

**RULES
FOR THE CLASSIFICATION OF
SHIPS**

*Part 12 – ELECTRICAL EQUIPMENT
January 2020*

*Amendments No. 2
January 2022*

CROATIAN REGISTER OF SHIPPING

Hrvatska (Croatia) • 21000 Split • Marasovića 67 • P.O.B. 187
Tel.: (...) 385 (0)21 40 81 11
Fax.: (...) 385 (0)21 35 81 59
E-mail: tech.coord@crs.hr
web site: www.crs.hr

By the decision of the General Committee of Croatian Register of Shipping,

Amendments No. 2 to the
RULES FOR THE CLASSIFICATION OF SHIPS
Part 12 – ELECTRICAL EQUIPMENT

have been adopted on 20th December 2021 and shall enter into force on 1st January 2022

INTRODUCTORY NOTES

These amendments shall be read together with the requirements in the Rules for the Classification of Ships, Part 12 – Electrical Equipment, edition January 2020, as amended by Amendments No. 1, edition January 2021.

Table 1 contains review of amendments, where items changed or added in relating to previous edition are given, with short description of each modification or addition. All major changes throughout the text are shaded.

This Part of the Rules includes the requirements of the following international Organisations:

International Maritime Organization (IMO)

Conventions: International Convention for the Safety of Life at Sea 1974 (SOLAS 1974) and all subsequent amendments up to and including amendments(MSC.364(92)) adopted by Protocol of 1988 relating to the International Convention for the Safety of Life at Sea 1974, as amended (SOLAS PROT 1988).

International Association of Classification Societies (IACS)

Unified Requirements (UR): E5 (Rev.1 2005), E7 (Rev.4 2016), E9 (Rev.1 2012), E10 (Rev.7 2018), E11 (Rev.3 Corr.1 2018), E12 (Rev.2 2020), E13 (Rev.3 2020), E15 (Rev.4 2020), E16 (2002), E17 (2002), E18 (Rev.1 2014), E19 (Rev.1 2005), E20 (Rev.1 2009), E21 (2005), E22 (Rev.2 2010), E24 (Rev.1 2018), E25 (2016), E25 (Rev.1 2019), M64 (Rev.1 2004)

Unified Interpretations (UI): SC1 (Rev.1 2002), SC3 (Rev.1 1999), SC4 (1985), SC5 (1985), SC6 (Rev.1 2019), SC7 (1985), SC8 (1985), SC9 (1985), SC10 (Rev.2 2001), SC11 (1985), SC12 (1985), SC13 (1985), SC17 (Rev.2 2005), SC70 (Rev.3 2010), SC83 (1993), SC94 (Rev.2 Corr.1 2018), SC95 (1994), SC124 (Rev.1 Corr.1 2007), SC134 (2002), SC136 (Rev.3 2005), SC151 (1999), SC152 (1999), SC157 (Rev.1 2005), SC176 (Rev.1 2004), SC180 (Rev.3 2012), SC184 (Rev.1 2005), SC185 (Rev.1 2005), SC186 (Corr.1 2010); SC187 (2004), SC194 (2005), SC290 (2018)

Recommendations (Rec.): Rec. 73 (Rev.1 Corr.1 2021), Rec. 35 (Rev.2 2021), Rec. 120 (2015)

TABLE 1 – REVIEW OF AMENDMENTS

This review comprises amendments in relation to the Rules for the Classification of Ships, Part 12 – Electrical Equipment, edition January 2020, as amended by Amendments No. 1, edition January 2021.

| <i>ITEM</i> | <i>DESCRIPTION OF THE AMENDMENTS</i> |
|--|---|
| SECTION 2 – CONSTRUCTION OF ELECTRICAL EQUIPMENT | |
| Item 2.9.1 | Item has been amended to align the requirements with the updated IACS Rec. 35 (Rev.2 2021), which unified the way to refer to instruments other than those specified by IACS. |
| Item 2.9.15 | No changes are necessary. Item is compliant with the requirements in the updated IACS UR 12 (Rev.2 2020), which unified the way to refer to instruments other than those specified by IACS. |
| SECTION 10 – ELECTRICAL ROTATING MACHINES | |
| Item 10.1.5 | Item has been amended to align the requirements with the updated IACS UR 13 (Rev.3 2020), which unified the way to refer to instruments other than those specified by IACS. |
| SECTION 16 – CABLES AND CONDUCTORS | |
| Item 16.8.11.2 Item 16.8.11.4 Item 16.8.11.6 Item 16.8.11.7 | Items have been amended to align the requirements with the updated IACS UR 15 (Rev.4 2020), which unified the way to refer to instruments other than those specified by IACS. |
| SECTION 16 – CABLES AND CONDUCTORS | |
| Item 16.9.1.1 | Items has been amended to align the requirements with the updated IACS Rec. 73 (Rev.1 Corr.1 2021), which corrected references to the FTP Code, and unified the way to refer to instruments other than those specified by IACS. |

