RUSSIAN MARITIME REGISTER OF SHIPPING

RULES

FOR THE CLASSIFICATION AND CONSTRUCTION OF SHIPS CARRYING LIQUEFIED GASES IN BULK

ND No. 2-020101-176-E

RULE CHANGE NOTICE

ENTERS INTO FORCE:

01.01.2025

St. Petersburg
2024

RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF SHIPS CARRYING LIQUEFIED GASES IN BULK

The present Rule Change Notice to the Rules for the Classification and Construction of Ships Carrying Liquefied Gases in Bulk (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 2025.

REVISION HISTORY

PART I. CLASSIFICATION

Item	Applicability	Description	Remarks
Para 2.2.13 (new)	Gas carriers carrying liquefied natural gas and using cargo as fuel	Requirement for assigning the distinguishing mark **GFS** has been introduced	

PART II. SHIP ARRANGEMENT

Item	Applicability	Description	Remarks
Para 1.5.4	Ships carrying liquefied gases in bulk (LG carriers) Access doors, air inlets or other openings in the end bulkheads of superstructures and/or deckhouses facing the cargo area, as well as on the side bulkheads of superstructures and/or deckhouses adjacent to end bulkheads	Conditions allowing the location of openings in the end bulkheads of superstructures and/or deckhouses facing the cargo area have been set forth	IMO circular MSC.1/Circ.1459

PART VI. SYSTEMS AND PIPING

Item	Applicability	Description	Remarks
Para 1.4	LNG carriers Systems and piping General	Definition of the IGC Code for the purpose of this Part of the Rules has been introduced	G3.1.3, IACS UR G3 (Rev.8 Oct. 2023)
Para 8.3.1	Ventilation system Ventilation inlets	Conditions have been introduced for relaxation from the requirements for arrangement of ventilation inlets with regard to the safe type electrical equipment, reference to IMO circular MSC.1/Circ.1459 has been added	IMO circular MSC.1/Circ.1459
Para 12.1.4	LNG carriers Pumps and compressors Testing	Para has been completely revised	G3.6.3, IACS UR G3 (Rev.8 Oct. 2023)

PART I. CLASSIFICATION

2 CLASS NOTATION

New para 2.2.13 is introduced reading as follows:

"**2.2.13** LG carriers carrying liquefied natural gas (methane), using cargo as fuel and complying with LG Rules and with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code) are assigned the distinguishing mark **GFS** (gas fuelled ships) added to the character of classification.".

PART II. SHIP ARRANGEMENT

1 GENERAL

Para 1.5.4 is replaced by the following text:

"**1.5.4** If, owing to the design of a ship, it is impossible in practice, or unreasonable, to fulfil the requirements of 1.5 relating to the location of access doors, air inlets or other openings in superstructures and/or deckhouses, the alternative location is allowed[1] provided that, as a consequence of doing so, no ignition sources are located in the hazardous areas defined in 1.2.1 of Part VII "Electrical Equipment", except for safe type electrical equipment complying with the requirements of 2.2 of Part VII "Electrical Equipment".

[1] Refer to IMO circular MSC.1/Circ.1459.".

PART VI. SYSTEMS AND PIPING

1 GENERAL

New para 1.4 is introduced reading as follows:

"**1.4** For the purpose of this Part of the LG Rules, the IGC Code means the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (as amended by IMO resolutions MSC.370(93), MSC.411(97) and MSC.441(99)).".

8 VENTILATION SYSTEM

Para 8.3.1 is amended as follows:

"**8.3.1** The ventilation inlets shall not face the cargo area. They shall be located on the end bulkhead not facing the cargo area, bow or stern loading and discharging arrangements and/or on the side of the superstructure at a distance equal to $L/25$, but not less than 3 m, from the bulkhead facing the cargo area. This distance may not to exceed 5 m.

Consideration shall be given to the arrangement of ventilation inlets in relation to cargo piping, vent piping and exhaust piping of arrangements operating on liquefied gas.

The Register may allow[1] ~~relaxation from the said requirements~~ alternative location of ventilation inlets for ships intended for the carriage of cargoes, which are not toxic or ignition hazardous, as well as for ~~small~~ ships where owing their design, it is impossible in practice, or unreasonable, to fulfil the said requirements, provided that no ignition source is located in the hazardous zones defined in 1.2.1, Part VII "Electrical Equipment", except for the safe-type electrical equipment complying with the requirements in 2.2, Part VII "Electrical Equipment".

[1] Refer to IMO circular MSC.1/Circ.1459.".

12 TESTING

Para 12.1.4 is replaced by the following text:

"**12.1.4 Cargo pumps and compressors.**

12.1.4.1 Compressor and pumps shall be suitable for their intended purpose. Equipment and machinery shall be adequately designed to remain operational in marine environmental conditions taking into account the requirements specified in 2.3, Part VII "Machinery Installations" of the Rules for the Classification and 12.6, Part IV "Technical Supervision during Manufacture of Products" of the Rules for the Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships.

12.1.4.2 Through design assessment the items to be considered shall include, but not be limited to:

environmental;

shipboard vibrations and accelerations;

pitch, heave and roll motions etc.;

physical and chemical properties of cargo.

The manufacturer shall submit documentation confirming the equipment has been designed to comply with the above criteria.

12.1.4.3 Each size and type of pumps and compressors shall be approved through design assessment and prototype testing in the presence of the RS surveyor.

12.1.4.4 For design assessment of pumps, ISO 13709:2009 and ISO 24490:2016 may be used, or other standards recognized by the Register.

