RULES

FOR THE CLASSIFICATION AND CONSTRUCTION OF SEA-GOING SHIPS

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RULE CHANGE NOTICE

ENTERS INTO FORCE:

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RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF SEA-GOING SHIPS

The present Rule Change Notice to the Rules for the Classification and Construction of Sea-Going Ships (hereinafter — RCN) has been approved in accordance with the established approval procedure and contains information on amendments, except for editorial amendments. RCN amendments come in force on 1 July 2025.

REVISION HISTORY

PART I. CLASSIFICATION

Item	Applicability	Description	Remarks
Paras 2.2.3.1.1 and 2.2.3.1.2	Definitions	List of icebreaking operations of icebreakers and operating modes of ice class ships have been specified	
Para 2.2.3.1.3	Definitions	New definition "ramming" has been introduced	
Table 2.2.3.3.2, Note 1	Ice classes Ice navigation conditions	Means to surmount ice ridges have been added. Limitation for ships with a bulbous bow has been introduced	
Para 2.2.57.3	Ships under construction Distinguishing mark **ODYSS(Tank C)**	Description of the distinguishing mark confirming the use of the Register software has been amended with regard to the check of dimensions of type C tank elements	
Para 2.2.57, Note	Ships under construction Technical documentation Distinguishing marks **ODYSS(Hull)**, **ODYSS(Rudder)**, **ODYSS(Tank C)**	Requirements have been amended regarding the scope of information to be submitted to the Register when the Register software is used	In connection with the introduction of new Section 35 into Part XVII "Distinguishing Marks and Descriptive Notations in the Class Notation Specifying Structural and Operational Particulars of Ships"

Item	Applicability	Description	Remarks
Para 2.2.65 (new)	Container ships New distinguishing mark in the class notation	New distinguishing mark **LS** (Lashing Software) regarding lashing software has been introduced	
Table 2.5, item 1.32 (new)	Container ships New distinguishing mark in the class notation	Description and reference to additional RS requirements for new distinguishing mark **LS** have been introduced	
Table 2.5, item 2.33	Ships under construction Distinguishing marks **ODYSS(Hull)**, **ODYSS(Rudder)**, **ODYSS(Tank C)**	References to the additional RS requirements for the distinguishing marks have been updated	
Table 2.5, item 3.1	Container ships Software	Item has been supplemented by a reference to the applicable requirements for container ships	
Para 3.2.2.1, column "Remark"	Ships under construction Technical documentation Check of hull members scantlings as well as longitudinal strength and buckling	Requirements regarding the scope of information to be included in the project file created in the Register software have been amended	
Paras 3.2.2.12 — 3.2.2.13	Technical documentation	Drawings of sections and assemblies of superstructures and deckhouses as well as Hull blocks plan have been excluded from the scope of plan approval documentation (column "PAD" in the table)	

Item	Applicability	Description	Remarks
Para 3.2.3.6, column "Remark"	Ships under construction Technical documentation Check of assemblies and components of the steering gear	Requirements regarding the scope of information included in the project file created in the Register software have been introduced	
Para 3.2.10.2.6 (deleted)	Technical documentation	Documents on portable electrical measuring instruments and alarm systems for ultimate concentration of dangerously explosive and noxious gases have been deleted from the list of design documentation on certain types of electrical equipment. Existing para 3.2.10.2.7 has been renumbered 3.2.10.2.6	
Para 3.2.17.8.24, column "Remark"	Ships under construction Technical documentation Check of dimensions of type C tank elements	Requirements regarding the scope of information included in the project file created in the Register software have been introduced	

PART II. HULL

Item	Applicability	Description	Remarks
Para 3.10.3.1	**Ice1**, **Ice2**, **Ice3** ice class ships with bulbous bows and when $\beta \leq 5$ Hull	Scope of application of formulae for determining the ice load parameters given in 3.10.3.8 has been specified	

Item	Applicability	Description	Remarks
Para 3.10.3.2.1	**Ice1**, **Ice2**, **Ice3** ice class ships with bulbous bows and when $\beta \leq 5$ Hull	Formulae for determining ice pressure for **Ice1**, **Ice2** and **Ice3** ice classes have been amended	
Para 3.10.3.3.1	**Ice1**, **Ice2**, **Ice3** ice class ships with bulbous bows and when $\beta \leq 5$ Hull	Formulae for determining vertical distribution of ice pressure for **Ice1**, **Ice2** and **Ice3** ice classes have been amended	
Para 3.10.3.8	**Ice1**, **Ice2**, **Ice3** ice class ships with bulbous bows and when $\beta \leq 5$ Hull	Requirements for **Ice1**, **Ice2** and **Ice3** ice classes have been deleted	
Para 3.10.3.8.1	**Ice1**, **Ice2**, **Ice3** ice class ships with bulbous bows and when $\beta \leq 5$ Hull	Formulae for determining ice pressure for **Ice1**, **Ice2** and **Ice3** ice classes have been deleted	
Para 3.10.3.8.2	**Ice1**, **Ice2**, **Ice3** ice class ships with bulbous bows and when $\beta \leq 5$ Hull	Formulae for determining vertical distribution of ice pressure for **Ice1**, **Ice2** and **Ice3** ice classes have been deleted	
Para 3.10.3.8.3	**Ice1**, **Ice2**, **Ice3** ice class ships with bulbous bows and when $\beta \leq 5$ Hull	Formulae for determining horizontal distribution of ice pressure for **Ice1**, **Ice2** and **Ice3** ice classes have been deleted	
Para 3.10.3.8.4 (deleted)	**Ice1**, **Ice2**, **Ice3** ice class ships Hull	Para 3.10.3.8.4 has been deleted as being no longer relevant. Existing para 3.10.3.8.5 and references thereto have been renumbered 3.10.3.8.4	
Para 3.10.4.5.6	Ice class ships Hull	Requirements have been aligned with 3.10.2.4.4	

Item	Applicability	Description	Remarks
Para 3.10.4.11.3	Ice class ships Hull	Reference to the applicable requirements has been updated	

PART III. EQUIPMENT, ARRANGEMENTS AND OUTFIT

Item	Applicability	Description	Remarks
Para 2.1.10	Special purpose ships carrying more than 240 persons Steering gear	Criterion of the requirements applicability for special purpose ships (number of persons on board) has been harmonized with the international requirements	IMO circular MSC.1/Circ.1422
Para 4.3.5	Mooring arrangement Supporting hull structures	Para has been supplemented with the requirements for methods of strength assessment used in calculations	
Para 7.12.1.1	Ships Doors in subdivision bulkheads	Reference to the applicable requirements has been introduced	IACS UI SC156 (Rev.3 July 2024)
Para 7.12.5.15	Special purpose ships carrying more than 240 persons Power operated doors	Criterion of the requirements applicability for special purpose ships (number of persons on board) has been harmonized with the international requirements	IMO circular MSC.1/Circ.1422
Paras 8.5.5 and 8.5.5.1	Special purpose ships carrying more than 60 persons and passenger ships carrying more than 36 passengers Marking of escape routes	Para has been renamed in accordance with its content. Requirements have been harmonized with the requirements of SOLAS-74	

PART IV. STABILITY

Item	Applicability	Description	Remarks
Para 3.4.4	Oil tankers Software	Type of stability software has been specified	

PART V SUBDIVISION

Item	Applicability	Description	Remarks
Para 2.7.5	Passenger ships Software	Updated the requirement for the type of software used	IACS UR L5 (Rev.4 June 2020)
Para 3.4.5.7 (new)	Oil tankers	New para has been introduced containing requirements for a ship to have prompt access to a shore-based centre for damage stability and residual structural strength calculation	Regulation 37.4 Annex 1 to MARPOL 73/78

PART VI. FIRE PROTECTION

Item	Applicability	Description	Remarks
Paras 2.1.3.8 — 2.1.3.10 (new)	Structural fire protection Open deck, ro-ro cargo spaces, vehicle spaces Hatches, access doors, movable ramps, non-watertight doors used for loading/unloading of vehicles	New requirements for fire integrity of closing appliances have been introduced	IMO circular MSC.1/Circ.1511/Rev.1

Item	Applicability	Description	Remarks
Para 2.1.5.5.3	Structural fire protection Ro-ro cargo spaces, vehicle spaces, special category spaces	References to the applicable requirements have been introduced	
Para 2.4.7	Oil tankers and chemical tankers Cargo area	Definition "cargo area" has been specified for oil tankers and chemical tankers	IACS UI SC211 (Rev.1 Sep 2024)
Table 3.1.2.1	Fire protection of ships' machinery spaces	Item 18 has been deleted. Items 19 — 22 have been renumbered 18 — 21, accordingly	
Para 3.1.4.2	Shipboard fire extinguishing systems (water fire main, sprinkler, pressure water-spraying and foam fire extinguishing) Plastic piping	The possibility has been indicated for application of plastic piping in fire extinguishing systems according to 3.3, Part VIII "Systems and Piping"	
Para 3.2.3.6	Water fire main system Fire pumps Sea valves	Requirement has been brought into compliance with 3.2.1.2 regarding arrangement of sea valves of fire pumps installed outside machinery space of category A	
Para 3.2.5.4	Oil tankers Water fire main system Isolation valves	Requirements have been introduced regarding location of isolation valves in the fire main	IMO circular MSC.1/Circ.1456/Rev.1
Para 3.8.2.6.1	Carbon dioxide smothering system Protective device of cylinder	Requirement has been introduced concerning possible replacement of the checking device indicating that the protective device has operated with a signalling device to indicate the presence of pressure	

Item	Applicability	Description	Remarks
Para 3.8.2.7	Carbon dioxide smothering system Protective device of cylinder	Requirements have been amended regarding methods of gas discharge from the protective device of cylinder to the atmosphere	
Para 3.8.5	Local carbon dioxide fire extinguishing stations	Requirements have been amended regarding determination (limitation) of the total mass of carbon dioxide in cylinders installed in recesses or cabinets, in internal ship's spaces within control stations (fire stations), accommodation and service spaces from which protective devices the gas discharge to the atmosphere is not provided	
Para 4.2.1.2.6	Fishing vessels of 24 m in length and over Spaces for specially equipped fish-processing shops (for raw fish filleting and washing, refrigerating, canning shops) Fire detection and fire alarm system	Requirement has been introduced on installation of automatic fire detectors of fire detection and fire alarm system	
Table 5.1.2, item 10.5 (new)	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation Fireman's outfit	Requirement has been introduced on the minimum total number of fireman's outfits	

Item	Applicability	Description	Remarks
Chapter 6.6	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation	Chapter has been renamed to comply with the Russian version	
Para 6.6.1.2	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation, being also oil recovery ships Fire protection method IC	Requirement has been introduced on use of method IC in way of accommodation and service spaces and control stations	
Table 6.6.3-1	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation Special systems (water-screen, pressure water-spraying, bilge)	Footnote 2 has been introduced regarding mandatory protection of substructures and deckhouses made of aluminium alloys by means of water-screen system and/or pressure water-spraying system. Reference to the requirements of 7.1.10, Part VIII "Systems and Piping" has been deleted	

Item	Applicability	Description	Remarks
Table 6.6.3-2	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation Special fire extinguishing systems (water fire main, foam fire extinguishing, dry powder) Water, foam and dry powder monitors; distribution valve manifolds; additional fire hoses and hand nozzles	Requirements have been introduced for number, capacity, length and height of throw of water monitors, for capacity and length of throw of foam monitors as well as for capacity and minimum supply distance of dry powder monitors. Requirements have been introduced for number of distribution valve manifolds on each side, for the number of fire hydrants on each distribution valve manifold and for the total number of fire hydrants in all distribution valve manifolds. Requirements have been introduced for number of additional fire hoses and hand nozzles	
Para 6.6.8.5	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation in addition being oil recovery ships Foam monitors	Requirement has been introduced on possibility for fire fighting by foam monitors of the own decks located above oil recovery tanks, as well as of location of OSR equipment	

Item	Applicability	Description	Remarks
Para 6.6.8.7	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation Distribution valve manifolds	Requirement has been introduced for number of distribution valve manifolds and fire hydrants on each manifold on ships with distinguishing marks **FF2** and **FF2WS** in the class notation. Requirement has been introduced regarding necessity to provide reduction of pressure at the distribution valve monitors/fire hydrants in cases where water is supplied to the distribution valve manifolds by pumps serving the monitor supply lines	
Para 6.6.9.1	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation Equipment of foam fire extinguishing system	References have been introduced to the requirements for selection of number and type of equipment for foam fire extinguishing system	
Para 6.6.9.4	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation Equipment of foam fire extinguishing system Foam concentrate	Requirements have been introduced for calculation of the reserve of foam concentrate	

Item	Applicability	Description	Remarks
Para 6.6.9.5	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation Equipment of foam fire extinguishing system Foam concentrate	Requirements have been introduced for selection of foam concentrate depending on subclass B1 or B2 of class B fire	
Para 6.6.10.1	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation Special dry powder systems	Requirement has been introduced on installation of system on ships intended for fire fighting of class C fires on gas carriers, chemical tankers, FOP and FPU on agreement with the customer	
Para 6.6.10.4	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation Special dry powder systems Extinguishing powder	Reference has been introduced to the requirements for calculation of the extinguishing powder quantity	

Item	Applicability	Description	Remarks
Para 6.6.11.1	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation Additional fire-fighting equipment and outfit	Requirements have been introduced for number of fireman's outfits, fire hoses, dual-purpose manual fire nozzles, available air compressor for charging the self-contained breathing apparatus cylinders	
Para 6.6.11.2	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation Additional fire-fighting equipment and outfit	Requirement has been amended regarding possible location of fire hoses, hand nozzles, foam generators, air-foam nozzles, hose wrenches near distribution valve manifolds	
Para 6.6.11.3	Ships carrying equipment for fire fighting aboard other ships and having relevant distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** in the class notation Additional fire-fighting equipment and outfit	Requirement has been introduced regarding mandatory provision on ship of air compressor for charging the self-contained breathing apparatus cylinders as well as regarding its fitting and capacity	

PART VII. MACHINERY INSTALLATIONS

Item	Applicability	Description	Remarks
Para 4.5.5.1, Note 1	Passenger ships Machinery spaces Means of escape	The definition of "Safe position" has been aligned with the IACS unified interpretation in relation to means of escape from machinery spaces through the steering gear space on passenger ships	IACS UI SC 276 (Rev.1 May 2024)
Para 4.5.9	Passenger ships Machinery spaces Means of escape	Terminology has been corrected. Definitions of terms "Main workshop", "Machinery control rooms" and "Continuous fire shelter" have been introduced. The para has been supplemented by illustrating Figures	MSC.1/Circ.1511/Rev.1
Para 4.5.10.1, Note 1	Cargo ships Machinery spaces Means of escape	The definition of "Safe position" has been aligned with the IACS unified interpretation in relation to means of escape from machinery spaces through the steering gear space on passenger ships	IACS UI SC 276 (Rev.1 May 2024)
Para 4.5.10.4	Cargo ships Machinery spaces Means of escape	Terminology has been corrected. Terms "Main workshop", "Machinery control rooms" and "Continuous fire shelter" have been defined	MSC.1/Circ.1511/Rev.1

PART VIII. SYSTEMS AND PIPING

Item	Applicability	Description	Remarks
Para 2.6.2	Metal piping Connection gaskets and insulation materials	Requirement has been introduced for application of ftoroplast gaskets depending on the working medium temperature	
Para 7.1.1	Special purpose ships Bilge system Bilge pumps	Requirement on applicability to special purpose ships has been deleted	
Para 7.1.2	Special purpose ships Bilge system Bilge pumps	Dependence of the requirements application on the number of people on board has been deleted	2008 SPS Code
Para 7.1.4	Special purpose ships Bilge system Bilge pumps	Dependence of the requirements application on the number of people on board has been deleted	2008 SPS Code
Para 7.1.6	Special purpose ships Bilge system Bilge pumps capacity for special purpose ships	Requirement on applicability to special purpose ships has been introduced	2008 SPS Code
Para 7.3.6	Special purpose ships Bilge system Piping laying	Dependence of the requirements application on the number of people on board has been deleted	2008 SPS Code
Para 7.6.15.2	Bilge system Water level detectors in hold	Requirement has been introduced for safe-type design of detectors and their protection against mechanical damages by cargo	IMO circular MSC.1/Circ.1572/ Rev.2.

