

# RULES

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

### PART IV STABILITY

ND No. 2-020201-020-E



**St. Petersburg  
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# **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 following:

**.1** new FPU if they are afloat and their hull shape cannot be considered as traditional for ships or barges;

**.2** ship- or displacement barge-shaped FPU intended for the purposes listed in [1.1.1](#), Part I "Classification" and operated afloat;

**.3** existing FPU, if their stability has changed after repairs and/or conversion;

**.4** FPU in operation and the above stated ships in service to the extent that is reasonable and practicable.

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

## **1.2 DEFINITIONS AND EXPLANATIONS**

**1.2.1** The definitions and explanations are given in the General Regulations for the Classification and Other Activity, in Part I "Classification" and Part IV "Stability" of the Rules for the Classification and Construction of Sea-Going Ships<sup>1</sup>, in Part I "Classification", Part II "Hull" and Part IV "Stability" of the Rules for the Classification, Construction and Equipment of Mobile Offshore Drilling Units and Fixed Offshore Platforms<sup>2</sup>, taking MODU and FOP as FPU (if they have similar design), and also in Part I "Classification", Part II "Hull" and Part III "Equipment, Arrangements and Outfit" of the FPU Rules.

**1.2.2** Design conditions shall be taken according to 1.2.3 of Part IV "Stability" of the MODU/FOP Rules.

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

<sup>2</sup> Hereinafter referred to as "the MODU/FOP Rules".

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

**1.3.1** The scope of technical supervision shall meet the requirements of 1.3 of Part IV "Stability" of the MODU/FOP Rules.

## **1.4 GENERAL TECHNICAL REQUIREMENTS**

**1.4.1** Calculations and diagrams shall be made in compliance with 1.4 of Part IV "Stability" of the MODU/FOP Rules.

### **1.5 INCLINING TEST**

**1.5.1** The inclining shall be carried out in compliance with 1.5 of Part IV "Stability" of the MODU/FOP Rules.

**1.5.2** FPU as a complete unit is inclined with use of solid ballast in two conditions:  
with missing anchor lines (chain cables, wire ropes) of the position-keeping system;  
after fitting anchor lines at the operational draught, but prior to their tensioning.



## **2 GENERAL REQUIREMENTS FOR STABILITY**

### **2.1 POSITION-KEEPING SYSTEM. SUPPORT ON SEABED**

**2.1.1** The effect of the position-keeping system (passive: anchoring system, mooring ropes of ships/ buoys, towing lines, crane ship's slings; or active: dynamic positioning and thruster assisted position mooring systems) on stability shall be considered if it results in more severe consequences. This effect shall be considered:

in normal condition;

in survival condition if it offers the reduced criteria in terms of stability (e.g. on breaking one, some or all tensioned lines) and no technique is provided to break free FPU of the position-keeping system action within three hours.

## **2.2 LOADING CONDITIONS**

**2.2.1** The FPU loading conditions shall meet the requirements of 2.2 of Part IV "Stability" of the MODU/FOP Rules. In addition, the FPU stability shall be verified for the following conditions of an intact FPU (considering icing and snow) according to 2.5.5 of Part IV "Stability" of the MODU/FOP Rules:

- fully equipped, free floating (without anchor lines);
- floating with free hanging anchor lines;
- in normal condition using the passive position-keeping system at the maximum sea level (tide + storm surge);
- in normal condition using the passive position-keeping system at the minimum sea level (low-tide).

### **2.3 RIGHTING MOMENT CURVES**

**2.3.1** The FPU righting moment curves shall be computed and plotted in compliance with the requirements of 2.3 of Part IV "Stability" of the MODU/FOP Rules.

## **2.4 HEELING MOMENT CURVES**

**2.4.1** The FPU heeling moment curves shall be computed and plotted in compliance with the requirements of 2.4 of Part IV "Stability" of the MODU/FOP Rules.

## **2.5 DESIGN ENVIRONMENTAL (NATURAL) CONDITIONS**

**2.5.1** The parameters of the environmental impact on FPU shall be determined in compliance with the requirements and recommendations of 2.5 of Part IV "Stability" of the MODU/FOP Rules.

### **3 STABILITY CRITERIA**

#### **3.1 GENERAL REQUIREMENTS**

**3.1.1** The FPU stability criteria shall meet the requirements of 3.1 of Part IV "Stability" of the MODU/FOP Rules.

### **3.2 DESIGN AMPLITUDE OF MOTIONS**

**3.2.1** The FPU design amplitude of motions shall meet the requirements of Part IV "Stability" of the MODU/FOP Rules.

### **3.3 REQUIREMENTS FOR THE STATICAL STABILITY CURVE**

**3.3.1** The FPU statical stability curve shall meet the requirements of Part IV "Stability" of the MODU/ FOP Rules.



### **3.4 ADDITIONAL REQUIREMENTS FOR STABILITY**

**3.4.1** The FPU stability in voyage/at passage in the normal condition and survival condition (with the position-keeping system detached and attached) with the worst loading condition, in terms of stability, shall meet the following requirements.

The corrected metacentric height with the presence of free surfaces of liquids simultaneously in all cargo tanks and ballast tanks shall be not less than 0,15 m ignoring icing and snow on the open parts of the deck, and not less than 0,10 m adjusted for both factors.

The area under the righting moment curve up to the second intercept angle between righting moment curves and wind heeling moment or up to the angle of flooding through the opening considered to be open, whichever is less, without regard to motions shall exceed the area under the wind heeling moment limited by the same angle by at least 1,4 times. Additionally, the area ratio with due regard to the motions under design wind and wave conditions shall not be less than 1,1.

The stability of the ship-shaped FPU in voyage/at passage and in case of icing shall meet the requirements of Part IV "Stability" of the Rules for the Classification.

Russian Maritime Register of Shipping

**Rules for the Classification and Construction of Floating  
Offshore Oil-And-Gas Production Units  
Part IV  
Stability**

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