

GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE

**Guidance for the Approval and Type Approval of Materials and Equipment for
Marine Use** **2013 AMENDMENT NO.1**

Notice No.33 30th May 2013

Resolved by Technical Committee on 4th February 2013

ClassNK
NIPPON KAIJI KYOKAI

Notice No.33 30th May 2013

AMENDMENT TO THE GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE

“Guidance for the approval and type approval of materials and equipment for marine use” has been partly amended as follows:

Amendment 1-1

Part I GENERAL

Chapter 1 GENERAL

1.1 Application

Sub-paragraph -4 has been added as follows.

1 This guidance applies to tests and inspection of materials and equipment for marine use for which advance approval or type approval by the NIPPON KAIJI KYOKAI (hereinafter referred to as “the Society”) are required by the relevant requirements in **Rules for the Survey and Construction of Steel Ships, Rules for Cargo Handling Appliances, Rules for Cargo Refrigerating Installations, Rules for Diving Systems, Rules for Marine Pollution Prevention Systems, Rules for Safety Equipment, Rules for the Survey and Construction of Passenger Ships, Rules for the Survey and Construction of Ships of Fibreglass Reinforced Plastics and Rules for Floating Docks**, and their Guidances (hereinafter referred to as “Rules etc.”)

2 This guidance is, in principle, to apply to each manufacturing plant.

3 The confirmation survey of manufacturing and quality control procedure required in the guidance may be dispensed with partly or totally subject to the approval in accordance with “**Rules for Approval of Manufacturers**”.

4 In cases where the manufacturing process and the test result have been approved by another organization and the manufacturer has a data showing actual manufacturing records within the specific period, the Society will take into account such records and tests results and may exempt the part or all of the approval tests for the manufacturing processes for materials and equipment for marine use required by this guidance.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 30 May 2013.

Part 1 METALLIC MATERIALS

Chapter 1 APPROVAL OF MANUFACTURING PROCESS OF ROLLED STEELS

1.4 Approval Test

1.4.2 Selection of Test Samples

Sub-paragraph -4 has been amended as follows.

4 The rolled reduction ratio of rolled bar for offshore mooring chain (hereinafter referred to as “offshore chains”) are to be at least 5.

1.4.3 Details of Test

Sub-paragraph -3 has been amended as follows.

3 For approval of the manufacturing process of the rolling bars for offshore ~~mooring~~ chains, in the case of initial approval and/or changes in any approved conditions, the approval test specified in **2.4, Part 2** is to be carried out in addition to the test specified in this Chapter.

Part 2 EQUIPMENT

Chapter 2 APPROVAL OF MANUFACTURING PROCESS OF ANCHORS

2.1 General

2.1.1 Scope

Sub-paragraph -1 has been amended as follows.

1 The procedures and testing requirements for the approval of the manufacturing process of anchor chains, steering chains and offshore mooring chains (hereinafter referred to as "offshore chains") including a connecting common links which are manufactured by flash butt welding or casting in accordance with the requirements in **3.1.4** and **3.2.5, Part L of the Rules for the Survey and Construction of Steel Ships** (hereinafter referred to as the Rules) are to be as specified in this Chapter.

2.4 Approval Test

Paragraph 2.4.1 has been amended as follows.

2.4.1 Approval Test

1 The approval test is to be carried out on each type of chain and material grade which under application for each manufacturing factory. The contents of the approval test are to be as indicated in **Table 2.2-1** and the test is to be carried out in the presence of the Surveyor of the Society unless otherwise specified.

2 In cases where rolled steel from a number of suppliers is used for offshore chains, the approval test specified in this Chapter is to be carried out for each supplier.

2.4.3 Omission of Approval Test for Manufacturing Process

Sub-paragraph (4) has been deleted.

~~(4) For offshore mooring chains, the approval test for the manufacturing process is not to be omitted.~~

Chapter 3 APPROVAL OF MANUFACTURING PROCESS OF CHAIN ACCESSORIES

3.4 Approval Test

Table 2.3-1 has been amended as follows.

