



**RULES  
FOR THE CLASSIFICATION AND CONSTRUCTION  
OF MOBILE OFFSHORE DRILLING UNITS**

**PART III  
SUBDIVISION, STABILITY AND FREEBOARD**

July  
2024

GDAŃSK

## **RULES FOR CLASSIFICATION AND CONSTRUCTION OF MOBILE OFFSHORE DRILLING UNITS**

developed and edited by Polski Rejestr Statków S.A., hereinafter referred to as PRS, consist of the following Parts:

- Part I – Classification Regulations
- Part II – Construction, Strength and Materials
- Part III – Subdivision, Stability and Freeboard
- Part IV – Machinery Installations
- Part V – Fire Safety
- Part VI – Electrical Installations
- Part VII – Helicopter Facilities

however, “Materials and welding” shall comply with the applicable requirements of *Part IX – Materials and Welding* of the *Rules for the Classification and Construction of Sea-going Ships*.

This *Part III* was approved by the PRS Board on 12 July 2024 and enters into force on 15 July 2024.

This *Part III* are extended and supplemented by the following Publications:

Publication 6/P – Stability

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**3.5.10** In assessing the damage stability of column-stabilized units, the following extent of damage should be assumed:

- .1 Only those columns, underwater hulls and braces on the periphery of the unit should be assumed to be damaged and the damage should be assumed in the exposed portions of the columns, underwater hulls and braces.
- .2 Columns and braces should be assumed to be flooded by damage having a vertical extent of 3 m occurring at any level between 5 m above and 3 m below the draughts specified in the *Operating manual*. Where a watertight flat is located within this region, the damage should be assumed to have occurred in both compartments above and below the watertight flat in question. Lesser distances above or below the draughts may be applied to the satisfaction of the Administration, taking into account the actual operating conditions. However, the required damage region should extend at least 1.5 m above and below the draught specified in the *Operating manual*.
- .3 No vertical bulkhead should be assumed to be damaged, except where bulkheads are spaced closer than a distance of one eighth of the column perimeter at the draught under consideration, measured at the periphery, in which case one or more of the bulkheads should be disregarded.
- .4 Horizontal penetration of damage should be assumed to be 1.5 m.
- .5 Underwater hull or footings should be assumed to be damaged when operating in a transit condition in the same manner as indicated in paragraphs 3.5.10.1, 3.5.10.2, 3.5.10.4 and either paragraph 3.5.10.3 or 3.5.6, having regard to their shape.
- .6 All piping, ventilation systems, trunks, etc., within the extent of damage should be assumed to be damaged. Positive means of closure should be provided at watertight boundaries to preclude the progressive flooding of other spaces which are intended to be intact.

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## IACS UR D3/Rev.6 - General design parameters

(...)

### D3.7 Stability

#### D3.7.1 General

All units are to have positive stability in calm water equilibrium position, for the full range of draughts when in all modes of operation afloat, and for temporary positions when raising or lowering. In addition, all units are to meet the stability requirements set forth herein for all applicable conditions.

#### D3.7.2 Intact stability

All units are to have sufficient stability (righting ability) to withstand the overturning effect of the force produced by a sustained wind from any horizontal direction, in accordance with the stability criteria given in D3.8, for all afloat modes of operation. Realistic operating conditions are to be evaluated, and the unit should be capable of remaining in the operating mode with a sustained wind velocity of not less than 36 m/s (70 knots). The capability is to be provided to change the mode of operation of the unit to that corresponding to a severe storm condition, with a sustained wind velocity of not less than 51,5 m/s (100 knots), in a reasonable period of time for the particular unit. In all cases, the limiting wind velocities are to be specified and instructions should be included in the *Operating Booklet* for changing the mode of operation by redistribution of the variable load and equipment, by changing draughts, or both. For restricted operations consideration may be given to a reduced sustained wind velocity of not less than 25,8 m/s (50 knots). Particulars of the applicable service restrictions should be recorded in the *Operating*









Clustered deckhouses or similar structures	
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Shapes or combinations of shapes which do not readily fall into the specified categories will be subject to special consideration by PRS.

(ii) The values of the coefficient  $C_h$  depend on the height of the centre of the wind exposed area sea level and are given below:

		Height		$C_h$
Metres		Feet		
Over	Not exceeding	Over	Not exceeding	
0	15.3	0	50	1.0
15.3	30.3	50	100	1.10
30.5	46.0	100	150	1.20
46.0	61.0	150	200	1.30
61.0	76.0	200	250	1.37
76.0	91.5	250	300	1.43
91.5	106.5	300	350	1.48
106.5	122.0	350	400	1.52
122.0	137.0	400	450	1.56
137.0	152.5	450	500	1.60
152.5	167.5	500	550	1.63
167.5	183.0	550	600	1.67
183.0	198.0	600	650	1.70
198.0	213.5	650	700	1.72
213.5	228.5	700	750	1.75
228.5	244.0	750	800	1.77
244.0	259.0	800	850	1.79
above 259		Above 850		1.80

(iii) In calculating the wind forces, the following procedures are recommended:

- a) In the case of units with columns, the projected areas of all columns should be included; i.e. no shielding allowance should be taken.
- b) Areas exposed due to heel, such as underdecks etc., should be included using the appropriate shape coefficients.
- c) The block projected area of a clustering of deckhouses may be used in lieu of calculating each individual area. The shape coefficient may be assumed to be 1.1.
- d) Isolated houses, structural shapes, cranes etc., should be calculated individually, using the appropriate shape coefficient.
- e) Open truss work commonly used for derrick towers, booms and certain types of masts may be approximated by taking 30% of the projected block area of each side, e.g. 60% of the projected block area of one side for double-sided truss work. An appropriate shape coefficient is to be taken from the table.

