



RUSSIAN MARITIME REGISTER OF SHIPPING

CIRCULAR LETTER

No. 313-68-1282c

dated 05.11.2019

Re:

amendments introduced to the Rules for the Classification and Construction of Sea-Going Ships in connection with coming in force of IACS Unified Requirements P2.7.4 (Rev.9 Oct 2018), P2.13 (Oct 2018) and P4 (Rev.5 Dec 2018)

Item(s) of supervision:

metallic piping, plastic piping, pipe laying

Entry-into-force date:

01.01.2020

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~~Cancels / amends / adds Circular Letter No.~~

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Number of pages:

1+10

Appendices:

Appendix 1: information on amendments introduced by the Circular Letter

Appendix 2: text of the amendments to Part VIII "Systems and Piping" and Part XIII "Materials"

Director General

Konstantin G. Palnikov

Text of CL:

We hereby inform that the Rules for the Classification and Construction of Sea-Going Ships shall be amended at re-publication in 2020 as specified in the Appendices to the Circular Letter.

It is necessary to do the following:

Bring the content of the Circular Letter to the notice of the RS surveyors, interested organizations and persons in the area of the RS Branch Offices' activity.

List of the amended and/or introduced paras/chapters/sections:

Part VIII: Tables 2.4.5.1, 2.4.5.11-1 and 2.4.5.11-2; paras 3.1.1, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.3.1.2, 3.3.1.2, 3.3.2.1, 3.4.1.1 and 3.4.3.2, Table 3.3.1.2 and para 5.3.2

Part XIII: paras 6.8.2.1, 6.8.2.3 — 6.8.2.6, 6.8.5.1, 6.8.5.2, 6.8.6.3, 6.8.6.4, 6.8.7 and 6.8.8.3

Person in charge: Maxim S. Bogdanov

313

+7 (812) 312-39-85

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**Information on amendments introduced by the Circular Letter
(for inclusion in the Revision History to the RS Publication)**

| Nos. | Amended paras/chapters/sections | Information on amendments | Number and date of the Circular Letter | Entry-into-force date |
|------|---------------------------------|--|--|-----------------------|
| 1 | Part VIII, Table 2.4.5.1 | A new type of a mechanical joint has been introduced considering IACS UR R2.7.4 (Rev.9 Oct 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 2 | Part VIII, Table 2.4.5.11-1 | The Table has been amended in relation to mechanical joint for sea water piping considering IACS UR R2.7.4 (Rev.9 Oct 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 3 | Part VIII, Table 2.4.5.11-2 | A new type of a mechanical joint has been added introduced considering on IACS UR R2.7.4 (Rev.9 Oct 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 4 | Part VIII, Para 3.1.1 | The definition of the term "Joint" has been specified considering IACS UR P4 (Rev. 5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 5 | Part VIII, Chapter 3.2 | The applicability of the requirements has been specified considering IACS UR P4 (Rev. 5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 6 | Part VIII, Para 3.3.1.2 | The reference to IMO resolution has been introduced, and the para has been amended considering IACS UR R4 P4 (Rev. 5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 7 | Part VIII, Table 3.3.1.2 | The Table has been supplemented with the references considering IACS UR P4 (Rev. 5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 8 | Part VIII, Para 3.3.2.1 | The Para has been amended considering IACS UR P4 (Rev. 5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 9 | Part VIII, Para 3.4.1.1 | The Para has been amended considering IACS UR P4 (Rev. 5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 10 | Part VIII, Para 3.4.3.2 | The Para has been amended considering IACS UR P4 (Rev. 5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 11 | Part VIII, Para 5.3.2 | The requirement for protection of pipelines from mechanical damage has been specified considering IACS UR P2.13 (Oct 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 12 | Part XIII, Para 6.8.2.1 | The requirements for the conditions of hydraulic testing have been specified considering IACS UR P4 (Rev.5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |

