

RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part CS

Hull Construction and Equipment of Small Ships

Rules for the Survey and Construction of Steel Ships

Part CS

2015 AMENDMENT NO.1

Guidance for the Survey and Construction of Steel Ships

Part CS

2015 AMENDMENT NO.2

Rule No.30 / Notice No.33 8th May 2015

Resolved by Technical Committee on 2nd February 2015

Approved by Board of Directors on 23rd February 2015

ClassNK
NIPPON KAIJI KYOKAI

RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part CS

**Hull Construction and Equipment of
Small Ships**

RULES

2015 AMENDMENT NO.1

Rule No.30 8th May 2015

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Approved by Board of Directors on 23rd February 2015

Rule No.30 8th May 2015

AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

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

Part CS HULL CONSTRUCTION AND EQUIPMENT OF SMALL SHIPS

Amendment 1-1

Chapter 6 DOUBLE BOTTOMS

6.1 General

6.1.1 Application

Sub-paragraphs -2 and -3 have been amended as follows.

1 Ships are to be provided with watertight double bottoms extending from the collision bulkhead to the after peak bulkhead. The longitudinal system of framing is, in general, to be adopted. The inner bottom is to be continued out to the ship’s sides in such a manner as to protect the bottom to the turn of the bilge, and is not lower at any part than a plane parallel with the keel line and which is located not less than a vertical distance h (m) measured from the keel line specified in **2.1.47, Part A of the Rules.**

$$h = B'/20$$

B' : It is specified in **4.1.2(11).**

However, in no case is the value of h to be less than $0.76 m$, and need not be taken as more than $2.0 m$.

2 Part or all of double bottoms may be omitted for ~~ships less than 500 gross tonnage; ships not engaged in international voyages; or ships that are~~ deemed by the Society to not require a double bottom for special reasons due to factors such as structural configuration, hull form, or purpose and for ships deemed appropriate by the Society which are less than 500 gross tonnage or which are not engaged in international voyages.

3 For ships other than ships specified in -2 above, double bottoms may be omitted in way of watertight tanks, including dry tanks of moderate size subject to on the condition that the safety of the ship is not impaired in the event of bottom or side damage.

(-4 to -7 are omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 8 May 2015.
2. Notwithstanding the amendments to the Rules, the current requirements apply to ships for which the date of contract for construction is before the effective date.
3. Notwithstanding the provision of preceding **2.**, the amendments to the Rules may apply to ships for which the date of contract for construction is before the effective date upon request by the owner.

Chapter 6 DOUBLE BOTTOMS

6.1 General

Paragraph 6.1.3 has been amended as follows.

6.1.3 Drainage

1 Efficient arrangements are to be provided for draining water from the tank top.

~~**2** With the exception of the after tunnel well, where bilge wells are provided for water drainage, Regarding the application of -1, small wells may be constructed in the double bottom in connection with drainage arrangements of holds. Such wells are not to extend downward more than necessary. In addition, such wells are not to extend for more than one-half the depth of the double bottom ~~nor~~ are they to come within 460 mm of the bottom shell, as far as practicable. However, a well extending to the outer bottom is permitted at the after end of the shaft tunnel.~~

3 Other wells (e.g. for lubricating oil under main engines) may be permitted by the Society if satisfied that the arrangements give protection equivalent to that afforded by a double bottom complying with this Chapter.

4 For the wells specified in -2 and -3 above, except those at the ends of shaft tunnels, the vertical distance from the bottom of such a well to a plane coinciding with the keel line specified in **2.1.47, Part A of the Rules** is not to be less than 0.5 m. This requirement may be waived, however, where bilge tanks deemed appropriate by the Society are provided instead of wells for the purpose of complying with -1 above or where it is ascertained that the ship meets the requirements for the omission of double bottoms given in **6.1.1-2** or **6.1.1-3**.

Paragraph 6.1.7 has been deleted.

