

# Revised Guidance for Battery Systems on Board of Ships

(Final)

2020. 1.



Machinery Rule Development Team

Effective Date : 1 January 2020

(The contract date for ship construction)

● The requirement for equivalence has been amended in accordance with the amendment to Part 1 of the Rules.

Present	Amendment	Remark
<p style="text-align: center;"><b>CHAPTER 1 GENERAL</b></p> <p style="text-align: center;"><b>Section 1 General</b></p> <p>101. - 103. &lt;same as the present Rules&gt;</p> <p><b>104. Equivalency</b>  <u>Special equipment, which is not appropriate to apply the requirements of this Guidance or not specified in this Guidance, may be accepted by the Society provided that the Society is satisfied that such equipment is equivalent to or above those complying with the requirements of this Guidance.</u></p> <p>105. &lt;same as the present Rules&gt;</p> <p style="text-align: center;"><b>Section 2 &lt;same as the present Rules&gt;</b></p> <p><b>CHAPTER 2 - 3 &lt;same as the present Rules&gt;</b></p>	<p style="text-align: center;"><b>CHAPTER 1 GENERAL</b></p> <p style="text-align: center;"><b>Section 1 General</b></p> <p>101. - 103. &lt;same as the present Rules&gt;</p> <p><b>104. Equivalency</b>  <del>Special equipment, which is not appropriate to apply the requirements of this Guidance or not specified in this Guidance, may be accepted by the Society provided that the Society is satisfied that such equipment is equivalent to or above those complying with the requirements of this Guidance. The equivalence of alternative and novel features which deviate from or are not directly applicable to the Guidance is to be in accordance with Pt 1, Ch 1, 104. of Rules for the Classification of Steel Ships.</del></p> <p>105. &lt;same as the present Rules&gt;</p> <p style="text-align: center;"><b>Section 2 &lt;same as the present Rules&gt;</b></p> <p><b>CHAPTER 2 - 3 &lt;same as the present Rules&gt;</b></p>	<p>(Amended)</p> <p>- The requirement for equivalence has been amended in accordance with the amendment to Part 1 of the Rules that incorporates the requirements for equivalence.</p>

# Revised Guidance for Battery Systems on Board of Ships

(Development Review : For external opinion inquiry)

2020. 1.



Machinery Rule Development Team

Effective Date : 1 July 2020

(The contract date for ship construction)

