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 2015 AMENDMENT NO.1

Notice No.37 8th May 2015
Resolved by Technical Committee on 2nd February 2015

ClassNK
NIPPON KAIJI KYOKAI

Notice No.37 8th May 2015
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 1 METALLIC MATERIALS

Chapter 1 APPROVAL OF MANUFACTURING PROCESS OF ROLLED STEELS

1.2 Approval Application

1.2.2 Documents to be Submitted

Sub-paragraph -1(2)(c) has been amended as follows.

1 Three copies each of the documents given in **(1)** and **(2)** are to be submitted together with the approval application form specified in **1.2.1**.

(1) Approval test plan

(2) Technical data given in the following **(a)** through **(k)**

((a) and (b) are omitted.)

(c) Data on steel products

i) Type of products and grades of steel

ii) Maximum manufacturing thickness or dimensions

iii) Deoxidation practice and grain refining elements ~~system of constituent~~

iv) Manufacturing standard for each chemical composition (if the system of constituent depends on grade, thickness, heat treatment etc., the different ranges are to be specified, as appropriate.)

v) Maximum carbon equivalent (C_{eq}) (this value is to be calculated by the formula specified in **1.5.2-2(6)**, **Part K of the Rules**)

vi) Maximum cold cracking susceptibility (P_{cm}) for higher strength grades with low carbon content $C \leq 0.13\%$ (this value is to be calculated by the formula specified in **1.5.2-2(6)**, **Part K of the Rules**)

vii) Actual manufacturing records within the specific period (chemical composition, mechanical properties and thickness or dimension are expressed in the form of histogram or statistics for each heat treatment)

((d) to (m) are omitted.)

1.4 Approval Test

1.4.1 Extent of the Approval Tests

Sub-paragraph -1(1) has been amended as follows.

1 Approval for the manufacturing process of rolled steels is to be the following **(1)** and **(2)** if deemed appropriate by the Society.

(1) Rolled steels for hull, rolled steels for low temperature service and high strength quenched and tempered rolled steels for structure

Approval for any grade of steels may also covers approval for any lower grade of steels (of which specific temperature of impact test is higher than that of test sample) in the same strength level provided that kind, deoxidation practice, grain refining elements ~~system of constituent~~, heat treatment, steel making process, steel casting process and maximum manufacturing thickness or dimensions are same. For higher tensile steels for hull, in addition to above, approval of one strength level may also covers the approval of the same grade and below in the strength level immediately below.

1.4.2 Selection of Test Samples

Sub-paragraph -1(1) has been amended as follows.

1 Test samples used for approval test of rolled steels are to be selected according to the following **(1)** and **(2)** :

(1) Test samples are generally to be selected for each grade and kind by each charge of rolled steels of which deoxidation practice, grain refining elements ~~system of constituent~~, heat treatment, steel making process and steel casting process are same.

Sub-paragraph -3 has been amended as follows.

3 Where the maximum manufacturing thickness of rolled steels for hull, rolled steels for low temperature service and quenched and tempered high tensile rolled steels, is 50*mm*, 40*mm* and 70*mm*, and over respectively, and in case of first approval of at least one item of deoxidation practice, grain refining elements ~~system of constituent~~, heat treatment, steel making process and steel casting process, Society may request an additional test samples of which thickness is indicated with a ● mark in **Table 1.1-1** or other proper thickness, in addition to the test samples in accordance with **-2**.

1.4.3 Details of Test

Table 1.1-3 has been amended as follows.

Table 1.1-3 Approval Testing Method and Acceptance Criteria

Approval test item		Selected location of test samples (1) (2)	Length direction of test specimen (3)	Testing method	Acceptance criteria
Base metal test	Chemical analysis	Top	—	*JIS G* 0321 or equivalent method. Ladle analysis and product analysis (5) are to be performed for elements specified in **Part K of the Rules**, and other elements (4) as deemed necessary.	Chemical composition by ladle analysis is to comply with the requirements in **Chapter 3, Part K of the Rules**.(6)
	Sulphur print	Top	Transverse	*JIS G* 0560 or equivalent method. Length is to be 600 *mm* or greater.	Bias etc. deemed to have negative effects are not to be present.
	Microscopic examination for non-metallic inclusions	Top	~~Transverse~~ parallel	*JIS G* 0555 or equivalent method.	To be as deemed appropriate by the Society.
		Bottom	~~Transverse~~ parallel		
	Macro-structure	Top	Transverse	*JIS G* 0553 or equivalent method.	
		Bottom(7)	Transverse		
	Micro-structure	Top	—	Microscopic photographs (approx. 100x) of base metal, joining part and cladding metal are to be taken.	
		Bottom	—		
	Austenite grain size Ferrite grain size	Top	—	*JIS G* 0551, ~~*JIS G* 0552,~~ *ASTM E* 112 or equivalent method.(8) Magnification of microscopic photographs are to be, as a rule, 100x (9). The grain size is required for each microscopic photographs.	For decisions other than those specified according to **Chapter 3**, **Part K of the Rules**, to be as appropriate by the Society.
	(Omitted)				

(Note is omitted.)

Form 1-1 has been amended as follows.

Form 1-1

To: NIPPON KAIJI KYOKAI
_____ branch
(Name of branch office)

Ref. No._____
Date: _____

APPLICATION FOR APPROVAL OF MANUFACTURING PROCESS
OF ROLLED STEEL

We hereby request approval of the manufacturing process of the rolled steel described hereunder in accordance with the requirements in **1.2**, **Part K of the Rules for the Survey and Construction of Steel Ships**.

