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 2011 AMENDMENT NO.1

Notice No.48 30th June 2011
Resolved by Technical Committee on 3rd February 2011

ClassNK
NIPPON KAIJI KYOKAI

Notice No.48 30th June 2011
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 4 NON-METALLIC MATERIALS AND COATING MATERIALS FOR HULL

Chapter 1 APPROVAL OF FIRE PROTECTION MATERIALS

Section 1.8 has been amended as follows.

1.8 Marking

The approved fire protection materials are identified by a mark showing that they are the materials approved by the Society except for the pins or washers, etc. of materials constituting "*A*" class divisions.

EFFECTIVE DATE AND APPLICATION (Amendment1-1)

1. The effective date of the amendments is 30 June 2011.

Amendment 1-2

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 added as follows.

4 The rolled reduction ratio of rolled bar for offshore mooring chain are to be at least 5.

Paragraph 1.4.3 has been amended as follows.

1.4.3 Details of Test

1 (Omitted)
2 (Omitted)
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.
4 (Omitted)

Table 1.1-3 has been amended as follows.

Table 1.1-3(a) 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	*JIS G* 0555 or equivalent method.	To be as deemed appropriate by the Society.
		Bottom	Transverse		
	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 photograph.	For decisions other than those specified according to **Chapter 3, Part K of the Rules**, ~~T~~to be as appropriate by the Society.
	Hardness test	Top	—	In accordance with the requirements in **Part K of the Rules**. Hardness distribution in the thickness direction is to be measured in the case of stainless clad steel.	For decisions other than those specified according to **Chapter 3**, **Part K of the Rules**, to be as appropriate by the Society.
	Tensile test	Top(10)	Transverse	In accordance with the requirements in **Part K of the Rules**.(11)	To meet the requirements in **Chapter 3**, **Part K of the Rules**.
	Bend test	Bottom	Transverse	In accordance with the requirements in **Part K of the Rules**.(12)	To meet the requirements in **Chapter 3**, **Part K of the Rules**.(12)
	SR tensile test	Top	Parallel	To be as deemed appropriate by the Society. However, the test specimens which have been maintained for 2 *minutes* per 1 *mm* of thickness at 600 °C (minimum 60 *minutes*), as a rule, to be used	To be as deemed appropriate by the Society.
		Bottom	Parallel		
	Thickness directional tensile test	Top	Thickness direction	In accordance with the requirements in **Part K of the Rules**.	To meet the requirements in **Chapter 3**, **Part K of the Rules**.
		Bottom			
	Shearing strength test	Top	—	In accordance with the requirements in **Part K of the Rules**.	To meet the requirements in **Chapter 3**, **Part K of the Rules**
		Bottom	—		

	V-notch Charpy impact test [13]	Top[10]	Parallel	Using *U*4 test specimen[14], the transition temperature curve of the absorbed energy and fracture surface ratio is to be deter mined by testing three pieces at each temperature in addition to the lateral expansion of test specimen. Furthermore, the test emperature is to include the temperature[15] as specified in **Part K of the Rules**, and its interval is to be 10 ~ 20℃.[7]	For decisions other than those specified according to **Chapter 3**, **Part K of the Rules** to be as appropriate by the Society.
			Transverse		
		Bottom	Parallel		

Table 1.1-3 has been amended as follows.

Table 1.1-3(b) Approval Testing Method and Acceptance Criteria (continued)