~~6.1.7 Wells~~

~~**1** Small wells constructed in the double bottom in connection with drainage arrangements of holds are not to extend downward more than necessary. A well extending to the outer bottom is, however, permitted at the after end of the shaft tunnel.~~

~~**2** Other wells (e.g. for lubricating oil under main engines) may be permitted by the Society if satisfied that the arrangements give protection equivalent to that afforded by a double bottom complying with this Chapter.~~

~~**3** For wells specified in -1 and -2 above except a well at the end of the shaft tunnel, the vertical distance from the bottom of such a well to a plane coinciding with the keel line specified in **2.1.47, Part A of the Rules** is not to be less than 0.5m.~~

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 8 May 2015.
2. Notwithstanding the amendments to the Rules, the current requirements may apply to ships for which the date of contract for construction is before the effective date.

Chapter 1 GENERAL

1.3 Materials, Scantlings, Welding and End Connections

1.3.1 Materials

Sub-paragraph -4 has been amended as follows.

4 Where stainless steel or stainless clad steel specified in **Chapter 3, Part K of the Rules** is used for the main hull structure, use of the materials and their scantlings are to be subject to the following.

- (1) The section modulus of the transverse section of the hull is not to be less than the value obtained by multiplying the following coefficient (K) with the value specified in **Chapter 15**. However, the coefficient (K) is to be rounded to three decimal places and not less than 0.63 ~~0.72~~.

$$K = f_T \left\{ 8.81(\sigma_y/1000)^2 - 7.56(\sigma_y/1000) + 2.29 \right\} \text{ for } \sigma_y \leq 355 \text{ (N/mm}^2\text{)}$$

$$K = \frac{f_T f_C (235/\sigma_y)}{\sigma_y} \text{ for stainless steel with } \sigma_y > 355 \text{ (N/mm}^2\text{)}$$

Where

f_C : Determined as follows:

$$f_C = \frac{3.04(\sigma_y/1000)^2 - 1.09(\sigma_y/1000) + 1.09}{\sigma_y}$$

σ_y : The minimum value of yield strength (N/mm^2) or proof stress (N/mm^2) of stainless steel or stainless clad steel specified in **Chapter 3, Part K of the Rules**

f_T : Determined as follows: ~~To be given by the following formula~~

$$f_T = 0.0025(T - 60) + 1.00$$

If T is more than 100°C, the value is at the discretion of the Society.

T : The maximum temperature (°C) of cargo in contact with the materials

Where the temperature is less than 60°C, T is to be taken as 60°C.

- (2) Where the materials used acts effectively for corrosion resistance to cargoes intended to be carried, the value deemed appropriate by the Society may be reduced from the scantlings required by the relevant requirements.
- (3) Notwithstanding the requirements in (1) above, 0.78 is to be used as the lower limit of the coefficient (K) when determining the construction and scantlings for areas of anticipated stress concentration, except where deemed appropriate by the Society.

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 8 November 2015.
2. Notwithstanding the amendments to the Rules, the current requirements may apply to ships for which the date of contract for construction is before the effective date.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part CS

**Hull Construction and Equipment of
Small Ships**

GUIDANCE

2015 AMENDMENT NO.2

Notice No.33 8th May 2015

Resolved by Technical Committee on 2nd February 2015

Notice No.33 8th May 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:

Part CS HULL CONSTRUCTION AND EQUIPMENT OF SMALL SHIPS

Amendment 2-1

Appendix 1 APPLICATION OF PART C OF THE GUIDANCE

Table CS has been amended as follows.

