

# RULES

## FOR THE CLASSIFICATION AND CONSTRUCTION OF FLOATING OFFSHORE OIL-AND-GAS PRODUCTION UNITS

### PART VII MACHINERY INSTALLATIONS

ND No. 2-020201-020-E



**St. Petersburg**  
**2022**

# **RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF FLOATING OFFSHORE OIL-AND-GAS PRODUCTION UNITS**

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Rules for the Classification and Construction of Floating Offshore Oil-and-Gas Production Units (FPU) of Russian Maritime Register of Shipping (RS, the Register) have been approved in accordance with the established approval procedure. The date of coming into force of the present Rules is 1 January 2022.

The present Rules set forth specific requirements for FPU, consider the recommendations of the IMO Code for the Construction and Equipment of MODU, as adopted by the IMO Assembly on 19 October 1989 (IMO resolution A.649(16)), take account of international practice of FPU construction and operation, requirements of the rules of the IACS members, international standards, as well as experience of Russian Maritime Register of Shipping relating to the classification and construction of ships, mobile offshore drilling units and fixed offshore platforms, stated in the relevant rules.

The Rules are published in the following parts:

Part I "Classification";

Part II "Hull";

Part III "Equipment, Arrangements and Outfit";

Part IV "Stability";

Part V "Subdivision";

Part VI "Fire and Explosion 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 "General Requirements and Safety Principles".

The present Rules supplement the Rules for the Classification and Construction of Sea-Going Ships, Rules for the Equipment of Sea-Going Ships and Rules for the Classification, Construction and Equipment of Mobile Offshore Drilling Units and Fixed Offshore Platforms.

**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 APPLICATION**

**1.1.1** The requirements of this Part of the Rules for the Classification and Construction of Floating Offshore Oil and Gas Production Units<sup>1</sup> apply to the machinery installations, equipment of machinery spaces, shafting lines, propellers, machinery condition monitoring systems, spare parts and active means of steering ensuring functioning of a floating offshore structure or a unit for its intended purpose and observance of safety requirements thereon.

The said equipment is also covered by the applicable requirements of Part VII "Machinery Installations" of the Rules for the Classification and Construction of Sea-Going Ships<sup>2</sup> and Part VII "Machinery Installations and Machinery" of the Rules for the Classification, Construction and Equipment of Mobile Offshore Drilling Units and Fixed Offshore Platforms<sup>3</sup>.

**1.1.2** On FPU without machinery spaces but provided with machinery and arrangements for functioning of FPU for its intended purpose, the requirements of this Part are applied to the extent that is reasonable and practicable.

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<sup>1</sup> Hereinafter referred to as "the FPU Rules".

<sup>2</sup> Hereinafter referred to as "the Rules for the Classification".

<sup>3</sup> Hereinafter referred to as "the MODU/FOP Rules".

## **1.2 DEFINITIONS AND EXPLANATIONS**

**1.2.1** Definitions and explanations are given in the General Regulations for Classification and Other Activity, in Part I "Classification" and Part VII "Machinery Installations" of the Rules for the Classification, in Parts I "Classification" and VII "Machinery Installations and Machinery" of the MODU/FOP Rules as well as Part I "Classification", Part III "Equipment, Arrangements and Outfit" and Part VI "Fire and Explosion Protection" of the FPU Rules.

### **1.3 SCOPE OF TECHNICAL SUPERVISION**

**1.3.1** General provisions covering the procedure of classification, technical supervision during construction, as well as technical documentation to be submitted to the Register for consideration and approval are stated in the General Regulations for Classification and Other Activity and in Part I "Classification" of the Rules for the Classification, in Part I "Classification" of the MODU/FOP Rules and in Part I "Classification" of the FPU Rules.

**1.3.2** During FPU construction, the manufacture, installation and testing of component parts of machinery installation are subject to technical supervision by the Register in compliance with 1.3, Part VII "Machinery Installations" of the Rules for the Classification.

## **2 GENERAL REQUIREMENTS**

### **2.1 POWER OF MAIN MACHINERY**

**2.1.1** The power of ship-shaped self-propelled FPU shall meet the requirements of 2.1, Part VII "Machinery Installations" of the Rules for the Classification.

## **2.2 NUMBER OF MAIN BOILERS**

**2.2.1** The number of main boilers when a steam power plant is used shall be substantiated.



## **2.3 ENVIRONMENTAL CONDITIONS**

**2.3.1** Environmental conditions shall meet the requirements stated in 2.3.1, Part VII "Machinery Installations" of the Rules for the Classification.

**2.3.2** Main and auxiliary machinery, as well as emergency machinery and equipment on the ship-shaped self-propelled FPU in transit shall meet the requirements of Table 2.3.1-1, Part VII "Machinery Installations" of the Rules for the Classification.

**2.3.3** All machinery, equipment and systems which ensure safe operation of non-self-propelled FPU, ship-shaped and non-ship shaped, as well as manned FSPM shall remain operable at static inclination of 15°, dynamic inclination of 22,5° inclusive, in any direction.

**2.3.4** Operating conditions of the machinery installation of SSPM and unmanned FSPM used in marine operations shall be specified in the documentation and substantiated with regard to [2.3.5](#).

**2.3.5** The values of inclinations given in [2.3.2 – 2.3.4](#) may be changed depending on the FPU type, size and operating conditions, at that the appropriate substantiation shall be submitted to the Register for review.

## **2.4 MATERIALS**

**2.4.1** Materials for the manufacture of parts of the shafting and propellers of self-propelled FPU shall meet the requirements of 2.4, Part VII "Machinery Installations" of the Rules for the Classification.

