

Rules for the Classification of Steel Ships

(Development Review : Final)

Part 6 Electrical Equipment and Control Systems

2022. 2.



Machinery Rule Development Team

Effective Date : 1 January 2022

(The contract date for ship construction)

Present	Amendment	Remark
<p>CHAPTER 1 ELECTRICAL EQUIPMENT</p> <p>Section 1 – 2 <same as the present Rules></p> <p>Section 3 Rotating Machinery</p> <p>301. – 308. <same as the present Rules></p> <p>309. Testing and inspection</p> <p>1. – 14. <same as the present Rules></p> <p>15. Verification of degree of protection</p> <p>Degree of protection is to be verified in accordance with Table 6.1.1 to Table 6.1.6 of the Guidance or <u>(KS C) IEC 60034-5</u>.</p> <p>16. <same as the present Rules></p> <p>Section 4 – 18 <same as the present Rules></p> <p>CHAPTER 2 <same as the present Rules></p>	<p>CHAPTER 1 ELECTRICAL EQUIPMENT</p> <p>Section 1 – 2 <same as the present Rules></p> <p>Section 3 Rotating Machinery</p> <p>301. – 308. <same as the present Rules></p> <p>309. Testing and inspection</p> <p>1. – 14. <same as the present Rules></p> <p>15. Verification of degree of protection</p> <p>Degree of protection is to be verified in accordance with Table 6.1.1 to Table 6.1.6 of the Guidance or <u>(KS C) IEC 60034-5:2000+AMD1:2006. (2022)</u></p> <p>16. <same as the present Rules></p> <p>Section 4 – 18 <same as the present Rules></p> <p>CHAPTER 2 <same as the present Rules></p>	<p>(Amended)</p> <p>– In the reflection of UR E13(Rev.3), Publication Year of IEC international standard has been marked.</p>

Effective Date : 1 July 2022

(The contract date for ship construction)

Present	Amendment	Remark
<p>CHAPTER 1 ELECTRICAL EQUIPMENT</p> <p>Section 1 – 4 <same as the present Rules></p> <p>Section 5 Cables</p> <p>501. – 508. <same as the present Rules></p> <p>509. Metallic pipes and conduits</p> <p>1. – 4. <same as the present Rules></p> <p>5. Expansion joints [See Guidance]</p> <p><u>Where pipe arrangement is long, expansion joints are to be provided where necessary.</u></p> <p>Section 6 – 18 <same as the present Rules></p>	<p>CHAPTER 1 ELECTRICAL EQUIPMENT</p> <p>Section 1 – 4 <same as the present Rules></p> <p>Section 5 Cables</p> <p>501. – 508. <same as the present Rules></p> <p>509. Metallic pipes and conduits</p> <p>1. – 4. <same as the present Rules></p> <p>5. Expansion joints [See Guidance] (2022)</p> <p><u>Where pipe arrangement is long, expansion joints are to be provided where necessary.</u></p> <p><u>When expansion joints are installed, the expansion and compression possibility of pipes for cables shall be at least $\pm 10\text{mm}$ for every 10m section length from the fixing point.</u></p> <p>Section 6 – 18 <same as the present Rules></p>	<p>(Amended)</p> <p>- According to shipyards request and their practice, the requirement for expansion joints has been amended from the length of pipes for cables to expansion and compression possibility.</p>