Item	Applicability	Description	Remarks
Para 12.2.4	Ventilation system Exhaust ducts from galley ranges	Requirements have been introduced for design of exhaust ducts from galley ranges passing through accommodation spaces or spaces containing combustible materials	SOLAS regulation II-2/9.7.5.2
Para 12.6.8 (new)	Ro-ro spaces Vehicle spaces Ventilation of cargo spaces Transit ventilation ducts	Requirements for fire-resistance have been introduced	IMO circular MSC.1/Circ.1511/Rev.1
Para 13.5.1	Fuel oil system Arrangements for collection of leakage fuel	List of the fuel system components has been defined to be fitted with drip trays. Requirements for drip tray design have been introduced	
Para 16.1.6	Compressed air system Compressed air demand for domestic needs	Requirement has been introduced for compressed air demand for domestic needs supplied from the engine starting air receivers	IACS UR M61 (Rev.3 Feb 2024)

PART X. BOILERS, HEAT EXCHANGERS AND PRESSURE VESSELS

Item	Applicability	Description	Remarks
Para 3.3.6.4	Boilers Valves and gauges	Para has been supplemented by the requirement for adjustment of safety valves of steam boilers	

PART XI. ELECTRICAL EQUIPMENT

Item	Applicability	Description	Remarks
Para 1.3.2.1.10 (new)	Electrical equipment Primary essential devices Fire extinguishing medium pumps	The list of primary essential devices has been supplemented with fire extinguishing medium pumps. Existing paras 1.3.2.1.10 — 1.3.2.1.15 have been renumbered 1.3.2.1.11 — 1.3.2.1.16 accordingly.	IMO circular MSC.1/Circ.1572/Rev.2
Para 1.3.2.2.7 (deleted)	Electrical equipment Secondary essential devices Fire extinguishing medium pumps	The para has been deleted in connection with the requirements being transferred to para 1.3.2.1.10. Existing paras 1.3.2.2.8 — 1.3.2.2.19 have been renumbered 1.3.2.2.7 — 1.3.2.2.18 accordingly	IMO circular MSC.1/Circ.1572/Rev.2
Para 3.1.1	Electrical equipment Main source of electrical power	The requirements for admissibility of use of accumulator batteries as the main source of electrical power have been aligned with those in para 6.10.2.1.1, Part XIX "Additional Requirements for Cargo Ships of Less Than 500 Gross Tonnage"	
Para 3.1.7 (deleted)	Electrical equipment Main source of electrical power	Para has been deleted on account of the provisions thereof being transferred to para 3.1.1	

Item	Applicability	Description	Remarks
Para 8.1.8	Electrical equipment Protection devices of generators and important major services	Requirements for operational testing of protection devices of generators and important major services ever 5 years have been deleted to prevent the duplication with the requirements in the Rules for the Classification Surveys of Ships in Service	
Para 9.7.1	Uninterruptible power systems (UPS)	Reference to applicable international standard has been updated	IACS UR E21 (Rev.2 Feb 2024)
Para 9.7.2	Uninterruptible power systems (UPS)	References to applicable international standards have been updated	IACS UR E21 (Rev.2 Feb 2024)
Para 9.7.5	Uninterruptible power systems (UPS)	Requirements for bypass transfer switch have been added	IACS UR E21 (Rev.2 Feb 2024)
Para 9.7.6	Uninterruptible power systems (UPS)	Requirements for UPS audible and visual alarm have been aligned with acting international standards	IACS UR E21 (Rev.2 Feb 2024)
Para 9.7.8	Uninterruptible power systems (UPS)	References to applicable international standards have been updated	IACS UR E21 (Rev.2 Feb 2024)

PART XIII. MATERIALS

Item	Applicability	Description	Remarks
Table 2.2.3.1-4	Metals Impact test Subsize specimens	The Table is supplemented by the average impact energy value for a subsize specimen with 2,5 mm thickness in accordance with the requirements of 2.2.3.1	
Para 3.4.1.3.2	Ships of all types Steel tubes and pipes	Requirements regarding performance of technological tests as being non-mandatory and representing additional requirements of the customer have been deleted.	
Para 3.4.1.6	Ships of all types Steel tubes and pipes	Requirements regarding performance of technological tests as being non-mandatory and representing additional requirements of the customer have been deleted.	
Para 3.5.2.2	Steel for structures used at low temperatures Hull structural Grade F higher strength steel	Requirements for plastic deformation have been amended considering processing capabilities of Russian manufacturers	
Para 3.5.2.3.1	Steel for structures used at low temperatures Grade F higher strength steel	In the absence of certified procedures, requirements for anisotropy factor and the portion and size of bainite areas with lath morphology have been excluded	
Table 3.5.2.3	Steel for structures used at low temperatures Grade F higher strength steel	Requirements for sulphur and phosphorus content have been aligned with those of acting standards for ship structural steels	

Item	Applicability	Description	Remarks
Para 3.5.3.1.2	Steel for structures used at low temperatures "Arc"-indexed steels	Requirements for plastic deformation have been amended considering processing capabilities of Russian manufacturers	
Para 3.16.4.3	Ships of all types Stainless steel tubes and pipes	Requirements regarding performance of technological tests as being non-mandatory and representing additional requirements of the customer have been deleted.	
Table 6.5.3.1	Ice-resistant coatings	Requirements for minimum nominal dry film thickness of ice-resistant coating have been introduced	
Para 6.5.3.2	Ice-resistant coatings	Recommendation to use different colours for each layer of coating has been excluded	

PART XIV. WELDING

Item	Applicability	Description	Remarks
Table 2.2.4	Ships under construction Welding consumables for welding of higher strength steels F32 — F40	The table is supplemented with newly introduced requirements for the possibility to assign a higher digital index of welding consumable grade by cold resistance	
Para 2.2.4.9 (new)	Ships under construction Welding consumables for welding of higher strength steels F32 — F40	Requirements specifying possibility to assign a grade for welding consumables with digital index 5 (for impact test of specimens) have been introduced	

Item	Applicability	Description	Remarks
Para 2.2.5.9 (new)	Ships under construction Welding consumables for welding of high strength steels to normal strength or higher strength steels	Requirements for selection of welding consumables for welding of shipbuilding steels which differ considerably from each other on strength characteristics have been introduced	
Para 2.2.6 (deleted)	Ships under construction Welding consumables for welding of steel structures operating at low temperatures	Requirements of para 2.2.6 for higher strength steels F32 — F40 have been specified in para 2.2.4. Requirements of para 2.2.6.1 have been transferred to new para 2.2.4.9. Para 2.2.7 has been renumbered 2.2.6. References to para 2.2.6 have been updated in paras 2.3.2, 2.4.2 and 2.5.2.	

PART XV. AUTOMATION

Item	Applicability	Description	Remarks
Para 8.10.4	Dynamic positioning systems (DP systems)	Conditions of using the position reference systems for Class 1 DP systems have been amended	

PART XVII. DISTINGUISHING MARKS AND DESCRIPTIVE NOTATIONS IN THE CLASS NOTATION SPECIFYING STRUCTURAL AND OPERATIONAL PARTICULARS OF SHIPS

Item	Applicability	Description	Remarks
Chapter 13.5 (new)	General dry cargo ships occasionally carrying bulk cargo in cargo hold Hull Freeboard and stability Hatch covers of cargo hold Systems and piping Electrical equipment	Requirements have been introduced for assigning the additional notation **occ-bulk-cargo** in the class notation	IMO resolution MSC.277(85)
Para 16.4.2.3	Ships in service with the distinguishing mark **BMS** in the class notation	Requirements for the boiler and feed water monitoring have been amended. Requirement to carry out the boiler water periodical analysis in land-based laboratories has been deleted	
Para 16.4.2.4 (deleted)	Ships in service with the distinguishing mark **BMS** in the class notation	Requirement to carry out the boiler water analysis in land-based laboratories has been deleted	
Para 16.5.2.2	Ships in service with the distinguishing mark **BMS** in the class notation	Requirements to the frequency of internal surveys of boiler's water/steam side have been amended. Reference to the current RS rules has been amended	
Para 16.5.2.3	Ships in service with the distinguishing mark **BMS** in the class notation	Requirements to the frequency of internal surveys of boiler's furnace/fire side have been amended	

Item	Applicability	Description	Remarks
Para 23.1.4 (new)	Ships equipped to use methanol/ethanol as fuel	Requirements have been introduced to perform the risk analysis with a reference to international requirements	IGF Code, as amended MSC.1/Circ.1621
Para 23.2.1.1	Ships equipped to use methanol/ethanol as fuel Integral tanks containing methanol/ethanol	Requirements have been introduced for the arrangement of integral tanks containing methanol/ethanol and being adjacent to machinery spaces of Category A	IACS UR GF 20 (June 2024)
Para 23.3.1.1	Ships equipped to use methanol/ethanol as fuel Integral tanks containing methanol/ethanol	Requirements have been introduced for the arrangement of integral tanks containing methanol/ethanol and being adjacent to an open deck as well as for the arrangement of fuel tanks of tankers carrying methanol/ethanol	IACS UR GF 20 (June 2024)
Section 35 (new)	Ships under construction Distinguishing marks **ODYSS(Hull)**, **ODYSS(Rudder)**, **ODYSS(Tank C)**	Requirements have been introduced for ships with distinguishing marks in the class notation confirming the use of the Register software	

PART XIX. ADDITIONAL REQUIREMENTS FOR CARGO SHIPS OF LESS THAN 500 GROSS TONNAGE

Item	Applicability	Description	Remarks
Para 6.10.8.3.1	Electrical equipment Emergency electrical installations	Requirement has been amended for the time period of supplying power to services from emergency sources of electrical power depending on gross tonnage and area of navigation	

PART I. CLASSIFICATION

2 CLASS OF A SHIP

2.2 CLASS NOTATION OF A SHIP. MANDATORY AND OPTIONAL DISTINGUISHING MARKS AND DESCRIPTIVE NOTATIONS IN THE CLASS NOTATION ASSIGNED BY RUSSIAN MARITIME REGISTER OF SHIPPING

Para 2.2.57.3 is amended as follows:

"**.3 ODYSS(Tank C)** is a distinguishing mark that may be added to the character of classification of ~~LG carriers~~ ships for which the Register software is used to check the dimensions of the type C tank ~~structures~~ elements for compliance with the requirements of the RS rules.".

Para 2.2.57. **Note** is amended as follows:

"N o t e . The distinguishing marks stated above may be assigned provided the project file (file with the extension *.ody — for **ODYSS(Hull)**, *.odyr — for **ODYSS(Rudder)**, *.odyt — for **ODYSS(Tank C)**) created in the Register software and containing appropriate input data, calculations, etc. complying with the requirements of Section 35 of Part XVII "Distinguishing Marks and Descriptive Notations in the Class Notation Specifying Structural and Operational Particulars of Ships", is submitted as part of the technical documentation~~, taking into account 12.4 of Part II "Technical Documentation" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships)~~. The results of calculations performed using the Register software shall be taken into account at the technical documentation review.".

Paras 2.2.3.1.1 and **2.2.3.1.2** are amended as follows:

"**2.2.3.1.1** I c e b r e a k e r s are specialized ships intended for all kinds of icebreaking operations: escort of ships in ice, ~~surmount of ice ridges,~~ breaking of a navigable channel, towing, breaking of ice, ~~and~~ rescue operations. There are two main regimes of ice navigation while performing icebreaking operations: continuous motion and ramming.

2.2.3.1.2 I c e c l a s s s h i p s are ships intended for independent ice navigation including motion in fractures between floes, ~~surmounting of ice isthmuses and portions of relatively thin compact ice, or~~ navigation in ice with icebreaker escort, surmounting of ice ridges and portions of relatively thin compact ice by continuous motion or by ramming.".

Para 2.2.3.1.3 is supplemented by the following definition:

"r a m m i n g means a reciprocating motion of a ship forward by acceleration and hull impact against the ice with a subsequent stop to repeat the manoeuvre.".

Table 2.2.3.3.2. **Note 1** is amended as follows:

"1. Permissible ice conditions for ship operation may be indicated by the Register in the Ice Navigation Ship Certificate and Ice Safety Passport specifying the conditions for safe operation of a ship in ice taking into account ship's specific design features, ice conditions, icebreaker support etc. disregarding the ice class mark (including ships without an ice class assigned).

Ships of ice classes **Arc4** and above can perform ramming. No ramming is allowed for ships with vertical sides in the fore part or with a bulbous bow, irrespective of ice class.

In any case, the shipowner independently determines safe operating modes (independent ice navigation, operation in ice channel with an icebreaker escort, or ramming) depending on the actual ice conditions.".

New para 2.2.65 is introduced reading as follows:

"**2.2.65 Distinguishing mark for container ships fitted with lashing software.**

If container ships having the descriptive notation **Container ship** in the class notation are fitted with lashing software in accordance with 2.1.5 of the Technical Requirements for the Arrangement and Securing of the International Standard Containers on Board the Ships Intended for Container Transportation, the distinguishing mark **LS** (Lashing Software) is added to the character of classification.".

2.5 SUMMARY INFORMATION ON DISTINGUISHING MARKS AND DESCRIPTIVE NOTATIONS IN THE CLASS NOTATION OF A SHIP

Table 2.5. **New item 1.32** is introduced reading as follows:

"1.32 LS — Distinguishing mark for container ships fitted with lashing software

Distinguishing mark	Brief description	References to additional RS requirements for the distinguishing mark
LS	A ship is fitted with lashing software. The distinguishing mark is mandatory for container ships having the descriptive notation **Container ship** in the class notation	**Rules for the Classification and Construction of Sea-Going Ships** Part I "Classification", 2.2.65 **Technical Requirements for the Arrangement and Securing of the International Standard Containers on Board the Ships Intended for Container Transportation** 2.1.5

".

Table 2.5. **Item 2.33** is amended as follows:

"2.33 ODYSS () — distinguishing marks confirming the use of the Register software

Distinguishing mark	Brief description	Reference to additional RS requirements for the distinguishing mark
2.33.1 Distinguishing mark confirming the use of the Register software for checking the hull structures compliance with the requirements of the RS rules		
ODYSS(Hull)	The distinguishing mark is assigned to ships, whose hull structures are checked with the use of the Register software (https://rs-class.org/en/services/program1/)	**Rules for the Classification and Construction of Sea-Going Ships** Part I "Classification", 2.2.57 **The software can be used to verify compliance with the requirements of the following normative documents** (as applicable): **Rules for the Classification and Construction of Sea-Going Ships** Part II "Hull" Part III "Equipment, Arrangements and Outfit", 2.4, 4.3, 5.3 Part XVII "Distinguishing Marks and Descriptive Notations in the Class Notation Specifying Structural and Operational Particulars of Ships", Sections 1, 6, 10, 15, 19, 35 Part XVIII "Additional Requirements for Structures of Container Ships and Ships, Dedicated Primary to Carry Their Load in Containers", Section S11A "Longitudinal Strength Standard for Container Ships" **IACS Unified Requirement S6** **Guidelines on Fatigue Assessment of Ships** **Rules for the Classification and Construction of Ships Carrying Liquefied Gases in Bulk** **Common Structural Rules for Bulk Carriers and Oil Tankers**

Distinguishing mark	Brief description	Reference to additional RS requirements for the distinguishing mark
2.33.2 Distinguishing mark confirming the use of the Register software for checking the rudder strength compliance with the requirements of the RS rules		
ODYSS(Rudder)	The distinguishing mark is assigned to ships, whose rudder strength is checked with the use of the Register software (https://rs-class.org/en/services/program1/)	**Rules for the Classification and Construction of Sea-Going Ships** Part I "Classification", 2.2.57 Part XVII "Distinguishing Marks and Descriptive Notations in the Class Notation Specifying Structural and Operational Particulars of Ships", Section 35 **The software can be used to verify compliance with the requirements of the following normative documents** (as applicable): **Rules for the Classification and Construction of Sea-Going Ships** Part III "Equipment, Arrangements and Outfit", Section 2 **IACS Unified Requirement S10**
2.33.3 Distinguishing mark confirming the use of the Register software for checking the type C tank ~~structures~~ elements dimensions compliance with the requirements of the RS rules		
ODYSS(Tank C)	The distinguishing mark is assigned to ~~LG carriers~~ ships, whose type C tank ~~structures~~ elements dimensions are checked with the use of the Register software (https://rs-class.org/services/program1/)	**Rules for the Classification and Construction of Sea-Going Ships** Part I "Classification", 2.2.57 Part XVII "Distinguishing Marks and Descriptive Notations in the Class Notation Specifying Structural and Operational Particulars of Ships", Section 35 **The software can be used to verify compliance with the requirements of the following normative documents** (as applicable): **Rules for the Classification and Construction of Sea-Going Ships** Part X "Boilers, Heat Exchangers and Pressure Vessels", Section 2 **Rules for the Classification and Construction of Ships Carrying Liquefied Gases in Bulk** Part II "Ship Arrangement", Section 2 Part IV "Cargo Containment", 23.2.1, 23.2.3, 23.3, 28.1, 28.2

».

Table 2.5. **Item 3.1** is amended as follows:

"Container ship

Descriptive notation	References to additional RS requirements for the descriptive notation
Container ship	**Rules for the Classification and Construction of Sea-Going Ships** Part I "Classification", 1.1.1 Part II "Hull", 3.1.2.1, 3.1.3.5, 3.1.3.8, 3.1.4.6 Part III "Equipment, Arrangements and Outfit", 7.10.6.11, 7.10.6.12, 8.4.8 Part IV "Stability", 3.10 Part V "Subdivision", 1.1.1.10, 1.1.1.11, 1.4.9.2, 2.6.2 Part VI "Fire Protection", Section 1, 2.1, 2.3, Sections 3 — 5, 6.7 (specific requirements to ship type in footnote 9 in Table 3.1.2.1, 3.1.2.13, 3.2.6.2, 3.8.1.5, 4.2.1.7, 4.3.1, 5.1.2, item 3.5 of Table 5.1.2) Part VII "Machinery Installations", 4.5.10 — 4.5.13, 7.4.7.2, 7.4.8.2 Part VIII "Systems and Piping", 7.6.14, 7.14.1, 12.7.9 Part XI "Electrical Equipment", 19.5 Part XVIII "Additional Requirements for Structures of Container Ships and Ships, Dedicated Primarily to Carry Their Load in Containers" **Technical Requirements for the Arrangement and Securing of the International Standard Containers on Board the Ships Intended for Container Transportation**

".

3 TECHNICAL DOCUMENTATION

3.2 DESIGN DOCUMENTATION

Para 3.2.2.1. **Column "Remark"** is amended as follows:

"Where the Register software is used for checking the hull structures compliance with the requirements of the RS rules~~, the scope of information~~ and Common Structural Rules ~~included in~~, the project file (file with the extension *.ody) shall ~~comply with the requirements of 12.4 of Part II "Technical Documentation" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships~~ be included in the design documentation of the ship. It is recommended therewith to follow the requirements of Section 35 of Part XVII "Distinguishing Marks and Descriptive Notations in the Class Notation Specifying Structural and Operational Particulars of Ships".".

