



RULES FOR BUILDING AND CLASSING

OFFSHORE SUPPORT VESSELS 2018

NOTICES AND GENERAL INFORMATION

**American Bureau of Shipping
Incorporated by Act of Legislature of
the State of New York 1862**

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Notices and General Information

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Introduction

1. The year 2018 edition of the *Rules for Building and Classing Offshore Support Vessels* consists of the nine (9) booklets as shown in Table 1. In this regard, we would bring the following to the user's attention:
 - a) The purpose of the generic title *ABS Rules for Conditions of Classification (Part 1)* is to reflect the expanded contents of PART 1, as a result of including consolidated requirements for "Classification" applicable to all types of and sizes of vessels, barges and specific shipboard arrangements/systems, etc., except for those in offshore service, as specified in the Foreword to Part 1. Additional specific requirements are contained in Part 1 of these *Rules for Building and Classing Offshore Support Vessels*.
 - b) The purpose of the generic title *ABS Rules for Materials and Welding* of PART 2 is to emphasize the common applicability of the requirements to ABS-classed vessels, other marine structures and their associated machinery, and thereby make PART 2 more readily a common "PART" of various ABS Rules and Guides, as appropriate.
 - c) The purpose of the generic title *ABS Rules for Survey After Construction (Part 7)* is to reflect the expanded contents of PART 7, as a result of including consolidated requirements for "Surveys After Construction" applicable to all types and sizes of vessels, barges and specific shipboard arrangements/systems, etc., as specified in Part 7, Chapter 1, Section 1.
2. The numbering system applied in the Rules is shown in Table 2.
3. The primary changes from the 2017 Rules are identified and listed in Table 3. The effective date of the indicated Rule Changes is 1 January 2018, unless specifically indicated otherwise.
4. The effective date of each technical change since 1993 is shown in parenthesis at the end of the subsection/paragraph titles within the text of each Part. Unless a particular date and month are shown, the years in parentheses refer to the following effective dates:

(2000) and after	1 January 2000 (and subsequent years)	(1996)	9 May 1996
(1999)	12 May 1999	(1995)	15 May 1995
(1998)	13 May 1998	(1994)	9 May 1994
(1997)	19 May 1997	(1993)	11 May 1993
5. Until the next edition of the *Rules for Building and Classing Offshore Support Vessels* is published, Change Notices and/or Corrigenda, as necessary, will be published on the ABS website – www.eagle.org – only, and will be available free for downloading. The consolidated edition of the *Rules for Building and Classing Offshore Support Vessels*, which includes Change Notices and/or Corrigenda using different colors for easy recognition, will be published on the ABS website only when RCN and/or Corrigenda are issued.
6. The listing of CLASSIFICATION SYMBOLS AND NOTATIONS is available from the ABS website www.eagle.org for download.

TABLE 1
Applicable Editions of Booklets Comprising 2018 Rules

Notices and General Information		2018
Part 1:	Rules for Conditions of Classification ⁽¹⁾	2018 ⁽²⁾
Part 1:	Conditions of Classification (Supplement to the <i>ABS Rules for Conditions of Classification</i>) ⁽¹⁾	2018
Part 2:	Rules for Materials and Welding Rules for Testing and Certification of Materials Rules for Welding and Fabrication	2018 ⁽²⁾
Part 2:	Rules for Materials and Welding – Aluminum and Fiber Reinforced Plastics (FRP)	2018 ⁽²⁾
Part 3:	Hull Construction and Equipment	2018
Part 4:	Vessel Systems and Machinery	2018
Part 5:	Specialized Vessels and Services Chapter 1 Vessels Intended for Offshore Support Services Chapter 2 Offshore Supply Chapter 3 Anchor Handling and Towing Chapter 4 Fire Fighting Chapter 5 Diving and Remotely Operated Vehicles (ROVs) Support Chapter 6 Oil Spill Recovery Chapter 7 Safety Standby Service Rescue Chapter 8 Pipe Laying Chapter 9 Heavy Lift Chapter 10 Well Intervention Chapter 11 Well Stimulation Chapter 12 Well Test Chapter 13 Escort Chapter 14 Wind Turbine Installation, Maintenance and Repair (Wind IMR) Chapter 15 Cable Laying	2018
Part 7:	Rules for Survey After Construction	2018 ⁽²⁾

Notes:

- 1 The requirements for conditions of classification are contained in the separate, generic *ABS Rules for Conditions of Classification (Part 1)*. Additional specific requirements are contained in Part 1 of these Rules.
- 2 The latest edition of these Rules is to be referred to. These Rules may be downloaded from the ABS website at www.eagle.org, Rules and Guides, Downloads or may be ordered separately from the ABS Publications online catalog at www.eagle.org, Rules and Guides, Catalog.

TABLE 2
Division and Numbering of Rules

<i>Division</i>	<i>Number</i>
Part	Part 1
Chapter	Part 1, Chapter 1
Section	Section 1-1-1
Subsection (see Note 1)	1-1-1/1
Paragraph (see Note 1)	1-1-1/1.1
Subparagraph	1-1-1/1.1.1
Item	1-1-1/1.1.1(a)
Subitem	1-1-1/1.1.1(a)i
Appendix	Appendix 1-1-A1 or Appendix 1-A1-1

Note:

- 1 An odd number (1, 3, 5, etc.) numbering system is used for the Rules. The purpose is to permit future insertions of even-numbered paragraphs (2, 4, 6, etc.) of text and to avoid the necessity of having to renumber the existing text and associated cross-references, as applicable, within the Rules and associated process instructions, check sheets, etc.

Rule Change Notice (2018)

TABLE 3
Summary of Changes from the 2017 Rules

EFFECTIVE DATE 1 July 2017 – shown as (1 July 2017)
(based on the contract date for new construction between builder and Owner)

<i>Part/Para. No.</i>	<i>Title/Subject</i>	<i>Status/Remarks</i>
PART 3	Hull Construction and Equipment	
3-2-14/17.1	Strength	To reflect current practice for cover plates and address vortex shedding for spade rudders with embedded trunks. (Incorporates Notice No. 1)
3-2-14/Figure 5 (New)	<No Title>	To reflect current practice for cover plates and address vortex shedding for spade rudders with embedded trunks. (Incorporates Notice No. 1)
3-2-14/Figure 6 (New)	<No Title>	To reflect current practice for cover plates and address vortex shedding for spade rudders with embedded trunks. (Incorporates Notice No. 1)
3-2-14/Figure 7 (New)	<No Title>	To reflect current practice for cover plates and address vortex shedding for spade rudders with embedded trunks. (Incorporates Notice No. 1)
3-2-14/17.1.2	In way of Cutouts	To reflect current practice for cover plates and address vortex shedding for spade rudders with embedded trunks. (Incorporates Notice No. 1)
PART 4	Vessel Systems and Machinery	
4-2-1/13.9.2iv)	<No Title>	To include the alternative of normal continuous cruise power, in line with IACS UR M51 Rev.4, Feb. 2015. (Incorporates Notice No. 1)
4-2-1/Table 1	Required Material and Nondestructive Tests of Diesel Engine Parts	To clarify the scope of hydraulic testing for high pressure fuel injection pipes including common fuel rail and high pressure common servo oil systems, in line with IACS UR M72 rev. 1 Mar. 2016. (Incorporates Notice No. 1)
4-2-1/Table 2	Test Pressures for Parts of Internal-combustion Engines	To clarify the scope of hydraulic testing for high pressure fuel injection pipes including common fuel rail and high pressure common servo oil systems, in line with IACS UR M72 rev. 1 Mar. 2016. (Incorporates Notice No. 1)
4-2-2/1.1	Application	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/1.3.1	Turbocharger	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/1.3.3 (New)	Generic Range	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/1.5.1ii)	<No Title>	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/3.3	Category A and B Turbochargers	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/3.5	Category C Turbochargers	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/3.7.3	Certification Under Quality Assurance Assessment PQA (IACS UR Z26 Alternative Certification Scheme)	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/5.1	General	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/5.3	Containment	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/5.7	Type Testing (applicable to category B and C turbochargers)	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)

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<i>Part/Para. No.</i>	<i>Title/Subject</i>	<i>Status/Remarks</i>
4-2-2/7	Piping Systems for Turbochargers	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/8 (New)	Alarms and Monitoring	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/11.1	Shop Inspection and Tests	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/11.1.1	Material Tests	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/11.1.5	Shop Trial	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-2-2/11.3	Certification of Turbochargers	To clarify the categorization of turbochargers and the application of Type Approval. (Incorporates Notice No. 1)
4-3-4/13.1.9 (New)	System Response Under Failure	To detect failure in the steering gear control system and provide the operator with sufficient information to decide what action is required for the different failure scenarios, in line with IACS UR E25 June 2016. (Incorporates Notice No. 1)
4-3-4/Table 1	Steering Gear Instrumentation	To detect failure in the steering gear control system and provide the operator with sufficient information to decide what action is required for the different failure scenarios and to require a deviation alarm in addition to basic failure detection, in line with IACS UR E25 June 2016. (Incorporates Notice No. 1)
4-3-5/1.1	Application	To clarify the various terms used for steering systems and their associated equipment, in line with IACS UI SC242 Rev.1, Apr. 2016. (Incorporates Notice No. 1)
4-3-5/1.5.6 (New)	Steering System	To clarify the various terms used for steering systems and their associated equipment, in line with IACS UI SC242 Rev.1, Apr. 2016. (Incorporates Notice No. 1)
4-3-5/5.12.2(b)iii)	<No Title>	To clarify that the capacity requirements apply regardless whether the steering systems are arranged with common or dedicated power units that the requirements of 4-3-4/11.1 apply to each steering system in ships fitted with multiple steering systems, in line with IACS UI SC242 Rev.1, Apr. 2016. (Incorporates Notice No. 1)
4-3-5/5.12.4 (New)	Electric and Electrohydraulic Steering Systems	To clarify that the capacity requirements apply regardless whether the steering systems are arranged with common or dedicated power units that the requirements of 4-3-4/11.1 apply to each steering system in ships fitted with multiple steering systems, in line with IACS UI SC242 Rev.1, Apr. 2016. (Incorporates Notice No. 1)
4-3-5/7.5 (New)	Failure Detection and Response	To detect failure in the steering gear control system and provide the operator with sufficient information to decide what action is required for the different failure scenarios, in line with IACS UR E25 June 2016. (Incorporates Notice No. 1)
4-3-8/15.11	Instrumentation	To detect failure in the steering gear control system and provide the operator with sufficient information to decide what action is required for the different failure scenarios, in line with IACS UR E25 June 2016. (Incorporates Notice No. 1)
4-6-2/5.7.3(c)	Fire Resistance	To clarify the cases in which flexible hoses need not be of fire-resistant type. (Incorporates Notice No. 1)
4-6-2/5.9.1(c) (Deleted)	Operational Conditions	To minimize the use of slip-on joints for pipe connection except for cases where compensation of axial pipe deformation is necessary and to clarify the requirements, in line with IACS UR P2 Rev.2, Mar. 2016. (Incorporates Notice No. 1)
4-6-2/5.9.1(g)	Slip-on Joints	To minimize the use of slip-on joints for pipe connection except for cases where compensation of axial pipe deformation is necessary and to clarify the requirements, in line with IACS UR P2 Rev.2, Mar. 2016. (Incorporates Notice No. 1)