Approval test item		Selected location of test samples (1) (2)	Length direction of test specimen (3)	Testing method		Acceptance criteria
Base metal test	Strain aging charpy impact test(16)	Top(10)	Parallel	Using *U*4 test specimen(14), the transition temperature curve of the absorbed energy and fracture surface ratio is to be determined by testing three pieces at each temperature in addition to the lateral expansion of test specimen. Furthermore, the test temperature is to include the temperature(15) as specified in **Part K of the Rules**, and the test specimens which have been maintained for one hour at 250℃ after strain of 5% or 10% have been applied is, as a rule, to be used.		To be as deemed appropriate by the Society.
	Hydrogen embrittlement test	Top	Parallel	In accordance with the requirements in **Part K of the Rules**.		In accordance with the requirements in **Part K of the Rules**
		Bottom	Parallel			
Brittle fracture test	~~*COD*~~ *CTOD* test Large scale brittle Fracture test	Top	Parallel	To be consulted with the Society the dimension of test specimen, test condition etc. When newly performing tests at the time of approval.		To be as deemed appropriate by the Society.
	NRL drop weight test	Top	Parallel	*ASTM E* 208 or equivalent method.(17)		
Weldability (18)	Butt welding tensile test(16)(19)	Top	Transverse for welding direction	Tensile test is to be carried out for one test specimen of *U*2*A* or *U*2*B*		In accordance with the requirements in **Chapter 4**, **Part M of the Rules**.
	Butt welding impact test(16)(19)	Top		One set of three *U*4 test specimens is to be selected from at weld junction, 2 *mm* from weld junction, 5 *mm* from weld junction and 20 *mm* from weld junction of position of notch respectively, and tested at temperature in accordance with **Part K of the Rules**.		To be as deemed appropriate by the Society.
	Welding hardness test	Top	—	Rolled steels for hull, rolled steels for low temperature service, high strength quenched and tempered rolled steel plates for structure (each plate is to include steel flats not less than 600 *mm* in width)	At section of butt welding joint, welding hardness test is measured 0.7 *mm* pitch by HV5 from weld junction to base metal along with the two parallel line which are 1 *mm* inside from the both surface of base metal.	In case of rolled steels for hull, the value of maximum hardness is not to be over 350. For other steel plates are to be as appropriate by the Society.
				Rolled steels other than the mentioned above	*JIS Z* 3101 or equivalent method.	To be as deemed appropriate by the Society.
Corrosion resistance test	Corrosion test	Top	—	*JIS G* 0575, *G* 0576 and *G* 0591 or equivalent method.		To be as deemed appropriate by the Society.

Non-destructive test	Ultrasonic test or Eddy current test	All surface	—	Stainless crad steels	*JIS G* 0601 or equivalent method.	To meet the requirements of class *F* of *JIS G* 0601
				Steel with consideration for thickness directional characteristics	In accordance with the requirements in **Chapter3**, **Part K of the Rules**.	In accordance with the requirements in **Chapter 3**, **Part K of the Rules**.
				Round bars for chains	*JIS G* 0801 and *JIS G* 0202 or equivalent method.	To be free from any defects deemed to have negative effect.

Notes: (Omitted)

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

3.1 General

3.1.1 Scope

Sub-paragraph -1 has been amended as follows.

1 This Chapter applies to the testing and inspection for the approval of manufacturing castings and forgings (except those of casting and forging equipment specified in **Part L of the Rules** ~~Anchor and Anchor Chains~~), specified in the provisions of **Chapter 5** and **Chapter 6, Part K of the Rules for the Survey and Construction of Steel Ships** (hereinafter referred to as "the Rules"), in accordance with the provisions of **1.2, Part K of the Rules**.

Part 2 EQUIPMENT

2.2 Application Procedures

Paragraph 2.2.2 has been amended as follows.

2.2.2 Reference Data to be Submitted

1 The reference data to be attached to the application for approval and to test procedure for the approval of the manufacturing process are to cover the items shown below:

(1) Flash butt welded chains
  (a) Manufacturing process and manufacturing facilities
    i) Explanations on manufacturing process and process controls
    ii) Outline of the manufacturing factory
    iii) Principal items of manufacturing inspection facilities other than welding machines (tensile testing machine of chains, furnace for heat treatment, preheater, bending machine, stud applier etc.)
  (b) Welding machines
    i) Name and type welding machine, and name of his manufacture
    ii) Particulars of welding machine (output, pressurizing force, retaining force)
    iii) Pressurizing mechanism (drawing are to be attached)
    iv) Diameter of chain link weldable
  (c) Working standards
    i) Inspection organization chart
    ii) Contents of inspection at the reception of raw materials
    iii) Working standards applicable to each size of chain link for cutting raw materials, heating, bending and folding, flash butt welding (welding conditions, flash allowance, upsetting allowance, preheating temperature and period), post-welding removal of burrs, applications process of studs, etc.
    iv) Stud manufacturing process and dimensions
    v) Stud welding standards
    vi) Procedures of heat treatments and their control standards (For offshore chains, standards of heat treatment and standards between temperature of chains and chain speed to obtained specific mechanical properties are to include)
    vii) Details of product inspection
    viii) Repairing procedures
    ix) Surface quality requirement adopted by manufacturer