| | | | | |
|----|-------------------------|---|----------------------------|------------|
| 13 | Part XIII, Para 6.8.2.3 | The requirements of existing paras 6.8.2.3 — 6.8.2.5 have been combined and specified considering IACS UR P4 (Rev.5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 14 | Part XIII, Para 6.8.2.4 | The requirements for minimum pipe wall thickness have been introduced considering IACS UR P4 (Rev.5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 15 | Part XIII, Para 6.8.2.6 | Para has been renumbered 6.8.2.5 | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 16 | Part XIII, Para 6.8.4 | The requirements for minimum impact resistance have been specified considering IACS UR P4 (Rev.5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 17 | Part XIII, Para 6.8.5.1 | The requirements for minimum working temperature have been specified considering IACS UR P4 (Rev.5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 18 | Part XIII, Para 6.8.5.2 | The requirements for minimum heat deflection temperature have been specified considering IACS UR P4 (Rev.5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 19 | Part XIII, Para 6.8.6.3 | The requirements for fire protecting coatings have been specified considering IACS UR P4 (Rev.5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 20 | Part XIII, Para 6.8.6.4 | The requirements for fire protecting coatings have been specified considering IACS UR P4 (Rev.5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 21 | Part XIII, Para 6.8.7 | A new Para with the requirements for electrical conductivity has been introduced considering IACS UR P4 (Rev.5 Dec 2018). The existing Para 6.8.7 has been renumbered 6.8.8 | 313-68-1282c of 05.11.2019 | 01.01.2020 |
| 22 | Part XIII, Para 6.8.8.3 | The requirements for serial specimens of pipes have been specified considering IACS UR P4 (Rev.5 Dec 2018) | 313-68-1282c of 05.11.2019 | 01.01.2020 |

**RULES FOR THE CLASSIFICATION AND CONSTRUCTION
OF SEA-GOING SHIPS, 2020,**

ND No. 2-020101-124-E

PART VIII. SYSTEMS AND PIPING

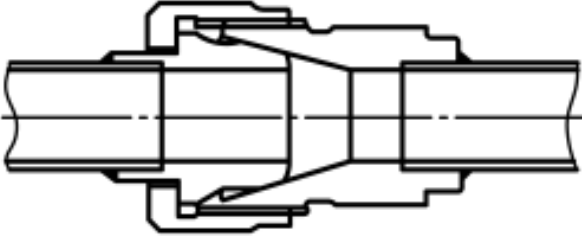
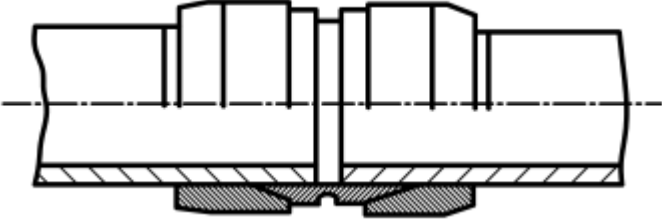
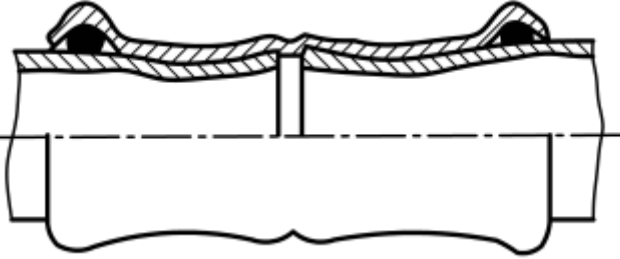
2 METAL PIPING

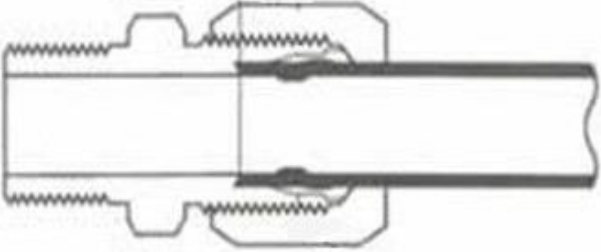
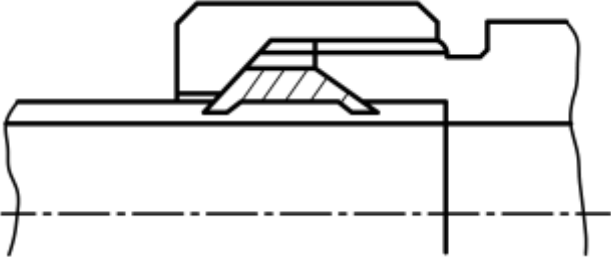
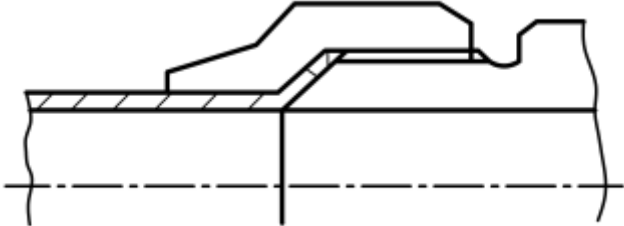
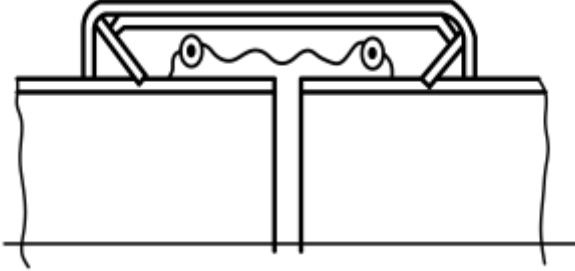


