

# **RULES**

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

### **PART I CLASSIFICATION**

ND No. 2-020201-020-E



**St. Petersburg  
2022**

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

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Rules for the Classification and Construction of Floating Offshore Oil-and-Gas Product Units (FPU) 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 January 2022.

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

**REVISION HISTORY<sup>1</sup>**

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

Amended paras/chapters/ sections	Information on amendments	Number and date of the Circular Letter	Entry-into-force date
Rules for the Classification and Construction of Floating Offshore Oil-and-Gas Production Units	The title of the Rules has been replaced by the "Rules for the Classification and Construction of Floating Offshore Oil-and-Gas Product Units"	312-09-1837c of 11.10.2022	01.11.2022
<a href="#">Annotation</a>	Annotation has been amended	312-09-1837c of 11.10.2022	01.11.2022
<a href="#">Paras 1.1.1 — 1.1.3</a>	Term "production unit" has been replaced by the term "product unit"	312-09-1837c of 11.10.2022	01.11.2022
<a href="#">Para 1.2.1</a>	New definition "Manifold" has been introduced. Definition "Floating offshore oil-and-gas production unit (FPU)" has been replaced by the definition "Floating offshore oil-and-gas product unit (FPU)". Definitions "Floating storage and offloading unit (FSO)", "Floating production, storage and offloading unit (FPSO)", "Floating production and offloading unit (FPO)", "Floating single point mooring (FSPM)" and "Stationary single point mooring (SSPM)" have been specified. New definitions "Floating storage regasification unit (FSRU)", "Floating storage and offloading unit for liquefied gas (FSO(LG))" and "Floating production, storage and offloading unit for liquefied gas (FPSO(LG))" have been introduced	312-16-1822c of 23.09.2022 312-09-1837c of 11.10.2022	01.11.2022 01.11.2022
<a href="#">Paras 2.2.1 — 2.2.2</a>	Requirements for assignment of descriptive notations <b>FPO</b> , <b>FPSO</b> , <b>FSO</b> , <b>FSPM</b> and <b>SSPM</b> have been specified	312-09-1837c of 11.10.2022	01.11.2022
<a href="#">Paras 2.2.3 — 2.2.6</a>	New paras 2.2.3 — 2.2.5 have been introduced containing requirements for assignment of descriptive notations <b>FSRU</b> , <b>FPSO(LG)</b> and <b>FSO(LG)</b> .	312-09-1837c of 11.10.2022	01.11.2022

<sup>1</sup> Amendments and additions introduced at re-publication or by new versions based on circular letters or editorial amendments.

Amended paras/chapters/sections	Information on amendments	Number and date of the Circular Letter	Entry-into-force date
	Existing para 2.2.3 has been renumbered 2.2.6		
Para 2.2.3 (renumbered <a href="#">2.2.6</a> )	References to the applicable requirements have been specified for descriptive notation <b>Gas carrier</b>	312-09-1837c of 11.10.2022	01.11.2022
<a href="#">Para 3.7</a>	New para has been introduced containing requirements for the scope of the Information Booklet and Maintenance Manual for Single Point Moorings	312-16-1822c of 23.09.2022	01.11.2022

## **1 GENERAL**

### **1.1 APPLICATION**

**1.1.1** The Rules for the Classification and Construction of Floating Offshore Oil-and-Gas Product Units<sup>1</sup> cover the following types of self-propelled and non-self-propelled floating offshore structures:

floating production, storage and offloading units depending on the flow chart chosen;  
single point moorings.

Mobile offshore drilling units, fixed offshore platforms and drilling ships shall meet the requirements of the Rules for the Classification, Construction and Equipment of Mobile Offshore Drilling Units and Fixed Offshore Platforms<sup>2</sup> of the Register.

**1.1.2** Technical requirements apply to machinery, arrangements, instruments and equipment installed on floating offshore structures, except for structures, machinery, arrangements, instruments and equipment of systems for production, treatment and processing of products, technical requirements to which are set forth in the Rules for the Oil-and-Gas Equipment of Floating Offshore Oil-and-Gas Product Units, Mobile Offshore Drilling Units and Fixed Offshore Platforms.