(2) Cast chains
  (a) Manufacturing process and manufacturing facilities
    i) Explanations on manufacturing process
    ii) Outline of the manufacturing factory
    iii) Principal manufacturing and inspection facilities
  (b) Steelmaking
    i) Type and capacity of steelmaking furnace
    ii) Steelmaking process
    iii) Range of chemical composition
  (c) Work standards
    i) Moulding work
    ii) Casting procedure (drawing showing the location and its dimensions of riser to be attached)

iii) Procedure of heat treatment and its control standards (included procedure for calibration of furnaces)
iv) Finishing work
v) Details of product inspection (proof test, breaking test, mechanical test and non-destructive test are included)
vi) Repairing procedures

2 Notwithstanding the requirements in **-1** above, submission of part or all of the reference data may be omitted if the manufacturer had previous record of obtaining the approval of the Society in the past, and the duplicated data are included therein.

3 For approval of the manufacturing process of grade *R*4*S* and *R*5 chains, reports which include relevant supporting data about the steel (fatigue tests, hot ductility tests, welding parameter research, heat treatment study, strain age resistance, temper embrittlement study, stress corrosion cracking data and hydrogen embrittlement study etc.) are to be submitted.

2.4 Approval Test

Paragraph 2.4.1 has been amended as follows.

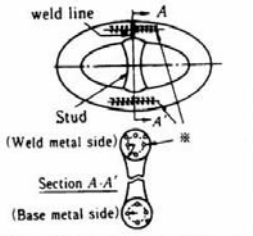
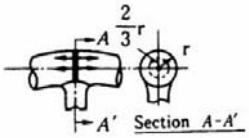
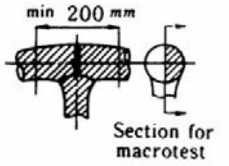
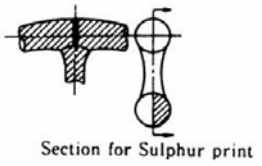
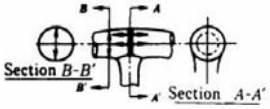
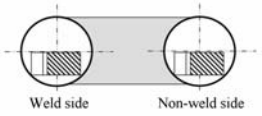
2.4.1 Approval Test

1 The approval test is to be carried out on each chain 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, the approval test specified in this Chapter is to be carried out for each supplier.

Table 2.2-1 has been amended as follows.

