

D1 Requirement concerning offshore drilling units and other similar units

(1979)
(Rev. 1
1987)
(Rev. 2
1990)
(Corr.
1995)
(Rev.3,
1996)
(Rev.4
July
2004)

Conditions of classification

D1.1 Class designation

D1.1.1 General

These Requirements have been developed for units intended to engage in offshore drilling operations, and the text reflects that development. The Requirements are to be considered as minima by the member Societies of the International Association of Classification Societies (IACS). The Rules of an individual Society may specify requirements which exceed those contained herein. In addition, particular National Governments may have regulations which might be in excess of these Requirements.

Each member Society is prepared to offer assistance, upon the request of an owner or designer, in evaluating a specific design against published National regulations. These Requirements shall not apply to those units contracted for construction prior to the effective date of their adoption into the Rules, unless specially requested by an owner.

Mobile offshore drilling units built in accordance with the Rules or their equivalent will then be assigned a class symbol by the Society, followed by an appropriate designation applicable to the type of unit being classed.

Units will be retained in classification provided they are found to be maintained in accordance with the Rules upon completion of prescribed Surveys in accordance with D-12.

D1.1.2 Other similar units

Other special purpose units, which do not engage in drilling operations but which have configurations and modes of operation similar to drilling units, may be considered for classification by the Society, on the basis of the Requirements as found to be applicable, and the relevant Rules. In addition, evaluation must be made of other possible loading conditions peculiar to the type of unit under consideration. Calculations substantiating the adequacy of the design are to be submitted to the Society. Machinery and electrical installations, etc., for other special purpose units will be subject to approval by the Society, as found to be applicable.

D1.1.3 Items covered by the Requirements

The items listed below, where applicable, are covered by the Requirements and are subject to approval by the Society:

- Material
- Structural strength
- Welding
- Stability, intact and damaged
- Weathertight/watertight integrity
- Temporary or emergency mooring equipment
- Jacking system
- Propulsion machinery, including shafts and propellers
- Steering gear and rudders
- Auxiliary machinery
- Pumping and piping systems, including valves
- Boilers and Pressure Vessels
- Electrical installations
- Protection against fire and explosion

Note:

1) The “contracted for construction” date means the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. For further details regarding the date of “contract for construction”, refer to IACS Procedural Requirement (PR) No. 29.

The Requirements do not cover structural details of industrial items used exclusively in drilling or related operations. Machinery, electrical and piping systems used exclusively for industrial purposes are not covered by the Requirements, except in so far as their design or arrangement may affect the safety of the unit. Determination of the adequacy of sea bed conditions, regarding bearing capacity, resistance to possible sliding and anchor holding capability, is not covered by the Requirements. The assessment of the required holding capacity, arrangement and operation of position mooring equipment and dynamic positioning equipment used for station-keeping activities in connection with the unit's operation is the responsibility of the owner, and is not included in the Requirements.

D1.1.4 Ice strengthening

Units designed to be located in areas where ice strengthening may be necessary will be specially considered and, provided that the unit is reinforced as necessary for operation in the specified ice conditions to the satisfaction of the Society, an appropriate designation will be added to the descriptive notes published by the Society.

D1.1.5 Temporary or emergency mooring equipment

For purposes of temporary or emergency mooring, units are to be equipped with anchors and cables in accordance with the Rules.

D1.1.6 Requirements for position keeping systems and components are contained in D3.11.

D1.2 Novel features

D1.2.1 Units which contain novel features of design, with respect to buoyancy, elevating arrangements, structural arrangements, machinery, equipment, etc., to which the Requirements are not directly applicable, may be classed, when approved by the Society on the basis that the Rules, in so far as applicable, have been complied with and that special consideration has been given to the novel features based on the best information available at the time.

D1.3 Submissions

D1.3.1 Hull and structural plans and design data

Plans showing the scantlings, arrangements and details of the principal parts of the structure of each unit to be built under the Society's survey are to be submitted for approval before construction commences. These drawings are to clearly indicate the scantlings, types and grades of materials, joint details and welding, or other methods of connection. These plans are to include the following, where applicable:

- General arrangement
- Inboard and outboard profile
- Summary of distributions of fixed and variable weights
- Plan indicating design loading for all decks
- Transverse sections showing scantlings
- Longitudinal sections showing scantlings
- Decks, including helicopter deck
- Framing
- Shell plating
- Watertight bulkheads and flats
- Structural bulkheads and flats
- Tank boundaries with location of overflows
- Pillars and girders
- Diagonals and struts
- Legs
- Structure in way of jacking or other elevating arrangements
- Stability columns and intermediate columns
- Hulls, pontoons, footings, pads or mats

