

## RULES FOR BUILDING AND CLASSING

---

# UNDERWATER VEHICLES, SYSTEMS AND HYBERBARIC FACILITIES 1990

### NOTICE NO. 3 – January 2002

The following Rule Changes are **EFFECTIVE AS OF 1 JANUARY 2002**.

(Note: This Notice is intended as an advance notification of Rule changes which are to become effective on 1 January 2002 and will be superseded by the 2002 edition of the subject Rules to be published later this year.)

## SECTION 1 SCOPE AND CONDITIONS OF CLASSIFICATION

### 1.5 Representation as to Classification (2002)

*(The following paragraph is added to the end of the existing Paragraph.)*

The user of this document is responsible for ensuring compliance with all applicable laws, regulations and other governmental directives and orders related to a vessel, its machinery and equipment, or their operation. Nothing contained in any Rule, Guide, standard, certificate or report issued by the Bureau shall be deemed to relieve any other entity of its duty or responsibility to comply with all applicable laws, including those related to the environment.

### 1.21 Classification Symbols

#### 1.21.4 Transfer from Other Recognized Classification Societies (2002)

*(New paragraph 1.21.4 is added and the current 1.21.4 is renumbered 1.21.5.)*

The Committee will consider hull, equipment or machinery built to the satisfaction of the Surveyors of the Bureau in accordance with plans that have been approved to the Rules of another recognized classification society with verification of compliance by the Bureau. Such consideration will be conducted per 1-1-4/3.5 of the *Rules for Building and Classing Steel Vessels*.

### 1.29 Submission of Plans, Calculations and Data

*(Introduced the groupings a, b, c and d with titles in 1.29.2 and expanded list of plans and calculations in 1.29.3 to be submitted.)*

#### 1.29.2 Documentation to be Submitted (2002)

The plans and details required for review and approval are as follows and are to be submitted as applicable to the particular design features and/or systems:

**a** *Design and Operational Parameters*

Design pressures and depths

Design temperatures

Hydrostatic test pressures

Design sea state conditions

Maximum operating depth

Maximum mission time

Maximum number of occupants in each unit and/or system

Maximum weight of units including occupants, contents, entrapped water, etc.

**b** *General*

General arrangement

Cross-section assembly

Outboard profile

Material specifications and grades, including tensile and impact values, for all pressure retaining or load bearing items

Dimensional details of pressure hull, pressure vessel(s) and scantlings

Weld details of pressure hull, pressure vessel(s) and scantlings

Welding procedures to include base and filler materials, pre and post weld heat treatment, tensile and impact values, extent of nondestructive testing.

Out-of-roundness tolerances

Fabrication tolerances

Dimensional details of penetrators, hatch details, hatch rings, lugs and any other internal or external connection to the hull

Penetrator sealing arrangements

Hatch sealing arrangements

Nameplate, including nameplate material and method of attachment

Plan showing all hull valves, fittings and penetrations

Exostructure details

Dimensional details of viewport components

Hard ballast tanks design details

Soft ballast tanks design details

Piping systems including pump capacities and pressure relief devices

Ballast piping systems

Layout of control stands

Equipment foundation and support arrangements with details where such foundations and supports increase stresses in the pressure hull or experience significant stress due to the operating loads encountered

Release devices and arrangement for jettisonable weights and equipment

Propeller details including shafting, bearings and seals

Propulsion motors, thrusters and wiring diagram

Steering control system

Electrical distribution system

Battery capacity, arrangement and main feeder scheme

Lifting and handling system

Depth indicating systems

Emergency systems

Fire fighting system

Details for permanently installed pressure vessels

Documentation for portable pressure vessels including standards of construction and design calculations for external pressure if units may at any time be subject to this condition.

List and location of implodable volumes

Materials and dimensions of umbilicals including cross sectional details

Any additional system deemed necessary to the intended operations

**c** *Life Support Systems and Equipment*

Life support system details, both normal and emergency

Life support system capacities, fluids contained and supply arrangement

Specifications for environmental control systems and equipment including heating, gas analysis (CO<sub>2</sub>, CO, CH<sub>4</sub>, O<sub>2</sub>, etc), absorption, circulation, temperature control, humidity control, equipment for tracing contaminants

Component list including manufacturer, model, design specifications and test documentation for all equipment used in the life support system

For gas analyzers: specifications of type of gas to be detected, principle of detection, range of pressures under which the instrument may be used

Lodging facilities and drainage systems in hyperbaric chambers

**d** *Procedures*

Procedures for out-of-roundness and sphericity measurements

Cleaning procedures for breathing gas systems

Inclining experiment procedures

Functional test procedures

Sea trial procedures for normal and emergency condition tests

**1.29.3 Calculations (2002)**

The following calculations and analyses are to be submitted for review:

Pressure vessel stress analysis in compliance with Section 6

Foundation stress analysis

Pressure hull support reaction analysis

Analysis of lifting load and stresses induced in the hull