Paras 3.2.2.12 and **3.2.2.13** are amended as follows:

"

No.	Description of documentation	Stamp	TD	DD	PAD	Remarks
.12	Drawings of sections and assemblies of superstructures and deckhouses	A		●	⊸●	
.13	Hull blocks plan	AG		●	⊸●	

".

Para 3.2.3.6. New text is introduced to **column "Remark"** reading as follows:

"Where the Register software is used for checking the compliance of essential assemblies and parts of the steering gear with the requirements of the RS rules, the project file (file with the extension *.odyr) shall be included in the design documentation of the ship and shall meet the requirements of Section 35 of Part XVII "Distinguishing Marks and Descriptive Notations in the Class Notation Specifying Structural and Operational Particulars of Ships".".

Para 3.2.10.2.6 is deleted.

Existing para 3.2.10.2.7 is renumbered **3.2.10.2.6**.

Para 3.2.17.8.24. New text is introduced to **column "Remark"** reading as follows:

"Where the Register software is used for checking the compliance of dimensions of type C fuel tank elements with the requirements of the RS rules, the project file (file with the extension *.odyt) shall be included in the design documentation of the ship and shall meet the requirements of Section 35 of Part XVII "Distinguishing Marks and Descriptive Notations in the Class Notation Specifying Structural and Operational Particulars of Ships".".

PART II. HULL

3 REQUIREMENTS FOR STRUCTURES OF SHIPS OF SPECIAL DESIGN

3.10 STRENGTHENING OF ICE CLASS SHIPS AND ICEBREAKERS

Para 3.10.3.1. **The last paragraph** is amended as follows:

"At the fore part with slope of design ice waterline $\alpha > 3°$, for **Arc4**, **Arc5**, **Arc6** and **Arc7** ice class ships with bulbous bows, and when $\beta \leq 5$, the ice load parameters ~~shall be~~ are determined in compliance with 3.10.3.8.".

Para 3.10.3.2.1 is amended as follows:

".1 in region AI

$$p_{\text{AI}} = 2500 a_1 v_m \sqrt[6]{\frac{\Delta}{1000}} \qquad (3.10.3.2.1)$$

where a_1 = factor to be taken from Table 3.10.3.2.1 based on the ice class;
Δ = displacement to the ice loadline, in t;
v_m = value of the shape factor ~~v~~ v, which is the maximum one for the region~~, as determined at~~ in sections within $x = 0$; $0{,}025L$; $0{,}05L$; $0{,}075L$; $0{,}1L$, etc. from the forward perpendicular ~~(as far as **Ice1, Ice2** and **Ice3** ice class ships are concerned, design sections where $x \leq 0{,}58b$, shall only be considered; for b, refer to Fig. 3.10.1.3.2)~~ at the design ice waterline, to be~~. The value shall be~~ determined by the following formulae:

for **Ice1**, **Ice2** and **Ice3** ice class ships

$v_m = 0{,}72$;

for ships of ice classes **Arc4**, **Arc5**, **Arc6**, **Arc7**, **Arc8** and **Arc9** and icebreakers with the hull shape compliant with the provisions of 3.10.1.2.2 and 3.10.1.2.3

$v = \left(0{,}278 + 0{,}18\frac{x}{L}\right)\sqrt[4]{\frac{\alpha^2}{\beta}}$ at $\frac{x}{L} \leq 0{,}25$;

$$\nu = \left(0{,}343 - 0{,}08\frac{x}{L}\right)\sqrt[4]{\frac{\alpha^2}{\beta}} \text{ at } \frac{x}{L} > 0{,}25;$$

for other ships and icebreakers

$$\nu = f_\nu\left(0{,}9 + 0{,}3\frac{x}{L} + 0{,}0005\alpha - 0{,}0015\beta'\right)$$

where L = length at design ice waterline;

x = distance between the considered section and the forward perpendicular, in m;

α = angle of design waterline inclination which shall be measured in accordance with Figs. 3.10.1.2.1-1 and 3.10.1.2.1-3 (where $x = 0$), in deg.;

β = angle of frame inclination at ice loadline on the considered section which shall be measured in accordance with Fig. 3.10.1.2.1-2, in deg.; where the frame is concave, in case of **Arc4**, **Arc5**, **Arc6**, **Arc7**, **Arc8**, **Arc9** ice class ships, β shall be chosen as a minimum angle, which is measured between the ballast waterline and the ice loadline;

~~β'~~$\beta' = \text{arctg}(\text{tg}\,\beta\cos\alpha)$ = side inclination angle with regard to normal, deg.;

$f_\nu = \frac{(\sin\alpha\cos\beta')^{0{,}54}}{(\cos\beta')^{0{,}17}(\sin\beta')^{0{,}25}}$.

~~If $\alpha > 0$ and $\beta = 0$ in a section under consideration of **Ice1 — Ice3** ice class ships, it shall be considered that $\nu = 0{,}72$ in this section.~~

If the angle of α is less than 3° in a section of ~~**Ice1 — Ice3,** **Arc4,**~~ **and Arc5** ice class ships, such a section ~~may be omitted~~ is disregarded when calculating ν_m;".

Para 3.10.3.3.1 is amended as follows:

".1 in regions AI, AII, AIII, AIV

$$b_\text{A} = C_1 k_\Delta u_m \qquad (3.10.3.3.1)$$

where C_1 = factor to be taken from Table 3.10.3.3.1 based on the ice class;

$k_\Delta = \sqrt[3]{\frac{\Delta}{1000}}$, but not greater than 3,5;

for ~~Δ~~Δ, refer to 3.10.3.2.1;

u_m = ~~maximum~~ value of the shape factor u, which is the maximum one for the region~~, as determined at~~ in sections within $x = 0$; $0{,}025L$; $0{,}05L$; $0{,}075L$; $0{,}1L$, etc. from forward perpendicular ~~(as far as **Ice1, Ice2** and **Ice3** ice class ships are concerned, sections where $x \leq 0{,}58b$, shall only be considered; for b, refer to Fig. 3.10.1.3.2)~~ at the design ice waterline, to be ~~. The value shall be~~ determined by the following formulae:

for **Ice1**, **Ice2** and **Ice3** ice class ships

$u_m = 0{,}92$;

for ships of ice classes **Arc4**, **Arc5**, **Arc6**, **Arc7**, **Arc8** and **Arc9** and icebreakers with the hull shape compliant with the provisions of 3.10.1.2.2 and 3.10.1.2.3

$$u = k_B\left(0{,}635 + 0{,}61\frac{x}{L}\right)\sqrt{\frac{\alpha}{\beta}} \text{ at } \frac{x}{L} \leq 0{,}25;$$

$$u = k_B\left(0{,}862 - 0{,}30\frac{x}{L}\right)\sqrt{\frac{\alpha}{\beta}} \text{ at } \frac{x}{L} > 0{,}25;$$

for other ships and icebreakers

$$u = f_u\left(0{,}72 + \frac{x}{L} + 0{,}001\alpha - 0{,}013\frac{x}{L}\beta'\right),$$

where for L, x, α, β, β', refer to 3.10.3.2.1;

$$k_B = \begin{cases} 1 \text{ at } \beta \geq 7° \\ 1{,}15 - 0{,}15\frac{\beta}{7} \text{ at } \beta < 7°; \end{cases}$$

$$f_u = \frac{(\sin\alpha\cos\beta')^{0{,}58}}{(\cos\beta')^{0{,}33}(\sin\beta')^{0{,}5}}.$$

~~If $\alpha > 0$ and $\beta = 0$ in a section of **Ice1 — Ice3** ice class ships, it shall be considered that $u = 0{,}92$ for this section.~~

If the angle α is less than 3° in a section of ~~**Ice1 — Ice3,**~~ **Arc4**~~,~~ **and Arc5** ice class ships, such a section ~~may be omitted~~ is disregarded when calculating u_m;".

Para 3.10.3.8 is amended as follows:

"**3.10.3.8** Ice load parameters of ice classes **Arc4**, **Arc5**, **Arc6** and **Arc7** for the bow areas with the vertical side ($\beta < 5$) in the region of alternating draughts, or bulbous bows.".

Para 3.10.3.8.1 is amended as follows:

"3.10.3.8.1 For **Arc4**, **Arc5**, **Arc6** and **Arc7** ice class ships ~~of ice classes~~, the ice pressure, in kPa, shall be determined by the following formula~~e~~:

~~for ice classes **Ice1, Ice2, Ice3**~~

~~$p_{\text{AI}} = 0{,}985 p^i_{ref} v_m \left(\frac{\Delta}{1000}\right)^{0{,}0132}$, $\Delta \leq 5$ thousand t;~~

~~$p_{\text{AI}} = 0{,}976 p^i_{ref} v_m \left(\frac{\Delta}{1000}\right)^{0{,}0052}$, $5 < \Delta \leq 200$ thousand t;~~

~~for ice classes **Arc4, Arc5, Arc6, Arc7**~~

$$p_{\text{AI}} = 0{,}790 p^i_{ref} v_m \left(\frac{\Delta}{1000}\right)^{0{,}0614}$$

where p^i_{ref} = factor to be taken from Table 3.10.3.8.1-1 based on the ice class;

v_m = maximum value of the shape factor v ~~to be determined~~ in sections of bow area ~~sections~~ with the vertical side at ice loadline to be determined by the formula

$$v\left(\frac{x}{L}, \alpha\right) = b^v_0 + b^v_1\frac{x}{L} + b^v_2\alpha + b^v_{11}\left(\frac{x}{L}\right)^2 + b^v_{22}\alpha^2 + b^v_{12}\frac{x}{L}\alpha;$$

~~b^v_1~~ b^v_i = factors to be taken from Table 3.10.3.8.1-2;

~~Δ~~ Δ = displacement at design ice waterline, t.

Table 3.10.3.8.1-1

	~~1 ≤ Δ ≤ 5 thousand t~~			~~5 < Δ ≤ 200 thousand t~~			**Arc4**	**Arc5**	**Arc6**	**Arc7**
	~~**Ice1**~~	~~**Ice2**~~	~~**Ice3**~~	~~**Ice1**~~	~~**Ice2**~~	~~**Ice3**~~				
p^i_{ref}	~~1100~~	~~1430~~	~~1760~~	~~1120~~	~~1460~~	~~1810~~	3620	5910	10360	16020
~~b^H~~ b^H	—	—	—	—	—	—	1,5	2,0	3,7	4,8
b^i_{ref}	~~0,65~~	~~0,80~~	~~1,00~~	~~0,65~~	~~0,80~~	~~1,00~~	—	—	—	—
l^i_{ref}	~~3,66~~	~~4,33~~	~~4,27~~	~~12,05~~	~~14,22~~	~~13,94~~	4,55	4,52	4,39	4,23

Table 3.10.3.8.1-2

b^v_i	~~1 ≤ Δ ≤ 5 thousand t~~			~~5 < Δ ≤ 200 thousand t~~			**Arc4**	**Arc5**	**Arc6**	**Arc7**
	~~**Ice1**~~	~~**Ice2**~~	~~**Ice3**~~	~~**Ice1**~~	~~**Ice2**~~	~~**Ice3**~~				

b_0^v	~~0,769~~	~~0,747~~	~~0,714~~	~~1,015~~	~~1,020~~	~~1,008~~	0,728	0,754	0,790	0,820
b_1^v	~~−4,004~~	~~−3,924~~	~~−3,373~~	~~−5,829~~	~~−5,975~~	~~−5,679~~	−3,758	−4,790	−6,170	−7,269
b_2^v	~~0,039~~	~~0,040~~	~~0,040~~	~~0,035~~	~~0,036~~	~~0,037~~	0,021	0,021	0,020	0,018
b_{11}^v	~~11,17~~	~~11,26~~	~~9,75~~	~~14,57~~	~~15,06~~	~~13,46~~	20,50	24,90	32,21	37,65
b_{22}^v	~~−0,0003~~	~~−0,0003~~	~~−0,0003~~	~~−0,0003~~	~~−0,0003~~	~~−0,0003~~	−0,0003	−0,0002	−0,0002	−0,0002
b_{12}^v	~~−0,0490~~	~~−0,0517~~	~~−0,0642~~	~~−0,0393~~	~~−0,0404~~	~~−0,0481~~	0,0688	0,0917	0,1188	0,1414

For ships with bulbous bows, when determining the design loads on the bulb structure, ν_m is determined at the ballast waterline, if it passes through the bulb, otherwise — at the waterline, where inclination angle of the bulb plating is β = 0...5.".

Para 3.10.3.8.2 is amended as follows:

"**3.10.3.8.2** ~~Vertical distribution of ice pressure, in m, for ice class ships **Ice1, Ice2, Ice3** shall be determined by the formula~~

~~$b_{\text{A}} = b_{ref}^{i} u_{b\_m}$, but not exceeding the distance between the side stringers (for structures inside the bulb — platforms or webs installed according to 3.10.2.6.4).~~

~~where b_{ref}^{i} = the factor taken as per Table 3.10.3.8.1-1 depending on the ice class;~~

~~u_{b_m} = maximum value of the shape factor u_b to be determined in sections of bow area with the vertical side at design ice waterline by the formula~~

~~$u_b\left(\frac{x}{L}\right) = b_0^u + b_1^u \frac{x}{L} + b_{11}^u \left(\frac{x}{L}\right)^2$;~~

~~b_i^u = factors to be taken from Table 3.10.3.8.2.~~

Vertical distribution of ice pressure, in m, for ships of ice classes **Arc4, Arc5, Arc6, Arc7** shall be determined by the formula

$b_{\text{A}} = ~~b^u~~ \underline{b^H}$, but not exceeding the distance between the side stringers (for structures inside the bulb — platforms or webs installed according to 3.10.2.6.4)

where ~~b^u~~ $\underline{b^H}$ is taken from Table 3.10.3.8.1-1 based on the ice class.".

Table 3.10.3.8.2 is deleted.

Para 3.10.3.8.3 is amended as follows:

"**3.10.3.8.3** Horizontal distribution of ice pressure, in m, <u>for ice classes **Arc4**, **Arc5**, **Arc6** and **Arc7**</u> shall be determined by the following formula~~e~~:

~~for ships of ice classes **Ice1, Ice2, Ice3**~~

~~$l_{\text{A}} = 0{,}748 l_{ref}^{i} u_{l\_m} \left(\frac{\Delta}{1000}\right)^{0{,}3065}$, $1 \le \Delta \le 5$ thousand t;~~

~~$l_{\text{A}} = 0{,}218 l_{ref}^{i} u_{l\_m} \left(\frac{\Delta}{1000}\right)^{0{,}3311}$, $5 < \Delta \le 200$ thousand t;~~

~~for ships of ice classes **Arc4, Arc5, Arc6, Arc7**~~

$$l_{\text{A}} = 0{,}337 l_{ref}^{i} u_{l\_m} \left(\frac{\Delta}{1000}\right)^{0{,}2906}$$

where l_{ref}^{i} = factor to be taken from Table 3.10.3.8.1-1 based on the ice class;

u_{l_m} = maximum value of the shape factor u_l ~~to be determined~~ in sections of bow area with the vertical side at ice loadline <u>to be determined</u> by the formula

$$u_l\left(\frac{x}{L},\alpha\right) = b_0^u + b_1^u\frac{x}{L} + b_2^u\alpha + b_{11}^u\left(\frac{x}{L}\right)^2 + b_{22}^u\alpha^2 + b_{12}^u\frac{x}{L}\alpha;$$

b_i^u = factors to be taken from Table 3.10.3.8.3.".

Table 3.10.3.8.3 is amended as follows:

"Table 3.10.3.8.3

b_i^u	~~1 ≤ Δ ≤ 5 thousand t~~			~~5 < Δ ≤ 200 thousand t~~			**Arc4**	**Arc5**	**Arc6**	**Arc7**
	~~**Ice1**~~	~~**Ice2**~~	~~**Ice3**~~	~~**Ice1**~~	~~**Ice2**~~	~~**Ice3**~~				
b_0^u	~~0,186~~	~~0,171~~	~~0,166~~	~~0,167~~	~~0,155~~	~~0,139~~	0,307	0,302	0,324	0,320
b_1^u	~~−3,339~~	~~−3,319~~	~~−2,377~~	~~−3,297~~	~~−3,318~~	~~−2,607~~	0,205	0,325	0,294	0,313
b_2^u	~~0,0241~~	~~0,0227~~	~~0,0184~~	~~0,0231~~	~~0,0216~~	~~0,0222~~	0,0370	0,0375	0,0363	0,037
b_{11}^u	~~17,2~~	~~17,6~~	~~18,4~~	~~17,4~~	~~17,9~~	~~15,02~~	2,37	1,78	1,17	1,27
b_{22}^u	~~−0,0003~~	~~−0,0003~~	~~−0,0002~~	~~−0,0003~~	~~−0,0003~~	~~−0,0003~~	−0,0002	−0,0003	−0,0002	−0,0003
b_{12}^u	~~0,148~~	~~0,159~~	~~0,110~~	~~0,153~~	~~0,165~~	~~0,152~~	0,031	0,030	0,030	0,028

".

Para 3.10.3.8.4 is deleted. **Para 3.10.3.8.5 and references thereto** are renumbered **3.10.3.8.4**.

Formula (3.10.4.5.6-2). **The last paragraph of the explication** is amended as follows:

"$A_1 = 0{,}0182$; $A_2 = 2{,}6$; $A_3 = 10$, if the deep frame web is provided with stiffeners fitted approximately parallel to the shell plating ~~or if it is unstiffened~~.".