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<i>Part/Para. No.</i>	<i>Title/Subject</i>	<i>Status/Remarks</i>
4-6-2/5.9.1(h)	Application	To clarify the requirements, in line with IACS UR P2 Rev.2, Mar. 2016. (Incorporates Notice No. 1)
4-6-2/Table 9	Examples of Mechanical Joints	To update the figures for “Machine Grooved Type” and “Slip Type” slip-on joints, in line with IACS UR P2 Rev.2, Mar. 2016. (Incorporates Notice No. 1)
4-6-2/Table 10	Application of Mechanical Joints	To clarify the restrictions for on slip-on joints and flexible hoses used for L.O. lines and other flammable oils, and installed on open decks, in line with IACS UR P2 Rev.2, Mar. 2016. (Incorporates Notice No. 1)
4-8-2/7.21	Harmonics	To specify that the harmonic distortion calculation report is to be kept on board for exceptions to the 8% limit in cases where all installed equipment and systems have been designed for higher THD levels, in line with IACS UR E24 June 2016. (Incorporates Notice No. 1)
4-8-2/9.22 (New)	Harmonic Distortion for Ship Electrical Distribution System including Harmonic Filters	To introduce requirements for survey of harmonic filters and harmonic distortion levels, in line with IACS UR E24 June 2016. (Incorporates Notice No. 1)
4-8-2/9.23	Protection of Harmonic Filter Circuits Associated with Electric Propulsion	To introduce requirements for survey of harmonic filters and harmonic distortion levels, in line with IACS UR E24 June 2016. (Incorporates Notice No. 1)
4-8-3/9.1	Standard of Compliance	To identify the standards that have been withdrawn or replaced by new ones and to consider approaches for cables not manufactured to IEC standards identified, in line with IACS UR E7 Rev.4 Apr. 2016. (Incorporates Notice No. 1)
4-9-6/Table 1	Instrumentation and Safety System Functions in Centralized Control Station – Medium and High Speed (Trunk Piston) Diesel Engines	To require turbocharger speed alarm for Categories B and C turbochargers, in line with IACS UR M35 rev. 7 Mar. 2016. (Incorporates Notice No. 1)
4-9-6/Table 3B	Instrumentation and Safety System Functions in Centralized Control Station – Generator Prime Mover for Electric Propulsion	To require turbocharger speed alarm for Categories B and C turbochargers, in line with IACS UR M35 rev. 7 Mar. 2016. (Incorporates Notice No. 1)
4-9-6/Table 4	Instrumentation and Safety System Functions in Centralized Control Station – Auxiliary Turbines and Diesel Engines	To require turbocharger speed alarm for Categories B and C turbochargers, in line with IACS UR M35 rev. 7 Mar. 2016. (Incorporates Notice No. 1)
PART 5	Specific Vessel Types	
5-7-1/3.1 (New)	Vessels with Safety Standby Rescue Capability	To cover “Restricted service” of the Safety Standby Rescue Capability. (Incorporates Notice No. 1)
5-13-4	Intact Stability	To align with escort stability criteria proposed in IMO MSC 97/3/1 (19 Aug 2016). (Incorporates Notice No. 1)

EFFECTIVE DATE 1 September 2017 – shown as *(1 September 2017)*
(based on the contract date for new construction between builder and Owner)

<i>Part/Para. No.</i>	<i>Title/Subject</i>	<i>Status/Remarks</i>
PART 1	Conditions of Classification (Supplement to the ABS Rules for Conditions of Classification)	
1-1-2/31 (New)	All Vessel Types Equipment Symbol	To define the optional notation Ⓔ (R) for vessels under 90 meters (295 feet) in length and offshore support vessels, not built under survey when the existing anchors, chains and anchor windlass were certified in accordance with plans and requirements approved to the Rules of another recognized Classification Society. (Incorporates Notice No. 2)

EFFECTIVE DATE 1 January 2018 – shown as (2018)
(based on the contract date for new construction between builder and Owner)

<i>Part/Para. No.</i>	<i>Title/Subject</i>	<i>Status/Remarks</i>
PART 3	Hull Construction and Equipment	
3-1-1/3.1	Scantling Length (<i>L</i>)	To align the requirements with ICLL 1966/Reg. 3 & IACS UR S2.
3-1-1/3.3	Freeboard Length (<i>L_f</i>)	To align the requirements with ICLL 1966/Reg. 3 & IACS UR S2.
3-1-1/15.1	Freeboard Deck	To align the requirements with ICLL 1966/Reg. 3 & IACS UR S2.
3-1-1/17	Deadweight (<i>DWT</i>) and Lightship Weight	To incorporate interpretation made in IACS UI SC273 and MPC128.
3-1-2/Table 2	Material Class or Grade of Structural Members	To identify the minimum steel grades for deck plating other than strength deck (Line No. C4) at corners of cargo hatch openings adjacent to the engine room and/or deck house.
3-1-2/11	Drydocking	To specify that the docking arrangement is only required for vessels over 90 m (295 ft) in length.
3-2-4/9.5	Inner Bottom Plating for Vessels Intended to Use Grabs	To align the requirements with IACS UI SC208 Corr.2 and SVR 5C-3-4/7.3.2 (a) & (b).
3-2-4/9.6 (New)	Optional Supplementary Requirement for Vessels Intended to Use Grabs	To align the requirements with IACS UI SC208 Corr.2 and SVR 5C-3-4/7.3.2 (a) & (b).
3-2-11/11.3.7 (New)	Bolted Connections	To specify requirements for bolted connections on helidecks.
3-2-11/11.9.2	Means of Escape and Access	To clarify the requirements for aluminum helideck escape stairs and intermediate platforms.
3-2-13/1.1	Plate Stems	To consider the material factor in the net thickness of the plate stem, in line with CSR-H.
3-2-14/7.3	Lower Rudder Stocks	To make the stress units consistent with the allowable stress.
3-2-14/Figure 4	Tapered Couplings	To be consistent with the requirements of 3-2-14/11.7.
3-2-14/17.5	Diaphragm Plates	To allow larger openings on diaphragm plates when the effects of openings are considered in the strength assessment.
3-2-15/3.3.1	Cargo Hatch Covers in Position 1	To align the requirements with IACS UR S21, S21A, and 3-2-15/3.3.1 of the <i>Steel Vessel Rules</i> for less than 100 m.
3-2-17/9.7	Window Glazing	To clarify that the international standard ISO21005 or equivalent national standards are acceptable.
3-2-17/9.9	Testing	To specify that ISO 614 should be used to meet our rule requirements of OSV 3-2-17/9.9 only for thermally toughened glass.
3-3-A1/3.5	Alternative Criteria for Offshore Support Vessels	To specify the exact applicable vessel's length in line with MSC 267(85)-IS Code.
3-3-A3 (Title)	Computer Software for Onboard Stability Calculations	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/5	Types of Stability Software	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/7.1	Calculation Program	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/7.5	Warning	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/7.15 (New)	Computer Model	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/7.17 (New)	Further Requirements for Type 4 Stability Software	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/Table 1	Acceptable Tolerances	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/11.1	Conditions of Approval of the Onboard Software for Stability Calculations	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/11.5	Specific Approval	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/13	Operation Manual	To align the Rules with IACS UR L5, Revision 3.

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Part/Para. No.	Title/Subject	Status/Remarks
3-3-A3/15	Installation Testing	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/17	Periodical Testing	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/19	Other Requirements	To align the Rules with IACS UR L5, Revision 3.
3-4-A1/1.1	<No Title>	To align the requirements with ASTM F3059-15, in line with IACS, IMO, and USCG policy.
3-4-A1/5	Fire Test Requirements	To align the requirements with ASTM F3059-15, in line with IACS, IMO, and USCG policy.
3-4-A1/7	Structural Fire Integrity Test Procedures	To align the requirements with ASTM F3059-15, in line with IACS, IMO, and USCG policy.
3-4-A1/Table 1	Structural Fire Integrity Matrix	To align the requirements with ASTM F3059-15, in line with IACS, IMO, and USCG policy.
3-6-1/Figure 3	<No Title>	To align with the wording "Conning Position" as indicated in 3-6-1/1.1.1(c).
3-6-1/Figure 5	<No Title>	To shift the location of the main steering position.
3-7-1	Tank, Bulkhead and Rudder Tightness Testing	To reflect the comments from Administrations, Industry Organizations and IMO considered during review of the proposed Testing Guidelines associated with SOLAS Chapter II-1, Regulation 11, reflected in IACS UR S14 (Rev.6, Sept 2016).

PART 4	Vessel Systems and Machinery	
4-3-1/5.13	Alternative Gear Rating Standards	To refer to the latest edition of the standards.
4-4-1/1.1	Application	To clarify the requirements for accumulators of extruded seamless construction.
4-4-1/13.3.2	Diameter Over 457 mm (18 in.)	To clarify that the diameter is the inside diameter.
4-4-1/13.3.3	Diameter Over 305 mm (12 in.)	To clarify that the diameter is the inside diameter.
4-4-1/13.3.4	Diameter 305 mm (12 in.) or Less	To clarify that the diameter is the inside diameter.
4-6-4/5.7.4(c)	Sludge Piping	To align the requirement with Regulation 12 of MARPOL Annex 1, as amended by Resolution MEPC. 266(68).
4-6-4/9.5.7 (New)	Fuel Oil Overflow	To align the requirements with ABS practice.
4-6-4/15.5.5	Sight Flow Glasses	To align the requirements with the <i>Steel Vessel Rules</i> .
4-6-4/17.5	Class Notation – POT	To clarify that the protection requirements for lubrication oil tanks as required in 4-6-4/17.5 is not applicable to lubrication oil tanks with a capacity not greater than 30 m ³ .
4-6-5/15 (New)	Storage and Use of SCR Reductants	To provide requirements for Selective Catalytic Reduction (SCR) systems, in line with IACS UR M77 Sept. 2016.
4-6-6/3.5.4	Hydraulic Accumulators	To clarify the requirements for accumulators of extruded seamless construction.
4-6-6/7.3.2	Ventilation of Storage Room	To clarify that the requirements are applied to acetylene gas (as flammable gas) only.
4-6-6/7.3.3	Electrical Installation in Storage Room	To clarify that the requirements are applied to acetylene gas (as flammable gas) only.
4-6-6/7.5.4	Gas Cylinders	To clarify that the requirements are applied to acetylene gas (as flammable gas) only.
4-7-2/1.7.4(a)	Escapes	To clarify the requirements for internal dimensions and ladders, in line with IMO MSC.Circ1511 and IACS UI SC277.
4-7-2/1.11.1iii) (New)	Emergency Generator Spaces	To align the requirements with ABS practice.
4-7-3/3.1.2	Distribution Piping and Nozzles	To clarify the requirements for the pressure rating of the distribution pipe.
4-7-3/3.1.5	Medium Release Warning Alarm	To align the requirements with IACS UI SC132 (Rev.4).

