

# AMENDMENTS FOR OTHER GUIDANCE

(Guidance for Approval of Manufacturing Process and Type Approval, Etc.)

- For external opinion inquiry -

2022.09.



Machinery Rule Development Team

## - Main Amendments -

(1) Enter into force on 1 July 2023 (the date of application for certification of products or the contract date for ship construction)

● To reflect Request for Establishment/Revision of Classification Technical Rules

| Present  | Amendment  | reason  |
|--|--|---|
| <p style="text-align: center;"><b>CHAPTER 1</b> &lt;Omitted&gt;</p> <p style="text-align: center;"><b>CHAPTER 2 APPROVAL OF<br/>MANUFACTURING PROCESS</b></p> <p style="text-align: center;">Section 1 &lt;Omitted&gt;<br/>Section 2-1 Rolled Steels</p> <p>201. ~ 202. &lt;Omitted&gt;</p> <p>203. Approval tests</p> <p style="padding-left: 20px;">1. &lt;Omitted&gt;</p> <p style="padding-left: 20px;">2. Approval test and acceptance criteria</p> <p style="padding-left: 40px;">(1) Approval tests are to be carried out in the presence of the Surveyor at the manufacturing plant and approval test items are to be as given in <b>Table 2.2.1</b></p> <p style="padding-left: 40px;">(2) &lt;Omitted&gt;</p> <p>204. ~ 205. &lt;Omitted&gt;</p> | <p style="text-align: center;"><b>CHAPTER 1</b> &lt;Same as the present Guidance&gt;</p> <p style="text-align: center;"><b>CHAPTER 2 APPROVAL OF<br/>MANUFACTURING PROCESS</b></p> <p style="text-align: center;">Section 1 &lt;Same as the present Guidance&gt;<br/>Section 2-1 Rolled Steels</p> <p>201. ~ 202. &lt;Same as the present Guidance&gt;</p> <p>203. Approval tests</p> <p style="padding-left: 20px;">1. &lt;Same as the present Guidance&gt;</p> <p style="padding-left: 20px;">2. Approval test and acceptance criteria</p> <p style="padding-left: 40px;">(1) Approval tests are to be carried out in the presence of the Surveyor at the manufacturing plant and approval test items are to be as given in <b>Table 2.2.1</b></p> <p style="padding-left: 40px;">(2) &lt;Same as the present Guidance&gt;</p> <p>204. ~ 205. &lt;Same as the present Guidance&gt;</p> | <p>- To reflect revision of Pt 2 of the Rules for Material grade (Table 2.2.1 of next page)</p> |

<Present>

Table 2.2.1 Approval Test Items for Rolled Steels (2017) (2018)