1.	Name of works		
2.	Kind of products	:	(ex. Steel plate)
3.	Material grade	:	(ex. *KD*36)
4.	Deoxidation practice	:	(ex. killed and fine grad steel)
6.	Grain refining elements ~~System of constituents~~	:	(ex. *Al-Nb-Ti-V* ~~Si-Mn-Al-Nb system~~)
7.	Plate thickness for approval	:	(ex. Maximum manufacturing thickness 25*mm*)
8.	Steel making process	:	(ex. Basic oxygen furnace steel making process)
9.	Steel casting process	:	(ex. Continuous casting process)
10.	Miscellaneous	:	(ex. If any)
11.	Date for factory inspection	:	
12.	Date for selection of test samples	:	
13.	Date for approval test	:	
14.	Submitted documents	:	
	(a) Approval test plan 3 copies		
	(b) Technical data 3 copies		

Name of works
_____
Address of works
_____
Personnel in charge
_____
Phone No. and Fax. No.
_____

(Signature)

Form 1-2A has been amended as follows.

Form 1-2A

To: NIPPON KAIJI KYOKAI Ref. No._____
_____ branch Date:_____
(Name of branch office)

APPLICATION FOR APPROVAL OF MANUFACTURING PROCESS
OF CORROSION RESISTANT STEEL FOR CARGO OIL TANKS

We hereby request approval of the manufacturing process of corrosion resistant steel for cargo oil tanks described hereunder in accordance with the requirements in **1.2**, **Part K of the Rules for the Survey and Construction of Steel Ships**.

1. Name of works
2. Brands : (ex. *XXCR*1)
3. Material grade : (ex. *KD*36-*RCW*)
4. Areas of application : (ex. Upper deck and inner bottom plating)
5. Deoxidation practice : (ex. Fine grained killed steel)
6. Grain refining element ~~System of constituents~~ : (ex. *Al-Nb-Ti-V* Si-Mn-Al-Ni)
7. Control range of chemical composition (Additive elements for ensuring corrosion resistance)

(ex. Ni)				
(ex. 0.2 to 0.4%)				

8. Heat treatment : (ex. Thermo-Mechanical Controlled Processing (Thermo-mechanical rolling (*TMCP* (*TMR*)))
9. Plate thickness for approval : (ex. Max. plate thickness: 25*mm*)
10. Steel making process : (ex. Basic oxygen furnace steel making process)
11. Steel casting process : (ex. Continuous casting)
12. Welding consumable : (ex. *BT*-999 (Manufacturer: NK Welding & Eng. Co., Ltd.))
13. Miscellaneous
14. Date for factory inspection
15. Date for selection of test samples
16. Date for approval test
17. Submitted documents
    (a) Approval test plan 3 copies
    (b) Technical data 3 copies

Name of works
_____
Address of works
_____
Personnel in charge
_____
Phone No. and Fax. No.
_____

(Signature)

Chapter 1B APPROVAL OF MANUFACTURING PROCESS OF SEMI-FINISHED PRODUCTS

1B.2 Approval Application

1B.2.2 Documents to be Submitted

Sub-paragraph -1 has been amended as follows.

1 Three copies each of the documents given in **(1)** and **(2)** are to be submitted together with the approval application form specified in **1B.2.1**.

(1) Approval test plan

(2) Technical data given in the following **(a)** through **(h)**

(a) Data on works

i) Name and location of the works

ii) General indications relevant to the background

iii) Dimension and size of the works

iv) Organizational chart and number of staff employed

v) Estimated total annual production of ~~finished and~~ semi-finished products (for shipbuilding and for other applications)

((b) is omitted.)

(c) Data on semi-finished ~~steel~~ products

i) Type of semi-finished products (rolled steels for hulls) ~~and grades of steel~~

ii) Kind of semi-finished products (ingots, slabs, blooms, billets, etc.)

iii) Type of steel (normal or higher strength)

iv ~~ii~~) Maximum and minimum manufacturing dimensions

v ~~iii~~) Deoxidation practice and grain refining elements ~~system of constituent~~

vi ~~iv~~) Manufacturing standard for each chemical composition ~~(if the system of constituent depends on grade, thickness, heat treatment etc., the different ranges are to be specified, as appropriate.)~~

vii ~~v~~) Maximum carbon equivalent (C_{eq}) (this value is to be calculated by the formula specified in **1.5.2-2(6)**, **Part K of the Rules**)

viii ~~vi~~) Maximum cold cracking susceptibility (P_{cm}) for higher strength grades with low carbon content $C \leq 0.13\%$ (this value is to be calculated by the formula specified in **1.5.2-2(6)**, **Part K of the Rules**)

ix ~~vii~~) Actual manufacturing records within the specific period (chemical composition~~, mechanical properties~~ and ~~thickness or~~ dimension are expressed in the form of histogram or statistics for each kind of semi-finished products and type of steel ~~heat treatment~~)

(d) Data on manufacturing process

i) Origin and storage of raw materials

ii) Flow chart of the manufacturing process

iii) Outline of major manufacturing facilities (including control methods)

iv) Storage of ~~finished and~~ semi-finished products

((e) and (f) are omitted.)

1B.5 Approval

1B.5.1 Notification and Announcement of Approval

Sub-paragraph -1 has been amended as follows.

1 The Society grants approval of the manufacturing process of semi-finished products which have been deemed appropriate on the basis of the reports of the Surveyor and documents submitted in accordance with requirements in **1B.2** through **1B.4**. In this case, a "Certificate of Approval" is published including the name of works, type ~~kind~~ of semi-finished products (rolled steels for hull ~~ingots, slabs, blooms, billets~~), ~~steelmaking and casting process, thickness range of semi-finished products, type of steel (normal or higher strength),~~ term of validity of approval etc. and the approved content including the kind of semi-finished products (rolled steels for hull ingots, slabs, blooms, billets, etc.), steelmaking and casting processes, thickness range of semi-finished products, type of steel (normal or higher strength), etc. is described on the ~~in~~ "Particulars of Approval Conditions". And, it is also to be indicated that the individual users of the semi-finished products are to be approved for the manufacturing process of the specific grade of rolled steel products they are going to manufacture with those semi-finished products.

