



RUSSIAN MARITIME REGISTER OF SHIPPING

CIRCULAR LETTER

No. 315-23-1562c

dated 21.05.2021

Re:

amendments to the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships, 2021, ND No. 2-020101-139-E in connection with entry into force of IACS Recommendation No. 73 (Rev.1 Dec 2020)

Item(s) of supervision:

fire endurance tests of plastic cable trays/protective casings

Entry-into-force date:

01.07.2021

~~Valid till:~~

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

~~dated~~

Number of pages:

1 + 4

Appendices:

Appendix 1: information on amendments introduced by the Circular Letter

Appendix 2: text of amendments to Section 10, Part IV "Technical Supervision during Manufacture of Products"

Director General

Konstantin G. Palnikov

Text of CL:

We hereby inform that the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships shall be amended as specified in the Appendices to the Circular Letter.

It is necessary to do the following:

1. 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.
2. Apply the provisions of the Circular Letter during review and approval of the technical documentation on products as well as when performing technical supervision during manufacture of products, when the requests for service rendering listed above are received on or after 01.07.2021.

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

Part IV: Table 10.7.17.1, para 10.7.17.3

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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	Table 10.7.17.1	Requirements for tests of cable ladders, plastic trays / protective casings have been specified considering IACS Recommendation No. 73 (Rev.1 Dec 2020)	315-23-1562c of 21.05.2021	01.07.2021
2	Para 10.7.17.3	Requirements for tests of cable ladders, plastic trays / protective casings have been introduced considering IACS Recommendation No. 73 (Rev.1 Dec 2020)	315-23-1562c of 21.05.2021	01.07.2021

RULES FOR TECHNICAL SUPERVISION DURING CONSTRUCTION OF SHIPS AND MANUFACTURE OF MATERIALS AND PRODUCTS FOR SHIPS, 2021

ND No. 2-020101-139-E

PART IV. TECHNICAL SUPERVISION DURING MANUFACTURE OF PRODUCTS

10 ELECTRICAL EQUIPMENT

1 **Table 10.7.17.1** is replaced by the following text:

"Table 10.7.17.1

Products	Inspection and checks	Testing of insulation strength	Tests for compliance with operational conditions onboard a ship	Safe load test	Heat test	Flame exposure test	Special tests
Connection terminals	+	+	(+)	+	+	+	+
Cable glands	+	—	(+)	+	—	(+)	+
Cable lugs, bushings and cable termination	+	+	(+)	+	+	(+)	+
Ladders and cable trays (metal)	+	—	(+)	+	—	—	—
Ladders and cable trays/protective casings (plastic) ²	+	—	(+)	+	—	+	+ ¹
Cable ties (metal)	+	—	(+)	+	—	—	—
Cable ties (plastic)	+	—	(+)	+	—	+	—
Symbols: "+" test is needed; "(+)" test performance depends on the particular product; "—" test is not needed. ¹ - According to 10.7.17.3.1. ² - Cable trays/protective casings shall be designed to the ambient temperatures of -25 °C to + 90 °C for installation on open decks, from +5 °C to 90°C for installation in engine rooms and other closed ship spaces. Note. Plastic cable trays/protective casings may be used at ambient temperature below -25°C provided the mechanical properties of the plastics are maintained for the intended purpose and the installation location. In this particular instance the cold bend and cold impact properties of the material shall also be considered.							

2 **Para 10.7.17.3** is replaced by the following text:

"10.7.17.3 Tests of plastic cable ladders, protective trays and cable ties:

.1 impact resistance test.

The test shall be performed according to IEC 60068-2-75:2014 using the pendulum hammer.

The test shall be carried out on samples of cable tray lengths or cable ladder lengths, of 250 mm ± 5 mm long. Samples of ladder shall consist of two side-members with one rung positioned centrally. Samples of mesh trays shall be prepared in such a way that there will be a wire in the centre.

Before the test, plastics components shall be aged at a temperature of 90 °C ± 2 °C for 240 h continuously.

The samples shall be mounted on wooden fibreboard of thickness 20 mm ± 2 mm.

The samples to be tested shall be placed in a refrigerator, the temperature within which is maintained at the ambient temperature of $\pm 25^{\circ}\text{C}$ for outdoor use and at the ambient temperature of $+5^{\circ}\text{C}$ for indoor use in engine rooms and other closed ship spaces with a tolerance of $\pm 2^{\circ}\text{C}$.

After 2 h, the samples shall, in turn, be removed from the refrigerator and immediately placed in the test apparatus.

At 10 ± 1 s after removal of each sample from the refrigerator the hammer shall be allowed to fall with impact energy of 10 J, the mass of the hammer of 5 kg and the fall height of 200 ± 2 mm.

The impact shall be applied to the base, or the rung, in the first sample, to one of the side members in the second sample, and to the other side member in the third sample.

In each case, the impact shall be applied to the centre of the face being tested.

After the test, the samples shall show no signs of disintegration and/or deformation that will impair the safety.

.2 Safe Working Load (SWL) test.

.2.1 cable trays/protective casings and joints shall be assigned a Safe Working Load (SWL) satisfying the following criteria, tested at the declared temperatures according to the footnote "2" and the Note in Table 10.7.17.1:

the maximum deflection shall not exceed $L/100$ where L is the distance between the supports, no mechanical defects or failure are observed when tested to $1.7 \times \text{SWL}$;

.2.2 all loads shall be uniformly distributed (UDL) over the length and width of the samples as shown on Fig. 10.7.17.3.2.2.