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Part/Para. No.	Title/Subject	Status/Remarks
4-7-3/3.1.9ii) (New)	<No Title>	To provide a cross reference to the additional clarification in 4-7-3/13.7.1(b).
4-7-3/11.3.1(f)i)	<No Title>	To clarify the acceptability for individually identifiable fire detectors without individual short circuit isolator, in line with 2.1.6.1 of FSS Code in IMO Resolution MSC.311(88)
4-7-3/13.7.1(b)	Location	To align the requirements for the location of the control panel with Chapter 10, paragraph 2.4.1.2 of the FSS Code (as amended by resolution MSC.292(87) as interpreted by IMO MSC.1/Circ. 1487 and IACS UI SC 260 (Rev. 1).
4-8-2/5.3.1	General	To explicitly prohibit the installation of other unrelated equipment in the emergency generator room.
4-8-2/7.7.1(c)	Current Carrying Capacity Correction	To clarify the application of the reduction factor of 0.85 where more than six cables are expected to operate simultaneously and are laid close together in a bunch in such a way that are an absence of free air circulation around them.
4-8-3/5.3.2(e)	Clearance and Creepage	To align the requirement with IEC 60092-302 and IEC 61892-3.
4-8-3/Table 2	Minimum Degree of Protection	To permit plugs and socket outlets installed in hazardous areas, in line with IEC 61892-7 Para. 8.11.1 and IEC 60079-14 Para. 5.13.
4-8-3/Table 5	Equipment and Instrumentation for Switchboards	To provide a reference to the requirements for high voltage systems.
4-8-3/Table 6	Maximum Current Carrying Capacity for Cables	To clarify the application of the reduction factor of 0.85 where more than six cables are expected to operate simultaneously and are laid close together in a bunch in such a way that are an absence of free air circulation around them.
4-8-4/21.3	Cable Current Carrying Capacity	To clarify the application of the reduction factor of 0.85 where more than six cables are expected to operate simultaneously and are laid close together in a bunch in such a way that are an absence of free air circulation around them.
4-8-4/29.5.4	Oxygen-acetylene Storage Room	To restrict the use of copper in acetylene atmospheres due to the potential formation of acetylides on the surface that can be ignited by friction or impact.
4-8-5/3.3.2	Earth Fault Detection	To clarify the requirements for audible and visual indication of earth faults for high voltage systems.
4-9-1/5.1.19 (New)	Worst Case Execution Time (WCET)	To define terms used in 4-9-1/7.3.8, in line with ISO 17894:2005 and IEC 61508-3.
4-9-1/5.1.20 (New)	Worst Case Response Time (WCRT)	To define terms used in 4-9-1/7.3.8, in line with ISO 17894:2005 and IEC 61508-3.
4-9-1/7.3.8	Programmable Electronic System (PES)	To mitigate the danger of critical alarms missing their deadlines.
4-9-2/7.3	Audible Alarms	To require a visual alarm for cases where the audible alarm may not be heard due to high noise levels in the machinery space.
4-9-5/15.3.1	Bilge Level	To clarify the number of bilge level switches/sensors required for vessels with ACC or ACCU notation, in line with IAC UR M27.
4-9-6/19.3vi)	<No Title>	To require that weathertight doors fitted in the engine casing bulkhead also be a type of self-closing door or could be closed from fire control station, to prevent the release of CO ₂ from the unintentional remaining opened doors when fixed CO ₂ system in engine room is active.
4-9-6/19.3vii)	<No Title>	To align the requirements for a high-expansion foam fire extinguishing system with IACS UI SC262.
PART 5 Specific Vessel Types		
5-1-1/3.5	Temporary Service	To redefine temporary duration to 12 months in line with USCG position for stability assessment criteria in term of time duration.
5-1-1/Table 1	<No Title>	To remove "TEMP" notations and add WIR and WIR-READY for Riser-based Well Intervention, in line with Part 5, Chapter 10.

Part/Para. No.	Title/Subject	Status/Remarks
5-1-1/Table 2	<No Title>	To align with 5-1-1/Table 1 and 5-3-4/5.
5-3-1/7	Submission of Plans and Data	To clarify the requirements of document submission for OSVs with/without the AH and TOW notations.
5-3-4/1	General	To clarify the requirements of design to a recognized standard and the AH and TOW components for OSVs with/without AH and TOW notations.
5-3-4/7.1.1	Control Stations	To specify a more practical location for the line tension monitoring system display.
5-3-4/7.3.5	Winch Supporting Structures	To clarify the requirements and provide a reference to the section that provides guidance on finite element analyses.
5-3-4/7.11 (New)	Bollards and Other Deck Fittings	To specify requirements for deck fitting design.
5-3-4/7.15 (New)	Materials and Fabrication	To specify requirements for materials and welded fabrication for anchor handling and/or towing equipment and components.
5-4-A1/1	General	To specify that the intact stability results are to be submitted not only for review but also for approval.
5-4-A1/3.1	Fire Fighting Operations	To specify the exact freeboard position and to provide U.S. units.
5-10-1/3	Scope and Limitations	To remove the Riserless only limit and add the class criteria for Riser-based well intervention.
5-10-1/5	Definitions	To redefine well intervention system to include riser-based well intervention and the time duration for temporary installation from 30 months to 12 months.
5-10-1/7.1	Permanent Well Intervention Systems	To add the class notation WIR for Riser-Based Well Intervention.
5-10-1/7.3	Temporary Well Intervention Systems	To remove the WI-TEMP notation and specify minimum requirements in Section 5-10-3.
5-10-1/7.5	Well Intervention Ready	To add the class notation WIR-READY for Riser-Based Well Intervention.
5-10-1/7.11	Selection of Class	To expand the scope of possible risks.
5-10-1/Figure 1	Well Intervention System Classification	To add the new notation WIR , withdraw the WI-Temp notation, and update section references.
5-10-2/1	General	To include riser-based well intervention.
5-10-2/3.1	Arrangements	To specify arrangement requirements for riserless well intervention.
5-10-2/3.7	Lifting Appliances, Hoisting Equipment, and Supporting Structure	To expand the requirements and make reference to the ABS Guide for Certification of Lifting Appliances.
5-10-2/3.9	Material Storage Tanks for Well Intervention	To simplify the tank requirements for riserless well intervention.
5-10-2/3.15	Classified Areas	To clarify the requirements for hazardous area plans and electrical equipment within classified areas.
5-10-2/3.17.1	General	To clarify the requirements.
5-10-2/3.17.2	Fire Hoses and Nozzles	To require a foam extinguishing system where hydrocarbon storage tanks and/or chemical tanks are installed.
5-10-2/3.17.4 (New)	Fire Control Plans	To address statutory requirements and clients' concerns about plans review burden when temporary equipment installed.
5-10-2/3.19	Vessel Station Keeping Capability	To remove anchors and cables, since DP systems are used in OSVs.
5-10-2/5 (New)	Riser-Based Well Intervention (WIR-READY)	To include riser-based well intervention.
5-10-3	Temporary Well Intervention Systems	To remove the WI-TEMP notation and specify minimum requirements for temporary well intervention equipment.
5-10-4	Permanent Well Intervention Systems	To add the new notation WIR and withdraw the WI-Temp notation.
5-10-5/3.3	Equipment and Systems Certification Requirements	To add the new notation WIR , withdraw the WI-Temp notation, and expand the requirements for well intervention equipment and systems.

<i>Part/Para. No.</i>	<i>Title/Subject</i>	<i>Status/Remarks</i>
5-10-5/5 (New)	Materials for Well Intervention Systems and Components	To add the new notation WIR , withdraw the WI-Temp notation, and expand the requirements for well intervention equipment and systems.
5-10-5/7 (New)	Welding and Nondestructive Examination	To add the new notation WIR , withdraw the WI-Temp notation, and expand the requirements for well intervention equipment and systems.
5-10-5/9 (New)	Normative References	To add the new notation WIR , withdraw the WI-Temp notation, and expand the requirements for well intervention equipment and systems.
5-10-6/1	General	To clarify the location of survey and testing requirements.
5-11-1/3.3	Permanent Well Stimulation Systems	To redefine the time duration for temporary installation from 30 months to 12 months.
5-11-1/3.5	Temporary Well Stimulation Systems	To redefine the time duration for temporary installation from 30 months to 12 months.
5-11-1/5.3	Temporary Well Stimulation Systems	To remove the WS-TEMP notation.
5-11-6/3.1	General	To clarify the requirements in line with IMO Res. A.673(16).
5-11-6/3.7	Safety Systems	To clarify the requirements in line with IMO Res. A.673(16).
5-11-7	Temporary Well Stimulation	To remove the WS-TEMP notation and specify minimum requirements for maintaining class status for temporary well stimulation equipment.
5-12-1/3	Scope	To incorporate <i>Well Test Guide</i> requirements into the <i>OSV Rules</i> .
5-12-1/5.3	Permanent Well Test Systems	To redefine temporary duration from 30 months to 12 months.
5-12-1/5.5	Temporary Well Test Systems	To redefine temporary duration from 30 months to 12 months.
5-12-1/7	Classification	To incorporate <i>Well Test Guide</i> requirements into the <i>OSV Rules</i> .
5-12-1/7.1	Permanent Well Test Systems	To make WELL TEST notation optional with minimum requirements and to incorporate <i>Well Test Guide</i> requirements into the <i>OSV Rules</i> .
5-12-1/7.3	Temporary Well Test Systems	To remove WT-TEMP notation and to incorporate <i>Well Test Guide</i> requirements into the <i>OSV Rules</i> .
5-12-1/7.5	Well Test Ready	To incorporate <i>Well Test Guide</i> requirements into the <i>OSV Rules</i> .
5-12-1/9	Submission of Data	To reference the <i>Facilities Rules</i> .
5-12-1/Figure 1 (New)	Well Test Vessel Classification	To add a flowchart showing available notations.
5-12-2	Well Test Ready	To remove WT-TEMP notation and to incorporate <i>Well Test Guide</i> requirements into the <i>OSV Rules</i> .
5-12-3 (New)	Installation of Temporary Well Test Systems	To define minimum class requirements for vessels installed with temporary well test systems.
5-12-4 (New)	Permanent Well Test Systems	To incorporate <i>Well Test Guide</i> requirements for permanent well test systems into the <i>OSV Rules</i> .
5-12-5 (New)	Well Test Equipment and Systems	To define equipment certification requirements.
5-12-6 (New)	Surveys	To define survey requirements for well test systems.
5-13-5/5.5	Supporting Structure	To provide a reference to the section in OSV Part 3 that provides guidance on finite element analyses.



RULES FOR BUILDING AND CLASSING

OFFSHORE SUPPORT VESSELS 2018

PART 1 CONDITIONS OF CLASSIFICATION (Supplement to the ABS Rules for Conditions of Classification)

**American Bureau of Shipping
Incorporated by Act of Legislature of
the State of New York 1862**

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Rule Change Notice (2018)

The effective date of each technical change since 1993 is shown in parentheses at the end of the subsection/paragraph titles within the text of each Part. Unless a particular date and month are shown, the years in parentheses refer to the following effective dates:

(2000) and after	1 January 2000 (and subsequent years)	(1996)	9 May 1996
(1999)	12 May 1999	(1995)	15 May 1995
(1998)	13 May 1998	(1994)	9 May 1994
(1997)	19 May 1997	(1993)	11 May 1993

Listing by Effective Dates of Changes from the 2017 Rules

Notice No. 2 (effective on 1 September 2017) to the 2017 Rules, which is incorporated in the 2018 Rules, is summarized below.

EFFECTIVE DATE 1 September 2017 – shown as *(1 September 2017)*
(based on the contract date for new construction between builder and Owner)

<i>Part/Para. No.</i>	<i>Title/Subject</i>	<i>Status/Remarks</i>
1-1-2/31 (New)	All Vessel Types Equipment Symbol	To define the optional notation E (R) for vessels under 90 meters (295 feet) in length and offshore support vessels, not built under survey when the existing anchors, chains and anchor windlass were certified in accordance with plans and requirements approved to the Rules of another recognized Classification Society. (Incorporates Notice No. 2)

PART

1

Foreword

For the 2008 edition, Part 1, “Conditions of Classification” was consolidated into a generic booklet, entitled *Rules for Conditions of Classification (Part 1)* for all vessels other than those in offshore service. The purpose of that consolidation was to emphasize the common applicability of the classification requirements in “Part 1” to ABS-classed vessels, other marine structures and their associated machinery, and thereby make “Conditions of Classification” more readily a common Rule of the various ABS Rules and Guides, as appropriate.