| Kinds  | grade                                    |                 | Base metal test |     |     |     |     |     |     |     |     |     |     |     |                  | Brittle fracture test |                  |     | Weldability test |     |     |     |     |     |     | Other test |     |     |  |  |  |
|--|--|-----------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------------|-----------------------|------------------|-----|------------------|-----|-----|-----|-----|-----|-----|------------|-----|-----|--|--|--|
|  |  |                 | (a)             | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) | (j) | (k) | (l) | (m)              | (n)                   | (o)              | (p) | (q)              | (r) | (s) | (t) | (u) | (v) | (w) | (x)        | (y) | (z) |  |  |  |
| Rolled steel for hull                                  | A, B                                     |                 | ○               | ○   | ○   |     | ○   |     | ○   |     |     |     |     |     |                  |                       |                  |     |                  |     |     |     |     |     |     |            |     |     |  |  |  |
|  | D  |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     |     |     |     |                  |                       |                  |     |                  |     |     |     |     |     |     |            |     |     |  |  |  |
|  | E  |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     |     |     |     |                  | ○                     |                  | ○   | ○                | ○   | ○   |     |     |     |     |            |     |     |  |  |  |
|  | AH32, AH36, AH40, DH32, DH36, DH40       |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     |     |     |     |                  |                       |                  |     | ○                | ○   | ○   | ○   |     |     |     |            |     |     |  |  |  |
|  | EH32, EH36, EH40, FH32, FH36, FH40       |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     |     |     |     |                  | ○                     | ○ <sup>(7)</sup> | ○   | ○                | ○   | ○   |     |     |     |     |            |     |     |  |  |  |
| YP47 steel plates (Sec. 2-5)                           | EH47-H                                   |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     |     |     |     | ○ <sup>(8)</sup> | ○                     | ○                | ○   | ○                | ○   | ○   | ○   |     |     |     |            |     |     |  |  |  |
| High strength steels for welded structures (Sec. 2-7)  | AH43~FH97, FH43~FH70                     |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     |     |     |     | ○                | ○                     |                  | ○   | ○                | ○   | ○   | ○   |     |     |     |            |     |     |  |  |  |
| Rolled steels for low temp. service                    | RL235A~RL9N490                           |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     |     |     |     | ○                | ○                     |                  | ○   | ○                | ○   | ○   |     |     |     |     |            |     |     |  |  |  |
| Rolled steel for boilers                               | RSP42~RSP49A                             |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     |     |     |     |                  |                       |                  |     |                  | ○   |     |     |     | ○   | ○   |            |     |     |  |  |  |
| Rolled steels for pressure vessels                     | RPV24~RPV50                              |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     |     |     |     |                  | ○                     |                  |     |                  | ○   |     |     |     |     |     |            |     |     |  |  |  |
| Round bars for chain                                   | RSBC31~RSBC70                            |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     |     |     |     |                  |                       |                  |     |                  | ○   |     |     |     |     |     |            |     |     |  |  |  |
| Round bars for offshore chains and accessories(6)      | RSBCR3, RSBCR3S, RSBCR4, RSBCR4S, RSBCR5 |                 | -               |     |     |     |     |     |     |     |     |     |     |     |                  |                       |                  |     |                  |     |     |     |     |     |     |            |     |     |  |  |  |
| Rolled steels bar for boilers                          | RSB42~RSB46                              |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     | ○   |     |     |                  |                       |                  |     |                  |     |     |     |     |     |     |            |     |     |  |  |  |
| Rolled and forged steel carbon bars                    | RSFB400~RSFB760                          |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     | ○   |     |     |                  |                       |                  |     |                  |     |     |     |     |     |     |            |     |     |  |  |  |
| Rolled and forged steel low alloy steel bars           | RSFB600A~RSFB1100A                       |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     | ○   |     |     |                  |                       |                  |     |                  |     |     |     |     |     |     |            |     |     |  |  |  |
| Rolled stainless steels                                | RSTS304~RSTS347                          |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     | ○   |     |     |                  |                       |                  |     |                  |     |     |     |     |     |     |            |     |     |  |  |  |
|  | RSTS31803, RSTS32750                     |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   |     | ○   |     |     |                  |                       |                  |     |                  |     |     |     |     |     |     |            | ○   |     |  |  |  |
| Stainless clad steel plates                            | Base metal                               | A~E             | ○               | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   |     |     |                  |                       |                  |     |                  |     |     |     |     |     |     | ○          | ○   |     |  |  |  |
|  | Clad metal                               | RSTS304~RSTS347 | ○               | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   |     |     |                  |                       |                  |     |                  |     |     |     |     |     |     |            |     |     |  |  |  |
| High manganese austenitic steel plates <sup>(10)</sup> | HMN40                                    |                 | ○               | ○   | ○   |     | ○   |     | ○   |     |     | ○   | ○   |     | ○                | ○                     | ○                |     | ○                | ○   | ○   | ○   |     | ○   |     |            | ○   |     |  |  |  |

Notes

- (1) Where thermo-mechanical controlled processing(TMCP) is performed, tensile test after stress relieving is required in addition to those tests given in table.
- (2) For steel materials with consideration against through thickness properties as specified in Pt 2, Ch 1. of the Rules, the tensile test of through thickness direction, microscopic examination for non-metallic inclusions, ultrasonic test are required in addition to those tests given in table.
- (3) For steels other than steel plates, the strain ageing Charpy impact test, NRL drop weight test and CTOD test are not required, unless otherwise specified. However, where cast piece from the continuous casting method is used, the macro-structure of the cast piece and sulphur print test may be required.
- (4) The CTOD test, high temperature tension test and creep test as specified in the Table are performed for the purpose of evaluating low temperature toughness and high temperature characteristics, and these tests may be omitted in case appropriate records prepared by the manufacturer are available or in case the Society deems the test unnecessary.