Form 1B-1 has been amended as follows.

Form 1B-1

To: NIPPON KAIJI KYOKAI branch
(Name of branch office)

Ref. No. _____
Date: _____

APPLICATION FOR APPROVAL OF MANUFACTURING PROCESS OF SEMI-FINISHED PRODUCTS

We hereby request approval of the manufacturing process of semi-finished products described hereunder in accordance with the requirements in **1.2**, **Part K of the Rules for the Survey and Construction of Steel Ships**.

1.	Name of works	:	
2.	Type ~~Kind~~ of semi-finished products	:	(ex. rolled steels for hull ~~Steel plate~~)
3.	Kind of semi-finished products	:	(ex. ingots, slabs, blooms, billets)
4.	Type of steel	:	(ex. normal or higher strength)
5.	Deoxidation practice	:	(ex. killed and fine grad steel)
6.	Grain refining element	:	(ex. *Al-Nb-Ti-V*)
7~~4~~.	Maximum manufacturing dimension	:	(ex. Maximum thickness of slab ~~manufacturing dimension~~ 300 ~~25~~*mm*)
8~~5~~.	Minimum manufacturing dimension	:	(ex. Minimum thickness of slab ~~manufacturing dimension~~ 200 ~~5~~*mm*)
9~~6~~.	Steel making process	:	(ex. Basic oxygen furnace steel making process)
10~~7~~.	Steel casting process	:	(ex. Continuous casting process)
11~~8~~.	Miscellaneous	:	(If any)
12~~9~~.	Date for factory inspection	:	
13~~10~~.	Date for selection of test samples	:	
14~~11~~.	Date for approval test	:	
15~~12~~.	Submitted documents		
	(a) Approval test plan		3 copies
	(b) Technical data		3 copies

Name of works

_____

Address of works

_____

Personnel in charge

_____

Phone No. and Fax. No.

_____

(Signature)

Chapter 3 APPROVAL OF MANUFACTURING PROCESS OF STEEL CASTINGS AND STEEL FORGINGS

3.4 Approval Test

3.4.3 Details of Test

Sub-paragraph 3.4.3(3)(e) has been amended as follows.

Details of the tests for those listed in **3.4.1(1)** are as follows.

((1) and (2) are omitted.)

(3) Tests

The tests consist of the following items are to be carried out on the test samples, as the standard practice:

(a) Sulphur print test and macro-structure analysis (The specimens are to be taken from sections *A-A*, *B-B* and *C-C* specified in **Fig. 1.3-1**.)

(b) Chemical composition analysis test (The specimens are to be taken from the positions asterisked in **Fig. 1.3-1**.)

(c) Micro-structure analysis (The specimens are to be taken from the positions asterisked in **Fig. 1.3-1**.)

(d) Hardness test (Positions in the vicinity of pin or journal surface. In the case of quenched and tempered steels, hardness distribution from the surface to the shaft centre.)

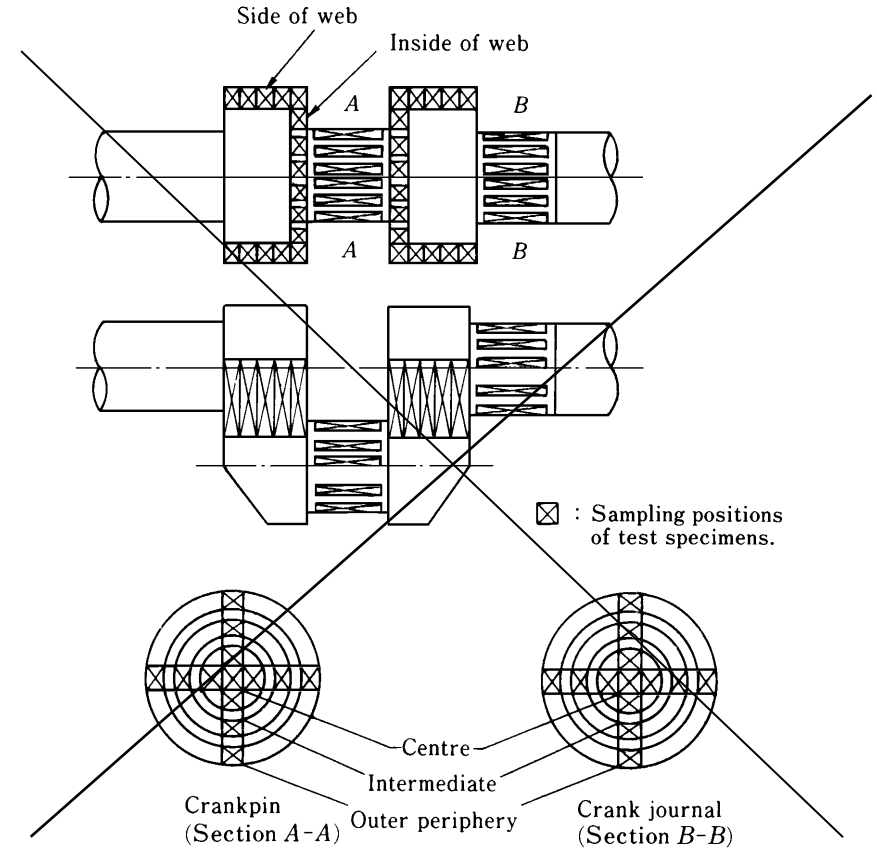
(e) Tensile test and impact~~bend~~ test (or bend~~impact~~ test)(Tensile ~~T~~test specimens are to be taken as specified in **Fig. 1.3-2**, and impact test (or bend test) specimens are to be taken as specified in **Fig. 1.3-3**, as the standard practice.)