Table 2.2-1 Approval Test Items and Acceptance Criteria for Chains

Test chains for approval test					
Test item		Numbers of test specimens	Selection of test specimen and details of test specimen	Test procedure	Acceptance criteria
Test of testing object of chains	(1) Proof test	1 length of Chain (27.5*m*)	(7), (8),(9),(10),(11),(12)  ※Selection of test specimens Tenile (U14A) Bending(U1), Impact(U4) Bend test specimen is to be taken from the surface. (13)  (14)  (15)  (16)  (17)  Chain diameter is less than 120mm: 50mm x 25mm Chain diameter is 120mm and above: 80mm x 40mm	(1), (2), (4), (5) and (6) are to conform to **Part L of the Rules**. (3) Chain length and dimensions of each link are to be measured. 5 links of offshore chain are also to be measured in accordance with **Part L of the Rules** for offshore chain	To conform to **Part L of the Rules**.
	(2) Visual inspection	All links after proof test			To conform to **Part L of the Rules**.
	(3) Dimension inspection	2 sets of 5 links of chain after proof test			Check dimensional change in addition to conforming to **Part L of the Rules**.
	(4) Weight inspection	2 sets of 5 links of chain after proof test			To conform to **Part L of the Rules**.
	(5) Non-destructive test	2 links for Grade2 and 3 chain All links for offshore chains		Flush butt welded zone is subjected to ultrasonic test, and stud welded part and links are subjected to magnetic particle test.	To be free of harmful defect.
	(6) Breaking test	2 sets of 3 links or more		(6): To conform to **Part L of the Rules**.	As far as practicable, actual breaking load is to be measured in addition to conforming to **Part L of the Rules**.
Mechanical properties test of link	Base metal (7) Tensile test	1 piece		(7), (8), (10) and (11): To confirm to **Part K of the Rules**. However, in bending test, it is to be bent in such a way that the chain surface assumes out-side. The bending radius of Grade 3, *R*3, *R*3*S* and *R*4 chains is to be 25*mm*. Grade *R*4*S* and *R*5 chains are to be as deemed appropriate by the Society. And bending angle is to be not less than following degree; 30 for Grade *R*4, 45 for Grade *R*3*S*, 60 for Grade *R*3, and 120-180 for other Grade. And, Grade *R*4*S* and *R*5 chains are to be as deemed appropriate by the Society. (9) and (12): Testing temperature is to be referred to in Note (3). (13): To be examined at its center and the point 2/3 *r* for the structure of *HAZ*, based metal and weld zone. (x 100)	To conform to **Part K of the Rules**.
	Base metal (8) Bending test	1 piece			To be free of harmful defect.
	Base metal (9) Impact test	See Note (3)			See Note(3).
	Weld zone (10) Tensile test	2 piece			Measured tensile strength is to exceed that of the base metal. Elongation is to be for reference only.
	Weld zone (11) Bending test	2 piece			To be free of harmful defect.
	Weld zone (12) Impact test	See Note (3)			See Note(3).
	Weld zone (13) Micro test	2 parts of 1 piece			Coarse grain area in *HAZ* and degree of heat treatment are to be examined.
	Weld zone (14) Macro test	1 piece			To be free of harmful defect.
	Weld zone (15) Sulphur print	1 piece			To be free of harmful defect.

		(16) Hardness test	3 parts of 1 piece		(14): Welded part of link in longitudinal section is to be macro-etched. (15): Sulphur print of longitudinal section of link is to be taken. (16): Hardness distribution of base metal and weld zone is to be measured at proper intervals. (17): ~~Dimensions of test specimen, test condition, etc. are to be submitted to the Society.~~ See Note(4)	To be for reference only. However, hardness is to be max 330 for Grade *R*4*S*, and 340 for Grade *R*5.
		(17) ~~*COD*~~ *CTOD* test	~~1~~6 pieces for offshore chain (from 3 links on each weld side and non weld size)			~~To be as deemed appropriate by the Society.~~ To conform to **Table 2.2-3**

Notes:

(1) The test links used in the approval test are to, in principle, be of the desired largest diameter for approval.

(2) In the case of cast links, their mechanical properties tests are to be carried out in a manner corresponding to those applied to weld zone. Of those items of test of the testing object, the tensile test and compression test may be substituted by magnetic particles testing.

(3) Temperatures of impact test are to be in accordance with **Table 2.2-2**.

(4) The ~~*COD*~~*CTOD* test as in specified in **Table 2.2-1** is performed for the purpose of evaluating low temperature toughness characteristics, and this test may be omitted in case appropriate records prepared by the manufacturer are available and in case appropriate to the Society. For the initial approval test, a *CTOD* test is to be carried out. Tests are to be taken at -20℃. *BS* 7488 or other standard deemed appropriate by the Society.

(5) In the case of the approval test in association with the change in the manufacturing process as shown in **2.7**, the diameter and number of test link, or the approval test items may be reduced.

(6) When steel materials, manufacturing process or heat treatment methods which are not specified in the rules are to be employed, the Society may request other tests or submission of reference materials in addition to the specified test items.

Table 2.2-3 has been amended as follows.

Table 2.2-3 Standard Value of *CTOD* test

Chain type	*R*3 (*mm*)		*R*3*S* (*mm*)		*R*4 (*mm*)		*R*4*S* and *R*5 (*mm*)	
CTOD minimum value	Base Material	Weld Side	Base Material	Weld Side	Base Material	Weld Side	Base Material	Weld Side
Stud link	0.20	0.10	0.22	0.11	0.24	0.12	0.26	0.13
Studless	0.20	0.14	0.22	0.15	0.24	0.16	0.26	0.17

2.4.3 Omission of Approval Test for Manufacturing Process

Sub-paragraph (4) has been added as follows.

(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

3.1 General

3.1.1 Scope

Sub-paragraph -1 has been amended as follows.