2.4 PIPE JOINTS

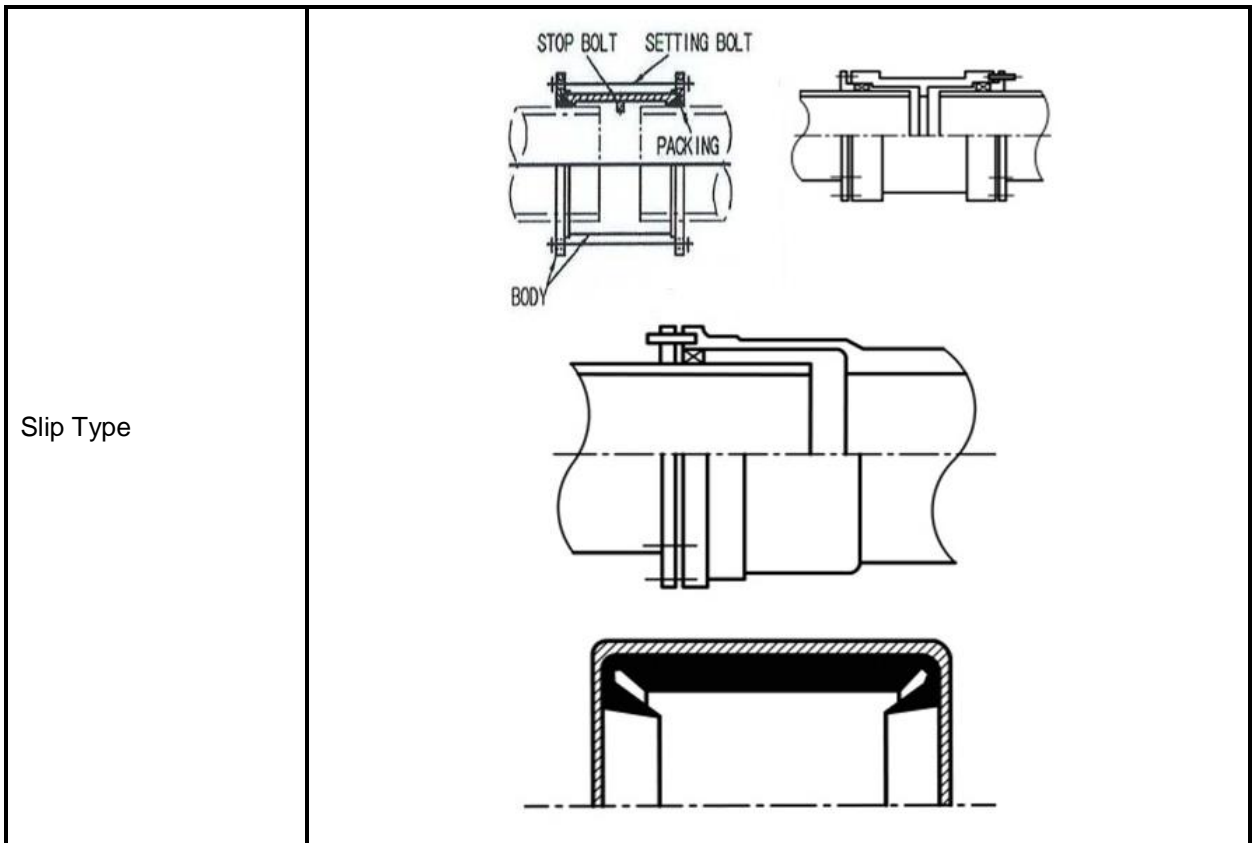
1 **Table 2.4.5.1** is replaced by the following text:

