GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part M Welding

GUIDANCE

2015 AMENDMENT NO.2

Notice No.82 25th December 2015

Resolved by Technical Committee on 28th July 2015 / 19th November 2015

Notice No.82 25th December 2015
AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Guidance for the survey and construction of steel ships" has been partly amended as follows:

Amendment 2-1

Part M WELDING

M4 WELDING PROCEDURE AND RELATED SPECIFICATIONS

M4.1 General

M4.1.4 Range of Approval

Sub-paragraph -5 has been amended as follows.

5 For the wording "deemed appropriate by the Society" specified in **4.1.4-4, Part M of the Rules**, the approval of welding procedure and related specifications of rolled stainless steel, ~~and~~ aluminium alloys and rolled steels for low temperature service are to ~~be complied~~ comply with the requirements specified in the following **(1)** ~~and (2)~~ to **(3)**, provided that the applied welding condition is the same.

(1) Rolled Stainless Steel
For rolled stainless steel, **4.1.4-1** and -**2**, **Part M of the Rules** ~~and preceding -2~~ (excluding the requirements of large heat input welding) is to be applied. However, the kind of ~~steel~~ base metal is to be the same as test assembly. Where the provisory requirement specified in **3.5.5-1**, **Part K** of the Rules is applied, the steel with the specified minimum proof stress less than that of the tested steels may be included.

(2) Aluminium Alloys
(Omitted)

(3) Rolled Steels for Low Temperature Service
4.1.4-1 and -**2**, **Part M of the Rules** are to be applied. However, thickness and the kind of base metal are to be in accordance with the following **(a)** and **(b)**:
(a) Thickness
The range of thickness is to be as specified in **Table M4.2**, **Part M of the Rules**. Moreover, the upper limit of the range of thickness is, in principle, to be a maximum of 40 *mm*. An upper limit of more than 40 *mm*, however, may be used when deemed appropriate by the Society.
(b) Kind of base metal
The kind of base metal is, in principle, to be as specified in **Table M4.1.4-7**.

Title of Table M4.1.4-1 has been amended as follows.

Table M4.1.4-1 ~~Grades~~ Range of approval for rolled steel for the low heat input welding

Table M4.1.4-7 has been added as follows.

Table M4.1.4-7 Range of approval for rolled steels for low temperature service

Grade of test assembly	Approval range of grade(1)
KL24A	*KL24A*
KL24B	*KL24A*, *KL24B*
KL27	*KL24A*, *KL24B*, *KL27*
KL33	*KL24A*, *KL24B*, *KL27*, *KL33*
KL37	*KL37*
KL2N30	*KL2N30*
KL3N32	*KL3N32*
KL5N43	*KL5N43*
KL9N53	*KL9N53*
KL9N60	*KL9N60*

Note:

(1) Only when the same kind of heat treatment is used.

EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

1. The effective date of the amendments is 25 December 2015.

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

Amendment 2-2

Annex M1.4.2-2 GUIDANCE FOR NON-DESTRUCTIVE INSPECTIONS ON SURFACE IMPERFECTIONS OF THE WELDED JOINTS OF HULL CONSTRUCTIONS

1.2 Practice of Non-destructive Inspection

1.2.1 Non-destructive Inspection Procedures, Operator's Qualification, etc.

Sub-paragraphs -1 and -2 have been amended as follows.

1 Non-destructive inspection procedures:

(1) Magnetic particle examination is to conform to *ISO* 9934-1~~(2001)~~, *ISO* 9934-2~~(2002)~~, *ISO* 9934-3~~(2002)~~, *JIS Z* 2320-1~~(2007)~~, *JIS Z* 2320-2~~(2007)~~, *JIS Z* 2320-3~~(2007)~~ or the equivalent thereto. The aforementioned standards, in principle, refer to the most recent version published.

(2) Liquid penetrant examination is to conform to *ISO* 3452-1~~(2008)~~, *ISO* 3452-2~~(2006)~~, *ISO* 3452-3~~(1998)~~, *ISO* 3452-4~~(1998)~~, *JIS Z* 2343-1~~(2001)~~, *JIS Z* 2343-2~~(2009)~~, *JIS Z* 2343-3~~(2001)~~, *JIS Z* 2343-4~~(2001)~~ or the equivalent thereto. The aforementioned standards, in principle, refer to the most recent version published.

2 Qualification of Operator

Operators are to have Level 2 qualification or above, and such qualifications are to be certified by a certification body deemed appropriate by the Society, e.g. The Japanese Society for Non-destructive Inspection, in accordance with *ISO* 9712~~(2005)~~, *JIS Z* 2305~~(2001)~~ or the equivalent thereto. Notwithstanding the above, operators having Level 1 qualification can perform the procedures under the supervision of another operator having Level 2 qualification or above. The aforementioned standards, in principle, refer to the most recent version published.