(f) Non-destructive testing (The requirements specified in **5.1.10** or **6.1.10, Part K of the Rules for the Survey and Construction of Steel Ships** apply correspondingly.)

(g) Other tests deemed necessary by the Society

Fig. 1.3-2 has been amended as follows.

Fig. 1.3-2 Sampling Positions of Tensile Test Specimens



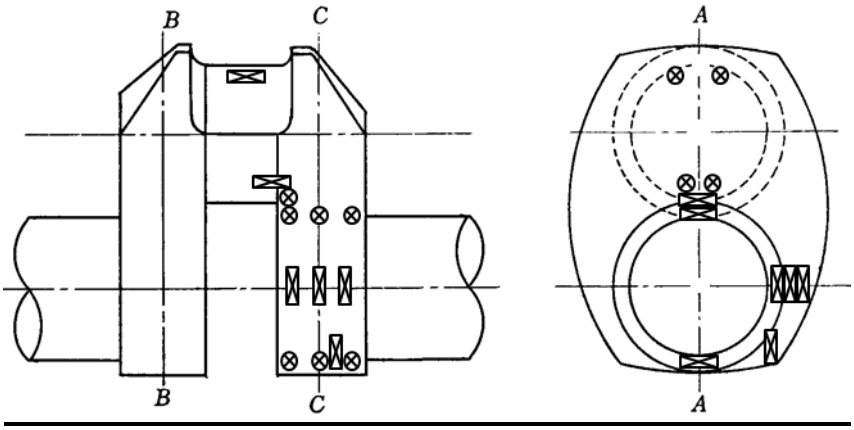
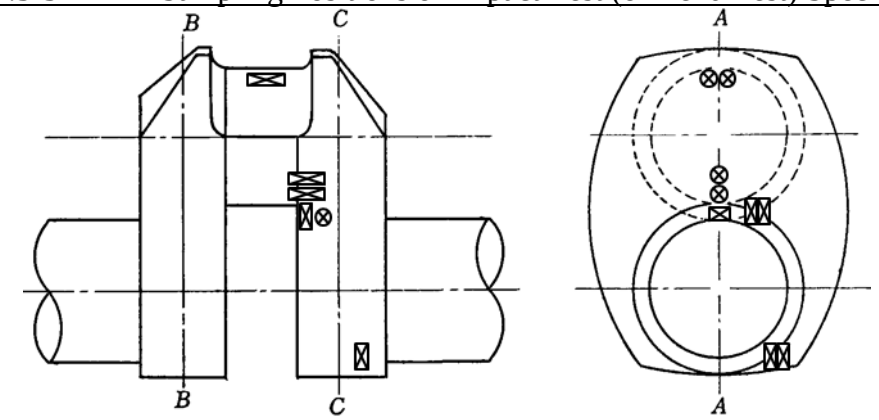


Fig. 1.3-3 has been added as follows.

Fig. 1.3-3 Sampling Positions of Impact Test (or Bend Test) Specimens



Chapter 5 APPROVAL OF MANUFACTURING PROCESS OF ALUMINIUM ALLOYS

5.2 Approval Application

5.2.2 Data to be submitted

Sub-paragraph -2 has been amended as follows.

2 For aluminium alloys specified in **Table K8.3(a)**, **Part K of the Rules**, in the ~~*H*111, *H*112,~~ *H*116 and *H*321 tempers intended for use in marine hull construction or in marine applications where frequent direct contact with seawater is expected, the manufacturer is to submit the documents which exhibits the relationship between microstructure and resistance to corrosion in addition to the requirements in preceding **-1**. This documents is to include a reference photomicrograph (approx. 500x) intended for use in metallographic examination as specified in **8.1.8**, **Part K of the Rules**. A reference photomicrograph are to be taken for each of the alloy-tempers under the conditions specified in *ASTM B*928 9.4.1 and thickness ranges relevant from samples which have passed the corrosion test as specified in **K8.1.8(2)**, **Part K of the Guidance for the Survey and Construction of Steel Ships**.

5.4 Approval Test

5.4.2 Details of Test

Table 1.5-1 has been amended as follows.

Table 1.5-1 Approval Test Items for Aluminium Alloys

Products	Material grade	Temper grade	Kind of Test[1], [2]									
			Chemical analysis	Macrostructure	Microstructure	Tensile test at room temperature	Tensile test at low temperature[3]	Tensile test of notched round bar[3]	Tensile test in the direction of thickness[4]	Bend test	Tear test[3][5]	Corrosion test[6]
Rolled Products	5083*P*	*O*	○	○	○	○	○	○	○	○	○	
		*H*111	○	○	○	○				○		◑
		*H*112	○	○	○	○				○		◑
		*H*116	○	○	○	○				○		○
		*H*321	○	○	○	○	○	○		○	○	○
	5086*P*	*O*	○	○	○	○				○		
		*H*111	○	○	○	○				○		◑
		*H*112	○	○	○	○				○		◑
		*H*116	○	○	○	○				○		○
	5383*P*	*O*	○	○	○	○				○		
		*H*111	○	○	○	○				○		◑
		*H*116	○	○	○	○				○		○
		*H*321	○	○	○	○				○		○
	5059*P*	*O*	○	○	○	○				○		
		*H*111	○	○	○	○				○		◑
		*H*116	○	○	○	○				○		○
		*H*321	○	○	○	○				○		○
	5754*P*	*O*	○	○	○	○				○		
		*H*111	○	○	○	○				○		◑
	5456*P*	*O*	○	○	○	○				○		
		*H*116	○	○	○	○				○		○
		*H*321	○	○	○	○				○		○
	6061*P*	*T*6	○	○	○	○				○		
Extruded shapes	(Omitted)											

(Note is omitted.)