**1.1.3** The equipment, machinery and piping of the floating offshore oil-and-gas product unit (FPU), which ensure its operation as a floating offshore structure, shall meet the requirements of the Rules for the Classification and Construction of Sea-Going Ships<sup>3</sup> and the MODU/FOP Rules of the Register to the extent that they are applicable and sufficient, unless otherwise specified.

**1.1.4** The materials, products, welding and inspection of welded joints used for hull structures, machinery and equipment parts shall comply with the Rules for the Classification and the MODU/FOP Rules to the extent that they are applicable and sufficient.

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

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

<sup>3</sup> Hereinafter referred to as "the Rules for the Classification".

## **1.2 DEFINITIONS AND EXPLANATIONS**

**1.2.1** For the purpose of the FPU Rules, the following definitions have been adopted.

**Accommodation area** is the FPU area used for the crew and special personnel accommodation.

**Bridle** is a chain cable connecting a ship or a mooring buoy to an anchor. Combined bridle is a bridle with intermediate chain lengths (between the inner end and anchor chain lengths) replaced with the wire rope ones.

**Floating offshore oil-and-gas product unit (FPU)** is a floating offshore ship-, pontoon- or otherwise-shaped installation provided with a position-keeping system and intended for performing one or several functions: production, intake, storage, processing and offloading of products.

**Floating production and offloading unit (FPO)** is a floating offshore installation intended for production, intake, processing and offloading of products.

**Floating production, storage and offloading unit (FPSO)** is a floating offshore self-propelled or non-self-propelled installation intended for production, intake, processing, storage and offloading of products.

**Floating production, storage and offloading unit for liquefied gas (FPSO(LG))** is a floating offshore installation intended for production, intake, processing, storage and offloading of liquefied gas.

**Floating single point mooring (FSPM)** is a floating offshore installation intended for mooring of oil tankers or FPU and for offloading of products at sea or at anchorage.

**Floating storage and offloading unit (FSO)** is a floating offshore self-propelled or non-self-propelled installation intended for intake, storage and offloading of products.

**Floating storage and offloading unit for liquefied gas (FSO(LG))** is a floating offshore self-propelled or non-self-propelled installation intended for intake, storage and offloading of liquefied gas.

**Floating storage regasification unit (FSRU)** is a floating offshore installation intended for long-term (or constant) operation at a fixed location in a regasification and gas discharge mode and/or a gas receiving, processing, liquefaction and storage mode.

**Manifold** is a collection of pipes with the necessary valves, assembled in such a way as to allow selective direction of flows.

**Multiphase (multilevel) swivel** is a rotating device, which provides transfer of products, other media (water, gas, etc.), as well as electric power, monitoring and control signals between its rotating and stationary parts.

**Process area** is the FPU area wherein the equipment for intake, processing, storage and offloading of products is installed.

**Products** are crude hydrocarbons in the form of oil, natural or oil gas and gas condensate.

**Riser** is a structure composed of a rigid or flexible pipeline which connects the equipment of underwater production system or subsea pipeline manifold with FPU or a single point mooring for product transportation.

**Stationary single point mooring (SSPM)** is a stationary offshore installation intended for mooring of oil tankers or FPU and for offloading of products at sea or at anchorage.

**Turret** is a device providing FPU and FSPM connection and enabling FPU to rotate around FSPM, as well as to transport products and other media via the multiphase swivel.

## **2 CLASS OF FPU**

### **2.1 GENERAL**

**2.1.1** FPU are covered by the requirements of 2.1 of Part I "Classification" of the Rules for the Classification.

## **2.2 CLASS NOTATION**

**2.2.1** Floating installations are assigned a class notation in accordance with Section 2 of Part I "Classification" of the Rules for the Classification.