Para 3.10.4.11.3 is amended as follows:

"**3.10.4.11.3** Dimensions of the bulb structural elements ~~shall be~~ are determined by calculation procedures specified in 3.10.4 for ice load parameters determined in accordance with 3.10.3~~.8.2 — 3.10.3.8.5~~. In any case, the thickness of the bulb shell plating shall not be less than the thickness of the shell plating in region AI.".

PART III. EQUIPMENT, ARRANGEMENTS AND OUTFIT

2 RUDDER AND STEERING GEAR

2.1 GENERAL

Para 2.1.10 is amended as follows:

"**2.1.10** For ~~passenger ships and~~ special purpose ships (carrying more than ~~60~~240 persons) and passenger ships, having length of 120 m or more or having three or more main vertical zones, the steering gear shall comply with the requirements of 2.2.6.8 of Part VI "Fire Protection" (refer also to 2.2.6.7.2 of the above Part).".

4 MOORING ARRANGEMENT

4.3 MOORING EQUIPMENT

Para 4.3.5 is supplemented by the following text:

"Allowable stresses in supporting hull structures under the design load conditions as specified in 4.3.4 are determined as follows:

.1 for strength assessment by means of beam theory or grillage analysis:

normal stress: $1{,}0\ R_{eH}$;

shear stress: $0{,}6\ R_{eH}$.

Normal stress is the sum of bending stress and axial stress. No stress concentration factors being taken into account;

.2 for strength assessment by means of finite element analysis:

Von Mises stress: $1{,}0\ R_{eH}$.

For strength assessment by means of finite element analysis the mesh shall be fine enough to represent the geometry as realistically as possible. The aspect ratios of elements shall not exceed 3. Girders shall be modelled using shell or plane stress elements. Symmetric girder flanges may be modelled by beam or truss elements. The element height of girder webs shall not exceed one-third of the web height. In way of small openings in girder webs the web thickness shall be reduced to a mean thickness over the web height. Large openings shall be modelled. Stiffeners may be modelled by using shell, plane stress, or beam elements.

The mesh size of stiffeners shall be fine enough to obtain proper bending stress. If flat bars are modelled using shell or plane stress elements, dummy rod elements shall be modelled at the free edge of the flat bars and the stresses of the dummy elements shall be evaluated.

Stresses shall be read from the centre of the individual element. For shell elements the stresses shall be evaluated at the mid plane of the element.

R_{eH} is the specified minimum yield stress of the material.".

7 OPENINGS IN HULL, SUPERSTRUCTURES AND DECKHOUSES AND THEIR CLOSING APPLIANCES

7.12 OPENINGS IN WATERTIGHT SUBDIVISION BULKHEADS AND THEIR CLOSING APPLIANCES

Para 7.12.1.1. **The first sentence** is replaced by the following text:

"**7.12.1.1** Unless expressly provided otherwise, ships covered by the requirements of Part V "Subdivision" shall comply with the requirements of this Chapter and IACS UI SC156 (Rev.3 July 2024) (document is available at IACS website www.iacs.org.uk).".

Para 7.12.5.15 is amended as follows:

"**7.12.5.15** For ~~passenger ships and~~ special purpose ships (carrying more than ~~60~~240 persons) and passenger ships, having length of 120 m or more or having three or more main vertical zones, the power operated doors shall comply with the requirements of 2.2.6.8 of Part VI "Fire Protection" (refer also to 2.2.6.7.3 of the above Part).".

8 ARRANGEMENT AND EQUIPMENT OF SHIP'S SPACES. OTHER ARRANGEMENTS AND EQUIPMENT

8.5 EXITS, DOORS, CORRIDORS, STAIRWAYS AND VERTICAL LADDERS

Para 8.5.5 is replaced by the following text:

"**8.5.5 Marking of escape routes.**".

Para 8.5.5.1 is amended as follows:

"**8.5.5.1** In addition to the emergency lighting stipulated by 19.1.2 of Part XI "Electrical Equipment", the means of escape, including stairways and exits, of special purpose ships carrying more than 60 persons and passenger ships ~~carrying more than 36 passengers and special purpose ships carrying more than 240 persons~~ shall be marked by low location lighting (LLL) at all points of the escape route, including angles and intersections.

In passenger ships carrying more than 36 passengers and special purpose ships carrying more than 240 persons, the requirements of 8.5.5 shall also apply to the crew accommodation areas.".

PART IV. STABILITY

3 ADDITIONAL REQUIREMENTS FOR STABILITY

3.4 TANKERS

Para 3.4.4 is amended as follows:

"**3.4.4** All oil tankers shall be fitted with an onboard stability software ~~for stability calculations~~ of Type 3 (refer to 12.2.8.4 of Part II "Technical Documentation" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships) approved by the Register, capable of verifying compliance with intact and damage stability requirements.

PART V. SUBDIVISION

2. PROBABILITY ESTIMATION OF SUBDIVISION

2.7 SPECIAL REQUIREMENTS CONCERNING PASSENGER SHIP STABILITY

Para 2.7.5 is amended as follows:

"**2.7.5** Passenger ships having the length $L_1 \geq 120$ m or having three or more main vertical zones for the purpose of providing operational information to the master for safe return to port after flooding casualty shall be provided with:

.1 onboard ~~damage~~ stability software of Type 4 (refer to 12.2.8.5 and 12.2.10.2 of Part II "Technical Documentation" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships) approved by ~~RS~~ the Register; or

.2 rapid access to ~~shore-based computerized support organization,~~ a shore-based centre for damage stability and residual structural strength calculation recognized by ~~RS~~ the Register~~, which makes damage stability and residual strength assessments, for the purpose~~

~~of providing operational information to the master for safe return to port after flooding casualty~~.".

3 DAMAGE TRIM AND STABILITY

3.4 ADDITIONAL REQUIREMENTS FOR DAMAGE TRIM AND STABILITY

New para 3.4.5.7 is introduced reading as follows:

"**3.4.5.7** All oil tankers of 5000 tonnes deadweight or more shall have prompt access to a shore-based centre for damage stability and residual structural strength calculation.".

PART VI. FIRE PROTECTION

2 STRUCTURAL FIRE PROTECTION

2.1 GENERAL

New paras 2.1.3.8 — 2.1.3.10 are introduced reading as follows:

"**2.1.3.8** Hatches fitted on open deck adjacent to ro-ro cargo spaces (refer to 1.5.4.3) or vehicle spaces (refer to 1.5.4.4) as well as on decks separating such spaces, shall be constructed of steel but may not be "A" class divisions.

2.1.3.9 Access doors to ro-ro cargo spaces (refer to 1.5.4.3) or vehicle spaces (refer to 1.5.4.4) fitted on open decks shall be constructed of steel but may not be doors insulated to "A-0" class.

2.1.3.10 Movable ramps installed on decks, which are insulated to "A-30" class and form boundaries of single space protected by its own fire extinguishing system, shall be constructed of steel and insulated to "A-30" class, except for the working parts of such movable ramps (e.g. hydraulic cylinders, associated pipes and accessories) and members supporting such fittings, which do not contribute to the structural strength of the boundary. Such movable ramps may not be subjected to fire tests. This is applicable to non-watertight doors used for loading/unloading of vehicles.".

Para 2.1.5.5.3 is replaced by the following text:

"**.3** the cargo spaces shall comply with the requirements of 2.1.3.8 — 2.1.3.10 and 2.1.4.7 of this Part as well as 12.6 of Part VIII "Systems and Piping" and 20.3 of Part XI "Electrical Equipment".".

2.4 OIL TANKERS

Para 2.4.7. **Fig. 2.4.7** is renumbered **2.4.7-1**. **Para** is supplemented by the text reading as follows:

"A non-hazardous space in the forecastle area which is protected from the cargo tanks by cofferdam, void space or other compartments, will not be defined as part of cargo area (refer to Figs. 2.4.7-2, 2.4.7-3, 2.4.7-6 и 2.4.7-7).

Compartments located above the cofferdam, void or other compartments protecting the non-hazardous spaces will be defined as part of the cargo area (refer to Figs. 2.4.7-4 и 2.4.7-5).

Examples given in Figs. 2.4.7-2, 2.4.7-3, 2.4.7-6 и 2.4.7-7 apply both to oil tankers and chemical tankers, and in Figs. 2.4.7-4 and 2.4.7-5 — only to oil tankers.".

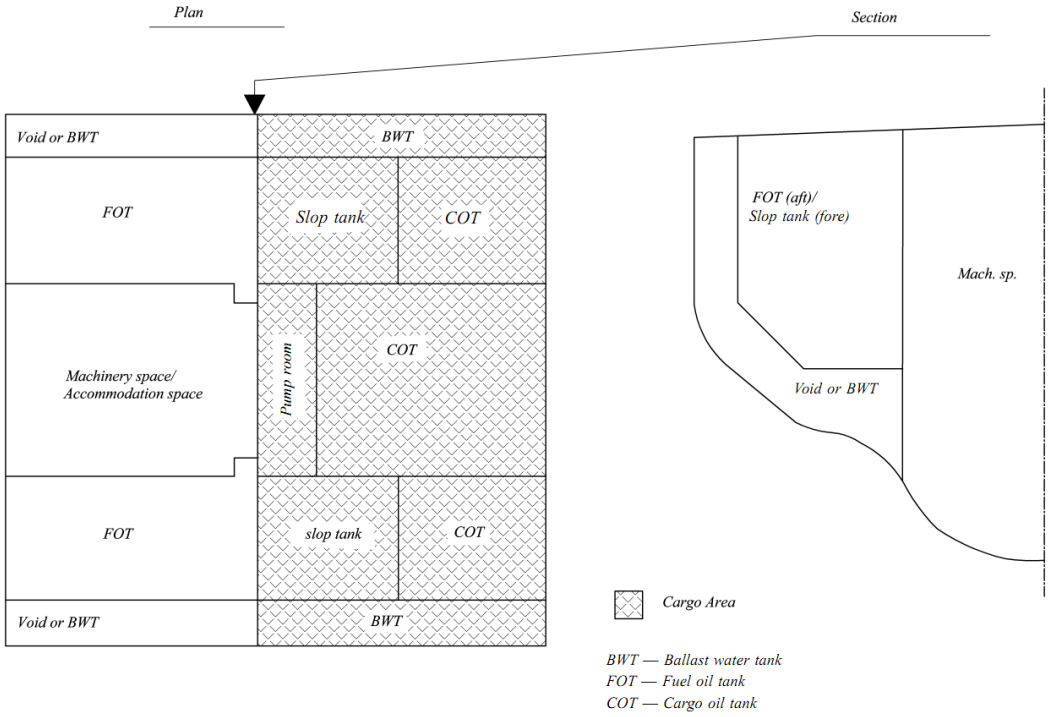

Fig. 2.4.7-1

[Sample 1]

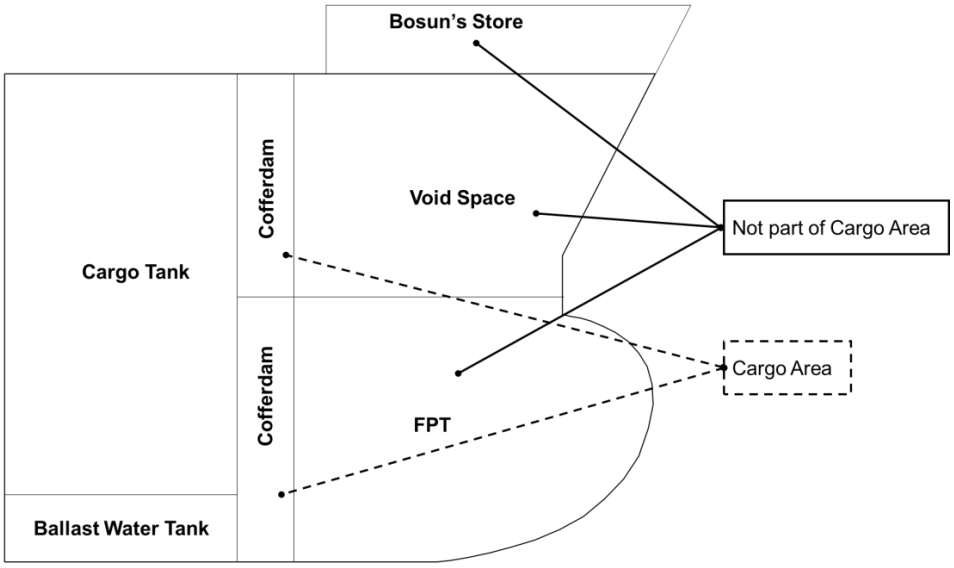

Fig. 2.4.7-2

[Sample 2]

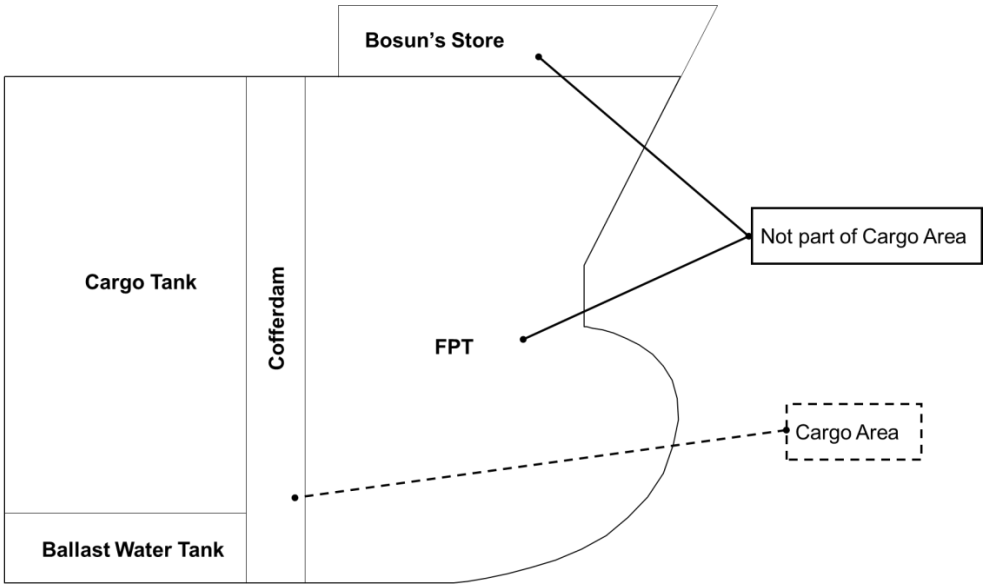

Fig. 2.4.7-3

[Sample 3]

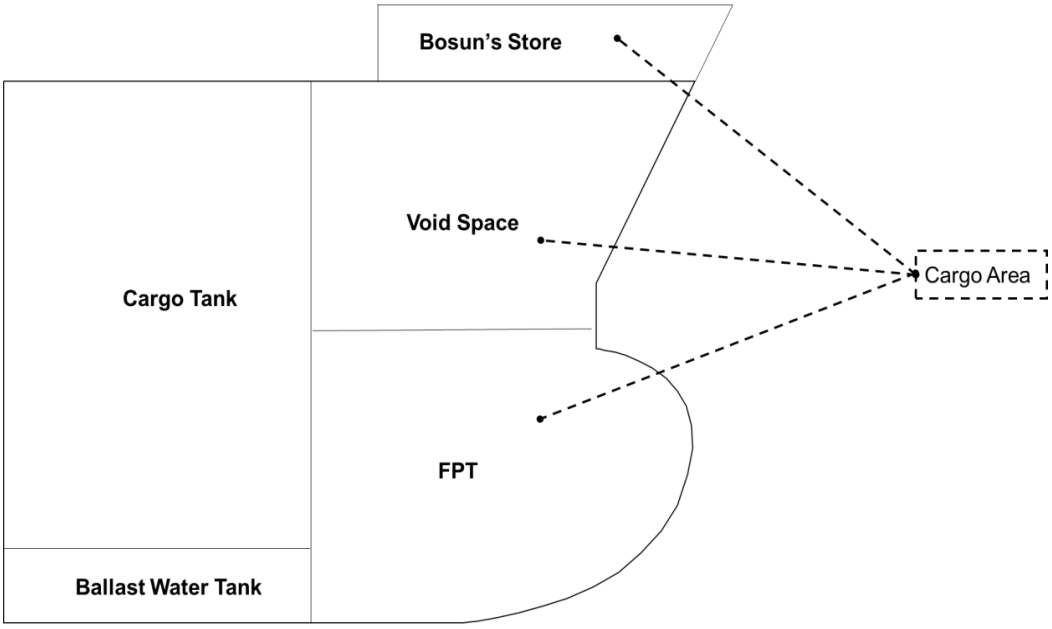

Fig. 2.4.7-4

[Sample 4]

