



RUSSIAN MARITIME REGISTER OF SHIPPING

CIRCULAR LETTER

No. 315-22-1894c

dated 14.02.2023

Re:

amendments to the Rules for the Classification and Construction of Sea-Going Ships, 2023, ND No. 2-020101-174-E

Item(s) of supervision:

accumulator batteries, electric propulsion plants

Entry-into-force date:

01.03.2023

~~Cancels / amends / adds Circular Letter No.~~

~~dated~~

Number of pages: 1 + 4

Appendices:

Appendix 1: information on amendments introduced by the Circular Letter

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

Acting Director General

Sergey A. Kulikov

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 contracted for construction or conversion on or after 01.03.2023, in the absence of a contract, during review and approval of the technical documentation on ships requested for review on or after 01.03.2023.
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List of the amended and/or introduced paras/chapters/sections:

Part I: Table 2.5

Part XI: paras 17.1.1.9 and 17.3.1.1 and Chapter 17.16

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**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	Part I, Table 2.5	Item 1.18 has been supplemented with new descriptive notation "Battery system"	315-22-1894c of 14.02.2023	01.03.2023
2	Part XI, para 17.1.1.9	Application of the requirements in Section 17 has been specified	315-22-1894c of 14.02.2023	01.03.2023
3	Part XI, para 17.3.1.1	Requirements for configuration of electric propulsion plants have been specified	315-22-1894c of 14.02.2023	01.03.2023
4	Part XI, Chapter 17.16	New Chapter with the requirements for electric propulsion plants using accumulator batteries to supply the electrical equipment has been introduced	315-22-1894c of 14.02.2023	01.03.2023

RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF SEA-GOING SHIPS, 2023,

ND No. 2-020101-174-E

PART I. CLASSIFICATION

2 CLASS OF A SHIP

1 **Table 2.5. Item 1.18.** After descriptive notation "**Anchor handling vessel**" new descriptive notation "**Battery System**" is introduced reading as follows:

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Battery System Ship fitted with electric propulsion plant using accumulator batteries to supply the electrical equipment	Rules for the Classification and Construction of Sea-Going Ships Part XI "Electrical Equipment", 17.1.1.9, 17.3.1.1, 17.16
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PART XI. ELECTRICAL EQUIPMENT

17 ELECTRIC PROPULSION PLANTS

2 **New para 17.1.1.9** is introduced reading as follows:

.9 accumulator batteries used to supply the electrical equipment."

3 **Para 17.3.1.1** is replaced by the following text:

.1 a.c. main generators or sets of accumulator batteries with their control devices — at least 2;"

4 **New Chapter 17.16** is introduced reading as follows:

"17.16 ELECTRIC PROPULSION PLANTS USING ACCUMULATOR BATTERIES TO SUPPLY ELECTRICAL EQUIPMENT

17.16.1 If an electric propulsion plant meets the requirements of this Chapter, the descriptive notation **Battery system** shall be added to the character of classification.

17.16.2 The requirements of this Chapter apply to:

.1 ships in which the accumulator batteries are the only source of electrical power for electric propulsion plant equipment;

.2 ships in which the accumulator batteries are one of the sources of electrical power for electric propulsion plant equipment;

.3 ships with operation mode when the electrical equipment of electric propulsion plant is supplied only from accumulator batteries and, at that, there is another source of electrical power in stand-by mode.

17.16.3 In addition to the requirements of this Chapter, accumulator batteries used to supply the electrical equipment of electric propulsion plants shall meet the requirements of Sections 13 and 26.

17.16.4 If a ship is fitted with an emergency source of electrical power required in accordance with 9.1.1, it shall be independent of accumulator battery used to supply the electrical equipment of electric propulsion plant.