1 The procedures for the approval of the manufacturing process and handling of the test of the connecting shackles, kenter shackles, end shackles ~~and~~, swivels (hereinafter referred to as the "chain accessories"), primary materials and semi-finished products for the offshore mooring chain accessories specified in the provisions of **3.1.4-4, 3.2.4-4**and **3.2.5-4, Part L of the Rules for the Survey and Construction of Steel Ships** (hereinafter referred to as "the Rules") are to be in accordance with the requirements given in this Chapter.

3.2 Approval Application Procedures

Paragraph 3.2.2 has been amended as follows.

3.2.2 Reference Data to be Submitted

1 The reference data to be attached to the application for the manufacturing process are to be as follows:

(1) Cast chain accessories
To be in accordance with the provisions in **2.2.2-1(2)**

(2) Forged chain accessories
  (a) Manufacturing process and facilities
    i) Explanations on manufacturing process and process controls
    ii) Outline of the manufacturing factory
    iii) Principal forging facilities and their capacity
    iv) Type and capacity of the furnace for heat treatments
    v) Inspection and testing facilities
  (b) Work standards
    i) Details of acceptance inspection for raw materials (bloom, billet, round bar materials, etc.) and means of their suppliers
    ii) Forging procedures (including the forging ratio) ~~and their control standards~~
    iii) Heat treatment procedure and their control standards (including the procedure for the calibration of furnaces)
    iii) Details of product inspection

2 For approval of the manufacturing process of grade *R*4*S* and *R*5 chain accessories, reports which include relevant supporting data about the steel (fatigue tests, hot ductility tests, welding parameter research, heat treatment study, strain age resistance, temper embrittlement study, stress corrosion cracking data and hydrogen embrittlement study etc.) are to be submitted.

3.4 Approval Test

Paragraph 3.4.1 has been amended as follows.

3.4.1 Approval Test

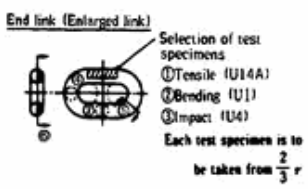
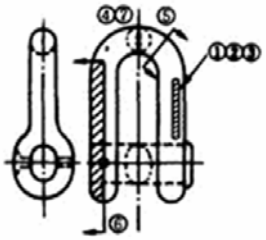
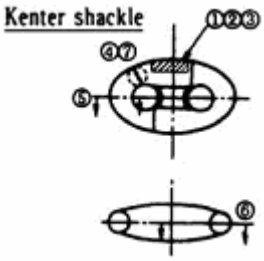
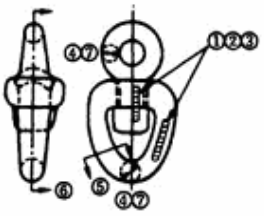
1 The approval test is to be carried out on each item of chain accessories under application for each manufacturing factory. The details of approved test are to be as indicated in **Table 2.3-1**, and the test is to be carried out in the presence of the Surveyor of the Society unless otherwise specified.

2 For the manufacturing of offshore mooring chain accessories, in cases where using semi-finished products and ingots from a number of suppliers, the approval test specified in this Chapter are to be carried out for each supplier.

3 For approval of the manufacturing process of the semi-finished products and ingots using offshore mooring chain accessories, the approval test specified in **3.4** is to be carried out in the case of initial approval and/or changes in any approved conditions.