Table CS Correspondence Table of Guidance between Part CS and Part C

Part CS	Part C	Part CS	Part C	Part CS	Part C
1.1.3	C1.1.3 [See Note 1]	14.1.3	C14.1.3	21.1.3	C23.1.3 [See Note 18 19]
1.3.1	C1.1.7 C1.1.11 and C1.1.12	14.2.3	C14.2.3	21.2.1	C23.2.1 [See Note 19 20]
		15.1.1	C15.1.1	21.2.2	C23.2.2 [See Note 20 21]
		15.2.1	C15.2.1	21.2.3	C23.2.3
2.1.1	C2.1.1	15.2.3	C15.2.3	21.3	C23.3
2.2.2	C2.2.2	15.3	C15.4.1-2	21.4	C23.4 [See Note 21 22]
2.2.3	C2.2.3	16.3.3	C16.3.3	21.5.1	C23.5.1
2.2.4	C2.2.4	16.4.4	C16.4.4	21.5.3	C23.5.3 [See Note 22 23]
3	C3	16.5.3	C16.6.1	21.5.7	C23.5.7 [See Note 23 24]
4	C4	16.6.1	C16.7.1	21.6.5	C23.6.5 [See Note 24 25]
5	C5	16.6.2	C16.7.2	21.6.7	C23.6.7 [See Note 25 26]
6.1.1	C6.1.1-1 and to -3[See Note 2]	17.1.1-1	C10.2.1 [See Note 7 8]	21.6.8	C23.6.8
6.6.2-1	C6.4.3-2	17.2.1	C17.1.1	21.7.1	C23.7.1 [See Note 26 27]
6.7.1	C6.5.1-1 and -4	17.2.2	C17.1.2	21.7.2	C23.7.2
6.9	C6.8	17.2.4	C17.1.4 [See Note 8 9]	21.8.1	C23.8.1 [See Note 27 28]
7.5.2	C7.6.2 [See Note 23]	17.2.5	C17.1.5	22.2.1	C24.2.1
7.5.3	C7.6.3 [See Note 24]	17.3.2	C17.2.2	22.4.1	C25.2.1 [See Note 28 29]
8.3	C7.5.3	17.3.4	C17.2.4	22.4.2	C25.2.2
9.1.2	C9.1.2 [See Note 45]	17.3.5	C17.2.5	22.4.3	C25.2.3 [See Note 29 30]
9.1.3	C9.1.3	17.4.1	C17.3.1	23.1.2	C27.1.2
10.1.2	C10.1.2	17.4.5	C17.3.5	23.1.5	C27.1.5 and C27.1.6 [See Note 30 31]
10.2.3	C10.3.3 [See Note 56]	18	C18		
10.3.2	C10.4.2	19.2.4	C20.2.4 [See Note 9 10]	23.1.6	C27.1.7
10.7.1	C10.9.1	19.2.5	C20.2.5 [See Note 10 11]	23.2	C27.2
11.1.2	C11.1.2	19.2.6	C20.2.6 [See Note 11 12]	24.1.1	C29.1.1 [See Note 31 32] [See Note 32 33]
11.2.1	C11.2.1	19.2.10	C20.2.10 [See Note 12 13]		
12.1.3	C12.1.3	19.2.12	C20.2.12 [See Note 13 14]	24.1.2	C29.1.2 [See Note 33 34]
12.1.4	C12.1.4	19.2.13	C20.2.13 [See Note 14 15]	24.3.2	C29.4.2
12.2.1	C12.2.1 [See Note 67]	19.3.5	C20.3.5 [See Note 15 16]	24.9.4	C29.7.4 [See Note 34 35]
13.1.1	C13.1.1	19.4.2	C20.4.2	24.11.5	C29.12.4
13.1.4	C13.1.4	20.2.2	C21.2.2	25.1.2	C34.1.2 [See Note 35 36]

13.2.3	C13.2.3	21.1.1	C23.1.1 [See Note 46 17]	26	C35
13.3	C13.3	21.1.2	C23.1.2 [See Note 47 18]		

Notes :