Thus, this supplement specifies only the unique requirements applicable to offshore support vessels. This supplement is always to be used with the aforementioned *Rules for Conditions of Classification (Part 1)*.

PART

1

Conditions of Classification

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[See also separately published booklet <i>ABS Rules for Conditions of Classification (Part 1)</i>]		

PART

1

CHAPTER 1 Scope and Conditions of Classification

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PART

1

CHAPTER 1 Scope and Conditions of Classification

SECTION 1 Classification

The requirements for conditions of classification are contained in the separate, generic *ABS Rules for Conditions of Classification (Part 1)*.

Additional requirements specific to offshore support vessels are contained in the following Sections of this Part.

PART

1

CHAPTER 1 Scope and Conditions of Classification

SECTION 2 Classification Symbols and Notations

A listing of Classification Symbols and Notations available to the Owners of vessels, offshore drilling and production units and other marine structures and systems, "List of ABS Notations and Symbols" is available from the ABS website "<http://www.eagle.org>".

The following notations are specific to the various types of offshore support vessels included in these Rules.

1 Vessels Intended for Offshore Support Services

See also Part 5, Chapter 1.

1.1 Class Notations

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)*, the classification **✕ A1 Offshore Support Vessel** will be assigned to vessels primarily designed for offshore support services and built to the applicable requirements in Part 3, Part 4, at least one specialized functional service of Part 5, and other relevant sections of these Rules. Vessels that have been designed, built and equipped for a specialized functional service will be assigned the appropriate notation, as described in this Section.

Vessels intended for several functional services covered by these Rules may be assigned a combination of the class notations described in this Section, provided that the specific requirements for each intended service are complied with and the vessels are equipped and prepared at all times to engage in operations related to the relevant functional services. (See 1-1-2/1.3).

1.3 Dual and Multi-Function Services

Where a vessel is equipped for dual or multi-function services, the appropriate class notations may be assigned. For example, an Offshore Support Vessel equipped for safety standby and towing may be assigned the classification **✕ A1 Offshore Support Vessel (SSR, GR A – (N), TOW)** or capable of anchor handling, towing and supply may be assigned the classification **✕ A1 Offshore Support Vessel (AH, Supply, TOW)**. Other combinations of class notations described may be assigned corresponding to the functional and service capabilities of the vessel for which it has been approved as described in Section 5-1-1 of these Rules.

In such instances, the dual or multipurpose vessel is to be designed and built to the applicable requirements of Part 5 for the particular services.

1.5 Special Purpose (2013)

See also Section 5-1-2.

Upon the Owner's request, Offshore Support Vessels that comply with the requirements in Section 5-1-2 and the IMO Code of Safety for Special Purpose Ships (SPS Code) may be assigned the class notation **SPS**.

For example, an offshore support vessel engaged in pipe laying operations and complying with requirements of this Section and the SPS Code will be assigned the classification **✕ A1 Offshore Support Vessel (Pipe Lay), SPS**.

1.7 Domestic Service (2013)

See also Section 5-1-3.

Upon the Owner's request, Offshore Support Vessels that comply with the requirements in Section 5-1-3 may be assigned the class notation **(Operational Area) Domestic Service**.

For example, an offshore support vessel engaged in anchor handling, supply and towing operations and complying with requirements of this Section will be assigned the classification **✕ A1 Offshore Support Vessel (AH, Supply, TOW), U.S. Domestic Service**.

1.9 Strengthening for Heavy Cargoes (2013)

See also Section 5-1-4.

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the additional classification **HDC(P, Locations)** will be assigned to vessels designed with strengthening for carriage of heavy deck cargoes exceeding 25.66 kN/m² (2617 kgf/m², 536 lbf/ft²), and built to the requirements in 5-1-4/3 and other relevant sections of these Rules. For example, an offshore support vessel engaged in anchor handling, supply and towing operations, strengthened for deck cargo of 5t/m² at main deck and complying with requirements of this Section will be assigned the classification **✕ A1 Offshore Support Vessel (AH, Supply, TOW) HDC(5t/m², main deck)**.

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the additional classification **HLC(ρ, Tanks)** will be assigned to vessels designed with strengthening for carriage of heavy liquid cargoes with specific gravity exceeding 1.05, and built to the requirements in 5-1-4/5 and other relevant sections of these Rules. For example, an offshore support vessel engaged in anchor handling, supply and towing operations, strengthened for heavy liquid cargo of specific gravity 2.5 in tanks 3 and 5, and complying with requirements of this Section will be assigned the classification **✕ A1 Offshore Support Vessel (AH, Supply, TOW) HLC(2.5, Tanks 3 and 5)**.

3 Offshore Supply

See also Part 5, Chapter 2.

3.1 Class Notation

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (Supply)** will be assigned to vessels designed primarily for supply service to offshore installations, and built to the requirements of Part 5, Chapter 2 and other relevant sections of these Rules.

3.3 Carriage of Limited Amounts of Hazardous and Noxious Liquid Substances

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (Supply-HNLS)** will be assigned to vessels designed primarily for supply service to offshore installations, with capability for carriage of limited amounts of hazardous and noxious liquid substances, and built to the requirements of Part 5, Chapter 3 and other relevant sections of these Rules.

5 Anchor Handling and Towing

See also Part 5, Chapter 3.

5.1 Anchor Handling

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (AH)** will be assigned to vessels designed and equipped for anchor handling operations and built to the requirements of Part 5, Chapter 3 and other relevant sections of these Rules.

5.3 Towing

The classification **✕ A1 Offshore Support Vessel (TOW)** will be assigned to vessels designed and equipped for towing operations and built to the requirements of Part 5, Chapter 3 and other relevant sections of these Rules.

7 Fire Fighting

See also Part 5, Chapter 4.

7.1 FFV 1

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (FFV 1)** will be assigned to vessels with water spray protection for cooling the Fire Fighting Vessel's surfaces to enable close operation for early stages of fire fighting and rescue operations, with capabilities in accordance with 5-4-1/Table 1, built in compliance with the requirements of Part 5, Chapter 4 and other relevant sections of these Rules.

7.3 FFV 2 or FFV 3

Where the vessel has been built in compliance with the requirements of Part 5, Chapter 4 and for continuous fighting of large fires and cooling structures on fire, with capabilities in accordance with 5-4-1/Table 1, and other relevant sections of these Rules, the classification **✕ A1 Offshore Support Vessel (FFV 2) or (FFV 3)** will be assigned.

7.5 FFV 1 and 2 or FFV 1 and 3

Where **✕ A1 Offshore Support Vessel (FFV 2) or (FFV 3)** also meet requirements for **FFV 1**, the Class notation **✕ A1 Offshore Support Vessel (FFV 1 and 2)**, or **✕ A1 Offshore Support Vessel (FFV 1 and 3)** may be given.

7.7 Vessels with Fire Fighting Capability

Vessels not in full compliance with these Rules or not specifically built for the service intended to be covered by these Rules, but which have some fire fighting capability in addition to their regular service, may be considered and reviewed under the intent of these Rules, in relation to the specific fire fighting requirements. Such vessels complying with these requirements may be distinguished in the *Record* with their assigned notation followed by the designation (**FF Capable**), such as **✕ A1 Offshore Support Vessel (FF Capable)**, with detailed data on the extent of this capability entered into the *Record*. Such special fire fighting systems will be subject to annual surveys.

9 Diving and Remotely Operated Vehicles (ROVs) Support

See also Part 5, Chapter 5.

9.1 Vessels Intended to Support Air Diving Systems

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the Class notation **✕ A1 Offshore Support Vessel (DSV AIR)** will be assigned to vessels intended to support air diving systems (see 5-5-1/Table 1) and complying with the applicable requirements of Part 5, Chapter 5 and other relevant sections of these Rules.

9.3 Vessels Intended to Support Mixed Gas Diving Systems

The Class notation **✕ A1 Offshore Support Vessel (DSV MIXED-GAS)** will be assigned to vessels intended to support mixed-gas diving systems (see 5-5-1/Table 1) and complying with the applicable requirements of Part 5, Chapter 5 and other relevant sections of these Rules.

9.5 Vessels Intended to Support Saturation Diving Systems

The Class notation **✕ A1 Offshore Support Vessel (DSV SAT)** will be assigned to vessels intended to support saturation diving systems (see 5-5-1/Table 1) and complying with the applicable requirements of Part 5, Chapter 5 and other relevant sections of these Rules.

9.7 Vessels Intended to Support Multiple Diving Systems

Vessels that are intended to support multiple diving systems and complying with the applicable requirements of Part 5, Chapter 5 and other relevant sections of these Rules will be assigned the Class notation **✕ A1 Offshore Support Vessel (DSV)** followed by the appropriate notations for the diving systems. For example, vessels intended to support air and saturation diving systems may be assigned the Class notation **✕ A1 Offshore Support Vessel (DSV AIR/SAT)**.

9.9 ROV Support Vessels

The Class notation **✕ A1 Offshore Support Vessel (ROV)** will be assigned to vessels intended to support Remote Operated Vehicle - ROV (see 5-5-1/Table 1) and complying with the applicable requirements of Part 5, Chapter 5 and other relevant sections of these Rules.

ROVs and their associated support systems (handling systems, control stations, etc.) installed on ROV support vessels are to be Classed by ABS or another IACS member Classification Society. ABS Classed ROVs and support components are to meet the requirements of the *ABS Rules for Building and Classing Underwater Vehicles, Systems and Hyperbaric Facilities*.

9.11 Vessels with Diving Support and/or ROV Capability (2013)

Vessels, other than those in 1-1-2/9.1 through 1-1-2/9.9 above, having some diving and/or ROV support capability in addition to their regular service, may be considered and reviewed in accordance with Section 5-5-5 of these Rules, in relation to the specific diving and/or ROV support requirements. Such vessels complying with these requirements may be distinguished in the *Record* with their assigned notation followed by the designation **(DSV Capable)** and/or **(ROV Capable)**, such as **✕ A1 Offshore Support Vessel (DSV Capable)**, with detailed data on the extent of this capability entered into the *Record*. Such special diving and/or ROV support systems will be subject to annual surveys.

11 Oil Spill Recovery (2013)

See also Part 5, Chapter 6.

11.1 Oil Spill Recovery – Standby Class 1

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (OSR-S1)** will be assigned to vessels intended for recovery of oil from the water and shorelines in response to an oil spill in the marine environment, and built in compliance with these requirements for recovery of oil of unknown flash points and outfitted for the same in accordance with Sections 5-6-3 and 5-6-4 and other relevant sections of these Rules, and approved for oil recovery service at the assigned freeboard.

11.3 Oil Spill Recovery – Standby Class 2

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (OSR-S2)** will be assigned to vessels intended for recovery of oil from the water and shorelines in response to an oil spill in the marine environment, and built in compliance with these requirements for recovery of oil having a flash point exceeding 60°C (140°F) and outfitted for the same in accordance with Section 5-6-6 and other relevant sections of these Rules, and approved for oil recovery service at the assigned freeboard.

11.5 Oil Spill Recovery – Capability Class 1

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (OSR-C1)** will be assigned to vessels built in compliance with these requirements for recovery of oil of unknown flash points but not outfitted for the same in accordance with Section 5-6-5 and other relevant sections of these Rules, and approved for oil recovery service at the assigned freeboard.

11.7 Oil Spill Recovery – Capability Class 2

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (OSR-C2)** will be assigned to vessels intended for recovery of oil from the water and shorelines in response to an oil spill in the marine environment, and built in compliance with these requirements for recovery of oil having a flash point exceeding 60°C (140°F) but not outfitted for the same in accordance with Section 5-6-7 and other relevant sections of these Rules, and approved for oil recovery service at the assigned freeboard.