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		(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, *R*3, *R*3*S* & *R*4 chains accessories is to be 25*mm*. Grade *R*4*S* and *R*5 chains are to be as deemed appropriate by the Society. And bending angle is to be not less than following degree; 30 for Grade *R*4, 45 for Grade *R*3*S*, 60 for Grade *R*3, and 120-180 for other Grade. And, Grade *R*4*S* and *R*5 chains are to be as deemed appropriate by the Society. (3): Testing temperature is to be referred to in Note (2). (4): To be examined at its surface, 2/3 *r* and center (x 100) (5): Areas shown in the figure are to be macroetched. (6): Sulphur print of the chain accessories in longitudinal section is to be taken. (7): Hardness distribution in diametric direction is to be measured at proper intervals (8): To be referred to **Table 2.2-1**.	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	**End shackle** ~~Anchor shackle~~(Joing shackle) 		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			To be free of harmful defect.
	(7) Hardness test	1 piece	Kenter shackle 		To be for reference only. However, hardness is to be max 330 for Grade *R*4*S*, and 340 for Grade *R*5.
	(8) CTOD test	3 pieces	Swivel 		To be as deemed appropriate by the Society.
Test on testing object of chain accessories	~~(8)~~(9) Proof test	1 piece		~~(8),~~ (9), (10), (11) and (12): To conform to **Part L of the Rules**. ~~(10): Measurements of each part of chain accessories after subjected to proof test are to be taken for dimensions.~~ ~~(12)~~(13): Non-destructive tests consist of ultrasonic test and magnetic particle test.	To conform to **Part L of the Rules**.
	~~(9)~~(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.
	~~(10)~~(11) Dimension inspection	1 piece			To conform to **Part L of the Rules**. In addition, dimensional changes are to be measured.
	~~(11)~~(12) Visual inspection	1 piece			To be free of harmful defect.

	~~(12)~~(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 larges diameter under application.

(2) Temperatures of impact test 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**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2011.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to offshore chain and accessories of offshore chain for which the application for survey is submitted to the Society before the effective date, or offshore chain and accessories of offshore chain used for offshore units and single point mooring systems for which the date of contract for construction* is before the effective date.

* "contract for construction" is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of "contract for construction" of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.

2. The date of "contract for construction" of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder.

For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a "series of vessels" if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:

(1) such alterations do not affect matters related to classification, or

(2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.

The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.

3. If a contract for construction is later amended to include additional vessels or additional options, the date of "contract for construction" for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a "new contract" to which **1.** and **2.** above apply.

4. If a contract for construction is amended to change the ship type, the date of "contract for construction" of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:
This Procedural Requirement applies from 1 July 2009.

Amendment 1-3

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

"*FTP* Code" means the "*International Code for Application of Fire Test Procedures*" as adopted by the Maritime Safety Committee of the International Maritime Organizations by the *Resolution MSC*.61(67), as amended.

In applying "*FTP* Code", the following requirements 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 in the test report. Furthermore, the *Certificate of Approval for Fire Protection Material* refers to 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).

(~~1~~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.

(~~2~~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 5.1of *IMO Resolution A.*754(18).

(~~3~~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.

(~~4~~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.

(~~5~~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.

EFFECTIVE DATE AND APPLICATION (Amendment1-3)

1. The effective date of the amendments is 1 July 2011.

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.

Amendment 1-4

Part 2 EQUIPMENT

Chapter 5 APPROVAL OF MANUFACTURING PROCESS OF SYNTHETIC FIBRE ROPES

5.6 Periodical Inspection

Sub-paragraph -3 has been amended as follows.

3 Details of Inspection

(1) The confirmation survey is to be carried out in accordance with the provisions in **5.3**.

(2) In the inspections, breaking test specified in **5.1.7, Part L of the Rules for the Survey and Construction of Steel Ships** is to be carried out according to the category specified in **Table 2.5-3**. In each category, one specimen each is to be taken from three different coils of rope which are larger than 40*mm* or the largest size manufactured in diameter. Each specimen is to satisfy the provisions in **5.1.7~~(4)~~(5), Part L of the Rules for the Survey and Construction of Steel Ships**. However, in cases where, during the last 5 *years*, product inspections (appearance and dimension) in each category have been carried out by the Society, breaking tests for the products in this category may be dispensed with.

(3) Notwithstanding the requirements in the **(2)**, the breaking test specified in **5.1.7, Part L of the Rules for the Survey and Construction of Steel Ships** may be exempted, provided that synthetic fibre ropes are made of raw textiles approved by the Society.

(4) In cases where synthetic fibre ropes are made of raw textiles which have not been approved or whose approval is invalid, the tests specified in **4.4** of **Part 2** are to be carried out for raw textile in addition to the breaking test specified in the preceding **(2)**. However, this requirement may be dispensed with provided that the Society deems such ropes appropriate in consideration of the records of the same ropes produced during the previous 5 *years*.

EFFECTIVE DATE AND APPLICATION (Amendment1-4)

1. The effective date of the amendments is 30 December 2011.

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