Table 2.3-1 Approval Test Items and Acceptance Criteria for Accessories

Test item		Numbers of test specimens	Selection of test specimen and details of test specimen	Test procedure	Acceptance criteria
Mechanical properties test for chain accessories:	(1) Tensile test	2 piece	<p style="text-align: center;"><u>End link (Enlarged link)</u></p>	<p>(1) and (2): To conform to Part K of the Rules. However in bending test, However, in bending test, the bending radius of Grade 3, R3, R3S & R4 chains accessories is to be 25mm. Grade R4S and R5 chains are to be as deemed appropriate by the Society. And bending angle is to be not less than following degree; 30 for Grade R4, 45 for Grade R3S, 60 for Grade R3, and 120-180 for other Grade. And, Grade R4S and R5 chains are to be as deemed appropriate by the Society.</p> <p>(3): Testing temperature is to be referred to in Note (2).</p> <p>(4): To be examined at its surface, 2/3 r and center (x 10)</p> <p>(5): Areas shown in the figure are to be macroetched.</p> <p>(6): Sulphur print of the chain accessories in longitudinal section is to be taken.</p> <p>(7): Hardness distribution in diametric direction is to be measured at proper intervals</p> <p>(8): To be referred to Table 2.2-1.</p>	To conform to Part K of the Rules .
	(2) Bending test	2 piece			To be free of harmful defect.
	(3) Impact test	See Note (2)			See Note (2)
	(4) Micro test	3 parts of 1 piece	<p style="text-align: center;"><u>End shackle (Joining shackle)</u></p>		The degree of heat treatment is diametric direction is to be examined.
	(5) Macro test	1 part			To be free of harmful defect.
	(6) Sulphur print	1 piece	<p style="text-align: center;"><u>Pins of shackle (for offshore chains)</u></p>		To be free of harmful defect.
	(7) Hardness test	1 piece			To be for reference only. However, hardness is to be max 330 for Grade R4S, and 340 for Grade R5.
	(8) CTOD test	3 pieces	<p style="text-align: center;"><u>Kenter shackle</u></p>		To be as deemed appropriate by the Society.
Test on testing object of chain accessories	(9) Proof test	1 piece		<p>(9), (10), (11) and (12): To conform to Part L of the Rules.</p> <p>(13): Non-destructive tests consist of ultrasonic test and magnetic particle test.</p>	To conform to Part L of the Rules .
	(10) Breaking test	1 piece	1.1 times of the specified breaking load is only required to be loaded, and no actual breaking is required. See Note (6)		

Test on testing object of chain accessories	(11) Dimension inspection	1 piece	<p style="text-align: center;">Swivel</p>		To conform to Part L of the Rules . In addition, dimensional changes are to be measured.
	(12) Visual inspection	1 piece			To be free of harmful defect.
	(13) Non-destructive test	1 piece			To be free of harmful defect.

Notes:

- (1) The test chain accessories used for approval test are to, in principle, be two or three, in number, of the largest diameter under application.
- (2) The number of impact test specimens, test temperatures of impact test and minimum mean absorbed energy are to be in accordance with **Table 2.3-2**.
- (3) In the case of the approval test required in connection with the change in the manufacturing as shown in **3.5**, the Society may reduce the requirements in the diameter and number of test chain accessories with respect to the test items.
- (4) When any steel materials, manufacturing process or heat treatment not specified in the Rules are intended to be used, the Society may request other testing procedure or submission of reference data in addition to those specified in the Rules.
- (5) *CTOD* tests are required for the initial approval of offshore mooring chain accessories. Test pieces are to be taken from the quarter thickness location and test piece dimensions are to conform to **Table 2.2-1**.
- (6) Each specimen is to be capable of withstanding 1.1 times of the specified breaking test load specified in **Table L3.10**. In case of offshore chain accessories, each specimen is to be capable of withstanding their breaking test loads without fracturing for at least 30 seconds.

Title of Table 2.3-2 has been amended as follows.

Table 2.3-2 ~~Temperatures of Impact Test~~

(Omitted)

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 30 May 2013.
2. Notwithstanding the amendments to the Guidance, the current requirements may apply to offshore chain for which the application for approval of manufacturing process is submitted to the Society before the effective date.

Part 4 NON-METALLIC MATERIALS AND COATING MATERIALS FOR HULL

Chapter 1 APPROVAL OF FIRE PROTECTION MATERIALS

1.2 Definitions

Paragraph 1.2.12 has been amended as follows.

1.2.12 FTP Code

1 “FTP Code” means as defined in 3.2.23, Part R of the Rules.