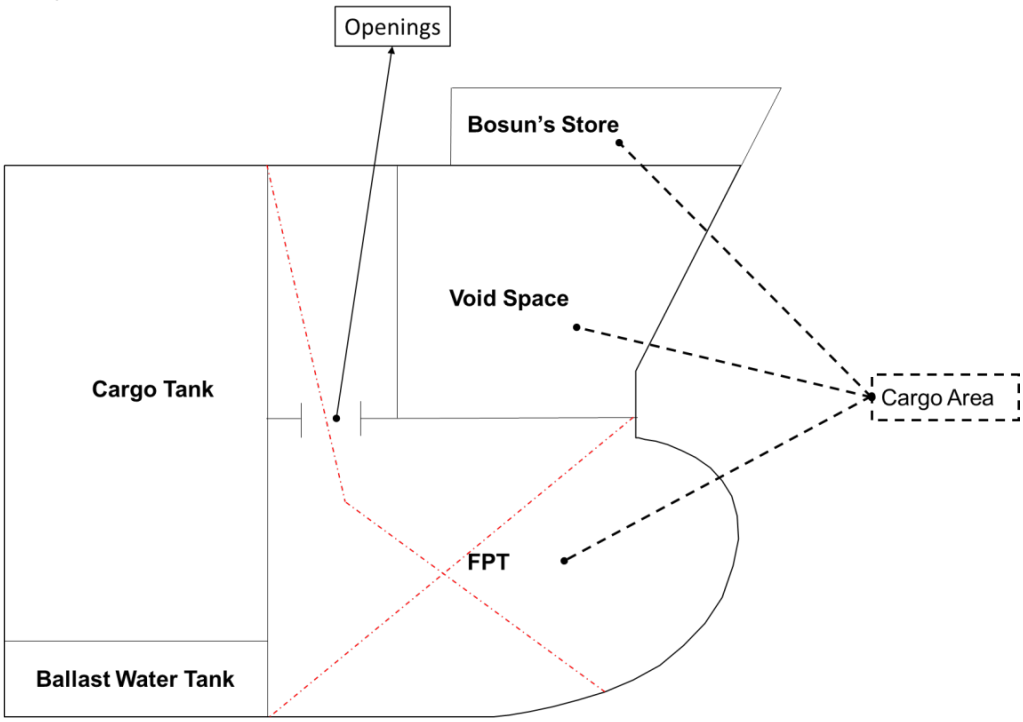

Fig. 2.4.7-5

[Sample 5]

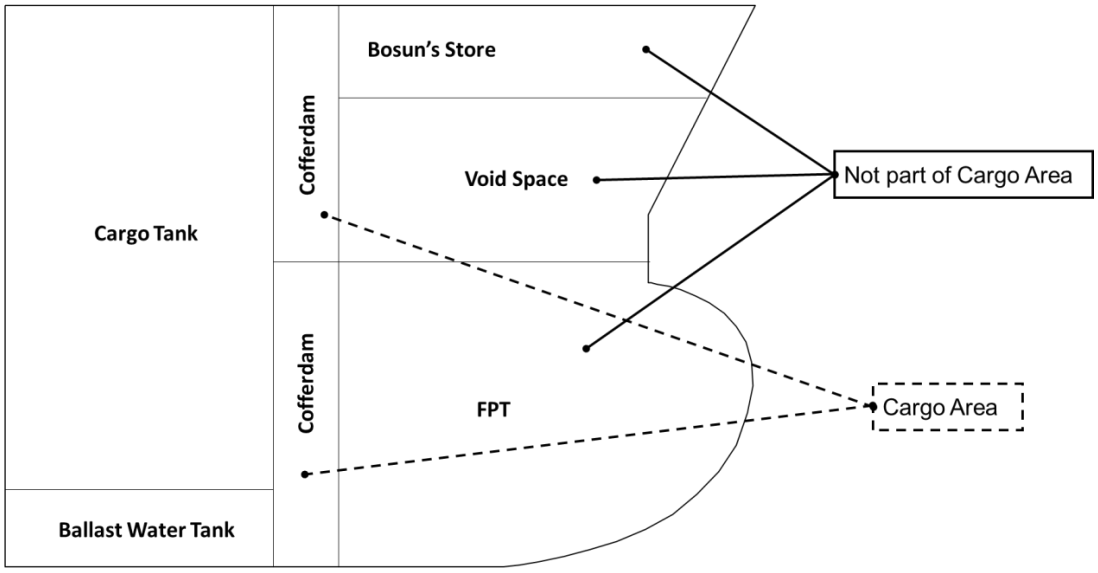

Fig. 2.4.7-6

[Sample 6]

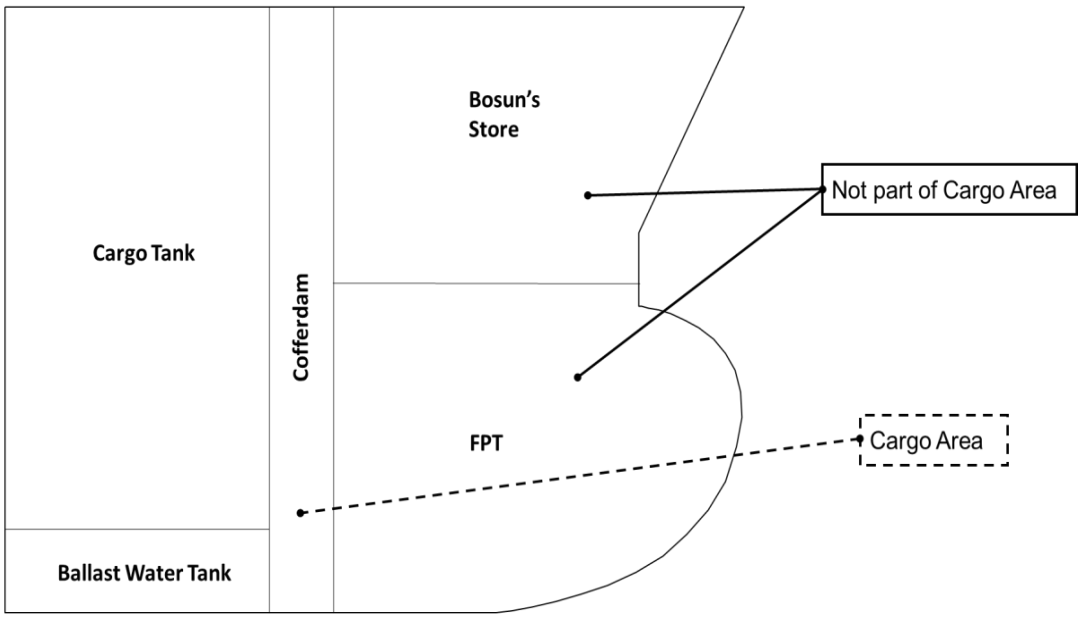

Fig. 2.4.7-7

3 FIRE-FIGHTING EQUIPMENT AND SYSTEMS

3.1 GENERAL

Table 3.1.2.1. **Item 18** is deleted. **Items 19 — 22** are renumbered **18 — 21**, accordingly.

Para 3.1.4.2 is amended as follows:

"**3.1.4.2** Pipes shall be made of steel.

Copper, copper-and-nickel or bimetallic pipes (one of the layers being steel or copper) may be used as equivalent to steel pipes.

Carbon steel pipes shall have anti-corrosive coating both inside and outside.

In water fire main system, sprinkler system, pressure water-spraying system and foam fire extinguishing system the plastic piping may be used in compliance with the requirements given in Table 3.3.1.2 of Part VIII "Systems and Piping".

The fittings of fire extinguishing systems, including sprinklers and sprayers, shall be made of materials resistant to the fire extinguishing medium and to marine environment. Nozzles of fixed pressure water-spraying and equivalent water-based fire extinguishing systems (fixed water-mist fire extinguishing systems) for machinery spaces and cargo pump rooms shall be of an approved type and shall be tested in compliance with the requirements of IMO circular MSC/Circ.1165, as amended by IMO circular MSC.1/Circ.1269.".

3.2 WATER FIRE MAIN SYSTEM

Para 3.2.3.6. The **third paragraph** is replaced by the following text:

"Arrangement of sea valves of fire pumps installed outside machinery space of category A shall comply with the requirements of 3.2.1.2.".

Para 3.2.5.4 is amended as follows:

"**3.2.5.4** In oil tankers, the fire main ~~shall comply with the following supplementary requirements~~ of the water fire main system shall be fitted with isolation valves, namely:

.1 ~~in the fire main~~ at the poop front in a protected position ~~as specified in IMO circular MSC.1/Circ.1456 and~~ i.e. within accommodation and service spaces or control station.

However, the valve may be located on the open deck aft of the cargo area, namely:

.1.1 at least 5 m aft of the aft end of the aftermost cargo tank; or

.1.2 if the above 3.2.5.4.1.1 is not practical, within 5 m aft of the aft end of the aftermost cargo tank, provided the valve is protected by a permanent steel obstruction;

.2 in easily accessible places on the cargo oil tank deck~~, the isolation valves shall be fitted~~ at intervals of not more than 40 m. Each of such valves shall be provided with an information plate to indicate that the valve shall be kept permanently open under normal service conditions; and

.3 following additional requirements shall be met:

.~~2~~3.1 before each isolation valve on the fire main there shall be fitted twin fire hydrants so located that they are equally spaced, over the length of the ship and the fulfilment of the requirements of 3.2.6.2 is ensured;

.3.2 before the cut-off valve fitted in the poop there shall be a branch pipe on either side, led out from the fire main to the forward part of the poop deck; the diameter of each branch pipe shall be sufficient for supplying water through two fire hoses connected to two hydrants fitted at the end of each branch. Where fire pumps are fitted forward of the cargo tanks, two more similar pipes branching from the fire main of the same diameter as above shall be provided on the after part of the forecastle deck, an isolation valve being fitted on the fire main within the erection, after the branches.".

3.8 CARBON DIOXIDE SMOTHERING SYSTEM

Para 3.8.2.6.1 is amended as follows:

"**3.8.2.6.1** The valves shall have protective devices complying with the following requirements:

protective diaphragms shall break at a pressure rise in the cylinders up to $(1,3 \pm 0,1)p$, in MPa (where p is design pressure of the cylinder);

there shall be provided a checking device to indicate that the protective device has operated or a signalling device to indicate the presence of pressure (refer to 3.8.2.7.2).".

Para 3.8.2.7 is amended as follows:

"**3.8.2.7** The gas from the protective devices of cylinders shall be discharged:

.1 to the signaling manifold and further to the atmosphere beyond the boundaries of the station through a separate (signaling) pipe provided with an audible alarm at the outlet;

.2 to the ~~distribution~~ signaling manifold where provision shall be made for:

two pipes, one of which is open-ended and fitted with a shut-off valve led to the open deck, and the other is ~~provided with protective diaphragm~~ a signaling pipe whereon a safety device (safety valve or membrane safety device) and audible alarm are sequentially fitted at the outlet of the pipe led to the open deck;

a signalling device to indicate the presence of pressure in the manifold whose readings shall be transmitted to the space where watch keepers are present all the time.

In ~~this~~ case given in 3.8.2.7.2, a checking device to indicate that the protective device has operated is not required for the valves of each cylinder.".

Para 3.8.5 is amended as follows:

"**3.8.5 Local carbon dioxide ~~fire extinguishing~~ smothering stations.**

~~For certain protected spaces placed at galleys and control stations (fire stations), local stations may be permitted where the total mass of carbon dioxide in the cylinders shall not exceed 7 kg.~~

~~In a machinery space local stations may be permitted for fire protection of crankcases and silencers of the internal combustion engines, of smoke stacks and other enclosed compartments with the total mass of carbon dioxide in each cylinder not exceeding 16 kg.~~

Local stations designed to protect separate spaces (e.g., exhaust ventilation ducts from galley) and located in internal ship's spaces within control stations (fire stations), accommodation and service spaces shall be such as the total mass of carbon dioxide in cylinders located in recesses or cabinets, from which protective devices the gas discharge to the atmosphere is not provided, does not exceed the value determined at a rate of not more than 1 kg of carbon dioxide (CO_2) per 15 m^3 of the volume of spaces where the cabinet or recess with cylinders is located.

The cylinders shall have safety devices preventing the pressure therein to rise above permissible limits. There shall be provided a checking device to indicate that the protective device has operated. A pressure gauge or colour seal installed after the rapture disc of cylinder valve may be used as a checking device indicating that the protective device has operated.

In a machinery space the local stations may be permitted for fire protection of crankcases and silencers of the internal combustion engines and other enclosed compartments with the total mass of carbon dioxide in each cylinder not exceeding 16 kg. Herewith, the gas discharge to the atmosphere from protective devices of cylinders may be waived.

Larger mass of carbon dioxide for the above local stations is permitted, provided the requirements of 3.8.2.4 and 3.8.2.7 are met.

As a rule, equipment of the local stations shall be mounted outside the protected spaces. The cylinders shall be mounted in such a way that their serviceability is not impaired by the weather, vibration and other external factors and they shall not be placed in accommodation spaces except for the corridors where the total mass of carbon dioxide (CO_2) shall be limited as specified above.

The applicable requirements of 3.1.1, 3.1.2, 3.1.4 and 3.1.5 in view of the foregoing shall be met.

The requirements of 3.8.1.2 — 3.8.1.4, 3.8.1.7, 3.8.2.2 — 3.8.2.4, 3.8.2.6.2, 3.8.2.7, 3.8.3 and 3.8.4 for the above-mentioned systems may be waived, except as specified in this para.".

4 FIRE DETECTION AND ALARM SYSTEMS

4.2 FIRE DETECTION AND FIRE ALARM SYSTEMS

Para 4.2.1.2.6 is replaced by the following text:

"**.6** on fishing vessels of less than 500 gross tonnage and 24 m in length and over but less than 45 m the requirements of 4.2.1.2.4.1 shall be met and on fishing vessels of 500 gross tonnage and upwards and/or 45 m in length and over the requirements of 4.2.1.2.4.1 — 4.2.1.2.4.3 shall be met, depending on the adopted protection method, and the following additional requirements shall be complied with:

.6.1 in case of application of the requirements in 2.5.8 or 2.6.10 for spaces of specially equipped fish-processing shops, automatic fire detectors of fire detection and fire alarm system shall be installed in accordance with 4.2.1.4.7 (taking into account dimensions of such spaces);

.6.2 galley of fishing vessel shall be protected by fire detection and fire alarm system.".

5 FIRE-FIGHTING OUTFIT, SPARE PARTS AND TOOLS

5.1 FIRE-FIGHTING OUTFIT

Table 5.1.2. In column "Number of items of outfit to be available in each ship", **new item 10.5** is introduced reading as follows:

"**5** In ships carrying equipment for fire fighting aboard other ships, the following minimum total number of fireman's outfits shall be provided: in ships having distinguishing marks **FF1** and **FF1WS** in the class notation — 8 sets; in ships having distinguishing marks **FF2** and **FF2WS** — 6 sets; in ships having distinguishing marks **FF3** and **FF3WS** — 4 sets; in ships having distinguishing marks **FF1**, **FF1WS**, **FF2**, **FF2WS**, **FF3** and **FF3WS** — sets required in 10.2 and 10.3 may be included in the total number; in ships having distinguishing marks **FF1**, **FF1WS**, **FF2** and **FF2WS** — sets required in 10.4 may be included in the total number.".

6 REQUIREMENTS FOR FIRE PROTECTION OF SPECIAL PURPOSE SHIPS AND SPECIAL FACILITIES ON SHIPS

6.6 SHIPS EQUIPPED FOR FIRE FIGHTING ABOARD OTHER SHIPS AND HAVING RELEVANT DISTINGUISHING MARKS FF1, FF1WS, FF2, FF2WS, FF3, FF3WS

The **Chapter** is renamed as follows:

"6.6 SHIPS EQUIPPED FOR FIRE FIGHTING ABOARD OTHER SHIPS AND HAVING RELEVANT DISTINGUISHING MARKS FF1, FF1WS, FF2, FF2WS, FF3, FF3WS IN THE CLASS NOTATION".

Para 6.6.1.2 is replaced by the following text:

"**.2** for ships being also oil recovery ships, method IC shall be used in way of accommodation and service spaces and control stations.".

Tables 6.6.3-1 and **6.6.3-2** are replaced by the following text:

"Table 6.6.3-1

Special systems	Distinguishing mark in the class notation					
	FF1	**FF1WS**	**FF2**	**FF2WS**	**FF3**	**FF3WS**
Water-screed system, pressure water-spraying system[1, 2]	—	+	—	+	—[3]	+
Water fire main system	+	+	+	+	+	+[4]
Foam fire extinguishing system	+	+	+	+	+	+
Dry powder system[5]	+	+	+	+	+	+
Bilge system[6]	+	+	+	+	—	—

[1] Refer to 6.6.6.6.

[2] For ships, which superstructures and deckhouses are made of aluminium alloy, water-screen system and/or pressure water-spraying system shall be mandatorily installed.

[3] All outer hull surfaces located above the lowest possible load waterline, superstructures, deckhouses, and open decks shall be insulated to "A-60" class.
[4] Refer to 6.6.8.2.
[5] Refer to 6.6.10.1.
[6] Refer to 7.1.10, Part VIII "Systems and Piping".

Table 6.6.3-2

Special equipment	Distinguishing mark in the class notation				
	FF1, **FF1WS**	**FF2**, **FF2WS**			**FF3**, **FF3WS**
Pumps, in pcs	2 — 4	2 — 4			1 — 2
minimum total supply[1)], m^3/h	9600	7200			200[2)]/2400
Monitors:					
water monitors, in pcs	4	2	3	4	2
supply rate of each monitor, in m^3/hour	2400	3600	2400	1800	100[2)]/1200
length of throw, in m	150	180	150		80[2)]/120
height of throw[3)], in m	70	110	70		45
foam monitors, in pcs	2	—[4)]			—[4)]
supply rate of each monitor, in m^3/hour	300	—[4)]			—[4)]
height of throw[5)], in m	50	—[4)]			—[4)]
dry powder monitors[6)], in pcs.	1	1			1
supply rate of each monitor[7)], in kg/s	40	40			40
dry powder length of throw, in m	40	40			40
Distribution valve manifolds[8)], in pcs.	~~4~~	~~4~~			2
Number of fire hydrants on each distribution valve manifold[8)], in pcs.	4	2 — 4			4
Total number of fire hydrants on all distribution valve manifolds, in pcs.	16	12			8
Additional fire hoses, in pcs.	16	12			8
Additional fire nozzles, in pcs.	8	6			4

[1)] Capacity of pumps given in the Table does not consider additional capacity required for water supply to the pressure water-spraying system and to the distribution valve manifolds (refer to 6.6.8.1).
[2)] The smaller value is for ships referred to in 6.6.8.2.
[3)] In ships having distinguishing marks **FF1, FF1WS**, **FF2** and **FF2WS** in the class notation, the throw height shall be at least 70 m measured from sea level and 70 m away from the nearest part of the ship.
In ships having distinguishing marks **FF3** and **FF3WS** in the class notation, the throw height shall be at least 45 m measured from sea level and 70 m away from the nearest part of the ship.
[4)] A necessity in installation and characteristics to be indicated by the customer in accordance with the requirements of 6.6.9.2.
[5)] Height measured from sea level is indicated.
[6)] For ships referred to in 6.6.10.1.
[7)] Refer to 6.6.10.3.
[8)] Refer to 6.6.8.7.