Table 2.4.5.1

Examples of mechanical joints

| Pipe Unions | |
|-------------------------|--|
| Welded and Brazed Types |  |
| Compression Couplings | |
| Swage Type |  |
| Press Type |  |

| | |
|---------------------------------|---|
| <p>Typical Compression type</p> |  |
| <p>Bite Type</p> |  |
| <p>Flared Type</p> |  |
| <p>Slip-on Joints</p> | |
| <p>Grip Type</p> |  |
| <p>Machine Grooved Type</p> | <div style="text-align: center;">  <p>Roll Groove</p>  <p>Cut Groove</p> </div> |



2 **Table 2.4.5.11-1.** The first sentence of the Footnotes is replaced by the following text:

"If mechanical joints include any components which readily deteriorate in case of fire, the following footnotes shall be observed:", the rest remaining as it stands."

3 **Table 2.4.5.11-1.** Footnote "3" is replaced by the following text:

"³ Slip on joints are not accepted inside machinery spaces of category A or accommodation spaces. May be accepted in other machinery spaces provided the joints are located in easily visible and accessible positions."

4 **Table 2.4.5.11-2** is replaced by the following text.

"Table 2.4.5.11-2

Application of mechanical joints depending upon the class of piping

| Type of joints | Classes of piping systems | | |
|--|--|---------------------------------------|-----|
| | I | II | III |
| Pipe Unions | | | |
| Welded and Brazed Types | + (outside diameter/ OD ≤ 60,3 mm) | + (outside diameter/ OD ≤ 60,3 mm) | + |
| Compression Couplings | | | |
| Swage Type | + | + | + |
| Typical Compression type | + (outside diameter/ OD ≤ 60,3 mm) | + (outside diameter/ OD ≤ 60,3 mm) | + |
| Bite type, flared type | + (outside diameter/ OD ≤ 60.3 mm.) | + (outside diameter/ OD ≤ 60.3 mm) | + |
| Press Type | - | - | + |
| Slip-on joints | | | |
| Machine Grooved Type | + | + | + |
| Grip Type | - | + | + |
| Slip Type | - | + | + |
| Symbols: + Application is allowed; - Application is not allowed. | | | |

3 PLASTIC PIPING

3.1 DEFINITIONS

5 **Para 3.1.1.** The definition of the term "Joint" is replaced by the following text:

"Joint is joining pipes by adhesive bonding, laminating, welding, etc."

3.2 SCOPE OF APPLICATION. GENERAL REQUIREMENTS

6 **Para 3.2.1** is replaced by the following text:

"3.2.1 The present requirements are applicable to plastic pipes/piping systems on ships."

7 **Para 3.2.2** is replaced by the following text:

"3.2.2 The requirements are not applicable to flexible and mechanical couplings used in metallic piping systems."

8 New **Para 3.2.3** is introduced reading as follows:

"3.2.3 Piping systems intended for non-essential services shall only meet the requirements of recognized standards agreed by the Register."

9 Existing **Para 3.2.3** is renumbered **3.2.4**.

3.3 REQUIREMENTS FOR PIPING DEPENDING ON THEIR PURPOSE AND LOCATION

10 **Para 3.3.1.2** is supplemented by the reference to IMO resolution MSC.399(95) and replaced by the following text:

"3.3.1.2 Depending on pipeline ability to maintain integrity during fire-resistance tests according to the procedure stated in IMO resolutions A.753(18) and MSC.313(88) and MSC.399(95), five degrees of fire-resistance are specified:

L1 for pipelines withstanding fire-resistance test in dry condition during 1 h without leakage during further hydraulic tests;

W1 for pipelines not carrying flammable liquid or any gas and withstanding fire-resistance test in dry condition during 1 h with a maximum 5 % flow loss in the system;

L2 for pipelines withstanding fire-resistance test in dry condition during 30 min without leakage during further hydraulic tests;

W2 for pipelines not carrying flammable liquid or any gas and withstanding fire-resistance test in dry condition during 30 min. with a maximum 5 % flow loss in the system;

L3 for pipelines withstanding fire-resistance test in filled condition during 30 min without leakage during further hydraulic tests.

Plastic pipelines scope of application depending on fire-resistance degree, location and media conveyed is given in Table 3.3.1.2.

For ships subject to compliance with SOLAS-74 Reg. II-2/21.4, for Safe Return to Port purposes, plastic piping can be considered to remain operational after a fire casualty if the plastic pipes and fittings have been tested to L1 standard."

