and contourgear shall comply with their IAC and arrangement (F — Front side; L — Lateral side; R — Rear side)."

13 **Para 18.6.4** is replaced by the following text:

**"18.6.4 High-voltage tests.**

Every main and other switchboards shall be tested by a high voltage of standard frequency. The test procedure and voltage values shall meet the requirements of an appropriate national standard or IEC 62271-200:2011."

14 **Para 18.7.1.1** is replaced by the following text:

"**18.7.1.1** Where high-voltage equipment is not contained but a special room forms the enclosure of the equipment, the access doors shall be so interlocked that they cannot be opened until the supply is isolated and the equipment earthed down.

At the entrance of the rooms or spaces where high-voltage equipment is installed, caution notes shall be placed, which indicate danger of high-voltage. The relevant free space shall be provided in the vicinity of high-voltage equipment to prevent significant potential hazard to the service personnel during the technical maintenance. In addition, the distance between the switchboard and the above ceiling/deck shall meet the requirements of internal arc classification in compliance with IEC-62271-200:2011."

## **19 REQUIREMENTS FOR ELECTRICAL EQUIPMENT PROCEEDING FROM SHIP PURPOSE**

15 **Para 19.2.1** is replaced by the following text:

**"19.2.1 Общие требования.**

The requirements of the Chapter cover the electrical equipment of oil tankers and oil recovery ships intended for the carriage of petroleum products having a flash point 60 °C and below and

petroleum products having a flash point 60 °C and above, which require heating up to a temperature less than 15 °C below the flash point.

The electrical equipment of oil tankers (>60 °C), oil recovery ships (>60 °C) and bilge water removing ships (>60 °C) is covered by the requirements of 19.2.3.2.3.2, 19.2.5 and 19.2.6.2 (refer also to 9.6.5, Part VIII "Systems and Piping").

The requirements of this Chapter specify the boundaries of dangerous zones, the division of ship's spaces and areas into zones, the installation of electrical equipment in hazardous spaces and areas in compliance with IEC 60092-502:1999 "Electrical Installations in Ships — Tankers — Special Features".

16 **Para 19.11.1.1** is replaced by the following text:

**"19.11.1.1** The requirements of this Chapter, in addition to the requirements of 7.2, Part VI "Fire Protection", apply to the electrical equipment of ships and cargo spaces intended for the carriage of dangerous goods, in compliance with IEC 60092-506:2003."