13 Safety Standby Rescue

See also Part 5, Chapter 7.

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (SSR)** will be assigned to vessels which have been adapted and have special features for evacuation, reception, rescue and care of persons from another vessel at sea or an offshore installation, and built in accordance with the requirements of Part 5, Chapter 7 and other relevant sections of these Rules, and approved for safety standby service at the assigned freeboards. In addition an entry will be made in the *Record*, indicating the class designation together with the number of survivors the vessel has been certified to accommodate [e.g., **GR A – (320)**, **GR B – (250)**, **GR C – (15)**, etc.].

15 Pipe Laying

See also Part 5, Chapter 8.

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (Pipe Lay)** will be assigned to vessels designed and equipped for the installation of subsea pipelines and built in compliance with the requirements of Part 5, Chapter 8 and other relevant sections of these Rules.

17 Heavy Lift

See also Part 5, Chapter 9.

17.1 Class Notation

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the notation **✕ A1 Offshore Support Vessel (Heavy Lift)** will be assigned to vessels intended for the lifting of heavy loads in oil drilling and production operations, offshore construction and/or salvage operations, with a lifting capacity of 160 metric tons and above and built in compliance with the requirements of Part 5, Chapter 9 and other relevant sections of these Rules.

The above notation will be assigned to purpose-built vessels having all heavy lifting equipment permanently installed and classified by ABS. Such vessels will be distinguished in the *Record* with their assigned notation and information on the heavy lifting capabilities. Heavy lifting equipment will be subject to the annual surveys.

19 Well Intervention

See also Part 5, Chapter 10.

19.1 Permanent Well Intervention Systems

Vessels fitted with permanent well intervention systems that comply with Section 5-10-4 will be assigned the classification **✕ A1 Offshore Support Vessel (WI)**.

19.3 Temporary Well Intervention Systems

Vessels with temporary well intervention systems that comply with the requirements of Section 5-10-3 will be assigned the classification **✘ A1 Offshore Support Vessel (WI-TEMP)**.

Vessels with temporary well intervention systems installed on board and not assigned with notation **WI-TEMP** are to comply with the requirements of 5-10-3/13. In this case, no class notation related to well intervention systems will be assigned to the vessel.

19.5 Well Intervention Ready

Vessels designed to be “well intervention ready” that comply with Section 5-10-2 will be assigned the classification **✘ A1 Offshore Support Vessel (WI-READY)**.

21 Well Stimulation (2013)

See also Part 5, Chapter 11.

21.1 Permanent Well Stimulation Systems

Vessels fitted with permanent well stimulation systems that comply with the relevant Sections in Part 5, Chapter 11 will be assigned the classification **✘ A1 Offshore Support Vessel (WS)**.

21.3 Temporary Well Stimulation Systems

Vessels with temporary well stimulation systems that comply with the requirements of Section 5-11-7 will be assigned the classification **✘ A1 Offshore Support Vessel (WS-TEMP)**.

Vessels with temporary well stimulation systems installed on board and not assigned with notation **WS-TEMP** are to comply with the minimum requirements of Section 5-11-6. In this case, no class notation related to well stimulation systems will be assigned to the vessel.

21.5 Well Stimulation Ready

Vessels designed to be “well stimulation ready” that comply with Section 5-11-6 will be assigned the classification **✘ A1 Offshore Support Vessel (WS-READY)**.

23 Well Test

See also Part 5, Chapter 12.

23.1 Permanent Well Test Systems

Vessels fitted with permanent well test systems that comply with the requirements of Part 5, Chapter 12 of these Rules and Section 4 of the *ABS Guide for Well Test Systems* will be assigned the classification **✘ A1 Offshore Support Vessel (Well Test Service)**.

23.3 Temporary Well Test Systems

Vessels with temporary well test systems that comply with the requirements of Part 5, Chapter 12 of these Rules and Section 3 of the *ABS Guide for Well Test Systems* will be assigned the classification **✘ A1 Offshore Support Vessel (WT-TEMP)**.

Vessels with temporary well test systems installed on board and not assigned with notation **WT-TEMP** are to comply with the requirements of Subsection 3/19 of the *ABS Guide for Well Test Systems*. In this case, no class notation related to well testing systems will be assigned to the vessel.

23.5 Well Test Ready

Vessels designed to be “well test ready” that comply with the requirements of Part 5, Chapter 12 of these Rules and Section 2 of the *ABS Guide for Well Test Systems* will be assigned the classification **✘ A1 Offshore Support Vessel (WT-READY)**.

25 Escort

See also Part 5, Chapter 13.

25.1 Class Notation

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (Escort)** will be assigned to vessels intended for escort service (i.e. accompanying another vessel in transit) and designed and built to the requirements of Part 5, Chapter 13 and other relevant sections of these Rules.

27 Wind Turbine Installation, Maintenance and Repair (Wind IMR)

See also Part 5, Chapter 14.

27.1 Class Notation

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (Wind IMR)** will be assigned to vessels intended for the installation, maintenance and repair of wind turbines and designed and built to the applicable requirements of Part 5, Chapter 14 and other relevant sections of these Rules.

29 Cable Laying (2013)

See also Part 5, Chapter 15.

In accordance with 1-1-3/3 of the *ABS Rules for Conditions of Classification (Part 1)* and 5-1-1/5.1 of these Rules, the classification **✕ A1 Offshore Support Vessel (Cable Lay)** will be assigned to vessels designed and equipped for the installation, maintenance and repair of underwater telecommunication cables and power transmission cables and built in compliance with the requirements of Part 5, Chapter 15 and other relevant sections of these Rules.

31 All Vessel Types Equipment Symbol (1 September 2017)

The symbol **Ⓔ** placed after the symbols of classification, thus: **✕ A1 Ⓔ**, will signify that the equipment of anchors and chain cables of the vessel is in compliance with the requirements of the Rules or with requirements corresponding to the service limitation noted in the vessel's classification, which have been specially approved for the particular service. Guides and subsequent changes to Guides are to become effective on the date specified by ABS.

For Offshore Support Vessels, which have not been built under ABS survey, the optional equipment notation **Ⓔ-(R)** may be assigned to the vessel's equipment, provided the existing anchors, chains and anchor windlass are confirmed certified by another recognized Classification Society. The available manufacturer's and classification test certificates and plans associated with the anchors, chains and windlass, as applicable, are to be submitted to ABS for reference and verification of the Equipment Numeral.

PART

1

CHAPTER 1 Scope and Conditions of Classification

SECTION 3 Rules for Classification

1 Application of Rules

1.1 General

These Rules are applicable to offshore support vessels intended for unrestricted ocean service, except where specifically mentioned otherwise. Offshore support vessels engaged in providing services of Supply, Anchor Handling or Towing, Fire Fighting, Diving and Underwater Vehicles Support, Oil Spill Recovery, Safety Standby and Rescue, Pipe Laying, Heavy Lift, Well Intervention, Well Stimulation, Well Test, Escort, and Wind Turbine Installation, Maintenance and Repair are to be in accordance with the applicable requirements of Part 5 of these Rules.

Where reference is made herein to the *ABS Rules for Building and Classing Steel Vessels (Steel Vessel Rules)*, the latest edition of those Rules is intended.

These requirements are applicable to those features that are permanent in nature and can be verified by plan review, calculation, physical survey or other appropriate means. Any statement in the Rules regarding other features is to be considered as guidance to the designer, builder, Owner, et al.

1.3 Application

The application of these Rules is, in general, based on its effective date and the contract date for construction between the shipbuilder and the prospective owner. (e.g., should these Rules have an effective date of 1 July 2013, it would not be applicable to a vessel for which the contract for construction was signed on 30 June 2013.) See also 1-1-4/3 of the *ABS Rules for Conditions of Classification (Part 1)*.

The effective date of these Rules is the first day of the month of publication.

PART

1

CHAPTER 1 Scope and Conditions of Classification

SECTION 4 Submission of Plans

Hull and machinery plans, as required below, are to be submitted to ABS for review and approval. Plans from designers and shipbuilders should generally be submitted electronically. However, hard copies will also be accepted. All plan submissions originating from manufacturers are understood to be made with the cognizance of the shipbuilder. A fee may be charged for the review of plans for which there is no contract of classification.

1 Hull Plans

Plans showing the arrangements, scantlings, details of principal parts of the hull structure and welding details of each vessel to be built under survey are to be submitted and approved before construction is commenced. These plans are also to include such particulars as the design draft and design speed. Where provision is to be made for any special type of cargo or for any exceptional conditions of loading, particulars of the weights and of their distribution are also to be given. In general, the plans as specified in 1-1-7/1 of the *ABS Rules for Conditions of Classification (Part 1)* are to be submitted for review or reference.

3 Machinery Plans and Data

Plans and data required to be submitted to ABS for review and approval are listed in 4-1-1/5 of these Rules.

5 Additional Plans (2013)

Additional plans to be submitted specific to the type of vessel are given in Part 5 of these Rules, as follows:

- Special Purpose 5-1-2/1.7
- Offshore Supply 5-2-1/7, 5-2-3/7
- Anchor Handling and Towing 5-3-1/7
- Fire Fighting 5-4-1/5
- Diving and ROV Support 5-5-1/5
- Oil Spill Recovery 5-6-1/5
- Safety Standby Rescue 5-7-1/5
- Pipe Laying 5-8-1/5
- Heavy Lift 5-9-1/7
- Well Intervention 5-10-1/9
- Well Stimulation 5-11-1/5
- Well Test 5-12-1/9
- Escort 5-13-2
- Wind Turbine Installation, Maintenance and Repair 5-14-1/7
- Cable Laying 5-15-1/5

Also, where certification under 1-1-5/3 or 1-1-5/5 of the *ABS Rules for Conditions of Classification (Part 1)* is requested, submission of additional plans and calculations may be required.



RULES FOR BUILDING AND CLASSING

OFFSHORE SUPPORT VESSELS 2018

PART 3 HULL CONSTRUCTION AND EQUIPMENT

**American Bureau of Shipping
Incorporated by Act of Legislature of
the State of New York 1862**

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Rule Change Notice (2018)

The effective date of each technical change since 1993 is shown in parentheses at the end of the subsection/paragraph titles within the text of each Part. Unless a particular date and month are shown, the years in parentheses refer to the following effective dates:

(2000) and after	1 January 2000 (and subsequent years)	(1996)	9 May 1996
(1999)	12 May 1999	(1995)	15 May 1995
(1998)	13 May 1998	(1994)	9 May 1994
(1997)	19 May 1997	(1993)	11 May 1993

Listing by Effective Dates of Changes from the 2017 Rules

Notice No. 1 (effective on 1 July 2017) to the 2017 Rules, which is incorporated in the 2018 Rules, is summarized below.