17.16.5 To assign additional descriptive notation **Battery system** to a ship in the class notation, the following technical documentation (A — for agreement, FI — for information) shall be submitted:

.1 calculation of the capacity of accumulator batteries designed to supply the electrical equipment of electric propulsion plants (A);

.2 analysis of failures regarding supply of electrical equipment and operating capacity of electric propulsion plants (A);

.3 information on noxious substances that are contained or may be evolved when using accumulator batteries (FI);

.4 list of alarms directly related to accumulator batteries and associated shipboard systems, if any (A);

.5 substantiation of fire extinguishing system choice (A);

.6 operation manual for accumulator batteries and their control systems (FI);

.7 risk analysis (A) (when lithium accumulator batteries are used) containing the following risks of:

thermal runaway;

internal short circuit;

external short circuit;

failure of sensors (voltage, temperature, gas sensor, etc.);

increase of impedance (of accumulator battery elements, connecting members, etc.);

loss of cooling;

leakages (electrolyte, cooling system);

failure of accumulator battery control system (faults when controlling the circuit breakers, overloads, overdischarge, etc.);

external penetration (fire, fluid leak, water for fire fighting, etc.)

17.16.6 The compartment for accumulator batteries used to supply the electrical equipment of electric propulsion plant shall be equipped with ventilation system complying with the requirements of 13.4 and 26.10.1.

17.16.7 In normal operating conditions sea water shall not penetrate the compartment for accumulator batteries.

Piping systems that are not used in operation of accumulator batteries shall not be located in the compartment of accumulator batteries. The specified location may be admitted if the following minimum conditions are met:

compartment for accumulator batteries is equipped with the means of effective fluid leakage detection;

pipes are welded inside accumulator compartment;

no flammable liquids are conveyed through the piping;

only pipes of Class III in accordance with 1.3.2, Part VIII "Systems and Piping" are admitted.

17.16.8 Arrangement of accumulator batteries shall meet 13.2 and 26.10.

17.16.9 Cabinets where accumulator batteries are arranged shall have hatches for access to the accumulator batteries preventing penetration of foreign objects on the elements of accumulator batteries, connecting members and cooling systems, if installed.

17.16.10 In case the compartment for accumulator batteries are considered as hazardous zone in accordance with international standards of series IEC 60079, this compartment shall be covered with antistatic coatings.

Compartments where lithium accumulator batteries are arranged may not be covered with antistatic coatings provided it has been confirmed by the risk analysis required in accordance with 17.16.5.7.

17.16.11 A possibility for access to the compartment of accumulator batteries shall be provided to carry out general maintenance and safe repair of elements of accumulator batteries.

17.16.12 Accumulator batteries shall be cooled by ventilation of the compartment where they are arranged or by direct cooling by means of special circuit of the cooling system.

If direct cooling is provided, the following alarms shall be provided where necessary:

high temperature of cooling air for accumulator batteries with mechanical ventilation;

flow reduction of the primary and secondary cooling agent of accumulator batteries having closed-circuit cooling system with heat exchanger.

As an alternative to air temperature and cooling agent flow of accumulator batteries, the control of supply discontinuity for ventilator electrical drive may be applied.

17.16.13 Protection degree of accumulator batteries shall be provided depending on the place of their arrangement. Minimum necessary protection degree shall be:

IP 2X for accumulator batteries with voltage of less than 1500 V;

IP 32 for accumulator batteries with voltage of 1500 V and above.

17.16.14 Lithium accumulator batteries.

17.16.14.1 Lithium accumulator batteries shall be charged and discharged by means of control system which provides:

.1 monitoring over condition of accumulator battery on the level of at least of modules, units and subunits at least by voltage, temperature and, if necessary, monitoring over current flow and detection of current leakage;

.2 assessment of potential necessity to connect or disconnect the unit or subunit of batteries by determining if the unit or subunit is in critical condition in case of a request from power control system or any other connected control system;

.3 control of correct connection and disconnection of units and subunits of accumulator batteries;

.4 optimization of battery service life and power accessibility by means of monitoring and control over charging condition and serviceability of accumulator battery, cell control, units and subunits balance as well as monitoring and control of accumulator battery maintenance system.

17.16.15 Compliance of the fire extinguishing system with the battery type shall be confirmed in the document specified in 17.16.5.5."