### D3.8.3 Damage conditions

- (1) Self elevating and surface type units are to have sufficient stability per D3.7.3(1), such that the final waterline is located below the lower edge of any opening that does not meet the watertight integrity requirements of IACS UR D7.4.2.

For self-elevating units particularly, the flooding of any single compartment with the assumption of no wind while meeting the following criterion:







watertight flat in question. Lesser distances above or below the draughts may be applied taking into account the actual operating conditions. However, the extent of required damage region should be at least 1.5 m above and below the draft in question.

- (3) No vertical bulkhead should be assumed to be damaged, except where bulkheads are spaced closer than a distance of one eighth of the column perimeter at the draught under consideration, measured at the periphery, in which case one or more of the bulkheads should be disregarded.
- (4) Horizontal penetration of damage should be assumed to be 1.5 m.
- (5) Underwater hulls or footings should be assumed to be damaged when operating in a transit condition in the same manner as indicated in D5.6.1 (1), (2), (4) and having regard to their shape, either D5.6.1 (3) or between effective watertight bulkheads.
- (6) If damage of a lesser extent results in a more severe damage equilibrium condition, such a lesser extent shall be assumed.
- (7) All piping, ventilation systems, trunks, etc., within the extent of damage should be assumed to be damaged. Positive means of closure should be provided to preclude the progressive flooding of other spaces which are intended to be intact.

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## IACS UR D6/Rev.1 - Surface type drilling units

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### D6.4 Damage stability

#### D6.4.1 Extent of damage

In assessing the damage stability of surface type drilling units as required by IACS UR D3.7.3, the following extent of damage is to be assumed to occur between effective watertight bulkheads:

- (i) Horizontal penetration: 1.5 m (5 ft).
- (ii) Vertical extent: bottom shell upwards without limit.

The distance between effective watertight bulkheads or their nearest stepped portions which are positioned within the assumed extent of horizontal penetration should be not less than 3 m; where there is a lesser distance, one or more of the adjacent bulkheads should be disregarded.

If damage of a lesser extent results in a more severe final equilibrium condition, such lesser extent shall be assumed.

All piping, ventilating systems, trunks, etc., within this extent are to be assumed damaged. Positive means of closure are to be provided to preclude progressive flooding of other intact spaces. In addition, the compartments bounded by the bottom shell are to be considered flooded individually.

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## 4 SUBDIVISION

### 4.1 Watertight integrity

**4.1.1** The number of openings in watertight subdivisions should be kept to a minimum compatible with the design and safe operation of the unit. Where penetrations of watertight decks and bulkheads are necessary for access, piping, ventilation, electrical cables, etc., arrangements should be made to maintain the watertight integrity of the enclosed compartments. (MODU Code 3.6.1)





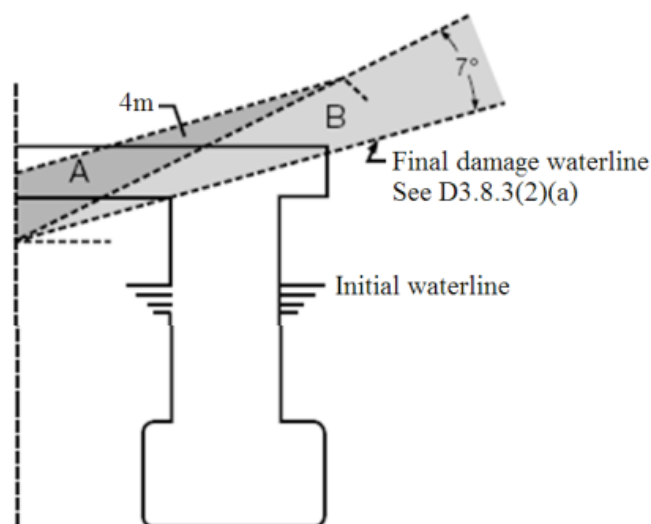




- .3 manholes fitted with bolted covers need not be dealt with as under .1;
- .4 the closing appliances are to have strength, packing and means for securing which are sufficient to maintain watertightness under the design water pressure of the watertight boundary under consideration.