EFFECTIVE DATE 1 July 2017 – shown as (1 July 2017) (based on the contract date for new construction between builder and Owner)

<i>Part/Para. No.</i>	<i>Title/Subject</i>	<i>Status/Remarks</i>
3-2-14/17.1	Strength	To reflect current practice for cover plates and address vortex shedding for spade rudders with embedded trunks. (Incorporates Notice No. 1)
3-2-14/Figure 5 (New)	<No Title>	To reflect current practice for cover plates and address vortex shedding for spade rudders with embedded trunks. (Incorporates Notice No. 1)
3-2-14/Figure 6 (New)	<No Title>	To reflect current practice for cover plates and address vortex shedding for spade rudders with embedded trunks. (Incorporates Notice No. 1)
3-2-14/Figure 7 (New)	<No Title>	To reflect current practice for cover plates and address vortex shedding for spade rudders with embedded trunks. (Incorporates Notice No. 1)
3-2-14/17.1.2	In way of Cutouts	To reflect current practice for cover plates and address vortex shedding for spade rudders with embedded trunks. (Incorporates Notice No. 1)

EFFECTIVE DATE 1 January 2018 – shown as (2018) (based on the contract date for new construction between builder and Owner)

<i>Part/Para. No.</i>	<i>Title/Subject</i>	<i>Status/Remarks</i>
3-1-1/3.1	Scantling Length (<i>L</i>)	To align the requirements with ICLL 1966/Reg. 3 & IACS UR S2.
3-1-1/3.3	Freeboard Length (<i>L_f</i>)	To align the requirements with ICLL 1966/Reg. 3 & IACS UR S2.
3-1-1/15.1	Freeboard Deck	To align the requirements with ICLL 1966/Reg. 3 & IACS UR S2.
3-1-1/17	Deadweight (<i>DWT</i>) and Lightship Weight	To incorporate interpretation made in IACS UI SC273 and MPC128.
3-1-2/Table 2	Material Class or Grade of Structural Members	To identify the minimum steel grades for deck plating other than strength deck (Line No. C4) at corners of cargo hatch openings adjacent to the engine room and/or deck house.
3-1-2/11	Drydocking	To specify that the docking arrangement is only required for vessels over 90 m (295 ft) in length.
3-2-4/9.5	Inner Bottom Plating for Vessels Intended to Use Grabs	To align the requirements with IACS UI SC208 Corr.2 and SVR 5C-3-4/7.3.2 (a) & (b).
3-2-4/9.6 (New)	Optional Supplementary Requirement for Vessels Intended to Use Grabs	To align the requirements with IACS UI SC208 Corr.2 and SVR 5C-3-4/7.3.2 (a) & (b).
3-2-11/11.3.7 (New)	Bolted Connections	To specify requirements for bolted connections on helidecks.

<i>Part/Para. No.</i>	<i>Title/Subject</i>	<i>Status/Remarks</i>
3-2-11/11.9.2	Means of Escape and Access	To clarify the requirements for aluminum helideck escape stairs and intermediate platforms.
3-2-13/1.1	Plate Stems	To consider the material factor in the net thickness of the plate stem, in line with CSR-H.
3-2-14/7.3	Lower Rudder Stocks	To make the stress units consistent with the allowable stress.
3-2-14/Figure 4	Tapered Couplings	To be consistent with the requirements of 3-2-14/11.7.
3-2-14/17.5	Diaphragm Plates	To allow larger openings on diaphragm plates when the effects of openings are considered in the strength assessment.
3-2-15/3.3.1	Cargo Hatch Covers in Position 1	To align the requirements with IACS UR S21, S21A, and 3-2-15/3.3.1 of the <i>Steel Vessel Rules</i> for less than 100 m.
3-2-17/9.7	Window Glazing	To clarify that the international standard ISO21005 or equivalent national standards are acceptable.
3-2-17/9.9	Testing	To specify that ISO 614 should be used to meet our rule requirements of OSV 3-2-17/9.9 only for thermally toughened glass.
3-3-A1/3.5	Alternative Criteria for Offshore Support Vessels	To specify the exact applicable vessel's length in line with MSC 267(85)-IS Code.
3-3-A3 (Title)	Computer Software for Onboard Stability Calculations	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/5	Types of Stability Software	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/7.1	Calculation Program	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/7.5	Warning	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/7.15 (New)	Computer Model	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/7.17 (New)	Further Requirements for Type 4 Stability Software	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/Table 1	Acceptable Tolerances	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/11.1	Conditions of Approval of the Onboard Software for Stability Calculations	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/11.5	Specific Approval	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/13	Operation Manual	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/15	Installation Testing	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/17	Periodical Testing	To align the Rules with IACS UR L5, Revision 3.
3-3-A3/19	Other Requirements	To align the Rules with IACS UR L5, Revision 3.
3-4-A1/1.1	<No Title>	To align the requirements with ASTM F3059-15, in line with IACS, IMO, and USCG policy.
3-4-A1/5	Fire Test Requirements	To align the requirements with ASTM F3059-15, in line with IACS, IMO, and USCG policy.
3-4-A1/7	Structural Fire Integrity Test Procedures	To align the requirements with ASTM F3059-15, in line with IACS, IMO, and USCG policy.
3-4-A1/Table 1	Structural Fire Integrity Matrix	To align the requirements with ASTM F3059-15, in line with IACS, IMO, and USCG policy.
3-6-1/Figure 3	<No Title>	To align with the wording "Conning Position" as indicated in 3-6-1/1.1.1(c).
3-6-1/Figure 5	<No Title>	To shift the location of the main steering position.
3-7-1	Tank, Bulkhead and Rudder Tightness Testing	To reflect the comments from Administrations, Industry Organizations and IMO considered during review of the proposed Testing Guidelines associated with SOLAS Chapter II-1, Regulation 11, reflected in IACS UR S14 (Rev.6, Sept 2016).

Hull Construction and Equipment

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PART 3

CHAPTER 1 General

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PART

3

CHAPTER 1 General

SECTION 1 Definitions

1 Application

The following definitions of symbols and terms are to be understood (in the absence of other specifications) where they appear in these Rules. These Rules are applicable for vessels having a speed length ratio $V/\sqrt{L} < 2.36$ (1.3) where L is in meters (feet) as defined in 3-1-1/3.1 and V is in knots as defined in 3-1-1/11. Where this proportion equals or exceeds the prescribed limit value, the *ABS Rules for Building and Classing High Speed Craft* applies.

3 Length

3.1 Scantling Length (L) (2018)

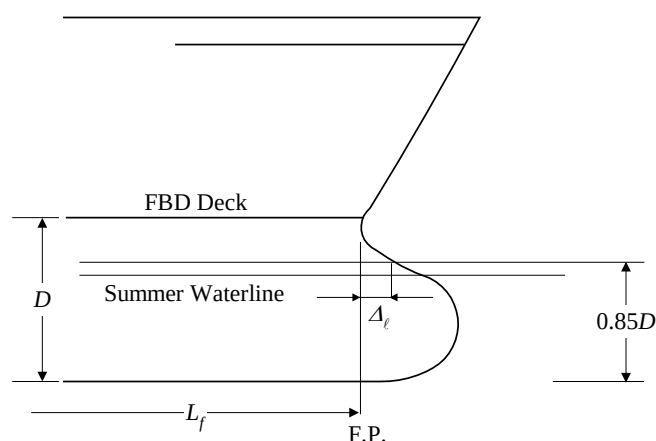
L is the distance in meters (feet) on the summer load line from the fore side of the stem to the centerline of the rudder stock. For use with these Rules, L is not to be less than 96% and need not be greater than 97% of the extreme length on the summer load line. The forward end of L is to coincide with the fore side of the stem on the waterline on which L is measured. In ships with an unusual stern and bow arrangement the length, L , is to be specially considered.

3.3 Freeboard Length (L_f) (2018)

L_f is the distance in meters (feet) on a waterline at 85% of the least molded depth measured from the top of the keel from the fore side of the stem to the centerline of the rudder stock or 96% of the length on that waterline, whichever is greater. Where the stem is a fair concave curve above the waterline at 85% of the least molded depth and where the aftermost point of the stem is above the waterline, the forward end of the length, L_f , is to be taken at the aftermost point of the stem above that waterline. See 3-1-1/Figure 1.

In ships designed with a raked keel, the waterline on which this length is measured is to be parallel to the designed waterline.

FIGURE 1



5 Breadth (B)

B is the greatest molded breadth in meters (feet).

7 Depth

7.1 Molded Depth (D)

D is the molded depth at side in meters (feet) measured at the middle of L from the molded base line to the top of the freeboard-deck beams. In vessels having rounded gunwales, D is to be measured to the point of intersection of the molded lines of the deck and side shell plating. In cases where watertight bulkheads extend to a deck above the freeboard deck and are to be recorded in the *Record* as effective to that deck, D is to be measured to the bulkhead deck.

7.3 Scantling Depth (D_s)

The depth D_s for use with scantling requirements is the distance in meters (feet) from the molded base line to the strength deck as defined in 3-1-1/15.5 and in 3-2-2/3.1 through 3-2-2/3.7, as applicable.

9 Draft

9.1 Molded Draft (d)

The molded draft d , is the distance in meters (feet) from the molded base line to the summer load line.

9.3 Scantling Draft (d_s)

The scantling draft d_s is the maximum draft, in meters (feet), at which the strength requirements for the scantlings of the ship are met.

The draft, d_s , for use in scantling requirements is the molded draft to the deepest load line to which the vessel is designed to operate in service. However, in no case is the vessel to be issued a load line certificate to operate at sea with a draft greater than that corresponding to the freeboard assigned, if that be less.

For the purpose of these Rules, scantling draft d_s should not be taken less than $0.67D_s$. The declared scantling draft is to be indicated on the Midship Section and Shell Expansion drawings.

11 Maximum Service Speed (V)

V is the maximum ahead service speed, in knots, defined as the greatest speed which the ship is designed to maintain in service at the summer load line at the maximum propeller RPM and corresponding engine MCR (Maximum Continuous Rating).

13 Molded Displacement and Block Coefficient

13.1 Molded Displacement (Δ)

Δ is the molded displacement of the vessel in metric tons (long tons), excluding appendages, taken at the summer load line.

13.3 Block Coefficient (C_b)

C_b is the block coefficient at the summer load line obtained from the following equation:

$$C_b = \Delta / 1.025 L B_{wl} d \quad (\text{SI \& MKS units})$$

$$C_b = 35 \Delta / L B_{wl} d \quad (\text{US units})$$

where

- Δ = molded displacement, as defined in 3-1-1/13.1.
- L = scantling length, as defined in 3-1-1/3.1
- d = molded draft, as defined in 3-1-1/9.1
- B_{wl} = the greatest molded breadth at the summer load line, in m (ft)

15 Decks

15.1 Freeboard Deck (2018)

The freeboard deck is normally the uppermost complete deck exposed to weather and sea, which has permanent means of closing all openings in the weather part thereof, and below which all openings in the sides of the ship are fitted with permanent means of watertight closing. Where a vessel is designed for a special draft, considerably less than that corresponding to the least freeboard obtainable under the *International Load Line Regulations*, the freeboard deck, for the purpose of these Rules, may be taken as the actual lowest deck from which the draft can be obtained under those regulations.

15.3 Bulkhead Deck

The bulkhead deck is the highest deck to which the watertight bulkheads extend and are made effective.

15.5 Strength Deck

The strength deck is the deck that forms the top of the effective hull girder at any part of its length. See 3-2-1/11.1.

15.7 Superstructure Deck

A superstructure deck is a deck above the freeboard deck to which the side shell plating extends. Except where otherwise specified, the term “superstructure deck” where used in these Rules refers to the first such deck above the freeboard deck.

17 Deadweight (DWT) and Lightship Weight (2018)

For the purpose of these Rules, deadweight, *DWT*, is the difference in metric tons (long tons) between the displacement of the vessel at its summer load line in water having a specific gravity of 1.025 and the lightship weight.

For the purpose of these Rules, lightship weight is the displacement of the vessel in metric tons (long tons) with no cargo, fuel, lubricating oil, ballast water, fresh water nor feed water in tanks, no consumable stores, and no passengers or crew nor their effects. The weight of mediums on board for the fixed fire-fighting systems (e.g., freshwater, CO₂, dry chemical powder, foam concentrate, etc.) are to be included in the lightweight and lightship condition.