2 CONSTRUCTION OF ELECTRICAL EQUIPMENT

■ **Head 2.9 SAFE-TYPE ELECTRICAL EQUIPMENT**, item 2.9.1 has been changed and should be read as follows:

2.9.1 The requirements of the present section apply to the electrical equipment built in the enclosed or semi-enclosed spaces and zones where explosive mixtures of vapours, gas and dust with air are likely to occur.

This category of spaces covers battery compartments, paint rooms and lantern rooms as well as spaces with machinery, piping and tanks for flammable liquids having a flash point of 60°C and below.

Additional requirements for tankers and ships intended for carriage of motor vehicles with fuel in their tanks and tank-wagons with flammable liquids are set forth in the Section 19.

All the electrical equipment installed in hazardous areas before they brought into service should be detailed inspection as defined in standard IEC60079-17:2013 (see IACS Rec. 35 Inspection and Maintenance of Electrical Installation in Hazardous Areas for the Ship other than Tankers).

10 ELECTRICAL ROTATING MACHINES

■ **Head 10.1 GENERAL**, item 10.1.5 has been changed and should be read as follows:

10.1.5 Testing of electrical rotating machines, type and routine, shall be carried out according to IACS Unified Requirement E13 - Test requirements for Rotating Machines.

PART 12

AMENDMENTS No. 2

16 CABLES AND CONDUCTORS

■ **Head 16.8 CABLING**, items 16.8.11.2, 16.8.11.4 and 16.8.11.6 have been changed and should be read as follows:

16.8.11.2 Where cables for services specified in **16.8.11.1** including their power supplies pass through high fire risk areas, and in addition for passenger ships, main vertical fire zones, other than those which they serve, they are to be so arranged that a fire in any of these areas or zones does not affect the operation of the service in any other area or zone. This may be achieved by either of the following measures:

- a) Cables being of a fire resistant type complying with **IEC 60331-1:2018** for cables of greater than 20 mm overall diameter, otherwise **IEC 60331-21: 1999+AMD1:2009** or **IEC 60331-2:2018** for cables with an overall diameter not exceeding 20 mm, are installed and run continuous to keep the fire integrity within the high fire risk area, see Figure 16.8.11.
- b) At least two-loops/radial distributions run as widely apart as is practicable and so arranged that in the event of damage by fire at least one of the loops/radial distributions remains operational.

Systems that are self-monitoring, fail safe or duplicated with cable runs as widely separated as is practicable may be exempted.

16.8.11.4 For the purpose of this item application, the definition for “high fire risk areas” is the following:

- a) Machinery spaces as defined by **Regulation 3.30 of SOLAS Chapter II-2, as amended by IMO resolutions up to MSC.421(98) (hereinafter the same)**, except spaces having little or no fire risk as defined by paragraphs (10) of **Regulation 9.2.2.3.2.2 of SOLAS Chapter II-2**. (Including the interpretations for tables 9.3, 9.4, 9.5, 9.6, 9.7 and 9.8 given in MSC/Circ.1120) **as amended by MSC.1/Circ.1436 and MSC.1/Circ.1510**
- b) Spaces containing fuel treatment equipment and other highly flammable substances
- c) Galley and Pantries containing cooking appliances
- d) Laundry containing drying equipment
- e) Spaces as defined by paragraphs (8), (12), and (14) of the *Rules for the classification of ships, Part 17 – Fire protection*, item **9.2.2.3.2.2 for ships carrying more than 36 passengers**.

16.8.11.6 For special cables, requirements in the following standards may be used:

- IEC60331-23:1999: Procedures and requirements – Electric data cables
- IEC60331-25:1999: Procedures and requirements – Optical fibre cables

16.8.11.7 The electrical cables to the emergency fire pump are not pass through the machinery spaces containing the main fire pumps and their source of power and prime mover. They are to be of a fire resistant type, in accordance with item **16.8.11.2 a)**, where they pass through other high fire risk areas.

■ **Head 16.9 CABLE TRAYS AND PROTECTIVE CASING MADE OF PLASTICS MATERIALS**, item 16.9.1.1 has been changed and should be read as follows:

16.9.1.1 Cable trays and protective casings made of plastic materials are to be type tested in accordance to the requirements of **IACS Recommendation No. 73 - Type approval procedure for cable trays/protective casings made of plastics materials**.