# <Amendment>

**Table 2.2.1 Approval Test Items for Rolled Steels (2017) (2018) (2023)**

| Kinds   | grade                                    |                 | Base metal test |     |     |     |     |     |     |     |     |     |     |     |     | Brittle fracture test |     |                  | Weldability test |     |     |     |     |     |     | Other test |     |     |  |
|---|--|-----------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------|-----|------------------|------------------|-----|-----|-----|-----|-----|-----|------------|-----|-----|--|
|   |  |                 | (a)             | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) | (j) | (k) | (l) | (m) | (n)                   | (o) | (p)              | (q)              | (r) | (s) | (t) | (u) | (v) | (w) | (x)        | (y) | (z) |  |
| Rolled steel for hull   | A, B                                     |                 | ○               | ○   | ○   |     | ○   |     | ○   |     |     |     |     |     |     |                       |     |                  |                  |     |     |     |     |     |     |            |     |     |  |
|   | D  |                 | ○               | ○   | ○   |     | ○   |     | ○   |     | ○   | ○   |     |     |     |                       |     |                  |                  |     |     |     |     |     |     |            |     |     |  |
|   | E  |                 | ○               | ○   | ○   |     | ○   |     | ○   |     | ○   | ○   |     |     |     |                       | ○   |                  | ○                | ○   | ○   | ○   |     |     |     |            |     |     |  |
|   | AH32, AH36, AH40, DH32, DH36, DH40       |                 | ○               | ○   | ○   |     | ○   |     | ○   |     | ○   | ○   |     |     |     |                       |     |                  | ○                | ○   | ○   | ○   |     |     |     |            |     |     |  |
|   | EH32, EH36, EH40, FH32, FH36, FH40       |                 | ○               | ○   | ○   |     | ○   |     | ○   |     | ○   | ○   |     |     |     |                       | ○   | ○ <sup>(7)</sup> | ○                | ○   | ○   | ○   |     |     |     |            |     |     |  |
| YP47 steel plates (Sec. 2-5)                                  | EH47-H                                   |                 | ○               | ○   | ○   |     | ○   |     | ○   |     | ○   | ○   |     |     |     | ○ <sup>(8)</sup>      | ○   | ○                | ○                | ○   | ○   | ○   | ○   |     |     |            |     |     |  |
| High strength steels for welded structures (Sec. 2-7)         | AH43~FH97, FH43~FH70                     |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   | ○   | ○   |     |     |     | ○                     | ○   |                  | ○                | ○   | ○   | ○   | ○   |     |     |            |     |     |  |
| Rolled steels for low temp. service                           | RL235A~RL9N490                           |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   | ○   | ○   |     |     |     | ○                     | ○   |                  | ○                | ○   | ○   | ○   |     |     |     |            |     |     |  |
| Rolled steel for boilers                                      | RSP42~RSP49A                             |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   | ○   |     |     |     |     |                       |     |                  |                  | ○   |     |     |     | ○   | ○   |            |     |     |  |
| Rolled steels for pressure vessels                            | RPV24~RPV50                              |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   | ○   | ○   |     |     |     | ○                     |     |                  |                  | ○   |     |     |     |     |     |            |     |     |  |
| Round bars for chain  | RSBC31~RSBC70                            |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   | ○   |     |     |     |     |                       |     |                  |                  | ○   |     |     |     |     |     |            |     |     |  |
| Round bars for offshore chains and accessories <sup>(6)</sup> | RSBCR3, RSBCR3S, RSBCR4, RSBCR4S, RSBCR5 |                 | —               |     |     |     |     |     |     |     |     |     |     |     |     |                       |     |                  |                  |     |     |     |     |     |     |            |     |     |  |
| Rolled steels bar for boilers                                 | RSB42~RSB46                              |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   | ○   |     |     |     |     |                       |     |                  |                  |     |     |     |     |     |     |            |     |     |  |
| Rolled and forged steel carbon bars                           | RSFB400~RSFB760                          |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   | ○   |     |     |     |     |                       |     |                  |                  |     |     |     |     |     |     |            |     |     |  |
| Rolled and forged steel low alloy steel bars                  | RSFB600A~RSFB1100A                       |                 | ○               | ○   | ○   |     | ○   |     | ○   | ○   | ○   |     |     |     |     |                       |     |                  |                  |     |     |     |     |     |     |            |     |     |  |
| Rolled stainless steels                                       | RSTS304~RSTS347, RSTS31803, RSTS32750    |                 | ○               | ○   | ○   |     | ○   | ○   | ○   | ○   | ○   |     |     |     |     |                       |     |                  |                  |     |     |     |     |     |     | ○          |     |     |  |
| Stainless clad steel plates                                   | Base metal                               | A~E, AH32~FH36  | ○               | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   |     |     |     |     |                       |     |                  |                  |     |     |     |     |     |     | ○          | ○   |     |  |
|   | Clad metal                               | RSTS304~RSTS347 |                 |     |     |     |     |     |     |     |     |     |     |     |     |                       |     |                  |                  |     |     |     |     |     |     |            |     |     |  |
| High manganese austenitic steel plates <sup>(10)</sup>        | HMN40                                    |                 | ○               | ○   | ○   |     | ○   |     | ○   |     | ○   | ○   |     |     |     | ○                     | ○   | ○                |                  | ○   | ○   | ○   | ○   |     | ○   |            | ○   |     |  |