".

Para 6.6.8.5 is amended as follows:

"**6.6.8.5** The number of monitors shall be not less than that indicated in Table 6.6.3-2 and their arrangement shall:

provide supply of water from each monitor to both sides of the ship;

prevent water and foam from being discharged to the ~~ship's~~ own decks and ~~its~~ equipment, except for necessity to supply foam by foam monitors to the decks located above oil recovery tanks, as well as at location of oil spills response (OSR) equipment on ships being also oil recovery ships, taking into account the requirements of 6.4.13;

provide the water jet range in accordance with Table 6.6.3-2.".

Para 6.6.8.7 is replaced by the following text:

"**6.6.8.7** Distribution valve manifolds shall be located on the open deck on each side.

In ships having distinguishing mark **FF2** or **FF2WS** in the class notation, the number of distribution valve manifolds and fire hydrants on each distribution valve manifold shall be

determined by the designer on agreement with the customer, taking into account the requirements of Table 6.6.3-2.

In those cases, where distribution valve manifolds are fed by the pumps serving the monitor supply lines, provision shall be made to reduce the pressure at the distribution valve manifolds/fire hydrants to a value permitting safe handling of the hose and the nozzle by one man.".

Para 6.6.9.1. The **last paragraph** is replaced by the following text:

"The system may use totally or partly the equipment of the special water fire extinguishing system (pumps, pipes, monitors).

The number and type of the equipment of the foam fire extinguishing system shall be determined by the designer on agreement with the customer, taking into account the requirements of 6.6.9.2 and 6.6.9.3.".

Para 6.6.9.4 is replaced by the following text:

"**6.6.9.4** The foam concentrate shall be calculated based on operation time within at least 30 min of all foam monitors on ships having distinguishing marks **FF1** and **FF1WS** in the class notation and on ships having distinguishing marks **FF2, FF2WS**, **FF3** and **FF3WS** in the class notation in case of installation on them of foam monitors or agreed number of portable air-foam nozzles or foam generators.".

Para 6.6.9.5 is replaced by the following text:

"**6.6.9.5** The type of foam concentrate shall be chosen with regard for necessity of operation of special foam fire smothering system in sea (salt) water and subclass of class B fires (fire of flammable liquids or solid substances and materials) the concentrate is intended to extinguish.

N o t e . Subclasses of class B fires:

B1 are fires of nonpolar liquids, insoluble in water even when heated (oil and most part of oily products (different brands of kerosene, gasoline, diesel fuel; greases and oils; liquefied solid substances, e.g., paraffin melting at temperature 45 – 65 °C, petroleum ether), organic vegetable oils insoluble in water);

B2 are fires of liquid polar substances soluble in water (e.g., methyl alcohol, ethyl alcohol and butyl alcohol, glycerin; diethyl ether; simplest ketones, e.g., acetone; light aldehydes, etc.).".

Para 6.6.10.1 is replaced by the following text:

"**6.6.10.1** On agreement with the customer, the system shall be installed on ships intended for fire-fighting of class C fires on gas carriers, chemical tankers, floating offshore platforms (FOP) and floating offshore oil-and-gas product units (FPU).".

Para 6.6.10.4 is amended as follows:

"**6.6.10.4** The quantity of the extinguishing powder shall be determined by the designer on agreement with the customer, taking into account the requirements of 3.10.2.1.".

Para 6.6.11.1 is amended as follows:

"**6.6.11.1** In addition to the fire-fighting outfit specified in Table 5.1.2, the following fire-fighting equipment and outfit shall be provided on board ships:

.1 fireman's outfits, provided that:

ships having distinguishing marks **FF1** and **FF1WS** in the class notation are equipped with not less than 8 sets of fireman's outfit;

ships having distinguishing marks **FF2** and **FF2WS** in the class notation are equipped with not less than 6 sets; and

ships having distinguishing marks **FF3** and **FF3WS** in the class notation are equipped with not less than 4 sets;

.2 air compressor for charging cylinders of self-contained compressed air breathing apparatus (refer to 6.6.11.3);

.3 fire hoses according to Table 6.6.3-2;

.4 dual-purpose manual fire nozzles according to Table 6.6.3-2;

.5 portable air-foam nozzles, foam generators or combination foam units (refer to 6.6.9.2);

.6 international shore connections;

.7 complete sets of fire-fighting tools;

.8 gas analyzers for flammable vapours and gases;

.9 induced-draught fans.

The number and composition of the additional fire-fighting outfit and spare parts thereto shall be determined by the designer on agreement with the customer, taking into account the above.".

Para 6.6.11.2. The **last paragraph** is replaced by the following text:

"Part of the fire-fighting outfit such as fire hoses, hand nozzles, foam generators, air-foam nozzles, hose wrenches, may be placed at distribution valve manifolds in accordance with 5.1.4.3.".

Para 6.6.11.3 is replaced by the following text:

"**6.6.11.3** Ships shall be provided with an air compressor powered from the main and auxiliary switchboards or from an independent drive and intended for charging self-contained breathing apparatus cylinders with purified compressed air. The compressor shall be fitted with inlet air filter and compressed air cleaning system preventing passage of dust, solid particles, oil and condensate (water) to the air bottles.

The compressor capacity shall be sufficient to allow simultaneous charging with compressed air of not less than four air bottles in not more than 30 min. This capacity shall be not less than 160 l/min.".

PART VII. MACHINERY INSTALLATIONS

4 MACHINERY SPACES, ARRANGEMENT OF MACHINERY AND EQUIPMENT

4.5 MEANS OF ESCAPE FROM MACHINERY SPACES

Para 4.5.5.1. **Note 1** is amended as follows:

"Notes: 1. A "safe position" can be any space, ~~excluding lockers and storerooms irrespective of their area, cargo spaces and spaces where flammable liquids are stowed, but including special category spaces and ro-ro spaces, from which access is provided and maintained clear of obstacles to the decks according to 4.5.1 (categories of ship's spaces (refer to Chapter 1.5, Part VI "Fire protection"))~~such as steering gear spaces where hydraulic oils for the steering gear equipment are stowed, and special category spaces and ro-ro spaces, from which access is provided and maintained clear of obstacles to the embarkation decks. This excludes lockers and storerooms, cargo spaces and spaces where flammable liquids are stowed.".

Para 4.5.9 is amended as follows:

"**4.5.9** On passenger ships two means of escape shall be provided from the main machinery control room (MCRm) and main workshop (MWS) within a machinery space. At least one of these escape routes shall provide a continuous fire shelter to a safe position outside the machinery space.

Notes: 1. A "main workshop (MWS)" means a compartment enclosed on at least three sides by bulkheads or gratings, usually containing welding equipment, metal working machinery and workbenches.

2. A "machinery control room (MCRm)" means a space which serves for control and/or monitoring of machinery used for ship's main propulsion.

3. A "continuous fire shelter" means a route from MWS, or from MCRm, which allows safe escape, without entering the machinery space, to a location outside the machinery space. Such a continuous fire shelter need not be a protected enclosure. The boundaries of the continuous fire shelter shall be at least "A-0" class divisions and be protected by self-closing "A-0" class doors. The continuous fire shelter shall have minimum internal dimensions of at least 800 mm x 800 mm for vertical trunks and 600 mm in width for horizontal trunks, and shall have emergency lighting provisions. Fig. 4.5.9.1 — 4.5.9.6 represent typical arrangements of the continuous fire shelters through trunks or through spaces/rooms to a location outside the machinery space.

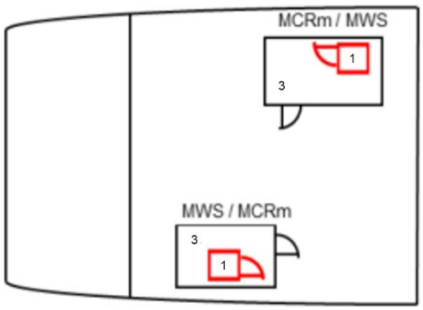

Fig. 4.5.9.1

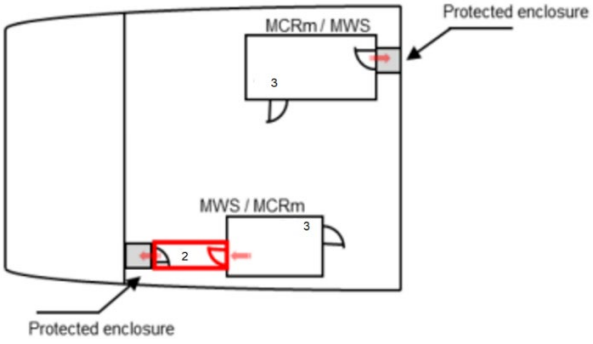

Fig. 4.5.9.2

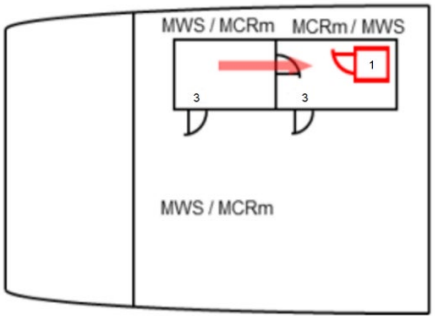

Fig. 4.5.9.3

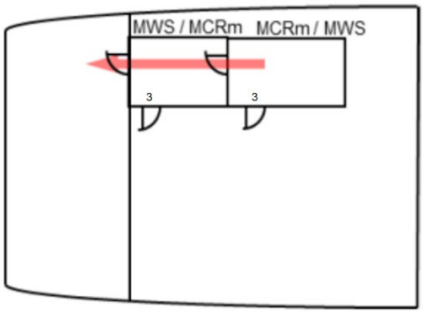

Fig. 4.5.9.4

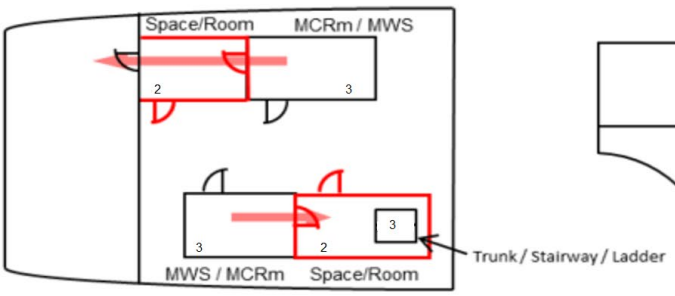

Fig. 4.5.9.5

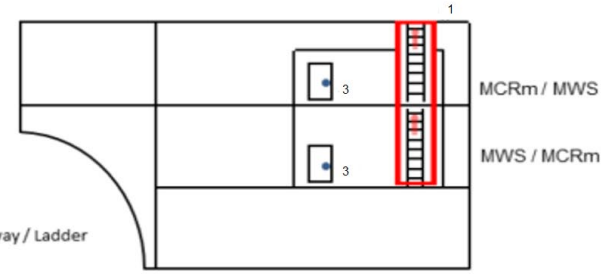

Fig. 4.5.9.6

[1] Vertical trunk (minimum dimensions: 800 mm x 800 mm) enclosing ladders or stairways to be at least "A- 0" class divisions and to be protected by selfclosing "A-0" class doors.

[2] Horizontal trunk (minimum width: 600 mm) to be at least "A-0" class divisions and to be protected by selfclosing "A-0" class doors.

[3] Fire integrity not required.".

Para 4.5.10.1. **Note 1** is amended as follows:

"Notes: 1. A "safe position" can be any space, ~~excluding cargo spaces, lockers and storerooms irrespective of their area, cargo pump-rooms and spaces where flammable liquids are stowed, but including vehicle and ro-ro spaces, from which access is provided and maintained clear of obstacles to the open deck (categories of ship's spaces (refer to Chapter 1.5, Part VI "Fire Protection"))~~such as steering gear spaces where hydraulic oils for the steering gear equipment are stowed, and vehicle and ro-ro spaces, from which access is provided and maintained clear of obstacles to the open deck. This excludes cargo spaces, lockers and storerooms, cargo pump-rooms and spaces where flammable liquids are stowed.".

Para 4.5.10.4 is amended as follows:

"**.4** two means of escape shall be provided from the main machinery control room (MCRm) and main workshop (MWS) within a machinery space of category A. At least one of these escape routes shall provide a continuous fire shelter to a safe position outside the machinery space.

Notes: 1. A "main workshop (MWS)" means a compartment enclosed on at least three sides by bulkheads or gratings, usually containing welding equipment, metal working machinery and workbenches.

2. A "machinery control room (MCRm)" means a space which serves for control and/or monitoring of machinery used for ship's main propulsion.

3. A "continuous fire shelter" means a route from MWS, or from MCRm, which allows safe escape, without entering the machinery space, to a location outside the machinery space. Such a continuous fire shelter need not be a protected enclosure. The boundaries of the continuous fire shelter shall be at least "A-0" class divisions and be protected by self-closing "A- 0" class doors. The continuous fire shelter shall have minimum internal dimensions of at least 800 mm x 800 mm for vertical trunks and 600 mm in width for horizontal trunks, and shall have emergency lighting provisions. Fig. 4.5.9.1 — 4.5.9.6 represent typical arrangements of the continuous fire shelters through trunks or through spaces/rooms to a location outside the machinery space.".

PART VIII. SYSTEMS AND PIPING

2 METAL PIPING

2.6 CONNECTION GASKETS AND INSULATION MATERIALS

Para 2.6.2 is amended as follows:

"**2.6.2** The application of the rubber gaskets is allowed for systems and piping with the working medium temperature not more than 100 °C~~, ftoroplast – not more than 150 °C~~. The operating temperature of ftoroplast gaskets shall be set according to the test results with verification of mechanical properties of the material at the required working medium temperature.".

7 BILGE SYSTEM

7.1 PUMPS

Para 7.1.1. The **third paragraph** is amended as follows:

"Independent ballast, sanitary or general service pumps of sufficient capacity may be accepted as bilge pumps, and in ships of 91,5 m in length and less, ~~including special purpose ships carrying not more than 60 persons,~~ one of the bilge pumps may be a pump driven by the propulsion machinery, as well as a water or steam ejector, provided the steam boiler is always in operation.".

Para 7.1.2. The **first paragraph** is amended as follows:

"Passenger ships and special purpose ships ~~carrying more than 60 persons~~ shall be fitted with at least three power pumps connected to the bilge main; one of these pumps may be driven by the propulsion machinery. Where the bilge pump numeral is 30 or more, one additional independent power pump shall be provided.".

Para 7.1.4 is amended as follows:

"**7.1.4** On passenger and special purpose ships~~ carrying more than 60 persons~~ of 91,5 m in length and upwards or having a bilge pump numeral of 30 or more (refer to 7.1.3), the arrangements shall be such that at least one power bilge pump shall be available for use in all flooding conditions which the ship is required to withstand. This requirement is considered to be satisfied if one of the required bilge pumps is an emergency pump of a reliable submersible type having a source of power situated above the bulkhead deck; or the bilge pumps and their sources of power are so distributed throughout the length of the ship that at least one pump in an undamaged compartment will be available.".

Para 7.1.6. The **last paragraph** is amended as follows:

"The bilge pump may be replaced by two pumps with a total capacity not less than that specified above. For passenger ships and special purpose ships, each bilge pump shall have a capacity determined on the assumption that the rated speed of water through the internal diameter required in 7.2.1 shall not be less than 2 m/s.".

7.3 PIPING LAYING

Para 7.3.6. The **first paragraph** is amended as follows:

"On passenger ships and special purpose ships of ~~more than~~ 91,5 m in length and upwards, ~~carrying more than 60 persons~~ and ~~i~~on passenger ships having a bilge pump numeral of 30 or more, all the distribution chests, cocks and valves associated with the bilge pumping system shall be so arranged that in the event of flooding one of the bilge pumps may be operative on any flooded compartment. Moreover, damage of a pump or its pipe connecting to the bilge main outboard of a line drawn at one-fifth of the breadth of the ship shall not put the bilge system out of action.".

7.6 DRAINAGE OF CARGO SPACES

Para 7.6.15.2 is amended as follows:

"**7.6.15.2** The detectors shall be fitted in the aft end of the cargo hold above the inner bottom or above its lowest part where the inner bottom is not parallel to the designed waterline. The detectors shall be located in the protected space as close to the centerline, as practicable, or at both the port and starboard sides of the cargo hold, shall be of safe-type in accordance with 2.9, Part XI "Electrical Equipment" and protected against mechanical damages by cargo. Where webs or partial watertight bulkheads are fitted above the inner bottom, the fitting of additional sensors may be required. It is allowed to use one sensor vertically instead of two, provided its design allows giving alarm at both levels of hold flooding.".

12 VENTILATION SYSTEM

12.2 VENTILATION SYSTEMS OF CARGO SHIPS OF 500 GROSS TONNAGE AND UPWARDS, OIL TANKERS AND COMBINATION CARRIERS CARRYING PETROLEUM PRODUCTS WITH FLASH POINT 60 °C AND MORE, PASSENGER SHIPS CARRYING NO MORE THAN 36 PASSENGERS, SPECIAL PURPOSE SHIPS CARRYING NO MORE THAN 240 PERSONS AND BERTH-CONNECTED SHIPS

Para 12.2.4 is amended as follows:

"**12.2.4** Galley ventilation systems shall be separate from the ventilation systems serving other spaces.