1. In Guidance **C1.1.3-2(2)(a), 5.5.2, Part C** of the Rules is to be read as **5.4.3, Part CS** of the Rules.
 In Guidance **C1.1.3-2(2)(b), 7.6.2-2, Part C** of the Rules is to be read as **7.5.2-1, Part CS** of the Rules.
 In Guidance **C1.1.3-2(2)(c), 10.2.1-2, Part C** of the Rules is to be read as **17.1.1-2, Part CS** of the Rules.
 In Guidance **C1.1.3-2(2)(e), 18.2.1-1, Part C** of the Rules is to be read as **18.2.1-1, Part CS** of the Rules.
 In Guidance **C1.1.3-2(2)(g), 20.1.2, Part C** of the Rules is to be read as **19.1.2, Part CS** of the Rules.
 In Guidance **C1.1.3-4, 1.1.3-5, Part C** of the Rules is to be read as **1.1.3-2, Part CS** of the Rules.
2. In Guidance **C6.1.1-1 and C6.1.1-2, 6.1.1-2, Part C** of the Rules is to be read as **6.1.1-2, Part CS** of the Rules.
 In Guidance **C6.1.1-3, 6.1.1-3, Part C** of the Rules is to be read as **6.1.1-3, Part CS** of the Rules.
- ~~3~~3. In Guidance **C7.6.2, 7.6.2, Part C** of the Rules is to be read as **7.5.2, Part CS** of the Rules.
- ~~4~~4. In Guidance **C7.6.3, 7.6.2-2, 7.7.1 and 7.8.1, Part C** of the Rules are to be read as **7.5.2-1, 7.6.1 and 7.6.3, Part CS** of the Rules.
- ~~4~~5. In Guidance **C9.1.2, 9.2.2-2(2), Part C** of the Rules is to be read as **9.2.2-5, Part CS** of the Rules.
- ~~5~~6. In Guidance **C10.3.3, 10.3.3-1 and 10.3.3-2, Part C** of the Rules are to be read as **10.2.3-1 and 10.2.3-2, Part CS** of the Rules.
- ~~6~~7. In Guidance **C12.2.1, 12.2.1-1 and 12.2.1-2, Part C** of the Rules are to be read as **12.2.1-1 and 12.2.1-2, Part CS** of the Rules.
- ~~7~~8. In Guidance **C10.2.1, 10.2.1-1, Part C** of the Rules is to be read as **17.1.1-1, Part CS** of the Rules.
- ~~8~~9. In Guidance **C17.1.4, 17.1.4-2, Part C** of the Rules is to be read as **17.2.4-2, Part CS** of the Rules.
- ~~9~~10. In Guidance **C20.2.4, 20.2.4, Part C** of the Rules is to be read as **19.2.4, Part CS** of the Rules.
- ~~10~~11. In Guidance **C20.2.5, 20.2.4 and 20.2.5, Part C** of the Rules are to be read as **19.2.4 and 19.2.5, Part CS** of the Rules.
- ~~11~~12. In Guidance **C20.2.6, 20.2, 20.2.4, 20.2.6 and 20.2.5, Part C** of the Rules are to be read as **19.2, 19.2.4, 19.2.6 and 19.2.5, Part CS** of the Rules.
- ~~12~~13. In Guidance **C20.2.10, 20.2.10-2, Part C** of the Rules is to be read as **19.2.10-2, Part CS** of the Rules.
- ~~13~~14. In Guidance **C20.2.12, 20.2.12, Part C** of the Rules is to be read as **19.2.12, Part CS** of the Rules.
- ~~14~~15. In Guidance **C20.2.13, 20.2.13, Part C** of the Rules is to be read as **19.2.13, Part CS** of the Rules.
- ~~15~~16. In Guidance **C20.3.5, 20.3.5, Part C** of the Rules is to be read as **19.3.5, Part CS** of the Rules.
- ~~16~~17. In Guidance **C23.1.1, 23.1.1-2(2), Part C** of the Rules is to be read as **21.1.1-2(2), Part CS** of the Rules.
- ~~17~~18. In Guidance **C23.1.2, 23.1.2, Part C** of the Rules is to be read as **21.1.2, Part CS** of the Rules.
- ~~18~~19. In Guidance **C23.1.3, 23.1.3-4, Part C** of the Rules is to be read as **21.1.3-4, Part CS** of the Rules.
- ~~19~~20. In Guidance **C23.2.1, 23.2.1-3, 23.2.1-4 and 23.2.2-4, Part C** of the Rules are to be read as **21.2.1-3, 21.2.1-4 and 21.2.2-4, Part CS** of the Rules.
- ~~20~~21. In Guidance **C23.2.2, 23.2.2, 23.2.2-1, 23.2.2-2 and 23.2.2-3, Part C** of the Rules are to be read as **21.2.2, 21.2.2-1, 21.2.2-2 and 21.2.2-3, Part CS** of the Rules.
- ~~21~~22. In Guidance **C23.4.5-2, “L’ ”** is to be read as **“L”**. *L* is ship’s length specified in **2.1.2, Part A** of the Rules.
- ~~22~~23. In Guidance **C23.5.3, 23.5.3-5, Part C** of the Rules is to be read as **21.5.3-5, Part CS** of the Rules.
- ~~23~~24. In Guidance **C23.5.7, 23.5.7-3, Part C** of the Rules is to be read as **21.5.7-3, Part CS** of the Rules.
- ~~24~~25. In Guidance **C23.6.5, 23.6.5 and 23.6.5-1, Part C** of the Rules are to be read as **21.6.5 and 21.6.5-1, Part CS** of the Rules.
- ~~25~~26. In Guidance **C23.6.7, 23.6.7 and 23.6.1, Part C** of the Rules are to be read as **21.6.7 and 21.6.1, Part CS** of the Rules.
- ~~26~~27. In Guidance **C23.7.1, Chapter 19, 23.1.2-2 and 23.7.1, Part C** of the Rules are to be read as **Chapter 18, 21.1.2-2 and 21.7.1, Part CS** of the Rules.
- ~~27~~28. In Guidance **C23.8.1, 23.8.1, Part C** of the Rules is to be read as **21.8.1, Part CS** of the Rules.
- ~~28~~29. Ships not engaged on international voyages need not to apply the provisions of **C25.2.1-2**.
- ~~29~~30. In Guidance **C25.2.3, 25.2.3, Part C** of the Rules is to be read as **22.4.3, Part CS** of the Rules.
- ~~30~~31. The title of Guidance **C27.1.6** is to be read as **“Tow Lines”**.
- ~~31~~32. In Guidance **C29.1.1-1(1), Chapter 29, Part C** of the Rules is to be read as **Chapter 24, Part CS** of the Rules.
- ~~32~~33. In Guidance **C29.1.1-3(1)(b)i), 29.4, 29.5 and 29.6, Part C** of the Rules are to be read as **24.3, 24.4 and 24.7, Part CS** of the Rules.
- ~~33~~34. In Guidance **C29.1.2-4(1), 29.1.2-2, Part C** of the Rules is to be read as **24.1.2-2, Part CS** of the Rules.
- ~~34~~35. In Guidance **C29.7.4, 29.7.4, Part C** of the Rules is to be read as **24.9.4, Part CS** of the Rules.
- ~~35~~36. In Guidance **C34.1.2, 34.1.2-1, Part C** of the Rules is to be read as **25.1.2-1, Part CS** of the Rules.

EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

1. The effective date of the amendments is 8 May 2015.
2. Notwithstanding the amendments to the Guidance, the current requirements apply to ships for which the date of contract for construction is before the effective date.
3. Notwithstanding the provision of preceding 2., the amendments to the Guidance may apply to ships for which the date of contract for construction is before the effective date upon request by the owner.

Amendment 2-2

Appendix 1 APPLICATION OF PART C OF THE GUIDANCE

[See Note 2] to [See Note 35] have been renumbered to [See Note 3] to [See Note 36] in Table CS.
[See Note 2] to [See Note 35] have been renumbered to [See Note 3] to [See Note 36] in Notes of Table CS.

In Table CS,

6.1.3	C6.1.3 [See Note 2]
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has been added below

6.1.1	C6.1.1-1 and -2
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Sub-paragraph -2 has been added as follow in Notes of Table CS.

2. In Guidance **C6.1.3**, **6.1.3-1** and **Chapter 14, Part C** of the Rules are to be read as **6.1.3-1** and **Chapter 14, Part CS** of the Rules.

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

1. The effective date of the amendments is 8 May 2015.
2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships for which the date of contract for construction is before the effective date.

Amendment 2-3

Chapter CS26 has been added as follows.

CS26 MEANS OF ACCESS

CS26.2 Special Requirements for Oil Tankers

CS26.2.2 Means of Access to Spaces

- 1** With respect to the provisions of 26.2.3-2, Part CS of the Rules, the wording “not intended for the carriage of oil or hazardous cargoes” applies only to “similar compartments”, and access may be from pump-rooms, deep cofferdams, pipe tunnels, cargo holds and double hull spaces.
- 2** “Deck” specified in 26.2.3-3, Part CS of the Rules means “weather deck”.

EFFECTIVE DATE AND APPLICATION (Amendment 2-3)

1. The effective date of the amendments is 1 July 2015.
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.
* “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.