The loads shall be applied in such a way that a UDL is ensured even in the case of extreme deformation of the samples.

To allow for settlement of the samples, a pre-load of 10 % of the test load unless otherwise specified, shall be applied and held for at least 5 min, after which the measurement apparatus shall be calibrated to zero;

.2.3 the load shall then be gradually increased evenly longitudinally and transversely up to the test load continuously or when a continuous increase is impractical, the load may be increased by increments.

These increments shall not exceed about a quarter of the safe working load. The load increments shall be distributed through the load plates longitudinally and transversely as evenly as is practical;

.2.4 after loading, the deflection shall be measured at the points specified to give a practical mid-span deflection;

.2.5 the samples shall be left and the deflections measured every 5 min until the difference between two consecutive sets of readings is less than 2 % with regard to the first set of the two consecutive sets of readings. The first set of readings measured at this point is the set of deflections measured at the test load;

.2.6 when subject to the test load the samples, their joints and internal fixing devices, shall show no damage or crack visible to normal view or corrected vision without magnification;

.2.7 The load shall then be increased to 1,7 times the test load.

The samples shall be left and the deflections measured every 5 min until the difference between two consecutive sets of readings is less than 2 % with regard to the first set of the two consecutive sets of readings. The samples shall sustain the increased loading without collapsing. Buckling and deformation of the samples is permissible at this loading.

Note 1. Alternatively, tests can be carried out:

at any temperature within the declared range if documentation is available which states that the relevant structural properties of the materials as used within the system do not differ by more than 5 % of the average between the maximum and minimum property values;

only at maximum temperature within the range, if documentation is available, which states that the relevant structural properties of the materials, as used within the system decrease when the temperature is increasing;

at maximum and minimum temperature only. Tests shall be carried out for the smallest and largest sizes of cable trays lengths or cable ladder lengths, having the same material, joint and topological shape;

.3 flame retardant test shall be carried out in accordance with IEC 60092-101 or IEC 60695-11-5.

The test shall be carried out with flame application of 5 times 15 s each. Interval between each application shall be 15 s or 1 time 30 s. The equipment shall be considered to have passed the tests if burnt out or damaged part is not more than 60 mm long, no flame, no incandescence

or - in the event of a flame or incandescence being present, it shall extinguish itself within 30 s of the removal of the test flame. The dripping material shall extinguish itself in such a way as not to ignite a wrapping tissue (aluminum foil with thickness of 0,04 mm);

.4 smoke and toxicity test shall be carried out in accordance with 2010 FTP Code adopted by IMO Resolution MSC.437(88) as amended by IMO Resolution MSC.437(99), or any international or national standard;

.5 resistivity test.

Cable trays/protective casings passing through a hazardous area shall be electrically conductive. The volume resistivity level of the cable trays/protective casings and fittings shall be below 105 Ohm·m and the surface resistivity shall be below 10⁶ Ohm. The test shall be carried out in accordance with IEC 62631-3-1:2016 and IEC 62631-3-2:2015.

Note 2. The resistance to earth from any point in these appliances shall not exceed 106 Ohm.

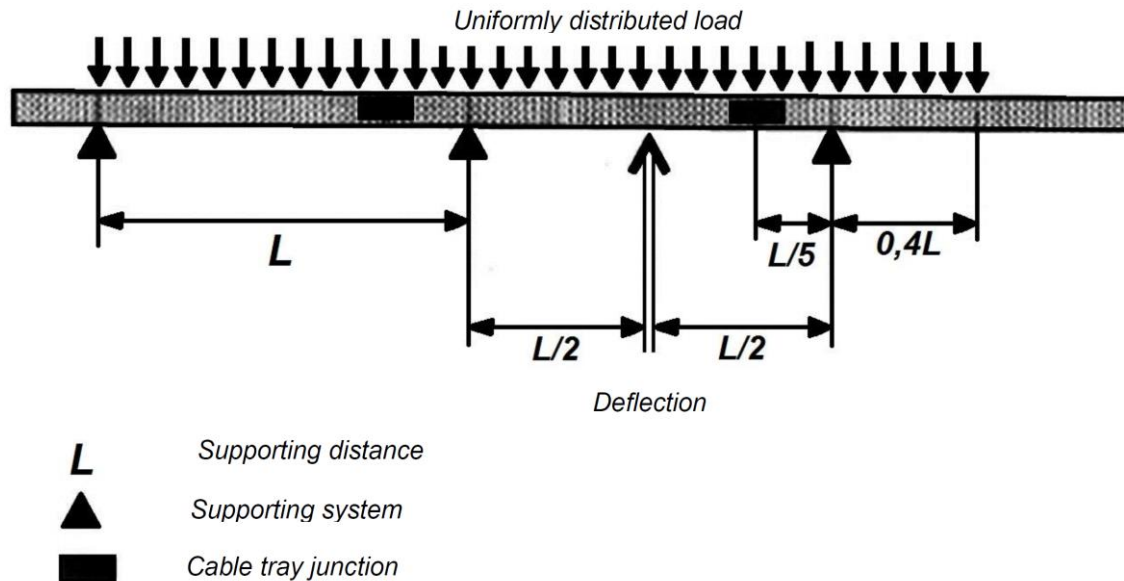


Fig. 10.7.17.3.2.2".