11 Table 3.3.1.2 is replaced by the following text:

"Table 3.3.1.2

| Application of plastic pipelines | | | | | | | | | | | | | |
|----------------------------------|--|--|------------------|------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|--------------------|------------------|
| Nos. | Medium to be conveyed | Location ¹ | | | | | | | | | | | |
| | | Piping systems | A | B | C | D | E | F | G | H | I | J | K |
| 1 | Liquid cargoes with flash point ≤ 60°C | Cargo | - | - | L1 | - | - | O | - | O ² | O | - | L1 ³ |
| | | Crude oil tank washing | - | - | L1 | - | - | O | - | O ² | O | - | L1 ³ |
| | | Gas venting | - | - | - | - | - | O | - | O ² | O | - | + |
| 2 | Inert gas | Pipeline from hydraulic lock | - | - | O ⁴ | - | - | O ⁴ | O ⁴ | O ⁴ | O ⁴ | - | O |
| | | Pipeline from purifier | O ⁴ | O ⁴ | - | - | - | - | - | O ⁴ | O ⁴ | - | O |
| | | Main pipe | O | O | L1 | - | - | - | - | - | O | - | L1 ⁵ |
| | | Distribution pipelines | - | - | L1 | - | - | O | - | - | O | - | L1 ³ |
| 3 | Flammable liquids with flash point >60°C | Cargo | + | + | L1 | + | + | - ⁶ | O | O ² | O | - | L1 |
| | | Fuel oil | + | + | L1 | + | + | - ⁶ | O | O | O | L1 | L1 |
| | | Oil | + | + | L1 | + | + | - | - | - | O | L1 | L1 |
| | | Hydraulic | + | + | L1 | + | + | O | O | O | O | L1 | L1 |
| 4 | Sea water | Drainage | L1 ⁷ | L1 ⁷ | L1 | + | + | - | O | O | O | - | L1 |
| | | Drain pipelines of internal spaces | W1 ⁸ | W1 ⁸ | - | W1 ⁸ | O | - | O | O | O | O | O |
| | | Sanitary drains (internal) | O | O | - | O | O | - | O | O | O | O | O |
| | | Drainage from weather decks | O ^{4,9} | O ^{4,9} | O ^{4,9} | O ^{4,9} | O ^{4,9} | O | O | O | O | O ^{4,9} | O |
| | | Firemain system and water spraying | L1 | L1 | L1 | + | - | - | - | O | O | + | L1 |
| | | Foam fire-extinguishing | W1 | W1 | W1 | + | - | - | - | O | O | W1 | W1 |
| | | Sprinkling | W1 | W1 | L3 | + | - | - | - | O | O | L3 | L3 |
| | | Ballast | L3 | L3 | L3 | L3 | + | O ¹ | O | O | O | W2 | W2 |
| | | Essential purpose cooling systems | L3 | L3 | - | - | - | - | - | O | O | - | W2 |
| | | Non-essential purpose cooling systems | O | O | O | O | O | - | O | O | O | O | O |
| | | Tank washing | - | - | L3 | - | - | O | - | O | O | - | L3 ² |
| 5 | Fresh Water | Essential purpose cooling systems | L3 | L3 | - | - | - | - | O | O | O | L3 | L3 |
| | | Condensate return system | L3 | L3 | L3 | O | O | - | - | - | O | O | O |
| | | Non-essential purpose systems | O | O | O | O | O | - | O | O | O | O | O |
| 6 | Other media | Air, sounding and overflow pipes: water tanks and dry compartments | O | O | O | O | O | O ² | O | O | O | O | O |
| | | Flammable liquids, T _{flash} >60 °C | + | + | + | + | + | + ⁶ | O | O ² | O | + | + |
| | | Pneumatic control systems | L1 ¹⁰ | L1 ¹⁰ | L1 ¹⁰ | L1 ¹⁰ | L1 ¹⁰ | - | O | O | O | L1 ¹⁰ | L1 ¹⁰ |
| | | Air pipes for domestic needs | O | O | O | O | O | - | O | O | O | O | O |
| | | Brine | O | O | - | O | O | - | - | - | O | O | O |
| | | Low pressure steam | W2 | W2 | O ¹¹ | O ¹¹ | O ¹¹ | O | O | O | O | O ¹¹ | O ¹¹ |
| | | Independent vacuum cleaners | - | - | - | O | - | - | - | - | O | O | O |
| | | Discharge pipes of the exhaust gas cleaning system | L3 ⁴ | L3 ⁴ | - | - | - | - | - | - | - | L3 ^{4,12} | - |
| | | Pumping and discharge arrangement/system for urea | L1 ¹³ | L1 ¹³ | - | - | - | - | - | - | - | L3 ¹² | O |