**2.2.2** In addition to [2.2.1](#), one of the following descriptive notations, namely: **FPO**, **FPSO** or **FSO**, depending on the flow chart chosen and subject to compliance with the applicable requirements of the FPU Rules, is added to the character of classification of FPU intended for operations with oil.

Self-propelled oil tankers or combination carriers operated as **FSO** or **FPSO** and having appropriate descriptive notations in the class notation, are assigned the distinguishing mark (**ESP**). This means the necessity to survey these ships based on the Enhanced Survey Programme.

**2.2.3** In addition to [2.2.1](#) of this Part, one of the following descriptive notations, namely: **FPSO(LG)** or **FSO(LG)**, depending on the flow chart chosen and subject to compliance with the applicable requirements of the Rules for the Classification and Construction of Ships Carrying Liquefied Gases in Bulk (hereinafter referred to as "the LG Rules"), is added to the character of classification of FPU intended for operations with liquefied gas. The distinguishing marks specified above may be assigned if FPU is periodically operated as an LG carrier and fully meets the applicable requirements of the LG Rules.

Minimum conditions for assignment of descriptive notations **FPSO(LG)** and **FSO(LG)** are the following:

**.1** arrangement of spaces, compartments, cargo tanks and types of structural protection comply with the requirements of Part II "Ship Arrangement" of the LG Rules;

**.2** stability verification, subdivision and freeboard assignment are performed in compliance with the requirements of 1.2, 1.3, 2.1, Sections 3 and 4 of Part III "Stability. Subdivision. Freeboard" of the LG Rules;

**.3** cargo containment systems and types of cargo tanks comply with the requirements of Part IV "Cargo Containment" of the LG Rules or the Rules for Membrane Containment System for Liquefied Natural Gas (whichever is applicable depending on the type of cargo tanks);

**.4** structural fire protection, fire extinguishing systems, fire-fighting equipment and outfit comply with the requirements of Part VI "Fire Protection" of the Rules for the Classification, Part V "Fire Protection" of the LG Rules (with regard to protection of tanks, cargo area by fire extinguishing systems) as well as Sections 2, 3 and 4 of Part VI "Fire and Explosion Protection" of the FPU Rules (with regard to protection of the wellhead and process area of FPU);

**.5** systems and piping comply with the requirements of Part VI "Systems and Piping" of the LG Rules (requirements of Section 11 shall be considered if methane is used as a fuel);

**.6** electrical equipment complies with the requirements of Part VII "Electrical Equipment" of the LG Rules (requirements of Section 4 shall be considered if methane is used as a fuel);

**.7** automation equipment complies with the requirements of Part XV "Automation" of the FPU Rules;

**.8** means for indicating level, pressure and temperature of the cargo and their automation means comply with the requirements of Part VIII "Instrumentation and Automation Systems" of the LG Rules;

**.9** plates, sections, pipes, forgings and castings used in the construction of cargo tanks, cargo process pressure vessels, cargo and process piping, secondary barriers, as well as welded joints of the above products, plates and sections used for manufacture of structures subjected to low temperatures, but of other than parts of the secondary barrier comply with the requirements of Part IX "Materials and Welding" of the LG Rules;



.10 depending on the type of cargo (refer to Annex 1 to the LG Rules) additional requirements of Part X "Special Requirements" of the LG Rules are considered;

.11 life-saving appliances and signal means, radio and navigational equipment of non-self-propelled FPU meet the requirements of the Rules for the Equipment of FPU, for self-propelled FPU not engaged in international voyages — requirements of the Rules for the Equipment of Sea-Going Ships, for self-propelled FPU engaged in international voyages — applicable provisions of SOLAS 74 as amended and COLREG-72;

.12 with regard to the prevention of environment pollution, FPU shall comply with the applicable requirements of MARPOL 73/78 as amended, the Rules for the Prevention of Pollution from Ships Intended for Operation in Sea Areas and Inland Waterways of the Russian Federation as well as requirements of other conventions and instructions of the Flag State Maritime Administration of FPU relating to the prevention of pollution in specific sea areas, port waters, if any.