Present	Amendment	Remark
<p>Section 12 Semi-Conductor Converters (2021)</p> <p>1201. -1202. <same as the present Rules></p> <p>1203. Uninterruptable power system (UPS)</p> <p>1. <same as the present Rules></p> <p>2. Definitions</p> <p>(1) UPS <u>means a source of electrical power with</u> converters, switches and batteries, constituting for maintaining continuity of load power in case of input power failure.</p> <p>(2) Off-line UPS unit <u>means an electrical power</u> where under normal operation the output load is powered from the bypass line and only transferred to the inverter if the bypass supply fails or goes outside preset limits.</p> <p>(3) Line interactive UPS unit <u>means a system</u> specified in (B) above where the bypass line switch to stored energy power when the input power goes outside the preset voltage and frequency limits.</p> <p>(4) On-line UPS unit <u>means a system</u> where under normal operation the output load is powered from the inverter, and will therefore continue to operate without break in the event of the supply input failing or going outside preset limits.</p> <p>3. Design and construction</p> <p>(1) UPS units are to be constructed in accordance with IEC 62040 or an acceptable and relevant national or international standard.</p> <p>(2) - (5) <same as the present Rules></p>	<p>Section 12 Semi-Conductor Converters (2021)</p> <p>1201. -1202. <same as the present Rules></p> <p>1203. Uninterruptable power system (UPS)</p> <p>1. <same as the present Rules></p> <p>2. Definitions <u>(2022)</u></p> <p>(1) UPS <u>;</u> means a source of electrical power with <u>combination of</u> converters, switches and batteries, constituting for maintaining continuity of load power in case of input power failure. <u>(IEC 62040-3:2011)</u></p> <p>(2) Off-line UPS unit <u>;</u> means an electrical power <u>a unit specified in</u> (1) above where under normal operation the output load is powered from the bypass line and only transferred to the inverter if the bypass supply fails or goes outside preset limits.</p> <p>(3) Line interactive UPS unit <u>;</u> means a system <u>a unit</u> specified in (2) (B) above where the bypass line switch to stored energy power when the input power goes outside the preset voltage and frequency limits.</p> <p>(4) On-line UPS unit <u>;</u> means a system <u>a unit</u> specified in (1) above where under normal operation the output load is powered from the inverter, and will therefore continue to operate without break in the event of the supply input failing or going outside preset limits.</p> <p>3. Design and construction</p> <p>(1) UPS units are to be constructed in accordance with <u>IEC 62040-1:2017, IEC 62040-2:2016, IEC 62040-3:2011, IEC 62040-4:2013, and/or IEC 62040-5-3:2016 as applicable,</u> or an acceptable and relevant national or international standard. <u>(2022)</u></p> <p>(2) - (5) <same as the present Rules></p>	<p>(Amended)</p> <p>- In the reflection of UR E17(Rev.1), Publication Year of IEC international standard has been marked and the format of definitions has been amended.</p> <p>(Amended)</p> <p>- In the reflection of UR E17(Rev.1), Publication Year of IEC international standard has been marked.</p>

Present	Amendment	Remark
<p>4. Arrangement</p> <p>(1) <same as the present Rules></p> <p>(2) UPS units utilizing valve regulated sealed batteries may be located in compartments with normal electrical equipment, provided the ventilation arrangements are in accordance with the requirements of <u>IEC 62040</u> or an acceptable and relevant national or international standard.</p> <p>5. <same as the present Rules></p> <p>6. Testing and inspection</p> <p>(1) UPS units of 50kVA and over are to be <u>tested</u> by this Society <u>at the manufacturer's works or at other works.</u></p> <p>(2) – (3) <same as the present Rules></p> <p>1204. <same as the present Rules></p> <p>Section 13 – 14 <same as the present Rules></p> <p>Section 15 High Voltage Electrical Installations</p> <p>1501. General</p> <p>1. Application [See Guidance]</p> <p>(1) <same as the present Rules></p> <p>(2) The high voltage electrical installations are to comply with <u>(KS C)IEC 60092-503</u> and the applicable requirements in this Chapter in addition to those in this Section.</p> <p>2. <same as the present Rules></p>	<p>4. Arrangement</p> <p>(1) <same as the present Rules></p> <p>(2) UPS units utilizing valve regulated sealed batteries may be located in compartments with normal electrical equipment, provided the ventilation arrangements are in accordance with the requirements of <u>IEC 62040-1:2017, IEC 62040-2:2016, IEC 62040-3:2011, IEC 62040-4:2013, and/or IEC 62040-5-3:2016 as applicable,</u> or an acceptable and relevant national or international standard. <u>(2022)</u></p> <p>5. <same as the present Rules></p> <p>6. Testing and inspection</p> <p>(1) UPS units of 50kVA and over are to be <u>tested surveyed</u> by this Society <u>at the manufacturer's works or at other works during manufacturing and testing.</u> <u>(2022)</u></p> <p>(2) – (3) <same as the present Rules></p> <p>1204. <same as the present Rules></p> <p>Section 13 – 14 <same as the present Rules></p> <p>Section 15 High Voltage Electrical Installations</p> <p>1501. General</p> <p>1. Application [See Guidance]</p> <p>(1) <same as the present Rules></p> <p>(2) The high voltage electrical installations are to comply with <u>(KS C)IEC 60092-503:2007</u> and the applicable requirements in this Chapter in addition to those in this Section. <u>(2022)</u></p> <p>2. <same as the present Rules></p>	<p>(Amended)</p> <p>– In the reflection of UR E17(Rev.1), Publication Year of IEC international standard has been marked</p> <p>(Amended)</p> <p>– According to UR E21, UPS units are to be surveyed at the space of manufacturing and testing.</p> <p>(Amended)</p> <p>– In the reflection of UR E11(Rev.4), Publication Year of IEC international standard has been marked.</p>

