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# **RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS**

**RULES**

**Part B**

**Class Surveys**

## **2015 AMENDMENT NO.1**

Rule No.16      27th February 2015

Resolved by Technical Committee on 2nd February 2015

Approved by Board of Directors on 23rd February 2015

“Rules for the survey and construction of steel ships” has been partly amended as follows:

## **Part B CLASS SURVEYS**

### **Chapter 1 GENERAL**

#### **1.3 Definitions**

##### **1.3.1 Terms**

Sub-paragraph (6) has been amended as follows.

- (6) “Substantial corrosion” is an extent of corrosion such that assessment of corrosion pattern indicates wastage in excess of 75% of allowable margins, but within acceptable limits. Notwithstanding the above, for the following (a) to (c), “substantial corrosion” is an extent of corrosion such that the assessment of the corrosion pattern indicates a gauged (or measured) thickness which is within the range of 0.5mm to the renewal thickness stipulated in the relevant provisions. “Renewal thickness” refers to the minimum allowable thickness below which the renewal of structural members is to be carried out.
- (a) For ships complying with the provisions of **Part CSR-B ~~and~~ Part CSR-T or Part CSR-B&T**.
  - (b) For hatch covers and hatch coamings for cargo holds of the ships stipulated otherwise by the Society.
  - (c) For transverse watertight bulkheads in cargo hold complying with the provision of **Chapter 31A, Part C or Chapter 31B, Part C**.

## Chapter 2 CLASSIFICATION SURVEYS

### 2.1 Classification Survey During Construction

#### 2.1.6 Documents to be Maintained on Board

Sub-paragraph -2 has been amended as follows.

2 In addition to the requirements in -1 above, for ships engaged on international voyages, the Surveyor confirms that the Ship Construction File contains the necessary documents from the following drawings, plans, manuals and documents, and that the Construction File is on board the ship. Duplicate documents as in -1 are not required.

((1) to (8) are omitted)

(9) Coating Technical File for dedicated seawater ballast tanks, etc. (25.2.2, Part C and 22.4.2, Part CS, 1.2.2 Section 5 Chapter 3, Part CSR-B and 2.1.1.2 Section 6, Part CSR-T)

((10) to (12) are omitted)

## Chapter 3 ANNUAL SURVEYS

### 3.2 Annual Surveys for Hull, Equipment, Fire Extinction and Fittings

Paragraph 3.2.6 has been amended as follows.

#### 3.2.6 Thickness Measurements

At Annual Surveys, the thickness measurements (1) to (3) below are to be carried out. As to the gauging equipment and thickness measurement report, the provisions of 5.2.6-1 are to be applied correspondingly as well.

(1) Spaces and Tanks listed in **Table B3.6**

(2) Areas where deemed necessary by the Surveyor as a consequence of internal examination of spaces and tanks specified in **3.2.4(2)**

(3) Substantial corrosion areas identified at the previous survey (excluding cargo tanks of oil tankers other than ships built under **Part CSR-T** or **Part CSR-B&T** ~~of the Rules~~, ships carrying dangerous chemicals in bulk and ships carrying liquefied gases in bulk). For bulk carriers built under **Part CSR-B** or **Part CSR-B&T** ~~of the Rules~~, thickness measurements may be dispensed with at Surveyor's discretion in cases where a protective coating has been applied in accordance with coating manufacturer's requirements and is maintained in good condition.

## Chapter 4 INTERMEDIATE SURVEYS

Table B4.4 has been amended as follows.

Table B4.4 Thickness measurements (continued)

