

RULES

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

PART V SUBDIVISION

ND No. 2-020201-020-E



**St. Petersburg
2022**

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

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 Units¹ apply to FPU listed in [1.1.1](#) of Part IV "Stability".

¹ 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, Part I "Classification" and Part V "Subdivision" of the Rules for the Classification and Construction of Sea-Going Ships¹, Part I "Classification" and Part V "Subdivision" of the Rules for the Classification, Construction and Equipment of Mobile Offshore Drilling Units and Fixed Offshore Platforms², taking MODU and FOP as FPU (if the FPU hull design corresponds to the types, which are defined in 1.2 of Part I "Classification" of the MODU/FOP Rules and also in Part I "Classification", Part II "Hull" and Part III "Equipment, Arrangements and Outfit" of the FPU Rules).

¹ Hereinafter referred to as "the Rules for the Classification".

² 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 V "Subdivision" of the MODU/FOP Rules.

1.4 GENERAL TECHNICAL REQUIREMENTS

1.4.1 The general technical requirements shall comply with 1.4 of Part V "Subdivision" of the MODU/FOP Rules.

1.5 GENERAL REQUIREMENTS FOR SUBDIVISION

1.5.1 Subdivision of units is considered to be satisfactory if damage trim and stability meet the requirements of Section 2.

1.5.2 Depending on the FPU type, the requirements of Section 2 shall be met in the following cases:

- .1** in transit — for all FPU;
- .2** in operation afloat — for FPSO and FSPM.

2 TRIM AND STABILITY OF DAMAGED FPU

2.1 GENERAL

2.1.1 The general requirements shall comply with 2.1 of Part V "Subdivision" of the MODU/FOP Rules.

2.2 EXTENT AND ZONES OF DESIGN DAMAGES

2.2.1 FPU subdivision shall meet the requirements of Part V "Subdivision" of the Rules for the Classification for trim and stability of damaged oil tankers.

2.2.2 The extent of the FSO side damage shall meet the requirements of Regulation 24 of Annex I "Regulations for the Prevention of Pollution by Oil" to MARPOL 73/78, but not less than that specified in [2.2.4](#).

2.2.3 Zones of the FPU side damage shall be assumed depending on the FPU length according to 3.4.5.4.1 of Part V "Subdivision" of the Rules for the Classification.

2.2.4 The requirements for the FPU damage trim and stability shall be met to the following extent of the side damages:

.1 longitudinal extent shall be $1/12$ of the waterline perimeter or 7,2 m (whichever is less);

.2 transverse extent of damage shall be 1,5 m, measured inboard from the inner surface of the shell plating normal thereto;

.3 vertical extent as measured from the base line upwards without limit.

2.2.5 Protective measures like the fendering equipment are also recommended for use to keep to a minimum the impact side damage, e.g. as may happen during the unloading and mooring of supply vessels. However, such protection shall not be considered as reducing the design transverse extent of the side damage.

2.2.6 Design extent of side and transom damages for SPM in transit condition and for FSPM in operating condition:

.1 longitudinal extent shall be $1/3L^{2/3}$ or 14,5 m (whichever is less);

.2 transverse extent shall be 1,5 m or 0,2 of the breadth (whichever is less);

.3 vertical extent as measured from the base line upwards without limit.

2.2.7 Design extent of bottom damages of FPU specified in [2.2.6](#):

.1 longitudinal extent shall be $1/3L^{2/3}$ or 5 m (whichever is less);

.2 transverse extent shall be $1/6$ of the breadth or 5 m (whichever is less);

.3 vertical extent as measured in the centreline from the hull body lines shall be 1 m.

2.3 PERMEABILITY INDEX

2.3.1 In the calculations of damage trim and stability the permeability index of flooded space shall be assumed equal to:

.1 0,85 — for spaces occupied by machinery, electric generating sets and by processing equipment as well;

.2 0,95 — for accommodation spaces and empty spaces including empty tanks;

.3 0,6 — for the spaces intended for dry stores.