**2.2.4** In addition to [2.2.1](#), the descriptive notation **FSRU** is added to the character of classification of FPU intended for long-term (or constant) operation at a fixed location in a regasification and gas discharge mode and/or a gas receiving, processing, liquefaction and storage mode.

Minimum conditions for assignment of descriptive notation **FSRU** are the following:

.1 arrangement of spaces, compartments, cargo tanks and types of structural protection comply with the requirements of Part II "Ship Arrangement" of the LG Rules;

.2 cargo containment systems and types of cargo tanks comply with the requirements of Part IV "Cargo Containment" of the LG Rules or the Rules for Membrane Containment System for Liquefied Natural Gas (whichever is applicable depending on the type of cargo tanks);

.3 structural fire protection complies, fire-fighting equipment and systems, fire detection and alarm systems as well as fire-fighting outfit, spare parts and tools comply with the requirements of 2.1 and 2.4, Sections 3, 4 and 5 of Part VI "Fire Protection" of the Rules for the Classification. Structural fire protection, fire extinguishing systems, fire-fighting equipment and outfit comply with the requirements of Part V "Fire Protection" of the LG Rules;

.4 regasification plants comply with the requirements of 3.24 of Part VI "Systems and Piping" of the LG Rules, remote closing arrangements of inlets and outlets into accommodation, service spaces and control stations consider the requirements of 8.3.4 of Part VI "Systems and Piping" of the LG Rules, and when using cargo as a fuel, special requirements of Section 11 of Part VI "Systems and Piping" of the LG Rules are considered;

.5 electrical installations and individual types of electrical equipment comply with the requirements of Part VII "Electrical Equipment" of the LG Rules;

.6 level indicators for cargo tanks, liquid level alarms, pressure gauges, temperature indicating devices, gas detectors as well as automation systems comply with the requirements of Part VIII "Instrumentation and Automation Systems" of the LG Rules;

.7 automation equipment complies with the requirements of Part XV "Automation" of the Rules for the Classification.

**2.2.5** In addition to [2.2.1](#), the descriptive notation **FSPM** or **SSPM**, depending on the intended purpose and compliance with the requirements of the FPU Rules, is added to the character of classification of the single point mooring. When classifying the single point mooring together with the pipeline end manifold (PLEM), the applicable requirements of Part VIII "Field Subsea Pipelines and Risers" of the Rules for the Classification and Construction of Subsea Production Systems shall also be met.

**2.2.6** If a self-propelled floating unit is intended for gas transportation as well as periodical operation at a fixed location in a regasification and gas discharge mode and/or a gas receiving, processing, liquefaction and storage mode, when one of the descriptive notations specified in [2.2.3](#) and [2.2.4](#) is added to the character of classification of the floating unit, the descriptive notation **Gas carrier** shall also be added with a distinguishing mark defining its type. Such floating unit shall meet the requirements of the LG Rules and the Rules for Membrane Containment System for Liquefied Natural Gas (whichever is applicable, depending on the type of cargo tanks).

### **3 TECHNICAL DOCUMENTATION**

**3.1** General provisions pertinent to the review and approval of technical documentation on FPU, materials and products are given in Section 3 of Part I "Classification" of the Rules for the Classification and in Section 4 of Part I "Classification" of the MODU/FOP Rules.

**3.2** The design documentation for ship under construction, technical design documentation, as well as working documentation for FPU under construction shall be submitted to the Register for review and approval in accordance with the requirements of Section 3, Part I "Classification" of the Rules for the Classification and Section 4, Part I "Classification" of the MODU/FOP Rules to the extent that is applicable to FPU.

**3.3** Technical documentation reflecting the specific feature of FPU shall be additionally submitted, namely:

area and conditions of operation, anchorage system (in accordance with 4.1.2 — 4.1.12, Part I "Classification" of the MODU/FOP Rules);

drawings and diagrams of an offloading system, hull structures in way of production complexes, of a turret, torch, an integrated automatic control system, a mooring arrangement, helideck equipment.