Present	Amendment	Remark
<p>1502. System Design [See Guidance]</p> <p>1. <same as the present Rules></p> <p>2. Degrees of protection</p> <p>(1) General Each part of the electrical installation is to be provided with a degree of protection appropriate to the location, as a minimum the requirements of <u>(KS C) IEC 60092-201</u>.</p> <p>(2) – (4) <same as the present Rules></p> <p>3. Insulation</p> <p>(1) <same as the present Rules></p> <p>(2) Creepage distances Creepage distances between live parts and between live parts and earthed metal parts are to be in accordance with <u>IEC 60092-503</u> for the nominal voltage of the system, the nature of the insulation material and the transient overvoltage developed by switch and fault conditions.</p> <p>4. <same as the present Rules></p> <p>1503. Rotating machinery</p> <p>1. – 2. <same as the present Rules></p> <p>3. Tests</p> <p>In addition to the tests normally required for rotating machinery, a high frequency high voltage test in accordance with <u>(KS C) IEC 60034-15</u> is to be carried out on the individual coils in order to demonstrate a satisfactory withstand level of the inter-turn insulation to steep fronted switching surges.</p>	<p>1502. System Design [See Guidance]</p> <p>1. <same as the present Rules></p> <p>2. Degrees of protection</p> <p>(1) General Each part of the electrical installation is to be provided with a degree of protection appropriate to the location, as a minimum the requirements of <u>(KS C) IEC 60092-201:2019 (2022)</u></p> <p>(2) – (4) <same as the present Rules></p> <p>3. Insulation</p> <p>(1) <same as the present Rules></p> <p>(2) Creepage distances Creepage distances between live parts and between live parts and earthed metal parts are to be in accordance with <u>IEC 60092-503:2007</u> for the nominal voltage of the system, the nature of the insulation material and the transient overvoltage developed by switch and fault conditions. <u>(2022)</u></p> <p>4. <same as the present Rules></p> <p>1503. Rotating machinery</p> <p>1. – 2. <same as the present Rules></p> <p>3. Tests</p> <p>In addition to the tests normally required for rotating machinery, a high frequency high voltage test in accordance with <u>(KS C) IEC 60034-15:2009 (2022)</u> is to be carried out on the individual coils in order to demonstrate a satisfactory withstand level of the inter-turn insulation to steep fronted switching surges. <u>(2022)</u></p>	<p>(Amended)</p> <p>– In the reflection of UR E11(Rev.4) and E17(Rev.1), published year of IEC international standard has been marked.</p> <p>(Amended)</p> <p>– In the reflection of UR E11(Rev.4), Publication Year of IEC international standard has been marked.</p>