## Notes

- (1) Where thermo-mechanical controlled processing(TMCP) is performed, tensile test after stress relieving is required in addition to those tests given in table.
- (2) For steel materials with consideration against through thickness properties as specified in **Pt 2, Ch 1.** of the Rules, the tensile test of through thickness direction, microscopic examination for non-metallic inclusions, ultrasonic test are required in addition to those tests given in table.
- (3) For steels other than steel plates, the strain ageing Charpy impact test, NRL drop weight test and CTOD test are not required, unless otherwise specified. However, where cast piece from the continuous casting method is used, the macro-structure of the cast piece and sulphur print test may be required.
- (4) The CTOD test, high temperature tension test and creep test as specified in the Table are performed for the purpose of evaluating low temperature toughness and high temperature characteristics, and these tests may be omitted in case appropriate records prepared by the manufacturer are available or in case the Society deems the test unnecessary.

| Present  | Amendment   | reason   |
|--|---|--|
| <p><b>Section 2-2 ~ Section 5</b> &lt;Omitted&gt;</p> <p><b>Section 6 Aluminium Alloys</b><br/> <b>Section 6-2 &lt;New&gt;</b></p> | <p><b>Section 2-2 ~ Section 5</b> &lt;Same as the present Guidance&gt;</p> <p><b>Section 6-1 Aluminium Alloys</b><br/> <b>Section 6-2 Aluminium/steel transition joints</b><br/> <b>(2023)</b></p> <p><b>611. Application</b></p> <p><u>The requirements in this Section apply to tests and inspection for the approval of manufacturing process of aluminium/steel transition joints as specified in Pt 2, Ch 1, Sec 8 of the Rules.</u></p> <p><b>612. Data to be submitted</b></p> <p><u>The following reference data in addition to those specified in 102. are to be submitted to the Society.</u></p> <p>(1) <u>Type of base and bonding material (e.g Material grade, etc.)</u><br/> (2) <u>Range of transition joints for which approval is requested.</u><br/> (3) <u>Manufacturing(bonding) method(e.g explosion bonding, etc.)</u><br/> (4) <u>Maximum temperature allowed at the interface of the transition joint(min. 300 °C)</u><br/> (5) <u>Mechanical properties specified for the transition joint after heating to the maximum temperature allowed at the interface</u><br/> (6) <u>Information for manufacturing and quality</u></p> <p>(A) <u>Approved manufacturer information for base and bonding materials</u><br/> (B) <u>Details of the manufacturing method of the transition joints including the surface preparation condition of the base material and the bonding material</u><br/> (C) <u>Facilities and equipment for surface inspection and ultrasonic test</u><br/> (D) <u>Dimensions of base material and bonding material before bonding</u><br/> (E) <u>Dimensions of the final product after bonding</u><br/> (F) <u>National/international Standards related to products</u></p> | <p>- The requirements for Aluminium/steel transition joints are newly established.</p> |

| Present | Amendment   | reason   |
|---------|---|--|
|         | <p><b>613. Approval tests</b></p> <p><b>1. Selection of test samples</b></p> <p>(1) <u>Test samples used for the approval test are to, as a rule, be taken in the presence of the Surveyor from transition joints under the same conditions of the bonding process and manufacturing process.</u></p> <p>(2) <u>The thickness and dimensions for the test sample used in the approval test are, as a rule, to be maximum thickness and dimensions.</u></p> <p><b>2. Details of test</b></p> <p>(1) <u>All of the approval tests required in each Sec of this Chapter shall be carried out for the base material and the bonding material. However, it may be omitted if it is approved in other manufacturers by the Society.</u></p> <p>(2) <u>Testing method and acceptance criteria are to be in accordance with the <b>Table 2.6.3.</b></u></p> | <p>- The requirements for Aluminium/steel transition joints are newly established.</p> |

