RUSSIAN MARITIME REGISTER OF SHIPPING

HEAD OFFICE

CIRCULAR LETTER **No. 313-08-** 939c dated 12.10.2016

Re:

amendments to the Rules for the Classification and Construction of Sea-Going Ships, 2017, ND No. 2-020101-095-E, in connection with the provisions of the IACS Unified Requirements (UR) P2.7.4 (Rev.8 Mar 2016) coming into force.

Item of supervision:

Mechanical joints

Implementation	01.01.2017
Valid: till	----
Validity period extended till	----
~~Cancels / Amends / Supplements Circular~~ letter №	---- dated -----
Number of pages:	1+6
Appendices:	amendments to the Rules for the Classification and Construction of Sea-Going Ships, 2017, ND No. 2-020101-095-E.

Technical Director - Head of Classification Directorate Vladimir I. Evenko

Amends Rules for the Classification and Construction of Sea-Going Ships, 2017, ND No. 2-020101-095-E

We hereby inform that in connection with coming into force on 01.07.2017 of the provisions of IACS P2.7.4 (Rev.8 Mar 2016) Chapter 2.4 of Part VIII "Systems and Piping" of the Rules for the Classification and Construction of Sea-Going Ships, 2017, ND No. 2-020101-095-E shall be amended as specified in the Appendix to the Circular Letter.

The text of IACS P2.7.4 (Rev.8 Mar 2016) in English is posted on the RS internal website in the Section "External Normative Documents", 02 Documents of IACS, 0211 P. These amendments shall be implemented during approval and re-approval of the ship's technical documentation since 01.01.2017 or after this date.

It is necessary to do the following:

1. Apply the above amendments given in this Circular Letter during the review and approval of the ship's technical documentation.
2. Bring the content of the Circular Letter to the notice of the RS surveyors and interested organizations in the area of the RS Branch Offices' activity.

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"Thesis" System Ext. doc. No. 243929 of 27.09.2016

Appendix to Circular Letter No. 313-08-939c

dated 12.2016

RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF SEA-GOING SHIPS, 2017, ND No. 2-020101-094-E

PART VIII. Systems and Piping.

Annotation shall be supplemented with the following text:

"Section 2: Chapter 2.4 has been amended in connection with IACS UR P 2.7.4 (Rev.8 Mar 2016) coming into force. "

Chapter 2.4 Pipe joints.

Para 2.4.5 shall be amended to read:

"**2.4.5 Mechanical joints**

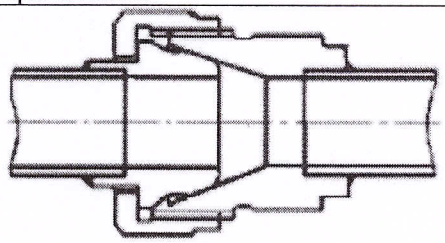
2.4.5.1 The present requirements are applicable to compression couplings, pipe unions and slip-on joints shown in Table 2.4.5.1. Application of such joints may be also accepted by the Register.

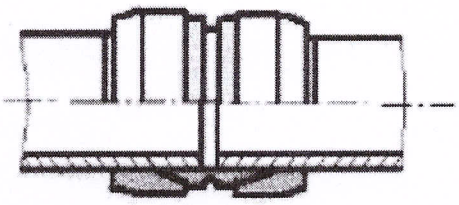
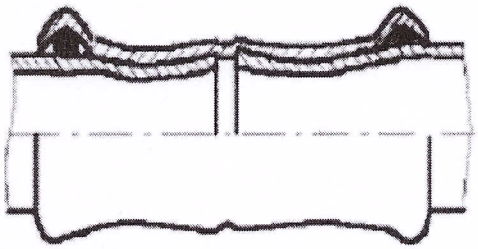
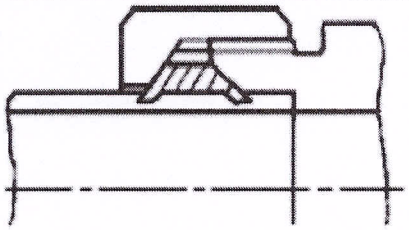
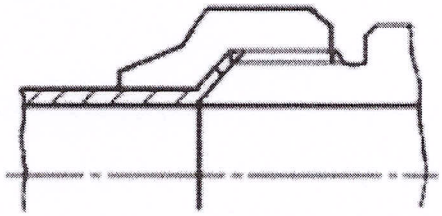
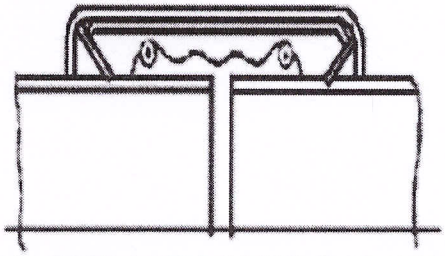
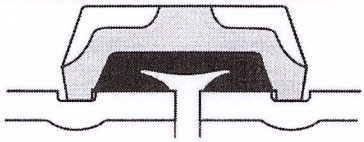
Due to the great variations in design and configuration of mechanical joints, no specific recommendation regarding calculation method for theoretical strength calculations is given in these requirements.