Items	Note
(Omitted)	
Requirements for the Bulk Carriers over 5 years of age	
1 Structural members in ballast tanks	<ul style="list-style-type: none"> <li>• Thickness measurements of areas found to be suspect areas at previous surveys are to be carried out.</li> <li>• Where considered necessary by the Surveyor as a result of the survey specified in <b>Table B4.2</b>, thickness measurements are to be carried out at the discretion of the Surveyor, where a poor coating condition, corrosion or other defects are found in a ballast tank or where a protective coating has not been applied from the time of construction.</li> <li>• If the results of thickness measurements indicate that substantial corrosion is found, the extent of thickness measurements is to be increased in accordance with the provision of <b>5.2.6-5</b>.</li> <li>• In addition to the above, for bulk carriers built under <b>Part CSR-B or Part CSR-B&amp;T of the Rules</b>, identified substantial corrosion areas are to be in accordance with either the following (1) or (2):               <ol style="list-style-type: none"> <li>(1) Be protected by coatings applied in accordance with coating manufacturer requirements and examined annually to confirm said coatings are still in good condition; or,</li> <li>(2) Have thickness measurements taken annually</li> </ol> </li> </ul>
2 Hatch covers and hatch coamings	<ul style="list-style-type: none"> <li>• Thickness measurements of areas found to be suspect areas at previous surveys are to be carried out.</li> <li>• Where considered necessary by the Surveyor as a result of the close-up survey of the bulk carriers specified in <b>Table B4.3</b>, thickness measurements are to be carried out at the discretion of the Surveyor. If the results of thickness measurements indicate that substantial corrosion is found, the extent of thickness measurements is to be increased in accordance with the provision of <b>5.2.6-5</b>.</li> <li>• In addition to the above, for bulk carriers built under <b>Part CSR-B or Part CSR-B&amp;T of the Rules</b>, identified substantial corrosion areas are to be in accordance with either the following (1) or (2):               <ol style="list-style-type: none"> <li>(1) Be protected by coatings applied in accordance with coating manufacturer requirements and examined annually to confirm said coatings are still in good condition; or,</li> <li>(2) Have thickness measurements taken annually</li> </ol> </li> </ul>
3 Structural members in cargo holds	<ul style="list-style-type: none"> <li>• Thickness measurements of areas found to be suspect areas at previous surveys are to be carried out.</li> <li>• Thickness measurements are to be carried out to an extent that determines both general and local corrosion levels at the area subject to close-up survey.</li> <li>• The thickness measurements may be dispensed with provided the Surveyor is satisfied by the results of the close-up survey: that there is no structural diminution and the protective coating is found to be in a good condition.</li> <li>• If the results of thickness measurements indicate that substantial corrosion is found, the extent of thickness measurements is to be increased in accordance with the provision of <b>5.2.6-5</b>.</li> <li>• In addition to the above, for bulk carriers built under <b>Part CSR-B or Part CSR-B&amp;T of the Rules</b>, identified substantial corrosion areas are to be in accordance with either the following (1) or (2):               <ol style="list-style-type: none"> <li>(1) Be protected by coatings applied in accordance with coating manufacturer requirements and examined annually to confirm said coatings are still in good condition; or,</li> <li>(2) Have thickness measurements taken annually</li> </ol> </li> </ul>
(Omitted)	

## Chapter 5 SPECIAL SURVEYS

### 5.2 Special Surveys for Hull, Equipment, Fire Extinction and Fittings

#### 5.2.6 Thickness Measurements

Sub-paragraph -5 has been amended as follows.

**5** At Special Surveys for Bulk Carriers, notwithstanding the provision of **-2** above, thickness measurements are to be carried out according to **-1** above for structural members listed in **Table B5.15** and tanks and spaces identified as suspect areas at previous surveys. Where substantial corrosion is found as a result of such thickness measurements, additional thickness measurements are to be taken in accordance with **Tables B5.16** through **Table B5.20**. In addition to the above, for bulk carriers built under **Part CSR-B or Part CSR-B&T of the Rules**, identified substantial corrosion areas are to be in accordance with either the following (1) or (2):

- (1) Be protected by coatings applied in accordance with coating manufacturer requirements and examined annually to confirm said coatings are still in good condition; or,
- (2) Have thickness measurements taken annually.

Sub-paragraph -7 has been amended as follows.

**7** At Special Surveys for double hull oil tankers built under **Part CSR-T or Part CSR-B&T of the Rules** and bulk carriers built under **Part CSR-B or Part CSR-B&T of the Rules**, thickness measurements are to be carried out in accordance with (1) through (3) below in addition to provisions **-3** and **-5** above.

- (1) Interpretations specified in **Table B5.29** and **Table B5.30** are to be considered when structural members subject to thickness measurements and the extent of thickness measurements are determined in accordance with **Table B5.10-1** to **Table B5.15**. The locations of the points to be measured are to be given for the most important items of the structure.
- (2) Thickness measurement results are to comply with the criteria specified in **Chapter 13, Part CSR-B of the Rules or, Section 12, Part CSR-T of the Rules or Chapter 13, Part 1 of Part CSR-B&T**.
- (3) Thickness measurement results for areas subject to pitting corrosion, edge corrosion and grooving corrosion are to comply with the respective criteria for each type of corrosion.