| | |
|--|---|
| S y m b o l s : | |
| A — machinery spaces of category A; | H — ballast tanks and trunks; |
| B — other machinery spaces; | I — cofferdams, dry compartments, etc.; |
| C — cargo pumps rooms, including accesses and trunks; | J — accommodation, service spaces and control stations; |
| D — cargo spaces of roll-on/roll-off ships; | K — weather decks; |
| E — dry cargo rooms and trunks; | O — fire-resistance test is not required; |
| F — cargo tanks and trunks; | "-" — not applicable; |
| G — fuel oil tanks and trunks; | "+" — metal materials with fusion point above 925 °C. |
| <p>¹ For passenger ships subject to SOLAS Reg. II-2/21.4 (Safe Return to Port), plastic pipes for services required to remain operative in the part of the ship not affected by the casualty thresholds, such as systems intended to support safe areas, shall be considered essential services. In accordance with circular MSC.1/Circ.1369, interpretation 12, for Safe Return to Port purposes, plastic piping can be considered to remain operational after a fire casualty if the plastic pipes and fittings have been tested to L1 standard.</p> <p>² For tankers, where the requirements of item 3.6, Regulation 19 of Annex I to MARPOL 73/78 shall be met, "-" shall be used instead of "O".</p> <p>³ For cargo tanks the remotely closing valves shall be provided.</p> <p>⁴ From the side the valves with remote control located outside of the room shall be provided.</p> <p>⁵ For pipeline between engine room and deck hydraulic lock "O" may be used instead of "L1".</p> <p>⁶ When cargo tanks contain flammable liquids with flash point > 60 °C, "O" may be used instead of "-" or "+".</p> <p>⁷ For passenger ships "+" shall be used instead of "L1".</p> <p>⁸ For drainage pipelines servicing only the particular space "O" may be used instead of "W1".</p> <p>⁹ Scupper holes of weather decks in the positions 1 and 2 according to Regulation 13 of the International Convention on Load Line, 1966, shall be "+", if they are not provided with the appropriate blanking means.</p> <p>¹⁰ When control functions are not foreseen, "O" may be used instead of "L1".</p> <p>¹¹ For essential purposes, such as heating of cargo tanks and ship's typhon, "+" shall be used instead of "O".</p> <p>¹² For L3 in service spaces, in accommodation and control spaces "-".</p> <p>¹³ Register Type Approved plastic piping without fire endurance test (0) is acceptable downstream of the tank valve, provided this valve is metal seated and arranged as fail-to-closed or with quick closing from a safe position outside the space in the event of fire.</p> | |

12 **Para 3.3.2.1** is replaced by the following text:

"3.3.2.1 All pipes, except those fitted on open decks and within tanks, cofferdams, pipe tunnels, and ducts if separated from accommodation, permanent manned areas and escape ways by means of an A class bulkhead are to have low surface flame spread characteristics not exceeding average values regulated in by Part 5 of Annex 1 to the 2010 FTP Code. Piping materials shall fulfil the requirements of FTP Code, part 2, on smoke emission and toxicity test and they shall be used in accordance with the approved manufacturer's recommendations.

Surface flame spread characteristics may also be determined using the test procedures given in the standard approved by the Register."

3.4 INSTALLATION REQUIREMENTS

13 **Para 3.4.1.1** is replaced by the following text:

"3.4.1.1 Selection and spacing of pipe supports in shipboard systems shall be determined as a function of allowable stresses and maximum deflection criteria. Support spacing shall not greater than the pipe Manufacturer's recommended spacing. The selection and spacing of pipe supports shall take into account pipe dimensions, length of the piping, mechanical and physical properties of the pipe material, mass of pipe and contained fluid, external pressure, operating temperature, thermal expansion effects, loads due to external forces, thrust forces, water hammer, vibrations, maximum accelerations to which the system may be subjected.

Combination of loads shall be considered."