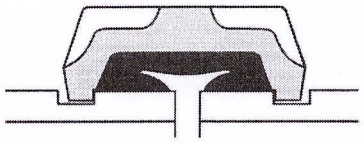
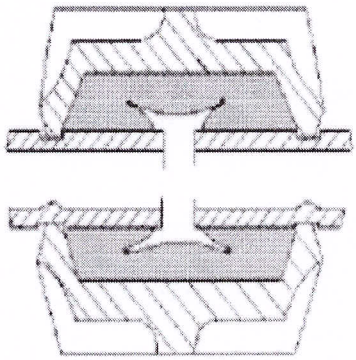
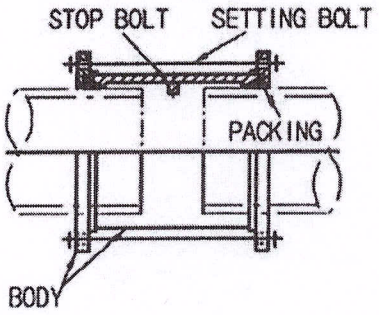
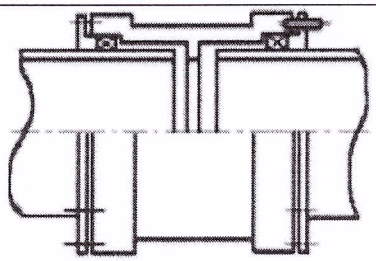
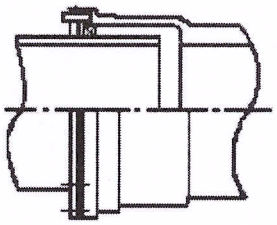
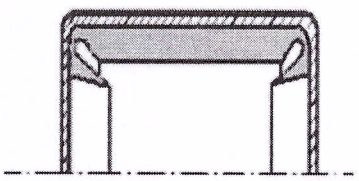
Type approval of the mechanical joints shall be based on the results of testing of their specimens.

Table 2.4.5.1

Examples of mechanical joints

Pipe Unions	
Welded and Brazed Types	
Compression Couplings	

Swage Type	
Press Type	
Bite Type	
Flared Type	
Slip-on Joints	
Grip Type	
Machine Grooved Type	 Roll Groove

	 Cut Groove 
Slip Type	   

2.4.5.2 The application and pressure ratings of different mechanical joints shall be approved by the Register. The approval shall be based on the type tests in accordance with a program approved by the Register.

2.4.5.3 Where the application of mechanical joints results in reduction in pipe wall thickness due to the use of bite type rings or other structural elements, this shall be taken into account in determining the minimum wall thickness of the pipe to withstand the design pressure.

2.4.5.4 Material of mechanical joints shall be compatible with the piping material and internal and external media.

2.4.5.5 Mechanical joints shall be tested where applicable, to a burst pressure of 4 times the design pressure.

For design pressures of 20 MPa and above, the required test pressure may be reduced on agreement with the Register.

2.4.5.6 Where appropriate, mechanical joints shall be of fire resistant type as required by Table 2.4.5.11-1.

2.4.5.7 Mechanical joints, which in the event of damage could cause fire or flooding, shall not to be used in piping sections directly connected to the ship's side below the bulkhead deck of passenger ships and freeboard deck of cargo ships or tanks containing flammable fluids.

2.4.5.8 The number of mechanical joints in flammable fluid systems shall be kept to a minimum. In general, flanged joints conforming to recognised standards shall be used.

2.4.5.9 Piping in which a mechanical joint is fitted shall be adequately adjusted, aligned and supported. Supports or hangers shall not to be used to force alignment of piping at the point of connection.

2.4.5.10 Slip-on joints shall not to be used in pipelines in cargo holds, tanks, and other spaces which are not easily accessible, unless approved by RS.