Present	Amendment	Remark																																																		
<p style="text-align: center;"><b>CHAPTER 1 GENERAL</b></p> <p style="text-align: center;"><b>CHAPTER 2 CLASSIFICATION SURVEYS</b></p> <p style="text-align: center;"><b>Section 1 - 2 &lt;same as the present Rules&gt;</b></p> <p style="text-align: center;"><b>Section 3 Tests and Inspections</b></p> <p><b>301. &lt;same as the present Rules&gt;</b></p> <p><b>302. Test and Inspection</b></p> <p>1. The battery system shall be subjected to the test and inspection in accordance with the following tables.</p> <p>2. - 3. &lt;same as the present Rules&gt;</p> <p><b>Table 1 - 3 &lt;same as the present Rules&gt;</b></p> <p><b>Table 4 Power conversion system for power supply</b></p> <table border="1" data-bbox="136 1058 934 1385"> <thead> <tr> <th>No.</th> <th>Test</th> <th>Test Standard</th> <th>Type Approval</th> <th>Testing and Inspection</th> </tr> </thead> <tbody> <tr> <td colspan="5" style="text-align: center;">1 - 10 &lt;same as the present Rules&gt;</td> </tr> <tr> <td>11</td> <td>Charge and recharge energy test<sup>(3)</sup></td> <td>IEC 60204-3/6.4.4</td> <td style="text-align: center;">○</td> <td></td> </tr> <tr> <td colspan="5" style="text-align: center;">12 - 15 &lt;same as the present Rules&gt;</td> </tr> <tr> <td>16</td> <td>Voltage variation Test</td> <td>IEC 61000-4-11</td> <td style="text-align: center;">○</td> <td style="text-align: center;">○</td> </tr> </tbody> </table> <p>(Notes) (1) - (5) &lt;same as the present Rules&gt;</p>	No.	Test	Test Standard	Type Approval	Testing and Inspection	1 - 10 <same as the present Rules>					11	Charge and recharge energy test <sup>(3)</sup>	IEC 60204-3/6.4.4	○		12 - 15 <same as the present Rules>					16	Voltage variation Test	IEC 61000-4-11	○	○	<p style="text-align: center;"><b>CHAPTER 1 GENERAL</b></p> <p style="text-align: center;"><b>CHAPTER 2 CLASSIFICATION SURVEYS</b></p> <p style="text-align: center;"><b>Section 1 - 2 &lt;same as the present Rules&gt;</b></p> <p style="text-align: center;"><b>Section 3 Tests and Inspections</b></p> <p><b>301. &lt;same as the present Rules&gt;</b></p> <p><b>302. Test and Inspection</b></p> <p>1. The battery system shall be subjected to the test and inspection in accordance with the following tables.</p> <p>2. - 3. &lt;same as the present Rules&gt;</p> <p><b>Table 1 - 3 &lt;same as the present Rules&gt;</b></p> <p><b>Table 4 Power conversion system for power supply (2020)</b></p> <table border="1" data-bbox="960 1058 1758 1385"> <thead> <tr> <th>No.</th> <th>Test</th> <th>Test Standard</th> <th>Type Approval</th> <th>Testing and Inspection</th> </tr> </thead> <tbody> <tr> <td colspan="5" style="text-align: center;">1 - 10 &lt;same as the present Rules&gt;</td> </tr> <tr> <td>H</td> <td><del>Charge and recharge energy test<sup>(3)</sup></del></td> <td><del>IEC 60204-3/6.4.4</del></td> <td style="text-align: center;">⊖</td> <td></td> </tr> <tr> <td colspan="5" style="text-align: center;">12 - 15 &lt;same as the present Rules&gt;</td> </tr> <tr> <td>H6</td> <td><del>Voltage variation Test</del></td> <td><del>IEC 61000-4-11</del></td> <td style="text-align: center;">⊖</td> <td style="text-align: center;">⊖</td> </tr> </tbody> </table> <p>(Notes) (1) - (5) &lt;same as the present Rules&gt;</p>	No.	Test	Test Standard	Type Approval	Testing and Inspection	1 - 10 <same as the present Rules>					H	<del>Charge and recharge energy test<sup>(3)</sup></del>	<del>IEC 60204-3/6.4.4</del>	⊖		12 - 15 <same as the present Rules>					H6	<del>Voltage variation Test</del>	<del>IEC 61000-4-11</del>	⊖	⊖	<p>(Deleted)</p> <p>- The requirements that are not applicable to the testing of power conversion system and redundant requirements have been deleted.</p>
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Present	Amendment	Remark
<p style="text-align: center;"><b>Section 7 Risk Assessment</b></p> <p><b>701. &lt;same as the present Rules&gt;</b></p> <p><b>702. Considerations for risk assessment</b></p> <p>1. Various methods can be used for risk assessment and at least an analysis of the following risk factors shall be included.</p> <p>(1) - (8) &lt;same as the present Rules&gt; &lt;Newly added&gt;</p> <p>2. - 3. &lt;same as the present Rules&gt;</p>	<p style="text-align: center;"><b>Section 7 Risk Assessment</b></p> <p><b>701. &lt;same as the present Rules&gt;</b></p> <p><b>702. Considerations for risk assessment</b></p> <p>1. Various methods can be used for risk assessment and at least an analysis of the following risk factors shall be included.</p> <p>(1) - (8) &lt;same as the present Rules&gt;</p> <p><u>(9) Means for detecting off-gas released from battery cell(s) caused by internal pressure rise, etc. and control measures when off-gases are released. (2020)</u></p> <p>2. - 3. &lt;same as the present Rules&gt;</p>	<p>(Amended)</p> <p>- The requirement has been newly added to consider the off-gas caused by the internal pressure rise of battery cell(s) in risk assessment.</p>