Present	Amendment	Remark
<p>1504. Power Transformers</p> <p>1. General</p> <p>Dry type transformers have to comply with <u>(KS C) IEC 60076-11</u>. Liquid cooled transformers have to comply with <u>(KS C) IEC 60076</u>. Oil immersed transformers are to be provided with the following alarms and protections:</p> <ul style="list-style-type: none"> - liquid level (Low)-alarm / trip or load reduction - liquid temperature (High)-alarm / trip or load reduction - gas pressure relay (High)-trip <p>2. <same as the present Rules></p> <p>1505. Cables 【See Guidance】</p> <p>1. General</p> <p>Cables are to be constructed in accordance with the <u>(KS C) IEC 60092-353</u> and <u>60092-354</u> or other equivalent Standard.</p> <p>2. <same as the present Rules></p> <p>1506. Switchgear and controlgear assemblies</p> <p>1. General</p> <p>Switchgear and controlgear assemblies are to be constructed according to <u>IEC 62271-200</u> and the <u>following additional requirements</u>.</p>	<p>1504. Power Transformers</p> <p>1. General <u>(2022)</u></p> <p>Dry type transformers have to comply with <u>(KS C) IEC 60076-11:2018</u>. Liquid cooled transformers have to comply with <u>(KS C) IEC 60076</u>. Oil immersed transformers are to be provided with the following alarms and protections:</p> <ul style="list-style-type: none"> - liquid level (Low)-alarm / trip or load reduction - liquid temperature (High)-alarm / trip or load reduction - gas pressure relay (High)-trip <p>2. <same as the present Rules></p> <p>1505. Cables 【See Guidance】</p> <p>1. General <u>(2022)</u></p> <p>Cables are to be constructed in accordance with the <u>(KS C) IEC 60092-353:2016</u> and <u>60092-354:2020</u> or other equivalent Standard.</p> <p>2. <same as the present Rules></p> <p>1506. Switchgear and controlgear assemblies</p> <p>1. General <u>(2022)</u></p> <p>Switchgear and controlgear assemblies are to be constructed according to <u>IEC 62271-200:2011</u> and <u>1506. 2, 3, and 4</u> of the <u>following additional requirements: Rules</u>.</p>	<p>(Amended)</p> <p>- In the reflection of UR E11(Rev.4), Publication Year of IEC international standard has been marked.</p> <p>(Amended)</p> <p>- In the reflection of UR E11(Rev.4), Publication Year of IEC international standard has been marked.</p> <p>(Amended)</p> <p>- In the reflection of UR E11(Rev.4), Publication Year of IEC international standard has been marked.</p>

Present	Amendment	Remark
<p>2. Construction</p> <p>(1) Mechanical construction Switchgear is to be of metal enclosed type in accordance with <u>IEC 62271-200</u> or of the insulation enclosed type in accordance with <u>IEC 62271-201</u>.</p> <p>(2) – (4) <same as the present Rules></p> <p>(5) Internal Arc Classification(IAC) Switchgear and controlgear assemblies are to be internal arc classified(<u>IEC 62271-200</u>, Annex AA). Where switchgear and controlgear are accessible by authorized personnel only, Accessibility Type A is required. Accessibility type B is required if accessible by non-authorised personnel. Installation and location of the switchgear and controlgear are to correspond with its internal arc classification and classified sides (F, L and R).</p> <p>3. <same as the present Rules></p> <p>4. High voltage test [See Guidance] A power-frequency voltage test is to be carried out on any switchgear and controlgear assemblies. The test voltages are to be in accordance with the following Table 6.1.24 and the test procedure is to be in accordance with the <u>IEC 62271-200</u> Sec 7 Routine tests.</p> <p>Section 16 – 18 <same as the present Rules></p> <p>CHAPTER 2 <same as the present Rules></p>	<p>2. Construction</p> <p>(1) Mechanical construction Switchgear is to be of metal enclosed type in accordance with <u>IEC 62271-200:2011</u> or of the insulation enclosed type in accordance with <u>IEC 62271-201:2014</u>. <i>(2022)</i></p> <p>(2) – (4) <same as the present Rules></p> <p>(5) Internal Arc Classification(IAC) Switchgear and controlgear assemblies are to be internal arc classified(<u>IEC 62271-200:2011</u>, Annex AA). Where switchgear and controlgear are accessible by authorized personnel only, Accessibility Type A is required. Accessibility type B is required if accessible by non-authorised personnel. Installation and location of the switchgear and controlgear are to correspond with its internal arc classification and classified sides (F, L and R). <i>(2022)</i></p> <p>3. <same as the present Rules></p> <p>4. High voltage test [See Guidance] <i>(2022)</i> A power-frequency voltage test is to be carried out on any switchgear and controlgear assemblies. The test voltages are to be in accordance with the following Table 6.1.24 and the test procedure is to be in accordance with the <u>IEC 62271-200:2011</u> Sec 7 Routine tests.</p> <p>Section 16 – 18 <same as the present Rules></p> <p>CHAPTER 2 <same as the present Rules></p>	<p>(Amended)</p> <p>– In the reflection of UR E11(Rev.4), Publication Year of IEC international standard has been marked.</p> <p>(Amended)</p> <p>– In the reflection of UR E11(Rev.4), published year of IEC international standard has been marked.</p>

Revised Guidance Relating to the Rules for the Classification of Steel Ships

(Development Review : Final)

Part 6 Electrical Equipment and Control Systems

2022. 2.