2.3.2 Permeability of flooded tanks with liquid cargo or liquid stores or water ballast is determined on the assumption that all the cargo is discharged from the tank and sea water is ingressed taking into consideration the permeability index being equal to 0,95.

2.3.3 The permeability index of spaces may be assumed lower than specified above only in case a special calculation is performed which is approved by the Register.

2.4 NUMBER OF FLOODED COMPARTMENTS

2.4.1 The requirements for trim and stability of a damaged FPU shall be met at flooding of any compartment with the damages specified in [2.2](#).

2.4.2 The requirements for the trim and stability of damaged FPU shall be met at flooding of two or more adjacent compartments with the damages specified in [2.2](#) in the following cases:

when adjacent watertight bulkhead spacing is less than the design longitudinal damage extent specified in [2.2.2](#) and [2.2.4.1](#);

at the option of the FPU owner to ensure unsinkability with the design damage at any hull location.

**2.5 REQUIREMENTS FOR TRIM AND STABILITY CHARACTERISTICS
OF DAMAGED FPU**

2.5.1 The trim and stability characteristics of damaged FPU and FSPM shall meet the applicable requirements of Part V "Subdivision" of the MODU/FOP Rules.

3 REQUIREMENTS FOR FREEBOARD

3.1 When FPU with unclosed openings is afloat in the protected water area or is towed on river:

freeboard shall be at least $0,6h_{3\%}$, where $h_{3\%}$ is a wave height of 3 % probability of exceeding at the maximum potential intensity of waves in a relevant water area;

elevation above the waterline of the lower edges of unclosed openings through which the FPU hull may be flooded shall be not less than $1,2h_{3\%}$.

3.2 All FPU in transit or when towed at sea shall meet the requirements of the Load Line Rules for Sea-Going Ships.

3.3 The freeboard and reserve-buoyancy ratio values given below shall be ensured in marine operations and at the maximum permissible draught of units without taking into account the icing and snow on the open areas of deck, superstructures and deckhouses.

3.3.1 The freeboard F , in mm, with the permanent personnel aboard the type A FPU (refer to Section 4 of the Load Line Rules for Sea-Going Ships) shall not be less than $58\Delta^{1/3}$ (Δ is the FPU displacement volume, in m^3 , at the maximum permissible draught in sea water with a specific gravity of $1,025 t/m^3$).

3.3.2 The freeboard for the type B FPU (refer to Section 4 of the Load Line Rules for Sea-Going Ships) shall not be less than $76\Delta^{1/3}$.

3.3.3 The FPU reserve-buoyancy ratio shall not be less than:

15 % for the type A FPU with no openings on the freeboard deck except manholes having covers with closely-spaced bolts;

40 % for the type A FPU with openings apart from manholes;

45 % for the type B FPU.

3.3.4 When it is difficult to meet the above requirements, these may be mitigated provided that the substantiation, which evidences the FPU safety, will be submitted to the Register in each particular case.

3.4 The SSPM freeboard at the operational location shall be taken as the largest value among the recommended in terms of sea and ice conditions specified in Part II "Hull" of the MODU/FOP Rules, and also determined by the formula

$$F_1 = h_{50} + \Delta_{50} + 2,0 \quad (3.4)$$

where h_{50} = wave height potential once in 50 years, in m;

Δ_{50} = extreme height of tide potential once in 50 years, in m.

3.5 The FPU freeboard at the operational location shall be determined by the formula

$$F_1 = 0,6h_{50} + 1,50. \quad (3.5)$$

The freeboard of the ship-shaped FPU (e.g., converted from tankers), when it is impossible to meet [Formula \(3.5\)](#), shall comply with the requirements of the Load Line Rules for Sea-Going Ships, considering FPU as the type B ship.

Russian Maritime Register of Shipping

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

FAI "Russian Maritime Register of Shipping"
8, Dvortsovaya Naberezhnaya,
191186, St. Petersburg,
Russian Federation
www.rs-class.org/en/