Part 2 EQUIPMENT

Chapter 10 has been added as follows.

Chapter 10 SHIPBOARD INCINERATOR

10.1 General

10.1.1 Scope

In accordance with the requirements of **2.4-3, Part 8 of Guidance for Marine Pollution Prevention Systems**, the requirements in this Chapter apply to tests and inspections for the approval of use of a shipboard incinerator.

10.2 Application Procedure

10.2.1 Application Form

Those desiring approval for a shipboard incinerator are requested to submit an application (Specimen **Form 2-11**) filled in with necessary data and information to the Society (Head Office).

10.2.2 Applicant

The applicant is, in principle, to be the manufacturer. However, any person who is solely responsible for product quality may serve as applicant.

10.2.3 Documents

1 Three copies of the data given in the following **(1)** through **(7)** are to be submitted together with the Application Form referred to in **10.2.1**.

(1) Introduction of the manufacturing plant
(2) Product quality assurance system implemented
(3) Records of manufacture and delivery of the product
(4) Drawing and data
  (a) Complete description of the product
  (b) Construction drawings with all dimensions necessary for evaluation of the product
  (c) Construction drawings of principal components with materials
  (d) General piping diagram
  (e) Wiring diagram of electrical systems and electronic devices (including information about failure detection, etc.)
  (f) Manuals for operation, maintenance, measures to be taken in case of failure and emergency
  (g) Installation specification
(5) Approval test plan (including place and expected date of test)
(6) Test records (when preliminary test is carried out)
(7) Other information considered necessary by the Society

2 Notwithstanding the requirements in **-1** above, in case where the manufacturer had previously obtained the approval from the Society in the past, and the duplicated data are included therein, a part or the whole of the documents may be exempted from submission except for the approval test plan.

10.3 Preliminary Examination

10.3.1 Approval of Test Plan

The Society examines test plans submitted for approval in accordance with the requirements in **10.2.3** and, where deemed appropriate, the plan is approved and returned to the applicant. In case where deemed appropriate upon studying the data submitted, a part of approval test may be exempted.

10.3.2 Confirmation Survey of Manufacturing Factory

The Society may carry out confirmation survey on facilities, manufacturing techniques, product quality control and internal inspection of the manufacturing factory based on the data specified in **10.2.3** in order to verify the factory's ability of manufacturing product of stable quality.

10.4 Approval Tests

10.4.1 General

For the product being required approval test, approval tests are to be carried out in accordance with the test plan approved by the Society.

10.4.2 Design Criteria

Material requirements, structural requirements, electrical requirements and operating control requirements are to comply with *IMO* resolutions *MEPC.*244(66) as may be amended.

10.4.3 Attendance of the Society's Surveyor for Test

As a rule, the surveyor of the Society is to be present when the approval test is being conducted. However, the surveyor of the Society may not have to be present when performing the given test at a recognized official organization deemed appropriate by the Society

10.4.4 Test Items

Test items are as follows. Detailed requirements of each test are to comply with *IMO* resolutions *MEPC.*244(66) as may be amended. In case where the Society deems necessary, however, additional tests may be requested.

(1) Visual examination
(2) Dimensional inspection and examination of construction
(3) Running test
(4) Operation tests of controls (including alarm devices and safety systems)

10.5 Approval

10.5.1 Test Records

After completion of the approval test, the manufacturer is to produce records of approval test, and is to submit three copies to the Society upon receiving confirmation by the Society's Surveyor.

10.5.2 Notification of Approval

The Society, when satisfied upon examination of the submitted documents and the attending surveyor's report, will issue a certificate of approval specifying the approval number, approval date, items of approval and approval conditions, put approval stamps on the documents as deemed necessary by the Society out of those submitted in accordance with **10.2.3**, and return them back to the applicant.

10.5.3 Renewal of Approval

1 The valid term of approval in the preceding **10.5.2** will be 5 *years*.

2 In case where renewal of validity is intended, the existing certificate is to be submitted in accordance with the requirements of **10.2** newly. In this case, the data required per **10.2.3** may be limited to the portion subjected to modification only.

3 When approval has been granted to an application with partial changes in the content of approval, the Society may require additional tests for approval.

10.5.4 Revocation of Approval

In case where either of the following **(1)** to **(5)** applies, the Society will revoke the approval and give notice to the manufacturer.

(1) In association with the implementation or revision of international conventions, laws, and regulations, the shipboard incinerator for which the approval was granted do not deserve the approval any longer.

(2) In case where the validity of approval is overdue and no application for the renewal of the approval is submitted.

(3) When serious shortcomings are found in structure or quality of the shipboard incinerator already approved after being installed ships.

(4) When an applications for revocation is made by the manufacturer.

(5) When question arises on product quality or product quality control activities.

10.6 Examinations for Products

10.6.1 Examinations for Products

For each shipboard incinerator supplied to an individual ship after obtaining approval by the Society, the following tests and examinations are to be carried out under the presence of the Surveyor in order to confirm that the products has been manufactured in the same specification as those used for the approval test of the shipboard incinerator. However, where the quality management system of the manufactures who produce each component of the shipboard incinerator is one to the satisfaction of the Society, the presence of the Surveyor for the examination of the product may be reduced based upon the provision in **B2.1.4-6 of the Guidance for the Survey and Construction of Steel Ships**.