Machinery Rule Development Team

Effective Date : 1 January 2022

(The contract date for ship construction)

Present	Amendment	Remark
<p>CHAPTER 1 ELECTRICAL EQUIPMENT</p> <p>Section 1 <same as the present Rules></p> <p>Section 2 System design</p> <p>201. General</p> <p>1. Construction and installation</p> <p>(1) <same as the present Rules></p> <p>(2) Installation and protective enclosure [See Rule]</p> <p>(A) – (C) <same as the present Rules></p> <p>(D) Electrical equipment installed in paint stores, battery rooms, acetylene stores and enclosed spaces giving access to the paint store, battery room and acetylene store are to be in accordance with the followings.</p> <p>(a) <same as the present Rules></p> <p>(b) In the areas on open deck within 1 m of inlet and exhaust ventilation openings or within 3 m of exhaust mechanical ventilation outlets, the following electrical equipment is to be installed:</p> <p>(i) Electrical equipment with the same explosion-protected structure as permitted in relevant enclosed spaces(zone 1) <u>or</u></p> <p>(ii) Equipment of protection class Exn, <u>or</u></p> <p>(iii) Appliances which do not generate arcs in service and whose surface does not reach unacceptably high temperature, <u>or</u></p> <p>(iv) <same as the present Rules></p>	<p>CHAPTER 1 ELECTRICAL EQUIPMENT</p> <p>Section 1 <same as the present Rules></p> <p>Section 2 System design</p> <p>201. General</p> <p>1. Construction and installation</p> <p>(1) <same as the present Rules></p> <p>(2) Installation and protective enclosure [See Rule]</p> <p>(A) – (C) <same as the present Rules></p> <p>(D) Electrical equipment installed in paint stores, battery rooms, acetylene stores and enclosed spaces giving access to the paint store, battery room and acetylene store are to be in accordance with the followings.</p> <p>(a) <same as the present Rules></p> <p>(b) In the areas on open deck within 1 m of inlet and exhaust ventilation openings or within 3 m of exhaust mechanical ventilation outlets, the following electrical equipment is to be installed:</p> <p>(i) Electrical equipment with the same explosion-protected structure as permitted in relevant enclosed spaces(zone 1) <u>or</u> ; <u>(2022)</u></p> <p>(ii) Equipment of protection class Exn, <u>or</u> ; <u>(2022)</u></p> <p>(iii) Appliances which do not generate arcs in service and whose surface does not reach unacceptably high temperature; <u>;</u> <u>or</u> <u>(2022)</u></p> <p>(iv) <same as the present Rules></p>	<p>(Amended)</p> <p>- The requirements have been amended to match with UR E12(Rev.2).</p>

Present	Amendment	Remark
<p>(c) The enclosed spaces giving access to the paint store, battery room and acetylene store may be considered as non-hazardous spaces, provided that :</p> <p>(i) <same as the present Rules></p> <p>(ii) The paint store, battery room and acetylene store are provided with an acceptable, independent, natural ventilation system ventilated from a safe area.</p> <p>(iii) <same as the present Rules></p> <p>(d) <same as the present Rules></p> <p>(3) <same as the present Rules></p> <p>2. – 4. <same as the present Rules></p> <p>202. – 205. <same as the present Rules></p> <p>Section 3 – 4 <same as the present Rules></p> <p>Section 5 Cables</p> <p>501. – 503 <same as the present Rules></p> <p>504. Installation of cables 【See Rule】</p> <p>1. Precaution against fire protection</p> <p>(1) – (2) <same as the present Rules></p>	<p>(c) The enclosed spaces giving access to the paint store, battery room and acetylene store may be considered as non-hazardous spaces, provided that :</p> <p>(i) <same as the present Rules></p> <p>(ii) The paint store, battery room and acetylene store are provided with an acceptable, independent, natural ventilation system ventilated from a safe area., and <u>(2022)</u></p> <p>(iii) <same as the present Rules></p> <p>(d) <same as the present Rules></p> <p>(3) <same as the present Rules></p> <p>2. – 4. <same as the present Rules></p> <p>202. – 205. <same as the present Rules></p> <p>Section 3 – 4 <same as the present Rules></p> <p>Section 5 Cables</p> <p>501. – 503 <same as the present Rules></p> <p>504. Installation of cables 【See Rule】</p> <p>1. Precaution against fire protection</p> <p>(1) – (2) <same as the present Rules></p>	<p>(Amended)</p> <p>– The requirements have been amended to match with UR E12(Rev.2).</p>