D1
cont'd

Superstructures and deck houses
 Arrangement and details of watertight doors and hatches
 Anchor handling arrangements
 Welding details and procedures
 Lines or offsets
 Curves of form or equivalent data
 Cross curves of stability or equivalent data
 Wind heeling moment curves or equivalent data
 Capacity plan
 Tank sounding tables
 Corrosion control arrangements
 Methods and locations for non-destructive testing

In addition to the above, an arrangement plan of watertight compartmentation should be submitted as early in the design stage as possible, for review of damage stability. This drawing is to indicate the watertight bulkheads, decks and flats and all openings therein. Doors, hatches, ventilators, etc., and their means of closure, are to be indicated. Piping and ventilation systems should be shown in sufficient detail to evaluate their effects on the watertight integrity of the unit after incurring damage.

D1.3.2 Machinery plans and data

Plans are to be submitted showing the arrangements and details of all propulsion and auxiliary machinery, steering gear, boilers and pressure vessels, electrical systems, jacking systems, bilge and ballast systems, fire extinguishing systems, and other pumps and piping systems as described in D9, D10 and D11 and as required by the Rules. A description of the jacking system is to be submitted.

D1.3.3 Calculations

The following data and calculations are to be submitted in conjunction with the scantling plans, as may be applicable:

- Structural analysis for relevant loading conditions
- Resultant forces and moments from wind, waves, current, mooring and other environmental loadings taken into account in the structural analysis.
- Effects of icing on structural loading, stability and windage area.
- Stability calculations, both intact and damaged, over the appropriate range of drafts, including the transit conditions.
- Significant operational loads from drilling derrick and associated equipment, such as riser tensioners, on supporting structures, and other similar type significant loadings.
- Calculations substantiating adequacy of structure to transmit forces between legs and hull through the jacking or other elevating system.
- Evaluation of the unit's ability to resist overturning while bearing on the sea bed.

Submitted calculations are to be suitably referenced. Results from relevant model tests or dynamic response calculations may be submitted as alternatives or as substantiation for the required calculations.

D1.4 Materials

D1.4.1 The Requirements are intended for units to be constructed of materials manufactured and tested in accordance with the Rules. Where it is intended to use materials manufactured by different processes or having different properties, their use will be specially considered by the Society.

D1.5 Welding

D1.5.1 Welding is to comply with the Rules. The Society is to be satisfied that all welders to be employed in the construction of units to be classed are properly qualified in

the type of work proposed and in the proper use of the welding processes and procedures to be followed. The methods and locations for non-destructive testing of welds are to be submitted to the Society.

D1.6 Testing

D1.6.1 Upon completion of work, compartments, decks, bulkheads, etc., are to be tested, as specified by the Society.

D1.7 Operating booklet

An Operating Booklet or equivalent is to be placed on board each unit. The booklet should include the following information, as applicable to the particular unit, so as to provide suitable guidance to the operating personnel with regard to safe operation of the unit:

- General description of the unit
- Pertinent data for each approved mode of operation, including design and variable loading, environmental conditions, assumed sea bed conditions, draft, etc.
- Minimum anticipated atmospheric and sea temperatures.
- General arrangement showing watertight compartments, closures, vents, allowable deck loadings, etc. If permanent ballast is to be used, the weight, location and substance used are to be clearly indicated.
- Hydrostatic curves or equivalent data.
- Capacity plan showing capacities of tanks, centres of gravity, free surface corrections, etc.
- Instructions for operation, including precautions to be taken in adverse weather, changing mode of operations, any inherent limitations of operations, etc.
- Plans and description of the ballast system and instructions for ballasting.
- Hazardous areas plan.
- Light ship data based on the results of an inclining experiment, etc.
- Stability information in the form of maximum KG-draught curve, or other suitable parameters based upon compliance with the required intact and damaged stability criteria.
- Representative examples of loading conditions for each approved mode of operation, together with means for evaluation of other loading conditions.
- Details of emergency shutdown procedures for electrical equipment.
- Identification of the helicopter used for the design of the helicopter deck.

D1.8 Construction Booklet

A set of plans showing the exact location and extent of application of different grades and strengths of structural materials, together with a description of the material and welding procedures employed, is to be placed aboard the unit. Any other relevant construction information is to be included in the booklet, including restrictions or prohibitions regarding repairs or modifications.

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