(1) Visual examination

(2) Dimensional inspection and examination of construction

(3) Operation tests of controls (including alarm devices and safety systems)

(4) Other tests as considered necessary by the Society

10.7 Marking

10.7.1 Marking

The shipboard incinerator approved by the Society is to be marked with the following.

(1) Capacity, type, model and style of the product

(2) Mark to prove that the product is approved by the Society. It may be marked simply by *NK*.

(3) Name of manufacturer

(4) Approval number

Form 2-11 has been added as follows.

Form 2-11

APPLICATION FOR APPROVAL OF USE OF SHIPBOARD INCINERATOR

(☐Initial, ☐Renewal, ☐Modification)

To: Material and Equipment Department, NIPPON KAIJI KYOKAI
4-7, Kioi-cho, Chiyoda-ku, Tokyo 102-8567, JAPAN

Ref. No.:
Date:

Name of Applicant:

Address:

Tel/Fax :

E-mail :

Name of the Person in Charge:

We hereby apply for approval of use of the following shipboard incinerator in accordance with the requirements of Chapter 10, Part 2 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use of Nippon Kaiji Kyokai.

Names/Types of shipboard incinerator		
Type approval Nos. If Available		
Particulars		
Names of Manufacturer and Production Site		
Address of Manufacturer		
Drawings and Documents Attached	Drawings	
	Documents	
Date of Tests/Inspections and Places		

Notes:
1. Use additional sheets if necessary.
2. Cross out with a straight line on unnecessary letter.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 8 May 2015.

Amendment 1-2

Part 2 EQUIPMENT

Chapter 1 APPROVAL OF MANUFACTURING PROCESS OF ANCHORS

1.1 General

1.1.1 Scope

Sub-paragraph -1 has been amended as follows.

1 This chapter applies to the procedures and testing requirements for the approval of the manufacturing process of anchors to be equipped on ships in accordance with the requirements of in **Chapter 27, Part C of the Rules** and anchors used for positioning systems (hereinafter collectively referred to in this chapter as "anchors") in accordance with the requirements in **2.1.4** and **2.2.4, Part L of the Rules for the Survey and Construction of Steel Ships** (hereinafter referred to as "the Rules") respectively.

Title of Section 1.2 has been amended as follows.

1.2 Approval Application ~~Procedures~~

Paragraph 1.2.1 has been amended as follows.

1.2.1 Approval ~~Application Procedures and~~ Application Forms

1 Manufacturers who apply for the approval of the manufacturing process of anchor ~~intends to obtain approval is~~ are to submit a ~~single~~ copy of the approval application form (See **Form 2-1**) filled in with the required data and information ~~the following items of information accompanied by the reference data, each in triplicate, stated in **1.2.2**~~ to the Society (branch office concerned).

~~(1) Kind and type of the anchor to be approved~~

~~(2) Maximum mass of the anchor to be approved~~

2 The Society examines the approval application specified in **-1** above ~~for approval~~ as well as ~~and~~ the documents specified in **1.2.2** ~~the attached reference data stated in the above~~ and when deemed appropriate, the "Approval test plan" is approved and returned to the applicant.

Paragraph 1.2.2 has been amended as follows.

1.2.2 Documents ~~Reference Data~~ to be Submitted

Three copies each of the documents listed ~~The reference data on items shown~~ below are to be submitted together with the approval ~~attached to the~~ application form specified in **1.2.1** ~~for approval~~.

(1) The drawing which includes dimension table for each size of anchor
(2) Outline of manufacturing plant
(3) Facilities, technical staffs and organization for anchor manufacturing
(4) Working standards for casting and heat treatments (to be accompanied by drawings)

(5) Inspection and testing facilities
(6) Visual inspection and non-destructive testing standards
(7) Approval test plan
(8) Test data of sea bed holding power and information concerning the anchor

Paragraph 1.2.3 has been amended as follows.

1.2.3 Omission of Documents to be Submitted ~~Reference Data~~

The submission of the documents ~~data~~ may be omitted in case where the anchor under application is manufactured at the same facilities as used for other anchor on which an approval of the Society was given previously with a manufacturing process considered by the Society nearly identical to the process and control system already approved.

1.3 Confirmation of Manufacturing and Quality Control Procedure

Paragraph 1.3.1 has been amended as follows.

1.3.1 Confirmation Survey of Manufacturing and Quality Control Procedure

The confirmation survey is to be carried out in order to confirm that the manufacturer is capable of manufacturing anchors under the informed condition (manufacturing facilities, technical capacity, departments in charge of ~~organizations for~~ quality control and test and inspection system) at the stable quality on a continuous basis, and at the same time, is to practically verify that anchors will be manufactured in the future under the same manufacturing process as applied for approval.

Paragraph 1.3.3 has been amended as follows.

1.3.3 Items of Confirmation Survey

The following items are to be examined in the confirmation survey:
(1) Factory ~~Inspection organization~~ and maintenance of facilities ~~claim handing system~~
(2) The manufacturing process ~~Manufacturing~~ and non-destructive testing management ~~inspection facilities~~
(3) ~~Status of q~~Quality control system
(4) Other items deemed necessary by the Society

1.4 Approval Tests

Paragraph 1.4.1 has been amended as follows.