~~The exhaust ducts from galley ranges shall be constructed of "A" class divisions where they pass through accommodation spaces or spaces containing combustible materials.~~

When passing through accommodation spaces or spaces containing combustible materials, the exhaust ducts from galley ranges shall be constructed in accordance with the requirements of 12.1.15 and 12.1.16.

Each galley ventilation duct passing through accommodation spaces or other spaces ~~containing combustible materials~~ shall be fitted with:

a grease trap readily removable for cleaning;

a fire damper located in the lower end of the duct and, in addition, a fire damper located in the upper end of the duct; at the junction between the duct and the galley range hood which is automatically and remotely operated and, in addition, a remotely operated fire damper located in the upper end of the duct close to the outlet of the duct;

fixed means for extinguishing fire within the duct; and

arrangements, operable from within the galley, for shutting off the exhaust fans (refer also to 5.8.2, Part XI "Electrical Equipment").".

12.6 VENTILATION OF SPECIAL CATEGORY SPACES, CARGO SPACES INTENDED FOR THE CARRIAGE OF MOTOR VEHICLES WITH FUEL IN THEIR TANKS AND CLOSED RO-RO CARGO SPACES

New para 12.6.8 is introduced reading as follows:

"**12.6.8** Where ducts for ro-ro/vehicle spaces pass through other ro-ro/vehicle spaces without serving those spaces, each duct shall be insulated all along itself to "A-30" fire integrity. "A-30" fire integrity is not required if the ventilation duct passages through divisions are equipped with fire dampers according to 12.1.12.3.".

13 FUEL OIL SYSTEM

13.5 ARRANGEMENTS FOR COLLECTION OF LEAKAGE FUEL

Para 13.5.1 is replaced by the following text:

"**13.5.1** Fuel system components such as pumps, filters, separators, fuel heaters and etc. subject to periodic inspection and technical maintenance shall be fitted with drip trays in places of possible leakage fuel.

Valves, detectors and other equipment installed at the lower part of the fuel oil tanks located above double bottom shall be fitted with drip trays in places of possible leakage fuel.

Drip trays shall be provided with drain pipes or shall be dimensioned to collect possible leakage fuel, taking into consideration the fuel oil capacity in the system component. In case no drain pipe from the tray is provided, it shall be possible to remove fuel by means of drain plugs and portable containers.".

16 COMPRESSED AIR SYSTEM

16.1 NUMBER AND CAPACITY OF STARTING AIR RECEIVERS

Para 16.1.6. **The first paragraph** is supplemented by the following text:

"**16.1.6** It is permitted that the starting air stored in one air receiver, or in a group of air receivers of the main engines according to 16.1.2, be used to feed the typhon whistle, as well as for domestic needs, provided the capacity of the air receiver is increased by an amount of air specified below for a special air receiver of the typhon, or where the air receiver is fitted with automatic replenishing means or with alarms warning on a drop of pressure of not more than 0,49 MPa below the working pressure. The compressed air demand for domestic needs shall not reduce the required capacity of the engine starting air."

PART X. BOILERS, HEAT EXCHANGERS AND PRESSURE VESSELS

3 BOILERS

3.3 VALVES AND GAUGES

Para 3.3.6.4 is supplemented by the following text:

"In any case, the opening pressure of a safety valve shall not exceed the design pressure of a steam line or equipment connected to the boiler, taking into account the pressure drop in the steam line.".

PART XI. ELECTRICAL EQUIPMENT

1 GENERAL

1.3 SCOPE OF SURVEYS

New para 1.3.2.1.10 is introduced reading as follows:

"**.10** fire pumps and other fire extinguishing medium pumps;".

Existing paras 1.3.2.1.10 — 1.3.2.1.15 are renumbered **1.3.2.1.11 — 1.3.2.1.16** accordingly.

Para 1.3.2.2.7 is deleted.

Existing paras 1.3.2.2.8 — 1.3.2.2.19 are renumbered **1.3.2.2.7 — 1.3.2.2.18** accordingly.

3 COMPOSITION AND CAPACITY OF MAIN ELECTRICAL POWER SOURCE

3.1 COMPOSITION AND CAPACITY OF MAIN ELECTRICAL POWER SOURCE

Para 3.1.1 is amended as follows:

"**3.1.1** In every ship, a main electric power source shall be provided with a capacity sufficient to supply all the electrical equipment on board under conditions specified in 3.1.5. Such a source shall consist of two independently driven generators at least.

In ships of ~~300~~ 500 gross tonnage and below (except for passenger ships), in ships not engaged in international voyages and in ships of restricted area of navigation **R3** (except passenger ships engaged in international voyages) with a low-power electrical installation as the main source of electrical power only one generator with an independent prime mover or accumulator batteries may be ~~the main power source~~ installed.".

Para 3.1.7 is deleted.

8 PROTECTIVE DEVICES

8.1 GENERAL

Para 8.1.8 is amended as follows:

"**8.1.8** The design of the electronic and computer protection devices of generators and major services shall be such as to ensure easy identification and regulation of their operational settings.

Protection devices shall be equipped with the necessary apparatuses and instruction manuals shall be provided for checking their serviceability and the condition of the settings.

~~The protection devices of generators and important major services shall be tested once in 5 years to confirm the accuracy of their operation.~~".

9 EMERGENCY ELECTRICAL INSTALLATIONS

9.7 UNINTERRUPTIBLE POWER SYSTEM (UPS)

Para 9.7.1 is amended as follows:

"**9.7.1** Uninterruptible power system (UPS), in addition to the requirements set forth below, shall comply with the requirements of IEC 62040-3:~~2011~~2021 and applicable requirements of national standards.".

Para 9.7.2 is amended as follows:

"**9.7.2** UPS shall be so designed as to comply with the applicable requirements of IEC 62040-1:2017+AMD1:2021+AMD2:2022, IEC 62040-2:2016, IEC 62040-3:~~2011~~2021, IEC 62040-4:2013 and/or IEC 62040-5-3:2016.".

Para 9.7.5 is amended as follows:

"**9.7.5** If UPS ~~shall be~~ are provided with a bypass, which ensures power supply to connected load from the ship's mains if the inverter fails, bypass transfer switch shall be arranged to protect the load against power disturbances or interruption arising from inrush or fault current.".

Para 9.7.6 is amended as follows:

"**9.7.6** Each UPS shall be provided with audible and visual alarm to be given in continuously manned stations for:

.1 power supply failure to the connected load;

.2 earth fault;

.3 operation of battery protective device;

.4 when the battery is being discharged;

.5 when the bypass is in operation for ~~on-line~~ ~~UPS~~, in case an external bypass is provided;

.6 any other fault and abnormal conditions of the UPS, as applicable.".

Para 9.7.8 is amended as follows:

"**9.7.8** UPS utilising sealed batteries may be located in any space other than the accommodation space, provided sufficient ventilation is ensured in compliance with the

applicable requirements of IEC 62040-1:2017 +AMD1:2021+AMD2:2022, ~~and~~ IEC 62040-2:2016, IEC 62040-3:~~2011~~2021, IEC 62040-4:2013 and/or МЭК 62040-5-3:2016 or applicable requirements of relevant national or international standards.".

PART XIII. MATERIALS

2 PROCEDURES OF TESTING

2.2 TESTING PROCEDURES FOR METALS

Table 2.2.3.1-4 is amended as follows:

"Table 2.2.3.1-4

Dimensions of test specimen, mm	Average value of impact energy, J
10×10×55	1E
10×7,5×55	5/6E
10×5×55	2/3E
10 × 2,5 × 55	1/2*E*

".

3 STEEL AND CAST IRON

3.4 STEEL TUBES AND PIPES

Para 3.4.1.3.2 is amended as follows:

"**3.4.1.3.2** In the process of manufacture the pipes and tubes shall undergo the following tests: tensile test (tensile strength, yield stress and elongation being determined) according to 2.2.2; tensile test at elevated temperature (proof stress being determined); flattening test according to 2.2.5.2, or tensile test of rings according to 2.2.5.4; expanding test according to 2.2.5.3. Tensile test at elevated temperature, flattening test, tensile test of rings and expanding test shall be carried out when required by standards for pipes or by technical documentation approved by the Register on the basis of which the test results are estimated. When provided for by the relevant parts of the Rules or by standards, the results of testing the steel intended for pipes and tubes for determining the average stress to produce rupture at elevated temperature shall be submitted.".

Para 3.4.1.6 is amended as follows:

"**3.4.1.6** Scope of testing, non-destructive testing.

The pipes and tubes shall be tested by batches. A batch shall consist of pipes and tubes of the same size manufactured from steel of the same heat and heat treated under similar conditions. The number of pipes or tubes in a batch shall not exceed:

400 in the case of pipes or tubes with an outer diameter of 76 mm or less;

200 in the case of pipes or tubes with an outer diameter over 76 mm.

A rest of pipes or tubes, which is less than half the number stated, shall be included in a relevant batch and one which is half and over, — shall be considered a separate batch.

For testing purposes, out of each sample one specimen for the tensile test, one specimen for the flattening test or the tensile test of rings (when welded pipes and tubes are tested — 2 specimens, during the testing of one of the specimens the welded joint shall be in the tension zone), one specimen for the expanding test shall be cut. All the pipes and tubes shall be tested

by hydraulic pressure. The test pressure shall be in accordance with standards for pipes and tubes or with documentation agreed with the Register, but, in any case, it shall not be less than that stated in 21.2, Part VIII "Systems and Piping" and in 1.7, Part X "Boilers, Heat Exchangers and Pressure Vessels".

Hydraulic tests may be omitted if all the pipes and tubes undergo ultrasonic or other equivalent testing.

All the welds in welded pipes and tubes shall undergo the ultrasonic testing.".

3.5 STEEL FOR STRUCTURES USED AT LOW TEMPERATURES

Para 3.5.2.2 is amended as follows:

"**3.5.2.2** The rate of plastic deformation in rolling when manufacturing rolled plates with thicknesses of ≤ 50 mm shall be ~~at least~~ 5:1, for manufacturing of plates of larger thicknesses a lower 4:1 rate is permitted.".

Para 3.5.2.3.1 is amended as follows:

"**3.5.2.3.1** The following microstructure parameters shall comply with the following requirements:

.1 for higher strength steels with ferrite-pearlite structure

.1.1 the grain size shall not be larger than 8 in accordance with GOST 5639-82;

.1.2 ferrite/pearlite banding shall be no more than size 2 in accordance with GOST 5640-68 (scale 3, row A);

.2 for higher strength steels with ferrite-bainite structure:

.2.1 the ferrite grain size shall not be larger than 9 in accordance with GOST 5639-82;

.2.2 structure anisotropy factor shall not be more than 1;

.2.3 the portion and size of bainite areas with lath morphology shall also be determined;

.3 for strengthened bainite-martensite steels the austenite grain size shall not be larger than 6 in accordance with GOST 5639-82.

Structure assessment criteria shall comply with the above standards or shall be equivalent to them (for example, ASTM E112-13).".

Table 3.5.2.3 is amended as follows:

"Table 3.5.2.3

Steel grade	Content of elements, %													
	C	Mn	Si	P	S	Al, (acidsoluble), min	Nb	V	Ti	Cu	Cr	Ni	Mo	N
	max		max						max					
F32	0,16	0,90 — 1,60	0,50	0,02510	0,02505	0,015	0,02 — 0,05	0,05 — 0,10	0,02	0,35	0,20	0,80	0,08	0,009
F36	0,16	0,90 — 1,60	0,50	0,02510	0,02505	0,015	0,02 — 0,05	0,05 — 0,10	0,02	0,35	0,20	0,80	0,08	(0,012 — if Al
F40	0,16	0,90 — 1,60	0,50	0,02510	0,02505	0,015	0,02 — 0,05	0,05 — 0,10	0,02	0,35	0,20	0,80	0,08	is present)
							Total content 0,12 % max							
Note . Refer to Notes 1 — 7 in Table 3.2.2-2.														

".

Para **3.5.3.1.2** is amended as follows:

"**3.5.3.1.2** The rate of plastic deformation in rolling when manufacturing rolled plates with thicknesses of ≤ 50 mm shall be at least 5:1, for manufacturing of plates of larger thicknesses a lower 4:1 rate is permitted.".

3.16 STAINLESS STEEL

Para 3.16.4.3 is amended as follows:

"**3.16.4.3** Scope of testing.

The size of the batch shall be determined as follows:

where the outside diameter is 76 mm and less — 300 pieces;

where the outside diameter is over 76 mm — 200 pieces.

Samples are taken from one end of at least two pipes of the batch.

Unless expressly specified otherwise in the normative documentation, the following specimens shall be taken from each sample:

for tensile test — 1 specimen;

for flattening or expansion of rings — 1 specimen;

for flaring — 1 specimen;

for intergranular corrosion test of pipes made of austenitic steel — set of at least 2 specimens;

for pipes of austenitic + ferritic pipes — two sets of at least 4 specimens, one of which is a check set.".

Para 3.16.4.4 is amended as follows:

"**3.16.4.4** Inspection, tests and non-destructive testing.

Each pipe shall be subjected to a hydraulic pressure test, if this test is specified in the normative documentation for products.

Each pipe shall be subjected to ultrasonic testing. The selection of alternative methods for non-destructive testing is subject to agreement with the Register.

All the pipes and tubes shall be tested by hydraulic pressure. The test pressure shall be in accordance with standards for pipes and tubes or with documentation agreed with the Register, but, in any case, it shall not be less than that stated in 21.2, Part VIII "Systems and Piping" and in 1.7, Part X "Boilers, Heat Exchangers and Pressure Vessels".

Hydraulic tests may be omitted if all the pipes and tubes undergo ultrasonic or other equivalent testing.

All the welds in welded pipes and tubes shall undergo the ultrasonic testing.

All pipes and tubes shall undergo external and internal examination of the surface for compliance with the requirements of normative documentation for products. Absence of inadmissible defects shall be guaranteed by the manufacturer.".

6 PLASTICS AND MATERIALS OF ORGANIC ORIGIN

6.5 PROTECTIVE COATINGS

Table 6.5.3.1 is amended as follows:

"Table 6.5.3.1

Nos.	Characteristic	Value			
		Group 1 for icebreakers		Group 2 for ice class ships	
		Class I	Class II	Class I	Class II
1	Durability as per ISO 12944-6 for a corrosivity category Im2 in compliance with ISO 12944-2 (refer to 2.5.1)	High		High	
2	Adhesion by a cross-cut test method as per ISO 2409 or X-cut test method as per ISO16276-2 after testing for resistance to low temperature exposure (refer to 2.5.2.3) depending on the thickness and type of ice-resistant coating.	not more than 3		not more than 3	
3	Adhesion strength as per ISO 4624 (refer to 2.5.3.4)	above 16 MPa	above 10 MPa	above 10 MPa	above 8 MPa
4	Abrasive wear after 1000 cycle tests on the Taber's abrader (wheel CS-17) (refer to 2.5.4)	not more than 80 mg	not more than 120 mg	not more than 120 mg	not more than 160 mg
5	Impact resistance as per ISO 6272 (refer to 2.5.5)	not less than 5 J		not less than 5 J	
6	Cathode disbondment as per ISO 15711 (method A) (refer to 2.5.6) for coatings compatible with cathode protection	less than 5 mm after three month testing, less than 8 mm after six month testing		less than 5 after three month testing, less than 10 mm after six month testing	
7	Coefficient of sliding friction for ice (refer to 2.5.7)	not exceeding 0,05	not exceeding 0,08	not exceeding 0,05	not exceeding 0,08
8	Minimum NDFT (90/10 practice)[1] for epoxy-based coatings[2]	500 µm			

[1] Nominal dry film thickness (NDFT). A 90/10 practice means that 90 % of all thickness measurements shall be greater than, or equal to, NDFT and none of the remaining 10 % measurements shall be below 0,9 x NDFT.

[2] Minimum nominal thickness for non epoxy-based ice resistant coatings shall be specified by the manufacturer.

".

Para 6.5.3.2 is amended as follows:

"**6.5.3.2** Ice resistant coatings of ice class ships shall be applied not less than 1,0 m above the upper boundary and not less than 1,0 m below the lower boundary of ice strengthening. Ice resistant coatings of icebreakers shall be applied to the underwater part of the hull and its side at the height not less than 1,0 m above the upper boundary of ice strengthening. The above requirements to the boundaries of ice resistant coating application for ships of ice

classes **Ice1 — Ice3** may be reduced to the boundary of ice strengthening on agreement with the Register taking into account structural particulars of the ship.

Ice resistant coating is not required in case of application of clad steel in the area of ice strengthening, if relevant means of electrochemical protection against corrosion are installed.

Documentation of coating manufacturer shall be agreed between the shipowner, shipyard and coating manufacturer and shall be submitted to the Register for review.

~~When applying several layers of ice resistant coating of ice class ships and icebreakers, it is recommended to use different colours for each layer.~~".