Annex M1.4.2-3(1) GUIDANCE FOR NON-DESTRUCTIVE INSPECTIONS ON INTERNAL IMPERFECTIONS OF THE WELDED JOINTS OF HULL CONSTRUCTIONS

1.2 Practice of Non-destructive Inspection

1.2.1 Non-destructive inspection procedure, Operator's Qualification, etc.

Sub-paragraphs -1 and -2 have been amended as follows.

1 Non-destructive inspection procedure

(1) Radiographic testing is to conform to *ISO* 17636~~(2003)~~, *JIS Z* 3104~~(1995)~~ or equivalent thereto. The aforementioned standards, in principle, refer to the most recent version published.

(2) Ultrasonic testing is to conform to *JIS Z* 3060~~(1994)~~ or equivalent thereto. The aforementioned standards, in principle, refer to the most recent version published.

2 Qualification of Operator

Operators are to have Level 2 qualification or above, and such qualifications are to be certified by a certification body deemed appropriate by the Society, e.g. The Japanese Society for Non-destructive Inspection, in accordance with *ISO* 9712~~(2005)~~, *JIS Z* 2305~~(2001)~~ or the equivalent thereto. Notwithstanding the above, operators having Level 1 qualification can perform the procedures under the supervision of another operator having Level 2 qualification or above. The aforementioned standards, in principle, refer to the most recent version published.

(-3 and -4 are omitted.)

1.3 Acceptable Criteria of Non-destructive Inspections

1.3.2 Classification of Defects

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

1 General

(1) Judges are to have Level 2 qualification or above, and such qualifications are to be certified by a certification body deemed appropriate by the Society, e.g. The Japanese Society for Non-destructive Inspection, in accordance with *ISO* 9712~~(2005)~~, *JIS Z* 2305~~(2001)~~ or the equivalent thereto. The aforementioned standards, in principle, refer to the most recent version published.

(2) In case of butt welded joints between plates with different thickness, thickness of the thinner plate is taken.

(-2 is omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

1. The effective date of the amendments is 25 December 2015.

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

Amendment 2-3

Annex M1.4.2-3(1) GUIDANCE FOR NON-DESTRUCTIVE INSPECTIONS ON INTERNAL IMPERFECTIONS OF THE WELDED JOINTS OF HULL CONSTRUCTIONS

1.1 GENERAL

1.1.2 Means of Non-destructive Inspection

Sub-paragraph -3 has been amended as follows.

3 In cases where non-destructive inspections are to be carried out for container carriers ~~specified in~~ applying extremely thick steel plates subject to **32.~~10~~13**, **Part C of the Rules**, enhanced non-destructive testing method particularly Time-of-flight diffraction (*TOFD*) technique may be applied instead of the inspections specified in **-1** and **-2** above. In such cases, documents related to the manner of assessment (including criteria for determining, technical justification for the criteria as well as requirements related to inspector qualifications, etc.) are to be submitted to and approved by the Society in advance.

1.1.3 Non-destructive Inspection Plan

Sub-paragraph -1 has been amended as follows.

1 Prior to welding works, the manufacturer is to submit the non-destructive inspection plan containing information and data listed below and to obtain the approval of the Society.

(1) The number of inspections, locations for inspections, welding processes, and non-destructive inspection processes specified in **1.2.3-1** and **1.2.3-3**.
(2) The locations specified in **1.2.4** for container carriers applying extremely thick steel plates subject to **32.~~10~~13**, **Part C of the Rules**.

1.2 Practice of Non-destructive Inspection

1.2.2 Range of Application

Sub-paragraph -3 has been amended as follows.

3 For container carriers applying extremely thick steel plates subject to **32.~~10~~13, Part C of the Rules**, in addition to the inspections specified in **-1** above, any block joints welded in the dry dock, on the slipway or at any other assembly space for the structural members specified in **1.2.4** are to also be inspected.

Paragraph 1.2.4 has been amended as follows.

1.2.4 Special requirements for container carriers applying extremely thick steel plates

Ultrasonic testing is to be carried out on all block-to-block butt joints of all upper flange

longitudinal structural members in the cargo hold region of container carriers applying extremely thick steel plates which complies with **32.~~10~~13, Part C of the Rules**. Upper flange longitudinal structural members include the topmost strakes of the inner hull/bulkhead, the sheer strake, strength deck, hatch side coaming plate, coaming top plate, and all attached longitudinal stiffeners. These members are shown in **Fig. 1.2.3**.

EFFECTIVE DATE AND APPLICATION (Amendment 2-3)

1. The effective date of the amendments is 1 April 2016.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships for which the date of contract for construction is before the effective date.