14 **Para 3.4.3.2** is replaced by the following text:

"3.4.3.2 Besides for providing adequate robustness for all piping including open-ended piping a minimum wall thickness, complying with the thickness specified on the basis of strength

control, may be increased taking into account the conditions encountered during service on board ships."

5 PIPING LAYING

5.3 PIPING LAYING IN CARGO HOLDS AND OTHER SPACES

15 **Para 5.3.2** is replaced by the following text:

"**5.3.2** Seawater pipes located in cargo holds and in other spaces where pipes may be subject to impacts (e.g. fish holds, chain lockers), are to be protected from mechanical damage."

PART XIII. MATERIALS

6 PLASTICS AND MATERIALS OF ORGANIC ORIGIN

6.8 PLASTIC PIPES AND FITTINGS

16 Para 6.8.2.1 is replaced by the following text:

"**6.8.2.1** The strength of pipes shall be determined by hydraulic failure testing of specimens under the standard conditions: atmospheric pressure equal to 0,1 MPa, relative humidity 30 %, environmental and carried fluid temperature 25 °C."

17 **Existing Paras 6.8.2.3 — 6.8.2.5** are replaced by the following text:

"**6.8.2.3** The nominal pressure p_{nom} shall be determined from the following conditions:

.1 internal pressure.

For internal pressure:

$$p_{nom} < p_{sth}/4 \text{ or } p_{nom} < p_{lth}/2,5$$

where p_{sth} = short-term hydraulic test pipe failure pressure;
 p_{lth} = long-term hydraulic test pipe failure pressure (more than 100 000 h);

.2 external pressure (for any installation that may be subject to vacuum conditions inside the pipe or a head of liquid acting on the outside of the pipe; and for any pipe installation required to remain operational in case of flooding damage, as per Regulation II-1/8-1 of SOLAS-74, as amended, or for any pipes that would allow progressive flooding to other compartments through damaged piping or through open ended pipes in the compartments).

For external pressure:

$$p_{nom} < p_{col}/3$$

where p_{col} = pipe collapse pressure.

In any case the collapse pressure shall not be less than 0,3 MPa.

The maximum working external pressure is a sum of internal vacuum and external pressure of the pipe tested."

18 **Para 6.8.2.4** is replaced by the following text:

"**6.8.2.4** Notwithstanding the requirements of 6.8.2.3, as applicable, the pipe or pipe layer minimum wall thickness shall follow recognized standards. In the absence of standards for pipes not subject to external pressure, the requirements of 6.8.2.3.2 shall be met."

19 Existing para 6.8.2.6 is renumbered 6.8.2.5.

20 Para 6.8.4 is replaced by the following text:

"6.8.4 Impact resistance.

Plastic pipes and joints shall have a minimum resistance to impact in accordance with the recognized national or international standards.

After the test the specimen shall be subjected to hydrostatic pressure equal to 2,5 times the design pressure for at least 1 hour."

21 Para 6.8.5.1 is replaced by the following text:

"6.8.5.1 The permissible working temperature depending on the working pressure shall be determined in accordance with the manufacturer's recommendations, but in any case it shall be at least 20 °C lower than the minimum heat distortion/deflection temperature of the pipe material, determined according to ISO 75 method A or equivalent (e.g., ASTM D648)."

22 Para 6.8.5.2 is replaced by the following text:

"6.8.5.2 The minimum heat distortion/deflection temperature shall not be less than 80 °C."

23 Para 6.8.6.3 is replaced by the following text:

"6.8.6.3 In considering fire protecting coatings such characteristics as thermal expansion, resistance against vibrations and elasticity shall be taken into account."

24 Para 6.8.6.4 is replaced by the following text:

"6.8.6.4 Fire protecting coatings shall have sufficient resistance to impact to retain their integrity."

25 New para 6.8.7 is introduced reading as follows:

"6.8.7 Electrical conductivity.

When the electrical conductivity is to be provided, the electrical resistance of pipes and fittings shall not exceed 1×10^5 Ohm/m."

26 Existing para 6.8.7 shall be renumbered 6.8.8.

27 Para 6.8.8.3 is replaced by the following text:

"6.8.8.3 Serial specimens of pipes (except for pipes specified in 3.2.3 of Part VIII "Systems and Piping") and fittings for tests determining strength, fire resistance and low surface flame spread characteristics, electrical resistance (for electrically conductive pipes) shall be chosen in accordance with the procedure approved by the Register."