## **2.5 INDICATING INSTRUMENTS**

**2.5.1** All the indicating instruments shall meet the requirements of 2.5, Part VII "Machinery Installations" of the Rules for the Classification.

## **2.6 APPLICATION OF RELIABILITY MEASURES**

**2.6.1** The reliability measures are established in compliance with the requirements of 2.6, Part VII "Machinery Installations" of the Rules for the Classification.

## **2.7 FUEL OIL**

**2.7.1** Fuel oil used on FPU shall meet the requirements of 1.1.2, Part VII "Machinery Installations" of the Rules for the Classification.

**2.7.2** Crude oil may be used as fuel for boilers providing that the requirements of 13.11, Part VIII "Systems and Piping" of the Rules for the Classification are met.

**2.7.3** Natural gas (methane) may be used as fuel for dual-fuel internal combustion engines (ICE), provided that the requirements of 13.12, Part VIII "Systems and Piping" and Section 9, Part IX "Machinery" of the Rules for the Classification are met.

### **3 CONTROL DEVICES AND STATIONS. MEANS OF COMMUNICATION**

#### **3.1 CONTROL DEVICES**

**3.1.1** Control devices of self-propelled FPU shall meet the requirements of 3.1, Part VII "Machinery Installations" of the Rules for the Classification.

### **3.2 CONTROL STATIONS**

**3.2.1** The bridge control stations of main engines and propellers, as well as main machinery control room on self-propelled FPU shall be equipped in compliance with the requirements of 3.2.1, Part VII "Machinery Installations" of the Rules for the Classification.

**3.2.2** Main machinery control room and cargo control room (CCR) shall be located as far from machinery spaces as practicable.

**3.2.3** CCR shall be equipped with means of communication, control devices, means of monitoring and alarm devices in compliance with the requirements of 3.2.11, Part VII "Machinery Installations" of the Rules for the Classification.

### **3.3 MEANS OF COMMUNICATION**

**3.3.1** At least two independent means shall be provided for communicating orders from the navigating bridge of self-propelled FPU to the position in the engine room or in the main machinery control room meeting the requirements of 3.3.1, Part VII "Machinery Installations" of the Rules for the Classification.

**3.3.2** Two-way communication shall be provided between:  
CCR and navigating bridge on self-propelled FPU;  
CCR and spaces containing cargo and ballast pumps;  
process control station, CCR, main machinery control room and other spaces containing equipment essential for the FPU safety.



## **4 MACHINERY SPACES. ARRANGEMENT OF MACHINERY AND EQUIPMENT**

### **4.1 ARRANGEMENT OF MACHINERY AND EQUIPMENT**

**4.1.1** Arrangement of machinery and equipment shall meet the requirements of 4.2, Part VII "Machinery Installations" of the Rules for the Classification and 2.3, Part VII "Machinery Installations and Machinery" of the MODU/FOP Rules.

## **4.2 ARRANGEMENT OF FUEL OIL TANKS**

**4.2.1** Arrangement of fuel oil tanks shall meet the requirements of 4.3, Part VII "Machinery Installations" of the Rules for the Classification.

### **4.3 INSTALLATION OF MACHINERY AND EQUIPMENT**

**4.3.1** Installation of machinery and equipment shall meet the requirements of 4.4, Part VII "Machinery Installations" of the Rules for the Classification.

#### **4.4 MEANS OF ESCAPE FROM MACHINERY SPACES**

**4.4.1** Means of escape from machinery spaces shall meet the requirements of 4.5, Part VII "Machinery Installations" of the Rules and 2.6, Part VII "Machinery Installations and Machinery" of the MODU/FOP Rules for the Classification.

#### **4.5 INSULATION OF HEATED SURFACES**

**4.5.1** Insulation of heated surfaces shall meet the requirements of 4.6, Part VII "Machinery Installations" of the Rules for the Classification.

## **5 SHAFTING AND PROPELLERS**

**5.1** Shafting and propellers of self-propelled FPU shall meet the requirements of Sections 5 and 6, Part VII "Machinery Installations" of the Rules for the Classification, respectively.

## **6 DYNAMIC POSITIONING SYSTEM**

**6.1** The steerable propellers of the dynamic positioning system shall meet the requirements of Section 7, Part VII "Machinery Installations" of the Rules for the Classification.

## **7 TORSIONAL VIBRATION**

**7.1** Torsional vibration calculations of propulsion plants, diesel-generators and ICE-driven auxiliary machinery shall be made in compliance with the requirements of Section 8, Part VII "Machinery Installations" of the Rules for the Classification.



## **8 VIBRATION OF MACHINERY AND EQUIPMENT**

**8.1** The allowable vibration level of the FPU machinery and equipment shall meet the vibration standards given in Section 9, Part VII "Machinery Installations" of the Rules for the Classification.

## **9 SPARE PARTS AND TOOLS**

**9.1** The main machinery shall be supplied with a set of appropriate tools and appliances necessary for dismantling and assembling of the machinery in service conditions. The recommended list of the spare parts is given in Appendix 1 to Part VII "Machinery Installations" of the Rules for the Classification.

## **10 MACHINERY TECHNICAL CONDITION MONITORING SYSTEM**

**10.1** When the technical condition monitoring and control system is applied to the FPU classification survey on the basis of the Planned Maintenance Scheme, it shall meet the requirements of Section 10, Part VII "Machinery Installations" of the Rules for the Classification.

Russian Maritime Register of Shipping

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Part VII  
Machinery Installations**

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