Title of Table B5.29 has been amended as follows.

Table B5.29 Interpretations of rule requirements for the number and location of thickness measurements for ~~CSR~~ bulk carriers built under Part CSR-B or Part CSR-B&T

Title of Table B5.30 has been amended as follows.

Table B5.30 Interpretations of rule requirements for the number and location of thickness measurements for ~~CSR~~ double hull oil tankers built under Part CSR-T or Part CSR-B&T

## EFFECTIVE DATE AND APPLICATION

- 1.** The effective date of the amendments is 1 July 2015.
- 2.** Notwithstanding the amendments to the Rules, the current requirements may apply to the surveys for which the application is submitted to the Society before the effective date.

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# **GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS**

**Part B**

**Class Surveys**

**GUIDANCE**

**2015 AMENDMENT NO.1**

Notice No.13      27th February 2015

Resolved by Technical Committee on 2nd February 2015

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

## Part B CLASS SURVEYS

### B1 GENERAL

#### B1.3 Definition

##### B1.3.1 Terms

Sub-paragraph -3 has been amended as follows.

**3** “Hatch covers and hatch coamings for cargo holds of ships stipulated otherwise by the Society” in **1.3.1(6)(b), Part B of the Rules** is as specified in the following **(1)** to **(4)**.

(Omitted)

**(2)** Hatch covers and hatch coamings of bulk carriers not complying with the provisions of **Part CSR-B or CSR-B&T of the Rules**, and which are contracted for construction on or after 1 January 2004 or are at the beginning stage of construction on or after 1 January 2005; or ships other than bulk carriers which are at the beginning stage of construction on or after 1 January 2005 and that have the application for Classification Survey during Construction submitted to the Society prior to 10 June 2005

Renewal thickness ( $t_{\text{renewal}}$ ) is given by the following formula. If a voluntary addition is included in the as built thickness, the value may be at the discretion of the Society.

$$t_{\text{renewal}} = t_{\text{as-built}} - t_c + 0.5 \text{ (mm)}$$

$t_{\text{as-built}}$ : as built thickness (mm)

$t_c$ : Corrosion addition specified in **Table B1.3.1.-1 (b)**

Table B1.3.1.-1 (b)

		Corrosion addition $t_c$ (mm)	
		For top, side and bottom plating	For internal structures
Steel Hatch Cover	Type of structure		
	Single plating type	2.0	
	Double plating type	2.0	1.5
Hatch Coaming		1.5	

(Omitted)

## **B1.4 Preparation for Survey and Other Items**

### **B1.4.2 Preparation for Surveys**

Sub-paragraph -6 has been amended as follows.

**6** In oil tankers, bulk carriers and ships carrying dangerous chemicals in bulk with integral tanks, the following documents from (1) to (9) are to be kept on board the ship to be readily available for the Surveyor. In general dry cargo ships of not less than 500 *gross tonnage*, at least (1) and (3) of the following documents are to be kept on board the ship.

- (1) Records on structural surveys
- (2) Condition evaluation report. Where the language used in preparation of the report is not English, a translation into English is to be included. (and see the requirement in **B5.2.6-6(56)** for bulk carriers built under **Part CSR-B or CSR-B&T of the Rules** and all oil tankers)
- (3) Thickness measurement reports
- (4) Main structural plans for hull (for ships built under **Part CSR-B ~~or~~ CSR-T or CSR-B&T of the Rules**, these plans are to include both as-built and renewal thickness. Any thickness for voluntary additions is also to be clearly indicated on the plans. A midship section plan to be supplied on board the ship is to include the minimum allowable hull girder sectional properties for transverse sections in all cargo holds of bulk carriers or cargo tanks of double hull oil tankers specified in either **1.4 Section 2 Chapter 13, Part CSR-B ~~or~~ Section 12, Part CSR-T or 2.2, Section 2, Chapter 13, Part 1, Part CSR-B&T of the Rules.**)

(Omitted)

## **B2 CLASSIFICATION SURVEYS**

### **B2.1 Classification Survey during Construction**

#### **B2.1.2 Submission of Plans and Documents for Approval**

Sub-paragraph -1 has been amended as follows.

**1** The plans required to be submitted for approval in **2.1.2, Part B of the Rules** are to indicate the following items.