2 In applying the FTP Code, the following requirements are to be complied with:

- (1) Section 1.12, 1.13 and 7.6.1 of APPENDIX 1, PART 3, ANNEX 1 to the FTP Code
In approval tests for “A” class divisions, the following details are to be indicated on the test report. Furthermore, the *Certificate of Approval for Fire Protection Material* is to refer to the drawing number of the detail drawings used in the approval test:
- (a) Type, thickness, density and number of layers of insulation material;
 - (b) Size, types, materials and fixing methods of pins and washers;
 - (c) Spacing between pins;
 - (d) Maximum spacing between pins and adjacent joints;
 - (e) Stepping of joints for multi-layers, if applicable;
 - (f) Insulation and pinning details on and around stiffeners;
 - (g) Details of wire mesh, aluminium tape, etc., if used in the test;
 - (h) The information required by 2.1.3, 2.2.3, 6.1 and 9.10 of APPENDIX 1, PART 3, ANNEX 1 to the FTP Code.

~~3 In cases where the provision 8.2 of FTP Code is applied, notwithstanding the requirement in preceding 2(1), the following (1) to (6) are to be complied with:~~

~~(1) Section 1.6 and 7.5.1 of IMO Resolution A.754(18)~~

~~In approval tests for “A” class divisions, the following details are to be indicated on the test report. Furthermore, the *Certificate of Approval for Fire Protection Material* is to refer to the drawing number of the detail drawings used in the approval test:~~

- ~~(a) Type, thickness, density and number of layers of insulation material;~~
- ~~(b) Size, types, materials and fixing methods of pins and washers;~~
- ~~(c) Spacing between pins;~~
- ~~(d) Maximum spacing between pins and adjacent joints;~~
- ~~(e) Stepping of joints for multi-layers if applicable;~~
- ~~(f) Insulation and pinning details on and around stiffeners;~~
- ~~(g) Details of wire mesh, aluminium tape etc, if used in the test;~~
- ~~(h) The information required by 2.1.3, 2.2.3, 6.1 and 10.4 of IMO Resolution A.754(18).~~

~~(2) Section 3.2.3 of IMO Resolution A.754(18)~~

~~Adhesives used in “A” class divisions are not required to be non-combustible, however, they are to be low flame spread.~~

~~(3) Section 5.1 of IMO Resolution A.754(18)~~

~~In cases where a test specimen (deck) which includes the prototype penetration is not mounted within a rigid restraint frame but is connected to the furnace roof by side wall coamings, the~~

~~rigidity of the coamings is to be equivalent to that of a restraint frame and evaluated in accordance with Section 5.1 of *IMO Resolution A.754(18)*.~~

~~(4) Appendix.I/2.2 of *IMO Resolution A.754(18)*~~

~~Windows to be fitted at the forward bulkhead of accommodation block on tankers are to correspond to prototype subject to the “A” class standard fire test with the fire against its external side (i.e. the side which, after the installation on board, will be exposed to the weather). The insulation of the bulkhead used along with the window’s specimen is to be fitted on the unexposed face of the structural core.~~

~~(5) Appendix.III/2.2.3 of *IMO Resolution A.754(18)*~~

~~In cases where insulation is fitted to the test pipe, the distance of 500 mm required in A.III/2.2.3 of *IMO Resolution A.754* to which the pipe is to project is to be taken from the end of the insulation as this is considered an integral part of the penetration being tested and it is necessary that a length of unprotected pipe is exposed to the furnace.~~

~~(6) Appendix.III/2.2.4 of *IMO Resolution A.754(18)*~~

~~The support and fixing of the test pipe are to be by a framework mounted from the restraint frames such that any movement of the bulkhead or deck relative to the pipe is experienced by the penetration being tested.~~

1.13 Test Procedures

Paragraph 1.13.3 has been amended as follows.

1.13.3 Test for “A” and “B” Class Divisions

Test procedures are to be in compliance with the requirements for “A” and “B” class divisions specified in “Test for “A”, “B” and “F” class divisions” carried out in accordance with the *FTP* Code. However, the approval of fire doors of marginally larger dimensions than the standard specimen size (2,440mm width and 2,500mm height) is to be in accordance with *MSC.1/Circ.1319 “Recommendation for the Evaluation of Fire Performance and Approval of Large Fire Doors”*.~~the following:~~

~~(1) *MSC.1/Circ.1319 “Recommendation for the Evaluation of Fire Performance and Approval of Large Fire Doors”*.~~

~~(2) In cases where the provision 8.2 of the *FTP* Code is applied, IACS Unified Interpretation *FTP3* in addition to the preceding 1.~~

Paragraph 1.13.6 has been amended as follows.

1.13.6 Test for Primary Deck Coverings

Test procedures are to be in compliance with the requirements for primary deck coverings specified in “Test for Surface Flammability” carried out in accordance with the *FTP* Code. ~~However, in cases where the provision 8.2 of *FTP* Code is applied, test procedures are to be in compliance with “Test for Primary Deck Coverings”.~~

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2013.