19 Primary Support Members

Structural members such as girders, transverse webs, stringers, floors and etc. that support local support members.

21 Local Support members

Structural members that directly support the plating such as: longitudinals, beams, frames and stiffeners.

23

Units

These Rules are written in three systems of units, viz., SI units, MKS units and US customary units. Each system is to be used independently of any other system.

Unless indicated otherwise, the format of presentation in these Rules of the three systems of units is as follows:

SI units (MKS units, US customary units)

PART

3

CHAPTER 1 General

SECTION 2 General Requirements

1 Material and Fabrication

1.1 Material

1.1.1 Steel

These Rules are intended for vessels of welded construction using steels complying with the requirements of Chapter 1 of the *ABS Rules for Materials and Welding (Part 2)*. Use of steels other than that in Chapter 1 of the above-referenced Part 2 and the vessel's corresponding scantlings are to be specially considered.

1.1.2 Aluminum Alloys

The use of aluminum alloys complying with the requirements in Chapter 5 of the *ABS Rules for Materials and Welding (Part 2) – Aluminum and Fiber Reinforced Plastics (FRP)* is to be considered upon submission of a specification of the proposed alloys and their proposed method of fabrication.

1.1.3 Design Consideration

Adequate buckling strength is to be provided in the structure. Buckling can be critical in areas of high compressive stress such as where high strength steels or where aluminum alloys are used. The scantlings of vessels with $L < 61$ m (200 ft) generally are not required to comply with any buckling criteria, however; there may be situations where buckling criteria should be considered by the designer (i.e., critical loading conditions, Item 1.3 of 3-2-A2/Table 1).

Where it is intended to use material of cold flanging quality for important longitudinal strength members, this steel is to be indicated on the plans.

The design temperatures for unrestricted service are assumed to be not less than -10°C (14°F) for air temperature and not less than 0°C (32°F) for sea water temperature.

1.1.4 Guidance for Repair

Where a special welding procedure is required for special steels used in the construction, including any low temperature steel and those materials not encompassed in Chapter 1 of the *ABS Rules for Materials and Welding (Part 2)*, a set of plans showing the following information for each steel is to be placed aboard the vessel:

- Material Specification
- Welding procedure
- Location and extent of application

These plans are in addition to those normally placed aboard the vessel, and are to show all material applications.

1.3 Application

The requirements of these Rules apply to offshore service vessels of all welded steel construction. However, aluminum alloys for deckhouses, helicopter landing platforms, masts, ladders and hatch covers are acceptable when approved in accordance with the requirements of Chapter 5 of the *ABS Rules for Materials and Welding (Part 2) – Aluminum and Fiber Reinforced Plastics (FRP)*. Connections between steel and aluminum structures are to be made by interfacing bimetallic inserts. Aluminum structures and components are to be fully and efficiently precluded from having direct contact with steel by approved non-wicking, non- water absorbing insulating materials, to avoid electrolytic corrosion.

3 Application of Steel Materials 100 mm (4.0 in.) and Under in Thickness (2014)

3.1 Selection of Material Grade (2014)

Steel materials for particular locations are not to be of lower grades than those required by 3-1-2/Table 1 for the material class given in 3-1-2/Table 2 and 3-1-2/Table 3.

3.3 Note for Users

The attention of users is drawn to the fact that when fatigue loading is present, the effective strength of higher-strength steel in welded construction may not be greater than that of ordinary-strength steel.

Precautions against corrosion fatigue may also be necessary.

TABLE 1
Material Grades (2017)

Plate Thickness <i>t</i> mm (in.)	Material Class		
	I	II	III
$t \leq 15$ ($t \leq 0.60$)	A ⁽²⁾ , AH	A, AH	A, AH
$15 < t \leq 20$ ($0.60 < t \leq 0.79$)	A, AH	A, AH	B, AH
$20 < t \leq 25$ ($0.79 < t \leq 0.98$)	A, AH	B, AH	D, DH
$25 < t \leq 30$ ($0.98 < t \leq 1.18$)	A, AH	D, DH	D ⁽¹⁾ , DH
$30 < t \leq 35$ ($1.18 < t \leq 1.38$)	B, AH	D, DH	E, EH
$35 < t \leq 40$ ($1.38 < t \leq 1.57$)	B, AH	D, DH	E, EH
$40 < t \leq 100$ ($1.57 < t \leq 4.0$)	D, DH	E, EH	E, EH

Notes

- Grade D, of these plate thicknesses, is to be normalized.
- (2017) ASTM A36 steel otherwise manufactured by an ABS approved steel mill, tested and certified to the satisfaction of ABS may be used in lieu of Grade A for a thickness up to and including 12.5 mm (0.5 in.) for plate and up to and including 19 mm (0.75 in.) for rolled sections.

TABLE 2
Material Class or Grade of Structural Members
for Vessels ≥ 90 m (295 ft) in Length (2018)

Line No.	Structural Members	Within 0.4L Amidships	Outside 0.4L amidships
		Material Class ⁽⁸⁾ or Grade	Material Class or Grade
A	Secondary		
A1	Longitudinal bulkhead strakes, other than those belonging to the Primary category	I	A ⁽¹⁰⁾ /AH
A2	Deck plating exposed to weather, other than that belonging to the Primary or Special category		
A3	Side plating ⁽¹²⁾		
B	Primary		
B1	Bottom plating, including keel plate	II	A ⁽¹⁰⁾ /AH
B2	Strength deck plating, excluding that belonging to the Special category ⁽¹³⁾		
B3	Continuous longitudinal members above strength deck, excluding hatch coamings ⁽¹³⁾		
B4	Uppermost strake in longitudinal bulkhead		
B5	Vertical strake (hatch side girder) and uppermost sloped strake in top wing tank		
C	Special		
C1	Sheer strake at strength deck ^(1, 9, 13)	III	II (I outside 0.6L amidships)
C2	Stringer plate in strength deck ^(1, 9, 13)		
C3	Deck strake at longitudinal bulkhead ^(2, 9, 13)		
C4	Strength deck plating at outboard corners of cargo hatch openings in container carriers and other ships with similar hatch opening configurations ^(3, 13)		
C5	Strength deck plating at corners of cargo hatch openings in bulk carriers, ore carriers, combination carriers and other ships with similar hatch opening configurations ^(4, 13)		
C6	Bilge strake ^(5, 6, 9)		
C7	Longitudinal hatch coamings of length greater than 0.15L ⁽⁷⁾		
C8	End brackets and deck house transition of longitudinal cargo hatch coamings ⁽⁷⁾		
D	Other Categories		
D1	(1 July 2015) Plating materials for stern frames supporting rudder and propeller boss, rudders, rudder horns, steering equipment ⁽¹⁵⁾ , propeller nozzles, and shaft brackets	-	II ⁽¹¹⁾
D2	Strength members not referred to in A to C and D1 ⁽¹⁷⁾	A ⁽¹⁰⁾ /AH	A ⁽¹⁰⁾ /AH
D3	Face plates and webs of primary members and hatch covers	II ⁽¹⁴⁾	II ⁽¹⁴⁾
D4	(2017) Equipment foundations, Non-hull structure, Appurtenant structures	⁽¹⁶⁾	⁽¹⁶⁾

Notes:

- Not to be less than grade E/EH⁽⁹⁾ within 0.4L amidships in ships with length exceeding 250 m (820 ft).
- Excluding deck plating in way of inner-skin bulkhead of double hull ships.
- Not to be less than class III within the length of the cargo region.
- Not to be less than class III within 0.6L amidships and class II within the remaining length of the cargo region.
- May be of class II in ships with a double bottom over the full breadth and with length less than 150 m (492 ft).
- Not to be less than grade D/DH within 0.4L amidships in ships with length exceeding 250 m (820 ft).
- Not to be less than grade D/DH.
- Special consideration will be given to vessels of restricted class.

TABLE 2 (continued)
Material Class or Grade of Structural Members
for Vessels ≥ 90 m (295 ft) in Length (2018)

- 9 Single strake required to be class III or E/EH are to have breadths not less than $800 + 5L$ mm ($31.5 + 0.06L$ in.), but need not exceed 1800 mm (71 in.), unless limited by the geometry of the vessel's design.
- 10 (2017) ASTM A36 steel otherwise manufactured by an ABS approved steel mill, tested and certified to the satisfaction of ABS may be used in lieu of Grade A for a thickness up to and including 12.5 mm (0.5 in.) for plates and up to and including 19 mm (0.75 in.) for sections.
- 11 For rudder and rudder body plates subjected to stress concentrations (e.g., in way of lower support or at upper part of spade rudders), class III is to be applied.
- 12 Single side strakes for ships exceeding 150 m (492 feet) without inner continuous longitudinal bulkheads between bottom and the single strength deck are not to be less than grade B/AH within cargo region in ships.
- 13 (1 July 2015) Not to be less than grade B/AH for members contributing to the longitudinal strength within 0.4L amidships in ships with length exceeding 150 m (492 feet) and single strength deck.
- 14 May be Class I for rolled sections
- 15 (1 July 2015) Steering equipment components other than rudders, as described in Section 3-2-14.
- 16 (2017) ASTM A36 steel otherwise tested and certified to the satisfaction of ABS may be used in lieu of Grade A for a thickness up to and including 12.5 mm (0.5 in.) for plates and up to and including 19 mm (0.75 in.) for sections.
- 17 (2018) Deck plating below the strength deck at corners of cargo hatch openings immediately forward and aft of the engine room and/or deck house in container carriers and other ships with similar hatch opening configurations, is not to be less than Class I.

TABLE 3
Material Class or Grade of Structural Members
for Vessels 61 m (200 ft) ≤ L < 90 m (295 ft) in Length (2017)

Structural Member	Material Class ⁽¹⁾	
	Within 0.4L Amidships	Outside 0.4L Amidships
Shell		
Bottom plating including keel plate	II	A ⁽⁴⁾ /AH
Bilge strake	II	A ⁽⁴⁾ /AH
Side plating	I	A ⁽⁴⁾ /AH
Sheer strake at strength deck ⁽²⁾	II	A ⁽⁴⁾ /AH
Decks		
Strength deck plating ⁽³⁾	II	A ⁽⁴⁾ /AH
Stringer plate in strength deck ⁽²⁾	II	A ⁽⁴⁾ /AH
Strength deck plating within line of hatches and exposed to weather, in general	I	A ⁽⁴⁾ /AH
Strength deck strake on tankers at longitudinal bulkhead	II	A ⁽⁴⁾ /AH
Longitudinal Bulkheads		
Lowest strake in single bottom vessels	I	A ⁽⁴⁾ /AH
Uppermost strake including that of the top wing tank	II	A ⁽⁴⁾ /AH
Other Structures in General		
External continuous longitudinal members and bilge keels	II	A ⁽⁴⁾ /AH
(1 July 2015) Plating materials for stern frames supporting rudder and propeller boss, rudders, rudder horns, steering equipment ⁽⁵⁾ , propeller nozzles, and shaft brackets	—	I
Strength members not referred to in above categories and above local structures	A ⁽⁴⁾ /AH	A ⁽⁴⁾ /AH

Notes:

- 1 Special consideration will be given to vessels in restricted service.
- 2 A radius gunwale plate may be considered to meet the requirements for both the stringer plate and the sheer strake, provided it extends suitable distances inboard and vertically. For formed material, see 2-4-1/3.13 of the *ABS Rules for Materials and Welding (Part 2)*.
- 3 Plating at the corners of large hatch openings are to be specially considered.
- 4 (2017) ASTM A36 steel otherwise manufactured by an ABS approved steel mill, tested and certified to the satisfaction of ABS may be used in lieu of Grade A for a thickness up to and including 12.5 mm (0.5 in.) for plates and up to and including 19 mm (0.75 in.) for sections.
- 5 (1 July 2015) Steering equipment components other than rudders, as described in Section 3-2-14.