1.4.1 Test Requirements

1 The approval test is to be carried out on an anchor with the mass closest to the maximum applied mass on the following item, in the presence of the Surveyor of the Society. However, tests **(2)** and **(3)** are to only be carried out for anchors with cast steel main components.
(1) Material test (For cast components of anchors manufactured at the plant manufacturing the anchor, tests ~~specimens~~ are to be carried out, in principle, using specimens ~~be~~ taken from the body and the attached test assembly ~~blocks attached~~ thereto. For cast components manufactured at other location, test certificates are to be verified.)
(2) Drop test (to be carried out at least 3 times.) ~~Proof test~~
(3) Hammering test ~~Drop test (dropping is to be made for least 3 attempts.)~~

(4) Proof test ~~Hammering test~~
(5) Visual inspection
(6) Non-destructive test (radiographic or ultrasonic tests for the interior ~~internals~~, and ~~visual inspection or~~ magnetic particle flaw detection tests for the exterior, etc ~~external~~.)

2 The test method for each test specified in **-1** above is to be as specified in **Part L of the Rules**.

1.5 Approval

Paragraph 1.5.1 has been amended as follows.

1.5.1 Notification and Announcement of Approval

1 The Society ~~will~~ grants approval to manufacturing processes of anchors which have been deemed appropriate on the basis of s~~S~~urveyor reports and documents submitted in accordance with the requirements in **1.2, 1.3, 1.4, 1.6, 1.7** and **1.8~~7~~**.

In such ~~this~~ cases, a "Certificate ~~Notice~~ of Approval" that includes the approval number, approval date, items approved, etc. will be issued. Furthermore ~~And~~, in accordance with the requirements in **1.2.2, 1.4.2, 1.6.1(2)** ~~and~~ **1.7** and **1.8,** the Society will stamp the submitted data it deems necessary with its ~~a~~ official seal ~~of approval~~ and return the ~~such~~ data to the applicant.

2 The Society makes public a list of all anchors whose manufacturing processes are granted approval.

Section 1.8 has been added as follows.

1.8 Approval of Manufacturing Process of Anchors Used for Positioning Systems

1.8.1 Anchors Used for Positioning Systems

The procedures for the approval of the manufacturing processes of anchors used for positioning systems specified in **2.2 Part L of the Rules** are as follows in addition to the requirements specified in **1.3** through **1.6** of this chapter.

1.8.2 Approval Application Forms

1 Manufacturers who apply for the approval of the manufacturing process of anchor are to submit a copy of the approval application form (See **Form 2-1**) filled in with the required data and information to the Society (branch office concerned).

2 The Society examines the approval application specified in **-1** above as well as the documents specified in **1.8.3** and when deemed appropriate, the "Approval test plan" is approved and returned to the applicant.

1.8.3 Documents to be Submitted

Three copies each of the documents listed in below are to be submitted together with the approval application forms specified in **1.8.2**.

(1) Drawings for the anchor to be manufactured as well as the structural details and dimension tables for each size of anchor to be manufactured
(2) Documents relevant to the materials used to manufacture the anchor
(3) Welder qualifications
(4) Welding procedure specifications
(5) Outline of manufacturing plants

(6) Facilities, technical staff and organization for anchor manufacturing
(7) Work standards for casting and heat treatments (to be accompanied by drawings)
(8) Inspection and test facilities
(9) Visual inspection and non-destructive testing standards
(10) Approval test plan
(11) Documents relevant to proof loads
(12) Documents relevant to holding capacity including test results, etc.

1.8.4 Omission of Documents to be Submitted

The submission of the documents may be omitted in case where the anchor under application is manufactured at the same facilities as used for other anchor on which an approval of the Society was given previously with a manufacturing process considered by the Society nearly identical to the process and control system already approved.

1.8.5 Handling after Approval

The Society may issue the certificates specified in **1A.4.1** for anchors in accordance with the approval procedures specified in this chapter when the documents specified in **1A.2.2(3)** are submited with approval application form specified in **1A.2.1** and deemed appropriate by the Society.

Form 2-1 has been amended as follows.

Form 2-1

To: Nippon Kaiji Kyokai

Ref. No.:_____

Date:_____

Application for Approval of Manufacturing Process of Anchors

(☐Initial ☐Renewal ☐Modification)

Name of Applicant:_____

Address:_____

Phone. No.:_____ / Fax. No.:_____

Name of the Person in Charge:_____

We hereby apply for approval of the manufacturing process of the following anchors in accordance with requirements ~~the provisions of~~ 2.1.4 and 2.2.4 in Part L of the Rules for the Survey and Construction of steel Ships.

Kind and type of anchor: (e.g. ~~,~~ Stockless anchor NKC-14)	
Type approval Nos.: (if available)	
Location of manufacturing factory:	
Maximum mass: (e.g. ~~,~~ 20 *t*)	
Type of steel: (e.g. ~~,~~ KSC42)	
Attached drawings and documents:	
Date of test / Place of test	(1) Date of confirmation s~~S~~urvey (Scheduled): _____ (2) Date of test (Scheduled): _____ (3) Holding power measuring test: Place: _____ Date of power measuring test (Scheduled): _____

Notes:

1. Use additional sheets if necessary.
2. ☐ Check ~~Tick off~~ where appropriate.

Chapter 1A has been added as follows.

Chapter 1A APPROVAL OF ANCHORS INTENDED FOR USE ON VESSELS OR FLOATING OFFSHORE FACILITIES FIXED OR POSITIONED AT SPECIFIC SEA AREAS FOR LONG PERIODS OF TIME

1A.1 General

1A.1.1 Application

In accordance with the requirements in **2.2, Part L of the Guidance for the Survey and Construction of Steel Ships**, the requirements in this chapter apply to the approval of documents relevant to the performance of anchors intended for use on vessels or floating offshore facilities fixed or positioned at specific sea areas for long periods of time under the seabed soil conditions and environmental conditions at the site of intended use.