- (1) Hull structural drawings are to include scantling details, material details, location of butts and seams, cross section details as necessary, details of welding such as sizes and proportions applicable to the ship, and other necessary information unless specified otherwise. For hull structures subject to the requirements of **20.1.3, Part C, 31A.3.6, Part C, Part CSR-B ~~or~~ Part CSR-T or Part CSR-B&T of the Rules**, renewal thicknesses are to be indicated in the relevant drawings. In addition, for structural members of ships subject to *SOLAS Chapter II-1 Regulation 3-10*, net (renewal) scantlings, as built scantlings and voluntary addition thickness are to be indicated.

(Omitted)

## B5 SPECIAL SURVEYS

### B5.2 Special Surveys for Hull, Equipment, Fire extinction and Fittings

#### B5.2.6 Thickness Measurements

Sub-paragraph -5 and -6 have been amended as follows.

5 “The criteria for each type of corrosion” stipulated in **5.2.6-7(3), Part B of the Rules** refers to the following (1) to (3):

(1) Criteria for pitting corrosion are to be in accordance with following (a) to (c):

(a) For plates with a pitting intensity of less than 20%, the measured thickness,  $t_m$ , of any individual measurement is to meet the lesser of the following criteria:

$$t_m \geq 0.7 (t_{as-built} - t_{vol\ add}) \text{ mm}$$

$$t_m \geq t_{ren} - 1 \text{ mm}$$

$t_{as-built}$ : As built thickness of the member under consideration ( $mm$ )

$t_{vol\ add}$ : Voluntary thickness addition ( $mm$ ) which is voluntarily added as the Owner’s extra margin for corrosion wastage in addition to  $t_C$

$t_{ren}$ : Renewal criteria for general corrosion ( $mm$ ) as defined in **Chapter 13, Part CSR-B** ~~or~~ **Section 12, Part CSR-T** or Chapter 13, Part 1, Part CSR-B&T of the Rules depending on the applied Rule

$t_C$ : Corrosion addition ( $mm$ ) as defined in **Section 3 Chapter 3, Part CSR-B** ~~or~~ **Section 6, Part CSR-T** or Section 3, Chapter 3, Part 1, Part CSR-B&T of the Rules depending on the applied Rule

$t_m$ : Measured thickness ( $mm$ ) on one item, i.e. average thickness on one item using various measurements taken for this same item during the ship’s periodical in-service surveys.

(b) The average thickness across any cross section of the plating is not to be less than the renewal criteria for general corrosion as specified in **Chapter 13, Part CSR-B** ~~or~~ **Section 12, Part CSR-T** or Chapter 13, Part 1, Part CSR-B&T of the Rules depending on the applied Rule.

(c) For the side structures of bulk carriers built under **Part CSR-B** or Part CSR-B&T of the Rules, notwithstanding provisions (a) and (b) above, criteria for pitting corrosion are to be in accordance with following i) and ii):

i) If the pitting intensity in an area where coating is required, according to **Section 5, Chapter 3, Part CSR-B** or Section 2, Chapter 1, Part 2 Part CSR-B&T of the Rules, is higher than 15%, an area of 300  $mm$  or more, at the most pitted part of the plate, is to be cleaned to bare metal and the thickness is to be measured in way of the five deepest pits within the cleaned area in order to check the extent of the pitting corrosion. The smallest thickness measured in way of any of these pits is to be taken as the thickness to be recorded.

ii) The minimum remaining thickness in pitting corrosion, grooving corrosion or other local areas is to be greater than the criteria below, without being greater than  $t_{ren}$ .

- 75% of the as-built thickness, in the frame and end bracket webs and flanges
- 70% of the as-built thickness, in the side shell, hopper tank and topside tank plating attached to the each side frame, over a width up to 30  $mm$  from each side.

