



RUSSIAN MARITIME REGISTER OF SHIPPING
HEAD OFFICE

CIRCULAR LETTER

No. 313-08- 945c

dated *26.10.2016*

Re:

amendments to the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships, 2016,
ND No. 2-020101-040-E, due to coming into force of the provisions of IACS Unified Requirements (UR) P2.11 (Rev.4 Mar 2016)

Item of supervision:

Mechanical joints

Implementation 01.01.2017

Valid: till ----

Validity period extended till ----

~~Cancels / amends / adds~~ circular letter No.

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dated Insert date

Number of pages: 1 + 4

Appendices: amendments to the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships, 2016, ND No. 2-020101-040-E

Technical Director - Head of Classification Directorate

Vladimir I. Evenko

Amends Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships, 2016, ND No. 2-020101-040-E

We hereby inform that in connection with coming into force on 01.01.2017 of IACS UR P2.11 Part IV "Technical Supervision during Manufacture of Products" of the Rules for Technical Supervision During Construction of Ships and Manufacture of Materials and Products for Ships, 2016, ND No.2-020101-040-E shall be amended as specified in the Appendix to the Circular Letter. These amendments will be introduced to the Rules for Technical Supervision During Construction of Ships and Manufacture of Materials and Products for Ships, 2016, during their re-publication.

It is necessary to do the following:

1. Familiarize surveyors of the RS Branch Offices and interested organizations in the area of the RS Branch Offices' activity with the content of the Circular Letter.
2. Apply provisions of the Circular Letter.

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RULES FOR TECHNICAL SUPERVISION DURING CONSTRUCTION OF SHIPS AND MANUFACTURE OF MATERIALS AND PRODUCTS FOR SHIPS

ND No. 2-020101-040-E

Part IV. Technical Supervision during Manufacture of Products.

8.5 Mechanical, Flexible Joints and Expansion Pieces

1. Table 8.5.4.4 shall be amended to read:

« Table 8.5.4.4

Tests	Types of mechanical joint			References and notes
	Compression couplings and pipe unions	Slip on Joints		
		Fixed ¹	Slip	
Tightness test	+	+	+	8.5.4.8.1
Vibration (fatigue) test	+	+	-	8.5.4.8.2
Pressure pulsation test ²	+	+	-	8.5.4.8.5
Burst pressure test	+	+	+	8.5.4.8.6
Pull-out test	+	+	-	8.5.4.8.7
Fire endurance test	+	+	+	8.5.4.8.8 (see 2.4.5.6*)
Vacuum test	+ ³	+	+	8.5.4.8.9
Repeated assembly test	+ ⁴	+	-	8.5.4.8.10
S y m b o l s:				
+ required;				
-Not required;				
*part VIII Rules of Classification and Construction of Sea-Going Ships				

1 Grip type & machine grooved type				
2 For use in those systems where pressure pulsation other water hammer is expected.				
3 Except joints with metal-to-metal tightening surfaces/				
4 Except press type/				

2. Paras 8.5.4.5 to 8.5.4.8.3 shall be amended to read:

"8.5.4.5 Selection of Test Specimen.

Test specimens shall be taken from the production line or firm's (manufacturer's) warehouse. Where there is a variety of size of joints requiring approval, a minimum of

three separate sizes, representative of the range, from each type of joint to be tested in accordance with Table 8.5.4.4. shall be selected.

8.5.4.6 Mechanical Joint Assembly.

Assembly of mechanical joints shall consist of components selected in accordance with 8.5.4.5 and the pipe sizes appropriate to the design of the joints. Where pipe material would effect the performance of mechanical joints, the selection of joints for testing shall take the pipe material into consideration. Where not specified, the length of pipes to be connected by means of the joint to be tested shall be at least five times the pipe diameter. Before assembling the joint, conformity of components to the design requirements, shall be verified. In all cases the assembly of the joint shall be carried out only according to the manufacturer's instructions. No adjustment operations on the joint assembly, other than that specified by the manufacturer, are permitted during the test.

8.5.4.7 Test Results Acceptance Criteria.

Where a mechanical joint assembly does not pass all or any part of the tests in Table 8.5.4.4, two assemblies of the same size and type that failed shall be tested and only those tests which the mechanical joint assembly failed in the first instance, shall be repeated. In the event where one of the assemblies fails the second test, that size and type of assembly shall be considered unacceptable. The methods and results of each test shall be recorded and reproduced as and when required.

8.5.4.8 Methods of tests.

8.5.4.8.1 Tightness test.

In order to ensure correct assembly and tightness of the joints, all mechanical joints shall be subjected to a tightness test, as follows:

.1 the mechanical joint assembly test specimen shall be connected to the pipe or tubing in accordance with the requirements of 8.5.4.6 and the manufacturer's instructions, filled with test fluid and de-aerated.

Mechanical joints assemblies intended for use in rigid connections of pipe lengths, shall not to be longitudinally restrained.