**3.4** Prior to the commencement of work on conversion/modernization of FPU, technical documentation for those parts of the hull, machinery and equipment of FPU, which are liable to conversion/modernization, shall be submitted to the Register for review.

**3.5** When fitting new machinery or arrangements on FPU in operation, which meet the requirements of the FPU Rules and differ substantially from those fitted initially, the additional technical documentation concerning the items of new equipment shall be submitted to the Register for review.

**3.6** Upon completion of construction, trials and commissioning of FPU, the final documentation shall be submitted to the Register.

The amount of the documentation and the order of its submission shall be agreed upon with the Register prior to completion of the FPU construction.

**3.7** Prior to commissioning of a single point mooring (SPM), the Information Booklet and Maintenance Manual for Single Point Moorings (hereinafter referred to as "the Maintenance Manual") shall be submitted to the Register and shall include, at least, the following information:

**.1** site chart of the mooring area with indication of all potential navigation hazards (grounds, islands, other moored facilities, etc.), sea depths in the area of mooring and approach, maneuvering area and maximum swing circle of the moored ship;

**.2** ship's particulars including displacement, deadweight, length, draught and distance from bow to manifold;

**.3** design loads from ships of various sizes, including wind, wave, current and tides loads;

**.4** design cargo transfer characteristics, including type of cargo and design maximum working pressure in cargo transfer system, working temperature, flow rate, minimum valve closing time including the ship's manifold valves;

**.5** plans showing the general arrangement of the single point mooring components and details of those components required to be handled during operation or inspected during maintenance, including details of access to these components;

**.6** description of navigation aids and safety features including navigation lights, flashing lights, sound signal means, signal shapes, radar reflectors, portable fire extinguishers;

**.7** recommended procedure for the mooring and disconnecting a ship at the SPM;

**.8** recommended procedure for connecting and disconnecting floating hose to a tanker's manifold;

**.9** recommended maintenance schedule and procedures for the SPM facilities, including a check list of arrangements, equipment and outfit recommended for periodic inspection. Where applicable, procedures for adjusting anchor leg tension, removal and reinstallation of hoses, inspection of flexible risers, adjustment of buoyancy tanks, and replacement of seals in the cargo swivel shall be included;

**.10** recommended cargo system pressure testing.

The Maintenance Manual shall be submitted to the Register only for information to ensure that the above information is consistent with the SPM design information and limitations. The Register is not responsible for the operation of the SPM.

The Maintenance Manual may also contain information required by Flag State Maritime Administration of the SPM and/or coastal state.

#### **4 SURVEY PROCEDURE AND SCOPE**

**4.1** The following types of surveys are performed by the Register:

**.1** initial surveys:

initial survey during construction under the Register technical supervision,  
initial survey during construction under the supervision of another classification society (ACS) or any other competent body, or without the ACS supervision,  
initial survey in service;

**.2** periodical surveys in service as follows:

special surveys;  
annual surveys;  
survey of the outside of the ship's bottom;  
intermediate surveys;

**.3** occasional surveys in service.

**4.2** Survey of FPU in service shall be carried out in compliance with the requirements of Section 2 of the General Regulations for the Classification and Other Activity, Section 3, Part I "Classification" of the MODU/FOP Rules, and of the Rules for the Classification Surveys of Ships in Service and the Guidelines on Technical Supervision of Ships in Service to the extent that is practicable and reasonable, unless otherwise specified.

**4.3** During construction, the FPU shall be surveyed in the scope prescribed by the MODU/FOP Rules and the Guidelines on Technical Supervision of Ships under Construction, according to the technical documentation (technical design and detailed (design) documentation, which are given in [Section 3](#)) approved by the Register.

**4.4** Date of the FPU survey upon construction is the date of the actual completion of the survey and issue of a Classification Certificate and ship's documents for FPU.

Russian Maritime Register of Shipping

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Part I  
Classification**

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