Present	Amendment	Remark
<p>(3) In application to 504. 3 (3) of the Rules, the followings are to be complied with.</p> <p>(A) <same as the present Rules></p> <p>(B) In application to 504. 3 (3) of the Rules, the followings are to be complied with.</p> <p>(a) Cables being of a fire resistant type complying with <u>IEC 60331-1</u> for cables of greater than 20mm overall diameter, otherwise <u>IEC 60331-21</u> or <u>IEC 60331-2</u> 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 Fig 6.1.7 of the Guidance)</p> <p>(b) <same as the present Rules></p> <p>(C) – (E) <same as the present Rules></p> <p>(F) For special cables, requirements in the following standards may be used:</p> <p>(a) Electric data cables : <u>IEC 60331-23</u></p> <p>(b) Optical fibre cables : <u>IEC 60331-25</u></p> <p>(4) <same as the present Rules></p> <p>2. -5. <same as the present Rules></p> <p>505. – 512. <same as the present Rules></p> <p>Section 6 – 18 <same as the present Rules></p> <p>CHAPTER 2 <same as the present Rules></p>	<p>(3) In application to 504. 3 (3) of the Rules, the followings are to be complied with.</p> <p>(A) <same as the present Rules></p> <p>(B) In application to 504. 3 (3) of the Rules, the followings are to be complied with.</p> <p>(a) Cables being of a fire resistant type complying with <u>IEC 60331-1:2018</u> for cables of greater than 20mm overall diameter, otherwise <u>IEC 60331-21:1999+AMD1:2009</u> or <u>IEC 60331-2:2018</u> 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 Fig 6.1.7 of the Guidance) (<u>2022</u>)</p> <p>(b) <same as the present Rules></p> <p>(C) – (E) <same as the present Rules></p> <p>(F) For special cables, requirements in the following standards may be used:</p> <p>(a) Electric data cables : <u>IEC 60331-23:1999</u> (<u>2022</u>)</p> <p>(b) Optical fibre cables : <u>IEC 60331-25:1999</u> (<u>2022</u>)</p> <p>(4) <same as the present Rules></p> <p>2. -5. <same as the present Rules></p> <p>505. – 512. <same as the present Rules></p> <p>Section 6 – 18 <same as the present Rules></p> <p>CHAPTER 2 <same as the present Rules></p>	<p>(Amended)</p> <p>– In the reflection of UR E15(Rev.4), published year of IEC international standard has been marked.</p> <p>(Amended)</p> <p>– In the reflection of UR E15(Rev.4), published year of IEC international standard has been marked.</p>

Effective Date : 1 July 2022

(The contract date for ship construction)