3.5 Structures Exposed to Low Air Temperatures (2017)

For ships intended to operate in areas with low air temperatures [below and including −20°C (−4°F)], the materials in exposed structures are to be selected based on the design temperature t_D , to be taken as defined in 3-1-2/3.7.

Materials in the various strength members above the lowest ballast water line (BWL) exposed to air are not to be of lower grades than those corresponding to Classes I, II and III, as given in 3-1-2/Table 4, depending on the categories of structural members (secondary, primary and special). For non-exposed structures (except as indicated in Note 5 of 3-1-2/Table 4) and structures below the lowest ballast water line, see 3-1-2/3.1.

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TABLE 4
Application of Material Classes and Grades – Structures Exposed at Low Temperatures (2017)

Structural Member Category	Material Class	
	Within 0.4L Amidships	Outside 0.4L Amidships
Secondary	I	I
Deck plating exposed to weather, in general		
Side plating above BWL		
Transverse bulkheads above BWL ⁽⁵⁾		
Primary	II	I
Strength deck plating ⁽¹⁾		
Continuous longitudinal members above strength deck, excluding longitudinal hatch coamings		
Longitudinal bulkhead above BWL ⁽⁵⁾		
Top wing tank bulkhead above BWL ⁽⁵⁾	III	II
Special		
Sheer strake at strength deck ⁽²⁾		
Stringer plate in strength deck ⁽²⁾		
Deck strake at longitudinal bulkhead ⁽³⁾		
Continuous longitudinal hatch coamings ⁽⁴⁾		

Notes:

- 1 Plating at corners of large hatch openings to be specially considered. Class III or Grade E/EH to be applied in positions where high local stresses may occur.
- 2 Not to be less than Grade E/EH within 0.4L amidships in ships with length exceeding 250 meters (820 feet).
- 3 In ships with breadth exceeding 70 meters (230 feet) at least three deck strakes to be Class III.
- 4 Not to be less than Grade D/DH.
- 5 (2017) Applicable to plating attached to hull envelope plating exposed to low air temperature. At least one strake is to be considered in the same way as exposed plating and the strake width is to be at least 600 mm (24 in.).

The material grade requirements for hull members of each class depending on thickness and design temperature are defined in 3-1-2/Table 5. For design temperatures $t_D < -55^\circ\text{C}$ (-67°F), materials are to be specially considered.

TABLE 5
Material Grade Requirements for Classes I, II and III at Low Temperatures (2015)

Class I

Thickness, in mm (in.)	-20 to -25°C (-4 to -13°F)	-26 to -35°C (-14 to -31°F)	-36 to -45°C (-32 to -49°F)	-46 to -55°C (-50 to -68°F)
$t \leq 10$ ($t \leq 0.39$)	A, AH	B, AH	D, DH	D, DH
$10 < t \leq 15$ ($0.39 < t \leq 0.60$)	B, AH	D, DH	D, DH	D, DH
$15 < t \leq 20$ ($0.60 < t \leq 0.79$)	B, AH	D, DH	D, DH	E, EH
$20 < t \leq 25$ ($0.79 < t \leq 0.98$)	D, DH	D, DH	D, DH	E, EH
$25 < t \leq 30$ ($0.98 < t \leq 1.18$)	D, DH	D, DH	E, EH	E, EH
$30 < t \leq 35$ ($1.18 < t \leq 1.38$)	D, DH	D, DH	E, EH	E, EH
$35 < t \leq 45$ ($1.38 < t \leq 1.80$)	D, DH	E, EH	E, EH	-, FH
$45 < t \leq 50$ ($1.80 < t \leq 1.97$)	E, EH	E, EH	-, FH	-, FH

Class II

Thickness, in mm (in.)	-20 to -25°C (-4 to -13°F)	-26 to -35°C (-14 to -31°F)	-36 to -45°C (-32 to -49°F)	-46 to -55°C (-50 to -68°F)
$t \leq 10$ ($t \leq 0.39$)	B, AH	D, DH	D, DH	E, EH
$10 < t \leq 20$ ($0.39 < t \leq 0.79$)	D, DH	D, DH	E, EH	E, EH
$20 < t \leq 30$ ($0.79 < t \leq 1.18$)	D, DH	E, EH	E, EH	-, FH
$30 < t \leq 40$ ($1.18 < t \leq 1.57$)	E, EH	E, EH	-, FH	-, FH
$40 < t \leq 45$ ($1.57 < t \leq 1.80$)	E, EH	-, FH	-, FH	-, -
$45 < t \leq 50$ ($1.80 < t \leq 1.97$)	E, EH	-, FH	-, FH	-, -

Class III

Thickness, in mm (in.)	-20 to -25°C (-4 to -13°F)	-26 to -35°C (-14 to -31°F)	-36 to -45°C (-32 to -49°F)	-46 to -55°C (-50 to -68°F)
$t \leq 10$ ($t \leq 0.39$)	D, DH	D, DH	E, EH	E, EH
$10 < t \leq 20$ ($0.39 < t \leq 0.79$)	D, DH	E, EH	E, EH	-, FH
$20 < t \leq 25$ ($0.79 < t \leq 0.98$)	E, EH	E, EH	E, FH	-, FH
$25 < t \leq 30$ ($0.98 < t \leq 1.18$)	E, EH	E, EH	-, FH	-, FH
$30 < t \leq 35$ ($1.18 < t \leq 1.38$)	E, EH	-, FH	-, FH	-, -
$35 < t \leq 40$ ($1.38 < t \leq 1.57$)	E, EH	-, FH	-, FH	-, -
$40 < t \leq 50$ ($1.57 < t \leq 1.97$)	-, FH	-, FH	-, -	-, -

Single strokes required to be of Class III or of Grade E/EH or FH are to have breadths not less than $800 + 5L$ mm, maximum 1800 mm.

Plating materials for sternframes, rudder horns, rudders and shaft brackets are not to be of lower grades than those corresponding to the material classes given in 3-1-2/3.1.

3.7 Design Temperature t_D (2017)

The design temperature t_D is to be taken as the lowest mean daily average air temperature in the area of operation.

- **Mean:** Statistical mean over observation period
- **Average:** Average during one day and night
- **Lowest:** Lowest during year

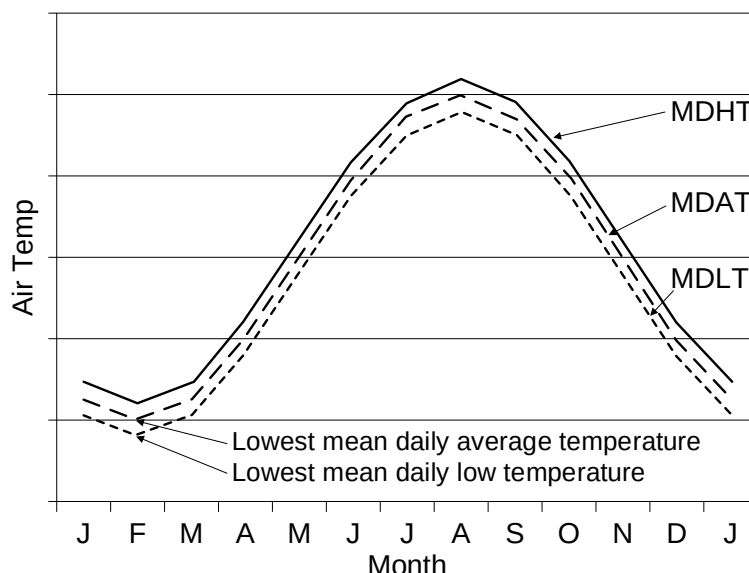
For seasonally restricted service the lowest value within the period of operation applies.

For the purpose of issuing a Polar Ship Certificate in accordance with the Polar Code, the design temperature t_D shall be no more than 13°C (23.6°F) higher than the Polar Service Temperature (PST) of the ship.

In the Polar Regions, the statistical mean over observation period is to be determined for a period of at least 10 years.

3-1-2/Figure 1 illustrates the temperature definition.

FIGURE 1
Commonly Used Definitions of Temperatures (2017)



MDHT = Mean Daily High (or maximum) Temperature

MDAT = Mean Daily Average Temperature

MDLT = Mean Daily Low (or minimum) Temperature

5 Scantlings

5.1 General

The midship scantlings specified in these Rules are to apply throughout the midship 0.4L. End scantlings are not to extend for more than 0.1L from each end of the vessel. Reduction in scantlings from the midship to the end scantlings is to be executed in as gradual a manner as practicable. Sections having appropriate section moduli or areas, in accordance with their functions in the structure as stiffeners, columns or combinations of both, are to be adopted, due regard being given to the thickness of all parts of the sections to provide a proper margin for corrosion. It may be required that calculations be submitted in support of resistance to buckling for any part of the vessel's structure.

5.3 Rounding of Calculated Thickness

The required thickness is given by rounding the calculated plate thickness to the nearest half millimeter (or $\frac{1}{64}$ inch). For example:

For $10.75 \leq t_{calc} < 11.25$ mm the Rule required thickness is 11 mm

For $11.25 \leq t_{calc} < 11.75$ mm the Rule required thickness is 11.5 mm

5.5 Dynamic Loading Approach

The notation **SH-DLA** will be assigned to vessels which have been reviewed based upon an acceptable dynamic load and structural analysis procedure, taking into consideration the dynamic load components acting on the vessel.

The dynamic load components considered are to include the external hydrodynamic pressure loads, dynamic loads from cargoes and inertial loads of the hull structure. The magnitude of the load components and their combinations are to be determined from appropriate ship motion response calculations for loading conditions which represent the envelope of maximum dynamically induced stresses in the vessel.

The adequacy of the hull structure for all combinations of the dynamic loadings is to be evaluated using an acceptable finite element analysis method.

In no case are the structural scantlings to be less than those obtained from other requirements in these Rules.

7 Proportions

In general, these Rules are valid for all vessels having characteristics as described in 3-2-1/1.

9 Workmanship

All workmanship is to be of commercial marine quality and acceptable to the Surveyor. Welding is to be in accordance with the requirements of Chapter 4 of the *ABS Rules for Materials and Welding (Part 2)*. See also 3-7-3/1.

11 Drydocking (2018)

Consideration is to be given to drydocking the vessel within twelve months after delivery. **For vessels over 90 m (295 ft) in length**, information indicating docking arrangements is to be submitted for **information** and furnished onboard the vessel for guidance.

13 Structural Sections

13.1 General

The scantling requirements of these Rules are applicable to rolled section angle bars, channels, bulb plates, flat bars etc. and built-up sections.

13.3 Primary Support Members

The required section modulus of primary support members such as girders, webs, etc. that support frames, beams and stiffeners, is to be obtained on an effective width of plating basis in accordance with this Subsection. The section is to include the structural member in association with an effective width of plating not exceeding one-half of the sum of the spacing on each side of the member or 33% of the unsupported span of the member, ℓ , whichever is less. For girders and webs along hatch openings, an effective breadth of plating not exceeding one-half of the spacing or 16.5% of the unsupported span ℓ , whichever is less, is to be used.

13.5 Local Support Members

13.5.1 Section Modulus

The required section modulus is to be provided by the frame, beam or stiffener and a maximum of one member space of the plating to which it is attached.

13.5.2 Web Thickness

The depth to thickness ratio of the web portion of members is not to exceed the following:

Members with flange $50C_1C_2$

Members without flange $15C_1C_2$