(2) Criteria for edge corrosion are to be in accordance with following (a) to (c):

(a) Provided that the overall corroded height of the edge corrosion of a flange, or web in the

case of flat bar stiffeners, is less than 25% of the stiffener flange breadth or web height, as applicable, the measured thickness,  $t_m$ , is to satisfy the lesser of the following criteria:

$$t_m \geq 0.7 (t_{as-built} - t_{vol add}) \text{ mm}$$

$$t_m \geq t_{ren} - 1 \text{ mm}$$

- (b) The average measured thickness across the breadth or height of the stiffener is not to be less than that defined in **Chapter 13, Part CSR-B** or **Section 12, Part CSR-T of the Rules**.
- (c) Plate edges at openings for manholes, lightening holes etc. may be less than the minimum thickness as specified in **Chapter 13, Part CSR-B** or **Section 12, Part CSR-T** or **Chapter 13, Part 1, Part CSR-B&T of the Rules** depending upon the applied Rule subject to be in accordance with **i)** and **ii)** below:
- i) The maximum extent of the reduced plate thickness, below the minimum thickness defined in **Chapter 13, Part CSR-B** or **Section 12, Part CSR-T of the Rules** or **Chapter 13, Part 1, Part CSR-B&T**, from the opening edge is not more than 20% of the smallest dimension of the opening and does not exceed 100 mm.
- ii) Rough or uneven edges may be cropped-back provided that the maximum dimension of the opening is not increased by more than 10% and the remaining thickness of the new edge is not less than  $t_{ren} - 1$  (mm)
- (3) Criteria for grooving corrosion are to be in accordance with following **(a)** and **(b)**:
- (a) Where the groove breadth is a maximum of 15% of the web height, but not more than 30 mm, the measured thickness,  $t_m$ , in the grooved area is to satisfy the lesser of the following criteria, but is not to be less than 6 mm:
- $$t_m \geq 0.75 (t_{as-built} - t_{vol add}) \text{ mm}$$
- $$t_m \geq t_{ren} - 0.5 \text{ mm}$$
- (b) Structural members with areas of grooving corrosion greater than those in **(a)** above are to be assessed based on the criteria for general corrosion as defined in **Chapter 13, Part CSR-B** or **Section 12, Part CSR-T** or **Chapter 13, Part 1, Part CSR-B&T of the Rules** depending upon the applied Rule using the average measured thickness across the plating/stiffener.
- 6** “Ship’s longitudinal strength evaluation” required in **5.2.6-8, Part B of the Rules** is to be carried out in accordance with the following.
- (1) Transverse sectional areas of deck flanges (deck plating and deck longitudinals) and bottom flanges (bottom shell plating and bottom longitudinals) of the ship’s hull girder are to be calculated by using the thickness of structural members measured in transverse sections specified in **Table B5.8, Table B5.10, Table B5.15** and **Table B5.21, Part B of the Rules**. It is to be confirmed that the diminution of the transverse sectional area does not exceed 10% of the as-built area.
- (2) Where the diminution of sectional areas of either deck or bottom flange exceeds 10% of the respective as-built area, it is to be confirmed that the actual section moduli, which are calculated by using the thicknesses mentioned above, is not less than those specified in **Table B5.2.6-1**.
- (3) For double hull oil tankers built under **Part CSR-T** or **Part CSR-B&T of the Rules**, notwithstanding provisions **(1)** and **(2)** above, it is to be confirmed that the condition of the ship satisfies the criteria specified in **1.5 Section 12, Part CSR-T** or **Section 2, Chapter 13, Part 1, Part CSR-B&T of the Rules** by using the thickness of structural members measured in the transverse sections specified in **Table B5.10** and **Table B5.30**.
- (4) For bulk carriers built under **Part CSR-B** or **Part CSR-B&T of the Rules**, notwithstanding provisions **(1)** and **(2)** above, it is to be confirmed that the condition of the ship satisfies the criteria specified in **1.4 Section 2 Chapter 13, Part CSR-B** or **2.2, Section 2, Chapter 13,**

**Part 1, Part CSR-B&T of the Rules** by using the thickness of structural members measured in the transverse sections specified in **Table B5.15** and **Table B5.29**.

- (5) Where repairs are carried out to satisfy the requirements of the preceding ~~(1) or (2)~~ to **(4)**, the ship's longitudinal strength for other transverse sections is to be evaluated by using the result of additional thickness measurements.
- (6) For bulk carriers built under **Part CSR-B** or **Part CSR-B&T of the Rules** and oil tankers of not less than 130m in length for freeboard, the result of the final evaluation of the ship's longitudinal strength carried out after the ship reaches 10 *years* of age is to be reported as a part of the condition evaluation report specified in **B1.4.2-6(2)**.

#### EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 1 July 2015.
2. Notwithstanding the amendments to the Guidance, the current requirements may apply to the surveys for which the application is submitted to the Society before the effective date.