| Present              | Amendment  | reason   |                         |                     |                 |                                |                                       |                 |  |                                       |              |   |  |           |   |  |            |   |  |                 |                                 |                                   |  |
|----------------------|--|--|-------------------------|---------------------|-----------------|--------------------------------|---------------------------------------|-----------------|--|---------------------------------------|--------------|---|--|-----------|---|--|------------|---|--|-----------------|---------------------------------|-----------------------------------|--|
|                      | <p><b>Table 2.6.3 Test items and selection of test specimens</b></p> <table> <tr> <th>Approval test items</th><th>Approval testing method</th><th>Acceptance criteria</th></tr> <tr> <td>Macro structure</td><td>ISO 4969 or equivalent method.</td><td>Acceptance criteria is the reference.</td></tr> <tr> <td>Micro structure</td><td>Microscopic photographs (approx. 100x) of base metal, joining part and bonding materials are to be taken</td><td>Acceptance criteria is the reference.</td></tr> <tr> <td>Tensile test</td><td>In accordance with Pt 2, Ch 1, 802. of the Rules.</td><td>To meet the requirements in Pt 2, Ch 1, 802. of the Rules.</td></tr> <tr> <td>Bend test</td><td>In accordance with Pt 2, Ch 1, 802. of the Rules.</td><td>To meet the requirements in Pt 2, Ch 1, 802. of the Rules.</td></tr> <tr> <td>Shear test</td><td>In accordance with Pt 2, Ch 1, 802. of the Rules.</td><td>To meet the requirements in Pt 2, Ch 1, 802. of the Rules.</td></tr> <tr> <td>Ultrasonic test</td><td>KS D 0234 or equivalent method.</td><td>Unbonded areas are not acceptable</td></tr> </table> <p><b>614. Dealing after approval</b></p> <p>Transition joints which conform to the requirements in this Section are to be dealt with as [in approved case] in the requirements in Pt 2, Ch 1, 201. 3 (2) of the Rules, unless otherwise specified by the Society.</p> | Approval test items  | Approval testing method | Acceptance criteria | Macro structure | ISO 4969 or equivalent method. | Acceptance criteria is the reference. | Micro structure | Microscopic photographs (approx. 100x) of base metal, joining part and bonding materials are to be taken | Acceptance criteria is the reference. | Tensile test | In accordance with Pt 2, Ch 1, 802. of the Rules. | To meet the requirements in Pt 2, Ch 1, 802. of the Rules. | Bend test | In accordance with Pt 2, Ch 1, 802. of the Rules. | To meet the requirements in Pt 2, Ch 1, 802. of the Rules. | Shear test | In accordance with Pt 2, Ch 1, 802. of the Rules. | To meet the requirements in Pt 2, Ch 1, 802. of the Rules. | Ultrasonic test | KS D 0234 or equivalent method. | Unbonded areas are not acceptable | <p>- The requirements for Aluminium/steel transition joints are newly established.</p> |
| Approval test items  | Approval testing method  | Acceptance criteria  |                         |                     |                 |                                |                                       |                 |  |                                       |              |   |  |           |   |  |            |   |  |                 |                                 |                                   |  |
| Macro structure      | ISO 4969 or equivalent method.   | Acceptance criteria is the reference.                      |                         |                     |                 |                                |                                       |                 |  |                                       |              |   |  |           |   |  |            |   |  |                 |                                 |                                   |  |
| Micro structure      | Microscopic photographs (approx. 100x) of base metal, joining part and bonding materials are to be taken   | Acceptance criteria is the reference.                      |                         |                     |                 |                                |                                       |                 |  |                                       |              |   |  |           |   |  |            |   |  |                 |                                 |                                   |  |
| Tensile test         | In accordance with Pt 2, Ch 1, 802. of the Rules.  | To meet the requirements in Pt 2, Ch 1, 802. of the Rules. |                         |                     |                 |                                |                                       |                 |  |                                       |              |   |  |           |   |  |            |   |  |                 |                                 |                                   |  |
| Bend test            | In accordance with Pt 2, Ch 1, 802. of the Rules.  | To meet the requirements in Pt 2, Ch 1, 802. of the Rules. |                         |                     |                 |                                |                                       |                 |  |                                       |              |   |  |           |   |  |            |   |  |                 |                                 |                                   |  |
| Shear test           | In accordance with Pt 2, Ch 1, 802. of the Rules.  | To meet the requirements in Pt 2, Ch 1, 802. of the Rules. |                         |                     |                 |                                |                                       |                 |  |                                       |              |   |  |           |   |  |            |   |  |                 |                                 |                                   |  |
| Ultrasonic test      | KS D 0234 or equivalent method.  | Unbonded areas are not acceptable                          |                         |                     |                 |                                |                                       |                 |  |                                       |              |   |  |           |   |  |            |   |  |                 |                                 |                                   |  |
| <hereafter, omitted> | <hereafter, same as the present Guidance>  |  |                         |                     |                 |                                |                                       |                 |  |                                       |              |   |  |           |   |  |            |   |  |                 |                                 |                                   |  |