Present	Amendment	Remark
<p>CHAPTER 1 ELECTRICAL EQUIPMENT</p> <p>Section 1 – 4 <same as the present Rules></p> <p>Section 5 Cables</p> <p>501. General 【See Rule】</p> <p>1. In application to 501. of the Rules, the term “consideration” means following IEC 60092 series or standards considered as equivalent thereto. <u>(2017)</u></p> <p>(1) <u>IEC 60092-350</u></p> <p>(2) <u>IEC 60092-352</u></p> <p>(3) <u>IEC 60092-353</u></p> <p>(4) <u>IEC 60092-354</u></p> <p>(5) <u>IEC 60092-360</u></p> <p>(6) <u>IEC 60092-370</u></p> <p>(7) <u>IEC 60092-376</u></p> <p>2. <same as the present Rules></p> <p>502. – 503. <same as the present Rules></p>	<p>CHAPTER 1 ELECTRICAL EQUIPMENT</p> <p>Section 1 – 4 <same as the present Rules></p> <p>Section 5 Cables</p> <p>501. General 【See Rule】</p> <p>1. In application to 501. of the Rules, the term “consideration” means following IEC 60092 series or standards considered as equivalent thereto. (2017) <u>(2022)</u></p> <p>(1) <u>IEC 60092-350:2020</u></p> <p>(2) <u>IEC 60092-352:2005</u></p> <p>(3) <u>IEC 60092-353:2016</u></p> <p>(4) <u>IEC 60092-354:2020</u></p> <p>(5) <u>IEC 60092-360:2014</u></p> <p>(6) <u>IEC 60092-370:2019</u></p> <p>(7) <u>IEC 60092-376:2017</u></p> <p>2. <same as the present Rules></p> <p>502. – 503. <same as the present Rules></p>	<p>(Amended)</p> <p>– In the reflection of UR E7(Rev.5), Publication Year of IEC international standard has been marked.</p>

Present	Amendment	Remark
<p>504. Installation of cables [See Rule]</p> <p>1. Precaution against fire protection</p> <p>(1) In application to 504. 3 (1) of the Rules, "special precautions" means the installation work of cables in the enclosed space or semi-enclosed space in ships meets either of the following requirements. However, the works (B) (iii) below are to be approved by the Society in accordance with the requirements in Pt 3, Sec 22 of the「Guidance for Approval of Manufacturing Process and Type Approval, etc.」</p> <p>(A) <same as the present Rules></p> <p>(B) In a case where bunched cables are installed, the following requirements are to be complied with:</p> <p>(a) Flame retardant cables in a bunched condition which have passed the test of Category A, IEC 60332-3-22 in accordance with the requirements in Pt 3, Sec 21 2108 of the 「Guidance for Approval of Manufacturing Process and Type Approval, etc.」are to be used.</p> <p>(b) - (c) <same as the present Rules></p> <p>(2) - (4) <same as the present Rules></p> <p>2. - 5. <same as the present Rules></p>	<p>504. Installation of cables [See Rule]</p> <p>1. Precaution against fire protection</p> <p>(1) In application to 504. 3 (1) of the Rules, "special precautions" means the installation work of cables in the enclosed space or semi-enclosed space in ships meets either of the following requirements. However, the works (B) (iii) below are to be approved by the Society in accordance with the requirements in Pt 3, Sec 22 of the「Guidance for Approval of Manufacturing Process and Type Approval, etc.」</p> <p>(A) <same as the present Rules></p> <p>(B) In a case where bunched cables are installed, the following requirements are to be complied with:</p> <p>(a) Flame retardant cables in a bunched condition which have passed the test of Category A, IEC 60332-3-22:2018 in accordance with the requirements in Pt 3, Sec 21 2108 of the 「Guidance for Approval of Manufacturing Process and Type Approval, etc.」are to be used. <u>(2022)</u></p> <p>(b) - (c) <same as the present Rules></p> <p>(2) - (4) <same as the present Rules></p> <p>2. - 5. <same as the present Rules></p>	<p>(Amended)</p> <p>- In the reflection of UI SC10(Rev.3), Publication Year of IEC international standard has been marked.</p>

Present	Amendment	Remark
<p>505. – 508. <same as the present Rules></p> <p>509. Metallic pipes and conduits [See Rule]</p> <p>1. In application to 509. 5 of the Rules, "where pipe arrangement is long" means not less than 30m.</p> <p>510. – 512. <same as the present Rules></p> <p>Section 6 – 18 <same as the present Rules></p> <p>CHAPTER 2 <same as the present Rules></p>	<p>505. – 508. <same as the present Rules></p> <p>509. Metallic pipes and conduits [See Rule]</p> <p>1. In application to 509. 5 of the Rules, "where pipe arrangement is long" means not less than 30m.</p> <p>510. – 512. <same as the present Rules></p> <p>Section 6 – 18 <same as the present Rules></p> <p>CHAPTER 2 <same as the present Rules></p>	<p>(Deleted)</p> <p>– According to the amended Rules, the requirement has been deleted.</p>