1A.1.2 Definitions

The wording "long periods of time" specified in **1A.1.1** refers to periods longer than 5 years.

1A.2 Approval Application

1A.2.1 Approval Application Form

Manufacturers who apply for the approval of anchor are to submit a copy of the approval application form (See **Form 2-1A**) filled in with the required data and information to the Society (branch office concerned).

1A.2.2 Documents to be Submitted

Three copies each of the documents given in below are to be submitted together with the approval application form specified in **1A.2.1**.

(1) General information
   (a) Drawings for the anchor to be manufactured as well as structural details and dimension of anchor to be manufactured
   (b) Documents relevant to materials used to manufacture the anchor
   (c) Welding procedure specifications
   (d) Welder qualifications

(2) Information about the manufacturing process and facilities
   (a) Outline of manufacturing plant
   (b) Facilities, technical staff and organization for anchor manufacturing
   (c) Work standards for casting and heat treatments (to be accompanied by drawings)
   (d) Inspection and test facilities
   (e) Visual inspection and non-destructive testing standards

(3) Information about the performance of the anchor at the site of intended use
   (a) Properties of seabed soil at the site
   (b) Holding capacity

   Holding power test procedures are to comply with **1.6.1(2)** and **(3)**. Such tests are to be carried out at a site with soil properties similar to those of the seabed at the site of intended use. Holding power tests need not be carried out or need only be partially carried out,

however, when previous test results or documents verifying the results of equivalent tests carried out in accordance with standards deemed appropriate by the Society are submitted to the Society and deemed appropriate.

(c) Structural strength assessments

Structural calculations for anchors are to be carried out using suitable methods such as FEM. The load used for analysis is to be more than the breaking load of mooring line, and the allowable values used for von Mises stress is to be 90 % of the specified yield strength of the materials used for the anchor.

(d) Fatigue strength assessments

Fatigue strength assessments for anchors are to be accordance with the requirements in **4.2.5, Part PS of the Rules for the Survey and Construction of Steel Ships** or **6.2.5, "Guidelines for Offshore Floating Wind Turbine Structures"**. Fatigue strength of the anchor including anchor ring, is to be sufficient for the fatigue strength of the mooring line.

(4) Other information deemed necessary by the Society.

1A.2.3 Omission of Documents to be Submitted

Certain documents may not need to be submitted when they are identical to those previously submitted by the same manufacturer for the approval of the manufacturing process of a different anchor.

1A.3 Confirmation of Manufacturing and Quality Control Procedures

1A.3.1 Confirmation Survey of Manufacturing and Quality Control Procedure

Surveys are to be carried out to confirm whether manufacturers are capable of continuously manufacturing anchors under the conditions of specified in the approval application (e.g., manufacturing facilities, technical capacity, departments in charge of quality control as well as test and inspection systems, etc.) at a stable quality.

1A.3.2 Investigation Items of Confirmation Surveys

The following items are to be examined during confirmation surveys.

(1) Factory and maintenance of facilities

(2) The manufacturing process and non-destructive testing management

(3) Quality control system

(4) Other items deemed necessary by the Society

1A.3.3 Omission of Confirmation Surveys

Confirmation surveys may not need to be carried out for anchors being manufactured using the same facilities and a manufacturing process which is nearly identical to one previously approved by the Society. In such cases, only relevant technical documents are required to be submitted to the Society for examination.

1A.4 Approval

1A.4.1 Notification and Announcement of Approval

1 The Society grants approval to anchors deemed appropriate on the basis of document examination and confirmation survey results. In such cases, a "Certificate of Approval" is issued by

the Society, and the Society will stamp the submitted data it deems necessary with its official seal and return the data to the applicant.

2 The Society makes public a list of all anchors whose are granted approval.

Form 2-1A

To: Nippon Kaiji Kyokai

Ref. No.:_____

Date: _____

Application for Approval of Anchors Intended for Use on Vessels or Floating Offshore Facilities Fixed or Positioned at Specific Sea Areas for Long Periods of Time

Name of Applicant:_____

Address:_____

Phone. No.:_____ / Fax. No.:_____

Name of the Person-in-Charge:_____

On basis of 2.2.4, Part L of the Rules for the Survey and Construction of Steel Ships, we hereby apply for approval of anchors intended for use on vessels or floating offshore facilities fixed or positioned at specific sea areas for long periods of time in accordance with the requirements of Chapter 1A, Part 2 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use.

Hull number (or name of projects):	
Kind and type of anchor:	
Mass:	
Location of manufacturing factory:	

	Title of drawings and documents submitted	Drawing No.	No. of copies
1.			
2.			
3.			
4.			
5.			
6.			

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 8 May 2015.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to anchors other than those for which the application for approval is submitted to the Society on or after the effective date.

Amendment 1-3

Part 4 NON-METALLIC MATERIALS AND COATING MATERIALS FOR HULL

Chapter 1 APPROVAL OF FIRE PROTECTION MATERIALS

1.13 Test Procedures

1.13.3 Test for "*A*" and "*B*" Class Divisions

Sub-paragraph -3 has been amended as follows.

3 In applying section 1.13 of *APPENDIX* 1, *PART* 3, *ANNEX* 1 to the *FTP* Code, "A" class division penetrations constructed without structural sleeves of minimum 3 *mm* thickness and minimum 60 *mm* length welded or bolted to the division and/or constructed with removable, soft or intumescent filling material are to be in accordance with *MSC*.1/*Circ*.1488 "*Unified Interpretation of Part 3 of Annex 1 to the 2010 FTP Code*" ~~IACS Unified Interpretation FTP6~~.

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 8 May 2015.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to fire protection materials other than those for which the application for approval is submitted to the Society on or after the effective date.