PART XIV. WELDING

2 TECHNOLOGICAL REQUIREMENTS FOR WELDING

2.2 WELDING OF SHIP HULL AND EQUIPMENT

Table 2.2.4 is amended as follows:

"Table 2.2.4

Grade of welding consumables	Hull structural steel											
	normal strength				higher strength							
	A	B	D	E	A32, A36	D32, D36	E32, E36	F32, F36	A40	D40	E40	F40
1, 1S, 1T, 1M, 1TM, 1V	+	–	–	–	–	–	–	–	–	–	–	–
1YS, 1YT, 1YM, 1YTM, 1YV	+	–	–	–	+[1]	–	–	–	–	–	–	–
2, 2S, 2T, 2M, 2TM, 2V	+	+	+	–	–	–	–	–	–	–	–	–
2Y, 2YS, 2YT, 2YM, 2YTM, 2YV	+	+	+	–	+	+	–	–	–	–	–	–
2Y40, 2Y40S, 2Y40T, 2Y40M, 2Y40TM, 2Y40V	Refer to 2.2.4.4				+	+	–	–	+	+	–	–
3, 3S, 3T, 3M, 3TM, 3V	+	+	+	+	–	–	–	–	–	–	–	–
3Y, 3YS, 3YT, 3YM, 3YTM, 3YV	+	+	+	+	+	+	+	–	–	–	–	–
3Y40, 3Y40S, 3Y40T, 3Y40M, 3Y40TM, 3Y40V	Refer to 2.2.4.4				+	+	+	–	+	+	+	–
4Y, 4YS, 4YT, 4YM, 4YTM, 4YV	+	+	+	+	+	+	+	+[2]	–	–	–	–
4Y40, 4Y40S, 4Y40T, 4Y40M, 4Y40TM, 4YV	Refer to 2.2.4.4				+	+	+	+[2]	+	+	+	+[2]
5Y40, 5Y40S, 5Y40T, 5Y40M, 5Y40TM, 5Y40V	Refer to 2.2.4.4				+	+	+	+	+	+	+	+
[1] Refer to 2.2.4.5. [2] Refer to 2.2.4.9.												

".

New Para 2.2.4.9 is introduced reading as follows:

"**.9** to weld higher strength steels of grades F32 — F40, a higher digital index of welding consumable grade by cold resistance may be specified depending on the function and operational conditions of structures (for example, 5Y instead of 4Y and 5Y40 instead of 4Y40).".

New Para 2.2.5.9 is introduced reading as follows:

"**.9** to weld high strength steel to normal or higher strength steel, which differ considerably from each other by strength properties (for example, F500+ D40, E500+E40, E500 + A36) and

for which the requirements of 2.2.5.1 are not applicable for welding consumables selection, the welding consumables for welding of the lower strength steel shall be used, subject to the requirement that the welding consumable be assigned a grade not lower than 3Y (–20 °C) for impact test temperature, or welding consumables for welding higher strength steel.".

Para 2.2.6 is deleted.

Para 2.2.7 is renumbered **2.2.6**.

Paras 2.3.2, 2.4.2 and **2.5.2**. The reference "2.2.4 — 2.2.6" is amended to "2.2.4 and 2.2.5"

PART XV. AUTOMATION

8 DYNAMIC POSITIONING SYSTEMS

8.10 POSITION REFERENCE SYSTEMS

Para 8.10.4 is amended as follows:

"**8.10.4** When two or more position reference systems are ~~required~~ available, they shall not all be of the same type, but jointly such systems shall involve at least two different principles for position reference.

For Class 1 DP systems, ~~the use of two~~ independent position reference systems based on global navigation satellite systems ~~(GNSS)~~ with a differential subsystem (DGNSS) ~~is allowed under the following conditions:~~

~~systems shall not be of the same type;~~

~~systems shall use~~ ensure compliance with the requirements for various principles of positioning reference using different constellations of available satellites with different augmentation methods available~~;~~

~~operation of the ship in the DP mode is excluded in the 500 m area relative to other ships and offshore installations. Appropriate restrictions shall be entered in the Classification Certificate and in the Certificate of Compliance for Dynamic Positioning System of the Ship~~.".

PART XVII. DISTINGUISHING MARKS AND DESCRIPTIVE NOTATIONS IN THE CLASS NOTATION SPECIFYING STRUCTURAL AND OPERATIONAL PARTICULARS OF SHIPS

13 ADDITIONAL REQUIREMENTS FOR SHIPS OF SPECIAL TYPES

New Chapter 13.5 is introduced reading as follows:

"**13.5 SHIPS OCCASIONALLY CARRYING DRY CARGOES IN BULK**

13.5.1 General.

13.5.1.1 For dry cargo ships intended to occasionally carry dry cargoes in bulk (except for bulk carriers, ore carriers and combination carriers) and complying with

the requirements of this Chapter, the additional notation **occ-bulk-cargo** may be added in brackets after the descriptive notation **General dry cargo ship** or **Multipurpose dry cargo ship** in the class notation.

13.5.1.2 The requirements of this Chapter are additional to those of Parts I — XV of these Rules applied to ships intended for carrying general dry cargoes, and they are drawn up considering provisions 1.6 and 1.7 of IMO resolution MSC.277(85).

13.5.2 Terms and definitions.

For the purpose of this Chapter the following definition has been adopted:

Ship intended to occasionally carry dry cargoes in bulk is a general cargo ship with at least one loading condition in the Loading Manual that refers to the carriage of bulk cargo.

13.5.3 Hull.

13.5.3.1 Ships of 100 m in length and upwards shall have a double-side skin complying with the requirements of 2.5, Part II "Hull". The double-side skin spaces shall not be used for carriage of bulk cargo.

13.5.3.2 The arrangement of double-side skin structures on ships of 150 m in length and upwards shall comply with the following requirements:

.1 primary stiffening structures of the double-side skin shall not be arranged inside the cargo hold space;

.2 spacing between the outer shell and the inner shell of the double-side skin at any transverse section shall not be less than 1000 mm measured perpendicular to the outer shell;

.3 the minimum spacing between the extreme edges of members of the double-side skin framing shall be as follows:

600 mm — for the transverse framing system;

800 mm — for the longitudinal framing system.

.4 the spacing specified in 13.5.3.2.3 may be reduced outside the areas where the cargo hold configuration is shaped by the parallel inner skin, but shall in no case be less than 600 mm.

.5 the minimum width of the clear passage where piping, vertical ladders or other obstructions are located shall be 600 mm.

13.5.3.3 Double-side skin spaces (including ballast tanks and void spaces) on ships of 150 m in length and upwards shall have anticorrosive protective coating in accordance with 6.5.1.1.1, Part XIII "Materials".

13.5.3.4 On ships of 150 m in length and upwards carrying bulk cargoes having a density of 1000 kg/m^3 and above, measures shall be taken to protect the cargo hold structures during cargo operations involving grabs:

.1 double bottom structures shall meet the requirements of 2.4.2.5, 2.4.4.3 and 2.4.4.4, Part II "Hull";

.2 structures in the cargo hold upper parts in areas of the hatch openings shall have a suitable protection against grooving by wire ropes (for example, using a steel half-round bar arranged on the upper members of cargo hold bulkheads, on the end edges of cargo hold beams or on the upper portion of hatch coamings).

13.5.3.5 For ships of 150 m in length and upwards, carrying bulk cargoes having a density of 1000 kg/m^3 and above, the buckling strength of structures shall be verified in compliance with 3.3.4.13, Part II "Hull".

13.5.3.6 Ships of 150 m in length and upwards shall be provided with the Loading Manual and a loading instrument in compliance with 3.3.6, Part II "Hull".

13.5.4 Freeboard and stability.

13.5.4.1 A freeboard shall be assigned as for a type B ship in compliance with 4.1.3.2 — 4.1.3.4 of the Load Line Rules or, if applicable, with regulations 27(5) and (6) of the LL66/88. A reduction of the tabular freeboard shall not be permitted.

13.5.4.2 Ships of less than 150 m in length shall be equipped with a stability instrument in compliance with 3.2.7, Part IV "Stability".

13.5.4.3 During carriage of bulk cargoes other than grain, the ship shall be provided with the Stability Booklet in compliance with 1.4.11.3, Part IV "Stability".

13.5.4.4 For ships carrying grain in bulk, the ship shall be provided with the Grain Stability Booklet in compliance with 1.4.11.4, Part IV "Stability".

13.5.5 Systems and piping.

13.5.5.1 The means for draining and pumping ballast tanks forward of the collision bulkhead and the means for draining dry spaces, any part of which extends forward of the foremost cargo hold, except for spaces specified in 13.5.5.3, shall meet the requirements of 7.9.2 — 7.9.7, Part VIII "Systems and piping".

13.5.5.2 Dry spaces, any part of which extends forward of the foremost cargo hold, except for spaces specified in 13.5.5.3, shall be equipped with water level detectors in compliance with 7.9.8, Part VIII "Systems and piping".

13.5.5.3 The requirements of 13.5.5.1 and 13.5.5.2 shall not be applicable to dry enclosed spaces, which volume does not exceed 0,1 % of the ship's maximum volume displacement, and to the chain lockers.

13.5.5.4 Design of bilge system in cargo spaces shall meet the requirements of 7.6.11, Part VIII "Systems and piping".

13.5.5.5 Cargo spaces shall be equipped with the flooding detection system, featuring the water level detectors intended for triggering the alarm system and arranged at two levels as specified in 7.6.15.1.2 (for single-hold cargo ships) or in 7.6.15.1.3 (for multiple-hold cargo ships) of Part VIII "Systems and piping", subject to the requirements for their location as specified in 7.6.15.2 of the said Part. For single-hold cargo ships, this requirement shall be applied regardless of the arrangement of watertight side compartments all throughout the cargo hold, while the detectors can be installed at levels specified in 7.6.15.1.1, provided that the water level detectors in the forward compartment meet the requirements of 13.5.5.2 of this Part and those of 7.9.9, Part VIII "Systems and piping".

The alarm system of the cargo space flooding detection system shall comply with the requirements of 7.6.15.3 — 7.6.15.5, Part VIII "Systems and piping".

13.5.6 Electrical equipment.

13.5.6.1 Electrical equipment for the means of draining the spaces specified in 13.5.5.1 shall meet the requirements of 5.12, Part XI "Electrical equipment".".

16 REQUIREMENTS FOR BOILER MONITORING SYSTEMS

16.4 ADDITIONAL REQUIREMENTS FOR THE SHIPS WITH THE DISTINGUISHING MARK BMS

Para 16.4.2.3 is replaced by the following text:

"**16.4.2.3** Quality of the boiler and feed water shall be monitored using standard instruments and chemical analysis of water at least every 24 h. Results of the boiler and feed water chemical analysis shall be recorded in a dedicated ship's logbook.".

Para 16.4.2.4 is deleted.

Existing paras 16.4.2.5 and 16.4.2.6, **and references thereto** are renumbered **16.4.2.4 and 16.4.2.5** accordingly.

16.5 SURVEYS

Para 16.5.2.2 is amended as follows:

"**16.5.2.2** Internal surveys of boiler's water/steam side shall be performed by the ship crew at a frequency specified by the manufacturer but at least once a year and not earlier than 30 days before annual ship survey. If the boiler has components not accessible for internal survey, the internal survey shall be followed by hydraulic tests with test pressure equal to 1,25 working pressure in accordance with ~~2.10.2.3, Part II "Survey Schedule and Scope" of the Rules for the Classification Surveys of Ships in Service~~ 3.6.2.3, Part II "Classification surveys" of the Rules for the Technical Supervision of Ships in Service; the testing shall be reflected in the Report on Survey signed by the chief engineer.".

Para 16.5.2.3 is amended as follows:

"**16.5.2.3** Internal survey of boiler's furnace/fire side shall be performed by the ship crew at a frequency specified by the manufacturer but at least twice a year.".

23 REQUIREMENTS FOR SHIPS EQUIPPED TO USE METHANOL/ETHANOL AS FUEL

23.1 GENERAL

New para 23.1.4 is introduced reading as follows:

"**23.1.4 Risk analysis.**

23.1.4.1 Risk analysis shall be provided to ensure that risks arising from the use of methanol and ethanol as fuel and affecting persons on board, the environment, the structural strength or the integrity of the ship are addressed. Consideration shall be given to the hazards associated with physical layout, operation and maintenance, following any reasonably foreseeable failure.

23.1.4.2 The risks shall be analysed using acceptable and recognized risk analysis techniques, and loss of function, component damage, fire, explosion and electric shock shall as a minimum be considered. The analysis shall ensure that risks are eliminated wherever possible.

Risks which cannot be eliminated shall be mitigated as necessary. Details of risks, and the means by which they are mitigated, shall be documented and submitted to the Register for the review. The results of risks analysis shall be taken into account in the ship's operational documentation.".

23.2 GENERAL REQUIREMENTS FOR SHIP STRUCTURE

Para 23.2.1.1 is amended as follows:

"**23.2.1.1** Tanks containing methanol/ethanol shall not be located within accommodation spaces and machinery spaces of category A or be adjacent to them.

Integral tanks containing methanol/ethanol may be placed between the foremost and aftmost bulkheads bordering the machinery space of Category A, provided that the tanks are separated from the machinery spaces of category A by a cofferdam of at least 600 mm width, the structures of which adjacent to the machinery spaces are of class A-60.".

Para 23.3.1.1 is amended as follows:

"**23.3.1.1** ~~On ships other than tankers for the carriage of methanol/ethanol~~ Subject to requirements of 23.2.1.1, fuel storage tanks shall be surrounded by protective cofferdams, except for the tanks with walls bordering other fuel tanks containing methanol/ethanol, pump room, fuel preparation space and shell plating below the waterline.

Integral fuel tanks bordering the open deck may not be separated from the deck by the cofferdams, provided that the safety of such arrangement is confirmed by the risk assessment performed in accordance with 23.1.4, given the use of the area above the fuel tanks, fire hazard, toxicity and possible additional structural requirements.

On tankers carrying methanol/ethanol, the methanol/ethanol tanks may be adjacent to the cargo tanks, provided that compatibility of cargo being carried in the adjacent tanks is confirmed by the risk assessment performed in accordance with 23.1.4.".

New Section 35 is introduced reading as follows:

"35 REQUIREMENTS FOR SHIPS WITH DISTINGUISHING MARKS CONFIRMING THE USE OF THE REGISTER SOFTWARE

35.1 Scope of application.

The requirements of this Section apply to ships, for which the RS software was used to check compliance of hull structures, steering gear or type C tank elements of sea-going ships with the RS rules during the ship design stage for the purpose of construction or conversion/modification. Information on the RS software is available on the RS website in Section "Services/Ships under construction/Software for verification of ship structures" (https://rs-class.org/services/program1/).

Provided the calculations are performed using the RS software, the following distinguishing marks shall be assigned:

ODYSS(Hull) — when checking ship hull for compliance with these Rules and, if applicable, the Common Structural Rules;

ODYSS(Rudder) — when checking the steering gear strength of ships for compliance with the requirements of these Rules;

ODYSS(Tank C) — when checking dimensions of type C tank elements of ships for compliance with these Rules and the LG Rules.

Depending on the type of a check, the project file (file with the extension ***.ody** — for **ODYSS(Hull)**, ***.odyr** — for **ODYSS(Rudder)**, ***.odyt** — for **ODYSS(Tank C)**), which was created in the Register software and containing appropriate input data, calculations, etc. shall be submitted as part of the ship's technical documentation.

35.2 Requirements for the scope of information of the project file

35.2.1 The scope of information included in the project file (file with the extension ***.ody**) depends on the ship's operational and structural particulars. When determining the scope of information for the project file, the following shall be considered:

.1 the number of cross-section models for verification of longitudinal strength shall be sufficient to confirm that the requirements for longitudinal strength are met along the entire

length of the ship, taking into account the nature of the changes of bending moments and shear forces distributions, changes in the stiffness and in the continuity of structures (openings, discontinuities, etc.), and also taking into account the requirements of 1.4.6.10 of Part II "Hull" of the Rules for the Classification and Construction of Sea-Going Ships;

.2 the number of cross-section models for verification of local strength shall be sufficient to confirm that the adopted scantlings of main structural members (at least the shell plating, plates of internal structures, main transverse and longitudinal framing) comply with the requirements for local strength throughout the ship's length;

.3 the number of models of watertight transverse bulkheads shall correspond to the number of all watertight transverse bulkheads of the ship design (in case of the same geometry and/or initial design data, such as compartment parameters, etc., it is allowed to reduce the number of bulkhead models in the project file);

.4 the number of grillages for verification of ice strengthening shall be sufficient to confirm that the adopted scantlings of main structural members of ice strengthening comply with the applicable requirements in all ice strengthened regions of the ship.

35.2.2 When using the RS software to check the calculation of a steering gear, a project file with the extension ***.odyr** shall be submitted.

35.2.3 When using the RS software to check dimensions of type C tanks elements, a project file with the extension ***.odyt** shall be submitted for each tank separately installed on the ship.

35.3 Conditions for the retainment of distinguishing marks in the class notation.

35.3.1 In case of conversion or modification of a ship, which involves changes to the design of ship's hull and machinery for which calculations were made using the RS software, the previously assigned mark(s) specified in 35.1 shall be deleted from the class notation or re-calculation shall be made using the RS software.".

PART XIX. ADDITIONAL REQUIREMENTS FOR CARGO SHIPS OF LESS THAN 500 GROSS TONNAGE

6 TECHNICAL REQUIREMENTS

6.10 ELECTRICAL EQUIPMENT

Para 6.10.8.3.1. **The last paragraph** is amended as follows:

"The emergency sources of electrical power ~~shall ensure the supply of services listed above during 6 h~~ in ships of 300 gross tonnage and upward but less than 500, of unrestricted service and restricted area of navigation **R1** shall ensure the supply of services listed above during 18 h, while in ships of restricted areas of navigation **R2**, **R2-RSN**, **R2-RSN(4,5)**, **R3-RSN** and **R3** the required time period of 18 h can be reduced to 12 h.

For ships of less than 300 gross tonnage of unrestricted service and restricted area of navigation **R1** the time period of 6 h can be established instead of 18 h, while for ships of restricted areas of navigation **R2**, **R2-RSN**, **R2-RSN(4,5)**, **R3-RSN** and **R3** this can be 3 h.".

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