In the event where there is a drop in pressure or there is visual indication of leakage, the tests shall be repeated for two test pieces.

The pressure inside the joint assembly shall be slowly increased to 1,5 times the design pressure. This test pressure shall be retained for a minimum period of 5 min.

In the event of a drop in pressure or visible leakage, the test (including fire test) shall be repeated for two further specimens. If during the repeat test one test piece fails, the coupling is regarded as having failed.

An alternative tightness test procedure, such as a pneumatic test, may be accepted;

.2 for compression couplings a static gas pressure test shall be carried out to demonstrate the integrity of the mechanical joints assembly for tightness under the influence of gaseous media. The pressure shall be raised to maximum pressure or 7 MPa whichever is less;

.3 where the tightness test is carried out using gaseous media as specified in the procedure specified in 8.5.4.8.1.1, then the static pressure test mentioned in 8.5.4.8.1.2 above need not be carried out.

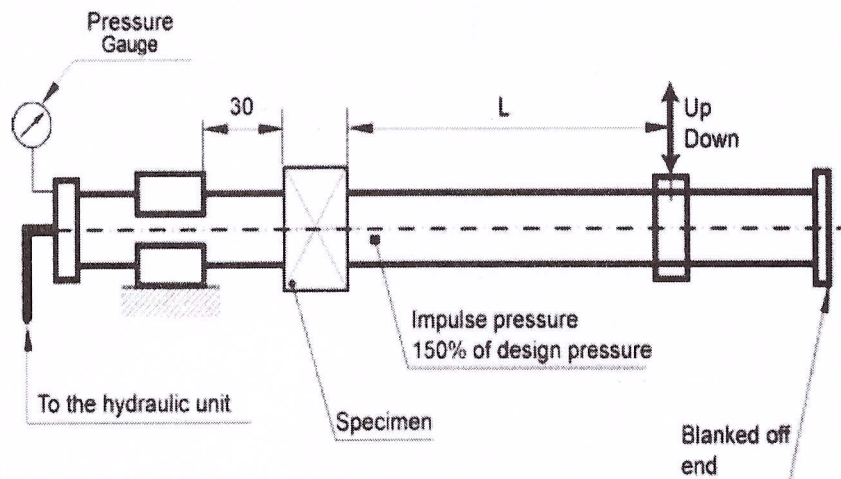
8.5.4.8.2 Vibration (fatigue) tests.

In order to establish the capability of the mechanical joint assembly to withstand fatigue, which is likely to occur due to vibrations under service conditions, mechanical joint assemblies shall be subject to the following vibration test. Conclusions of the vibration tests shall show no leakage or damage.

8.5.4.8.3 Testing of compression couplings and pipe unions.

Compression couplings and pipe unions intended for use in rigid pipe connections shall be tested as follows. Rigid connections are joints, connecting pipe length without free angular or axial movement.

.1 Two lengths of pipe shall be connected by means of the joint to be tested. One end of the pipe shall be rigidly fixed while the other end shall be fitted to the vibration rig. The test rig and the joint assembly specimen being tested shall be arranged as shown in Fig. 8.5.4.8-1.



.2 The joint assembly shall be filled with test fluid, de-aerated and pressurised to the design pressure of the joint. Pressure during the test shall be monitored. In the event of a drop in the pressure and visible leakage the test shall be repeated as described in 8.5.4.8.1. Visual examination of the joint assembly shall be carried out. Re-tightening may be accepted once during the first 1000 cycles. Vibration amplitude shall be within 5 per cent of the value calculated from the following formula

$$A = \frac{2SL^2}{3ED},$$

(8.5.4.8.3)

where A = single amplitude, in mm;

L = length of the pipe, in mm;

S = allowable bending stress in N/mm² based on 0,25 of the yield stress;

E = modulus of elasticity of tube material (for mild steel, E = 210 kN/mm²);

D = outside diameter of tube, in mm.

Test specimen shall withstand not less than 10⁷ cycles with frequency 20 - 50 Hz without leakage or damage. "

3. Para 8.5.4.8.8. shall be supplemented by new clarifications for fire endurance standards requirements as follows:

"3. Alternative test methods and/or test procedures considered to be at least equivalent may be accepted at the discretion of the Register in cases where the test pieces are too large for the test bench and cannot be completely enclosed by the flames.

4. Thermal insulation materials applied on couplings shall be non-combustible in dry condition and when subjected to oil spray. A non-combustibility test according to ISO 1182 shall be carried out. "

4. Para 8.5.4.8.9 shall be amended to read:

"8.5.4.8.9 Vacuum tests.

In order to establish the capability of the mechanical joint assembly to withstand internal pressures below atmospheric, similar to the conditions likely to be encountered under service conditions, the following vacuum test shall be carried out.

The mechanical joint assembly shall be connected to a vacuum pump and subjected to a pressure of 17 kPa. Once this pressure is stabilized, the specimen under test shall be isolated from the vacuum pump and the pressure shall be maintained for a period of 5 min. No internal pressure rise is permitted. "