12.1.4.5 For the design assessment of compressors, standards API 617:2014 (w. Errata 1:2016), 618:2016 or 619:2010 may be used as applicable, or other standards recognized by the Register.

12.1.4.6 Testing for pump and compressor materials may be carried out without RS technical supervision except for the boundary components, which are in direct contact with the medium and for a design temperature below –55 ˚C in accordance with 1.2, Part IX "Materials".

12.1.4.6.1 For centrifugal type pumps and compressors impeller, inducer, guide vane, casing, shaft and coupling are considered boundary components.

12.1.4.6.2 For reciprocating type pumps and compressors cylinder cover, valve cover, cylinder liner, piston and piston rod, crankshaft, crank case are considered boundary components.

12.1.4.7 Prototype testing of pumps.

12.1.4.7.1 Each size and type of pumps shall be subjected to prototype testing in the presence of the RS surveyor. Alternatively, positive service experience of an existing pump configuration approved by the Register may be taken into consideration. Prototype testing shall include hydrostatic test of the pump body equal to 1,5 of the design pressure, and a capacity test.

For submerged electric motor pumps, the capacity test shall be carried out with the design medium or with a medium below the minimum working temperature.

For shaft driven deep well pumps, the capacity test may be carried out with water.

In addition, for shaft driven deep well pumps, a spin test to demonstrate satisfactory operation of bearing clearances, wear rings and sealing arrangements shall be carried out at the minimum design temperature. The full length of shafting is not required for the spin test but shall be of sufficient length to include at least one bearing and sealing arrangements. After completion of tests, the pump shall be opened out for examination.

12.1.4.7.2 The vibration criteria of machinery and equipment shall be provided by the pump manufacturer. These shall be compared against an applicable internationally recognized standard[1], as applied to the design.

12.1.4.8 Unit Production Testing.

12.1.4.8.1 All pumps shall be tested at the plant of manufacturer in the presence of the RS surveyor. Testing shall include hydrostatic test of the pump body equal to 1.5 times the design pressure and a capacity test.

For submerged electric motor driven pumps, the capacity test shall be carried out with the design medium or with a medium below the minimum working temperature.

For shaft driven deep well pumps, the capacity test may be carried out with water.

12.1.4.8.2 As an alternative to the above, if so requested by the manufacturer, the certification of a pump may be issued subject to the following:

the pumps have been approved in accordance with 12.1.4.6 and 12.1.4.7;

the manufacturer has a recognized quality system that has been assessed and certified by the Register subject to periodic audits;

the quality control plan contains a provision to subject each pump to a hydrostatic test of the pump body equal to 1,5 of the design pressure and a capacity test. The manufacturer shall maintain records of such tests.

12.1.4.9 Prototype testing of compressors.

12.1.4.9.1 Prototype testing shall be consistent with the applicable standard as applied for design assessment and shall include hydrostatic test of the compressor pressure boundary components, mechanical running test and a performance test.

The hydrostatic test is to be carried out at a pressure equal to 1,5 of the design pressure (or 1,25 of the design pressure where the test fluid is compressible) and for, at least, 30 min.

The mechanical running test and performance tests shall include recording of the gas used, temperatures, pressures, testing of alarms and shut down, pressure relief devices and vibration measurements to ensure that the limits do not exceed those proposed by the manufacturer and that other features relating to the performance of the equipment are in

[1] ISO 7919-3:2009/AMD 1:2017 — Part 3
ISO 10816-3:2009/AMD 1: 2017 — Part 3
ISO 10816-7:2009 — Part 7
ISO 10816-8:2014 — Part 8
ISO 20816-1:2016 — Part 1
ISO 20816-8:2018 — Part 8

accordance with the specification. Similarly, during the performance test, power consumption and the gas loads shall be recorded.

12.1.4.9.2 The vibration criteria of machinery and equipment shall be provided by manufacturers, consistent with the applicable recognized standard[1], as applied to the design. Otherwise, when the data on the vibration criteria are not available, justification shall be submitted for criteria used as reference in terms of overall root mean square (RMS) vibrational velocity value for normal operation conditions.

Alternative limits, demonstrated by fatigue calculations, may be accepted by the Register.

12.1.4.10 Unit Production Testing of Compressors.

12.1.4.10.1 Each compressor shall be tested at the plant of manufacture in the presence of the RS surveyor. Testing shall include hydrostatic test of the compressor pressure boundary components, mechanical running test and a performance test. The hydrostatic test shall be carried out at a pressure equal to 1,5 of the design pressure (or 1,25 of the design pressure where the test fluid is compressible) and for, at least, 30 min.

12.1.4.10.2 As an alternative to the above, if so requested by the relevant manufacturer, the certification of a compressor may be issued subject to the following:

the compressors have been approved in accordance with 12.1.4.6 и 2.1.4.9;

the manufacturer has a recognized quality system that has been assessed and certified by the Register subject to periodic audits;

The quality control plan contains a provision to subject each compressor to the hydrostatic test of the compressor by hydraulic pressure, a mechanical running and performance test in accordance with 2.1.4.9.1. The manufacturer shall maintain records of such tests.

12.1.4.11 The complete compressor assembly connected to the ship systems shall be subjected to a leak test using air or other suitable medium, to a pressure depending on the leak detection method applied. The test shall be performed in presence of the RS surveyor and considered satisfactory when no joint leaks are observed.".

Russian Maritime Register of Shipping

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