#### D7.4.3 General requirements related to weathertight integrity

- (1) Any opening, such as an air pipe, ventilator, ventilation intake or outlet, non-watertight sidescuttle, small hatch, door, etc., having its lower edge submerged below a waterline associated with the zones indicate in .1 or .2 below, is to be fitted with a weathertight closing appliance to ensure the weathertight integrity, when:
  - .1 a unit is inclined to the range between the first intercept of the right moment curve and the wind heeling moment curve and the angle necessary to comply with the requirements of IACS UR D3.8.1 during the intact condition of the unit while afloat; and
  - .2 a column stabilized unit is inclined to the range:
    - a) necessary to comply with the requirements of IACS UR D3.8.3 (2)(b) and with a zone measured 4.0 m perpendicularly above the final damaged waterline per IACS UR D3.8.3 (2)(a) referred to Fig.4, and
    - b) necessary to comply with the requirements of IACS UR D3.8.3 (3)(b).
- (2) External openings fitted with appliances to ensure weathertight integrity, which are kept permanently closed while afloat, are to comply with the requirements of D7.4.2(4) (.1) and (.2).
- (3) External openings fitted with appliances to ensure weathertight integrity, which are secured while afloat are to comply with the requirements of D7.4.2(3) (.1) and (.2).



A - 4m zone of weathertightness  
B - 7 degrees zone of weathertightness

**Fig. 4 Minimum weathertight integrity requirements for column stabilized units**

## 5 FREEBOARD

### 5.1 General





regulations 39(1), 39(2) and 39(5) of the 1988 LL Protocol, as amended, and give special consideration to such units, having regard to the occasional nature of such voyages on predetermined routes and to prevailing weather conditions. (MODU Code 3.7.18)

**5.1.19** Some self-elevating units utilize a large mat or similar supporting structure which contributes to the buoyancy when the unit is floating. In such cases the mat or similar supporting structure should be ignored in the calculation of freeboard. The mat or similar supporting structure should, however, always be taken into account in the evaluation of the stability of the unit when floating since its vertical position relative to the upper hull may be critical. (MODU Code 3.7.19)

### ***Column-stabilized units***

**5.1.20** The hull form of this type of unit makes the calculation of geometric freeboard in accordance with the provisions of chapter III of the 1988 LL Protocol impracticable. Therefore the minimum freeboard of each column-stabilized unit should be determined by meeting the applicable provisions for:

- .1 the strength of the unit's structure;
- .2 the minimum clearance between passing wave crests and deck structure (see paragraphs 2.7.1 to 2.7.3); and
- .3 intact and damage stability. (MODU Code 3.7.20)

**5.1.21** The minimum freeboard should be marked in appropriate locations on the structure. (MODU Code 3.7.21)

**5.1.22** The enclosed deck structure of each column-stabilized unit should be made weathertight. (MODU Code 3.7.22)

**5.1.23** Windows, sidescuttles and portlights, including those of the non-opening type, or other similar openings should not be located below the deck structure of column-stabilized units. (MODU Code 3.7.23)

**5.1.24** Administrations should give special consideration to the position of openings which cannot be closed in emergencies, such as air intakes for emergency generators, having regard to the intact righting arm curves and the final waterline after assumed damage. (MODU Code 3.7.24)

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## **IACS UR D3/Rev.6 - General design parameters**

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### **D3.9 Load line**

**D3.9.1** Any unit to which a load line is required to be assigned under the applicable terms of the International Convention on Load Lines should be subject to compliance with the Convention. All other units are to have load line marks which designate the maximum permissible draught when the unit is in the afloat condition. Such markings are to be placed at suitable visible locations on the structure, to the satisfaction of PRS. These marks, where practicable, are to be visible to the person in charge of mooring, lowering or otherwise operating the unit. The permissible draughts are to be established on the basis of meeting the applicable stability and structural requirements as set forth herein for afloat modes of operation, with such seasonal allowances as may be determined. In no case is the draught to exceed that permitted by the International Convention on Load Lines, where applicable. A load line, where assigned, is not applicable to bottom-supported units when resting on the sea bed, or when lowering to or raising from such position.

### D3.9.2 Column Stabilized Units

1. The hull form of column stabilized units makes the calculations of geometric freeboard in accordance with the provisions of the *Load Line Convention* impracticable. Therefore, the minimum freeboard of each column stabilized unit should be determined by meeting the applicable requirements for:

- a) the strength of unit's structure;
- b) the minimum clearance between passing wave crests and deck structure; and
- c) intact and damage stability requirements.

2. The enclosed deck structure of each column stabilized unit should be specially considered by PRS for each unit.

3. PRS should also give special consideration to the position of openings which cannot be closed in emergencies, such as air intakes for emergency generators having regard to the intact righting arm curves and the final waterline after assumed damage.

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**List of reference IMO documents in *Part III***

**IMO Resolutions**

1. A.650(16): An example of alternative intact stability criteria for twin-pontoon column-stabilized semisubmersible units.
2. A.651(16): An example of alternative stability criteria for a range of positive stability after damage or flooding for column-stabilized semisubmersible units.

**List of IACS resolutions implemented to *Part II***

**Unified Requirements (UR)**

D3/Rev.6	General design parameters
D4/Rev.3	Self-elevating drilling units
D5/Rev.3	Column stabilized drilling units
D6/Rev.1	Surface type drilling units
D7/Rev.3	Watertight integrity