Application of these joints inside tanks may be permitted only for the same media that is in the tanks.

Usage of slip type slip-on joints as the main means of pipe connection is not permitted except for cases where compensation of axial pipe deformation is necessary.

2.4.5.11 Application of mechanical joints and their acceptable use for each service is indicated in Table 2.4.5.11-1, dependence upon the Class of piping and pipe dimensions is indicated in Table 2.4.5.11-2.

Table 2.4.5.11-1.

Application of mechanical joints subject to the pipeline service

Item No.	Systems	Kind of connections		
		Pipe Unions	Compression Couplings	Slip-on Joints
Flammable fluids (Flash point ≤ 60°C)				
1	Cargo oil lines[1]	+	+	+
2	Crude oil washing lines [1]	+	+	+
3	Vent lines [2]	+	+	+
Inert gas				
4	Water seal effluent lines	+	+	+
5	Scrubber effluent lines	+	+	+
6	Main lines [1,3]	+	+	+
7	Distributions lines [1]	+	+	+
Flammable fluids (Flash point > 60°C)				
8	Cargo oil lines [1]	+	+	+
9	Fuel oil lines [2,3]	+	+	+

10	Lubricating oil lines [2,3]	+	+	+
11	Hydraulic oil[2,3]	+	+	+
12	Thermal oil [2,3]	+	+	+
	Sea Water			
13	Bilge lines [4]	±	±	±
14	Water filled fire extinguishing systems, e.g. Sprinkler systems[2]	±	±	±
15	Non water filled fire extinguishing systems, e.g. foam, drencher systems [2]	±	±	±
16	Fire main (not permanently filled) [2]	±	±	±
17	Ballast system [4]	±	±	±
18	Cooling water system [4]	±	±	±
19	Tank cleaning services	±	±	±
20	Non-essential systems	±	±	±
	Fresh Water			
21	Cooling water system [4]	+	+	+
22	Condensate return [4]	+	+	+
23	Non-essential systems	+	+	+
	Sanitary/Drains/Scuppers			
24	Deck drains (internal) [5]	+	+	+[1]
25	Sanitary drains	+	+	+
26	Scuppers and discharge (overboard)	+	+	-
	Sounding/Vent			
27	Water tanks/Dry spaces	+	+	+
28	Fuel oil tanks (flash point >60 °C) [2,3]	+	+	+
	Miscellaneous			
29	Starting/Control air [4]	+	+	-
30	Service air (non-essential)	+	+	+
31	Brine	+	+	+
32	Carbon dioxide system [4]	+	+	-
33	Steam	+	+	+[6]

Symbols:

\+ Application is allowed;

\- Application is not allowed.

Footnotes - Fire resistance capability

If mechanical joints include any components which readily deteriorate in case of fire, they shall be of an approved fire resistant type under consideration of the following footnotes:

[1] Only in pump rooms and open decks - only approved fire resistant types;

[2] Approved fire resistant types except in cases where such mechanical joints are installed on exposed open decks, as defined in 2.4.2(10) of Part VI "Fire Protection" and not used for fuel oil lines;

[3] Not 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] Inside machinery spaces of category A - only approved fire resistant types;

[5] Only above bulkhead deck of passenger ships and freeboard deck of cargo ships;

[6] Slip type slip-on joints may be used for pipes on deck with a design pressure of up to 1 MPa.

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 type	+ (OD ≤ 60,3mm)	+ (OD ≤ 60,3mm)	+
Compression Couplings			
Swage Type	+	+	+
Bite type, flared type	+ (OD ≤ 60,3mm)	+ (OD ≤ 60,3mm)	+
Press Type	-	-	+
Slip-on joints			
Machine Grooved Type	+	+	+
Grip Type	-	+	+
Slip Type	-	+	+
Symbols: + Application is allowed; - Application is not allowed.			

2.4.5.12 Mechanical joints shall be tested in accordance with a program approved by RS, which shall include at least the following:

.1 leakage test;

.2 vibration (fatigue) test;

.3 fire endurance test (where necessary);

.4 pressure pulsation test (where necessary);

.5 vacuum test (where necessary);

.6 burst pressure test (where necessary);

.7 pull out test (where necessary);

.8 assembly test (where necessary).

The scope and nature of tests shall be specified subject to the joint type and pipeline service.

2.4.5.13 The installation of mechanical joints shall be in accordance with the manufacturer's assembly instructions. Where special tools and gauges are required for installation of the joints, these shall be supplied by the manufacturer.