

RULES

FOR THE CLASSIFICATION AND CONSTRUCTION OF HIGH-SPEED CRAFT

PART VII MACHINERY INSTALLATIONS

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**St. Petersburg
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RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF HIGH- SPEED CRAFT

Rules for the Classification and Construction of High-Speed Craft of Russian Maritime Register of Shipping (RS, the Register) have been approved in accordance with the established approval procedure and come into force on 1 March 2023.

The present edition of the Rules is based on the 2018 edition taking into account the amendments developed immediately before publication.

The procedural requirements, unified requirements, unified interpretations and recommendations of the International Association of Classification Societies (IACS) and the relevant resolutions of the International Maritime Organization (IMO) have been taken into consideration.

The Rules are published in the following parts:

- Part I "Classification";
- Part II "Hull Structure and Strength";
- Part III "Equipment, Arrangements and Outfit";
- Part IV "Stability";
- Part V "Reserve of Buoyancy and Subdivision";
- Part VI "Fire Protection";
- Part VII "Machinery Installations";
- Part VIII "Systems and Piping";
- Part IX "Machinery";
- Part X "Boilers, Heat Exchangers and Pressure Vessels";
- Part XI "Electrical Equipment";
- Part XII "Refrigerating Plants";
- Part XIII "Materials";
- Part XIV "Welding";
- Part XV "Automation";
- Part XVI "Live-Saving Appliances";
- Part XVII "Radio Equipment";
- Part XVIII "Navigational Equipment";
- Part XIX "Signal Means";
- Part XX "Equipment for Pollution Prevention";
- Part XXI "Craft for Personnel Transportation".

REVISION HISTORY

(purely editorial amendments are not included in the Revision History)

For this version, there are no amendments to be included in the Revision History.

1 GENERAL

1.1 This Part of the Rules for the Classification and Construction of High-Speed Craft¹ applies to the machinery installations, equipment of machinery spaces, lift and propulsion devices and spare parts. In addition, the requirements of 2.1.6, 2.1.10, 2.3 — 2.5, 3.3 and Section 4, Part VII "Machinery Installations" of the Rules for the Classification and Construction of Sea-Going Ships², as well as the requirements for controls of lift and propulsion devices, their elements, including shafting and propellers set out in Part IX "Machinery" of these Rules shall be complied with.

1.2 For the purpose of this Part, the definitions given in 1.1, Part I "Classification" of these Rules and the definitions given in 1.2, Part VII "Machinery Installations" of the Rules for the Classification, as appropriate, are used.

1.3 The requirements of these Rules are based on a condition that a flash point of the oil fuel used in high-speed craft³ shall be not below +43 °C.

In case oil fuel with a flash point below +43 °C but not lower than + 35 °C is used, special structural arrangements shall be made to prevent a risk of fire or explosion. Technical documentation containing description of these arrangements shall be submitted to the Register for approval.

1.4 Spaces where oil fuel tanks are arranged shall meet the requirements in 5.8, Part VIII "Systems and Piping".

1.5 Vibration levels of machinery and equipment after installation on board shall not exceed those given in Section 9, Part VII "Machinery Installations" of the Rules for the Classification.

1.6 The machinery installation of HSC shall generally be of a design and construction, suitable for operation as in unmanned machinery space, including automatic fire detection system, bilge alarm system, remote machinery instrumentation and alarm system. Special consideration shall be given to the reliability of single essential propulsion components. A separate source of propulsion power sufficient to give the craft a navigable speed, especially in the case of unconventional arrangements, may be required.

1.7 Requirements for machinery installations of passenger craft.

1.7.1 Category B craft shall be provided with at least two independent means of propulsion so that the failure of one engine or its support systems not cause the failure of the other engine or engine systems. Provision shall be made for additional machinery controls in or close to the machinery space.

1.7.2 Category B craft shall be capable of maintaining the propulsion machinery, essential machinery and controls so that, in the case of fire or other casualties in any one compartment on board, the craft can return to a port of refuge under its own power.

1.7.3 On monohulls of Category B HSC, propeller shaft and bearings of at least one main engine, when passing through the aft machinery space, shall be protected as follows:

steel shaft bearings by water spray;

shafts made of composite material (FRP), either by passive fire protection for 60 min duration, or a water spray system and able to transmit the full torque of the propulsion engine after a standard fire test of 7 min.

1.8 Requirements for machinery installations of cargo craft.

1.8.1 Cargo craft shall be provided with additional machinery controls in or close to the machinery space.

¹ Hereinafter referred to as "these Rules".

² Hereinafter referred to as "the Rules for the Classification".

³ Hereinafter referred to as "HSC".

1.8.2 Cargo craft shall be capable of maintaining the propulsion machinery, essential machinery and controls so that, in the case of fire or other casualties in any one compartment on board, the craft can return to a port of refuge under its own power.

2 POWER OUTPUT OF MAIN MACHINERY

2.1 The power output of the main propulsion machinery in HSC (driving engines of propulsion units) shall be such that no overload of the engines exceeding that specified in the documentation could occur when the craft achieves its operational mode in the worst intended conditions.

2.2 Means shall be provided whereby normal operation of propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative. Having regard to overall safety considerations, a partial reduction in propulsion capability from normal operation may be accepted.

2.3 Machinery installation shall be capable to provide motion of the craft astern for its better manoeuvrability in the displacement mode under all operating conditions.

The power output of the craft when going astern shall be sufficient for braking the craft within a reasonable period of time depending on the purpose of the craft and operating conditions.

3 CONTROL STATIONS

3.1 The requirements of 3.1 and 3.2, Part VII "Machinery Installations" of the Rules for the Classification shall be met, having regard to [1.7.1](#) and [1.8.1](#).

3.2 All operations on engine and machinery control shall be performed from the craft control station.

3.3 Where provision is made for machinery control from a special station, in addition to the craft control station, control from one station to the other shall be transferred from the craft control station.

4 SPARE PARTS

4.1 Recommended list of spare parts to be kept on board the craft is given in [Table 4.1](#).

Table 4.1

Nos	Spare parts	Quantity
1	Internal-combustion engines	
1.1	Starting valve in assembly	1 pc.
1.2	Fuel-valve in assembly (each type and size)	1/4 of a set (for one engine)
1.3	H.P. oil fuel pipes (each type and size)	1 pc.
2	Auxiliary and deck machinery and craft arrangements	
2.1	Pump shaft sealing items (each type and size)	1 pc.
2.2	Special packing for stuffing boxes (each type and size)	1 pc.
2.3	Safety valve springs or valves in assembly (each type and size)	1 pc.
3	Boilers, pressure vessels and heat exchangers	
3.1	Safety valve springs or valves in assembly (each type and size)	1 pc.
3.2	Sight glasses or flat glasses of medium level gauges	1 pc.
3.3	Pressure gauges (each type and size)	1 pc.
4	Main and auxiliary gas-turbine installations	
4.1	Main burners	1 set per each combustion chamber
4.2	Starting burners	Ditto
4.3	Ignition arrangement	Ditto
4.4	Ignition plugs	Ditto

Russian Maritime Register of Shipping

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Part VII
Machinery Installations

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